Gabriel Fenteany

Research Scientist/Research & Grants Advisor
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EDUCATION

Ph.D., Biochemistry, 1997, Harvard University, Cambridge, MA (thesis title: Lactacystin, Proteasome Function and Cell Morphology; advisors: Prof. Stuart L. Schreiber and Prof. Elias J. Corey)

M.A., Biochemistry and Molecular Biology, 1992, University of California, Santa Barbara, CA (thesis title: Antibiotic Inhibitors of Protein Synthesis: Relative Efficacy in Larvae of *Haliotis rufescens* (Gastropod Mollusc) and Effects on Larval Settling Behavior; advisor: Prof. Daniel E. Morse)

B.A., Biochemistry, Aquatic Biology, 1990, University of California, Santa Barbara, CA

B.S. equivalent (*license*), Biochemistry, 1989, Université de Franche-Comté, as foreign exchange student from Reed College, Portland, OR (1985 – 1989)

RELEVANT PROFESSIONAL EXPERIENCE

RESEARCH

Research Scientist/Research & Grants Advisor, Research Administration & Data Sciences Research Center, NYC Health + Hospitals, 2016 – present

Research Scientist, Division of Endocrinology, NYC Health + Hospitals/Woodhull and New York University Medical Center, NY, 2015 – present

Associate Professor of Chemistry, University of Connecticut, Storrs, CT, 2006 – 2015

Assistant Professor of Chemistry, University of Illinois, Chicago, IL, 2000 – 2006

Life Sciences Research Foundation Postdoctoral Fellow, Harvard Medical School, Boston, MA, 1997 – 2000

TEACHING

Associate Professor of Chemistry, University of Connecticut, Storrs, CT, 2006 – 2015

- Taught seven semesters of Organic Chemistry I and II (undergraduate classes)
- Taught six semester of Biological Chemistry (graduate class)
- Ran or taught various other seminar and lab research courses

Assistant Professor of Chemistry, University of Illinois, Chicago, IL, 2000 – 2006

- Taught four semesters of Biochemistry I (undergraduate class)
- Taught six semesters of Chemical Biology and Bioorganic Chemistry (graduate class)
- Ran or taught various other seminar and lab research courses

Graduate Teaching Fellow, Harvard University, Cambridge, MA, 1994 – 1996

WEB DEVELOPMENT AND CONTENT CREATION

Creator and Maintainer, The Virtual Library of Biochemistry, Molecular Biology and Cell Biology: http://biochemweb.net, 1999 – present

Creator and Maintainer, Websites for the Divisions of Experimental Medicine and Hematology, Brigham and Women's Hospital, Harvard Medical School, 1998 – 2000

NARRATIVE

I have over 20 years of experience as a professional scientist, with a strong record of influential publications, presentations, and grant funding. I am presently a research scientist and advisor on research and grants for the New York City Health + Hospitals, the largest public healthcare system in the US, where much of my research has centered on neuroendocrinology and cancer biology. Previously, as a university professor, I was the head of a research group that focused on chemical biology, biochemistry, molecular biology, and cell biology, particularly

the discovery of novel modulators of cell migration, the unbiased isolation of their molecular targets, the characterization of protein-small molecule interactions, and the dissection of the pathways controlling cell motility, with an interest in collective cell migration (the understudied but widespread phenomenon whereby cells move together as groups). My group made major contributions to the discovery of novel anti-migratory and pro-migratory agents and to the understanding of the functions of their protein targets and the roles of these proteins in cancer progression, metastasis, wound healing, and related processes. I have mentored 7 post-doctoral fellows, 9 Ph.D. students, 5 M.S. students, 16 undergraduate researchers, one technician, and two high school scholars. I have been the principal investigator on major grants from the National Institutes of Health, the American Cancer Society, and other funding agencies and foundations.

