



April 4, 2019

Dear Stockholder:

You are cordially invited to attend the 2019 Annual Meeting of Stockholders of Yield10 Bioscience, Inc. (the "Company") to be held on Wednesday, May 22, 2019, at 9:30 a.m., Eastern time, at the offices of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. at One Financial Center, Boston, MA 02111. Directions to the location of the Annual Meeting can be found at <http://ir.yield10bio.com/investor-relations>.

At this Annual Meeting, you will be asked (i) to elect two Class I Directors for three-year terms, and (ii) to ratify the appointment of RSM US LLP as our independent registered public accounting firm for the year ending December 31, 2019. The Board of Directors unanimously recommends that you vote FOR the election of the director nominees and FOR the ratification of the appointment of RSM US LLP.

Details regarding the matters to be acted upon at this Annual Meeting appear in the accompanying proxy statement. Please give this material your careful attention.

Whether or not you plan to attend the Annual Meeting, we urge you to complete, sign, date and mail promptly the enclosed proxy which is being solicited on behalf of the Board of Directors so that your shares will be represented at the Annual Meeting. A return envelope which requires no postage if mailed in the United States is enclosed for that purpose. You need to vote in accordance with the instructions listed on the proxy card. If shares are held in a bank or brokerage account, you may be eligible to vote electronically or by telephone. Please refer to the enclosed voting instruction form for instructions. If you attend the Annual Meeting, you may vote in person even if you have previously returned your proxy card. Your prompt cooperation will be greatly appreciated.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Oliver P. Peoples', with a stylized flourish at the end.

OLIVER P. PEOPLES
President and Chief Executive Officer

YIELD10 BIOSCIENCE, INC.

19 Presidential Way
Woburn, Massachusetts 01801
(617) 583-1700

NOTICE OF ANNUAL MEETING OF STOCKHOLDERS TO BE HELD ON MAY 22, 2019

To the Stockholders of Yield10 Bioscience, Inc.:

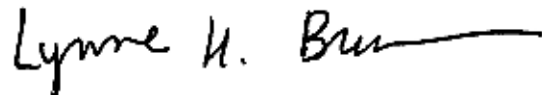
The 2019 Annual Meeting of Stockholders of Yield10 Bioscience, Inc., a Delaware corporation, will be held on Wednesday, May 22, 2019, at 9:30 a.m., Eastern time, at the offices of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. at One Financial Center, Boston, MA 02111, for the following purposes:

1. To elect two (2) Class I Directors, each to serve for a three-year term and until his successor has been duly elected and qualified or until his earlier death, resignation or removal;
2. To ratify the appointment of RSM US LLP as our independent registered public accounting firm for the year ending December 31, 2019; and
3. To transact such other business as may properly come before the Annual Meeting and any adjournments or postponements thereof.

Only stockholders of record at the close of business on March 26, 2019, are entitled to notice of and to vote at the Annual Meeting and at any adjournment or postponement thereof.

All stockholders are cordially invited to attend the Annual Meeting in person. **However, to assure your representation at the Annual Meeting, we urge you, whether or not you plan to attend the Annual Meeting, to complete, sign, date and mail promptly the enclosed proxy which is being solicited on behalf of the Board of Directors so that your shares will be represented at the Annual Meeting.** A return envelope which requires no postage if mailed in the United States is enclosed for that purpose. You need to vote in accordance with the instructions listed on the proxy card. If shares are held in a bank or brokerage account, you may be eligible to vote electronically or by telephone. Please refer to the enclosed voting instruction form for instructions. If you attend the Annual Meeting, you may vote in person even if you have previously returned your proxy card.

By Order of the Board of Directors,



LYNNE H. BRUM
Secretary

Woburn, Massachusetts
April 4, 2019

WHETHER OR NOT YOU EXPECT TO ATTEND THE ANNUAL MEETING, PLEASE COMPLETE, SIGN, DATE AND MAIL PROMPTLY THE ENCLOSED PROXY WHICH IS BEING SOLICITED ON BEHALF OF THE BOARD OF DIRECTORS SO THAT YOUR SHARES WILL BE REPRESENTED AT THE ANNUAL MEETING. A RETURN ENVELOPE WHICH REQUIRES NO POSTAGE IF MAILED IN THE UNITED STATES IS ENCLOSED FOR THAT PURPOSE. YOU NEED TO VOTE IN ACCORDANCE WITH THE INSTRUCTIONS LISTED ON THE PROXY CARD. IF SHARES ARE HELD IN A BANK OR BROKERAGE ACCOUNT, YOU MAY BE ELIGIBLE TO VOTE ELECTRONICALLY OR BY TELEPHONE. PLEASE REFER TO THE ENCLOSED VOTING INSTRUCTION FORM FOR INSTRUCTIONS.

IN ACCORDANCE WITH OUR SECURITY PROCEDURES, ALL PERSONS ATTENDING THE ANNUAL MEETING MAY BE REQUIRED TO PRESENT PICTURE IDENTIFICATION.

YIELD10 BIOSCIENCE, INC.

**19 Presidential Way
Woburn, Massachusetts 01801**

PROXY STATEMENT

**For the Annual Meeting of Stockholders
To Be Held on May 22, 2019**

April 4, 2019

Proxies in the form enclosed with this Proxy Statement are solicited by the Board of Directors of Yield10 Bioscience, Inc., a Delaware corporation (“Yield10” or the “Company”), for use at the Annual Meeting of Stockholders of Yield10 to be held on Wednesday, May 22, 2019, at 9:30 a.m., Eastern time, or at any adjournments or postponements thereof (the “Annual Meeting”) at the offices of Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C. at One Financial Center, Boston, MA 02111. Directions to the location of the Annual Meeting are available at <http://ir.yield10bio.com/index.cfm>. An Annual Report to Stockholders, containing financial statements for the fiscal year ended December 31, 2018, is being mailed together with this proxy statement to all stockholders entitled to vote at the Annual Meeting. This Proxy Statement and the form of proxy were first sent or given to stockholders on or about April 12, 2019.

The purposes of the Annual Meeting are to:

1. To elect two (2) Class I Directors, each to serve for a three-year term and until his successor has been duly elected and qualified or until his earlier death, resignation or removal;
2. To ratify the appointment of RSM US LLP as our independent registered public accounting firm for the year ending December 31, 2019; and
3. To transact such other business as may properly come before the Annual Meeting and any adjournments or postponements thereof.

Only stockholders of record at the close of business on March 26, 2019 (the “Record Date”) will be entitled to receive notice of and to vote at the Annual Meeting. As of the Record Date, 12,468,219 shares of Common Stock were issued, outstanding and entitled to vote.

VOTING

The holders of Common Stock are entitled to one vote per share on any proposal presented at the Annual Meeting. Stockholders may vote in person or by proxy. Stockholders may vote by proxy by completing, signing, dating and returning the accompanying proxy card in the postage-prepaid envelope enclosed for that purpose in accordance with the instructions listed on the proxy card. Execution of a proxy will not in any way affect a stockholder's right to attend the Annual Meeting and vote in person.

Any proxy given pursuant to this solicitation may be revoked by the person giving it any time before the taking of the vote at the Annual Meeting. Proxies may be revoked by (1) filing with the Secretary of Yield10, before the taking of the vote at the Annual Meeting, a written notice of revocation bearing a later date than the proxy, (2) duly executing a later-dated proxy relating to the same shares and delivering it to the Secretary of Yield10, in accordance with the instructions listed on the proxy card, before the taking of the vote at the Annual Meeting, (3) if shares are held in a bank or brokerage account and if eligible, by transmitting a subsequent vote over the Internet or by telephone, or (4) attending the Annual Meeting and voting in person (although attendance at the Annual Meeting will not in and of itself constitute a revocation of a proxy). Any written notice of revocation or subsequent proxy should be sent to Yield10 Bioscience, Inc., 19 Presidential Way, Woburn, MA 01801, Attention: Secretary, so as to be delivered before the taking of the vote at the Annual Meeting.

If your shares are held by a broker on your behalf (that is, in "street name"), you may be required to present an account statement or letter from your bank or brokerage firm showing that you are the beneficial owner of the shares as of the Record Date in order to be admitted to the Annual Meeting. To be able to vote your shares held in street name at the Annual Meeting, you will need to obtain a proxy from the holder of record.

The persons named as attorneys-in-fact in the proxies, Oliver P. Peoples, Ph.D. and Charles B. Haaser, were selected by the Board of Directors and are officers of the Company. All properly executed proxies returned in time to be counted at the Annual Meeting will be voted by such persons at the Annual Meeting as stated below. When a choice has been specified on the proxy with respect to a matter, the shares represented by the proxy will be voted in accordance with the specifications. If a proxy is submitted without giving voting instructions, such shares will be voted:

- FOR election of the director nominees,
- FOR the ratification of the appointment of RSM US LLP, and
- as the persons named as proxies may determine in their discretion with respect to any other matters properly presented at the meeting.

