



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

DIVISION OF
CORPORATION FINANCE

November 29, 2013

Jonathan Lim, M.D.
President and Chief Executive Officer
Ignyta, Inc.
11095 Flintkote Avenue, Suite D
San Diego, California 92121

Re: Ignyta, Inc.
Current Report on Form 8-K
Filed November 1, 2013
File No. 333-183886

Dear Dr. Lim:

We have reviewed your filing, as amended on November 14, 2013, 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 within ten business days by amending your filing, by providing the requested information, or by advising us when you will provide the requested response, as applicable. 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 any amendment to your filing and the information you provide in response to these comments, we may have additional comments.

General

1. Please be advised that we are processing your request for confidential treatment of information redacted from Exhibit 10.4 to your Form 8-K and will provide comments to your application in a separate letter.

Business

Corporate Overview, page 5

2. Please note here that you are a "voluntary filer" and are not required to file reports under Sections 13(a) or 15(d) of the Exchange Act.
3. Please briefly describe the various exemptions that are available to you as an "emerging growth company" under the Jumpstart Our Business Startups Act, such as the exemption from Section 404(b) of the Sarbanes-Oxley Act of 2002. In addition, consider describing

the extent to which any of these exemptions are available to you as a Smaller Reporting Company.

Business Overview, page 5

4. Please also include in this discussion that you have not yet generated any revenue, you net losses for fiscal year 2012 and the first three and nine months of fiscal 2013 and your accumulated deficit to date.
5. Please give the meaning and significance of the following terms in plain language that may be understood by a person not acquainted with this industry or scientific field:
 - biomarker;
 - epigenetic and epigenetic analysis;
 - methylation and methylation signature;
 - differential DNA methylation;
 - de-identified patient phenotypic information; and
 - kinase

Pipeline, page 9

Spark -1 through Spark-6, page 15

6. Please describe the six molecular targets you have identified.

Collaborations and License Agreements, page 15

7. Please disclose whether you have made the up-front payment to NMS of \$7.0 million, which was required on or before November 16, 2013.
8. With respect to your royalty obligation to NMS, please clarify the meaning of “low double digit percentage” by providing a more narrow range for the royalties you will be obligated to pay (within ten percent).
9. Please disclose when your royalty and sublicense obligations to NMS will expire and provide the circumstances under which Ignyta may terminate the agreement.

Competition, page 16

10. Please indicate the company or companies that are developing the compound targeting TRkA, TrkB or TrkC similar to RXDX-102

Intellectual Property, page 18

11. Please indicate the type of patent protection (e.g., composition of matter, method of use,

etc.) covered by the two issued U.S. patents and one U.S. patent application related to RXDX-101 and RXDX-102 and disclose the jurisdiction, type of patent coverage and expiration dates for any other patents and patent applications maintained in foreign jurisdictions for intellectual property related to RXDX-101 and RXDX-102.

Risk Factors, page 29

“We may be subject to claims by third parties asserting that our employees or we have misappropriated their intellectual property . . .,” page 32

12. If you are aware of any such claims that have been made or that are pending against you or any of your employees, please amend this risk factor to include all relevant information about them. If you are not aware of any such claims, please include a statement in this disclosure to that effect.

“We will incur increased costs with, and our management will need to devote substantial time and effort to, compliance with public company reporting and other requirements,” page 51

13. Please include an estimate of the amount you will need to expend annually to comply with public company reporting and related requirements.

We urge all persons who are responsible for the accuracy and adequacy of the disclosure in the filing to be certain that the filing includes the information the Securities Exchange Act of 1934 and all applicable Exchange Act rules require. 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.

In responding to our comments, please provide a written statement from the company acknowledging that:

- the company is responsible for the adequacy and accuracy of the disclosure in the filing;
- staff comments or changes to disclosure in response to staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the company may not assert staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

Jonathan Lim, M.D.
Ignyta, Inc.
November 29, 2013
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You may contact Scot Foley at (202) 551-3383, Daniel Greenspan at (202) 551-3623 or me at (202) 551-3715 with any questions.

Sincerely,

/s/ Daniel Greenspan for

Jeffrey P. Riedler
Assistant Director

cc: Via E-mail
Jay de Groot, Esq.
Lisa Abbott, Esq.
Morrison & Foerster LLP
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Suite 100
San Diego, CA 92130-2040