
CUSIP No. 98585K862

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

SCHEDULE 13D

Under the Securities Exchange Act of 1934
(Amendment No. 5)*

Yield10 Bioscience, Inc.

(Name of Issuer)

Common Stock par value \$0.01 per share
(Title of Class of Securities)

98585K862

(CUSIP Number)

Jack W. Schuler
100 N. Field Drive, Suite 360
Lake Forest, Illinois 60045
(224) 880-1210

(Name, Address and Telephone Number of Person
Authorized to Receive Notices and Communications)

February 10, 2020

(Date of Event which Requires Filing of this Statement)

If the filing person has previously filed a statement on Schedule 13G to report the acquisition that is the subject of this Schedule 13D, and is filing this schedule because of §§240.13d-1(e), 240.13d-1(f) or 240.13d-1(g), check the following box.

Note: Schedules filed in paper format shall include a signed original and five copies of the schedule, including all exhibits. See §240.13d-7 for other parties to whom copies are to be sent.

* The remainder of this cover page shall be filled out for a reporting person's initial filing on this form with respect to the subject class of securities, and for any subsequent amendment containing information which would alter disclosures provided in a prior cover page.

The information required on the remainder of this cover page shall not be deemed to be "filed" for the purpose of Section 18 of the Securities Exchange Act of 1934 ("Act") or otherwise subject to the liabilities of that section of the Act but shall be subject to all other provisions of the Act (however, see the Notes).

1. NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)

Jack W. Schuler

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP

(see instructions)

(a)

(b)

3. SEC USE ONLY

4. SOURCE OF FUNDS (see instructions)

OO

5. CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS 2(d) or 2(e)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

United States

7. SOLE VOTING POWER

0

8. SHARED VOTING POWER

1,268,802(1)

9. SOLE DISPOSITIVE POWER

0

10. SHARED DISPOSITIVE POWER

1,268,802(1)

11. AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

1,268,802(1)

12. CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES

(see instructions)

13. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

73.84% (2)

14. TYPE OF REPORTING PERSON (see instructions)

IN

(1) These numbers include the 840,428 shares of Common Stock underlying warrants exercisable at any time by the Jack W. Schuler Living Trust, the holder thereof.

(2) Based on information provided in a Current Report filed by the Issuer in a Form 8-K on January 15, 2020.

CUSIP No. 98585K862

1. NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)

Renate Schuler

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP

(see instructions)

(a)

(b)

3. SEC USE ONLY

4. SOURCE OF FUNDS (see instructions)

OO

5. CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS 2(d) or 2(e)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

United States

7. SOLE VOTING POWER

21

8. SHARED VOTING POWER

NUMBER OF
SHARES
BENEFICIALLY
OWNED BY EACH
REPORTING
PERSON WITH

33,999

9. SOLE DISPOSITIVE POWER

21

10. SHARED DISPOSITIVE POWER

33,999

11. AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

34,020

12. CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES

(see instructions)

13. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

1.98% (1)

14. TYPE OF REPORTING PERSON (see instructions)

IN

(1) Based on information provided in a Current Report filed by the Issuer in a Form 8-K on January 15, 2020.

CUSIP No. 98585K862

1. NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)

Schuler Family Foundation
EIN – 36-4154510

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP

(see instructions)

(a)

(b)

3. SEC USE ONLY

4. SOURCE OF FUNDS (see instructions)

PF

5. CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS 2(d) or 2(e)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

United States

7. SOLE VOTING POWER

33,999

NUMBER OF
SHARES

8. SHARED VOTING POWER

0

BENEFICIALLY
OWNED BY EACH
REPORTING

9. SOLE DISPOSITIVE POWER

PERSON WITH

33,999

10. SHARED DISPOSITIVE POWER

11. AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

33,999

12. CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES

(see instructions)

13. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

1.98% (1)

14. TYPE OF REPORTING PERSON (see instructions)

CO

(1) Based on information provided in a Current Report filed by the Issuer in a Form 8-K on January 15, 2020.

