UNITED STATES PATENT AND TRADEMARK OFFICE BEFORE THE PATENT TRIAL AND APPEAL BOARD CELLTRION INC., Petitioner V. GENENTECH, INC. Patent Owner U.S. Patent No. 6,407,213 Case IPR2017-01374

EXPERT DECLARATION OF LUTZ RIECHMANN, PH.D. IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW OF PATENT NO. 6,407,213



TABLE OF CONTENTS

			<u>Page</u>
I.	QUA	LIFICATIONS AND BACKGROUND	1
	Ä.	Education and Experience	1
	B.	Bases for Opinions and Materials Considered	5
	C.	Scope of Work	5
II.	LEG	AL STANDARDS	6
III.	PERS	SON OF ORDINARY SKILL IN THE ART	10
IV.	SUM	MARY OF OPINIONS	12
V.	THE	'213 PATENT [EX. 1001]	19
VI.	BAC	KGROUND	36
, _,	A.	Antibody Structure and Function	
	B.	Monoclonal Antibodies Expanded Therapeutic and Diagnostic	
		Uses of Antibodies	38
	C.	Immunogenic Reaction in Humans With Monoclonal Antibody	
	_	Therapy	
	D.	Molecular Characterization of Antibody Structure and Function.	
	E.	Antigen Binding Regions	
	F.	Framework Region Important for Antigen Binding	
	G. H.	Chimeric Antibodies	
		Antibody Humanization	
VII.		PE AND CONTENT OF THE PRIOR ART REFERENCES	68
	A.	EP 0403156 "Improved Monoclonal Antibodies Against the	
		Human Alpha/Beta T-Cell Receptor, Their Production and	(0
	D	Use" Published December 19, 1990 ("Kurrle") [Ex. 1071]	68
	В.	Queen et al. "A Humanized Antibody that Binds to the	
		Interleukin 2 Receptor" <i>PNAS</i> 86:10029–33 (1989) ("Queen 1989") [Ex. 1034]	71
	C.	PCT Publication No. WO 90/07861 ("Queen 1990") [Ex. 1050].	74
	D.	Furey <i>et al.</i> "Structure of a Novel Bence-Jones Protein (Rhe)	/ 1
	υ.	Fragment at 1.6 A Resolution," <i>J. Mol. Biol.</i> 167:661–92	
		(1983) ("Furey") [Ex. 1125]	79
	E.	Protein Data Bank Database	
	F.	Tramontano et al. "Framework Residue 71 is a Major	
		Determinant of the Position and Conformation of the Second	
		Hypervariable Region in the VH Domains of	



		Immu	noglobulins" <i>J. Mol. Biol.</i> 215:175–82 (1990)	
		("Tra	montano") [Ex. 1051]	83
	G.	Kaba	t et al. "Sequences of Proteins of Immunological Interest",	
			l., pp. iii, 41-49, 167–76 (1987) ("Kabat 1987") [Ex. 1052]	84
	H.		iak et al. "p185 ^{HER2} Monoclonal Antibody Has	
			proliferative Effects In Vitro and Sensitizes Human Breast	
		-	or Cells to Tumor Necrosis Factor" Mol. Cell Biol.	
		9:116	5–72 (1989) ("Hudziak") [Ex. 1021]	84
	I.		nia, C. et al. "Domain Association in Immunoglobulin	
		Mole	cules: The Packing of Variable Domains" J. Mol. Biol.	
			551–63 (1985) ("Chothia 1985") [Ex. 1063]	86
	J.		nia and Lesk. "Canonical Structures for the Hypervariable	
			ons of Immunoglobulins" <i>J. Mol. Biol.</i> 196:901–17 (1987)	
		("Cho	othia & Lesk") [Ex. 1062]	86
	K.		nia, C. et al. "Conformations of Immunoglobulin	
			rvariable Regions" <i>Nature</i> 342:877–83 (1989) ("Chothia	
			') [Ex. 1049]	87
VIII	UNPATENTABILITY OF THE '213 PATENT			
V 111.	A.		ns 1, 2, 25, 29, 63, 66, 71, 75, 76, 78, 80 and 81 of the '213	00
	11.		t are Anticipated by Kurrle [Ex. 1071]	88
		1.	Claim 1 of the '213 patent is anticipated by Kurrle	
		2.	Dependent claims 2, 25 and 29 are anticipated by Kurrle	
		3.	Independent claim 63 is anticipated by Kurrle	
		4.	Independent claim 66 and dependent claims 71, 72, 75	, 1
		••	and 76 are anticipated by Kurrle	93
		5.	Independent claim 80 and dependent claim 81 are	>0
			anticipated by Kurrle.	94
	B.	Clain	ns 1, 2, 4, 29, 62, 63, 64, 80 and 81 of the '213 Patent are	
			ipated by Queen 1990.	96
		1.	Independent Claim 1 of the '213 Patent is anticipated by	
				96
		2.	Dependent Claim 2 of the '213 Patent is anticipated by	
			Queen 1990	103
		3.	Dependent Claim 4 of the '213 Patent is anticipated by	
			Queen 1990	104
		4.	Dependent Claim 29 of the '213 Patent is anticipated by	
			Queen 1990	104
		5.	Independent Claim 62 of the '213 Patent is anticipated by	
			Oueen 1990	105