GRANTS

PENDING GRANT

R01AT009703, Fenteany, G. (PI) 09/01/2017–08/30/2022
National Institutes of Health (NCCIH)
Mindfulness Practice to Modulate the Health and Function of the Hypothalamic-Pituitary-Thyroid System
Role: PI Amount: $1,825,000

AWARDED GRANTS

R01GM077622, Fenteany, G. (PI), 06/01/2006 – 05/31/2011 (extension to 05/31/2013)
National Institutes of Health (NIGMS)
Mechanism of Action of New Inhibitors of Cell Migration
Role: PI Amount: $1,295,000

R01GM077622 Supplement, Fenteany, G. (PI), 01/01/2008 – 05/31/2011
National Institutes of Health (NIGMS)
Research Supplements to Promote Diversity in Health-Related Research
Role: PI Amount: $175,252

R01GM077622 Supplement, Fenteany, G. (PI), 09/11/2009 – 08/31/2010 (No-cost extension to 08/31/2012)
National Institutes of Health (NIGMS)
Mechanism of Action of New Inhibitors of Cell Migration
Role: PI Amount: $200,451

Summer Undergraduate Research Fellowship, Lincoln, S.T. (Awardee), 06/2011 – 08/2011
University of Connecticut Role: PI Amount: $3,990

Summer Undergraduate Research Fellowship, Minutolo, N. (Awardee), 06/2011 – 08/2011
University of Connecticut Role: Co-PI with David Knecht Amount: $4,000

University of Connecticut Major Research Equipment Award, Hadden, K. (PI), 10/22/2010
UConn High-Throughput Screening Center
Role: Key Personnel Amount: $221,530

Summer Undergraduate Research Fellowship, Heyse, S.A. (Awardee), 06/2010 – 08/2010
University of Connecticut Role: PI Amount: $2,500

University of Connecticut Intermediate Research Equipment Award, Yao, X. (PI), 12/11/2009
Nano Liquid Chromatography System
Role: Key Personnel Amount: $99,000

UCHC/Storrs and Regional Campus Incentive Grant, Wright, D. (PI), 09/01/2008 – 08/31/2009
A High Throughput Screen (HTS) to Identify Novel Anti-Cancer Agents
Role: Co-PI Amount: $50,000

Summer Undergraduate Research Fellowship, Morse, P.D. (Awardee), 06/2009 – 08/2009
University of Connecticut Role: PI Amount: $3,000

Partnership for Excellence in Structural Biology Research Fellowship
University of Connecticut Partnership for Excellence in Structural Biology
Fenteany, G. (PI); Alexandrescu, A.T. (Co-Investigator), 01/01/2008 – 05/31/2008
Role: PI Amount: $12,735

Partnership for Excellence in Structural Biology Research Fellowship

University of Connecticut Partnership for Excellence in Structural Biology
Gascón, J.A. (PI); Fenteany, G. (Co-Investigator), 08/01/2008 – 12/31/2007
Role: Co-Investigator Amount: $12,735

Summer Undergraduate Research Fellowship, Drozdowicz, L.B. (Awardee), 06/2007 – 08/2007
University of Connecticut Role: PI Amount: $3,000

0722948 (Major Research Instrumentation), Knecht, D.A. (PI), 09/01/2007
National Science Foundation
Acquisition of a Confocal Live Cell Imaging System
Role: Sr. Personnel Amount: $367,305

RSG-02-250-01-DDC, Fenteany, G. (PI), 07/01/2002 – 06/30/2006
American Cancer Society
Probes to Study and Control Cell Motility and Morphogenesis
Role: PI Amount: $650,000

R21CA95177, Fenteany, G. (PI), 04/01/2002 – 03/31/2003
National Institutes of Health (NCI)
Discovery of Drug Targets Controlling Cell Motility
Role: PI Amount: $148,573

Campus Research Board Grant, Fenteany, G. (PI), 07/01/2001 – 06/30/2002
University of Illinois
Small Organic Molecules to Study and Control Cell Motility
Role: PI Amount: $15,000

0091994 (Major Research Instrumentation), Keiderling, T.A (PI), 02/15/2001
National Science Foundation
Purchase of a Departmental Stopped-Flow Equipped Circular Dichroism Spectrometer
Role: Co-Investigator Amount: $112,572

PEER-REVIEWED PUBLICATIONS

Fenteany, G.; Inoue, T.; Bahtiyar, G.; Sacerdote, A. Association of vitamin D repletion with normalization of elevated serum 17-OH progesterone. J. Med. Case Rep., 2017, 3, 29.

Powell, D.; Inoue, T.; Bahtiyar, G.; Fenteany, G; Sacerdote, A. Treatment of nonclassic 11-hydroxylase deficiency with Ashwagandha root. Case Rep. Endocrinol. 2017, Article ID 1869560.

