

ALNYLAM PHARMACEUTICALS, INC.

COMPENSATION COMMITTEE CHARTER

A. Purpose

The purpose of the Compensation Committee is to assist the Board of Directors in the discharge of its responsibilities relating to compensation of the Company's executive officers.

B. Structure and Membership

1. Number. The Compensation Committee shall consist of at least two members of the Board of Directors.
2. Independence. Except as otherwise permitted by the applicable NASDAQ rules, each member of the Compensation Committee shall be an "independent director" as defined by the applicable NASDAQ rules.
3. Chair. Unless the Board of Directors elects a Chair of the Compensation Committee, the Compensation Committee shall elect a Chair by majority vote.
4. Compensation. The compensation of Compensation Committee members shall be as determined by the Board of Directors.
5. Selection and Removal. Members of the Compensation Committee shall be appointed by the Board of Directors, upon the recommendation of the Nominating and Corporate Governance Committee. The Board of Directors may remove members of the Compensation Committee from such committee, with or without cause.

C. Authority and Responsibilities

General

The Compensation Committee shall discharge its responsibilities, and shall assess the information provided by the Company's management, in accordance with its business judgment.

Compensation Matters

1. Executive Officer Compensation. The Compensation Committee, or a majority of the independent directors of the Board of Directors, shall review and approve, or recommend for approval by the Board of Directors, the compensation of the Company's Chief Executive Officer (the "CEO") and the Company's other executive officers, including salary, bonus and incentive compensation levels; deferred compensation; executive perquisites; equity compensation (including awards to induce employment); severance arrangements; change-in-control

benefits and other forms of executive officer compensation. The Compensation Committee or the independent directors of the Board of Directors, as the case may be, shall meet without the presence of executive officers when approving or deliberating on compensation for the CEO but may, in its or their discretion, invite the CEO to be present during the approval of, or deliberations with respect to, compensation for other executive officers.

2. Evaluation of Senior Executives. The Compensation Committee shall be responsible for overseeing the evaluation of the Company's senior executives. In conjunction with the Audit Committee in the case of the evaluation of the senior financial management, the Compensation Committee shall determine the nature, frequency of and persons subject to the evaluation process, supervise the conduct of the evaluations and prepare assessments of the performance of the Company's senior executives, which such assessment shall be discussed periodically with the Board of Directors.
3. Plan Recommendations and Approvals. The Compensation Committee shall review and make recommendations periodically to the Board of Directors with respect to incentive-compensation plans and equity-based plans. In addition, in the case of any tax-qualified, non-discriminatory employee benefit plans (and any parallel nonqualified plans) for which stockholder approval is not sought and pursuant to which options or stock may be acquired by officers, directors, employees or consultants of the Company, the Compensation Committee, or a majority of the independent directors of the Board of Directors, shall approve such plans.
4. Administration of Plans. The Compensation Committee shall exercise all rights, authority and functions of the Board of Directors under all of the Company's stock option, stock incentive, employee stock purchase and other equity-based plans, including without limitation, the authority to interpret the terms thereof, to grant options thereunder and to make stock awards thereunder; provided, however, that, except as otherwise expressly authorized to do so by this charter or a plan or resolution of the Board of Directors, the Compensation Committee shall not be authorized to amend any such plan. To the extent permitted by applicable law and the provisions of a given equity-based plan, and consistent with the requirements of applicable law and such equity-based plan, the Compensation Committee may delegate to one or more executive officers of the Company the power to grant options or other stock awards pursuant to such equity-based plan to employees of the Company or any subsidiary of the Company who are not directors or executive officers of the Company. The Compensation Committee, or a majority of the independent directors of the Board of Directors, shall approve any inducement awards granted in reliance on the exemption from shareholder approval contained in NASDAQ Rule 4350(i)(1)(A)(iv).
5. Director Compensation. The Compensation Committee shall review and make recommendations periodically to the Board of Directors with respect to director compensation.

6. Management Succession. The Compensation Committee shall, at the request of the Board of Directors, review and make recommendations periodically to the Board of Directors relating to management succession planning, including policies and principles for CEO selection and performance review, as well as policies regarding succession in the event of an emergency or the retirement of the CEO.
7. Compensation Committee Report on Executive Compensation. The Compensation Committee shall prepare for inclusion where necessary in a proxy or information statement of the Company relating to an annual meeting of security holders at which directors are to be elected (or special meeting or written consents in lieu of such meeting), the report described in Item 402(k) of Regulation S-K.
8. Compensation Committee Report on Repricing of Options/SARs. If during the last fiscal year of the Company (while the Company was a reporting company pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder (the “Exchange Act”)) any adjustment or amendment was made to the exercise price of any stock option or stock appreciation right previously awarded to a “named executive officer” (as such term is defined from time to time in Item 402(a)(3) of Regulation S-K), the Compensation Committee shall furnish the report required by Item 402(i) of Regulation S-K.
9. Additional Powers. The Compensation Committee shall have such other duties as may be delegated from time to time by the Board of Directors.

D. Procedures and Administration

1. Meetings. The Compensation Committee shall meet as often as it deems necessary in order to perform its responsibilities. The Compensation Committee may also act by unanimous written consent in lieu of a meeting. The Compensation Committee shall keep such records of its meetings as it shall deem appropriate.
2. Subcommittees. The Compensation Committee may form and delegate authority to one or more subcommittees as it deems appropriate from time to time under the circumstances (including (a) a subcommittee consisting of a single member and (b) a subcommittee consisting of at least two members, each of whom qualifies as a “non-employee director,” as such term is defined from time to time in Rule 16b-3 promulgated under the Exchange Act, and an “outside director,” as such term is defined from time to time in Section 162(m) of the Internal Revenue Code of 1986, as amended, and the rules and regulations thereunder).
3. Reports to Board. The Compensation Committee shall report regularly to the Board of Directors.

4. Charter. The Compensation Committee shall review and reassess periodically the adequacy of this Charter and recommend any proposed changes to the Board of Directors for approval.
5. Consulting Arrangements. The Compensation Committee shall have the authority to retain and terminate any compensation consultant to be used to assist in the evaluation of executive officer compensation and shall have authority to approve the consultant's fees and other retention terms. The Compensation Committee shall also have authority to commission compensation surveys or studies as the need arises. The Compensation Committee is empowered, without further action by the Board of Directors, to cause the Company to pay the compensation of such consultants as established by the Compensation Committee.
6. Independent Advisors. The Compensation Committee shall have the authority, without further action by the Board of Directors, to engage such independent legal, accounting and other advisors as it deems necessary or appropriate to carry out its responsibilities. Such independent advisors may be the regular advisors to the Company. The Compensation Committee is empowered, without further action by the Board of Directors, to cause the Company to pay the compensation of such advisors as established by the Compensation Committee.
7. Investigations. The Compensation Committee shall have the authority to conduct or authorize investigations into any matters within the scope of its responsibilities as it shall deem appropriate, including the authority to request any officer, employee or advisor of the Company to meet with the Compensation Committee or any advisors engaged by the Compensation Committee.
8. Periodic Self-Evaluation. The Compensation Committee shall evaluate periodically its own performance.