UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WATSON LABORATORIES, INC.
Petitioner

v.

UNITED THERAPEUTICS CORP.
Patent Owner

Cases[1] IPR2017-01621; Patent 9,358,240
IPR 2017-01622; Patent 9,339,507

SECOND DECLARATION OF DR. HOSSEIN A. GHOFRANI

[1] The word-for-word identical paper is filed in each proceeding identified in the heading.

I, Dr. Hossein A. Ghofrani, hereby declare as follows:

1. I am a member of University of Giessen and Marburg Lung Center ("UGMLC"), a research center at the University Hospital Giessen studying pulmonary hypertension.

2. United Therapeutics Corporation is compensating me for my time spent in connection with IPR2017-01621 and IPR2017-01622 based on my standard hourly consulting rate. My compensation does not depend on the content of this declaration, the substance of any other testimony that I may offer in connection with this proceeding, or the disposition of this proceeding. I understand that United Therapeutics Corporation is the assignee of U.S. Patent No. 9,358,240 ("the '240 patent") and US Patent No. 9,399,507 ("the '507 patent").

3. I am a co-author of the German language article: Hossein Ardeschir Ghofrani *et al*. "Neue Therapieoptionen in der Behandlung der pulmonalarteriellen Hypertonie,"[2] *Herz*, 30, 4 (June 2005): 296-302 ("the Ghofrani article") (Ex. 2103). I understand that Watson Laboratories, Inc. ("Watson") submitted an English language translation of this article in this proceeding as Exhibit 1005, which I have reviewed.

[2] The title is translated as "New therapies in the treatment of pulmonary hypertension" in Exhibit 1005.

4. I am included as an author because I contributed to several sections of the article as I detailed in my first Declaration (Ex. 2026), including the sections on phosphodiesterase inhibitors, vasoactive therapy, inhaled iloprost, combination therapies, treatment of early forms of pulmonary hypertension, and the introduction.

5. As stated in my previous declaration, I did not make material contributions to any section of the Ghofrani article other than those in paragraph 4, above. I specifically did not have the idea to design the patient study, to select the dosing regimen or type of inhalation device, nor did I otherwise contribute to the patient study described in the following excerpt:

> Initial trials in Giessen have shown proof of efficacy of inhaled treprostinil for the effective reduction of the pulmonary vascular resistance (PVR) [6]. In this first study, 17 patients with severe pre-capillary pulmonary hypertension were administered inhaled treprostinil (15 mcg/inhalation). This led to a major reduction in pulmonary selective pressure and resistance with an overall duration of action of > 180 min. In direct comparison with inhaled iloprost, inhaled treprostinil showed a stronger pulmonary selectivity, so that it is possible to increase the dosage to up to 90 mcg (absolute inhaled dose per inhalation exercise) without adverse effects occurring [6]. Due to these unique properties (pronounced pulmonary selectivity and long duration of action after an individual inhalation), it is possible to reduce the number inhalations necessary to up to four per day; the

> inhalation period can be reduced to < 1 min. by selecting a suitable device. Additionally, the initial data shows that it is technically feasible for there to be only one to two breaths in an application.

The information in this excerpt was compiled and composed by Dr. Robert Voswinckel and Dr. Werner Seeger, who jointly designed this patient study together with contributions from Horst Olschewski, Robert Roscigno, Lewis Rubin, Thomas Schmehl, and Carl Sterritt.

6. Reference [6] referred to in this excerpt (Voswinckel R. Kohstall M. Enge B, et al., Inhaled treprostinil is a potent pulmonary vasodilator in severe pulmonary hypertension, Eur Heart J. 2004: 25:22 ("Voswinkel abstract")) (Ex. 1046), also lists me as a co-author. Although I did not design the study it describes, I am listed as a co-author in recognition of my work as a member of the team that carried out various tasks relating to the routine clinical care in addition to identification of eligible patients for potential participation in trials, at the request of other team members, such as Dr. Seeger. In the academic world, it is a common practice to list as authors of abstracts and summary review articles the members who helped carry out the work, not just those members who were directly responsible for conceiving, analyzing, and designing a particular study. This is typical of our group and is a valid publication practice for a research group like ours.

7. In the same way, with respect to the other Voswinckel abstract, Robert Voswinckel, et al. *Inhaled Treprostinil Sodium (TRE) for the Treatment of Pulmonary Hypertension*, Abstract #1414, CIRCULATION, 110, 17, SUPPLEMENT (OCT. 2004): III-295 (Ex. 1003), I am listed as a co-author on that abstract because we again included as authors of this abstract the members of our group who carried out certain aspects of the trials, clinical routine management, or related parallel studies, not just the members who were directly responsible for conceiving, analyzing, and designing the particular study it describes.

8. In the case of any studies of inhaled treprostinil described in these articles, I was listed as a co-author because I assisted with the clinical responsibilities of overseeing patients and was carrying out work related to the treatment of pulmonary hypertension inside and outside the trials designed by the inventors. I was not designing those studies or methods of treatment involving inhaled treprostinil. I also agree that the other co-authors of these articles who are not named as inventors of the '240 patent or the '507 patent were recognized as authors for similar reasons. Even though we did not design the inhaled treprostinil clinical trials, we did perform tasks relating to the trials such as identification of potentially eligible patients out of the group of patients in our pulmonary hypertension clinic. Moreover, patients with severe pulmonary hypertension have multiple needs that are mostly not related to their participation in clinical trials,

DOCKET ALARM

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.