

PROSPECTUS SUPPLEMENT
(To Prospectus dated June 13, 2014)



**Up to \$10,530,190 of Shares
Common Stock**

This prospectus supplement updates and amends certain information contained on the cover page of the prospectus, dated June 13, 2014 (the “2014 prospectus”) relating to the offer and sale of shares of our common stock through Stifel, Nicolaus & Company, Incorporated (Stifel), as our exclusive sales agent for an “at the market offering” program (ATM Program). In accordance with the terms of the sales agreement, dated February 11, 2013, as amended February 11, 2016, during the three-year period ending on February 11, 2019, we may offer and sell up to a maximum of \$25,000,000 of shares of our common stock from time to time through Stifel as our sales agent. Of this amount, at May 23, 2016, \$23,038,092 remains available for issuance under the ATM Program. This prospectus supplement should be read in conjunction with the 2014 prospectus, and is qualified by reference to the 2014 prospectus, except to the extent that the information presented herein supersedes the information contained in the 2014 prospectus. This prospectus supplement is not complete without, and may only be delivered or utilized in connection with, the 2014 prospectus, including any amendments or supplements thereto.

Through May 23, 2016, we have sold shares of our common stock through Stifel under the sales agreement for an aggregate purchase price of \$1,961,908. We are filing this prospectus supplement to amend the 2014 prospectus because we are now subject to General Instruction I.B.6 of Form S-3, which limits the amounts that we may sell under the registration statement of which this prospectus supplement and the 2014 prospectus are a part. As a result of these limitations and the current public float of our common stock, and in accordance with the terms of the sales agreement, we may offer and sell additional shares of our common stock having an aggregate offering price of up to \$10,530,190 from time to time through Stifel. If our public float increases such that we may sell additional amounts under the sales agreement and the registration statement of which this prospectus supplement and the 2014 prospectus are a part, we will file another prospectus supplement prior to making additional sales.

Our common stock is listed on The NASDAQ Capital Market under the symbol “WINT.” On May 18, 2016, the last reported sale price of our common stock on The NASDAQ Capital Market was \$2.22 per share. The aggregate market value of our common stock held by non-affiliates pursuant to General Instruction I.B.6 of Form S-3 is \$31,590,571, which was calculated based on 8,184,086 shares of our common stock outstanding held by non-affiliates and at a price of \$3.86 per share, the closing price of our common stock on April 15, 2016. As of the date hereof, we have not offered or sold any securities pursuant to General Instruction I.B.6 of Form S-3 during the prior 12 calendar month period that ends on and includes the date hereof.

Investing in our common stock involves significant risks. See “Risk Factors” beginning page 2 of the 2014 prospectus and under the heading “Risk Factors” included in our most recent annual report on Form 10-K and in our most recent quarterly report on Form 10-Q, and any amendments thereto, which are incorporated by reference into the 2014 prospectus.

Neither the Securities and Exchange Commission nor any other regulatory body has approved or disapproved of these securities, or passed upon the accuracy or adequacy of this prospectus supplement or the 2014 prospectus. Any representation to the contrary is a criminal offense.

Stifel

Prospectus Supplement dated May 24, 2016
