Table of Contents

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

FORM 10-Q

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended March 31, 2013

or

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from _____ to _____

Commission File Number: 000-51173

Targacept, Inc.
(Exact Name of Registrant as Specified in its Charter)

Delaware	**56-2020050**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
100 North Main Street, Suite 1510 Winston-Salem, North Carolina	**27101**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (336) 480-2100

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). Yes ☒ No ☐

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 "large accelerated filer," "accelerated filer" and "smaller reporting company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer	☐	Accelerated filer	☒
Non-accelerated filer	☐ (do not check if a smaller reporting company)	Smaller reporting company	☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). ☐ Yes ☒ No

As of April 30, 2013, the registrant had 33,618,675 shares of common stock, $0.001 par value per share, outstanding.

Table of Contents

TARGACEPT, INC.

FORM 10-Q
TABLE OF CONTENTS

PART I. Financial Information

Cautionary Note Regarding Forward-Looking Statements

This quarterly report includes forward-looking statements within the meaning of Section 27A of the Securities Act of 1933, as amended, which we refer to as the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, which we refer to as the Exchange Act. For this purpose, any statement contained in this quarterly report, other than statements of historical fact, regarding, among other things:

- the progress, scope or duration of the development of TC-5619, TC-5214, TC-1734, AZD1446 (TC-6683), TC-6987, TC-6499 or any of our other product candidates or programs, such as the target indication(s) for development, the size, design, population, location, conduct, objective, duration or endpoints of any clinical trial, or the timing for initiation or completion of or availability of results from any clinical trial, for submission or approval of any regulatory filing, for interactions with regulatory authorities, or, where applicable, for a decision by AstraZeneca as to whether to conduct particular development;
- the benefits that may be derived from any of our product candidates or the commercial opportunity in any target indication;
- the timing or amount of any payments that AstraZeneca may make to us;
- our operations, financial position, revenues, costs or expenses; or
- our strategies, prospects, plans, expectations or objectives

is a forward-looking statement made under the provisions of The Private Securities Litigation Reform Act of 1995. In some cases, words such as “may,” “will,” “could,” “would,” “should,” “expect,” “intend,” “plan,” “anticipate,” “believe,” “estimate,” “predict,” “project,” “potential,” “continue,” “ongoing,” “scheduled” or other comparable words identify forward-looking statements. Actual results, performance or experience may differ materially from those expressed or implied by any forward-looking statement as a result of various important factors, including our critical accounting policies and risks and uncertainties relating, among other things, to:

- whether favorable findings from our completed clinical trial of TC-5619 in patients with schizophrenia will be replicated in our ongoing clinical trial of TC-5619 or potential future clinical trials of TC-5619;
- whether the designs and endpoints of our ongoing clinical trial of TC-5619 and potential future clinical trials of TC-5619 will be deemed by applicable regulatory authorities to be sufficient to support approval of TC-5619 to treat negative symptoms of schizophrenia or cognitive dysfunction in schizophrenia;
- whether findings from nonclinical studies and assessments of TC-5214 and clinical trials of TC-5214 in a different indication will be predictive of a positive outcome in our planned Phase 2b clinical trial of TC-5214 in overactive bladder;

- the conduct and results of clinical trials and non-clinical studies and assessments of TC-5619, TC-5214, TC-1734, AZD1446, TC-6987, TC-6499 or any of our other product candidates, including the performance of third parties engaged to execute them, delays resulting from any changes to the applicable protocols or difficulties or delays in subject enrollment or data analysis;
- whether the executive turnover and two workforce reductions that we experienced in 2012 will have an adverse impact on the development of any of our product candidates or our business generally;
- whether TC-5214 will be eligible for treatment in the United States as a new chemical entity with a five-year statutory exclusivity period, either because we submit a new drug application for TC-5214 prior to October 1, 2017 or because the applicable statutory provision is re-authorized by the U.S. Congress;
- the control or significant influence that AstraZeneca has over any future development of AZD1446, including as to the timing, scope and design of any future clinical trials;
- our ability to establish additional strategic alliances, collaborations or licensing or other comparable arrangements on favorable terms;
- our ability to protect our intellectual property; and
- the timing and success of submission, acceptance and approval of regulatory filings.

Risks and uncertainties that we face are described in greater detail under the caption “Risk Factors” in Item 1A of Part I of our Annual Report on Form 10-K for the year ended December 31, 2012 and in other filings that we make with the Securities and Exchange Commission, or SEC. As a result of the risks and uncertainties to which our business is subject, the results or events indicated by any forward-looking statement may not occur. We caution you not to place undue reliance on any forward-looking statement.

In addition, any forward-looking statement in this quarterly report represents our views only as of the date of this quarterly report and should not be relied upon as representing our views as of any later date. We anticipate that subsequent events and developments may cause our views to change. Although we may elect to update these forward-looking statements publicly at some point in the future, we specifically disclaim any obligation to do so, except as required by applicable law. Our forward-looking statements do not reflect the potential impact of any future acquisitions, mergers, dispositions, joint ventures or investments we may make or any future strategic alliances, collaborations or licensing or other comparable arrangements that we may enter into.

Item 1. Financial Statements

TARGACEPT, INC.

BALANCE SHEETS
(in thousands, except share and par value amounts)
(unaudited)

	March 31, 2013	December 31, 2012
ASSETS		
Current assets:		
Cash and cash equivalents	$ 69,861	$ 82,240
Investments in marketable securities - short term	39,978	42,721
Receivables from collaborations	383	1,380
Prepaid expenses	1,405	1,402
Total current assets	111,627	127,743
Investments in marketable securities - long term	65,220	59,966
Property and equipment, net	1,501	1,639
Intangible assets	110	115
Other assets	287	116
Total assets	$ 178,745	$ 189,579
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 2,516	$ 2,056
Accrued expenses	4,998	6,085
Current portion of long-term debt	858	851
Current portion of deferred revenue	—	2,357
Total current liabilities	8,372	11,349
Long-term debt, net of current portion	918	1,136
Deferred revenue, net of current portion	—	1,179
Total liabilities	9,290	13,664
Commitments and contingencies		
Stockholders' equity:		
Common stock, $0.001 par value, 100,000,000 shares authorized and 33,616,675 and 33,615,081 shares issued and outstanding at March 31, 2013 and December 31, 2012, respectively	34	34
Preferred stock, $0.001 par value, 5,000,000 shares authorized and 0 shares issued and outstanding at March 31, 2013 and December 31, 2012	—	—
Capital in excess of par value	411,227	409,608
Accumulated other comprehensive income	188	201
Accumulated deficit	(241,994)	(233,928)
Total stockholders' equity	169,455	175,915
Total liabilities and stockholders' equity	$ 178,745	$ 189,579

See accompanying notes.

TARGACEPT, INC.

STATEMENTS OF COMPREHENSIVE INCOME (LOSS)
(in thousands, except share and per share amounts)
(unaudited)

	Three Months Ended March 31,	
	2013	2012
Operating revenues:		
License fees and milestones from collaborations	$ 3,536	$22,607
Grant revenue	—	250
Net operating revenues	3,536	22,857
Operating expenses:		
Research and development (including stock-based compensation of $779 and $1,094 for the three months ended March 31, 2013 and 2012, respectively)	8,320	17,801
General and administrative (including stock-based compensation of $835 and $822 for the three months ended March 31, 2013 and 2012, respectively)	3,490	3,070
Total operating expenses	11,810	20,871
(Loss) income from operations	(8,274)	1,986
Other income (expense):		
Interest income	224	299
Interest expense	(16)	(26)
Total other income (expense)	208	273
Net (loss) income	$ (8,066)	$ 2,259
Basic net (loss) income per share	$ (0.24)	$ 0.07
Diluted net (loss) income per share	$ (0.24)	$ 0.07
Weighted average common shares outstanding - basic	33,616,342	33,390,286
Weighted average common shares outstanding - diluted	33,616,342	33,822,010
Unrealized (loss) gain on available-for-sale securities, net	(13)	191
Comprehensive (loss) income	$ (8,079)	$ 2,450

See accompanying notes.

TARGACEPT, INC.

STATEMENTS OF CASH FLOWS
(in thousands)
(unaudited)

	Three Months Ended March 31,	
	2013	2012
Operating activities		
Net (loss) income	$ (8,066)	$ 2,259
Adjustments to reconcile net (loss) income to net cash used in operating activities:		
Recognition of deferred revenue	(3,536)	(22,857)
Amortization of premium on marketable securities, net	226	239
Depreciation and amortization	213	632
Stock-based compensation expense	1,614	1,916
Changes in operating assets and liabilities:		
Receivables from collaborations	997	(101)
Other assets	(141)	1,036
Accounts payable and accrued expenses	(627)	(8,274)
Deferred revenue	—	250
Net cash used in operating activities	(9,320)	(24,900)
Investing activities		
Purchase of investments in marketable securities	(19,242)	(41,916)
Proceeds from sale of investments in marketable securities	16,459	48,754
Purchase of property and equipment	(70)	(46)
Net cash (used in) provided by investing activities	(2,853)	6,792
Financing activities		
Principal payments on long-term debt	(211)	(555)
Proceeds from issuance of common stock, net	5	48
Net cash used in financing activities	(206)	(507)
Net decrease in cash and cash equivalents	(12,379)	(18,615)
Cash and cash equivalents at beginning of period	82,240	107,283
Cash and cash equivalents at end of period	$ 69,861	$ 88,668

See accompanying notes.

TARGACEPT, INC.

NOTES TO UNAUDITED FINANCIAL STATEMENTS
March 31, 2013

1. The Company and Nature of Operations

Targacept, Inc., or the Company, is a Delaware corporation formed on March 7, 1997. The Company is a biopharmaceutical company engaged in the development of novel NNR Therapeutics™ for the treatment of diseases and disorders of the nervous system. The Company's NNR Therapeutics selectively target neuronal nicotinic receptors, which it refers to as NNRs. Its facilities are located in Winston-Salem, North Carolina.

2. Summary of Significant Accounting Policies

Basis of Presentation

The accompanying unaudited financial statements have been prepared in accordance with U.S. generally accepted accounting principles, or GAAP, for interim financial information, the instructions to Form 10-Q and Article 10 of Regulation S-X. Accordingly, they do not include all of the information and footnotes required by GAAP for complete financial statements and should be read in conjunction with the Company's audited financial statements and notes thereto included in its Annual Report on Form 10-K for the year ended December 31, 2012. In the opinion of the Company's management, all adjustments, consisting of normal recurring adjustments, necessary for a fair presentation of its financial position, operating results and cash flows for the periods presented have been included. Operating results for the three months ended March 31, 2013 are not necessarily indicative of the results that may be expected for the full year, for any other interim period or for any future year.

Use of Estimates

The preparation of financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the amounts of assets, liabilities, revenues and expenses reported in the financial statements and accompanying notes. Actual results could differ from these estimates.

Fair Value Measurement

The Company follows Financial Accounting Standards Board, or FASB, Accounting Standards Codification, or ASC, Topic 820, *Fair Value Measurements and Disclosures*, or ASC 820, for application to financial assets. ASC 820 defines fair value, provides a consistent framework for measuring fair value under GAAP and requires fair value financial statement disclosures. ASC 820 applies only to the measurement and disclosure of financial assets that are required or permitted to be measured and reported at fair value under other ASC topics (except for standards that relate to share-based payments such as ASC Topic 718, *Compensation – Stock Compensation*).

TARGACEPT, INC.

NOTES TO UNAUDITED FINANCIAL STATEMENTS (continued)
March 31, 2013

2. Summary of Significant Accounting Policies (continued)

The valuation techniques required by ASC 820 may be based on either observable or unobservable inputs. Observable inputs reflect readily obtainable data from independent sources, and unobservable inputs reflect the Company's market assumptions. These inputs are classified into the following hierarchy:

Level 1 Inputs – quoted prices (unadjusted) in active markets for identical assets that the reporting entity has the ability to access at the measurement date;

Level 2 Inputs – inputs other than quoted prices included within Level 1 that are observable for the asset, either directly or indirectly; and

Level 3 Inputs – unobservable inputs for the assets.

The following tables present the Company's investments in marketable securities (including, if applicable, those classified on the Company's balance sheet as cash equivalents) that are measured at fair value on a recurring basis as of March 31, 2013 and December 31, 2012, respectively:

March 31, 2013	Quoted Prices in Active Markets (Level 1)	Other Observable Inputs (Level 2)	Unobservable Inputs (Level 3)
		(in thousands)	
U.S. Treasury and U.S. or state government agency-backed securities	$ 44,359	$ —	$ —
Corporate debt securities	—	47,730	—
Municipal bonds	—	2,700	—
Certificates of deposit	10,000	—	—
Accrued interest	409	—	—
Total cash equivalents and marketable securities	$ 54,768	$ 50,430	$ —

December 31, 2012	Quoted Prices in Active Markets (Level 1)	Other Observable Inputs (Level 2)	Unobservable Inputs (Level 3)
		(in thousands)	
U.S. Treasury and U.S. or state government agency-backed securities	$ 46,371	$ —	$ —
Corporate debt securities	—	47,173	—
Municipal bonds	—	2,700	—
Certificates of deposit	10,000	—	—
Accrued interest	443	—	—
Total cash equivalents and marketable securities	$ 56,814	$ 49,873	$ —

TARGACEPT, INC.

NOTES TO UNAUDITED FINANCIAL STATEMENTS (continued)
March 31, 2013

2. Summary of Significant Accounting Policies (continued)

Corporate debt securities and municipal bonds are valued based on various observable inputs such as benchmark yields, reported trades, broker/dealer quotes, benchmark securities and bids.

Investments in Marketable Securities

Consistent with its investment policy, the Company invests its cash allocated to fund its short-term liquidity requirements with prominent financial institutions in bank depository accounts and institutional money market funds and the Company invests the remainder of its cash in corporate debt securities and municipal bonds rated at least A quality or equivalent, U.S. Treasury notes and bonds, U.S. and state government agency-backed securities and certificates of deposit.

The Company determines the appropriate classification of marketable securities at the time of purchase and reevaluates its classification as of each balance sheet date. All marketable securities owned during the three months ended March 31, 2013 and 2012 were classified as available for sale. The cost of securities sold is based on the specific identification method. Investments in marketable securities are recorded as of each balance sheet date at fair value, with unrealized gains and, to the extent deemed temporary, unrealized losses included in stockholders' equity. Interest and dividend income on investments in marketable securities, accretion of discounts and amortization of premiums and realized gains and losses are included in interest income in the statement of comprehensive income (loss).

An investment in marketable securities is considered to be impaired when a decline in fair value below its cost basis is determined to be other than temporary. The Company evaluates whether a decline in fair value of an investment in marketable securities below its cost basis is other than temporary using available evidence. In the event that the cost basis of the investment exceeds its fair value, the Company evaluates, among other factors, the amount and duration of the period that the fair value is less than the cost basis, the financial health of and business outlook for the issuer, including industry and sector performance, operational and financing cash flow factors, overall market conditions and trends, the Company's intent to sell the investment and whether it is more likely than not the Company would be required to sell the investment before its anticipated recovery. If a decline in fair value is determined to be other than temporary, the Company records an impairment charge in the statement of comprehensive income (loss) and establishes a new cost basis in the investment.

TARGACEPT, INC.

NOTES TO UNAUDITED FINANCIAL STATEMENTS (continued)
March 31, 2013

2. Summary of Significant Accounting Policies (continued)

Revenue Recognition

The Company uses the revenue recognition guidance established by ASC Topic 605, *Revenue Recognition*, or ASC 605. In determining the accounting for collaboration and alliance agreements, the Company follows the provisions of ASC 605, Subtopic 25, *Multiple Element Arrangements*, or ASC 605-25. ASC 605-25 provides guidance on whether an arrangement that involves multiple revenue-generating activities or deliverables should be divided into separate units of accounting for revenue recognition purposes and, if division is required, how the arrangement consideration should be allocated among the separate units of accounting. If the arrangement constitutes separate units of accounting according to the separation criteria of ASC 605-25, the consideration received is allocated among the separate units of accounting and the applicable revenue recognition criteria must be applied to each unit. If the arrangement constitutes a single unit of accounting, the revenue recognition policy must be determined for the entire arrangement and the consideration received is recognized over the period of inception through the date on which the last deliverable within the single unit of accounting is expected to be delivered. Revisions to the estimated period of recognition are reflected in revenue prospectively.

