

March 9, 2018

Emily M. Leproust, Ph.D.
President and Chief Executive Officer
Twist Bioscience Corporation
455 Mission Bay Boulevard South, Suite 545
San Francisco, CA 94158

Re: Twist Bioscience Corporation
Draft Registration Statement on Form S-1
Submitted February 8, 2018
CIK No. 0001581280

Dear Dr. Leproust:

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.

Overview, page 1

1. We note the disclosure regarding customers in the last paragraph. Please expand to disclose the amount of revenue attributable to the nine of the top 20 pharmaceutical companies, four of the largest agricultural biotechnology companies and the "innovative customers" referenced on page 2.

2. We note the disclosure on page 106 that your products are marketed and labeled as for "Research Use Only" and how this label limits their use. Please disclose this limitation here and the impact on how your products may be marketed and sold. Also revise to clarify how this limitation is reflected in the market data you present in this submission, such as the \$1.8 billion synthetic DNA market referenced on page 2 and the \$4.0 billion synthetic biology products market referenced on page 1.

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Implications of the Being an Emerging Growth Company, page 10

3. 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 communication.

Our revenue, results of operations, cash flows and reputation . . . , page 27

4. We note the disclosure regarding the acquisition of a competing DNA synthesis manufacturer by your largest customer and the possibility that it may reduce purchases from you. Please revise to clarify how this relates to your largest customer's obligations under the long-term contract mentioned on page 81. For example, can your

customer
terminate the contract with no penalty? Also, if your largest customer
has informed you
it will reduce or has actually reduced purchases from you or started
manufacturing
synthetic DNA internally, please revise to disclose that information.

Use of proceeds, page 55

5. Please quantify the amounts you intend to devote to each use referenced
in the third
paragraph. Please also revise to clarify the uses referenced in (1), (3)
and (4) and what
the amounts you intend to devote to that use will accomplish For
example, what
improvements and updates do you intend to make? Into what geographies do
you intend
to expand? What do you mean by the disclosure regarding "expand into new
business
verticals?" Will you require additional funds to achieve the desired
goals?

Dilution, page 59

6. Please expand the table on page 60 to disclose how the numbers and
percentages would
change assuming the exercise of all outstanding options and warrants.

Value of orders received, page 66

7. We note the disclosure that the value of orders received has increased
by seven times
over the period you mention. Please revise to clarify the amount of
sequential growth for
each quarter during that period.

8. Please revise to disclose the value of orders received from Ginkgo
Bioworks.

Number of customers, page 66

9. Please clarify what you mean by the terms "separate person or legal
entity" and "separate
legal entity," as disclosed here and on page 67, as those terms relate
to your customers.

For example, would purchases by two subsidiaries of the same parent
company qualify as

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purchases by two customers? If so, please revise to clarify how the data
you present
would change if such purchases were considered to be made by only one
customer.

Results of operations, page 69

10. Please revise to clarify and quantify the effect of changes in price,
volume and new
products on the results you disclose, and the reasons underlying those
changes, and how
the 2017 agreement with Ginkgo Bioworks impacted your results. Please
also revise to
quantify the changes in revenues of each of the products to which you
refer. In this
regard, please revise to disclose the information required by Regulation
S-K Item
101(c)(1)(i).

Research and development expenses, page 70

11. We note the quantitative disclosure regarding changes to the components
of research and
development expenses. Please revise to explain the reasons for those
changes. Please
also provide similar disclosure regarding the components of selling,
general and
administrative expenses.

12. Please revise to clarify your ability to access amounts available under the second and third advances of your loan and security agreement, including any material conditions you have to satisfy.

Critical accounting policies and estimates

Stock-based compensation, page 77

13. Please revise your filing to explain in more detail the methodologies and material assumptions that your board of directors utilized in determining the fair value of your common stock underlying your equity instruments granted during the periods presented.

14. Additionally, provide us with the share price of your common stock determined by your board of director's at the date of each option grant since January 1, 2017 and progressively bridge for us the fair value per share determinations used for each option grant to the estimated IPO price per share. We will delay our assessment of your response pending inclusion of the estimated IPO price in the filing.

Overview, page 80

15. Please revise to clarify each party's obligations under Ginkgo Bioworks' 2017 agreement with you. For example, clarify how the amount of base pairs is allocated over each year
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of the three-year period and the purchase price. Also clarify any material termination rights held by each party.

Suppliers, page 101

16. Please revise to clarify the nature of your arrangements with the suppliers of the two critical components mentioned here. For example, do you obtain materials on a purchase order basis at a fixed price? Are you guaranteed a minimum amount each year? What is the duration of each agreement? Also, given your disclosure on page 25 regarding the material risks related to these agreements, please file these agreements as exhibits.

17. Please clarify what you mean by "substantial stockpile," as disclosed on page 25. Also revise to clarify the impact on you if you had to rely on alternative suppliers. For example, describe the duration and extent to which your manufacturing process would be interrupted, given your disclosure that such process was designed based on the materials provided by these suppliers.

Legal proceedings, page 104

18. Please revise to clarify the factual basis alleged to underlie the proceeding referenced here and the relief sought.

Principal stockholders, page 137

19. Please identify the natural persons who have or share voting and/or dispositive powers over the shares held by Tao Invest and Paladin Capital Group.

Directed shares, page 155

20. From your disclosure here, it appears that shares purchased by your directors and officers in the directed share program will be subject to a lock-up restriction, but shares purchased by "certain employees and other parties related to [you]" will not be subject to that restriction. If that is correct, please revise for clarity. Ensure your revisions are consistent with the disclosure on page 152 that "all of our stockholders" have entered into lock-up agreements.

Note 2. Summary of significant accounting policies

Accounts Receivable, page F-10

21. Please revise your filing to disclose the allowance for doubtful accounts for each reporting period presented as required by ASC 310-10-50-4.

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Revenue Recognition, page F-12

22. We note disclosure of the combination of technology related to the manufacturing of synthetic DNA with proprietary software to create an integrated platform. Please describe the promises to transfer goods or services in your customer contracts and how you considered those promises in determining your performance obligations. Include how you evaluate whether the technology and software represent separate promises.

23. On page 66, you disclose the value of orders received. Please also disclose the aggregate amount of transaction price allocated to unsatisfied purchase orders. Refer to ASC 606-10-50-13.

24. We note from page F-14 that you receive payments from DARPA pursuant to a research and development agreement. Please tell us how you determined that the agreement should not be included within the scope of ASC 606.

Note 17. Geographic Information, page F-38

25. We note your disclosure on page 91 that you offer four different products comprised of synthetic genes, oligo pools, next generation sequencing tools and DNA libraries. Please tell us how you considered the product line disclosure required by ASC 280-10-50-40.

You may contact Tara Harkins at (202) 551-3639 or Kevin Kuhar, Accounting Branch Chief, at (202) 551-3662 if you have questions regarding comments on the financial statements and related matters. Please contact Geoff Kruczek at (202) 551-3641 or me at (202) 551-3528 with any other questions.

Sincerely,

/s/ Amanda Ravitz

Amanda Ravitz
Assistant Director
Office of

Electronics and Machinery

cc: John V. Bautista, Esq.
Christopher J. Austin, Esq.
Peter M. Lamb, Esq.