



MRI Interventions, Inc.

733,916 Shares of Common Stock

This prospectus supplement relates to the prospectus dated January 29, 2016, as supplemented by prospectus supplement no. 1 dated March 22, 2016, prospectus supplement no. 2 dated March 25, 2016, prospectus supplement no. 3 dated April 4, 2016, prospectus supplement no. 4 dated April 25, 2016, prospectus supplement no. 5 dated May 6, 2016, prospectus supplement no. 6 dated June 6, 2016, prospectus supplement no. 7 dated June 9, 2016, prospectus supplement no. 8 dated July 1, 2016 and prospectus supplement no. 9 dated July 26, 2016, which permits the resale of up to 407,731 outstanding shares of our common stock, and 326,185 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. The number of shares set forth above reflects the 1-for-40 reverse stock split effectuated by us on July 26, 2016. We will pay the expenses of registering the shares, 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 Quarterly Report on Form 10-Q filed with the Securities and Exchange Commission on August 15, 2016 (the "10-Q"). Accordingly, we have attached the 10-Q 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 August 12, 2016, the last reported sale price of our common stock was \$8.50 per share.

We are an "emerging growth company" under the federal securities laws and are subject to reduced public company reporting requirements. Investing in our common stock involves risk. See "Risk Factors" beginning on page 6 of the prospectus, as amended and supplemented by the "Risk Factors" beginning on page 21 of our Annual Report on Form 10-K for the year ended December 31, 2015, which is included in prospectus supplement no. 2, to read about factors you should consider before buying shares of our common stock.

Neither the Securities and Exchange Commission 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 August 15, 2016.
