Mail Stop 6010 September 26, 2007

Paul Goddard, Ph.D.
Chairman of the Board and Chief Executive Officer
ARYx Therapeutics, Inc.
6300 Dumbarton Circle
Fremont, CA 94555

Re: ARYx Therapeutics, Inc.
Registration Statement on Form S-1
Filed August 30, 2007
File No. 333-145813

Dear Dr. Goddard:

We have reviewed your filing and have the following comments. Where indicated, we think you should revise your document in response to these comments. If you disagree, we will consider your explanation as to why our comment is inapplicable or a revision is unnecessary. Please be as detailed as necessary in your explanation. In some of our comments, we may ask you to provide us with supplemental information so we may better understand your disclosure. After reviewing this information, we may or may not raise additional comments.

Please understand that the purpose of our review process is to assist you in your compliance with the applicable disclosure requirements and to enhance the overall disclosure in your filing. We look forward to working with you in these respects. We welcome any questions you may have about our comments or on any other aspect of our review. Feel free to call us at the telephone numbers listed at the end of this letter.

General

1. Please note that our reply to your request for confidential treatment for portions of certain exhibits will be provided under separate cover.

2. Please note that when you file a pre-effective amendment containing pricing-related information, we may have additional comments. As you are likely aware, you must file this amendment prior to circulating the prospectus.

3. Please note that when you file a pre-effective amendment that includes your price range, it must be bone fide. We interpret this to mean that your range may not exceed $2 if you price below $20 and 10% if you price above $20.

4. Please note that where we provide examples to illustrate what we mean by our comments, they are examples and not complete lists. If our comments are applicable to portions of the filing that we have not cited as examples, please make the appropriate changes in accordance with our comments.

5. Please provide us proofs of all graphic, visual or photographic information you will provide in the printed prospectus prior to its use.

6. We note your statement on page i that you have not verified the information relating to market data and industry forecasts. Please revise to specifically state that you take liability for these statements or delete the statement.

Prospectus Summary, page 1

7. The forepart of your prospectus uses jargon and technical terms. For example, these words and phrases appear in the forepart of your prospectus:

   - dyspepsia
   - cytochrome P450
   - ideal metabolite
   - esterase pathway
   - off-target pharmacology
   - prokinetic drug
   - Qt interval

   Please replace all technical language and jargon with language that can be understood by persons who do not work in your industry. Alternately, if you cannot find substitute language without changing the meaning, prove an explanation of the term where you first use it.

8. In the summary you make various statements regarding the results of your clinical trials. For example, on page 2 you discuss the results of your clinical trials for ATI-7505 by stating that "dosing with ATI-7505 showed a reduction in acid reflux." We believe discussions regarding the results of clinical trials are better placed in the Business section where investors have more complete disclosure about the trials and the FDA process. Please revise your disclosure accordingly. You may discuss where you are in the regulatory process and the remaining steps to regulatory approval in the summary.

9. Throughout the prospectus you refer to statistics regarding your industry, target markets or product candidates. For example, see the following statements:

   - Our product candidates target multi-billion dollar markets.

   - Launched in 1993, cisapride reached sales of over $1.0 billion before it was withdrawn from the market in 2000 due to serious cardiovascular side effects.

- It is estimated that there are more than 100 million cases of gastrointestinal disorders in the United States.

- There were approximately 510,000 patients being treated for venous thromboembolism in the U.S in 2005.

Please revise the prospectus to disclose your source of these and other similar statistics to the extent you have not already done so.

Risk Factors, page 8

We have incurred significant operating losses since inception . . . ., page 8

10. To the extent practicable, please revise your disclosure to quantity the amounts you expect you will need for the "establishment of a North American specialty sales force and increased manufacturing expenses."

We expect to depend on collaborative arrangements . . . ., page 9

11. We note your disclosure on page 75 that the collaboration gives P&G ultimate decision-making authority over most issues regarding the development and commercialization of ATI-7505. Please expand this risk factor to discuss how this control by P&G affects the risks you present in this discussion.

