

1,986,455 Shares

Common Stock

This free writing prospectus relates only to the shares of common stock described below and should be read together with the preliminary prospectus supplement dated December 9, 2014 (including the documents incorporated by reference therein and the base prospectus in respect thereof) relating to the offering of common stock (the "Preliminary Prospectus Supplement").

The following information supplements and updates the information contained in the Preliminary Prospectus Supplement.

Common stock offered 1,986,455 shares

Common stock to be outstanding after this

offering36,628,994 sharesOption to purchase additional shares297,968 shares

Public offering price \$110.75

Net proceeds We estimate that the net proceeds from our issuance and sale of 1,986,455 shares of our common stock in

this offering will be approximately \$206.7 million after deducting the estimated underwriting discounts and commissions and estimated offering expenses payable by us. If the underwriters exercise their option to purchase additional shares in full, we estimate that our net proceeds will be approximately \$237.9 million, after deducting estimated underwriting discounts and commissions and estimated offering

expenses payable by us.

As adjusted financial data Giving effect to this offering, as of September 30, 2014, our pro forma as adjusted balance sheet data

would have been as follows (in thousands):

	As of Sep	As of September 30, 2014 As Adjusted(1)	
(in thousands)	Ac		
Consolidated balance sheet data:			
Cash, cash equivalents and marketable securities	\$	444,637	
Total assets		476,358	
Total liabilities		61,859	
Common stock		37	
Additional paid-in capital		554,695	
Accumulated deficit		(140,284)	
Total stockholders' equity		414,499	

(1) The as adjusted consolidated balance sheet data gives effect to the issuance and sale of shares of our common stock in this offering at the public offering price of \$110.75 per share, after deducting underwriting discounts and commissions and estimated offering expenses payable by us.

Potential purchases by existing principal stockholders

Dilution

Celgene Corporation, or Celgene, an affiliate of two of our existing stockholders and our cancer metabolism strategic alliance partner, has indicated an interest in purchasing an aggregate of up to approximately 228,645 shares of our common stock in this offering at the public offering price. However, because indications of interest are not binding agreements or commitments to purchase, Celgene may determine to purchase fewer shares than they have indicated an interest in purchasing or not to purchase any shares in this offering. In addition, the underwriters could determine to sell fewer shares to Celgene than Celgene indicated an interest in purchasing or not to sell any shares to Celgene. The underwriters will receive the same underwriting discount on any shares purchased by Celgene as they will on any other shares sold to the public in this offering. Any shares sold to Celgene will be subject to the lock-up agreements described under "Underwriting."

As of September 30, 2014, our net tangible book value was approximately \$207.7 million, or approximately \$6.00 per share. Net tangible book value per share represents the amount of our total tangible assets less total liabilities divided by the 34,642,539 shares of our common stock outstanding as of September 30, 2014. After giving effect to our sale of the shares of common stock in this offering, after deducting estimated underwriting discounts and commissions and estimated offering expenses, the net tangible book value as of September 30, 2014 would have been approximately \$414.5 million, or approximately \$11.32 per share. This represents an immediate increase in net tangible book value of \$5.32 per share to existing stockholders and an immediate dilution in net tangible book value of \$99.43

per share to new investors purchasing shares of common stock at the public offering price.

The issuer has filed a registration statement (including a prospectus dated December 9, 2014 and a preliminary prospectus supplement dated December 9, 2014) with the Securities and Exchange Commission (the "SEC") for the offering to which this communication relates. Before investing in the offering, you should read the Preliminary Prospectus Supplement, the accompanying prospectus for the offering and the other documents Agios has filed with the SEC, which are incorporated by reference therein and provide more complete information about Agios and the offering. You may get these documents for free by visiting EDGAR on the SEC web site at www.sec.gov. Alternatively, the issuer, any underwriter or any dealer participating in the offering will arrange to send you the Preliminary Prospectus Supplement and the accompanying prospectus if you request it by contacting J.P. Morgan Securities LLC, c/o Broadridge Financial Solutions, 1155 Long Island Avenue, Edgewood, New York 11717; and Goldman, Sachs & Co., Attn: Prospectus Department, 200 West Street, New York, New York 10282, email: prospectus-ny@ny.email.gs.com.