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SCHEDULE 14A

(Rule 14a-101)

INFORMATION REQUIRED IN PROXY STATEMENT SCHEDULE 14A INFORMATION

Proxy Statement Pursuant to Section 14(a) of the Securities Exchange Act of 1934 (Amendment No. 2)

Filed by the Registrant

Filed by a Party other than the Registrant

Check the appropriate box:

- Preliminary Proxy Statement
- Confidential, for Use of the Commission Only (as permitted by Rule 14a-6(e)(2))**
- Definitive REVISED Proxy Statement
- Definitive Additional Materials
- Soliciting Material Pursuant to Rule 14a-11(c) or Rule 14a-12

MACROPORE BIOSURGERY, INC.

(Name of Registrant as Specified In Its Charter)

(Name of Person(s) Filing Proxy Statement, if other than the Registrant)

Payment of Filing Fee (Check the appropriate box):

- No fee required.
- Fee computed on table below per Exchange Act Rules 14a-6(i)(4) and 0-11.
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MACROPORE BIOSURGERY, INC.
6740 TOP GUN STREET
SAN DIEGO, CALIFORNIA 92121

**NOTICE OF 2004 ANNUAL MEETING OF STOCKHOLDERS
TO BE HELD ON
AUGUST 24, 2004**

Dear MacroPore Biosurgery, Inc. Stockholder:

You are cordially invited to attend the 2004 Annual Meeting of the stockholders of MacroPore Biosurgery, Inc. The Annual Meeting will be held in the United States, at our offices located at 6740 Top Gun Street, San Diego, California on August 24, 2004, commencing at 9:00 a.m., San Diego local time, and at 6:00 p.m., Frankfurt local time. I look forward to meeting with as many of our stockholders as possible. The meeting will be webcast live for those who are unable to attend in person.

To access the webcast of the meeting please visit our website at www.macropore.com and follow the link on our Investor Relations section. An audio presentation of the Annual Meeting will also be available via telephone 6:00 p.m. (CEST)/9:00 a.m. (PDT): Dial-In Number USA: +1 303-262-2140 and Dial-In Number Europe: +49 (0) 61 03-4 85 30 01. A telephone replay will be available for 24 hours. To access the replay please call from the USA: +1 303-590-3000; (PIN-Number: 577168) and from Europe: +49 (0) 69-5 89 99 05 68; (PIN-Number: 132479). The access information can also be obtained by calling our San Diego office during regular business hours at (858) 458-0900. You will not be able to place your vote over the Internet. The only authorized voting will be in person at the meeting or by completing and returning the enclosed proxy card.

At the meeting, you will be asked to vote upon the election of our Board of Directors and to ratify our selection of the Independent Auditors. There will also be a report on our business, and those who attend in person will have the opportunity to ask questions about us. In addition, we will address any other business properly brought before the meeting.

We have attached a Proxy Statement that contains more information about these items and the meeting. Stockholders that own stock at the close of business on June 28, 2004, can vote at the meeting. A list of our stockholders allowed to vote will be available for inspection by any stockholder at our offices in San Diego, during normal business hours for the ten business days prior to the meeting. This list will also be available at our San Diego office during the meeting.

We hope that you will find it convenient to attend the meeting in person. **Whether or not you expect to attend, please complete, date, sign, and mail the enclosed proxy card to ensure your representation at the meeting and the presence of a quorum.** If your address is on our stockholder list a return envelope is provided for you and no postage need be affixed to the proxy card when it is mailed. **If you decide to attend the meeting and wish to change your proxy vote, you may do so by voting in person at the meeting.**

By Order of the Board of Directors,

CHRISTOPHER J. CALHOUN
Chief Executive Officer

San Diego, California, USA
July 5, 2004

PROXY STATEMENT

MacroPore Biosurgery, Inc.
6740 Top Gun Street
San Diego, CA 92121
(858) 458-0900

INFORMATION CONCERNING SOLICITATION AND VOTING

This Proxy Statement is being furnished in connection with the solicitation of proxies by and on behalf of our Board of Directors to be used at our Annual Meeting of stockholders to be held on August 24, 2004, and at any postponement or adjournment of the Annual Meeting, for the purposes set forth in the accompanying notice of Annual Meeting. Our annual report for the year ended December 31, 2003 accompanies this Proxy Statement. This Proxy Statement and accompanying materials are expected to be first sent or given to our stockholders on or about July 5, 2004.

We have fixed the close of business on June 28, 2004 as the record date for the determination of the stockholders entitled to notice of and to vote at the Annual Meeting. Only holders of record of shares of our common stock on that date are entitled to notice of and to vote at the Annual Meeting. Each share of our common stock entitles the holder to one vote on each matter presented to stockholders for approval at the Annual Meeting. On April 20, 2004, there were 13,917,834 shares of our common stock outstanding.

Questions and Answers about the Meeting and Voting

1. What is a Proxy Statement and why has this Proxy Statement been sent to me?

A Proxy Statement is a document that Securities and Exchange Commission regulations require us to give you when we ask you to sign a proxy card with regard to voting on proposals at the Annual Meeting. Among other things, a Proxy Statement describes those proposals and provides information about the Company. The Board of Directors of MacroPore Biosurgery, Inc. is soliciting the enclosed proxy to be used at the Annual Meeting and at any adjournment or postponement of the Annual Meeting. The Annual Meeting will be held at our offices located at 6740 Top Gun Street, San Diego, California. We will use the proxies received to:

- Elect directors;
- Ratify the selection of KPMG LLP as our independent auditors for the 2004 fiscal year; and
- Transact any other business that is proposed in accordance with our by-laws before the meeting is finally adjourned.

2. What is a proxy?

A proxy is your legal designation of another person to vote the stock you own. That other person is called a proxy holder. Designation of a particular proxy holder can be effected by completion of a written proxy card, such as the one attached to this Proxy Statement. Our Chief Executive Officer and Vice-Chairman of the Board of Directors, Christopher J. Calhoun, and our President and Member of the Board of Directors, Marc H. Hedrick, MD, have been designated the proxy holders for the 2004 Annual Meeting.

3. *What is the difference between a stockholder of record and a stockholder who holds stock in street name?*

Essentially all of our issued and outstanding shares of common stock are represented by global stock certificates deposited with the German securities depository, Clearstream Banking AG. Clearstream has provided us with the names of the beneficial owners of our shares from its records for this proxy solicitation. If you hold your shares in your own name or Clearstream identifies you on its records as a beneficial owner of your shares, you are a stockholder of record for purposes of this proxy solicitation. If your broker or bank holds your shares and Clearstream's records indicate that your broker or bank is the beneficial owner of your shares, then you hold your shares in street name.

4. *What different methods can you use to vote?*

Stockholders can vote by written proxy card, or stockholders may vote in person at the meeting (unless they are street name/beneficial-owner holders without a legal proxy).

5. *What is the record date and what does it mean?*

The record date for the 2004 Annual Meeting is June 28, 2004. The record date is established by our Board of Directors as required by Delaware law. Owners of common stock at the close of business on the record date are entitled to receive notice of the meeting and to vote at the meeting and any adjournments or postponements of the meeting.

