

Prospectus Supplement
(To the Prospectus dated January 6, 2023)



321,207 Shares of Common Stock

2,586,207 Series A-1 Warrants to Purchase up to 2,586,207 Shares of Common Stock

2,586,207 Series A-2 Warrants to Purchase up to 2,586,207 Shares of Common Stock

2,265,000 Pre-Funded Warrants to Purchase up to 2,265,000 Shares of Common Stock

7,437,414 Shares of Common Stock Underlying the Common Warrants and Pre-Funded Warrants

This prospectus supplement updates, supersedes and amends certain information contained in the prospectus dated January 6, 2023 (the "Original Prospectus"), as supplemented by the prospectus supplement dated May 1, 2023 (the "Prospectus Supplement," and together with the Original Prospectus, the "Prospectus") relating to the registered direct offering of an aggregate of 321,207 shares of common stock, par value \$0.01 per share, or the Common Stock, 2,586,207 series A-1 warrants to purchase up to an aggregate amount of 2,586,207 shares of Common Stock, with a current exercise price of \$0.7785 per share (the "Series A-1 Warrants"), 2,586,207 series A-2 warrants to purchase up to an aggregate amount of 2,586,207 shares of Common Stock, with a current exercise price of \$0.7785 per share (the "Series A-2 Warrants" and together with the Series A-1 Warrants, the "Existing Warrants"), and 2,265,000 pre-funded warrants to purchase up to 2,265,000 shares of Common Stock. The Existing Warrants have been amended as described below under "Amendments to Existing Warrants."

This prospectus supplement should be read in conjunction with the Prospectus, and is qualified by reference to the Prospectus, except to the extent that the information presented herein supersedes the information contained in the Prospectus. This prospectus supplement is not complete without, and may only be delivered or used in connection with, the Prospectus, including any amendments or supplements thereto. We may amend or supplement the Prospectus from time to time by filing amendments or supplements as required. You should read the entire Prospectus and any amendments or supplements carefully before you make an investment decision.

Our common stock is listed on the NASDAQ Capital Market under the symbol "OPGN." On October 12, 2023, the last reported sale price of our common stock on the NASDAQ Capital Market was \$0.92 per share.

Investing in our securities involves a high degree of risk. See "Risk Factors" in the Original Prospectus and documents incorporated therein by reference for a discussion of such risk factors, which factors should be read carefully in connection with an investment in our securities.

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

AMENDMENTS TO EXISTING WARRANTS

This Supplement is being filed to disclose the following:

On October 12, 2023, we entered into a warrant inducement agreement (the "Warrant Inducement Agreement") with an institutional investor that is the holder of the Existing Warrants (the "Warrant Inducement Transaction"). Pursuant to the Warrant Inducement Transaction, the investor agreed to exercise for cash warrants to purchase up to an aggregate of 10,892,728 shares of Common Stock (the "Inducement Warrants"), including the Existing Warrants, at an exercise price of \$0.7785 per share during the period from the date of the Warrant Inducement Agreement until 7:30 a.m., Eastern Time, on October 26, 2023, in exchange for the Company's agreement to issue new warrants to purchase up to a number of shares of common stock equal to 100% of the number of shares issued to the investor upon exercise of the Inducement Warrants (the "New Warrants"). Accordingly, upon exercise of all of the Inducement Warrants, the investor will receive New Warrants to purchase up to an aggregate of 10,892,728 shares of common stock.

As previously reported, the Existing Warrants were not exercisable until the receipt of stockholder approval for the exercisability of the Existing Warrants. In order to permit the exercise of such Existing Warrants pursuant to the rules of the NASDAQ Capital Market, the investor agreed to pay as additional consideration \$0.25 per share of common stock issued upon exercise of the Existing Warrants. The New Warrants will be immediately exercisable upon issuance at an exercise price of \$0.336 per share of Common Stock underlying such New Warrants and will expire on October 16, 2028.

Prospectus supplement dated October 12, 2023