UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, D.C. 20549

DIVISION OF
CORPORATION FINANCE

Mail Stop 4546

June 30, 2017

J. Rodney Varner
Chief Executive Officer
Genprex, Inc.
100 Congress Avenue, Suite 2000
Austin, TX 78701

Re: Genprex, Inc.
Draft Registration Statement on Form S-1
Submitted June 5, 2017
CIK No. 0001595248

Dear Mr. Varner:

We have reviewed your draft registration statement and have the following comments. In some of our comments, we may ask you to provide us with information so we may better understand your disclosure.

Please respond to this letter by providing the requested information and either submitting an amended draft registration statement or publicly filing your registration statement on EDGAR. If you do not believe our comments apply to your facts and circumstances or do not believe an amendment is appropriate, please tell us why in your response.

After reviewing the information you provide in response to these comments and your amended draft registration statement or filed registration statement, we may have additional comments.

Prospectus Summary
Overview, page 1

1. Please clarify the meaning of any significant scientific or technical terms the first time they are used in order to ensure that lay readers will understand the disclosure. For example, please briefly explain what you mean by "pan-kinase inhibitor," "tyrosine kinase inhibitor," "checkpoint inhibitor," "angiogenesis," "PI3K/AKT pathway," and "Ras/MAPK pathway."

2. We refer to your statement in the first paragraph of this section and elsewhere in your prospectus that preclinical and clinical data indicate that your "product candidates are synergistic with other cancer drugs" including drugs marketed by large pharmaceutical companies such as Merck & Co., Inc. and Bristol-Myers Squibb Company. However

your preclinical and clinical trial disclosure does not appear to discuss a synergistic effect with the specific drugs listed (e.g., nivolumab, pembrolizumab, atezolizumab, ipilimumab, or MK2206). Please revise your disclosure to clearly state whether the trials used the specific drugs listed or drugs that you perceive as equivalent, and if the latter, please explain how the drugs are equivalent. Please also clarify whether any of the companies listed were involved in the trials, and discuss the details of relevant trials, including the number of patients in such trials and the results that demonstrated a synergistic effect. In addition, if true, please disclose that the clinical data is only based on results from nine patients in your ongoing Phase I/II trial evaluating Oncoprex with erlotinib in NSCLC, and the rest are based on preclinical trials.

3. Please disclose the primary and secondary endpoints of each portion of your combined Phase I/II trial, and whether such endpoints for the Phase I portion were met.

4. We refer to your discussion of your Phase I/II trial and the comparison in the first paragraph on page 3 to a trial conducted by Boehringer Ingelheim. Please explain the term "median response duration." Please also balance your discussion of the other trial here, and elsewhere as appropriate, by disclosing the number of patients who participated in that trial as compared to your ongoing trial and, if true, that the other trial's endpoint was different.

5. We note your statement in the fourth paragraph on page 3 that the Phase I trials demonstrated a "favorable" safety profile of Oncoprex. While we will not object to a statement that your drug candidate was well tolerated, a safety determination is solely within the FDA's authority. Please remove the statement that the trial results demonstrated a favorable safety profile. Please make similar revisions to the statement on page 62 that your trials indicate that Oncoprex can be administered safely and your statement on page 69 that Oncoprex is safe.

Our Pipeline, page 3

6. Please reduce the length of the arrow shown in the first row since we note your statement on page 5 that the Phase II portion of your Phase I/II trial is at an early stage with a limited number of patients enrolled. Please also include a Phase III column in your pipeline table.

7. Please revise your product pipeline table here and in the Business section to remove programs that are currently listed in the preclinical phase (i.e., Oncoprex to treat various solid tumors, Oncoprex + Immunotherapies and additional 3p21.3 candidates), as it is premature to include them since it does not appear that you have started such programs and they are only contemplated at this time. We further note your disclosure on page 13 that you are actively pursuing development of only one product candidate for non-small cell lung cancer.