6. *How can you revoke a proxy?*

A stockholder can revoke a proxy by giving written notice to our corporate secretary, delivering a later-dated proxy, or voting in person at the meeting. Attendance at the Annual Meeting will not, by itself, constitute revocation of a proxy.

7. *What are your voting choices when voting for director nominees, and what vote is needed to elect directors?*

In voting on the election of director nominees to serve until the 2005 Annual Meeting, stockholders may vote in favor of all nominees, may withhold votes as to all nominees, or may withhold votes as to specific nominees while voting in favor of all others. In addition, if any other candidates are properly nominated at the meeting, stockholders of record who attend the meeting could vote for the other candidates. Directors will be elected by a plurality. The Board recommends a vote "FOR" each of the nominees identified in this proxy statement.

8. *What are your voting choices when voting to ratify the selection our independent auditors?*

In voting on the ratification of the selection of our independent auditors, stockholders may vote in favor of the selection or against the selection, or may abstain from voting on the selection. The affirmative vote of a majority of the shares of common stock present or represented by proxy and voting at the meeting is required to approve this proposal. Abstentions are counted as votes cast and have the same effect as votes against the proposal. Broker non-votes have no effect on the outcome of the voting on this proposal.

9. *How will a proxy get voted?*

If you properly fill in and return the enclosed proxy card the designated proxy holders (the individuals named on your proxy card) will vote your shares as you have directed. If you sign the proxy

card but do not make specific choices, the designated proxy holders will vote your shares as recommended by the Board of Directors as follows:

- "FOR" the election of each listed nominee for director; and
- "FOR" ratification of KPMG LLP as independent auditors for the 2004 fiscal year.

If necessary, and unless you have indicated on your proxy card that you wish to vote against any of the proposals, the individuals named on your proxy card may vote in favor of a proposal to adjourn the meeting to a later date in order to obtain additional votes with respect to any of the proposals.

10. How are abstentions and broker non-votes counted?

Broker non-votes will not be included in vote totals and will not affect the outcome of the vote. In all matters other than the election of directors, abstentions will have the same effect as a vote against a specified proposal.

11. Who pays for the solicitation of proxies?

We pay the entire cost of the solicitation of proxies. This includes preparation, assembly, printing, and mailing of this Proxy Statement and any other information we send to stockholders. We may supplement our efforts to solicit your proxy in the following ways:

- We may contact you using the telephone or electronic communication;
- Directors, officers, or other regular employees of MacroPore Biosurgery may contact you personally; or
- We may hire agents for the sole purpose of contacting you regarding your proxy.

If we hire soliciting agents, we will pay them a reasonable fee for their services. We will not pay directors, officers, or other regular employees any additional compensation for their efforts to supplement our proxy solicitation.

We anticipate that banks, brokerage houses and other custodians, nominees, and fiduciaries will forward soliciting material to the beneficial owners of shares of common stock entitled to vote at our Annual Meeting and that we will reimburse those persons for their out-of-pocket expenses incurred in this connection.

12. What constitutes a quorum?

In order for business to be conducted at the meeting, a quorum must be present. A quorum consists of the holders of more than 33¹/₃% of the shares of common stock issued, outstanding and entitled to vote at the meeting. Shares of common stock represented in person or by proxy (including broker non-votes and shares that abstain or do not vote with respect to one or more of the matters to be voted upon) will be counted for the purpose of determining whether a quorum exists. If a quorum is not present, the meeting will be adjourned until a quorum is obtained.

13. How will voting on "any other business" be conducted?

Although we do not know of any business to be considered at the Annual Meeting other than the proposals described in this Proxy Statement, if any additional business is presented at the Annual Meeting, your signed proxy card gives authority to the designated proxy holders to vote on such matters at their discretion.

PROPOSAL #1. ELECTION OF DIRECTORS

Our Board of Directors is composed of six members. The names of the six nominees for election as directors are set forth below. Each of the nominees is currently serving as a member of our Board of Directors. All directors are elected annually and serve a one-year term until the next Annual Meeting or until their respective successors are duly elected. All of the nominees listed below are expected to serve as directors if they are elected. If any nominee should decline or be unable to accept such nomination or to serve as a director, an event which our Board of Directors does not now expect, our Board of Directors reserves the right to nominate another person or to vote to reduce the size of our Board of Directors. If another person is nominated, the proxy holders intend to vote the shares to which the proxy relates for the election of the person nominated by our Board of Directors.

Nominees and Business Experience

Name	Age	Position(s)
Marshall G. Cox	68	Chairman of the Board and Director
Christopher J. Calhoun	38	Vice-Chairman of the Board, Chief Executive Officer and Director
Marc H. Hedrick, MD	42	President and Director
Ronald D. Henriksen	65	Director
David M. Rickey	48	Director
E. Carmack Holmes, MD	66	Director

Marshall G. Cox has served as Chairman of the Board of Directors since May 1997. He founded Western Micro Technology, Inc. and from 1977 to 1995 served as its Chairman and Chief Executive Officer. He is the Managing Director of the Saratoga Boy's Club, and the Chairman/CEO of the Marshall G. Cox Family Foundation. Mr. Cox holds a B.S. from the University of California, Los Angeles. Mr. Cox is Mr. Calhoun's father-in-law.

Christopher J. Calhoun is a co-founder of MacroPore Biosurgery and has served as Chief Executive Officer, Vice-Chairman of the Board and Director since 1997. Mr. Calhoun has also served as the President of the Company from April 2002 to May 2004 and from 1996 to 1998. Mr. Calhoun is a co-inventor on multiple US and International patents used for our bioresorbable implant technology. These inventions include bioresorbable polymers for skeletal repair and regeneration, implant surfaces for tissue guidance, and postsurgical scar tissue reduction. Mr. Calhoun received a BA from the University of California, San Diego and an MBA from the University of Phoenix. Mr. Calhoun is Mr. Cox's son-in-law.

Marc H. Hedrick, MD, President of MacroPore Biosurgery since May 2004, joined the Company as Chief Scientific Officer, Medical Director and Director in November, 2002. In December 2000 Dr. Hedrick co-founded, and served as President and Chief Executive Officer of StemSource, Inc., a company specializing in tissue bioengineering and regenerative cell technology. We acquired StemSource in November 2002. Dr. Hedrick is a General and Plastic Surgeon, and has been an Associate Professor of Surgery and Pediatrics at the University of California, Los Angeles (UCLA) since 1998, and has directed the Laboratory of Regenerative Bioengineering and Repair for the Department of Surgery at UCLA since 1998. Dr. Hedrick obtained his MD degree from the University of Texas Southwestern Medical School, Dallas.