Magpusao, A.N.; Omolloh, G.; Johnson, J.; Gascón, J.; Peczuh, M.W.; Fenteany, G. Cardiac glycoside activities link Na(+)/K(+) ATPase ion-transport to breast cancer cell migration via correlative SAR. ACS Chem. Biol. 2015, 10, 561-569.

Eddy, N.A.; Richardson, J.J.; Fenteany, G. The effect of Lewis acids on the cycloaddition of 3,3,6-trimethylcyclohex-5-ene-1,2,4-trione: hydrogen transfer versus cycloaddition with cyclopentadiene. Eur. J. Org. Chem. 2013, 2013 (23), 5041-5044.

Clark, A.G.; Sider, J.R.; Verbrugghe, K.; Fenteany, G.; von Dassow, G.; Bement, W.M. Identification of small molecule inhibitors of cytokinesis and single cell wound repair. Cytoskeleton 2012, 69, 1010-1020.

Rudnitskaya, A.N.; Eddy, N.A.; Fenteany, G.; Gascón, J.A. Recognition and reactivity in the binding between Raf kinase inhibitor protein and its small-molecule inhibitor locostatin. J. Phys. Chem. B. 2012, 116, 10176-10181.

Ren, G.; Baritaki, S.; Marathe, H.; Feng, J.; Park, S.; Beach, S.; Bazeley, P.S.; Beshir, A.B.; Fenteany, G.; Mehra, R.; Daignault, S.; Al Mulla, F.; Keller, E.; Bonavida, B.; de la Serna, I.; Yeung, K.C. Polycomb protein EZH2 regulates tumor invasion via the transcriptional repression of the metastasis suppressor RKIP in breast and prostate cancer. Cancer Res. 2012, 72, 3091-3104.

Eddy, N.A.; Kelly, C.B.; Mercadante, M.A.; Leadbeater, N.E.; Fenteany, G. Access to dienophilic ene-triketone synthons by oxidation of diketones with an oxoammonium salt. Org. Lett. 2012, 14, 498-501.

Eddy, N.A.; Morse, P.D.; Morton, M.D.; Fenteany, G. Synthesis of oxazolidinone and tosyl enamines by tertiary amine catalysis. Synlett 2011, 5, 699-701.

Beshir, A.B.; Argueta, C.E.; Menikarachchi, L.C.; Gascón, J.A.; Fenteany, G. Locostatin disrupts association of Raf kinase inhibitor protein with binding proteins by modifying a conserved histidine residue in the ligand-binding pocket. Forum Immunopath. Dis. Ther. 2011, 2, 47-58.