The representation in person or by proxy of at least a majority of the outstanding shares of Common Stock entitled to vote at the Annual Meeting is necessary to constitute a quorum for the transaction of business. Votes withheld from any nominee, abstentions and broker "non-votes" are counted as present or represented for purposes of determining the presence or absence of a quorum for the Annual Meeting. A "non-vote" occurs when a nominee holding shares for a beneficial owner votes on one proposal but does not vote on another proposal because, with respect to such other proposal, the nominee does not have discretionary voting power and has not received instructions from the beneficial owner.

If your shares are held in street name, and you do not instruct the broker as to how to vote your shares on the ratification of the appointment of RSM US LLP as our independent registered public accounting firm for the year ending December 31, 2019, the broker may exercise its discretion to vote for or against this proposal. If, however, you do not instruct the broker as to how to vote your shares on all other proposals described below, the broker may not exercise discretion to vote with respect to

those proposals. This would be a “broker non-vote” and these shares will not be counted as having been voted on that proposal. **Please vote your proxy so your vote can be counted.**

Proposal 1: Election of Directors. Directors are elected by a plurality of the votes cast, in person or by proxy, at the Annual Meeting. The two nominees who receive the highest number of affirmative votes of the shares present or represented and voting on the election of directors at the Annual Meeting will be elected to the Board of Directors. Any stockholder submitting a proxy has the right to withhold authority to vote for any individual nominee to the Board by checking the box “For All Except” and marking the nominee’s name in the space provided on the proxy card. Proxies that are submitted and not so marked as to withhold authority to vote for a particular nominee will be voted FOR that nominee and will be counted toward such nominee’s achievement of a plurality. Brokerage firms do not have authority to vote customers’ unvoted shares held by the firms in street name on this proposal. Shares present at the meeting or represented by proxy where the stockholder properly withholds authority to vote for such nominee in accordance with the proxy instructions will not be counted toward such nominee’s achievement of a plurality.

Proposal 2: Ratification of Independent Registered Public Accounting Firm. The affirmative vote of a majority of the shares of common stock cast by the stockholders present in person or represented by proxy at the Annual Meeting is required to ratify the selection of RSM US LLP as our independent registered public accounting firm for the year ending December 31, 2019. Brokerage firms do have authority to vote customers’ unvoted shares held by the firms in street name on this proposal. Abstentions and broker non-votes will not be counted towards the vote total for this proposal.

Other Matters. The Board knows of no other matters to be presented at the Annual Meeting. If any other matter should be presented at the Annual Meeting upon which a vote properly may be taken, the affirmative vote of the majority of shares present, in person or represented by proxy, and voting on that matter is required for approval and all such shares represented by proxies received by the Board will be voted with respect thereto in accordance with the judgment of the persons named as attorneys-in-fact in the proxies.

Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting: The proxy statement and annual report to stockholders are available for viewing, printing and downloading at <http://ir.yield10bio.com/investor-relations>.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth certain information regarding beneficial ownership of the Company's Common Stock as of April 1, 2019: (i) by each person known to us to be the beneficial owner of more than 5% of our outstanding shares of Common Stock; (ii) by each of our directors and nominees; (iii) by each of our named executive officers; and (iv) by all of our directors and executive officers as a group. Unless otherwise noted below, the address of each person listed on the table is c/o Yield10 Bioscience, Inc., 19 Presidential Way, Woburn, MA 01801.

Beneficial Owner	Shares of Common Stock(1)	Options Exercisable Within 60 Days(2)	Warrants Exercisable Within 60 Days(2)	Total Shares Beneficially Owned	Percentage of Outstanding Shares(3)
5% Stockholders:					
Jack W. Schuler(4) 28161 North Keith Drive Lake Forest, IL 60045	4,062,283	—	3,545,182	7,607,465	47.4%
Directors, Nominees and Named Executive Officers:					
Oliver P. Peoples, Ph.D.(5)	42,805	255,667	1,311	299,783	2.4%
Richard W. Hamilton, Ph.D.	3,041	23,931	—	26,972	0.2%
Peter N. Kellogg	5,302	35,000	—	40,302	0.3%
Joseph Shaulson(6)	35,295	141,797	3,150	180,242	1.4%
Anthony J. Sinskey, Sc.D.(7)	12,372	35,095	—	47,467	0.4%
Robert L. Van Nostrand	11,293	50,218	—	61,511	0.5%
Lynne H. Brum(8)	23,843	76,583	1,311	101,737	0.8%
Kristi D. Snell, Ph.D.(9)	20,372	145,718	—	166,090	1.3%
All directors and executive officers as a group (9 persons)(10)	172,223	841,328	5,772	1,019,323	7.6%

- (1) Beneficial ownership, as such term is used herein, is determined in accordance with Rule 13d-3(d)(1) promulgated under the Securities Exchange Act of 1934, as amended, and includes voting and/or investment power with respect to shares of our Common Stock. Unless otherwise indicated, the named person possesses sole voting and investment power with respect to the shares.
- (2) Consists of shares of Common Stock subject to stock options and warrants held by the person that are currently vested or will vest within 60 days after April 1, 2019.
- (3) Percentages of ownership are based upon 12,494,731 shares of Common Stock issued and outstanding as of April 1, 2019. Shares of Common Stock that may be acquired pursuant to options and warrants that are vested and exercisable within 60 days after April 1, 2019, are deemed outstanding for computing the percentage ownership of the person holding such options, but are not deemed outstanding for the percentage ownership of any other person.
- (4) The reported securities consist of 2,838,128 shares of common stock and 3,170,343 shares of common stock underlying the warrants owned by The JWS Living Trust, 978,414 shares of common stock and 149,835 shares of common stock underlying the warrants owned by the Schuler Family Foundation, and 245,741 shares of common stock and 225,004 shares of common stock underlying the warrants owned by Schuler Grandchildren LLC. Mr. Schuler has sole voting and investment power over the shares issued to Schuler Grandchildren LLC and the Jack W. Schuler Living Trust. He disclaims beneficial ownership over the shares held by Schuler Grandchildren LLC and has beneficial ownership over the shares held by the Jack W. Schuler Living Trust. Beneficial ownership

information for Mr. Schuler has been derived from his historical SEC filings and updated information provided by Mr. Schuler.

- (5) Includes 15,177 shares held for Dr. Peoples in the Company's 401(k) plan.
- (6) Includes 1,470 shares held for Mr. Shaulson in the Company's 401(k) plan.
- (7) Includes 822 shares owned by Dr. Sinskey's spouse and 167 shares owned by a trust over which Dr. Sinskey may be deemed to share voting and investment power. Dr. Sinskey disclaims beneficial ownership of such shares.
- (8) Includes 16,314 shares held for Ms. Brum in the Company's 401(k) plan.
- (9) Includes 15,783 shares held for Dr. Snell in the Company's 401(k) plan.
- (10) Includes Charles B. Haaser, who is an executive officer but not a named executive officer. Also includes a total of 64,368 shares held for current executive officers and Mr. Shaulson, a current director and our former President and Chief Executive Officer, in the Company's 401(k) plan.

PROPOSAL 1 **ELECTION OF DIRECTORS**

Nominees

The Company's Board of Directors currently consists of six (6) members. The Company's amended and restated certificate of incorporation divides the Board of Directors into three classes. One class is elected each year for a term of three years and until their successors have been duly elected and qualified, or until their earlier death, resignation or removal. The Board of Directors, upon the recommendation of the Nominating and Corporate Governance Committee, has nominated Peter N. Kellogg and Robert L. Van Nostrand, and recommends that each be elected to the Board of Directors as a Class I Director, each to hold office until the annual meeting of stockholders to be held in the year 2022 and until his successor has been duly elected and qualified or until his earlier death, resignation or removal. Both of the nominees are Class I Directors, whose terms expire at this Annual Meeting. The Board of Directors is also composed of (i) two Class II Directors (Oliver P. Peoples, Ph.D. and Joseph Shaulson), whose terms expire at the annual meeting of stockholders to be held in 2020, and (ii) two Class III Directors (Anthony J. Sinskey, Sc.D. and Richard W. Hamilton, Ph.D.), whose terms expire at the annual meeting of stockholders to be held in 2021. Mr. Van Nostrand serves as the Chairman of the Board of Directors.

The Board of Directors knows of no reason why any of the nominees would be unable or unwilling to serve, but if any nominee should for any reason be unable or unwilling to serve, the proxies will be voted for the election of such other person for the office of director as the Board of Directors may recommend in the place of such nominee. Unless otherwise instructed, the proxy holders will vote the proxies received by them for the nominees named below.

Recommendation of the Board

The Board of Directors unanimously recommends that you vote "FOR" the nominees listed below.

