

October 1, 2009

VIA FACSIMILE AND EDGAR

Mr. Jeffrey P. Riedler
Securities and Exchange Commission
Division of Corporation Finance (Mail Stop 4720)
100 F Street N.E.
Washington, D.C. 20549

**Re: Nile Therapeutics, Inc. (the "Company")
Form 10-K and 10-K/A for the Year Ended December 31, 2008
Filed March 12, 2009 and April 23, 2009
File No. 001-34058**

Dear Mr. Riedler:

As counsel for the Company and on its behalf, this letter is being submitted in response to the letter dated September 17, 2009 from the Securities and Exchange Commission (the "Commission") in which the staff of the Commission (the "Staff") commented on the Form 10-K and 10-K/A.

For the Staff's convenience, the Staff's comments have been stated below in their entirety, with the Company's responses to a particular comment set out immediately underneath it. The headings and numbered paragraphs in this letter correspond to the headings and numbered paragraphs in the comment letter from the Staff. Capitalized terms used but not defined in this letter are intended to have the meanings ascribed to such terms in the Form 10-K and 10-K/A.

Form 10-K

Item 1. Business

Our Product Candidates, page 4

License Agreements, page 6

1. For each of the Mayo License Agreement and the CU-NP Mayo License Agreement, please expand your disclosure to include the amount of aggregate potential milestone payments you may be required to make, the cash payments made to date, the amount of the annual maintenance fee, term and termination provisions and the percentage of net sales you must pay for licensed products. Please also file each of these agreements as an exhibit to your Form 10-K or provide us with an analysis supporting your determination that these agreements are not material to your business.

Attorneys & Advisors Fredrikson & Byron, P.A.
main 612.492.7000 200 South Sixth Street, Suite 4000
fax 612.492.7077 Minneapolis, Minnesota
www.fredlaw.com 55402-1425

MEMBER OF THE WORLD SERVICES GROUP
A Worldwide Network of Professional Service Providers

OFFICES
Minneapolis / Bismarck / Des Moines / London / Monterrey, Mexico / Shanghai

Although the Company inadvertently omitted the each of the Mayo License Agreement and the CU-NP Mayo License Agreement (together, the "License Agreements") from the exhibit list in Item 15 of its Form 10-K, each agreement had been previously filed. The Company filed the Mayo License Agreement as Exhibit 10.6 to its Current Report on Form 8-K filed with the Commission on September 21, 2007, and it filed the CU-NP Mayo License Agreement as Exhibit 10.1 to its Form 10-Q filed with the Commission on August 14, 2008. The Company undertakes to include the License Agreements as exhibits incorporated by reference in its future filings.

The Company acknowledges the Staff's request for expanded disclosure with respect to the terms of the License Agreements. The Company notes, however, that the Commission has previously issued orders granting the Company's requests for confidential treatment under Rule 24b-2 with respect to certain confidential terms of each License Agreement, including such terms as the annual maintenance fee, individual contingent milestone payment amounts and the percentage of net sales the Company must pay for licensed products. Nonetheless, for each License Agreement, the Company undertakes, to the extent consistent with the confidential treatment of the redacted terms, to expand its disclosure in future filings to address the Staff's comment. The Company believes that this expanded disclosure, together with the Company's ongoing disclosure regarding its research and development activities, will provide investors with all material information regarding the terms of the License Agreements, while at the same time protecting the Company from the competitive harm that would result from the disclosure of individual payment amounts. For example, the Company intends to disclose the aggregate expenses it will have incurred developing the technologies subject to the License Agreements in a given period, which will include (but not specify in amount) the payments it will have made to Mayo under the applicable agreement. In addition, the Company will disclose expected aggregate development expenses in a future period, which amounts will include payments expected to be made to Mayo under a License Agreement. In these cases, however, the Company intends to omit the specific amount of the payments made or expected to be made to Mayo. Such omissions taken together with the Company's other disclosures are sufficiently narrow and allows investors to still understand the fundamental terms, as well as the Company's overall capital requirements needed to develop its technologies.

Below is the Company's proposed expanded disclosure for use in future filings, with additions to the disclosure in the Form 10-K underlined and in bold.

License Agreements

CD-NP

On January 20, 2006, we entered into an exclusive, worldwide, royalty-bearing license agreement with Mayo, or the Mayo License Agreement, for the rights to issued patents, patent applications and know-how relating to CD-NP for all therapeutic uses. The intellectual property portfolio for CD-NP includes issued and pending United States, European, and Japanese patents relating to its composition of matter and method of use in treating heart failure and symptoms associated with heart failure. Patent applications have been filed in other major markets around the world. We ~~were also entitled had to~~ rights to improvements to CD-NP that arose out of the laboratory of Dr. John Burnett, the co-investor of CD-NP, until January 19, 2009. We intend to continue to expand our patent portfolio by filing to protect any additional patents covering expanded uses for this technology.

Under the terms of the Mayo License Agreement, we made an up-front cash payment to Mayo and reimbursed it for past patent expenses. We also issued ~~to Mayo~~ 1,379,419 shares of ~~Old Nile~~ our common stock to Mayo. Additionally, ~~Mayo will receive performance based~~ we agreed to make contingent cash payments up to an aggregate of \$31.9 million upon successful completion of specified clinical and regulatory milestones relating to CD-NP. This aggregate amount is subject to increase upon the receipt of regulatory approval for each additional indication of CD-NP as well as for additional compounds or analogues contained in the intellectual property. In July 2008, we made a milestone payment of \$400,000 to Mayo upon the dosing of the first patient in a Phase II trial. ~~We also have agreed to pay Mayo substantial milestone payments upon the receipt of regulatory approval for each additional indication of CD-NP as well as for additional compounds or analogues contained in the intellectual property.~~ Pursuant to the Mayo License Agreement, we must also pay Mayo an annual maintenance fee and a percentage of net sales of licensed products. Under the terms of the Mayo License Agreement, Dr. Burnett has agreed to serve as chairman of our Scientific Advisory Board. In addition, we will pay Mayo \$50,000 per year for the consulting services of Dr. Burnett while Dr. Burnett serves as chairperson of our Scientific Advisory Board. The Mayo License Agreement also contains other customary clauses and terms as are common in similar agreements in the industry.

