

BLUEBIRD BIO, INC.

CORPORATE GOVERNANCE GUIDELINES

The Board of Directors (the “**Board**”) of bluebird bio, Inc. (the “**Company**”) has adopted the corporate governance guidelines set forth below to assist and guide the Board in the exercise of its responsibilities. These guidelines should be interpreted in accordance with any requirements imposed by applicable federal or state law or regulation, The NASDAQ Stock Market LLC and the Amended and Restated Certificate of Incorporation and the Amended and Restated By-Laws of the Company. The Board may review and amend these guidelines from time to time.

I. DIRECTOR QUALIFICATION STANDARDS

Director Criteria: The Board shall consider and approve from time to time the criteria that it deems necessary or advisable for prospective director candidates. The Board shall have full authority to modify such criteria from time to time as it deems necessary or advisable. The Board has delegated to the Nominating and Corporate Governance Committee of the Board (the “**Nominating and Corporate Governance Committee**”) the responsibility for developing and recommending to the Board for its consideration and approval such criteria for prospective director candidates as the Nominating and Corporate Governance Committee deems necessary or advisable. The Nominating and Corporate Governance Committee will recommend to the Board from time to time such criteria for its consideration and approval. The Board may, however, rescind this delegation to the Nominating and Corporate Governance Committee and thereafter the Board shall have the responsibility for developing and approving from time to time such criteria for prospective director candidates as it deems necessary or advisable.

Process For Identifying and Selecting Directors: The Board has delegated to the Nominating and Corporate Governance Committee the responsibility of identifying suitable candidates for nomination to the Board (including candidates to fill any vacancies that may occur) and assessing their qualifications in light of the policies and principles in these corporate governance guidelines and the Nominating and Corporate Governance Committee’s charter. The Nominating and Corporate Governance Committee will recommend prospective director candidates for the Board’s consideration and review the prospective candidates’ qualifications with the Board. The Board shall retain the ultimate authority to nominate a candidate for election by the stockholders as a director or to fill any vacancy that may occur. In identifying prospective director candidates, the Nominating and Corporate Governance Committee may consider all facts and circumstances that it deems appropriate or advisable, including, among other things, the skills of the prospective director candidate, his or her depth and breadth of business experience or other background characteristics, his or her independence and the needs of the Board.

Independence: At least a majority of the members of the Board shall meet the independence standards of the Stock Market Rules of The NASDAQ Stock Market LLC NASDAQ (the “**NASDAQ Stock Market Rules**”) set forth in Rule 5602(a)(2) of the NASDAQ Stock Market Rules (or any successor provision thereto). Periodically, the Board will evaluate all relationships between the Company and each director in light of relevant facts and circumstances for the purposes of determining whether a material relationship exists that might signal a potential conflict of interest or otherwise interfere with such director’s ability to satisfy his or her responsibilities as an independent director.

Limit on Number of Other Boards: Carrying out the duties and fulfilling the responsibilities of a director requires a significant commitment of an individual’s time and attention. The Board does not believe, however, that explicit limits on the number of other boards of directors on which the directors may serve, or on other activities the directors may pursue, are appropriate. The Board, however, recognizes that excessive time commitments can interfere with an individual’s ability to perform his or her duties effectively. In connection with its assessment of director candidates for nomination, the Board will assess whether the performance of any director has been or is likely to be adversely impacted by excessive time commitments, including service on other boards of directors. Directors must notify the Chairman of the Board in connection with accepting a seat on the board of directors of another business corporation so that the potential for conflicts or other factors compromising the director’s ability to perform his duties may be fully assessed.

Term and Age Limits: The Board does not believe that arbitrary limits on the number of consecutive terms a director may serve or on the directors’ ages are appropriate in light of the substantial benefits resulting from a sustained focus on the Company’s business, strategy and industry over a significant period of time. Each individual’s performance will be assessed by the Nominating and Corporate Governance Committee and the Board in light of relevant factors in connection with assessments of candidates for nomination to be directors.

II. DIRECTOR RESPONSIBILITIES

Role of Directors: The business and affairs of the Company are managed by or under the direction of the Board, acting on behalf of the stockholders. The Board has delegated to the officers of the Company the authority and responsibility for managing the Company’s everyday affairs. The Board has an oversight role and is not expected to perform or duplicate the tasks of the Company’s Chief Executive Officer (the “**CEO**”) or senior management.

Attendance at Meetings: Each member of the Board is expected to make reasonable efforts to attend regularly scheduled meetings of the Board and to participate in telephone conference meetings or other special meetings of the Board. In the event that directors are unable to make at least 75% of those regular or special meetings (together with the meetings of committees on which such director serves), the Company will be required to disclose that fact in its annual proxy statement. In addition, attendance and participation

at meetings is an important component of the directors' duties and, as such, attendance rates will be taken into account by the Nominating and Corporate Governance Committee and the Board in connection with assessments of director candidates for renomination as directors.

