

ALNYLAM PHARMACEUTICALS, INC.

AMENDED AND RESTATED PEOPLE, CULTURE AND COMPENSATION COMMITTEE CHARTER

A. Purpose

The purpose of the People, Culture and Compensation Committee (the “Committee”) of the Board of Directors (the “Board”) of Alnylam Pharmaceuticals, Inc. (the “Company”) is to oversee the discharge of the responsibilities of the Board relating to compensation of the Company’s directors and executive officers as it pertains to the Company’s overall compensation structure, policies and programs. The Committee reviews and discusses the Company’s culture and human capital management; reviews and discusses corporate succession plans for key officers of the Company; reviews the Company’s processes and procedures for the consideration and determination of director and executive officer compensation; and prepares the Committee report required to be included in the Company’s annual proxy statement on Schedule 14A or annual report on Form 10-K, each in accordance with applicable rules and regulations. The primary objective of the Committee is to develop and implement compensation policies and plans that ensure the attraction and retention of key management personnel, the motivation of management to achieve the Company’s corporate goals and strategies, and the alignment of the interests of management with the long-term interests of the Company’s stockholders.

B. Structure and Membership

1. Number. The Committee shall consist of at least three members of the Board.
2. Independence. Except as otherwise permitted by the applicable Nasdaq Stock Market Rules, each member of the Committee shall satisfy the independence standards established pursuant to such rules. In determining the members of the Committee, the Board will consider whether the members qualify as “non-employee directors” as defined in Rule 16b-3 under the Securities Exchange Act of 1934, as amended, and the rules and regulations thereunder (the “Exchange Act”), and only for so long as there are any outstanding compensation awards that (a) continue to be eligible for qualification as “performance-based compensation” exempt from the application of the deduction limit under Section 162(m) of the Internal Revenue Code of 1986, as amended, and (b) will require a certification of performance by the Committee to so qualify as “outside directors” as defined in Section 162(m).
3. Chair. The Board shall designate one member of the Committee to serve as chair of the Committee (the “Chair”).
4. Selection and Removal. Members of the Committee shall be appointed annually by the Board, upon the recommendation of the Nominating and Corporate Governance Committee. Resignation or removal of a director from the Board, for whatever reason, shall automatically constitute resignation or removal, as applicable, from the Committee. The Board may remove members of the Committee with or without cause. Vacancies occurring, for whatever reason, shall be filled by the Board.
5. Quorum. A majority of the members of the Committee shall constitute a quorum for purposes of

holding a meeting and the Committee may act by a vote of a majority of members present at such meeting.

C. Authority and Responsibilities

General

The 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 Committee shall determine the compensation of the Company's executive officers (as defined in Section 16 of the Exchange Act and Rule 16a-1 promulgated thereunder) other than the Company's Chief Executive Officer (the "CEO") and shall recommend for determination by the Board the compensation of the CEO, 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 compensation. The Committee shall review and approve the corporate goals used to determine the compensation of the executive officers and evaluate such officer's performance in light of such goals and objectives and determine, or, in the case of the CEO, recommend for determination by the Board, such officer's compensation based on such evaluation. The Committee shall review periodically the aggregate amount of compensation being paid or potentially payable to the executive officers. The Committee shall meet without the presence of the CEO when approving or deliberating on CEO compensation. The Committee may, in its discretion, invite appropriate employees of the Company to be present during the approval of, or deliberations with respect to, other executive officer compensation.

2. Evaluation of Senior Executives. The Committee shall be responsible for overseeing the evaluation of the Company's senior executives. In conjunction with the Audit Committee of the Board, in the case of the evaluation of the senior financial management, the Committee shall determine the nature and frequency of the evaluation and the persons subject to the evaluation, supervise the conduct of the evaluation and prepare assessments of the performance of the Company's senior executives, to be discussed periodically with the Board. The Committee shall review with the CEO, no less frequently than once per year, the development and promotion potential of each of the Company's senior executives, whether such review is as a Committee or with the Board. The Committee shall also review with the Company's senior executives, its development programs, education and training opportunities, professional growth and advancement practices, individual development plans and overall effectiveness.

