UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

KOIOS PHARMACEUTICALS LLC

Petitioner

V.

MEDAC GESELLSCHAFT FUER KLINISCHE SPEZIALPRÄPARATE MBH

Patent Owner

Patent No. 8,664,231
Title: Concentrated Methotrexate Solutions

Declaration of Dr. Michael H. Schiff



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VI. TH	E '231 PATENT
VII. CI	LAIM CONSTRUCTION
A.	Claims of the '231 patent
	1. "subcutaneously"1
	CERTAIN REFERENCES DISCLOSE OR SUGGEST ALL CLAIMS OF THE '231 T
A.	Grint discloses all elements of claims 1-2, 4-6, 17, and 22
	1. <i>Grint</i> discloses "a method for treating inflammatory autoimmune diseases in a patient in need thereof" (Claim 1)
	2. <i>Grint</i> discloses "subcutaneously administering to said patient a medicament comprising methotrexate" (Claim 1)
	3. <i>Grint</i> discloses that the methotrexate is "in a pharmaceutically acceptable solvent at a concentration of more than 30 mg/ml" (Claim 1).2
	4. <i>Grint</i> discloses that the methotrexate is "present at a concentration of more than 30 mg/ml to 100 mg/ml" (Claim 2)
	5. <i>Grint</i> discloses the "[p]harmaceutically acceptable solvent [] selected from water, water for injection purposes, water comprising isotonization additives and sodium chloride solution" (Claim 4)
	6. <i>Grint</i> discloses "the inflammatory autoimmune disease is selected from theumatoid arthritis, juvenile arthritis, vasculitides, collagenoses, Crohn's disease, colitis ulcerosa, bronchial asthma, Alzheimer's disease, multiple



	"wherein the inflammatory autoimmune disease is rheumatoid arthritis" (Claim 6)
	7. <i>Grint</i> discloses methotrexate "present at a concentration of from 40 mg/ml to 80 mg/ml" (Claim 22)
В.	Grint in view of Alsufyani teaches every element of Claim 1827
C.	Wyeth (Ex. 1021) discloses all elements of Claims 1-6, 18, and 22 30
	1. Wyeth discloses "a method for treating inflammatory autoimmune diseases in a patient in need thereof" (Claim 1)
	2. Wyeth discloses "subcutaneously administering to said patient a medicament comprising methotrexate" (Claim 1)
	3. Wyeth discloses that the methotrexate is "in a pharmaceutically acceptable solvent at a concentration of more than 30 mg/ml" (Claim 1).36
	4. Wyeth discloses that the methotrexate is "present at a concentration of more than 30 mg/ml to 100 mg/ml" (Claim 2), "50 mg/ml" (Claim 3), and "from 40 mg/ml to 80 mg/ml" (Claim 22)
	5. Wyeth discloses the "[p]harmaceutically acceptable solvent [] selected from water, water for injection purposes, water comprising isotonization additives and sodium chloride solution" (Claim 4)
	6. Wyeth discloses "the inflammatory autoimmune disease is selected from rheumatoid arthritis, juvenile arthritis, vasculitides, collagenoses, Crohn's disease, colitis ulcerosa, bronchial asthma, Alzheimer's disease, multiple sclerosis, Bechterew's disease, joint arthroses, or psoriasis" (Claim 5) and "wherein the inflammatory autoimmune disease is rheumatoid arthritis" (Claim 6) and "juvenile rheumatoid arthritis" (Claim 18)
	Wyeth (Ex. 1021) in view of Brooks (Ex. 1008) teaches each element of aims 1-6, 18, and 22 of the '231 patent
	1. Wyeth discloses a 50 mg/ml methotrexate product approved by the FDA for intramuscular administration to treat inflammatory autoimmune diseases



			<i>Brooks</i> teaches that subcutaneous administration of methotrexate is as and effective as, and more convenient than, intramuscular injection.				
			ekstra (Ex. 1004) and Jorgensen (Ex. 1005) teach every element of 1-6, 18, and 22	13			
		1.	Hoekstra (Ex. 1004)	13			
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	A. Any toxicity associated with MTX after subcutaneous injection is dose, not concentration, dependent						
		B. The bioavailability of MTX after subcutaneous injection is dose, not concentration, dependent					
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	D.	D. Zackheim does not teach away from the claimed invention54					
			niff does not show that the invention is "surprisingly advantageous" over art				
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I, Dr. MICHAEL H. SCHIFF, DECLARE THE FOLLOWING:

I. Introduction

- 1. I have been retained by Koios Pharmaceuticals LLC ("Petitioner") as an independent expert consultant in this proceeding before the United States Patent and Trademark Office.
- 2. I understand that this proceeding involves U.S. Patent No. 8,664,231 ("the '231 patent") (Ex. 1001). I further understand that the '231 patent claims priority to German Application No. DE 10 2006 033 837, filed July 21, 2006. Ex. 1001 at Front Cover.
- 3. I have been asked to provide information regarding the use of methotrexate ("MTX") to treat inflammatory autoimmune diseases, particularly rheumatoid arthritis, and the various routes of administration used for MTX prior to July 2006. I have also been asked to consider whether certain references disclose or suggest the features recited in the claims of the '231 patent.
- 4. In forming my opinions, I have reviewed the previous declaration submitted by Dr. Michael Weinblatt in support of another challenge to the '231 patent, as well as the relevant materials cited therein, and have relied on and incorporated those opinions into this declaration where appropriate. I know Dr. Weinblatt personally and have co-authored a number of publications with him. I have nonetheless applied my personal judgment, knowledge, and experience in



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