

**CHARTER OF THE COMPENSATION COMMITTEE
OF THE BOARD OF DIRECTORS OF CPEX PHARMACEUTICALS, INC.
(THE “CHARTER”)**

Adopted and Effective May 13, 2008

I. PURPOSE OF THE COMMITTEE

The purposes of the Compensation Committee (the “Committee”) of the Board of Directors (the “Board”) of CPEX Pharmaceuticals, Inc. (the “Corporation”) shall be to oversee the Corporation’s compensation and employee benefit plans and practices, including its executive compensation plans, and its incentive-compensation and equity-based plans; to review and discuss with management the Corporation’s Compensation Discussion and Analysis to be included in the Corporation’s annual proxy statement or annual report on Form 10-K filed with the Securities and Exchange Commission (“SEC”); and to prepare the Compensation Committee Report as required by the rules of the SEC.

II. COMPOSITION OF THE COMMITTEE

The Committee shall consist of two or more directors as determined from time to time by the Board, upon recommendation of the Nominating and Governance Committee. Each member of the Committee shall be qualified to serve on the Committee pursuant to the requirements of The Nasdaq Stock Market, Inc. (“Nasdaq”), and any additional requirements that the Board deems appropriate. Members of the Committee shall also qualify as “non-employee directors” within the meaning of Rule 16b-3 promulgated under the Securities Exchange Act of 1934, as amended, and “outside directors” within the meaning of Section 162(m) of the Internal Revenue Code of 1986, as amended.

Each member of the Committee shall meet the criteria for independence set forth in Nasdaq rule 4200(a)(15) (subject to the phase-in periods provided in Rule 4350(a)(5)).

The chairperson of the Committee shall be designated by the Board, *provided* that if the Board does not so designate a chairperson, the members of the Committee, by a majority vote, may designate a chairperson.

Any vacancy on the Committee shall be filled by majority vote of the Board, upon recommendation of the Nominating and Governance Committee. Committee members may be removed at any time with or without cause by a majority vote of the Board.

III. MEETINGS AND PROCEDURES OF THE COMMITTEE

The Committee shall meet as often as it determines necessary to carry out its duties and responsibilities, but no less than twice annually. The Committee, in its discretion, may ask members of management or others to attend its meetings (or portions thereof) and to provide pertinent information as necessary.

A majority of the members of the Committee present in person or by means of a conference telephone or other communications equipment by means of which all persons participating in the meeting can hear each other shall constitute a quorum.

The Committee shall maintain minutes of its meetings and records relating to those meetings and shall report regularly to the Board on its activities, as appropriate.

The Committee shall conduct its meetings in accordance with this Charter, the procedures of the Board set forth in the bylaws of the Corporation, and such other procedures as the Committee may adopt.

IV. DUTIES AND RESPONSIBILITIES OF THE COMMITTEE

A. *Executive Compensation*

The Committee shall have the following duties and responsibilities with respect to the compensation of the executive officers of the Corporation:

(a) To review at least annually the goals and objectives of the compensation of the executive officers of the Corporation, and amend, or recommend that the Board amend, these goals and objectives if the Committee deems it appropriate.

(b) To evaluate annually the performance of the Chief Executive Officer in light of the Corporation's goals and objectives, and, either as a Committee or together with the other independent directors (as directed by the Board), determine and approve, or recommend to the Board for its approval, the Chief Executive Officer's compensation level based on this evaluation. In determining the long-term incentive component of the Chief Executive Officer's compensation, the Committee shall consider all relevant factors, including the Corporation's performance and relative stockholder return, the value of similar awards to chief executive officers of comparable companies, and the awards given to the Chief Executive Officer of the Corporation in past years. The Committee may discuss the Chief Executive Officer's compensation with the Board if it chooses to do so. The Chief Executive Officer may not be present during the voting or deliberations regarding the Chief Executive Officer's compensation.

(c) To evaluate annually the performance of the other executive officers of the Corporation in light of the Corporation's goals and objectives, and either as a Committee or together with the other independent directors (as directed by the Board), determine and approve, or recommend to the Board for its approval, the compensation of such other executive officers or employees that earn an annual salary in excess of \$350,000. To the extent that long-term incentive compensation is a component of such executive officer's compensation, the Committee shall consider all relevant factors in determining the appropriate level of such compensation, including the factors applicable with respect to the Chief Executive Officer.