3. Plan Recommendations and Approvals. The Committee shall periodically review and make recommendations to the Board with respect to the Company's incentive-based compensation and equity-based plans that are subject to approval by the Board. The Committee shall review, and make such recommendations to the Board as the Committee deems advisable with regard to, policies and procedures for the grant of equity-based awards by the Company as may be in effect from time to time. In addition, the Committee shall approve any tax-qualified, non-discriminatory plans (and any parallel nonqualified plans) for which stockholder approval is not required and

pursuant to which options or stock may be acquired by officers, directors, employees or consultants of the Company.

Administration of Equity-Based Plans. The Committee shall exercise all rights, authority and functions of the Board under all of the Company's stock option, stock incentive, employee stock purchase and other incentive-based compensation and equity-based plans, including, without limitation, the authority to act as the administrator of such plans, 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 Amended and Restated People, Culture and Committee Charter (the "Charter"), any such plan or a resolution of the Board, the Committee shall not be authorized to amend any such plan if stockholder approval is required or will be sought for such amendment. 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 Committee may delegate to one or more 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 Committee shall approve any inducement awards granted in reliance on the exemption from stockholder approval contained in Nasdaq Stock Market Rule 5635(c)(4).

1. Non-Employee Director Compensation. The Committee shall periodically review and make recommendations to the Board with respect to non-employee director compensation, including compensation under any equity-based plans, and including the compensation of Committee members; provided, however, that the compensation of Committee members shall be determined by the Board.
2. Management Succession. The Committee shall periodically review and make recommendations to the Board relating to senior executive 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 or other executive officer.
3. Review and Discussion of Compensation Discussion and Analysis; Recommendation to Board. The Committee shall review and discuss annually with management the Company's "Compensation Discussion and Analysis" required by Item 402(b) of Regulation S-K (the "CD&A"). The Committee shall consider annually whether it will recommend to the Board that the CD&A be included in the Company's annual report on Form 10-K, proxy statement on Schedule 14A or information statement on Schedule 14C.
4. Compensation Committee Report. The Committee shall prepare the annual Compensation Committee Report, if and when required, to be included in the Company's proxy statement on Schedule 14A or annual report on Form 10-K in accordance with Item 407(e)(5) of Regulation S-K, the Nasdaq Stock Market rules and any other rules and regulations applicable to the Company.
5. Say-On-Pay and Compensation Related Proposals. The Committee shall oversee the Company's compliance with Securities and Exchange Commission's rules and regulations regarding stockholder approval of certain executive compensation matters, including advisory votes on executive compensation and the frequency of such votes. The Committee shall provide recommendations to the Board on compensation-related proposals to be considered at the

Company's annual meeting, including equity compensation plans.

6. Peer Group. The Committee shall periodically review and revise a peer group of companies against which to assess the Company's compensation programs and practices to ensure that they are competitive and supportive of the Company's strategy and objectives.

7. Clawback Policy. The Committee shall approve and oversee the application of the Company's policy for clawback, or recoupment, of incentive compensation compliant with any rules or regulations adopted by the Securities and Exchange Commission and Nasdaq pursuant to Section 10D of the Exchange Act.

8. Stock Ownership Guidelines. The Committee shall establish the terms of, amend, and oversee compliance with the Company's stock ownership guidelines for the Company's CEO, executive officers and non-employee directors.

9. Compensation Risk Assessment. The Committee shall review the Company's compensation policies and practices and assess whether such policies and practices are reasonably likely to have a material adverse effect on the Company and whether they support the strategies and objectives of the Company.

10. Consider Stockholder Feedback on Executive Compensation. The Committee shall review the results of any say on pay votes and consider whether to make or recommend adjustments to the Company's executive compensation policies and practices as a result of such votes.

11. Stockholder Engagement. The Committee shall oversee engagement with stockholders and proxy advisory firms on executive compensation matters.

