

MAST THERAPEUTICS, INC.

NOMINATING AND GOVERNANCE COMMITTEE CHARTER

Purpose

The purpose of the Nominating and Governance Committee (the “Committee”) of the board of directors (the “Board”) of Mast Therapeutics, Inc. (the “Company”) is to identify individuals qualified to serve as members of the Board of the Company and recommend nominees for election as directors of the Company, administer the Board’s self-evaluation process, develop and recommend to the Board corporate governance guidelines and provide oversight with respect to corporate governance conduct.

Composition

The Committee shall be composed of two or more directors, as determined by the Board, each of whom shall satisfy the independence requirements of the NYSE MKT LLC, or such other national securities exchange or inter-dealer quotation system on which the Company’s common stock is principally listed, and the rules and regulations of the Securities and Exchange Commission; provided, however, that, if the Committee is comprised of at least three members, one director who does not meet the independence criteria of the applicable national securities exchange or inter-dealer quotation system may serve on the Committee pursuant and subject to the limitations of the “exceptional and limited circumstances” exception provided in the listing standards of such securities exchange or inter-dealer quotation system.

Responsibilities

The Committee is charged by the Board with the responsibility to:

1. Identify and evaluate individuals, including individuals proposed by stockholders pursuant to the process set forth in the Company’s Corporate Governance Guidelines, qualified to serve as members of the Board, and make recommendations to the Board regarding nominees for election as directors of the Company at the next annual or special meeting of stockholders at which directors are to be elected, and individuals for appointment to the Board to fill any vacancies or newly created directorships that may occur between such meetings; provided, that if the Company is at any time legally required by contract or otherwise to provide any third party with the ability to nominate a director candidate, the Committee need not evaluate or approve such nominee(s) unless required by contract or requested by the Board. In evaluating individuals to recommend to the Board for election or appointment as directors, including individuals proposed by stockholders, the Committee shall apply the criteria for Board membership set forth in the Company’s Corporate Governance Guidelines.
2. Recommend to the Board directors for appointment to its committees and, as appropriate, recommend rotation or removal of directors from Board committees.
3. Periodically review and evaluate the size, composition and leadership structure of the Board, make recommendations to the Board as a result of such reviews, and consider and

make recommendations to the Board regarding comments from stockholders relating to Board size, composition and leadership structure, if any.

4. Periodically review and assess the Company's corporate governance guidelines and recommend any proposed changes to the Board.

5. Periodically review and assess the Company's code of ethics and code of conduct and recommend any proposed changes to the Board.

6. Administer and oversee annual self-evaluations of the performance of the Board, each of its committees and individual members of the Board, and lead the Board in discussions of the results of such evaluations.

7. Evaluate the appropriateness of continued Board membership of any director who ceases to be actively employed in his or her principal business or profession, or experiences other changed circumstances that could diminish his or her effectiveness as a Board member, pose a conflict of interest or otherwise be detrimental to the Company and make a recommendation to the Board regarding such director's continued service on the Board.

8. Periodically review and make recommendations to the Board regarding issues of executive officer succession planning.

9. Provide minutes of Committee meetings to the Board and report to the Board on any significant matters arising from the Committee's work.

10. Annually review and assess the performance of the Committee and ensure the results of each such self-evaluation are communicated to the Board.

11. Annually review and reassess this Charter and, if appropriate, recommend changes to the Board.

12. Perform such other duties and responsibilities as may be assigned to the Committee by the Board.

Authority

By adopting this Charter, the Board delegates to the Committee full authority in its discretion to:

1. Perform each of the responsibilities of the Committee described above and such other activities consistent with this Charter, the Company's bylaws and governing law, rules and regulations as the Board deems necessary or appropriate.

2. Delegate such of its authority and responsibilities as the Committee deems proper to members of the Committee or a subcommittee.

3. Appoint a chair of the Committee, unless a chair is designated by the Board.

4. Obtain advice from internal and/or external legal counsel and other advisers as the Committee deems necessary to carry out its responsibilities, and approve fees and other terms of retention of any such counsel or other advisers.

5. Engage and terminate consultants as needed to conduct searches for new director candidates and approve the fees and other terms of retention of any such consultants.

6. Cause the officers of the Company to provide such funding as the Committee shall determine to be appropriate for payment of compensation to any advisers engaged by the Committee.

Last amended: December 11, 2014