

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
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1. Name and Address of Reporting Person* <u>Caldwell William S</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>VP - Drug Discovery and Dev.</u>
	3. Date of Earliest Transaction (Month/Day/Year) <u>08/27/2009</u>	
	4. If Amendment, Date of Original Filed (Month/Day/Year)	

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	08/27/2009		M		1,600	A	\$1.75	9,335	D	
Common Stock	08/27/2009		S		1,600	D	\$14.0039	7,735	D	
Common Stock	08/28/2009		M		500	A	\$1.75	8,235	D	
Common Stock	08/28/2009		S		500	D	\$14.08	7,735	D	
Common Stock	08/28/2009		M		4,900	A	\$1.75	12,635	D	
Common Stock	08/28/2009		S		4,900	D	\$14.5049	7,735	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)	\$1.75	08/27/2009		M			1,600	(1)	01/30/2013	Common Stock	1,600	\$0	500 ⁽²⁾	D	
Stock Option (Right to Buy)	\$1.75	08/28/2009		M			500	(1)	01/30/2013	Common Stock	500	\$0	0 ⁽²⁾	D	
Stock Option (Right to Buy)	\$1.75	08/28/2009		M			4,900	(3)	10/30/2013	Common Stock	4,900	\$0	17,055 ⁽⁴⁾	D	

Explanation of Responses:

- This option vested in installments and became vested in full upon completion of the issuer's initial public offering.
- Does not include 10,750 shares subject to the unexercised portion of this option for which the exercise price is \$5.10 per share.
- This option vested in installments and became vested in full on September 30, 2007.
- Does not include 23,089 shares subject to the unexercised portion of this option for which the exercise price is \$5.10 per share.

Remarks:

The shares covered by this Form 4 have been sold pursuant to a Rule 10b5-1 Sales Plan dated March 14, 2008, 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-Fact for William S. Caldwell 08/31/2009

** 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.