

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

SCHEDULE 13D

(Amendment No. __)*

Under the Securities Exchange Act of 1934

HISTOGENICS CORPORATION

(Name of Issuer)

Common Stock, par value \$0.01 per share

(Title of Class of Securities)

43358V109

(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

December 8, 2014

(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 .

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="checkbox"/> (b) <input checked="" type="checkbox"/>
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) <input type="checkbox"/>
6	CITIZENSHIP OR PLACE OF ORGANIZATION United States
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7 SOLE VOTING POWER 0
	8 SHARED VOTING POWER 2,690,570
	9 SOLE DISPOSITIVE POWER 0
	10 SHARED DISPOSITIVE POWER 2,690,570
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 2,690,570
12	CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES <input type="checkbox"/>
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 21.1%
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="checkbox"/> (b) <input checked="" type="checkbox"/>	
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) <input type="checkbox"/>	
6	CITIZENSHIP OR PLACE OF ORGANIZATION Virginia	
NUMBER OF SHARES BENEFICIALLY OWNED BY EACH REPORTING PERSON WITH	7 0	SOLE VOTING POWER
	8 2,690,570	SHARED VOTING POWER
	9 0	SOLE DISPOSITIVE POWER
	10 2,690,570	SHARED DISPOSITIVE POWER
11	AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON 2,690,570	
12	CHECK IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES <input type="checkbox"/>	
13	PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11) 21.1%	
14	TYPE OF REPORTING PERSON CO	

Item 1. Security and Issuer.

The class of equity securities to which this Statement on Schedule 13D (the "Statement"), relates is the common stock, par value \$0.01 per share (the "Common Stock"), of Histogenics Corporation, a Delaware corporation (the "Company"), whose principal executive offices are located at 830 Winter Street, 3rd Floor, Waltham, Massachusetts 02451.

Item 2. Identity and Background.

This Statement is being filed on behalf of Mr. Randal J. Kirk ("Mr. Kirk") and Intrexon Corporation, a Virginia corporation that is controlled by Mr. Kirk ("Intrexon" and, together with Mr. Kirk, the "Reporting Persons").

(a)-(c) The address of the principal business office of Mr. Kirk is The Governor Tyler, 1881 Grove Avenue, Radford, Virginia 24141. The address of the principal business office of Intrexon is 20374 Seneca Meadows Parkway, Germantown, Maryland 20876. The present principal occupation/employment of Mr. Kirk is Chief Executive Officer and Senior Managing Director of Third Security, LLC, an investment management firm founded by Mr. Kirk. Mr. Kirk also serves as the Chairman and Chief Executive Officer of Intrexon. The principal business of Intrexon is designing, building and regulating gene programs, or sequences of DNA that control cellular function, and cellular systems, or activities that take place within a cell and the interaction of those systems in the greater cellular environment, to enable the development of new and improved products and manufacturing processes across a variety of end markets, including healthcare, food, energy and environmental sciences.

(d)-(e) During the last five years, none of the Reporting Persons has been convicted in a criminal proceeding (excluding traffic violations or similar misdemeanors) or been a party to a civil proceeding of a judicial or administrative body of competent jurisdiction and as a result of such proceeding is or was subject to a judgment, decree or final order enjoining future violations of, or prohibiting or mandating activities subject to, federal or state securities laws or finding any violation with respect to such laws.

(f) Mr. Kirk is a citizen of the United States. Intrexon is a corporation organized under the laws of the Commonwealth of Virginia.

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

On September 30, 2014, the Company and Intrexon entered into an Exclusive Channel Collaboration Agreement (the "Channel Agreement") for the generation of allogeneic chondrocyte cell therapeutics to repair damaged articular hyaline cartilage in humans. Under the terms of the Channel Agreement, the Company was granted access to Intrexon's technologies and expertise to develop allogeneic genetically modified chondrocyte cell therapeutics in exchange for a technology access fee of \$10 million in the form of a Convertible Promissory Note (the "Note").

Pursuant to the terms of the Note, principal and accrued interest under the Note were automatically converted into 918,206 shares of Common Stock (the "Note Conversion Shares") upon the closing of the Company's initial public offering. Pursuant to the terms of the Channel Agreement, Intrexon made an equity purchase commitment to participate in a qualified financing, defined as a sale by the Company of Common Stock or equity securities convertible into Common Stock in an underwritten public offering raising gross proceeds of at least \$50 million. In connection therewith, Intrexon purchased 1,772,364 shares of Common Stock in the Company's initial public offering. The terms of the Note are set forth in the Note included as Exhibit 4.6 to the Company's Form S-1 Registration Statement, as filed on October 7, 2014, which document is incorporated herein by reference. The terms of the Channel Agreement are set forth in the Channel Agreement included as Exhibit 10.35 to the Company's Form S-1 Registration Statement, as filed on October 7, 2014, which document is incorporated herein by reference.