Collaboration research and development revenue is earned and recognized as research is performed and related expenses are incurred. Non-refundable upfront fees, which may include, for example, an initial payment upon effectiveness of the contractual relationship, payment representing a common stock purchase premium or payment to secure a right for a future license, are recorded as deferred revenue and recognized into revenue as license fees and milestones from collaborations on a straight-line basis over the estimated period of the Company's substantive performance obligations. If the Company does not have substantive performance obligations, it recognizes non-refundable upfront fees into revenue through the date the deliverable is satisfied.

Revenue for non-refundable payments based on the achievement of milestone events under collaboration agreements is recognized in accordance with ASC 605, Subtopic 28, *Milestone Method*, or ASC 605-28. Milestone events under the Company's collaboration agreements may include research, development, regulatory, commercialization or sales events. Under ASC 605-28, a milestone payment is recognized as revenue when the applicable event is achieved if the event meets the definition of a milestone and the milestone is determined to be substantive. ASC 605-28 defines a milestone event as an event having all of the following characteristics: (1) there is substantive uncertainty regarding achievement of the milestone event at the inception of the arrangement; (2) the event can only be achieved based, in whole or in part, on either the company's performance or a specific outcome resulting from the company's performance; and (3) if achieved, the event would result in additional payment due to the company. The Company also treats events that can only be achieved based, in whole or in part, on either a third party's performance or a specific outcome resulting from a third party's performance as milestone events if the criteria of ASC 605-28 are otherwise satisfied.

TARGACEPT, INC.

NOTES TO UNAUDITED FINANCIAL STATEMENTS (continued)
March 31, 2013

2. Summary of Significant Accounting Policies (continued)

A milestone is considered substantive if it meets all of the following criteria: (A) the payment is commensurate with either the Company's performance to achieve the milestone or with the enhancement of the value of the delivered item; (B) the payment relates solely to past performance; and (C) the payment is reasonable relative to all of the deliverables and payment terms within the arrangement. If any of these conditions is not met, the milestone payment is deferred and recognized on a straight-line basis over a period determined as discussed above.

Research and development costs that are reimbursable under collaboration agreements are recorded in accordance with ASC 605, Subtopic 45, *Principal Agent Considerations*. Amounts reimbursed under a cost sharing arrangement are reflected as a reduction of research and development expense.

Grant payments received prior to the Company's performance of work required by the terms of the award are recorded as deferred revenue and recognized as grant revenue as the Company performs the work and incurs qualifying costs.

Income Taxes

The Company uses the liability method in accounting for income taxes as required by ASC Topic 740, *Income Taxes*, or ASC 740. Under ASC 740, deferred tax assets and liabilities are recorded for operating loss and tax credit carryforwards and for the future tax consequences attributable to the differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates expected to apply to taxable income in the years in which those temporary differences are expected to be recovered or settled. The effect of a change in tax rates on deferred tax assets and liabilities is recognized in the results of operations in the period that includes the enactment date. A valuation allowance is recorded to reduce the carrying amounts of deferred tax assets unless it is more likely than not that the assets will be realized. ASC 740 prescribes a recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. ASC 740 requires interim income tax expense or benefit to be calculated using an estimated annual effective tax rate. If a reliable estimate of the annual effective tax rate cannot be made, the Company considers the effective tax rate for the year to date to be the best estimate. Accordingly, the income tax provisions for the three months ended March 31, 2013 were determined based on the actual year to date effective tax rate because a reliable estimate of the annual effective tax rate cannot be made. ASC 740 also provides guidance on de-recognition, classification, interest and penalties, accounting in interim periods, disclosures and transition. The Company's policy is to classify any interest recognized in accordance with ASC 740 as interest expense and to classify any penalties recognized in accordance with ASC 740 as an expense other than income tax expense.

TARGACEPT, INC.

NOTES TO UNAUDITED FINANCIAL STATEMENTS (continued)
March 31, 2013

2. Summary of Significant Accounting Policies (continued)

Net Income or Loss Per Share

The Company computes net income or loss per share in accordance with ASC Topic 260, *Earnings Per Share*, or ASC 260. Under the provisions of ASC 260, basic net income or loss per share, or Basic EPS, is computed by dividing net income or loss by the weighted average number of common shares outstanding. Diluted net income or loss per share, or Diluted EPS, is computed by dividing net income or loss by the weighted average number of common shares outstanding plus, in the case of diluted net income per share, dilutive common share equivalents outstanding. The calculations of Basic EPS and Diluted EPS are set forth in the table below (in thousands, except share and per share amounts).

	Three Months Ended March 31,	
	2013	2012
Basic:		
Net (loss) income	$ (8,066)	$ 2,259
Weighted average common shares - basic	33,616,342	33,390,286
Basic EPS	$ (0.24)	$ 0.07
Diluted:		
Net (loss) income	$ (8,066)	$ 2,259
Weighted average common shares - basic	33,616,342	33,390,286
Common share equivalents	—	431,724
Weighted average common shares - diluted	33,616,342	33,822,010
Diluted EPS	$ (0.24)	$ 0.07

Common share equivalents consist of the incremental common shares that would be outstanding upon the exercise of stock options, calculated using the treasury stock method. For the three-month period ended March 31, 2013, the Company excluded all common share equivalents from the calculation of Diluted EPS because the Company had a net loss. As a result, Diluted EPS is identical to Basic EPS for that period. If the Company had been in a net income position for the three months ended March 31, 2013, 4,778,219 shares subject to outstanding stock options may have been included in the calculation of common share equivalents using the treasury stock method.

Shares subject to outstanding stock options that were anti-dilutive for the three months ended March 31, 2012, a period for which the Company had net income, and consequently not included in the calculation of common share equivalents totaled 2,467,564, calculated on a weighted average basis.

TARGACEPT, INC.

NOTES TO UNAUDITED FINANCIAL STATEMENTS (continued)
March 31, 2013

2. Summary of Significant Accounting Policies (continued)

Common Stock and Stock-Based Compensation

The Company issued 1,594 shares of common stock upon the exercise of stock options during the three months ended March 31, 2013. The Company issued 231,678 shares of common stock upon the exercise of stock options during the year ended December 31, 2012.

The Company granted to employees options to purchase an aggregate of 573,050 shares of common stock on January 17, 2013. These stock options have an estimated aggregate fair value, using the Black-Scholes-Merton formula, of $1,810,000. The Company is recording this amount, as adjusted for forfeitures, as stock-based compensation on a straight line basis over 16 quarters that began with the quarter ended March 31, 2013.

On March 31, 2013, the Company partially accelerated the vesting of, and extended the permitted period for exercise for, some outstanding stock options held by an executive officer who departed the Company. These modifications resulted in incremental compensation cost recorded by the Company for the three months ended March 31, 2013 of $467,000.

Accumulated Other Comprehensive Income or Loss

Accumulated other comprehensive income or loss, as presented in stockholders' equity on the Company's balance sheet, reflects the cumulative net unrealized gains or losses on available-for-sale securities for all periods. The table below reflects changes in accumulated other comprehensive income for the three months ended March 31, 2013, in thousands.

Accumulated other comprehensive income, January 1, 2013	$201
Unrealized loss on available-for-sale securities, net	(1)
Net realized gains on available-for-sale securities reclassified from other comprehensive income	(12)
Accumulated other comprehensive income, March 31, 2013	$188

Intellectual Property

The Company capitalizes the cost of intellectual property acquired or licensed from external sources as intangible assets if, at the time of acquisition, the intellectual property has reached technological feasibility. The cost of intellectual property acquired or licensed from external sources that has not reached technological feasibility at the time of acquisition or that has no expected future use is charged to research and development expense as incurred. The Company records all other charges related to the filing, prosecution and maintenance of patents to expense as incurred.

TARGACEPT, INC.

NOTES TO UNAUDITED FINANCIAL STATEMENTS (continued)
March 31, 2013

2. Summary of Significant Accounting Policies (continued)

Commitments and Contingencies

Under an employment agreement with a former executive officer and a related separation agreement and release, the Company has agreed to pay severance equal to the departing executive's regular base salary as of March 31, 2013 for nine months, to pay a pro rata percentage of the departing executive's target bonus for 2013, and to continue the departing executive's health and life insurance benefits coverage provided to him as of March 31, 2013 for nine months. These payments and benefits, which represent an aggregate estimated amount of $306,000, were recorded as general and administrative expense for the three months ended March 31, 2013.

3. Investments in Marketable Securities

The following is a reconciliation of amortized cost to fair value of available-for-sale marketable securities (including, if applicable, those classified on the Company's balance sheet as cash equivalents) held at March 31, 2013 and December 31, 2012:

March 31, 2013	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
		(in thousands)		
Security type				
Cash Equivalents				
Corporate debt securities	$ —	$ —	$ —	$ —
Marketable Securities - Short term				
U.S. Treasury and U.S. or state government agency-backed securities	16,069	13	—	16,082
Corporate debt securities	13,765	22	—	13,787
Certificates of deposit	10,000	—	—	10,000
Accrued interest	109	—	—	109
Marketable Securities - Long term				
U.S. Treasury and U.S. or state government agency-backed securities	28,206	73	(2)	28,277
Corporate debt securities - long term	33,770	180	(7)	33,943
Municipal bonds	2,690	10	—	2,700
Accrued interest	300	—	—	300
Total available-for-sale marketable securities	$104,909	$ 298	$ (9)	$105,198

TARGACEPT, INC.

NOTES TO UNAUDITED FINANCIAL STATEMENTS (continued)
March 31, 2013

3. Investments in Marketable Securities (continued)

December 31, 2012	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
		(in thousands)		
Security type				
Cash Equivalents				
Corporate debt securities	$ 4,000	$ —	$ —	$ 4,000
Marketable Securities - Short term				
U.S. Treasury and U.S. or state government agency-backed securities	25,412	27	—	25,439
Corporate debt securities	7,193	16	—	7,209
Certificates of deposit	10,000	—	—	10,000
Accrued interest	73	—	—	73
Marketable Securities - Long term				
U.S. Treasury and U.S. or state government agency-backed securities	20,846	86	—	20,932
Corporate debt securities - long term	35,802	177	(15)	35,964
Municipal bonds	2,689	11	—	2,700
Accrued interest	370	—	—	370
Total available-for-sale marketable securities	$106,385	$ 317	$ (15)	$106,687

As of March 31, 2013, the Company held investments in marketable securities with unrealized gains of $298,000 and unrealized losses of $9,000. For the investments in an unrealized loss position, the duration of the loss was less than 12 months and they are not considered to be other-than-temporarily impaired.

As of March 31, 2013, the Company's investments in marketable securities reach maturity between April 2013 and March 2016 with a weighted average maturity date in July 2014.

4. Income Taxes

For the three months ended March 31, 2013 and 2012, the Company did not recognize any income tax expense or benefit. Exercises of stock options may result in tax deductions for stock-based compensation in excess of expense recorded for the stock options under GAAP. For interim periods within years for which taxable net income is forecasted, the Company recognizes the income tax benefit related to the excess tax deductions as an increase to capital in excess of par value, which based on ASC 740 results in an offsetting charge in the same amount to income tax expense. As of March 31, 2013, the Company had $7,540,000 of cumulative tax deductions for periods of net loss from exercises of stock options in excess of expense recorded for the stock options under GAAP. The benefit of these excess tax deductions had not begun to be realized as of March 31, 2013 because the Company incurred net operating losses in the years the respective stock options were exercised and has incurred cumulative net operating losses since inception. Accordingly, the tax benefit will not be recognized as an increase to capital in excess of par value until the excess deductions reduce income taxes payable.

The Company's 2010 federal income tax return is currently under examination. Because the Company has incurred cumulative net operating losses since inception, all tax years remain open to examination by U.S. federal, North Carolina and Massachusetts tax authorities.

TARGACEPT, INC.

NOTES TO UNAUDITED FINANCIAL STATEMENTS (continued)
March 31, 2013

5. Strategic Alliance and Collaboration Agreements

AstraZeneca AB

In December 2005, the Company entered into a collaborative research and license agreement with AstraZeneca AB that was initially focused in cognitive disorders. In March 2013, the Company and AstraZeneca amended the agreement. As amended, the agreement permits AstraZeneca to pursue development and commercialization of compounds that it has licensed from the Company in any therapeutic area.

The Company is eligible to receive license fees and milestone payments under the agreement. The amount of license fees and milestone payments depends on the timing and achievement of specified milestone events.

AstraZeneca paid the Company an initial fee of $10,000,000 in February 2006. Based on the agreement terms, the Company allocated $5,000,000 of the initial fee to a preclinical research collaboration that the Company conducted with AstraZeneca under the agreement, which the Company recognized as revenue on a straight-line basis over the four-year term of the research collaboration. The Company deferred recognition of the remaining $5,000,000 of the initial fee, which was allocated to grants of licenses to develop and commercialize the Company's product candidate TC-1734 (formerly known also as AZD3480), until December 2006, when AstraZeneca made a determination to proceed with further development of TC-1734. As a result, in the first quarter of 2007, the Company began recognizing the $5,000,000 of the initial fee that it had previously deferred as revenue on a straight-line basis over the estimated development period for TC-1734. In September 2010, the Company and AstraZeneca amended the agreement to enable the Company to conduct a clinical trial of TC-1734 in mild to moderate Alzheimer's disease and to provide for respective roles and responsibilities and associated financial terms for such a study. Under the 2010 amendment, the Company received from AstraZeneca $500,000 in October 2010, $2,000,000 in September 2011 and $3,500,000 in December 2011.

In March 2013, AstraZeneca exercised its right to terminate TC-1734 from the collaboration. At that time, the Company was recognizing both the portion of the $5,000,000 of the initial fee attributable to TC-1734 license grants not yet recognized and the payments received under the 2010 amendment into revenue on a straight-line basis over the period of the Company's substantive performance obligations under the agreement as amended. As a result of AstraZeneca's exercise of its termination right for TC-1734, the Company recognized into revenue the portion of these amounts not yet recognized as of the date of AstraZeneca's action, totaling $3,142,000. The Company recognized an aggregate of $3,536,000 and $810,000 of the initial fee and the payments received under the 2010 amendment as revenue for the three months ended March 31, 2013 and 2012, respectively. As of March 31, 2013, the initial fee and the payments received under the 2010 amendment had been fully recognized into revenue.

TARGACEPT, INC.

NOTES TO UNAUDITED FINANCIAL STATEMENTS (continued)
March 31, 2013

5. Strategic Alliance and Collaboration Agreements (continued)

The Company is eligible to receive additional payments from AstraZeneca if specified milestone events under the agreement are achieved for the Company's product candidate AZD1446. The amounts of the contingent milestone payments vary depending on the applicable indication pursued and range from an additional $7,000,000 to $14,000,000 if development milestone events are achieved, an additional $8,000,000 to $10,000,000 if a regulatory milestone event is achieved, up to an additional $12,000,000 to $49,000,000 if first commercial sale milestone events are achieved and, in specified circumstances, up to an additional $30,000,000 if sales-related milestone events are achieved. If regulatory approval is achieved for AZD1446 for any indication, the Company is also eligible to receive stepped royalties on any sales of AZD1446 for that indication or any other indication. If AZD1446 is subsequently developed under the agreement for other indications, the Company would also be eligible to receive contingent milestone payments of up to $35,000,000 for each successive indication, if development, regulatory and first detail milestone events are achieved. Based solely on projected activities and timelines, the Company expects that the maximum amount of contingent milestone payments that could conceivably be earned during 2013 with respect to AZD1446 is $2,000,000, if a development milestone event is achieved. The likelihood that the Company will earn that milestone amount or achieve any particular milestone event with respect to AZD1446 in 2013 or in any future period is uncertain, and the Company may not earn any milestone amount or achieve any milestone event with respect to AZD1446 in 2013 or ever.

The Company considers that each of the potential milestone events under the agreement with respect to AZD1446 would be substantive because the applicable criteria of its revenue recognition policy (see Note 2) would be satisfied.

AstraZeneca has paid the Company an aggregate of $88,120,000 under the agreement since its inception, including the initial fee and payments upon the achievement of milestone events, to maintain option rights and for research services rendered in the completed preclinical research collaboration. As of March 31, 2013, this entire amount had been fully recognized into revenue.

