

**In the
United States Court of Appeals
for the Federal Circuit**

**ARIAD PHARMACEUTICALS, INC.,
MASSACHUSETTS INSTITUTE OF TECHNOLOGY,
THE WHITEHEAD INSTITUTE FOR BIOMEDICAL RESEARCH, AND
THE PRESIDENTS AND FELLOWS OF HARVARD COLLEGE**

Plaintiffs-Appellants

v.

ELI LILLY & COMPANY

Defendant-Appellee

Appeal from the United States District Court for the District
of Massachusetts in Case No. 02-CV-11280, Judge Rya W. Zobel

BRIEF OF *AMICUS CURIAE* LAW PROFESSOR
CHRISTOPHER M. HOLMAN
IN SUPPORT OF NEITHER PARTY

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CERTIFICATE OF INTEREST

Amicus Curiae Christopher M. Holman certifies the following:

1. The full name of every party or *amicus curiae* represented by me is Christopher M. Holman.
2. The name of the real parties in interest (if the party named in the caption is not the real party in interest) represented by me is Christopher M. Holman.
3. All parent corporations and any publicly held companies that own 10 percent of the stock of the party or *amicus curiae* represented by me are: None.
4. The names of all law firms and the partners or associates that appeared for the party or *amicus curiae* now represented by me in the trial court or are expected to appear in this court are:

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<i>Amgen v. Chugai</i> , 1989 WL 169006 *33 (D.Mass. 1989).....	26
<i>Capon v. Esshar</i> , 418 F.3d 1349 (Fed. Cir. 2005).....	19, 20, 21
<i>Carnegie Mellon University v. Hoffmann La-Roche</i> , 148 F.Supp.2d 1004 (N.D.Cal.2001).....	11
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<i>Ex parte Kubin</i> , 2007 WL 2070495 (BPAI 2007).....	12, 13, 14, 18
<i>Falko-Gunter Falkner v. Inglis</i> , 448 F.3d 1357, 1362, 1366 n.10 (Fed. Cir. 2006).....	4
<i>Fiers v. Revel</i> , 984 F.2d 1164, 1171 (Fed. Cir. 1993)	24, 25, 28, 30
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<i>Hybritech Inc. v. Monoclonal Antibodies, Inc.</i> , 802 F.2d 1367 (Fed. Cir. 1986).....	27
<i>In re Bell</i> , 991 F.2d 781 (Fed. Cir. 1993).....	28, 30
<i>In re Deuel</i> , 51 F.3d 1552, 1558 (Fed. Cir. 1995)	28, 30
<i>In re Fisher</i> , 427 F.2d 833, 839 (C.C.P.A. 1970).....	29
<i>In re Kubin</i> , 561 F.3d 1351 Fed. Cir. 2009)	7, 10, 28

<i>In re Smythes</i> , 480 F.2d 1376, 1383 (Cust. & Pat. App. 1973)	25
<i>In re Wallach</i> , 378 F.3d 1330 (Fed. Cir. 2004).....	6, 7, 8, 11
<i>In re Wands</i> , 736 F.2d 1516 (Fed. Cir. 1984)	3, 30
<i>Invitrogen Corp. v. Clontech Laboratories</i> , 429 F.3d 1052 (Fed. Cir 2005).....	17
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<i>Union Oil Company v. Atlantic Richfield</i> , 208 F.3d 989, 997 (Fed. Cir. 2000).....	16

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-----------------------	---------------

Other Authorities

Antony L. Ryan & Roger G. Brooks, <i>Innovation vs. Evasion: Clarifying Patent Rights in Second-Generation Genes and Proteins</i> , 17 BERKELEY TECH. L.J. 1265, 1276–1278 (2002)	18
Synopsis of Application of Written Description Guidelines, http://www.uspto.gov/web/offices/pac/writtendesc.pdf	21
Axe, <i>Extreme functional sensitivity to conservative amino acid changes on enzyme exteriors</i> , J. Mol. Biol. 301(3):5 (2000).....	23
BIOINFORMATICS FOR GENETICISTS Chapter 14 (Michael R. Barnes & Ian C. Gray eds., John Wiley & Sons, Ltd. 2003)	12

Christopher M. Holman and William F. Benisek, <i>Insights into the Catalytic Mechanism and Active Site Environment of C. testosteroni Δ^5-3-Ketosteroid Isomerase as Revealed by Site-Directed Mutagenesis of the Catalytic Base Aspartate-38</i> , <i>Biochemistry</i> 34:14245-53 (1995).....	12, 24
Christopher M. Holman, <i>Is Lilly Written Description a Paper Tiger?: A Comprehensive Assessment of the Impact of Eli Lilly and Its Progeny in the Courts and PTO</i> , 17 <i>Alb. L.J. Sci. & Tech.</i> 1 (2007).....	2, 17, 29
Christopher M. Holman, <i>Protein Similarity Score: A Simplified Version of the BLAST Score as a Superior Alternative to Percent Identity for Claiming Genuses of Related Protein Sequences</i> , 21 <i>Santa Clara Computer & High Tech. L.J.</i> 55 (2004).....	15, 18
Haller et al., <i>A single amino acid substitution in the viral polymerase creates a temperature-sensitive and attenuated recombinant bovine parainfluenza virus type</i> , <i>Virology</i> 288(2):342-50 (2001).....	23
Holman's Biotech IP Blog, <i>Ariad v. Eli Lilly and In Re Kubin: One Federal Circuit Panel Perpetuates the Lilly Written Description Doctrine, While Another Avoids Addressing It</i> , http://holmansbiotechipblog.blogspot.com/search?q=ariad	2
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http://en.wikipedia.org/wiki/Antibody (last visited Oct. 6, 2009).....	9
JEREMY M. BERG ET AL., <i>BIOCHEMISTRY</i> (2002 5 th . Ed.).....	9, 10, 12
Liang, C. et al., <i>Mutations within four distinct gag proteins are required to restore replication of human immunodeficiency virus type 1 after deletion mutagenesis within the dimerization initiation site.</i> , <i>J Virol.</i> 73(8):7014-20 (1999).....	23
Mark D. Janis, <i>On Courts Herding Cats: Contending with the "Written Description" Requirement (and Other Unruly Patent Disclosure Doctrines)</i> , 2 <i>WASH. U. J.L. & POL'Y</i> 55, 106-108 (2000).....	2