Ronald D. Henriksen joined MacroPore Biosurgery as Director in October 2002. Mr. Henriksen has served as Chief Investment Officer and Partner of Twilight Ventures, LLC (a venture capital company) since 2002. From 1988 to 2002, Mr. Henriksen served as President of the Advanced Research & Technology Institute of Indiana University, and from 1996 through 1998 as CEO of Itasca Ventures, LLC (a venture capital company), and from 1993 to 1995 as President/CEO of Khepri

Pharmaceuticals, Inc. (a biotechnology company). For twenty-three years previous to 1994 he held various managerial and executive positions with Eli Lilly and Company (a US healthcare company), including Managing Director for Brazil, Mexico and Central America. He is also a board member of QLT, Inc., Canada's largest biopharmaceutical company. Mr. Henriksen received his BS in Industrial Administration from Iowa State University and an MBA from Harvard Business School. He also served as an officer for four years in the US Navy.

David M. Rickey has served as Director of MacroPore Biosurgery since November 1999. Since 1996, Mr. Rickey has served as President and Chief Executive Officer of Applied Micro Circuits Corporation, which provides high-performance, high-bandwidth silicon solutions for optical networks. Mr. Rickey also serves as a Director of Applied Micro Circuits Corporation and AMI Semiconductor, Inc., which designs, develops and manufactures integrated circuit products. He holds a B.S. from Marietta College, a B.S. from Columbia University and an M.S. from Stanford University.

E. Carmack Holmes, MD, joined MacroPore Biosurgery as Director in August 2003. Since 1994, Dr. Holmes has served as the Surgeon-in-Chief of the University of California Los Angeles (UCLA) Medical Center and holds the position of William P. Longmire, Jr. Professor and Chairman, Department of Surgery, UCLA School of Medicine. He joined UCLA in 1973 and has held professorial positions in the Divisions of Cardiothoracic Surgery and Surgical Oncology for over 30 years. His surgical training was conducted at Johns Hopkins University and the National Cancer Institute at the National Institutes of Health (NIH). Dr. Holmes graduated from Duke University and holds an MD from the University of North Carolina Medical School.

Meetings and Committees of the Board of Directors

The Board of Directors held six meetings during 2003. Each of our directors attended 75% or more of the total number of meetings of the Board of Directors and the Board Committee meetings of which they were a member (during the period that they served).

The Board of Directors has established a Compensation Committee to handle compensation matters and administer our Amended and Restated 1997 Stock Option and Stock Purchase Plan. The committee consists of Mr. Rickey and Mr. Henriksen. The committee determines the compensation received by directors and reviews and approves the compensation and benefits for executive officers. The committee held three meetings during 2003.

Mr. Henriksen (chairman) and Mr. Rickey are the members of our Audit Committee. Both Mr. Henriksen and Mr. Rickey are independent as that term is defined by Rule 4200(a) of the National Association of Securities Dealers, Inc.'s Nasdaq listing standards. The committee selects our independent public accountants, reviews the scope of the annual audit, approves the audit fees and non-audit fees to be paid to our auditors, and reviews our financial accounting controls with the staff and the independent public accountants. The committee held four meetings during 2003. The Audit Committee's charter is attached hereto as Appendix A.

Our Audit Committee does not include anyone who qualifies as an "audit committee financial expert," as defined in Securities and Exchange Commission regulations. It is difficult for smaller companies to recruit qualifying persons to serve on their Board/Audit Committees and we believe the experience and attributes of our current Audit Committee members suffice to protect our stockholder's interests.

Our Board of Directors does not have a Nominating Committee. The Board's view is that for a company of our size to have one would constitute unnecessary bureaucracy; every director participates in the consideration of director nominees.

Our entire Board of Directors considers director nominees; it does not have a charter which governs that process. Of our directors, Messrs. Henriksen and Rickey and Dr. Holmes are "independent" as defined by Rule 4200(a) of the National Association of Securities Dealers, Inc.'s Nasdaq listing standards, and Messrs. Cox and Calhoun and Dr. Hedrick are not. The Board does not have a policy with regard to the consideration of any director candidates recommended by security holders, because no such candidates have ever been proposed and the Board does not expect any to be proposed in the foreseeable future. If any were proposed, they would be evaluated by the Board in the same manner as other nominees. The Board's strategy is for the Board as a whole to include a range of expertise and skills, and accordingly there are no pre-established qualifications, qualities or skills that any particular director must possess. The Board's process for identifying and evaluating director nominees is informal; generally a director will raise the name of a potential nominee known to him, and the name will be considered first by the Chairman and Vice-Chairman and then if they believe consideration by the entire Board would be indicated, by the Board as a whole.

Stockholder Communication with the Board

The Board of Directors has appointed Ronald D. Henriksen as Chairman of the Audit Committee. In addition, he is responsible for facilitating compliance with the Corporate Code of Conduct and Ethics. Stockholders and other parties interested in communicating directly with Mr. Henriksen or with the non-management directors as a group may do so by writing to Ronald D. Henriksen, One Indiana Square, Suite 2550, Indianapolis, IN 46204. If the communication so requests and Mr. Henriksen determines that it is appropriate to do so, he will share the communication with the entire Board of Directors.

Annual Meeting Attendance

We do not have a policy regarding attendance by Board members of our annual meetings of stockholders. All six Board members attended the 2003 Annual Meeting of Stockholders held in October 2003.

Director Compensation

Each non-employee director and Mr. Cox receive a \$5,000 quarterly retainer, a fee of \$2,000 per quarterly meeting attended, and a fee of \$2,000 per special meeting attended in person. Attendance of telephonic meetings or special meetings via telephone are compensated at \$500 per meeting. Compensation Committee members receive \$1,000 per meeting attended and Audit Committee members receive \$2,000 per meeting attended. The Chairman of the Audit Committee receives an additional annual stipend of \$5,000. In addition, each such Board member is compensated for their travel expenses related to attendance at Board meetings.

Non-employee directors and Mr. Cox are also eligible to receive options under our Amended and Restated 1997 Stock Option and Stock Purchase Plan.

Mr. Cox is employed by us in his capacity of Chairman of the Board. His 2003 salary was \$60,000. We granted Mr. Cox 100,000 stock options in 2003, and he will receive 50,000 stock options in 2004.

Our non-employee directors, Mr. Henriksen, Dr. Holmes and Mr. Rickey, were each granted 50,000 stock options in 2003, and will be granted 35,000 stock options in 2004.

YOUR BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS A VOTE "FOR" THE NOMINEES TO THE BOARD OF DIRECTORS.

PROPOSAL #2. RATIFICATION OF SELECTION OF INDEPENDENT AUDITORS

Our Audit Committee has selected KPMG LLP ("KPMG") as our independent auditors for the fiscal year ending December 31, 2004, and has further directed that we submit the selection of independent auditors for ratification by our stockholders at the Annual Meeting. The proposal to ratify the selection of the independent auditors is not required to be submitted for stockholder approval. However, if the stockholders do not ratify this selection, the Audit Committee will reconsider its selection of KPMG. Even if the selection is ratified, our Audit Committee may direct the appointment of a different independent accounting firm at any time during the year if the Audit Committee determines that the change would be in our best interests.

The Audit Committee reviews and must pre-approve all audit and non-audit services performed by KPMG as well as the fees charged by KPMG for such services. In its review of non-audit service fees, the Audit Committee considers, among other things, the possible impact of the performance of such services on the auditor's independence.