(d) To evaluate annually the appropriate level of compensation for Board and Committee service by non-employee directors.

(e) To review and approve any severance or termination arrangements to be made with any executive officer of the Corporation.

(f) To review perquisites or other personal benefits to the Corporation's executive officers and directors and recommend any changes to the Board.

(g) To review and discuss with management the Corporation's Compensation Disclosure & Analysis, and based on that review and discussion, to recommend to the Board that the Compensation Disclosure & Analysis be included in the Corporation's annual proxy statement or annual report on Form 10-K.

(h) To prepare the Compensation Committee Report in accordance with the rules and regulations of the SEC for inclusion in the Corporation's annual proxy statement or annual report on Form 10-K.

(i) To review the description of the Committee's processes and procedures for the consideration and determination of executive and director compensation to be included in the Corporation's annual proxy statement.

(j) To prepare for management succession, including policies and principles for the selection and performance review of the Chief Executive Officer, as well as policies regarding succession in the event of an emergency or the retirement of the Chief Executive Officer.

B. General Compensation and Employee Benefit Plans

The Committee shall have the following duties and responsibilities with respect to the Corporation's general compensation plans and other employee benefit plans, including incentive-compensation and equity-based plans:

(a) To review at least annually the goals and objectives of the Corporation's general compensation plans and other employee benefit plans, including incentive-compensation and equity-based plans, and amend, or recommend that the Board amend, these goals and objectives if the Committee deems it appropriate.

(b) To review at least annually the Corporation's general compensation plans and other employee benefit plans, including incentive-compensation and equity-based plans, in light of the goals and objectives of these plans, and, if the Committee deems it appropriate, adopt, or recommend to the Board the adoption of, new employee benefit plans, or the amendment of the existing employee benefit plans.

(c) To review all equity-compensation plans to be submitted for stockholder approval under the Nasdaq listing standards, and to review and, in the Committee's sole discretion, approve all equity-compensation plans that are exempt from such stockholder approval requirement.

(d) To perform such duties and responsibilities as may be assigned to the Board or the Committee under the terms of any compensation or other employee benefit plan, including any incentive-compensation or equity-based plan.

(e) To perform such duties and responsibilities as may be assigned to the Board or the Committee under the terms of any general compensation plans and other employee benefit plan, including incentive-compensation and equity-based plans.

(f) To review, fix and determine awards to employees pursuant to the Company's employee stock option or equity-based plans now or from time to time hereafter in effect and exercise such other power and authority as may be permitted or required under such plans.

V. ROLE OF CHIEF EXECUTIVE OFFICER

The Chief Executive Officer shall make, and the Committee may consider, recommendations to the Committee regarding the Corporation's compensation and employee benefit plans and practices, including its compensation plans, its incentive-compensation and equity-based plans with respect to executive officers other than the Chief Executive Officer.

VI. EVALUATION OF THE COMMITTEE

The Committee shall, on an annual basis, evaluate its performance. In conducting this review, the Committee shall evaluate whether this Charter appropriately addresses the matters that are or should be within its scope and shall recommend such changes as it deems necessary or appropriate. The Committee shall address all matters that the Committee considers relevant to its performance, including at least the following: the adequacy, appropriateness and quality of the information and recommendations presented by the Committee to the Board, the manner in which they were discussed or debated, and whether the number and length of meetings of the Committee were adequate for the Committee to complete its work in a thorough and thoughtful manner.

The Committee shall deliver to the Board a report, which may be oral, setting forth the results of its evaluation, including any recommended amendments to this Charter and any recommended changes to the Corporation's or the Board's policies or procedures.

VII. INVESTIGATIONS AND STUDIES; OUTSIDE ADVISERS

The Committee may conduct or authorize investigations into or studies of matters within the Committee's scope of responsibilities, and may retain, at the Corporation's

expense, such independent counsel or other consultants or advisers as it deems necessary or appropriate, including compensation consultants to advise the Committee with respect to amounts or forms of executive and director compensation. The Committee shall have the sole authority to retain or terminate any compensation consultant to assist the Committee in carrying out its responsibilities, including sole authority to approve the consultant's fees and other retention terms, such fees to be borne by the Corporation.

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While the members of the Committee have the duties and responsibilities set forth in this Charter, nothing contained in this Charter is intended to create, or should be construed as creating, any responsibility or liability of members of the Committee, except to the extent otherwise provided under applicable federal or state law.