Wang, Z.; Castellano, S.; Kinderman, S.S.; Argueta, C.E.; Beshir, A.B.; Fenteany, G.; Kwon, O. Diversity through a branched reaction pathway: generation of a library of sixteen multicyclic scaffolds and identification of antimigratory agents. Chem. Eur. J. 2011, 17, 649-654.
Beshir, A.B.; Ren, G.; Magpusao, A.N.; Barone, L.M.; Yeung, K.C.; Fenteany, G. Raf kinase inhibitor protein suppresses nuclear factor-κB-dependent cancer cell invasion through negative regulation of matrix metalloproteinase expression. Cancer Lett. 2010, 299, 137-149.
Knecht, D.A.; LaFleur, R.; Kahsai, A.W.; Argueta, C.E.; Beshir, A.B.; Fenteany, G. Cucurbitacin I inhibits cell motility by indirectly interfering with actin dynamics. PLoS ONE 2010, 5, e14039.
Magpusao, A.N.; Desmond, R.; Billings, K.J.; Fenteany, G.; Peczuh, M.W. Synthesis and evaluation of antimigratory and antiproliferative activities of lipid-linked [13]-macro-dilactones. Bioorg. Med. Chem. Lett. 2010, 20, 5472-5476.
Kahsai, A.W.; Zhu, S.; Fenteany, G. G protein-coupled receptor kinase 2 activates radixin, regulating membrane protrusion and motility in epithelial cells. Biochim. Biophys. Acta 2010, 1803, 300-310.
Ménoret, A.; McAleer, J.P.; Ngoi, S.-M.; Ray, S.; Eddy, N.A.; Fenteany, G.; Lee, S.-J.; Rossi, R.J.; Mukherji, B.; Allen, D.L.; Chakraborty, N.G.; Vella, A.T. The oxazolidinone derivative locostatin induces cytokine appeasement. J. Immunol. 2009, 183, 7489-7496.
Kahsai, A.W.; Cui, J.; Kaniskan, H.Ü.; Garner, P.P.; Fenteany, G. Analogs of tetrahydroisoquinoline natural products that inhibit cell migration and target galectin-3 outside of its carbohydrate-binding site. J. Biol. Chem. 2008, 283, 24534-24545.
Beshir, A.B.; Guchhait, S.K.; Gascon, J.A.; Fenteany, G. Synthesis and structure–activity relationships of metal–ligand complexes that potently inhibit cell migration. Bioorg. Med. Chem. Lett. 2008, 18, 498-504.
Mc Henry, K.T.; Montesano, R.; Zhu, S.; Beshir, A.B.; Tang, H.H.; Yeung, K.C.; Fenteany, G. Raf kinase inhibitor protein positively regulates cell–substratum adhesion while negatively regulating cell–cell adhesion. J. Cell. Biochem. 2008, 103, 972–985.
Kahsai, A.W.; Zhu, S.; Wardrop, D.J.; Lane, W.S.; Fenteany, G. Quinocarmycin analog DX-52-1 inhibits cell migration and targets radixin, disrupting interactions of radixin with actin and CD44. Chem. Biol. 2006, 13, 973-983.
Farooqui, R.; Zhu, S.; Fenteany, G. Glycogen synthase kinase-3 acts upstream of ADP-ribosylation factor 6 and Rac1 to regulate epithelial cell migration. Exp. Cell Res. 2006, 312, 1514-1525.
Stossel, T.P.; Fenteany, G.; Hartwig, J.H. Cell surface actin remodeling. J. Cell Sci. 2006, 119, 3261-3264.
Zhu, S.; Mc Henry, K.T.; Lane, W.S.; Fenteany, G. A chemical inhibitor reveals the role of Raf kinase inhibitor protein in cell migration. Chem. Biol. 2005, 12, 981-991.
Farooqui, R.; Fenteany, G. Multiple rows of cells behind an epithelial wound edge extend cryptic lamellipodia to collectively drive cell-sheet movement. J. Cell Sci. 2005, 118, 51-63.
Altan, Z.M.; Fenteany, G. c-Jun N-terminal kinase regulates lamellipodial protrusion and cell sheet migration during epithelial wound closure by a gene expression-independent mechanism. Biochem. Biophys. Res. Commun. 2004, 322, 56-67.
Fenteany, G.; Glogauer, M. Cytoskeletal remodeling in leukocyte function. Curr. Opin. Hematol. 2004, 11, 15–24.
Ankala, S.V.; Fenteany, G. Aryl, alkyl bis-silyl ethers: rapid access to monoprotected aryl alkyl and biaryl ethers. Synlett 2003, 6, 825-828.
Fenteany, G.; Zhu, S. Small-molecule inhibitors of actin dynamics and cell motility. Curr. Topics Med. Chem. 2003, 3, 593-616.
Mc Henry, K.T.; Ankala, S.V.; Ghosh, A.K.; Fenteany, G. A non-antibacterial oxazolidinone derivative that inhibits epithelial cell sheet migration. ChemBioChem 2002, 3, 1105-1111.
Ankala, S.V.; Fenteany, G. Selective deprotection of either aryl or alkyl silyl ethers from aryl, alkyl bis-silyl ethers. Tetrahedron Lett. 2002, 43, 4729-4732.
Fenteany, G.; Janmey, P.A.; Stossel, T.P. Signaling pathways and cell mechanics involved in wound closure by epithelial cell sheets. Curr. Biol. 2000, 10, 831-838.
Corey, E.J.; Li, W.Z.; Nagamitsu, T.; Fenteany, G. The structural requirements for inhibition of proteasome function by the lactacystin-derived β-lactone and synthetic analogs. Tetrahedron 1999, 55, 3305-3316.
Fenteany, G.; Schreiber, S.L. Lactacystin, proteasome function, and cell fate. J. Biol. Chem. 1998, 273, 8545-8548.
Degnan, B.M.; Degnan, S.M.; Fenteany, G.; Morse, D.E. A Mox homeobox gene in the gastropod mollusc Haliotis rufescens is differentially expressed during larval morphogenesis and metamorphosis. FEBS Lett. 1997, 411, 119–122.
Craiu, A.; Gaczynska, M.; Akopian, T.; Gramm, C.F.; Fenteany, G.; Goldberg, A.L.; Rock, K.L. Lactacystin and clasto-

lactacystin β-lactone modify multiple proteasome β-subunits and inhibit intracellular protein degradation and major histocompatibility complex class I antigen presentation. J. Biol. Chem. 1997, 272, 13437-13445.