Arthur Andersen was our principal accountant during our fiscal year ended December 31, 2001. Arthur Andersen and KPMG were our principal accountants during respective portions of our fiscal year ended December 31, 2002, and KPMG was our principal accountant during our fiscal year ended December 31, 2003. For our 2002 and 2003 fiscal years, they consulted with us on various matters and performed services for us, and billed us for fees and expenses, as follows:

Audit Fees: Audit fees billed to us by Arthur Andersen for the review of our first quarter financial statements in 2002 included in our quarterly report on Form 10-Q were \$13,200. Audit fees billed to us by KPMG for the audit of our financial statements for the fiscal year ended December 31, 2002 and for the quarterly reviews of our financial statements included in our fiscal year 2002 quarterly reports on Form 10-Q totaled \$99,920. Audit fees billed or expected to be billed to us by KPMG for the audit of our financial statements for the fiscal year ended December 31, 2003 and for the quarterly reviews of our financial statements included in our fiscal year 2003 quarterly reports on Form 10-Q totaled \$180,200.

Audit Related Fees: There were no fees billed or expected to be billed to us by either Arthur Andersen or KPMG for services provided during 2002 or 2003 for assurance and related services that are reasonable related to the audits or reviews and are not reported under Audit Fees above.

Tax Fees: Fees billed to us by Arthur Andersen for tax compliance, tax advice and tax planning (specifically, preparation of tax returns in the United States, research related to tax status in Germany, and consultation related to the tax consequences of stock options) in 2002 totaled \$8,500. Fees billed to us from KPMG for tax compliance, tax advice and tax planning (specifically, preparation of tax returns for us and for our subsidiary StemSource, Inc., tax advice regarding the sale of assets to Medtronic, and tax issues related to the establishment of business operations in Japan) in 2002 totaled \$123,558. Fees billed or expected to be billed to us from KPMG for tax compliance, tax advice and tax planning (specifically the preparation of tax returns, tax advice regarding the sale of assets to Medtronic, and FAS 109 training) in 2003 totaled \$49,266.

All Other Fees: Fees billed to us by Arthur Andersen for all other non-audit/tax services provided during 2002 totaled \$6,267 which included analysis of Medicare's Outpatient Prospective Payment System. Fees billed to us by KPMG for all other non-audit/tax services, provided during 2002, including accounting and auditing assistance related to our sale of assets to Medtronic PS Medical, Inc. and the acquisition of StemSource, Inc. totaled \$53,100. There were no other fees billed or expected to be billed to us by KPMG for all other non-audit/tax services, provided during 2003.

Representatives of KPMG will be present at the Annual Meeting, will have an opportunity to make a statement if they desire to do so and will be available to respond to appropriate questions from stockholders.

Additional information concerning the Audit Committee and our Independent Auditors can be found in the "Audit Committee Report" section of this Proxy Statement.

YOUR BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS A VOTE "FOR" THE RATIFICATION OF THE SELECTION OF KPMG LLP AS OUR INDEPENDENT AUDITORS FOR FISCAL 2004.

COMPENSATION AND OTHER INFORMATION CONCERNING DIRECTORS AND EXECUTIVE OFFICERS

Biographical Information

The following table sets forth biographical information regarding our executive officers (the ages shown are as of August 24, 2004).

Name	Age	Position(s)
Marshall G. Cox	68	Chairman of the Board of Directors
Christopher J. Calhoun	38	Chief Executive Officer
Marc H. Hedrick, MD	42	President
Sharon V. Schulzki	46	Chief Operating Officer
Charles E. Galetto	53	Senior Vice President—Finance and Administration, and Treasurer
Bruce A. Reuter	55	Senior Vice President—Business Development
John K. Fraser, PhD	43	Vice President—Research & Technology—Biologics
Elizabeth A. Scarbrough	46	Vice President—Marketing & Development—Biologics
Matthew Scott	40	Vice President—Sales
Seijiro Shirahama	50	Vice President—Asia Pacific

See "Proposal No. 1 Election of Directors" for biographical information regarding Messrs. Cox, Calhoun, Dr. Hedrick, and others.

Sharon V. Schulzki was appointed Chief Operating Officer in January 2004. Mrs. Schulzki had served as Senior Vice President of Marketing & Development Biomaterials since September 2002. She served as Senior Vice President and General Manager—Spine & Orthopedics from November 2001 until September 2002, and as Vice President and General Manager—Spine & Orthopedics from July 2000 until November 2001. Prior to joining us, Mrs. Schulzki was with Howmedica, Inc., Division of Pfizer, Inc., a manufacturer of medical devices, from 1983 to 1998, where she served in various positions, including Vice President. During that time she also served as Senior Vice President of Worldwide Marketing and Product Development with Howmedica Leibinger, Inc. Mrs. Schulzki holds a BS from Loyola College in Baltimore, MD.

Charles E. Galetto has served as the Company's Senior Vice President—Finance and Administration and Treasurer since April 2000. From August 1997 to January 2000, Mr. Galetto served in various positions with PMR Corporation, a company specializing in mental health care programs, including service as Senior Vice President—Finance and Treasurer of PMR Corporation. Mr. Galetto is a certified public accountant and holds a BS from Wayne State University.

Bruce A. Reuter was appointed Senior Vice President of Business Development in January 2004. Mr. Reuter had served as Senior Vice President International Business since September 2002. From September 2001 to September 2002 he served as Vice President and General Manager of Bone Fixation Products, and from January 2001 to September 2001, he served as Vice President Market Development. Prior to joining us, from January 1990 to October 2000, Mr. Reuter served as the Vice President and Managing Director of Mentor Corporation, a multi-national marketer of medical devices. He holds a BA from the University of Rhode Island and an MBA from Memphis State University.

John K. Fraser, PhD, was appointed Vice President Research & Technology—Regenerative Cell Technology (formerly "Biologics"), in November 2002. From August 2001 to November 2002, Dr. Fraser was Chief Scientific Officer, and Director of Research, Stem Cell Services at StemSource, Inc., a company specializing in tissue bioengineering and regenerative cell technology. Dr. Fraser has served as an Adjunct Associate Professor, Division of Hematology-Oncology, Department of Medicine, UCLA School of Medicine, since July 2001, in which department he had served as an Assistant Professor from July 1994 to July 2001. Dr. Fraser has also served as the Director of the UCLA Umbilical Cord Blood Bank since 1995. Dr. Fraser received his BSc from Victoria University of Wellington, New Zealand and his PhD from University of Otago, New Zealand.

Elizabeth A. Scarbrough has served as Vice President of Marketing & Development—Regenerative Cell Technology (formerly "Biologics"), since November, 2002. From December 2001 to November 2002 she held the position of Executive Vice President of Sales & Marketing for StemSource, Inc., a company specializing in tissue bioengineering and regenerative cell technology. From February 1994 to October 2000, Mrs. Scarbrough served as Vice President of Mentor Corporation, a medical device company with global marketing and distribution. She holds a BS degree from Pennsylvania State University.