We will need substantial additional funding . . . ., page 12

12. Please disclose your current monthly cash burn rate and your expectation as to how this level of spending will increase in the future in this risk factor and in the Liquidity and Capital Resources section of your MD&A.

Any failure or delay in commencing or completing clinical trials . . . ., page 13

13. Please expand this risk factor to briefly describe the delays in patient enrollment you have experienced in the past.

We rely on third parties to conduct our clinical trials. . . ., page 14

14. Please disclose the number of parties that you engage to conduct your clinical trials.

If some or all of our patents expire . . . ., page 14

15. To the extent that any of your pending patent applications are material to your three current product candidates, please expand this risk factor or consider adding a new risk factor to discuss the fact that your current product candidates are not protected by issued patents.

16. Please revise this risk factor to discuss in a separate risk factor with a separate subheading the risks that result from your reliance on trade secrets, in particular the fact that you rely on trade secrets to protect your key technology.

If third parties do not manufacture our product candidates . . . ., page 16

17. Please identify the small number of third-party manufacturers that you and P&G rely on for manufacturing ATI-7505. Also, to the extent you have any agreements with such parties and the other manufacturers and suppliers you have named in this risk factor, please so indicate and describe in your Business section the material terms of the agreements. You should also file the agreements as exhibits to the registration statement. If you have determined that you are not substantially dependent on these parties, please provide us with an analysis supporting this determination and disclose the number of relevant parties.

If we fail to attract and keep senior management and key scientific personnel . . . ., page 24

18. Please revise this risk factor to provide the positions of all of your key executives you have named in the risk factor.

If product liability lawsuits are brought against us . . . ., page 25
If we use biological and hazardous materials . . . ., page 25
Our principal facility is located near known earthquake fault zones . . . ., page 26

19. In each of these risk factors, to the extent you have not already done so, please disclose whether you maintain insurance to cover relevant losses and, if so, the level of coverage. Please also disclose the cost to you of such coverage, if material.

If you purchase our common stock in this offering . . . ., page 26

20. Please revise this risk factor to explain that investors who purchase shares will contribute ___% of the total amount to fund the company but will own only ___% of the shares outstanding.

If a significant number of shares of our common stock are sold into the market following this offering . . . ., page 29

21. Please revise to disclose the current number of shares that are issuable or will be issuable upon completion of this offering under your options and warrants, and the weighted average exercise price of these convertible securities.

Management's Discussion and Analysis of Financial Condition and Results of Operations, page 40

Research and Development, page 41

22. Please revise your disclosure of program expenditures to include your inception-to-date expenditures by program.

Liquidity and Capital Resources, page 54

23. Please expand your disclosure of the Lighthouse loan facility and the GE equipment loans to disclose all material terms of those arrangements, including the term, interest rates and material default provisions.

24. To the extent practicable, please quantify the additional funds you expect to raise to support your operations.

Business, page 58

Our RetroMetabolic Drug Design, page 62

25. Please expand your disclosure to explain why your approach involves "unique steps" and why the ideal metabolite is "novel." Is it because the ideal metabolite is not metabolized by the CYP450 pathway?

26. Please expand your disclosure to provide a brief explanation of the RetroMetabolic Drug Design technology itself. Did you design this technology? What proprietary rights do you have in the technology? Is this technology a process, an instrument or a series of clinical steps?

ATI-7505—A Prokinetic Agent for the Treatment of Gastrointestinal Disorders, page 63

27. We note that you did not achieve statistical significance or meet the primary endpoints in some of the clinical trials. For example, we note the following statements:

    - The primary endpoint measuring adequate symptomatic relief of GERD did not achieve statistical significance when the effect of active drug was compared to placebo.

    - The primary endpoint in the Phase 2 Erosive Esophagitis Safety and Efficacy Trial was not met when the active drug was compared to placebo.

