SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

FORM 8-K

CURRENT REPORT

Pursuant to

Section 13 or 15(d) of

THE SECURITIES EXCHANGE ACT OF 1934

Date of Report (Date of Earliest Event Reported): February 3, 2004

GENOME THERAPEUTICS CORP.

(Exact name of registrant as specified in its charter)

Massachusetts (State or other jurisdiction of incorporation) 0-10824 (Commission File Number) 04-2297484 (I.R.S. Employer Identification Number)

100 Beaver Street

Waltham, Massachusetts 02453

 $(Address\ of\ principal\ executive\ offices,\ including\ zip\ code)$

(781) 398-2300

(Registrant s telephone number, including area code)

Item 5. Other Events.

On February 3, 2004, Genome Therapeutics (the Company) issued a press release announcing that the Securities and Exchange Commission (the Commission) declared effective its Registration Statement on Form S-3 (File No. 333-111273) (the Registration Statement), which registers the sale of up to 16.8 million shares of its common stock at a per share price of \$5.25. The offering is being made in conjunction with the pending merger of the Company and Genesoft Pharmaceuticals. A copy of the press release is attached to this Current Report on Form 8-K as Exhibit 99.1.

Item 7. Financial Statements, Pro Forma Financial Information and Exhibits.

(c) Exhibits

99.1 Press Release issued by Genome Therapeutics Corp. on February 3, 2004.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

GENOME THERAPEUTICS CORP.

By: /s/ Steven M. Rauscher

Name: Steven M. Rauscher

Title: President and Chief Executive Officer

Date: February 3, 2004

EXHIBIT INDEX

| Exhibit Number | Description |
|----------------|--|
| 99.1 | Press Release issued by Genome Therapeutics Corp. on February 3, 2004. |