UNITED STATES SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 or 15(d) of the Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): August 27, 2012

TARGACEPT, INC.

(Exact name of registrant as specified in its charter)

Delaware (State or other jurisdiction of incorporation) 000-51173 (Commission File Number) 56-2020050 (IRS Employer Identification No.)

200 East First Street, Suite 300 Winston-Salem, North Carolina (Address of principal executive offices)

27101 (Zip Code)

(336) 480–2100

Registrant's telephone number, including area code

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

□ Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)

Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)

Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))

Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Item 1.01. Entry into a Material Definitive Agreement.

On August 27, 2012, Targacept, Inc. and Wake Forest University Health Sciences (WFUHS) amended Targacept's lease for its Winston-Salem, North Carolina facilities. The amendment, which is effective as of July 31, 2012, extends the lease term until the end of 2012, reduces the space leased by Targacept from approximately 79,000 square feet to 48,318 square feet and reduces the monthly rent payable by Targacept by approximately 37% to \$131,141. Targacept and WFUHS remain in discussions regarding terms for a potential renewal period that, if agreed upon, would begin January 1, 2013.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

/s/ Alan A. Musso

Alan A. Musso Senior Vice President, Finance and Administration, Chief Financial Officer and Treasurer

Date: August 31, 2012

TARGACEPT, INC.