

Mills C Randal
Form 4
February 16, 2011

FORM 4

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

OMB APPROVAL

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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)
02/14/2011

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.

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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 Underlying Security (Instr. 3 and 4)
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(Instr. 3)	Price of Derivative Security	(Month/Day/Year)	(Instr. 8)	Acquired (A) or Disposed of (D) (Instr. 3, 4, and 5)		Date Exercisable	Expiration Date	Title
				Code	V (A) (D)			
Incentive Stock Option (right to buy)	\$ 7.13	02/14/2011	A	13,169		02/14/2012 ⁽¹⁾	02/14/2021	Common Stock
Non-Qualified Stock Option (right to buy)	\$ 7.13	02/14/2011	A	26,831		02/14/2012 ⁽¹⁾	02/14/2021	Common Stock

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 02/16/2011
 **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).
- The option to purchase 40,000 shares of the common stock of Osiris Therapeutics, Inc. shall become exercisable with respect to the (1) underlying shares as to 25% on each of February 14, 2012, 2013, 2014 and 2015, assuming the Reporting Person continues to be employed by the Registrant on the vesting 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.