

**UNITED STATES  
SECURITIES AND EXCHANGE COMMISSION  
October 11, 2011**

**ORDER GRANTING CONFIDENTIAL TREATMENT  
UNDER THE SECURITIES EXCHANGE ACT OF 1934**

**Sequenom, Inc.**

**File No. 000-29101 CF#27346**

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Sequenom, Inc. submitted an application under Rule 24b-2 requesting an extension of a prior grant of confidential treatment for information it excluded from the Exhibits to a Form 10-Q filed on November 14, 2006.

Based on representations by Sequenom, Inc. that this information qualifies as confidential commercial or financial information under the Freedom of Information Act, 5 U.S.C. 552(b)(4), the Division of Corporation Finance has determined not to publicly disclose it. Accordingly, excluded information from the following exhibit will not be released to the public for the time period specified:

Exhibit 10.54      through October 19, 2016

For the Commission, by the Division of Corporation Finance, pursuant to delegated authority:

Daniel Morris  
Special Counsel