



David H. Sherman, Ph.D.

Education

Ph.D., Organic Chemistry Columbia University Advisor: Professor Gilbert Stork	1978-1981 New York, NY
B.A., Chemistry (with honors) University of California, Santa Cruz Research Advisor: Professor Phil Crews	1975-1978 Santa Cruz, CA

Professional Appointments

Associate Dean for Research and Graduate Education (College of Pharmacy)	2011 – present
Co-Founder and Managing Partner, PharmaForensics Laboratories	2009 – present
Co-Founder and President, Alluvium Biosciences Inc.	2009 – present
Hans W. Vahlteich Professor, University of Michigan, Department of Medicinal Chemistry	2007 – present
Professor, University of Michigan, Department of Microbiology & Immunology	2003 – present
Professor, University of Michigan, Department of Chemistry	2003 – present
Director, Center for Chemical Genomics, University of Michigan	2004 – 2011
J. G. Searle Professor, University of Michigan, Department of Medicinal Chemistry	2003 – 2007
Professor, University of Minnesota	2000 – 2003
Founder and Chief Technical Consultant, Acera Biosciences, Inc.	1999 – 2007
Director, Microbiology, Immunology and Cancer Biology Graduate Program	1998 – 2001
Senior Director, ChromaXome Corporation, San Diego, CA	1997
Director, University of Minnesota, Center for Microbial Physiology and Metabolic Engineering	1996 – 1998
Associate Professor, University of Minnesota	1995 – 2000
Assistant Professor, University of Minnesota	1990 – 1995
Research Scientist, John Innes Institute, Norwich, U.K.	1987 – 1990



Research Scientist, Biogen Research Corp., Cambridge, MA	1984 – 1987
Postdoctoral, Massachusetts Institute of Technology, Cambridge, MA (H.N. Eisen)	1982 – 1984
Postdoctoral, Yale University, New Haven, CT (R.E. Handschumacher)	1981 – 1982

Honors and Awards

Charles Thom Award, Society of Industrial Microbiology	2009
A. C. Cope Scholar Award, American Chemical Society	2009
Elected AAAS Fellow	2008
Permanent Member, NIH Synthetic Biological Chemistry B Study Section	2005 – 2009
Procter & Gamble University Exploratory Research Program	1992 – 1995
Eli Lilly Life Sciences Award, Streptomyces genetics	1992
Myron A. Bantrell Postdoctoral Research Fellowship in Molecular Biology	1984 – 1986
National Institutes of Health Postdoctoral Fellowship	1982 – 1984
Pegram Award for Excellence in Graduate Research, Columbia University	1981

Publications [Condensed - 20 of more than 220 total]

1. Stork, G. and **Sherman, D. H.** 1982. "Efficient *de novo* construction of the indanpropionic acid precursor of 11-keto steroids. An improved internal Diels-Alder sequence," *J. Amer. Chem. Soc.* 104:3758-3759.
2. **Sherman, D. H.**, Malpartida, F., Bibb, M. J., Kieser, H. M., Bibb, M. J., and Hopwood, D. A. 1989. "Structure and deduced function of the granaticin-producing polyketide synthase gene cluster from *Streptomyces violaceoruber* Tu22," *EMBO Journal* 8:2717-2725.
3. Xue, Y., L. Zhao, H.-w. Liu and **Sherman, D. H.** 1998. "A gene cluster for macrolide antibiotic biosynthesis in *Streptomyces venezuelae*: Architecture of metabolic diversity." *Proc. Natl. Acad. Sci. USA* 95:12111-12116.
4. He, M., P. Sheldon and **Sherman, D. H.** 2001. "Characterization of a novel quinone reductase activity for the mitomycin C binding protein (MRD): functional switching from a drug activating enzyme to a drug-binding protein. *Proc. Natl. Acad. Sci. USA* 98:926-931.
5. Zhang, Q. and **Sherman, D. H.** 2001. Isolation and structure determination of novamethymycin, a new bioactive metabolite of the methymycin biosynthetic pathway in *Streptomyces venezuelae*. *J. Nat. Prod.* 64:1447-1450.



Publications [cont.]

