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**UNITED STATES  
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): **May 12, 2005**

**MACROPORE BIOSURGERY, INC.**

(Exact name of registrant as specified in its charter)

**Delaware**  
(State or Other Jurisdiction of  
Incorporation)

**000-32501**  
(Commission File  
Number)

**33-0827593**  
(I.R.S. Employer Identification  
Number)

**6740 Top Gun Street, San Diego, California 92121**  
(Address of principal executive offices, with zip code)

**(858) 458-0900**  
(Registrant's telephone number, including area code)

**n/a**  
(Former name or former address, if changed since last report)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions (see General Instruction A.2. below):

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
  - Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
  - Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
  - Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))
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**Item 1.01**      **Entry into a Material Definitive Agreement**  
**Item 3.03**      **Material Modification to Rights of Security Holders**

On May 12, 2005, we amended the Rights Agreement under our stockholder rights plan, which is a "poison pill" plan. Under the plan, the Rights separate from the Common Stock (i.e., the poison pill is triggered) when a person or group acquires beneficial ownership of 15% or more of the outstanding common stock. The amendment changes that threshold, from 15% to 20%, in the case of Neil Gagnon, either individually or together with his affiliates, including without limitation Gagnon Securities LLC and its affiliates (all together "Gagnon").

The effect of the amendment is to enable Gagnon to safely increase his beneficial ownership to above 15% (although not to above 20%) without thereby triggering the poison pill.

**Item 9.01**      **Financial Statements and Exhibits**

**(c)      Exhibits**

4.1.1      Amendment No. 1 to Rights Agreement, dated as of May 12, 2005, between us and Computershare Trust Company, Inc., as Rights Agent.

## 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.

### MACROPORE BIOSURGERY, INC.

Date: May 18, 2005

By: /s/ CHRISTOPHER J. CALHOUN

Christopher J. Calhoun  
Chief Executive Officer

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## EXHIBIT INDEX

<u>Exhibit Number</u>	<u>Description of Document</u>
4.1.1	Amendment No. 1 to Rights Agreement, dated as of May 12, 2005, between us and Computershare Trust Company, Inc., as Rights Agent

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## MACROPORE BIOSURGERY, INC.

## AMENDMENT NO. 1 TO RIGHTS AGREEMENT

THIS AMENDMENT NO. 1 TO RIGHTS AGREEMENT (this "Amendment") is made as of May 12, 2005 between MACROPORE BIOSURGERY, INC., a Delaware corporation (the "Corporation"), and COMPUTERSHARE TRUST COMPANY, INC., a Colorado Corporation (the "Rights Agent").

WHEREAS, the Corporation and the Rights Agent entered into that certain Rights Agreement dated as of May 29, 2003 (the "Rights Agreement") (capitalized terms used in this Agreement but not defined herein shall have the meaning assigned to them in the Rights Agreement); and

WHEREAS, the Corporation and the Rights Agent desire to irrevocably amend the Rights Agreement as provided below.

NOW, THEREFORE, in consideration of the foregoing premises and the mutual covenants and conditions set forth below, and for other good and valuable consideration, the receipt of which is hereby acknowledged, the parties to this Amendment No. 1 to Rights Agreement hereby agree as follows:

## AMENDMENT

1. **Amendment of the Rights Agreement.** A new Section 27 of the Rights Agreement is hereby added as follows:

"27. Beneficial Ownership by Neil Gagnon.

Notwithstanding anything to the contrary in this Agreement: (A) the Beneficial Ownership by Neil Gagnon, either individually or together with his Affiliates and Associates (including without limitation Gagnon Securities LLC and its Affiliates) (collectively, "Gagnon") of 20% or less of the outstanding shares Common Stock shall not constitute Gagnon an Acquiring Person; and (B) Gagnon shall not be deemed an Acquiring Person either (i) as a result of the acquisition of Common Stock by the Corporation which, by reducing the number of shares of Common Stock outstanding, increases the proportional number of shares Beneficially Owned by Gagnon; provided however that if (1) Gagnon would become an Acquiring Person (but for the operation of this subclause (B)(i)) as a result of the acquisition of shares of Common Stock by the Corporation, and (2) after such share acquisition by the Corporation, Gagnon becomes the Beneficial Owner of any additional shares of Common Stock, then Gagnon shall be deemed an Acquiring Person, or (ii) if (1) within eight (8) days after Gagnon would otherwise have become an Acquiring Person (but for the operation of this subclause (B)(ii)), Gagnon notifies the Board of Directors of the Corporation that Gagnon did so inadvertently and (2) within two (2) Business Days (as defined in Section 1.8 hereof) after such notification, Gagnon is the Beneficial Owner of 20% or less of the outstanding shares of Common Stock."

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2. **No Other Amendment.** Except as modified by this Amendment, the Rights Agreement shall remain in full force and effect without any modification. By executing this Amendment below, the Corporation certifies that this Amendment has been executed and delivered in compliance with the terms of Section 25.2 of the Rights Agreement. This Amendment shall be deemed an amendment to the Rights Agreement and shall become effective when executed and delivered by the Corporation and the Rights Agent as provided under Section 25.2 of the Rights Agreement.

3. **Effect of Amendment.** Except as and to the extent expressly modified by this Amendment, the Rights Agreement and the exhibits thereto, shall remain in full force and effect in all respects. In the event of a conflict or inconsistency between this Amendment and the Rights Agreement and the exhibits thereto, the provisions of this Amendment shall govern.

4. **Counterparts.** This Amendment may be executed in several counterparts, each of which shall constitute an original and all of which, when taken together, shall constitute one agreement.

[THIS SPACE INTENTIONALLY LEFT BLANK]

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The parties hereto have caused this Amendment to be executed and delivered as of the day and year first written above.

MACROPORE BIOSURGERY, INC.

By: /s/ MARK SAAD

Mark Saad  
Chief Financial Officer

COMPUTERSHARE TRUST COMPANY, INC.

By: /s/ **KELLIE GWINN**

Kellie Gwinn  
Vice President

By: /s/ **JOHN M. WAHL**

John M. Wahl  
Corporate Trust Officer