Prior Collaboration Agreement

In December 2009, the Company entered into a collaboration and license agreement with AstraZeneca AB for the global development and commercialization of TC-5214 as a treatment for major depressive disorder. Under the agreement, AstraZeneca made an upfront payment to the Company of $200,000,000. The Company recorded the upfront payment made by AstraZeneca as deferred revenue and began recognizing the payment as revenue on a straight-line basis over the estimated period of the Company's substantive performance obligations under the agreement, or approximately 33 months after the agreement date. The Company recognized $21,797,000 of the upfront payment as revenue for the three months ended March 31, 2012.

TARGACEPT, INC.

NOTES TO UNAUDITED FINANCIAL STATEMENTS (continued)
March 31, 2013

5. Strategic Alliance and Collaboration Agreements (continued)

The Company and AstraZeneca jointly designed a program for the global development of TC-5214 as an adjunct therapy and as a "switch" monotherapy, in each case in patients with major depressive disorder who do not respond adequately to initial antidepressant treatment. AstraZeneca was responsible for 80% and the Company was responsible for 20% of the costs of this program, except that AstraZeneca was responsible for 100% of development costs that were required only for countries outside the United States and the European Union. In addition, for each of the Company and AstraZeneca, costs that were not contemplated at execution to be part of the program were in some cases excluded from the cost-sharing arrangement.

The Company's portion of the costs of the TC-5214 development program was $3,411,000, for the three months ended March 31, 2012. AstraZeneca's allocable portion of the program costs paid by the Company was $122,000 for the three months ended March 31, 2012. AstraZeneca's allocable portion of the program costs paid by the Company is reflected in the Company's financial statements as a reduction to research and development expense.

In the first quarter of 2012, the Company and AstraZeneca announced that, based on the totality of the results of the Phase 3 development program for TC-5214, a regulatory filing for TC-5214 as an adjunct therapy for major depressive disorder would not be pursued. Also in the first quarter of 2012, the Company reported that the Company and AstraZeneca determined to discontinue a Phase 2b clinical trial of TC-5214 as a "switch" monotherapy. The determinations to not pursue a regulatory filing for TC-5214 as an adjunct therapy for major depressive disorder and to discontinue the Phase 2b clinical trial of TC-5214 as a "switch" monotherapy resulted in a change in the estimated period of the Company's substantive performance obligations under the agreement, and the Company revised the revenue recognition period for the upfront payment previously received accordingly. As a result, the entire upfront payment was recognized into revenue by June 30, 2012. In April 2012, the Company received notice of termination of the agreement from AstraZeneca. By the terms of the agreement, the termination became effective in May 2012.

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations

You should read the following discussion and analysis of our financial condition and results of operations together with our financial statements and the related notes included in this quarterly report and our audited financial statements and Management's Discussion and Analysis of Financial Condition and Results of Operations included in our Annual Report on Form 10-K for the year ended December 31, 2012, which is on file with the SEC. In addition to historical information, the following discussion contains forward-looking statements that involve risks, uncertainties and assumptions. Our actual results, performance or experience could differ materially from what is indicated by any forward-looking statement due to various important factors, risks and uncertainties, including, but not limited to, those set forth under "Cautionary Note Regarding Forward-Looking Statements" in Part I of this quarterly report or under "Risk Factors" in Item 1A of Part I of our Annual Report on Form 10-K for the year ended December 31, 2012 or other filings that we make with the SEC.

Overview

Background

We are a biopharmaceutical company engaged in the development of novel NNR Therapeutics™ for the treatment of diseases and disorders of the nervous system. Our NNR Therapeutics selectively target a class of receptors known as neuronal nicotinic receptors, which we refer to as NNRs. NNRs are found on nerve cells throughout the nervous system and serve as key regulators of nervous system activity.

We have multiple clinical-stage product candidates in areas in which we believe there are significant medical need and commercial potential, as well as an ongoing collaboration agreement with AstraZeneca focused on compounds that act on the a4ß2 NNR, including AZD1446.

Our most advanced product candidates are described briefly below.

- *TC-5619*. TC-5619 is a novel small molecule that modulates the activity of the a7 NNR. We are currently conducting a Phase 2b clinical trial of TC-5619 as a treatment for negative symptoms and cognitive dysfunction in schizophrenia. We are also currently evaluating potential additional Phase 2 development of TC-5619 as a treatment for Alzheimer's disease.
- *TC-5214*. TC-5214 modulates the activity of the a3ß4 NNR. We are developing TC-5214 as a treatment for overactive bladder and plan to initiate a Phase 2b clinical trial of this product candidate in the second quarter of 2013.
- *TC-1734*. TC-1734 (formerly known also as AZD3480) is a novel small molecule that modulates the activity of the a4ß2 NNR. We are currently conducting a Phase 2b clinical trial of TC-1734 as a treatment for mild to moderate Alzheimer's disease.
- *AZD1446 (TC-6683).* AZD1446 is a novel small molecule that modulates the activity of the a4ß2 NNR and is subject to our ongoing collaboration agreement with AstraZeneca. Future development steps for AZD1446 are under consideration by AstraZeneca.

- *TC-6987*. TC-6987 is a novel small molecule that modulates the activity of the a7 NNR. We have previously evaluated TC-6987 in two Phase 2 exploratory studies and are evaluating potential future development options for this product candidate.
- *TC-6499.* TC-6499 is a novel small molecule that modulates the activity of the a4ß2 and a3ß4 NNRs. We are evaluating potential future development options for this product candidate as a treatment for gastrointestinal disorders.

Under our ongoing collaboration agreement with AstraZeneca:

- AstraZeneca has an exclusive license to AZD1446 and earlier-stage compounds that arose from the preclinical research collaboration conducted under the agreement described below;
- AstraZeneca is responsible for substantially all current and future development costs for AZD1446 and each other compound arising from the preclinical research collaboration described below that it elects to advance; and
- from January 2006 to January 2010, we and AstraZeneca conducted a preclinical research collaboration under the agreement to discover and develop compounds that act on the a4ß2 NNR as treatments for conditions characterized by cognitive impairment; AstraZeneca paid us research fees, based on a reimbursement rate specified under the agreement, for research services rendered in the preclinical research collaboration.

Our ongoing collaboration agreement with AstraZeneca can be terminated by AstraZeneca for an uncured material breach by us or upon 90 days' notice given at any time.

Under a second collaboration agreement with AstraZeneca, which we refer to in this quarterly report as our "MDD agreement with AstraZeneca," we had been co-developing TC-5214 as an adjunct, or add-on, therapy for patients with major depressive disorder who do not respond adequately to initial antidepressant treatment. Under the agreement, we received a $200.0 million upfront payment. Thereafter, AstraZeneca was responsible for 80% and we were responsible for 20% of the cost of the completed clinical program for TC-5214 in MDD, except that AstraZeneca was responsible for 100% of development costs that were required only for countries outside the United States and the European Union. In addition, for each of us and AstraZeneca, costs that were not contemplated at execution to be part of the program were in some cases excluded from the cost-sharing arrangement. Following completion of a Phase 3 clinical program for TC-5214 conducted under the agreement, we and AstraZeneca announced that a regulatory filing for TC-5214 as an adjunct therapy for MDD would not be pursued and we reported the discontinuation of a "switch" monotherapy trial. AstraZeneca subsequently terminated the agreement effective in May 2012. As a result of the termination, all rights and licenses for TC-5214 that we granted under the agreement to AstraZeneca terminated and reverted to us.

Since our inception, we have had limited revenue from product sales and have funded our operations principally through public and private offerings of equity securities, payments under collaboration and alliance agreements, grants and equipment financing. We have historically devoted substantially all of our resources to the discovery and development of our product candidates and technologies, including the design, conduct and management of preclinical and clinical studies and related manufacturing, regulatory and clinical affairs, as well as intellectual property prosecution.

In the second quarter of 2012, we completed a reduction in force as part of a plan to focus our resources on our more advanced programs. In October 2012, we announced a second reduction in force, as well as our plan to close our laboratory operations. We completed the second reduction in force and the laboratory closings in December 2012. Following completion of the second workforce reduction, we are no longer devoting resources to drug discovery or preclinical programs.

Except for a small number of periods in which we generated net income due primarily to the recognition into revenue of amounts received under collaboration agreements, we have not been profitable. As of March 31, 2013, we had an accumulated deficit of $242.0 million. We expect that we will incur losses in future periods as our product candidates advance into later-stage development and as we progress our programs and invest in additional product opportunities. Drug development, including clinical trials in particular, is time-consuming, expensive and may never yield a product that will generate revenue.

As a clinical-stage company, our revenues, expenses and results of operations are likely to fluctuate significantly from quarter to quarter and year to year. We believe that period-to-period comparisons of our results of operations should not be relied upon as indicative of our future performance.

Revenue

In January 2010, we received the $200.0 million upfront payment under our MDD agreement with AstraZeneca, which we recorded as deferred revenue and began recognizing into revenue on a straight-line basis over the estimated period of our substantive performance obligations under the agreement.

In the first quarter of 2012, we and AstraZeneca announced that, based on the totality of the results of the Phase 3 program, a regulatory filing for TC-5214 as an adjunct therapy for MDD would not be pursued and we reported the discontinuation of a “switch” monotherapy trial. These events resulted in a change in the estimated period of our substantive performance obligations under our MDD agreement with AstraZeneca. Accordingly, we revised the revenue recognition period for the upfront payment that we previously received and began recognizing the portion of the upfront payment not yet recognized into revenue on a straight-line basis over the remainder of the revised period. We recognized the full amount of the upfront payment into revenue by June 30, 2012.

Pursuant to a September 2010 amendment to our ongoing collaboration agreement with AstraZeneca related to a clinical trial of TC-1734 in mild to moderate Alzheimer’s disease, we received a $500,000 payment in the fourth quarter of 2010 and cumulative payments of $5.5 million in the second half of 2011. We recorded all of these payments as deferred revenue and began recognizing them into revenue on a straight-line basis over the estimated period of our obligations with respect to the study. As a result of AstraZeneca’s exercise of its right to terminate TC-1734 from the collaboration in March 2013, we recognized the remaining unrecognized deferred amount of $3.5 million into revenue for the three months ended March 31, 2013.

As of March 31, 2013, we had received $61.6 million in aggregate upfront fees and milestone payments under our ongoing collaboration agreement with AstraZeneca and recognized an additional

$26.5 million in collaboration research and development revenue for research services that we provided in the preclinical research collaboration conducted under that agreement. We immediately recognized an aggregate of $32.6 million of the amounts received under the agreement for achievement of milestone events, because each event met the conditions required for immediate recognition under our revenue recognition policy. We deferred recognition of an aggregate of $29.0 million received under the agreement and have fully recognized these deferred amounts into revenue over the respective periods discussed in Note 5 to our unaudited financial statements included in this quarterly report.

From time to time we seek and are awarded grants or perform work under grants awarded to third-party collaborators from which we derive revenue. During the third quarter of 2011, we were awarded a third grant from The Michael J. Fox Foundation for Parkinson's Research, or MJFF. Based on the terms of the grant, we received $250,000 upon inception of the grant term and an additional $250,000 in March 2012. In addition, we are a subcontractor under a grant awarded to The California Institute of Technology by the National Institute on Drug Abuse, or NIDA, part of the National Institutes of Health, to fund research on innovative NNR-based approaches to the development of therapies for smoking cessation. Based on the terms of this arrangement, we received $191,000 in May 2012. Funding for awards under federal grant programs is subject to the availability of funds as determined annually in the federal appropriations process.

Research and Development Expenses

Since our inception, we have focused our activities on drug discovery and development programs. We record research and development expenses as they are incurred. Research and development expenses represented approximately 70% and 85% of our total operating expenses for the three months ended March 31, 2013 and 2012, respectively. The lower percentage that research and development expenses represented of our total operating expenses for the three months ended March 31, 2013 as compared to the corresponding 2012 period resulted primarily from two reductions in force that we completed in the second and fourth quarters of 2012, the closing of our laboratory operations in the fourth quarter of 2012 and the completion in 2012 of the Phase 3 clinical program conducted under our MDD agreement with AstraZeneca.

We utilize our research and development personnel and infrastructure resources across several programs, and many of our costs are not specifically attributable to a single program. Accordingly, we cannot state precisely our total costs incurred on a program-by-program basis.

We have not received FDA or foreign regulatory marketing approval for any of our product candidates. Our current and future expenditures on development programs are subject to numerous uncertainties in timing and cost to completion. In addition, our strategy includes entering into alliances and collaborations with third parties to participate in the development and commercialization of some of our product candidates. Where a third party has responsibility for or authority over any or all of the non-clinical or clinical development of a particular product candidate, the estimated completion date may be largely under the control of that third party and not under our control. We cannot forecast with any degree of certainty whether any of our product candidates will be subject to future alliances or collaborations or how any such arrangement would affect our development plans or capital requirements. Because of this uncertainty, and because of the numerous uncertainties related to clinical trials and drug development generally, we are unable to determine the duration and completion costs of our development programs or whether or when we will generate revenue from the commercialization and sale of any of our product candidates.

General and Administrative Expenses

General and administrative expenses consist principally of salaries and other related costs for personnel in executive, finance, business development, legal and human resource functions. Other general and administrative expenses include expenses associated with stock options granted to personnel in those functions, depreciation and other facility costs not otherwise included in research and development expenses, patent-related costs, insurance costs and professional fees for consulting, legal, accounting and public and investor relations services.

Income Taxes

We have incurred cumulative net operating losses through March 31, 2013 and have not paid federal, state or foreign income taxes for any period. The application of U.S. generally accepted accounting principles, or GAAP, may for some periods result in non-cash income tax expense or benefit being reflected in our Statement of Comprehensive Income (Loss). Exercises of stock options in periods of net income may result in tax deductions for stock-based compensation in excess of expense recorded for the stock options under GAAP. For interim periods within years for which net income is forecasted, we recognize the income tax benefit related to the excess tax deductions as an increase to capital in excess of par value and, based on Accounting Standards Codification ASC Topic 740, *Income Taxes*, record an offsetting charge in the same amount to income tax expense. As of March 31, 2013, we had $7.5 million of cumulative tax deductions for periods of net loss from exercises of stock options in excess of expense recorded for the stock options under GAAP. The benefit of these excess tax deductions had not begun to be realized as of March 31, 2013 because we have incurred cumulative net operating losses since inception. This benefit will not be recognized as an increase to capital in excess of par value until the excess deductions reduce income taxes payable.

As of March 31, 2013, we had net operating loss carryforwards of $197.6 million for federal income tax purposes and $186.3 million for state income tax purposes and we had research and development income tax credit carryforwards of $12.6 million for federal income tax purposes and $587,000 for state income tax purposes. The federal net operating loss carryforwards begin to expire in 2024. The state net operating loss carryforwards begin to expire in 2019. The federal and state research and development tax credits begin to expire in 2021. As a result of various factors, including the subjectivity of measurements used in the calculation of particular tax positions taken or that may in the future be taken in our tax returns, it is uncertain whether or to what extent we will be eligible to use the tax credits.

Utilization of the net operating loss carryforwards and credits may be subject to a substantial annual limitation due to ownership change limitations provided by Section 382 of the Internal Revenue Code of 1986, as amended, and similar state provisions. When an ownership change, as defined by Section 382, occurs, an annual limitation is imposed on a company’s use of net operating loss and credit carryforwards attributable to periods before the change. A series of stock issuances by us gave rise to such an ownership change in December 2004. As a result, an annual limitation is imposed on our use of net operating loss and credit carryforwards that are attributable to periods before the change. In addition, a portion of the net operating loss carryforwards described above may potentially not be usable by us if we experience further ownership changes in the future.

For financial reporting purposes, we have recorded a valuation allowance to fully offset the deferred tax assets related to the carryforwards and tax credits discussed above until it is more likely than not that we will realize any benefit from them.

