

Yield10 Bioscience, Inc.

Audit Committee Charter

I. General Statement of Purpose

The purposes of the Audit Committee of the Board of Directors (the “Audit Committee”) of Yield10 Bioscience, Inc. (the “Company”) are to:

- oversee the accounting and financial reporting processes of the Company and the audits of the Company’s financial statements;
- take, or recommend that the Board of Directors of the Company (the “Board”) take, appropriate action to oversee the qualifications, independence and performance of the Company’s independent auditors;
- periodically review and report to the Board on any issues that arise with respect to the quality and integrity of the Company’s financial statements, the Company’s compliance with legal and regulatory requirements, and any other matters that the Audit Committee deems appropriate or is requested to review for the benefit of the Board; and
- prepare the report required by the rules of the Securities and Exchange Commission (the “SEC”) to be included in the Company’s annual proxy statement.

II. Composition

The Audit Committee shall consist of at least three (3) members of the Board, each of whom must (1) be “independent” as defined in Nasdaq Rule 5605(a)(2); (2) meet the criteria for independence set forth in Rule 10A-3(b)(1) promulgated under Section 10A(m)(3) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), subject to the exemptions provided in Rule 10A-3(c) under the Exchange Act; and (3) not have participated in the preparation of the financial statements of the Company or a current subsidiary of the Company at any time during the past three years.

Notwithstanding the foregoing, one director who (1) is not “independent” as defined in Nasdaq Rule 5605(a)(2); (2) satisfies the criteria for independence set forth in Section 10A(m)(3) of the Exchange Act and the rules thereunder; and (3) is not a current officer or employee or a Family Member of such officer or employee, may be appointed to the Audit Committee, if the Board, under exceptional and limited circumstances, determines that membership on the Audit Committee by the individual is required by the best interests of the Company and its stockholders, and the Board discloses, in the next annual proxy statement subsequent to such determination (or, if the Company does not file a proxy statement, in its Form 10-K), the nature of the relationship and the reasons for that determination. A member appointed under this exception may not serve on the Audit Committee for more than two years and may not chair the Audit Committee.

Each member of the Audit Committee must be able to read and understand fundamental

financial statements, including the Company's balance sheet, statement of operations, and cash flow statement. At least one member of the Audit Committee shall have past employment experience in finance or accounting, requisite professional certification in accounting, or any other comparable experience or background which results in the individual's financial sophistication, including being or having been a chief executive officer, chief financial officer or other senior officer with financial oversight responsibilities. One or more members of the Audit Committee shall qualify as an "audit committee financial expert" under the rules promulgated by the SEC. The members' independence, financial literacy and financial expertise shall be determined by the Nominating and Corporate Governance Committee of the Board, in the exercise of its business judgment.

The Nominating and Corporate Governance Committee shall recommend to the Board nominees for appointment to the Audit Committee annually and as vacancies or newly created positions occur. The members of the Audit Committee shall be appointed annually by the Board and may be replaced or removed by the Board with or without cause. Resignation or removal of a director from the Board, for whatever reason, shall automatically and without any further action constitute resignation or removal, as applicable, from the Audit Committee. Any vacancy on the Audit Committee, occurring for whatever reason, may be filled only by the Board. The Board shall designate one member of the Audit Committee to be Chairman of the committee.

III. Compensation

A member of the Audit Committee may not, other than in his or her capacity as a member of the Audit Committee, the Board or any other committee established by the Board, receive directly or indirectly from the Company any consulting, advisory or other compensatory fee.

IV. Meetings

The Audit Committee shall meet as often as it determines is appropriate to carry out its responsibilities under this charter, but not less frequently than quarterly. A majority of the members of the Audit Committee shall constitute a quorum for purposes of holding a meeting and the Audit Committee may act by a vote of a majority of the members present at such meeting. In lieu of a meeting, the Audit Committee may act by unanimous written consent. The Audit Committee shall meet separately, periodically, with management and with the Company's independent auditors.

V. Responsibilities and Authority

A. Review of Charter

- The Audit Committee shall review and assess the adequacy of this Charter annually and recommend to the Board any amendments or modifications to the Charter that the Audit Committee deems appropriate.

