

YIELD10 BIOSCIENCE, INC.

Reported by
PEOPLES OLIVER P

FORM 4

(Statement of Changes in Beneficial Ownership)

Filed 04/04/17 for the Period Ending 04/01/17

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|-------------|--|
| Address | 19 PRESIDENTIAL WAY SUITE 201 WOBURN, MA 01801 |
| Telephone | 617-583-1700 |
| CIK | 0001121702 |
| Symbol | YTEN |
| SIC Code | 3080 - Miscellaneous Plastics Products |
| Industry | Biotechnology & Medical Research |
| Sector | Healthcare |
| Fiscal Year | 12/31 |

FORM 4

**UNITED STATES SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549**

OMB APPROVAL
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[] Check this box if no longer subject to Section 16. Form 4 or Form 5 obligations may continue. See Instruction 1(b).

STATEMENT OF CHANGES IN BENEFICIAL OWNERSHIP OF SECURITIES

Filed pursuant to Section 16(a) of the Securities Exchange Act of 1934 or
Section 30(h) of the Investment Company Act of 1940

| | | |
|--|--|--|
| 1. Name and Address of Reporting Person * Peoples Oliver P <small>(Last) (First) (Middle)</small> C/O YIELD10 BIOSCIENCE, INC., 19 PRESIDENTIAL WAY <small>(Street)</small> WOBURN, MA 01801 <small>(City) (State) (Zip)</small> | 2. Issuer Name and Ticker or Trading Symbol YIELD10 BIOSCIENCE, INC. [YTEN] | 5. Relationship of Reporting Person(s) to Issuer (Check all applicable) <input checked="" type="checkbox"/> Director _____ 10% Owner <input checked="" type="checkbox"/> Officer (give title below) _____ Other (specify below) Pres & CEO |
| 3. Date of Earliest Transaction (MM/DD/YYYY) <p align="center">4/1/2017</p> | | 6. Individual or Joint/Group Filing (Check Applicable Line) <input checked="" type="checkbox"/> Form filed by One Reporting Person <input type="checkbox"/> Form filed by More than One Reporting Person |
| 4. If Amendment, Date Original Filed (MM/DD/YYYY) | | |

Table I - Non-Derivative Securities Acquired, Disposed of, or Beneficially Owned

| 1. Title of Security (Instr. 3) | 2. Trans. Date | 2A. Deemed Execution Date, if any | 3. Trans. Code (Instr. 8) | | 4. Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5) | | | 5. Amount of Securities Beneficially Owned Following Reported Transaction(s) (Instr. 3 and 4) | 6. Ownership Form: Direct (D) or Indirect (I) (Instr. 4) | 7. Nature of Indirect Beneficial Ownership (Instr. 4) |
|---------------------------------|----------------|-----------------------------------|---------------------------|---|---|------------|--------|---|--|---|
| | | | Code | V | Amount | (A) or (D) | Price | | | |
| Common Stock | 4/1/2017 | | F | | 9909 <small>(1)</small> | D | \$0.37 | 295524 | D | |
| Common Stock | | | | | | | | 15991 <small>(2)</small> | I | By 401(k) Plan |

Table II - Derivative Securities Beneficially Owned (e.g. , puts, calls, warrants, options, convertible securities)

| 1. Title of Derivate Security (Instr. 3) | 2. Conversion or Exercise Price of Derivative Security | 3. Trans. Date | 3A. Deemed Execution Date, if any | 4. Trans. Code (Instr. 8) | | 5. Number of Derivative Securities Acquired (A) or Disposed of (D) (Instr. 3, 4 and 5) | | 6. Date Exercisable and Expiration Date | | 7. Title and Amount of Securities Underlying Derivative Security (Instr. 3 and 4) | | 8. Price of Derivative Security (Instr. 5) | 9. Number of derivative Securities Beneficially Owned Following Reported Transaction(s) (Instr. 4) | 10. Ownership Form of Derivative Security: Direct (D) or Indirect (I) (Instr. 4) | 11. Nature of Indirect Beneficial Ownership (Instr. 4) |
|--|--|----------------|-----------------------------------|---------------------------|---|--|-----|---|-----------------|---|----------------------------|--|--|--|--|
| | | | | Code | V | (A) | (D) | Date Exercisable | Expiration Date | Title | Amount or Number of Shares | | | | |

Explanation of Responses:

- (1) Represents shares withheld in payment of withholding taxes upon vesting of RSUs granted 4/1/15.
- (2) Shares acquired as Company matching contributions under the Yield10 Bioscience, Inc. 401(k) Plan.

Reporting Owners

| Reporting Owner Name / Address | Relationships | | | |
|---|---------------|-----------|-----------------------|-------|
| | Director | 10% Owner | Officer | Other |
| Peoples Oliver P C/O YIELD10 BIOSCIENCE, INC. 19 PRESIDENTIAL WAY WOBURN, MA 01801 | X | | Pres & CEO | |

Signatures

/s/ Megan N. Gates, attorney-in-fact 4/4/2017
**Signature of Reporting Person Date

Reminder: Report on a separate line for each class of securities beneficially owned directly or indirectly.

- * If the form is filed by more than one reporting person, see Instruction 4(b)(v).
- ** Intentional misstatements or omissions of facts constitute Federal Criminal Violations. See 18 U.S.C. 1001 and 15 U.S.C. 78ff(a).

Note: File three copies of this Form, one of which must be manually signed. If space is insufficient, see Instruction 6 for procedure.

Persons who respond to the collection of information contained in this form are not required to respond unless the form displays a currently valid OMB control number.