1. NAMES OF REPORTING PERSONS I.R.S. IDENTIFICATION NOS. OF ABOVE PERSONS (ENTITIES ONLY)

Jack W. Schuler Living Trust

2. CHECK THE APPROPRIATE BOX IF A MEMBER OF A GROUP

(see instructions)

(a)

(b)

3. SEC USE ONLY

4. SOURCE OF FUNDS (see instructions)

PF

5. CHECK BOX IF DISCLOSURE OF LEGAL PROCEEDINGS IS REQUIRED PURSUANT TO ITEMS 2(d) or 2(e)

6. CITIZENSHIP OR PLACE OF ORGANIZATION

United States

7. SOLE VOTING POWER

1,234,804(1)

NUMBER OF
SHARES

8. SHARED VOTING POWER

0

BENEFICIALLY
OWNED BY EACH
REPORTING

9. SOLE DISPOSITIVE POWER

PERSON WITH

1,234,804(1)

10. SHARED DISPOSITIVE POWER

11. AGGREGATE AMOUNT BENEFICIALLY OWNED BY EACH REPORTING PERSON

1,234,804(1)

12. CHECK BOX IF THE AGGREGATE AMOUNT IN ROW (11) EXCLUDES CERTAIN SHARES

(see instructions)

13. PERCENT OF CLASS REPRESENTED BY AMOUNT IN ROW (11)

71.86% (2)

14. TYPE OF REPORTING PERSON (see instructions)

OO

(1) These numbers include the 840,428 shares of Common Stock underlying warrants exercisable at any time by the Jack W. Schuler Living Trust, the holder thereof.

(2) Based on information provided in a Current Report filed by the Issuer in a Form 8-K on January 15, 2020.

Explanatory Note

This Amendment No. 5 (this “Amendment No. 5”) amends and supplements the Schedule 13D originally filed with the Securities and Exchange Commission (the “SEC”) on August 29, 2014, by the reporting persons identified therein, as amended by Amendment No. 1 filed with the SEC on June 23, 2015, as further amended by Amendment No. 2 filed with the SEC on August 2, 2017, as further amended by Amendment No. 3 filed with the SEC on June 26, 2019, and as further amended by Amendment No. 4 filed with the SEC on February 6, 2020 by the Reporting Persons identified therein (as cumulatively amended, the “Schedule 13D”), with respect to shares of common stock, par value \$0.01 per share of Yield10 Bioscience, Inc. (formerly Metabolix, Inc.), a Delaware corporation (the “Issuer”) beneficially owned by the Reporting Persons. Except as amended or supplemented in this Amendment No. 5, all other information in the Schedule 13D is as set forth previously. Capitalized terms used in this Amendment No. 5 but not defined herein shall have the meanings previously ascribed thereto in the Schedule 13D.

Item 1. Security and Issuer.

This statement on Schedule 13D relates to the common stock, \$0.01 par value per share, of Yield10 Bioscience, Inc., a Delaware corporation (“Common Stock”). The principal executive office of the Issuer is 19 Presidential Way, Woburn, MA 01801.

Item 4. Purpose of Transaction.

February 2020 Acquisitions and Dispositions

On February 10, 2020, the Jack W. Schuler Living Trust sold an aggregate of 28,256 shares of Common Stock for tax purposes. Additionally, on February 10, 2020, the Schuler Family Foundation acquired 9,852 shares of Common Stock.

On February 11, 2020, the Jack W. Schuler Living Trust sold an aggregate of 42,697 shares of Common Stock for tax purposes. On the same date, each of the Tino Hans Schuler Trust, Tanya Eva Schuler Trust, and Therese Heidi Schuler Trust (collectively, the “Trusts”), which are separate trusts established for Mr. Schuler’s three children, separately acquired 10,426 shares of common stock of the Issuer (the “Schuler Children Shares”). Mr. Schuler disclaims any beneficial ownership of the Schuler Children Shares and has no beneficial or pecuniary interest in any of the Schuler Children Shares. However, in the interest of full transparency, Mr. Schuler is reporting these transactions in this Amendment No. 5.

Information regarding the purchases and sales is set forth in Item 5(c).

The Reporting Persons reserve the right to formulate plans and/or make proposals, and take such actions with respect to their investment in the Issuer, including, subject to applicable law, (i) to hold their Common Stock as a passive investor or as an active investor, (ii) to acquire beneficial ownership of additional Common Stock in the open market, in privately negotiated transactions or otherwise, (iii) to dispose of all or part of their holdings of Common Stock, (iv) to take other actions which could involve one or more of the types of transactions or have one or more of the results described in Item 4 of Schedule 13D, or (v) to change their intention with respect to any or all of the matters referred to in Item 4 of Schedule 13D.

Item 5. Interest in Securities of the Issuer.

(a)

The 1,268,802 shares of Common Stock for which this schedule is filed consist of (i) 21 shares owned by Renate Schuler, representing less than 0.1% of the shares of the Common Stock of the Issuer outstanding, (ii) 1,234,804 shares owned by the Jack W. Schuler Living Trust (including 840,428 shares of Common Stock underlying warrants), representing approximately 71.86% of the shares of the Common Stock of the Issuer outstanding, and (iii) 33,999 shares owned by the Schuler Family Foundation, representing approximately 1.98% of the shares of the Common Stock of the Issuer outstanding.

