

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

COALITION FOR AFFORDABLE DRUGS V LLC;
HAYMAN CREDES MASTER FUND, L.P.;
HAYMAN ORANGE FUND SPC – PORTFOLIO A;
HAYMAN CAPITAL MASTER FUND, L.P.;
HAYMAN CAPITAL MANAGEMENT, L.P.;
HAYMAN OFFSHORE MANAGEMENT, INC.;
HAYMAN INVESTMENTS, LLC;
NXN PARTNERS, LLC;
IP NAVIGATION GROUP, LLC;
J KYLE BASS; and ERICH SPANGENBERG,
Petitioner,

v.

BIOGEN MA INC.,
Patent Owner.

Case IPR2015-01993
Patent 8,399,514 B2

DECLARATION OF RICHARD C. BRUNDAGE, PHARM. D., PH.D.

Table of Contents

| | |
|--|----|
| DECLARATION OF RICHARD C. BRUNDAGE, PHARM. D., PH.D..... | 1 |
| I. INTRODUCTION | 1 |
| II. QUALIFICATIONS | 1 |
| A. Education..... | 1 |
| B. Professional Experience | 2 |
| C. Publications | 4 |
| D. Honors and Awards | 4 |
| E. Professional Organizations and Service Activities | 5 |
| III. MATERIALS CONSIDERED..... | 6 |
| IV. OPINIONS IN SUPPORT OF BIOGEN’S RESPONSE TO PETITION | 7 |
| A. Joshi ’999 Does Not Disclose a Daily Dose of DMF | 7 |
| 1. Expertise as a Pharmacist..... | 7 |
| 2. Pharmaceutical Preparations Are Distinct from Therapeutic Regimens | 7 |
| 3. Joshi ’999 Describes the Amount of DMF Present in a Pharmaceutical Preparation, Not a Daily Dose | 9 |
| B. The Dose-Response of DMF Was Not Well-Defined | 11 |
| 1. Expertise as a Clinical Pharmacologist..... | 11 |
| 2. Based on the Limited Dose-Response Information Available for DMF in MS, No Reason Existed to Choose a Dose of 480 mg/day or to Expect That It Would Work..... | 12 |
| C. The ICH Guideline Is Not a Mandate to Find the Perfect Dose | 15 |
| 1. Relevant Expertise | 16 |

:

| | | |
|----|---|----|
| 2. | The ICH Guideline Provides Only General Guidance to Support Drug Registration | 16 |
| 3. | A Parallel Dose-Response Study Design Is Appropriate for MS | 18 |
| 4. | Kappos 2006 Is Consistent With the ICH Guideline..... | 19 |
| D. | ClinicalTrials Provides No Reason to Lower the Dose of DMF to 480 mg/day | 21 |
| V. | CONCLUSION..... | 22 |

I. INTRODUCTION

1. I, Richard C. Brundage, Pharm. D., Ph.D., have been retained by Finnegan, Henderson, Farabow, Garrett & Dunner, LLP on behalf of Biogen MA Inc. as an independent expert in the fields of pharmacy, pharmacology, pharmacodynamics, and pharmacometrics. My qualifications in these areas are established by my curriculum vitae. **Ex. 2043**. I am being compensated for the time I spend on this matter, but no part of my compensation depends on the outcome of this proceeding.

II. QUALIFICATIONS

A. Education

2. I received a Bachelor of Science degree with distinction in Pharmacy from the University of Minnesota – College of Pharmacy in 1977. In 1985, I obtained a Pharm. D. from the same College of Pharmacy. In addition to my bachelor degree in Pharmacy, I have a Bachelor of Arts degree in Psychology from the College of Liberal Arts at the University of Minnesota.

3. From 1983 to 1984, I was a clinical post-doctoral fellow at the St. Paul Ramset Medical Center in St. Paul, MN studying neuropharmacology, specifically in the area of anti-epilepsy medications.

4. I was an American Society of Hospital Pharmacists fellow in Clinical Pharmacokinetics at the St. Paul Ramset Medical Center in St. Paul, MN. While there from 1984-85, I continued to study clinical neuropharmacology in epilepsy.

5. I also obtained a Ph.D. in Pharmaceutics from the University of Minnesota in 1996. My dissertation research involved microdialysis, studying the brain distribution of drugs used for Alzheimer's disease.

B. Professional Experience

6. After receiving my degree in pharmacy, I worked for over 15 years as a registered pharmacist. As a pharmacist, I prepared and dispensed various types of pharmaceutical dosage forms, including tablets, capsules, suppositories, suspensions, creams, as well as many others. I was familiar with a drug's Prescribing Information and counseled many patients on the side effects associated with the drugs that I was dispensing. Until recently (2014), I was a licensed pharmacist in Minnesota.

7. I began my academic career at the College of Pharmacy, Medical University of South Carolina as an Assistant Professor of Pharmacy. In that position, I researched clinical pharmacokinetics. My instructional responsibilities included Clinical Pharmacokinetics and Advance Disease Processes and Pharmacotherapeutics: Neurology Module. I was the course coordinator and primary lecturer for both courses. In addition, I was a preceptor for the

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.