B. Annual Performance Evaluation of the Audit Committee

- At least annually, the Audit Committee shall evaluate its own performance and report the results of such evaluation to the Board.

C. Matters Relating to Selection, Performance and Independence of Independent Auditor

- The Audit Committee shall be directly responsible for the appointment, retention and termination, and for determining the compensation, of the Company's independent auditor engaged for the purpose of preparing or issuing an audit report or performing other audit, review or attest services for the Company. The Audit Committee may consult with management in fulfilling these duties.
- The Audit Committee shall be directly responsible for oversight of the work of the independent auditor (including resolution of disagreements between management and the independent auditor regarding financial reporting) engaged for the purpose of preparing or issuing an audit report or performing other audit, review or attest services for the Company.
- The Audit Committee shall instruct the independent auditor that the independent auditor shall report directly to the Audit Committee.
- The Audit Committee shall pre-approve all auditing services and the terms thereof and non-audit services to be provided to the Company by the independent auditor (excluding non-audit services prohibited under Section 10A(g) of the Exchange Act or the applicable rules of the SEC or the PCAOB"); provided, however, the pre-approval requirement is waived with respect to the provision of non-audit services for the Company if the "de minimis" provisions of Section 10A(i)(1)(B) of the Exchange Act are satisfied. This authority to pre-approve non-audit services may be delegated to one or more members of the Audit Committee, who shall present all decisions to pre-approve an activity to the full Audit Committee at its first meeting following such decision.
- The Audit Committee may review and approve the scope and staffing of the independent auditors' annual audit plan(s).

The Audit Committee shall (1) request that the independent auditor provide the Audit Committee with the written disclosures and the letter required by PCAOB Rule 3526, (2) require that the independent auditor submit to the Audit Committee on a periodic basis a formal written statement delineating all relationships between the independent auditor and any of its affiliates and the Company or persons in financial reporting oversight roles at the Company that might reasonably be thought to bear on the independence of the independent auditors, (3) discuss with the independent auditor the potential effects of any disclosed relationships or services on the objectivity and independence of the independent auditor, (4) require that the independent auditors provide to the Audit Committee written affirmation that the independent auditors are, as

of the date of the affirmation, independent in compliance with PCAOB Rule 3520, and (5) based on such disclosures, statement, discussion and affirmation, take or recommend that the Board take appropriate action in response to the independent auditor's report to satisfy itself of the independent auditor's independence. In addition, before approving the initial engagement of any independent auditor, the Audit Committee shall receive, review and discuss with the audit firm all information required by, and otherwise take all actions necessary for compliance with the requirements of PCAOB Rule 3526.

- The Audit Committee shall evaluate the independent auditors' qualifications, performance and independence, and shall present its conclusions with respect to the independent auditors to the full Board. As part of such evaluation, at least annually, the Audit Committee shall:
 - (i) obtain and review a report or reports from the independent auditor describing (1) the auditor's internal quality-control procedures, (2) any material issues raised by the most recent internal quality-control review or peer review of the auditors or by any inquiry or investigation by government or professional authorities, within the preceding five years, regarding one or more independent audits carried out by the auditors, and any steps taken to address any such issues, and (3) in order to assess the auditor's independence, all relationships between the independent auditor and the Company;
 - (ii) review and evaluate the performance of the independent auditor and the lead partner (and the Audit Committee may review and evaluate the performance of other members of the independent auditor's audit staff); and
 - (iii) assure the regular rotation of the audit partners (including, without limitation, the lead and concurring partners) as required under the Exchange Act and Regulation S-X.

In this regard, the Audit Committee shall also (1) seek the opinion of management of the independent auditors' performance and (2) consider whether, in order to assure continuing auditor independence, there should be regular rotation of the audit firm.

- The Audit Committee may establish or recommend to the Board policies with respect to the potential hiring of current or former employees of the independent auditor.