Fair Value

The carrying amounts of our cash and cash equivalents, investments in marketable securities, accounts receivable, accounts payable and accrued expenses are considered to be representative of their respective fair values due to their short-term natures and, in the case of short-term investments, their market interest rates. Likewise, the carrying amounts of our long-term debts are considered to be representative of their fair value due to their market interest rates. Cash that we do not expect to use to fund our short-term liquidity requirements is invested in corporate debt securities and municipal bonds rated at least A quality or equivalent, U.S. Treasury notes and bonds, U.S. and state government agency-backed certificates and certificates of deposit. Our investments in marketable securities, which include marketable securities classified on our balance sheet as cash equivalents, are recorded at quoted market prices or observable market inputs and totaled $105.2 million at March 31, 2013.

Critical Accounting Policies and Estimates

Our Management's Discussion and Analysis of Financial Condition and Results of Operations is based on our unaudited financial statements, which have been prepared in accordance with GAAP for interim financial information. The preparation of these financial statements requires us to make estimates and judgments that affect the reported amounts of assets, liabilities, revenues and expenses. On an ongoing basis, we evaluate these estimates and judgments. We base our estimates on historical experience and on various assumptions that we believe to be reasonable under the circumstances. These estimates and assumptions form the basis for making judgments about the carrying values of assets and liabilities and the recording of revenues and expenses that are not readily apparent from other sources. Actual results and experiences may differ materially from these estimates. In addition, our reported financial condition and results of operations could vary if new accounting standards are enacted that are applicable to our business.

Our significant accounting policies are described in Note 2 to our audited financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2012 and in the notes to our unaudited financial statements included in this quarterly report. We believe that our accounting policies relating to revenue recognition, accrued expenses and stock-based compensation are the most critical to understanding and evaluating our reported financial results. We have identified these policies as critical because they both are important to the presentation of our financial condition and results of operations and require us to make judgments and estimates on matters that are inherently uncertain and may change in future periods. These policies are described under the heading "Management's Discussion and Analysis of Financial Condition and Results of Operations — Critical Accounting Policies and Estimates" in our Annual Report on Form 10-K for the year ended December 31, 2012.

Results of Operations

Three Months ended March 31, 2013 and 2012

Net Operating Revenues

	Three Months Ended March 31,		
	2013	2012	Change
	(in thousands)		
Operating revenues:			
License fees and milestones from collaborations	$3,536	$22,607	$(19,071)
Grant revenue	—	250	(250)
Net operating revenues	$3,536	$22,857	$(19,321)

Net operating revenues for the three months ended March 31, 2013 decreased by $19.3 million as compared to the three months ended March 31, 2012. The lower net operating revenues for the 2013 period were primarily attributable to a decrease of $19.1 million in license fees and milestones from collaborations. The lower license fees and milestones from collaborations for the 2013 period primarily resulted from the recognition into revenue for the 2012 period of the remaining unrecognized portion of the upfront payment previously received under our MDD agreement with AstraZeneca, totaling $21.8 million, partially offset by $2.7 million in increased recognition of revenue for the 2013 period for payments related to TC-1734 previously received under our ongoing collaboration agreement with AstraZeneca. We recognized into revenue for the 2013 period the remaining unrecognized portion of the payments related to TC-1734 previously received under our ongoing collaboration agreement with AstraZeneca, totaling $3.5 million.

We expect our net operating revenues for the year ended December 31, 2013 to be substantially lower than for the year ended December 31, 2012, primarily due to the upfront payment received under our MDD agreement with AstraZeneca becoming fully recognized in the second quarter of 2012. As of April 1, 2013, we have no amounts remaining to be recognized into revenue for payments previously received under any current or former collaboration agreement.

Research and Development Expenses

	Three Months Ended March 31,		
	2013	2012	Change
	(in thousands)		
Research and development expenses	$8,320	$17,801	$(9,481)

Research and development expenses for the three months ended March 31, 2013 decreased by $9.5 million as compared to the three months ended March 31, 2012. The lower research and development expenses were principally attributable to decreases of:

- $5.3 million in research and development-related operating costs, including infrastructure costs and stock-based compensation and other compensation-related expenses for research and

development personnel, to $3.2 million for the 2013 period, from $8.5 million for the 2012 period; this decrease resulted primarily from the two reductions in force completed in the second and fourth quarters of 2012 that reduced our workforce by approximately 65% and from the closing of our laboratory operations in the fourth quarter of 2012;

- $3.4 million in costs incurred for the Phase 3 development program for TC-5214 as a treatment for major depressive disorder, which completed in 2012; and
- $928,000 in costs incurred for third-party research and development services in connection with preclinical programs, as we focused our resources in the 2013 period on our clinical programs.

These decreases were partially offset by an increase of $127,000 in costs incurred for third-party services associated with our clinical-stage product candidates (excluding costs for the completed program in major depressive disorder) to $5.1 million for the 2013 period, from $5.0 million for the 2012 period. This increase, as detailed in the table below, was principally due to increased costs related to the ongoing Phase 2b study of TC-5619 in negative symptoms and cognitive dysfunction in schizophrenia, which became fully enrolled in April 2013, and costs related to the planned Phase 2b study of TC-5214 in overactive bladder. These increased costs were partially offset by decreased costs related to TC-6987, as we completed two exploratory studies of this product candidate in the first quarter of 2012.

The costs that we incurred for the three months ended March 31, 2013 and 2012 for third-party services in connection with research and development of clinical-stage product candidates are shown in the table below.

	Three Months Ended March 31,		
	2013	2012	Change
	(in thousands)		
TC-5619	$ 3,411	$ 2,087	$ 1,324
TC-5214 overactive bladder	879	—	879
TC-1734	839	769	70
TC-5214 major depressive disorder	—	3,411	(3,411)
TC-6987	—	2,153	(2,153)
AZD1446	—	—	—

We expect our research and development expenses for the year ending December 31, 2013 to decrease as compared to the year ended December 31, 2012, principally due to the 2012 completion of the Phase 3 development program for TC-5214 as an adjunct therapy for major depressive disorder and our two reductions in workforce implemented in 2012. We also expect, however, to continue to incur significant research and development expenses for the remainder of 2013, including in particular expenses for the planned Phase 2b study of TC-5214 in overactive bladder and the ongoing Phase 2b clinical trials of TC-5619 in negative symptoms and cognitive dysfunction in schizophrenia and TC-1734 in mild to moderate Alzheimer’s disease.

General and Administrative Expenses

	Three Months Ended March 31, 2013	2012	Change
	(in thousands)		
General and administrative expenses	$ 3,490	$ 3,070	$ 420

General and administrative expenses for the three months ended March 31, 2013 increased by $420,000 as compared to the three months ended March 31, 2012. The higher general and administrative expenses were principally attributable to an increase of $607,000 in stock-based compensation, salary and other compensation-related expenses for general and administrative personnel. The increased stock-based compensation, salary and other compensation-related expenses for general and administrative personnel for the 2013 period was primarily attributable to $467,000 in non-cash stock-based compensation charges resulting from the partial accelerated vesting of, and extended exercise periods for, some outstanding stock options held by a former executive officer who departed Targacept in March 2013 and $309,000 in severance and other charges resulting from the departure of the former executive officer. Exclusive of stock-based compensation, salary and other compensation-related expenses, general and administrative expenses decreased by $187,000 for the 2013 period as compared to the corresponding 2012 period.

Liquidity and Capital Resources

Sources of Liquidity

We have historically financed our operations and internal growth principally through public and private offerings of equity securities, payments received under collaboration and alliance agreements, grants and equipment financing.

Our cash, cash equivalents and investments in marketable securities were $175.1 million as of March 31, 2013 and $184.9 million as of December 31, 2012. As of March 31, 2013, we had $67.8 million of cash in bank depository accounts and institutional money market funds at Branch Banking and Trust Company, PNC Bank and Wells Fargo & Company. Substantially all of our remaining cash, cash equivalents and investments were invested as of March 31, 2013 in corporate debt securities and municipal bonds rated at least A quality or equivalent, U.S. Treasury notes and bonds, U.S. and state government agency-backed securities and certificates of deposit.

We are eligible to receive additional payments under our ongoing collaboration agreement with AstraZeneca, contingent on the achievement of specified milestone events relating to AZD1446. The likelihood that we will achieve any particular milestone event in any particular period is uncertain, and we may not ever achieve future milestone events with respect to AZD1446. Our MDD agreement with AstraZeneca was terminated effective in May 2012 and is no longer a potential source of future funds.

We have borrowed amounts under a loan agreement with a bank that we entered into in July 2010 to fund the purchase of equipment, furnishings, software and other fixed assets. As of March 31, 2013, the aggregate outstanding principal balance under the loan facility was $1.8 million and there is no additional borrowing capacity remaining available to us.

Cash Flows

	Three Months Ended March 31, 2013	2012	Change
	(in thousands)		
Net cash used in operating activities	$ (9,320)	$(24,900)	$15,580
Net cash (used in) provided by investing activities	(2,853)	6,792	(9,645)
Net cash used in financing activities	(206)	(507)	301
Net decrease in cash and cash equivalents	$(12,379)	$(18,615)	

Net cash used in operating activities for the three months ended March 31, 2013 decreased by $15.6 million as compared to the three months ended March 31, 2012. For the three months ended March 31, 2013, net cash used in operating activities was primarily attributable to $10.8 million in payments made for third-party research and development services in connection with clinical-stage product candidates and personnel and infrastructure costs. These cash payments were partially offset by $1.0 million in proceeds received in January 2013 from the sale of laboratory equipment in December 2012 and $483,000 of investment-related cash receipts. For the three months ended March 31, 2012, net cash used in operating activities was primarily attributable to $25.6 million in payments made for third-party research and development services in connection with clinical-stage product candidates and preclinical programs, as well as personnel and infrastructure costs, partially offset by $570,000 of investment-related cash receipts and $250,000 received from MJFF under a grant awarded in the third quarter of 2011. The decrease of $14.8 million in payments made for third-party research and development services and personnel and infrastructure costs for the 2013 period as compared to the 2012 period was principally the result of: the wind-down during 2012 of the Phase 3 development program for TC-5214 as a treatment for major depressive disorder, for which we paid $9.7 million during the 2012 period; the decision in the second quarter of 2012 to focus our resources on our more advanced programs; and the closing of our laboratories and completion of two workforce reductions during 2012.

Net cash used in investing activities for the three months ended March 31, 2013 was $2.9 million as compared to net cash provided by investing activities of $6.8 million for the three months ended March 31, 2012, a difference of $9.6 million. Cash provided by or used in investing activities reflects the portion of our cash that we allocate to, and the timing of purchases and maturities of, our investments in marketable securities and equipment purchases. Our net purchases of investments in marketable securities for the three months ended March 31, 2013 were $2.8 million and occurred primarily as a result of the timing of maturities and subsequent reinvestment in marketable securities. Our net sales of investments in marketable securities for the three months ended March 31, 2012 were $6.8 million and occurred primarily to fund our short-term liquidity requirements.

Net cash used in financing activities for the three months ended March 31, 2013 decreased by $301,000 as compared to the three months ended March 31, 2012. The lower cash used in financing activities for the 2013 period was primarily due to the scheduled repayment in full of outstanding term loans on their respective maturity dates during 2012.

Funding Requirements

As of March 31, 2013, we had an accumulated deficit of $242.0 million. We may require additional capital in future periods as our product candidates advance into later-stage development and as we progress our programs and invest in additional product opportunities. However, we may generate positive cash flow for any particular reporting period as a result of the timing of milestone events that may be achieved under our ongoing collaboration agreement with AstraZeneca or any potential future collaboration agreement that we enter into and the timing and extent of costs incurred related to development of our product candidates. Our future capital requirements are difficult to forecast and will depend on many factors, including:

- the scope, progress, duration, results and cost of clinical trials, as well as non-clinical studies and assessments, of our product candidates and programs;
- whether we establish additional strategic alliances, collaborations and licensing or other comparable arrangements, or whether we pursue and complete any merger, acquisition or other significant corporate transaction, and, if we do, the associated terms in each case;
- the costs to satisfy our obligations under potential future alliances, collaborations or licensing or other comparable arrangements;
- whether and to what extent milestone events are achieved for AZD1446 under our ongoing collaboration agreement with AstraZeneca;
- the costs of preparing, filing and prosecuting patent applications and maintaining, enforcing and defending patents and other intellectual property rights;
- the extent to which we retain development or commercialization rights or responsibilities for our product candidates and incur associated development costs, manufacturing costs or costs to establish sales and marketing functions;
- the number and characteristics of product candidates that we pursue and programs that we conduct;
- the costs of manufacturing-related services for our product candidates in development;
- the costs, timing and outcomes of regulatory reviews or other regulatory actions;
- the timing, receipt and amount of sales or royalties, if any, from our potential products;
- the extent of our general and administrative expenses; and
- the rate of technological advancements for the indications that we target.

Our existing capital resources may not be sufficient to enable us to fund the completion of the development of any of our product candidates. We currently expect our existing capital resources to be sufficient to fund our operations through at least the end of 2015, without taking into account any amounts that we would be entitled to receive if milestone events are achieved under our ongoing collaboration agreement with AstraZeneca. However, our operating plan may change as a result of many factors, including those described above, and we may need additional funds sooner than planned to meet operational needs and capital requirements.

To the extent our capital resources are insufficient to meet future capital requirements or to the extent the conditions for raising capital are favorable, we may seek to finance future cash needs through public or private equity or debt offerings or other financings (whether using our currently effective Registration Statement on Form S-3 or otherwise). Our access in the future to additional equity or debt financing, on acceptable terms or at all, is uncertain. We may also seek to finance future cash needs through alliances, collaborations or licensing or other comparable arrangements. Strategic alliances, collaborations or licensing or other comparable arrangements may not be available on acceptable terms or at all. If adequate funds are not available, we may be required to delay, reduce the scope of or eliminate our development programs or obtain funds through arrangements with collaborators or others that may require us to relinquish rights to certain product candidates that we might otherwise seek to develop or commercialize independently. Additionally, any future equity funding may significantly dilute the ownership of our stockholders.

We cannot determine precisely the completion dates and related costs of our development programs due to inherent uncertainties in outcomes of clinical trials and regulatory approvals of our product candidates. We cannot be certain that we will be able to successfully complete our development programs or establish strategic alliances, collaborations or licensing or other arrangements for our product candidates. Our failure, or the failure of any of our present or future licensees or collaborators, to complete research and development programs for our product candidates could have a material adverse effect on our financial position or results of operations.

To date, inflation has not had a material effect on our business.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

The primary objectives of our investment activities are to preserve our capital and meet our liquidity needs to fund operations. We also seek to generate competitive rates of return from our investments without assuming significant risk. To achieve our objectives, we maintain a portfolio of cash equivalents and investments in a variety of securities that are of high credit quality based on ratings from commonly relied upon rating agencies. As of March 31, 2013, we had cash, cash equivalents and investments in marketable securities of $175.1 million. Our cash, cash equivalents and investments in marketable securities may be subject to interest rate risk and could fall in value if market interest rates increase. However, because our cash is invested in accounts with market interest rates and because our cash equivalents and investments in marketable securities are traded in active markets, we believe that our exposure to interest rate risk is not significant and estimate that an immediate and uniform 10% increase in market interest rates from levels as of March 31, 2013 would not have a material impact on the total fair value of our portfolio.

We sometimes contract for the conduct of clinical trials or other research and development and manufacturing activities with contract research organizations, clinical trial sites and contract manufacturers in Europe or elsewhere outside of the United States. We may be subject to exposure to fluctuations in foreign currency exchange rates in connection with these agreements. If the average exchange rate between the currency of our payment obligations under any of these agreements and the U.S. dollar were to strengthen or weaken by 10% against the corresponding exchange rate as of March 31, 2013, we estimate that the impact on our financial position, results of operations and cash flows would not be material. We do not hedge our foreign currency exposures.

We have not used derivative financial instruments for speculation or trading purposes.

Item 4. Controls and Procedures

(a) *Evaluation of Disclosure Controls and Procedures*. Our management, with the participation of our chief executive officer and our chief financial officer, evaluated the effectiveness of our disclosure controls and procedures in accordance with Rule 13a-15 under the Exchange Act as of the end of the period covered by this quarterly report. In designing and evaluating our disclosure controls and procedures, our management recognized that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives, and our management necessarily applied its judgment in evaluating the cost-benefit relationship of possible controls and procedures. Based on the evaluation of our disclosure controls and procedures as of the end of the period covered by this quarterly report, our chief executive officer and our chief financial officer concluded that, as of such date, our disclosure controls and procedures were effective to provide reasonable assurance that information required to be disclosed by us in the reports that we file or submit under the Exchange Act is (a) accumulated and communicated to our management, including our chief executive officer and our chief financial officer, as appropriate to allow timely decisions regarding required disclosure and (b) recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms.

