

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
September 24, 2012**

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

Sequenom, Inc.

File No. 000-29101 - CF#28858

Sequenom, Inc. submitted an application under Rule 24b-2 requesting an extension of a previous grant of confidential treatment for information it excluded from the Exhibits to a Form 10-Q filed on November 13, 2007.

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(s) will not be released to the public for the time period(s) specified:

Exhibit 10.54 through November 5, 2017

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

Craig E. Slivka
Special Counsel