

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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NALOX-1 PHARMACEUTICALS, LLC,

Petitioner

v.

ADAPT PHARMA OPERATIONS LIMITED, AND

OPIANT PHARMACEUTICALS, INC.,

Patent Owners

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IPR2019-00685

U.S. Patent No. 9,211,253

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**SUPPLEMENTAL DECLARATION OF MAUREEN DONOVAN, Ph.D.**

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***Inter Partes Review of U.S. Patent No. 9,211,253  
Supplemental Declaration of Maureen Donovan, Ph.D. (Nalox1201)***

I, Maureen D. Donovan, Ph.D., do hereby declare as follows:

**I. OVERVIEW**

1. I am over the age of 18 and otherwise competent to make this Declaration. This Declaration is based on my personal knowledge as an expert in the field of pharmaceutical formulation, in particular intranasal formulation. I understand that this Declaration is being submitted in support of Petitioner Nalox-1 Pharmaceuticals, LLC's ("Nalox-1") Reply to Patent Owners' Response to the petition for *Inter Partes* Review ("IPR") of certain claims of U.S. Patent No. 9,211,253 ("the '253 patent") (Nalox1001).

2. This is my second Declaration in this proceeding. Previously, I submitted a Declaration (Nalox1002) in support of Nalox-1's petition for IPR challenging the '253 patent. I refer to that Declaration hereinafter as "my first Declaration."

3. I have now been asked to supplement the opinions I expressed in my first Declaration. I have also been asked to respond to certain opinions contained in the Declaration of Stuart A. Jones, Ph.D. (Ex-2201) and the Declarations of Kenneth A. Williams, M.D. (Ex-2001 and Ex-2202).

4. In preparing this Declaration, I have reviewed the '253 patent and its file history. I have also considered each of the documents listed in the table below, in addition to the exhibits disclosed in my first Declaration. *See* Nalox1002, ¶5.

***Inter Partes Review of U.S. Patent No. 9,211,253  
Supplemental Declaration of Maureen Donovan, Ph.D. (Nalox1201)***

<b>Exhibit No.</b>	<b>Description</b>
<b>Nalox1001</b>	U.S. Patent No. 9,211,253 (the '253 patent)
<b>Nalox1002</b>	Expert Declaration of Maureen Donovan (my first Declaration)
<b>Nalox1007</b>	U.S. Patent No. 9,192,570 (Wyse)
<b>Nalox1010</b>	Djupesland, P., <i>Nasal Drug Delivery Device: Characteristics and Performance in a Clinical Perspective – A Review</i> , 3 Drug Deliv. & Transl. Res. 42–62 (2013) (Djupesland)
<b>Nalox1012</b>	Handbook of Pharmaceutical Excipients (Rowe, R. et al. eds., 6th ed. 2009) (HPE)
<b>Nalox1015</b>	U.S. Patent No. 8,198,291 (the '291 patent)
<b>Nalox1022</b>	Bitter, C. et al., <i>Nasal Drug Delivery in Humans</i> , 40 Curr. Probl. Dermatol. 20–35 (2011) (Bitter)
<b>Nalox1028</b>	FDA, Center for Drug Evaluation and Research, <i>Guidance for Industry, Nasal Spray and Inhalation Solution, Suspension, and Spray Drug Products – Chemistry, Manufacturing, and Controls Documentation</i> (2002) (2002 FDA Guidance)
<b>Nalox1031</b>	Glende, O., <i>Development of non-injectable naloxone for pre-hospital reversal of opioid overdose: A Norwegian project and a review of international status</i> (May 2016) (unpublished M.A. thesis, Norwegian University of Science and Technology) (on file with Norwegian University of Science and Technology) (Glende)
<b>Nalox1044</b>	Physicians' Desk Reference, <i>NARCAN [Naloxone Hydrochloride Injection, USP], IMITREX Nasal Spray [Sumatriptan]</i> , 1300–02, 1546–50 (57th ed., 2003) (PDR 2003)
<b>Nalox1206</b>	Bureš, F., <i>Quaternary Ammonium Compounds: Simple in Structure, Complex in Application</i> , 377(14) Topics in Current Chemistry (2019) (Bureš)

*Inter Partes Review of U.S. Patent No. 9,211,253  
Supplemental Declaration of Maureen Donovan, Ph.D. (Nalox1201)*

Exhibit No.	Description
<b>Nalox1208</b>	Connors, K. et al., <i>Oxidation and Photolysis, in Chemical Stability of Pharmaceuticals: A Handbook for Pharmacists</i> 82–114 (2d ed. 1986) (Connors)
<b>Nalox1210</b>	Ehrick, J. et al., <i>Considerations for the Development of Nasal Dosage Forms, in Sterile Product Development: Formulation, Process, Quality and Regulatory Considerations</i> 99–144 (Parag Kolhe, et al., eds., 2013) (Ehrick)
<b>Nalox1213</b>	FDA, Center for Drug Evaluation and Research, Guidance for Industry, <i>Q8(R2) Pharmaceutical Development</i> (Revision 2 2009) (2009 FDA Guidance)
<b>Nalox1214</b>	Hiom, S., <i>Preservation of Medicines and Cosmetics, in Principles and Practice of Disinfection, Preservation &amp; Sterilization</i> 484–514 (Fraise, A.P. et al., eds., 4th ed. 2004) (Hiom)
<b>Nalox1218</b>	Hsu, H. et al., <i>Effect of Formulation Variables on the Nasal Permeability and Stability of Naloxone Intranasal Formulations</i> , 20(232) AAPS PharmaSciTech (2019) (Hsu)
<b>Nalox1219</b>	<i>Inactive Ingredient Search for Approved Drug Products, Search Names Beginning with B</i> , U.S. FDA (Mar. 3, 2020, 12:08 PM), <a href="https://www.accessdata.fda.gov/scripts/cder/iig/index.cfm?event=browseByLetter.page&amp;Letter=B">https://www.accessdata.fda.gov/scripts/cder/iig/index.cfm?event=browseByLetter.page&amp;Letter=B</a> (FDA B Names)
<b>Nalox1220</b>	<i>Inactive Ingredient Search for Approved Drug Products: Frequently Asked Questions</i> , U.S. FDA (Mar. 3, 2020, 12:12 PM), <a href="https://www.fda.gov/drugs/drug-approvals-and-databases/inactive-ingredient-search-approved-drug-products-frequently-asked-questions">https://www.fda.gov/drugs/drug-approvals-and-databases/inactive-ingredient-search-approved-drug-products-frequently-asked-questions</a> (FDA FAQ)
<b>Nalox1227</b>	Marx, D. et al., <i>Intranasal Drug Administration – An Attractive Delivery Route for Some Drugs</i> , InTech Open (2015) (Marx)

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