(b) *Changes in Internal Controls*. No change in our internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) occurred during the quarter ended March 31, 2013 that materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II. OTHER INFORMATION

Item 6. Exhibits

The exhibits listed in the accompanying exhibit index are filed as part of this quarterly report.

Targacept® and NNR Therapeutics™ are trademarks of Targacept, Inc. Any other service marks, trademarks and trade names appearing in this quarterly report are the properties of their respective owners.

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 thereunto duly authorized.

TARGACEPT, INC.

Date: May 8, 2013

/s/ Stephen A. Hill
Stephen A. Hill
President and Chief Executive Officer
(*Principal Executive Officer*)

Date: May 8, 2013

/s/ Alan A. Musso
Alan A. Musso
Senior Vice President, Finance and Administration, Chief Financial Officer and Treasurer
(*Principal Financial and Accounting Officer*)

EXHIBIT INDEX

Exhibit Number	Description
10.1+	Targacept, Inc. 2006 Stock Incentive Plan, as amended and restated through March 9, 2011 and further amended on December 7, 2012, March 13, 2013 and April 10, 2013 (incorporated by reference to the Appendix to the Company's Definitive Proxy Statement for its 2013 annual meeting of stockholders filed on Schedule 14A with the Securities and Exchange Commission on April 17, 2013).
10.2+	Separation Agreement and Release, dated March 29, 2013, by and between the Company and Jeffrey P. Brennan.
10.3^	Amendment No. 5, effective as of March 5, 2013, to Collaborative Research and License Agreement between the Company and AstraZeneca AB dated December 27, 2005.
31.1	Certification of the Principal Executive Officer pursuant to Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
31.2	Certification of the Principal Financial Officer pursuant to Rule 13a-14(a) and 15d-14(a) of the Securities Exchange Act of 1934, as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
32.1	Certification of the Principal Executive Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
32.2	Certification of the Principal Financial Officer pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
101*	The following materials from the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2013, formatted in XBRL (eXtensible Business Reporting Language): (i) the Balance Sheets as of March 31, 2013 and December 31, 2012 (Unaudited); (ii) the Statements of Comprehensive Income (Loss) for the three months ended March 31, 2013 and 2012 (Unaudited); (iii) the Statements of Cash Flows for the three months ended March 31, 2013 and 2012 (Unaudited); and (iv) the Notes to Unaudited Financial Statements.

+ Denotes management contract, compensatory plan or arrangement.

^ Portions of this Exhibit have been omitted and filed separately with the Securities and Exchange Commission as part of an application for confidential treatment pursuant to the Exchange Act.

* Pursuant to Rule 406T of Regulation S-T, the Interactive Data Files in Exhibit 101 hereto are deemed not filed or part of a registration statement or prospectus for purposes of Sections 11 or 12 of the Securities Act of 1933, as amended, are deemed not filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, and otherwise are not subject to liability under those sections.

Exhibit 10.2

SEPARATION AGREEMENT AND RELEASE

This Separation Agreement and Release (this "**Agreement**") is made by and between Jeffrey P. Brennan ("**Brennan**") and Targacept, Inc. ("**Targacept**" or the "**Company**"), including all Targacept predecessor entities and all affiliated entities, and provides as follows.

RECITALS

A. Brennan is currently employed by Targacept pursuant to an Employment Agreement dated September 1, 2003, as amended by Amendment No. 1 to Employment Agreement dated December 3, 2007 and Amendment No. 2 to Employment Agreement dated March 13, 2008 (the "**Employment Agreement**"), and such employment will terminate as provided herein.

B. The parties wish to separate on amicable terms, Brennan wishes to cooperate with Targacept in the transition following Brennan's separation, and Targacept wishes to provide Brennan with certain benefits in connection with his separation.

NOW, THEREFORE, for good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, Targacept and Brennan hereby covenant and agree as follows:

AGREEMENT

1. TERMINATION OF EMPLOYMENT. Brennan's employment with the Company will terminate on March 31, 2013 (the "**Termination Date**"). Brennan understands and agrees that the relationship created by this Agreement is purely contractual and that no employment relationship is intended, or should be inferred, from the performance of the Company's obligations under this Agreement.

2. EFFECTIVENESS OF AGREEMENT. This Agreement shall become effective on the eighth (8th) day after the date of signature of the later of Brennan or Targacept to sign below (the "**Effective Date**"), but only if: (a) Brennan returns a signed original of this Agreement as provided in Section 11 and (b) Brennan has not exercised the ADEA Revocation Right as defined in and as provided in Section 12. For clarity, if Brennan exercises the ADEA Revocation Right, (i) this Agreement shall be null and void and of no force or effect and (ii) Brennan's employment will in any case terminate on the Termination Date.

3. SEVERANCE PAY AND BENEFITS. In consideration and exchange for Brennan's promises in this Agreement (including, without limitation, the release and waiver set forth in Section 5 and the promises set forth in Sections 6 and 7), subject to Section 14, the Company will provide Brennan with (a) the pay and benefits set forth in Section 7(d) of the Employment Agreement (the period during which Brennan receives severance pay as set forth in Section 7(d)(A) of the Employment Agreement, the "**Severance Period**"), (b) the amount set forth in Section 1 of the Retention Award Agreement between Brennan and Targacept dated January 17, 2013 (the "**RAA**"), subject if applicable to Section 7 of the RAA, and (c) solely to the extent expressly set forth on Exhibit A attached hereto, an extension to the period Mr. Brennan may exercise the portion of certain outstanding stock options vested and unexercised as of the Termination Date. All payments under this Section 3 shall be subject to all statutory and other required deductions and withholdings, if any. Brennan agrees that he shall be responsible for his own tax liabilities arising out of the payments and benefits provided to him under this Section 3 (and, for clarity, Section 7(d) of the Employment

Agreement), and he agrees to indemnify and hold the Company harmless from any liabilities arising from the payments and benefits made pursuant to this Section 3. In addition, Brennan acknowledges and agrees that: (i) the benefits set forth in Section 7(d)(C) of the Employment Agreement shall (A) require him to elect within sixty (60) days after his receipt of an election notice from the Company's health care plan administrator continuation of the healthcare coverage provided to him as of the Termination Date under the Consolidated Omnibus Budget Reconciliation Act of 1985 (commonly referred to as "**COBRA**") and (B) be limited to the Company paying the costs for such continuation of coverage, less the costs being paid by Brennan for such coverage as of the Termination Date (which shall continue to be his sole responsibility), during the Severance Period; and (ii) any and all costs to continue such healthcare coverage after the end of the Severance Period, whether for any further period provided by COBRA or otherwise, shall be the sole responsibility of Brennan.

4. NO PRIOR OBLIGATION. Brennan acknowledges and agrees that: (a) the payments and benefits that Brennan receives or for which Brennan is eligible under this Agreement are of value to Brennan; (b) in the absence of the general release and promises made by Brennan hereunder, the Company had no prior legal obligation to provide the payments and benefits called for by Section 3; and (c) Brennan would not be entitled to such payments and benefits if not for this Agreement.

5. GENERAL RELEASE AND WAIVER OF CLAIMS BY BRENNAN. Brennan, for himself and for his heirs, successors, assigns, or anyone else claiming under or through Brennan, hereby forever discharges and releases Targacept, its predecessor, affiliated or subsidiary entities, and its and their respective directors, officers, stockholders, affiliates, employees, attorneys, agents, representatives, and assigns (all of the foregoing, collectively, the "**Releasees**"), and each of them, from any and all claims, liabilities, actions or causes of action of any kind or character whatsoever, whether at law or in equity, whether known or unknown, whether contingent or absolute. This general release and waiver of claims includes, without limitation, claims for personal injuries, back pay, losses or damage to real or personal property, economic loss or damage of any kind, breach of contract (express or implied), defamation, breach of any covenant of good faith (express or implied), tortious interference with contract, wrongful termination, business or personal tort, misrepresentation, or any other losses or expenses of any kind (whether arising in tort, contract or by statute) arising out of Brennan's employment relationship with Targacept and any other alleged acts or omissions by the Releasees not expressly excluded herein. Brennan acknowledges that this general release and waiver of claims applies both to known and unknown claims that may exist between Brennan and any of the Releasees as of the date Brennan signs this Agreement.

Brennan expressly acknowledges and agrees that this release and waiver of claims includes but is not limited to a release of any and all rights, claims, or causes of action arising under any employment, stock option or other agreement (whether written, oral or implied) or under any state or federal constitution, statute, law, rule, regulation, or common-law principle of tort, contract or equity, except for the obligations of Targacept under this Agreement. This waiver of claims specifically includes but is not limited to any action under the Age Discrimination in Employment Act of 1967, 29 U.S.C. § 621, *et seq*., Title VII of the Civil Rights Act of 1964, as amended, 42 U.S.C. § 2000e, *et seq*., the Americans with Disabilities Act of 1990, 42 U.S.C. § 12101, *et seq*., the Family and Medical Leave Act, 42 U.S.C. § 2601, *et seq.*, any common law or statutory claim of wrongful discharge, the Employment Retirement Income Security Act of 1976, as amended, and any claims for any entitlement to severance, vacation pay, accrued paid leave, commissions, reimbursements or attorney's fees pursuant to any contract or state or federal law.

By entering into this Agreement, Brennan understands and agrees that Brennan does not waive any rights or claims that he might have that arise as a result of any conduct that occurs after the date Brennan signs this Agreement or any claims for continuation rights under COBRA.

Brennan acknowledges and agrees that: (a) any and all monies due and owing to Brennan from Targacept (including, without limitation, any and all compensation, wages, commissions, benefits, expense reimbursements, vacation/leave time, and other payments or amounts), have heretofore been unconditionally and timely paid to Brennan and that Targacept has satisfied each and every obligation owing to Brennan, except for: (i) Brennan's regular base salary through the Termination Date, which shall be paid by Targacept in arrears in accordance with its customary payroll practices; (ii) Brennan's 27 floating holiday and vacation days for 2013, to the extent unused as of the Termination Date, which shall be paid by Targacept in accordance with its customary practices; and (iii) the amounts to be paid to Brennan by Targacept pursuant to this Agreement; and (b) there are no stock options, stock grants, equity compensation, bonus commitments, retention incentives or incentive compensation of any kind or nature whatsoever which are due and owing to Brennan (including, without limitation, with respect to Targacept's annual cash incentive award program, commonly referred to within Targacept as its bonus program, with respect to 2013 or any other year), and no such payment or entitlement will accrue or become due and owing after the Termination Date.

6. AGREEMENT TO COOPERATE. In addition to, and not in lieu of, his other obligations hereunder, Brennan agrees to cooperate with Targacept in all reasonable respects during the Severance Period in transitioning his responsibilities and duties at Targacept to such other officers or employees of Targacept as Targacept may direct. Brennan further agrees to cooperate in all reasonable respects (including, without limitation, by meeting with Targacept's counsel and by providing sworn testimony in affidavits, depositions or trials) in assisting in the prosecution or defense of any claims, demands, complaints, or lawsuits filed by or against, or threatened against, any of the Releasees that involve facts or decisions in which or about which he had, or is alleged to have had, input or knowledge for so long as Targacept may require; provided that Targacept will reimburse Brennan for any out-of-pocket expenses that are both approved by Targacept prior to incurrence by Brennan and actually and reasonably incurred by Brennan in the performance of this sentence.

7. NON-DISPARAGEMENT. Brennan agrees that he will refrain from any interference with Targacept's business opportunities and from any and all remarks or conduct that are inconsistent with the non-adversarial spirit of this Agreement, including, without limitation, refraining from comments, oral or written, that disparage, defame, libel, slander, or otherwise damage Targacept, its business, its scientific areas of interest (e.g., neuronal nicotinic receptors) or any of its product candidates, or any of the Releasees.

8. FULL CAPACITY. Brennan attests that he possesses sufficient education and experience to understand fully the extent and impact of the provisions of this Agreement. Brennan affirms that he is fully competent to execute this Agreement and that he does so voluntarily and without any coercion, undue influence, threat or intimidation of any kind or type. Brennan represents that he has not assigned or transferred any of the claims hereby released.

9. DISPUTED CLAIMS. It is agreed by both parties that this Agreement shall not in any way be construed, directly or indirectly, as an admission by Targacept that it has acted wrongfully with respect to Brennan or any other person, or that Brennan has any rights whatsoever against

Targacept other than as and to the extent expressly herein stated. Targacept expressly disclaims and denies any liability to or wrongful acts against Brennan or any other person, on the part of Targacept or any agents, directors, officers, attorneys, employees, or representatives of Targacept.

10. ADVICE TO SEEK COUNSEL. Brennan acknowledges and agrees that he has been encouraged by Targacept to consult with counsel of his choosing prior to executing this Agreement.

11. CONSIDERATION AND REVIEW PERIOD. Brennan agrees that Brennan has been provided twenty-one (21) days in which to consider and review this Agreement and to obtain any legal advice Brennan deems appropriate from the attorney of Brennan's choice. Brennan can accept this Agreement only by signing and returning a signed original of the Agreement to Karen A. Hicks, Vice President, Human Resources ("**Hicks**"), at Targacept, Inc., 100 North Main Street, Suite 1510, Winston-Salem, NC 27101. Brennan understands and agrees that this Agreement shall not become effective or enforceable until it has been signed by both parties and a fully executed original has been received by the Company.

12. REVOCATION PERIOD. After returning a signed original of this Agreement to the Company, Brennan may revoke his agreement in Section 5 to waive claims arising under the Age Discrimination in Employment Act of 1967 (the "**ADEA**") by providing written notice to Targacept within seven (7) days after the date of signature of the later of Brennan or Targacept to sign below (the "**ADEA Revocation Right**"). The ADEA Revocation Right will be validly exercised by Brennan only if such written notice is timely received by Hicks at Targacept, Inc., 100 North Main Street, Suite 1510, Winston-Salem, NC 27101. Brennan acknowledges and agrees that, unless he shall have validly exercised the ADEA Revocation Right, upon expiration of the above-described revocation period, he shall have forever waived and released the Releasees from any and all claims as of the Effective Date, including claims under the ADEA.

13. RETURN OF PROPERTY. Brennan represents that he has: (a) returned to Targacept all property (including, for clarity but without limitation, Proprietary Information, as that term is defined in Section 5(b) of the Employment Agreement) belonging to Targacept, including, without limitation, all keys, badges, virtual private network (vpn) fobs, phones or other handheld devices, tablets, computers, equipment, software, documents, handbooks, manuals, files and other materials and information obtained or furnished to, or prepared in whole or in part by, Brennan in connection with his employment with the Company; and (b) provided to Hicks all user names, passwords, access codes and the like in his possession or control, or of which he is aware, related to Targacept or any Targacept database or other property or system.

14. PERFORMANCE. Targacept will make the payments and provide the benefits set forth in clause (a) of Section 3 provided Brennan complies with and meets his obligations under this Agreement and Section 5 (excluding Section 5(e)) of the Employment Agreement. In the event that Brennan breaches any of his covenants or promises, or causes any covenants or promises to be breached, in addition to any other rights or remedies available to Targacept, at law or otherwise, Targacept's obligation to perform under this Agreement shall automatically terminate and Targacept shall have no further liability or obligation to Brennan. Alternatively, Targacept may seek injunctive relief to enforce the provisions of this Agreement.

15. ENTIRE AGREEMENT; COMPLETE DEFENSE. The parties acknowledge and represent that, with the express exception of (a) Section 5 (but excluding Section 5(e)) of the Employment Agreement, (b) the RAA (but excluding Section 1 thereof) and (c) the Proprietary Information,

Inventions and Noncompetition Agreement dated August 19, 2003 between Brennan and Targacept ("**Proprietary Information Agreement**"), all of which survive the Termination Date and remain in full force and effect, this Agreement contains the entire agreement between them regarding the matters set forth and that it supersedes all previous negotiations, discussions, communications and understandings regarding such matters. The parties further acknowledge that no representations, inducements, promises or agreements, oral or written, have been made by either party or by anyone acting on behalf of either party that are not embodied in this Agreement. The terms of this Agreement are contractual and not a mere recital and the parties agree that the contents of this Agreement may be used in evidence to demonstrate Brennan's knowing and valid release of claims as stated herein.