The following table sets forth the nominees to be elected at the Annual Meeting and the continuing directors, the year each such nominee or director was first elected a director, the positions with the Company currently held by each such nominee or director, the year each nominee's or continuing director's current term will expire, and each nominee's and continuing director's current class:

Nominee's or Director's Name	Year First Became Director	Position(s) with the Company	Year Current Term Will Expire	Current Director Class
Nominees for Class I Directors:				
Peter N. Kellogg	2007	Director	2019	I
Robert L. Van Nostrand	2006	Chairman of the Board, Director	2019	I
Continuing Directors:				
Oliver P. Peoples, Ph.D.	1992	President and Chief Executive Officer, Director	2020	II
Joseph Shaulson	2013	Director	2020	II
Anthony J. Sinskey, Sc.D.	1992	Director	2021	III
Richard W. Hamilton, Ph.D.	2017	Director	2021	III

DIRECTORS AND EXECUTIVE OFFICERS

The Company's executive officers are appointed on an annual basis by, and serve at the discretion of the Board. Each executive officer is a full-time employee of Yield10. The following table sets forth the directors and executive officers of the Company, their ages, and the positions currently held by each such person with the Company as of the date of this proxy statement:

<u>Name</u>	<u>Age</u>	<u>Position</u>
Oliver P. Peoples, Ph.D.	61	President and Chief Executive Officer, Director
Richard W. Hamilton, Ph.D.(1)(2)(3)	56	Director
Peter N. Kellogg(1)	63	Director
Joseph Shaulson	53	Director
Anthony J. Sinskey, Sc.D.(2)(3)	79	Director
Robert L. Van Nostrand(1)(2)	61	Chairman of the Board, Director
Lynne H. Brum	55	Vice President, Planning and Communications
Charles B. Haaser	63	Vice President, Finance, Chief Accounting Officer and Treasurer
Kristi D. Snell, Ph.D.	51	Vice President, Research and Chief Science Officer

(1) Member of the Audit Committee

(2) Member of the Compensation Committee

(3) Member of the Nominating and Corporate Governance Committee

BIOGRAPHICAL INFORMATION

Oliver P. Peoples, Ph.D., has served as our President and Chief Executive Officer since October 2016. He was co-founder of Yield10 Bioscience. He served as our Chief Scientific Officer starting in January 2000 and was previously our Vice President of Research and Development. Dr. Peoples has served as a Director since June 1992. Before founding the Company, Dr. Peoples was a research scientist with the Department of Biology at MIT. The research carried out by Dr. Peoples at MIT established the fundamental tools and methods for engineering bacteria and plants to produce polyhydroxyalkanoates. Dr. Peoples received a Ph.D. in Molecular Biology from the University of Aberdeen, Scotland. The Board believes that Dr. Peoples provides important technical and scientific understanding to the Board's analysis of Company strategy. As Chief Executive Officer and a founder of the Company, Dr. Peoples has unique information related to the Company's research and technology and has led and directed many of its scientific research and development programs. Dr. Peoples also contributes to the Board's understanding of the intellectual property aspects of the Company's technology platforms.

Richard W. Hamilton, Ph.D., joined Yield10 Bioscience as a Director during March 2017 and serves as Chairman of the Nominating and Corporate Governance Committee. From 2002 to 2016, he served as Chief Executive Officer and as a member of the board of directors at Ceres, Inc., after previously serving as Ceres' Chief Financial Officer from 1998 to 2002. In addition to his leadership role at Ceres, Dr. Hamilton has sat on the Keck Graduate Institute Advisory Council and he was a founding member of the Council for Sustainable Biomass Production. He has served on the U.S. Department of Energy's Biomass Research and Development Technical Advisory Committee and has been active in the Biotechnology Industry Organization where he has served as Vice Chairman of the organization, chaired its Food and Agriculture Governing Board and served in other leadership roles. From 1992 to 1997, Dr. Hamilton was a Principal at Oxford Bioscience Partners and from 1993 to 1996 he was an Associate at Boston-based MVP Ventures. From 1990 to 1991, Dr. Hamilton was a Howard Hughes Medical Institute Research Fellow at Harvard Medical School. Dr. Hamilton received a B.S. in biology from St. Lawrence University and holds a Ph.D. in molecular biology from Vanderbilt University. The Board believes that Dr. Hamilton brings extensive management, agricultural biotechnology and financial experience that will contribute to his role on the Board and as Chairman of our Nominating and Corporate Governance Committee. He also serves as an important resource on the Audit Committee.

Peter N. Kellogg has served as a Director of Yield10 Bioscience since March 2007. He was named Executive Vice President and Chief Corporate Strategy Officer of Celgene Corporation in August 2018, and had previously served as Executive Vice President and Chief Financial Officer of Celgene since August 2014. Prior to that, Mr. Kellogg was Chief Financial Officer and Executive Vice President of Merck & Co. Inc. from 2007 to 2014. From 2000 to 2007, Mr. Kellogg served as Chief Financial Officer and Executive Vice President of Finance (since 2003) at Biogen, Inc. Before that, he served as Senior Vice President, PepsiCo E-Commerce at PepsiCo Inc. from March to July 2000 and as Senior Vice President and Chief Financial Officer, Frito-Lay International, from 1998 to 2000. From 1987 to 1998, he served in a variety of senior financial, international and general management positions at PepsiCo and the Pepsi-Cola International, Pepsi-Cola North America, and Frito-Lay International divisions. Prior to joining PepsiCo, Mr. Kellogg was a senior consultant with Arthur Andersen & Co. and Booz Allen & Hamilton. He received a BSE from Princeton University in 1978 and an MBA from The Wharton School in 1982. The Board of Directors has concluded that Mr. Kellogg should serve as a director because his experience in finance and technology will be valuable to Yield10 Bioscience. Mr. Kellogg brings valuable insights from his current and prior positions that contribute to his role on the Board. He also serves as an important resource on the Audit Committee.

Joseph Shaulson has served as a Director since December 2013. He was previously our President and Chief Executive Officer from January 2014 until October 2016. Mr. Shaulson was previously Executive Vice President of Arch Chemicals with responsibility for a variety of global businesses,

including Personal Care and Industrial Biocides, Wood Protection, Performance Products and Industrial Coatings. He also led Arch's strategic planning and corporate development functions when he joined the company as Vice President, Strategic Development in 2008. Prior to Arch, Mr. Shaulson served in various leadership positions at Hexcel Corporation, an advanced composites company, including President of the Reinforcements Business Unit. Prior to Hexcel, Mr. Shaulson served as a corporate associate at the law firm of Skadden, Arps, Slate, Meagher & Flom. Mr. Shaulson received a Bachelor of Science degree in Economics and a Master of Business Administration degree from the Wharton School at the University of Pennsylvania, as well as a Juris Doctor degree from the University of Pennsylvania Law School. The Board of Directors has concluded that Mr. Shaulson should serve as a Director because he is a proven executive who has successfully led and developed global specialties businesses and he has valuable knowledge and experience related to the Company's agricultural biotechnology gained during his tenure as the Company's President and Chief Executive Officer.

Anthony J. Sinskey, Sc.D., has served as a Director since June 1992, was a co-founder of Yield10 Bioscience, and serves as Chairman of the Compensation Committee. From 1968 to present, Dr. Sinskey has been on the faculty of MIT. Currently at MIT, he serves as Professor of Microbiology in the Department of Biology and Professor of Health Sciences and Technology in the Harvard-MIT Health Sciences and Technology Program Engineering Systems Division, as well as faculty director of the Center for Biomedical Innovation. Dr. Sinskey was a co-founder and served on the board of directors of Merrimack Pharmaceuticals, Inc. from 1999 until January 2015. Dr. Sinskey received a B.S. from the University of Illinois and a Sc.D. from MIT. The Board believes that, as a faculty member of an academic institution with significant research activity in areas related to the Company's own research, Dr. Sinskey contributes to the Board his scientific knowledge and his awareness of new developments in these fields. Dr. Sinskey's involvement with other start-up and developing enterprises also makes him a valuable Board member.

Robert L. Van Nostrand is a consultant who has served as Chairman of the Board since October 2013 and as a Director since October 2006. From January 2010 to July 2010, he was Executive Vice President and Chief Financial Officer of Aureon Laboratories, Inc. From July 2007 until September 2008, Mr. Van Nostrand served as Executive Vice President and Chief Financial Officer of AGI Dermatics, Inc. Mr. Van Nostrand was with OSI Pharmaceuticals, Inc. from 1986 to 2007, serving as Senior Vice President and Chief Compliance Officer from May 2005 until July 2007, and as the Vice President and Chief Financial Officer from 1996 through 2005. Prior to joining OSI, Mr. Van Nostrand was in a managerial position with Touche Ross & Co. (currently Deloitte). Mr. Van Nostrand serves on the board of directors and is Chairman of the audit committee and a member of the compensation committee of Achillion Pharmaceuticals, Inc. (since 2007), serves on the board of directors and is Chairman of the audit committee of Intra-Cellular Therapies, Inc. (since January 2014), serves on the boards of directors of Enumeral Biomedical, Inc. (since December 2014) and the Biomedical Research Alliance of New York (BRANY) (since 2011), and served on the board of directors and as Chairman of the audit committee of Apex Bioventures, Inc. from 2006 to 2009. Mr. Van Nostrand received a B.S. in Accounting from Long Island University, New York, completed advanced management studies at the Wharton School, and he is a Certified Public Accountant. The Board believes that the Company is very fortunate to have Mr. Van Nostrand serve as a director and as Chairman of our Audit Committee because of the depth of his experience and expertise in financial reporting and corporate compliance, as well as his operational experience.

