

ANNUAL MEETING OF STOCKHOLDERS OF
NILE THERAPEUTICS, INC.

July 26, 2010

NOTICE OF INTERNET AVAILABILITY OF PROXY MATERIAL:
The proxy statement, proxy card, and Annual Report on Form 10-K
are available at http://www.nilethera.com/inv_sec.html

Please sign, date and mail
your proxy card in the
envelope provided as soon
as possible.

↓ Please detach along perforated line and mail in the envelope provided. ↓

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THE BOARD OF DIRECTORS RECOMMENDS A VOTE "FOR" THE ELECTION OF DIRECTORS, "FOR" PROPOSAL 2 AND "FOR" PROPOSAL 3.
PLEASE SIGN, DATE AND RETURN PROMPTLY IN THE ENCLOSED ENVELOPE. PLEASE MARK YOUR VOTE IN BLUE OR BLACK INK AS SHOWN HERE

1. Election of Directors:

- FOR ALL NOMINEES
- WITHHOLD AUTHORITY
FOR ALL NOMINEES
- FOR ALL EXCEPT
(See instructions below)

NOMINEES:

- Arie S. Beldegrun
 Pedro Granadillo
 Peter M. Kash
 Joshua A. Kazam
 Frank Litvack
 Paul A. Mieyal
 Gregory W. Schafer

2. Ratification and approval of an amendment to the Company's Amended and Restated 2005 Stock Option Plan to increase the number of shares of the Company's common stock issuable thereunder from 5,517,676 to 9,500,000. FOR AGAINST ABSTAIN
3. Ratification of appointment of Crowe Horwarth LLP as the independent registered public accounting firm of Nile Therapeutics, Inc. for the fiscal year ending December 31, 2010. FOR AGAINST ABSTAIN

INSTRUCTIONS: To withhold authority to vote for any individual nominee(s), mark "FOR ALL EXCEPT" and fill in the circle next to each nominee you wish to withhold, as shown here: ●

To change the address on your account, please check the box at right and indicate your new address in the address space above. Please note that changes to the registered name(s) on the account may not be submitted via this method.

Signature of Stockholder _____ Date: _____ Signature of Stockholder _____ Date: _____

Note: Please sign exactly as your name or names appear on this Proxy. When shares are held jointly, each holder should sign. When signing as executor, administrator, attorney, trustee or guardian, please give full title as such. If the signer is a corporation, please sign full corporate name by duly authorized officer, giving full title as such. If signer is a partnership, please sign in partnership name by authorized person.

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PROXY

NILE THERAPEUTICS, INC.

**4 West 4th Avenue, Suite 400
San Mateo, California 94402**

Annual Meeting of Stockholders - July 26, 2010

THIS PROXY IS SOLICITED ON BEHALF OF THE BOARD OF DIRECTORS

The undersigned hereby appoints each of Joshua Kazam and Daron Evans as proxy for the undersigned, with full power of substitution, to represent and to vote all the stock of the undersigned on the following matters as described in the Proxy Statement accompanying the Notice of Annual Meeting, receipt of which is hereby acknowledged, and according to the proxy holder's discretion, on all matters that may be properly presented for action at the Annual Meeting of Stockholders of Nile Therapeutics, Inc. to be held on Monday, July 26, 2010 and at any adjournment(s) or postponement(s) thereof. If properly executed, this proxy shall be voted in accordance with the instructions given. To the extent no directions are given on a proposal, the proxy holder will vote FOR the nominees listed on the reverse side of this proxy, FOR ratification and approval of the amendment to the Company's Amended and Restated 2005 Stock Option Plan and FOR ratification of the appointment of the independent registered public accounting firm and, in the discretion of the proxy holder, on other matters that may properly be presented at the Annual Meeting. The undersigned may revoke this proxy at any time prior to its exercise or may attend the Annual Meeting and vote in person.

(Continued and to be signed on the reverse side)