The parties agree that this Agreement (including, without limitation, the general release contained in Section 5) may be treated as a complete defense to any legal, equitable or administrative action that may be brought, instituted or taken by Brennan, or on his behalf, against any of the Releasees and shall forever be a complete bar to the commencement or prosecution of any claim, demand, lawsuit, charge or other legal proceeding of any kind against any of the Releasees relating to any or all of Targacept, Targacept's business, Brennan's employment with Targacept and the termination of Brennan's employment with Targacept.

16. BINDING AGREEMENT; ASSIGNMENT. This Agreement shall be binding upon and inure to the benefit of Brennan, on the one hand, and to Targacept and its successors and permitted assigns, on the other hand. This Agreement and any rights or obligations hereunder may be assigned by the Company to the successor of all or substantially all of its business or to an affiliate of the Company. Neither this Agreement nor any of the rights and obligations of Brennan hereunder may be assigned or delegated by Brennan without the Company's prior written consent.

17. AMENDMENT AND WAIVER. This Agreement may not be modified or amended except in a writing signed by Brennan and an authorized representative of the Company. The failure of either party to assert a right hereunder or to insist upon compliance with any term or condition hereof will not constitute a waiver of that right or excuse a similar subsequent failure to perform any such term or condition by the other party.

18. NO THIRD PARTY BENEFICIARIES. This Agreement is for the sole benefit of Brennan, on the one hand, and the Company and its permitted successors and assigns, on the other hand, and shall not be construed as conferring any rights on any other party.

19. APPLICABLE LAW AND FORUM. North Carolina law shall govern the interpretation and enforcement of this Agreement, without regard to its conflicts of laws provisions. Brennan agrees that the exclusive and convenient forum for any civil lawsuit relating to this Agreement shall be any proper state court within Forsyth County in the State of North Carolina or, if jurisdiction exists, the United States District Court for the Middle District of North Carolina.

20. PARTIAL INVALIDITY. The parties agree that the provisions of this Agreement shall be deemed severable and that the invalidity or unenforceability of any portion or any provision shall not affect the validity or enforceability of the other portions or provisions. Such provisions shall be appropriately limited and given effect to the extent that they may be enforceable.

IN WITNESS WHEREOF, the parties have set their hands and seals on this Agreement:

/s/ Jeffrey P. Brennan — Date: March 29, 2013

Jeffrey P. Brennan

TARGACEPT, INC.

By: /s/ Stephen A. Hill — Date: March 29, 2013

Stephen A. Hill
President and Chief Executive Officer

Exhibit A

March 29, 2013

Dear Jeff:

We refer you to the Amended and Restated 2000 Equity Incentive Plan of Targacept, Inc. (the "**2000 Plan**") and the Targacept, Inc. 2006 Stock Incentive Plan, as amended and restated through March 9, 2011 and further amended effective December 7, 2012 and March 13, 2013 (the "**2006 Plan**" and, together with the 2000 Plan, the "**Plans**"). Capitalized terms used in this letter and not otherwise defined have the respective meanings given to them in the applicable Plan.

As of the date of this letter, you hold certain outstanding, unexercised options to purchase shares of Targacept common stock that were granted to you under either or both of the 2000 Plan and the 2006 Plan ("**Targacept Options**"). Each of your Targacept Options is evidenced by a stock option agreement between you and Targacept (an "**Option Agreement**") and is subject in all respects to the terms of the Plan under which such Targacept Option was granted.

Under the terms of the applicable Option Agreement and Plan, each Targacept Option will expire (and no longer be exercisable) prior to the end of its 10-year option period if any one of several events related to your termination of employment occurs. We refer you to: (a) Section 5(c) of each Option Agreement for Targacept Options granted under the 2006 Plan; and (b) Section 4 of each Option Agreement for Targacept Options granted under the 2000 Plan and Section 6(c)(iii)(D) of the 2000 Plan. Your employment with Targacept is terminating with an effective date of March 31, 2013, which is your "**termination date**" for purposes of your Targacept Options." Accordingly, prior to giving effect to this letter and assuming your termination date is March 31, 2013, the portion of each Targacept Option granted under (i) the 2000 Plan that is vested and unexercised as of your termination date must by its terms be exercised, if at all, prior to June 29, 2013 and (ii) the 2006 Plan that is vested and unexercised as of your termination date must by its terms be exercised, if at all, prior to June 30, 2013.

The Compensation Committee of Targacept's Board of Directors, as Administrator of the Plans, has determined that the period during which you can exercise the portion of each Targacept Option that is vested and unexercised as of your termination date is extended until the earlier of (a) the expiration date of such Targacept Option as set forth in the corresponding Option Agreement or (b) September 30, 2014. Accordingly, each Targacept Option must be exercised, if at all, prior to the earlier of those two dates. Targacept assumes no obligation to advise you or remind of you of the pending expiration date for any Targacept Option.

In addition, by the terms of your Employment Agreement with Targacept dated September 1, 2003, as amended on December 3, 2007 and March 13, 2008, and a related Separation Agreement and Release dated on or about the date of this letter, effective as of your termination date, the vesting of Targacept Options that you held as of your termination date shall be accelerated to the extent not exercisable as of termination date, but, for each such Targacept Option, only to the extent such Targacept Option would have become exercisable by December 31, 2013 if you had remained employed by Targacept through that date. No further vesting for any Targacept Option will occur after your termination date, and the unvested portion (if any) of each Targacept Option as of your termination date will not be or become exercisable.

Except as expressly provided above, all terms of Targacept Options remain unchanged, unaffected by the Compensation Committee action or this letter.

Please keep in mind that each Targacept Option, to the extent designated as an incentive stock option, will cease to be an incentive stock option and automatically become a nonqualified stock option if it is exercised on or after June 29, 2013 (for Targacept Options granted under the 2000 Plan) or June 30, 2013 (for Targacept Options granted under the 2006 Plan). We strongly encourage you to consult with your personal legal or tax advisor regarding the tax consequences of Targacept Options (including the impact of the actions described in this letter), the exercise of any Targacept Option and the timing of any such exercise.

Please sign this letter where indicated below and return it to Targacept as soon as possible. By signing: (1) you acknowledge receipt of this letter and agree to be bound by the terms of the respective Plans, the respective Option Agreements and this letter; (2) you, for yourself and your heirs, successors, assigns and anyone else claiming under or through you, forever discharge and release Targacept, its predecessor, affiliated or subsidiary entities, if any, and its and their respective directors, officers, stockholders, affiliates, employees, agents, representatives, and assigns, and each of them, from any and all claims, liabilities, actions or causes of action of any kind or character whatsoever, whether at law or in equity, whether known or unknown, whether contingent or absolute, and any other losses or expenses of any kind (whether arising in tort, contract or by statute), arising out of or with respect to Targacept Options, any of the Option Agreements or either of the Plans (collectively, "Released Claims"); and (3) acknowledge that the foregoing release applies both to known and unknown Released Claims that may exist as of date you sign this letter.

Sincerely,

/s/ Stephen A. Hill

Stephen A. Hill
President and Chief Executive Officer

Agreed to and accepted by:

/s/ Jeffrey P. Brennan

Print Name: Jeffrey P. Brennan

Date: March 29, 2013

cc: Karen A. Hicks
Mauri K. Hodges

AMENDMENT NO. 5 TO
COLLABORATIVE RESEARCH AND LICENSE AGREEMENT

This Amendment No. 5 to Collaborative Research and License Agreement (this "**Amendment**"), effective as of the date of signature of the last Party to sign below, amends the Collaborative Research and License Agreement entered into as of December 27, 2005 by and between AstraZeneca AB, a company limited by shares organized and existing under the laws of Sweden ("**AstraZeneca**"), and Targacept, Inc., a Delaware (USA) corporation ("**Targacept**"), as amended by Amendment No. 1 dated November 10, 2006, Amendment No. 2 effective July 8, 2009, Amendment No. 3 effective April 30, 2010 and Amendment No. 4 effective September 28, 2010 (the "**Agreement**"). Capitalized terms used herein and not otherwise defined shall have the meanings ascribed to them in the Agreement.

WHEREAS AstraZeneca and Targacept desire to amend, in accordance with Section 17.6 of the Agreement, various aspects of the Agreement to, among other things, eliminate: (i) the field restriction applicable to AstraZeneca's licenses to Exploit Candidate Drugs and Products under Section 8.1.3 of the Agreement; and (ii) obligations of, and restrictions on, Targacept with regard to the Exploitation of Secondary Pharmacology Compounds and Other NNR Compounds in the Field or Schizophrenia.

NOW, THEREFORE, in consideration of the mutual covenants contained herein and for other good and valuable consideration, AstraZeneca and Targacept, intending to be legally bound, hereby agree that, as of the effective date of this Amendment:

1. The Agreement is hereby amended by adding the following new Section 1.22A:

"1.22A **"Amendment No. 5 Date"** means March 5, 2013."

2. Section 1.44 of the Agreement is hereby deleted in its entirety and replaced with the following:

"1.44 "**AstraZeneca Research Activities**" means, collectively: (a) all activities specified to be conducted by AstraZeneca pursuant to the Research Plan, any Annual Research Plan or Additional Research Plan (or amendment thereto); (b) all activities in the Research Program that, as contemplated by Section 4.1.1, are conducted by AstraZeneca or its Affiliates in lieu of Targacept appointing a Third Party to conduct such activities; and (c) such other activities as (i) AstraZeneca, in its sole discretion (but subject to the notice, coordination and oversight set forth in Sections 4.1.1, 4.3, 4.6 and 4.11) and at its sole expense, elects to conduct with respect to Collaboration Candidates and Active+ Compounds (other than Terminated Compounds and Candidate Drugs) during the Research Program Term or the Tail Period to further the goals of the Collaboration or (ii) AstraZeneca, in its sole discretion (but subject to oversight of the JDC) and at its sole expense, elects to conduct with respect to Basket Compounds after the Amendment No. 5 Date and, with respect to each Basket Compound, prior to the date, if any, that such Basket Compound becomes a Terminated Compound); provided, however, in no event shall AstraZeneca Research Activities include Development activities, except that, for clarity, non-clinical studies in animals conducted in whole or in part after the Amendment No. 5 Date, at whatever stage, with a Basket Compound that are not regulatory toxicology studies shall constitute AstraZeneca Research Activities and not Development activities. For purposes of clarity, (i) AstraZeneca Research Activities may, subject to the notice, coordination and oversight set forth in Sections 4.1.1, 4.3, 4.6 and 4.11 and subject to Section 1.309,

include generating Derivatives from Collaboration Candidates (including Active+ Compounds, Collaboration Compounds and Candidate Drugs (other than Option Compound Candidate Drugs and Ispronicline)) during the Research Program Term and Tail Period, and otherwise Exploiting such Derivatives, in an effort to identify additional Collaboration Candidates to further the goals of the Collaboration and (ii) any activities that AstraZeneca conducts with respect to Ispronicline (or any Licensed Derivatives with respect thereto) or an Option Compound Candidate Drug (or any Additional Compounds with respect to Ispronicline (or any Licensed Derivatives with respect thereto) or any Option Compound Candidate Drug) shall not be AstraZeneca Research Activities."

3. Section 1.46 of the Agreement is hereby deleted in its entirety and replaced with the following:

"1.46 "**AstraZeneca Research Program Technology**" means any Technology made, developed or conceived by employees or consultants of AstraZeneca, alone or jointly with Third Parties, in the conduct of: (a) the AstraZeneca Research Activities, but in each case only if not AstraZeneca Assigned Technology; or (b) any Clinical Trial of a Basket Compound conducted in whole or in part after the Amendment No. 5 Date, but, solely in the case this clause (b), where such Technology constitutes a method of use or treatment (or otherwise constitutes a new therapeutic use), or pharmaceutical composition, of or for such Basket Compound. For purposes of clarity, (i) Technology with respect to Ispronicline made, developed or conceived by employees or consultants of AstraZeneca, alone or jointly with Third Parties, shall not be AstraZeneca Research Program Technology and (ii) Technology that is AstraZeneca Research Program Technology pursuant to clause (b) above shall also be AstraZeneca Development Program Technology."

4. The Agreement is hereby amended by adding the following new Section 1.52A:

"1.52A **"Basket Compound"** means each of AZD1446 (TC-6683), [***], in each case identified by the chemical structure acknowledged by the Parties as such compound as of the Amendment No. 5 Date, any enantiomer, metabolite or Prodrug of any of the aforementioned compounds, and, in each case, any salt form, polymorph, crystalline form, hydrate, solvate or formulation thereof."

5. Section 1.62 of the Agreement is hereby deleted in its entirety and replaced with the following:

"1.62 **"Collaboration"** means the alliance of Targacept and AstraZeneca established pursuant to this Agreement."

6. Section 1.76 of the Agreement is hereby deleted in its entirety and replaced with the following:

"1.76 "**Competitive Program**" means any research, development or commercialization activity of a Third Party that involves an Alpha4Beta2 Agonist or a product that contains an Alpha4Beta2 Agonist as an active ingredient for use in the Field or, prior to the Schizophrenia Expiration Date, Schizophrenia that would (a) were such Third Party to undergo a Change of Control transaction with Targacept, cause Targacept to be in breach of any of its exclusivity obligations under Section 8.6.1, or (b) were such Third Party to undergo a Change of

Control transaction with AstraZeneca, cause AstraZeneca to be in breach of any of its exclusivity obligations under Section 8.6.3 or terminate or limit any of Targacept's exclusivity obligations under Section 8.6.1."

7. Section 1.98 of the Agreement is hereby deleted in its entirety and replaced with the following:

"1.98 **"Development"** or **"Develop"** means, with respect to a Collaboration Compound, Candidate Drug or Product for a Primary Indication, Schizophrenia or a Small Market Indication, all non-clinical and clinical activities required to obtain Commercialization Regulatory Approval of such Product (including any Product that contains such Collaboration Compound or Candidate Drug) in accordance with this Agreement up to and including the obtaining of Commercialization Regulatory Approval of such Product for such Primary Indication, Schizophrenia or Small Market Indication. For purposes of clarity, these activities: (a) include test method development and stability testing, regulatory toxicology studies, formulation, process development, manufacturing, manufacturing scale-up, development-stage manufacturing, quality assurance/quality control development, statistical analysis and report writing, Clinical Trial design and operations, preparing and filing Drug Approval Applications, and all regulatory affairs related to the foregoing; (b) do not include non-clinical studies in animals conducted, at whatever stage, with Basket Compounds after the Amendment No. 5 Date that are not regulatory toxicology studies. When used as a verb, "Developing" means to engage in Development and "Developed" has a corresponding meaning."

8. Section 1.116 of the Agreement is hereby amended by deleting the reference to "Terminated Compound" therein and replacing it with a reference to "Terminated Compound that is not a Terminated AZ Compound."

9. Section 1.208 of the Agreement is hereby deleted in its entirety and replaced with the following:

"1.208 **"Option Term"** means the period commencing on the Effective Date and ending on the Amendment No. 5 Date."

10. The Agreement is hereby amended by adding the following new Section 1.219A:

"1.219A **"**[***] **Indication"** means each of (a) [***] having the diagnostic criteria identified in ICD-9 [***] as in effect in the United States as of the Amendment No. 5 Date, as such ICD-9 criteria may be updated or superseded thereafter, and (b) [***]."

