

INSTRUMENT OF PROXY

For the Annual and Special Meeting of holders of Common Shares of

Titan Medical Inc.

To be held on May 21, 2014

THIS INSTRUMENT OF PROXY IS SOLICITED BY THE MANAGEMENT OF THE CORPORATION

The undersigned, being a holder of common shares (“**Common Shares**”) of Titan Medical Inc. (the “**Corporation**”) hereby nominates, constitutes and appoints (with full power of appointment and substitution), John Hargrove, Chief Executive Officer of the Corporation, or failing him, Dr. Reiza Rayman, President of the Corporation, or in place or stead of either of the foregoing, _____, the true and lawful attorney and proxy (“**Proxyholder**”) of the undersigned to attend, to act and to vote in respect of the Common Shares held by the undersigned at the Annual and Special Meeting of the Corporation (the “**Meeting**”) to be held at the Elliot Room, Borden Ladner Gervais LLP, Scotia Plaza, 40 King Street West, 44th Floor, Toronto, Ontario M5H 3Y4 on May 21, 2014 at 2:00 p.m. (Toronto time) and at any adjournment thereof. The undersigned hereby revokes any instrument of proxy heretofore given to attend and vote at the Meeting. Without limiting the general power hereby conferred, the person above named is directed to vote as follows:

1. Election of Directors

	FOR	WITHHOLD FROM VOTING
John E. Barker	<input type="checkbox"/>	<input type="checkbox"/>
Martin C. Bernholtz	<input type="checkbox"/>	<input type="checkbox"/>
John T. Hargrove	<input type="checkbox"/>	<input type="checkbox"/>
Reiza Rayman	<input type="checkbox"/>	<input type="checkbox"/>
Dr. Bruce Giles Wolff	<input type="checkbox"/>	<input type="checkbox"/>

(and with respect to each of the above, if no specification is made, FOR)

2. **FOR** **or WITHHOLD FROM VOTING** **(and, if no specification is made, FOR)** the resolution appointing BDO Canada LLP, Chartered Accountants, Licensed Public Accountants, as the auditors of the Corporation for the ensuing year at a remuneration to be fixed by the board of directors;
3. **FOR** **or AGAINST** **(and, if no specification is made, FOR)** the resolution ratifying, confirming and approving the Corporation’s stock option plan as described in the information circular; and
4. At the discretion of the person above named as Proxyholder, to vote upon any amendments or variation of the above matters or any other matter that may be properly brought before the said Meeting or any adjournment thereof.

This Instrument of Proxy is solicited on behalf of the Management of the Corporation and will be voted as directed in the space provided above or, if no direction is given, it will be voted FOR each resolution. The persons named in this Instrument of Proxy are officers of the Corporation. Each shareholder of the Corporation has the right to appoint a person, who need not be a shareholder of the Corporation, to attend and to act for him and on his behalf at the Meeting, other than the persons designated above. To exercise such rights, the names of the persons designated by Management to act should be crossed out and the name of the shareholder’s appointee

should be legibly printed in the blank space provided.

THE UNDERSIGNED HEREBY REVOKES ANY PROXIES
HERETOFORE GIVEN WITH RESPECT TO THE MEETING.

DATED this ____ day of _____, 2014

Signature of Shareholder

Shareholder's Name (Please Print)

NOTES

1. This Instrument of Proxy when mailed by the Corporation is undated. In the event that this Instrument of Proxy is not dated when returned by the shareholder, then this Instrument of Proxy will be deemed to be dated upon the day that it is mailed by the Corporation.
2. If a holder of Common Shares is a corporation, its corporate seal must be affixed or this Instrument of Proxy must be signed by an officer or attorney thereof duly authorized. Persons signing as executors, administrators, trustees, etc. should so indicate and give their full title as such.
3. This Instrument of Proxy will not be valid and will not be acted upon or voted unless it is signed and delivered to the attention of Olympia Transfer Services Inc., P.O. Box 1775, 31 Adelaide Street East, Toronto, Ontario, M5C 0A2 or by hand to: 8th Floor, 100 University Avenue, Toronto, Ontario M5J 2Y1 or by facsimile to (416) 364-1827 no later than 5:00 p.m. on May 20, 2014 or delivered to the Chair at the Meeting. Alternatively, the securityholder may complete a proxy form via the Internet pursuant to the instructions as described in the information circular.
4. In addition to any revocation in any other manner permitted by law, a proxy may be revoked by instrument in writing executed by the securityholder or his attorney duly authorized in writing or, if the securityholder is a company, under its corporate seal by an officer or attorney thereof duly authorized and deposited either at the registered office of the Corporation, c/o Chief Financial Officer, 170 University Avenue, Suite 1000, Toronto, Ontario, M5H 3B3 at any time up to and including 5:00 p.m. (Eastern) on the last business day preceding the date of the Meeting, or any adjournment thereof, at which the proxy is to be used, or with the Chairman at the Meeting on the date of the Meeting, or any adjournment thereof, and upon such deposit, the proxy is revoked.