

Yield10 Bioscience, Inc.

Corporate Governance Guidelines

The Board of Directors (the “Board”) of Yield10 Bioscience, 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 and the Certificate of Incorporation and By-Laws of the Company. The Board may review and amend these guidelines from time to time.

I. BOARD STRUCTURE

A. Size of Board: The Board size is presently set at ten members. The Board reserves the right to increase or decrease the size of the Board, subject to any relevant provisions in the Company’s by-laws, depending on an assessment of the Board’s needs and other relevant circumstances at any given time.

B. Committees:

1. Number of Committees:

The Board has three standing committees: an Audit Committee, a Compensation Committee and a Nominating and Corporate Governance Committee. There will, from time to time, be occasions on which the Board may form a new committee or disband a current committee depending upon the circumstances.

2. Assignment and Term of Service of Committee Members:

The Board is responsible for the appointment of Committee members, taking into account the recommendations of the Nominating and Corporate Governance Committee.

3. Frequency and Length of Committee Meetings and Committee Agenda:

The Committee Chairperson, in consultation with the Chairman of the Board and appropriate members of management, will determine the frequency and length of the Committee meetings and develop the Committee's agenda. Each Committee will regularly report to the Board concerning the Committee’s activities. Upon request, the agendas and meeting minutes of the Committees will be shared with the full Board, and other Board members are welcome to attend Committee meetings, except that non-independent directors are not permitted to attend the executive sessions of any Committee.

C. 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. The Chairman of the Board, to the extent that such person is a non-management director, shall be the director who presides at these meetings, otherwise a presiding director will be chosen by the non-management directors.

II. DIRECTOR QUALIFICATION STANDARDS

A. Director Criteria: The Board of Directors shall consider and approve from time to time the criteria that it deems necessary or advisable for prospective director candidates. The Board of Directors shall have full authority to modify such criteria from time to time as it deems necessary or advisable.

The Board of Directors has delegated to the Nominating and Corporate Governance Committee the responsibility for developing and recommending to the Board of Directors 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 of Directors from time to time such criteria for its consideration and approval. The Board of Directors may, however, rescind this delegation to the Nominating and Corporate Governance Committee and thereafter the Board of Directors shall have the responsibility for developing and approving from time to time such criteria for prospective director candidates as it deems necessary or advisable.

At a minimum, the Nominating and Corporate Governance Committee must be satisfied that each Nominating and Corporate Governance Committee-recommended nominee meets the following minimum qualifications:

- The nominee shall have experience at a strategic or policymaking level in a business, government, non-profit or academic organization of high standing.
- The nominee shall be highly accomplished in his or her respective field, with superior credentials and recognition.
- The nominee shall be well regarded in the community and shall have a long-term reputation for the high ethical and moral standards.
- The nominee shall have sufficient time and availability to devote to the affairs of the Company, particularly in light of the number of boards on which the nominee may serve.
- To the extent such nominee serves or has previously served on other boards, the nominee shall have a demonstrated history of actively contributing at board meetings.

In addition to the minimum qualifications for each nominee set forth above, the Nominating and Corporate Governance Committee shall recommend that the Board select persons for nomination to help ensure that:

- A majority of the Board shall be “independent” in accordance with Nasdaq Rule 5605(a)(2).
- Each of its Audit, Compensation and Nominating and Corporate Governance Committees shall be comprised entirely of independent directors, as determined under applicable rules and standards.
- At least one member of the Audit Committee shall have such experience, education and other qualifications necessary to qualify as an “audit committee financial expert” as defined by the rules of the Securities and Exchange Commission.

B. Process For Identifying and Selecting Directors: The Board of Directors has delegated to the Nominating and Corporate Governance Committee the responsibility of identifying suitable candidates for nomination to the Board of Directors (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 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 of Directors 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.

- The Nominating and Corporate Governance Committee may solicit recommendations from any or all of the following sources: non-management directors, the Chief Executive Officer, other executive officers, third-party search firms, or any other source it deems appropriate.
- The Nominating and Corporate Governance Committee will review and evaluate the qualifications of any such proposed director candidate, and conduct inquiries it deems appropriate.
- The Nominating and Corporate Governance Committee will evaluate all such proposed director candidates in the same manner, with no regard to the source of the initial recommendation of such proposed director candidate.
- The Nominating and Corporate Governance Committee will consider for nomination any such proposed director candidate who is deemed qualified by the Nominating and Corporate Governance Committee in light of the minimum qualifications and other criteria for Board membership approved by the Board from time to time.
- In identifying and evaluating proposed director candidates, the Nominating and Corporate Governance Committee may consider, in addition to the minimum qualifications and other criteria for Board membership approved by the Board from time to time, all facts and circumstances that it deems appropriate or advisable, including, among other things, the skills of the proposed 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.