D. Audited Financial Statements and Annual Audit

- The Audit Committee shall review the overall audit plan with the independent auditor and the members of management who are responsible for preparing the Company's financial statements, including the Company's Chief Financial Officer and/or principal accounting officer or principal financial officer (the Chief Financial Officer and such other officer or officers are referred to herein collectively as the "Senior Accounting Executive").
- The Audit Committee shall review and discuss with management (including the Company's Senior Accounting Executive) and with the independent auditor the Company's annual audited financial statements, including (1) all critical accounting policies and practices used or to be used by the Company, (2) the Company's

disclosures under “Management’s Discussion and Analysis of Financial Conditions and Results of Operations” prior to the filing of the Company’s Annual Report on Form 10-K, and (3) any significant financial reporting issues that have arisen in connection with the preparation of such audited financial statements.

- The Audit Committee must review:
 - (i) any analyses prepared by management and/or the independent auditors setting forth significant financial reporting issues and judgments made in connection with the preparation of the financial statements, including analyses of the effects of alternative GAAP methods on the financial statements. The Audit Committee may consider the ramifications of the use of such alternative disclosures and treatments on the financial statements, and the treatment preferred by the independent auditor. The Audit Committee may also consider other material written communications between the registered public accounting firm and management, such as any management letter or schedule of unadjusted differences;
 - (ii) major issues as to the adequacy of the Company’s internal controls and any special audit steps adopted in light of any material control deficiencies;
 - (iii) major issues regarding accounting principles and procedures and financial statement presentations, including any significant changes in the Company’s selection or application of accounting principles; and
 - (iv) the effects of regulatory and accounting initiatives, as well as off-balance sheet transactions and structures, on the financial statements of the Company.

- The Audit Committee shall review and discuss with the independent auditor any audit problems or difficulties and management’s response thereto. This review shall include (1) any difficulties encountered by the auditor in the course of performing its audit work, including any restrictions on the scope of its activities or its access to information, and (2) any significant disagreements with management.

- The Audit Committee shall discuss with the independent auditors those matters brought to the attention of the Audit Committee by the auditors pursuant to PCAOB AU 380.

- The Audit Committee shall also review and discuss with the independent auditors the report required to be delivered by such auditors pursuant to Section 10A(k) of the Exchange Act.

- If brought to the attention of the Audit Committee, the Audit Committee shall discuss with the Chief Executive Officer and Chief Financial Officer of the Company (1) all significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the Company’s ability to record, process, summarize and report financial information required to be disclosed by the Company in the reports that it files or submits under

the Exchange Act, within the time periods specified in the SEC's rules and forms, and (2) any fraud involving management or other employees who have a significant role in the Company's internal control over financial reporting.

- Based on the Audit Committee's review and discussions (1) with management of the audited financial statements, (2) with the independent auditor of the matters required to be discussed by SAS 61, and (3) with the independent auditor concerning the independent auditor's independence, the Audit Committee shall make a recommendation to the Board as to whether the Company's audited financial statements should be included in the Company's Annual Report on Form 10-K for the last fiscal year.
- The Audit Committee shall discuss with the independent auditors the audit results and management's handling of proposed audit adjustments.
- The Audit Committee shall prepare the Audit Committee report required by Item 407(d) of Regulation S-K of the Exchange Act (or any successor provision) to be included in the Company's annual proxy statement.

F. Unaudited Quarterly Financial Statements

- The Audit Committee shall discuss with management and the independent auditor, prior to the filing of the Company's Quarterly Reports on Form 10-Q, (1) the Company's quarterly financial statements and the Company's related disclosures under "Management's Discussion and Analysis of Financial Condition and Results of Operations," (2) such issues as may be brought to the Audit Committee's attention by the independent auditor pursuant to PCAOB AU 722, and (3) any significant financial reporting issues that have arisen in connection with the preparation of such financial statements.

G. Earnings Press Releases

- The Audit Committee shall review the Company's earnings press releases, as well as financial information and earnings guidance provided to analysts and rating agencies, which may be done by reviewing the types of information to be disclosed and the types of presentation to be made (paying particular attention to the use of "pro forma" or "adjusted" non-GAAP information).