	6.	Independent Claim 63 of the '213 Patent is anticipated by	106			
	7		100			
	7.	Dependent Claim 65 of the '213 Patent is anticipated by Queen 1990	107			
	8.	Independent Claim 64 of the '213 Patent is anticipated by	107			
	0.	Queen 1990	109			
	9.	Independent Claim 80 of the '213 Patent is anticipated by	107			
	<i>)</i> .	Queen 1990	111			
	10.	Dependent Claim 81 of the '213 Patent is anticipated by				
	- • •	Queen 1990	113			
C.	Clair	ms 1, 2, 4,12, 25, 29, 62–67, 69 and 71–81 of the '213				
		nt are obvious over Queen 1990 in view of Kurrle, and				
		thia 1985 or Chothia & Lesk	114			
	1.	Claim 1 is obvious over Queen 1990 and Kurrle	116			
	2.	Claims 2, 25 and 29 are obvious over Queen 1990 and				
		Kurrle	120			
	3.	Claim 4 is obvious over Queen 1990 and Kurrle	122			
	4.	Claim 12 is obvious over Queen 1990 and Kurrle, in				
		view of Furey	122			
	5.	Claim 62 is obvious over Queen 1990 in view of Kurrle				
	6.	Claim 63 is obvious over Queen 1990 in view of Kurrle	126			
	7.	Claim 64 is obvious over Queen 1990 in view of Kurrle	127			
	8.	Claim 65 is obvious over Queen 1990 in view of Kurrle	130			
	9.	Claim 66 is obvious over Queen 1990 in view of Kurrle	131			
	10.	Claims 67, 71, 72, 74, 75, 76 and 78 are obvious over				
		Queen 1990 in view of Kurrle and Chothia 1985	132			
	11.	Claim 69 is obvious over Queen 1990 in view of Kurrle	136			
	12.	Claims 73, 77 and 79 are obvious in view of Queen 1990,				
		Kurrle and Chothia & Lesk	136			
	13.					
		of Kurrle	142			
D.		Claims 1, 2, 4,12, 25, 29, 62–67, 69 and 71–81 of the '213				
		Patent are obvious in view of Queen 1989 or Queen 1990 and				
	the F	PDB database	144			
	1.	Independent Claim 1 of the '213 Patent is obvious in				
	-	view of Queen 1989 and the PDB database	144			
	2.	Independent Claim 1 of the '213 Patent is obvious in				
		view of Queen 1990 and the PDB database	157			



3.	Dependent Claims 2,12, 25 and 29 of the '213 Patent are obvious in view of Queen 1989 or Queen 1990 and the	1.00
4	PDB database	160
4.	Dependent claim 4 of the '213 Patent is obvious in view of Queen 1990 and the PDB database	161
5.	Independent Claim 62 of the '213 Patent is obvious in	
	view of Queen 1990 and the PDB database	161
6.	Independent Claim 63 of the '213 Patent is obvious in	
	view of Queen 1989 or Queen 1990 and the PDB	
_		162
7.	Independent Claim 64 of the '213 Patent is obvious in	
_	view of Queen 1990 and the PDB database	163
8.	Independent Claim 66 of the '213 Patent is obvious in	
	view of Queen 1989 or Queen 1990 and the PDB	1.65
0	database	165
9.	Dependent Claims 67, 71–74 and 78 of the '213 Patent	
	are obvious in view of Queen 1989 or Queen 1990 and	1.67
10	the PDB database	16/
10.	Dependent Claim 72 of the '213 patent is obvious in	
	view of Queen 1989 or Queen 1990, and the PDB	1.60
1 1	database	168
11.	Dependent Claim 75 of the '213 patent is obvious in	
	view of Queen 1989 or Queen 1990 and the PDB	170
10	database	170
12.	Dependent Claim 75 of the '213 patent is obvious in	
	view of Queen 1989 or Queen 1990 and the PDB database, and further in view of Tramontano	171
13.	Dependent Claims 76–77 and 79 of the '213 Patent are	1/1
13.	obvious in view of Queen 1989 or Queen 1990 and the	
	PDB database, and optionally in view of Tramontano	172
14.	Dependent Claim 69 of the '213 Patent is obvious in	1/2
17.	view of Queen 1990 and the PDB database	181
15.	Dependent Claim 65 of the '213 Patent is obvious in	101
15.	view of Queen 1989 or Queen 1990 and the PDB	
	database	181
16.	Independent Claim 80 of the '213 Patent is obvious in	101
•	view of Queen 1989 or Queen 1990 and the PDB	
	database	183



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.