Fenteany, G.; Schreiber, S.L. Specific inhibition of the chymotrypsin-like activity of the proteasome induces a bipolar morphology in neuroblastoma cells. Chem. Biol. 1996, 3, 905-912.

Fenteany, G.; Standaert, R.F.; Lane, W.S.; Choi, S.; Corey, E.J.; Schreiber, S.L. Inhibition of proteasome activities and subunit-specific amino-terminal threonine modification by lactacystin. Science 1995, 268, 726-731.

Fenteany, G.; Standaert, R.F.; Reichard, G.A.; Corey, E.J.; Schreiber, S.L. A β-lactone related to lactacystin induces neurite outgrowth in a neuroblastoma cell line and inhibits cell cycle progression in an osteosarcoma cell line. Proc. Natl. Acad. Sci. USA 1994, 91, 3358-3362.

Fenteany, G.; Morse, D.E. Specific inhibitors of protein synthesis do not block RNA synthesis or settlement of planktonic larvae in a marine gastropod mollusc (*Haliotis rufescens*). Biol. Bull. 1993, 184, 6-14.

PATENTS

Compound libraries made through phosphine-catalyzed annulation/Tebbe/Diels-Alder reactions
US 862403: publication date: Jan. 7, 2014; filing date: Nov. 9, 2012; priority date: Nov. 9, 2011; also published as: US20130143916; Inventors: Ohyun Kwon, Gabriel Fenteany

Inhibitors of animal cell motility and growth
US 7390826: publication date: Jun. 24, 2008; filing date: Oct. 26, 2005; priority date: Jun. 12, 2002; also published as US20030236290, US20060063935, WO2003106437A1; Inventors: Gabriel Fenteany, Arun K. Ghosh, Kevin McHenry, Sudha Ankala, Sarosh Anjum, Shoutian Zhu

Lactacystin analogs
US 6645999: PCT number: PCT/US1996/005072; publication date: Nov. 11, 2003; filing date: Apr. 12, 1996; also published as: CA2217817A1, CN1151787C, CN1187769A, DE69636902D1, DE69636902T2, EP0820283A1, EP0820283A4, EP0820283B1, US5756764, US6147223, US6214862, US6335358, US6458825, WO1996032105A1; Inventors: Gabriel Fenteany, Robert F. Standaert, Timothy F. Jamison, Stuart L. Schreiber

AWARDS AND HONORS

2007	University of Connecticut Undergraduate Student Government Educator of the Year Nominee,
2002–2006	American Cancer Society Research Scholar,
1999–2000	Life Sciences Research Foundation Postdoctoral Fellowship
1999	National Institutes of Health Postdoctoral Fellowship (Declined)
1999	American Lung Association Postdoctoral Fellowship (Declined)
1991–1994	National Defense Science and Engineering Graduate Fellowship,
1990	Election to Phi Beta Kappa
1990	Election to Golden Key National Honor Society
1985	Alice Tweed Tuohy Honors Scholarship, Scholarship Foundation of Santa Barbara

FORMAL GRANT REVIEWING

2011	National Science Foundation – Division of Chemistry
2009	National Institutes of Health – Synthetic and Biological Chemistry B Study Section, *Ad Hoc* Member
2009	National Science Foundation – Integrative Organismal Systems – Animal Developmental Mechanisms
2009	National Institutes of Health, Stage 1 Reviewer for RC1 Challenge Grants
2008	National Science Foundation – Molecular and Cellular Biosciences
2008	American Heart Association Bioengineering 2 Peer Review Study Group
2007	National Science Foundation – Molecular and Cellular Biosciences
2006	National Institutes of Health – Synthetic and Biological Chemistry B Study Section, *Ad Hoc* Member
2003–2006	American Cancer Society
2003	Vahlteich Endowment Research Fund