

SIERRA ONCOLOGY, INC.
CHARTER OF THE COMPENSATION COMMITTEE
OF THE BOARD OF DIRECTORS

As adopted June 9, 2015

I. PURPOSE

The purpose of the Compensation Committee (the “*Committee*”) of the Board of Directors (the “*Board*”) of Sierra Oncology, Inc. (the “*Company*”) is to assist the Board with respect to compensation matters, including evaluating, recommending, approving and reviewing executive officer and director compensation arrangements, plans, policies and programs maintained by the Company, and administering the Company’s cash-based and equity-based compensation plans. The Committee may also make recommendations to the Board regarding any other Board responsibilities relating to executive compensation.

This charter (the “*Charter*”) sets forth the authority and responsibility of the Committee in fulfilling its purpose.

II. MEMBERSHIP

The Committee will consist of two or more members of the Board, with the exact number determined from time to time by the Board. Each member of the Committee will:

- be an “independent director” as defined under the applicable rules, regulations and listing requirements of The NASDAQ Stock Market, as amended from time to time (the “*Exchange Rules*”), except as may otherwise be permitted by such Exchange Rules;
- be “independent” as defined in any other rules and regulations (“*Commission Rules*”) promulgated by the Securities and Exchange Commission (the “*Commission*”) under Section 10C of the Securities Exchange Act of 1934, as amended (the “*Exchange Act*”), except as may otherwise be permitted by Commission Rules;
- be a “non-employee director,” as defined in Rule 16b-3 under Section 16 of the Exchange Act;
- be an “outside director” under Regulation Section 1.162-27 promulgated under Section 162(m) of the Internal Revenue Code of 1986, as amended;
- be free from any relationship that, in the opinion of the Board, would interfere with the exercise of independent judgment as a Committee member; and
- meet any other requirements imposed by applicable law, regulations or rules, subject to any applicable exemptions and transition provisions.

No member of the Committee may accept directly or indirectly any consulting, advisory or other compensatory fee from the Company or any subsidiary thereof; provided that such prohibition shall not include: (i) fees received as a member of the Committee, the Board or any other Board committee; or (ii) the receipt of fixed amounts of compensation under a retirement plan (including deferred compensation) for prior service with the Company (provided that such

compensation is not contingent in any way on continued service). Further, in connection with appointing or continuing the membership of each director serving on the Committee, when affirmatively determining the independence of such member, the Board will consider whether the director is affiliated with the Company, a subsidiary of the Company or an affiliate of a subsidiary of the Company to determine whether such affiliation would impair the director's judgment as a member of the Committee.

All members of the Committee will be appointed by, and will serve at the discretion of, the Board. The Board may appoint a member of the Committee to serve as the chairperson of the Committee (the "**Chair**"). If the Board does not appoint a Chair, the Committee members may designate a Chair by their majority vote. The Chair will set the agenda for Committee meetings and conduct the proceedings of those meetings.

III. RESPONSIBILITIES AND DUTIES

The principal responsibilities and duties of the Committee in serving the purposes outlined in Section I of this Charter are set forth below. These duties are set forth as a guide, with the understanding that the Committee will carry them out in a manner that is appropriate given the Company's needs and circumstances. The Committee may engage in such other activities, and establish such policies and procedures, from time to time as it deems necessary or advisable in implementing this Charter and fulfilling its responsibilities.

The Committee will:

1. Together with the Company's Chief Executive Officer ("**CEO**"), periodically review the Company's overall compensation strategy.
2. Annually review and approve the goals and objectives to be considered in determining the compensation of the Company's CEO and evaluate the CEO's performance in light of these goals and objectives.