    Please consider the need to expand your risk factor disclosure to discuss the results of these clinical trials, in particular the fact that the trials did not achieve statistical significance or meet the primary endpoints.

28. Please clarify the following points in your disclosure regarding your clinical trial results of ATI-7505, to the extent you have not already done so.

    - Please describe the primary and secondary endpoints of the different trials.

- Please describe the different dosing groups and summarize the results of each group.

- Please explain the meaning of the statement on page 66 that "a non-significant treatment effect was seen in both active doses."

- Describe the results of the trials and any statistical analysis. For example, on page 66 you state that "Statistical significance was achieved in a post hoc analysis when the dose relationship between the two ATI-7505 doses were compared (p=0.0014) indicating a dose-related drug effect." Please describe the results of the analysis.

ATI-5923—An Oral Anticoagulant Agent, page 67

29. On page 70 you state that adverse events in the Phase 2 trials appear to be similar to those seen in Phase 1 studies. On page 71, however, where you discuss the Phase 1 trials, you state that "There have been no frequent or consistent adverse events suggestive of off-target toxicity." Please describe any adverse events in either the Phase 1 or Phase 2 trials.

Our Collaboration with Procter & Gamble Pharmaceuticals, page 75

30. To the extent applicable, please expand your description of the collaboration to also provide the following:

    - Material annual fees;

    - The date of expiration;

    - Obligations and rights to defend intellectual property; and

    - Any payments you would be required to make in the event of termination.

Compensation Discussion and Analysis, page 91

31. Please expand your disclosure in this section to specifically discuss how each compensation element and the company's decisions regarding that element affect decisions regarding other elements. See Item 402(b)(1)(vi) of Regulation S-K.

32. Throughout this section you refer to benchmarking to compensation paid by other companies. To the extent that you have used other companies as a benchmark for setting compensation, identify those other companies, disclose the criteria used to select them, disclose where your compensation falls in relation to those other companies and disclose which items of compensation you have benchmarked.

33. Please describe and summarize the input the compensation committee received from your Human Resources department and the outside expert compensation consultant retained by the compensation committee.

34. In addition to benchmarking you state that for 2007, base salaries were set by reviewing current salaries against company and individual performance as well as general economic factors. Please describe what factors regarding company and individual performance impacted the salary levels and how those salary levels were impacted. Please also describe the general economic factors considered and how those factors affected salary levels.

35. Please describe the "corporate goals and value-creating milestones" used to determine cash incentive payments. Your general description on the top of page 93 is not sufficient. Please provide a more detailed and accurate description of these corporate goals and milestones for each of 2006 and 2007.

36. Please also describe how the cash incentive payments paid for 2006 were determined based upon the criteria you established for those payments.

37. Please explain the reason for the change in the target percentage for your President, as you discuss on page 93.

38. We refer to the subsection title "Compensation Actions for Our Executive Officers." To the extent you have not already done so, please provide an analysis for each compensation decision, whether it is an increase in salary or an award of a stock option.

39. On pages 99 and 100 you refer to "business objectives" set by the board of directors that would impact Dr. Goddard's and Dr. Milner's salaries. Please describe these business objectives and how they have impacted the salaries since the time set.

40. With respect to the severance and change of control benefits, please provide an analysis as to why you have structured these payments as you have. In particular, please also address why you have adopted a different payment level for Dr. Milner.

Principal Stockholders, page 118

41. For each principal stockholder that is a nonpublic entity, please revise to identify the natural person or persons with investment and voting control over the shares.

