



MRI Interventions, Inc.

13,807,533 Shares of Common Stock

This prospectus supplement relates to the prospectus dated July 7, 2017, as supplemented by prospectus supplement no. 1 dated August 11, 2017, prospectus supplement no. 2 dated August 18, 2017, prospectus supplement no. 3 dated September 5, 2017, prospectus supplement no. 4 dated October 3, 2017, prospectus supplement no. 5 dated October 10, 2017, prospectus supplement no. 6 dated November 6, 2017, prospectus supplement no. 7 dated November 7, 2017, prospectus supplement no. 8 dated December 14, 2017, prospectus no. 9 dated March 21, 2018, prospectus no. 10 dated April 30, 2018, prospectus no. 11 dated May 16, 2018 and prospectus no. 12 dated May 17, 2018, which permits the resale of up to 6,693,333 outstanding shares of our common stock and 7,114,200 shares of our common stock issuable upon the exercise of outstanding warrants, by the selling securityholders identified in the prospectus, as amended and supplemented from time to time. We will pay the expenses of registering the shares of our common stock, but we are not selling any shares of common stock in this offering and therefore will not receive any proceeds from this offering. We will, however, receive the exercise price of the warrants, if and when the warrants are exercised for cash by the securityholders.

This prospectus supplement is being filed to update, amend and supplement the information previously included in the prospectus with the information contained in our Current Report on Form 8-K filed with the Securities and Exchange Commission (the "SEC") on May 18, 2018 (the "8-K"). Accordingly, we have attached the 8-K to this prospectus supplement. You should read this prospectus supplement together with the prospectus, which is to be delivered with this prospectus supplement.

Our common stock is traded in the over-the-counter market and is quoted on the OTCQB Marketplace and the OTC Bulletin Board under the symbol MRIC. On May 16, 2018, the last reported sale price of our common stock was \$2.65 per share.

Investing in our common stock involves risk. See "Risk Factors" beginning on page 12 of the prospectus to read about factors you should consider before buying shares of our common stock.

Neither the SEC nor any state securities commission has approved or disapproved of these securities or passed upon the adequacy or accuracy of this prospectus or this prospectus supplement. Any representation to the contrary is a criminal offense.

The date of this prospectus supplement is May 18, 2018.

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

FORM 8-K

CURRENT REPORT

Pursuant to Section 13 OR 15(d) of the
Securities Exchange Act of 1934

Date of Report (Date of earliest event reported): May 18, 2018 (May 17, 2018)

MRI INTERVENTIONS, INC.

(Exact name of registrant as specified in its charter)

DELAWARE
(State or other jurisdiction
of incorporation)

001-34822
(Commission
File Number)

58-2394628
(I.R.S. Employer
Identification Number)

5 Musick
Irvine, Ca. 92618
(Address of principal executive offices, zip code)

(949) 900-6833
(Registrant's telephone number, including area code)

Check the appropriate box below if the Form 8-K filing is intended to simultaneously satisfy the filing obligation of the registrant under any of the following provisions:

- Written communications pursuant to Rule 425 under the Securities Act (17 CFR 230.425)
- Soliciting material pursuant to Rule 14a-12 under the Exchange Act (17 CFR 240.14a-12)
- Pre-commencement communications pursuant to Rule 14d-2(b) under the Exchange Act (17 CFR 240.14d-2(b))
- Pre-commencement communications pursuant to Rule 13e-4(c) under the Exchange Act (17 CFR 240.13e-4(c))

Indicate by check mark whether the registrant is an emerging growth company as defined in Rule 405 of the Securities Act of 1933 (§230.405 of this chapter) or Rule 12b-2 of the Securities Exchange Act of 1934 (§240.12b-2 of this chapter).

Emerging growth company

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Item 5.02. Departure of Directors or Certain Officers; Election of Directors; Appointment of Certain Officers; Compensatory Arrangements of Certain Officers.

(a) Resignation of Director for Any Reason Other than Disagreement with the Company.

On May 17, 2018, Maria Sainz notified MRI Interventions, Inc. (the "Company") of her decision not to stand for reelection to the Company's Board of Directors (the "Board") at the Company's 2018 Annual Meeting of stockholders to be held on June 7, 2018 (the "2018 Annual Meeting") and tendered her resignation from the Board, effective immediately. Ms. Sainz serves as the Chairman of the Corporate Governance and Nominating Committee and a member of the Compensation Committee of the Board. The Board's Corporate Governance and Nominating Committee has replaced her on those committees with Pascal E.R. Girin. R. John Fletcher will now serve as the Chairman of the Corporate Governance and Nominating Committee. Due to time commitments associated with Ms. Sainz's new role as Chief Executive Officer of Aegea Medical Inc., effective as of May 1, 2018, Ms. Sainz elected to voluntarily step down from the Board. Accordingly, Ms. Sainz's resignation was not the result of any disagreement with management, the Company or its operations, policies or practices.

In recognition of the contributions made by Ms. Sainz as a director of the Company, the Board's Compensation Committee extended has approved the extension of the option exercise period of all stock options previously granted to Ms. Sainz such that the option exercise period is coterminous with the term of the option award.

As a result of Ms. Sainz's resignation, the Board has reduced the size of the Board from seven members to six members, effective immediately. The Board believes that the qualifications of the remaining Board members are relevant and appropriate, individually and in the aggregate, in continuing to provide oversight of the Company's strategic direction and operations.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the Registrant has duly caused this report to be signed on its behalf by the undersigned hereunto duly authorized.

Date: May 18, 2018

MRI INTERVENTIONS, INC.

By: /s/ Harold A. Hurwitz
Harold A. Hurwitz
Chief Financial Officer