Matthew Scott was appointed Vice President—Sales in September 2002. From September 2001 to September 2002 Mr. Scott served as Vice President of our Biologics business unit, and from April 1999 until September 2001 he served as our Global Director of Training and Client Development. From April 1997 to April 1999, Mr. Scott was a National Sales Manager for The Straumann Company, a medical device and implantology company. He received his BS Degree from the University of Arkansas and was selected by the U.S. Army to enter into the Healthcare Leadership Fellowship Program where he received an interdisciplinary Masters Degree: MBA/MS Healthcare Management.

Seiji Shirahama has served as Vice President—Asia Pacific, since September 2002. Prior to us, from May 1999 to August 2002, he was President of Touchmetrics K.K., a diagnostic ultrasound firm. Mr. Shirahama held executive positions with Bristol-Myers Squibb K.K, from April 1997 to October 1998. He holds a BA from Kanagawa University in Yokohama, Japan and an MA from the University of San Francisco.

Executive Compensation

The following table sets forth summary information concerning compensation of our Chief Executive Officer and our four other most highly-compensated executive officers as of December 31, 2003, plus one other person who would have been so qualified except for the fact that he was no longer an executive officer on Dec. 31, 2003, (collectively, the "Named Executive Officers"), for services rendered to us in all capacities for the years ended December 31, 2003, 2002 and 2001.

SUMMARY COMPENSATION TABLE

Name and Principal Position	Year	Annual Compensation		Long Term Compensation Awards	All Other Compensation ⁽¹⁾
		Salary	Bonus	Securities Underlying Options/SARs(#)	
Christopher J. Calhoun <i>President, Chief Executive Officer</i>	2003	\$ 240,000	\$ 120,600	200,000	\$ 20,858
	2002	\$ 190,000	\$ 40,000	205,000	\$ 15,200
	2001	\$ 180,000	\$ 50,760	200,000	\$ 15,200
Marc Hedrick, MD ⁽²⁾ <i>Chief Scientific Officer and Medical Director</i>	2003	\$ 200,000	\$ 26,800	25,000	\$ 135,781
	2002	\$ 25,000	—		\$ 1,500
Sharon V. Schulzki <i>Senior Vice President—Marketing & Development—Biomaterials</i>	2003	\$ 180,000	\$ 30,150	35,000	\$ 273,426
	2002	\$ 163,334	\$ 30,000	25,000	\$ 11,600
	2001	\$ 162,000	\$ 15,000	200,000	\$ 9,600
Charles E. Galetto <i>Senior Vice President, Finance and Administration and Treasurer</i>	2003	\$ 165,000	\$ 27,638	35,000	\$ 15,628
	2002	\$ 152,500	\$ 26,000	30,000	\$ 12,740
	2001	\$ 150,000	\$ 28,125	20,000	\$ 11,600
Bruce A. Reuter <i>Senior Vice President—International Business</i>	2003	\$ 165,000	\$ 27,638	35,000	\$ 14,590
	2002	\$ 152,500	\$ 25,000	30,000	\$ 11,600
	2001	\$ 152,000	—	135,000	\$ 11,904
Ari E. Bizimis ⁽³⁾ <i>former Chief Financial Officer</i>	2003	\$ 200,000	\$ 62,000	75,000	\$ 261,000
	2002	\$ 187,610	\$ 34,295	110,000	\$ 9,600
	2001	\$ 160,000	\$ 35,000	50,000	\$ 9,600

(1) The amounts in this column represent a car allowance and other miscellaneous benefits given to each named executive officer. In addition, the 2003 figures for Dr. Hedrick and Mrs. Schulzki include \$120,000 and \$260,000 respectively, of relocation expenses payments, and the 2003 figure for Mr. Bizimis includes \$200,000 of severance payments.

(2) Dr. Hedrick began his employment with us in October 2002.

(3) Mr. Bizimis resigned his employment with us in September 2003.

Option Grants in 2003

The following table sets forth, as to the Named Executive Officers, information concerning stock options granted during the year ended December 31, 2003. We did not grant any stock appreciation rights in 2003. The exercise prices are in each case equal to the last reported sale price per share of our common stock as reported by the Frankfurt Stock Exchange on the day immediately preceding the grant date.

Name	Individual Grants				
	Number Of Securities Underlying Options/SAR Granted(#)	Percent Of Total Options/SARs Granted to Employees in 2003	Exercise Price Per Share (\$/share)	Expiration Date	Grant Date Present Value (\$) ⁽¹⁾
Christopher J. Calhoun	200,000	31.0%	\$ 4.40	1/28/2013	\$ 734,000
Marc Hedrick, MD	25,000	3.9%	\$ 4.40	1/28/2013	\$ 91,750
Sharon V. Schulzki	35,000	5.4%	\$ 3.86	11/3/2013	\$ 109,900
Charles E. Galetto	35,000	5.4%	\$ 4.40	1/28/2013	\$ 128,450
Bruce A. Reuter	35,000	5.4%	\$ 4.40	1/28/2013	\$ 128,450
Ari E. Bizimis	75,000	11.6%	\$ 4.40	1/28/2013	\$ 275,250

- (1) We used the Black-Scholes option-pricing model to determine the grant date present value of the options set forth in this table. Use of this model should not be construed as an endorsement of its accuracy at valuing options. The real value of the options depends upon the actual changes in the market price of our common stock during the applicable period.

All stock option valuation models, including the Black-Scholes model, require a prediction about the future movement of the stock price. The following facts and assumptions were used in calculating grant date present value: exercise prices as indicated in the table above, which represented the fair market value of each option on the date of grant based on the best information available, a dividend yield of 0.0%, an expected stock option term of 7.18 years on January 28, 2003 and 7.5 years on November 3, 2003, and a stock price volatility of 97.9% on January 28, 2003 and 90.6% on November 3, 2003, based on the market performance of our common stock. We used an assumed risk-free interest rate in our calculations equivalent to the yield of a zero-coupon, seven-year Treasury bond on the date of the grants. The risk-free interest rate was 3.6% for options granted on January 28, 2003 and 3.81% on November 3, 2003. No other discounts or restrictions related to vesting or the likelihood of vesting of the stock options were applied.

Aggregated Option Exercises in 2003 and Year-End Option Values

The following table sets forth information concerning options to purchase our common stock held as of December 31, 2003 by each of the Named Executive Officers. None of the Named Executive Officers exercised any stock options in 2003.

Name	Shares Acquired on Exercise(#)	Value Realized (\$)	Number of Securities Underlying Unexercised Options/SARs as of December 31, 2003		Value of Unexercised in-the-money Options/SARs as of December 31, 2003 ⁽¹⁾	
			Exercisable	Unexercisable	Exercisable	Unexercisable
Christopher J. Calhoun	—	—	504,369	319,381	\$ 483,762	\$ 6,663
Marc H. Hedrick, MD	—	—	46,353	128,647	—	—
Sharon V. Schulzki	—	—	145,726	114,274	\$ 36,687	\$ 28,813
Charles E. Galetto	—	—	136,352	48,648	\$ 15,825	\$ 975
Bruce A. Reuter	—	—	114,371	85,629	\$ 13,425	\$ 10,775
Ari E. Bizimis	—	—	411,873	—	\$ 41,612	—

(1) Based on our closing sale price of \$3.15 on December 31, 2003.