Portions of this Exhibit, indicated by the mark "[***]," were omitted and have been filed separately with the Securities and Exchange Commission pursuant to the Registrant's application requesting confidential treatment pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

11. Section 1.238 of the Agreement is hereby amended by adding the following to the end thereof as a second paragraph:

"Notwithstanding the preceding paragraph, solely for purposes of the application of Sections 1.4, 1.36, 1.39, 1.40, 1.89, 1.98, 1.172, 1.193, 5.1.1, 5.2.1, 5.5.1(b), 5.9.1, 5.9.2, 5.10.1, 6.5.1(a), 6.5.1(b), 6.5.2, 6.6.1(d)(2), 11.2.5 and 11.2.7 (including, for clarity, all subsections of each such section) to Basket Compounds (and Products that consist of or contain a Basket Compound):

(i) **"Primary Indication"** means each indication or condition, other than Schizophrenia: (A) that is included in DSM-IV or ICD-10 or recognized as a distinct diagnosable condition by general consensus in the medical community in the United States or Europe; (B) for which a product has received Product Regulatory Approval from the FDA in the United States or the European Medicines Agency in Europe; or (C) that either becomes included in DSM-IV, ICD-10 or any other Diagnostic Manual in a Major Market Country during the Term, becomes recognized as a distinct diagnosable condition by general consensus in the applicable medical community in a Major Market Country during the Term or for which a product receives Product Regulatory Approval from the applicable Regulatory Authority in a Major Market Country during the Term; provided that, solely with respect to (1) Section 6.5.1(a) and Section 6.5.1(b), in no event shall a [***] Indication be a Primary Indication, (2) Section 6.5.1(a), in no event shall a [***] be a Primary Indication with respect to a Basket Compound for which milestone events [***] under Section 6.5.1(e) have been paid and (3) Section 6.5.1(b), in no event shall a Small Market Indication be a Primary Indication; and

(ii) all defined terms used in any of such sections that incorporate the term "Primary Indication" (either directly or indirectly through the term "Field" or any other defined term) shall be interpreted consistent with clause (i).

For clarity, all Primary Indications pursuant to the first paragraph of this Section 1.238 are also Primary Indications for purposes of this paragraph."

12. The Agreement is hereby amended by adding the following new Section 1.182A:

"1.182A **"Supplemental Patent Rights"** means: (a) PCT Application Pub No. [***] and all provisional applications, substitutions, continuations, continuations-in-part, divisions and renewals thereof, all letters patent granted thereon and all reissues, reexaminations and extensions thereof, and all foreign counterparts of any of the foregoing; and (b) any Patent Rights Controlled by Targacept or any of its Affiliates that are not otherwise licensed to AstraZeneca under this Agreement that would be infringed by the conduct of Development, Commercialization or Exploitation of any Basket Compound or Product that consists of or contains a Basket Compound outside the Field and outside Schizophrenia by or on behalf of AstraZeneca or any of its Affiliates, Sublicensees or Distributors; provided that Patent Rights covering any formulation or delivery technology that is not developed specifically for a Product that consists of or contains a Basket Compound shall not be Supplemental Patent Rights."

13. Section 1.289 of the Agreement is hereby deleted in its entirety and replaced with the following:

"1.289 **"Targacept Development Activities"** means, collectively: (a) during the Research Program Term and any Additional Research Program Term only, metabolite synthesis, metabolite characterization, *in vitro* and in *vivo* neuroprotection (APP transgenic mice, aged dog), biomarker development and dependence liability assessments (e.g., drug discrimination, place preference, I.V. self-administration, precipitated withdrawal) if, with respect to any of the foregoing, such activity is set forth in the Research Plan or an Annual Research Plan or Additional Research Plan; (b) such Development activities as may be specified to be conducted by Targacept in any Product Development Plan (or amendment thereto) approved by Targacept's representatives and AstraZeneca's representatives on the JDC or ESC (without resort to the dispute resolution procedures

set forth in Section 2.1.5); and (c) on and after the Amendment No. 5 Date, such research or Development activities as may be approved by Targacept's representatives and AstraZeneca's representatives on the JDC or ESC (without resort to the dispute resolution procedures set forth in Section 2.1.5) to be conducted by Targacept. For purposes of clarity, in no event shall any activity be a Targacept Development Activity unless Targacept's representatives on the applicable Committee have approved the Targacept Development Budget for such activity."

14. Section 1.291 of the Agreement is hereby deleted in its entirety and replaced with the following:

"1.291 "**Targacept Development Program Technology**" means any Technology made, developed or conceived by employees or consultants of Targacept, alone or jointly with Third Parties, in the conduct of any Development Program or otherwise based on or arising out of any Targacept Development Activities."

15. Section 1.296 of the Agreement is hereby deleted in its entirety and replaced with the following:

"1.296 **"Targacept Other Technology"** means any Technology Controlled by Targacept that is necessary or reasonably useful for: (a) the conduct of the Research Program or any Additional Research Program by the Parties; (b) AstraZeneca to Exploit any Collaboration Compound, Candidate Drug or Product, or any Additional Compound or Additional Product with respect to any of the foregoing, including Ispronicline or any Ispronicline Product, in the Field or in Schizophrenia; and (c) AstraZeneca to Exploit any Basket Compound outside the Field and outside Schizophrenia, to the extent such Technology is generated and Controlled by Targacept as of the Amendment No. 5 Date; provided that Targacept Other Technology excludes Targacept Pre-Phase IIb Program Technology, Targacept Research Program Technology, Targacept Development Program Technology and AstraZeneca Assigned Technology."

16. Section 1.297 of the Agreement is hereby deleted in its entirety and replaced with the following:

"1.297 "**Targacept Patent Rights**" means any Patent Rights Controlled by Targacept or its Affiliates that contain one or more claims that cover (a) Targacept Technology, (b) any (i) Collaboration Candidate, Active+ Compound, Collaboration Compound, Candidate Drug or Product, (ii) Additional Compound or Derivative with respect to any of the foregoing, or (iii) product that contains any of the foregoing (including any Additional Product) or (c) the Exploitation of any of the foregoing ((a) and (b)) in the Field or in Schizophrenia; provided that Supplemental Patent Rights are not Targacept Patent Rights."

17. The text of Section 5.10.2(h)(xii)(D) of the Agreement is hereby amended deleted in its entirety and replaced with the following:

"TC-5619 shall be, for clarity, an Unexercised Option Compound and shall not be a Terminated Compound or, notwithstanding anything in the Agreement to the contrary, an Additional Compound or Excluded Zone Compound, it being the intent of Targacept and AstraZeneca that, in the circumstances described in this Section 5.10.2(h)(xii) and notwithstanding anything in the

Agreement to the contrary, Targacept and its Affiliates and licensees (and sublicensees, through multiple tiers) shall have (1) the exclusive and unrestricted worldwide right to Exploit TC-5619, including any salt form, polymorph, crystalline form, prodrug, pharmacologically active metabolite, hydrate, solvate or formulation thereof, in all respects and (2) the non-exclusive and unrestricted worldwide right to Exploit any pharmacologically inactive metabolite of TC-5619 in all respects; provided that Targacept does not by the foregoing clause (2) grant to AstraZeneca any such rights; and"

18. Section 5.10.3 of the Agreement is hereby amended by removing the reference to "Term" in the first sentence thereof and replacing it with "Option Term."

19. The Agreement is hereby amended by adding the following new Section 5.15:

"5.15. **Research, Development and Commercialization of Basket Compounds if Targacept Has a Program for the Same Indication**.

(a) Notwithstanding anything in this Agreement to the contrary, in the event that both (i) AstraZeneca pursues research, Development or Commercialization of a Basket Compound or a Product that consists of or contains a Basket Compound for an indication or condition outside the Field and outside Schizophrenia and (ii) Targacept or any of its Affiliates is at such time conducting a Clinical Trial of a compound or Commercializing a product, in either case the prophylactic or therapeutic activity of which is known to be derived in any material respect through any Exclusivity Mechanism, outside the Collaboration for the same indication or condition outside the Field and outside Schizophrenia (such AstraZeneca activity, an "**Overlapping Activity**"), then clauses (A) and (B) below shall apply:

(A) AstraZeneca Election to [***]. AstraZeneca may elect, by delivering written notice to Targacept, to [***] ; any dispute arising in the JDC, CCC or ESC shall be [***]; and

(B) Reporting Obligations. In the event AstraZeneca has delivered written notice to Targacept under Section 5.15(a)(A), AstraZeneca thereafter shall [***].

(b) Except as provided in this Section 5.15(b) and notwithstanding anything elsewhere in this Agreement to the contrary, in the event that both (i) AstraZeneca is Commercializing a Product that consists of or contains a Basket Compound for an indication or condition outside the Field and outside Schizophrenia and (ii) Targacept or any of its Affiliates is at such time conducting a Phase III Clinical Trial of a compound or Commercializing a product, in either case the prophylactic or therapeutic activity of which is known to be derived in any material respect through any Exclusivity Mechanism, outside the Collaboration for the same indication or condition outside the Field and outside Schizophrenia (in which case such AstraZeneca activity shall likewise be deemed an Overlapping Activity), AstraZeneca may elect [***].

Notwithstanding the foregoing, AstraZeneca's [***] rights pursuant to this Section 5.15(b) shall not apply or be operative with respect to:

(A) [***] if, at the time AstraZeneca first Commercializes such Product for an indication outside the Field and outside Schizophrenia, (1) Targacept or any of its Affiliates is [***] and (2) Targacept is or has been [***] between the Parties; for clarity, it is the mutual intent and understanding of Targacept and AstraZeneca that, in the circumstances described in this sub-paragraph (A), (x) [***] between the Parties [***] and (y) [***]; or

(B) [***] or any agreement with respect thereto (in each case arising pursuant to [***]) if, at the time AstraZeneca first Commercializes such Product for an indication outside the Field and outside Schizophrenia, (1) Targacept or any of its Affiliates is [***] and (2) Targacept is or has been [***]; for clarity, it is the mutual intent and understanding of Targacept and AstraZeneca that, in the circumstances described in this sub-paragraph (B), (x) [***] agreement continue uninterrupted and (y) [***]."

20. The Agreement is hereby amended by adding the following new Section 6.5.1(e):

"(e) [***] Milestone Stream. Targacept and AstraZeneca expressly acknowledge and agree that: it is their mutual intent that the milestone events and payments provided for in this Section 6.5.1(e) be additive to, and not in lieu of, any milestone event or payment provided for in any or all of Sections 6.5.1(a), 6.5.1(b) and 6.5.1(c); provided that in no event shall AstraZeneca have any obligation to make any payment upon the occurrence of milestone event 1 or 2 under Section 6.5.1(a) if such milestone is achieved in the Development of any Basket Compound for a [***] Indication.

AstraZeneca shall, with respect to each Basket Compound or Product that consists of or contains such Basket Compound make each of the following payments to Targacept within [***] days after the first occurrence of the corresponding milestone event:

Milestone Event	
[***]	$2 million
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]
[***]	[***]

Solely for purposes of determining whether milestone events 5 and 6 under this Section 6.5.1(e) have occurred, if [***], then [***].

With respect to each Basket Compound and any Product that consists of or contains such Basket Compound, collectively, AstraZeneca shall make a payment corresponding to each of the foregoing milestone events only once under this Section 6.5.1(e), regardless of (1) the number of times such milestone event occurs for such Basket Compound and Product(s) and (2) the number of Basket Compounds contained in such Product. "

Portions of this Exhibit, indicated by the mark "[***]," were omitted and have been filed separately with the Securities and Exchange Commission pursuant to the Registrant's application requesting confidential treatment pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

21. Section 6.5.1(a) of the Agreement is hereby amended by deleting the last sentence thereof in its entirety and replacing it with the following:

"AstraZeneca shall, however, also make payments if and as provided in Section 6.5.1(b), Section 6.5.1(c) and Section 6.5.1(e), in each case subject to Section 6.5.2."

22. Section 6.5.1(b) of the Agreement is hereby amended by deleting the reference to "Section 6.5.1(a) and Section 6.5.1(c)" in the first sentence thereof and replacing it with a reference to "Section 6.5.1(a), Section 6.5.1(c) and Section 6.5.1(e)."

23. Section 6.5.1(c) of the Agreement is hereby amended by deleting the reference to "Section 6.5.1(a) and Section 6.5.1(b)" in the first sentence thereof and replacing it with a reference to "Section 6.5.1(a), Section 6.5.1(b) and Section 6.5.1(e)."

24. Section 6.5.2(a) of the Agreement is hereby amended by deleting it in its entirety and replacing it with the following:

"(a) Notwithstanding Sections 6.5.1(a), 6.5.1(b) and 6.5.1(e), and subject to Sections 6.6.1(d)(2), 10.2.4 and 10.2.6, if (i) AstraZeneca makes payments for any of milestone events 1, 2, 4, 5 and 6 under Section 6.5.1(a) or for milestone event 1 under Section 6.5.1(b) for a Candidate Drug in Development for a particular Primary Indication or for Schizophrenia (or, for a Candidate Drug that is a Basket Compound in Development for a [***] Indication, for any of milestone events 1, 2 and 3 under Section 6.5.1(e)), (ii) AstraZeneca subsequently terminates Development of such Candidate Drug for any reason, and (iii) AstraZeneca subsequently Develops, or is Developing, another Candidate Drug (including a Licensed Derivative with respect to the Candidate Drug for which Development was terminated), for which milestones would be due under Sections 6.5.1(a), 6.5.1(b) and 6.5.1(e) but for this Section 6.5.2, for the same Primary Indication or [***] Indication, as applicable, for which it was Developing the Candidate Drug for which Development was terminated, or if the Candidate Drug for which Development was terminated was being Developed for Schizophrenia, Schizophrenia, then: (x) AstraZeneca shall only be obligated to make payments corresponding to those milestone events that occur for the non-terminated Candidate Drug for which it had not previously made payments under Section 6.5.1(a), Section 6.5.1(b) or Section 6.5.1(e), as applicable, with respect to the terminated Candidate Drug; and (y) AstraZeneca may [***]. For purposes of clarity and by way of example, if (A) AstraZeneca is Developing Candidate Drug n for AD, (B) AstraZeneca pays the applicable amounts upon the occurrence of milestone events 1, 2, 4 and 5 under Section 6.5.1(a) for Candidate Drug n, (C) AstraZeneca terminates the Development of Candidate Drug n in a Phase III Clinical Trial, and (D) AstraZeneca subsequently Develops Candidate Drug n+1 for AD, and such Candidate Drug n+1 achieves any of milestone events 1, 2, 4 or 5 under Section 6.5.1(a), AstraZeneca shall not have any obligation to pay any milestone upon the occurrence of milestone events 1, 2, 4 or 5 under Section 6.5.1(a) for Candidate Drug n+1; provided that, if Candidate Drug n+1 (or a Product that contains Candidate Drug n+1) receives Commercialization Regulatory Approval for AD in any Major Market Country, AstraZeneca shall have an obligation to pay the applicable milestone upon the occurrence of each of milestone events 1, 2, 4 and 5 pursuant to Section 6.5.1(a) (as well as upon the occurrence of each of milestone events 6, 7, 8 and 9) for Candidate Drug n+2 and each subsequent Candidate Drug Developed for AD, except as otherwise provided in this Section 6.5.2."

25. Section 6.6.1(b)(1) of the Agreement is hereby amended by deleting it in its entirety and replacing it with the following:

"(1) Products other than Other Licensed Products. AstraZeneca's obligation to pay royalties under Sections 6.6.1(a)(1), (a)(2), (a)(4) and (c) (with respect to Products other than Other Licensed Products) shall commence, on a country-by-country basis, with respect to each separate Product, on the date of the First Commercial Sale of such Product by AstraZeneca, its Affiliates or Sublicensees in such country. The obligation shall expire, on a country-by-country basis, with respect to each separate Product, when that Product becomes a Terminated Compound with respect to such country or, if earlier, on the last to occur of (A) the twelfth (12th) anniversary of the First Commercial Sale of the first Product that is in the same Compound Family as such Product by AstraZeneca, its Affiliates or Sublicensees in such country; (B) the expiration date in such country of the last to expire of (i) any Targacept Patent Right, Joint Patent Right, Supplemental Patent Right, AstraZeneca Research Program Patent Right or AstraZeneca Pre-Phase IIb Program Patent Right, in each case that includes at least one Valid Claim covering the composition of matter of such Product, a pharmaceutical preparation comprising such Product or a method of use of such Product for the indication for which Commercialization Regulatory Approval is obtained with respect to such Product in such country or (ii) any AstraZeneca Derivative Patent Right that includes at least one Valid Claim covering the composition of matter of the Candidate Drug contained in such Product (each of (i) and (ii), a "**Royalty-Bearing Claim**") and (C) solely with respect to Products that are not Licensed Derivatives, the expiration or earlier termination of the applicable Data Exclusivity Period. Upon termination of the royalty obligations of AstraZeneca under this Section 6.6.1(b)(1) in a country with respect to a Product, the license grants to AstraZeneca in Section 8.1 shall become fully paid-up and AZ Net Sales of such Product in such country shall be excluded from the royalty calculations set forth in Section 6.6.1(a) (including the thresholds and ceilings). For purposes of clarity, if on the date of the First Commercial Sale of a Product (other than an Other Licensed Product), (i) there is no Royalty-Bearing Claim with respect to such Product, (ii) such First Commercial Sale is after the twelfth (12th) anniversary of the First Commercial Sale of the first Product that is in the same Compound Family as such Product by AstraZeneca, its Affiliates or Sublicensees in such country and (iii) either (x) the Candidate Drug contained in such Product is not a Licensed Derivative, but there is no Data Exclusivity Period with respect to such Product or (y) the Candidate Drug contained in such Product is a Licensed Derivative, then no royalties shall be owed under this Section 6.6.1 until such time, if any, as there is a Royalty-Bearing Claim with respect to such Product."

