

**STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP**

Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or Section 30(h) of the Investment Company Act of 1940

OMB APPROVAL	
OMB Number:	3235-0287
Estimated average burden hours per response:	0.5

1. Name and Address of Reporting Person* <u>Musso Alan A</u>  (Last) (First) (Middle) <u>C/O TARGACEPT, INC.</u> <u>200 EAST FIRST STREET, SUITE 300</u>  (Street) <u>WINSTON- SALEM NC 27101</u>  (City) (State) (Zip)	2. Issuer Name and Ticker or Trading Symbol <u>TARGACEPT INC [ TRGT ]</u>	5. Relationship of Reporting Person(s) to Issuer (Check all applicable) Director 10% Owner <input checked="" type="checkbox"/> Officer (give title below) Other (specify below) <u>SVP, CFO &amp; Treasurer</u>
	3. Date of Earliest Transaction (Month/Day/Year) <u>05/17/2010</u>	
	4. If Amendment, Date of Original Filed (Month/Day/Year)	6. Individual or Joint/Group Filing (Check Applicable Line) <input checked="" type="checkbox"/> Form filed by One Reporting Person Form filed by More than One Reporting Person

**Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned**

1. Title of Security (Instr. 3)	2. Transaction Date (Month/Day/Year)	2A. Deemed Execution Date, if any (Month/Day/Year)	3. Transaction Code (Instr. 8)		4. Securities Acquired (A) or Disposed Of (D) (Instr. 3, 4 and 5)			5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4)	6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	7. Nature of Indirect Beneficial Ownership (Instr. 4)
			Code	V	Amount	(A) or (D)	Price			
Common Stock	05/17/2010		M		8,400	A	\$5.1	11,199	D	
Common Stock	05/17/2010		S		8,400	D	\$24.2081	2,799	D	
Common Stock	05/17/2010		M		382	A	\$2.93	3,181	D	
Common Stock	05/17/2010		S		382	D	\$24.6	2,799	D	
Common Stock	05/18/2010		M		3,424	A	\$2.93	6,223	D	
Common Stock	05/18/2010		S		3,424	D	\$24.6999	2,799	D	

**Table II - Derivative Securities Acquired, Disposed of, or Beneficially Owned (e.g., puts, calls, warrants, options, convertible securities)**

1. Title of Derivative Security (Instr. 3)	2. Conversion or Exercise Price of Derivative Security	3. Transaction Date (Month/Day/Year)	3A. Deemed Execution Date, if any (Month/Day/Year)	4. Transaction Code (Instr. 8)		5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5)		6. Date Exercisable and Expiration Date (Month/Day/Year)		7. Title and Amount of Securities Underlying Derivative Security (Instr. 3 and 4)	8. Price of Derivative Security (Instr. 5)	9. Number of derivative Securities Beneficially Owned Following Reported Transaction(s) (Instr. 4)	10. Ownership Form: Direct (D) or Indirect (I) (Instr. 4)	11. Nature of Indirect Beneficial Ownership (Instr. 4)	
				Code	V	(A)	(D)	Date Exercisable	Expiration Date						Title
Stock Option (Right to Buy)	\$5.1	05/17/2010		M			892	(1)	02/24/2012	Common Stock	892	\$0	0	D	
Stock Option (Right to Buy)	\$5.1	05/17/2010		M			5,100		01/14/2003 01/13/2013	Common Stock	5,100	\$0	1	D	
Stock Option (Right to Buy)	\$5.1	05/17/2010		M			2,408	(2)	01/30/2013	Common Stock	2,408	\$0	8,789	D	
Stock Option (Right to Buy)	\$2.93	05/17/2010		M			382	(3)	01/08/2019	Common Stock	382	\$0	52,118	D	
Stock Option (Right to Buy)	\$2.93	05/18/2010		M			3,424	(3)	01/08/2019	Common Stock	3,424	\$0	48,694	D	

**Explanation of Responses:**

- This option vested in installments and became vested in full on March 31, 2006.
- This option vested in installments and became vested in full upon completion of the issuer's initial public offering.
- This option vests in equal installments on the last day of 16 consecutive calendar quarters beginning with March 31, 2009.

**Remarks:**

The shares covered by this Form 4 have been sold pursuant to a Rule 10b5-1 Sales Plan dated December 16, 2009, which is intended to comply with Rule 10b5-1(c) promulgated under the Securities Exchange Act of 1934, as amended.

/s/ Peter A. Zorn, Attorney-in- 05/19/2010  
Fact for Alan A. Musso

\*\* Signature of Reporting Person      Date

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

\* If the form is filed by more than one reporting person, see Instruction 4 (b)(v).

\*\* Intentional misstatements or omissions of facts constitute Federal Criminal Violations See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

**Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB Number.**