UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FLATWING PHARMACEUTICALS, LLC, Petitioner,

v.

ANACOR PHAMACEUTICALS, INC.,
Patent Owner

Case No. IPR2018-00169 Patent No. 9,566,289

DECLARATION OF PAUL J. REIDER, PH.D. IN SUPPORT OF PATENT OWNER'S RESPONSE



TABLE OF CONTENTS

I.	INTI	RODUCTION			
II.	ACA	ACADEMIC AND PROFESSIONAL QUALIFICATIONS			
III.	THE	'289 PATENT	4		
IV.	TEC	HNICAL BACKGROUND	8		
	A.	Boron Chemistry	8		
	B.	Boron Compounds as Pharmaceutical Drugs	13		
	C.	Molecular Structure of Keratin	15		
V.	THE CITED REFERENCES				
	A.	Austin	18		
	B.	Brehove	19		
	C.	Freeman	21		
	D.	Samour	22		
VI.	RES	PONSE TO PETITIONER'S GROUNDS	23		
	A.	A POSA in 2005 Would Have Expected Tavaborole to Have High Keratin-Binding Affinity	23		
		Boron-Containing Compounds Form Complexes with Electron-Rich Atomic Species and Functional Groups to Satisfy Boron's Electron Deficiency	24		
		2. Keratin's Molecular Structure Presents an Electron-Rich "Gauntlet" for Boron-Containing Compounds	27		
	В.	Brehove's Dioxaborinane Compounds Undergo Hydrolysis and Do Not Penetrate the Nail Plate	29		



	C.	A POSA Would Not Have Arrived at the Claimed Amount of		
		Tavaborole Through Routine Experimentation	30	
VII	CONC	'I LISION	34	



I, Paul J. Reider, Ph.D., hereby state and declare as follows:

I. INTRODUCTION

- 1. I have been asked by Patent Owner Anacor Pharmaceuticals, Inc. ("Anacor") to offer my expert opinions regarding the petition for *inter partes* review of U.S. Patent No. 9,566,289 ("the '289 patent") filed by FlatWing Pharmaceuticals, LLC ("FlatWing"). This declaration contains my opinions related to the validity of claims 10 and 12–15 of the '289 patent.
- 2. I am being compensated at my customary hourly rate, and my compensation is not dependent upon the outcome of, or the content of my testimony in, the present *inter partes* review proceeding or any litigation proceedings.
- 3. I have reviewed FlatWing's petition for *inter partes* review ("Pet.") of the '289 patent, including the declarations filed in support of the petition submitted by Dr. Stephen B. Kahl ("Kahl Decl.," Ex. 1003) and Dr. S. Narasimha Murthy ("Murthy Decl.," Ex. 1005). I have further reviewed the exhibits and articles cited in these documents, as well as the articles and documents cited in this declaration.
- 4. I have additionally reviewed the declaration of Dr. Majella E. Lane ("Lane Decl.," Ex. 2014) filed in support Anacor's response to FlatWing's petition. I am also aware of knowledge generally available to and relied upon by persons of ordinary skill in the art ("POSA") at the time of the invention.



5. This declaration is based on information currently available to me. I reserve the right to continue my investigation and analysis, which may include a review of documents and information not yet provided. I further reserve the right to expand or otherwise modify my opinions and conclusions as my investigation and study continues, and to supplement my opinions and conclusions in response to any additional information that becomes available to me.

II. ACADEMIC AND PROFESSIONAL QUALIFICATIONS

- 6. I am a Lecturer at the rank of Professor of Chemistry at Princeton
 University. A copy of my curriculum vitae is attached as Exhibit 2044. My educational background and my professional experience are summarized below.
- 7. I obtained A.B. degrees in psychology and chemistry from the Washington Square College at New York University in 1972. I obtained my Ph.D. in organic chemistry from the University of Vermont in 1978. My Ph.D. thesis concerned the total synthesis of the natural product ibogamine.
- 8. After two years of post-doctoral work at Colorado State University from 1978–1980, I joined Merck Research Labs as a Senior Research Chemist in process research. For the next twenty-two years, I remained at Merck, eventually rising to the rank of Vice President. During that time, I participated in the discovery and development of more than a dozen FDA-approved drugs, including CAN-CIDAS®, an intravenous antifungal medication.



DOCKET

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.