Approve or recommend to the Board for approval the compensation of the Company's "executive officers" as defined under Rule 3b-7 promulgated under the Exchange Act (collectively with the CEO, the "**Executive Officers**"), including (i) the salary paid to the Executive Officers, (ii) the grant of all cash-based incentive compensation and equity-based compensation to the Executive Officers, (iii) the entering into or amendment or extension of any offer letter, employment contract or similar arrangement with the Executive Officers, (iv) the entering into or amendment or extension of any Executive Officer severance or change in control arrangements, and (v) any other Executive Officer compensation matters; provided that the Committee may take account of the recommendations of the CEO (except with respect to the CEO's compensation) and the Board (or any Board member) with respect to Executive Officer compensation. The CEO may not be present during voting or deliberations regarding the CEO's compensation.

3. Periodically review and approve or make recommendations to the Board with respect to adoption and approval of, or amendments to, all cash-based and equity-based incentive compensation plans and arrangements under which any Executive Officer or directors may receive an award, and the cash amounts and aggregate numbers of shares reserved for issuance

under any such plans or arrangements, after taking into consideration the Company's strategies with respect to cash-based and equity-based compensation.

4. Administer and interpret the Company's cash-based and equity-based compensation plans and agreements thereunder.

The Committee may adopt an equity grant policy and delegate to the CEO, including in conjunction with one or more officers, within the limits imposed by such policy and applicable law and the Exchange Rules, the authority to approve cash awards or make equity grants to employees of the Company or of any subsidiary of the Company who are not Executive Officers or directors of the Company, provided that in the case of grants of options or stock appreciation rights, the price per share of any grant by the CEO is no less than the fair market value of the Company's common stock on the date of grant.

5. Meet with the CEO periodically to discuss the incentive compensation programs to be in effect for the other Executive Officers and the corporate goals and objectives relevant to those programs and performance targets applicable to the Executive Officers.

6. Approve or recommend to the Board for approval the adoption, amendment and termination of the Company's deferred compensation plans and similar programs.

7. Recommend to the Board, for determination by the Board, the form and amount of cash-based and equity-based compensation to be paid or awarded to the Company's non-employee directors, including compensation for service on the Board or on committees of the Board.

8. Review with management the Company's major compensation-related risk exposures and the steps management has taken to monitor or mitigate such exposures.

9. When applicable, consider and make recommendations to the Board regarding the frequency with which stockholder "say on pay" votes should occur, including whether to make any such recommendation at all regarding the frequency of such votes. Following any such "say on pay" frequency vote, make recommendations to the Board regarding the frequency with which "say on pay" votes shall be included in the Company's proxy statements pending the next such "say on pay" frequency vote.

10. When applicable, (i) review and discuss the Company's "Compensation Discussion and Analysis" disclosure and, based on such review and discussion, recommend to the Board whether such disclosure should be included in the Company's annual report on Form 10-K, proxy statement, information statement or similar document; and (ii) prepare a report of the Committee for inclusion in the annual report or the proxy statement for the Company's annual meeting in accordance with the rules and regulations of the Commission.

11. Oversee the Company's compliance with regulatory requirements associated with compensation of its directors, officers and employees.

12. Perform any other activities required by applicable law, rules or regulations, including the Exchange Rules and rules and regulations of the Commission, and take such other actions

and perform and carry out any other responsibilities and duties delegated to it by the Board or as the Committee deems necessary or appropriate consistent with its purpose.

IV. STUDIES AND ADVISERS

The Committee may conduct or authorize studies of, or investigations into, matters within the Committee's scope of responsibility, with full access to all books, records, facilities and personnel of the Company. The Committee has the sole authority and right, at the Company's expense, to retain or obtain the advice of compensation and other consultants, legal counsel, accountants, experts and advisers of its choice to assist the Committee in connection with its functions, including any studies or investigations, and shall have direct oversight of the work performed by such advisers. In connection with the retention of such advisers (other than in-house legal counsel), the Committee shall consider the factors related to the independence of such advisers, including with respect to each such adviser (or the adviser's employer): (a) the provision of other services to the Company by such adviser (or their employer); (b) the amount of fees received from the Company, as a percentage of the total revenue of such adviser (or their employer); (c) the policies and procedures of such adviser (or their employer) that are designed to prevent conflicts of interest; (d) any business or personal relationship of such adviser (or their employer) with a member of the Committee or an Executive Officer; (e) any shares of Company capital stock or other Company securities owned by such adviser (or their employer); and (f) such other factors as the Committee deems relevant or may be required from time to time by Commission Rules or Exchange Rules; provided that nothing herein requires that compensation advisers must be independent – rather that the enumerated independence factors be considered before selecting or otherwise receiving advice from such an adviser.

