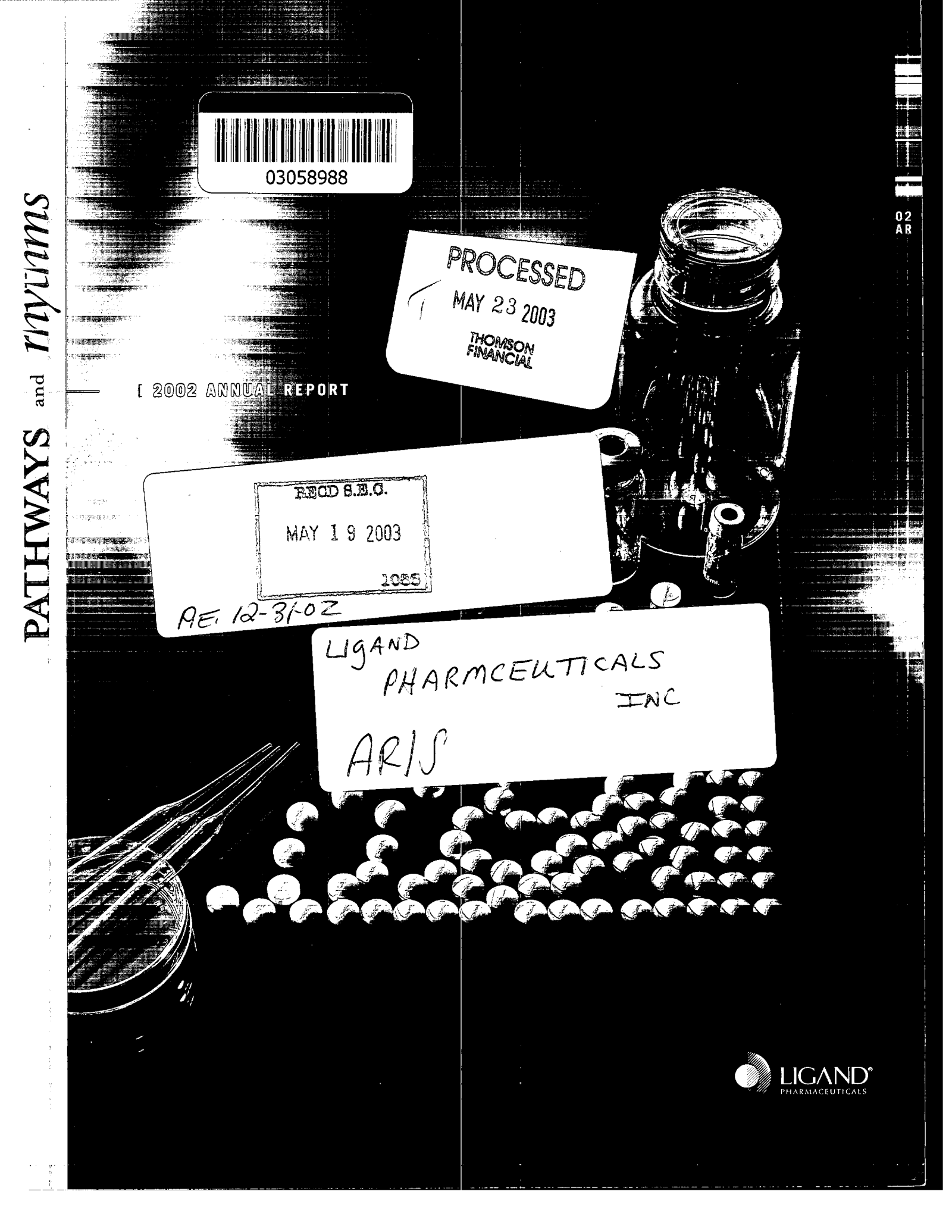
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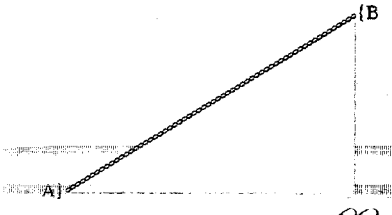


MISSION STATEMENT Ligand Pharmaceuticals Incorporated is a biopharmaceutical company committed to the discovery, development and commercialization of novel pharmaceutical products that improve the treatment, care and quality of life of patients, and that provide a high level of reward for shareholders. We strive to create a professional working environment that rewards commitment and performance and is responsive to the needs of our employees.

PATHWAYS AND RHYTHMS The theme of this annual report, "Pathways and Rhythms," is one way to interpret Ligand's progress in 2002. We remain steadfast in the strategic pathway we formed years ago — to build two diverse product pipelines on the foundation of our core nuclear receptor technology. Likewise, the rhythms of our business have quickened over the years, and are pointing confidently toward a future of consistent, profitable growth.

Go to www.ligand.com for an interactive version of this annual report and more information about the company.

NASDAQ: LGND

Caution Regarding Forward-Looking Statements
This annual report contains goals, estimates and other forward-looking statements. You can usually identify these statements by forward-looking words such as "may," "will," "expect," "anticipate," "believe," "should," "plan," "hope," "achieve," "look," "project," "future," and "continue" or similar words. Forward-looking statements are only predictions and are subject to a number of risks and uncertainties, including those listed in our filings with the Securities and Exchange Commission (www.sec.gov) and in our press releases. These risks and uncertainties could cause actual results to differ materially from our current judgment. This caution is made under the safe harbor provisions of the Private Securities Litigation Reform Act of 1995.

2002 HIGHLIGHTS

- Posted annual revenue of $96.6 million and product sales of $54.5 million. Total revenue increased 27% and product sales increased 20%.
- Secured FDA approval of AVINZA® for chronic, moderate-to-severe pain and launched it into a $2.8 billion marketplace.
- Restructured AVINZA license and supply agreement, improving economics to Ligand shareholders.
- Four Ligand and partner products continued to advance through Phase III studies for NSCLC, osteoporosis and menopausal symptoms.
- Corporate partners Lilly, Wyeth and GlaxoSmithKline moved four novel new chemical entities into clinical studies.
- Formed strategic partnership with Royalty Pharma, receiving $19.3 million for a portion of future SERM and Targretin® capsules sales.

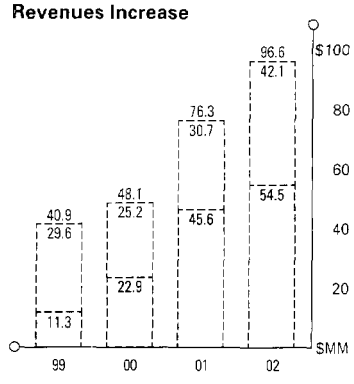
2003 GOALS

- ✓ Secure a strong co-promotion partner for AVINZA to maximize the product's market potential.
- Accelerate demand for in-line oncology products more on historical growth trend.
- Complete patient enrollment in two Phase III studies of Targretin capsules for first-line combination treatment of non-small cell lung cancer.
- Begin large-scale Phase II studies of ONTAK® in chronic lymphocytic leukemia and Targretin gel in hand dermatitis.
- ✓ Lilly to begin Phase II studies of LY818 for diabetes and metabolic diseases.
- Achieve revenue growth greater than 50% and positive operating income for the year.

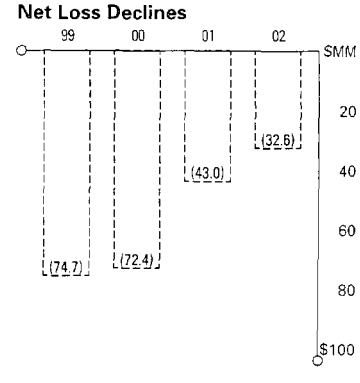
FINANCIAL HIGHLIGHTS

(in millions)	1999	2000	2001	2002
Consolidated Statement of Operations Data				
Product sales	11.3	22.9	45.6	54.5
Collaborative and other revenues	29.6	25.2	30.7	42.1
Total revenues	40.9	48.1	76.3	96.6
Research and development expenses	59.4	51.3	51.1	58.8
Selling, general and administrative expenses	27.3	34.1	34.4	41.7
Loss from operations	(61.3)	(45.9)	(23.1)	(24.2)
Net loss	(74.7)	(72.4)	(43.0)	(32.6)
Basic and diluted loss per share	(1.58)	(1.30)	(0.72)	(0.47)
Consolidated Balance Sheet Data				
Cash and equivalents	49.2	25.1	40.1	74.9
Total assets	134.6	113.4	117.5	270.6
Convertible debt	129.7	126.9	135.9	155.3

Revenues Increase



Net Loss Declines



Note: Figures in $ millions except per share amounts.

DEAR FELLOW SHAREHOLDERS: Ligand's long term, strategic goal has been to build a profitable, high-growth pharmaceutical company based on two diversified product pipelines: our own specialty products and our corporate partners' products. We continued to follow this clear strategic pathway in 2002, and as a result, our product pipelines and assets grew substantially stronger. Specifically, in 2002 and early 2003:

- We helped gain FDA approval for AVINZA®, our fifth product and most important near-term value driver, and launched the product on our own, achieving $12.2 million of sales in the product's first six months on the market. Early in 2003, we unlocked AVINZA's full potential by forming a co-promotion partnership with Organon.
- Ligand and two of our corporate partners, Pfizer and Wyeth, continued to advance four products through Phase III studies for non-small cell lung cancer (NSCLC), osteoporosis and as progestin-free hormone replacement therapy (HRT).
- We published important new clinical data on ONTAK® in chronic lymphocytic leukemia (CLL), B-cell non-Hodgkin's lymphoma and graft-versus-host disease.
- We announced results from an exciting new clinical study that demonstrate the potential of Targretin® gel to treat severe hand dermatitis.
- Our corporate partners Lilly, Wyeth and GlaxoSmithKline advanced four novel new chemical entities into early-stage clinical studies for large-market diseases.
- We monetized a portion of the future royalties we may receive from our corporate partners by forming, then expanding, our royalty purchase / option agreement with Royalty Pharma.

Despite these accomplishments, 2002 was a challenging operational year for Ligand in other respects. Our challenges of launching AVINZA without a co-promotion partner caused the near-term growth of our oncology products to slow, and inhibited the rate of market share penetration of AVINZA. We are confident, however, that we have taken important steps to address the short-term challenges of 2002, and anticipate substantially improved results and translation to shareholder value in 2003.

AVINZA Potential Unlocked Through Organon Co-Promotion We believe that AVINZA, the first true once-daily opioid for chronic, moderate-to-severe pain, has established a solid foundation in the marketplace, and has the potential to be recognized as a best-in-class therapy. Most importantly, the competitive advantages of AVINZA's true once-daily dosing have been progressively recognized by patients and physicians, leading to steady growth in prescription demand even from the focused efforts of Ligand alone.

Pain specialist physicians have been aggressive early adopters of AVINZA, so we have expanded our sales force and calling patterns to increase reach and frequency of coverage on them. During the second quarter of 2003, we will have approximately 70 professional sales representatives focused on detailing AVINZA to high-prescribing pain specialists, up from about 25 representatives at launch.

"We are confident that we have taken important steps to address the short-term challenges of 2002, and anticipate substantially improved results and translation to shareholder value in 2003."

Despite this expansion, we have consistently appreciated the additional need to call upon the tens of thousands of doctors who prescribe sustained-release opioid drugs in order to compete in the overall market. With this in mind, one of our key strategic objectives for AVINZA has been to secure a co-promotion partner that can help us achieve a major share of voice in the marketplace, and that can help us educate primary care, hospital and long-term care physicians about our drug's benefits for patients, physicians and providers.

Ligand licensed the U.S. and Canadian marketing rights to AVINZA from Elan, which developed the drug and manufactures it for us. As part of our original license and supply agreement, Elan retained an exclusive option to co-promote AVINZA. But as Elan restructured during 2002, it became obvious they were no longer in a position to be our co-promotion partner. As a result, in November we restructured our AVINZA agreement with Elan, gaining rights to secure a new co-promotion partner and qualify a second manufacturer. In addition, Ligand substantially improved its economic stake in AVINZA. Specifically, we now buy AVINZA from Elan at a price equal to 10% of the product's net sales, compared to 30-35% previously.

Early in 2003, the restructured rights and improved profit margins for AVINZA enabled us to form a co-promotion partnership with Organon, which we believe will provide the sales and marketing muscle to complement Ligand's efforts and unlock the product's full potential. Organon is an attractive partner because they have strong relationships with primary care physicians and anesthesiologists, as well as in hospitals and long-term care. Building on these strengths, Organon will co-promote AVINZA with more than 700 sales representatives, bringing the total sales force behind AVINZA to more than 800. We expect that these representatives, together with appropriately scaled investments in advertising, promotion and other medical marketing, will enable AVINZA to achieve the No. 2 share of a voice in a market that grew 20% to more than $2.8 billion last year.

Through our partnership with Organon, we achieved the three key AVINZA goals we set out to accomplish for our shareholders in the second half of 2002 and early 2003. First, we gained strong partner resource commitments in primary care, hospitals and managed care to maximize AVINZA's potential as our largest near-term commercial opportunity. Second, we structured a risk/return-balanced set of economics that incentivizes our partner to achieve much greater success than Ligand could alone, that provides a positive operational earnings per share driver to Ligand, and that enables an attractive return on our cumulative investments in AVINZA. Third, we strengthened our capabilities in retail and wholesale distribution, medical marketing and managed care to support AVINZA. Overall, we believe our long-term relationship with Organon represents another giant step forward for AVINZA. Roll out of our joint efforts already has begun, and should begin to be substantially productive in generating business during the second quarter of 2003.

When we restructured our AVINZA relationship with Elan, we also announced we would purchase, then retire, approximately 2.2 million Ligand shares owned by Elan. In addition, Elan agreed to a six-month lock-up period on 11.8 million of its remaining Ligand shares. Should Elan decide to sell its shares after the lock-up period, we have made provisions for Elan to have options to sell in an orderly manner through marketed distributions by the company.

Demand for In-Line Oncology Products Re-Accelerating In the case of our in-line oncology products, we have taken aggressive steps to deliver a more robust commercial result consistent with the growth of these products before 2002. Internally, we have refocused our commercial organization on Targretin capsules and ONTAK by separating our oncology marketing and sales resources from those focused on AVINZA. At the same time, we have hired new, experienced medical and marketing executives from major pharmaceutical and biotech companies to help drive the commercial success of our products.

We also are expanding our efforts to stimulate physician interest in our products and expand their usage. For example, we have expanded the scope, improved the content and accelerated the implementation of our consultant advisory board meetings. At these meetings, oncologist opinion-leaders speak with their peers about new treatment regimens and strategies. We also have increased our internal resources dedicated to post-approval clinical trials, and to helping physicians conduct and publish clinical studies of our approved products in new indications such as NSCLC and CLL.

Our sharpened focus already has begun to yield results, and we expect our progress to accelerate in 2003. We are pleased to report that demand for ONTAK, Targretin capsules and Targretin gel increased substantially in the second half of 2002. Most importantly, all three products achieved record levels of underlying demand in the fourth quarter, as measured by prescriptions and unit shipments from wholesalers to end users, and this strong demand is increasingly being reflected in wholesaler purchases.

Based on co-promotion of AVINZA and increasing demand for our in-line products, we believe the rhythms of our commercial business will continue to quicken in 2003, and that increasing product sales will drive us to our first full year of positive operating profits. At the same time, we expect that numerous products in our R&D pipelines will continue marching down the path of becoming commercial drugs.

We expect to complete enrollment of our two pivotal trials of Targretin capsules in approximately 1,200 patients with advanced NSCLC. These studies are designed to demonstrate whether using Targretin as a front-line treatment in combination with standard chemotherapy extends the lives of patients with advanced disease. Our Phase II results showed that Targretin conferred a substantial survival benefit, and subsequent scientific publications elucidating Targretin's mechanism of action in NSCLC have been particularly encouraging despite the difficulty of the disease.

During 2003 we also plan to begin Phase II/III studies of Targretin gel in hand dermatitis. These studies are targeted to further validate the exciting results we announced in 2002, in which nearly 40% of patients with chronic disease improved by more than 90%, and nearly 80% of patients achieved classical responses of greater than 50% improvement.

We have similar goals to develop ONTAK to treat refractory cases of CLL, and plan to begin a large-scale Phase II program in 2003. Our excitement is based on an initial Phase II study published in 2002, in which ONTAK reduced CLL in blood cells, lymph nodes and bone marrow.

"Based on co-promotion of AVINZA and increasing demand for our in-line products, we believe the rhythms of our commercial business will continue to quicken in 2003, and that increasing product sales will drive us to our first full year of positive operating profits."

Breadth and Depth of Corporate Partner Pipeline Unprecedented In terms of our corporate partner products, Pfizer continues to advance lasofoxifene through a series of large Phase III studies for osteoporosis. We will receive a royalty on sales of lasofoxifene, a selective estrogen receptor modulator (SERM) that we believe has multibillion-dollar revenue potential.

At the same time, Wyeth continues to advance a second SERM, bazedoxifene, through Phase III studies, and is progressively closing the time gap with lasofoxifene. Wyeth is testing bazedoxifene for osteoporosis, and, in combination with PREMARIN®, as progestin-free HRT.

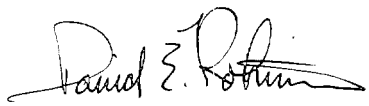
One company that has recognized the exciting potential of our late-stage SERM products is Royalty Pharma, which in 2002 paid us $18.3 million for the right to receive a small portion of our future SERM royalties. Royalty Pharma's payments provided us royalty income from our corporate partner pipeline more than two years earlier than we otherwise would have received it. Royalty Pharma also has options to purchase additional portions of our SERM royalties for up to $51.5 million in 2003 and 2004, bridging the years to multiple corporate partner product launches and recurring royalty income for Ligand shareholders.

In addition to our SERMs, our corporate partner pipeline had a banner year in 2002, as Lilly, Wyeth and GlaxoSmithKline advanced into clinical studies four novel products for type II diabetes, dyslipidemias, contraception, HRT and thrombocytopenia. In early 2003, Lilly advanced into Phase II studies the first of a series of distinct peroxisome proliferation activated receptor (PPAR) modulators for type II diabetes and metabolic diseases.

Overall, our corporate partner pipeline reflects an outstanding track record of innovation, with more than 20 potential products advancing through various stages of clinical and pre-clinical development. As these products, many of them potential blockbusters, approach the market over the next several years, they offer Ligand shareholders the potential for significant milestone and royalty income, and the opportunity to develop further our own integrated pharmaceutical company.

Our corporate partner products, together with our own products AVINZA, Targretin and ONTAK, represent a broad, diverse array of assets that can create substantial value for our shareholders for years to come. We are confident that 2003 will be another successful year for our product pipelines, as well as a year of robust growth for our commercial business.

The strategy Ligand has chosen is increasingly paying off in the strength of our product pipeline assets. The accelerating growth of our commercial business, driven by AVINZA co-promotion and the return to growth of our oncology business, should make 2003 a solid year of translation to improved shareholder value. We look forward to achieving this success, and appreciate the continued support of our shareholders, and the hard work and dedication of our talented employees.



DAVID E. ROBINSON
Chairman, President and Chief Executive Officer
March 28, 2003

PIPELINE > LSPP

Ligand Specialty Pharmaceutical Products

>AVINZA®
Chronic, moderate-to-severe pain

>TARGRETIN® capsules
Cutaneous T-cell lymphoma

>ONTAK®
Cutaneous T-cell lymphoma

>TARGRETIN® gel
Cutaneous T-cell lymphoma

>PANRETIN® gel
Kaposi's sarcoma

>TARGRETIN® capsules
Non-small cell lung cancer
(combination and monotherapy)

>ONTAK®
Chronic lymphocytic leukemia,
peripheral T-cell lymphoma,
B-cell non-Hodgkin's lymphoma,
psoriasis (severe)

>TARGRETIN® gel
Hand dermatitis (eczema), psoriasis

>TARGRETIN® capsules
Advanced breast cancer,
psoriasis (moderate to severe),
renal cell cancer

>PANRETIN® capsules
Kaposi's sarcoma,
bronchial metaplasia

>LGD1550 (RAR agonist)
Advanced cancers

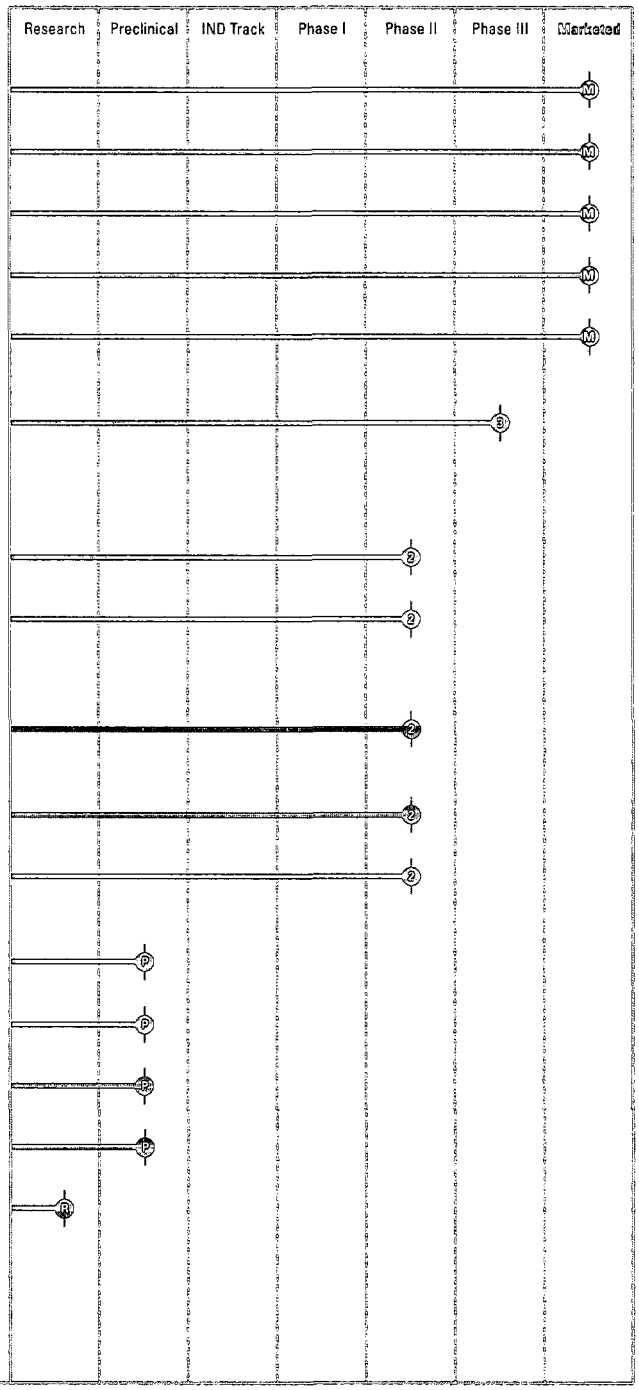
>LGD1331 (androgen antagonist)
Prostate cancer, hirsutism, acne,
androgenetic alopecia

>LGD1550 (RAR agonist)
Acne, psoriasis

>Glucocorticoid agonists
Inflammation, cancer

>EGF/fusion protein
Solid tumors

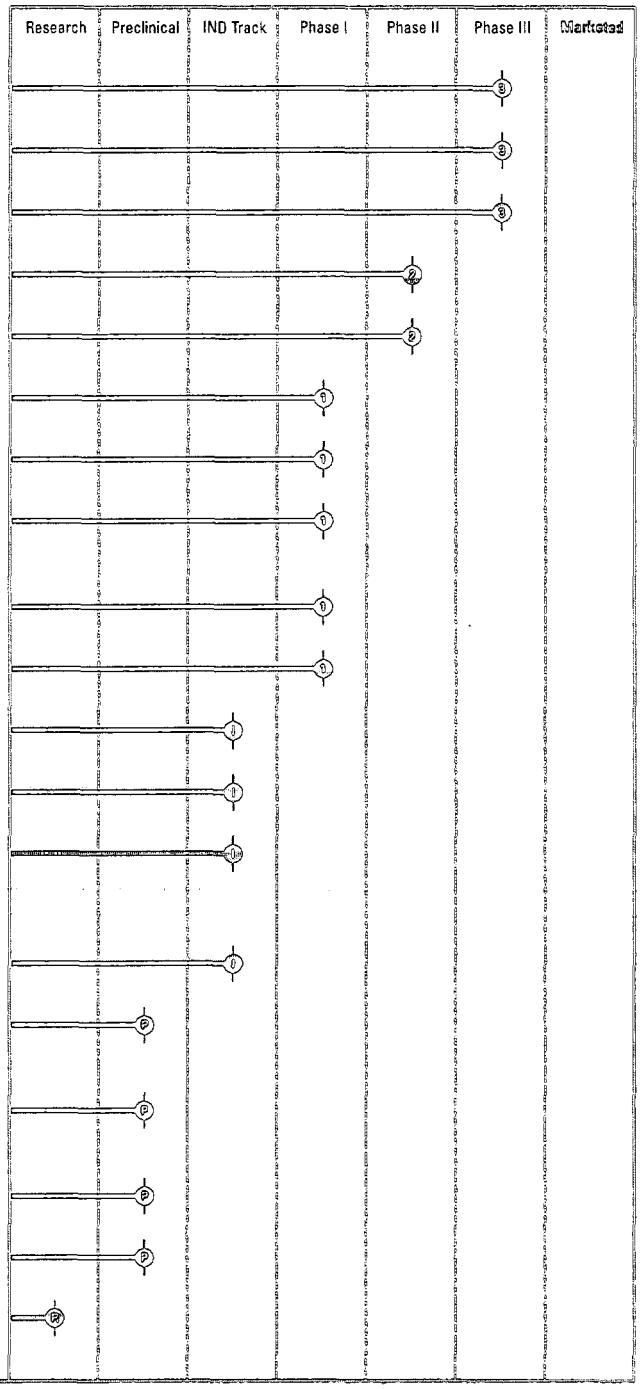
>Mineralocorticoid receptor modulators
Congestive heart failure, hypertension

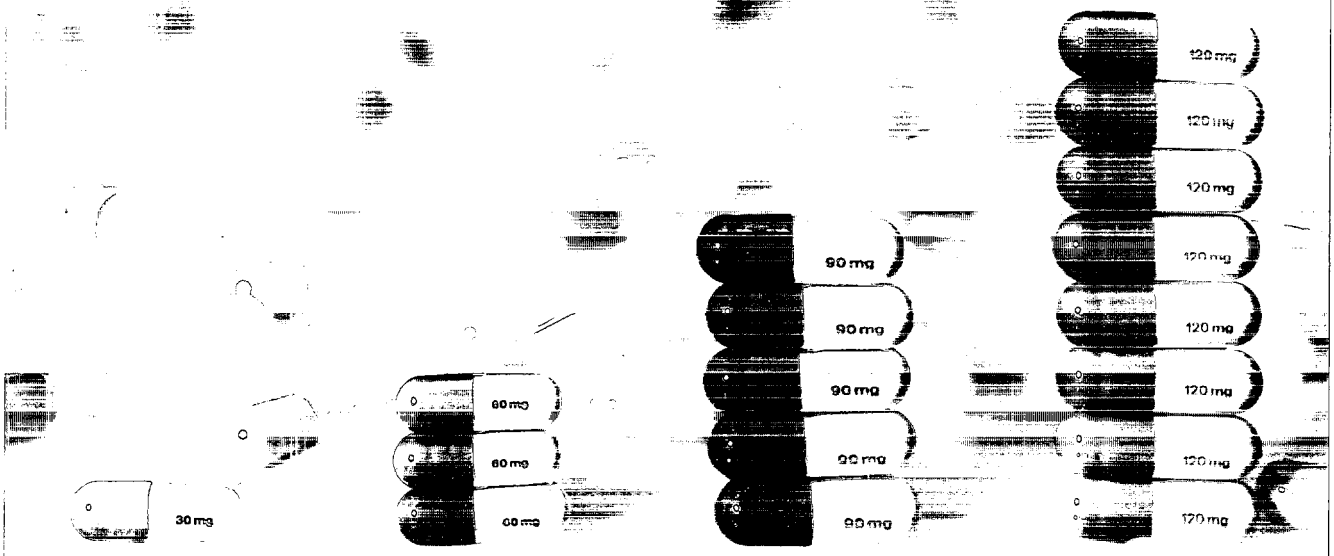


Note: For complete prescribing information on Ligand's approved products go to www.ligand.com.
This list is not intended to be a complete list of all Ligand products, partnered products and their indications.

Ligand Corporate Partner Products

>Lasofoxifene (SERM) Osteoporosis, breast cancer prevention	Pfizer
>Bazedoxifene (SERM) Osteoporosis	Wyeth
>Bazedoxifene/PREMARIN® Osteoporosis, vasomotor symptoms of menopause	Wyeth
>Pipendoxifene (formerly ERA-923) (SERM) Breast cancer	Wyeth
>LY818 (PPAR modulator) Type II diabetes, metabolic diseases	Lilly
>NSP-989 (progesterone agonist) Contraception, HRT	Wyeth
>GW516 (PPAR modulator) Cardiovascular disease, dyslipidemia	GlaxoSmithKline
>SB497115 (TPO agonist) Thrombocytopenia	GlaxoSmithKline
>LY929 (PPAR modulator) Type II diabetes, metabolic diseases, dyslipidemia	Lilly
>LY674 (PPAR modulator) Dyslipidemia	Lilly
>LYWWW (PPAR modulator) Dyslipidemia	Lilly
>LYYYY (PPAR modulator) Type II diabetes, dyslipidemia	Lilly
>NSP808 (progesterone agonist) Contraception, HRT	Wyeth
>LGD2226/back-ups (androgen agonists) Male hypogonadism, HRT, female sexual dysfunction, *osteoporosis*	TAP
>Progesterone antagonist Contraception, reproductive disorders	Wyeth
>Progesterone agonists HRT, contraception, reproductive disorders	Organon
>PPAR modulators Type II diabetes, metabolic diseases, dyslipidemia	Lilly
>Glucocorticoid agonists Inflammation	Abbott
>HNF-4 modulators Type II diabetes, metabolic diseases	Lilly

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AVINZA® off to solid start, co-promotion with Organon will accelerate growth

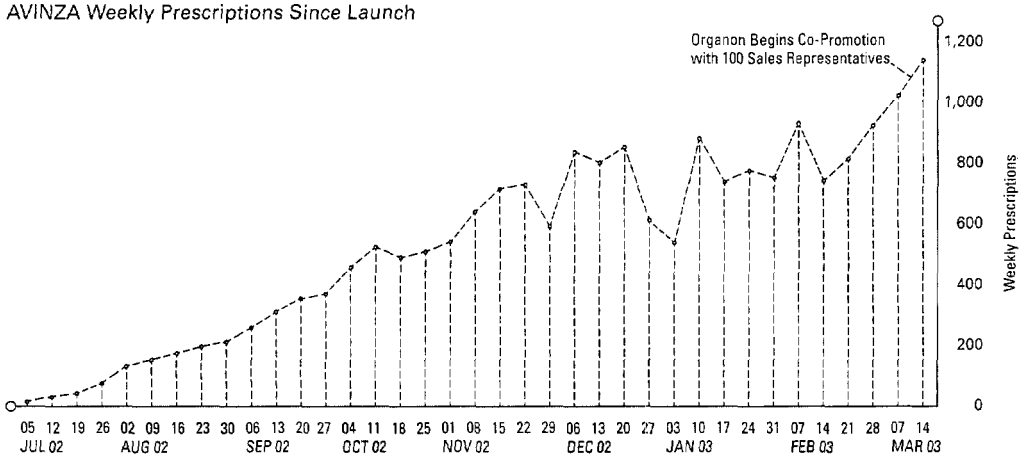
AVINZA *(morphine sulfate extended-release capsules) was approved by the U.S. Food and* Drug Administration in March 2002 to treat chronic, moderate-to-severe pain. Ligand launched the product into the multibillion-dollar sustained-release opioid market at mid-year. *By the end of 2002, the company had approximately 50 sales representatives fully dedicated* to selling AVINZA to high-prescribing pain specialists. Ligand plans to expand its specialty pain sales force to approximately 70 representatives in the first half of 2003.

Based on its unique delivery technology and comparatively smooth pharmacokinetic profile, AVINZA is the only true once-daily product in its class. Ligand believes AVINZA's once-daily dosing represents a significant competitive advantage, one that has been recognized quickly by physicians, patients and managed care groups.

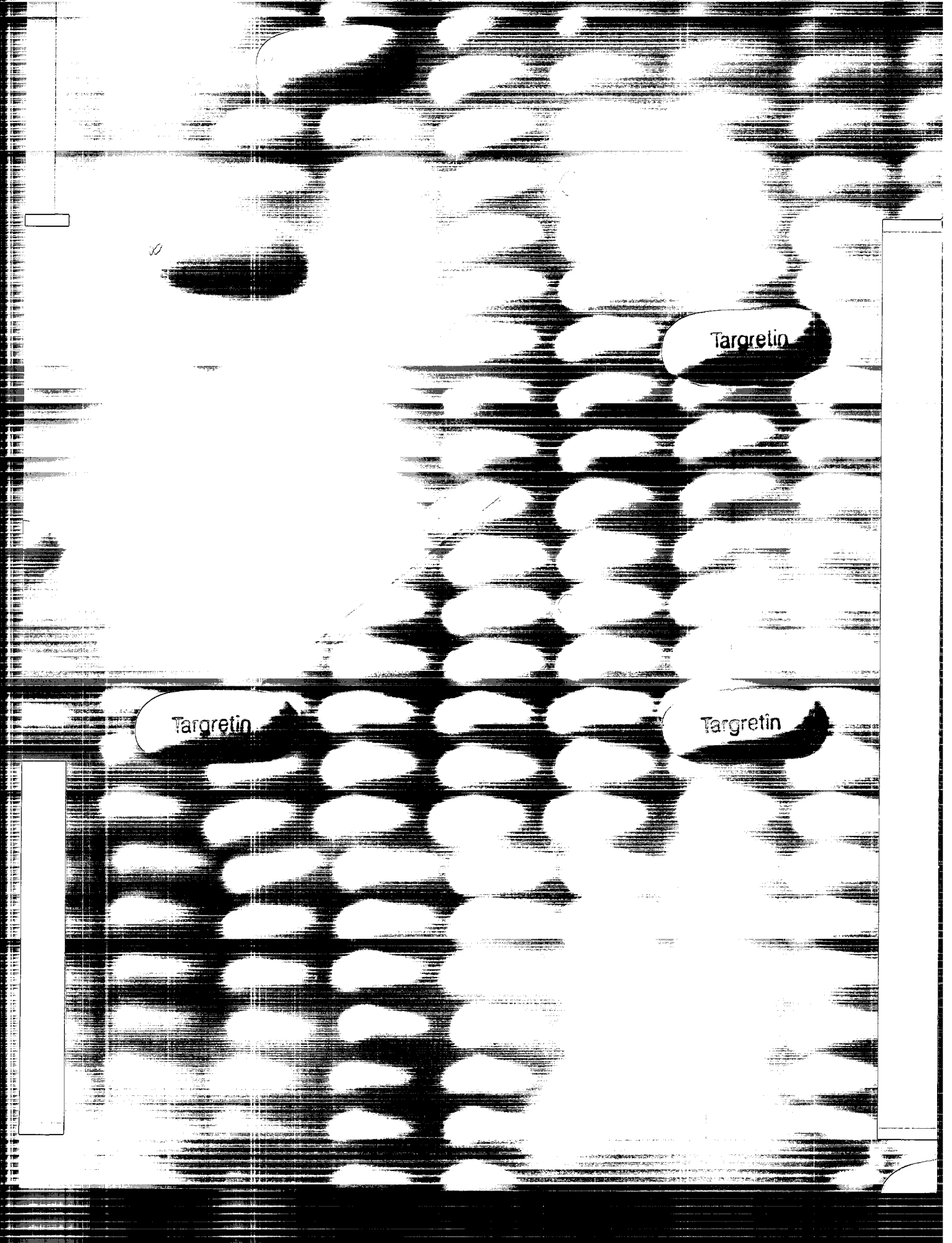
Sales of AVINZA were $12.2 million in 2002, and maximizing the product's considerable potential is a critical objective for Ligand in the future. Toward this end, in 2002 Ligand restructured its relationship with Elan, which developed AVINZA and manufactures it for Ligand. Through the restructuring, Ligand improved its gross margin on AVINZA and gained the economic and contractual flexibility to establish a co-promotion agreement with Organon in early 2003.

Through the co-promotion partnership with Organon, more than 800 total sales representatives will promote AVINZA, *and the companies expect to achieve the No. 2 share of voice in a* growing, $2.8 billion marketplace. Organon brings strong relationships in primary care, anesthesiology, hospitals and managed care to support AVINZA's best-in-class product attributes. *In 2003, Ligand and Organon's shared priorities for AVINZA include continuing to drive pre*scription growth by educating customers about the product's best-in-class profile, and increasing stocking of AVINZA in retail pharmacies, thereby facilitating patient access.

AVINZA Prescriptions Growing Strongly with Organon Co-Promotion Just Underway
AVINZA Weekly Prescriptions Since Launch



Source: IMS Health, NPA total weekly prescriptions.
Note: Ligand estimates that 20-25% more AVINZA prescriptions move through supply channels not monitored by IMS weekly audits.


