BRIDGET WAGNER, PH.D.

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EDUCATION

HARVARD UNIVERSITY, Cambridge, MA
Ph.D. in Biochemistry, June 2003. Dissertation, "Multidimensional Approaches to Chemical Genetics." Advisor Stuart L. Schreiber, Ph.D., chair, Department of Chemistry and Chemical Biology.

JEFFERSON MEDICAL COLLEGE, THOMAS JEFFERSON UNIVERSITY, Philadelphia, PA
Two years medical school completed prior to graduate work, 1995-1997. Scored in top 15% on USMLE Step I (National Board Exam). Selected to American Pathology Honors Society. Chair, Student Curriculum Committee.

HARVARD COLLEGE, Cambridge, MA
A.B. cum laude in Biochemical Sciences, June 1995. Harvard National Scholar. Dean's List. Ford Foundation for Undergraduate Research grant winner. Dean's Summer Thesis Research Award winner.

RESEARCH EXPERIENCE

THE BROAD INSTITUTE, Cambridge, MA
Director of Pancreatic Cell Biology and Metabolic Disease, Chemical Biology Program, 2011-present. Leads a team of researchers focused on identifying small molecules to restore beta-cell health and function in the context of type 1 diabetes. Co-Principal Investigator, with Stuart Schreiber, of an Academic R&D grant funded by the Juvenile Diabetes Research Foundation to identify small molecules capable of inducing beta-cell proliferation in human islets. Founding member of the Broad Staff Scientist Development Committee.

THE BROAD INSTITUTE, Cambridge, MA
Group Leader, Pancreatic Cell Biology and Metabolic Disease, Chemical Biology Program, 2008-2011. Leads a team of researchers focused on identifying small molecules to restore beta-cell health and function in the context of type 1 diabetes. Co-Principal Investigator, with Stuart Schreiber, of an Academic R&D grant funded by the Juvenile Diabetes Research Foundation to identify small molecules capable of inducing beta-cell proliferation in human islets. Founding member of the Broad Staff Scientist Development Committee.

THE BROAD INSTITUTE OF HARVARD & MIT, Cambridge, MA
Research Fellow, Chemical Biology Program, 2003-2008. Directed the research activities of three laboratory technicians and one graduate student, with indirect oversight of two postdoctoral fellows and one visiting scientist. Twice managed the lab-wide move of all facilities to new building. Active member of the Broad Chemical Biology Screening Review Committee, responsible for handling external applications for use of high-throughput screening facility. Active member of the Broad Metabolism Initiative Steering Committee, responsible for promoting internal grant applications and selecting invited speakers.

HARVARD UNIVERSITY, Cambridge, MA
Graduate student, Department of Molecular and Cellular Biology, 1997-2003. Developed cell-based assay protocols within the lab for general use of multiple readouts of cellular metabolism. Screened 2000 compounds for their abilities to suppress the activities of multiple tyrosine kinase inhibitors, investigating the structural correlates of the specificity of kinase inhibition.

NATIONAL INSTITUTES OF HEALTH, Bethesda, MD
Summer research intern at National Institute of Allergy and Infectious Disease, 1996. Conducted cell biology and protein biochemistry research in the Laboratory of Immunoregulation (LIR) on the regulators of G protein signaling (RGS). Advisor: John Kehrl, M.D.

BRIGHAM AND WOMEN'S HOSPITAL, Boston, MA
Research intern at the Center for Neurological Diseases, 1993-1995. Conducted molecular biology research studying the neurospecificity of the human tau gene, implicated in the symptoms of Alzheimer's disease. Senior honors thesis in Biochemical Sciences at Harvard College. Advisor: Athena Andreadis, Ph.D.

THOMAS JEFFERSON MEDICAL COLLEGE, Philadelphia, PA
Research assistant at the Cardeza Foundation for Hematological Research, 1992. Performed protein biochemistry and immunohistochemical research characterizing glycoprotein Ib in human platelets. Advisor: Sandor Shapiro, M.D., Ph.D.

TEACHING EXPERIENCE

HARVARD UNIVERSITY, Cambridge, MA
Head Teaching Fellow, Chemistry 201, Organic Synthesis Toward Genomic Medicine, Fall 2008.
Teaching Fellow, Biological Sciences 54, Introduction to Molecular Biology, Fall 2000.
Teaching Fellow, Biological Sciences 11, Biochemistry and Cell Biology, Spring 2000.
Teaching Fellow, Biological Sciences 1, Introductory Genetics, Molecular, Cellular, and Developmental Biology, Spring 1999.

