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

DIVISION OF
CORPORATION FINANCE

Mail Stop 4720

June 10, 2016

Dr. Rodger Novak
Chief Executive Officer
CRISPR Therapeutics, Inc.
200 Sidney St.
Cambridge, MA 02139

Re: CRISPR Therapeutics AG
Draft Registration Statement on Form S-1
Submitted May 13, 2016
CIK No. 0001674416

Dear Dr. Novak:

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 "gene editing" at its first use.

2. We note the reference to your "differentiated product development strategy" in the third paragraph. Here or elsewhere, as appropriate, please expand your disclosure to clarify the basis of differentiation. 3

3. We note your statement that the collaboration partners mentioned here will provide over $400 million, inclusive of estimated spending on funded programs. Please revise to

clarify the portion of this amount that is subject to certain conditions or milestone events, and the portion that has already been received. To the extent you will not receive these funds directly, indicate the entity to which the funds will be paid and your level of ownership in the entity.

Our Strategy, page 1

4. Please clarify the basis for your statement that you have a "leading position" in the field of gene editing.

Some Of Our In-licensed Patent Applications Are Subject To Priority Disputes …., page 40

5. Please revise this section or elsewhere in the registration statement, as applicable, to discuss responsibility for costs associated with in-licensed patents, including those related to proceedings before the USPTO or enforcement in courts of applicable jurisdiction.

Market and Industry Data, page 62

6. Your statement that third party sources do not guaranty the accuracy or completeness of the industry, market and competitive position data may be interpreted as an implied disclaimer. Please revise to clarify that you are liable for this information disclosed in your registration statement.

Critical Accounting Policies and Significant Judgments and Estimates
Determination of Fair Value of Common Shares on Grant Dates, page 84

7. Once you have an estimated offering price or range, please explain to us how you determined the fair value of the common stock underlying your equity issuances and the reasons for any differences between the recent valuations of your common stock leading up to the IPO and the estimated offering price. This information will help facilitate our review of your accounting for equity issuances including stock compensation and beneficial conversion features.

Our Team, page 89

8. Please expand your disclosure to explain the role of your six-member scientific advisory board and clarify, here or in the appropriate section of your filing, how members of the board are compensated.

Business
Engineered Cell Therapies..., page 99

9. Please revise to clarify how the table on page 100 demonstrates the efficiency of CRISPR/Cas9 in multiplexed editing of human primary T-cells. For instance, what does

the line above each bar in the table represent? What does the term "allele knock-out" mean and what is its significance to the information provided in the table?

Further Unlocking the Potential of Our CRISPR/Cas9 Platform
Delivery, page 105

10. We note your statement that you have access to "leading expertise and technology" for lipid nanoparticle based delivery vehicles, or LNPs, through an advisory relationship with Dr. Daniel Anderson at Massachusetts Institute of Technology, and that you are currently testing a variety of LNP technologies for potential use in your therapeutics. Please clarify whether these technologies are subject to intellectual property rights and provide risk factor disclosure concerning your use of these technologies, if appropriate.

Intellectual Property, page 106
In-Licensed Intellectual Property, page 106

11. We note your statement that "In April 2014, we exclusively licensed certain of Dr. Emmanuelle Charpentier's rights to a family of patent applications relating to CRISPR/TRACR/Cas9 complexes and their use in targeting or cutting DNA." Please describe the type of patent protection represented by the application, such as composition of matter, use or process. Please provide similar information with respect to the Patent Assignment Agreement noted on page 107.

CRISPR-Owned Intellectual Property, page 106

12. Please expand your disclosure to clarify the "platform technology" to which the pending patent applications relate, as well as the nature of the protection represented by the application.

Competition, page 112

13. Please revise your discussion of competitive conditions by describing in greater detail the current landscape for patent protections in your industry. In this regard, we note that across several risk factors on pages 27 to 28 you address specific risks stemming from existing third-party patents and patent applications. In your discussion of this landscape, identify specific patents and patent applications, if material, as well as their holders/applicants.

14. Please revise this section to include a discussion of potential competition from CRISPR systems utilizing the Cpf1 protein.

Taxation, page 189

15. Your disclosure on page 189 concerning the "general" nature of the information inappropriately suggests that you are disclaiming responsibility for the disclosures. Please revise to remove this disclaimer.

Notes to the Consolidated Financial Statements
Note 4. Variable Interest Entities
TRACR Hematology Limited, page F-18

16. Please tell us your relationship to Fay Corp. and your accounting treatment within your financial statements including whether or not you consolidate Fay Corp. Reference the authoritative literature on which you relied.

Note 9. Significant Contracts
Collaboration Agreement with Vertex Pharmaceuticals, Incorporated, page F-22

17. Please refer to the seventh and eighth paragraphs on page F-24. Explain to us why your BESP considers how many options you expect Vertex to exercise. Reference the authoritative literature on which you relied.

18. Please refer to the last paragraph on page F-24. Provide us an analysis explaining why apparently the options to obtain an exclusive license for up to six Collaboration Targets and a co-exclusive license for hemoglobinopathy or beta-globin targets were not substantive or were priced at a significant and incremental discount in order to justify your accounting for these options as an element of the arrangement for which arrangement consideration has been allocated. Reference the authoritative literature on which you relied.

19. Please refer to the second full paragraph on page F-25. Disclose the amount of the first milestone of the agreement that relates to the exercise of an exclusive option by Vertex to obtain an Exclusive License to commercialize CRISPR/Cas9 technology.

20. Please refer to the third full paragraph on page F-25. Disclose the amount of the remaining milestones, which you indicate are not substantive, by category (i.e. development, commercialization) and include the number of milestones in each category and the events that trigger payments to you. Also reconcile the aggregate of these milestones to the two milestones in the second full paragraph on F-25 and to the $420 million of milestones discussed in the fourth full paragraph on F-23.

General

21. Please confirm that the images included in your draft registration statement are all of the graphic, visual or photographic information you will be including. If you intend to use

any additional images, please provide us proofs of such materials. Please note that we may have comments regarding this material.

22. 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.

You may contact Christine Torney at (202) 551-3652 or James Rosenberg at (202) 551-3679 if you have questions regarding comments on the financial statements and related matters. Please contact Michael Gershon at (202) 551-6598 or Mary Beth Breslin at (202) 551-3625 with any other questions.

Sincerely,

/s/ Mary Beth Breslin for

Suzanne Hayes
Assistant Director
Office of Healthcare and Insurance

cc: Robert E. Puopolo, Esq.