Compensation Committee Interlocks and Insider Participation

No executive officer of the Company has ever served as a member of the board of directors or compensation committee of any other entity that has or has had one or more executive officers serving as a member of our Board of Directors or Compensation Committee.

Equity Compensation Plan Information

The following table summarizes information, as of December 31, 2003, relating to our equity compensation plans pursuant to which grants of options, restricted stock or other rights to acquire shares may be granted from time to time.

Plan Category	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
	(a)	(b)	(c)
Equity compensation plans approved by security holders	4,848,000	\$ 4.00	709,000
Equity compensation plans not approved by security holders	None	None	None
Total	4,848,000	\$ 4.00	709,000

Certain Relationships and Related Transactions

On December 8, 2003, we repurchased from Marshall G. Cox, Chairman of the Board of Directors, and Marc H. Hedrick, MD, Chief Scientific Officer and Director, and from a trust for the benefit of the family of Christopher J. Calhoun, Chief Executive Officer and Director, a total of 375,000 shares of common stock for \$1,393,000 in cash. The repurchase price was established by the

Board of Directors as 100% of the mean average of the closing sale prices of our common stock on the Frankfurt Stock Exchange over the 10 trading days before the repurchase. We are holding the 375,000 shares as treasury stock.

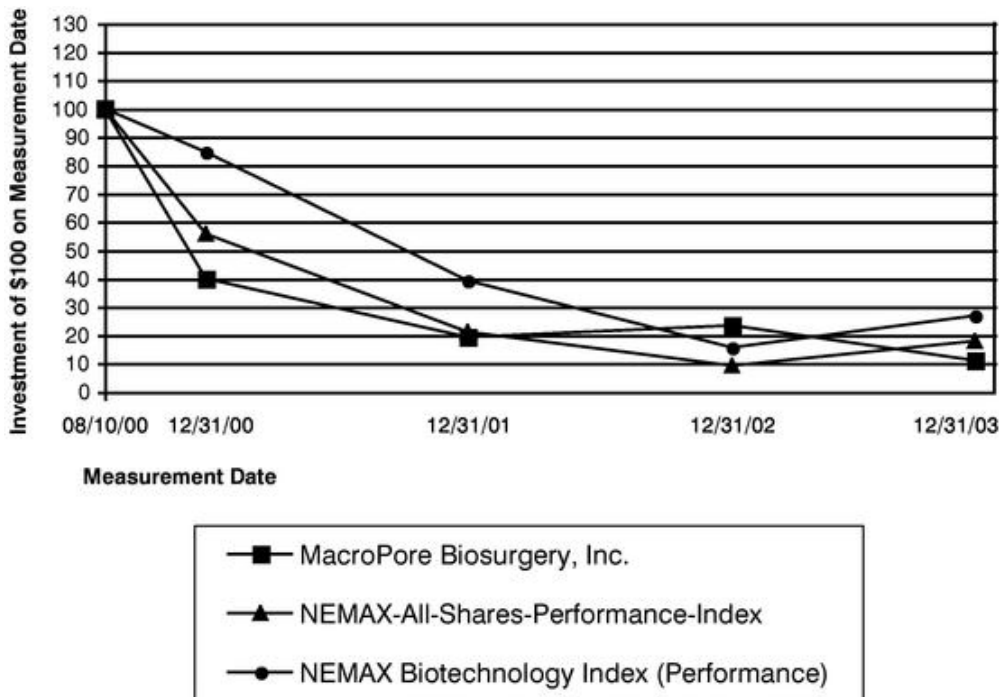
On September 30, 2003, the Company entered into a Separation Agreement and General Release with Ari E. Bizimis (filed as Exhibit 10.3 to our Form 10-Q Quarterly Report, as filed on November 12, 2003 and incorporated by reference herein).

Code of Conduct and Ethics

In March 2004, the Board adopted a Code of Conduct and Ethics for all employees, officers and directors.

COMPARATIVE STOCK PERFORMANCE GRAPH

The following graph shows how (assuming reinvestment of all dividends) an initial investment of \$100 in our common stock would have compared to an equal investment in the NEMAX-All-Share-Performance-Index* and the NEMAX Biotechnology Index (Performance)* during the period from August 10, 2000, when our stock was first traded publicly, through December 31, 2003. The graph reflects closing prices reported on Xetra, an electronic trading system for stock listed on the Frankfurt Stock Exchange. "NEMAX" refers to the German Neuer Markt Aktien (Stock) Index.



* With the abolition of the Neuer Markt Segment and the index changeover in March 2003, the NEMAX All-Share Index and the NEMAX Biotechnology Sector Index are no longer being calculated and their historical index data were continued by the Frankfurt Stock Exchange's Technology All-Share Index and the Prime IG Biotechnology Sector Index, respectively. We have continued the trend lines from that point by using proportionally adjusted data from the Technology All Share Index, which is an index of 165 companies ranking below the DAX (which is the German equivalent of the Dow Jones Industrial Average) and belonging to various technology sectors, and the Prime IG Biotechnology Sector Index.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table provides certain information regarding beneficial ownership of our common stock as of April 20, 2004 by each stockholder known by us to own beneficially more than 5% of our outstanding shares, our directors and director nominees, the Named Executive Officers, and our current directors and executive officers as a group.

The amounts and percentages of common stock beneficially owned are reported on the basis of regulations of the Securities and Exchange Commission governing the determination of beneficial ownership of securities. Under the rules of the Commission, a person is deemed to be a "beneficial owner" of a security if that person has or shares "voting power," which includes the power to vote or to direct the voting of such security, or "investment power," which includes the power to dispose of or to direct the disposition of such security. A person is also deemed to be a beneficial owner of any securities for which that person has a right to acquire beneficial ownership within 60 days. Under these rules, more than one person may be deemed a beneficial owner of the same securities and a person may be deemed to be the beneficial owner of securities as to which that person has no economic interest.

Unless otherwise indicated, the address for each person or entity named below is c/o MacroPore Biosurgery, Inc., 6740 Top Gun Street, San Diego, California 92121, and each person or entity named below has (subject to applicable community-property laws) full beneficial ownership of all shares listed.

Name	Number of shares of common stock beneficially owned	Percentage of outstanding shares
Marshall G. Cox (1)	741,258	5.2%
Christopher J. Calhoun (2)	875,827	6.0%
Sharon V. Schulzki (3)	178,225	1.3%
Charles E. Galetto (4)	146,248	1.0%
Bruce A. Reuter (5)	142,835	1.0%
David M. Rickey (6)	58,858	*
Ronald D. Henriksen (7)	52,743	*
Marc H. Hedrick (8)	478,232	3.4%
E. Carmack, Holmes, MD	13,161	*
Ari E. Bizimis (9)	542,175	3.8%
Deerfield Capital L.P (10)	732,800	5.3%
Medtronic Asset Management, Inc. (11)	1,000,000	7.2%
All current directors and executive officers as a group (14 persons) (12)	3,469,869	21.8%

* Less than one percent.