Item 4. Purpose of Transaction.

The information set forth in Items 3 and 6 is incorporated herein by reference.

The Reporting Persons acquired the shares disclosed hereunder for investment purposes and with respect to the Note Conversion Shares, as partial consideration for the execution and delivery of the Channel Agreement. The Reporting Persons may, from time to time, depending upon market conditions and other factors deemed relevant by the Reporting Persons, acquire shares of Common Stock or other capital stock of the Company. The Reporting Persons reserve the right to, and may in the future choose to, change their purpose with respect to the investment and take such actions as they deem appropriate in light of the circumstances including, without limitation, to dispose of, in the open market, in a privately negotiated transaction, by transfer, by exchange or by gift, all or a portion of the shares of Common Stock or other securities of the Company that they now own or may hereafter acquire. Any decision of the Reporting Persons to increase their holdings in Common Stock or securities convertible into Common Stock will depend, however, on numerous factors including, without limitation, the price of shares of Common Stock, the terms and conditions related to their purchase and sale, the prospects and profitability of the Company, other business and investment alternatives of the Reporting Persons, tax considerations and general economic and market conditions. At any time, the Reporting Persons, or either of them, may determine to dispose of some or all of their holdings of Common Stock depending on those and other considerations.

The Reporting Persons do not have present plans or proposals which would result in:

- (a) The acquisition by any person of additional securities of the Company, or the disposition of securities of the Company;
 - (b) An extraordinary corporate transaction such as a merger, reorganization or disposition, involving the Company or any of its subsidiaries;
 - (c) A sale or transfer of a material amount of assets of the Company or any of its subsidiaries;
 - (d) Any change in the present board of directors or management of the Company, including any plans or proposals to change the number or term of directors or to fill any existing vacancies on the board;
 - (e) Any material change in the present capitalization or dividend policy of the Company;
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- (f) Any other material change in the Company's business or corporate structure, including but not limited to, if the Company is a registered closed-end investment company, any plans or proposals to make any changes in its investment policy for which a vote is required by Section 13 of the Investment Company Act of 1940;
- (g) Changes in the Company's charter, bylaws or instruments corresponding thereto or other actions which may impede the acquisition of control of the Company by any person;
- (h) Causing a class of securities of the Company to be delisted from a national securities exchange or to cease to be authorized to be quoted in an inter-dealer quotation system of a registered national securities association;
- (i) A class of equity securities of the Company becoming eligible for termination of registration pursuant to Section 12(g)(4) of the Securities Exchange Act of 1934; or
- (j) Any action similar to any of those actions enumerated above.

Item 5. Interest in Securities of the Issuer.

The information contained on the cover pages to this Statement and the information set forth or incorporated in Items 2, 3, 4 and 6 is incorporated herein by reference.

(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 12,756,805 shares of Common Stock issued and outstanding as of the closing of the Company's initial public offering, as indicated in the Prospectus filed by the Company on December 3, 2014.

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	2,690,570	21.1%	—	2,690,570	—	2,690,570
Intrexon Corporation	2,690,570	21.1%	—	2,690,570	—	2,690,570

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

- (c) Except as set forth in this Item 5, none of the Reporting Persons have engaged in any transactions in the Common Stock in the past 60 days.
- (d)-(e) Not Applicable

Item 6. Contracts, Arrangements, Understandings or Relationships with Respect to Securities of the Issuer.

The Reporting Persons' responses to Items 3 and 4 are incorporated herein by reference.

Item 7. Material to be Filed as Exhibits.

- Exhibit 1 Convertible Promissory Note issued by the Company to Intrexon dated as of September 30, 2014 (filed as Exhibit 4.6 to the Company's Form S-1 Registration Statement, filed October 7, 2014, and incorporated herein by reference)
- Exhibit 2 Exclusive Channel Collaboration Agreement by and between the Company and Intrexon dated as of September 30, 2014 (filed as Exhibit 10.35 to the Company's Form S-1 Registration Statement, filed October 7, 2014 and incorporated herein by reference)
- Exhibit 3 Joint Filing Agreement, dated as of December 10, 2014, by and between Mr. Kirk and Intrexon
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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: December 10, 2014

/s/ Randal J. Kirk

Randal J. Kirk

INTREXON CORPORATION

By: /s/ Randal J. Kirk

Randal J. Kirk

Chief Executive Officer

EXHIBIT INDEX

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- [Exhibit 3](#) Joint Filing Agreement, dated as of December 10, 2014, by and between Mr. Kirk and Intrexon
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Exhibit 3

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 Histogenics Corporation, 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 10th day of December, 2014.

/s/ Randal J. Kirk

Randal J. Kirk

INTREXON CORPORATION

By: /s/ Randal J. Kirk

Randal J. Kirk

Chief Executive Officer