Targretin
Targretin
Targretin

TARGRETIN® capsules show increased promise in lung cancer

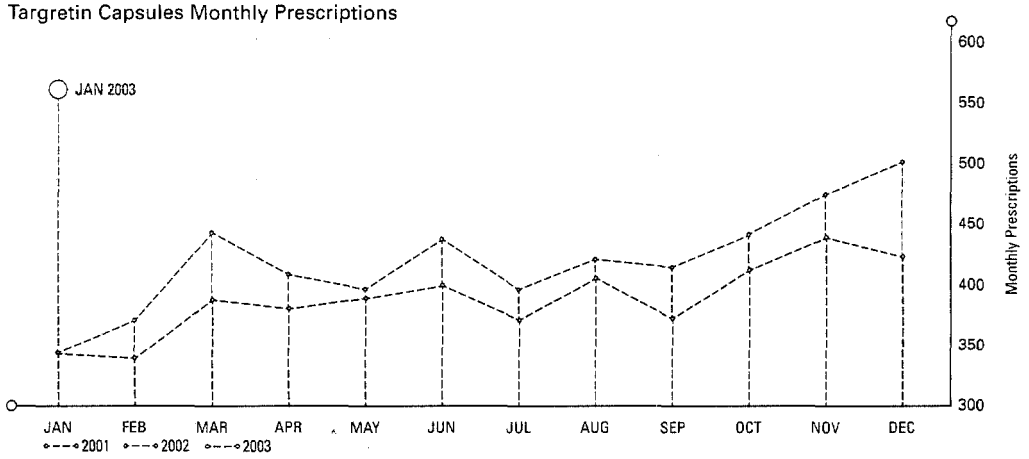
TARGRETIN (bexarotene), which was discovered and developed by Ligand, is the world's only approved drug that binds selectively to retinoid X receptors.

Targretin capsules, which are approved to treat refractory cases of cutaneous T-cell lymphoma (CTCL), had sales of $12.2 million in 2002. Demand for the product remained strong, with underlying prescription growth up 10% in 2002. Importantly, the number of 75 mg capsules dispensed in 2002 increased 16%, as doctors wrote larger prescriptions for higher doses. Ligand believes this trend reflects early but growing use of Targretin capsules in non-small cell lung cancer (NSCLC), where a higher dose is used than in CTCL. Ligand established new records both for Targretin prescriptions and capsules dispensed in the fourth quarter of 2002.

NSCLC is Ligand's most important clinical development program. Ligand is conducting two global Phase III studies to determine whether Targretin, in front-line combination with chemotherapy, extends the lives of patients with late stages of the disease. The company expects to finish enrolling the required 1,200 patients in 2003 and release survival data in 2004. Before then, however, Ligand believes expanded use in NSCLC may increase as oncologists become more familiar with the drug through the Phase III studies and other means.

In 2002, evidence continued to mount of Targretin's promise in NSCLC. At the annual meeting of the American Society of Clinical Oncology, independent researchers presented promising Phase I/II data that showed adding Targretin to chemotherapy may enhance the activity of lung cancer treatment and reduce the cancer's growth rate without causing unexpected side effects. In addition, a separate group of independent scientists published a paper establishing a strong correlation between Targretin's molecular target and survival in NSCLC patients.

Prescriptions for Targretin Capsules Accelerate in Fourth Quarter 2002 and January 2003
Targretin Capsules Monthly Prescriptions



Source: IMS Health Xponent retail/mail order and DDD hospital.


64365-503-01
ONTAK
mcg/ 2 mL
Rx Only
For I.V. Use Only

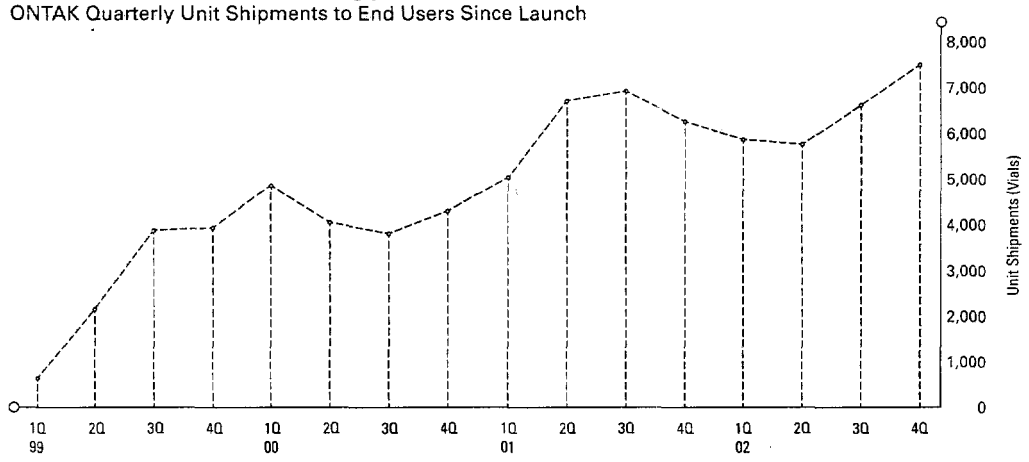
ONTAK® sales grow based on expanded use

ONTAK (denileukin diftitox), a biologic product that Ligand acquired along with the company Seragen in 1998, was again Ligand's largest-selling drug in 2002, with sales of $26.6 million. Underlying demand for ONTAK was particularly strong in the second half of 2002, and the number of vials shipped to end users established a new record in the fourth quarter.

ONTAK's strong second-half performance was driven by increasing use in diseases other than cutaneous T-cell lymphoma, which the drug is approved to treat. As demonstrated by five abstracts presented at the annual meeting of the American Society of Hematology (ASH), physicians are achieving success with ONTAK in difficult-to-treat patients with diseases such as chronic lymphocytic leukemia (CLL), B-cell non-Hodgkin's lymphoma, peripheral T-cell lymphoma, and graft-versus-host disease.

In one key study presented at ASH, ONTAK reduced CLL in blood cells, lymph nodes and bone marrow in a Phase II trial of 18 patients with refractory CLL. Based on these and other results, Ligand plans to begin a company-sponsored, large-scale Phase II study in 2003. At the same time, Ligand believes expanded use of ONTAK may increase as physician opinion leaders participate in educational meetings with their peers, as they become more familiar with the drug through clinical studies, and as additional clinical data is published and presented.

Demand for ONTAK Increases Strongly in Second Half 2002
ONTAK Quarterly Unit Shipments to End Users Since Launch



Source: Internal Ligand data and specialty wholesaler data.

Targretin®
(bexarotene) 1% gel
Rx only 60 grams

NDC 64365-501-01

Use cap to puncture seal.

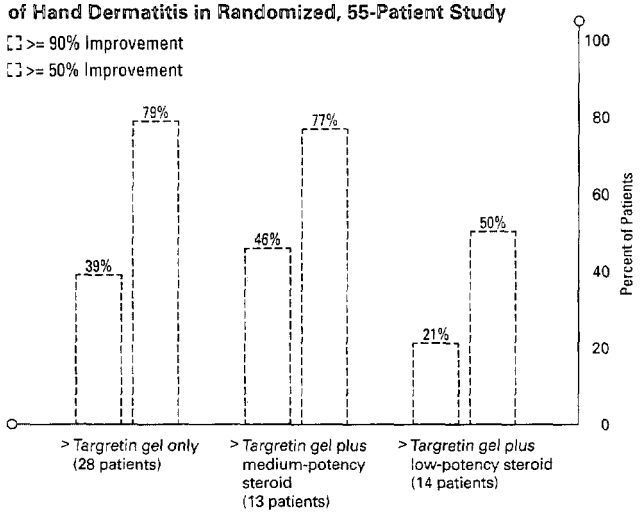
TARGRETIN® gel demonstrates exciting potential in hand dermatitis

TARGRETIN (bexarotene) gel and Panretin® (alitretinoin) gel, which were discovered and developed by Ligand, give the company an important foothold in the dermatology market. Targretin gel is used to treat patients with early-stage cutaneous T-cell lymphoma, while Panretin gel is used to treat patients with AIDS-related Kaposi's sarcoma. The two products had combined sales of $3.4 million in 2002. Demand for Targretin gel remained strong, as prescriptions increased 24% in 2002 and established a new record in the fourth quarter.

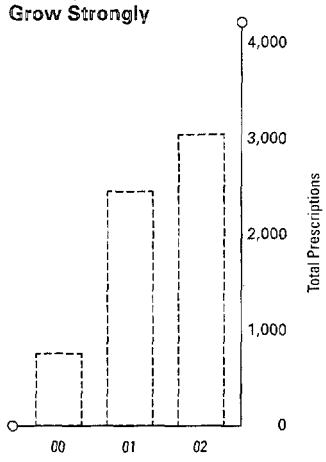
During 2002, Ligand announced promising results from a Phase I/II study of Targretin gel in hand dermatitis, a painful, common condition that affects millions of people in the United States. New treatments for severe hand dermatitis are needed because the disease is difficult to treat with existing medicines such as topical steroids, which can cause troublesome side effects.

In Ligand's randomized, 55-patient study, 39% of patients with chronic, severe hand dermatitis who were treated with Targretin alone experienced clinical improvement of 90% or more, while 79% of patients improved by at least 50% (see chart below). Targretin's effects are particularly noteworthy since most of the patients were resistant to standard treatments for the disease. Based on these encouraging results, Ligand intends to move forward to design and implement Phase II/III trials of Targretin gel in hand dermatitis.

Targretin Gel Dramatically Improves Symptoms of Hand Dermatitis in Randomized, 55-Patient Study



Prescriptions for Targretin Gel Grow Strongly



Source: IMS Health Xponent retail/ mail order and DDD hospital beginning August 2000.

Robust { PARTNER PIPELINE } generates significant income, offers potential in blockbuster markets

LCPP In order to maximize the potential of Ligand's core technology platform, the company has formed an impressive array of partnerships with many of the world's leading pharmaceutical companies. These partners are developing a pipeline of more than 20 potential products for large-market diseases such as osteoporosis, menopausal symptoms, diabetes and dyslipidemias. Ligand receives milestone payments as these products move through development, and royalties on the sales of products that eventually make it to market. Ligand's three most advanced partner products are in Phase III studies. In addition, Ligand's corporate partnerships offer significant longer-term potential, as three partners advanced four novel new chemical entities into clinical studies during 2002 alone.

LIGAND PARTNER PRODUCTS ADVANCE TOWARD BLOCKBUSTER INDICATIONS

	U.S. Prevalence	Potential Products
» Osteoporosis (men and women)	44 million	Lasofoxifene, bazedoxifene, TAP androgen agonists
» Dyslipidemias	41 million	Glaxo, Lilly PPAR modulators
» Menopausal symptoms	40 million	Bazedoxifene + PREMARIN®, NSP-989, NSP-808
» Type II diabetes	16 million	Lilly PPAR modulators
» Breast cancer	2 million	Lasofoxifene, pipendoxifene

» Note: Not intended to be a complete list of indications or products. Target patient populations may differ from prevalence numbers.

» Sources: National Osteoporosis Foundation, American Heart Association, North American Menopause Society, American Diabetes Association, American Cancer Society.

PFIZER > Lasofoxifene offers blockbuster potential in osteoporosis, other indications. Ligand's most advanced corporate partner product is a second-generation selective estrogen receptor modulator, or SERM, that Pfizer is testing in Phase III studies for diseases with multibillion-dollar markets. Based on Phase II studies, lasofoxifene appears to have significant advantages over the leading first-generation product.

Pfizer is developing lasofoxifene for osteoporosis and other indications. Late in 2001, Pfizer announced it had completed enrollment in two Phase III osteoporosis prevention studies with more than 1,800 patients. At the same time, Pfizer said it had begun a third worldwide Phase III trial to evaluate whether lasofoxifene reduces the risk of vertebral fractures, breast cancer and cardiovascular disease. Success in these areas would increase the economic potential of lasofoxifene.

WYETH > Bazedoxifene continues to advance through Phase III. Wyeth is developing another SERM, bazedoxifene, for the prevention and treatment of postmenopausal osteoporosis. In 2002, Wyeth announced that it had completed enrollment in its Phase III osteoporosis prevention trial, and that it expects enrollment in a bazedoxifene fracture prevention trial to finish in 2003. Bazedoxifene's regulatory submission is expected in 2005.

In addition, a combination bazedoxifene/conjugated estrogen product, a potential new paradigm for the treatment of menopausal symptoms and the prevention of osteoporosis, is in Phase III at Wyeth. This novel product, based on bazedoxifene's unique profile, adds PREMARIN® (Wyeth's leading estrogen product) to this stringently selected SERM. This innovative approach is expected to provide adequate menopausal symptom control while addressing some of the limitations currently associated with classical hormone therapy. Preclinical models to date indicate that bazedoxifene seems to exhibit unique properties that make it capable of providing such a balanced response in the presence of an estrogen.

ROYALTY PHARMA > Ligand earns $18.3 million for portion of future SERM sales. In 2002, Ligand underscored the value of its corporate partner pipeline by forming a strategic partnership with Royalty Pharma, which acquired rights to a portion of potential future sales of lasofoxifene, bazedoxifene and bazedoxifene/PREMARIN®.

By exercising a series of options, Royalty Pharma paid Ligand $18.3 million for the right to receive 0.6875% of the SERMs' potential future sales for 10 years. Royalty Pharma has additional options in 2003 and 2004. Royalty Pharma is a sophisticated buyer of pharmaceutical and biotechnology product royalties, and owns additional interests in 11 marketed or potential products, including Rituxan® and Neupogen®/Neulasta™.

Ligand intends to use its proceeds from Royalty Pharma to accelerate development of the company's key development projects, especially Targretin capsules as monotherapy for non-small cell lung cancer, and Targretin gel for hand dermatitis.

LILLY > Lilly moves three PPARS into clinical studies. Ligand's most prolific research collaboration has been with Lilly, which has moved into clinical development three peroxisome proliferation activated receptor (PPAR) modulators for Type II diabetes and dyslipidemias. PPARs are critical to the processes that regulate insulin sensitivity as well as the metabolic processes that affect lipid metabolism. Dyslipidemias include elevated LDL (bad) cholesterol, low HDL (good) cholesterol and elevated triglycerides, all of which increase the risk of cardiovascular disease, the leading cause of death in the United States.

LY818, Lilly's most advanced PPAR for Type II diabetes and metabolic diseases, began Phase II trials in the first quarter of 2003. LY929, for the treatment of Type II diabetes, metabolic diseases and dyslipidemias, entered clinical development in 2002, as did LY674, for the treatment of dyslipidemias.

GLAXOSMITHKLINE > GSK begins human trials of novel, oral drug for platelet deficiency. In 2002, Ligand's partner GlaxoSmithKline began Phase I clinical studies of SB-497115, an oral, small molecule drug that activates the thrombopoietin (TPO) receptor. TPO is a protein factor that promotes the growth and production of blood platelets. SB-497115 is the first oral TPO receptor agonist to enter human development for the treatment or prevention of thrombocytopenia, also known as platelet deficiency. Thrombocytopenia is a common side effect of many chemotherapies and can lead to uncontrolled bleeding. If successful, SB-497115 may complement EPO (erythropoietin) and G-CSF (granulocyte-colony stimulating factor) in the treatment of blood deficiencies.

SB-497115 also is the first product to move into clinical studies from the core technology platform Ligand has built around Signal Transducers and Activators of Transcription, or STATs. STATs are a family of proteins that play a key role in the signal transduction pathway for certain biologically important hormones. The binding of these hormones to their receptors on the surface of cells triggers the activation of specific STATs. These activated STATs enter the cell nucleus and bind to specific target genes, thereby altering gene expression and affecting physiologic processes such as the formation of blood cells.

PAGES

SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 10-K

Mark One

[X] ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the Fiscal Year Ended December 31, 2002

OR

[ ] TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____ .

Commission File No. 0-20720

LIGAND PHARMACEUTICALS INCORPORATED

(Exact name of registrant as specified in its charter)

Delaware	77-0160744
(State or other jurisdiction of incorporation or organization)	(IRS Employer Identification No.)
10275 Science Center Drive San Diego, CA	92121-1117
(Address of Principal Executive Offices)	(Zip Code)

Registrant's telephone number, including area code: (858) 550-7500

Securities registered pursuant to Section 12(b) of the Act:
None

Securities registered pursuant to Section 12(g) of the Act:
Common Stock, $.001 par value

Preferred Share Purchase Rights
(Title of Class)

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes [X] No [ ]

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. [ ]

The aggregate market value of the Registrant's voting stock held by non-affiliates as of June 28, 2002 was approximately $700,311,546. For purposes of this calculation, shares of Common Stock held by directors, officers and 5% stockholders known to the Registrant have been deemed to be owned by affiliates which should not be construed to indicate that any such person possesses the power, direct or indirect, to direct or cause the direction of the management or policies of the Registrant or that such person is controlled by or under common control with the Registrant.

As of February 28, 2003 the registrant had 69,226,092 shares of Common Stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Registrant's Proxy Statement to be filed not later than 120 days after December 31, 2002, in connection with the Registrant's 2003 Annual Meeting of Stockholders, referred to herein as the "Proxy Statement," are incorporated by reference into Part III of this Form 10-K. Certain exhibits filed with the Registrant's prior registration statements and period reports under the Securities Exchange Act of 1934 are incorporated herein by reference into Part IV of this Report.

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GLOSSARY

PRODUCTS AND INDICATIONS

ONTAK® (denileukin diftitox)	Approved in February 1999 for sale in the U.S. for the treatment of patients with persistent or recurrent cutaneous T-cell lymphoma whose malignant cells express the CD25 component of the Interleukin-2 receptor.
Targretin® (bexarotene) capsules	Approved in December 1999 for sale in the U.S. and in March 2001 for sale in Europe for the treatment of cutaneous manifestations of cutaneous T-cell lymphoma in patients who are refractory to at least one prior systemic therapy.
Targretin® (bexarotene) gel 1%	Approved in June 2000 for sale in the U.S. for the topical treatment of cutaneous lesions in patients with cutaneous T-cell lymphoma (Stage 1A and 1B) who have refractory or persistent disease after other therapies or who have not tolerated other therapies.
Panretin® gel (alitretinoin) 0.1%	Approved in February 1999 for sale in the U.S. and in October 2000 for sale in Europe for the topical treatment of cutaneous lesions of patients with AIDS-related Kaposi's sarcoma.
AVINZA®	Approved in March 2002 for sale in the U.S. for the once-daily treatment of moderate-to-severe pain in patients who require continuous, around-the-clock opioid therapy for an extended period of time.
CTCL	Cutaneous T-cell lymphoma
HIV	Human immunodeficiency virus
HRT	Hormone replacement therapy
KS	Kaposi's sarcoma
NHL	Non-Hodgkin's lymphoma
NSCLC	Non-small cell lung cancer
CLL	Chronic lymphocytic leukemia
GVHD	Graft-versus-host disease

SCIENTIFIC TERMS

AR	Androgen Receptor
ER	Estrogen Receptor
GR	Glucocorticoid Receptor
IR	Intracellular Receptor
JAK	Janus Kinase family of tyrosine protein kinases
MR	Mineralocorticoid Receptor
PPAR	Peroxisome Proliferation Activated Receptor
PR	Progesterone Receptor
RAR	Retinoic Acid Receptor
RR	Retinoid Responsive Intracellular Receptor
RXR	Retinoid X Receptor
SARM	Selective Androgen Receptor Modulator
SERM	Selective Estrogen Receptor Modulator
STAT	Signal Transducer and Activator of Transcription

REGULATORY TERMS

CPMP	Committee for Proprietary Medicinal Products (Europe)
EC	European Commission
EMEA	European Agency for the Evaluation of Medicinal Products
FDA	United States Food and Drug Administration
IND	Investigational New Drug Application (United States)
MA	Marketing Authorization (Europe)
MAA	Marketing Authorization Application (Europe)
NDA	New Drug Application (United States)

PART I

Item 1. Business

Caution: The discussion and analysis of our business contained in this annual report on Form 10-K may contain predictions, estimates and other forward-looking statements that involve a number of risks and uncertainties, including those discussed at "Risks and Uncertainties" in "Item 1 - Business". This outlook represents our current judgment on the future direction of our business. Such risks and uncertainties could cause actual results to differ materially from any future performance suggested. We undertake no obligation to release publicly the results of any revisions to these forward-looking statements to reflect events or circumstances arising after the date of this annual report. This caution is made under the safe harbor provisions of the Private Securities Litigation Reform Act of 1995.

Our trademarks, trade names and service marks referenced in this annual report include Ligand®, ONTAK®, Panretin®, Targretin®, and AVINZA®. Each other trademark, trade name or service mark appearing in this annual report belongs to its owner.

References to Ligand Pharmaceuticals Incorporated ("Ligand", the "Company", "we" or "our") include our wholly owned subsidiaries - Glycomed Incorporated; Ligand Pharmaceuticals (Canada) Incorporated; Ligand Pharmaceuticals International, Inc.; and Seragen, Inc. ("Seragen").

We were incorporated in Delaware in 1987. Our principal executive offices are located at 10275 Science Center Drive, San Diego, California, 92121. Our telephone number is (858) 550-7500.

Overview

Our goal is to build a profitable pharmaceutical company that discovers, develops and markets new drugs that address critical unmet medical needs in the areas of cancer, men's and women's health, skin diseases, osteoporosis, and metabolic, cardiovascular and inflammatory diseases. We strive to develop drugs that are more effective and/or safer than existing therapies, that are more convenient (taken orally or topically administered) and that are cost effective. We plan to build a profitable pharmaceutical company by generating income from the specialty pharmaceutical products we develop and market, and from research, milestone and royalty revenues resulting from our collaborations with large pharmaceutical partners, which develop and market products in large markets that are beyond our strategic focus or resources.

We currently market four oncology products in the United States: Panretin® gel, ONTAK® and Targretin® capsules, each of which was approved by the FDA in 1999; and Targretin® gel, which was approved by the FDA in 2000. Our fifth and newest product, AVINZA®, is a treatment for chronic, moderate-to-severe pain that was approved by the FDA in March 2002. In Europe, the EC granted a Marketing Authorization (MA) for Panretin® gel in October 2000 and an MA for Targretin® capsules in March 2001. We submitted a Marketing Authorization Application (MAA) to the European Agency for the Evaluation of Medicinal Products (EMEA) for ONZAR™ (the brand name of ONTAK® in Europe) in December 2001. We also continue efforts to acquire or in-license products, such as ONTAK® (acquired in the 1998 acquisition of Seragen) and AVINZA® (licensed from Elan Corporation, plc and formerly called Morphelan™), which have near-term prospects of FDA approval and which can be marketed by our specialty sales forces. We are developing additional products through our internal development programs and currently have various products in clinical development, including marketed products that we are testing for larger market indications such as non-small cell lung cancer (NSCLC), chronic lymphocytic leukemia (CLL) and hand dermatitis.

We have formed research and development collaborations with numerous global pharmaceutical companies, including Abbott Laboratories, Allergan, Inc., Bristol-Myers Squibb, Eli Lilly & Company, GlaxoSmithKline, Organon (AKZO-Nobel), Pfizer Inc., TAP Pharmaceutical Products, Inc. (TAP), and Wyeth. At the end of 2002, our corporate partners had 10 Ligand products in human development, and numerous compounds on an IND track, or in preclinical and research stages. These corporate partner products are being studied for the treatment of large market indications such as osteoporosis, diabetes, contraception and cardiovascular disease. Three of these partner products are in pivotal Phase III clinical trials: lasofoxifene, which is being developed by Pfizer for osteoporosis

and other indications; and bazedoxifene, which is being developed by Wyeth as monotherapy for osteoporosis and in combination with Wyeth's PREMARIN® as hormone replacement therapy (HRT).

Internal and collaborative research and development programs are built around our proprietary science technology, which is based on our leadership position in gene transcription technology. Our proprietary technologies involve two natural mechanisms that regulate gene activity: non-peptide hormone-activated IRs, and cytokine and growth factor activated STATs. Panretin® gel, Targretin® capsules, Targretin® gel and most of our corporate partner products currently on human development track are IR modulators, discovered using our IR technology. SB-497115, which Glaxo moved into clinical studies for thrombocytopenia in 2002, was discovered using our STAT technology.

In late 1998, we assembled a specialty oncology and HIV-center sales and marketing team to market in the U.S. products developed, acquired or licensed by us. In late 1999, we expanded our U.S. sales force from approximately 20 to approximately 40 sales representatives to support the launch of Targretin® capsules and Targretin® gel and increase market penetration of ONTAK® and Panretin® gel. In 2001, we expanded our sales force to approximately 50 sales representatives, including approximately 20 full-time contract sales representatives who focus on the dermatology market. In 2002, to support the launch of AVINZA®, we redirected these contract sales representatives to call on high-prescribing pain specialists. Also in 2002, we hired approximately another 30 representatives to call on pain specialists, bringing the total number of representatives selling only AVINZA® to approximately 50. We plan to expand our specialty pain sales force to approximately 70 representatives in the first half of 2003. In addition, more than 700 Organon sales representatives will initially promote AVINZA® as a result of the co-promotion agreement we established in early 2003 (see "AVINZA® Co-Promotion Agreement with Organon"). At the end of 2002, we had approximately 25 sales representatives promoting our in-line oncology products. Internationally, through marketing and distribution agreements with Elan, Ferrer International and Alfa Wassermann, we have established marketing and distribution capabilities in Europe, as well as Central and South America.

Business Strategy

Our goal is to become a profitable pharmaceutical research, development and marketing company that generates significant cash flow. Building primarily on our proprietary IR and STAT technologies, our strategy is to generate cash flow primarily from the sale in the U.S., Europe and Latin America of specialty pharmaceutical products we develop, acquire or in-license, and from research, milestone and royalty revenues from the development and sale of products our collaborative partners develop and market.

Building a Specialty Pharmaceutical Franchise in the U.S., Europe and Latin America.

Our strategy with respect to specialty pharmaceutical products is to develop a product pipeline based on our IR and STAT technologies and acquired and in-licensed products, and to market these products initially with a specialized sales force in the U.S. and through marketing partners in selected international markets. Ligand's international partners are Elan (principally in Western and Eastern Europe), Ferrer (in Spain, Portugal, Greece, Central and South America) and Alfa Wassermann (in Italy).

Focusing initially on niche pharmaceutical and dermatology indications with the possibility of expedited regulatory approval has allowed us to bring products to market quickly. This strategy also has allowed us to spread the cost of our sales and marketing infrastructure across multiple products. Our goal is to expand the markets for our products through approvals in additional indications and in international markets. To further leverage our sales forces, we intend to acquire selectively or license-in complementary technology and/or products currently being marketed or in advanced stages of development.

Building a Collaborative-Based Business in Large Product Markets.

Our strategy in our collaborative research and development business is to share the risks and benefits of discovering and developing drugs to treat diseases that are beyond our strategic focus or resources. These diseases typically affect large populations often treated by primary care physicians. Drugs to treat these diseases may be more costly to develop and/or market effectively with a small specialty sales force. On the other hand, drugs approved for these indications may have large market potential – often in excess of $1 billion in global sales.

We currently have nine collaborations with global pharmaceutical companies focusing on a broad range of disease targets.

Corporate Collaborator	Initiation of Collaboration	Focus
Pfizer Inc.	May 1991	Osteoporosis, breast cancer prevention
Allergan, Inc.	June 1992	Skin disorders
GlaxoSmithKline (Glaxo Wellcome plc)	September 1992	Cardiovascular diseases
Abbott Laboratories	July 1994	Inflammatory diseases
Wyeth	September 1994	Women's and men's health, oncology
GlaxoSmithKline (SmithKline Beecham)	February 1995	Blood disorders
Eli Lilly & Company	November 1997	Type II diabetes, metabolic and cardiovascular diseases
Organon	February 2000	Women's health
TAP Pharmaceutical Products, Inc.	June 2001	Men's and women's health

Our collaborative programs focus on discovering drugs for cardiovascular, inflammatory, metabolic and other diseases, as well as broad applications for women's and men's health. We believe that our collaborators have the resources, including clinical and regulatory experience, manufacturing capabilities and marketing infrastructure, needed to develop and commercialize drugs for these large markets. The arrangements generally provide for collaborative discovery programs funded largely by the corporate partners aimed at discovering new therapies for diseases treated by primary care physicians. In general, drugs resulting from these collaborations will be developed, manufactured and marketed by the corporate partners. Our collaborative agreements provide for us to receive: research revenue during the drug discovery stage; milestone revenue for compounds successfully moving through clinical development and regulatory submission and approval; and royalty revenue from the sale of approved drugs developed through collaborative efforts.

Ligand Marketed Products

U.S. Specialty Pharmaceutical Franchise. We currently market five pharmaceutical products in the U.S.

Marketed Product	Approved Indication	European Status	Additional Indications in Development
AVINZA®	Chronic, moderate-to-severe pain	N/A	None
ONTAK®	CTCL	MAA submitted	CLL, B-cell NHL, other T-cell lymphomas, psoriasis
Targretin® capsules	CTCL	MA issued	NSCLC, psoriasis, renal cell cancer, prostate/colon cancer
Targretin® gel	CTCL	MAA withdrawn	Hand dermatitis, psoriasis
Panretin® gel	KS	MA issued	None

CTCL Market. CTCL is a type of NHL that appears initially in the skin, but over time may involve other organs. CTCL is a cancer of T-lymphocytes, white blood cells that play a central role in the body's immune system. The disease can be extremely disfiguring and debilitating. Median survival for late-stage patients is less than three years. The prognosis for CTCL is based in part on the stage of the disease when diagnosed. CTCL is most commonly a slowly progressing cancer, and many patients live with the complications of CTCL for 10 or more years after diagnosis. However, some patients have a much more aggressive form of this disease. CTCL affects an estimated 16,000 people in the U.S. and 12,000 to 14,000 in Europe. With ONTAK®, Targretin® capsules, and Targretin® gel currently approved in the U.S. for the treatment of CTCL, our strategy is to have multiple products available for treating this disease.

ONTAK®. ONTAK® was approved by the FDA and launched in the U.S. in February 1999 as our first product for the treatment of patients with CTCL. ONTAK® was the first treatment to be approved for CTCL in nearly 10 years. ONTAK® is currently in Phase II clinical trials for the treatment of patients with CLL, B-cell NHL, other T-cell lymphomas, and GVHD. Results from several of these studies were reported in 2002. Ligand's top priority for additional ONTAK® development is CLL, and we expect to begin a large-scale Phase II study in 2003. Clinical trials using ONTAK® for the treatment of patients with psoriasis and rheumatoid arthritis also have been conducted, and further trials are being considered. These indications provide significantly larger market opportunities than CTCL. A European MAA for CTCL was filed in December 2001, and we expect a CPMP recommendation this year. In Europe, ONTAK® will be marketed as ONZAR™ if approved.

Targretin® capsules. We launched U.S. sales and marketing of Targretin® capsules in January 2000 following receipt of FDA approval in December 1999. Targretin® capsules offer the convenience of a daily oral dose administered by the patient at home. We are developing Targretin® capsules in a variety of larger market opportunities, including NSCLC, moderate to severe plaque psoriasis and renal cell cancer. NSCLC is Ligand's largest and most important development program. In March 2001, the European Commission granted marketing authorization for Targretin® capsules in Europe for the treatment of patients with CTCL, and our network of distributors began marketing the drug in the fourth quarter of 2001 in Europe.

Targretin® gel. We launched U.S. sales and marketing of Targretin® gel in September 2000 following receipt of FDA approval in June 2000. Targretin® gel offers patients with refractory, early stage CTCL a novel, non-invasive, self-administered treatment topically applied only to the affected areas of the skin. Targretin® gel is currently in clinical development for hand dermatitis. In 2002 and early 2003, we reported exciting Phase I/II data that showed nearly 40% of patients with chronic, severe hand dermatitis improved by 90% or more after being treated with Targretin® gel monotherapy and nearly 80% responded with greater than 50% improvement. Based on these promising results, we intend to design and implement Phase II/III registration trials in hand dermatitis. We filed an MAA in Europe for CTCL in March of 2001, but withdrew it in 2002. Due to the small size of the European CTCL market and the limited revenue potential of Targretin® gel, we believed that the additional comparative clinical studies requested by the EMEA were not economically justified.

Panretin® gel. Panretin® gel was approved by the FDA and launched in February 1999 as the first FDA-approved patient-applied topical treatment for AIDS-related KS. Panretin® gel represents a non-invasive option to the traditional management of this disease. Most approved therapies require the time and expense of periodic visits to a healthcare facility, where treatment is administered by a doctor or nurse. AIDS-related KS adversely affects the quality of life of thousands of people in the U.S. and Europe. Panretin® gel was approved in Europe for the treatment of patients with KS in October 2000, and was launched through our distributor network in the fourth quarter of 2001 in Europe.

AVINZA®. AVINZA® was approved by the FDA in March 2002 for the once-daily treatment of moderate-to-severe pain in patients who require continuous, around-the-clock opioid therapy for an extended period of time. We launched the product in the second quarter of 2002. AVINZA® consists of two components: an immediate-release component that rapidly achieves plateau morphine concentrations in plasma, and an extended-release component that maintains plasma concentrations throughout a 24-hour dosing interval. This unique drug delivery technology makes AVINZA® the only true once-daily sustained release opioid. AVINZA® was developed by Elan, which licensed the U.S. and Canadian rights to us in 1998. The U.S. sustained-release opioid market grew to approximately $2.7 billion in 2002, the largest initial market we have entered. Because tens of thousands of U.S. physicians prescribe sustained-release opioids, our goal has long been to co-promote the product with another

company to maximize its potential. Early in 2003, we finalized a co-promotion agreement with Organon. Together, we expect to achieve the No. 2 share of voice in the sustained-release opioid marketplace with initially more than 800 combined sales representatives.

AVINZA® Co-Promotion Agreement with Organon

In February 2003, Organon, a business unit of Akzo Nobel, and Ligand announced that the companies will co-promote AVINZA® with initially more than 800 sales representatives in the United States.

Organon brings strong relationships in primary care, anesthesiology, hospitals and managed care to support AVINZA®. Through the agreement with Organon, Ligand gains strong partner resource commitments in primary care, hospitals and managed care to maximize AVINZA®'s potential as our largest near-term commercial opportunity. In addition, the agreement includes a risk/return-balanced set of economics that incentivizes Organon to achieve much greater success than Ligand could alone, that provides a positive operational EPS driver to Ligand, and that enables an attractive return on our cumulative investments in AVINZA®. Finally, the agreement strengthens our capabilities in retail and wholesale distribution, medical marketing and managed care to support AVINZA®. Joint co-promotion efforts are expected to begin in March and April of 2003.

We expect AVINZA® to achieve the No. 2 share of voice in the sustained-release opioid marketplace with a combined sales force of more than 800 representatives, and appropriately scaled investments in other medical marketing. Ligand will promote AVINZA® with its expanding specialty pain sales force of nearly 70 representatives. Organon will promote the product with more than 700 representatives in three sales forces: primary care, hospital (anesthesiology) and specialty (pain centers). In addition, Organon brings critical capabilities with key accounts, managed care and long-term care to accelerate AVINZA®'s growth.

Under the companies' agreement, Ligand will record all sales of AVINZA®. Ligand will pay Organon a percentage of AVINZA®'s net sales based on the following schedule:

Annual Net Sales of AVINZA®	% of Incremental Net Sales Paid to Organon by Ligand
$0-35 million (2003 only)	0% (2003 only)
$0-150 million	30%
$150-300 million	40%
$300-425 million	50%
> $425 million	45%

Organon and Ligand will share equally all costs for advertising and promotion, medical affairs and clinical trials. Each company is responsible for its own sales force costs and other expenses. Both companies have made significant commitments to conduct a minimum number of sales calls, with AVINZA® in primary or secondary position, over the term of the agreement.

The initial term of the co-promotion agreement, which applies only to the U.S. market, is 10 years. Any time prior to the end of year five, Organon has an option to extend the agreement to 2017, the end of a key AVINZA® patent's term, by making a $75 million payment to Ligand.

To provide overall governance of the partnership, Organon and Ligand will establish a steering committee with three senior executives from each company. The chair of the steering committee will alternate between Organon and Ligand on an annual basis. Organon and Ligand also will form a commercial committee to design and coordinate all sales, marketing and distribution activities for AVINZA®. The commercial committee will be co-chaired by one Organon and one Ligand employee. The commercial committee will establish a clinical/regulatory subcommittee to design and coordinate all medical, clinical and regulatory activities for AVINZA®.

Product Development Process

There are three phases in product development — the research phase, the preclinical phase and the clinical trials phase. See "Government Regulation" for a more complete description of the regulatory process involved in developing drugs. At Ligand, activities during the research phase include research related to specific IR and STATs targets and the identification of lead compounds. Lead compounds are chemicals that have been identified to meet pre-selected criteria in cell culture models for activity and potency against IR or STATs targets. More extensive evaluation is then undertaken to determine if the compound should enter preclinical development. Once a lead compound is selected, chemical modification of the compound is undertaken to create an optimal drug candidate.

The preclinical phase includes pharmacology and toxicology testing in preclinical models (*in vitro* and *in vivo*), formulation work and manufacturing scale-up to gather necessary data to comply with applicable regulations prior to commencing human clinical trials. Development candidates are lead compounds that have successfully undergone *in vitro* and *in vivo* evaluation to demonstrate that they have an acceptable profile that justifies taking them through preclinical development with the intention of filing an IND and initiating human clinical testing.

Clinical trials are typically conducted in three sequential phases that may overlap. In Phase I, the initial introduction of the pharmaceutical into humans, the emphasis is on testing for adverse effects, dosage tolerance, absorption, metabolism, distribution, excretion and clinical pharmacology. Phase II involves studies in a representative patient population to determine the efficacy of the pharmaceutical for specific targeted indications, to determine dosage tolerance and optimal dosage, and to identify related adverse side effects and safety risks. Once a compound is found to be effective and to have an acceptable safety profile in Phase II studies, Phase III trials are undertaken to evaluate clinical efficacy further and to test further for safety. Sometimes Phase I and II trials or Phase II and III trials are combined. In the U.S., the FDA reviews both clinical plans and results of trials, and may discontinue trials at any time if there are significant safety issues.

Ligand Product Development Programs

We are developing several proprietary products for which we have worldwide rights for a variety of cancers and skin diseases, as summarized in the table below. This table is not intended to be a comprehensive list of our internal research and development programs. Many of the indications being pursued may present larger market opportunities for our currently marketed products. Our clinical development programs are primarily based on products discovered through our IR technology, with the exception of ONTAK®, which was developed using Seragen's fusion protein technology, and AVINZA® , which was developed by Elan. Five of the products in our proprietary product development programs are retinoids, discovered and developed using our proprietary IR technology. Our research is based on both our IR and STAT technologies. See "Technology" for a discussion of our IR and STAT technologies and retinoids.

Program	Disease/Indication	Development Phase
AVINZA®	Chronic, moderate-to-severe pain	Marketed in U.S. Phase IIIB/IV
ONTAK®	CTCL	Marketed in U.S.
	CLL	Phase II
	Peripheral T-cell lymphoma	Phase II
	B-cell NHL	Phase II
	Psoriasis (severe)	Phase II
Targretin® capsules	CTCL	Marketed in U.S.
	NSCLC first-line	Phase III
	NSCLC monotherapy	Planned Phase II/III
	Advanced breast cancer	Phase II
	Psoriasis (moderate to severe)	Phase II
	Renal cell cancer	Phase II
Targretin® gel	CTCL	Marketed in U.S.
	Hand dermatitis (eczema)	Phase II
	Psoriasis	Phase II

Program	Disease/Indication	Development Phase
Panretin® gel	KS	Marketed in U.S.
Panretin® capsules	KS	Phase II
	Bronchial metaplasia	Phase II
LGD1550 (RAR agonist)	Advanced cancers	Phase II
	Acne	Phase II
	Psoriasis	Pre-clinical
LGD1331 (Androgen antagonist)	Prostate cancer, hirsutism, acne, androgenetic alopecia	Pre-clinical
Glucocorticoid agonists	Inflammation, cancer	Pre-clinical
Mineralocorticoid receptor modulators	Congestive heart failure, hypertension	Research

ONTAK® Development Programs

ONTAK® is the first of a new class of targeted cytotoxic biologic agents called fusion proteins. ONTAK® was acquired in the acquisition of Seragen in 1998 and is marketed in the U.S. for patients with CTCL. CTCL affects approximately 16,000 people in the U.S. In addition to ongoing CTCL trials, we are, or may be, conducting clinical trials with ONTAK® in patients with CLL, peripheral T-cell lymphoma, B-cell NHL, psoriasis, and GVHD, indications that represent significantly larger market opportunities than CTCL.

In early 1999, ONTAK® entered Phase II trials for the treatment of patients with NHL. One study is assessing ONTAK® in patients with certain types of low-grade B-cell NHL who have previously been treated with at least one systemic anti-cancer treatment. A second multi-center trial for ONTAK® is being conducted in patients with low-grade B-cell NHL who have been previously treated with at least one chemotherapy regimen and at least one monoclonal antibody therapy. A third trial allows certain patients to enter with low to intermediate grade B-cell NHL.

Separately, a study of ONTAK® in patients with relapsed or refractory B-and T-cell NHL conducted by researchers from the M.D. Anderson Cancer Center and published at the annual meeting of the American Society of Hematology showed that among 25 patients who could be evaluated for a response, one had a complete response, four had partial responses, and eight had stable disease, indicating that more than half of patients with relapsed or refractory NHL benefited from treatment. NHL affects approximately 300,000 people in the U.S. and Ligand estimates that more than 50,000 of these patients would be candidates for ONTAK® therapy.

ONTAK® is also being evaluated to treat chronic lymphocytic leukemia (CLL), which affects more than 60,000 people in the U.S. At the American Society of Hematology (ASH) annual meeting in 2002, researchers from Wake Forest University reported results from a preliminary Phase II study that showed ONTAK reduced CLL in blood cells, lymph nodes and bone marrow. In the study, nine of 10 patients with fludarabine-refractory, CD25-positive, B-cell CLL who received at least three courses of ONTAK® experienced reductions in peripheral CLL cells, with three of these patients showing reductions of at least 99%. In addition, six of 10 patients showed reductions in the diameter of their cancerous lymph nodes, with one patient showing an 80% reduction. One of 12 patients showed a partial remission, with 80% node shrinkage and 100% clearance of CLL cells from bone marrow. Based on these encouraging results, Ligand plans to begin a large-scale Phase II study in 2003.

Clinical trials with ONTAK® have demonstrated benefits in patients with long-standing, previously treated severe psoriasis, and in patients with steroid-resistant acute GVHD. For example, according to results of a Phase I/II study presented by independent researchers in early 2003, ONTAK® generated complete remission of acute GVHD in five of 11 steroid-resistant patients after allogeneic stem cell transplants, and partial remission in two more patients.

Targretin® Capsules Development Programs

Targretin® capsules are marketed in the U.S. for patients with refractory CTCL. Ligand also is investigating the use of Targretin® capsules in several cancer and skin disease markets that represent significantly larger market opportunities than CTCL.

In August 2000, we reported that Phase I/II clinical results demonstrated that Targretin® capsules, in conjunction with chemotherapy, may be an effective treatment for patients with NSCLC and renal cell cancer. These results were published in the May 2001 issue of the Journal of Clinical Oncology. These results add to a growing body of evidence that suggests Targretin® therapy may delay disease progression and extend survival of patients with some forms of solid tumors. This body of evidence led us to begin two large-scale Phase III clinical studies in 2001 to demonstrate conclusively Targretin® capsules' benefit in the treatment of patients with NSCLC. One of these multi-center studies is evaluating Targretin® in combination with the chemotherapy drugs cisplatin and vinorelbine, and is being conducted primarily in Europe. The other multi-center study is examining Targretin® in combination with carboplatin and paclitaxel, and is being conducted mainly in the U.S. Both studies are randomized with approximately 600 patients each, and have survival as the primary endpoint. By early 2003, we had enrolled approximately 50% of the required patients. We expect to complete enrollment of the studies in 2003, and announce survival data in 2004. The studies are designed to support a supplemental indication for Targretin® capsules for first-line treatment of patients with advanced NSCLC. We also are planning a Phase III study of Targretin® as monotherapy for late-stage lung cancer patients who have failed treatment with chemotherapy or cannot tolerate it. The American Cancer Society estimates that nearly 170,000 Americans were diagnosed with lung cancer in 2002; of those approximately 80% were diagnosed with NSCLC.

Our primary focus for Targretin® capsules during 2003 and 2004 will be NSCLC. We will, however, continue to explore in Phase II trials the potential of Targretin® capsules in combination regimens for the treatment of patients in solid tumor indications as well as psoriasis.

Targretin® Gel Development Program

Targretin® gel is marketed in the U.S. for patients with refractory CTCL. In 2002 and early 2003, we reported exicting Phase I/II data that showed 39% of patients with chronic, severe hand dermatitis improved by 90% or more after being treated with Targretin® gel monotherapy. In addition, 79% of patients improved by at least 50%. Fifty-five patients with a history of chronic severe hand dermatitis for at least six months were enrolled in the 22-week, randomized, open-label study, which was designed to evaluate safety, tolerability and activity. Patients were treated with Targretin® alone, Targretin® in combination with a medium potency topical steroid, and Targretin® in combination with a low potency topical steroid. Based on these promising results, we intend to design and implement Phase II/III registration trials in hand dermatitis. There are many subtypes of hand dermatitis, and many causes. Most hand dermatitis is caused by contact with irritating environmental substances, such as chemicals, soaps and cleaning fluids, and some cases are caused by allergic reactions to a wide variety of environmental substances. Ligand estimates that more than 4 million people in the United States have hand dermatitis and seek treatment.

We filed an MAA for Targretin® gel in Europe for CTCL in March of 2001, but withdrew it in 2002. Due to the small size of the European CTCL market and the limited revenue potential of Targretin® gel, we believed that the additional comparative clinical studies requested by the EMEA were not economically justified.

Panretin® Capsules Development Programs

Panretin® capsules have demonstrated clinical promise for the systemic treatment of cutaneous AIDS-related KS, other cancers and skin disorders. We have reported favorable results in two Phase II trials with Panretin® capsules in patients with KS. Encouraging results from a Phase II trial with Panretin® capsules in bronchial metaplasia were published in 2002. The study showed that treatment with Panretin® capsules reversed biomarkers of pre-lung cancer among former smokers. Ligand believes the promising results seen with Panretin® capsules further support the potential benefits of using retinoids to treat lung cancer. Toward that end, Ligand's top development priority is to move ahead with Phase III studies of Targretin® capsules, which binds selectively to retinoid X receptors, in combination with chemotherapy to treat NSCLC.

LGD1550 Capsules Development Programs

LGD1550 is a potent RAR agonist that strongly inhibits growth *in vitro* of several human cancer cell lines. In Phase I/II clinical trials in advanced cancer, LGD1550 capsules were well tolerated. Investigators observed dose-limiting skin toxicities, diarrhea and abdominal cramps. Other potentially dose-limiting toxicities, such as headache and lipid abnormalities, frequently observed with other retinoids, have not been observed with LGD1550. Unlike all-trans retinoic acid, a retinoid approved for the treatment of acute promyelocytic leukemia, LGD1550 does not appear to induce its own metabolism over the dose range tested since blood levels are maintained with continued therapy. Phase I/II studies with LGD1550 for the treatment of patients with acne and psoriasis are being considered.

Glucocorticoid Receptor Research and Development Program

As part of the research and development collaboration we entered into with Abbott in 1994, Ligand received exclusive worldwide rights for all anti-cancer products discovered in the collaboration. When the research phase of the collaboration ended in July 1999, Abbott retained rights to certain specific glucocorticoid receptor modulators, or SGRMs. Ligand retained rights to all other compounds discovered through the collaboration, as well as recapturing technology rights. Ligand then initiated an internal effort to develop SGRMs for inflammation, oncology and other therapeutic applications. As a result of that effort, in 2001, we moved several SGRMs into late preclinical development. These non-steroidal molecules have anti-inflammatory activity that may be useful against diseases such as asthma and rheumatoid arthritis, as well as anti-proliferative effects that could be beneficial in treating certain leukemias and myelomas. Our goal is to develop novel products that maintain the efficacy of corticosteroids but lack the side effects of current therapies, which can include osteoporosis, hyperglycemia and hypertension.

SARM Programs

We are pioneering the development of tissue selective SARMs, a novel class of non-steroidal, orally active molecules that selectively modulate the activity of the AR in different tissues, providing a wide range of opportunities for the treatment of many diseases and disorders in both men and women. Tissue-selective AR agonists or antagonists may provide utility in male HRT and the treatment of patients with hypogonadism, osteoporosis, male and female sexual dysfunction, frailty, prostate cancer, benign prostatic hyperplasia, skin disorders and other diseases. The use of androgen antagonists has shown efficacy in the treatment of prostate cancer, with three androgen antagonists currently approved by the FDA for use in the treatment of the disease. However, we believe that there is a substantial medical need for improved androgen modulators for use in the treatment of prostate cancer due to the significant side effects seen with currently available drugs.

SARM programs have been one of our largest programs over the past several years. We have assembled an extensive SARM compound library and one of the largest and most experienced AR drug discovery teams in the pharmaceutical industry. We intend to pursue the specialty applications emerging from SARMs internally, but may seek collaborations with major pharmaceutical companies to exploit broader clinical applications.

Consistent with this strategy, we formed in June 2001 a joint research and development alliance with TAP Pharmaceutical Products to focus on the discovery and development of SARMs. Please see the "Collaborative Research and Development Programs/Sex Hormone Modulators Collaborative Programs/TAP Collaboration" section below for more details on this alliance.

Apart from the TAP alliance, Ligand has conducted preclinical development for LGD1331, an androgen antagonist for acne, prostate cancer, hirsutism and androgenetic alopecia. Preclinical studies of LGD1331 indicate that it may have utility for treating acne and hirsutism disorders that affect a significant number of women. *In vivo* studies of LGD1331 have revealed favorable characteristics, including indirect evidence of diminished effects on the central nervous system, compared with currently marketed drugs of this type for the treatment of these conditions.

STAT Research Programs

In contrast to our IR programs, our STAT programs focus on cytokines and growth factors whose receptors are found on the surface of the cell. STATs play a modulating role in the biology of cytokines and growth factors. Many diseases, such as inflammatory conditions, may result from excessive cytokine activity, and others may result from insufficient cytokine activity. See "Technology/Signal Transducers and Activators of Transcription Technology" for a more complete discussion of our STATs technology. In our STAT programs, we seek to develop drug candidates that mimic the activity of thrombopoietin (TPO) for use in a variety of conditions including cancer and disorders of blood cell formation. In 2002, our partner GlaxoSmithKline moved into clinical studies the first product discovered from our STAT expertise, SB-497115, an oral TPO agonist for the treatment of thrombocytopenia.

Collaborative Research and Development Programs

We are pursuing several major collaborative drug discovery programs to further develop the research and development of compounds based on our IR and STAT technologies. These collaborations focus on several large market indications as estimated in the table below.

Indication	U.S. Prevalence
Menopausal symptoms	40 million
Osteoporosis (men and women)	44 million
Dyslipidemas	41 million
Contraception	38 million
Type II diabetes	16 million
Breast cancer	2 million

At the end of 2002, 10 of our collaborative product candidates were in human development - lasofoxifene, bazedoxifene, bazedoxifene+PREMARIN®, ERA-923, GW516, LY818, LY929, LY674, NSP989 and SB497115. Please see note 12 of notes to consolidated financial statements for a description of the financial terms of our key ongoing collaboration agreements. The table below summarizes our collaborative research and development programs, but is not intended to be a comprehensive summary of these programs.

Program	Disease/Indication	Development Phase	Marketing Rights
SEX HORMONE MODULATORS			
SERMs			
• Lasofoxifene	Osteoporosis, breast cancer prevention	Phase III	Pfizer
• Bazedoxifene	Osteoporosis	Phase III	Wyeth
• Bazedoxifene+PREMARIN®	HRT	Phase III	Wyeth
• Pipendoxifene (formerly ERA-923)	Breast cancer	Phase II	Wyeth
PR modulators			
• NSP-989 (PR agonist)	Contraception, HRT	Phase I	Wyeth
• NSP-808 (PR agonist)	Contraception, HRT	IND track	Wyeth
• PR antagonist	Contraception, reproductive disorders	Pre-clinical	Wyeth
• PR agonists	HRT, contraception, reproductive disorders	Pre-clinical	Organon
SARMs			
▪ LGD2226 / back-ups (androgen agonists)	Male hypogonadism, HRT; female sexual dysfunction, osteoporosis	IND track	TAP

Program	Disease/Indication	Development Phase	Marketing Rights
METABOLIC/CARDIOVASCULAR DISEASES			
PPAR modulators			
• GW516	Cardiovascular disease, dyslipidemia	Phase I	GlaxoSmithKline
• LY818	Type II diabetes, metabolic diseases	Phase II	Lilly
• LY929	Type II diabetes, metabolic diseases, dyslipidemia	Phase I	Lilly
• LY674	Dyslipidemia	Phase I	Lilly
• LYWWW*	Dyslipidemia	IND track	Lilly
• LYYYY*	Type II diabetes, metabolic diseases, dyslipidemia	IND track	Lilly
• PPAR modulators	Type II diabetes, metabolic diseases, dyslipidemia	Pre-clinical	Lilly
HNF-4 modulators	Type II diabetes, metabolic diseases	Research	Lilly
INFLAMMATORY DISEASES, ONCOLOGY, ANEMIA			
Glucocorticoid agonists	Inflammation	Pre-clinical	Abbott
SB-497115 (TPO agonist)	Thrombocytopenia	Phase I	GlaxoSmithKline

* Compound number not disclosed

Sex Hormone Modulators Collaborative Programs

The primary objective of our sex hormone modulators collaborative programs is to develop drugs for hormonally responsive cancers of men and women, hormone replacement therapies, the treatment and prevention of diseases affecting women's health, and hormonal disorders prevalent in men. Our programs, both collaborative and internal, target development of tissue-selective modulators of the PR, the ER and the AR. Through our collaborations with Pfizer and Wyeth, three SERM compounds are in development for osteoporosis, breast cancer and HRT. In addition, we entered into a joint research and development program in 2001 with TAP Pharmaceutical Products to focus on the discovery and development of SARMs.

Pfizer Collaboration. In May 1991, we entered into a research and development collaboration with Pfizer to develop better therapies for osteoporosis. In November 1993, we jointly announced the successful completion of the research phase of our alliance with the identification of a development candidate and backups for the prevention and treatment of osteoporosis. In preclinical studies, the candidates from the program mimic the beneficial effects of estrogen on bone and have an impact on blood serum lipids often associated with cardiac benefits without increasing uterine or breast tissue proliferation.

We have milestone and royalty rights to lasofoxifene, which is being developed by Pfizer for osteoporosis prevention and other diseases. Lasofoxifene is a second-generation estrogen partial agonist discovered through our collaboration with Pfizer. Pfizer has retained marketing rights to the drug. Lasofoxifene has been shown in Phase II clinical studies to reduce bone loss and decrease low-density lipoprotein ("LDL" or "bad" cholesterol) levels. In September 2000, Pfizer announced that it initiated Phase III studies of lasofoxifene for the treatment and prevention of osteoporosis in post menopausal women. In December 2001, Pfizer announced that two Phase III studies were fully enrolled with more than 1800 patients, and that an additional Phase III risk reduction trial was underway to evaluate lasofoxifene's effects on bone mineral density, lipid-lowering and breast cancer prevention. In January of 2003, Pfizer disclosed that this large, 7,500-patient risk-reduction study was fully enrolled.

Wyeth Collaboration. In September 1994, we entered into a research and development collaboration with Wyeth-Ayerst Laboratories, the pharmaceutical division of American Home Products (AHP), to discover and develop drugs that interact with ERs or PRs for use in HRT, anti-cancer therapy, gynecological diseases, and central nervous system disorders associated with menopause and fertility control. AHP has since changed its name to Wyeth. We granted Wyeth exclusive worldwide rights to all products discovered in the collaboration that are agonists or antagonists to the PR and ER for application in the fields of women's health and cancer therapy.

As part of this collaboration, we tested Wyeth's extensive chemical library for activity against a selected set of targets. In 1996, Wyeth exercised its option to include compounds we discovered that modulate PRs, and to expand the collaboration to encompass the treatment or prevention of osteoporosis through the ER. Wyeth also added four advanced chemical compound series from its internal ER-osteoporosis program to the collaboration. The research phase of the collaboration ended in August 1998.

Wyeth has ongoing clinical studies with two SERMs from the collaboration. Wyeth is developing bazedoxifene (TSE-424) and bazedoxifene+PREMARIN® for the treatment of post-menopausal osteoporosis and as HRT. Phase III trials were initiated in June 2001. In late 2002, Wyeth disclosed that it had completed enrollment in a Phase III osteoporosis prevention trial, that it expects enrollment in a bazedoxifene fracture prevention trial to finish in 2003, and that bazedoxifene is on track for regulatory submission in 2005. In addition, Wyeth reiterated its commitment to developing bazedoxifene+PREMARIN® as a progesterone-free treatment for menopausal symptoms in the wake of the well-publicized Women's Health Initiative (WHI) study of hormone replacement therapies. Ligand believes it is important to recognize that bazedoxifene is a synthetic drug that was specifically designed to increase bone density and reduce cholesterol levels while at the same time protecting breast and uterine tissue. In other words, bazedoxifene may represent a potential solution to some of the side effects associated with progestin in the WHI study.

Wyeth also has conducted Phase II studies of pipendoxifene (formerly ERA 923) for the treatment of breast cancer. In 2002, Wyeth began Phase I studies of NSP-989, a progesterone agonist that may be useful in contraception and HRT. Wyeth also continues to do preclinical work in the area of PR antagonists.

Organon Collaboration. In February 2000, we entered into a research and development collaboration with Organon to focus on small molecule compounds with potential effects for the treatment and prevention of gynecological diseases mediated through the PR. The objective of the collaboration is the discovery of new non-steroidal compounds that are tissue-selective in nature and that may have fewer side effects. Such compounds may provide utility in hormone replacement therapy, oral contraception, reproductive diseases, and other hormone-related disorders. The initial research phase concluded in February 2002, and preclinical candidates have been selected.

Bristol-Myers Squibb Collaboration. In May 2000, we entered into a research and development collaboration with Bristol-Myers Squibb Company to focus on the discovery, design and development of orally active compounds that selectively modulate the MR. This receptor plays a critical role in many illnesses, particularly cardiovascular diseases such as congestive heart failure and hypertension. Bristol-Myers Squibb terminated this collaboration in June 2001.

TAP Collaboration. In June 2001, we entered into a joint research and development alliance with TAP Pharmaceutical Products to focus on the discovery and development of SARMs. SARMs may contribute to the prevention and treatment of diseases including hypogonadism (low testosterone), male and female sexual dysfunction, male and female osteoporosis, frailty, and male HRT. The three-year collaboration carries an option to extend by up to two additional one-year terms.

Under the terms of the agreement, TAP received exclusive worldwide rights to manufacture and sell any products resulting from the collaboration in its field, which would include treatment and prevention of hypogonadism, male sexual dysfunction, female osteoporosis, male HRT and other indications not retained by Ligand. Ligand retains certain rights in the androgen receptor field, including the prevention or treatment of prostate cancer, benign prostatic hyperplasia, acne and hirsutism. In addition, Ligand has an option at the expiration of the original three-year term to develop one compound not being developed by TAP in its field, with TAP retaining an option to negotiate to co-develop and co-promote such compounds with Ligand.

Metabolic and Cardiovascular Disease Collaborative Programs

We are exploring the role of certain IRs, including the PPARs, in cardiovascular and metabolic diseases. PPARs, a subfamily of orphan IRs, have been implicated in processes that regulate plasma levels of very low density lipoproteins and triglycerides. See "Technology/Intracellular Receptor Technology" for a discussion of PPARs and orphan IRs. Data implicate PPARs in the mechanism of action of lipid-lowering drugs such as Lopid®. There are three subtypes of the PPAR subfamily with defined novel aspects of their action — alpha, beta and gamma. The subtype PPAR alpha appears to regulate the metabolism of certain lipids and is useful in treating hyperlipidemia. PPAR gamma plays a role in fat cell differentiation and cellular responses to insulin. Modulators of PPAR gamma activity (e.g., the glitazone class of insulin sensitizers) have utility in managing type II diabetes. PPARs are believed to function in cells in partnership with RXRs. In addition to compounds that act directly on PPARs and that may have utility in various cardiovascular and metabolic diseases, certain retinoids (e.g., Targretin® capsules) are able to activate this RXR:PPAR complex and may also have utility in these disorders. We have two collaborative partners, GlaxoSmithKline and Lilly, in the areas of cardiovascular and metabolic diseases, with four compounds in clinical development.

GlaxoSmithKline Collaboration. In September 1992, we entered into a research and development collaboration with Glaxo Wellcome plc (now GlaxoSmithKline) to discover and develop drugs for the prevention or treatment of atherosclerosis and other disorders affecting the cardiovascular system. The collaboration focuses on discovering drugs that produce beneficial alterations in lipid and lipoprotein metabolism in three project areas: (1) regulation of cholesterol biosynthesis and expression of a receptor that removes cholesterol from the blood stream, (2) the IRs influencing circulating HDL levels, and (3) PPARs, the subfamily of IRs activated by lipid lowering drugs such as Lopid® and Atromid-S. The research phase was successfully completed in 1997 with the identification of a novel lead structure that activates selected PPAR subfamily members and the identification of a different lead compound that shows activity in preclinical models for lowering LDL cholesterol by up-regulating LDL receptor gene expression in liver cells. We retain the right to develop and commercialize products arising from the collaboration in markets not exploited by GlaxoSmithKline, or where GlaxoSmithKline is not developing a product for the same indication.

In 1999, two compounds were advanced to exploratory development: (1) GW544, a PPAR agonist for cardiovascular disease and dyslipidemia; and (2) GW516, a second candidate that is in clinical development for cardiovascular disease and dyslipidemia. GW516 remains in Phase I studies. The American Heart Association estimates that 62 million Americans have some form of cardiovascular disease, and that cardiovascular disease accounts for more than 40% of deaths in the U.S. annually.

Eli Lilly Collaboration. In November 1997, we entered into a research and development collaboration with Eli Lilly & Co. (Lilly) for the discovery and development of products based upon our IR technology with broad applications in the fields of metabolic diseases, including diabetes, obesity, dyslipidemia, insulin resistance and cardiovascular diseases associated with insulin resistance and obesity. Under the collaboration, Lilly received: (1) worldwide, exclusive rights to our compounds and technology associated with the RXR receptor in the field; (2) rights to use our technology to develop an RXR compound in combination with a SERM in cancer; (3) worldwide, exclusive rights in certain areas to our PPAR technology, along with rights to use PPAR research technology with the RXR technology; and (4) exclusive rights to our HNF-4 receptor and obesity gene promoter technology. Lilly has the right to terminate the development of compounds under the agreements. We would receive rights to certain of such compounds in return for a royalty to Lilly, the rate of which is dependent on the stage at which the development is terminated. In April 2002, Lilly and Ligand announced the companies would extend the collaboration until November of 2003. Lilly may extend the term for up to two additional one-year terms.

Under the Lilly collaboration, we retained or received: (1) exclusive rights to independently research, develop and commercialize Targretin® and other RXR compounds in the fields of cancer and dermatology; (2) an option to obtain selected rights to one of Lilly's specialty pharmaceutical products; and (3) rights to receive milestones, royalties and options to obtain certain co-development and co-promotion rights for the Lilly-selected RXR compound in combination with a SERM.

Our rights under the initial agreements have changed. In connection with the acquisition of Seragen in 1998, we obtained from Lilly its rights to ONTAK® in satisfaction of our option to obtain selected rights to one of Lilly's specialty pharmaceutical products. In 1999, we agreed to focus our collaborative efforts on the RXR modulator second-generation program, which has compounds with improved therapeutic indices relative to the three first-generation compounds, and on co-agonists of the PPAR receptor program. In early 1999, Lilly opted not to proceed with the development of certain first-generation compounds, including Targretin®, in the RXR program for diabetes. As a result of this decision, all rights to the oral form of Targretin® reverted to us, and LGD1268 and LGD1324 returned to the pool of eligible RXR modulators for possible use in oncology in combination with a SERM under the collaboration agreement between Ligand and Lilly.

In September 2001, we announced that we had earned an undisclosed milestone from Lilly as a result of Lilly's filing with the FDA an IND for LY818, a PPAR modulator for type II diabetes and metabolic diseases. LY818 entered Phase II studies early in 2003. In June 2002, we announced that we had earned a $1.1 million milestone payment as a result of Lilly's filing with the FDA an IND for LY929, a PPAR modulator for the treatment of Type II diabetes, metabolic diseases and dyslipidemias. In November 2002, we announced that we had earned a $2.1 million milestone payment as a result of Lilly's filing with the FDA an IND for LY674, a PPAR modulator for the treatment of dyslipidemias. We will receive additional milestones if these products continue through the development process, and royalties on product sales if the products receive marketing approval. During 2002, Lilly also moved to IND track two other PPAR products, the compound numbers for which have not been disclosed. Lilly and Ligand also have an active preclinical development program.

Inflammatory Disease Collaborative Program

Abbott Collaboration. In July 1994, we entered into a research and development collaboration with Abbott Laboratories ("Abbott") to discover and develop small molecule compounds for the prevention or treatment of inflammatory diseases. The collaborative program includes several molecular approaches to discovering modulators of glucocorticoid receptor activity that have significantly improved therapeutic profiles relative to currently known anti-inflammatory steroids such as prednisone and dexamethasone. The collaboration is focused on the development of novel non-steroidal glucocorticoids that maintain the efficacy of corticosteroids, but lack some or all of corticosteroids' dose-limiting side effects. The research phase concluded in July 1999. Certain compounds discovered during the collaboration have progressed to advanced preclinical testing in an effort to select a clinical candidate.

When the research phase of the collaboration ended in July 1999, Abbott retained rights to certain specific glucorcorticoid receptor modulators, or SGRMs. Ligand retained rights to all other compounds discovered through the collaboration, as well as recapturing technology rights. Abbott will make milestone and royalty payments on products targeted at inflammation resulting from the collaboration. Each party will be responsible for the development, registration and commercialization of the products in its respective field.

STATs/Blood Disorders Collaborative Program

Our proprietary STAT technology is distinct from our IR technology platform. STATs are activated through a receptor located on the surface of the cell, rather than a receptor located within the cell. STAT technology provides us with a second broadly enabling drug discovery platform that has potential applications in cancer, inflammation, asthma, allergy, infectious disease, anemia, obesity, diabetes and growth disorders. See "Technology/Signal Transducers and Activators of Transcription Technology" for a more complete discussion of our STAT technology. We are pursuing product development opportunities based on our STAT expertise through a collaboration with GlaxoSmithKline.

GlaxoSmithKline Collaboration. In February 1995, we entered into a research and development collaboration with SmithKline Beecham (now GlaxoSmithKline) to use our proprietary STATs technology to discover and characterize small molecule, orally bioavailable drugs to control hematopoiesis (the formation and development of blood cells) for the treatment of a variety of blood cell deficiencies. In 1998, we announced the discovery of the first non-peptide small molecule that mimics in mice the activity of Granulocyte-Colony Stimulating Factor ("G-CSF"), a natural protein that stimulates production of infection-fighting neutrophils (a type of white blood cell). While this lead compound has only been shown to be active in mice, its discovery is a major scientific milestone and suggests that orally active, small-molecule mimics can be developed not only for G-CSF, but for other cytokines as well.

A number of lead molecules have been found that mimic the activity of natural growth factors for white cells and platelets. In the fourth quarter of 2002, Ligand earned a $2.0 million milestone payment from GlaxoSmithKline, which has begun human trials of SB-497115, an oral, small molecule drug that mimics the activity of thrombopoietin (TPO), a protein factor that promotes growth and production of blood platelets. There are no approved TPO agents for the treatment or prevention of thrombocytopenias (decreased platelet count). Investigational use of injectable forms of recombinant human TPO has been efficacious in raising platelet levels in cancer patients undergoing chemotherapy, and has led to accelerated hematopoietic recovery when given to stem cell donors. Some of these investigational treatments have not moved forward to registration due to the development of neutralizing antibodies. Thus, a small molecule TPO mimic with no apparent immunogenic potential and oral activity that may facilitate dosing may provide an attractive therapeutic profile for a major unmet medical need.

The research phase of the collaboration concluded in February 2001. Under the collaboration, we have the right to select up to three compounds related to hematopoietic targets for development as anti-cancer products other than those compounds selected for development by GlaxoSmithKline. GlaxoSmithKline has the option to co-promote these products with us in North America and to develop and market them outside North America.

Dermatology Program

Allergan. In September 1997, in conjunction with the buyback of Allergan Ligand Retinoid Therapeutics, Inc. (ALRT), we agreed with Allergan to restructure the terms and conditions relating to research, development, and commercialization and sublicense rights for the ALRT compounds. Under the restructured arrangement, we received exclusive, worldwide development, commercialization and sublicense rights to Panretin® capsules and Panretin® gel, LGD1550, LGD1268 and LGD1324. Allergan received exclusive, worldwide development, commercialization and sublicense rights to LGD4310, an RAR antagonist. Allergan also received LGD4326 and LGD4204, two advanced preclinical RXR selective compounds. In addition, we participated in a lottery with Allergan for each of the approximately 2,000 retinoid compounds existing in the ALRT compound library as of the closing date, with each party acquiring exclusive, worldwide development, commercialization and sublicense rights to the compounds that they selected. Ligand and Allergan will each pay the other a royalty based on net sales of products developed from the compounds selected by each in the lottery and the other ALRT compounds to which each acquires exclusive rights. We will also pay to Allergan royalties based on our net sales of Targretin® for uses other than oncology and dermatology indications. In the event that we license commercialization rights to Targretin® to a third party, we will pay to Allergan a percentage of royalties payable to us with respect to sales of Targretin® other than in oncology and dermatology indications. During 2001, Allergan elected not to proceed with development of AGN4310 for mucocutaneous toxicity.

Royalty Pharma Agreement

In March 2002, Ligand announced an agreement with Royalty Pharma AG, which purchased rights to a share of future payments from Ligand's collaborative partners' sales of three SERMs in Phase III development. The SERM products included in the transaction are lasofoxifene, which is in Phase III studies for osteoporosis and other indications at Pfizer, bazedoxifene and bazedoxifene/PREMARIN®, which are in Phase III trials at Wyeth for osteoporosis and as HRT.

Royalty Pharma paid Ligand $6.0 million in March 2002 in exchange for a right to receive 0.250% of net sales of the three SERMs for a period of 10 years. In the second quarter of 2002, Royalty Pharma exercised its first option to purchase for $3 million an additional 0.125% of the SERMs' potential future sales. In the third quarter, Royalty Pharma exercised another option to purchase for $3.5 million an additional 0.125% of the SERMs' potential future sales. In the fourth quarter of 2002, Ligand and Royalty Pharma expanded their SERM royalty agreement and formed a new royalty-sharing partnership around Ligand's approved cancer drug Targretin® capsules. Under the revised agreement, Royalty Pharma exercised an expanded option in December 2002 and agreed to pay Ligand $6.775 million for 0.1875% of the SERMs' potential future sales and for 1% of worldwide sales of Targretin® capsules from January 2003 through 2016. The agreement does not apply to sales of Targretin® capsules outside the United States for CTCL until the product is approved for an indication other than CTCL. Overall, through December 2002 Royalty Pharma purchased for $19.3 million the right to receive 0.6875% of the SERMs' potential future sales, plus 1% of Targretin® capsules sales. Royalty Pharma has remaining options, exercisable at its discretion, to purchase at escalating prices rights to receive up to another 0.875% of the SERMs' potential future sales for up to $25 million in two installments in 2003, and up to $26.5 million in two installments in 2004.

Under the terms of the agreement, unexercised options expire on their due date and cannot be deferred or accelerated. All payments are non-refundable, regardless of whether the products are ever successfully registered or marketed. Milestone payments owed by Ligand's partners as the products complete development and registration are not included in the Royalty Pharma agreement and will be paid to Ligand as earned.

Technology

In our successful efforts to discover new and important medicines, we and our academic collaborators and consultants have concentrated on two areas of research: advancing the understanding of the activities of hormones and hormone-related drugs, and making scientific discoveries related to IR and STAT technologies. We believe that our expertise in these technologies will enable us to develop novel, small-molecule drugs acting through IRs or STATs with more target-specific properties than currently available drugs. Our efforts may result either in improved therapeutic and side effect profiles and new indications for IRs, or in novel mechanisms of action and oral activity for STATs. Both IRs and STATs are families of transcription factors that change cell function by selectively turning on or off particular genes in response to circulating signals that impinge on cells. In addition to our proprietary IR and STAT technologies, we have acquired fusion protein technology, which was used by Seragen in the development of ONTAK®.

Intracellular Receptor Technology

Hormones occur naturally within the body and control processes such as reproduction, cell growth and differentiation. Hormones generally fall into two classes, non-peptide hormones and peptide hormones. Non-peptide hormones include retinoids, sex steroids (estrogens, progestins and androgens), adrenal steroids (glucocorticoids and mineralocorticoids), vitamin D and thyroid hormone. These non-peptide hormones act by binding to their corresponding IRs to regulate the expression of genes in order to maintain and restore balanced cellular function within the body. Hormonal imbalances can lead to a variety of diseases. The hormones themselves and drugs that mimic or block hormone action may be useful in the treatment of these diseases. Furthermore, hormone mimics (agonists) or blockers (antagonists) can be used to treat diseases in which the underlying cause is not hormonal imbalance. The effectiveness of IRs as drug targets is clearly demonstrated by currently available drugs acting through IRs for several diseases. However, the use of most of these drugs has been limited by their often significant side effects. Examples of currently marketed hormone-related drugs acting on IRs are glucocorticoids (steroids used to treat inflammation), natural and synthetic estrogens and progesterones (used for hormone replacement therapy and contraception), tamoxifen (an estrogen antagonist used in the treatment of breast cancer), and various retinoids such as Accutane® and Retin-A® (used to treat acne) and Dovonex® (used to treat psoriasis).

We have built a strong proprietary position and accumulated substantial expertise in IRs applicable to drug discovery and development. Building on our scientific findings about the molecular basis of hormone action, we have created proprietary new tools to explore and manipulate non-peptide hormone action for potential therapeutic benefit. We employ a proprietary cell-culture based assay system for small molecules that can modulate IRs, referred to as the co-transfection assay. The co-transfection assay system simulates the actual cellular processes controlled by IRs and is able to detect whether a compound interacts with a particular human IR and whether this interaction mimics or blocks the effects of the natural regulatory molecules on target gene expression.

The understanding of non-peptide hormones and their actions has increased substantially in the last 15 years. Driving this rapid expansion of knowledge has been the discovery of the family of IRs through which all known small-molecule, non-peptide hormones act. We and our academic collaborators and consultants have made major discoveries pertaining to IRs and to small molecule hormones and compounds that interact with these IRs. These discoveries include: (1) the identification of the IR superfamily, (2) the recognition of IR subtypes, (3) the heterodimer biology of RXR-selective compounds and (4) the discovery of orphan IRs. We believe that each of these broad areas of knowledge provides important opportunities for drug discovery.

IR Superfamily. The receptors for all non-peptide hormones are closely related members of a superfamily of proteins known as IRs. Human IRs for all the known non-peptide hormones now have been cloned, in many cases by our scientists or our collaborators. The structure and underlying mechanism of action of IRs have many common features, such that drug discovery insights about one IR often can be directly applied to other members of the IR superfamily, bringing synergy to our IR-focused drug discovery efforts. First-generation drugs were developed and commercialized for their therapeutic benefits prior to the discovery of IRs. As a result, they often cross-react with the IRs for hormones other than the intended target, which can result in significant side effects. The understanding that IRs are structurally similar has enabled us to determine the basis for the side effects of some first-generation drugs and to discover improved drug candidates.

IR Subtypes. For some of the non-peptide hormones, several closely related but non-identical IRs, known as IR subtypes, have been discovered. These include six subtypes of the IRs for retinoids, two subtypes of the IRs for thyroid hormone, two subtypes for the ER, and three subtypes for the PPARs. Patent applications covering many of these IR subtypes have been exclusively licensed by us. We believe that drugs capable of selective modulation of IR subtypes will allow more specific pharmacological intervention that is better matched to therapeutic need. Targretin®, an RXR selective molecule, was discovered as a result of our understanding of retinoid receptor subtypes.

Retinoid Responsive IRs. Retinoic acid, a derivative of Vitamin A, is one of the body's natural regulatory hormones that has a broad range of biological actions, influencing cell growth, differentiation, programmed cell death and embryonic development. Many chemical analogues of retinoic acid, called retinoids, also have biological activity. Specific retinoids have been approved by the FDA for the treatment of psoriasis and certain severe forms of acne. Evidence also suggests that retinoids can be used to arrest and, to an extent, reverse the effects of skin damage arising from prolonged exposure to the sun. Other evidence suggests that retinoids are useful in the treatment of a variety of cancers, including kidney cancer and certain forms of leukemia. For example, all-trans-retinoic-acid has been approved by the FDA to treat acute promyelocytic leukemia. Retinoids also have shown an ability to reverse precancerous (premalignant) changes in tissues, reducing the risk of development of cancer, and may have potential as preventive agents for a variety of epithelial malignancies, including skin, head and neck, bladder and prostate cancer. Currently marketed retinoids, which were developed and commercialized prior to the discovery of retinoid-responsive IRs, cause significant side effects. These include severe birth defects if fetal exposure occurs, severe irritation of the skin and mucosal surfaces, elevation of plasma lipids, headache and skeletal abnormalities.

The six RRs that have been identified to date can be grouped in two subfamilies -- RARs and RXRs. Patent applications covering members of both families of RRs have been licensed exclusively to us primarily from The Salk Institute. The RR subtypes appear to have different functions, based on their distribution in various tissues within the body and data arising from *in vitro* and *in vivo* studies, including studies of transgenic mice. Several of the retinoids currently in commercial use are either non-selective in their pattern of RR subtype activation or are not ideal drugs for other reasons. We are developing chemically synthesized retinoids that, by selectively activating RR subtypes, may preserve desired therapeutic effects while reducing side effects.

We have three retinoid products approved by the FDA (Panretin® gel, Targretin® capsules and Targretin® gel) and four retinoid products in clinical trials (Panretin® capsules, Targretin® capsules, Targretin® gel and LGD1550 capsules). Panretin® gel and Panretin® capsules incorporate 9-*cis* retinoic acid, a retinoid isolated and characterized by us in 1991 in collaboration with scientists at The Salk Institute and Baylor. 9-*cis* retinoic acid is the first non-peptide hormone discovered in more than 25 years and appears to be a natural ligand for the RAR and RXR subfamilies of retinoid receptors. Bexarotene, the active substance in Targretin®, is a synthetic retinoid developed by us that shows selective retinoid receptor subtype activity that is different from that of 9-*cis* retinoic acid, the active substance in Panretin®. Targretin® selectively activates a subclass of retinoid receptors called RXRs. RXRs play an important role in the control of a variety of cellular functions. LGD1550 is a potent RAR agonist that strongly inhibits growth of several human cancer cell lines.

RXRs. RXRs can form a dimer with numerous IRs, such as the RAR, thyroid hormone receptor and vitamin D receptor. While RXRs are widely expressed, their IR partners are more selectively expressed in different tissues, such as liver, fat or muscle. As a result, compounds that bind RXRs offer the unique potential to treat a variety of diseases, including cancer and metabolic diseases. In preclinical models of type II diabetes, RXR agonists appear to stimulate the physiological pathways responsive to RXR-PPAR receptor partners expressed in key target tissues that are involved in glucose metabolism. As a result, a discrete set of genes is activated in these tissues, resulting in a decrease in serum glucose levels and insulin.

Orphan Receptors. More than 50 additional members of the IR superfamily that do not interact with the known non-peptide hormones have been discovered. These members of the IR superfamily have been designated orphan receptors. We believe that among the orphan IRs there may be receptors for uncharacterized small molecule hormones, and that the physiological roles of the various orphan IRs are likely to be diverse. We have devised strategies to isolate small molecules that interact with orphan IRs. In 1999, we invested in and exclusively licensed specified orphan IR technology to a new private corporation, X-Ceptor Therapeutics, Inc., which is conducting research to identify therapeutic products from orphan nuclear receptors. Please see note 13 of notes to consolidated financial statements for further details regarding our investment in X-Ceptor.

Signal Transducers and Activators of Transcription Technology

STATs are a family of proteins that are a key part of the signal transduction pathway for a variety of biologically important polypeptide hormones (e.g., interferons, interleukins, leptin and hematopoietic growth factors). STATs play a role in the biology of cytokines and growth factors functionally analogous to that played by IRs in the biology of the non-peptide hormones. When various cytokines or growth factors bind to their receptors on the cell surface, this triggers the activation of specific members of the JAKs, which in turn activate specific STATs. The activated STATs enter the cell nucleus and bind to the control regions of specific target genes and alter their expression, thereby modulating physiologic or pathophysiologic processes.

The discovery of STATs, the elucidation of their roles in interferon signal transduction, and the first cloning of genes encoding STATs were all accomplished by our exclusive collaborator, Dr. James Darnell, and were described initially in 1992. A total of seven members of the STAT family have been identified and a large number of peptide hormones have been shown to utilize STAT signaling pathways. These peptide hormones include the interferons (alpha, beta and gamma), the hematopoietic colony stimulating factors (interleukin-3, EPO, G-CSF, GM-CSF and thrombopoietin), growth hormone, prolactin, leptin and many of the interleukins.

In certain conditions it may prove beneficial to block the actions of specific cytokines. In other pathological states, there is insufficient activity of specific cytokines. For example, in patients with chronic renal failure, diminished erythropoietin ("EPO") release by the damaged kidneys results in the inadequate production of red blood cells, causing anemia. Recombinant human EPO protein (Epogen®) can be administered to correct this anemia effectively, but must be injected. Other cytokines are useful as injected protein medicines, including interferons (Intron-A®, Roferon®, Betaseron®) and interleukins (Proleukin®) and G-CSF (Neupogen®). Each of these and many other cytokines appear to exert their actions through JAK/STAT signal transduction pathways.

We have established a collaboration with GlaxoSmithKline to discover and characterize small molecule drugs to modulate specific JAK/STAT pathways to control the formation of red, white and platelet blood cells for treating patients with cancer, anemia, or platelet deficiency disorders. Proof of principle for this approach was achieved with GlaxoSmithKline in the area of G-CSF and thrombopoietin mimics. In 2002, GlaxoSmithKline moved into clinical studies the first product discovered from our STAT technology, SB-497115, an oral TPO agonist for the treatment of thrombocytopenia.

Fusion Protein Technology

Our fusion protein technology was developed by Seragen, which we acquired in 1998. Seragen's fusion proteins consist of a fragment of diphtheria toxin genetically fused to a ligand that binds to specific receptors on the surface of target cells. Once bound to the cell, the fusion proteins are designed to enter the cell and destroy the ability of the cell to manufacture proteins, resulting in cell death. Using this platform, Seragen genetically engineered six fusion proteins, each of which consists of a fragment of diphtheria toxin fused to a different targeting ligand, such as a polypeptide hormone or growth factor. ONTAK®, which is approved in the U.S. for the treatment of patients with persistent or recurrent CTCL, is a fusion protein consisting of a fragment of diphtheria toxin genetically fused to a part of interleukin-2. In addition to treatment of CTCL, fusion proteins may have utility in oncology, dermatology, infectious diseases and autoimmune diseases. Seragen has entered into exclusive license agreements with Harvard University and other parties for patents related to fusion protein technology and has been issued four U.S. patents for improvements in the technology licensed from Harvard University.

Academic Collaborations

To date, we have licensed technology from The Salk Institute, Baylor College of Medicine and Rockefeller University and developed relationships with key scientists to further the development of our core IR and STAT technologies.

The Salk Institute of Biological Studies. In 1988, we established an exclusive relationship with The Salk Institute, which is one of the research centers in the area of IR technology. We amended and restated this agreement in April 2002. Under our agreement, we have an exclusive, worldwide license to certain IR technology developed in the laboratory of Dr. Ronald Evans, a Salk professor and Howard Hughes Medical Institute Investigator. Dr. Evans cloned and characterized the first IR in 1985 and is an inventor of the co-transfection assay used by us to screen for IR modulators. Under the agreement, we are obligated to make certain royalty payments based on sales of certain products developed using the licensed technology, as well as certain minimum annual royalty payments and a percentage of milestones and other payments received.

We have also entered into a consulting agreement with Dr. Evans that continues through February 2004. Dr. Evans serves as Chairman of Ligand's Scientific Advisory Board.

Baylor College of Medicine. In 1990, we established an exclusive relationship with Baylor, which is a center of IR technology. We entered into a series of agreements with Baylor under which we have an exclusive, worldwide license to IR technology developed at Baylor and to future improvements made in the laboratory of Dr. Bert W. O'Malley through the life of the related patents. Dr. O'Malley is a professor and the Chairman of the Department of Cell Biology at the Baylor College of Medicine and the Director of the Center for Reproductive Biology. He leads IR research at Baylor.

We work closely with Dr. O'Malley and Baylor in scientific IR research, particularly in the area of sex steroids and orphan IRs. Under our agreement, we are obligated to make certain royalty payments based on the sales of products developed using the licensed technology. Dr. O'Malley is a member of Ligand's Scientific Advisory Board.

Rockefeller University. In September 1992, we entered into a worldwide, exclusive license agreement with Rockefeller University, and exclusive consulting agreements with Dr. James Darnell of Rockefeller University and Dr. David Levy of NYU, to develop and commercialize certain technology involving STATs to control gene expression. Dr. Darnell is one of the leading investigators of the control of gene expression by STATs. Rockefeller University will receive a royalty on any commercialized products developed using the technology. Related technology was assigned by NYU to Rockefeller University and is covered by the license agreement with us.

In addition to the collaborations discussed above, we also have a number of other consulting, licensing, development and academic agreements by which we strive to advance our technology.

Manufacturing

We currently have no manufacturing facilities and, accordingly, rely on third parties, including our collaborative partners, for commercial or clinical production of any products or compounds.

Certain raw materials necessary for the commercial manufacturing of our products are custom and must be obtained from a specific sole source. In addition, our finished products are produced by sole source manufacturers. We currently attempt to manage the risk associated with such sole source raw materials and production by actively managing our inventories and supply and production arrangements. We attempt to remain appraised of the financial condition of our suppliers and their ability to continue to supply our raw materials and finished products in an uninterrupted and timely manner. Unavailability of certain materials or the loss of current sources of production could cause an interruption in production and a reduced supply of finished product pending establishment of new sources, or in some cases, implementation of alternative processes. For a discussion of the risks associated with manufacturing, see "Risks and Uncertainties."

Quality Assurance

Our success depends in great measure upon customer confidence in the quality of our products and in the integrity of the data that support their safety and effectiveness. The quality of our products arises from our total commitment to quality in all aspects of our business, including research and development, purchasing, manufacturing and distribution. Quality-assurance procedures have been developed relating to the quality and integrity of our scientific information and production processes.

Control of production processes involves rigid specifications for ingredients, equipment, facilities, manufacturing methods, packaging materials and labeling. Control tests are made at various stages of production processes and on the final product to assure that the product meets all regulatory requirements and our standards. These tests may involve chemical and physical microbiological testing, preclinical testing, human clinical trials, or a combination of these trials.

Commercial

Ligand's practices with respect to working capital items are similar to comparable companies in the industry. The Company accepts the return of pharmaceuticals that have reached their expiration date. Our policy for returns allows customers, primarily wholesale distributors, to return the product three months prior to and six months after expiration. The level of actual returns can be influenced by a number of factors including the dating of product when shipped to the customer, the amount of product subsequently shipped by the wholesale distributor to their customers, pricing adjustments, and competing products. Actual product returns may differ from our estimates.

We have offered and may in the future offer special payment terms as part of promotional launch and other commercial programs such as those that provide customers with discounts off wholesale price and 90-day payment terms instead of our normal 30-day terms. We offered such special terms, for example, in our launch of AVINZA®.

For the year ended December 31, 2002, revenues from sales to and agreements with five customers each accounted for more than 10% of total revenues and in the aggregate represented more than 85% of total revenues. These were AmerisouceBergen Corporation, Cardinal Health, Inc., McKesson Corporation, Royalty Pharma AG and Eli Lilly & Company. Of these, there were three wholesale distributors, AmerisouceBergen Corporation, Cardinal Health Inc., and McKesson Corporation, that individually represented 10% or more of the Company's product sales and in the aggregate represented approximately 92% of product sales.

Substantially all of the Company's revenues are attributable to customers in the United States; likewise substantially all of our long-lived assets are located in the United States.

For further discussion of these items, as well as a discussion of inventories, see below under "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations - Critical Accounting Policies" and "Management's Discussion and Analysis of Financial Condition and Results of Operations - New Accounting Policies."

Research and Development Expenses

Research and development expenses were $58.8 million, $51.1 million and $51.3 million in fiscal 2002, 2001 and 2000, respectively, of which approximately 75%, 70% and 68%, respectively, we sponsored, and the remainder of which was funded pursuant to collaborative research and development arrangements.

Competition

Some of the drugs we are developing will compete with existing therapies. In addition, a number of companies are pursuing the development of novel pharmaceuticals that target the same diseases we are targeting. A number of pharmaceutical and biotechnology companies are pursuing IR-related or STAT-related approaches to drug discovery and development. Furthermore, academic institutions, government agencies, and other public and private organizations conducting research may seek patent protection with respect to potentially competing products or technologies and may establish collaborative arrangements with our competitors.

Our competitive position also depends upon our ability to attract and retain qualified personnel, obtain patent protection or otherwise develop proprietary products or processes, and secure sufficient capital resources for the often substantial period between technological conception and commercial sales. For a discussion of the risks associated with competition, see "Risks and Uncertainties."

Government Regulation

The manufacturing and marketing of our products, our ongoing research and development activities, and products being developed by our collaborative partners are subject to regulation for safety and efficacy by numerous governmental authorities in the United States and other countries. In the United States, pharmaceuticals are subject to rigorous regulation by federal and various state authorities, including the FDA. The Federal Food, Drug and Cosmetic Act and the Public Health Service Act govern the testing, manufacture, safety, efficacy, labeling, storage, record keeping, approval, advertising and promotion of our products. There are often comparable regulations that apply at the state level. Product development and approval within this regulatory framework takes a number of years and involves the expenditure of substantial resources.

The steps required before a pharmaceutical agent may be marketed in the United States include (1) preclinical laboratory tests, (2) the submission to the FDA of an IND, which must become effective before human clinical trials may commence, (3) adequate and well-controlled human clinical trials to establish the safety and efficacy of the drug, (4) the submission of a NDA to the FDA and (5) the FDA approval of the NDA prior to any commercial sale or shipment of the drug. A company must pay a one-time user fee for NDA submissions, and annually pay user fees for each approved product and manufacturing establishment. In addition to obtaining FDA approval for each product, each domestic drug-manufacturing establishment must be registered with the FDA and, in California, with the Food and Drug Branch of California. Domestic manufacturing establishments are subject to pre-approval inspections by the FDA prior to marketing approval, then to biennial inspections, and must comply with current Good Manufacturing Practices (cGMP). To supply products for use in the United States, foreign manufacturing

establishments must comply with cGMP and are subject to periodic inspection by the FDA or by regulatory authorities in such countries under reciprocal agreements with the FDA.

For both currently marketed and future products, failure to comply with applicable regulatory requirements after obtaining regulatory approval can, among other things, result in the suspension of regulatory approval, as well as possible civil and criminal sanctions. In addition, changes in existing regulations could have a material adverse effect to us.

For marketing outside the United States before FDA approval to market, we must submit an export permit application to the FDA. We also are subject to foreign regulatory requirements governing human clinical trials and marketing approval for drugs. The requirements relating to the conduct of clinical trials, product licensing, pricing and reimbursement vary widely from country to country and there can be no assurance that we or any of our partners will meet and sustain any such requirements. For a discussion of the risks associated with government regulations, see "Risks and Uncertainties."

Patents and Proprietary Rights

We believe that patents and other proprietary rights are important to our business. Our policy is to file patent applications to protect technology, inventions and improvements to our inventions that are considered important to the development of our business. We also rely upon trade secrets, know-how, continuing technological innovations and licensing opportunities to develop and maintain our competitive position.

To date, we have filed or participated as licensee in the filing of approximately 88 currently pending patent applications in the United States relating to our technology, as well as foreign counterparts of certain of these applications in many countries. In addition, we own or have licensed rights covered by approximately 297 patents issued or applications, granted or allowed worldwide, including United States patents and foreign counterparts to United States patents. With a few immaterial exceptions, these patents and applications will expire between 2003 and 2023. Our marketed products are expected to have patent protection in the United States and Europe that does not expire until between 2011 and 2017. Subject to compliance with the terms of the respective agreements, our rights under our licenses with our exclusive licensors extend for the life of the patents covering such developments. For a discussion of the risks associated with patent and proprietary rights, see "Risks and Uncertainties."

Human Resources

As of February 28, 2003, we had 402 full-time employees, of whom 209 were involved directly in scientific research and development activities. Of these employees, approximately 66 hold Ph.D. or M.D. degrees.

Available Information

We file electronically with the Securities and Exchange Commission (or SEC) our annual reports on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K and, as necessary, amendments to these reports, pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934. The public may read or copy any materials we file with the SEC at the SEC's Public Reference Room at 450 Fifth Street, NW, Washington, DC 20549. The public may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330. The SEC maintains an Internet site that contains reports, proxy and information statements, and other information regarding issuers that file electronically with the SEC. The address of that site is <http://www.sec.gov>.

You may obtain a free copy of our annual reports on Form 10-K, quarterly reports on Form 10-Q and current reports on Form 8-K and amendments to those reports which are posted as soon as reasonably practicable after filing on our website on the World Wide Web at <http://www.ligand.com>, by contacting the Investor Relations Department at our corporate offices by calling (858) 550-7500 or by sending an e-mail message to investors@ligand.com. You may also request information via the Investor Relations page of our Web site.

Risks and Uncertainties

The following is a summary description of some of the many risks we face in our business. You should carefully review these risks in evaluating our business, including the businesses of our subsidiaries. You should also consider the other information described in this report.

Our product development and commercialization involves a number of uncertainties, and we may never generate sufficient revenues from the sale of products to become profitable.

We were founded in 1987. We have incurred significant losses since our inception. At December 31, 2002, our accumulated deficit was approximately $618 million. To date, we have received the majority of our revenues from our collaborative arrangements and only began receiving revenues from the sale of pharmaceutical products in 1999. To become profitable, we must successfully develop, clinically test, market and sell our products. Even if we achieve profitability, we cannot predict the level of that profitability or whether we will be able to sustain profitability. We expect that our operating results will fluctuate from period to period as a result of differences in when we incur expenses and receive revenues from product sales, collaborative arrangements and other sources. Some of these fluctuations may be significant.

Most of our products in development will require extensive additional development, including preclinical testing and human studies, as well as regulatory approvals, before we can market them. We cannot predict if or when any of the products we are developing or those being co-developed with our partners will be approved for marketing. There are many reasons that we or our collaborative partners may fail in our efforts to develop our other potential products, including the possibility that:

- preclinical testing or human studies may show that our potential products are ineffective or cause harmful side effects;
- the products may fail to receive necessary regulatory approvals from the FDA or foreign authorities in a timely manner, or at all;
- the products, if approved, may not be produced in commercial quantities or at reasonable costs;
- the products, once approved, may not achieve commercial acceptance;
- regulatory or governmental authorities may apply restrictions to our products, which could adversely affect their commercial success; or
- the proprietary rights of other parties may prevent us or our partners from marketing the products.

We are building marketing and sales capabilities in the United States and Europe which is an expensive and time-consuming process and may increase our operating losses.

Developing the sales force to market and sell products is a difficult, expensive and time-consuming process. We have developed a US sales force of about 90 people. We also rely on third-party distributors to distribute our products. The distributors are responsible for providing many marketing support services, including customer service, order entry, shipping and billing and customer reimbursement assistance. In Europe, we will rely initially on other companies to distribute and market our products. We have entered into agreements for the marketing and distribution of our products in territories such as the United Kingdom, Germany, France, Spain, Portugal, Greece, Italy and Central and South America and have established a subsidiary, Ligand Pharmaceuticals International, Inc., with a branch in London, England, to coordinate our European marketing and operations. Our reliance on these third parties means our results may suffer if any of them are unsuccessful or fail to perform as expected. We may not be able to continue to expand our sales and marketing capabilities sufficiently to successfully commercialize our products in the territories where they receive marketing approval. With respect to our co-promotion or licensing arrangements, for example our co-promotion agreement for AVINZA®, any revenues we receive will depend substantially on the marketing and sales efforts of others, which may or may not be successful.

Our small number of products means our results are vulnerable to setbacks with respect to any one product.

We currently have only five products approved for marketing and a handful of other products/indications that have made significant progress through development. Because these numbers are small, especially the number of marketed products, any significant setback with respect to any one of them could significantly impair our operating results and/or reduce the market prices for our securities. Setbacks could include problems with shipping, distribution, manufacturing, product safety, marketing, government licenses and approvals, intellectual property rights and physician or patient acceptance of the product.

Sales of our specialty pharmaceutical products may significantly fluctuate each period based on the nature of our products, our promotional activities and wholesaler purchasing and stocking patterns.

Excluding AVINZA®, our products are small-volume specialty pharmaceutical products that address the needs of cancer patients in relatively small niche markets with substantial geographical fluctuations in demand. To ensure patient access to our drugs, we maintain broad distribution capabilities with inventories held at approximately 125 locations throughout the United States. Furthermore, the purchasing and stocking patterns of our wholesaler customers are influenced by a number of factors that vary with each product, including but not limited to overall level of demand, periodic promotions, required minimum shipping quantities and wholesaler competitive initiatives. As a result, the level of product in the distribution channel may average from two to six months' worth of projected inventory usage. If any or all of our major distributors decide to substantially reduce the inventory they carry in a given period, our sales for that period could be substantially lower than historical levels.

Our drug development programs will require substantial additional future funding which could hurt our operational and financial condition.

Our drug development programs require substantial additional capital to successfully complete them, arising from costs to:

- conduct research, preclinical testing and human studies;
- establish pilot scale and commercial scale manufacturing processes and facilities; and
- establish and develop quality control, regulatory, marketing, sales and administrative capabilities to support these programs.

Our future operating and capital needs will depend on many factors, including:

- the pace of scientific progress in our research and development programs and the magnitude of these programs;
- the scope and results of preclinical testing and human studies;
- the time and costs involved in obtaining regulatory approvals;
- the time and costs involved in preparing, filing, prosecuting, maintaining and enforcing patent claims, competing technological and market developments;
- our ability to establish additional collaborations;
- changes in our existing collaborations;
- the cost of manufacturing scale-up; and
- the effectiveness of our commercialization activities.

We currently estimate our research and development expenditures over the next 3 years to range between $200 million and $275 million. However, we base our outlook regarding the need for funds on many uncertain variables. Such uncertainties include regulatory approvals, the timing of events outside our direct control such as product launches by partners and the success of such product launches, negotiations with potential strategic partners and other factors. Any of these uncertain events can significantly change our cash requirements as they determine such one-time events as the receipt of major milestones and other payments.

While we expect to fund our research and development activities from cash generated from internal operations to the extent possible, if we are unable to do so we may need to complete additional equity or debt financings or seek other external means of financing. If additional funds are required to support our operations and we are unable to obtain them on terms favorable to us, we may be required to cease or reduce further development or commercialization of our products, to sell some or all of our technology or assets or to merge with another entity.

Some of our key technologies have not been used to produce marketed products and may not be capable of producing such products.

To date, we have dedicated most of our resources to the research and development of potential drugs based upon our expertise in our IR and STAT technologies. Even though there are marketed drugs that act through IRs, some aspects of our IR technologies have not been used to produce marketed products. In addition, we are not aware of any drugs that have been developed and successfully commercialized that interact directly with STATs. Much remains to be learned about the location and function of IRs and STATs. If we are unable to apply our IR and STAT technologies to the development of our potential products, we will not be successful in developing new products.

We may require additional money to run our business and may be required to raise this money on terms which are not favorable or which reduce our stock price.

We have incurred losses since our inception and may not generate positive cash flow to fund our operations for one or more years. As a result, we may need to complete additional equity or debt financings to fund our operations. Our inability to obtain additional financing could adversely affect our business. Financings may not be available at all or on favorable terms. In addition, these financings, if completed, still may not meet our capital needs and could result in substantial dilution to our stockholders. For instance, in February and March 2002 we issued to Elan 6.3 million shares upon the conversion of zero coupon convertible senior notes held by Elan, and in April 2002 we issued 4.3 million shares of our common stock in a private placement. These transactions have resulted in the issuance of significant numbers of new shares. In addition, in November 2002 we issued in a private placement $155,250,000 in aggregate principal amount of our 6% convertible subordinated notes due 2007, which could be converted into 25,149,025 shares of our common stock.

If adequate funds are not available, we may be required to delay, reduce the scope of or eliminate one or more of our research or drug development programs, or our marketing and sales initiatives. Alternatively, we may be forced to attempt to continue development by entering into arrangements with collaborative partners or others that require us to relinquish some or all of our rights to technologies or drug candidates that we would not otherwise relinquish.

Our products face significant regulatory hurdles prior to marketing which could delay or prevent sales. Even after approval, government regulation of our business is extensive.

Before we obtain the approvals necessary to sell any of our potential products, we must show through preclinical studies and human testing that each product is safe and effective. We and our partners have a number of products moving toward or currently in clinical trials, the most significant of which are our Phase III trials for Targretin® capsules in non-small cell lung cancer and three Phase III trials by our partners involving bazedoxifene and lasofoxifene. Failure to show any product's safety and effectiveness would delay or prevent regulatory approval of the product and could adversely affect our business. The clinical trials process is complex and uncertain. The results of preclinical studies and initial clinical trials may not necessarily predict the results from later large-scale clinical trials. In addition, clinical trials may not demonstrate a product's safety and effectiveness to the satisfaction of the regulatory authorities. A number of companies have suffered significant setbacks in advanced clinical trials or in seeking regulatory approvals, despite promising results in earlier trials. The FDA may also require additional clinical trials after regulatory approvals are received, which could be expensive and time-consuming, and failure to successfully conduct those trials could jeopardize continued commercialization.

The rate at which we complete our clinical trials depends on many factors, including our ability to obtain adequate supplies of the products to be tested and patient enrollment. Patient enrollment is a function of many factors, including the size of the patient population, the proximity of patients to clinical sites and the eligibility criteria for the trial. For example, each of our Phase III Targretin® clinical trials will involve approximately 600 patients and may require significant time and investment to complete enrollments. Delays in patient enrollment may result in increased costs and longer development times. In addition, our collaborative partners have rights to control product development and clinical programs for products developed under the collaborations. As a result, these collaborators may conduct these programs more slowly or in a different manner than we had expected. Even if clinical trials are completed, we or our collaborative partners still may not apply for FDA approval in a timely manner or the FDA still may not grant approval.

In addition, the manufacturing and marketing of approved products is subject to extensive government regulation, including by the FDA, DEA and state and other territorial authorities. The FDA administers processes to assure that marketed products are safe, effective, consistently of uniform, high quality and marketed only for approved indications. For example, while our products are prescribed legally by some physicians for unapproved uses, we may not market our products for such uses. Failure to comply with applicable regulatory requirements can result in sanctions up to the suspension of regulatory approval as well as civil and criminal sanctions.

We face substantial competition which may limit our revenues.

Some of the drugs that we are developing and marketing will compete with existing treatments. In addition, several companies are developing new drugs that target the same diseases that we are targeting and are taking IR-related and STAT-related approaches to drug development. The principal products competing with our products targeted at the cutaneous t-cell lymphoma market are Supergen/Abbott's Nipent and interferon, which is marketed by a number of companies, including Schering-Plough's Intron A. Products that will compete with AVINZA® include Purdue Pharma L.P.'s OxyContin and MS Contin, Janssen Pharmaceutica Products, L.P.'s Duragesic, Elan's Oramorph SR and Faulding's Kadian, each of which is currently marketed. Many of our existing or potential competitors, particularly large drug companies, have greater financial, technical and human resources than us and may be better equipped to develop, manufacture and market products. Many of these companies also have extensive experience in preclinical testing and human clinical trials, obtaining FDA and other regulatory approvals and manufacturing and marketing pharmaceutical products. In addition, academic institutions, governmental agencies and other public and private research organizations are developing products that may compete with the products we are developing. These institutions are becoming more aware of the commercial value of their findings and are seeking patent protection and licensing arrangements to collect payments for the use of their technologies. These institutions also may market competitive products on their own or through joint ventures and will compete with us in recruiting highly qualified scientific personnel.

Third-party reimbursement and health care reform policies may reduce our future sales.

Sales of prescription drugs depend significantly on the availability of reimbursement to the consumer from third party payers, such as government and private insurance plans. These third party payers frequently require drug companies to provide predetermined discounts from list prices, and they are increasingly challenging the prices charged for medical products and services. Our current and potential products may not be considered cost-effective, and reimbursement to the consumer may not be available or sufficient to allow us to sell our products on a competitive basis. For example, we have current and recurring discussions with insurers regarding reimbursement rates for our drugs, including AVINZA® which was recently approved for marketing. We may not be able to negotiate favorable reimbursement rates for our products or may have to pay significant discounts to obtain favorable rates. Only one of our products, ONTAK®, is currently eligible to be reimbursed by Medicare. Proposed changes by Medicare to the hospital outpatient payment reimbursement system may adversely affect reimbursement rates for ONTAK®.

In addition, the efforts of governments and third-party payers to contain or reduce the cost of health care will continue to affect the business and financial condition of drug companies such as us. A number of legislative and regulatory proposals to change the health care system have been discussed in recent years, including price caps and controls for pharmaceuticals. These proposals could reduce and/or cap the prices for our products or reduce government reimbursement rates for products such as ONTAK®. In addition, an increasing emphasis on managed care in the United States has and will continue to increase pressure on drug pricing. We cannot predict whether legislative or regulatory proposals will be adopted or what effect those proposals or managed care efforts may have on our business. The announcement and/or adoption of such proposals or efforts could adversely affect our profit margins and business.

We rely heavily on collaborative relationships and termination of any of these programs could reduce the financial resources available to us, including research funding and milestone payments.

Our strategy for developing and commercializing many of our potential products, including products aimed at larger markets, includes entering into collaborations with corporate partners, licensors, licensees and others. These collaborations provide us with funding and research and development resources for potential products for the treatment or control of metabolic diseases, hematopoiesis, women's health disorders, inflammation, cardiovascular disease, cancer and skin disease, and osteoporosis. These agreements also give our collaborative partners significant discretion when deciding whether or not to pursue any development program. Our collaborations may not continue or be successful.

In addition, our collaborators may develop drugs, either alone or with others, that compete with the types of drugs they currently are developing with us. This would result in less support and increased competition for our programs. If products are approved for marketing under our collaborative programs, any revenues we receive will depend on the manufacturing, marketing and sales efforts of our collaborators, who generally retain commercialization rights under the collaborative agreements. Our current collaborators also generally have the right to terminate their collaborations under specified circumstances. If any of our collaborative partners breach or terminate their agreements with us or otherwise fail to conduct their collaborative activities successfully, our product development under these agreements will be delayed or terminated.

We may have disputes in the future with our collaborators, including disputes concerning which of us owns the rights to any technology developed. For instance, we were involved in litigation with Pfizer, which we settled in April 1996, concerning our right to milestones and royalties based on the development and commercialization of droloxifene. These and other possible disagreements between us and our collaborators could delay our ability and the ability of our collaborators to achieve milestones or our receipt of other payments. In addition, any disagreements could delay, interrupt or terminate the collaborative research, development and commercialization of certain potential products, or could result in litigation or arbitration. The occurrence of any of these problems could be time-consuming and expensive and could adversely affect our business. Challenges to or failure to secure patents and other proprietary rights may significantly hurt our business. Our success will depend on our ability and the ability of our licensors to obtain and maintain patents and proprietary rights for our potential products and to avoid infringing the proprietary rights of others, both in the United States and in foreign countries. Patents may not be issued from any of these applications currently on file, or, if issued, may not provide sufficient protection. In addition, disputes with licensors under our license agreements may arise which could result in additional financial liability or loss of important technology and potential products and related revenue, if any.

Our patent position, like that of many pharmaceutical companies, is uncertain and involves complex legal and technical questions for which important legal principles are unresolved. We may not develop or obtain rights to products or processes that are patentable. Even if we do obtain patents, they may not adequately protect the technology we own or have licensed. In addition, others may challenge, seek to invalidate, infringe or circumvent any patents we own or license, and rights we receive under those patents may not provide competitive advantages to us. Further, the manufacture, use or sale of our products may infringe the patent rights of others.

Several drug companies and research and academic institutions have developed technologies, filed patent applications or received patents for technologies that may be related to our business. Others have filed patent applications and received patents that conflict with patents or patent applications we have licensed for our use, either by claiming the same methods or compounds or by claiming methods or compounds that could dominate those licensed to us. In addition, we may not be aware of all patents or patent applications that may impact our ability to make, use or sell any of our potential products. For example, US patent applications may be kept confidential while pending in the Patent and Trademark Office and patent applications filed in foreign countries are often first published six months or more after filing. Any conflicts resulting from the patent rights of others could significantly reduce the coverage of our patents and limit our ability to obtain meaningful patent protection. While we routinely receive communications or have conversations with the owners of other patents, none of these third parties have directly threatened an action or claim against us. If other companies obtain patents with conflicting claims, we may be required to obtain licenses to those patents or to develop or obtain alternative technology. We may not be able to obtain any such licenses on acceptable terms, or at all. Any failure to obtain such licenses could delay or prevent us from pursuing the development or commercialization of our potential products.

We have had and will continue to have discussions with our current and potential collaborators regarding the scope and validity of our patents and other proprietary rights. If a collaborator or other party successfully establishes that our patent rights are invalid, we may not be able to continue our existing collaborations beyond their expiration. Any determination that our patent rights are invalid also could encourage our collaborators to terminate their agreements where contractually permitted. Such a determination could also adversely affect our ability to enter into new collaborations.

We may also need to initiate litigation, which could be time-consuming and expensive, to enforce our proprietary rights or to determine the scope and validity of others' rights. If litigation results, a court may find our patents or those of our licensors invalid or may find that we have infringed on a competitor's rights. If any of our competitors have filed patent applications in the United States which claim technology we also have invented, the Patent and Trademark Office may require us to participate in expensive interference proceedings to determine who has the right to a patent for the technology.

We have learned that Hoffmann-La Roche Inc. has received a US patent and has made patent filings in foreign countries that relate to our Panretin® capsules and gel products. We filed a patent application with an earlier filing date than Hoffmann-La Roche's patent, which we believe is broader than, but overlaps in part with, Hoffmann-La Roche's patent. We believe we were the first to invent the relevant technology and therefore are entitled to a patent on the application we filed. The Patent and Trademark Office has initiated a proceeding to determine whether we or Hoffmann-La Roche are entitled to a patent. We may not receive a favorable outcome in the proceeding. In addition, the proceeding may delay the Patent and Trademark Office's decision regarding our earlier application. If we do not prevail, the Hoffmann-La Roche patent might block our use of Panretin® capsules and gel in specified cancers.

We have also learned that Novartis AG has filed an opposition to our European patent that covers the principal active ingredient of our ONTAK® drug. We are currently investigating the scope and merits of this opposition. If the opposition is successful, we could lose our ONTAK® patent protection in Europe which could substantially reduce our future ONTAK® sales in that region. We could also incur substantial costs in asserting our rights in this opposition proceeding, as well as in other interference proceedings in the United States.

We also rely on unpatented trade secrets and know-how to protect and maintain our competitive position. We require our employees, consultants, collaborators and others to sign confidentiality agreements when they begin their relationship with us. These agreements may be breached, and we may not have adequate remedies for any breach. In addition, our competitors may independently discover our trade secrets.

Reliance on third-party manufacturers to supply our products risks supply interruption or contamination and difficulty controlling costs.

We currently have no manufacturing facilities, and we rely on others for clinical or commercial production of our marketed and potential products. In addition, certain raw materials necessary for the commercial manufacturing of our products are custom and must be obtained from a specific sole source. Elan manufactures AVINZA® for us, Cambrex manufactures ONTAK® for us and RP Scherer and Raylo manufacture Targretin® capsules for us.

To be successful, we will need to ensure continuity of the manufacture of our products, either directly or through others, in commercial quantities, in compliance with regulatory requirements and at acceptable cost. Any extended and unplanned manufacturing shutdowns could be expensive and could result in inventory and product shortages. While we believe that we would be able to develop our own facilities or contract with others for manufacturing services with respect to all of our products, if we are unable to do so our revenues could be adversely affected. In addition, if we are unable to supply products in development, our ability to conduct preclinical testing and human clinical trials will be adversely affected. This in turn could also delay our submission of products for regulatory approval and our initiation of new development programs. In addition, although other companies have manufactured drugs acting through IRs and STATs on a commercial scale, we may not be able to do so at costs or in quantities to make marketable products.

The manufacturing process also may be susceptible to contamination, which could cause the affected manufacturing facility to close until the contamination is identified and fixed. In addition, problems with equipment failure or operator error also could cause delays in filling our customers' orders.

Our business exposes us to product liability risks or our products may need to be recalled, and we may not have sufficient insurance to cover any claims.

Our business exposes us to potential product liability risks. Our products also may need to be recalled to address regulatory issues. A successful product liability claim or series of claims brought against us could result in payment of significant amounts of money and divert management's attention from running the business. Some of the compounds we are investigating may be harmful to humans. For example, retinoids as a class are known to contain compounds which can cause birth defects. We may not be able to maintain our insurance on acceptable terms, or our insurance may not provide adequate protection in the case of a product liability claim. To the extent that product liability insurance, if available, does not cover potential claims, we will be required to self-insure the risks associated with such claims. We believe that we carry reasonably adequate insurance for product liability claims.

We use hazardous materials which requires us to incur substantial costs to comply with environmental regulations.

In connection with our research and development activities, we handle hazardous materials, chemicals and various radioactive compounds. To properly dispose of these hazardous materials in compliance with environmental regulations, we are required to contract with third parties at substantial cost to us. Our annual cost of compliance with these regulations is approximately $600,000. We cannot completely eliminate the risk of accidental contamination or injury from the handling and disposing of hazardous materials, whether by us or by our third-party contractors. In the event of any accident, we could be held liable for any damages that result, which could be significant. We believe that we carry reasonably adequate insurance for toxic tort claims.

Our stock price may be adversely affected by volatility in the markets.

The market prices and trading volumes for our securities, and the securities of emerging companies like us, have historically been highly volatile and have experienced significant fluctuations unrelated to operating performance. For example, in 2002, the intraday sale price of our common stock on the Nasdaq National Market was as high as $20.50 and as low as $4.64. Future announcements concerning us or our competitors as well as other companies in our industry and other public companies may impact the market price of our common stock. These announcements might include:

- the results of research or development testing of ours or our competitors' products;
- technological innovations related to diseases we are studying;
- new commercial products introduced by our competitors;
- government regulation of our industry;
- receipt of regulatory approvals by our competitors;
- our failure to receive regulatory approvals for products under development;
- developments concerning proprietary rights;
- litigation or public concern about the safety of our products; or
- intent to sell or actual sale of our stock held by our corporate partners.

Future sales of our securities may depress the price of our securities.

Sales of substantial amounts of our securities in the public market could seriously harm prevailing market prices for our securities. These sales might make it difficult or impossible for us to sell additional securities when we need to raise capital.

You may not receive a return on your securities other than through the sale of your securities.

We have not paid any cash dividends on our common stock to date. We intend to retain any earnings to support the expansion of our business, and we do not anticipate paying cash dividends on any of our securities in the foreseeable future.

Our shareholder rights plan and charter documents may hinder or prevent change of control transactions.

Our shareholder rights plan and provisions contained in our certificate of incorporation and bylaws may discourage transactions involving an actual or potential change in our ownership. In addition, our board of directors may issue shares of preferred stock without any further action by you. Such issuances may have the effect of delaying or preventing a change in our ownership. If changes in our ownership are discouraged, delayed or prevented, it would be more difficult for our current board of directors to be removed and replaced, even if you or our other stockholders believe that such actions are in the best interests of us and our stockholders.

Item 2. Properties

We currently lease and occupy office and laboratory facilities in San Diego, California. These include a 52,800 square foot facility leased through July 2015 and an 82,500 square foot facility leased through February 2014. We believe these facilities will be adequate to meet our near-term space requirements.

Item 3. Legal Proceedings

Seragen, Inc., our subsidiary, and Ligand, were named parties to *Sergio M. Oliver, et al. v. Boston University, et al.*, a putative shareholder class action filed on December 17, 1998 in the Court of Chancery in the State of Delaware in and for New Castle County, C.A. No. 16570NC, by Sergio M. Oliver and others against Boston University and others, including Seragen, its subsidiary Seragen Technology, Inc. and former officers and directors of Seragen. The complaint, as amended, alleged that Ligand aided and abetted purported breaches of fiduciary duty by the Seragen related defendants in connection with the acquisition of Seragen by Ligand and made certain misrepresentations in related proxy materials and seeks compensatory and punitive damages of an unspecified amount. On July 25, 2000, the Delaware Chancery Court granted in part and denied in part defendants' motions to dismiss. Seragen, Ligand, Seragen Technology, Inc. and our acquisition subsidiary, Knight Acquisition Corporation, were dismissed from the action. Claims of breach of fiduciary duty remain against the remaining defendants, including the former officers and directors of Seragen. The hearing on the plaintiffs' motion for class certification took place on February 26, 2001. The court certified a class consisting of shareholders as of the date of the acquisition and on the date of an earlier business unit sale by Seragen. The litigation is currently in the discovery phase. While Ligand and its subsidiary Seragen have been dismissed from the action, such dismissal is subject to a possible subsequent appeal upon judgment in the action against the remaining parties.

On December 11, 2001, a lawsuit was filed in the United States District Court for the District of Massachusetts against Ligand by the Trustees of Boston University and other former stakeholders of Seragen. The suit was subsequently transferred to federal district court in Delaware. The complaint alleges breach of contract, breach of the implied covenants of good faith and fair dealing and unfair and deceptive trade practices based on, among other things, allegations that Ligand wrongfully withheld approximately $2.1 million in consideration due the plaintiffs under the Seragen acquisition agreement. The complaint seeks payment of the withheld consideration and treble damages. Ligand has filed a motion to dismiss the unfair and deceptive trade practices claim, which motion is pending.

We believe that each of these lawsuits is without merit and intend to vigorously defend against each of such lawsuits. Due to the uncertainty of the ultimate outcome of these matters, the impact on future financial results is not subject to reasonable estimates.

Item 4. Submission of Matters to a Vote of Security Holders

There were no matters submitted to a vote of security holders in the fourth quarter ended December 31, 2002.

PART II

Item 5. Markets for Registrant's Common Stock and Related Stockholder Matters

(a) Market Information

Our common stock trades on the Nasdaq National Market tier of the Nasdaq Stock Market under the symbol "LGND." The following table sets forth the high and low intraday sales prices for our common stock on the Nasdaq National Market for the periods indicated.

	Price Range	
	High	Low
Year Ended December 31, 2002:		
1st Quarter	$ 20.50	$ 12.65
2nd Quarter	20.25	11.70
3rd Quarter	14.72	5.75
4th Quarter	8.15	4.64
Year Ended December 31, 2001:		
1st Quarter	14.75	7.81
2nd Quarter	14.04	8.06
3rd Quarter	11.75	7.30
4th Quarter	19.10	8.73

(b) Holders

As of February 28, 2003, there were approximately 2,065 holders of record of the common stock.

(c) Dividends

We have never declared or paid any cash dividends on our capital stock and do not intend to pay any cash dividends in the foreseeable future. We currently intend to retain our earnings, if any, to finance future growth.

(d) Recent Sales of Unregistered Securities

On November 26 and 27, 2002 we issued and sold an aggregate of $155,250,000 of 6% convertible subordinated notes due 2007 in a private placement in reliance on an exemption from registration under Section 4(2) of the Securities Act. The initial purchaser of the notes in that offering was UBS Warburg LLC. These initial purchasers purchased the convertible notes at an aggregate purchase price equal to 97% of the aggregate principal amount of the convertible notes. The initial purchaser then resold the notes in offerings in reliance on an exemption from registration under Rule 144A of the Securities Act. The notes are convertible into 161.9905 shares of our common stock, par value $0.001 per share, per $1,000 principal amount of notes and subject to adjustment in certain circumstances. This results in an initial conversion price of $6.17 per share.

(e) Securities Authorized for Issuance under Equity Compensation Plans

Refer to PART III, Item 12, "Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters".

Item 6. Selected Consolidated Financial Data

The selected financial data set forth below with respect to our consolidated financial statements has been derived from the audited financial statements. The data set forth below should be read in conjunction with "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the consolidated financial statements and related notes included elsewhere in this filing.

	Year Ended December 31,				
	2002	2001	2000	1999	1998
	(in thousands, except loss per share data)				
Consolidated Statement of Operations Data:					
Product sales (1)	$ 54,522	$ 45,623	$ 22,910	$ 11,307	$ 406
Collaborative research and development and other revenues	42,118	30,718	25,200	29,588	17,267
Cost of products sold (1)	20,306	13,947	8,591	3,563	466
Research and development expenses	58,807	51,104	51,287	59,442	70,273
Loss from operations (2)	(24,151)	(23,137)	(45,882)	(61,293)	(114,634)
Loss before cumulative effect of a change in accounting principle	(32,596)	(42,995)	(59,277)	(74,719)	(117,886)
Cumulative effect on prior years (to December 31, 1999) of changing method of revenue recognition (3)	—	—	(13,099)	—	—
Net loss	(32,596)	(42,995)	(72,376)	(74,719)	(117,886)
Basic and diluted per share amounts:					
Loss before cumulative effect of a change in accounting principle	$ (0.47)	$ (0.72)	$ (1.06)	$ (1.58)	$ (2.92)
Cumulative effect on prior years (to December 31, 1999) of changing method of revenue recognition (3)	—	—	(0.24)	—	—
Net loss	$ (0.47)	$ (0.72)	$ (1.30)	$ (1.58)	$ (2.92)
Weighted average number of common shares	69,118,976	59,413,270	55,664,921	47,146,312	40,392,421
Pro forma amounts assuming the changed revenue recognition method is applied retroactively:					
Net loss			$ (59,277)	$ (73,131)	$ (114,136)
Basic and diluted net loss per share			$ (1.06)	$ (1.55)	$ (2.83)

	December 31,				
	2002	2001	2000	1999	1998
	(in thousands)				
Consolidated Balance Sheet Data:					
Cash, cash equivalents, short-term investments and restricted investments	$ 74,894	$ 40,058	$ 25,097 (4)	$ 49,166	$ 72,521
Working capital	53,218	21,848	16,234	35,978	51,098
Total assets	270,609	117,473	113,422	134,645	156,020
Long-term liabilities	166,059	143,622	140,132	139,534	140,487
Accumulated deficit	(618,316)	(585,720)	(542,725)	(470,349)	(395,630)
Total stockholders' equity (deficit)	74,015	(57,875)	(55,125)	(25,590)	(11,362)

(1) We began selling ONTAK® and Panretin® gel in 1999 and Targretin® capsules and Targretin® gel in 2000. AVINZA® was approved by the FDA in March 2002 and subsequently launched in the U.S. in June 2002.

(2) Includes write-offs of $5 million in 1999 and $45 million in 1998 related to technology acquired from Elan in 1999 and 1998, and the acquisition of Seragen in 1998.

(3) In 2000, we changed our policy for the recognition of revenue related to up-front fees in accordance with Staff Accounting Bulletin No. 101, *Revenue Recognition*. See Note 2 (revenue recognition) of the notes to consolidated financial statements.

(4) In January 2001, we received net cash proceeds of $10 million from the issuance of convertible notes to Elan and $22.4 million from a private placement of our common stock. The convertible notes were issued to Elan on December 29, 2000 and the funds received on January 2, 2001.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

Caution: This discussion and analysis may contain predictions, estimates and other forward-looking statements that involve a number of risks and uncertainties, including those discussed in Item 1 – Business at "Risks and Uncertainties". This outlook represents our current judgment on the future direction of our business. Such risks and uncertainties could cause actual results to differ materially from any future performance suggested. We undertake no obligation to release publicly the results of any revisions to these forward-looking statements to reflect events or circumstances arising after the date of this quarterly report. This caution is made under the safe harbor provisions of the Private Securities Litigation Reform Act of 1995.

Our trademarks, trade names and service marks referenced herein include Ligand®, AVINZA®, ONTAK®, Panretin® and Targretin®. Each other trademark, trade name or service mark appearing in this quarterly report belongs to its owner.

Overview

We discover, develop and market drugs that address patients' critical unmet medical needs in the areas of cancer, pain, men's and women's health or hormone-related health issues, skin diseases, osteoporosis, and metabolic, cardiovascular and inflammatory diseases. Our drug discovery and development programs are based on our proprietary gene transcription technology, primarily related to Intracellular Receptors, also known as IRs, a type of sensor or switch inside cells that turns genes on and off, and Signal Transducers and Activators of Transcription, also known as STATs, which are another type of gene switch.

We currently market five products in the United States: AVINZA®, for the relief of chronic, moderate to severe pain; ONTAK®, for the treatment of patients with persistent or recurrent cutaneous T-cell lymphoma (or CTCL); Targretin® capsules and Targretin® gel, for the treatment of CTCL in patients who are refractory to at least one prior systemic therapy; and Panretin® gel, for the treatment of Kaposi's sarcoma in AIDS patients. In March 2002, the Food and Drug Administration (or FDA) approved AVINZA®, which was subsequently launched in the U.S. in June 2002. In Europe, we were granted a marketing authorization for Panretin® gel in October 2000 and for Targretin® capsules in March 2001 and have a marketing authorization application (or MAA) under review for ONZAR (ONTAK® in the U.S.). Targretin® capsules and Panretin® gel were launched in Europe in the fourth quarter of 2001. During the second quarter of 2002, we withdrew our Targretin® gel MAA in Europe due to a request for additional clinical trials in CTCL which we judged uneconomic given the size of the CTCL market and the existing approval for Targretin® capsules in Europe.

We are currently involved in the research phase of research and development collaborations with Eli Lilly and Company and TAP Pharmaceutical Products Inc. (or TAP). Collaborations in the development phase are being pursued by Abbott Laboratories, Allergan, Inc., GlaxoSmithkline, Organon, Pfizer Inc. and Wyeth. We receive funding during the research phase of the arrangements and milestone and royalty payments as products are developed and marketed by our corporate partners. In addition, in connection with some of these collaborations, we received non-refundable up-front payments. As of December 31, 2002, we had deferred revenue of $1.5 million resulting from an up-front payment received under our collaboration agreement with TAP. This amount is being amortized as revenue over the service period of the agreement which runs from June 2001 to June 2004.

We have been unprofitable since our inception. We expect to incur additional operating losses until sales of our products generate sufficient revenues to cover our expenses. We expect that our operating results will fluctuate from period to period as a result of differences in the timing of expenses incurred, revenues earned from product sales, collaborative arrangements and other sources. Some of these fluctuations may be significant.

Recent Developments

In February 2003, we announced that we had entered into an agreement for the co-promotion of AVINZA® with Organon Pharmaceuticals USA Inc. ("Organon"). Under the terms of the agreement, Organon committed to specified numbers of primary and secondary product calls delivered to certain high prescribing physicians and hospitals. In exchange, we will pay Organon a percentage of AVINZA® net sales based on the following schedule:

Annual Net Sales of AVINZA®	% of Incremental Net Sales Paid to Organon by Ligand
$0-35 million (2003 only)	0% (2003 only)
$0-150 million	30%
$150-300 million	40%
$300-425 million	50%
> $425 million	45%

Additionally, both companies agreed to share equally all costs for AVINZA® advertising and promotion, medical affairs and clinical trials. Each company will be responsible for its own sales force costs and other expenses. The initial term of the co-promotion agreement is 10 years. Organon has the option any time prior to the end of year five to extend the agreement to 2017 by making a $75.0 million payment to us.

Results of Operations

Total revenues for 2002 increased to $96.6 million compared to $76.3 million in 2001 and $48.1 million in 2000. Net loss for 2002 decreased to $32.6 million or $0.47 per share, compared to $43.0 million or $0.72 per share in 2001 and $72.4 million or $1.30 per share in 2000. As more fully described in Note 2 of the notes to consolidated financial statements, results for 2000 reflect the implementation of SAB No. 101 effective January 1, 2000. The cumulative effect of this change to December 31, 1999, which was recorded in 2000, was $13.1 million or $0.24 per share. The effect on 2000 operating results increased revenue and reduced loss before cumulative effect of a change in accounting principle by $1.3 million or $0.02 per share.

Product Sales

Product sales for 2002 were $54.5 million compared to $45.6 million in 2001, and $22.9 million in 2000. Product revenue in 2002 includes sales of $12.2 million for AVINZA® which was launched in the U.S. in June 2002. In connection with the launch, we initially shipped $11.5 million of AVINZA® to wholesaler customers. This product was sold under certain promotional launch programs, not uncommon with new product launches, that provided customers with discounts off wholesale price and 90-day payment terms instead of our normal 30-day terms. The promotions were implemented to ensure the availability of a sufficient retail supply of AVINZA® in those territories where our sales representatives were initially promoting the product. Our policy is to defer recognition of revenue associated with promotional terms for a new product launch requiring broad retail pharmacy distribution. Accordingly, we deferred $6.1 million of net revenue in the second quarter. The amount of deferred revenue we recognize in subsequent periods is determined based on an estimate, using available market information, of the level of product that will sell through from wholesalers to pharmacies. Through December 31, 2002, $14.6 million of AVINZA® has been shipped to wholesaler customers. Of the amount shipped during 2002, net revenue of $12.2 million was recognized and $750,000 remained deferred.

Excluding AVINZA®, sales of our in-line products for 2002 were $42.3 million compared to $45.6 million in 2001 and $22.9 million in 2000. Sales of ONTAK® increased to $26.6 million in 2002 from $24.3 million in 2001 and $13.2 million in 2000. Sales of Targretin® capsules were $12.2 million in 2002 compared to $14.6 million in 2001 and $6.7 million in 2000 while sales of Targretin® gel and Panretin® gel were $3.5 million in 2002 compared to $6.8 million in 2001 and $3.0 million in 2000.

The increase in ONTAK® sales in 2002 compared to 2001 reflects price increases, further penetration of private oncology practices and a higher level of use for indications where the product may be effective but for which registration clinical trials have not been completed and for which FDA approval has not yet been granted. These indications include chronic lymphocytic leukemia (CLL), B- and T-cell non-Hodgkins Lymphoma (NHL) and graft-versus-host disease (GVHD). Likewise, demand for Targretin® capsules in 2002 benefited from growing prescriptions for treatment of non-small cell lung cancer (NSCLC) as well as increased use in CTCL. Sales of both ONTAK® and Targretin® capsules in 2002 were negatively impacted, however, by lower than expected demand growth in the first half of 2002 due to delays in completion and data publication of key ongoing, expanded-use clinical trials and physician initiated studies, as well as a lower company-wide focus on these products as

commercial resources were shifted to assist in the launch of AVINZA®. Sales of all in-line products were further negatively impacted by decisions made by several of our major wholesaler customers during 2002 to purchase lower quantities of our products in order to reduce inventory carrying levels as well as the effect of incremental wholesaler purchases in the fourth quarter of 2001 made in advance of announced price increases that became effective in 2002. Sales for 2002 also reflect a reduction of $1.5 million for higher than estimated returns of expired product resulting from the lower than expected demand growth and inconsistent inventory rotation by certain wholesaler distributors.

The increase in product sales for 2001 compared to 2000 was due to growing penetration of private oncology practices, price increases and increased expanded use. Sales in 2001 also benefited from the concentrated marketing efforts on Targretin® capsules which was approved for marketing in December 1999 and Targretin® gel which was approved for marketing in June 2000. Additionally sales of ONTAK® and Targretin® capsules in 2001 reflect the impact of purchases made in advance of announced price increases effective in 2002 and for ONTAK®, the initiation of wholesaler distribution stocking.

Our product sales for any individual quarter or annual period can be influenced by a number of factors including changes in demand for a particular product, the level and nature of promotional activity, the timing of announced price increases, and wholesaler inventory practices. We expect that product sales will increase in 2003 due primarily to higher sales of AVINZA®, which will be promoted for an entire year and will benefit from our co-promotion arrangement with Organon. We also continue to expect that demand for and sales of ONTAK® and Targretin® capsules will increase when and as further data is obtained from ongoing expanded-use clinical trials and the initiation of new expanded-use trials. The level and timing of any such increases, however, are influenced by a number of factors including the accrual of patients and overall progress of clinical trials which are managed by third parties.

Excluding AVINZA®, our products are small-volume specialty pharmaceutical products that address the needs of cancer patients in relatively small niche markets with substantial geographical fluctuations in demand. To ensure patient access to our drugs, we maintain broad distribution capabilities with inventories held at approximately 125 locations throughout the United States. Furthermore, the purchasing and stocking patterns of our wholesaler customers are influenced by a number of factors that vary with each product including but not limited to overall level of demand, periodic promotions, required minimum shipping quantities and wholesaler competitive initiatives. As a result, the level of product in the distribution channel may average from two to six months' worth of projected inventory usage. If any or all of our major distributors decide to substantially reduce the inventory they carry in a given period, our sales for that period could be substantially lower than historical levels.

Collaborative Research and Development and Other Revenues

Collaborative research and development and other revenues for 2002 were $42.1 million, compared to $30.7 million for 2001 and $25.2 million for 2000. The comparison of collaborative research and development and other revenues is as follows (in thousands):

	Year Ended December 31,		
	2002	2001	2000
Collaborative research and development	$ 23,328	$ 25,725	$ 23,135
Royalty sale	18,275	—	—
Distribution agreements	311	4,787	922
Other	204	206	1,143
	$ 42,118	$ 30,718	$ 25,200

Collaborative research and development revenue includes reimbursement for ongoing research activities, earned development milestones and SAB No. 101 recognition of prior years' up-front fees. Royalty sale revenue represents the sale to third parties of rights and options to future royalties we may earn from the sale of products now in development with our collaborative partners. Revenue from distribution agreements includes recognition of up-front fees collected upon contract signing and deferred over the life of the distribution arrangement and milestones achieved under such agreements.

The decrease in collaborative research and development revenue in 2002 compared to 2001 is due to the loss of funding from collaborative research arrangements with Bristol-Myers Squibb, which was terminated in June 2001, and Organon, the research phase of which concluded in February 2002. These arrangements contributed $4.1 million to 2001 collaborative revenues. This decrease was partially offset by collaborative research funding earned under our agreement with TAP which was entered into in June 2001 and contributed $5.0 million to 2002 revenue compared to $2.6 million for 2001. Revenue from up-front fees, which we recognize over the period during which we provide research services, decreased to $4.7 million in 2002 from $7.1 million in 2001 also in connection with the termination of the research phases of the Bristol-Myers Squibb and Organon collaborations. The decrease in revenue recognized from up-front fees is offset by development milestones earned in 2002 of $5.1 million compared to milestones in 2001 of $3.1 million.

Royalty sale represents revenue earned from the sale to Royalty Pharma AG of rights and options to future royalties from certain collaborative partners' net sales of three selective estrogen receptor modulator (SERM) products. These products are now in Phase III clinical development. The royalty purchase agreement provided for the initial sale of rights to 0.25% of such product net sales and granted Royalty Pharma options to acquire up to an additional 1.00% of net sales for $50.0 million. In July and December of 2002, the agreement was amended to replace the existing options with new options providing for the rights to acquire an additional 1.3125% of net sales for $63.8 million. We earned $6.0 million upon the initial sales of rights and $12.3 million subsequently upon Royalty Pharma's exercise of the first three options, as amended, to acquire rights to an additional 0.4375% of such product net sales.

The increase in 2001 collaborative research and development revenue compared to 2000 is due to the collaboration agreement entered into with TAP in June 2001. The increase in revenue from distributor agreements in 2001 compared to 2000 reflects milestones earned under a 2001 distribution agreement with Elan for the European submission of Marketing Authorization Approval ("MAA") for Targretin gel and ONTAK® and the European grant of an MAA for Targretin® capsules.

Gross Margin

Gross margin on product sales was 62.8% in 2002 compared to 69.4% in 2001 and 62.5% in 2000. The decrease in margin for 2002 was primarily due to sales of AVINZA®, which prior to the restructuring of the AVINZA® license and supply agreement discussed below, had higher product costs than our in-line products. The margin was further negatively impacted by higher than estimated returns of expired products recorded in the second quarter of 2002 and the final annual increase in the contractual royalty rate on ONTAK®.

Through November 2002, we purchased AVINZA® from Elan at a cost of approximately 30% of the net sales price of AVINZA®. In November 2002, we and Elan agreed to amend the terms of the AVINZA® license and supply agreement for purchases of product starting in December 2002. Under the terms of the amendment, we paid Elan approximately $100.0 million in exchange for a reduction in the royalty and supply price of AVINZA® to approximately 10% of the product's net sales, and certain other manufacturing and promotional rights. The total capitalized license and royalty rights paid for AVINZA® of approximately $114.0 million, including milestone and transaction fees, will be amortized to cost of sales on a straight-line basis over 15 years.

The increase in the 2001 margin compared to 2000 is due to higher product sales over which we spread fixed costs (amortization of acquired technology) and to greater proportionate sales of higher margin products.

Research and Development Expenses

Research and development expenses were $58.8 million in 2002 compared to $51.1 million in 2001 and $51.3 million in 2000. The increase in the expense for 2002 is due to the development funding of Phase III clinical trials for Targretin® capsules in non-small cell lung cancer and research costs incurred on our selective glucocorticoid receptor modulator (SGRM) program. SGRMs are non-steroidial molecules that may be useful in treating asthma, rheumatoid arthritis, and certain leukemias and myelomas. The increase in expenses on these programs was partially offset by decreased research efforts on our collaboration programs in connection with the loss of research

funding under our arrangement with Bristol-Myers Squibb, which was terminated in June 2001, and Organon, the research phase of which concluded in February 2002; lower expenses on post-marketing regulatory commitments; and lower expenses associated with the clinical trial stages of AVINZA® development prior to FDA approval in March 2002. The major components of research and development expenses are as follows (in thousands):

	Year Ended December 31,		
Research	2002	2001	2000
Research performed under collaboration agreements	$ 15,474	$ 20,442	$ 21,460
Internal research programs	10,371	5,737	5,131
Total research	25,845	26,179	26,591
Development			
New product development	20,756	9,514	10,744
Existing product support (1)	12,206	15,411	13,952
Total development	32,962	24,925	24,696
Total research and development	$ 58,807	$ 51,104	$ 51,287

(1) Includes costs incurred to comply with U.S. post-marketing regulatory commitments.

We expect research and development expenses to further increase in 2003 as additional patients are accrued under the Phase III clinical trials of Targretin® capsules in non-small cell lung cancer.

A summary of our significant internal research and development programs is as follows:

Program	Disease/Indication	Development Phase
AVINZA®	Chronic, moderate-to-severe pain	Marketed in U.S. Phase IIIB/IV
ONTAK®	CTCL	Marketed in U.S.
	CLL	Phase II
	Peripheral T-cell lymphoma	Phase II
	B-cell NHL	Phase II
	Psoriasis (severe)	Phase II
Targretin® capsules	CTCL	Marketed in U.S.
	NSCLC first-line	Phase III
	NSCLC monotherapy	Planned Phase II/III
	Advanced breast cancer	Phase II
	Psoriasis (moderate to severe)	Phase II
	Renal cell cancer	Phase II
Targretin® gel	CTCL	Marketed in U.S.
	Hand dermatitis (eczema)	Phase II
	Psoriasis	Phase II
Panretin® gel	KS	Marketed in U.S.
Panretin® capsules	KS	Phase II
	Bronchial metaplasia	Phase II
LGD1550 (RAR agonist)	Advanced cancers	Phase II
	Acne	Phase II
	Psoriasis	Pre-clinical

Program	Disease/Indication	Development Phase
LGD1331 (Androgen antagonist)	Prostate cancer, hirsutism, acne, androgenetic alopecia	Pre-clinical
Glucocorticoid agonists	Inflammation, cancer	Pre-clinical
Mineralocorticoid receptor modulators	Congestive heart failure, hypertension	Research

We do not provide forward-looking estimates of costs and time to complete our ongoing research and development projects, as such estimates would involve a high degree of uncertainty. Uncertainties include, but are not limited to, our ability to predict the outcome of complex research, our ability to predict the results of clinical studies, regulatory requirements placed upon us by regulatory authorities such as the FDA and EMEA, our ability to predict the decisions of our collaborative partners, our ability to fund research and development programs, competition from other entities of which we may become aware in future periods, predictions of market potential from products that may be derived from our research and development efforts, and our ability to recruit and retain personnel or third-party research organizations with the necessary knowledge and skills to perform certain research. Refer to the "Risks and Uncertainties" section for additional discussion of the uncertainties surrounding our research and development initiatives.

Selling, General and Administrative Expenses

Selling, general and administrative expenses were $41.7 million for 2002 compared to $34.4 million for 2001 and $34.1 million for 2000. The increase in 2002 compared to the prior years is due to higher advertising and promotion expenses in connection with the launch of AVINZA® and costs associated with approximately 25 additional sales representatives hired in the second quarter of 2002 to target general pain centers not served by our existing oncology and dermatology sales forces. The impact from the launch of AVINZA® is partially offset by lower Targretin® related expenses in 2002 compared to 2001 when significant advertising and promotion expenses were incurred in connection with the commencement of post-approval trials and post-launch promotions for Targretin® capsules.

Selling, general and administrative expenses are expected to increase in 2003 as a result of increased selling and marketing expenses on AVINZA® which will be promoted for an entire year and by a significantly larger sales force as a result of our co-promotion arrangement with Organon. Under the co-promotion agreement, we and Organon will share equally all costs for AVINZA® advertising and promotion, medical affairs and clinical trials.

Other Expenses, Net

Other expenses, net were $8.4 million for 2002 compared to $19.9 million for 2001 and $13.4 million for 2000. The decrease in other expense for 2002 is primarily due to lower interest expenses as a result of the conversion of all outstanding zero coupon convertible senior notes owed to Elan in the fourth quarter of 2001 and the first quarter of 2002 and the early redemption of $50.0 million in face value of convertible subordinated debentures in June 2002. In addition, we recognized $2.0 million of debt conversion expenses in 2002 upon the conversion of the Elan convertible securities compared to $5.0 million in 2001, and recorded a one time charge in 2001 of $2.5 million related to a payment subsequently made in 2002 to one of our licensors in connection with the amendment of an existing license agreement. The decrease in the net expense was partially offset by $1.8 million of accelerated accretion to face value in 2002 in connection with the early redemption of the convertible subordinated debentures, lower interest income earned on our investments due to declining interest rates and lower average investment balances during the year, and the accrual of interest on the $155.3 million of 6% convertible subordinated notes that we issued in November 2002.

The increase in other expense, net in 2001 compared to 2000 is due to higher debt conversion expense recognized in 2001 in connection with the Elan note conversion and the charge recorded in 2001 for the clarification and amendment of an existing license agreement.

Interest expense is expected to increase in 2003 due to interest expense on the 6% convertible subordinated notes issued in November 2002.

Net Operating Losses

At December 31, 2002, we had consolidated federal and combined California income tax net operating loss carryforwards of approximately $510.0 million and $80.0 million, respectively. The difference between the federal and California tax loss carryforwards is primarily attributable to the capitalization of research and development expenses for California income tax purposes and the 60% limitation on California loss carryforwards. The federal tax loss and California tax loss carryforwards began expiring in 2002 and 1998, respectively. At December 31, 2002, we also had consolidated federal and combined California research tax credit carryforwards of approximately $24.0 million and $11.0 million, respectively, which will begin to expire in 2003 unless utilized.

Liquidity and Capital Resources

We have financed our operations through private and public offerings of our equity securities, collaborative research and development and other revenues, issuance of convertible notes, product sales, capital and operating lease transactions, equipment financing arrangements, and investment income.

Working capital was $53.2 million at December 31, 2002 compared to $21.8 million at December 31, 2001. Cash, cash equivalents, short-term investments, and restricted investments totaled $74.9 million at December 31, 2002 compared to $40.1 million at December 31, 2001. Of the cash on hand at December 31, 2002, we subsequently used $20.0 million in February 2003 to repurchase approximately 2.2 million shares of Ligand stock held by an affiliate of Elan. We primarily invest our cash in United States government and investment grade corporate debt securities.

Operating cash flow in 2002 compared to the prior year periods benefited from increased product sales and $16.4 million of cash received in connection with the sale to Royalty Pharma AG of rights and options to future royalties from certain collaborative partners' net sales of three selective estrogen receptor modulator (SERM) products and a 1% royalty interest in sales of Targretin® capsules. The increase in 2002 revenue was offset by higher operating expenses and $6.8 million in negative working capital changes attributed to an increase in other current assets of $5.0 million and a decrease in deferred revenue of $5.2 million partially offset by a decrease in accounts receivable of $2.4 million and an increase in accounts payable and accrued liabilities of $2.0 million. Working capital changes in 2001 had a neutral impact on net operating cash flows. Working capital changes in 2000 reflect an increase in deferred revenue resulting from the implementation of SAB 101 partially offset by an increase in accounts receivable and a decrease in accounts payable and accrued liabilities.

We expect operating cash flows to benefit in 2003 from increased product sales driven by AVINZA®, which was launched in June 2002 and from our co-promotion arrangement with Organon. Operating cash will be negatively impacted, however, by higher development expenses to fund clinical trials of our existing products in new indications including Phase III registration trials for Targretin® capsules in non-small cell lung cancer, and higher selling and marketing expenses on AVINZA®. Additionally, we are required to pay interest of approximately $9.3 million in 2003 on the $155.3 million in 6% convertible subordinated notes issued in November 2002.

Investing activities used cash of $105.2 million in 2002 and $4.2 million in 2001 and provided cash of $12.5 million in 2000. The use of cash in 2002 includes $100.0 million paid to Elan to restructure the AVINZA® license and supply agreement and $1.3 million in related transaction fees. Other investing activity in 2002 includes a $5.0 million payment to X-Ceptor Therapeutics, Inc. (X-Ceptor) and capital expenditures of $3.2 million for the purchase of lab and computer equipment, partially offset by net proceeds of $4.1 million from the sale of short-term investments. The payment to X-Ceptor was pursuant to a 1999 investment agreement where we maintained the right to acquire all of the outstanding stock of X-Ceptor not held by Ligand at June 30, 2002, or to extend the purchase right for 12 months by providing additional funding of $5.0 million. In April 2002, we elected to extend the purchase right and payment was subsequently made in July 2002. If we exercise the option to acquire the outstanding stock of X-Ceptor, we will be required to pay to the other shareholders of X-Ceptor approximately $77.0 million in cash, shares of Ligand stock or a combination thereof.

The use of cash in 2001 reflects the net purchase of short-term investments of $2.5 million and capital expenditures of $2.0 million. Investing activities for 2000 reflects $9.7 million received from the sale of the assets of Marathon Biopharmaceuticals and $2.9 million net proceeds from the sale of short-term investments.

Financing activities provided cash of $152.0 million in 2002 compared to $35.6 million in 2001 and $12.0 million in 2000. Cash received in 2002 includes net proceeds of $150.1 million from the issuance of 6% convertible subordinated notes in November 2002, net proceeds of $65.9 million through a private placement of 4,252,500 shares of our common stock, and $3.8 million from the exercise of employee stock options and employee stock purchases. This was partially offset by the $50.0 million early redemption of convertible subordinated debentures in June 2002. The convertible subordinated notes issued in November 2002 pay interest at a semi-annual rate of 6% and mature on November 16, 2007. Holders may convert the notes into shares of our common stock at any time prior to maturity at a conversion rate of 161.9905 shares per $1,000 principal amount of notes. Of the net proceeds, $18.0 million was invested in U.S. government securities and placed with a trustee to pay the first four scheduled interest payments.

Cash provided from financing activities in 2001 includes $22.4 million from a private placement of our common stock, $10.0 million received in connection with the issuance of zero coupon convertible senior notes to Elan and $6.2 million upon the exercise of employee stock options, partially offset by net repayments of $2.0 million on equipment financing arrangements. Net cash received in 2000 includes $14.2 million from the exercise of stock options and warrants partially offset by net payments on equipment financing obligations of $2.7 million.

In November 2002, we agreed to repurchase approximately 2.2 million shares of our stock held by an affiliate of Elan for $20.0 million. The shares were subsequently repurchased and retired in February 2003.

Certain of our property and equipment is pledged as collateral under various equipment financing arrangements. As of December 31, 2002, $6.2 million was outstanding under such arrangements with $2.1 million classified as current. Our equipment financing arrangements have terms of three to five years with interest ranging from 4.75% to 10.66%.

We lease our office and research facilities under operating lease arrangements with varying terms through July 2015. Our corporate headquarters is leased from a limited liability company (the "LLC") in which we hold a 1% ownership interest. The lease agreement provides for increases in annual rent of 4% and terminates in 2014. We also have the right, but not the obligation, to purchase either the LLC or the leased premises from the LLC at a purchase price equal to the outstanding debt on the property plus a calculated return on the investment made by the LLC's other shareholder.

In accordance with existing accounting standards, the lease is treated as an operating lease for financial reporting purposes. In January 2003, the FASB issued FASB Interpretation No. 46 ("FIN 46"), *Consolidation of Variable Interest Entities, an Interpretation of ARB No. 51.* FIN 46 requires the consolidation of certain variable interest entities by the primary beneficiary of the entity if the equity investment at risk is not sufficient to permit the entity to finance its activities without additional subordinated financial support from other parties or if the equity investors lack the characteristics of a controlling financial interest. For variable interest entities created prior to February 1, 2003, the consolidation requirements of FIN 46 must be applied in our third quarter of 2003. We are in the process of determining the effect, if any, that the adoption of FIN 46 will have on our operations and financial position. If we were required to consolidate the LLC, however, our consolidated balance sheet as of December 31, 2002 would reflect additional property and equipment of $13.2 million and additional debt of $12.7 million. The impact of such treatment on our 2002, 2001 and 2000 operating results would not be significant.

As of December 31, 2002, future minimum payments due under our contractual lease obligations are as follows (in thousands):

		Payments Due by Period			
	Total	1 year	2-3 years	4-5 years	After 5 years
Capital lease obligations	$ 6,808	$ 2,452	$ 3,742	$ 614	$ —
Operating leases	38,510	3,031	6,236	6,243	23,000
Total contractual lease obligations	$ 45,318	$ 5,483	$ 9,978	$ 6,857	$ 23,000

We believe our available cash, cash equivalents, short-term investments and existing sources of funding will be sufficient to satisfy our anticipated operating and capital requirements through at least the next 12 months. Our future operating and capital requirements will depend on many factors, including: the effectiveness of our commercial activities; the pace of scientific progress in our research and development programs; the magnitude of these programs; the scope and results of preclinical testing and clinical trials; the time and costs involved in obtaining regulatory approvals; the costs involved in preparing, filing, prosecuting, maintaining and enforcing patent claims; competing technological and market developments; the ability to establish additional collaborations or changes in existing collaborations; the efforts of our collaborators; and the cost of production.

Critical Accounting Policies

Certain of our policies require the application of management judgement in making estimates and assumptions that affect the amounts reported in the consolidated financial statements and disclosures made in the accompanying notes. Those estimates and assumptions are based on historical experience and various other factors deemed to be applicable and reasonable under the circumstances. The use of judgement in determining such estimates and assumptions is by nature, subject to a degree of uncertainty. Accordingly, actual results could differ from the estimates made. Our critical accounting policies are as follows:

Revenue Recognition and Accounts Receivable

We recognize revenue upon product shipment, net of allowances for returns, rebates, discounts and chargebacks. Revenue associated with the launch of retail products sold with promotional terms that are more favorable to the customer than our standard terms (for example, to facilitate broad retail pharmacy distribution of the product) are deferred. The amount of deferred revenue recognized in subsequent periods is determined based on an estimate, using available market information, of the level of product at wholesalers that will sell through to retail outlets.

Our policy for returns allows customers, primarily wholesale distributors, to return the product three months prior to and six months after expiration. The level of actual returns can be influenced by a number of factors including the dating of product when shipped to the customer, the amount of product subsequently shipped by the wholesale distributor to their customers, pricing adjustments, and competing products. In recording adjustments to sales for estimated returns, we consider each of these factors as well as historical return patterns of our products, independent reports of the level of our product in the distribution channel, and industry trends. Actual product returns may differ from our estimates.

We provide rebates and chargebacks to our wholesaler distributors who sell to customers that have a purchasing contract with us, members of group purchasing organizations who purchase our product from our wholesalers and state agencies that administer certain government sponsored health programs. Such rebates and chargebacks are generally determined based on the volume of purchases or by reference to a specific price for a product. We accrue for these liabilities when we record the product sale. The underlying accrual rates and related reserves are regularly reviewed and adjusted, if necessary, based on changes in historical trends, significant new contracts or amendments to existing contracts.

We record allowances for doubtful accounts for estimated losses resulting from our customers' inability to pay amounts owed. If the financial condition of one or more of our customers were to deteriorate, we may be required to record additional allowances or write-off all or a portion of the amount due us.

We recognize collaborative research and development and other revenues as services are performed consistent with the performance requirements of the contract. Non-refundable contract fees for which no further performance obligation exists and where we have no continuing involvement are recognized upon the earlier of when payment is received or collection is assured. Revenue from non-refundable contract fees where we have continuing involvement through research and development collaborations or other contractual obligations is recognized ratably over the development period or the period for which we continue to have a performance obligation. Revenue from performance milestones is recognized upon the achievement of the milestones as specified in the respective agreement provided payment is proportionate to the effort expended. Payments received in advance of performance or delivery are recorded as deferred revenue and subsequently recognized over the period of performance or upon delivery.

Inventories

Our inventories are stated at the lower of cost or market value. Cost is determined using the first-in, first-out method. We record reserves for estimated obsolescence to account for unsaleable products including products that are nearing or have reached expiration, and slow-moving inventory.

Impairment of Long-Lived Assets

We review long-lived assets, including acquired technology and product rights and property and equipment, whenever events or circumstances indicate that the carrying amount of the assets may not be fully recoverable. We measure the recoverability of assets to be held and used by comparing the carrying amount of an asset to the future undiscounted net cash flows expected to be generated by the asset. If an asset is considered to be impaired, the impairment to be recognized is measured as the amount by which the carrying amount of the asset exceeds its fair value. Fair value of our long-lived assets are determined using the expected cash flows discounted at a rate commensurate with the risk involved. We believe that the future cash flows to be received from our long-lived assets will exceed the assets' carrying value, and accordingly have not recorded any impairment losses through December 31, 2002.

Stock-Based Compensation

We grant stock options to our employees at an exercise price equal to the fair value of the shares at the date of grant and account for these stock option grants in accordance with APB Opinion No. 25, *Accounting for Stock Issued to Employees* ("APB 25") and related interpretations. Under APB 25, when stock options are issued with an exercise price equal to the market price of the underlying stock on the date of grant, no compensation expense is recognized in the statement of operations. Refer to Note 2 of the notes to consolidated financial statements for pro-forma disclosures of the impact on our financial statements of accounting for stock options under the fair-value requirements of SFAS No. 123, Accounting for Stock-based Compensation.

New Accounting Pronouncements

In July 2001, the Financial Accounting Standards Board ("FASB") issued SFAS No. 141, *Business Combinations,* which requires the use of the purchase method of accounting for all business combinations initiated after June 30, 2001 and eliminates the pooling-of-interests method. The adoption of SFAS No. 141 did not have a material effect on our results of operations or financial position.

In July 2001, the FASB issued SFAS No. 142, *Goodwill and Other Intangible Assets,* which requires that goodwill and other intangible assets with indefinite lives no longer be amortized, but instead tested for impairment at least annually. In addition, the standard includes provisions for the reclassification of certain existing intangibles as goodwill and reassessment of the useful lives of existing recognized intangibles. SFAS No. 142 is effective for fiscal years beginning after December 31, 2001. The adoption of SFAS No. 142 effective January 1, 2002 did not have a material effect on our results of operations or financial position.

In October 2001, the FASB issued SFAS No. 144, *Accounting for the Impairment or Disposal of Long-Lived Assets,* which establishes one accounting model to be used for long-lived assets to be disposed of by sale and broadens the presentation of discontinued operations to include more disposal transactions. SFAS No. 144 supercedes SFAS No. 121, *Accounting for the Impairment of Long-Lived Assets and for Long-Lived Assets to Be Disposed Of,* and the accounting and reporting provisions of APB No. 30. SFAS No. 144 is effective for fiscal years beginning after December 15, 2001. The adoption of SFAS No. 144 effective January 1, 2002 did not have a material effect on our results of operations or financial position.

In November 2002, the FASB issued FASB Interpretation No. 45 ("FIN 45"), *Guarantor's Accounting and Disclosure Requirements for Guarantees, Including Indirect Guarantees of Indebtedness of Others.* FIN 45 requires that a liability be recorded in the guarantor's balance sheet upon issuance of a guarantee. In addition, FIN 45 requires certain disclosures about each of the entity's guarantees. We will apply the recognition provisions of FIN 45 prospectively to guarantees issued after December 31, 2002. The disclosure provisions of FIN 45 are effective for annual and interim periods that end after December 15, 2002.

In December 2002, the FASB issued SFAS No. 148, *Accounting for Stock-Based Compensation, Transition and Disclosure*. SFAS No. 148 provides alternative methods of transition for those entities that elect to voluntarily adopt the fair value accounting provisions of SFAS 123, *Accounting for Stock-Based Compensation*. SFAS No. 148 also requires more prominent disclosures of the pro forma effect of using the fair value method of accounting for stock-based employee compensation as well as pro forma disclosure of the effect in interim financial statements. The transition and annual disclosure provisions of SFAS No. 148 are effective for fiscal years ending after December 15, 2002. The interim disclosure requirements are effective for the first interim period ending after December 15, 2002. We have not elected to adopt the fair value accounting provisions of SFAS No. 123 and therefore the adoption of SFAS No. 148 did not have a material effect on our results of operations or financial position.

In January 2003, the FASB issued FASB Interpretation No. 46 ("FIN 46"), *Consolidation of Variable Interest Entities, an Interpretation of ARB No. 51*. FIN 46 requires the consolidation of certain variable interest entities by the primary beneficiary of the entity if the equity investment at risk is not sufficient to permit the entity to finance its activities without additional subordinated financial support from other parties or if the equity investors lack the characteristics of a controlling financial interest. FIN 46 is effective for variable interest entities created or acquired after January 31, 2003. For variable interest entities created or acquired prior to February 1, 2003, the provisions of FIN 46 must be applied in the first interim or annual period beginning after June 15, 2003. We are in the process of determining the effect that the adoption of FIN 46 will have on our results of operations and financial position.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

At December 31, 2002 and 2001, our investment portfolio included fixed-income securities of $12.8 million and $15.5 million, respectively. These securities are subject to interest rate risk and will decline in value if interest rates increase. However, due to the short duration of our investment portfolio, an immediate 10% change in interest rates would have no material impact on our financial condition, results of operations or cash flows. Declines in interest rates over time will, however, reduce our interest income while increases in interest rates over time will increase our interest expense.

We do not have a significant level of transactions denominated in currencies other than U.S. dollars and as a result we have very limited foreign currency exchange rate risk. The effect of an immediate 10% change in foreign exchange rates would have no material impact on our financial condition, results of operations or cash flows.

Item 8. Consolidated Financial Statements and Supplementary Data

INDEX TO FINANCIAL STATEMENTS

INDEPENDENT AUDITORS' REPORT

The Board of Directors and Stockholders
Ligand Pharmaceuticals Incorporated

We have audited the accompanying consolidated balance sheets of Ligand Pharmaceuticals Incorporated and subsidiaries as of December 31, 2002 and 2001, and the related consolidated statements of operations, stockholders' equity (deficit), and cash flows for each of the three years in the period ended December 31, 2002. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, such consolidated financial statements present fairly, in all material respects, the financial position of Ligand Pharmaceuticals Incorporated and subsidiaries as of December 31, 2002 and 2001, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2002, in conformity with accounting principles generally accepted in the United States of America.

As discussed in Note 2 to the consolidated financial statements, in 2000 the Company changed its method of revenue recognition to comply with the provisions of Staff Accounting Bulletin No. 101, *Revenue Recognition in Financial Statements,* issued by the Securities and Exchange Commission.

DELOITTE & TOUCHE LLP

San Diego, California
February 25, 2003

LIGAND PHARMACEUTICALS INCORPORATED

CONSOLIDATED BALANCE SHEETS
(in thousands, except share data)

ASSETS

	December 31, 2002	December 31, 2001
Current assets:		
Cash and cash equivalents	$ 42,423	$ 20,741
Short-term investments; $8,998 restricted at December 31, 2002	21,825	16,947
Accounts receivable, net	7,356	9,798
Inventories	4,841	3,756
Other current assets	7,308	2,332
Total current assets	83,753	53,574
Restricted investments	10,646	2,370
Property and equipment, net	9,672	9,690
Acquired technology and product rights, net	148,546	41,879
Other assets	17,992	9,960
	$ 270,609	$ 117,473

LIABILITIES AND STOCKHOLDERS' EQUITY (DEFICIT)

Current liabilities:		
Accounts payable	$ 11,979	$ 5,385
Accrued liabilities	11,786	12,245
Current portion of deferred revenue	4,683	8,729
Current portion of equipment financing obligations	2,087	2,867
Current portion of long-term debt	—	2,500
Total current liabilities	30,535	31,726
Long-term debt	155,250	133,404
Long-term portion of deferred revenue	3,014	4,164
Long-term portion of equipment financing obligations	4,095	3,354
Other long-term liabilities	3,700	2,700
Total liabilities	196,594	175,348
Commitments and contingencies (Notes 5, 7, 9 and 10)		
Stockholders' equity (deficit):		
Convertible preferred stock, $0.001 par value; 5,000,000 shares authorized; none issued	—	—
Common stock, $0.001 par value; 130,000,000 shares authorized; 71,522,156 shares and 60,164,840 shares issued at December 31, 2002 and 2001, respectively	72	60
Additional paid-in capital	693,213	529,374
Deferred warrant expense	—	(692)
Accumulated other comprehensive income (loss)	(43)	14
Accumulated deficit	(618,316)	(585,720)
	74,926	(56,964)
Treasury stock, at cost; 73,842 shares	(911)	(911)
Total stockholders' equity (deficit)	74,015	(57,875)
	$ 270,609	$ 117,473

See accompanying notes.

LIGAND PHARMACEUTICALS INCORPORATED

CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share data)

	Year ended December 31,		
	2002	2001	2000
Revenues:			
Product sales	$ 54,522	$ 45,623	$ 22,910
Collaborative research and development and other revenues	42,118	30,718	25,200
Total revenues	96,640	76,341	48,110
Operating costs and expenses:			
Cost of products sold	20,306	13,947	8,591
Research and development	58,807	51,104	51,287
Selling, general and administrative	41,678	34,427	34,114
Total operating costs and expenses	120,791	99,478	93,992
Loss from operations	(24,151)	(23,137)	(45,882)
Other income (expense):			
Interest income	1,086	2,106	2,574
Interest expense	(6,295)	(13,601)	(13,119)
Debt conversion expense	(2,015)	(5,043)	(2,025)
Other, net	(1,221)	(3,320)	(825)
Total other expense, net	(8,445)	(19,858)	(13,395)
Loss before cumulative effect of a change in accounting principle	(32,596)	(42,995)	(59,277)
Cumulative effect on prior years (to December 31, 1999) of changing method of revenue recognition	—	—	(13,099)
Net loss	$ (32,596)	$ (42,995)	$ (72,376)
Basic and diluted per share amounts:			
Loss before cumulative effect of a change in accounting principle	$ (0.47)	$ (0.72)	$ (1.06)
Cumulative effect on prior years (to December 31, 1999) of changing method of revenue recognition	—	—	(0.24)
Net loss	$ (0.47)	$ (0.72)	$ (1.30)
Weighted average number of common shares	69,118,976	59,413,270	55,664,921
Pro forma amounts assuming the changed method of recognizing revenue is applied retroactively (Note 2):			
Net loss			$ (59,277)
Basic and diluted net loss per share			$ (1.06)

See accompanying notes.

LIGAND PHARMACEUTICALS INCORPORATED

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY (DEFICIT)
(in thousands, except share data)

	Common stock		Additional paid-in capital	Deferred warrant expense	Accumulated other comprehensive income (loss)	Accumulated deficit	Treasury stock		Total stockholders' equity (deficit)	Comprehensive income (loss)
	Shares	Amount					Shares	Amount		
Balance at January 1, 2000	53,018,248	$ 53	$ 448,784	$ (3,460)	$ (607)	$ (470,349)	(1,114)	$ (11)	$ (25,590)	$ (74,844)
Issuance of common stock	3,805,468	4	41,294	—	—	—	—	—	41,298	
Unrealized gains on available-for-sale securities	—	—	—	—	182	—	—	—	182	$ 182
Reclassification adjustment on sale of investment security	—	—	—	—	550	—	—	—	550	550
Foreign currency translation adjustments	—	—	—	—	(79)	—	—	—	(79)	(79)
Stock-based compensation	—	—	406	—	—	—	—	—	406	
Amortization of deferred warrant expense	—	—	—	1,384	—	—	—	—	1,384	
Stock received for milestone payment	—	—	—	—	—	—	(72,728)	(900)	(900)	
Net loss	—	—	—	—	—	(72,376)	—	—	(72,376)	(72,376)
Balance at December 31, 2000	56,823,716	57	490,484	(2,076)	46	(542,725)	(73,842)	(911)	(55,125)	$ (71,723)
Issuance of common stock	3,341,124	3	38,677	—	—	—	—	—	38,680	
Unrealized gains on available-for-sale securities	—	—	—	—	29	—	—	—	29	$ 29
Foreign currency translation adjustments	—	—	—	—	(61)	—	—	—	(61)	(61)
Stock-based compensation	—	—	213	—	—	—	—	—	213	
Amortization of deferred warrant expense	—	—	—	1,384	—	—	—	—	1,384	
Net loss	—	—	—	—	—	(42,995)	—	—	(42,995)	(42,995)
Balance at December 31, 2001	60,164,840	60	529,374	(692)	14	(585,720)	(73,842)	(911)	(57,875)	$ (43,027)
Issuance of common stock	11,357,316	12	163,839	—	—	—	—	—	163,851	
Unrealized losses on available-for-sale securities	—	—	—	—	(63)	—	—	—	(63)	$ (63)
Foreign currency translation adjustments	—	—	—	—	6	—	—	—	6	6
Amortization of deferred warrant expense	—	—	—	692	—	—	—	—	692	
Net loss	—	—	—	—	—	(32,596)	—	—	(32,596)	(32,596)
Balance at December 31, 2002	71,522,156	$ 72	$ 693,213	$ —	$ (43)	$ (618,316)	(73,842)	$ (911)	$ 74,015	$ (32,653)

See accompanying notes.

LIGAND PHARMACEUTICALS INCORPORATED

CONSOLIDATED STATEMENTS OF CASH FLOWS

(in thousands)

	Year ended December 31,		
	2002	2001	2000
Operating activities			
Net loss	$ (32,596)	$ (42,995)	$ (72,376)
Adjustments to reconcile net loss to net cash used in operating activities:			
Amortization of acquired technology and license rights	4,042	3,317	3,317
Depreciation and amortization of property and equipment	3,191	3,256	3,928
Amortization of debt discount and issuance costs	3,239	8,988	8,212
Debt conversion expense	2,015	5,043	2,025
Equity in loss of affiliate	1,183	930	1,868
Other	627	1,597	70
Changes in operating assets and liabilities net of effects from sale of manufacturing assets in 2000:			
Accounts receivable	2,442	(6,974)	(1,389)
Inventories	(1,085)	1,895	81
Other current assets	(4,976)	178	(173)
Accounts payable and accrued liabilities	2,002	6,128	(1,912)
Deferred revenue	(5,196)	(1,269)	11,134
Net cash used in operating activities	(25,112)	(19,906)	(45,215)
Investing activities			
Purchases of short-term investments	(13,934)	(18,263)	(11,974)
Proceeds from sale of short-term investments	18,054	15,784	14,908
Purchases of property and equipment	(3,161)	(1,974)	(1,085)
Payment for AVINZA® royalty rights	(101,304)	—	—
Payment to extend X-Ceptor purchase right	(5,000)	—	—
Net proceeds from sale of manufacturing assets	—	—	9,676
Other, net	100	281	986
Net cash (used in) provided by investing activities	(105,245)	(4,172)	12,511
Financing activities			
Principal payments on equipment financing obligations	(2,923)	(3,597)	(4,188)
Proceeds from equipment financing arrangements	2,884	1,552	1,442
(Increase) decrease in restricted investments	(17,274)	(936)	577
Repayment of long-term debt	(52,500)	—	—
Net proceeds from issuance of convertible notes	150,092	10,000	—
Net proceeds from issuance of common stock and warrants	70,760	28,576	14,194
Increase in other long-term liabilities	1,000	—	—
Net cash provided by financing activities	152,039	35,595	12,025
Net increase (decrease) in cash and cash equivalents	21,682	11,517	(20,679)
Cash and cash equivalents at beginning of year	20,741	9,224	29,903
Cash and cash equivalents at end of year	$ 42,423	$ 20,741	$ 9,224
Supplemental disclosure of cash flow information			
Interest paid	$ 4,118	$ 4,595	$ 4,824
Supplemental schedule of non-cash investing and financing activities			
Conversion of zero coupon convertible senior notes to common stock	$ 86,135	$ —	$ 21,022
Issuance of common stock and notes for acquired technology and license rights	5,000	5,000	4,000
Accrual of obligations for acquired technology and product rights	4,133	—	5,000
Issuance of common stock for debt conversion incentive	2,015	5,043	2,025

See accompanying notes.

LIGAND PHARMACEUTICALS INCORPORATED

NOTES TO CONSOLIDATED FINANCIAL STATEMENTS

1. The Company and its Business

Ligand Pharmaceuticals Incorporated, a Delaware corporation (the "Company" or "Ligand"), discovers, develops and markets new drugs that address critical unmet medical needs of patients in the areas of cancer, pain, men's and women's health or hormone related health issues, skin diseases, osteoporosis, and metabolic, cardiovascular and inflammatory diseases. Ligand's drug discovery and development programs are based on proprietary gene transcription technology, primarily related to Intracellular Receptors and Signal Transducers and Activators of Transcription. The financial statements include its direct wholly owned subsidiaries, Ligand Pharmaceuticals International, Inc., Glycomed Incorporated ("Glycomed"), Ligand Pharmaceuticals (Canada) Incorporated, and Seragen, Inc. ("Seragen").

The Company markets five products in the United States: AVINZA®, for the relief of chronic, moderate to severe pain; ONTAK®, for the treatment of patients with persistent or recurrent cutaneous T-cell lymphoma ("CTCL"); Targretin® capsules and Targretin® gel for the treatment of CTCL in patients who are refractory to at least one prior systemic therapy; and Panretin® gel, for the treatment of Kaposi's sarcoma in AIDS patients. Targretin® capsules and Panretin® gel are also marketed in Europe and the Company has a marketing authorization application ("MAA") under review in Europe for ONZAR™ (ONTAK® in the U.S.).

The Company's other potential products are in various stages of development. Potential products that appear to be promising at early stages of development may not reach the market for a number of reasons. A significant portion of the Company's revenues to date have been derived from research and development agreements with major pharmaceutical collaborators. Prior to generating revenues from these products, the Company or its collaborators must complete the development of the products in the human health care market. No assurance can be given that: (1) product development efforts will be successful, (2) required regulatory approvals for any indication will be obtained, (3) any products, if introduced, will be capable of being produced in commercial quantities at reasonable costs or, (4) patient and physician acceptance of these products will be achieved. There can be no assurance that Ligand will ever achieve or sustain profitability.

The Company faces risks common to companies whose products are in various stages of development. These risks include, among others, the Company's need for additional financing to complete its research and development programs and commercialize its technologies. The Company expects to incur substantial additional research and development expenses, including continued increases in personnel and costs related to preclinical testing and clinical trials, and sales and marketing expenses related to product sales.

The Company believes that patents and other proprietary rights are important to its business. The Company's policy is to file patent applications to protect technology, inventions and improvements to its inventions that are considered important to the development of its business. The patent positions of pharmaceutical and biotechnology firms, including the Company, are uncertain and involve complex legal and technical questions for which important legal principles are largely unresolved.

2. Significant Accounting Policies

Principles of Consolidation

The consolidated financial statements include the accounts of the Company and its wholly owned subsidiaries. Intercompany accounts and transactions have been eliminated in consolidation.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States requires management to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and disclosures made in the accompanying notes. Actual results could differ from those estimates.

Cash, Cash Equivalents and Short-term Investments

Cash and cash equivalents consist of cash and highly liquid securities with original maturities at the date of acquisition of three months or less. Non-restricted investments with an original maturity of more than three months are considered short-term investments and have been classified by management as available-for-sale. Such investments are carried at fair value, with unrealized gains and losses included as a separate component of stockholders' equity (deficit).

Restricted Investments

Restricted investments consist of U.S. government securities required to be held with a trustee to pay the first four semi-annual interest payments due on the 6% convertible subordinated notes issued in November 2002 and certificates of deposit held with a financial institution as collateral under equipment financing and third-party service provider arrangements. Restricted investments with an original maturity of more than three months have been classified by management as held-to-maturity and are accounted for at amortized cost.

Concentrations of Credit Risk

Financial instruments that potentially subject the Company to significant concentrations of credit risk consist primarily of investments and trade accounts receivable.

The Company invests its excess cash principally in United States government debt securities, investment grade corporate debt securities and certificates of deposit. The Company has established guidelines relative to diversification and maturities that maintain safety and liquidity. These guidelines are periodically reviewed and modified to take advantage of trends in yields and interest rates. The Company has not experienced any significant losses on its cash equivalents, short-term investments or restricted investments.

Trade accounts receivable represent the Company's most significant credit risk. The Company extends credit on an uncollateralized basis primarily to wholesale drug distributors throughout the United States. Prior to entering into sales agreements with new customers, and on an ongoing basis for existing customers, the Company performs detailed credit evaluations. To date, the Company has not experienced significant losses on customer accounts.

For 2002, there were three wholesale distributors that individually represented 10% or more of the Company's product sales and in the aggregate represented approximately 92% of product sales. As of December 31, 2002, gross amounts due from these distributors totaled $11.4 million.

Inventories

Inventories are stated at the lower of cost or market value. Cost is determined using the first-in-first-out method. Inventories consist of the following (in thousands):

	December 31,	
	2002	2001
Raw materials	$ 65	$ 143
Work-in-process	2,914	2,729
Finished goods	1,862	884
	$ 4,841	$ 3,756

Property and Equipment

Property and equipment is stated at cost and consists of the following (in thousands):

	December 31,	
	2002	2001
Land	$ 2,649	$ 2,649
Equipment and leasehold improvements	38,941	36,582
Less accumulated depreciation and amortization	(31,918)	(29,541)
	$ 9,672	$ 9,690

Depreciation of equipment is computed using the straight-line method over the estimated useful lives of the assets which range from three to fifteen years. Assets acquired pursuant to capital lease arrangements and leasehold improvements are amortized using the straight-line method over their estimated useful lives or their related lease term, whichever is shorter.

Acquired Technology and Product Rights

Acquired technology and product rights represent payments related to the Company's acquisition of ONTAK® (see Note 7) and license and royalty rights for AVINZA® (see Note 5). Acquired technology and product rights are amortized on a straight-line basis over 15 years, the period estimated to be benefited, and consist of the following (in thousands):

	December 31,	
	2002	2001
AVINZA®	$ 114,437	$ 4,000
ONTAK®	45,312	45,312
Less accumulated amortization	(11,203)	(7,433)
	$ 148,546	$ 41,879

Amortization of acquired technology and product rights for the years ended December 31, 2002, 2001 and 2000 was $3.8 million, $3.0 million and $3.0 million, respectively. Estimated annual amortization for each of the years in the period from 2003 to 2007 is $10.7 million.

Impairment of Long-Lived Assets

The Company reviews long-lived assets for impairment whenever events or changes in circumstances indicate the carrying amount of an asset may not be recoverable. Recoverability of assets to be held and used is measured by a comparison of the carrying amount of an asset to future undiscounted net cash flows expected to be generated by the asset. If such assets are considered to be impaired, the impairment to be recognized is measured as the amount by which the carrying amount of the assets exceeds the fair value of the assets. Fair value for the Company's long-lived assets is determined using the expected cash flows discounted at a rate commensurate with the risk involved. The Company believes the future cash flows to be received from its long-lived assets will exceed the assets' carrying value, and accordingly has not recognized any impairment losses through December 31, 2002. Effective January 1, 2002, the Company adopted SFAS No. 144, *Accounting for the Impairment or Disposal of Long-Lived Assets*, which supercedes SFAS No. 121. The adoption of SFAS No. 144 did not have an impact on the Company's financial statements.

Fair Value of Financial Instruments

The carrying amount of cash, cash equivalents, short-term investments, receivables, restricted investments, accounts payable and accrued liabilities are considered to be representative of their respective fair values due to the short-term nature of those instruments. As of December 31, 2002, the carrying amount of long-term debt and equipment financing obligations approximate fair value due to their stated interest rate approximating a market rate. Estimated fair value amounts have been determined using available market information and current rates offered to the Company for similar instruments.

Revenue Recognition

The Company generates revenue from product sales, collaborative research and development arrangements, and other activities such as distribution agreements, royalties, sales of technology rights, and contract manufacturing services. The Company's collaborative arrangements and distribution agreements may include multiple elements within a single contract. Each element of the contract is separately negotiated. Payments received may include non-refundable fees at the inception of the contract for technology rights under collaborative arrangements or product rights under distribution agreements, fully burdened funding for services performed during the research phase of collaborative arrangements, milestone payments for specific achievements designated in the collaborative or distribution agreements, royalties on sales of products resulting from collaborative arrangements, and payments for the supply of products under distribution agreements.

Revenues from product sales are recognized upon shipment, net of allowances for returns, rebates, discounts and chargebacks. The Company is obligated to accept from customers the return of pharmaceuticals that have reached their expiration date. Revenue associated with the launch of retail products sold with promotional terms that are more favorable to the customer than the Company's standard terms (for example, to facilitate broad retail pharmacy distribution of the product) are deferred. The amount of deferred revenue recognized in subsequent periods is determined based on an estimate, using available market information, of the level of product at wholesalers that will sell through to retail outlets.

Collaborative research and development and other revenues are recognized as services are performed consistent with the performance requirements of the contract. Non-refundable contract fees for which no further performance obligation exists and where the Company has no continuing involvement are recognized upon the earlier of when payment is received or collection is assured. Revenue from non-refundable contract fees where Ligand has continuing involvement through research and development collaborations or other contractual obligations is recognized ratably over the development period or the period for which Ligand continues to have a performance obligation. Revenue from performance milestones is recognized upon the achievement of the milestones as specified in the respective agreement provided payment is proportionate to the effort expended. Payments received in advance of performance or delivery are recorded as deferred revenue and subsequently recognized over the period of performance or upon delivery.

The composition of product sales by product is as follows (in thousands):

	Year ended December 31,		
	2002	2001	2000
ONTAK®	$ 26,642	$ 24,298	$ 13,203
Targretin® capsules	12,188	14,571	6,672
AVINZA®	12,174	—	—
Other	3,518	6,754	3,035
	$ 54,522	$ 45,623	$ 22,910

The composition of collaborative research and development and other revenues is as follows (in thousands):

	Year ended December 31,		
	2002	2001	2000
Collaborative research and development	$ 23,328	$ 25,725	$ 23,135
Royalty sale	18,275	—	—
Distribution agreements	311	4,787	922
Other	204	206	1,143
	$ 42,118	$ 30,718	$ 25,200

For the year ended December 31, 2002, revenues from sales to and agreements with five customers each accounted for more than 10% of total revenues and in the aggregate, represented more than 85% of total revenues. For the years ended December 31, 2001 and 2000, there were three customers that individually accounted for 10% or more of total revenues and in the aggregate represented 39% and 51% of total revenues, respectively.

Cumulative Effect of Accounting Change

In December 1999, the Securities and Exchange Commission issued Staff Accounting Bulletin ("SAB") No. 101, *Revenue Recognition in Financial Statements*. SAB No. 101 provides guidance in applying accounting principles generally accepted in the United States to revenue recognition in financial statements, including the recognition of non-refundable up-front fees and milestone payments received in conjunction with contractual arrangements that have multiple performance elements and require continuing involvement. SAB No. 101 requires that such fees be recognized as products are delivered or services are performed that represent the culmination of a separate earnings process.

The Company received non-refundable up-front fees of $4.3 million in 2000, $2.3 million in 1999, and $18.8 million in 1997. The Company initially recognized these payments as revenue upon receipt, as the fees were non-refundable and the Company had transferred technology or product rights at contract inception or incurred costs in excess of the up-front fees prior to initiation of each arrangement. However, under the provisions of SAB No. 101, non-refundable up-front fees must be deferred upon receipt and recognized as products are delivered or services are performed during the term of the arrangement. The Company implemented SAB No. 101 in the fourth quarter of 2000 as a change in accounting principle by deferring and recognizing these up-front payments over the term designated in the arrangement. The cumulative effect of this change to December 31, 1999, which was recorded in 2000, was $13.1 million or $0.24 per share. The effect on 2000 increased revenue and reduced loss before cumulative effect of a change in accounting principle by $1.3 million or $0.02 per share.

Costs and Expenses

Cost of products sold includes manufacturing costs, amortization of acquired technology, and royalty expenses associated with the Company's commercial products. Research and development costs are expensed as incurred. Research and development expenses were $58.8 million, $51.1 million and $51.3 million in 2002, 2001 and 2000 respectively, of which approximately 75%, 70% and 68% were sponsored by Ligand, and the remainder of which was funded pursuant to collaborative research and development arrangements.

Loss Per Share

Net loss per share is computed using the weighted average number of common shares outstanding. Basic and diluted net loss per share amounts are equivalent for the periods presented as the inclusion of potential common shares in the number of shares used for the diluted computation would be anti-dilutive. Potential common shares, the shares that would be issued upon the conversion of convertible notes and the exercise of outstanding warrants and stock options, were 31.9 million, 14.8 million and 14.7 million at December 31, 2002, 2001 and 2000, respectively.

Accounting for Stock-Based Compensation

The Company accounts for stock-based compensation in accordance with Accounting Principles Board Opinion ("APB") No. 25, *Accounting for Stock Issued to Employees,* and FASB Interpretation No. 44, *Accounting for Certain Transactions Involving Stock Compensation.*

Pro forma information regarding net loss and loss per share is required by SFAS No. 123, *Accounting for Stock-based Compensation*, and has been determined as if the Company had accounted for its employee stock options under the fair value method of that Statement. The estimated weighted average fair value at grant date for the options granted during 2002, 2001 and 2000 was $7.92, $7.48 and $8.32 per option, respectively. The fair value for these options was estimated at the dates of grant using the Black-Scholes option valuation model with the following weighted-average assumptions for 2002, 2001 and 2000:

	2002	2001	2000
Risk free interest rates	2.80%	4.30%	4.75%
Dividend yields	—	—	—
Volatility	77%	70%	75%
Weighted average expected life	5 years	5 years	5 years

The Black-Scholes option valuation model was developed for use in estimating the fair value of traded options that have no vesting restrictions and are fully transferable. In addition, option valuation models require the input of highly subjective assumptions including the expected stock price volatility. Because the Company's employee stock options have characteristics significantly different from those of traded options, and because changes in the subjective input assumptions can materially affect the fair value estimate, in management's opinion, the existing models do not necessarily provide a reliable single measure of the fair value of its employee stock options.

For purposes of pro forma disclosures, the estimated fair value of the options is amortized to expense over the options' vesting period. The Company's pro forma information is as follows (in thousands, except for net loss per share information):

	Year ended December 31,		
	2002	2001	2000
Net loss as reported	$ (32,596)	$ (42,995)	$ (72,376)
Net loss pro forma	(39,030)	(48,566)	(78,714)
Net loss per share as reported	(0.47)	(0.72)	(1.30)
Net loss per share pro forma	(0.56)	(0.82)	(1.41)

Foreign Currency Translation

Gains and losses resulting from foreign currency translation are accumulated as a separate component of stockholders' equity (deficit) as accumulated other comprehensive income (loss). Gains and losses resulting from foreign currency transactions are included in the consolidated statements of operations.

Segment Reporting

The Company currently operates in a single operating segment. The Company generates revenue from various sources that result primarily from its underlying research and development activities. In addition, financial results are prepared and reviewed by management as a single operating segment. The Company continually evaluates the benefits of operating in distinct segments and will report accordingly when such distinction is made.

Recent Accounting Pronouncements

In July 2001, the Financial Accounting Standards Board ("FASB") issued SFAS No. 141, *Business Combinations,* which requires the use of the purchase method of accounting for all business combinations initiated after June 30, 2001 and eliminates the pooling-of-interests method. The adoption of SFAS No. 141 did not have a material effect on the Company's results of operations or financial position.

In July 2001, the FASB issued SFAS No. 142, *Goodwill and Other Intangible Assets,* which requires that goodwill and other intangible assets with indefinite lives no longer be amortized, but instead tested for impairment at least annually. In addition, the standard includes provisions for the reclassification of certain existing intangibles as goodwill and reassessment of the useful lives of existing recognized intangibles. SFAS No. 142 is effective for fiscal years beginning after December 31, 2001. The adoption of SFAS No. 142 effective January 1, 2002 did not have a material effect on the Company's results of operations or financial position.

In October 2001, the FASB issued SFAS No. 144, *Accounting for the Impairment or Disposal of Long-Lived Assets,* which establishes one accounting model to be used for long-lived assets to be disposed of by sale and broadens the presentation of discontinued operations to include more disposal transactions. SFAS No. 144 supercedes SFAS No. 121, *Accounting for the Impairment of Long-Lived Assets and for Long-Lived Assets to Be Disposed Of,* and the accounting and reporting provisions of APB No. 30. SFAS No. 144 is effective for fiscal years beginning after December 15, 2001. The adoption of SFAS No. 144 effective January 1, 2002 did not have a material effect on the Company's results of operations or financial position.

In November 2002, the FASB issued FASB Interpretation No. 45 ("FIN 45"), *Guarantor's Accounting and Disclosure Requirements for Guarantees, Including Indirect Guarantees of Indebtedness of Others*. FIN 45 requires that a liability be recorded in the guarantor's balance sheet upon issuance of a guarantee. In addition, FIN 45 requires certain disclosures about each of the entity's guarantees. Ligand will apply the recognition provisions of FIN 45 prospectively to guarantees issued after December 31, 2002. The disclosure provisions of FIN 45 are effective for annual and interim periods that end after December 15, 2002.

In December 2002, the FASB issued SFAS No. 148, *Accounting for Stock-Based Compensation, Transition and Disclosure*. SFAS No. 148 provides alternative methods of transition for those entities that elect to voluntarily adopt the fair value accounting provisions of SFAS 123, *Accounting for Stock-Based Compensation*. SFAS No. 148 also requires more prominent disclosures of the pro forma effect of using the fair value method of accounting for stock-based employee compensation as well as pro forma disclosure of the effect in interim financial statements. The transition and annual disclosure provisions of SFAS No. 148 are effective for fiscal years ending after December 15, 2002. The interim disclosure requirements are effective for the first interim period ending after December 15, 2002. Ligand has not elected to adopt the fair value accounting provisions of SFAS No. 123 and therefore the adoption of SFAS No. 148 did not have a material effect on the Company's results of operations or financial position.

In January 2003, the FASB issued FASB Interpretation No. 46 ("FIN 46"), *Consolidation of Variable Interest Entities, an Interpretation of ARB No. 51*. FIN 46 requires the consolidation of certain variable interest entities by the primary beneficiary of the entity if the equity investment at risk is not sufficient to permit the entity to finance its activities without additional subordinated financial support from other parties or if the equity investors lack the characteristics of a controlling financial interest. FIN 46 is effective for variable interest entities created or acquired after January 31, 2003. For variable interest entities created or acquired prior to February 1, 2003, the provisions of FIN 46 must be applied in the first interim or annual period beginning after June 15, 2003. Ligand is in the process of determining the effect that the adoption of FIN 46 will have on its results of operations and financial position.

Reclassifications

Certain reclassifications have been made to amounts included in the prior years' financial statements to conform to the presentation for the year ended December 31, 2002.

3. Investments

The following table summarizes the various investment categories at December 31, 2002 and 2001 (in thousands):

	Cost	Gross unrealized gains	Gross unrealized losses	Estimated fair value
December 31, 2002				
U.S. government securities	$ 4,547	$ 25	$ (2)	$ 4,570
Corporate obligations	8,202	55	—	8,257
	12,749	80	(2)	12,827
U.S. government securities - restricted	18,014	—	—	18,014
Certificates of deposit - restricted	1,630	—	—	1,630
	$ 32,393	$ 80	$ (2)	$ 32,471
December 31, 2001				
U.S. government securities	$ 2,295	$ 30	$ —	$ 2,325
Corporate obligations	13,039	125	(1)	13,163
Certificates of deposit	1,459	—	—	1,459
	16,793	155	(1)	16,947
Certificates of deposit - restricted	2,370	—	—	2,370
	$ 19,163	$ 155	$ (1)	$ 19,317

There were no material realized gains or losses on sales of available-for-sale securities for the years ended December 31, 2002 and 2001. Net realized gains for the year ended December 31, 2000 were $426,000.

The amortized cost and estimated fair value of investments at December 31, 2002, by contractual maturity, are shown below (in thousands). Expected maturities will differ from contractual maturities because the issuers of the securities may have the right to prepay obligations without prepayment penalties.

	December 31, 2002	
	Cost	Estimated fair value
Due in one year or less	$ 11,462	$ 11,464
Due after one year through three years	20,931	21,007
	$ 32,393	$ 32,471

4. Other Balance Sheet Details

Accounts receivable consist of the following (in thousands):

	December 31,	
	2002	2001
Trade accounts receivable	$ 12,582	$ 13,239
Less allowances	(5,226)	(3,441)
	$ 7,356	$ 9,798

Other assets consist of the following (in thousands):

	December 31,	
	2002	2001
Debt issue costs, net	$ 5,073	$ —
Payment to extend X-Ceptor purchase right (Note 13)	5,000	—
Prepaid royalty buyout, net	3,128	3,400
Deferred rent	2,966	3,204
Equity investment in X-Ceptor	1,265	2,448
Other	560	908
	$ 17,992	$ 9,960

Accrued liabilities consist of the following (in thousands):

	December 31,	
	2002	2001
AVINZA® royalty rights	$ 4,133	$ —
Royalties	2,505	2,736
Compensation	2,338	2,786
Interest	880	1,942
Payment to licensor	—	2,500
Other	1,930	2,281
	$ 11,786	$ 12,245

5. Strategic Alliance with Elan Corporation

The Company and Elan Corporation, plc ("Elan") are parties to a number of agreements that provided financing to the Company and a license to Elan's product AVINZA®. Significant provisions are as follows:

Financing Arrangement

In 1998, Elan purchased approximately $20 million of the Company's common stock and $40 million in issue price of zero coupon convertible senior notes, due 2008 with an 8% per annum yield to maturity (the "Notes"), convertible into the Company's common stock at $14 per share. In 1999, the Company issued $40 million of Notes to Elan, convertible at $14 per share, and $20 million of Notes, convertible at $9.15 per share. In December 1999, Elan converted Notes of $20 million plus accrued interest into 2,244,460 shares of the Company's common stock. The Company provided Elan a $2.2 million conversion incentive through the issuance of an additional 188,572 shares of the Company's common stock. In March 2000, Elan converted an additional $20 million in Notes plus accrued interest into 1,501,543 shares of the Company's common stock. The Company provided Elan a $2 million conversion incentive through the issuance of 98,580 shares of the Company's common stock. On December 29, 2000, the Company issued the final $10 million of Notes to Elan provided for under the terms of the agreement, convertible at $14.16 per share.

In December 2001, Elan agreed to convert Notes of $50 million plus accrued interest of $1.8 million into 4,406,010 shares of Ligand common stock. The conversion occurred in February 2002 subsequent to regulatory approval. In connection with the conversion, Ligand provided Elan with a $5.0 million conversion incentive through the issuance in December 2001 of 274,843 shares of the Company's common stock.

In March 2002, Elan agreed to convert the remaining $20.0 million in issue price zero coupon convertible senior notes and $4.7 million of accrued interest into 1,766,916 shares of Ligand common stock. In connection with the conversion, Ligand provided Elan with a $2.0 million conversion incentive through the issuance of 102,151 shares of common stock.

The financing arrangement with Elan contains certain rights of first refusal upon the subsequent issuance of securities. In accordance with such rights and as a result of other equity issuances by the Company, the Company sold 52,712 shares of common stock and 91,406 warrants to Elan in 1999 for $839,000 and 416,667 shares of common stock in 2001 for $5 million. Elan subsequently exercised the warrants in connection with the March 2002 conversion of zero coupon convertible senior notes. As of December 31, 2002, Elan owns 20.2% of Ligand's issued and outstanding common shares.

License Agreement

In 1998, Elan also agreed to exclusively license to the Company in the United States and Canada its proprietary product AVINZA®, a form of morphine for chronic, moderate-to-severe pain. For the rights to AVINZA® the Company paid Elan $5 million through the issuance of 429,185 shares of the Company's common stock and $10 million from the issuance of Notes. In December 1999, the Company paid Elan $5 million through the issuance of 498,443 shares of the Company's common stock related to Elan completing patient enrollment for AVINZA® phase III clinical trials. In June 2000, as a result of Elan's submission of the AVINZA® NDA, the Company made a $4 million payment through the issuance of 367,183 shares of the Company's common stock. The FDA approved AVINZA® in March 2002. The approval triggered an additional $5.0 million milestone due Elan that was settled through the issuance of 302,554 shares of common stock.

In November 2002, the Company and Elan agreed to amend the terms of the AVINZA® license and supply agreement. Under the terms of the amendment, Ligand paid Elan $100.0 million in return for a reduction in Elan's product supply price on sales of AVINZA® by Ligand, rights to sublicense and obtain a co-promotion partner in its territories, and rights to qualify, and purchase AVINZA® from a second manufacturing source. Elan's adjusted royalty and supply price of AVINZA® is approximately 10% of the product's net sales, compared to approximately 30-35% in the prior agreement. In addition, Elan agreed to forego its option to co-promote AVINZA® in the United States and Canada. The amount paid to Elan and related transaction costs were capitalized as acquired product rights.

Repurchase of Elan Shares

In November 2002, the Company also agreed to purchase approximately 2.2 million Ligand shares held by an affiliate of Elan for $9.00 a share. The difference between the $9.00 purchase price and the public price of Ligand common shares at the time the agreement was signed, approximately $4.1 million, was treated as an additional component of the price paid for the reduced royalty rate. The shares were subsequently purchased and retired in February 2003. Following the retirement of these shares, Elan owns 17.7% of Ligand's issued and outstanding common shares.

Distribution Agreement

In February 2001, the Company and Elan entered into a distribution agreement providing for the distribution of certain of the Company's products in various European and other international territories for a term of ten years. During 2001, the Company received a $1.5 million up-front fee at contract inception, and $4.5 million in milestone payments upon the subsequent submission of a European Union ("EU") application for Marketing Authorization Approval ("MAA") for Targretin® gel, the grant of an EU MAA for Targretin® capsules and the submission of an EU MAA for ONZAR™ (ONTAK® in the U.S.). The Company may receive additional payments as products are submitted and approved in the territories.

6. AVINZA® Approval and Product Launch

In March 2002, the FDA approved AVINZA® for the relief of chronic, moderate to severe pain. In connection with the subsequent launch of AVINZA® in June 2002, the Company shipped $11.5 million of product to wholesaler customers. The product was sold under certain promotional launch programs that provided customers with discounts off wholesale price and 90-day payment terms instead of the Company's standard 30-day terms. The promotions were implemented to ensure the availability of a sufficient retail supply of AVINZA® in those territories where Ligand sales representatives were initially promoting the product. Of the amount shipped, $4.1 million was recognized as revenue based on the Company's policy of deferring recognition of revenue associated with promotional product terms for a new product launch requiring broad retail pharmacy distribution.

Through December 31, 2002, $14.6 million of AVINZA® has been shipped to wholesaler customers. Of the amount shipped, net revenue of $12.2 million was recognized and $750,000 was deferred in accordance with the Company's revenue recognition policy. The amount of deferred revenue to be recognized in subsequent periods will be determined based on an estimate, using available market information, of the level of product at wholesalers that will sell through to pharmacies.

The total amount paid to Elan for 2002 AVINZA® purchases and royalties was $5.4 million.

7. Seragen

Merger

In 1998, the Company completed a merger with Seragen. Under the terms of the merger agreement, Ligand paid merger consideration of $31.7 million at closing and $34.1 million in 1999 subsequent to final FDA approval of ONTAK®. Pending resolution of final contingencies and in accordance with the terms of the merger agreement, the Company has withheld $2.7 million from payments made to certain Seragen stakeholders.

In connection with the Seragen merger, the Company acquired substantially all the assets of Marathon Biopharmaceuticals, LLC ("Marathon"), which provided manufacturing services to Seragen, for $8.0 million. In 2000, Ligand sold the contract manufacturing assets of Marathon for approximately $10.2 million. In connection with the sale, Seragen entered into a three-year supply and development agreement with the acquirer for the manufacture of ONTAK® and the performance of certain development work for Seragen's next-generation ONTAK® product. Purchases under the agreement amounted to $1.8 million, $2.1 million and $2.6 million in 2002, 2001 and 2000, respectively.

Arrangement With Lilly

In conjunction with the Seragen merger, Eli Lilly and Company ("Lilly") assigned to Ligand certain rights and obligations under its agreements with Seragen, including its sales and marketing rights to ONTAK®. The agreement provides for milestone payments of $5.0 million to Lilly upon FDA approval of ONTAK® and upon cumulative net sales of ONTAK® reaching $20.0 million, royalties to Lilly on sales of ONTAK®, and payments by Lilly to Ligand as reimbursement for certain ONTAK® clinical and other costs incurred by the Company. In 1999, Ligand issued to Lilly 434,546 shares of the Company's common stock as payment of the $5.0 million milestone for approval of ONTAK®. In 2000, cumulative net sales of ONTAK® reached $20.0 million. The Company issued 412,504 shares of its common stock to Lilly in 2001 as payment for this $5.0 million milestone. Revenues recognized for reimbursement of clinical and other costs for the years ended December 31, 2001 and 2000 were $206,000 and $1.1 million, respectively. There were no such revenues for 2002.

8. Long-term Debt

Long-term debt consists of the following (in thousands):

	December 31,	
	2002	2001
6% Convertible Subordinated Notes	$155,250	$ —
Zero coupon convertible senior notes	—	86,078
Convertible Subordinated Debentures	—	47,326
Convertible note	—	2,500
	155,250	135,904
Less current portion	—	(2,500)
Total long-term debt	$155,250	$133,404

6% Convertible Subordinated Notes

In November 2002, the Company completed a private offering of Convertible Subordinated Notes in the aggregate principal amount of $155.3 million, receiving net proceeds of $150.1 million. The notes pay interest semi-annually at a rate of 6% and mature on November 16, 2007. Holders may convert the notes into shares of common stock at any time prior to maturity at a conversion rate of 161.9905 shares per $1,000 principal amount of notes. Of the net proceeds, $18.0 million was invested in U.S. government securities and placed with a trustee to pay the first four scheduled interest payments. On or after November 22, 2005, the Company has the option to redeem the notes, in whole or in part, at specified redemption prices ranging from 102.4% to 101.2% of the outstanding principal amount plus accrued and unpaid interest. Upon a change in control, holders of the notes can require the Company to repurchase the notes.

Zero Coupon Convertible Senior Notes

In February 2002, pursuant to an agreement reached in December 2001, the Company converted $50.0 million in issue price of zero coupon convertible senior notes and $11.8 million of accrued interest owed to Elan into 4,406,010 shares of common stock.

In March 2002, Elan agreed to convert the remaining outstanding $20.0 million in issue price zero coupon convertible senior notes and $4.7 million of accrued interest into 1,766,916 shares of Ligand common stock. In connection with the conversion, Ligand provided Elan with a $2.0 million conversion incentive through the issuance of 102,151 shares of common stock.

Convertible Subordinated Debentures

In June 2002, the Company redeemed $50.0 million in face value of 7.5% convertible subordinated debentures due January 2003. The remaining $1.8 million of accretion to face value at the time of redemption was charged to interest expense.

Convertible Note

The $2.5 million convertible note, issued in connection with the Company's collaborative arrangement with SmithKline Beecham Corporation, was repaid in October 2002.

9. Royalty Agreements

The Company has royalty obligations under various technology license agreements. During 2002, royalties to individual licensors were accrued ranging from 0.5% to 20% of net sales. Royalty expense for the years ended December 31, 2002, 2001 and 2000 was $8.8 million, $7.8 million and $3.5 million, respectively.

In March 2002, Ligand entered into an agreement with Royalty Pharma AG ("Royalty Pharma"), to sell a portion of the Company's rights to future royalties from certain collaborative partners' net sales of three selective estrogen receptor modulator (SERM) products now in Phase III clinical development. The agreement provided for the initial sale of rights to 0.25% of such product net sales for $6.0 million and options to acquire up to an additional 1.00% of net sales for $50.0 million. The $6.0 million was recognized as revenue in the first quarter of 2002. In July and December of 2002, the agreement was amended to replace the existing options with new options providing for the rights to acquire an additional 1.3125% of net sales for $63.8 million. Royalty Pharma exercised each of the three available 2002 options, as amended, acquiring rights to 0.4375% of net sales for $12.3 million. The Company recognizes revenue for options under the agreement when the option is exercised.

In December 2002, Ligand also entered into an agreement to sell Royalty Pharma a 1% interest in net sales of Targretin® capsules for $1.0 million starting in January 2003. The $1.0 million is being accounted for as a financing arrangement in accordance with Emerging Issues Task Force ("EITF") Issue No. 88-18, Sales of Future Revenues.

In September 1999, the Company and Seragen entered into a sublicense agreement with Hoffmann-La Roche Inc. ("Roche"), with respect to Seragen's rights under a family of patents called the "Strom Patents." The Strom Patents, licensed by Seragen from Beth Israel Deaconess Medical Center ("Beth Israel"), cover the use of antibodies that target the interleukin-2 receptor to treat transplant rejection and autoimmune diseases. In consideration for the sublicense, Roche paid Seragen a $2.5 million royalty based on sales occurring before the date of the agreement, plus Roche will pay royalties on subsequent sales of licensed products. Seragen will also receive milestone payments in the event Roche receives U.S. regulatory approval of licensed products. A non-exclusive license was previously issued by Seragen to Novartis requiring similar royalty payments. Beth Israel receives approximately 35% of the total royalty and milestone payments made related to the Strom Patents.

In December 1999, the Company and Seragen entered into an agreement with Pharmaceutical Partners LLC ("Pharma") whereby Pharma purchased Seragen's royalty stream to be received under the Roche and Novartis royalty agreements described above. Pharma paid $3.25 million in December 1999 and will pay an additional $3.25 million should sales exceed a predetermined amount in any of years 2002 through 2004. Seragen retains the patents and the right to receive the future milestone payments from Roche described above.

10. Commitments and Contingencies

Equipment Financing

The Company has entered into capital lease and equipment note payable agreements that require monthly payments through August 2006 including interest ranging from 4.75% to 10.66%. The carrying value of equipment under these agreements at December 31, 2002 and 2001 was $7.9 million and $13.1 million, respectively. At December 31, 2002 and 2001, related accumulated amortization was $4.1 million and $7.5 million, respectively. The underlying equipment is used as collateral under the equipment notes payable.

Certain of the equipment financing agreements contain provisions that require the Company to fund standby letters of credit equal to the balance financed under the arrangement in the event unrestricted cash levels fall below specified amounts.

Property Leases

The Company leases its corporate headquarters from a limited liability company (the "LLC") in which Ligand holds a 1% ownership interest. The lease agreement provides for increases in annual rent of 4% and terminates in 2014. Ligand also has an option to either purchase the LLC or the leased premises from the LLC at a purchase price equal to the outstanding debt on the property plus a calculated return on the investment made by the LLC's other shareholder.

In accordance with existing accounting standards, the lease is treated as an operating lease for financial reporting purposes. In January 2003, the FASB issued FASB Interpretation No. 46 ("FIN 46"); *Consolidation of Variable Interest Entities, an Interpretation of ARB No. 51*. FIN 46 requires the consolidation of certain variable interest entities by the primary beneficiary of the entity if the equity investment at risk is not sufficient to permit the entity to finance its activities without additional subordinated financial support from other parties or if the equity investors lack the characteristics of a controlling financial interest. For variable interest entities created prior to February 1, 2003, the consolidation requirements of FIN 46 must be applied in the Company's third quarter of 2003. Ligand is in the process of determining the effect, if any, that the adoption of FIN 46 will have on its operations and financial position. If Ligand was required to consolidate the LLC, however, the Company's consolidated balance sheet as of December 31, 2002 would reflect additional property and equipment of $13.2 million and additional debt of $12.7 million. The impact of such treatment on the Company's 2002, 2001 and 2000 operating results would not be significant.

The Company leases its other office and research facilities under operating lease arrangements with varying terms through July 2015. The agreements provide for increases in annual rents based on changes in the Consumer Price Index or fixed percentage increases ranging from 3% to 7%.

Total rent expense under all office leases for 2002, 2001 and 2000 was $3.3 million, $3.4 million and $3.4 million, respectively.

At December 31, 2002 annual minimum payments due under the Company's office and equipment lease obligations are as follows (in thousands):

	Obligations under capital leases and equipment notes payable	Operating leases
2003	$ 2,452	$ 3,031
2004	2,361	3,088
2005	1,381	3,148
2006	614	3,189
2007	—	3,054
Thereafter	—	23,000
Total minimum lease payments	6,808	$ 38,510
Less amounts representing interest	(626)	
Present value of minimum lease payments	6,182	
Less current portion	(2,087)	
	$ 4,095	

Litigation

The Company is subject to various lawsuits and claims with respect to matters arising out of the normal course of business. Due to the uncertainty of the ultimate outcome of these matters, the impact on future financial results is not subject to reasonable estimates.

11. Stockholders' Equity (Deficit)

Stock Issuance

In April 2002, the Company raised net proceeds of $65.9 million in a private placement of 4,252,500 shares of its common stock.

Warrants

At December 31, 2002, there were outstanding warrants to purchase 1,100,000 shares of the Company's common stock. The warrants have exercise prices ranging from $10 to $20 per share and expire at various dates through October 6, 2006.

Treasury Stock

In 2000, under the terms of a previously established agreement with a collaborative research and development partner, the Company received 72,728 shares of its common stock as payment by the partner of a $900,000 development milestone. The stock had previously been sold to the partner at the inception of the collaborative arrangement. The stock was placed in treasury, which totaled 73,842 shares at December 31, 2002.

Stock Plans

In May 2002, the Company's stockholders approved the 2002 Stock Option/Stock Issuance Plan (the "2002 Plan") which is the successor to the Company's 1992 Stock Option/Stock Issuance Plan (the "1992 Plan"). The 2002 Plan provides for the issuance of options to purchase 1,305,000 shares of the Company's common stock including options for approximately 550,000 shares of common stock that remained available for issuance under the 1992 Plan. At the time the 2002 Plan became effective, there were approximately 6,855,000 shares reserved for issuance including shares that had been reserved for and were subject to outstanding options under the 1992 Plan. The options granted generally have 10-year terms and vest over four years of continued employment. The Company's employee stock purchase plan also provides for the sale of up to 540,000 shares of the Company's common stock.

Following is a summary of the Company's stock option plan activity and related information:

	Shares	Weighted average exercise price
Balance at January 1, 2000	5,305,459	$ 10.58
Granted	1,156,481	12.90
Exercised	(511,872)	9.25
Canceled	(285,519)	11.63
Balance at December 31, 2000	5,664,549	11.11
Granted	1,010,299	12.14
Exercised	(573,531)	10.11
Canceled	(702,951)	12.22
Balance at December 31, 2001	5,398,366	11.27
Granted	1,345,072	12.34
Exercised	(346,187)	9.20
Canceled	(737,006)	11.34
Balance at December 31, 2002	5,660,245	$ 11.64

Following is a further breakdown of the options outstanding as of December 31, 2002:

Range of exercise prices	Options outstanding	Weighted average remaining life in years	Weighted average exercise price	Options exercisable: Number exercisable	Options exercisable: Weighted average exercise price
$ 4.58 - $ 9.10	1,238,965	5.99	$ 7.33	653,901	$ 7.61
9.21 - 10.75	1,144,467	6.22	10.05	894,854	9.95
11.06 - 12.13	1,149,046	5.45	11.75	996,927	11.77
12.50 - 15.24	1,317,920	6.68	13.92	877,469	13.61
16.06 - 16.95	809,847	8.28	16.60	297,568	16.42
	5,660,245	6.42	$ 11.64	3,720,719	$ 11.41

At December 31, 2002, 975,685 shares were available under the plans for future grants of stock options or sale of stock.

Shareholder Rights Plan

The Company has a preferred shareholder rights plan (the "Shareholder Rights Plan"), which provides for a dividend distribution of one preferred share purchase right (a "Right") on each outstanding share of the Company's common stock. Each Right entitles stockholders to buy 1/1000th of a share of Ligand Series A Participating Preferred Stock at an exercise price of $100, subject to adjustment. The Rights become exercisable following the tenth day after a person or group announces an acquisition of 10% or more of the common stock, or announces commencement of a tender offer, the consummation of which would result in ownership by the person or group of 10% or more of the common stock. The Company will be entitled to redeem the Rights at $0.01 per Right at any time on or before the earlier of the tenth day following acquisition by a person or group of 10% or more of the common stock and September 13, 2006.

The Shareholder Rights Plan excludes Elan and its affiliates as an acquiring person to the extent of their ownership on or before November 9, 2005 of up to 25% of the Company's common stock on a fully diluted basis or thereafter to the extent their ownership exceeds 20% on November 9, 2005. However, shares acquired pursuant to the arrangements with Elan described in Note 5 are not counted in such determination unless additional shares of the Company's common stock have been acquired by Elan outside of such arrangements.

12. Collaborative Research and Development Agreements

The Company is party to various research and development collaborations with large pharmaceutical companies including TAP Pharmaceutical Products Inc., Organon Company, Pfizer, Inc., Eli Lilly and Company, GlaxoSmithKline, Wyeth (formerly American Home Products), and Abbott Laboratories. These arrangements generally provide for the license of certain technologies and a collaborative research period ranging from one to five years. Drugs resulting from these collaborations are then developed, manufactured and marketed by the corporate partners. The arrangements may provide for the Company to receive revenue from the transfer of technology rights at contract inception, collaborative research revenue during the research phase, milestone revenue for compounds moving through clinical development, and royalty revenue from the sale of drugs developed through the collaborative efforts.

The following are details regarding significant collaborative arrangements that were in the research phase during the years ended December 31, 2002, 2001 and 2000.

TAP

In June 2001, the Company entered into a research and development collaboration with TAP Pharmaceutical Products Inc. ("TAP") to focus on the discovery and development of selective androgen receptor modulators ("SARMs"). SARMs contribute to the prevention and treatment of certain diseases, including hypogonadism, male and female sexual dysfunction, male and female osteoporosis, frailty, and male hormone replacement therapy. The initial research term concludes in June 2004. TAP may extend the term for up to three additional years.

Collaborative research revenues recognized under the agreement for the years ended December 31, 2002 and 2001 were $6.3 million and $4.3 million, respectively.

Bristol-Myers Squibb

In May 2000, the Company entered into a research and development collaboration with Bristol-Myers Squibb to focus on the discovery, design and development of orally active compounds that selectively modulate the mineralocorticoid receptor. In June 2001, Bristol-Myers Squibb terminated this collaboration. Collaborative research revenues recognized under the agreement for the years ended December 31, 2001 and 2000 were $3.7 million and $2.0 million, respectively.

Organon

In February 2000, the Company entered into a research and development collaboration with Organon to focus on small molecule compounds with potential effects for the treatment and prevention of gynecological diseases mediated through the progesterone receptor. The objective of the collaboration is the discovery of new non-steroidal compounds that are tissue-selective in nature and may have fewer side effects. Such compounds may provide utility in hormone replacement therapy, oral contraception, reproductive diseases, and other hormone-related disorders. The research phase was completed in February 2002. Collaborative research revenues recognized under the agreement for the years ended December 31, 2002, 2001 and 2000 were $330,000, $3.1 million and $2.7 million, respectively.

Pfizer

In September 1999, Ligand entered into a research and development collaboration with the Parke-Davis Pharmaceutical Research Division of Warner-Lambert Company (now part of Pfizer, Inc.) to discover, characterize, design and develop small molecule compounds with beneficial effects for the treatment and prevention of diseases mediated through the estrogen receptor. Some of the diseases affected by drugs that act upon the estrogen receptor are osteoporosis, cardiovascular disease, breast cancer, and mood and cognitive disorders. In 2000, Pfizer informed the Company that it would not extend the collaboration. Collaborative research revenues recognized under the agreement for the year ended December 31, 2000 were $2.5 million.

Eli Lilly & Company

In November 1997, the Company entered into a research and development collaboration with Lilly for the discovery and development of products based on Ligand's Intracellular Receptor technology. Collaborative research revenues including achieved milestones recognized under the agreement for the years ended December 31, 2002, 2001 and 2000 were $14.1 million, $13.7 million and $13.7 million, respectively. The initial research term concluded in November 2002. Lilly, however, extended the term by one year and maintains the right to extend the term for two additional years. The Company also had the option to obtain selected rights to one Lilly specialty pharmaceutical product. In connection with the August 1998 acquisition of Seragen, Ligand obtained from Lilly its rights to ONTAK® and entered into an agreement where Lilly is to fund certain clinical and other regulatory costs incurred by Ligand as mandated by the FDA in the approval of ONTAK® (see Note 7).

GlaxoSmithKline

In February 1995, the Company entered into a research and development collaboration with SmithKline Beecham Corporation (now GlaxoSmithKline) to discover and characterize small molecule drugs to control hematopoiesis for the treatment of a variety of blood cell deficiencies. The research phase was completed in February 2001. Collaborative research revenues including achieved milestones recognized under the agreement for the years ended December 31, 2002, 2001 and 2000 were $2.0 million, $52,000 and $820,000, respectively. In April 1998, SmithKline Beecham and the Company initiated a new collaboration to develop small molecule drugs for the treatment or prevention of obesity. The research phase was completed in May 2000. Collaborative research revenues recognized under that agreement for the year ended December 31, 2000 was $240,000.

13. X-Ceptor Therapeutics, Inc.

In June 1999, Ligand became a minority equity investor in a new private corporation, X-Ceptor Therapeutics, Inc. ("X-Ceptor"), whose mission is to conduct research in and identify therapeutic products from the field of orphan nuclear receptors. Ligand invested $6.0 million in X-Ceptor through the acquisition of convertible preferred stock and owns approximately 17% of X-Ceptor's outstanding capital stock.

Ligand maintained the right to acquire all, but not less than all, of the outstanding X-Ceptor stock at June 30, 2002 or upon the cash balance of X-Ceptor falling below a pre-determined amount, or to extend that right by 12 months by providing additional funding of $5.0 million. In April 2002, Ligand informed X-Ceptor that it was extending its purchase right. The $5.0 million subsequently paid to X-Ceptor will be carried as an asset until the Company decides to either exercise its purchase right or allow the option to expire unexercised. That decision must be made prior to June 30, 2003. If the purchase right is exercised, the $5.0 million option will be treated as a component of the purchase price; otherwise it will be charged to earnings in the period the decision not to exercise is made. The purchase price, payable pro-rata based on total cumulative non-Ligand funding, is up to $77.1 million at June 30, 2003. The purchase price may be paid in cash or shares of Ligand common stock, or any combination of the two, at Ligand's sole discretion.

Ligand granted to X-Ceptor an exclusive license to use the Ligand orphan nuclear receptors technology that is not currently committed to other partnership programs and a nonexclusive license to use Ligand's enabling proprietary process technology as it relates to drug discovery using orphan nuclear receptors. Ligand has not performed any research and development activities on behalf of X-Ceptor.

Ligand also issued warrants to X-Ceptor investors, founders and certain employees to purchase 950,000 shares of Ligand common stock with an exercise price of $10 per share and expiration date of October 6, 2006. The warrants were recorded at their fair value of $4.20 per warrant or $3.9 million as deferred warrant expense within stockholders' deficit and were amortized to operating expense through June 2002. Amortization for the years ended December 31, 2002, 2001 and 2000 was $692,000, $1.4 million and $1.4 million, respectively.

Ligand is accounting for its investment in X-Ceptor using the equity method of accounting. Ligand's interest in X-Ceptor losses for the years ended December 31, 2002, 2001 and 2000 was $1.1 million, $804,000 and $1.7 million, respectively, which are included in other income (expense) in the consolidated statements of operations. Included in the losses recognized is the amortization of the $1.7 million excess of the Company's investment in X-Ceptor over Ligand's equity in the net assets acquired.

14. Income Taxes

At December 31, 2002, the Company had consolidated federal and combined California income tax net operating loss carryforwards of approximately $510.0 million and $80.0 million, respectively. The difference between the federal and California tax loss carryforwards is primarily attributable to the capitalization of research and development expenses for California income tax purposes and the 60% limitation on California loss carryforwards. The federal tax loss carryforwards began expiring in 2002. The California tax loss carryforwards began expiring in 1998. At December 31, 2002, the Company also had consolidated federal and combined California research tax credit carryforwards of approximately $24.0 million and $11.0 million, respectively, which will begin expiring in 2003 unless utilized.

Pursuant to Internal Revenue Code Sections 382 and 383, use of a portion of net operating loss and credit carryforwards will be limited because of cumulative changes in ownership of more than 50% that occurred within three periods during 1989, 1992 and 1996. In addition, use of Glycomed's and Seragen's preacquisition tax net operating and credit carryforwards will also be limited because the acquisitions by the Company represent changes in ownership of more than 50%. Such tax net operating loss and credit carryforwards have been reduced, including the related deferred tax assets.

Significant components of the Company's deferred tax assets and liabilities as of December 31, 2002 and 2001 are shown below. A valuation allowance has been recognized to fully offset the net deferred tax assets as of December 31, 2002 and 2001 as realization of such assets is uncertain.

	December 31,	
	2002	2001
	(in thousands)	
Deferred tax liabilities:		
Purchased intangible assets	$ 10,725	$ 11,656
Acquired subordinated debt	—	1,065
Total deferred tax liabilities	10,725	12,721
Deferred tax assets:		
Net operating loss carryforwards	178,005	168,761
Research and development credits	31,170	28,174
Capitalized research and development	10,632	8,893
Fixed assets and intangibles	7,661	8,533
Accrued expenses	4,560	3,565
Deferred revenue	3,066	5,136
Other, net	255	870
Total deferred tax assets	235,349	223,932
Net deferred tax assets	224,624	211,211
Valuation allowance for deferred tax assets	(224,624)	(211,211)
	$ —	$ —

As of December 31, 2002, approximately $4.3 million of the valuation allowance for deferred tax assets related to benefits of stock option deductions which, when recognized, will be allocated directly to paid-in capital.

15. Subsequent Events

In February 2003, Ligand and Organon Pharmaceuticals USA Inc. ("Organon") announced that they had entered into an agreement for the co-promotion of AVINZA®. Under the terms of the agreement, Organon committed to a specified minimum number of primary and secondary product calls delivered to certain high prescribing physicians and hospitals starting in April 2003. In exchange, Ligand will pay Organon a percentage of AVINZA® net sales based on the following schedule:

Annual Net Sales of AVINZA®	% of Incremental Net Sales Paid to Organon by Ligand
$0-35 million (2003 only)	0% (2003 only)
$0-150 million	30%
$150-300 million	40%
$300-425 million	50%
> $425 million	45%

Additionally, Ligand and Organon agreed to equally share all costs for AVINZA® advertising and promotion, medical affairs and clinical trials. Each company will also be responsible for its own sales force costs and other expenses. The initial term of the co-promotion agreement is ten years. Organon has the option any time prior to the end of year five to extend the agreement to 2017 by making a $75.0 million payment to Ligand.

16. Summary of Unaudited Quarterly Financial Information

The following is a summary of the unaudited quarterly results of operations for the years ended December 31, 2002 and 2001 (in thousands, except per share amounts).

	Quarter ended			
	March 31	June 30	September 30	December 31
2002				
Total revenues	$ 24,886	$ 19,166	$ 25,266	$ 27,322
Cost of products sold	4,460	4,681	5,646	5,519
Research and development costs	13,115	13,681	15,641	16,370
Total operating costs and expenses	27,233	28,641	32,053	32,864
Net loss	(6,575)	(12,246)	(7,047)	(6,728)
Basic and diluted net loss per share	$ (0.10)	$ (0.17)	$ (0.10)	$ (0.09)
Weighted average number of common shares	63,123	70,413	71,358	71,410
2001				
Total revenues	$ 17,035	$ 17,489	$ 19,174	$ 22,643
Cost of products sold	2,839	3,077	3,645	4,386
Research and development costs	12,405	13,191	12,882	12,626
Total operating costs and expenses	25,401	25,154	23,733	25,190
Net loss	(11,581)	(10,615)	(7,744)	(13,055)
Basic and diluted net loss per share	$ (0.20)	$ (0.18)	$ (0.13)	$ (0.22)
Weighted average number of common shares	58,854	59,380	59,581	59,747

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

Not applicable.

PART III

Item 10. Directors and Executive Officers of the Registrant

The sections labeled "Election of Directors", "Executive Officers" and "Section 16(a) Beneficial Ownership Reporting Compliance" appearing in the Company's Proxy Statement to be delivered to stockholders in connection with the 2003 Annual Meeting of Stockholders (the "Proxy Statement") are incorporated herein by reference.

Item 11. Executive Compensation

The section labeled "Executive Compensation and Other Information" appearing in the Proxy Statement is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

Security Ownership of Certain Beneficial Owners and Management

The section labeled "Stock Ownership" appearing in the Proxy Statement is incorporated herein by reference.

Securities Authorized for Issuance under Equity Compensation Plans

We have two compensation plans approved by stockholders under which our equity securities are authorized for issuance to employees or directors in exchange for goods or services: The 2002 Stock Option/Stock Issuance Plan (effective May 16, 2002) which is the successor plan to the 1992 Stock Option/Stock Issuance Plan; and The 2002 Employee Stock Purchase Plan (effective May 16, 2002) which is the successor plan to the 1992 Employee Stock Purchase Plan.

The following table summarizes information about our equity compensation plans at December 31, 2002:

Plan category	(a) Number of securities to be issued upon exercise of outstanding options, warrants and rights	(b) Weighted-average exercise price of outstanding options, warrants and rights	(c) Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
Equity compensation plans approved by security holders	5,660,245	$11.64	975,685
Equity compensation plans not approved by security holders	—	—	—
	5,660,245	$11.64	975,685

Item 13. Certain Relationships and Related Transactions

The sections labeled "Executive Compensation and Other Information" and "Certain Relationships and Related Transactions" appearing in the Proxy Statement are incorporated herein by reference.

Item 14. Controls and Procedures

(a) *Evaluation of disclosure controls and procedures.* An evaluation was performed under the supervision and with the participation of the Company's management, including the Chief Executive Officer (CEO) and Chief Financial Officer (CFO), of the effectiveness of the design and operation of the Company's disclosure controls and procedures within 90 days before the filing date of this Form 10-K. Based on their evaluation, the Company's principal executive officer and principal financial officer have concluded that the Company's disclosure controls and procedures (as defined in Rules 13a-14(c) and 15d-14(c) under the Securities Exchange Act of 1934 (the "Exchange Act")) are effective to ensure that information required to be disclosed by the Company in reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in Securities and Exchange Commission rules and forms.

(b) *Changes in internal controls.* There have been no significant changes in the Company's internal controls or in other factors that could significantly affect internal controls subsequent to their evaluation. There were no significant deficiencies or material weaknesses, and therefore there were no corrective actions taken.

PART IV

Item 15. Exhibits, Financial Statement Schedules, and Reports on Form 8-K

(a) The following documents are included as part of this Annual Report on Form 10-K.

Index to Financial Statements

Independent Auditors' Report

Consolidated Balance Sheets

Consolidated Statements of Operations

Consolidated Statements of Stockholders' Equity (Deficit)

Consolidated Statements of Cash Flows

Notes to Consolidated Financial Statements

(b) Reports on Form 8-K.

We filed the following reports on Form 8-K during the fourth quarter of 2002:

Date of Filing	Description	
November 13, 2002	Item 5, Other Events Item 7, Exhibits	– Ligand Reports Financial Results for Third Quarter 2002: Total Revenues increase 32%, Per Share Loss Decreases 23% – Ligand Restructures AVINZA® License and Supply Agreement – Ligand Announces Plans for $135 Million Convertible Debt Offering
November 21, 2002	Item 5, Other Events Item 7, Exhibits	– Ligand Announces Pricing of $135 Million of Convertible Subordinated Notes
November 25, 2002	Item 5, Other Events Item 7, Exhibits	– Ligand Earns $2.1 Million Milestone Payment as Lilly IND for LY674 Clears FDA
December 2, 2002	Item 5, Other Events Item 7, Exhibits	– Ligand Announces Exercise of Overallotment Option for Convertible Subordinated Notes

(c) Exhibits

Exhibit Number	Description
2.1 (1)	Agreement and Plan of Reorganization dated May 11, 1998, by and among the Company, Knight Acquisition Corp. and Seragen, Inc. (Filed as Exhibit 2.1).
2.2 (1)	Option and Asset Purchase Agreement, dated May 11, 1998, by and among the Company, Marathon Biopharmaceuticals, LLC, 520 Commonwealth Avenue Real Estate Corp. and 660 Corporation. (Filed as Exhibit 10.3).