The procedures to be followed by security holders in submitting recommendations for director candidates to the Nominating and Corporate Governance Committee are set forth below:

- All security holder recommendations for director candidates must be submitted to the Secretary of the Company at its registered address, who will forward all recommendations to the Nominating Committee.
- All security holder recommendations for director candidates must be submitted to the Company not later than the close of business on the 90th day nor earlier than the close of business on the 120th day prior to the first anniversary of the preceding year's Annual Meeting.
- All security holder recommendations for director candidates must include the following information:
 - The name and address of record of the security holder.
 - A representation that the security holder is a record holder of the Company's securities, or if the security holder is not a record holder, evidence of ownership in accordance with Rule 14a-8(b)(2) of the Securities Exchange Act of 1934.
 - The number of shares of capital stock of the Company that are owned beneficially and of record by such shareholder and such beneficial owner.
 - The name, age, business and residential address, educational background, current principal occupation or employment, and principal occupation or employment for the preceding five (5) full fiscal years of the proposed director candidate.
 - The total number of shares of capital stock of the Company that will be voted for the director nominee by the shareholder making the recommendation.
 - A description of the qualifications and background of the proposed director candidate which addresses the minimum qualifications and other criteria for Board membership approved by the Board of Directors from time to time and set forth in these guidelines.
 - A description of all arrangements or understandings between the security holder and the proposed director candidate.
 - The consent of the proposed director candidate (i) to be named in the proxy statement relating to the Company's annual meeting of stockholders and (ii) to serve as a director if elected at such annual meeting.
 - A written statement from the shareholder making the recommendation stating why such recommended candidate would be able to fulfill the duties of a director.

- Any other information regarding the proposed director candidate that is required to be included in a proxy statement filed pursuant to the rules of the Securities and Exchange Commission.

Nominations must be sent to the attention of the Secretary of the Company by one of the two methods listed below:

- By U.S. Mail (including courier or expedited delivery service) to the Secretary of Yield10 Bioscience, Inc. at the Company's registered address; or
- By facsimile at (617) 583-1767 to the attention of the Secretary of Yield10 Bioscience, Inc.

The Secretary of the Company will promptly forward any such nominations to the Nominating and Corporate Governance Committee. Once the Nominating and Corporate Governance Committee receives the nomination of a candidate, the candidate will be evaluated and a recommendation with respect to such candidate will be delivered to the Board. Nominations not made in accordance with the foregoing policy shall be disregarded by the Nominating and Corporate Governance Committee and votes cast for such nominee shall not be counted.

C. Independence: At least a majority of the members of the Board of Directors shall meet the independence requirements established pursuant to Nasdaq Rule 5605(a)(2). At least annually, the Nominating and Corporate Governance Committee will evaluate all relationships between the Company and each director in light of relevant facts and circumstances for the purposes of determining the independence of the members of the Board of Directors.

Because it is not possible to anticipate or explicitly provide for all potential situations that may affect independence, the Board periodically reviews whether any independent director has any other relationship with the Company that, in the judgment of the Board, would interfere with the director's exercise of independent judgment in carrying out such director's responsibilities as a director.

D. Limit on Number of Other Boards: Carrying out the duties and fulfilling the responsibilities of a director require a significant commitment of an individual's time and attention. The Board, however, recognizes that excessive time commitments can interfere with an individual's ability to perform his or her duties effectively. Each Board member is expected to ensure that other existing and planned future commitments do not materially interfere with the member's service as an outstanding director. Board members should not hold more than four directorships (in addition to such member's seat on the Company's Board of Directors, but, excluding for this purpose, not-for-profit organizations, trade organizations and related organizations) unless otherwise agreed to by the Nominating and Corporate Governance Committee of the Board. These other commitments will be considered by the Nominating and Corporate Governance Committee and the Board when reviewing Board candidates. directors are expected to report changes in their primary business or professional association, including retirement, to the Secretary of the Company, who will provide such information to the Nominating and Corporate Governance Committee. The Nominating and Corporate Governance

Committee will consider any effects these changes may have on the effectiveness of the director's contribution to the work of the Board.

E. 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 in light of relevant factors in connection with assessments of candidates for nomination to be directors.

F. Succession: The Nominating and Corporate Governance Committee shall be responsible for developing succession plans for the Board as appropriate in light of relevant facts and circumstances.

III. DIRECTOR RESPONSIBILITIES

A. Role of Directors: The business and affairs of the Company are managed under the direction of the Board of Directors, 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 of Directors has an oversight role and is not expected to perform or duplicate the tasks of the CEO or senior management.

B. Board Meetings: In-person Board meetings are scheduled in advance at least four times a year. Furthermore, additional Board meetings may be called upon appropriate notice at any time to address specific needs of the Company. Each Director may propose the inclusion of items on the agenda, request the presence of or a report by any member of the Company's management, or at any Board meeting raise subjects that are not on the agenda for that meeting. The Board may also take action from time to time by unanimous written consent.