(1) Includes 223,018 shares issuable upon the exercise of stock options and 22,223 shares issuable upon exercise of warrants. Also includes 5,334 shares held of record by his spouse. Mr. Cox disclaims beneficial ownership of shares held by his spouse.

(2) Includes 575,827 shares issuable upon the exercise of stock options. Also includes a total of 300,000 shares held by TTMC Investments, Inc. Mr. Calhoun has sole voting and investment power with respect to the shares of our common stock held by TTMC Investments. Mr. Calhoun disclaims beneficial ownership of these securities, except to the extent he has a pecuniary interest in the securities, and this report shall not be deemed an admission that Mr. Calhoun is the beneficial owner of such securities for any other purpose.

(3) Includes 178,225 shares issuable upon the exercise of stock options.

- (4) Includes 146,248 shares issuable upon the exercise of stock options.
- (5) Includes 138,642 shares issuable upon the exercise of stock options.
- (6) Includes 31,249 shares issuable upon the exercise of stock options.
- (7) Includes 39,582 shares issuable upon the exercise of stock options.
- (8) Includes 67,707 shares issuable upon the exercise of stock options.
- (9) Includes 411,873 shares issuable upon the exercise of stock options.
- (10) The address for Deerfield Capital L.P., Deerfield Partners L.P, and Deerfield Management Company. L.P. is 780 Third Avenue, 37th Floor, New York, NY 10017
- (11) The address for Medtronic Asset Management, Inc. is Medtronic, Inc. Corporate Center, 7000 Central Avenue, N.E., Minneapolis, Minnesota 55432.
- (12) Includes all shares and options exercisable within 60 days owned by all current directors and executive officers and their spouses.

COMPENSATION COMMITTEE REPORT ON EXECUTIVE COMPENSATION

The Compensation Committee provided the following report:

Our compensation program for senior management including all "Named Executive Officers" is comprised of the following:

Annual base salary. The annual base salary is designed to compensate executives for their sustained performance and level of responsibility. Base salary is based on individual performance and the executives' experience. The committee approves all salary increases for executive officers.

Annual discretionary cash bonus. Our goals and individual goals and milestones for our management are established at the beginning of the year, and include targets for progress in research and development, clinical activities, development of sales, marketing and investor relations programs and organizational developments and share price. Bonus amounts for each executive are dependent upon our level of achievement, as well as achievements by the individual.

Long-term incentive compensation. We make recommendations to the full Board of Directors concerning the number of stock option grants to be granted to each executive.

Our approach has been to make the annual bonus and option grants a relatively higher share, and base salary a relatively lower share, of the total compensation than at other publicly traded companies.

Compensation of our Chief Executive Officer. Our Compensation Committee meets at least annually to evaluate the performance of our Chief Executive Officer. Based on this evaluation, the committee may approve salary increases, annual bonuses and long-term incentive awards, or any combination thereof, for our Chief Executive Officer. We were generally satisfied with Mr. Calhoun's execution in 2003 of the decisive strategies implemented in 2002, including growing sales of spinal bone fixation implants to achieve cash flows to finance development of our regenerative cell therapy programs. Accordingly, we increased his base salary at the beginning of 2003 and awarded him a

substantial cash bonus (although not 100% of his target bonus) for performance during 2003, and approved larger stock option grants to him of the same size in previous years.

Respectfully submitted,

Compensation Committee
Mr. David Rickey
Mr. Ronald D. Henriksen

January 28, 2004

AUDIT COMMITTEE REPORT

The Audit Committee provided the following report:

The Audit Committee has reviewed and discussed the Company's audited financial statements for the year ended December 31, 2003 with management. The Audit Committee has discussed with KPMG LLP ("KPMG") the matters required to be discussed by Statement on Auditing Standards No. 61. The Audit Committee has received the written disclosures and the letter from KPMG required by Independence Standards Board Standard No. 1, and has discussed KPMG's independence with KPMG.

Based upon the Audit Committee's review and discussions as noted above, the Audit Committee recommended to the board of directors that the Company's audited financial statements be included in the Company's Annual Report on Form 10-K for the year ended December 31, 2003 for filing with the Securities and Exchange Commission.

Respectfully submitted,

Audit Committee
Mr. Ronald D. Henriksen
Mr. David Rickey

March 16, 2004

CHANGE IN AUDITORS

On May 8, 2002, the Audit Committee notified Arthur Andersen LLP ("Arthur Andersen") of their decision to dismiss Arthur Andersen from serving as our independent auditors effective upon the successful engagement of KPMG LLP ("KPMG"). On May 20, 2002, Arthur Andersen notified us that it considered that its engagement as our independent accountant had terminated. Between May 8, 2002 and June 14, 2002 we engaged in discussions with KPMG to retain their services as our independent auditors for the year ending December 31, 2002. KPMG formally accepted the appointment on June 14, 2002. Arthur Andersen's reports on our consolidated financial statements for each of the fiscal years ended December 31, 2001 and December 31, 2000, did not contain an adverse opinion or disclaimer of opinion, nor were they qualified or modified as to uncertainty, audit scope or accounting principles. In connection with its audits for our fiscal years ended December 31, 2001 and December 31, 2000, and through the interim period from January 1, 2002 through May 20, 2002, there were no disagreements between the Company and Arthur Andersen on any matter of accounting principles or practices, financial statement disclosure, or auditing scope or procedures which disagreements, if not resolved to Arthur Andersen's satisfaction, would have caused Arthur Andersen to make reference to the subject matter of the disagreements in connection with Arthur Andersen's report on our consolidated financial statements for such years; and there were no reportable events as defined in Item 304(a)(1)(v) of Regulation S-K promulgated under the Securities Exchange Act.

During the fiscal years ended December 30, 2001 and December 31, 2000, and through the interim period from January 1, 2002 through June 14, 2002, we did not consult KPMG with respect to the application of accounting principles to a specified transaction, either completed or proposed, or the type of audit opinion that might be rendered on our consolidated financial statements, or any other matters or reportable events listed in Items 304(a)(2)(ii) of Regulation S-K. KPMG has been our auditors since June 14, 2002.

SECTION 16(a) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE

Section 16(a) of the Securities Exchange Act of 1934 requires our directors, executive officers, and persons or entities who own more than ten percent of our common stock, to file with the Securities and Exchange Commission reports of beneficial ownership and changes in beneficial ownership of our common stock. Those directors, officers, and stockholders are required by regulations to furnish us with copies of all forms they file under Section 16(a). Based solely upon a review of the copies of such reports furnished to us and written representations from such directors, officers, and stockholders, we believe that all such required reports were filed on a timely basis except as follows: In January 2003, each of our reporting officers and directors were granted supplemental stock options which were reported 1 day late on a Form 4 due to an administrative error. The reporting individuals include: Mr. Bizimis, Mr. Cox, Mr. Calhoun, Dr. Fraser, Mr. Galetto, Dr. Hedrick, Mr. Henriksen, Mr. Reuter, Mr. Rickey, Ms. Scarbrough, Ms. Schulzki, and Mr. Scott.

