

October 4, 2010

VIA FEDERAL EXPRESS AND EDGAR

Securities and Exchange Commission
Division of Corporation Finance
100 F Street, N.E.
Washington, D.C. 20549-3030

Attention: **Lisa Sellars**

**Re: Bacterin International Holdings, Inc.
Item 4.01 Form 8-K
Filed September 24, 2010
File No. 333-158426**

Dear Ladies and Gentlemen:

This letter responds to comments on the above-referenced filing by Bacterin International Holdings, Inc., a Delaware corporation (the "Company"), provided by the staff (the "Staff") of the Securities and Exchange Commission (the "Commission") by letter dated September 28, 2010. The Company's responses to the Staff's comments are indicated below, directly following a restatement of each comment in bold, italicized type.

Item 4.01 Form 8-K Filed September 24, 2010

- 1. SEC Comment: Please revise paragraph (a)(ii) to disclose whether Uniack's reports on the financial statements for either of the years ended December 31, 2008 and 2009 contained an adverse opinion or a disclaimer of opinion or were qualified or modified as to uncertainty, audit scope, or accounting principles and describe the nature of each such adverse opinion, disclaimer of opinion, modification, or qualification. Refer to paragraph (a)(1)(ii) of Item 304 of Regulation S-K. In this regard, we note that Uniack's report on your financial statements for the year ended December 31, 2008 contained an explanatory paragraph regarding your ability to continue as a going concern.***

Company Response: In response to the Staff's comment, the Company has revised paragraph (a)(ii) in Amendment No. 1 to the Current Report on Form 8-K filed with the Commission on the date hereof to provide the following disclosure:

Uniack's report on the Company's financial statements for the fiscal year ended December 31, 2008 contained a modified opinion on the uncertainty of the Company to continue as a going concern because of the Company's reliance on loans and advances from related parties to meet its liquidity needs, but did not contain an adverse opinion or a disclaimer of opinion and was not qualified or modified as to audit scope or accounting principles. Uniack's report on the Company's financial statements for the fiscal year ended December 31, 2009 did not contain an adverse opinion or a disclaimer of opinion and was not qualified or modified as to uncertainty, audit scope or accounting principles.

2. **SEC Comment:** *Please file an updated letter from Uniack as an exhibit to the amendment filed in response to our comments in accordance with Items 304(a)(3) and 601(b)(16) of Regulation S-K.*

Company Response: In response to the Staff's comment, the Company has filed an updated letter from Uniack as Exhibit 16.1(a) to Amendment No. 1 to the Current Report on Form 8-K filed with the Commission on the date hereof in response to the additional disclosure provided in response to Comment No. 1 above.

The Company understands that the purpose of the Staff's review is to assist the Company in its compliance with applicable disclosure requirements and to enhance the overall disclosure in its filings with the Commission. The Company hereby acknowledges that:

- the Company is responsible for the adequacy and accuracy of the disclosure in the filing;
- Staff comments or changes to disclosure in response to Staff comments do not foreclose the Commission from taking any action with respect to the filing; and
- the Company may not assert Staff comments as a defense in any proceeding initiated by the Commission or any person under the federal securities laws of the United States.

The Company further acknowledges that the Staff may have additional comments after reviewing the Company's response to the Staff's comment.

If you have any questions regarding this response, please do not hesitate to contact me directly at (406) 388-0480.

Sincerely,

/s/ John P. Gandolfo

John P. Gandolfo
Chief Financial Officer