Lynne H. Brum has served as Vice President, Planning and Communications since October 2016. She joined the Company in November 2011 as Vice President, Marketing and Corporate Communications. Prior to joining the Company, in 2010 to 2011 she was a communications consultant and served in various roles including as a freelance project director for Seidler Bernstein Inc. Ms. Brum served from 2007 to 2009 as an Executive Vice President at Porter Novelli Life Sciences, a subsidiary of global PR firm, Porter Novelli International. Prior to that, Ms. Brum was responsible for corporate

communications, investor relations and brand management for Vertex Pharmaceuticals, Inc. from 1994 to 2007 in various positions, including Vice President of Strategic Communications. Ms. Brum was also a vice president at Feinstein Kean Healthcare and was part of the communications team at Biogen, Inc. Ms. Brum holds a bachelor's degree in biological sciences from Wellesley College and a master's degree in business administration from Simmons College's School of Management.

Charles B. Haaser has served as the Company's Vice President, Finance, Chief Accounting Officer and Treasurer since October 2016 after having served as Chief Accounting Officer and Treasurer since November 2014, and its Corporate Controller since 2008. Mr. Haaser has more than thirty years of experience in accounting and finance, primarily working for publicly traded U.S. companies. Before joining Yield10 Bioscience, Mr. Haaser was the Corporate Controller of Indevus Pharmaceuticals, Inc. from 2006 to 2008. He was the Corporate Controller and Principal Accounting Officer at ABIOMED, Inc. from 1998 to 2006 and additionally served as ABIOMED's Acting Chief Financial Officer from 2003 to 2006. From 1997 to 1998 Mr. Haaser was Controller for Technical Communications Corporation and from 1986 to 1997 was the Director of Finance at ISI Systems, Inc. From 1984 to 1986 Mr. Haaser was an auditor in the commercial audit division of Price Waterhouse LLP (now PricewaterhouseCoopers LLP). Mr. Haaser received a bachelor's degree in business administration (finance) from the University of Notre Dame, an MBA from Northeastern University and a Masters of Science in Taxation from Bentley University. Mr. Haaser became a Certified Public Accountant in 1997.

Kristi D. Snell, Ph.D. was named Vice President, Research and Chief Science Officer in October 2016 in conjunction with the transition to Yield10 Bioscience as the Company's core business. Dr. Snell joined the Company in 1997 and she has led the plant science research program since its inception. She has held a number of positions with the Company, including Vice President, Research and Biotechnology from July 2013 until October 2016 and President of Metabolix Oilseeds, the Company's wholly owned Canadian subsidiary, from April 2014 to present. Dr. Snell has more than 20 years of relevant experience and is an industry recognized expert in metabolic engineering of plants and microbes for the production of novel products and increased plant yield. Dr. Snell received a bachelor of science degree in Chemistry from the University of Michigan, and a Ph.D. in Organic Chemistry from Purdue University where she worked on metabolic engineering strategies to increase carbon flow to industrial products. Dr. Snell conducted her post-doctoral research at MIT in biochemistry and metabolic engineering.

CORPORATE GOVERNANCE AND BOARD MATTERS

Independence of Members of the Board of Directors

The Board of Directors has determined that each of the Company's non-employee directors (Dr. Hamilton, Mr. Kellogg, Dr. Sinskey, Mr. Shaulson, and Mr. Van Nostrand) is independent within the meaning of the director independence standards of The Nasdaq Stock Market, LLC. ("Nasdaq") and the Securities and Exchange Commission ("SEC"), including rules under the Securities Exchange Act of 1934, as amended (the "Exchange Act"). Furthermore, the Board of Directors has determined that each member of each of the Audit, Compensation and Nominating and Corporate Governance committees of the Board of Directors is independent within the meaning of the director independence standards of Nasdaq and the SEC, and that each member of the Audit Committee meets the heightened director independence standards for audit committee members as required by the SEC.

At least annually, a committee of the Board of Directors evaluates all relationships between the Company and each director in light of relevant facts and circumstances for the purpose 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 responsibilities as an independent director.

Executive Sessions

The Board of Directors generally holds executive sessions of the independent directors following regularly scheduled in-person meetings of the Board of Directors, at least four times a year. Executive sessions do not include any employee directors of the Company.

Board Leadership Structure

Robert L. Van Nostrand serves as our non-executive Chairman of the Board. Since March 2008, we have maintained a leadership structure with the non-executive Chairman separate from the Chief Executive Officer, although the Board of Directors has no formal policy with respect to the separation of such offices. Our Board of Directors believes that having separate offices of the Chairman and Chief Executive Officer currently functions well and is the appropriate leadership structure for our Company. While the Board of Directors may combine these offices in the future if it considers such a combination to be in the best interest of the Company, it currently intends to retain this structure. Separating these positions allows our Chief Executive Officer to focus on our day-to-day business, while allowing the Chairman of the Board to lead our Board of Directors in its fundamental role of providing advice to and independent oversight of management.

The Board of Directors' Role in Risk Oversight

The risk oversight function of the Board is carried out by both the Board and its committees. The full Board (or the appropriate Board committee in the case of risks that are under the purview of a particular committee) discusses with management our major risk exposures, their potential impact on our Company, and the steps we take to manage them. The Board regularly reviews information regarding our liquidity and operations, as well as the risks associated with each, and oversees management of risks associated with environmental, health and safety, and other compliance matters. Our Audit Committee meets periodically with management to discuss our major financial and operating risk exposures and the steps, guidelines and policies taken or implemented relating to risk assessment and risk management. The Compensation Committee is responsible for overseeing the management of risks relating to our executive compensation plans and arrangements. Our Nominating and Corporate Governance Committee manages risks associated with the independence of the Board and potential conflicts of interest.

Compensation Risk Assessment

The Compensation Committee believes that our employee compensation policies and practices are not structured to be reasonably likely to present a material adverse risk to the Company. We believe we have allocated our compensation among base salary and short- and long-term incentive compensation opportunities in such a way as to not encourage excessive or inappropriate risk-taking by our executives and other employees. We also believe our approach to goal setting and evaluation of performance results reduce the likelihood of excessive risk-taking that could harm our value or reward poor judgment.

Policies Governing Director Nominations

Director Qualifications

The Nominating and Corporate Governance Committee of the Board of Directors is responsible for reviewing, from time to time, the appropriate qualities, skills and characteristics desired of members of the Board of Directors in the context of the current make-up of the Board of Directors and selecting or recommending to the Board of Directors, nominees for election as Directors. This assessment includes consideration of the following minimum qualifications set forth in our Corporate Governance Guidelines that can be found in the corporate governance section of our website at <http://ir.yield10bio.com/corporate-governance>:

- The director shall have experience at a strategic or policymaking level in a business, government, non-profit or academic organization of high standing.
- The director shall be highly accomplished in his or her respective field, with superior credentials and recognition.
- The director shall be well regarded in the community and shall have a long-term reputation for high ethical and moral standards.
- The director 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 director serves or has previously served on other boards, the director shall have a demonstrated history of actively contributing at board meetings.

The Nominating and Corporate Governance Committee also considers numerous other qualities, skills and characteristics when evaluating director nominees, such as:

- An understanding of and experience in the biotechnology, chemicals or agricultural industries;
- An understanding of and experience in accounting oversight, governance, finance, marketing or regulatory affairs; and
- Leadership experience with public companies or other significant organizations.

These factors and others are considered useful by the Board of Directors, and are reviewed in the context of an assessment of the perceived needs of the Board of Directors at a particular point in time. While the Board does not have a formal diversity policy, the Nominating and Corporate Governance Committee seeks nominees with a broad diversity of experience, professions, skills, and backgrounds.

Process for Identifying and Evaluating Director Nominees

The Board of Directors is responsible for selecting and nominating candidates for election as directors but delegates the selection and nomination process to the Nominating and Corporate Governance Committee, with the expectation that other members of the Board of Directors or members of management will be requested to take part in the process as appropriate.