Time Commitment; Advance Distribution of Materials: Directors are expected to spend the time needed and meet as frequently as the Board deems necessary or appropriate to discharge their responsibilities. Management is responsible for distributing in advance information and data that are important to the Board's understanding of the business to be conducted at a Board or committee meeting to the directors.

III. BOARD STRUCTURE

Size of Board: The Board reserves the right to increase or decrease the size of the Board, subject to any relevant provisions in the Company's Bylaws, depending on an assessment of the Board's needs and other relevant circumstances at any given time.

Board Leadership: The Board shall fill the Chairman of the Board and CEO positions based upon the Board's view of what is in the best interests of the Company. The CEO and Chairman may be, but need not be, the same person. The Company's Bylaws provide that the Board of Directors shall designate a representative to preside over all meetings of the Board of Directors and stockholders, provided that if the Board of Directors does not so designate such a presiding director or such designated presiding director is unable to so preside or is absent, then the Chairman of the Board, if one is elected, shall preside over all meetings of the Board of Directors and stockholders. The Chairperson of the Board shall perform such other duties as the Board may from time to time designate.

Committees: The Board intends at all times to have an Audit Committee, a Compensation Committee and a Nominating and Corporate Governance Committee. Each of these standing committees will have a written charter that sets forth the responsibilities of such committee and the qualifications for committee membership. The Board may from time to time establish additional committees as necessary or appropriate. Membership on such committees is limited to independent directors meeting the independence requirements of the NASDAQ Stock Market Rules, the Sarbanes-Oxley Act of 2002 and any other related rules or regulations promulgated by the Securities and Exchange Commission (the "SEC") and the Internal Revenue Service (as applicable). The Board retains discretion to form new committees or disband current committees depending upon the circumstances.

Executive Sessions: The non-management directors will meet at regularly scheduled executive sessions without management participation and at least once each year an executive session with only independent directors present shall be held. As long as the Chairperson of the Board is a non-management director and an independent director, then the Chairperson of the Board will preside at these meetings. If the Chairperson of the

Board does not so qualify, then the director who presides at these meetings will be chosen by the non-management directors, and his or her name, or the process by which he or she is selected, will be disclosed in the annual proxy statement or, if the Company does not file an annual proxy statement, in the Company's annual report on Form 10-K filed with the SEC. In order that interested parties may be able to make their concerns known to the non-management directors, the Company will also disclose a method for such parties to communicate directly and confidentially with the presiding director or with the non-management directors as a group. The Company's General Counsel and Corporate Secretary may, but is not obligated to, attend such executive sessions.

IV. DIRECTOR ACCESS TO MANAGEMENT AND INDEPENDENT ADVISORS

In carrying out its responsibilities, the Board, and each committee thereof, shall be entitled to rely on the advice and information that it receives from management and such experts, advisors and professionals with whom the Board, or any such committee, may consult. The Board, and each committee thereof, shall have the authority to request that any officer or employee of the Company, the Company's outside legal counsel, the Company's independent auditor or any other professional retained by the Company to render advice to the Company, attend a meeting of the Board, or such committee, or meet with any members of or advisors to the Board. The Board or any committee thereof shall also have the authority to engage legal, accounting or other advisors to provide it with advice and information in connection with carrying out its or their responsibilities.

V. DIRECTOR COMPENSATION

The form and amount of director compensation will be reviewed periodically by the Compensation Committee of the Board, which shall make recommendations to the Board based on such review. The Board shall retain the ultimate authority to determine the form and amount of director compensation.

The Company's executive officers shall not receive additional compensation for their service as directors.

VI. PERFORMANCE EVALUATION OF THE BOARD AND COMMITTEES

The Board may conduct a self-evaluation from time to time for the purpose of determining whether it and its committees are functioning effectively, and each committee of the Board may conduct a self-evaluation from time to time for the purpose of determining whether it is functioning effectively. These evaluations will consider the performance of the Board or the committee, as the case may be, as a unit. The Nominating and Corporate Governance Committee will oversee the evaluation process.

VII. MISCELLANEOUS

The Board believes that the management should be responsible for communications with the press, media and other outside parties made on behalf of the Company, though individual Board members may, at the request of management or of the Board, communicate with outside parties on behalf of the Company.

These guidelines are not intended to modify, extinguish or in any other manner limit the indemnification, exculpation and similar rights available to the directors of the Company under applicable law and/or the Company's Certificate of Incorporation and/or its By-Laws.

Although these Corporate Governance Guidelines have been approved by the Board, it is expected that these guidelines will evolve over time as customary practice and legal requirements change. In particular, guidelines that encompass legal, regulatory or exchange requirements as they currently exist will be deemed to be modified as and to the extent such legal, regulatory or exchange requirements are modified. In addition, the guidelines may also be amended by the Board at any time as it deems appropriate.

Adopted May 5, 2013, subject to effectiveness of the Company's Registration Statement on Form S-1.