

*Via Facsimile and U.S. Mail*  
Mail Stop 4720

March 8, 2010

Ronald A. Lowy  
Chief Executive Officer  
Helicos BioSciences Corporation  
One Kendall Square, Building 700  
Cambridge, MA 02139

**Re: Helicos BioSciences Corporation**  
**Form 10-K for Fiscal Year Ended December 31, 2008**  
**Filed March 30, 2009**  
**Schedule 14A Filed April 24, 2009**  
**File No. 001-33484**

Dear Mr. Lowy:

We have completed our review of your Form 10-K and related filings and have no further comments at this time.

Sincerely,

Jeffrey P. Riedler  
Assistant Director