Generally, the Nominating and Corporate Governance Committee identifies candidates for director nominees in consultation with management, through the use of search firms or other advisers, through the recommendations submitted by stockholders or through such other methods as the Nominating and Corporate Governance Committee deems to be helpful to identify candidates. Once candidates have been identified, the Nominating and Corporate Governance Committee confirms that the candidates meet all of the minimum qualifications for director nominees established by the Nominating and Corporate Governance Committee. The Nominating and Corporate Governance Committee may gather information about the candidates through interviews, background checks, or any other means that the Nominating and Corporate Governance Committee deems to be helpful in the evaluation process. The Nominating and Corporate Governance Committee discusses and evaluates the qualities and skills of each candidate, taking into account the overall composition and needs of the Board. Based on the results of the evaluation process, the Nominating and Corporate Governance Committee recommends candidates for the Board's approval as director nominees for election to the Board. The Nominating and Corporate Governance Committee also recommends candidates for the Board's appointment to the committees of the Board.

Procedures for Recommendation of Nominees by Stockholders

The Nominating and Corporate Governance Committee will consider director candidates who are recommended by the stockholders of the Company. Stockholders, in submitting recommendations to the Nominating and Corporate Governance Committee for director candidates, shall follow the procedures set forth in the Company's Corporate Governance Guidelines found on our website at <http://ir.yield10bio.com/corporate-governance>. The Nominating and Corporate Governance Committee must receive any such recommendation for nomination 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.

Such recommendation for nomination must be in writing and include the following:

- Name and address of the stockholder making the recommendation, as they appear on the Company's books and records, and of such record holder's beneficial owner;
- Number of shares of capital stock of the Company that are owned beneficially and held of record by such stockholder and such beneficial owner;
- Name and address of the individual recommended for consideration as a director nominee (a "Director Nominee");
- The principal occupation of the Director Nominee;
- The total number of shares of capital stock of the Company that will be voted for the Director Nominee by the stockholder making the recommendation;
- All other information relating to the recommended candidate that would be required to be disclosed in solicitations of proxies for the election of directors, or is otherwise required, in each case pursuant to Regulation 14A under the Securities Exchange Act of 1934, as amended (the "Exchange Act") (including the recommended candidate's written consent to being named in the proxy statement as a nominee and to serving as a director if approved by the Board and elected); and
- A written statement from the stockholder making the recommendation stating why such recommended candidate would be able to fulfill the duties of a director.

Nominations must be sent to the attention of the Secretary of the Company by U.S. Mail (including courier or expedited delivery service) to Yield10 Bioscience, Inc., 19 Presidential Way, Woburn, MA 01801. 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 nominees shall not be counted.

Policy Governing Stockholder Communications with the Board of Directors

The Board provides to every stockholder the ability to communicate with the Board, as a whole, and with individual directors on the Board through an established process for stockholder communication (as that term is defined by the rules of the SEC). Stockholders may send such communication to the attention of the Chairman of the Board or to the attention of the individual director by U.S. Mail (including courier or expedited delivery service) to Yield10 Bioscience, Inc., 19 Presidential Way, Woburn, MA 01801. The Company will forward any such stockholder communication to the Chairman of the Board, as a representative of the Board, and/or to the director to whom the communication is addressed.

Policy Governing Director Attendance at Annual Meetings of Stockholders

Our policy is to schedule a regular meeting of the Board of Directors on the same date as the Company's annual meeting of stockholders and, accordingly, directors are encouraged to be present at our stockholder meetings. All of the individuals who were directors of the Company at the time of the 2018 annual meeting of stockholders attended that meeting.

Code of Business Conduct and Ethics

The Company has adopted the Code of Business Conduct and Ethics ("Code of Business Conduct") as its "code of ethics" as defined by regulations promulgated under the Securities Act of 1933, as amended (the "Securities Act"), and the Exchange Act (and in accordance with the Nasdaq requirements for a "code of conduct"), which applies to all of the Company's directors, officers and employees, including our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions. A current copy of the Code of Business Conduct is available at the Company's website at <http://ir.yield10bio.com/corporate-governance> under "Investor Relations—Corporate Governance." A copy of the Code of Business Conduct may also be obtained free of charge from the Company upon a request directed to Yield10 Bioscience, Inc., 19 Presidential Way, Woburn, MA 01801, Attention: Investor Relations. The Company will promptly disclose any substantive changes in or waivers, along with reasons for the waivers, of the Code of Business Conduct granted to its executive officers, including its principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions, and its directors by posting such information on its website at <http://ir.yield10bio.com/corporate-governance>.

THE BOARD OF DIRECTORS AND ITS COMMITTEES

Board of Directors

The Board of Directors held five meetings during the year ended December 31, 2018. In addition, there were numerous conference calls held with the Board for informational updates and discussion. During the year ended December 31, 2018, no director attended fewer than 75% of the aggregate of (i) the total number of meetings of the Board and (ii) the total number of meetings held by all committees of the Board on which such director served. The Board has a standing Audit Committee, Compensation Committee and Nominating and Corporate Governance Committee. Each of these committees has a charter that has been approved by the Board of Directors. A current copy of each charter is available on the Company's website at <http://ir.yield10bio.com/corporate-governance>. Each committee reviews the appropriateness of its charter periodically, as conditions dictate. Each committee retains the authority to engage its own advisors and consultants. The composition and responsibilities of each committee are summarized below.

Audit Committee

Mr. Van Nostrand, Mr. Kellogg and Dr. Hamilton serve on the Audit Committee. Mr. Van Nostrand is the Chairman of the Audit Committee. The Board of Directors has determined that each member of the Audit Committee is independent within the meaning of the Company's and Nasdaq's director independence standards and the SEC's heightened director independence standards for Audit Committee members as determined under the Exchange Act. The Board of Directors has also determined that each of Mr. Kellogg, Mr. Van Nostrand and Dr. Hamilton also qualify as "audit committee financial experts" under the rules of the SEC. The Audit Committee held four meetings during the year ended December 31, 2018.

The Audit Committee is responsible for overseeing the accounting and financial reporting processes of the Company and the audits of the financial statements of the Company and exercising the responsibilities and duties set forth in its charter, including but not limited to:

- appointing, approving the compensation of, and assessing the independence of our independent registered public accounting firm;
- pre-approving auditing and permissible non-audit services, and the terms of such services, to be provided by our independent registered public accounting firm;
- reviewing and discussing with management and the independent registered public accounting firm our annual and quarterly financial statements and related disclosures;
- coordinating the oversight and reviewing the adequacy of our internal control over financial reporting;
- establishing policies and procedures for the receipt and retention of accounting related complaints and concerns; and
- preparing the Audit Committee report required by SEC rules to be included in our annual proxy statement.

Compensation Committee

Dr. Sinskey, Dr. Hamilton and Mr. Van Nostrand serve on the Compensation Committee. Dr. Sinskey is the Chairman of the Compensation Committee. The Board of Directors has determined that each member of the Compensation Committee is independent within the meaning of the Company's, the SEC's and Nasdaq's director independence standards. The Compensation Committee

held four meetings in the year ended December 31, 2018. The Compensation Committee's responsibilities include:

- annually reviewing and approving goals and objectives relevant to compensation of our executive officers, including the Chief Executive Officer;
- evaluating the performance of our Chief Executive Officer and other executive officers in light of such goals and objectives;
- determining the compensation of our Chief Executive Officer and other executive officers;
- reviewing and approving, for the Chief Executive Officer and the other executive officers of the Company, any employment agreements, severance arrangements, and change in control agreements or provisions;
- overseeing the administration of our incentive-based and equity-based compensation plans; and
- reviewing and making recommendations to the Board with respect to director compensation.

Nominating and Corporate Governance Committee

Dr. Sinskey and Dr. Hamilton serve on the Nominating and Corporate Governance Committee. Dr. Hamilton is the Chairman of the Nominating and Corporate Governance Committee. The Board of Directors has determined that each member of the Nominating and Corporate Governance Committee is independent within the meaning of the Company's, the SEC's and Nasdaq's director independence standards. The Nominating and Corporate Governance Committee held three meetings during the year ended December 31, 2018. The Nominating and Corporate Governance Committee's responsibilities include:

- developing and recommending to the Board criteria for Board and committee membership;
- establishing procedures for identifying and evaluating director candidates, including nominees recommended by stockholders;
- identifying individuals qualified to become Board members;
- recommending to the Board the persons to be nominated for election as directors and to each of the Board's committees;
- developing succession plans for the Board;
- developing and recommending to the Board a code of business conduct and ethics and a set of corporate governance guidelines; and
- overseeing the evaluation of the Board and its committees.