Risks Relating to Our Business, page 5

8. Please expand your discussion in the fourth bullet to explain that prior to the combined trial, Oncoprex has previously been tested in only one prior Phase I trial involving 31 patients and which tested Oncoprex as a monotherapy.

9. Please add a bullet to discuss the continued concentration of ownership by management after the offering.

Implications of Being an Emerging Growth Company, page 6

10. Please supplementally provide us with copies of all written communications, as defined in Rule 405 under the Securities Act, that you, or anyone authorized to do so on your behalf, present to potential investors in reliance on Section 5(d) of the Securities Act, whether or not they retain copies of the communications.

Risk Factors

The intellectual property rights we have licensed . . . , page 29

11. We note that there is a risk that the intellectual property rights you licensed from MD Anderson may be non-exclusive or void if a funding agreement related to the licensed technology between MD Anderson and the US government exists. Please tell us whether you are aware of such a funding agreement or whether you have spoken to MD Anderson about the existence of an agreement. To the extent you are aware of such an agreement, please revise your risk factor accordingly.

Certain provisions in our organizational documents. . ., page 41

12. We refer to your last bullet of this risk factor. Please expand your discussion of the risks of your exclusive forum provision to include a discussion that such a provision may limit a shareholder's ability to bring a claim in a judicial forum that it finds favorable for such disputes and may discourage lawsuits with respect to such claims.

Use of Proceeds, page 44

13. Please clarify what is included by the line item "research and development costs" and whether it relates to either of the trials currently listed in the Use of Proceeds section. Please also consider adding disclosure that assumes you raise an amount in between the minimum and maximum offering amounts.

14. Regarding your statement in the third paragraph of this section that you estimate you will require at least the specified amount of additional financing to "complete the trials," please clarify the amount needed to complete the trial for Oncoprex combined with

immunotherapy if you only receive the minimum and if you receive the maximum amount in the offering. Please also tell us whether you will be able to complete the Phase II trial for the Oncoprex and erlotinib trial if you only receive the minimum amount of the offering.

Business
Overview, page 54

15. Please revise the illustration on page 55 so that it more clearly demonstrates the multimodal mechanism of action of Oncoprex.

Preclinical and Clinical Development, Rationale and Strategy

Phase I Monotherapy Clinical Trial, page 64

16. Please disclose how "disease control" was defined in the Phase 1 Monotherapy trial.

17. Please disclose whether there were any serious adverse effects of the trial.

18. In your discussion of the results of the Phase I monotherapy trial, please disclose whether the results were statistically significant, provide an explanation of the term and discuss how statistical significance relates to the FDA's evidentiary standards of efficacy.

19. Please enlarge the graphs on pages 66 and 75 and figures D, F, G, and H on page 76 to be legible.

Phase I/II Combination Clinical Trial. . ., page 70

20. We note your statement in the second paragraph on page 72 that you are seeking FDA guidance regarding expanded enrollment in the trial with a view toward seeking accelerated approval. Please disclose here the number of patients contemplated by the current trial protocol, the number of patients currently participating in the Phase II trial, and how long you expect the trial to take under the current protocol.

Preclinical Studies of TUSC2 in the Immune Response to Cancer, page 72

21. Please describe what the numbers on the vertical axis in Figure 7 on page 73 represent.

22. Please expand your narrative disclosure to discuss what graphs A, B, and H on page 76 represent.

Intellectual Property, page 77

23. Please expand your disclosure regarding the patents licensed from MD Anderson and UTSWMC. For all material patents, including patents covering use of the TUSC2 gene for treatment of cancer, please disclose the type of patent protection, the jurisdiction, and the patent expiration dates.

24. We note your disclosure that you hold a non-exclusive license from NIH to 15 patents that will expire in August 2017. Please disclose the types of patents these represent, how they relate to your platform, and whether you expect the expiration of these patents to have a material effect on your business.

Licenses and Research Collaborations, page 77

25. Please disclose the term and termination provisions of the amended MD Anderson license agreement, Clinical Study Agreement and the collaboration agreements with IRI. Please also disclose all upfront fees paid by you under these agreements.

