

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE PATENT TRIAL AND APPEAL BOARD

---

FRESENIUS KABI USA LLC,  
Petitioner,  
v.

CUBIST PHARMACEUTICALS, INC.  
Patent Owner.

---

U.S. Patent No. 8,058,238

---

Cases IPR2015-01566, IPR2015-01570, IPR2015-01571, IPR2015-01572

---

**EXPERT DECLARATION OF RALPH TARANTINO, PH.D.**

## TABLE OF CONTENTS

	<u>Page</u>
<b>I. Qualifications and Background .....</b>	<b>4</b>
<b>A. Education and Experience; Prior Testimony .....</b>	<b>4</b>
<b>B. Bases for Opinions and Materials Considered.....</b>	<b>10</b>
<b>C. Scope of Work.....</b>	<b>10</b>
<b>II. Summary of Opinions .....</b>	<b>11</b>
<b>III. Legal Standards.....</b>	<b>13</b>
<b>IV. Person of Ordinary Skill in the Art.....</b>	<b>15</b>
<b>V. The ‘238 Patent.....</b>	<b>16</b>
<b>VI. Background.....</b>	<b>23</b>
<b>A. Use of Surfactants, Biosurfactants and Lipopeptides .....</b>	<b>23</b>
<b>B. Biosurfactant Purification and State of the Art in 2000.....</b>	<b>27</b>
<b>VII. Scope and Content of the Prior Art References.....</b>	<b>34</b>
<b>A. U.S. Patent No. 4,874,843 (‘843 Patent) (Ex. 1007) .....</b>	<b>34</b>
<b>B. U.S. Patent No. 4,331,594 (‘594 Patent) (Ex.1009) .....</b>	<b>35</b>
<b>C. U.S. Patent No. 5,912,226 (‘226 Patent) (Ex.1010) .....</b>	<b>36</b>
<b>D. Mulligan and Gibbs, “Recovery of Biosurfactants by Ultrafiltration,”         Journal of Chemical Technology &amp; Biotechnology, 47:23-9 (1990)         (“Mulligan”) (Ex.1013).....</b>	<b>38</b>
<b>E. Lin and Jiang, “Recovery and Purification of the Lipopeptide Biosurfactant         Bacillus subtilis by Ultrafiltration,” Biotechnology Techniques, 11:413-6         (June 1997) (“Lin I”) (Ex. 1014) .....</b>	<b>39</b>
<b>F. Lin et al., “General Approach for the Development of High-Performance         Liquid Chromatography Methods for Biosurfactant Analysis and         Purification,” Journal of Chromatography, 825:149-59 (1998) (“Lin II”)         (Ex.1015).....</b>	<b>41</b>
<b>G. U.S. Patent No. 5,227,294 (‘294 Patent) (Ex. 1016) .....</b>	<b>43</b>
<b>H. Lakey and Ptak, “Fluorescence Indicates a Calcium-Dependent Interaction         between the Lipopeptide Antibiotic LY146032 and Phospholipid         Membranes,” Biochemistry, 27, 4639-45 (1988) (Ex. 1033) .....</b>	<b>44</b>

I.	Tally et al., “Daptomycin: A Novel Agent for Gram-positive Infections,” <i>Expert Opin. Invest. Drugs</i> 8:1223-38 (1999) (Ex. 1018).....	44
J.	Sweadner et al., “Filtration Removal of Endotoxin (Pyrogens) in Solution in Different States of Aggregation, Applied and Environmental <i>Microbiology</i> , vol. 34, no. 4, 382-85 (1977) .....	45
K.	Osman et al., “Tuning micelles of a bioactive heptapeptide biosurfactant via extrinsically induced conformational transition of surfactin assembly” <i>J. Peptide Sci.</i> , 4:449-458 (1998) (Ex. 1017).....	46
<b>VIII.INVALIDITY OF THE ‘238 PATENT.....</b>		<b>47</b>
A.	Claims 21-25, 27-33, 35-44, 48, 49, 92-109, 113, 115-21, 123-51, 153-59, 161, 162, 176-84, and 189 of the ‘342 Patent are Anticipated by the ‘843 Patent.....	47
B.	Claims 3-7, 49-52, 55-57, 61-63, 66, 85, 87-89, 164-167, 175, 183, and 190 of the ‘238 Patent are Anticipated by the ‘226 Patent .....	69
C.	Claims 1-19, 21-44, 48-51, 92-107, 112-146, 151-167, 176, 177, 179, and 183-189 of the ‘238 Patent are Obvious Over the ‘843 Patent In View of Mulligan, Lin II, and Lakey .....	80
D.	Claim 53 of the ‘238 Patent is Invalid as Obvious Over Over the ‘843 Patent in View of Mulligan, Lin II, Lakey, and Tally .....	118
E.	Claim 49-52, 54-65, 85-91, 175, 183, and 190 of the ‘342 Patent are Invalid as Obvious Over the ‘843 Patent, the ‘226 Patent, Mulligan, Lin II, and/or Lakey.....	122
F.	Claims 20, 45-47, 108-111, 147-150, 168-174, 178, 180, 181 of the ‘238 Patent are Obvious Over the ‘843 Patent In View of Mulligan, Lin I, Lin II, Lakey, Sweadner, and Osman.....	134
G.	Claims 66-84, 182, and 191-192 of the ‘238 Patent are Obvious Over the ‘843 Patent In View of he ‘594 Patent, Mulligan, Lin I, Lin II, Lakey, Baltz, and Sweadner.....	151
X.	<b>CONCLUSION.....</b>	<b>164</b>