HARVARD UNIVERSITY, Cambridge, MA
Project Leader, MCB 100, Experimental Molecular and Cellular Biology, Fall 2005. Led group of three undergraduates in project to identify small-molecule inducers of adipocyte differentiation.

HARVARD UNIVERSITY, Cambridge, MA
Resident Tutor in Biochemistry, Kirkland House, 1999-2001. In-residence mentor for undergraduates planning careers in science and medicine. Led student-focused drama program.

POSTERS AND INVITED TALKS

Invited speaker, Discovery on Target: Histone Deacetylases, Boston, MA, October 2
Speaker, Cell Symposium: Genetics & Chemistry, Cambridge, MA, May 24
Speaker, Boston-Ithaca Islet Club, Burlington, VT, April 28, 2012
Invited speaker, JDRF-New England chapter annual meeting, Newton, MA, April 10, 2012
Invited speaker, Keystone Symposium on Islet Biology, Monterey, CA, March 25, 2012
Invited speaker, Pfizer-CVMED/Worldwide Medicinal Chemistry, Cambridge, MA, March 21, 2012
Guided Audio Poster tour, American Diabetes Association national meeting, San Diego, CA June 2011
Invited speaker, Boston-Ithaca Islet Club, New Haven, CT, April 16, 2011
Invited speaker, Midsummer Night's Science Lecture, Broad Institute, July 21, 2010
Poster presentation, Keystone Symposium on Islet Biology, Whistler, BC April 2010
Invited speaker, Translational Research focus group, JDRF, December 15, 2009
Invited speaker, American Chemical Society National meeting, Washington, D.C., August 18, 2009
Invited speaker, Drug Discovery & Development Week National meeting, Boston, MA August 4, 2009

Invited speaker, Boston Area Pharmaceutical Toxicity Group, April 8, 2009
Invited lecturer, JDRF-NIDDK Drug Screening Workshop, New York, NY, October 2007
Poster presentation, American Chemical Society national meeting, San Francisco, CA September 2006
Poster presentation, Cold Spring Harbor Laboratory, Biology of Genomes meeting, May 2005

AWARDS AND HONORS

2010 Winner, "Grand Challenges in Chemical Biology" essay competition, *Nature Chemical Biology*
2010 Profiled in NIDDK report to Congress, Special Statutory Funding for Type 1 Diabetes Research
2009 Genome Technology Magazine "Rising Young Investigator"
2008 Type 1 Diabetes Pathfinder Award, NIDDK, NIH
1996 American Pathology Honors Society, Jefferson Medical College, Philadelphia, PA
1994 Dean's Summer Thesis Research Award, Harvard College, Cambridge, MA
1993-5 Ford Foundation for Undergraduate Research Grant, Harvard College, Cambridge, MA
1991 Harvard National Scholar

PROFESSIONAL MEMBERSHIPS

Selection Committee, Lawrence H. Summers Fellowship, Broad Institute, 2011
Selection Committee, Broad Diversity Initiative, Summer Research Program in Genomics, 2010-present
Grants Review Committee, Complications Division, Juvenile Diabetes Research Foundation
American Diabetes Association (ADA), 2008-present
American Association for the Advancement of Science (AAAS), 2005-present
American Chemical Society (ACS), 2005-present

JOURNALISTIC AND MULTIMEDIA EXPERIENCE

HOWARD HUGHES MEDICAL INSTITUTE

Multimedia Coordinator, Holiday Lectures on Science, 2002. Developed concept and hosted video documentary based on chemical genetics.

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION - PULSE

Art Editor, 1996-1997. Served on editorial board of medical student section of *JAMA*. Coordinated art, design, and journalistic editing for international monthly magazine.

THE HARVARD BRAIN / UNDERGRADUATE SOCIETY FOR NEUROSCIENCE

Founding Editor, 1995. Founded undergraduate journal for the neurosciences. One of two undergraduate representatives to the Mind-Brain-Behavior Initiative.

PUBLICATIONS

1. Vetere A and **Wagner BK**. Chemical methods to induce beta-cell proliferation. Intl J Endocrinol 2012; in press.
2. Chou, DH-C, Holson EB, Wagner FF, Tang AJ, Maglathlin RL, Lewis TA, Schreiber SL, and **Wagner BK**. Inhibition of histone deacetylase 3 protects beta cells from cytokine-induced apoptosis. Chem Biol 2012; in press.
3. Hu He KH, Gilbert TJ, Fomina-Yadlin D, and **Wagner BK**. Small molecule-induced beta-cell regeneration from alternate cell sources. Curr Tissue Eng 2012; in press.
4. Yuan Y, Wang Q, Paulk J, Kubicek S, Kemp M, Adams DJ, