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Registration Statement No. 333-63708

PROSPECTUS SUPPLEMENT NO. 2
(To Prospectus Dated August 1, 2001)

2,200,000 SHARES

ARIAD Pharmaceuticals, Inc.

COMMON STOCK

We are offering 2,200,000 shares of our common stock to certain purchasers pursuant to this prospectus supplement.

Our common stock is quoted on the Nasdaq National Market under the symbol "ARIA." On November 8, 2002, the reported last sale price of our common stock on Nasdaq was $2.97 per share.

You should consider carefully the risks that we have described in "Risk Factors" beginning on page S-8 of this prospectus supplement and on page 6 of the prospectus, before deciding whether to invest in our common stock.

	Per Share	Total
Public Price	$2.750	$6,050,000
Placement Agency Fees (weighted average)	$0.145	$ 319,000
Proceeds to ARIAD Pharmaceuticals, Inc. (before expenses)	$2.605	$5,731,000

In connection with this offering, we have agreed to pay a fee of 5.5% of the gross proceeds from this offering to Rodman & Renshaw, Inc. for its services as placement agent, except that we will pay a reduced placement fee of 3.0% with respect to shares of common stock sold to institutional investors who were already our stockholders prior to this offering. We will also reimburse Rodman & Renshaw for its out-of-pocket expenses up to $25,000. We will not pay any other compensation in conjunction with the sale of our common stock.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities or passed upon the accuracy or adequacy of this prospectus supplement or the accompanying prospectus. Any representation to the contrary is a criminal offense.

The date of this prospectus supplement is November 8, 2002.

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About this Prospectus Supplement

This prospectus supplement and the prospectus dated August 1, 2001 relate to the offer by us of 2,200,000 shares of our common stock. You should read this prospectus supplement along with the accompanying prospectus carefully before you invest. These documents contain important information you should consider when making your investment decision. This prospectus supplement contains information about the common stock offered hereby and the prospectus contains information about our securities generally. This prospectus supplement may add, update or change information in the prospectus. You should rely only on the information provided in this prospectus supplement, the accompanying prospectus or incorporated by reference in the accompanying prospectus. We have not authorized anyone to provide you with different information.

Special Note Regarding Forward-Looking Statements

This prospectus supplement, the accompanying prospectus and the documents incorporated by reference in the accompanying prospectus contain "forward-looking statements" concerning our operations, economic performance and financial condition. These forward-looking statements include, but are not limited to, statements about our plans, objectives, expectations and intentions and other statements contained in this prospectus supplement and the accompanying prospectus that are not historical facts. When used in this prospectus supplement and the accompanying prospectus, the words "anticipates," "believes," "continue," "could," "estimates," "expects," "intends," "may," "plans," "seeks," "should" or "will" or the negative of these terms or similar expressions are generally intended to identify forward-looking statements. Forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, and within the meaning of Section 21E of the Securities Exchange Act of 1934, are included, for example, in the discussions in this prospectus supplement and the accompanying prospectus about:

- our strategy;
- sufficiency of our cash resources;
- revenues from existing and new collaborations;
- product development;
- our research and development and other expenses;
- our intellectual property; and
- our operational and legal risks.

These forward-looking statements involve risks and uncertainties. Actual results may differ materially from those expressed or implied in those statements. Factors that could cause these differences include, but are not limited to, those discussed under "Risk Factors" in this prospectus supplement and in the accompanying prospectus. The risk factors in this prospectus supplement supplement the risk factors in the accompanying prospectus, and to the extent inconsistent therewith, supersede those risk factors contained in the prospectus.

THE COMPANY

We are engaged in the discovery and development of innovative medicines that regulate cell signaling with small molecules.

We are developing a comprehensive approach to the treatment of cancer and blood diseases and currently have seven product candidates in development, including:

- our product candidates, AP23573 and AP23675, to shrink tumors by controlling cancer cell growth through inhibition of nutrient uptake and growth factor stimulation, one of which is specifically designed to treat cancer in bone;
- our product candidate, AP23464, to block the progression and spread of cancers, or cancer metastases;
- our product candidate, AP23451, to treat cancer that has spread to bone, or bone metastases;
- our regulated protein therapy product candidate to treat anemia in which the production of erythropoietin is controlled *in vivo* by an orally administered drug, AP22594;
- our T cell immunotherapy product candidate in which a non-immunosuppressive drug, AP1903, may be used to treat graft-vs-host disease, or GvHD, following donor bone marrow and stem cell transplantation – a therapy for cancer and other immune and blood diseases; and
- our dual-action product candidate, AP23588, to treat osteoporosis by blocking bone breakdown and stimulating bone formation.

Preclinical development means that *in vivo* and *in vitro* studies are underway to designate a compound for clinical development. Examples of these studies include comparative safety and efficacy studies of lead compound analogs in disease models and formulation optimization. After clinical candidate designation, pre-investigational new drug, or pre-IND, development is initiated and consists of studies required by the U.S. Food and Drug Administration, or FDA, or other regulatory authorities for inclusion in an IND or other regulatory filings to initiate clinical studies. Examples of these studies include toxicology, pharmacology, and metabolism studies conducted under the current Good Laboratory Practices, or cGLP, requirements. Clinical development requires manufacturing of clinical-grade material (e.g., small-molecule drugs and gene-transfer vectors) produced under the current Good Manufacturing Practices, or cGMP, requirements. Phase 2 development includes obtaining regulatory and institutional review board, or IRB, approvals for administering product candidates to patients with disease and conducting clinical trials that are designed to provide safety data and initial indications of a product's clinical efficacy in its proposed use.

As we are an early-stage company, all of our programs will require substantial further effort and expense before we will know whether they will succeed or result in marketed products. Our product candidates for cancer, bone metastases and anemia are at the pre-IND stage of development, and our product candidates for osteoporosis and cancer metastases are in

preclinical development. AP1903, the small-molecule drug used in our T-cell immunotherapy product candidate to treat GvHD, was found to be safe and well tolerated in a Phase 1 clinical study. In addition, this study showed that AP1903 reached blood levels that are expected to be clinically effective. This product candidate is in phase 2 development where the principal technical challenge being addressed is the manufacture of clinical-grade gene-transfer vector and the development of standardized clinical-scale cell-processing methods to effectively engineer donor T cells for use in our planned multicenter clinical trials. We believe that our AP1903 T cell immunotherapy product candidate may have a favorable impact on patient outcome and may increase the number of patients who could benefit from allogeneic BMT by improving the risk-to-benefit ratio of the treatment.

With respect to the development and commercialization of our current product candidates, we intend to: (1) independently develop as many of these product candidates as possible at least through phase 2 clinical trials; (2) establish the commercial infrastructure to market our portfolio of hematology and oncology product candidates in the United States; and (3) pursue a worldwide partner for our osteoporosis product candidate and partners for our hematology and oncology products outside the United States, generally after we are able to obtain phase 2 clinical data.

The NF-κB protein is among the body's most important known regulators of cellular function. The activity of NF-κB has been implicated in several difficult-to-treat disease conditions, including inflammation (e.g. atherosclerosis, arthritis, inflammatory bowel disease, rheumatoid arthritis, and septic shock), malignant transformation and tumor growth (e.g., certain blood cancers and solid tumors), and bone breakdown and rebuilding (e.g., osteoporosis). We are the exclusive licensee of a pioneering U.S. patent covering methods of treating human disease by regulating NF-κB cell-signaling activity issued on June 25, 2002 to a team of distinguished scientists from the Whitehead Institute for Biomedical Research, Massachusetts Institute of Technology and Harvard University ("the NF-κB '516 Patent"). The NF-κB '516 Patent is one in a family of patents covering regulation of NF-κB cell-signaling activity which are exclusively licensed by these institutions to us. A lawsuit has been filed by us and these institutions in the United States District Court for the District of Massachusetts (the "U.S. District Court") against Eli Lilly and Co. ("Lilly") alleging infringement upon issuance of certain claims of the NF-κB '516 Patent (the "NF-κB '516 Claims") through sales of Lilly's osteoporosis drug, Evista® and Lilly's septic shock drug, Xigris®, and seeking monetary damages from Lilly. On August 26, 2002, Lilly filed in the U.S. District Court a motion to dismiss or, alternatively, for summary judgment challenging the validity of the NF-κB '516 Claims ("Lilly's Combined Motion"). We filed a response to Lilly's Combined Motion on October 17, 2002 and Lilly's reply is due November 17, 2002. Oral argument on Lilly's Combined Motion will be heard in the U.S. District Court on November 21, 2002.

Our cell-signaling regulation technologies already are being used by over 550 academic investigators worldwide for scientific research and are the subject of over 140 published papers in the scientific literature. In return for providing these technologies for academic research, we receive certain intellectual property and commercialization rights to discoveries made resulting from their use. In effect, these researchers provide a robust source of potential new technologies, drug targets and product candidates that we may develop.

Our business plan aims to balance potential near-term revenues from licensing of our intellectual property and technology with longer-term product development. We are marketing licenses to our cell-signaling regulation technologies, including our NF- κB intellectual property portfolio, to pharmaceutical and biotechnology companies to accelerate their research programs and to enable their sale of products covered by our patents. We entered into our first NF- κB license agreement on November 6, 2002. In addition, we may partner our cell-signaling regulation technologies for joint development of novel products, especially with companies that have proprietary therapeutic genes, cellular systems (e.g., stem cells) or gene delivery vectors.

We were organized as a Delaware corporation in April 1991. Our principal executive offices are located at 26 Landsdowne Street, Cambridge, Massachusetts 02139-4234, and our telephone number is (617) 494-0400.

THE OFFERING

Common stock offered	2,200,000 shares
Common stock to be outstanding after the offering	34,783,062 shares
Use of proceeds	For research and development, product manufacturing, intellectual property protection, working capital and other general corporate purposes. See "Use of Proceeds."
Dividend policy	We have never declared or paid any cash dividends on our capital stock. We intend to retain any future earnings to finance the growth and development of our business and do not anticipate paying any cash dividends in the foreseeable future.
Nasdaq National Market symbol	ARIA

The number of shares of our common stock to be outstanding after this offering is based on the number of shares of common stock outstanding as of November 8, 2002 and does not include:

- 5,324,026 shares issuable upon exercise of stock options outstanding under our stock option plans as of that date at a weighted average exercise price of $4.54; and
- 1,217,989 shares available as of that date for future grant or issuance pursuant to our employee stock purchase plan and stock option plans.

RISK FACTORS

THE RISKS AND UNCERTAINTIES DESCRIBED BELOW ARE THOSE THAT WE CURRENTLY BELIEVE MAY MATERIALLY AFFECT OUR COMPANY. ADDITIONAL RISKS AND UNCERTAINTIES THAT WE ARE UNAWARE OF OR THAT WE CURRENTLY DEEM IMMATERIAL ALSO MAY BECOME IMPORTANT FACTORS THAT AFFECT OUR COMPANY.

Risks Relating to Our Business

We may never succeed in developing marketable drugs or generating product revenues.

We are an early-stage company with no product revenues, and we may not succeed in producing pharmaceutical products for commercialization. We do not expect to have any products on the market for several years, if at all. Our main focus is research and product development. We are exploring human diseases at the cellular level. We seek to discover which genes within cells malfunction to cause disease, which signals are triggered within cells during the disease process to cause these cells to respond abnormally and which drugs can halt or reverse those activities within cells. As with all science, we face much trial and error, and we may fail at numerous stages along the way. If we are not successful in developing marketable products, we will not be profitable.

We have incurred significant losses to date and may never be profitable.

We have incurred significant operating losses in each year since our formation in 1991 as a Delaware corporation and have an accumulated deficit of approximately $121.7 million from our operations through June 30, 2002. It is likely that we will incur significant operating losses for the foreseeable future. We currently have no product revenues or commitments for future research revenues, may never be able to earn such revenues and may never have profitable operations, even if we are able to commercialize any of our product candidates or enter into additional research agreements. If our losses continue and we are unable to successfully develop, commercialize, manufacture and market product candidates, or to license our intellectual property, we may never have revenues or achieve profitability. Losses have resulted principally from costs incurred in research and development of product candidates and from general and administrative costs associated with our operations.

Insufficient funding may jeopardize our research and development programs and may prevent commercialization of our products and technologies.

All of our operating revenue to date has been generated through collaborative research agreements that have expired or been terminated. Accordingly, we may not be able to secure the significant funding which is required to maintain and continue each of our research and development programs at the current levels or at levels that may be required in the future. We do not have any committed strategic alliance funding for the advancement of any of our programs. Although we intend to seek additional funding from product-based collaborations, technology licensing, and public and private financings, additional funding may not be available on terms

acceptable to us, or at all. If we cannot secure adequate financing, we may be required to delay, scale back or eliminate one or more of our research and development programs or to enter into license arrangements with third parties to commercialize products or technologies that we would otherwise seek to develop ourselves.

Significant additional losses or insufficient funding may cause us to default on certain covenants of our loan documents.

At June 30, 2002, we had $7.64 million in term notes payable with two financial institutions of which $1.45 million is payable within twelve months and classified as a current liability. Under these term notes payable, we are required to maintain certain financial covenants, a default of any of which would allow the financial institution to demand payment of its loan. We currently maintain sufficient unrestricted cash balances to fund payment of such loans if demand for payment were made. Subsequent to June 30, 2002, we agreed with one of the institutions to modify the terms of one of its covenants and we remain in compliance with all such covenants. However, if we are unable to raise adequate financing to fund continuing operations, we may not be able to maintain compliance with loan covenants, may be required to pay off such loans and may be required to reduce our spending on operations.

We may expend significant capital resources on the enforcement and licensing of our NF- κB patent portfolio and be unable to generate revenues from these efforts, if we are unable to enforce or license our patents to pharmaceutical and biotechnology companies.

We are the exclusive licensee of a family of patents, three in the U.S. and one in Europe, including a newly issued pioneering U.S. patent covering methods of treating human disease by regulating NF- κB cell-signaling activity ("the NF- κB '516 Patent"), awarded to a team of inventors from the Whitehead Institute for Biomedical Research, Massachusetts Institute of Technology and Harvard University. We have initiated a licensing program to generate revenues from the discovery, development, manufacture and sale of products covered by our NF-κB patent portfolio. These patents may be challenged and subsequently narrowed, invalidated or circumvented, which would materially impact our ability to generate licensing revenues from them. On June 25, 2002, we, together with these academic institutions, filed a lawsuit in the United States District Court for the District of Massachusetts (the "U.S. District Court") against Eli Lilly and Co. alleging infringement upon issuance of certain claims of the NF- κB '516 Patent (the "NF-κB '516 Claims") through sales of Lilly's osteoporosis drug, Evista®, and its septic shock drug, Xigris®. On August 26, 2002, Lilly filed in the U.S. District Court a motion to dismiss or, alternatively, for summary judgment challenging the validity of the NF- κB '516 Claims ("Lilly's Combined Motion"). We filed a response to Lilly's Combined Motion on October 17, 2002 and Lilly's reply is due November 17, 2002. Oral argument on Lilly's Combined Motion will be heard in the U.S. District Court on November 21, 2002. If the NF- κB '516 Claims are invalidated, it could have a significant adverse impact on our ability to generate revenues from our NF- κB licensing program. As exclusive licensee of this patent, we are obligated for the costs expended for its enforcement. Accordingly, we anticipate expending significant capital and management resources pursuing this litigation for an indeterminate period and the outcome is uncertain. Significant expenditures to enforce these patent rights without generating revenues or accessing additional capital could adversely impact our ability to further

our research and development programs at the current levels or at levels that may be required in the future.

Because we do not own all of the outstanding stock of our subsidiary, ARIAD Gene Therapeutics, Inc., or AGTI, we may not realize all of the potential future economic benefit from products developed based on technology licensed to or owned by our subsidiary.

Our subsidiary, AGTI, holds licenses from Harvard University, Stanford University and other universities relating to our ARGENT cell-signaling regulation technology, a key component of our small-molecule regulated anemia and graft-vs-host disease product candidates. Minority stockholders of AGTI, including Harvard University, Stanford University, some of our scientific advisors, and some current and former members of our management, own 20% of the issued and outstanding capital stock of AGTI. We own the remaining 80% of the issued and outstanding capital stock of AGTI. We do not currently have a license agreement with AGTI that provides us with rights to commercialize products based on our ARGENT cell-signaling regulation technology or products based on technology or compounds derived from our ARGENT programs. In order to commercialize any product based on these technologies or compounds, we will either license them on terms to be determined or commercialize these products through AGTI. The economic benefit to our stockholders from products that we commercialize will be diminished by any royalties paid under a future license agreement, if any, with AGTI. The economic benefit to our stockholders from products, if any, that AGTI may commercialize would be reduced in an amount related to the percentage owned by the minority stockholders of AGTI.

Alternatively, we may acquire all of the interests of the minority stockholders in AGTI for cash, shares of our common stock or other securities of ours, if any. AGTI has a right of first refusal on the sale to third parties of 73% of the minority stockholders' AGTI shares. AGTI does not have a call option, or a right to require the minority stockholders to sell their shares to us, for any of these shares. If we acquire these minority interests for either form of consideration, it will result in dilution to our stockholders. The economic value of the minority stockholders' interests is difficult to quantify in the absence of a public market, and the market price of our publicly traded common stock may not accurately reflect its value. Accordingly, the market could change its perception of the value of these minority interests in our subsidiary at any time in reaction to our increased emphasis on these product candidates, announcements regarding these product candidates or for other reasons, any of which could result in a decline in our stock price. In addition, if we acquire the minority interests at a cost greater than the value attributed to them by the market, this also could result in a decline in our stock price. If we choose to acquire these minority interests through a short-form merger in which we do not solicit the consent of the minority stockholders of AGTI, we could become subject to an appraisal procedure, which would result in additional expense and diversion of management resources.

Because members of our management team and/or board of directors beneficially own a material percentage of the capital stock of our subsidiary, AGTI, and we have agreements with AGTI, there may be conflicts of interest present in dealings between ARIAD and AGTI.

Four members of our management team and/or board of directors own or have the right to acquire up to approximately 6.1% of the outstanding capital stock of AGTI. Harvey J. Berger, M.D., our Chairman, Chief Executive Officer and President, owns 3.4%; David L. Berstein, Esq., our Senior Vice President and Chief Patent Counsel, owns 0.3%; John D. Iuliucci, Ph.D., our Senior Vice President, Drug Development, owns 0.7%; and Jay R. LaMarche, one of our Directors and a part-time employee, owns 1.7%. These same individuals beneficially own approximately 7.1% of our outstanding common stock. In addition, as part of the formation of AGTI, we entered into agreements with AGTI to provide for the operations of AGTI. As a result, the market may perceive conflicts of interest to exist in dealings between AGTI and us. AGTI is the exclusive licensee of the ARGENT intellectual property from Harvard University and Stanford University and of related technologies from other universities. In the event that we commercialize products based on or derived from our ARGENT cell-signaling regulation technology or related technologies or compounds, we will have to negotiate the terms of a license agreement with AGTI or acquire all of the capital stock of AGTI that we do not currently own. Because of the apparent conflicts of interest, the market may be more inclined to perceive the terms of any transaction between us and AGTI as being unfair to us.

The loss of key members of our scientific and management staff could delay and may prevent the achievement of our research, development and business objectives.

Our Chairman, Chief Executive Officer and President, Harvey J. Berger, M.D.; our Senior Vice President and Chief Patent Counsel, David L. Berstein, Esq.; our Senior Vice President, Drug Development, John D. Iuliucci, Ph.D.; our Senior Vice President and Chief Business Officer, Fritz Casselman; our Senior Vice President, Science and Technology, Timothy P. Clackson, Ph.D.; and other key officers and members of our scientific staff responsible for areas such as drug development, regulatory affairs, drug discovery, manufacturing and intellectual property protection are important to our specialized scientific business. We also are dependent upon a few of our scientific advisors to assist in formulating our research and development strategy. The loss of, and failure to promptly replace, any member of our management team could significantly delay and may prevent the achievement of our research, development and business objectives. While we have entered into employment agreements with all of our officers, these officers may not remain with us.

We may not be able to protect our intellectual property relating to our research programs, technologies and products.

We and our licensors have issued patents and pending patent applications covering research methods useful in drug discovery, new chemical compounds discovered in our drug discovery programs, certain components, configurations and uses of our cell-signaling regulation technologies, products-in-development, and methods and materials for conducting pharmaceutical research. We have an ongoing licensing program to generate revenues from the use of our gene-regulation technologies (e.g., our ARGENT system). Pending patent applications may not issue as patents and may not issue in all countries in which we develop, manufacture or sell our products or in countries where others develop, manufacture and sell products using our technologies. In addition, patents issued to us or our licensors may be challenged and subsequently narrowed, invalidated or circumvented. In that event, such patents

may not afford meaningful protection for our technologies or product candidates, which would materially impact our ability to develop and market our product candidates and to generate licensing revenues from our gene regulation patent portfolio. Certain technologies utilized in our research and development programs are already in the public domain. Moreover, a number of our competitors have developed technologies, filed patent applications or obtained patents on technologies and compositions that are related to our business and may cover or conflict with our patent applications. Such conflicts could limit the scope of the patents that we may be able to obtain or may result in the denial of our patent applications. If a third party were to obtain intellectual proprietary protection for any of these technologies, we may be required to challenge such protections, terminate or modify our programs that rely on such technologies or obtain licenses for use of these technologies.

We may be unable to develop or commercialize our product candidates, if we are unable to obtain or maintain certain licenses.

We have entered into license agreements for some of our technologies, either directly or through AGTI. We are currently attempting to obtain additional licenses for technology useful to our programs. Our inability to obtain any one or more of these licenses, on commercially reasonable terms, or at all, or to circumvent the need for any such license, could cause significant delays and cost increases and materially affect our ability to develop and commercialize our product candidates. We also use gene sequences or proteins encoded by those sequences and other biological materials in each of our research programs which are, or may become, patented by others and to which we would be required to obtain licenses in order to develop or market our product candidates. Some of our programs, including, for example, our regulated protein therapy program, may require the use of multiple proprietary technologies, especially gene-transfer vectors and therapeutic genes. Obtaining licenses for these technologies may require us to make cumulative royalty payments or other payments to several third parties, potentially reducing amounts paid to us or making the cost of our products commercially prohibitive.

Some of our licenses obligate us to exercise diligence in pursuing the development of product candidates, to make specified milestone payments and to pay royalties. In some instances, we are responsible for the costs of filing and prosecuting patent applications. These licenses generally expire upon the earlier of a fixed term of years after the date of the license or the expiration of the applicable patents, but each license is also terminable by the other party upon default by us of our obligations. Our inability or failure to meet our diligence requirements or make any payments required under these licenses would result in a reversion to the licensor of the rights granted which, with respect to the licenses pursuant to which we have obtained exclusive rights, would materially and adversely affect our ability to develop and market products based on our licensed technologies.

We may be unable to access vectors or other gene transfer technologies that we will need to develop and commercialize our regulated protein and cellular therapy product candidates.

We may not be able to access the gene transfer technologies required to develop, manufacture, and commercialize our regulated protein and cellular therapy product candidates. We are reliant on our ability to enter into license agreements with appropriate academic institutions and/or gene

therapy companies that can provide us with rights to the necessary technology, production methods, and components of gene delivery systems. The inability to reach an appropriate agreement with such an entity on reasonable commercial terms could delay or prevent the preclinical evaluation, clinical testing and/or commercialization of our product candidates. Our inability to access gene transfer technology, including suitable manufacturing methods, would have significant adverse effects on some of our product candidates. If we do not market our product candidates, we will never become profitable. In addition, the intellectual property landscape covering gene transfer technologies is currently uncertain and fragmented. Accordingly, if we select one partner as a source for selected intellectual property rights, we may find that we have not licensed sufficient rights to be able to commercialize our products or we may be forced to acquire additional rights or discontinue marketing our product candidates unexpectedly.

We have no experience in manufacturing any of our product candidates, which raises uncertainty as to our ability to develop and commercialize our product candidates.

We have no experience in, and currently lack the resources and capability to, manufacture any of our product candidates on a large scale. Our ability to conduct clinical trials and commercialize our product candidates will depend, in part, on our ability to manufacture our products on a large scale, either directly or through third parties, at a competitive cost and in accordance with cGMP and other regulatory requirements. We currently do not have the capacity to manufacture our product candidates in large quantities. We depend on third-party manufacturers or collaborative partners for the production of our product candidates for preclinical research and clinical trials and intend to use third-party manufacturers to produce any products we may eventually commercialize. If we are not able to obtain contract manufacturing on commercially reasonable terms, we may not be able to conduct or complete clinical trials or commercialize our product candidates, and we do not know whether we will be able to develop such capabilities. If we are not able to develop cell processing methods that comply with recently adopted regulatory guidelines known as current Good Tissue Practices, or cGTP, we may not be able to commercialize our regulated cellular therapy products.

Competing technologies may render some or all of our programs or future products noncompetitive or obsolete.

Many well-known pharmaceutical, healthcare and biotechnology companies, academic and research institutions and government agencies, which have substantially greater capital, research and development capabilities and experience than us, are presently engaged in:

- Developing products based on cell signaling, genomics, proteomics, computational chemistry and protein and cellular therapies; and
- Conducting research and development programs for the treatment of all the disease areas in which we are focused.

Some of these entities already have product candidates in clinical trials or in more advanced preclinical studies than we do. These entities may succeed in commercializing competitive

products before us, which would give them a competitive advantage. Competing technologies may render some or all of our programs or future products noncompetitive or obsolete, and we may not be able to make the enhancements to our technology necessary to compete successfully with newly emerging technologies. If we are unable to compete in our chosen markets, we will not become profitable.

If our product candidates are not accepted by physicians and insurers, we will not be successful.

Our success is dependent on the acceptance of our product candidates. Our product candidates may not achieve significant market acceptance among patients, physicians or third-party payors, even if we obtain necessary regulatory and reimbursement approvals. Failure to achieve significant market acceptance of our product candidates will harm our business. We believe that recommendations by physicians and health care payors will be essential for market acceptance of any product candidates. In the past, there has been concern regarding the potential safety and effectiveness of gene therapy products. Physicians and health care payors may conclude that any of our product candidates are not safe.

If we are unable to establish sales, marketing and distribution capabilities or to enter into agreements with third parties to do so, we may be unable to successfully market and sell any products.

We currently have no sales, marketing or distribution capabilities. If we are unable to establish sales, marketing or distribution capabilities either by developing our own sales, marketing and distribution organization or by entering into agreements with others, we may be unable to successfully sell any products that we are able to begin to commercialize. If we are unable to effectively sell our products, our ability to generate revenues will be harmed. We may not be able to hire, in a timely manner, the qualified sales and marketing personnel we need, if at all. In addition, we may not be able to enter into any marketing or distribution agreements on acceptable terms, if at all. If we cannot establish sales, marketing and distribution capabilities as we intend, either by developing our own capabilities or entering into agreements with third parties, sales of future products, if any, may be harmed.

If we develop a product for commercial use, a subsequent product liability-related claim or recall could have an adverse effect on our business.

Our business exposes us to potential product liability risks inherent in the testing, manufacturing and marketing of pharmaceutical products, and we may not be able to avoid significant product liability exposure. A product liability-related claim or recall could be detrimental to our business. In addition, except for insurance covering product use in our clinical trials, we do not currently have any product liability insurance, and we may not be able to obtain or maintain such insurance on acceptable terms, or we may not be able to obtain any insurance to provide adequate coverage against potential liabilities. Our inability to obtain sufficient insurance coverage at an acceptable cost or otherwise to protect against potential product liability claims could prevent or limit the commercialization of any products that we develop.

Risks Relating to Governmental Approvals

We have limited experience in conducting clinical trials, which may cause delays in commencing and completing clinical trials of our product candidates.

Clinical trials must meet FDA and foreign regulatory requirements. We have limited experience in conducting the preclinical studies and clinical trials necessary to obtain regulatory approval. Consequently, we may encounter problems in clinical trials that may cause us or the FDA or foreign regulatory agencies to delay, suspend or terminate these trials. If the clinical trials of our product candidates fail, we will not be able to market our product candidates. Problems we may encounter include the possibility that we may not be able to manufacture sufficient quantities of cGMP materials for use in clinical trials, conduct clinical trials at preferred sites, enroll sufficient test subjects or begin or successfully complete clinical trials in a timely fashion, if at all. Furthermore, we, the FDA or foreign regulatory agencies may suspend clinical trials at any time if we or they believe the subjects participating in the trials are being exposed to unacceptable health risks or if we or they find deficiencies in the clinical trial process or conduct of the investigation. The FDA and foreign regulatory agencies could also require additional clinical trials, which would result in increased costs and significant development delays. Our failure to adequately demonstrate the safety and effectiveness of a therapeutic product candidate under development could delay or prevent regulatory approval of the product candidate and could have a material adverse effect on our business.

We may not be able to obtain government regulatory approval for our product candidates prior to marketing.

To date, we have not submitted a marketing application for any product candidate to the FDA or any foreign regulatory agency, and none of our product candidates have been approved for commercialization in the United States or elsewhere. Prior to commercialization, each product candidate would be subject to an extensive and lengthy governmental regulatory approval process in the United States and in other countries. We may not be able to obtain regulatory approval for any product candidate we develop or even if approval is obtained, the labeling for such products may be required to bear limitations that could materially impact the marketability and profitability of the product involved. We have no history of conducting and managing the clinical testing necessary to obtain such regulatory approval. Satisfaction of these regulatory requirements, which includes satisfying the FDA and foreign regulatory authorities that the product is both safe and effective under its intended indications of use, typically takes several years or more depending upon the type, complexity and novelty of the product and requires the expenditure of substantial resources.

Furthermore, the regulatory requirements governing our potential products are uncertain. This uncertainty may result in excessive costs or extensive delays in the regulatory approval process, adding to the already lengthy review process. If regulatory approval of a product is granted, such approval will be limited to those disease states and conditions for which the product is proven safe and effective, as demonstrated by clinical trials, and our products will be subject to ongoing regulatory reviews. Although we have been granted orphan drug designation by the FDA for

AP1903, the small-molecule drug used in our GvHD product candidate, this designation may be challenged by others or may prove to be of no practical benefit.

We will not be able to sell our product candidates, if we or our third-party manufacturers fail to comply with FDA manufacturing regulations.

Before we can begin to commercially manufacture our product candidates, we must either secure manufacturing in an approved manufacturing facility or obtain regulatory approval of our own manufacturing facility and processes. In addition, the manufacturing of our product candidates must comply with the FDA's cGMP and/or cGTP requirements. These requirements govern, among other things, quality control and documentation procedures. We, or any third-party manufacturer of our product candidates, may not be able to comply with these requirements, which would prevent us from selling such products. Material changes to the manufacturing processes of our products after approvals have been granted are also subject to review and approval by the FDA or other regulatory agencies.

Even if we bring products to market, we may be unable to effectively price our products or obtain adequate reimbursement for sales of our products, which would prevent our products from becoming profitable.

If we succeed in bringing our product candidates to the market, they may not be considered cost-effective, and reimbursement to the patient may not be available or may not be sufficient to allow us to sell our products on a competitive basis. In both the United States and elsewhere, sales of medical products and treatments are dependent, in part, on the availability of reimbursement to the patient from third-party payors, such as government and private insurance plans. Third-party payors are increasingly challenging the prices charged for pharmaceutical products and services. Our business is affected by the efforts of government and third-party payors to contain or reduce the cost of health care through various means. In the United States, there have been and will continue to be a number of federal and state proposals to implement government controls on pricing. In addition, the emphasis on managed care in the United States has increased and will continue to increase the pressure on the pricing of pharmaceutical products. We cannot predict whether any legislative or regulatory proposals will be adopted or the effect these proposals or managed care efforts may have on our business.

Risks Relating to Our Common Stock

Results of our operations and general market conditions for biotechnology stocks could result in the sudden change in the value of our stock.

As a biopharmaceutical company, we have experienced significant volatility in our common stock. Fluctuations in our operating results and general market conditions for biotechnology stocks could have a significant impact on the volatility of our common stock price. During 2001, our stock price ranged from a high bid price of $8.38 to a low bid price of $1.66, while year-to-date through November 6, 2002, our stock price has ranged from a high bid price of $6.25 to a low bid price of $1.58. Factors contributing to such volatility include: results and timing of preclinical studies and clinical trials; evidence of the safety or effectiveness of pharmaceutical

products; announcements of new collaborations; failure to enter into collaborations; our funding requirements; announcements of technological innovations or new therapeutic products; developments relating to intellectual property rights, including licensing and litigation; governmental regulation; policies regarding recombinant DNA and gene therapy; healthcare or cost-containment legislation; general market trends for the biotechnology industry and related high-technology industries; the impact of changing interest rates and policies of the Federal Reserve; and public policy pronouncements.

USE OF PROCEEDS

We estimate that the net proceeds we will receive from this common stock offering will be $5.6 million, after deducting the placement agent's fees and estimated offering expenses payable by us. We intend to use the net proceeds from this offering and the concurrent offering to fund research and development, product manufacturing, intellectual property protection, working capital and other general corporate purposes.

We have not determined the amounts we plan to spend on any of the areas listed above or the timing of these expenditures. As a result, our management will have broad discretion to allocate the net proceeds from this offering and the concurrent offering. Pending application of the net proceeds as described above, we intend to invest the net proceeds of the offering in short-term, investment-grade, interest-bearing securities.

PLAN OF DISTRIBUTION

The shares of common stock offered hereby are being offered for sale directly by us to institutional investors.

In connection with this offering, we have agreed to pay a fee of 5.5% of the gross proceeds from this offering to Rodman & Renshaw, Inc. for its services as placement agent, except that we will pay a reduced placement fee of 3.0% with respect to shares of common stock sold to institutional investors who were already our stockholders prior to this offering. We will also reimburse Rodman & Renshaw for its out-of-pocket expenses up to $25,000. We will not pay any other compensation in conjunction with the sale of our common stock.

The following table shows the per share (on a weighted average basis) and total commissions we will pay to the placement agent in connection with the sale of the shares pursuant to this prospectus supplement and the accompanying prospectus.

Per share	$ 0.145
Total	$319,000

LEGAL MATTERS

Certain legal matters in connection with the legality of the offering of the common stock hereby is being passed upon for us by Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., Boston, Massachusetts. Members of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., and certain members of their families and trusts for their benefit, own an aggregate of approximately 14,000 shares of our common stock.

PROSPECTUS

ARIAD PHARMACEUTICALS, INC.

4,500,000 Shares of

Common Stock

- This prospectus will allow us to issue common stock over time. This means:
  - we will provide a prospectus supplement each time we issue common stock;
  - the prospectus supplement will inform you about the specific terms of that offering and also may add, update or change information contained in this document; and
  - you should read this document and any prospectus supplement carefully before you invest.
- Our common stock trades on the Nasdaq National Market under the symbol "ARIA."
- Our address is 26 Landsdowne Street, Cambridge, Massachusetts 02139-4234, and our telephone number is (617) 494-0400.

This Investment Involves A High Degree of Risk.
You Should Purchase Shares Only If You Can Afford A Complete Loss.
See "Risk Factors" Beginning on Page 6.

On June 21, 2001, the closing sale price of one share of our common stock as quoted on the Nasdaq National Market was $5.15.

Neither the Securities and Exchange Commission nor any state securities commission has approved or disapproved of these securities, or determined if this prospectus is truthful or complete. Any representation to the contrary is a criminal offense.

The date of this prospectus is August 1, 2001.

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You should rely only on the information contained in this prospectus. We have not authorized anyone to provide you with information different from that contained in this prospectus. This prospectus is not an offer to sell or a solicitation of an offer to buy our common stock in any jurisdiction where it is unlawful. The information contained in this prospectus is accurate only as of the date of this prospectus, regardless of the time of delivery of this prospectus or of any sale of common stock.

PROSPECTUS SUMMARY

You must also consult the more detailed financial statements, and notes to financial statements, incorporated by reference in this prospectus. This prospectus contains forward-looking statements and actual results could differ materially from those projected in the forward-looking statements as a result of certain of the risk factors as outlined in this prospectus.

The Company

We are engaged in developing innovative pharmaceutical product candidates based on small-molecule drugs and our proprietary gene regulation technology platforms. We integrate functional genomics and proteomics, protein engineering, and structure-based drug design in our drug discovery process. All of our product candidates work through small-molecule regulation of cellular processes.

We currently have four development programs:

- a dual-action drug candidate for osteoporosis that both blocks bone resorption and stimulates bone formation;
- a drug candidate for cancer that blocks cell proliferation and tumor growth;
- a regulated cell therapy product candidate for graft-vs-host disease, or GvHD, that selectively eliminates donor T-cells following allogeneic bone marrow transplantation, or BMT, if they attack the patient's own tissues; and
- a protein therapy for anemia that provides precisely controlled erythropoietin production *in vivo* using an orally administered drug.

We have planned phase 2 clinical studies of our GvHD product candidate in patients with various types of cancer and non-malignant diseases undergoing BMT. We also have a series of follow-on programs, including regulated stem cell therapies and potential treatments for inflammation and autoimmune diseases.

Our benchmark gene regulation platform technologies, known as ARGENT, RPD, and RGE, already are being used by approximately 400 academic investigators worldwide for scientific research and are the subject of over 100 papers published in the scientific literature. In return for providing the technologies for academic research, we receive some intellectual property and commercialization rights to discoveries made as a result of their use. Commercial licenses to these technologies also are available to pharmaceutical and biotechnology companies for use in their drug discovery efforts. Additionally, our technologies are available for collaborative development of novel gene and cell therapy products.

In our protein therapy programs, our gene regulation platform technologies provide:

- sustained, long-term delivery of therapeutic proteins (ARGENT);
- repeated, short bursts of protein delivery (RPD); and
- potent activation of endogenous and engineered genes (RGE).

In our regulated cell therapy program, the technologies feature highly efficient gene transfer, cell-growth or cell-death switches that are controlled with small-molecule drugs, and broad applicability to both primary and stem cells (e.g., regenerative medicine). A safety feature that distinguishes our gene regulation technologies from others is that gene activity can be terminated by withdrawal of the regulating small-molecule drug.

Our business strategy balances potential near-term revenues with longer term product development opportunities. We plan to:

- develop our current lead product candidates at least through phase 2 clinical trials;
- establish the commercial infrastructure to market certain of our lead products in selected markets and/or indications;
- pursue collaborative partnerships for other markets and products;
- license our platform technologies to selected biotechnology and pharmaceutical companies to help accelerate their genomics, proteomics, and drug discovery programs; and
- partner these technologies for joint development of novel products, especially with companies that have proprietary therapeutic genes, cellular systems (e.g., stem cells) or gene delivery vectors.

We were incorporated in Delaware in 1991. Our address is ARIAD Pharmaceuticals, Inc., 26 Landsdowne Street, Cambridge, Massachusetts 02139-4234, and our telephone number is (617) 494-0400.

The Offering

Common stock offered	4,500,000 shares
Common stock to be outstanding after the offerings	34,563,358 shares
Use of proceeds	We anticipate using the net proceeds from this offering to fund research, development and product manufacturing, to acquire or invest in businesses, products and technologies, to provide working capital and for general corporate purposes. See "Use of Proceeds."
Nasdaq National Market symbol	ARIA

The number of shares of common stock to be outstanding after the offering is based on the number of shares outstanding as of June 21, 2001 and excludes:

- 4,240,957 shares of common stock reserved for issuance pursuant to outstanding stock options at a weighted average exercise price of $4.31 per share;
- 25,000 shares available for issuance under our 1994 Stock Option Plan for Non-Employee Directors;
- 408,426 shares available for issuance under our 1997 Employee Stock Purchase Plan; and
- 954,256 shares available for issuance under our 2001 Stock Plan.

RISK FACTORS

Investing in our common stock is very risky. You should be able to bear a complete loss of your investment. You should carefully consider the following factors, in addition to other information contained elsewhere in this prospectus or incorporated by reference into this prospectus from our other SEC filings.

Risks Relating to Our Business

We may never succeed in developing marketable drugs or generating product revenues.

We are an early-stage company with no product revenues, and we may not succeed in producing pharmaceutical products for commercialization. We do not expect to have any products on the market for several years, if at all. Our main focus is primarily in conducting research and product development to advance the complex and specialized technologies we are developing. We are exploring human diseases at the cellular level. We seek to discover which genes within cells malfunction to cause disease, which signals are triggered within cells during the disease process to cause these cells to respond abnormally, and which drugs can halt or reverse those activities within cells. We also seek to discover multiple regulated gene therapies and regulated cell therapies that can treat or prevent disease. As with all science, we face much trial and error, and we may fail at numerous stages along the way. If we are not successful in developing marketable products, we will not be profitable.

We may be unable to access vectors, or other gene transfer technologies that we will need to commercialize our gene and cell therapy product candidates.

We may not be able to access the vector technologies required to develop and commercialize our gene and cell therapy product candidates. We do not own gene delivery technologies and are reliant on our ability to enter into license agreements with appropriate academic institutions and/or gene therapy companies that can provide us with rights to the necessary technology and components of gene delivery systems. The inability to reach an appropriate agreement with such an entity on reasonable commercial terms could delay or prevent the preclinical evaluation, clinical testing, and/or commercialization of our product candidates. Since some of our potential products are based on gene therapy, our inability to access gene transfer technology would have significant adverse effects on a significant portion of our product candidates. If we do not market our product candidates, we will never become profitable. In addition, the intellectual property landscape covering gene transfer technologies is currently uncertain and fragmented. Accordingly, if we select one partner as a source for selected intellectual property rights, we may find that we have not licensed sufficient rights to be able to commercialize our products, or we may be forced to acquire additional rights or discontinue marketing our product candidates unexpectedly.

We have incurred significant losses to date and may never be profitable.

We have incurred significant operating losses in each year since our formation in 1991 as a Delaware corporation through 2000 and have an accumulated deficit of approximately

$92.9 million from our operations through March 31, 2001. It is likely that significant operating losses will continue for the foreseeable future. We currently have no product revenues or commitments for future research revenues, may never be able to earn such revenue, and may never have profitable operations, even if we are able to commercialize any of our product candidates or enter into additional research agreements. If our losses continue and we are unable to successfully develop, commercialize, manufacture and market product candidates, we may never have product revenues or achieve profitability. Losses have resulted principally from costs incurred in research and development of product candidates and from general and administrative costs associated with our operations.

Insufficient funding may jeopardize our research and development programs and may prevent commercialization of our products and technologies.

All of our operating revenue to date has been generated through collaborative research agreements that have expired or been terminated. Accordingly, we may not be able to secure the significant funding levels which are required to maintain and continue each of our research and development programs at the current levels or at levels that may be required in the future. We do not have any committed strategic alliance funding for the advancement of any of our programs. Although we intend to seek additional funding from collaborations or public or private financings, these may not be available on terms acceptable to us, or at all. If we cannot secure adequate financing, we may be required to delay, scale back or eliminate one or more of our research and development programs or to enter into license arrangements with third parties to commercialize products or technologies that we would otherwise seek to develop ourselves.

Because we do not own all of the outstanding stock of our subsidiary, ARIAD Gene Therapeutics, Inc., or AGTI, we may not realize all of the potential future economic benefit from products developed based on technology licensed to or owned by our subsidiary.

Our subsidiary, AGTI, holds licenses from Harvard University, Stanford University, and other universities relating to ARGENT, a key technology in our regulated gene and cell therapy product development programs. Minority stockholders, including Harvard University, Stanford University and certain current and former members of our management, own slightly less than 20% of the issued and outstanding capital stock of AGTI. We do not currently have a license agreement with AGTI that provides us with rights to develop and commercialize products based on the licenses relating to ARGENT. In order to commercialize any product based on this technology, we will either license this technology on terms to be determined or commercialize these products directly through AGTI. The economic benefit to our stockholders from products we commercialize will be diluted by any royalties paid under a future license agreement, if any, with AGTI. The economic benefit to our stockholders from products, if any, AGTI may commercialize would be reduced in an amount related to the percentage owned by the minority stockholders of AGTI.

Alternatively, we may acquire all of the interests of the minority stockholders in AGTI for cash, shares of our common stock or other securities of ours, if any. If we acquire these minority interests for either form of consideration, it will result in dilution to our stockholders. The economic value of the minority stockholders' interest is difficult to quantify in the absence of a

public market, and the market price of our publicly traded common stock may not accurately reflect its value. Accordingly, the market could change its perception of the value of this minority interest in our subsidiary at any time in reaction to our increased emphasis on these products, announcements regarding these products or for other reasons, any of which could result in a decline in our stock price. In addition, if we acquire the minority interest at a cost greater than the value attributed to them by the market, this also could result in a decline in our stock price. If we choose to acquire these interests through a short-form merger in which we do not solicit the consent of the minority stockholders of AGTI, we could become subject to an appraisal procedure, which would result in additional expense and diversion of management resources.

Because certain members of our management team and Board of Directors beneficially own a significant percentage of the capital stock of our subsidiary, AGTI, there may be conflicts of interest present in dealings between ARIAD and AGTI.

Four members of our management team and/or Board of Directors own or have the right to acquire up to approximately 6% of the outstanding capital stock of AGTI. These same individuals beneficially own approximately 7.6% of our outstanding common stock. As a result, the market may perceive conflicts of interest to exist in dealings between AGTI and us. AGTI is the exclusive licensee of the ARGENT intellectual property from Harvard University and Stanford University and, in the event that we commercialize products based on ARGENT, we will have to negotiate the terms of a license agreement with AGTI or acquire all of the capital stock of AGTI. Because of the apparent conflicts of interest, the market may be more inclined to perceive the terms of any transaction between us and AGTI as being unfair to us.

We have no experience in manufacturing any of our product candidates on a commercial basis, which raises uncertainty as to our ability to commercialize our product candidates.

We have no experience in, and currently lack the resources and capability to, manufacture any of our product candidates on a commercial basis. Our ability to conduct clinical trials and commercialize our product candidates will depend, in part, on our ability to manufacture our products on a large scale, either directly or through third parties, at a competitive cost and in accordance with FDA and other regulatory requirements. We currently do not have the capacity to manufacture drugs in large quantities. We depend on third-party manufacturers or collaborative partners for the production of our product candidates for preclinical research and clinical trials and intend to use third-party manufacturers to produce any products we may eventually commercialize. If we are not able to obtain contract manufacturing on commercially reasonable terms, we may not be able to conduct or complete clinical trials or commercialize our product candidates, and we do not know whether we will be able to develop such capabilities.

If we are unable to establish sales, marketing and distribution capabilities or to enter into agreements with third parties to do so, we may be unable to successfully market and sell any products.

We currently have no sales, marketing or distribution capabilities. If we are unable to establish sales, marketing or distribution capabilities either by developing our own sales,

marketing and distribution organization or by entering into agreements with others, we may be unable to successfully sell any products we are able to begin to commercialize. If we are unable to effectively sell our products, our ability to generate revenues will be harmed. We may not be able to hire, in a timely manner, the qualified sales and marketing personnel we need, if at all. In addition, we may not be able to enter into any marketing or distribution agreements on acceptable terms, if at all. If we cannot establish sales, marketing and distribution capabilities as we intend, either by developing our own capabilities or entering into agreements with third parties, sales of future products, if any, may be harmed.

If our product candidates are not accepted by physicians and insurers, we will not be successful.

Our success is dependent on acceptance of our product candidates. They may not achieve significant market acceptance among patients, physicians or third-party payors, even if we obtain necessary regulatory and reimbursement approvals. Failure to achieve significant market acceptance will harm our business. We believe that recommendations by physicians and health care payors will be essential for market acceptance of any product candidates. In the past, there has been concern regarding the potential safety and effectiveness of gene therapy products. Physicians and health care payors may conclude that any of our product candidates are not safe.

The loss of key members of our scientific and management staff could delay and may prevent the achievement of our research, development and business objectives.

Our Chief Executive Officer, Harvey J. Berger, our Chief Patent Counsel, David Bernstein, and our Senior Vice President, Drug Development, John D. Iuliucci, and other key officers and members of our scientific staff responsible for areas such as clinical development, drug discovery, cell biology and genomics, structure-based drug design and protein engineering are important to our specialized scientific business. We also are dependent upon a few of our scientific advisors to assist in formulating our research and development strategy. The loss of, and failure to promptly replace, any one of this group could significantly delay and may prevent the achievement of our research, development and business objectives. While we have entered into employment agreements with all of our officers, they may not remain with us.

Competing technologies may render some or all of our programs or future products noncompetitive or obsolete.

Many well-known pharmaceutical, healthcare and biotechnology companies, academic and research institutions and government agencies, who have substantially greater capital, research and development capabilities and experience than us, are presently engaged in:

- developing products based on signal transduction, genomics and proteomics, structure-based drug design, and gene and cell therapy, and

- conducting research and development programs for the treatment of all the disease areas in which we are focused.

Some of these entities already have product candidates in clinical trials or in more advanced preclinical studies than we do. They may succeed in commercializing competitive products before us, which would give them a competitive advantage. Competing technologies may render some or all of our programs or future products noncompetitive or obsolete, and we may not be able to make the enhancements to our technology necessary to compete successfully with newly emerging technologies. If we are unable to compete in our chosen markets, we will not become profitable.

We may not be able to protect our intellectual proprietary rights.

We and our licensors have pending patent applications covering biochemical and cellular tests useful in drug discovery, new chemical compounds discovered in our drug discovery programs, certain components, configurations and uses of our ARGENT, RPD, and RGE systems and methods and materials for conducting genomics research. These patent applications may not issue as patents and may not issue in all countries in which we develop, manufacture or sell our products. In addition, patents issued to us or our licensors may be challenged and subsequently narrowed, invalidated or circumvented. In that event, such patents may not afford meaningful protection for our technologies or product candidates, which would materially impact our ability to develop and market them. Certain technologies utilized in our research and development programs are already in the public domain. Moreover, a number of our competitors have developed technologies, filed patent applications or obtained patents on technologies and compositions that are related to our business and may cover or conflict with our patent applications. Such conflicts could limit the scope of the patents that we may be able to obtain or may result in the denial of our patent applications. If a third party were to obtain intellectual proprietary protection for any of these technologies, we may be required to challenge such protections, terminate or modify our programs that rely on such technologies or obtain licenses for use of these technologies.

We may be unable to develop or commercialize our product candidates, if we are unable to obtain or maintain certain licenses.

We have entered into license agreements for some of our technologies, either directly or through AGTI. We are currently attempting to obtain additional licenses for technology useful to our programs. Our inability to obtain any one or more of these licenses, on commercially reasonable terms, or at all, or to circumvent the need for any such license, could cause significant delays and cost increases and materially affect our ability to develop and commercialize our product candidates. We also use gene sequences or proteins encoded by those sequences and other biological materials in each of our research programs which are, or may become, patented by others and to which we would be required to obtain licenses in order to develop or market our product candidates. Some of our programs, including our regulated gene therapy program, may require the use of multiple proprietary technologies, especially vectors and therapeutic genes. Obtaining licenses for these technologies may require us to make cumulative royalty payments or other payments to several third parties, potentially reducing amounts paid to us or making the cost of our products commercially prohibitive.

Some of our licenses obligate us to exercise diligence in pursuing the development of product candidates, to make specified milestone payments, and to pay royalties. In some instances, we are responsible for the costs of filing and prosecuting patent applications. These licenses generally expire upon the earlier of a fixed term of years after the date of the license or the expiration of the applicable patents, but each license is also terminable by the other party upon default by us of our obligations. Our inability or failure to meet our diligence requirements or make any payments required under these licenses would result in a reversion to the licensor of the rights granted which, with respect to the licenses where we have obtained exclusive rights, would materially and adversely affect our ability to develop and market products based on our licensed technologies.

If we develop a product for commercial use, a subsequent product liability-related claim or recall could have an adverse effect on our business.

Our business exposes us to potential product liability risks inherent in the testing, manufacturing and marketing of pharmaceutical products, and we may not be able to avoid significant product liability exposure. A product liability-related claim or recall could be detrimental to our business. In addition, except for insurance covering product use in our clinical trials, we do not currently have any product liability insurance, and we may not be able to obtain or maintain such insurance on acceptable terms, or we may not be able to obtain any insurance to provide adequate coverage against potential liabilities. Our inability to obtain sufficient insurance coverage at an acceptable cost or otherwise to protect against potential product liability claims could prevent or limit the commercialization of any products we develop.

Risks Relating to Governmental Approvals

We have limited experience in conducting clinical trials, which may cause delays in commencing and completing clinical trials of our product candidates.

Clinical trials must meet FDA and foreign regulatory requirements. We have limited experience in conducting the preclinical studies and clinical trials necessary to obtain regulatory approval. Consequently, we may encounter problems in clinical trials that may cause us or the FDA or foreign regulatory agencies to delay, suspend or terminate these trials. If the clinical trials of our products fail, we will not be able to market our product candidates. Problems we may encounter include the chance that we may not be able to conduct clinical trials at preferred sites, obtain sufficient test subjects or begin or successfully complete clinical trials in a timely fashion, if at all. Furthermore, we, the FDA or foreign regulatory agencies may suspend clinical trials at any time if we or they believe the subjects participating in the trials are being exposed to unacceptable health risks or if we or they find deficiencies in the clinical trial process or conduct of the investigation. The FDA and foreign regulatory agencies could also require additional clinical trials, which would result in increased costs and significant development delays. Our failure to adequately demonstrate the safety and effectiveness of a therapeutic drug under development could delay or prevent regulatory approval of the product candidate and could have a material adverse effect on our business.

Adverse medical events and/or a hostile regulatory and political environment could delay or prevent the commercialization of our gene therapy product candidates.

The death in 1999 of a patient in a clinical trial of adenovirus-mediated gene therapy has heightened awareness of the potential risks associated with early-stage clinical evaluation of gene therapies. In addition, several deaths in other gene therapy clinical trials have been publicized. While not apparently caused by the gene transfer procedure, these deaths were not promptly reported to the FDA. As a result of these events, the field of gene therapy has come under greater scrutiny from regulatory authorities, politicians and the public at large. Although we do not anticipate using adenoviral vectors in our product candidates, the new environment of greater scrutiny for gene therapy may significantly delay the development of our gene and cell therapy product candidates. We may be required to conduct more extensive preclinical testing in order to perform clinical trials on our product candidates. Regulatory approval of our gene and cell therapy product candidates may require more extensive clinical studies than anticipated, which could delay commercialization of our gene and cell therapy product candidates. Further adverse events in gene therapy trials and/or decisions of regulatory and other governmental agencies could result in a moratorium or even termination of all clinical studies on gene therapy at some or all medical centers in the United States or other countries. Such events could seriously jeopardize the development and commercialization of our gene and cell therapy product candidates. In addition, should our product candidates be approved for marketing, adverse public perception of the gene therapy field may limit our ability successfully to market any gene and cell therapy products.

We may not be able to obtain government regulatory approval for our product candidates prior to marketing.

To date, we have not submitted a marketing application for any product candidate to the FDA or any foreign regulatory agency, and none of our product candidates have been approved for commercialization in the United States or elsewhere. Any product candidate ready for commercialization would be subject to an extensive and lengthy governmental regulatory approval process in the United States and in other countries. We may not be able to obtain regulatory approval for any products we develop or even if approval is obtained, the labeling for such products may be required to bear limitations that could materially impact the marketability and profitability of the product involved. We have no history of conducting and managing the clinical testing necessary to obtain such regulatory approval. Satisfaction of these regulatory requirements, which includes satisfying the FDA and foreign regulatory authorities that the product is both safe and effective under its recommended conditions of use, typically takes several years or more depending upon the type, complexity and novelty of the product and requires the expenditure of substantial resources.

Furthermore, the regulatory requirements governing our potential products are uncertain. This uncertainty may result in excessive costs or extensive delays in the regulatory approval process, adding to the already lengthy review process. If regulatory approval of a product is granted, such approval will be limited to those disease states and conditions for which the product is proven useful, as demonstrated by clinical trials, and our products will be subject to ongoing regulatory reviews. Although we have been granted orphan drug designation by the

FDA for AP1903, the small-molecule drug used in our GvHD cell therapy product candidate, this designation may be challenged by others or may prove to be of no practical benefit.

We will not be able to sell our product candidates, if we or our third-party manufacturers fail to comply with FDA manufacturing regulations.

Before we can begin to commercially manufacture our product candidates, we must either secure manufacturing in an approved manufacturing facility or obtain regulatory approval of our own manufacturing facility and process. In addition, manufacture of our product candidates must comply with the FDA's current Good Manufacturing Practices requirements, commonly known as cGMP. The cGMP requirements govern, among other things, quality control and documentation policies and procedures. We, or any third-party manufacturer of our product candidates, may not be able to comply with cGMP requirements, which would prevent us from selling such products. Material changes to the manufacturing processes of our products after approvals have been granted are also subject to review and approval by the FDA or other regulatory agencies.

Even if we bring products to market, we may be unable to effectively price our products or obtain adequate reimbursement for sales of our products, which would prevent our products from becoming profitable.

If we succeed in bringing our product candidates to the market, they may not be considered cost-effective, and reimbursement to the consumer may not be available or may not be sufficient to allow us to sell our products on a competitive basis. In both the United States and elsewhere, sales of medical products and treatments are dependent, in part, on the availability of reimbursement to the consumer from third-party payors, such as government and private insurance plans. Third-party payors are increasingly challenging the prices charged for pharmaceutical products and services. Our business is affected by the efforts of government and third-party payors to contain or reduce the cost of health care through various means. In the United States, there have been and will continue to be a number of federal and state proposals to implement government controls on pricing. In addition, the emphasis on managed care in the United States has increased and will continue to increase the pressure on the pricing of pharmaceutical products. We cannot predict whether any legislative or regulatory proposals will be adopted or the effect these proposals or managed care efforts may have on our business.

Risks Relating to Our Common Stock

Results of our operations and general market conditions for biotechnology stocks could result in the sudden change in the value of our stock.

As a biopharmaceutical company, we have experienced significant volatility in our common stock. Fluctuations in our operating results and general market conditions for biotechnology stocks could have a significant impact on the volatility of our common stock price. During 2000, our stock price ranged from a high of $48.50 to a low of $2.50, and from January 1, 2001 to June 21, 2001 our stock price has ranged from a high of $8.38 to a low of $2.78. Factors contributing to such volatility include:

- results of preclinical studies and clinical trials,
- evidence of the safety or effectiveness of pharmaceutical products,
- announcements of new collaborations,
- failure to enter into collaborations,
- our funding requirements,
- announcements of technological innovations or new therapeutic products,
- governmental regulation, including gene therapy oversight,
- healthcare legislation,
- developments in patent or other proprietary rights, including litigation,
- general market trends for the biotechnology industry and related high technology industries,
- the impact of changing interest rates and policies of the Federal Reserve, and
- public policy pronouncements.

FORWARD-LOOKING STATEMENTS

Some of the statements under the captions “Prospectus Summary,” “Risk Factors” and “Use of Proceeds” and elsewhere in this prospectus are “forward-looking statements” concerning our operations, economic performance and financial condition. These forward-looking statements include, but are not limited to, statements about our plans, objectives, expectations and intentions and other statements contained in the prospectus that are not historical facts. When used in this

prospectus, the words “anticipates,” “believes,” “continue,” “could,” “estimates,” “expects,” “intends,” “may,” “plans,” “seeks,” “should” or “will” or the negative of these terms or similar expressions are generally intended to identify forward-looking statements. Forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, and within the meaning of Section 21E of the Securities Exchange Act of 1934, are included, for example, in the discussions about:

- our strategy;
- sufficiency of our cash resources;
- revenues from existing and new collaborations;
- product development;
- our research and development and other expenses; and
- our operational and legal risks.

These forward-looking statements involve risks and uncertainties. Actual results may differ materially from those expressed or implied in those statements. Factors that could cause these differences include, but are not limited to, those discussed under “Risk Factors.”

USE OF PROCEEDS

We cannot guarantee that we will receive any proceeds in connection with this offering. We intend to use the net proceeds of this offering, if any, to fund research, development and product manufacturing, to provide working capital and for general corporate purposes. We may also use a portion of the net proceeds to acquire or invest in businesses, products and technologies that are complementary to our own, although no acquisitions are planned or being negotiated as of the date of this prospectus, and no portion of the net proceeds has been allocated for any specific acquisition. Pending these uses, the net proceeds will be invested in investment-grade, interest-bearing securities.

The principal purposes of this offering are to increase our capitalization and our operating and financial flexibility. As of the date of this prospectus, we cannot specify with certainty all of the particular uses for the net proceeds we will have upon completion of this offering. Accordingly, our management will have broad discretion in the application of net proceeds, if any. During the second quarter of fiscal 2001, we received $14,225,166 from the sale of 2,623,827 shares of common stock under our existing Common Stock Purchase Agreement with Acqua Wellington North American Equities, Ltd.

Based on the historical spending levels required to support our operations, we believe that our available cash and existing sources of revenue, if any, together with proceeds of this offering, if any, and interest earned thereon, will be adequate to satisfy our capital and operating

requirements until at least the end of the year 2002. However, changes in our research and development plans or other future events affecting our revenues or operating expenses may result in the earlier depletion of our funds.

WHERE TO FIND MORE INFORMATION

We are subject to the reporting requirements of the Securities Exchange Act of 1934 and file annual, quarterly and current reports, proxy statements and other information with the SEC. You may read and copy these reports, proxy statements and other information at the SEC's public reference facilities at Judiciary Plaza, 450 Fifth Street, N.W., Room 1200, Washington, D.C. 20549. You can request copies of these documents by writing to the SEC and paying a fee for the copying cost. Please call the SEC at 1-800-SEC-0330 for more information about the operation of the public reference facilities. SEC filings are also available at the SEC's Web site at http://www.sec.gov. Our common stock is listed on the Nasdaq National Market, and you can read and inspect our filings at the offices of the National Association of Securities Dealers, Inc. at 1735 K Street, Washington, D.C. 20006.

This prospectus is only part of a Registration Statement on Form S-3 that we have filed with the SEC under the Securities Act of 1933 and therefore omits certain information contained in the Registration Statement. We have also filed exhibits and schedules with the Registration Statement that are excluded from this prospectus, and you should refer to the applicable exhibit or schedule for a complete description of any statement referring to any contract or other document. You may inspect a copy of the Registration Statement, including the exhibits and schedules, without charge, at the public reference room or obtain a copy from the SEC upon payment of the fees prescribed by the SEC.