26. Please disclose the term, termination provisions and any material payment provisions of the P53 license agreement.

27. Please explain the significance of the Sponsored Research Agreement with MD Anderson dated September 14, 2010.

Management's Discussion and Analysis of Financial Condition and Results of Operations
Critical Accounting Policies and Significant Judgments and Estimates, page 49

28. Once you have an estimated offering price range, please explain to us the reasons for any differences between recent valuations of your common stock leading up to the IPO and the midpoint of the estimated offering price range.

Management
Executive Officers, page 92

29. Please clarify the biographical information of your executive officers so that it is clear whether they are currently working full time for you. If your executive officers are working for you only on a part-time basis, please add a risk factor disclosing it.

Security Ownership of Certain Beneficial Owners and Management, page 112

30. Please add a footnote to explain that Domecq Sebastian, LLC is affiliated with your former director. Please also identify the natural person(s) who currently have voting and investment control of the shares held by Domecq Sebastian, LLC and Texas Treasury Safekeeping Trust Company.

Statements of Operations, page F-4

31. Please explain to us why your presentation of net loss per share does not conform to the requirements of ASC 260. Explain why you include preferred shares in the computation and why you don't provide basic net loss per share. Revise your presentation accordingly.

Notes to Financial Statements
Note 2-Summary of Significant Accounting Policies
Intellectual Property, page F-9

32. Please explain the nature of costs capitalized as intellectual property and those business activities reflected in "costs incurred for patent prosecution," as well as your basis for capitalizing these costs. Refer us to the technical guidance upon which you relied. Revise your disclosure accordingly.

Accounting for Stock-Based Compensation, page F-9

33. You state that stock-based compensation is recognized over the periods in which the related services are rendered. Please explain your consideration of related vesting periods in determining your accounting treatment. Refer us to the technical guidance upon which you relied. Revise your disclosure accordingly.

Note-4 Investment Unit, page F-10

34. Please explain to us your basis for determining the value of the $4.5 million promissory note to be zero at December 31, 2015 and 2016 and March 31, 2017, particularly your evaluation of the terms governing the contingent repayment obligation. Also, refer us to the legal documents supporting TETF's suspension of its default provision enforcement and its statement that your failure to meet the Texas residency requirement would not result in an event of default. Also, provide your analysis of the likelihood that its enforcement of these provisions will not be reinstated. Refer us to the technical guidance upon which you have relied. Revise the disclosure as necessary. Clarify in the disclosure if the warrant was exercised for 80% of the per share transaction value in the qualifying financing transaction or if the warrant was exercised for $0.001 per share.

Note 5-Equity, page F-11

35. You appear to have issued common stock that is voting and common stock that is non-voting, while on page 114 you state that "our common stock is entitled to one vote for each share held." Please explain this apparent inconsistency and provide a description of all rights held by each class of common stock and the amounts that were outstanding for each period presented. Revise your disclosure accordingly.

Note 7-Commitment and Contingencies, page F-15

36. Please expand your disclosure of the IRI commitment to include relevant information, such as the terms governing your royalty obligation as described on page 28.

37. Please tell us the terms governing your payment obligation to the National Institutes of Health of $191,393 and where this obligation was classified on your balance sheets at December 31, 2016 and March 31, 2017. Revise your disclosure accordingly.

Part II
Item 17. Undertakings

38. Please also include the undertakings set forth in Item 512(a)(2) and (3) of Regulation S-K.

You may contact Frank Wyman at 202-551-3660 or Lisa Vanjoske at 202-551-3614 if you have questions regarding comments on the financial statements and related matters. Please contact Dorrie Yale at 202-551-8776 or Erin Jaskot, Special Counsel, at 202-551-3442 with any other questions.

Sincerely,

/s/ Erin K. Jaskot, *for*

Suzanne Hayes
Assistant Director
Office of Healthcare and Insurance

cc: Christopher Ozburn — Streusand, Landon & Ozburn, LLP