Mark A. Lemley & Dan L. Burk, <i>Policy Levers in Patent Law</i> , 89 Va. L.R. 1575, 1652-54 (2003). See generally Holman, <i>Paper Tiger</i> at 18-20	5
MARTIN J. ADELMAN, 3-2 PATENT LAW PERSPECTIVES § 2.9 (2004)	6
Mooers et al., <i>Contributions of all 20 amino acids at site 96 to the stability and structure of T4 lysozyme</i> , <i>Protein Science</i> 18(5):871-80 (2009)	23
Olivares, Isabel et al., <i>Tryptophan scanning mutagenesis of aromatic residues within the polymerase domain of HIV-1 reverse transcriptase: critical role of Phe-130 for p51 function and second-site revertant restoring viral replication capacity</i> , <i>Virology</i> 324(2):400-11 (2004)	23
PROTEIN ENGINEERING AND DESIGN (Sheldon J. Park Jennifer R. Cochran eds., CRC Press 2010)	15, 16
Struhl & Davis, <i>Conservation and DNA Sequence Arrangement of the DNA Polymerase I Gene Region from Klebsiella aerogenes, Klebsiella pneumoniae and Escherichia coli</i> , <i>J. Mol. Biol.</i> 141:343-368 (1980)	20
PTO Written Description Training Materials, http://www.uspto.gov/web/menu/written.pdf	<i>passim</i>
Thompson, Jeremy R. et al., <i>Compensatory capsid protein mutations in cucumber mosaic virus confer systemic infectivity in squash (Cucurbita pepo)</i> , <i>J. Virol.</i> 80(15):7740-3 (2006)	23
Timothy R. Holbrook, <i>Possession in Patent Law</i> , 59 SMU L. Rev. 123, 150-56 (2006)	2
Wang, Yaqing et al., <i>Intra-allelic suppression of a mutation that stabilizes microtubules and confers resistance to colcemid</i> , <i>Biochemistry</i> 43(28):8965-73 (2004)	23

STATEMENT OF INTEREST OF *AMICUS CURIAE*

Amicus curiae is a professor who teaches and write about biotechnology patent law and policy. *Amicus* has a Ph.D. in molecular biology and extensive experience as a scientist and patent attorney working in the biotechnology industry. *Amicus* has no personal interest or stake in the outcome of this case. No part of this brief was authored by counsel for any party, person, or organization besides *amicus*. My sole interest in this case is maintenance and development of a sensible patent system that accurately reflects science and which provides appropriate incentives for innovation, particularly in biotechnology.

ARGUMENT

I. Introduction

Regents of the University of California v. Eli Lilly, 119 F.3d 1559 (Fed. Cir. 1997) established a novel interpretation of the written description requirement, referred to herein as Lilly written description (LWD), which unlike traditional written description applies to originally filed claims. The LWD test for “possession” has in the vast majority of cases been applied in a manner that is essentially redundant with the enablement requirement.¹ As noted by Judge Linn’s concurrence in the case below, the adequacy of Ariad’s disclosure could have been more appropriately assessed using the enablement requirement, and the same outcome might thereby have been arrived at in a more convincing fashion.²

However, LWD can and sometimes does function as a super-enablement requirement for patent claims reciting proteins and DNA sequences. With respect to these claims, LWD has sometimes been applied in a manner that imposes biotechnology-specific requirements of “possession” more stringent than the

¹ Mark D. Janis, *On Courts Herding Cats: Contending with the "Written Description" Requirement (and Other Unruly Patent Disclosure Doctrines)*, 2 WASH. U. J.L. & POL'Y 55, 106-108 (2000); Timothy R. Holbrook, *Possession in Patent Law*, 59 SMU L. Rev. 123, 150-56 (2006); Christopher M. Holman, *Is Lilly Written Description a Paper Tiger?: A Comprehensive Assessment of the Impact of Eli Lilly and Its Progeny in the Courts and PTO*, 17 Alb. L.J. Sci. & Tech. 1 (2007).

² Holman’s Biotech IP Blog, *Ariad v. Eli Lilly and In Re Kubin: One Federal Circuit Panel Perpetuates the Lilly Written Description Doctrine, While Another Avoids Addressing It*, <http://holmansbiotechipblog.blogspot.com/search?q=ariad> (visited October 9, 2009).