INCORPORATION OF DOCUMENTS BY REFERENCE

The SEC allows us to "incorporate by reference" information that we file with them. Incorporation by reference allows us to disclose important information to you by referring you to those other documents. The information incorporated by reference is an important part of this prospectus, and information that we file later with the SEC will automatically update and supersede this information. We filed a Registration Statement on Form S-3 under the Securities Act of 1933 with the SEC with respect to the common stock being offered pursuant to this prospectus. This prospectus omits certain information contained in the Registration Statement, as permitted by the SEC. You should refer to the Registration Statement, including the exhibits, for further information about us and the common stock being offered pursuant to this prospectus. Statements in this prospectus regarding the provisions of certain documents filed with, or incorporated by reference in, the Registration Statement are not necessarily complete and each statement is qualified in all respects by that reference. Copies of all or any part of the Registration Statement, including the documents incorporated by reference or the exhibits, may be obtained upon payment of the prescribed rates at the offices of the SEC listed above in "Where to Find More Information." We incorporate by reference the documents listed below and any future filings made with the SEC under Sections 13(a), 13(c), 14 or 15(d) of the Securities

Exchange Act of 1934 until we sell all of our shares of common stock. The documents we are incorporating by reference are:

- Annual Report on Form 10-K for the year ended December 31, 2000, filed on March 29, 2001;
- Quarterly Report on Form 10-Q for the quarter ended March 31, 2001, filed on May 14, 2001; and
- The description of the common stock contained in our Registration Statement on Form 10 filed with the SEC on June 25, 1993, including any amendments or reports filed for the purpose of updating such description.

Upon request, we will provide without charge to each person to whom a copy of this prospectus has been delivered a copy of any information that was incorporated by reference in the prospectus (other than exhibits to documents, unless the exhibits are specifically incorporated by reference into the prospectus). We will also provide upon request, without charge to each person to whom a copy of this prospectus has been delivered, a copy of all documents filed by us from time to time with the SEC pursuant to the Securities Exchange Act of 1934. Requests for copies should be directed to:

Lee C. Steele
Senior Vice President
and Chief Financial Officer
ARIAD Pharmaceuticals, Inc.
26 Landsdowne Street
Cambridge, MA 02139-4234
(617) 494-0400

This prospectus is part of a Registration Statement we filed with the SEC. You should rely only on the information incorporated by reference in or provided in this prospectus and the Registration Statement. We have not authorized any other person to provide you with different information. We are not making an offer of these securities in any state where the offer is not permitted. You should not assume that the information in this prospectus is accurate as of any date other than the date on the front of this document.

PLAN OF DISTRIBUTION

General

We may offer the common stock from time to time pursuant to underwritten public offerings, negotiated transactions, block trades or a combination of these methods. The common stock may also be sold pursuant to what is known as an equity line of credit. We may sell the common stock (1) through underwriters or dealers, (2) through agents, and/or (3) directly to one or more

purchasers. We may distribute the common stock from time to time in one or more transactions at:

- a fixed price or prices, which may be changed;
- market prices prevailing at the time of sale;
- prices related to the prevailing market prices; or
- negotiated prices.

We may directly solicit offers to purchase the common stock being offered by this prospectus. We may also designate agents to solicit offers to purchase the common stock from time to time. We will name in a prospectus supplement any agent involved in the offer or sale of our common stock.

If we utilize a dealer in the sale of the common stock being offered by this prospectus, we will sell the common stock to the dealer, as principal. The dealer may then resell the common stock to the public at varying prices to be determined by the dealer at the time of resale.

If we utilize an underwriter in the sale of the common stock being offered by this prospectus, we will execute an underwriting agreement with the underwriter at the time of sale, and we will provide the name of any underwriter in the prospectus supplement which the underwriter will use to make resales of the common stock to the public. In connection with the sale of the common stock, we, or the purchasers of our common stock for whom the underwriter may act as agent, may compensate the underwriter in the form of underwriting discounts or commissions. The underwriter may sell the common stock to or through dealers, and the underwriter may compensate those dealers in the form of discounts, concessions or commissions.

In the event we enter into an agreement regarding an equity line of credit which contemplates an “at the market” equity offering, we will file a post-effective amendment to this registration statement that identifies the underwriters in that “at the market” equity offering.

With respect to underwritten public offerings, negotiated transactions and block trades, we will provide in the applicable prospectus supplement any compensation we pay to underwriters, dealers or agents in connection with the offering of the common stock, and any discounts, concessions or commissions allowed by underwriters to participating dealers. Underwriters, dealers and agents participating in the distribution of the common stock may be deemed to be underwriters within the meaning of the Securities Act of 1933, and any discounts and commissions received by them and any profit realized by them on resale of the common stock may be deemed to be underwriting discounts and commissions. We may enter into agreements to indemnify underwriters, dealers and agents against civil liabilities, including liabilities under the Securities Act, or to contribute to payments they may be required to make in respect thereof.

Shares of our common stock sold pursuant to the registration statement of which this prospectus is a part will be authorized for quotation and trading on the Nasdaq National Market.

To facilitate the offering of the common stock, other than the common stock offered through an equity line of credit, certain persons participating in the offering may engage in transactions that stabilize, maintain or otherwise affect the price of our common stock. This may include over-allotments or short sales of the common stock, which involve the sale by persons participating in the offering of more shares of common stock than we sold to them. In these circumstances, these persons would cover such over-allotments or short positions by making purchases in the open market or by exercising their over-allotment option. In addition, these persons may stabilize or maintain the price of the common stock by bidding for or purchasing the common stock in the open market or by imposing penalty bids, whereby selling concessions allowed to dealers participating in the offering may be reclaimed if the shares of common stock sold by them are repurchased in connection with stabilization transactions. The effect of these transactions may be to stabilize or maintain the market price of our common stock at a level above that which might otherwise prevail in the open market. These transactions may be discontinued at any time.

The underwriters, dealers and agents may engage in other transactions with us, or perform other services for us, in the ordinary course of their business.

LEGAL MATTERS

The validity of the issuance of the common stock offered in this prospectus is being passed upon for us by Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., Boston, Massachusetts. Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., and certain members of their families and trusts for their benefit own an aggregate of approximately 2,800 shares of our common stock.

EXPERTS

The consolidated financial statements incorporated in this prospectus by reference from the Company's Annual Report on Form 10-K for the year ended December 31, 2000 have been audited by Deloitte & Touche LLP, independent auditors, as stated in their report, which is incorporated herein by reference (which report expresses an unqualified opinion and includes an explanatory paragraph referring to a change in accounting principle relating to start-up activities), and have been so incorporated in reliance upon the report of such firm given upon their authority as experts in accounting and auditing.

INDEMNIFICATION

Section 145(a) of the General Corporation Law of the State of Delaware provides that a Delaware corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative (other than an action by or in the right of the corporation) by reason of the fact that he is or was a director, officer, employee or agent of the corporation or is or was serving at the request of the corporation as a director, officer, employee or agent of another corporation or enterprise, against expenses, judgments, fines and amounts paid in settlement actually and reasonably incurred by him in connection with such action, suit or proceeding if he acted in good faith and in a manner he reasonably believed to be in or not

opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no cause to believe his conduct was unlawful.

Section 145(b) provides that a Delaware corporation may indemnify any person who was or is a party or is threatened to be made a party to any threatened, pending or completed action or suit by or in the right of the corporation to procure a judgment in its favor by reason of the fact that such person acted in any of the capacities set forth above, against expenses actually and reasonably incurred by him in connection with the defense or settlement of such action or suit if he acted under similar standards, except that no indemnification may be made in respect of any claim, issue or matter as to which such person shall have been adjudged to be liable to the corporation unless and only to the extent that the court in which such action or suit was brought shall determine that despite the adjudication of liability, such person is fairly and reasonably entitled to be indemnified for such expenses which the court shall deem proper.

Section 145 further provides that to the extent a director or officer of a corporation has been successful in the defense of any action, suit or proceeding referred to in subsections (a) and (b) or in the defense of any claim, issue or matter therein, he shall be indemnified against expenses actually and reasonably incurred by him in connection therewith; that indemnification provided for by Section 145 shall not be deemed exclusive of any other rights to which the indemnified party may be entitled; and that the corporation may purchase and maintain insurance on behalf of a director or officer of the corporation against any liability asserted against him or incurred by him in any such capacity or arising out of his status as such whether or not the corporation would have the power to indemnify him against such liabilities under such Section 145.

Our Certificate of Incorporation, as amended, and By-laws, as amended, provide for indemnification of our directors and officers to the fullest extent permitted by law. The By-laws also permit the Board of Directors to authorize us to purchase and maintain insurance against any liability asserted against any director, officer, employee or agent of ours arising out of his capacity as such. Insofar as indemnification for liabilities under the Securities Act may be permitted to directors, officers, or controlling persons of ours pursuant to our Certificate of Incorporation, as amended, our By-laws, as amended, and the Delaware General Corporation Law, we have been informed that in the opinion of the SEC such indemnification is against public policy as expressed in such Act and is therefore unenforceable.

As permitted by Section 102(b)(7) of the Delaware General Corporation Law, our Certificate of Incorporation, as amended, provides that our directors shall not be personally liable to us or our stockholders for monetary damages for breach of fiduciary duty as a director, except for liability (i) for any breach of the director's duty of loyalty to us or our stockholders, (ii) for acts or omissions not in good faith or which involve intentional misconduct or a knowing violation of law, (iii) under Section 174 of the Delaware General Corporation Law, relating to prohibited dividends or distributions or the repurchase or redemption of stock or (iv) for any transaction from which the director derives an improper personal benefit. As a result of this provision, we and our stockholders may be unable to obtain monetary damages from a director for breach of his or her duty of care.

Commission Policy

Insofar as indemnification for liabilities arising under the Securities Act may be permitted to directors, officers or persons controlling us, we have been informed that in the opinion of the SEC such indemnification is against public policy as expressed in the Securities Act and is therefore unenforceable.