The Committee will have the sole authority to approve the fees and other retention terms of such advisers. The Company will provide for appropriate funding, as determined by the Committee, for:

- payment of compensation to any legal counsel and compensation to other consultants, accountants, experts and advisers retained by the Committee;
- ordinary administrative expenses of the Committee that are necessary and appropriate in carrying out its functions; and
- the commission of any necessary studies or surveys concerning the levels of executive compensation payable in the industry in which the Company is engaged and in other related industries or obtaining recommendations from outside/independent consultants concerning comparable compensation programs.

Irrespective of the retention of compensation and other consultants, legal counsel, accountants, experts and advisers to assist the Committee, the Committee shall exercise its own judgment in fulfillment of its functions.

V. MEETINGS, ACTIONS WITHOUT A MEETING AND STAFF

Meetings of the Committee will be held from time to time, as determined appropriate by the Committee. The Chair, in consultation with the other member(s) of the Committee, will set the dates, times and places of such meetings. The Chair or any other member of the Committee may call meetings of the Committee by notice in accordance with the Company's Bylaws. A

quorum of the Committee for the transaction of business will be a majority of its members. Meetings may be held via telephonic or video conference. The Committee also may act by unanimous written consent in lieu of a meeting in accordance with the Company's Bylaws. Subject to the requirements of this Charter, applicable law, the Exchange Rules and the Commission Rules, the Committee and the Chair may invite any director, executive or employee of the Company, or such other person, as it deems appropriate in order to carry out its responsibilities, to attend and participate (in a non-voting capacity) in all or a portion of any Committee meeting. The Committee may exclude from all or a portion of its meetings any person it deems appropriate in order to carry out its responsibilities. The Chair will designate a secretary for each meeting, who need not be a member of the Committee. The Secretary of the Company will provide the Committee such staff support as it may require.

VI. MINUTES AND REPORTS

The Committee will maintain written minutes of its meetings and copies of its actions by written consent, and will cause such minutes and copies of written consents to be filed with the minutes of the meetings of the Board. The Chair will report to the Board from time to time with respect to the activities of the Committee, including on significant matters related to the Committee's responsibilities and the Committee's deliberations and actions. The minutes of the Committee and actions by the unanimous written consent of the Committee members will be made available to the other members of the Board.

VII. DELEGATION OF AUTHORITY

The Committee may from time to time, as it deems appropriate and to the extent permitted under applicable law, the Exchange Rules and the Commission Rules, and the Company's Certificate of Incorporation and Bylaws, form and delegate authority to subcommittees.

VIII. COMPENSATION

Members of the Committee will receive such fees, if any, for their service as Committee members as may be determined by the Board, which may include additional compensation for the Chair. Such fees may include retainers or per meeting fees and will be paid in such form of consideration as is determined by the Board in accordance with applicable law, the Exchange Rules and the Commission Rules.

IX. REVIEW OF COMMITTEE COMPOSITION, PERFORMANCE AND CHARTER

The Committee will evaluate the Committee's composition and performance on an annual basis and submit a report to the Board. The Committee will also review and reassess the adequacy of this Charter periodically, and recommend to the Board any changes the Committee determines are appropriate.

X. PUBLICATION

The Company will make this Charter freely available to stockholders on request and, provided that the Company is subject to the periodic reporting requirements of the Exchange Act, will publish it on the Company's website.