6. Yoon, Y.J., Beck, B. J., Kim, B.S., Kang, H.-Y., Reynolds, K. A. and **Sherman, D. H.** 2002. Generation of multiple bioactive macrolides by hybrid polyketide synthases in *Streptomyces venezuelae*. *Chem. Biol.* 9:203-214.
7. Aldrich, C. C., Beck, B. J., Fecik, R.A. and **Sherman, D. H.** 2005. Biochemical investigation of pikromycin biosynthesis employing native penta- and hexaketide chain elongation intermediates. *J. Amer. Chem. Soc.* 127:8441-8452.
8. **Sherman, D. H.**, Li, S., Yermalitskaya L.V., Kim Y., Smith J.A., Waterman M.R., and Podust L.M. 2006. The structural basis for substrate anchoring, active site selectivity, and product formation by P450 PikC from *Streptomyces venezuelae*. *J. Biol. Chem.* 281:26289-26297.
9. Kwon S. J., Lee M.-Y., Ku B., **Sherman, D. H.**, and Dordick J. S. 2007. High-throughput, microarray-based synthesis of natural product analogs via in vitro metabolic pathway construction. *ACS Chemical Biology* 2:419-25.
10. Li, S., Podust, L. M. and **Sherman, D. H.** 2007. Engineering and analysis of a self-sufficient biosynthetic cytochrome P450 PikC fused to the RhFRED reductase domain. *J. Amer. Chem. Soc.* 129: 12940-12941.
11. Pflieger, B. F., Kim, Y., Nusca, T. D., Maltseva, N., Lee, J. Y., Rath, C. M., Scaglione, J. B., Janes, B. K., Anderson, A. C., Bergman, N. H., Hanna, P. C., Joachimiak, A., and **Sherman, D. H.** 2008. Structural and functional analysis of AsbF: Origin of the stealth 3,4-dihydroxybenzoic acid subunit for petrobactin biosynthesis. *Proc. Nat'l. Acad. Sci. USA.* 105:17133–17138.
12. Li, H. T., Ung, P. M., Zajkowski, J., Garneau-Tsodikova, S., and **Sherman, D. H.** 2009. Automated genome mining for natural products. *BMC Bioinformatics* 10(1):185.
13. Mortison, J. D., Kittendorf, J. D. and **Sherman, D. H.** 2009. Synthesis and biochemical analysis of complex chain-elongation intermediates for interrogation of the erythromycin and pikromycin modular polyketide synthases. *J. Amer. Chem. Soc.* 131(43):15784-15793.
14. Scaglione, J. B., Akey, D. L., Sullivan, R., Kittendorf, J. D, Rath, C. R., Kim, E.-S., Smith, J. L., and **Sherman, D. H.** 2010. Biochemical and structural characterization of the tautomycetin thioesterase: analysis of a stereoselective polyketide hydrolase. *Angew. Chem. Intl. Ed. Eng.* 49:5726-5730.
15. Carlson, J. C., Li, S., Gunatilleke, S. S., Anzai, Y., Burr, D. A., Podust, L. M., and **Sherman, D. H.** 2011. Tirandamycin biosynthesis is mediated by co-dependent oxidative enzymes. *Nature Chemistry* 3(8):628-633.



Publications [cont.]

16. Rath, C. M., Janto, B., Earl, J., Ahmed, A., Hu, F. Z., Hiller, L., Dahlgren, M., Kreft, R., Yu, F., Wolff, J. J., Kweon, H. K., Christiansen, M. A., Håkansson, K., Williams, R. M., Ehrlich, G. D., **Sherman, D. H.** 2011. Meta-omic characterization of the marine invertebrate microbial consortium that produces the chemotherapeutic natural product ET-743. *ACS Chem. Biol.* 6:1244–1256.
17. Cruz, P.G., Auld, D. S., Schultz, P. J., Lovell, S., Battaile, K. P., MacArthur, R., Shen, M., Tamayo, G., Inglese, J., **Sherman, D. H.** 2011. Titration-based screening for evaluation of natural product extracts: identification of an aspulvinone family of luciferase inhibitors. *Chem. Biol.* 18: 1442-1452.
18. Hansen, D. A., Rath, C. M., Eisman, E. B., Narayan, A. R. H., Kittendorf, J. D., Mortison, J. D., Yoon, Y. J., and **Sherman, D. H.** 2013. Biocatalytic synthesis of pikromycin, methymycin, neomethymycin, novamethymycin, and ketomethymycin. *J. Amer. Chem. Soc.* 135(30):11232-11238.
19. Tripathi, A.; Schofield, M.M.; Chlipala, G.E.; Schultz, P.J.; Yim, I.; Newmister, S.A.; Nusca, T.D.; Scaglione, J.B.; Hanna, P.C.; Tamayo-Castillo, G.; **Sherman, D. H.** 2014. Baulamycins A and B, broad-spectrum antibiotics identified as inhibitors of siderophore biosynthesis in *Staphylococcus aureus* and *Bacillus anthracis*. *J. Amer. Chem. Soc.* 136(4):1579-1586.
20. Dutta, S., Whicher, J. R., Hansen, D. A., Hale, W. A., Chemler, J. A., Congdon, G. R., Narayan, A. R., Håkansson, K., **Sherman, D. H.**, Smith, J. L., and Skiniotis, G. 2014. Structure of a modular polyketide synthase. *Nature* 510(7506):512-517.



For a complete list of Dr. Sherman's publications, click here or visit:
pharmaforensicslabs.com/who-we-are/pharmaforensics-founders/david-sherman/



Summary of Litigation Support/Consulting Services Provided By Dr. Sherman/PF Labs (Completed Engagements) [cont.]