EXECUTIVE COMPENSATION

SUMMARY COMPENSATION TABLE

The following table summarizes the compensation earned during the years ended December 31, 2018 and December 31, 2017 by our principal executive officer and the two other most highly paid executive officers who were serving as executive officers on December 31, 2018 (our named executive officers):

Name and Principal Position	Year	Salary	Bonus	Stock Awards(1)	Option Awards(1)	Non-Equity Incentive Plan Compensation(2)	All Other Compensation(3)	Total
Oliver P. Peoples, Ph.D. President and Chief Executive Officer	2018	\$275,000	\$—	\$—	\$450,877	\$ —	\$12,375	\$738,252
	2017	\$225,000	\$—	\$—	\$ —	\$146,250	\$10,562	\$381,812
Lynne H. Brum Vice President, Planning and Communications	2018	\$226,600	\$—	\$—	\$134,590	\$ —	\$10,923	\$372,113
	2017	\$220,000	\$—	\$—	\$ —	\$ 88,000	\$10,226	\$318,226
Kristi D. Snell, Ph.D. Vice President, Research and Chief Scientific Officer	2018	\$226,600	\$—	\$—	\$228,803	\$ —	\$12,375	\$467,778
	2017	\$220,000	\$—	\$—	\$ —	\$110,000	\$10,143	\$340,143

- (1) The amounts listed in the “Stock Awards” and “Option Awards” columns do not represent the actual amounts paid in cash or value realized by the named executive officers. These amounts represent the aggregate grant date fair value of restricted stock units and stock option awards for each individual computed in accordance with FASB ASC Topic 718. For a discussion of valuation assumptions, see Note 10 to our 2018 Consolidated Financial Statements, and Note 9 to our 2017 Consolidated Financial Statements included in our Annual Reports on Form 10-K for the years ended December 31, 2018 and 2017, respectively.
- (2) Non-Equity Incentive Plan Compensation represents bonus amounts paid based on the Compensation Committee’s review of corporate performance for fiscal 2018 and 2017 pursuant to the Company’s executive cash incentive performance bonus program.
- (3) Other Compensation for 2018 and 2017 includes the value of the Company’s Common Stock contributed to the Company’s 401(k) plan as a matching contribution.

Narrative Disclosure to Summary Compensation Table

Base Salaries

Base salary levels for the named executive officers were increased effective January 1, 2018, to \$275,000 for Dr. Peoples and to \$226,600 for Ms. Brum and Dr. Snell. From 2008 through 2017, there were no increases in base salaries for the named executive officers other than in connection with promotions.

Pay for Performance

Executive bonuses have historically been awarded based on overall corporate performance and to recognize and reward the teamwork of the named executive officers in advancing corporate goals, although the Compensation Committee retains the discretion to adjust individual bonus amounts in exceptional cases.

In light of the Company’s financial condition, the Compensation Committee has deferred the award and payment of any cash bonuses to its executives for performance during 2018. Payments were made under the Company’s executive cash incentive performance bonus program for performance in 2017 in early 2018.

Long-Term Incentives

The Compensation Committee awarded long-term stock option incentives in 2018 to the executive officers and other employees. Each awarded option has an exercise price per share equal to the fair market value of the Company's common stock on the date of the grant, vests in sixteen equal quarterly installments at a rate of 6.25% per installment over four years, and has a term of ten years from the date of grant. Named executive officers receiving these stock option awards were as follows:

<u>Named Executive Officer</u>	<u>Number of Options</u>
Oliver P. Peoples, Ph.D.	335,000
Kristi D. Snell, Ph.D.	170,000
Lynne H. Brum	100,000

OUTSTANDING EQUITY AWARDS AT FISCAL YEAR-END

The following table summarizes stock option and restricted stock awards held by our named executive officers at December 31, 2018:

Name	Grant Date	Number of Securities Underlying Unexercised Options (#) Exercisable	Number of Securities Underlying Unexercised Options (#) Unexercisable(1)	Option Exercise Price(\$)	Option Expiration Date	Equity Incentive Plan Awards: Number of Units That Have Not Vested (#)	Equity Incentive Plan Awards: Market Value of Units of Stock That Have Not Vested \$(2)
Oliver P. Peoples, Ph.D. . . .	5/28/2009	667	—	\$415.80	05/28/2019	—	\$ —
	5/27/2010	750	—	\$869.40	05/27/2020	—	\$ —
	5/19/2011	750	—	\$435.00	05/19/2021	—	\$ —
	2/1/2012	1,500	—	\$159.60	02/01/2022	—	\$ —
	9/18/2012	2,083	—	\$ 93.00	09/18/2022	—	\$ —
	5/30/2013	1,167	—	\$101.40	05/30/2023	—	\$ —
	10/26/2016	165,000	—	\$ 5.30	10/26/2026	—	\$ —
	4/1/2015(3)					2,625	\$2,179
	5/23/2018	41,875	293,125	\$ 1.65	5/23/2028	—	—
Lynne Brum	11/17/2011	583	—	\$247.80	11/17/2021	—	\$ —
	5/31/2012	333	—	\$120.00	5/31/2022	—	\$ —
	5/30/2013	667	—	\$101.40	5/30/2023	—	\$ —
	10/26/2016	50,000	—	\$ 5.30	10/26/2026	—	\$ —
	4/1/2015(3)					1,958	\$1,625
	5/23/2018	12,500	87,500	\$ 1.65	5/23/2028	—	—
Kristi Snell, Ph.D.	8/21/2009	133	—	\$632.40	8/21/2019	—	\$ —
	2/12/2010	167	—	\$586.20	2/12/2020	—	\$ —
	2/11/2011	167	—	\$547.20	2/11/2021	—	\$ —
	2/1/2012	334	—	\$159.60	2/1/2022	—	\$ —
	5/31/2012	334	—	\$120.00	5/31/2022	—	\$ —
	9/18/2012	1,000	—	\$ 93.00	9/18/2022	—	\$ —
	2/13/2013	166	—	\$100.80	2/13/2023	—	\$ —
	7/22/2013	417	—	\$ 88.80	7/22/2023	—	\$ —
	2/24/2014	500	—	\$ 77.40	2/24/2024	—	\$ —
	10/26/2016	100,000	—	\$ 5.30	10/26/2026	—	\$ —
	4/1/2015(3)					708	\$ 588
	9/30/2015(3)					750	\$ 623
	5/23/2018	21,250	148,750	\$ 1.65	5/23/2028	—	\$ —

- (1) All stock options that are not yet fully exercisable vest in equal quarterly installments over a period of four years from the grant date.
- (2) The aggregate market value of the unvested RSUs as shown in the table is based on \$0.83 per share, the closing price per share of the Company's common stock on December 31, 2018.
- (3) These RSUs will generally vest in four equal annual installments over a period of four years from the grant date.

Executive Employment Agreements

Oliver P. Peoples, Ph.D. The Company has an employment agreement with Dr. Oliver P. Peoples, President and Chief Executive Officer. As of January 1, 2018, Dr. Peoples' salary was set at \$275,000; his agreement includes a minimum salary of \$225,000 and provides that Dr. Peoples will be eligible to

receive annual bonuses based on individual and Company performance. Pursuant to the terms of Dr. Peoples' agreement, if the Company terminates Dr. Peoples' employment without "cause" or if Dr. Peoples terminates his employment for "good reason" (each, as defined in the agreement), he will be entitled to "separation benefits" (as defined in the agreement) including a lump-sum cash payment equal to the greater of \$550,000 or 24 months' base salary and a pro rata portion of the target bonus for the year in which termination occurs, but not less than a pro rata portion of \$180,000, plus payment of COBRA premiums for 24 months, provided that he signs a separation agreement that includes an irrevocable general release and non-disparagement and confidentiality provisions in favor of the Company. If the Company terminates Dr. Peoples' employment without cause or if Dr. Peoples terminates his employment for good reason within the twenty-four month period immediately following, or the two month period immediately prior to, a "change of control" (as defined in the agreement), in addition to any accrued obligations, and subject to certain conditions, Dr. Peoples will be entitled to the separation benefits and automatic full vesting of his unvested stock options. To the extent Dr. Peoples would be subject to tax under Section 4999 of the Internal Revenue Code as a result of company payments and benefits, the payments and benefits will be reduced if the reduction would maximize his total after-tax payments.

Lynne H. Brum. The Company has an employment agreement with Lynne H. Brum, Vice President of Planning and Communications. As of January 1, 2018, Ms. Brum's salary was set at \$226,600; her agreement includes a minimum salary of \$220,000 and provides that Ms. Brum will be eligible to receive annual bonuses based on individual and Company performance. Pursuant to the terms of Ms. Brum's agreement, if the Company terminates Ms. Brum's employment without "cause" or if Ms. Brum terminates her employment for "good reason" (each, as defined in the agreement), she will be entitled to "separation benefits" (as defined in the agreement) including a lump-sum cash payment equal to 12 months' base salary and payment of COBRA premiums for 12 months, provided that she signs a separation agreement that includes an irrevocable general release and non-disparagement and confidentiality provisions in favor of the Company. If the Company terminates Ms. Brum's employment without cause or if Ms. Brum terminates her employment for good reason within the twenty-four month period immediately following, or the two month period immediately prior to, a "change of control" (as defined in the agreement), in addition to any accrued obligations, and subject to certain conditions, Ms. Brum will be entitled to the separation benefits and automatic full vesting of her unvested stock options. To the extent Ms. Brum would be subject to tax under Section 4999 of the Internal Revenue Code as a result of company payments and benefits, the payments and benefits will be reduced if the reduction would maximize her total after-tax payments.