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Mr. Schuler disclaims beneficial ownership in (i) the 21 shares owned by his wife, Renate Schuler and (ii) the 33,999 shares owned by the Schuler Family Foundation, a tax-exempt private operating foundation of which Mr. Schuler and Ms. Schuler are two of the three directors. Ms. Schuler disclaims beneficial ownership in the 33,999 shares owned by the Schuler Family Foundation.

(b)

Jack W. Schuler:

- (i) Sole power to vote or to direct the vote: 0
- (ii) Shared power to vote or direct the vote: 1,268,802
- (iii) Sole power to dispose or to direct the disposition of: 0
- (iv) Shared power to dispose of to direct the disposition of: 1,268,802

Renate Schuler:

- (i) Sole power to vote or to direct the vote: 21
- (ii) Shared power to vote or direct the vote: 33,999
- (iii) Sole power to dispose or to direct the disposition of: 21
- (iv) Shared power to dispose of to direct the disposition of: 33,999

The Schuler Family Foundation:

- (i) Sole power to vote or to direct the vote: 33,999
- (ii) Shared power to vote or direct the vote: 0
- (iii) Sole power to dispose or to direct the disposition of: 33,999
- (iv) Shared power to dispose of to direct the disposition of: 0

Jack W. Schuler Living Trust:

- (i) Sole power to vote or to direct the vote: 1,234,804
- (ii) Shared power to vote or direct the vote: 0
- (iii) Sole power to dispose or to direct the disposition of: 1,234,804
- (iv) Shared power to dispose of to direct the disposition of: 0

(c)

Except as set forth in Schedule 1, the Reporting Persons have not effected any transaction in the shares of Common Stock since their most recent Schedule 13D filing.

(d)

Except as set forth in this Amendment No. 5, to the knowledge of the Reporting Persons, no person had the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of, securities covered by this Schedule 13D.

(e) Not Applicable.

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Item 6. Contracts, Arrangements, Understandings or Relationships with respect to Securities of the Issuer.

Except as otherwise set forth in this Schedule 13D and the exhibits hereto, there are no contracts, arrangements, understandings or relationships between the persons named in Item 2 and any other person with respect to any securities of the Issuer.

Item 7. Material to be filed as Exhibits.

Exhibit	Title
1	Amended and Restated Joint Filing Agreement, dated as of August 1, 2017, by and among Jack W. Schuler, Renate Schuler, the Schuler Family Foundation and Jack W. Schuler Living Trust (incorporated by reference to the Amendment No. 2 to Schedule 13D filed by the Reporting Persons on August 2, 2017).

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SIGNATURE

After reasonable inquiry and to the best of my knowledge and belief, I certify that the information set forth in this statement is true, complete and correct.

Dated: February 12, 2020

/s/ Jack W. Schuler
Jack W. Schuler

Dated: February 12, 2020

/s/ Renate Schuler
Renate Schuler

SCHULER FAMILY FOUNDATION

Dated: February 12, 2020

/s/ Jack W. Schuler
Name: Jack W. Schuler
Title: Director

JACK W. SCHULER LIVING TRUST

Dated: February 12, 2020

/s/ Jack W. Schuler
Name: Jack W. Schuler
Title: Trustee

SCHEDULE 1

Shares Acquired or Sold by the Reporting Persons Since Their Most Recent Schedule 13D Filing:

1. SCHULER FAMILY FOUNDATION

Trade Date	Nature of Transaction (Purchase/Sale)	Number of Shares	Price Per Share (1)
02/10/2020	Purchase	9,852	\$7.9050

(1) Inclusive of brokerage fees.

2. JACK W. SCHULER LIVING TRUST

Trade Date	Nature of Transaction (Purchase/Sale)	Number of Shares	Price Per Share (1)
02/10/2020	Sale	28,256	\$7.8985(2)
02/11/2020	Sale	42,697	\$7.6873(3)

(1) Inclusive of brokerage fees.

(2) This transaction was executed in multiple trades at prices ranging from \$7.655 to \$7.985 per share. The price reported above reflects the weighted average sale price. The reporting persons hereby undertake to provide upon request to the SEC staff, the issuer or a security holder of the issuer full information regarding the number of shares and prices at which the transaction was effected.

(3) This transaction was executed in multiple trades at prices ranging from \$7.50 to \$7.84 per share. The price reported above reflects the weighted average sale price. The reporting persons hereby undertake to provide upon request to the SEC staff, the issuer or a security holder of the issuer full information regarding the number of shares and prices at which the transaction was effected.
