



4,442,609\*

12. Check if the Aggregate Amount in Row (11) Excludes Certain Shares (See Instructions): Not Applicable
13. Percent of Class Represented by Amount in Row (11): 22.6% \*
14. Type of Reporting Person (See Instructions): IA, IN

\* This is a joint filing by Austin W. Marxe (?Marxe?) and David M. Greenhouse (?Greenhouse?). Marxe and Greenhouse share sole voting and investment power over 854,936 shares of Common Stock owned by Special Situations Cayman Fund, L.P., 3,199,763 shares of Common Stock owned by Special Situations Fund III, L.P., and 387,910 shares of Common Stock owned by Special Situations Life Sciences Fund, L.P. See Items 2 and 5 of this Schedule 13D for additional information.

Item 1. Security and Issuer.

This schedule related to the common stock and warrants of XCYTE Therapies, Inc. (the ?Issuer?). The Issuer's principal executive officers are located at 1124 Columbia Street, Suite 130, Seattle, WA 98104

Item 2. Identity and Background.

The persons filing this report are Austin W. Marxe (?Marxe?) and David M. Greenhouse (?Greenhouse?), who are the controlling principals of AWM Investment Company, Inc. (?AWM?), the general partner of and investment adviser to Special Situations Cayman Fund, L.P. (?Cayman?). AWM also serves as the general partner of MGP Advisers Limited Partnership (?MGP?), the general partner of and investment adviser to Special Situations Fund III, L.P. (?SSF3?). Marxe and Greenhouse are also members of LS Advisers L.L.C. (?LS?), the general partner of and investment adviser to Special Situations Life Sciences Fund, L.P. (?LIFE?). (SSF3, Cayman, and LIFE will hereafter be referred to as, the ?Funds?).

The principal office and business address of the Reporting Persons, is 527 Madison Avenue, Suite 2600, New York NY 10022.

The principal business of each Fund is to invest in equity and equity-related securities and other securities of any kind or nature.

Mr. Marxe and Mr. Greenhouse have never been convicted in any criminal proceeding (excluding traffic violations or similar misdemeanors), nor have either of them been a party to any civil proceeding commenced before a judicial or administrative body of competent jurisdiction as a result of which he was or is now 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. Mr. Marxe and Mr. Greenhouse are citizens of the United States.

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

Each Fund utilized its own available net assets to purchase the securities referred to in this Schedule.

Item 4. Purpose of Transaction.

The securities referred to in this Schedule have been acquired by each of the Funds for investment purposes and not with the purpose or effect of changing or influencing control of the Issuer. Each Fund acquired the securities in the ordinary course of business and is holding the securities for the benefit of its investors.

Item 5. Interest in Securities of the Issuer.

Cayman owns 854,936 shares of Common Stock, or 4.3% of the shares outstanding, SSF3 owns 3,199,763 shares of Common Stock or 16.3% of the shares outstanding, LIFE owns 387,910 shares of Common Stock, or 2.0% of the outstanding shares. Messrs. Marxe and Greenhouse share the power to vote and direct the disposition of all shares of Common Stock owned by each of the Funds. Messrs. Marxe and Greenhouse are deemed to beneficially own a total of 4,442,609 shares of Common Stock or 22.6% of the outstanding shares.

The following table reflects the acquisitions and dispositions by each of the Funds during the month of December 2005. All other transactions prior to December 1, 2005 have been disclosed in a prior 13G filing. (Each of which were effected in ordinary broker transactions):

A. Special Situations Cayman Fund, L.P.

Date

Quantity  
Average Price

(Purchases)

During December 2005  
124,988  
\$0.47

Date  
Quantity  
Average Price

(Sales)

B. Special Situations Life Sciences Fund, L.P.

Date  
Quantity  
Average Price

(Purchases)

During December 2005  
353,900  
\$0.48

Date  
Quantity  
Average Price

(Sales)

C. Special Situations Fund III, L.P.

Date  
Quantity  
Average Price

(Purchases)

During December 2005  
482,360  
\$0.46

Date  
Quantity  
Average Price

(Sales)

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

No contracts, arrangements, understandings or similar relationships  
exist with respect to the securities of the Company between Messrs. Marx and

Greenhouse and any other individual or entity.

Item 7. Material to be Filed as Exhibits.

Joint Filing Agreement.

Signature

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

December 23, 2005

/s/\_Austin W. Marxe

Austin W. Marxe

/s/\_David M. Greenhouse

David M. Greenhouse

Attention: Intentional misstatements or omissions of fact constitute Federal  
criminal violations (See 18 U.S.C. 1001).

JOINT FILING AGREEMENT

Austin W. Marxe and David M. Greenhouse hereby agree that the Schedule  
13D to which this agreement is attached is filed on behalf of each of them.

/s/\_Austin W. Marxe

Austin W. Marxe

/s/\_David M. Greenhouse

David M. Greenhouse

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