Charles B. Haaser. The Company has an employment agreement with Charles B. Haaser, Vice President of Finance & Chief Accounting Officer. As of January 1, 2018, Mr. Haaser's salary was set at \$211,150; his agreement includes a minimum salary of \$205,000 and provides that Mr. Haaser will be eligible to receive annual bonuses based on individual and Company performance. Pursuant to the terms of Mr. Haaser's agreement, if the Company terminates Mr. Haaser's employment without "cause" or if Mr. Haaser terminates his employment for "good reason" (each, as defined in the agreement), he will be entitled to "separation benefits" (as defined in the agreement) including a lump-sum cash payment equal to 12 months' base salary and payment of COBRA premiums for 12 months, provided that he signs a separation agreement that includes an irrevocable general release and non-disparagement and confidentiality provisions in favor of the Company. If the Company terminates Mr. Haaser's employment without cause or if Mr. Haaser terminates his employment for good reason within the twenty-four month period immediately following, or the two month period immediately prior to, a "change of control" (as defined in the agreement), in addition to any accrued obligations, and subject to certain conditions, Mr. Haaser will be entitled to the separation benefits and automatic full vesting of his unvested stock options. To the extent Mr. Haaser would be subject to tax under Section 4999 of the Internal Revenue Code as a result of company payments and benefits, the payments and benefits will be reduced if the reduction would maximize his total after-tax payments.

Kristi D. Snell, Ph.D. The Company has an employment agreement with Kristi D. Snell, Vice President of Research & Chief Science Officer. As of January 1, 2018, Dr. Snell's salary was set at \$226,600; her agreement includes a minimum salary of \$220,000 and provides that Dr. Snell will be eligible to receive annual bonuses based on individual and Company performance. Pursuant to the terms of Dr. Snell's agreement, if the Company terminates Dr. Snell's employment without "cause" or if Dr. Snell terminates her employment for "good reason" (each, as defined in the agreement), she will be entitled to "separation benefits" (as defined in the agreement) including a lump-sum cash payment equal to 12 months' base salary and payment of COBRA premiums for 12 months, provided that she signs a separation agreement that includes an irrevocable general release and non-disparagement and confidentiality provisions in favor of the Company. If the Company terminates Dr. Snell's employment without cause or if Dr. Snell terminates her employment for good reason within the twenty-four month period immediately following, or the two month period immediately prior to, a "change of control" (as defined in the agreement), in addition to any accrued obligations, and subject to certain conditions, Dr. Snell will be entitled to the separation benefits and automatic full vesting of her unvested stock options. To the extent Dr. Snell would be subject to tax under Section 4999 of the Internal Revenue Code as a result of company payments and benefits, the payments and benefits will be reduced if the reduction would maximize her total after-tax payments.

Executive Noncompetition, Nonsolicitation, Confidentiality, and Inventions Agreements

All employees named above have signed the Company's *Employee Noncompetition, Nonsolicitation, Confidentiality, and Inventions* agreement which prohibits them, during their employment by us and for a period of one year thereafter, from engaging in certain business activities which are directly or indirectly in competition with the products or services being developed, manufactured, marketed, distributed, planned, or sold by the Company during the term of their employment.

DIRECTOR COMPENSATION

The following table summarizes the compensation earned by our non-employee directors in 2018:

Name	Fees Earned \$(1)	Stock Options \$(2)(3)	Total (\$)
Peter N. Kellogg	\$37,500	\$13,459	\$50,959
Anthony J. Sinskey, Sc.D.	\$47,500	\$13,459	\$60,959
Robert L. Van Nostrand	\$72,500	\$13,459	\$85,959
Richard W. Hamilton, Ph.D.	\$52,500	\$13,459	\$65,959
Joseph Shaulson	\$30,000	\$13,459	\$43,459

- (1) Represents fees for the year 2018. All such fees were paid during 2018. Mr. Kellogg, Mr. Shaulson, Dr. Sinskey and Mr. Van Nostrand elected to receive options to purchase shares of the Company's common stock in lieu of cash for all or a portion of their aggregate fees in 2018, in the respective amounts of \$18,749, \$30,000, \$11,876 and \$18,124, computed in accordance with FASB ASC Topic 718. For a discussion of valuation assumptions, See Note 10 to our 2018 Consolidated Financial Statements for the year ended December 31, 2018.
- (2) The amounts listed in the "Stock Options" column do not represent the actual amounts paid in cash or value realized by the directors. These amounts represent the aggregate grant date fair value of option awards for each individual computed in accordance with FASB ASC Topic 718. For a discussion of valuation assumptions, see Note 10 to our 2018 Consolidated Financial Statements for the year ended December 31, 2018.
- (3) In 2018, each of our non-employee directors was granted an option to purchase 10,000 shares of the Company's common stock. As of December 31, 2018, our non-employee directors listed in the table held the following aggregate number of shares subject to outstanding option awards (representing both exercisable and unexercisable option awards, none of which have been exercised):

Name	Number of Shares Underlying Outstanding Stock Options
Peter N. Kellogg	42,500
Anthony J. Sinskey, Sc.D.	39,764
Robert L. Van Nostrand	53,397
Richard W. Hamilton, Ph.D.	31,431
Joseph Shaulson	142,145

Narrative to Director Compensation Table

Under the Company's policy for compensation of non-employee directors, each non-employee member of our Board of Directors is entitled to elect to receive either cash or options to purchase shares of the Company's common stock as compensation for their service to the Board and/or its committees, reflecting the following amounts for service in each specified role:

- Board service: \$30,000 per year
- Board Chairman: \$20,000 per year
- Committee service: \$7,500 per year
- Audit Committee Chairman: \$15,000 per year

- Compensation Committee Chairman: \$10,000 per year
- Nominating and Corporate Governance Committee Chairman: \$10,000 per year

In addition, renewing members of the Board are entitled to receive annual grants of options to purchase shares of the Company's common stock from time to time as compensation for their service to the Board and/or its committees, and new members of the Board are entitled to receive such grants upon joining the Board, in amounts determined by the Compensation Committee. In the year ended December 31, 2018, renewing members of the Board received option grants of 10,000 shares effective upon the annual meeting of stockholders.

SECURITIES AUTHORIZED FOR ISSUANCE UNDER EQUITY COMPENSATION PLANS

The following table provides information about the Common Stock that may be issued upon the exercise of options, warrants and rights under all the Company's existing equity compensation plans as of December 31, 2018.

Plan category	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
	(a)	(b)	(c)
Equity compensation plans approved by stockholders(1)	1,732,971	\$ 5.54	264,696
Equity compensation plans not approved by stockholders(2)	19,167	\$79.80	—

- (1) Consists of the 2006 Stock Option and Incentive Plan, the 2014 Stock Option and Incentive Plan and the 2018 Stock Option and Incentive Plan. For a description of these plans, see Note 10 to the 2018 Consolidated Financial Statements included in the Company's Annual Report on Form 10-K for the year ended December 31, 2018.
- (2) Consists of a stock option granted to Mr. Shaulson as an inducement for him to join the Company. These options originally vested over a four year period, but the remaining unvested portion became fully vested upon execution of Mr. Shaulson's separation agreement in November 2016.

CERTAIN RELATIONSHIPS AND RELATED PERSON TRANSACTIONS

The charter of the Nominating and Corporate Governance Committee provides that the committee shall conduct an appropriate review of all related person transactions (including those required to be disclosed pursuant to Item 404 of Regulation S-K) for potential conflict of interest situations on an ongoing basis, and the approval of that committee shall be required for all such transactions.

Also, under the Company's Code of Business Conduct, any transaction or relationship that reasonably could be expected to give rise to a conflict of interest involving an employee must be reported promptly to the Company's Chief Accounting Officer, who has been designated as the Company's Compliance Officer. The Compliance Officer may notify the Board of Directors or a committee thereof as he deems appropriate. Actual or potential conflicts of interest involving a director, executive officer or the Compliance Officer must be disclosed directly to the Chairman of the Board of Directors.

There were no related person transactions entered into during the fiscal year ended December 31, 2018.

