

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

SCHEDULE 13D

(Amendment No. 5)*

Under the Securities Exchange Act of 1934

ZIOPHARM ONCOLOGY, INC.

(Name of Issuer)

Common Stock, par value \$0.001 per share

(Title of Class of Securities)

98973P101

(CUSIP Number)

Third Security, LLC
1881 Grove Avenue
Radford, Virginia 24141
Attention: Marcus E. Smith, Esq.
(540) 633-7900

(Name, Address and Telephone Number of Person
Authorized to Receive Notices and Communications)

Copy to:
Intrexon Corporation
Attention: Legal
20374 Seneca Meadows Parkway
Germantown, Maryland 20876
(301) 556-9809

October 29, 2013

(Date of Event which Requires Filing of this Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition which is the subject of this Schedule 13D, and is filing this schedule because of Rule 13d-1(b)(3) or (4), check the following box O.

NOTE: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See §240.13d-7 for other parties to whom copies are to be sent.

* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

1	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS Randal J. Kirk	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF GROUP (a) <input type="radio"/> (b) <input checked="" type="radio"/>	
3	SEC USE ONLY	
4	SOURCE OF FUNDS PF	
5	CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) OR 2(e) 0	
6	CITIZENSHIP OR PLACE OF ORGANIZATION United States	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER 1,423,252
	8	SHARED VOTING POWER 16,390,305
	9	SOLE DISPOSITIVE POWER 1,423,252
	10	SHARED DISPOSITIVE POWER 16,390,305
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 17,813,557	
12	CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES 0	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 18.2%	
14	TYPE OF REPORTING PERSON IN	

1	NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS Intrexon Corporation I.R.S. IDENTIFICATION NO.: 26-0084895	
2	CHECK THE APPROPRIATE BOX IF A MEMBER OF GROUP (a) <input type="radio"/> (b) <input checked="" type="radio"/>	
3	SEC USE ONLY	
4	SOURCE OF FUNDS WC	
5	CHECK IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEM 2(d) OR 2(e) 0	
6	CITIZENSHIP OR PLACE OF ORGANIZATION Virginia	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7	SOLE VOTING POWER 0
	8	SHARED VOTING POWER 16,390,305
	9	SOLE DISPOSITIVE POWER 0
	10	SHARED DISPOSITIVE POWER 16,390,305
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 16,390,305	
12	CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES 0	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 16.7%	
14	TYPE OF REPORTING PERSON CO	

This Amendment No. 5 (the "Amendment") amends and supplements the Statement on Schedule 13D, dated January 12, 2011 and filed on January 20, 2011, as amended by Amendment No. 1 dated February 3, 2011 and filed on February 11, 2011, Amendment No. 2 dated August 9, 2011 and filed on August 16, 2011, Amendment No. 3 dated January 20, 2012 and filed on January 25, 2012, and Amendment No. 4 dated November 7, 2012 and filed November 9, 2012 (the "Original Schedule 13D"), relating to the Common Stock, par value \$0.001 per share (the "Common Stock"), of ZIOPHARM Oncology, Inc., a Delaware corporation (the "Company"). Mr. Randal J. Kirk ("Mr. Kirk") and Intrexon Corporation, a Virginia corporation ("Intrexon" and, together with Mr. Kirk, the "Reporting Persons"), are filing this Amendment to disclose the purchase by Intrexon, an affiliate of Mr. Kirk, of 2,857,143 shares of Common Stock in an underwritten public offering of the Company on October 29, 2013. Mr. Kirk could be deemed to have indirect beneficial ownership of the shares of Common Stock directly beneficially owned by Intrexon and Kapital Joe, LLC ("Kapital Joe"), a Virginia limited liability company that is managed by an affiliate that is managed by Third Security, LLC, a Virginia limited liability company that is managed by Mr. Kirk.

Except as set forth below, there are no changes to the information set forth in the Original Schedule 13D.

Item 3. Source and Amount of Funds or Other Consideration.

Item 3 of the Original Schedule 13D is hereby amended and supplemented as follows:

On October 29, 2013, Intrexon utilized its working capital to purchase 2,857,143 shares of Common Stock in an underwritten public offering of the Company, for an aggregate purchase price of approximately \$10,000,000, or \$3.50 per share.

Item 5. Interest in Securities of the Issuer.

Items 5(a) and (b) of the Original Schedule 13D are hereby amended and restated to read in their entirety as follows:

(a) and (b) See Items 11 and 13 of the cover pages to this Statement for the aggregate number of shares and percentage of issued and outstanding shares of Common Stock of the Company owned by the Reporting Persons. The percentage ownership is calculated based on 83,696,029 shares of Common Stock issued and outstanding as of October 14, 2013, as disclosed by the Company as of such date in its Quarterly Report on Form 10-Q for the fiscal quarter ended September 30, 2013, increased by 14,300,000 shares of Common Stock issued in the underwritten public offering, and 16,667 shares of Common Stock issuable upon exercise of stock options directly owned by Mr. Kirk that are currently exercisable.

Reporting Person	Amount of Common Stock Beneficially Owned	Percent of Class	Sole Power to Vote or Direct the Vote	Shared Power to Vote or Direct the Vote	Sole Power to Dispose or to Direct the Disposition	Shared Power to Dispose or to Direct the Disposition
Randal J. Kirk ⁽¹⁾	17,813,557	18.2%	1,423,252	16,390,305	1,423,252	16,390,305
Intrexon Corporation	16,390,305	16.7%	—	16,390,305	—	16,390,305

(1) Includes 1,346,462 shares of Common Stock held by Kapital Joe.

Mr. Kirk could be deemed to have indirect beneficial ownership of the shares of Common Stock directly beneficially owned by Intrexon and Kapital Joe.

Item 7. Material to be Filed as Exhibits.

Exhibit 1 Joint Filing Agreement, dated as of October 31, 2013, by and between Mr. Kirk and Intrexon

SIGNATURES

After reasonable inquiry and to the best of their knowledge and belief, the undersigned certify that the information set forth in this statement is true, complete and correct.

Date: October 31, 2013

/s/ Randal J. Kirk

Randal J. Kirk

INTREXON CORPORATION

By: /s/ Randal J. Kirk

Randal J. Kirk

Chief Executive Officer

EXHIBIT INDEX

[Exhibit 1](#) Joint Filing Agreement, dated as of October 31, 2013, by and between Mr. Kirk and Intrexon

Joint Filing Agreement

In accordance with Rule 13d-1(k) promulgated under the Securities Exchange Act of 1934, as amended, the persons named below agree to the joint filing on behalf of each of them a Statement on Schedule 13D (including amendments thereto) with regard to the common stock of ZIOPHARM Oncology, Inc., and further agree that this Joint Filing Agreement be included as an exhibit to such joint filings. In evidence thereof, the undersigned, being duly authorized, hereby execute this agreement as of the 31st day of October, 2013.

/s/ Randal J. Kirk

Randal J. Kirk

INTREXON CORPORATION

By: /s/ Randal J. Kirk

Randal J. Kirk

Chief Executive Officer