Underwriters, page 129

42. Please disclose the amount of fees and expenses to be paid to the underwriters.

1. Organization and Summary of Significant Accounting Policies, page F-8

Revenue Recognition, page F-13

43. For your collaboration agreement with P&G, please provide us with a description of all your rights and obligations, the performance period, all deliverables, and the contractual cash flows as stipulated within the agreement. Please identify each unit of accounting pursuant to EITF 00-21, the revenue recognition method you employ for each unit, and the basis for using each revenue recognition method. Please tell us if you have bundled several deliverables into one single unit of accounting and how you determined the revenue recognition model to be used for this single unit of accounting. Specifically tell us how you considered the following terms of the agreement in your EITF 00-21 analysis:

- The right to co-promote and/or co-develop ATI-7505
- Participation in the joint steering committee and any other committees
- Development services, such as formulation, development and manufacturing of drug substance and products, as well as other activities related to licensed technology

In addition, please specifically address the revenue recognition method used for service revenues. Please clarify the circumstances when service revenues are recognized as costs are incurred as opposed to when services are performed. As it appears as though the first method uses an input measure (cost), please clarify for us why such a measure is appropriate given that output measures are typically more reliable for determining progress. In your explanation, describe the relationship between costs incurred and the performance of services.

9. Convertible Preferred Stock, page F-28

44. You indicate that you classify your convertible preferred stock outside of equity in accordance with EITF D-98. You also indicate that you do not accrete this stock to its redemption value since it is uncertain as to whether or when a liquidation event will occur. Please address the following comments:
    a. Please revise your disclosure to clearly indicate when and how this preferred stock is redeemable.
    b. If your preferred stock is redeemable only upon a liquidation event, please explain to us how your classification outside of equity is appropriate in light of the guidance in paragraph 5 of EITF D-98.
    c. Although a redemption event may be uncertain, please explain to us how the redemption event is not probable and revise your disclosure accordingly as required by paragraph 15 of EITF D-98.

10. Stockholders' Equity (Deficit), page F-31

45. Upon completion of the pricing of this offering we may have comments on your accounting for stock compensation and related disclosure. Provide quantitative and qualitative disclosures explaining the difference between the expected offering price and the fair value of your recent stock sales.

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As appropriate, please amend your filing in response to these comments. You may wish to provide us with marked copies of the amendment to expedite our review. Please furnish a cover letter with your amendment that keys your responses to our comments and provides any requested supplemental information. Detailed cover letters greatly facilitate our review. Please understand that we may have additional comments after reviewing your amendment and responses to our comments.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filings reviewed by the staff to be certain that they have provided all information investors require for an informed decision. Since the company and its management are in possession of all facts relating to a company's disclosure, they are responsible for the accuracy and adequacy of the disclosures they have made.

Notwithstanding our comments, in the event the company requests acceleration of the effective date of the pending registration statement, it should furnish a letter, at the time of such request, acknowledging that:

- should the Commission or the staff, acting pursuant to delegated authority, declare the filing effective, it does not foreclose the Commission from taking any action with respect to the filing;

- the action of the Commission or the staff, acting pursuant to delegated authority, in declaring the filing effective, does not relieve the company from its full responsibility for the adequacy and accuracy of the disclosure in the filing; and

- the company may not assert this action as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

In addition, please be advised that the Division of Enforcement has access to all information you provide to the staff of the Division of Corporation Finance in connection with our review of your filing or in response to our comments on your filing.

We will consider a written request for acceleration of the effective date of the registration statement as a confirmation of the fact that those requesting acceleration are aware of their respective responsibilities under the Securities Act of 1933 and the Securities Exchange Act of 1934 as they relate to the proposed public offering of the securities specified in the above registration statement. We will act on the request and, pursuant to delegated authority, grant acceleration of the effective date.

We direct your attention to Rules 460 and 461 regarding requesting acceleration of a registration statement. Please allow adequate time after the filing of any amendment for further review before submitting a request for acceleration. Please provide this request at least two

business days in advance of the requested effective date.

You may contact Vanessa Robertson at (202) 551-3649 or Mark Brunhofer at (202) 551-3638 if you have questions regarding comments on the financial statements and related matters. Please contact Sonia Barros at (202) 551-3655 or Suzanne Hayes at (202) 551-3675 with any other questions.

Sincerely,

Jeffrey P. Riedler
Assistant Director

cc: James F. Fulton, Jr., Esq.
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3000 El Camino Real
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