Type of Matter: Augmentin Trade Secret Litigation (GSK v. Biochemie)
Law Firm: Ballard Spahr Andrews & Ingersoll, Paul Hastings, Jonofsky & Walker LLP
Case Name: ITC Inv. No. 337-TA-479
Services Provided: Expert witness and technical consultant
Disposition: Settlement agreement
Date: September 2002 – July 2003

Type of Matter: Augmentin Misappropriation Matter (DSM v. GSK)
Law Firm: Simmons & Simmons, London, United Kingdom
Case Name: Claim No. HCO3CO4495 High Court of Justice, Chancery Division, U.K.
Services Provided: Expert witness and technical consultant
Disposition: Settlement agreement
Date: September 2004 – March 2005

Type of Matter: Chemical Database Litigation (Beilstein v. MDL Information Systems)
Law Firm: Carroll, Burdick and McDonough, LLP
Case Name: US District Court, Northern California C 04-5368 SI
Services Provided: Expert witness and technical consultant
Disposition: Settlement agreement
Date: April 2006 – January 2007

Type of Matter: Patent Litigation (Enzo Biochem & Yale v. Applera and Tropix)
Law Firm: Hunton & Williams LLP/Baker Botts
Case Name: Civil Action No. 3-04-CV-929(JBA)
Services Provided: Expert witness and technical consultant
Disposition: Jury trial
Date: December 2005 – October 2012

Type of Matter: Patent Litigation (Pantoprazole)
Law Firm: Ivor Hughes, Toronto
Case Name: Court File No. T-427-06 Pantoprazole - Canada
Services Provided: Expert witness and technical consultant
Disposition: Settlement agreement
Date: October 2006 – October 2007

Type of Matter: Patent Litigation (Abbott Laboratories and Surmodics Inc. v. Church & Dwight Co., Inc.)
Law Firm: Finnegan
Case Name: Case No. 07 CV 3428
Services Provided: Expert witness and technical consultant
Disposition: Settlement agreement
Date: January 2009 – December 2009



Summary of Litigation Support/Consulting Services Provided By Dr. Sherman/PF Labs (Completed Engagements) [cont.]

Type of Matter:	Patent Litigation (Protonix) Wyeth v. Teva, Sun and Kudco
Law Firm:	Foley Lardner/Knobbe Martens
Case Name:	United States District Court for the District of New Jersey Consolidated Civil Action Nos. 04-2335 (jll) 05-1966 (jll) 05-3290 (jll) & 06-3672 (jll)
Services Provided:	Expert witness and technical consultant
Disposition:	Jury Trial
Date:	January 2008 – April 2010
Type of Matter:	Patent Litigation (Bimatoprost) Allergan v. Barr Laboratories/Teva and Sandoz
Law Firm:	Winston-Strawn/Brinks Hofer - Chicago
Case Name:	United States District Court for the District Of Delaware Consolidated Civil Action No. 09-333-SLR-LPS
Services Provided:	Expert witness and technical consultant
Disposition:	Bench Trial
Date:	September 2010 – February 2011
Type of Matter:	Patent Litigation (Latisse) Allergan, Inc. and Duke University v. Apotex, Sandoz, Hi-Tech Pharmacal
Law Firm:	Steptoe & Johnson - Chicago
Case Name:	In The United States District Court For The Middle District Of North Carolina, Case No. 1:10-CV-681, Case No. 1:11-CV-298, Case No. 1:11-CV-650
Services Provided:	Expert witness and technical consultant
Disposition:	Bench trial
Date:	July 2011 – November 2012
Type of Matter:	Patent Litigation (Gatifloxacin) Senju Pharmaceutical Co. Ltd. Kyorin Pharmaceutical Co., Ltd. and Allergan, Inc. v. Lupin Limited and Lupin Pharmaceuticals, Inc. and Hi-Tech Pharmacal
Law Firm:	Rakoczy - Chicago
Case Name:	In The United States District Court For The District of Delaware, Civil Action No. 11-271 (SLR/MPT) (Consolidated)
Services Provided:	Expert witness and technical consultant
Disposition:	Bench trial
Date:	April 2012 – January 2013



Summary of Litigation Support/Consulting Services Provided By Dr. Sherman/PF Labs (Completed Engagements) [cont.]

Type of Matter: Fluprostenol Litigation: Sandra Pohlman v. Alcon, Ltd.
Law Firm: DF-MP, Munich, Germany
Case Name: EP 0 639 563 (Application No. 94 305 752.1); In the European
Patent Office, Den Haag, Netherlands
Services Provided: Expert witness and technical consultant
Disposition: EPO Hearing
Date: March – June 2013

Type of Matter: Patent Litigation (Enzo Life Science v. Affymetrix)
Law Firm: Greenberg Traurig LLP
Case Name: Case No. 04-CV-01555(RJS), In The United States District Court for the
Southern District of New York
Enzo Life Science v. Affymetrix
Services Provided: Expert witness and technical consultant
Disposition: Deposition
Date: September 2013 – April, 2014