STOCKHOLDER PROPOSALS FOR THE 2005 MEETING

Stockholders are hereby notified that, if they intend to submit proposals for inclusion in our Proxy Statement and proxy for our 2005 Annual Meeting of stockholders, such proposals must be received by us no later than March 10, 2005 and must otherwise be in compliance with applicable Securities and Exchange Commission regulations. If our annual meeting date is substantially earlier in 2005 than in 2004, we have the right to change this deadline and give notice of the new deadline in a report filed with the Security and Exchange Commission.

MISCELLANEOUS

Our Board of Directors knows of no other business to be presented at our Annual Meeting. If other matters properly come before our Annual Meeting, it is intended that the proxies in the accompanying form will be voted thereon in accordance with the judgment of the person or persons holding such proxies.

By Order of the Board of Directors,

CHRISTOPHER J. CALHOUN
*Vice-Chairman of the Board of Directors and
Chief Executive Officer*

**CHARTER OF THE AUDIT COMMITTEE
OF THE BOARD OF DIRECTORS OF
MACROPORE BIOSURGERY, INC.**

PURPOSE AND POLICY

The Audit Committee shall provide assistance and guidance to the Board of Directors of the Company in fulfilling its oversight responsibilities to the Company's stockholders with respect to the Company's corporate accounting and reporting practices as well as the quality and integrity of the Company's financial statements and reports. The policy of the Audit Committee, in discharging these obligations, shall be to maintain and foster an open avenue of communication among the Audit Committee, the independent auditors and the Company's financial management.

COMPOSITION AND ORGANIZATION

The Audit Committee shall consist of two outside/independent members of the Board of Directors. The members of the Audit Committee shall satisfy the experience requirements of the Nasdaq National Market.

The Audit Committee shall hold such regular or special meetings as its members shall deem necessary or appropriate. Minutes of each meeting of the Audit Committee shall be prepared and distributed to each director of the Company promptly after each meeting. The operation of the Audit Committee shall be subject to the Bylaws of the Company as in effect from time to time and Section 141 of the Delaware General Corporation Law.

RESPONSIBILITIES

In fulfilling its responsibilities, the Audit Committee believes that its functions and procedures should remain flexible in order to address changing conditions most effectively. To implement the policy of the Audit Committee, the Committee shall be charged with the following functions:

1. To recommend annually to the Board of Directors the firm of certified public accountants to be employed by the Company as its independent auditors for the ensuing year, which firm is ultimately accountable to the Audit Committee and the Board, as representatives of the Company's stockholders.
2. To review the engagement of the independent auditors, including the scope, extent and procedures of the audit and the compensation to be paid therefore, and all other matters the Audit Committee deems appropriate.
3. To evaluate, together with the Board, the performance of the independent auditors and, if so determined by the Audit Committee, to recommend that the Board replace the independent auditors.
4. To receive written statements from the independent auditors delineating all relationships between the auditors and the Company consistent with Independence Standards Board Standard No. 1, to consider and discuss with the auditors any disclosed relationships or services that could affect the auditors' objectivity and independence and otherwise to take, and if so determined by the Audit Committee, to recommend that the Board take, appropriate action to oversee the independence of the auditors.
5. To review, upon completion of the audit, the financial statements to be included in the Company's Annual Report on Form 10-K.

6. The committee shall review the interim financial statements with management and the independent auditors prior to the public announcement of the quarterly results. Also, the committee shall discuss the results of the quarterly review and any other matters required to be communicated to the committee by the independent auditors under generally accepted auditing standards. The chair of the committee or a specified designee may represent the entire committee for the purposes of this review.

7. To discuss with the independent auditors the results of the annual audit, including the auditors' assessment of the quality, not just acceptability, of accounting principles, the reasonableness of significant judgments, the nature of significant risks and exposures, the adequacy of the disclosures in the financial statements and any other matters required to be communicated to the Committee by the independent auditors under generally accepted accounting standards.

8. To evaluate the cooperation received by the independent auditors during their audit examination, including any restrictions on the scope of their activities or access to required records, data and information.

9. To confer with the independent auditors and with the senior management of the Company regarding the scope, adequacy and effectiveness of internal accounting and financial reporting controls in effect.

10. To confer with the independent auditors and senior management in separate executive sessions to discuss any matters that the Audit Committee, the independent auditors or senior management believe should be discussed privately with the Audit Committee.

11. To investigate any matter brought to the attention of the Audit Committee within the scope of its duties, with the power to retain outside counsel and a separate accounting firm for this purpose if, in the judgment of the Audit Committee, such investigation or retention is necessary or appropriate.

12. To prepare the report required by the rules of the Securities and Exchange Commission to be included in the Company's annual proxy statement, if applicable.

13. To review and assess the adequacy of this charter annually and recommend any proposal changes to the Board for approval.

14. To report to the Board of Directors from time to time or whenever it shall be called upon to do so.

15. To perform such other functions and to have such powers as may be necessary or appropriate in the efficient and lawful discharge of the foregoing.

MACROPORE BIOSURGERY, INC.
Annual Meeting of Stockholders—August 24, 2004

The undersigned hereby appoints Christopher J. Calhoun and Marc H. Hedrick, MD, or either of them, as proxy holders, with full power of substitution, to appear on behalf of the undersigned and to vote all shares of common stock (par value \$.001) of MacroPore Biosurgery, Inc. (the "Company") that the undersigned is entitled to vote at the Annual Meeting of Stockholders of the Company to be held on August 24, 2004, and at any postponement or adjournment thereof.

When properly executed, this PROXY will be voted as directed. If properly executed and no instructions are specified, this PROXY will be voted FOR the election of the listed Nominees as Directors and FOR the ratification of the selection of KPMG LLP to function as the Company's Independent Auditors.

THIS PROXY IS SOLICITED BY THE BOARD OF DIRECTORS

Please mark box in blue or black ink.

1. Election of Directors:

FOR all nominees listed below

WITHHOLD AUTHORITY from all nominees listed below

Nominees: **CHRISTOPHER J. CALHOUN, MARSHALL G. COX, MARC H. HEDRICK, RONALD D. HENRIKSEN, E. CARMACK HOLMES AND DAVID RICKEY**

To withhold authority to vote for any one or more Nominees, line through or otherwise strike out the name of the Nominee or Nominees for whom you withhold authority to vote.

2. Ratification of Selection of KPMG LLP to Serve as the Company's Independent Auditors for 2004.

FOR

AGAINST

ABSTAIN

In their discretion, the proxy holders are authorized to vote upon such other business as may properly come before the Annual Meeting and any postponement or adjournment thereof.

Please check here if you plan to attend the Annual Meeting August 24, 2004

Please sign exactly as your name appears below. When signing as an attorney, executor, administrator, trustee or guardian, please give your full title. If shares are held jointly, each holder should sign.

Signature _____ Date _____, 2004

Signature _____ Date _____, 2004

In order for your vote to count, please sign, date, and return this PROXY FORM using the enclosed envelope. Please keep in mind, for your vote to count we must receive your properly executed PROXY FORM prior to the meeting date.

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