

UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
Washington, DC 20549

FORM 8-A

FOR REGISTRATION OF CERTAIN CLASSES OF SECURITIES  
PURSUANT TO SECTION 12(b) OR (g) OF THE  
SECURITIES EXCHANGE ACT OF 1934

**Bacterin International Holdings, Inc.**

(Exact name of registrant as specified in its charter)

Delaware

20-5313323

(State of incorporation or organization)

(I.R.S. Employer Identification No.)

600 Cruiser Lane, Belgrade, Montana

59714

(Address of principal executive offices)

(Zip Code)

Securities to be registered pursuant to Section 12(b) of the Act:

Title of each class  
to be so registered

Name of each exchange on which  
each class is to be registered

Common Stock, par value \$0.000001 per share

The NASDAQ Stock Market LLC

If this form relates to the registration of a class of securities pursuant to Section 12(b) of the Exchange Act and is effective pursuant to General Instruction A. (c), check the following box.

If this form relates to the registration of a class of securities pursuant to Section 12(g) of the Exchange Act and is effective pursuant to General Instruction A. (d), check the following box.

Securities Act registration statement file number to which this form relates:

333-158426 (S-1 effective September 29, 2009)

and

333-169620 (S-1 filed September 28, 2010, not yet effective)

Securities to be registered pursuant to Section 12(g) of the Act: None

**Item 1. Description of Registrant's Securities to be Registered.**

The description of the securities being registered is set forth under "Description of Securities – Common Stock" in the Company's registration statement on Form S-1 (File No. 333-169620), originally filed with the Securities and Exchange Commission on September 28, 2010, as amended, including any form of prospectus contained therein pursuant to Rule 424(b) under the Securities Act of 1933, which description and prospectus are incorporated herein by reference. Copies of such description will be filed with The NASDAQ Stock Market LLC.

**Item 2. Exhibits.**

Under the Instructions to Exhibits with respect to Form 8-A, no exhibits are required to be filed as the securities being registered on this form are (a) being registered on an exchange on which no other securities of the Company are registered, and (b) are not being registered pursuant to Section 12(g) of the Exchange Act.

SIGNATURE

Pursuant to the requirements of Section 12 of the Securities Exchange Act of 1934, the registrant has duly caused this registration statement to be signed on its behalf by the undersigned, thereto duly authorized.

**BACTERIN INTERNATIONAL HOLDINGS, INC.**

By: /s/ Guy S. Cook

Name: Guy S. Cook

Title: President and Chief Executive Officer

Dated: November 5, 2010

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