1. My name is Ralph Tarantino, Ph.D. I have been retained by counsel for Fresenius Kabi USA LLC (Fresenius). I understand that Fresenius intends to petition for *inter partes* review of U.S. Patent No. 8,129,342 (the “‘342 patent”) (Ex. 1002), which is assigned to Cubist Pharmaceuticals, Inc. I also understand that Fresenius intends to petition for *inter partes* review of U.S. Patent No. 8,058,238 (the “‘238 patent”) (Ex. 1001), which is also assigned to Cubist Pharmaceuticals, Inc. I further understand that Fresenius will request that the United States Patent and Trademark Office cancel the claims of the ‘342 patent and the ‘238 patent as unpatentable in the *Inter Partes* Review petitions. I submit this expert declaration, which addresses and supports Fresenius’s *Inter Partes* Review petition for the ‘238 patent. I have prepared and submitted a separate declaration which addresses and supports Fresenius’s *Inter Partes* Review petition for the ‘342 patent.

**I. Qualifications and Background**

**A. Education and Experience; Prior Testimony**

2. I am currently a Pharmaceutical Consultant and Principal of Steritech Solutions, LLC. I have an undergraduate degree in Pharmacy from Long Island University and a Ph.D. in Pharmaceutical Sciences from St. John’s University. I am a registered pharmacist in the State of New York.

3. After receiving my doctorate in 1989, I joined Hoffmann-La Roche, Inc. in Nutley, New Jersey. Since its founding in 1896, Hoffmann-La Roche has

grown into one of the world's leading healthcare companies with a focus on pharmaceutical and biotechnology therapies. Roche has identified and developed leading cancer therapies and other significant treatments including, for example, Roferon-A®, Valium®, Bactrim®, Hivid® and Accutane®. I worked at Hoffmann La Roche until 2011, when I founded Steritech Solutions, LLC.

4. Since its incorporation in 2011, I have been the Principal of Steritech Solutions, LLC. Steritech provides consulting services directly to the pharmaceutical industry and other businesses involved with pharmaceuticals such as investment or legal firms. I have consulted on peptide/protein formulations and processing, quality assurance, manufacturing, drug delivery devices and primary packaging issues. My work at Steritech has focused on injectable drug products.

5. At Hoffmann-La Roche, I primarily worked in the areas of peptide/protein preformulation, formulation development, and the manufacture of toxicology and clinical supplies for injectable products. I was the head of sterile clinical manufacturing for 17 years. In this capacity, I managed two Good Manufacturing Practice ("GMP") sterile suites and one Good Laboratory Practice ("GLP") sterile suite.

6. In my role at Hoffmann-La Roche, I was responsible for the sterilization processes for equipment, facilities and drug products, as well as the validation of these processes for both GLP and GMP sterile products. I developed

# Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

## Real-Time Litigation Alerts



Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

## Advanced Docket Research



With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

## Analytics At Your Fingertips



Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

## API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

## LAW FIRMS

Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

## FINANCIAL INSTITUTIONS

Litigation and bankruptcy checks for companies and debtors.

## E-DISCOVERY AND LEGAL VENDORS

Sync your system to PACER to automate legal marketing.