

Mills C Randal  
Form 4  
February 25, 2009

**FORM 4**

**UNITED STATES SECURITIES AND EXCHANGE COMMISSION  
Washington, D.C. 20549**

OMB APPROVAL

OMB Number: 3235-0287  
Expires: January 31, 2005  
Estimated average burden hours per response... 0.5

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

**STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF SECURITIES**

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934, Section 17(a) of the Public Utility Holding Company Act of 1935 or Section 30(h) of the Investment Company Act of 1940

(Print or Type Responses)

1. Name and Address of Reporting Person \*  
Mills C Randal

2. Issuer Name and Ticker or Trading Symbol  
OSIRIS THERAPEUTICS, INC.  
[OSIR]

5. Relationship of Reporting Person(s) to Issuer

(Check all applicable)

(Last) (First) (Middle)  
7015 ALBERT EINSTEIN DRIVE  
(Street)

3. Date of Earliest Transaction  
(Month/Day/Year)  
02/23/2009

Director  10% Owner  
 Officer (give title below)  Other (specify below)  
President & CEO

COLUMBIA, MD 21046

(City) (State) (Zip)

4. If Amendment, Date Original Filed(Month/Day/Year)

6. Individual or Joint/Group Filing(Check Applicable Line)  
 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 Ownership (Instr. 4)		
				(A) or (D)	Code	V	Amount	(D)	Price

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

**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 control number.**

SEC 1474  
(9-02)

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

1. Title of Derivative Security	2. Conversion or Exercise	3. Transaction Date (Month/Day/Year)	3A. Deemed Execution Date, if any	4. Transaction Code	5. Number of Derivative Securities	6. Date Exercisable and Expiration Date (Month/Day/Year)	7. Title and Amount of Underlying Securities (Instr. 3 and 4)
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(Instr. 3)	Price of Derivative Security	(Month/Day/Year)	(Instr. 8)		Date Exercisable	Expiration Date	Title	Amount or Number of Shares
			Acquired (A) or Disposed of (D) (Instr. 3, 4, and 5)	Code V				
Incentive Stock Option	\$ 18.6	02/23/2009	A	50,000	02/23/2010 <sup>(1)</sup>	02/23/2019	Common Stock	50,000

## Reporting Owners

Reporting Owner Name / Address	Relationships			
	Director	10% Owner	Officer	Other
Mills C Randal 7015 ALBERT EINSTEIN DRIVE COLUMBIA, MD 21046	X		President & CEO	

## Signatures

C Randal Mills                      02/25/2009  
 \*\*Signature of                      Date  
 Reporting Person

## Explanation of Responses:

- \* 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).
  - (1) Option vest in four equal installments commencing on the first anniversary of the grant date.
- Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.  
 Potential persons who are to respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB number.