Exhibit Number	Description
2.3 (19)	Asset Purchase Agreement among CoPharma, Inc., Marathon Biopharmaceuticals, Inc., Seragen, Inc. and the Company dated January 7, 2000. (The schedules referenced in this agreement have not been included because they are either disclosed in such agreement or do not contain information which is material to an investment decision (with certain confidential portions omitted). The Company agrees to furnish a copy of such schedules to the Commission upon request.)
2.4 (3)	Agreement of Merger, dated February 7, 1995 by and among the Company, LG Acquisition Corp. and Glycomed Incorporated (other Exhibits omitted, but will be filed by the Company with the Commission upon request). (Filed as Exhibit 2.1).
2.5 (1)	Form of Certificate of Merger for acquisition of Seragen, Inc. (Filed as Exhibit 2.2).
3.1 (1)	Amended and Restated Certificate of Incorporation of the Company. (Filed as Exhibit 3.2).
3.2 (1)	Bylaws of the Company, as amended. (Filed as Exhibit 3.3).
3.3 (2)	Amended Certificate of Designation of Rights, Preferences and Privileges of Series A Participating Preferred Stock of the Company.
3.5 (31)	Certificate of Amendment of the Amended and Restated Certificate of Incorporation of the Company dated June 14, 2000.
4.1 (4)	Specimen stock certificate for shares of Common Stock of the Company.
4.2 (16)	Preferred Shares Rights Agreement, dated as of September 13, 1996, by and between the Company and Wells Fargo Bank, N.A. (Filed as Exhibit 10.1).
4.3 (13)	Amendment to Preferred Shares Rights Agreement, dated as of November 9, 1998, between the Company and ChaseMellon Shareholder Services, L.L.C., as Rights Agent. (Filed as Exhibit 99.1).
4.4 (17)	Second Amendment to the Preferred Shares Rights Agreement, dated as of December 23, 1998, between the Company and ChaseMellon Shareholder Services, L.L.C., as Rights Agent (Filed as Exhibit 1).
4.5 (22)	Indenture, dated as of December 23, 1992 by and between Glycomed Incorporated and Chemical Trust Company of California. (Filed as Exhibit 4.3).
4.6 (3)	First Supplement Indenture, dated as of May 18, 1995 by and among the Company, Glycomed Incorporated and Chemical Trust Company of California. (Filed as Exhibit 10.133).
4.7 (37)	Fourth Amendment to the Preferred Shares Rights Agreement and Certification of Compliance with Section 27 Thereof, dated as of October 3, 2002, between the Company and Mellon Investor Services LLC, as Rights Agent.
4.8 (38)	Registration Rights Agreement dated November 26, 2002 between Ligand Pharmaceuticals Incorporated and UBS Warburg LLC. (Filed as Exhibit 4.2).
4.9 (38)	Indenture dated November 26, 2002, between Ligand Pharmaceuticals Incorporated and J.P. Morgan Trust Company, National Association, as trustee, with respect to the 6% convertible subordinated notes due 2007. (Filed as Exhibit 4.3).
4.10 (38)	Form of 6% Convertible Subordinated Note due 2007. (Filed as Exhibit 4.4).
4.11 (38)	Pledge Agreement dated November 26, 2002, between Ligand Pharmaceuticals Incorporated and J.P. Morgan Trust Company, National Association. (Filed as Exhibit 4.5).

Exhibit Number	Description
4.12 (38)	Control Agreement dated November 26, 2002, among Ligand Pharmaceuticals Incorporated, J.P. Morgan Trust Company, National Association and JP Morgan Chase Bank. (Filed as Exhibit 4.6).
10.2 (4)	Form of Stock Option Agreement.
10.3 (4)	Form of Stock Issuance Agreement.
10.13 (4)	Form of Stock Purchase Agreement.
10.29 (4)	Consulting Agreement, dated October 20, 1988, between the Company and Dr. Ronald M. Evans, as amended by Amendment to Consulting Agreement, dated August 1, 1991, and Second Amendment to Consulting Agreement, dated March 6, 1992.
10.30 (4)	Form of Proprietary Information and Inventions Agreement.
10.31 (4)	Agreement, dated March 9, 1992, between the Company and Baylor College of Medicine (with certain confidential portions omitted).
10.33 (4)	License Agreement, dated November 14, 1991, between the Company and Rockefeller University (with certain confidential portions omitted).
10.34 (4)	License Agreement and Bailment, dated July 22, 1991, between the Company and the Regents of the University of California (with certain confidential portions omitted).
10.35 (4)	Agreement, dated May 1, 1991, between the Company and Pfizer Inc (with certain confidential portions omitted).
10.36 (4)	License Agreement, dated July 3, 1990, between the Company and the Brigham and Woman's Hospital, Inc. (with certain confidential portions omitted).
10.38 (4)	License Agreement, dated January 5, 1990, between the Company and the University of North Carolina at Chapel Hill (with certain confidential portions omitted).
10.41 (4)	License Agreement, dated October 1, 1989, between the Company and Institute Pasteur (with certain confidential portions omitted).
10.42 (4)	Sublicense Agreement, dated September 13, 1989, between the Company and AndroBio Corporation (with certain confidential portions omitted).
10.43 (4)	License Agreement, dated June 23, 1989, between the Company and La Jolla Cancer Research Foundation (with certain confidential portions omitted).
10.44 (4)	License Agreement, dated October 20, 1988, between the Company and the Salk Institute for Biological Studies, as amended by Amendment to License Agreement dated September 15, 1989, Second Amendment to License Agreement, dated December 1, 1989 and Third Amendment to License Agreement dated October 20, 1990 (with certain confidential portions omitted).
10.46 (4)	Form of Indemnification Agreement between the Company and each of its directors.
10.47 (4)	Form of Indemnification Agreement between the Company and each of its officers.
10.50 (4)	Consulting Agreement, dated October 1, 1991, between the Company and Dr. Bert W. O'Malley.
10.58 (4)	Stock Purchase Agreement, dated September 9, 1992, between the Company and Glaxo, Inc.
10.59 (4)	Research and Development Agreement, dated September 9, 1992, between the Company and Glaxo, Inc. (with certain confidential portions omitted).
10.60 (4)	Stock Transfer Agreement, dated September 30, 1992, between the Company and the Rockefeller University.

Exhibit Number	Description
10.61 (4)	Stock Transfer Agreement, dated September 30, 1992, between the Company and New York University.
10.62 (4)	License Agreement, dated September 30, 1992, between the Company and the Rockefeller University (with certain confidential portions omitted).
10.63 (4)	Professional Services Agreement, dated September 30, 1992, between the Company and Dr. James E. Darnell.
10.67 (4)	Letter Agreement, dated September 11, 1992, between the Company and Mr. Paul Maier.
10.69 (5)	Form of Automatic Grant Option Agreement.
10.73 (21)	Supplementary Agreement, dated October 1, 1993, between the Company and Pfizer, Inc. to Agreement, dated May 1, 1991.
10.78 (23)	Research, Development and License Agreement, dated July 6, 1994, between the Company and Abbott Laboratories (with certain confidential portions omitted). (Filed as Exhibit 10.75).
10.82 (23)	Research, Development and License Agreement, dated September 2, 1994, between the Company and American Home Products Corporation, as represented by its Wyeth-Ayerst Research Division (with certain confidential portions omitted). (Filed as Exhibit 10.77).
10.83 (23)	Option Agreement, dated September 2, 1994, between the Company and American Home Products Corporation, as represented by its Wyeth-Ayerst Research Division (with certain confidential portions omitted). (Filed as Exhibit 10.80).
10.84 (23)	Distribution and Marketing Agreement, dated September 16, 1994, between the Company and Cetus Oncology Corporation, a wholly owned subsidiary of the Chiron Corporation (with certain confidential portions omitted). (Filed as Exhibit 10.82).
10.93 (6)	Indemnity Agreement, dated June 3, 1995, between the Company, Allergan, Inc. and Allergan Ligand Retinoid Therapeutics, Inc.
10.94 (6)	Tax Allocation Agreement, dated June 3, 1995, between the Company, Allergan, Inc. and Allergan Ligand Retinoid Therapeutics, Inc.
10.97 (6)	Research, Development and License Agreement, dated December 29, 1994, between SmithKline Beecham Corporation and the Company (with certain confidential portions omitted).
10.98 (6)	Stock and Note Purchase Agreement, dated February 2, 1995, between SmithKline Beecham Corporation, S.R. One, Limited and the Company (with certain confidential portions omitted).
10.140 (28)	Promissory Notes, General Security Agreements and a Credit Terms and Conditions letter dated March 31, 1995, between the Company and Imperial Bank (Filed as Exhibit 10.101).
10.146 (24)	Amendment to Research and Development Agreement, dated January 16, 1996, between the Company and American Home Products Corporation, as amended.
10.148 (24)	Lease, dated July 6, 1994, between the Company and Chevron/Nexus partnership, First Amendment to lease dated July 6, 1994.
10.149 (25)	Successor Employment Agreement, signed May 1, 1996, between the Company and David E. Robinson.
10.150 (7)	Master Lease Agreement, signed May 30, 1996, between the Company and USL Capital Corporation.

Exhibit Number	Description
10.151 (25)	Settlement Agreement and Mutual Release of all Claims, signed April 20, 1996, between the Company and Pfizer, Inc. (with certain confidential portions omitted).
10.152 (25)	Letter Amendment to Abbott Agreement, dated March 14, 1996, between the Company and Abbott Laboratories (with certain confidential portions omitted).
10.153 (26)	Letter Agreement, dated August 8, 1996, between the Company and Dr. Andres Negro-Vilar.
10.155 (7)	Letter Agreement, dated November 4, 1996, between the Company and William Pettit.
10.157 (7)	Master Lease Agreement, signed February 13, 1997, between the Company and Lease Management Services.
10.158 (7)	Lease, dated March 7, 1997, between the Company and Nexus Equity VI LLC.
10.161 (29)	Settlement Agreement, License and Mutual General Release between Ligand Pharmaceuticals and SRI/LJCRF, dated August 23, 1995 (with certain confidential portions omitted).
10.163 (30)	Extension of Master Lease Agreement between Lease Management Services and Ligand Pharmaceuticals dated July 29, 1997.
10.164 (27)	Third Amendment to Agreement, dated September 2, 1997, between the Company and American Home Products Corporation.
10.165 (8)	Amended and Restated Technology Cross License Agreement, dated September 24, 1997, among the Company, Allergan, Inc. and Allergan Ligand Retinoid Therapeutics, Inc.
10.167 (8)	Development and License Agreement, dated November 25, 1997, between the Company and Eli Lilly and Company (with certain confidential portions omitted).
10.168 (8)	Collaboration Agreement, dated November 25, 1997, among the Company, Eli Lilly and Company, and Allergan Ligand Retinoid Therapeutics, Inc. (with certain confidential portions omitted).
10.169 (8)	Option and Wholesale Purchase Agreement, dated November 25, 1997, between the Company and Eli Lilly and Company (with certain confidential portions omitted).
10.170 (8)	Stock Purchase Agreement, dated November 25, 1997, between the Company and Eli Lilly and Company.
10.171 (8)	First Amendment to Option and Wholesale Purchase Agreement dated February 23, 1998, between the Company and Eli Lilly and Company (with certain confidential portions omitted).
10.172 (8)	Second Amendment to Option and Wholesale Purchase Agreement, dated March 16, 1998, between the Company and Eli Lilly and Company (with certain confidential portions omitted).
10.174 (9)	Leptin Research, Development and License Agreement, dated March 17, 1998, between the Company and SmithKline Beecham, plc (with certain confidential portions omitted).
10.175 (9)	Stock and Warrant Purchase Agreement, dated March 17, 1998, among the Company, SmithKline Beecham, plc. And SmithKline Beecham Corporation (with certain confidential portions omitted).
10.176 (10)	Secured Promissory Note, dated March 7, 1997, in the face amount of $3,650,000, payable to the Company by Nexus Equity VI LLC. (Filed as Exhibit 10.1).
10.177 (10)	Amended memorandum of Lease effective March 7, 1997, between the Company and Nexus Equity VI LLC. (Filed as Exhibit 10.2).

Exhibit Number	Description
10.178 (10)	First Amendment to Lease, dated March 7, 1997, between the Company and Nexus Equity VI LLC. (Filed as Exhibit 10.3).
10.179 (10)	First Amendment to Secured Promissory Note, date March 7, 1997, payable to the Nexus Equity VI LLC. (Filed as Exhibit 10.4).
10.184 (11)	Letter agreement, dated May 11, 1998, by and among the Company, Eli Lilly and Company and Seragen, Inc. (Filed as Exhibit 99.6).
10.185 (1)	Amendment No. 3 to Option and Wholesale Purchase Agreement, dated May 11, 1998, by and between Eli Lilly and Company and the Company. (Filed as Exhibit 10.6).
10.186 (1)	Agreement, dated May 11, 1998, by and among Eli Lilly and Company, the Company and Seragen, Inc. (Filed as Exhibit 10.7).
10.188 (11)	Settlement Agreement, dated May 1, 1998, by and among Seragen, Inc., Seragen Biopharmaceuticals Ltd./Seragen Biopharmaceutique Ltee, Sofinov Societe Financiere D'Innovation Inc., Societe Innovatech Du Grand Montreal, MDS Health Ventures Inc., Canadian Medical Discoveries Fund Inc., Royal Bank Capital Corporation and Health Care and Biotechnology Venture Fund (Filed as Exhibit 99.2).
10.189 (11)	Accord and Satisfaction Agreement, dated May 11, 1998, by and among Seragen, Inc., Seragen Technology, Inc., Trustees of Boston University, Seragen LLC, Marathon Biopharmaceuticals, LLC, United States Surgical Corporation, Leon C. Hirsch, Turi Josefsen, Gerald S.J. and Loretta P. Cassidy, Reed R. Prior, Jean C. Nichols, Elizabeth C. Chen, Robert W. Crane, Shoreline Pacific Institutional Finance, Lehman Brothers Inc., 520 Commonwealth Avenue Real Estate Corp. and 660 Corporation (Filed as Exhibit 99.4).
10.191 (10)	Letter of Agreement dated September 28, 1998 among the Company, Elan Corporation, plc and Elan International Services, Ltd. (with certain confidential portions omitted), (Filed as Exhibit 10.5).
10.192 (10)	Stock Purchase Agreement dated September 30, 1998 between the Company and Elan International Services, Ltd. (with certain confidential portions omitted), (Filed as Exhibit 10.6).
10.196 (12)	Zero Coupon Convertible Senior Note Due 2008 dated November 9, 1998 between the Company and Elan International Services, Ltd., No. R-2.
10.198 (14)	Stock Purchase Agreement by and between the Company and Warner-Lambert Company dated September 1, 1999 (with certain confidential portions omitted). (Filed as Exhibit 10.2).
10.200 (14)	Nonexclusive Sublicense Agreement, effective September 8, 1999, by and among Seragen, Inc., Hoffmann–La Roche Inc. and F. Hoffmann-La Roche Ltd. (with certain confidential portions omitted). (Filed as Exhibit 10.4).
10.201 (14)	Amendment to Development, Licence and Supply Agreement between the Company and Elan Corporation, plc dated August 20, 1999 (with certain confidential portions omitted). (Filed as Exhibit 10.5).
10.202 (14)	Ligand Purchase Option (to acquire outstanding capital stock of X-Ceptor Therapeutics, Inc.), contained in Schedule I to the Certificate of Incorporation of X-Ceptor Therapeutics, Inc., as amended. (Filed as Exhibit 10.6).
10.203 (14)	License Agreement effective June 30, 1999 by and between the Company and X-Ceptor Therapeutics, Inc. (with certain confidential portions omitted). (Filed as Exhibit 10.7).
10.206 (14)	Stock Purchase Agreement dated September 30, 1999 by and between the Company and Elan International Services, Ltd. (with certain confidential portions omitted). (Filed as Exhibit 10.13).

Exhibit Number	Description
10.209 (14)	Series X Warrant dated August 4, 1999 between the Company and Elan International Services, Ltd. (Filed as Exhibit 10.15).
10.210 (15)	Securities Purchase Agreement dated November 6, 1998 among Elan Corporation, plc, Elan International Services, Ltd. and the Company (Filed as Exhibit 1). (Filed as Exhibit 10.8).
10.211 (15)	Development, Licence and Supply Agreement dated November 6, 1998 between Elan Corporation, plc and the Company (Filed as Exhibit 2). (Filed as Exhibit 10.9).
10.212 (15)	Letter Agreement dated August 13, 1999 among the Company, Elan International Services, Ltd. and Elan Corporation, plc (Filed as Exhibit 3). (Filed as Exhibit 10.12).
10.213 (18)	Incentive Agreement dated December 31, 1999 among the Company, Elan International Services, Ltd. and Monksland Holdings, BV. (The schedules referenced in this agreement have not been included because they are either disclosed in such agreement or do not contain information which is material to an investment decision. The Company agrees to furnish a copy of such schedules to the Commission upon request.)
10.216 (18)	Amendment to Ligand Purchase Option (to acquire outstanding capital stock of X-Ceptor Therapeutics, Inc.), contained in Schedule I to the Certificate of Incorporation of X-Ceptor Therapeutics, Inc., as amended October 1, 1999.
10.217 (18)	Amended and Restated Series X Warrant dated November 22, 1999 between the Company and Elan International Services, Ltd.
10.218 (18)	Royalty Stream Purchase Agreement dated as of December 31, 1999 among Seragen, Inc., the Company, Pharmaceutical Partners, L.L.C., Bioventure Investments, Kft, and Pharmaceutical Royalties, LLC. (with certain confidential portions omitted).
10.219 (19)	Supply and Development Agreement among Ligand Pharmaceuticals Incorporated, Seragen, Inc. and CoPharma, Inc. dated January 7, 2000 (with certain confidential portions omitted).
10.220 (19)	Research, Development and License Agreement by and between Organon Company and Ligand Pharmaceuticals Incorporated dated February 11, 2000 (with certain confidential portions omitted).
10.222 (19)	Incentive Agreement dated March 1, 2000 among Ligand Pharmaceuticals Incorporated, Elan International Services, Ltd. and Monksland Holdings, BV. (The schedules referenced in this agreement have not been included because they are either disclosed in such agreement or do not contain information which is material to an investment decision. The Company agrees to furnish a copy of such schedules to the Commission upon request.)
10.224 (20)	Research, Development and License Agreement by and between Bristol Myers Squibb Company and Ligand Pharmaceuticals Incorporated dated May 19, 2000 (with certain confidential portions omitted).
10.225 (31)	Zero Coupon Convertible Senior Note Due 2008 dated December 29, 2000 between Ligand Pharmaceuticals Incorporated and Monksland Holdings, BV, No. R-5.
10.227 (31)	Letter Agreement, dated August 23, 1999, between the Company and Eric S. Groves.
10.229 (31)	Letter Agreement, dated January 17, 2000, between the Company and Thomas H. Silberg.
10.230 (31)	Amended and Restated Registration Rights Agreement, dated as of June 29, 2000 among the Company and certain of its investors.
10.231 (2)	Marketing and Distribution Agreement with Ferrer Internacional S.A. to market and distribute Ligand Pharmaceuticals Incorporated products in Spain, Portugal and Greece. (Filed as Exhibit 10.3).

Exhibit Number	Description
10.232 (2)	Marketing and Distribution Agreement with Ferrer Internacional S.A. to market and distribute Ligand Pharmaceuticals Incorporated products in Central and South America. (Filed as Exhibit 10.4).
10.233 (32)	Second Amendment to the Research, Development and License Agreement, dated as of September 2, 1994, between the Company and American Home Products Corporation (with certain confidential portions omitted).
10.234 (32)	Fourth Amendment to the Research, Development and License Agreement, dated as of September 2, 1994, between the Company and American Home Products Corporation (with certain confidential portions omitted).
10.235 (32)	Distributorship Agreement, dated February 29, 2001, between the Company and Elan Pharma International Limited (with certain confidential portions omitted).
10.236 (32)	Second Amendment to the Development, Licence and Supply Agreement dated November 9, 1998, between the Company and Elan Corporation, plc.
10.237 (33)	Form of Stock Purchase Agreement dated as of January 5, 2001, between the investors listed on Exhibit A and the Company.
10.238 (33)	Letter Agreement, dated May 17, 2001, between the Company and Gian Aliprandi.
10.239 (33)	Research, Development and License Agreement by and between the Company and TAP Pharmaceutical Products Inc. dated June 22, 2001 (with certain confidential portions omitted).
10.240 (34)	Letter Agreement, dated December 13, 2001, between the Company and Warner R. Broaddus, Esq.
10.241 (34)	Incentive Agreement dated December 20, 2001 among the Company, Elan International Services, Ltd. and Monksland Holdings, BV.
10.242 (34)	First Addendum to Amended and Restated Registration Rights Agreement dated June 29, 2000, effective as of December 20, 2001.
10.243 (35)	Incentive Agreement dated March 28, 2002 among the Company, Elan International Services, Ltd. and Monksland Holdings, BV.
10.244 (35)	Second Addendum to Amended and Restated Registration Rights Agreement dated June 29, 2000, effective as of March 28, 2002.
10.245 (35)	Purchase Agreement, dated March 6, 2002, between the Company and Pharmaceutical Royalties International (Cayman) Ltd.
10.246 (36)	Amended and Restated License Agreement Between The Salk Institute for Biological Studies and the Company (with certain confidential portions omitted).
10.247 (37)	Amendment Number 1 to Purchase Agreement, dated July 29, 2002, between the Company and Pharmaceutical Royalties International (Cayman) Ltd.
10.248 (39)	2002 Stock Incentive Plan. (Filed as Exhibit 99.1).
10.249 (39)	2002 Employee Stock Purchase Plan. (Filed as Exhibit 99.11)
10.250	Amended and Restated License and Supply Agreement, dated December 6, 2002, between the Company, Elan Corporation, plc and Elan Management Limited (with certain confidential portions omitted).
10.251	Securities Purchase Agreement, dated November 12, 2002, between the Company, Elan International Services, Ltd. and Elan Corporation PLC.
10.252	Amendment Number 1 to Amended and Restated Registration Rights Agreement, dated November 12, 2002, between the Company and Elan Corporation plc and Elan International Services, Ltd.

Exhibit Number	Description
10.253	Second Amendment to Purchase Agreement, dated December 19, 2002, between the Company and Pharmaceuticals Royalties International (Cayman) Ltd.
10.254	Amendment Number 3 to Purchase Agreement, dated December 30, 2002, between the Company and Pharmaceuticals Royalties International (Cayman) Ltd. (with certain confidential portions omitted).
10.255	Purchase Agreement, dated December 30, 2002, between the Company and Pharmaceuticals Royalties International (Cayman) Ltd. (with certain confidential portions omitted).
21.1	Subsidiaries of Registrant.
23.1	Consent of Deloitte & Touche LLP.
24.1	Power of Attorney (See page 83).
99.1	Certification by Principal Executive Officer, Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley act of 2002.
99.2	Certification by Principal Financial Officer, Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley act of 2002.

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(1) This exhibit was previously filed as part of, and is hereby incorporated by reference to the numbered exhibit filed with the Company's Registration Statement on Form S-4 (No. 333-58823) filed on July 9, 1998.

(2) This exhibit was previously filed as part of and is hereby incorporated by reference to same numbered exhibit filed with the Company's Quarterly Report on Form 10-Q for the period ended March 31, 1999.

(3) This exhibit was previously filed as part of, and is hereby incorporated by reference to the numbered exhibit filed with the Registration Statement on Form S-4 (No. 33-90160) filed on March 9, 1995, as amended.

(4) This exhibit was previously filed as part of, and is hereby incorporated by reference to the same numbered exhibit filed with the Company's Registration Statement on Form S-1 (No. 33-47257) filed on April 16, 1992 as amended.

(5) This exhibit was previously filed as part of, and is hereby incorporated by reference to Exhibit 99.1 filed with the Company's Form S-8 (No. 33-85366), filed on October 17, 1994.

(6) This exhibit was previously filed as part of, and is hereby incorporated by reference to the same numbered exhibit filed with the Registration Statement on Form S-1/S-3 (No. 33-87598 and 33-87600) filed on December 20, 1994, as amended.

(7) This exhibit was previously filed as part of, and is hereby incorporated by reference to the same numbered exhibit filed with the Company's Annual Report on Form 10-K for the period ended December 31, 1996.

(8) This exhibit was previously filed as part of, and is hereby incorporated by reference to the same numbered exhibit filed with the Company's Annual Report on Form 10-K for the period ended December 31, 1997.

(9) This exhibit was previously filed as part of, and is hereby incorporated by reference to the same numbered exhibit filed with the Company's Quarterly Report on Form 10-Q for the period ended March 31, 1998.

(10) This exhibit was previously filed as part of, and is hereby incorporated by reference to the numbered exhibit filed with the Company's Quarterly Report on Form 10-Q for the period ended September 30, 1998.

(11) This exhibit was previously filed as part of, and is hereby incorporated by reference to the numbered exhibit filed with the Current Report on Form 8-K of Seragen, Inc. filed on May 15, 1998.

(12) This exhibit was previously filed as part of, and is hereby incorporated by reference to the same numbered exhibit filed with the Company's Annual Report on Form 10-K for the period ended December 31, 1998.

(13) This exhibit was previously filed as part of, and is hereby incorporated by reference to the numbered exhibit filed with the Registration Statement on Form 8-A/A Amendment No. 1 (No. 0-20720) filed on November 10, 1998.

(14) This exhibit was previously filed as part of and is hereby incorporated by reference to the numbered exhibit filed with the Company's Quarterly Report on Form 10-Q for the period ended September 30, 1999.

(15) This exhibit was previously filed as part of, and is hereby incorporated by reference to the numbered exhibit filed with the Schedule 13D of Elan Corporation, plc, filed on January 6, 1999, as amended.

(16) This exhibit was previously filed as part of, and is hereby incorporated by reference to the numbered exhibit filed with the Company's Registration Statement on Form S-3 (No. 333-12603) filed on September 25, 1996, as amended.

(17) This exhibit was previously filed as part of, and is hereby incorporated by reference to the numbered exhibit filed with the Registration Statement on Form 8-A/A Amendment No. 2 (No. 0-20720) filed on December 24, 1998.

(18) This exhibit was previously filed as part of, and is hereby incorporated by reference to the same numbered exhibit filed with the Company's Annual Report on Form 10-K for the period ended December 31, 1999.

(19) This exhibit was previously filed as part of, and is hereby incorporated by reference to the same numbered exhibit filed with the Company's Quarterly Report on Form 10-Q for the period ended March 31, 2000.

(20) This exhibit was previously filed as part of, and is hereby incorporated by reference to the same numbered exhibit filed with the Company's Quarterly Report on Form 10-Q for the period ended June 30, 2000.

(21) This exhibit was previously filed as part of, and are hereby incorporated by reference to the same numbered exhibit filed with the Company's Annual Report on Form 10-K for the year ended December 31, 1993.

(22) This exhibit was previously filed as part of, and is hereby incorporated by reference to the numbered exhibit filed with the Registration Statement on Form S-3 of Glycomed Incorporated (Reg. No. 33-55042) filed on November 25, 1992, as amended.

(23) This exhibit was previously filed as part of, and is hereby incorporated by reference to the numbered exhibit filed with the Company's Quarterly Report on Form 10-Q for the period ended September 30, 1994.

(24) This exhibit was previously filed, and is hereby incorporated by reference to the same numbered exhibit filed with the Company's Annual Report on Form 10-K for the year ended December 31, 1995.

(25) This exhibit was previously filed as part of, and is hereby incorporated by reference to the same numbered exhibit filed with the Company's Quarterly report on Form 10-Q for the period ended June 30, 1996.

(26) This exhibit was previously filed as part of, and is hereby incorporated by reference at the same numbered exhibit filed with the Company's Quarterly report on Form 10-Q for the period ended September 30, 1996.

(27) This exhibit was previously filed as part of, and is hereby incorporated by reference to the same numbered exhibit filed with the Company's Quarterly Report on Form 10-Q for the period ended September 30, 1997.

(28) This exhibit was previously filed as part of, and are hereby incorporated by reference to the same numbered exhibit filed with the Company's Quarterly report on Form 10-Q for the period ended September 30, 1995.

(29) This exhibit was previously filed as part of, and is hereby incorporated by reference to the same numbered exhibit filed with the Company's Quarterly Report on Form 10-Q for the period ended March 31, 1997.

(30) This exhibit was previously filed as part of, and is hereby incorporated by reference to the same numbered exhibit filed with the Company's Quarterly Report on Form 10-Q for the period ended June 30, 1997.

(31) This exhibit was previously filed as part of, and are hereby incorporated by reference to the same numbered exhibit filed with the Company's Annual Report on Form 10-K for the year ended December 31, 2000.

(32) This exhibit was previously filed as part of, and is hereby incorporated by reference to the same numbered exhibit filed with the Company's Quarterly Report on Form 10-Q for the period ended March 31, 2001.

(33) This exhibit was previously filed as part of, and is hereby incorporated by reference to the same numbered exhibit filed with the Company's Quarterly Report on Form 10-Q for the period ended June 30, 2001.

(34) This exhibit was previously filed as part of, and are hereby incorporated by reference to the same numbered exhibit filed with the Company's Annual Report on Form 10-K for the year ended December 31, 2001.

(35) This exhibit was previously filed as part of, and is hereby incorporated by reference to the same numbered exhibit filed with the Company's Quarterly Report on Form 10-Q for the period ended March 31, 2002.

(36) This exhibit was previously filed as part of, and is hereby incorporated by reference to the same numbered exhibit filed with the Company's Quarterly Report on Form 10-Q for the period ended June 30, 2002.

(37) This exhibit was previously filed as part of, and is hereby incorporated by reference to the same numbered exhibit filed with the Company's Quarterly Report on Form 10-Q for the period ended September 30, 2002.

(38) This exhibit was previously filed as part of, and is hereby incorporated by reference to the numbered exhibit filed with the Company's Registration Statement on Form S-3 (No. 333-102483) filed on January 13, 2003, as amended.

(39) This exhibit was previously filed as part of, and is hereby incorporated by reference to the numbered exhibit filed with the Company's Form S-8 (No. 333-91414) filed on June 28, 2002.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

LIGAND PHARMACEUTICALS INCORPORATED

By: /s/ DAVID E. ROBINSON
David E. Robinson,
President and Chief Executive Officer

Date: March 21, 2003

POWER OF ATTORNEY

Know all men by these presents, that each person whose signature appears below constitutes and appoints David E. Robinson or Paul V. Maier, his or her attorney-in-fact, with power of substitution in any and all capacities, to sign any amendments to this Annual Report on Form 10-K, and to file the same with exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that the attorney-in-fact or his or her substitute or substitutes may do or cause to be done by virtue hereof.

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title	Date
/s/ DAVID E. ROBINSON David E. Robinson	Chairman of the Board, President, Chief Executive Officer and Director (Principal Executive Officer)	March 21, 2003
/s/ PAUL V. MAIER Paul V. Maier	Senior Vice President, Chief Financial Officer (Principal Financial and Accounting Officer)	March 21, 2003
/s/ HENRY F. BLISSENBACH Henry F. Blissenbach	Director	March 21, 2003
/s/ ALEXANDER D. CROSS Alexander D. Cross	Director	March 20, 2003
/s/ JOHN GROOM John Groom	Director	March 21, 2003
/s/ IRVING S. JOHNSON Irving S. Johnson	Director	March 20, 2003
/s/ JOHN W. KOZARICH John W. Kozarich	Director	March 20, 2003
/s/ CARL C. PECK Carl C. Peck	Director	March 20, 2003
/s/ MICHAEL A. ROCCA Michael A. Rocca	Director	March 21, 2003

CHIEF EXECUTIVE OFFICER CERTIFICATION

I, David E. Robinson, Chairman, President and Chief Executive Officer, certify that:

1. I have reviewed this annual report on Form 10-K of Ligand Pharmaceuticals Incorporated;

2. Based on my knowledge, this annual report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this annual report;

3. Based on my knowledge, the consolidated financial statements, and other financial information included in this annual report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this annual report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-14 and 15d-14) for the registrant and we have:

a) designed such disclosure controls and procedures to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this annual report is being prepared;

b) evaluated the effectiveness of the registrant's disclosure controls and procedures as of a date within 90 days prior to the filing date of this annual report (the "Evaluation Date"); and

c) presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures based on our evaluation as of the Evaluation Date;

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation, to the registrant's auditors and the audit committee of the registrant's board of directors:

a) all significant deficiencies in the design or operation of internal controls which could adversely affect the registrant's ability to record, process, summarize and report financial data and have identified for the registrant's auditors any material weaknesses in internal controls; and

b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal controls;

6. The registrant's other certifying officer and I have indicated in this annual report whether or not there were significant changes in internal controls or in other factors that could significantly affect internal controls subsequent to the date of our most recent evaluation, including any corrective actions with regard to significant deficiencies and material weaknesses.

Date: March 21, 2003

/s/ DAVID E. ROBINSON
David E. Robinson
Chairman, President and Chief Executive Officer

CHIEF FINANCIAL OFFICER CERTIFICATION

I, Paul V. Maier, Senior Vice President, Chief Financial Officer, certify that:

1. I have reviewed this annual report on Form 10-K of Ligand Pharmaceuticals Incorporated;

2. Based on my knowledge, this annual report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this annual report;

3. Based on my knowledge, the consolidated financial statements, and other financial information included in this annual report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this annual report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-14 and 15d-14) for the registrant and we have:

a) designed such disclosure controls and procedures to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this annual report is being prepared;

b) evaluated the effectiveness of the registrant's disclosure controls and procedures as of a date within 90 days prior to the filing date of this annual report (the "Evaluation Date"); and

c) presented in this annual report our conclusions about the effectiveness of the disclosure controls and procedures based on our evaluation as of the Evaluation Date;

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation, to the registrant's auditors and the audit committee of the registrant's board of directors:

a) all significant deficiencies in the design or operation of internal controls which could adversely affect the registrant's ability to record, process, summarize and report financial data and have identified for the registrant's auditors any material weaknesses in internal controls; and

b) any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal controls;

6. The registrant's other certifying officer and I have indicated in this annual report whether or not there were significant changes in internal controls or in other factors that could significantly affect internal controls subsequent to the date of our most recent evaluation, including any corrective actions with regard to significant deficiencies and material weaknesses.

Date: March 21, 2003

/s/ PAUL V. MAIER
Paul V. Maier
Senior Vice President, Chief Financial Officer

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CORPORATE INFORMATION

Board of Directors

Henry F. Blissenbach, Pharm.D.
Chairman, President and Chief Executive Officer, Chronimed, Inc.

Alexander D. Cross, Ph.D.
Chairman and Chief Executive Officer, Cytopharm, Inc.

John Groom
President and Chief Operating Officer, Retired, Elan Corporation, plc

Irving S. Johnson, Ph.D.
Biomedical Research Consultant
Vice President of Research, Retired, Eli Lilly and Company

John W. Kozarich, Ph.D.
President, CEO and Chief Scientific Officer, ActivX Biosciences
(Board member as of 3/6/03)

Carl C. Peck, M.D.
Professor of Pharmacology and Medicine, Director, Center for Drug Development Science, Georgetown University Medical Center

David E. Robinson
Chairman, President and Chief Executive Officer, Ligand Pharmaceuticals Incorporated

Michael A. Rocca
Financial Consultant

Officers

David E. Robinson
Chairman, President and Chief Executive Officer

Thomas H. Silberg
Executive Vice President, Chief Operating Officer

James J. L'Italien, Ph.D.
Senior Vice President, Regulatory Affairs and Compliance

Paul V. Maier
Senior Vice President, Chief Financial Officer

Andrés Negro-Vilar, M.D., Ph.D.
Senior Vice President, Research and Development and Chief Scientific Officer

William A. Pettit
Senior Vice President, Human Resources and Administration

Giambattista Aliprandi
Vice President, Senior Corporate Controller

Warner R. Broaddus
Vice President, General Counsel and Secretary

Eric S. Groves, M.D., Ph.D.
Vice President, Project Management

Investor Relations

Michael J. Watts
Director, Investor Relations and Corporate Communications
Telephone: (858) 550-7500
E-mail address: investors@ligand.com

Transfer Agent

Mellon Investor Services
85 Challenger Road
Ridgefield Park, New Jersey 07660
Telephone: (800) 356-2017
Web site: www.mellon-investor.com
Contact: Martha Mijango
Telephone: (213) 553-9718
Fax: (213) 553-9735

Corporate Counsel

Clifford Chance LLP
San Diego, California

Auditors

Deloitte & Touche LLP
San Diego, California

Corporate Headquarters

Ligand Pharmaceuticals Incorporated
10275 Science Center Drive
San Diego, California 92121
Telephone: (858) 550-7500
Web site: www.ligand.com

SEC Form 10-K

A copy of the Company's annual report on Form 10-K is available without charge via Ligand's web site at www.ligand.com or upon written request to:

Investor Relations
Ligand Pharmaceuticals Incorporated
10275 Science Center Drive
San Diego, California 92121

Price Range of Common Stock*

2001	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
High	14.75	14.04	11.75	19.10
Low	7.81	8.06	7.30	8.73

2002	1st Qtr	2nd Qtr	3rd Qtr	4th Qtr
High	20.50	20.25	14.72	8.15
Low	12.65	11.70	5.75	4.84

*Prices are intraday highs/lows.

Market Information

The Company's Common Stock trades on the NASDAQ National Market under the symbol LGND. No cash dividends have been paid on the Common Stock and the Company does not anticipate paying any cash dividends in the foreseeable future.

Product Information

Full prescribing information for Ligand products may be obtained from Ligand Professional Services by calling toll free at (800) 964-5836 or by visiting Ligand's web site at www.ligand.com. For more information about placing orders for Ligand products, contact Ligand Customer Service toll free at (877) 4 Ligand (877-454-4263).

Some photographs not specifically identified in this report are solely for illustrative purposes, and are not intended to represent any particular person, situation or organization, present or past. Any resemblance to an actual person(s), situation(s) or organization(s) is purely coincidental.

Designed and produced by Mentus, San Diego, California www.mentus.com

LIGAND PHARMACEUTICALS INCORPORATED
10275 Science Center Drive, San Diego, CA 92121 www.ligand.com