In addition to the potential milestone payments discussed above, the Mayo License Agreement requires us to issue shares of common stock to Mayo for an equivalent dollar amount of grants received in excess of \$300,000, but not to exceed \$575,000. For the period from August 1, 2005 (inception) through December 31, 2008, we received \$482,235 in grant income for which we have issued to Mayo 63,478 shares (representing \$182,236) of common stock. Please see the risk factor under Item 1A, entitled "*If requirements under our license agreements are not met, we could suffer significant harm, including rights to our products*" for a further discussion of the risks related to this license agreement.

The Mayo License Agreement, unless earlier terminated, will continue in full force and effect until January 20, 2026. However, to the extent any patent covered by the license is issued with an expiration date beyond January 20, 2026, the term of the agreement will continue until such expiration date. Mayo may terminate the agreement earlier (i) for our material breach of the agreement that remains uncured after 90 days' written notice to us, (ii) our insolvency or bankruptcy, or (iii) if we challenge the validity or enforceability of any of the patents in any manner. We may terminate the agreement without cause upon 90 days' written notice.

CU-NP

Effective as of On June 13, 2008, we entered into an exclusive, worldwide, royalty-bearing license agreement, or the CU-NP Mayo License Agreement, with Mayo for the rights to intellectual property and to develop commercially CU-NP for all therapeutic indications. We also hold the rights to improvements to CU-NP that arise out of the laboratory of Drs. John Burnett and Candace Lee, the inventors of CU-NP, until June 12, 2011.

Under the terms of the CU-NP Mayo License Agreement, ~~we~~ ~~paid~~ ~~Mayo~~ we made an up-front cash payment. ~~Additionally, Mayo will receive performance based to Mayo and agreed to make future contingent~~ cash payments **up to an aggregate of \$24.25 million** upon successful completion achievement of clinical and regulatory milestones relating to CU-NP, including a milestone payment due in connection with the initiation of the first Phase II clinical trial of a product. ~~Additional milestone payments will be made upon the occurrence of certain other events.~~ **This aggregate amount of \$24.25 million is subject to increase upon the receipt of regulatory approval for each additional indication of CU-NP, as well as for additional compounds or analogues contained in the intellectual property.** Pursuant to the agreement, ~~we~~ must also pay Mayo an annual maintenance fee and a percentage of net sales of licensed products.

In addition to ~~these~~ cash payments ~~described above~~ **payable** with respect to the CU-NP Mayo License Agreement, ~~we~~ ~~has~~ ~~we~~ also agreed to issue ~~certain amounts and types of equity~~ **shares of our common stock and warrants** to Mayo. In June 2008, we issued 49,689 shares of common stock to Mayo having a fair market value as of June 13, 2008 equal to \$250,000. Additionally, Dr. Burnett has applied for funding through Mayo's Discovery-Translation Program. In the event Dr. Burnett is awarded funding through this program, and the funding is used for the development of the licensed product based on the patent applications, ~~we~~ ~~has~~ ~~we~~ agreed to grant to Mayo an equivalent dollar value in warrants to purchase ~~we's~~ **shares of our** common stock. The number of **shares purchasable under these** warrants will be calculated using the Black-Scholes option-pricing model and **the warrants** will include a cashless exercise provision with language to be negotiated in good faith between the parties.

The CU-NP Mayo License Agreement, unless earlier terminated, will continue in full force and effect until June 13, 2028. However, to the extent any patent covered by the license is issued with an expiration date beyond June 13, 2028, the term of the agreement will continue until such expiration date. Mayo may terminate the agreement earlier (i) for our material breach of the agreement that remains uncured after 90 days' written notice to us, (ii) our insolvency or bankruptcy, (iii) if we challenge the validity or enforceability of any of the patents in any manner, or (iv) or upon receipt of notice from the Company that we have terminated all development efforts under the agreement. We may terminate the agreement without cause upon 90 days' written notice.

Form 10-K/A

Item 10. Directors, Executive Officers and Corporate Governance, page 4
Audit Committee, page 12

2. Please include the information required by Item 407(d)(5) of Regulation S-K regarding the Audit Committee Financial Expert in your future filings. You are required to disclose whether your board of directors has determined that you have at least one audit committee financial expert serving on your audit committee. Identify the financial expert and state whether such person is independent, as defined by applicable listing standards. If you do not have an audit committee financial expert serving on your audit committee, please specifically state that you do not.

The Company acknowledges the disclosure required by Item 407(d)(5) of Regulation S-K and agrees and undertakes to include the required information in its future filings.

* * *

On behalf of the Company, it hereby acknowledges the following:

- The Company is responsible for the adequacy and accuracy of the disclosure in the filings;
 - Staff comments or changes to disclosure in response to Staff comments do not foreclose the Commission from taking any action with respect to the filings; 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.
-

Please contact the undersigned at (612) 492-7369 if you have any questions with respect to the responses contained in this letter.

Sincerely,

/s/ Christopher J. Melsha

Christopher J. Melsha

Attorney

Direct Dial: 612.492.7369

Email: cmelsha@fredlaw.com

cc: Ms. Nandini Acharya, Esq., Division of Corporation Finance
Mr. Daron Evans, Chief Financial Officer, Nile Therapeutics, Inc.