26. Section 8.1.3 of the Agreement is hereby amended by deleting it in its entirety and replacing it with the following:

"8.1.3 **Development and Exploitation**. Subject to the other terms of this Agreement, Targacept shall, and hereby does, grant to AstraZeneca, with effect on the Effective Date, an exclusive (even as to Targacept and its Affiliates), royalty-bearing, worldwide license, with the right to grant sublicenses, under (x) Targacept Technology, (y) Targacept Patent Rights, (z) solely with respect to Basket Compounds, Supplemental Patent Rights and (aa) Targacept's interest in Joint Technology and Joint Patent Rights:

(a) to Exploit (i) Ispronicline and Ispronicline Products (including conducting the Pre-Phase IIb Program), (ii) any Licensed Derivatives with respect to Ispronicline, and (iii) any Additional Compounds with respect to the foregoing; and

(b) to Exploit (i) Collaboration Candidates and Active+ Compounds until such time, with respect to each such Collaboration Candidate and Active+ Compound, as it becomes a Terminated Compound, (ii) Collaboration Compounds, Candidate Drugs, and Products (other than Ispronicline or Ispronicline Products (or any Licensed Derivatives with respect thereto), Option Compound Candidate Drugs or Option Compound Products), and (iii) any Additional Compounds with respect to the foregoing; and

(c) to Exploit (i) Option Compound Candidate Drugs and Option Compound Products and (ii) any Additional Compounds with respect to the foregoing;

provided that: (i) AstraZeneca and its Sublicensees shall not have the right under this Section 8.1.3 to Develop, file Drug Approval Applications or obtain or maintain Regulatory Approvals for, promote (which, for clarity, shall not include responses by AstraZeneca's Medical Resources Department or any equivalent department outside the United States to unsolicited inquiries with respect to any Candidate Drug or Product) or market any Candidate Drug that is not a Basket Compound, any Product that does not consist of or contain a Basket Compound, any Licensed Derivative or any Additional Compound that is not itself a Basket Compound, in each case outside the Field and outside Schizophrenia; (ii) such licenses granted under this Section 8.1.3 shall terminate, with respect to any compound or product, at such time as such compound or product becomes a Terminated Compound; and (iii) such licenses granted under this Section 8.1.3 shall not preclude Targacept from such actions as may be necessary: (A) to conduct the Research Program or any Additional Research Program; (B) to conduct the Ongoing Ispronicline Trial; (C) to conduct Targacept Development Activities; (D) subject to Section 5.10.2(c)(1), to identify, research and develop potential Back-Up Option Compounds (which, for purposes of clarity, are Additional Compounds with respect to the applicable Option Compound Candidate Drugs) with respect to Option Compound Candidate Drugs, in each case ((A) through (D)) in accordance with this Agreement; (E) otherwise for purposes of performing Targacept's obligations with respect to AstraZeneca under this Agreement; and (F) to conduct or (have conducted) the TRGT Ispronicline AD Trial and activities incidental thereto."

27. Section 8.6.1 of the Agreement is hereby amended by deleting clause (f) in its entirety and replacing it with the following:

"(f) any (i) Collaboration Compound, Candidate Drug or Product or Additional Compound with respect to any of the foregoing (including TC-1827) in the Field or in Schizophrenia, or (ii) Basket Compound or Product that consists of or contains a Basket Compound in or outside the Field;"

28. Section 8.6.2(d) of the Agreement is hereby deleted in its entirety and replaced with the following:

"(d) to the Exploitation of any Secondary Pharmacology Compound or Other NNR Compound: (i) prior to the Amendment No. 5 Date, in connection with non-clinical research

and non-clinical development activities undertaken to enable Targacept to assess whether to designate such Secondary Pharmacology Compound or Other NNR Compound as a Potential Option Compound or an Option Compound, but excluding, for purposes of clarity, any Option Compound Candidate Drug or any Additional Compound with respect thereto (other than Back-Up Option Compounds to the extent permitted under Section 5.10.2(c)(1)); or (ii) on and after the Amendment No. 5 Date, in any or all respects and, for clarity, in or outside the Field, unless such Secondary Pharmacology Compound or Other NNR Compound otherwise would be restricted under paragraphs (a), (f), (h) or (i) of Section 8.6.1 without giving effect to this Section 8.6.2(d)(ii);"

29. Section 8.7 of the Agreement is hereby deleted in its entirety and replaced with the following:

"8.7 **Notice of Release of Targacept Exclusivity Obligations**. If AstraZeneca Initiates a Clinical Trial for (a) any Alpha4Beta2 Agonist other than a Collaboration Compound, Candidate Drug or Product or (b) prior to the Amendment No. 5 Date, any Other NNR Compound that is not an Option Compound Candidate Drug or Option Compound Product (other than with respect to an Option Compound that is the subject of an Option Compound Development Plan that AstraZeneca has elected to complete pursuant to Section 5.10.2(b)(5)), in each case in the Field or in Schizophrenia, AstraZeneca shall promptly (but in no event later than thirty (30) days following such Initiation) provide written notice to Targacept thereof; provided that AstraZeneca shall have such obligation (x) with respect to Alpha4Beta2 Agonist, only for the first such Alpha4Beta2 Agonist and (y) with respect to Other NNR Compounds, only if it has not previously provided a notice under this Section 8.7 for an Alpha4Beta2 Agonist, and then only for the first such Other NNR Compound for which it Initiates a Clinical Trial."

30. Section 8.9.1 of the Agreement is hereby amended by deleting the sentence at the end thereof (below clause (e)) in its entirety and replacing it with the following:

"Notwithstanding anything in this Section 8.9.1 to the contrary, (x) Exploitation permitted pursuant to Section 8.6.2(c) or 8.6.2(g) shall not trigger application of this Section 8.9.1 and (y) from and after the Amendment No. 5 Date there can be no Expanded Field Indications for any Basket Compound and, as applied to Basket Compounds, this Section 8.9.1 shall not be operative and shall have no force or effect."

31. Section 11.2.7(a) of the Agreement is hereby deleted in its entirety and replaced with the following:

"(a) Terminated Efforts Test. Without prejudice in any way to Targacept's rights under Sections 11.2.4, 11.2.5 and 11.2.6, if, at any time prior to the expiration of the last royalty obligation pursuant to Section 6.6.1 with respect to the first Product (other than an Option Compound Product that contains an Option Compound Candidate Drug, unless pursuant to Section 5.5.1(c) such Option Compound Candidate Drug is sufficient to satisfy AstraZeneca's diligence obligation set forth in Section 5.5.1(b)) for which the First Commercial Sale occurs (or, if earlier, another Product for which the First Commercial Sale occurs), AstraZeneca, whether or not in breach of its diligence obligations under Section 5.5.1, has not (whether itself or with or through one or more of its Affiliates, Sublicensees, Distributors, or one or more of its or any of its Affiliates' contractors), for a period of twelve (12) consecutive months, devoted at least [***] of work (which shall be satisfied

during the Research Program Term by funding the Research Program as required under Section 2.1.5(a) in accordance with the then-current Annual Research Plan or conducting or, if applicable, funding, any Additional Research Program in accordance with an Additional Research Plan) to researching, developing, commercializing or otherwise Exploiting at least one Collaboration Compound, Candidate Drug (including, if after the Research Program Term, research or development in support of the selection or development of a Candidate Drug) or Product for at least one indication in the Field or in Schizophrenia in at least one Major Market Country (the "**Terminated Efforts Test**"), then Targacept shall have the right to provide AstraZeneca written notice specifying its concerns and stating its intention to terminate this Agreement in its entirety under this Section 11.2.7."

32. The preamble of the Agreement is hereby amended by deleting the address of AstraZeneca's principal place of business at "V-Malarehamnen 9, S-151 85 Södertälje, Sweden" and replacing it with "Pepparredsleden 1, SE-43 183 Mölndal, Sweden."

33. Section 17.1 of the Agreement is hereby amended by deleting the addressees for notices to AstraZeneca and replacing them with the following:

If to AstraZeneca:
Pepparredsleden 1
SE-43 183 Mölndal
Sweden
Tel: +46 31 776 2530
Fax: +46 31 776 3882
Attention: Jan-Olof Jacke, Vice President and Chief Financial Officer

With a copy to:
AstraZeneca Neuroscience Innovative Medicines
Floor 10, 141 Portland Street
Cambridge, MA 02139
U.S.A.
Tel: +1 (617) 875-7224
Fax: +1 (617) 679-1682
Attention: Conor Johnston, Chief Counsel

34. Except as expressly amended by this Amendment, all of the terms and conditions of the Agreement shall remain in full force and effect.

35. It is the mutual intent and understanding of Targacept and AstraZeneca that, notwithstanding anything else in the Agreement to the contrary, effective as of the Amendment No. 5 Date: (a) AstraZeneca's license under Section 8.1.3 to Exploit Basket Compounds and Products that consist of or contain any Basket Compound shall, and hereby does, apply in and outside the Field; (b) except to the extent (if any) restricted by Section 8.6.1(a), (f), (h) or (i), Targacept and its Affiliates, licensees (other than AstraZeneca) and sublicensees (through multiple tiers) shall, and hereby do, have the exclusive and unrestricted worldwide right to Exploit Secondary Pharmacology Compounds and Other NNR Compounds, including any salt form, polymorph, crystalline form, prodrug, metabolite, hydrate, solvate or formulation thereof, in all respects (including, for clarity, in and

outside the Field); and (c) Targacept has the exclusive and unrestricted worldwide right to enter into and consummate ROFN Collaborations; in each case (clauses (b) and (c)) without any obligation, financial or otherwise, or notice to AstraZeneca or to any Affiliate, licensee or sublicensee of AstraZeneca.

In addition, AstraZeneca and Targacept acknowledge and agree that: (x) the Research Program Term and Tail Period have expired and are no longer in effect; (y) the following compounds comprise the final and exclusive list of Lead Collaboration Compounds — AZD1446 (TC-6683), [***]; (z) the following compounds comprise the final and exclusive list of Related Collaboration Compounds —[***]; and (aa) all of the Lead Collaboration Compounds and Related Collaboration Compounds are Alpha4Beta2 Agonists.

36. Termination of Ispronicline.

(a) With effect beginning on the ninetieth (90th) day after the Amendment No. 5 Date (the "**Ispronicline Termination Date**"), the Agreement shall be terminated with respect to Ispronicline (also identified as AZD3480 or TC-1734) pursuant to Section 11.2.3 of the Agreement, notwithstanding any prior written notice from AstraZeneca to Targacept otherwise required for such termination pursuant to Section 11.2.3 of the Agreement. For clarity, as of the Ispronicline Termination Date, Ispronicline shall be a Terminated Compound and a Terminated AZ Compound.

(b) The Parties hereby acknowledge and agree that in no event shall AstraZeneca's liability for expenses incurred in filing, prosecuting and maintaining Targacept Patent Rights and Joint Patent Rights covering Ispronicline (or any Ispronicline Product) during the period commencing January 1, 2013 and ending on the Ispronicline Termination Date exceed [***], notwithstanding any greater percentage or amount of liability that may be allocated to AstraZeneca under Article 10 of the Agreement for such period and notwithstanding any other provision of the Agreement to the contrary.

(c) The Parties hereby acknowledge and agree that neither Ispronicline nor any metabolite of Ispronicline shall be, notwithstanding anything in the Agreement to the contrary, an Additional Compound or Excluded Zone Compound, it being the intent of Targacept and AstraZeneca that, notwithstanding anything in the Agreement to the contrary, Targacept and its Affiliates and licensees (and sublicensees, through multiple tiers) shall have (1) the exclusive and unrestricted worldwide right to Exploit Ispronicline, including any salt form, polymorph, crystalline form, prodrug, pharmacologically active metabolite, hydrate, solvate or formulation thereof, in all respects and (2) the non-exclusive and unrestricted worldwide right to Exploit any pharmacologically inactive metabolite of Ispronicline in all respects; provided that Targacept does not by the foregoing clause (2) grant to AstraZeneca any such rights.

(d) The Parties hereby acknowledge and agree that each of the TRGT Isponicline AD Trial Agreement and that certain Second Safety Agreement between the Parties dated September 28, 2010 (the "**Second Safety Agreement**") shall be terminated with effect from the Ispronicline Termination Date, subject in each case to the provisions thereof that survive termination. Promptly after the Amendment No. 5 Date, the Parties shall cooperate in good faith to transfer responsibility for the worldwide safety database for Ispronicline from AstraZeneca to Targacept. In the event such transfer is accomplished prior to the Ispronicline Termination Date, AstraZeneca's obligations under the Second Safety Agreement to maintain a worldwide safety database for Ispronicline shall terminate beginning on the date of Targacept's or its designee's receipt thereof.

[remainder of page intentionally left blank]

Portions of this Exhibit, indicated by the mark "[***]," were omitted and have been filed separately with the Securities and Exchange Commission pursuant to the Registrant's application requesting confidential treatment pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.

IN WITNESS WHEREOF AstraZeneca and Targacept have executed this Amendment as of the respective dates set forth below.

TARGACEPT, INC.	ASTRAZENECA AB (publ.)
By: /s/ Jeffrey P. Brennan	By: /s/ Jan-Olof Jacke
Name: Jeffrey P. Brennan	Name: Jan-Olof Jacke
Title: CBO, SVP Business and Commercial Development	Title: CFO AstraZeneca AB
Date: March 5, 2013	Date: March 5, 2013

***Portions of this Exhibit, indicated by the mark "[***],"* were omitted and have been filed separately with the Securities and Exchange Commission pursuant to the Registrant's application requesting confidential treatment pursuant to Rule 24b-2 of the Securities Exchange Act of 1934, as amended.**

Exhibit 31.1

CERTIFICATION PURSUANT TO RULE 13a-14(a) AND 15d-14(a) OF THE SECURITIES EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Stephen A. Hill, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Targacept, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 8, 2013

/s/ Stephen A. Hill
Stephen A. Hill
President and Chief Executive Officer
(*Principal Executive Officer*)

Exhibit 31.2

CERTIFICATION PURSUANT TO RULE 13a-14(a) AND 15d-14(a) OF THE SECURITIES EXCHANGE ACT OF 1934, AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Alan A. Musso, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Targacept, Inc.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

(a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

(b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

(c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

(d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

(a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

(b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 8, 2013

/s/ Alan A. Musso
Alan A. Musso
Senior Vice President, Finance and Administration, Chief Financial Officer and Treasurer
(*Principal Financial and Accounting Officer*)

Exhibit 32.1

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report on Form 10-Q of Targacept, Inc. (the "Company") for the period ended March 31, 2013 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Stephen A. Hill, hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 8, 2013

/s/ Stephen A. Hill
Stephen A. Hill
President and Chief Executive Officer
(*Principal Executive Officer*)

Exhibit 32.2

CERTIFICATION PURSUANT TO 18 U.S.C. SECTION 1350,
AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

In connection with the Quarterly Report on Form 10-Q of Targacept, Inc. (the "Company") for the period ended March 31, 2013 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I, Alan A. Musso, hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

(1) The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

(2) The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 8, 2013

/s/ Alan A. Musso
Alan A. Musso
Senior Vice President, Finance and Administration, Chief Financial Officer and Treasurer
(*Principal Financial and Accounting Officer*)