H. Risk Assessment and Management

- The Audit Committee shall review the guidelines and policies that govern the process by which the Company's exposure to financial and accounting risk is assessed and managed by management.
- In connection with the Audit Committee's review of the Company's financial and accounting risk assessment and management guidelines, the Audit Committee may

discuss or consider the Company's major financial and accounting risk exposures and the steps that the Company's management has taken to monitor and control such exposures.

I. Compliance Matters

- The Audit Committee may review compliance with the Company's Code of Conduct and its related policies and procedures and review the content of the Code and its related policies and procedures from time to time.
- The Audit Committee shall establish procedures for (1) the receipt, retention and treatment of complaints received by the Company regarding accounting, internal accounting controls, or auditing matters and (2) the confidential, anonymous submission by employees of the Company of concerns regarding questionable accounting or auditing matters.
- The Audit Committee may review and reassess the adequacy of these procedures periodically and adopt any changes to such procedures that the Audit Committee deems necessary or appropriate.

J. Regular Reports to the Board

- The Audit Committee shall regularly report to and review with the Board any issues that arise with respect to the quality or integrity of the Company's financial statements, the Company's compliance with legal or regulatory requirements, the performance and independence of the independent auditors, and any other matters that the Audit Committee deems appropriate or is requested to review for the benefit of the Board.

VI. Additional Authority

The Audit Committee is authorized, on behalf of the Board, to do any of the following as it deems necessary or appropriate:

A. Engagement of Advisors

- The Audit Committee may engage independent counsel and such other advisors it deems necessary or advisable to carry out its responsibilities and powers, and, if such counsel or other advisors are engaged, shall determine the compensation or fees payable to such counsel or other advisors.

B. Legal and Regulatory Compliance

- The Audit Committee may discuss with management, legal counsel and the independent auditor, and review with the Board, the legal and regulatory requirements applicable to the Company and its subsidiaries and the Company's compliance with such requirements. After these discussions, the Audit Committee may, if it determines it to be appropriate, make recommendations to the Board with respect to the Company's policies and procedures regarding compliance with applicable laws and regulations.
- The Audit Committee may discuss with management legal matters (including pending or threatened litigation) that may have a material effect on the Company's financial statements or its compliance policies and procedures.

C. General

- The Audit Committee may form and delegate authority to subcommittees consisting of one or more of its members as the Audit Committee deems appropriate to carry out its responsibilities and exercise its powers in compliance with applicable SEC rules.
- The Audit Committee may perform such other oversight functions outside of its stated purpose as may be requested by the Board from time to time.
- In performing its oversight function, the Audit Committee shall be entitled to rely upon advice and information that it receives in its discussions and communications with management, the independent auditor and such experts, advisors and professionals as may be consulted with by the Audit Committee.
- The Audit Committee is authorized 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 Audit Committee or meet with any members of or advisors to the Audit Committee.
- The Audit Committee is authorized to incur such expenses as are necessary or appropriate in carrying out its duties.
- The Company must provide for appropriate funding, as determined by the Audit Committee, for payment of: (i) compensation to any independent auditors for the purpose of preparing or issuing an audit report or performing other audit, review or attest services for the Company; and (ii) compensation to any advisers employed by the Audit Committee.

References in this Charter to rules of the PCAOB, the SEC, the Nasdaq Stock Market or other regulatory bodies shall be deemed to refer to such rules and to any substantially equivalent rules adopted to replace such rules, in each case as subsequently amended, modified or supplemented.

Notwithstanding the responsibilities and powers of the Audit Committee set forth in this Charter, the Audit Committee does not have the responsibility of planning or conducting audits of the Company's financial statements or determining whether the Company's financial statements are complete, accurate and in accordance with GAAP. Such responsibilities, along with the preparation of the financial statements, are the duty of management and, to the extent of the independent auditor's audit responsibilities, the independent auditor. In addition, it is not the duty of the Audit Committee to conduct investigations or to ensure compliance with laws and regulations or the Company's Code of Business Conduct and Ethics.

ADOPTED: July 13, 2006

AMENDED AND RESTATED: July 23, 2008

FURTHER AMENDED AND RESTATED: June 20, 2013

AMENDED FOR NAME CHANGE: January 6, 2017