

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

POST-EFFECTIVE AMENDMENT NO. 1  
TO  
FORM S-8

REGISTRATION STATEMENT  
under  
THE SECURITIES ACT OF 1933

**Adherex Technologies Inc.**

(Exact name of issuer as specified in its charter)

**Canada**  
(State or other jurisdiction of  
incorporation or organization)

**20-0442384**  
(I.R.S. Employer  
Identification Number)

**501 Eastowne Drive, Suite 140, Chapel Hill, North Carolina 27514**  
(Address of Principal Executive Offices) (Zip Code)

**ADHEREX TECHNOLOGIES INC. AMENDED AND RESTATED STOCK OPTION PLAN**  
(Full title of the plan)

**Rostislav Raykov**  
**Chief Executive Officer**  
**Adherex Technologies Inc.**  
**501 Eastowne Drive, Suite 140**  
**Chapel Hill, North Carolina 27514**  
(Name and address of agent for service)

**(919) 636-4175**  
(Telephone number, including area code, of agent for service)

Copies to:  
Donald R. Reynolds, Esq.  
Wyrick Robbins Yates & Ponton LLP  
4101 Lake Boone Trail, Suite 300  
Raleigh, North Carolina 27607  
(919) 781-4000

Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer or a smaller reporting company. See the definitions of "accelerated filer," "large accelerated filer" and "smaller reporting company" (as defined in Rule 12b-2 of the Act).

Large accelerated filer o  
Non-accelerated filer   
(Do not check if smaller  
reporting company)

Accelerated filer o  
Smaller reporting company o

**EXPLANATORY NOTE: DEREGISTRATION OF SECURITIES**

This Post-Effective Amendment No. 1 relates to the Registration Statement on Form S-8 (Registration No. 333-122334) filed by Adherex Technologies Inc. (the "Company") with the Securities and Exchange Commission on January 27, 2005 (the "Registration Statement") pursuant to which the Company registered an aggregate of 23,500,000 shares of its Common Stock, no par value, pursuant to its Amended and Restated Stock Option Plan.

Because the Company is no longer offering securities under the Registration Statement, it is filing this Post-Effective Amendment No. 1 to terminate the Registration Statement and to deregister, as of the date hereof, the securities that remain unsold under the Registration Statement.

**SIGNATURES**

Pursuant to the requirements of the Securities Act of 1933, the Registrant certifies that it has reasonable grounds to believe that it meets all of the requirements for filing on Form S-8 and has duly caused this Post-Effective Amendment No.1 to be signed on its behalf by the undersigned, thereunto duly authorized, in the City of Durham, State of North Carolina, on the 29th day of March 2010.

**ADHEREX TECHNOLOGIES INC.**

By: /s/ ROSTISLAV RAYKOV  
Rostislav Raykov,  
Chief Executive Officer

Pursuant to the requirements of the Securities Act of 1933, this Post-Effective Amendment No.1 has been signed below by the following persons in the capacities and on the date indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ ROSTISLAV RAYKOV</u> Rostislav Raykov	Chief Executive Officer (principal executive officer) and Director	March 29, 2010
<u>/s/ ROBERT ANDRADE</u> Robert Andrade	Chief Financial Officer (principal financial and accounting officer) and Director	March 29, 2010
<u>/s/ WILLIAM G. BREEN</u> William G. Breen	Director	March 29, 2010
<u>/s/ CLAUDIO F. BUSSANDRI</u> Claudio F. Bussandri	Director	March 29, 2010
<u>/s/ ROBERT W. BUTTS</u> Robert W. Butts	Director	March 29, 2010
<u>/s/ ARTHUR T. PORTER</u> Arthur T. Porter	Director	March 29, 2010