Typically, the meetings of the Board are held at the Company's headquarters in Massachusetts, but occasionally meetings may be held at other locations at the discretion of the Board.

The annual cycle of agenda items for Board meetings is expected to change on a periodic basis to reflect, e.g., Board requests, changing business and legal issues, and the work done by the Board Committees.

C. 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 in connection with assessments of director candidates for renomination as directors.

D. Attendance at Annual Meeting of Shareholders: The Board's policy is that all directors and all nominees for election as directors attend the Company's Annual Meeting of Shareholders in person, to the extent reasonably practicable.

E. Time Commitment; Advance Distribution and Review 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. Senior management is responsible for distributing 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. Directors should review these materials in advance of the meeting when reasonably practicable.

F. Code of Business Conduct and Ethics: Members of the Board of Directors shall act at all times in accordance with the requirements of the Company's Code of Business Conduct and Ethics, which shall be applicable to each Director in connection with his or her activities relating to the Company. This obligation shall at all times include, without limitation, adherence to the Company's policies with respect to conflicts of interest, confidentiality, protection of the Company's assets, ethical conduct in business dealings and respect for and compliance with applicable law. Any waiver of the requirements of the Code of Business Conduct and Ethics with respect to any individual Director or any executive officer shall be reported to, and be subject to the approval of, the Board of Directors.

IV. DIRECTOR ACCESS TO MANAGEMENT AND INDEPENDENT ADVISORS

In carrying out its responsibilities, the Board of Directors, 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 of Directors, 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, but at least annually, by the Compensation Committee, 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.

Independent directors may not receive consulting, advisory or other compensatory fees from the Company if the receipt of such fees would result in disqualifying the director as a "independent" director in accordance with the applicable provisions of the Securities Exchange Act of 1934, the rules promulgated thereunder and the applicable rules of the Nasdaq Stock Market. To the extent practicable or required by applicable rule or

regulation, independent directors who are affiliated with the Company's service providers or partners or collaborators will undertake to ensure that their compensation from such providers or partners or collaborators does not include amounts connected to payments by the Company.

VI. DIRECTOR ORIENTATION AND CONTINUING EDUCATION

The Company will conduct an orientation program for each new director within a reasonable time following the meeting at which the director is elected. The orientation will include presentations by senior management designed to familiarize the new director with the Company's business and strategic plans, key policies and practices, principal officers and management structure, auditing and compliance processes and its code of business conduct and ethics.

Senior management will be responsible for assuring the orientation of new directors, and for periodically providing materials or briefing sessions for all directors on subjects that would assist them in discharging their duties. Periodically, the Company will provide opportunities for directors to visit Company facilities in order to provide greater understanding of the Company's business and operations. The Board, following review by the Nominating and Corporate Governance Committee, will determine whether other educational measures are appropriate as part of the annual Board evaluation.

VII. MANAGEMENT SUCCESSION

The Nominating and Corporate Governance Committee shall be responsible for developing a CEO succession plan for consideration by the Board and reporting on such plan to the Board.

VIII. ANNUAL PERFORMANCE EVALUATION OF THE BOARD AND COMMITTEES

The Board will conduct a self-evaluation at least annually for the purpose of determining whether it and its committees are functioning effectively, and each committee of the Board will conduct a self-evaluation at least annually for the purpose of determining whether it is functioning effectively.

The Nominating and Corporate Governance Committee will oversee the evaluation process.

IX. COMMUNICATIONS WITH THE BOARD

The Board provides to every security holder the ability to communicate with the Board, as a whole, and with individual directors on the Board through an established process for security holder communication (as that term is defined by the rules of the Securities and Exchange Commission) as follows:

For communications directed to the Board as a whole, security holders may send such communication to the attention of the Chairperson of the Board via one of the two methods listed below:

- By U.S. Mail (including courier or expedited delivery service) to the attention of the Chairperson of the Board of Directors at the Company's registered address.
- By facsimile to the attention of the Chairperson of the Board of Directors at (617) 583-1767.

For security holder communications directed to an individual director in his or her capacity as a member of the Board, security holders may send such communications to the attention of the individual director via one of the two methods listed below:

- By U.S. Mail (including courier or expedited delivery service) to the attention of the named individual director at the Company's registered address.
- By facsimile to the attention of the named individual director at (617) 583-1767.

The Company will forward any such security holder communication to the Chairperson of the Board, as a representative of the Board, and/or to the director to whom the communication is addressed on a periodic basis. The Company will forward such communication by certified U.S. Mail to an address specified by each director and the Chairperson of the Board for such purposes or by secure electronic transmission.

X. 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: July 13, 2006

AMENDED AND RESTATED: November 3, 2009

FURTHER AMENDED AND RESTATED: June 20, 2013

UPDATED FOR NAME CHANGE: January 6, 2017