REPORT OF THE AUDIT COMMITTEE

The Audit Committee for the last fiscal year consisted of Mr. Van Nostrand, Chairman, Mr. Kellogg and Dr. Hamilton. The Audit Committee has the responsibility and authority described in the Yield10 Audit Committee Charter, which has been approved by the Board of Directors. A copy of the Audit Committee Charter is available on our website at <http://ir.yield10bio.com/corporate-governance>. The Board of Directors has determined that the current members of the Audit Committee meet the independence requirements set forth in Rule 10A-3(b)(1) under the Securities Exchange Act of 1934, as amended, and the applicable rules of the Nasdaq Stock Market, and that Mr. Van Nostrand, Mr. Kellogg and Dr. Hamilton each qualify as an "Audit Committee financial expert" under the rules of the SEC. The Audit Committee oversees the accounting and financial reporting processes of the Company and its subsidiaries and the audits of the financial statements of the Company. Management has the primary responsibility for the financial statements and the reporting process, including the systems of internal controls.

In fulfilling its oversight responsibilities, the Audit Committee reviewed and discussed with both the management of the Company and RSM US LLP, the Company's independent registered public accounting firm, the audited financial statements included in the Company's Annual Report on Form 10-K for the year ended December 31, 2018, including a discussion of the acceptability of the accounting principles, the reasonableness of significant judgments and the clarity of disclosures in the financial statements.

The Audit Committee has reviewed with RSM US LLP their judgments as to the application of the Company's accounting principles and such other matters as are required to be discussed with the Audit Committee by Statement on Auditing Standards No. 61, as amended (AICPA, Professional Standards, Vol. 1, AU Section 380), as adopted by the Public Company Accounting Oversight Board in Rule 3200T. In addition, the Audit Committee has received from RSM US LLP the written disclosures and the letter required by applicable requirements of the Public Company Accounting Oversight Board regarding RSM US LLP's communications with the Audit Committee concerning independence, has discussed with RSM US LLP their independence from management and the Company, and has considered the compatibility with RSM US LLP's independence as auditors of any non-audit services performed for the Company by RSM US LLP.

The Audit Committee discussed with RSM US LLP the overall scope and plans for their audit. The Audit Committee met with RSM US LLP, with and without management present, to discuss the results of their examinations and their evaluations of the Company's financial reporting.

In reliance on the reviews and discussions referred to above, the Audit Committee recommended to the Board of Directors that the Company's audited financial statements be included in the Annual Report on Form 10-K for the year ended December 31, 2018 and filed with the SEC, and the Board of Directors approved such inclusion.

Respectfully submitted by the Audit Committee,

Robert L. Van Nostrand, Chairman
Peter N. Kellogg
Richard Hamilton, Ph.D.

INDEPENDENT REGISTERED PUBLIC ACCOUNTANTS

The Audit Committee of the Board of Directors selected the firm of RSM US LLP, an independent registered public accounting firm, to serve as independent auditors for the fiscal year ended December 31, 2018.

Fees

The following sets forth the aggregate fees billed by RSM US LLP, to the Company for the year ended December 31, 2018:

Audit Fees

Fees related to audit services were approximately \$165,000 for the year ended December 31, 2018 and relate to the year-end audit of the Company's financial statements for that year.

Audit Related Fees

Audit Related Fees were approximately \$10,200 for the year ended December 31, 2018 and relate to services associated with registration statements and securities offerings.

Tax Fees

Tax fees are estimated to be approximately \$48,000 for the fiscal year ended December 31, 2018. Tax fees for the fiscal year ended December 31, 2017 were approximately \$48,000.

All Other Fees

RSM US LLP billed no other fees for the year ended December 31, 2018.

Pre-Approval Policy of the Audit Committee

All of the services performed by RSM US LLP for the fiscal year ended December 31, 2018 were pre-approved in accordance with the pre-approval policy set forth in the Audit Committee Charter. The Audit Committee pre-approves all audit services and permitted non-audit services performed or proposed to be undertaken by the independent registered public accounting firm (including the fees and terms thereof), except where such services are determined to be *de minimis* under the Exchange Act, giving particular attention to the relationship between the types of services provided and the independent registered public accounting firm's independence.

PROPOSAL NO. 2

RATIFICATION OF APPOINTMENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Our Audit Committee is responsible for the appointment, compensation, retention and oversight of the work of our independent registered public accounting firm. Although shareholder approval of the selection of an independent registered public accounting firm is not required by law, our Board of Directors believes that it is advisable to give shareholders an opportunity to ratify this selection. Our Audit Committee has appointed RSM US LLP to perform the independent audit, review and attestation services with respect to our financial statements for the fiscal year ending December 31, 2019.

If this proposal is not approved at the Annual Meeting, our Audit Committee will reconsider the selection of RSM US LLP for the ensuing fiscal year, but may determine that continued retention of RSM US LLP is in our Company's and our stockholders' best interests. Even if the appointment is ratified, the Audit Committee, in its discretion, may direct the appointment of a different independent registered public accounting firm at any time during the year if it determines that such a change would be in our Company's and our stockholders' best interests.

We expect representatives of RSM US LLP to be present at the Annual Meeting. They will have the opportunity to make a statement if they desire to do so and will also be available to respond to appropriate questions from stockholders.

The affirmative vote of a majority of the shares of common stock cast by the stockholders present in person or represented by proxy at the annual meeting is required to ratify the selection of RSM US LLP as our independent registered public accounting firm for the year ending December 31, 2019.

Recommendation of the Board

The Board of Directors unanimously recommends that you vote "FOR" ratification of the appointment of RSM US LLP as our independent registered public accounting firm for the year ending December 31, 2019.

OTHER MATTERS

The Board of Directors knows of no other matters to be brought before the Annual Meeting. If any other matters are properly brought before the Annual Meeting, the persons appointed in the accompanying proxy intend to vote the shares represented thereby in accordance with their best judgment on such matters, under applicable laws.

STOCKHOLDER PROPOSALS FOR THE 2020 ANNUAL MEETING

Any stockholder proposals submitted pursuant to Exchange Act Rule 14a-8 for inclusion in the Company's proxy statement and form of proxy for its 2020 annual meeting must be received by Yield10 on or before December 12, 2019 in order to be considered for inclusion in its proxy statement and form of proxy. Such proposals must also comply with the requirements as to form and substance established by the SEC if such proposals are to be included in the proxy statement and form of proxy. Any such proposal should be mailed to our principal executive offices: Yield10 Bioscience, Inc., 19 Presidential Way, Woburn, MA 01801, Attention: Secretary.

Stockholder proposals to be presented at the Company's 2020 annual meeting, other than stockholder proposals submitted pursuant to Exchange Act Rule 14a-8 for inclusion in the Company's proxy statement and form of proxy for its 2020 annual meeting, must be received in writing at our principal executive office not earlier than January 23, 2020, nor later than February 22, 2020, unless our 2020 annual meeting of stockholders is scheduled to take place before April 22, 2020 or after July 21, 2020. Our By-Laws state that the stockholder must provide timely written notice of such nomination or proposal as well as be present at such meeting, either in person or by a representative. A stockholders' notice shall be timely received by Yield10 at its principal executive office not less than ninety (90) days nor more than one hundred twenty (120) days prior to the anniversary date of the immediately preceding annual meeting (the "Anniversary Date"); provided, however, that in the event the annual meeting is scheduled to be held on a date more than thirty (30) days before the Anniversary Date or more than sixty (60) days after the Anniversary Date, a stockholder's notice shall be timely if received by Yield10 at its principal executive office not later than the close of business on the later of (a) the ninetieth (90th) day prior to the scheduled date of such annual meeting or (b) the tenth (10th) day following the day on which public announcement of the date of such annual meeting is first made by Yield10. Any such proposal should be mailed to: Yield10 Bioscience, Inc., 19 Presidential Way, Woburn, MA 01801, Attention: Secretary.

SECTION 16(a) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE

Section 16(a) of the Exchange Act requires our directors, executive officers and persons who own more than ten percent of a registered class of our equity securities to file reports of ownership and changes in ownership with the SEC. Such persons are required by regulations of the SEC to furnish us with copies of all such filings. Based on our review of the copies of such filings received by us with respect to the fiscal year ended December 31, 2018, we believe that all required persons complied in a timely manner with all Section 16(a) filing requirements, except that four reports, covering the withholding of shares in payment of withholding taxes upon the vesting of restricted stock units, were inadvertently filed late on behalf of Lynne H. Brum, Charles B. Haaser, Oliver P. Peoples and Kristi D. Snell.

EXPENSES AND SOLICITATION

The cost of solicitation of proxies will be borne by the Company and, in addition to soliciting stockholders by mail through its regular employees, the Company may request banks, brokers and other custodians, nominees and fiduciaries to solicit their customers who have stock of the Company registered in the names of a nominee and, if so, will reimburse such banks, brokers and other

custodians, nominees and fiduciaries for their reasonable out-of-pocket costs. Solicitation by officers and employees of the Company may also be made of some stockholders in person or by mail, telephone or e-mail following the original solicitation. If Yield10 does retain a proxy solicitation firm, Yield10 would pay such firm's customary fees and expenses, which fees would be expected not to exceed \$10,000 plus expenses.