12. Additional Duties. The Committee shall have such other duties as may be delegated from time to time by the Board.

13. Talent Management. The Committee shall assist the Board in its oversight of the development, implementation and effectiveness of the Company's policies and strategies relating to its talent management function, including, but not limited to, those policies and strategies regarding recruiting, retention, career development and progression, leadership development, diversity, inclusion and employment practices.

D. Procedures and Administration

1. Meetings. The Committee shall meet as often as it deems necessary in order to perform its responsibilities, in person or by conference telephone or other communications equipment by means of which all participants can hear each other. The Committee may also act by unanimous written consent (which may include electronic consent) in lieu of a meeting. The Committee shall keep such records of its meetings as it shall deem appropriate. The Chair, in consultation with the other members, management, and/or compensation consultants engaged by the Committee, may set meeting agendas consistent with this Charter.

2. Subcommittees. The 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 (only for so long as there are any outstanding compensation awards that (x) continue to be eligible for qualification as “performance-based compensation” exempt from the application of the deduction limit under Section 162(m) of the Internal Revenue Code of 1986, as amended, and (y) will require a certification of performance by the Committee to so qualify) as “outside directors” as defined in Section 162(m).

3. Reports to Board. The Committee shall report regularly to the Board.

4. Charter. The Committee shall, at least once per year, review and reassess the adequacy of this Charter and recommend any proposed changes to the Board for approval.

5. Consulting Arrangements. The Committee shall have the sole authority and direct responsibility for the appointment, compensation and oversight of the work of any compensation consultant, legal counsel or other adviser to be used to assist the Committee in the evaluation of director or executive officer compensation and shall have sole authority to approve the consultant’s fees and other retention terms. Nothing in this provision requires the Committee to implement or act consistently with the advice or recommendations of any advisor or affects the ability or obligation of the Committee to exercise its own judgment in fulfillment of its duties. The Committee shall also have authority to commission compensation surveys or studies as the need arises. The Committee is empowered, without further action by the Board, to cause the Company to pay the compensation of such consultants as established by the Committee. However, nothing in this provision requires that any advisors be independent. Before selecting any compensation consultant, legal counsel or other adviser subject to Nasdaq Stock Market Rule 5605(d)(3), the Committee shall take into consideration the following factors:

- The provision of other services to the Company by the person that employs the compensation consultant, legal counsel or other adviser;
- The amount of fees received from the Company by the person that employs the compensation consultant, legal counsel or other adviser, as a percentage of the total revenue of the person that employs the compensation consultant, legal counsel or other adviser;
- The policies and procedures of the person that employs the compensation consultant, legal counsel or other adviser that are designed to prevent conflicts of interest;
- Any business or personal relationship of the compensation consultant, legal counsel or other adviser with a member of the Committee;
- Any stock of the Company owned by the compensation consultant, legal counsel or other adviser; and
- Any business or personal relationship of the compensation consultant, legal counsel, other adviser or the person employing the adviser with an executive officer of the Company.

The foregoing shall not apply to inside legal counsel or to a compensation consultant, legal counsel or other adviser whose role is limited to the following activities for which no disclosure would be

required under Item 407(e)(3)(iii) of Regulation S-K: (i) consulting on a broad-based plan that does not discriminate in scope, terms, or operation, in favor of executive officers or non-employee directors of the Company, and that is available generally to all salaried employees or (ii) providing information that either is not customized for a particular company or that is customized based on parameters that are not developed by the compensation consultant, legal counsel or other adviser and about which such consultant does not provide advice.

6. Independent Advisors. Subject to the foregoing, the Committee is authorized, without further action by the Board, to engage such independent legal and other advisors as it deems necessary or appropriate to carry out its responsibilities and to rely on advice and information it receives from management and any experts, advisors and professionals with whom it may consult. Such independent advisors may be the regular advisors to the Company. The Committee is empowered, without further action by the Board, to cause the Company to pay the compensation of such advisors as established by the Committee.

7. Investigations. The 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 Committee or any advisors engaged by the Committee.

8. Periodic Self-Evaluation. The Committee shall perform an annual evaluation of its own performance, which will compare the performance of the Committee with the requirements of this Charter.

* * *

Approved by the Board on September 26, 2023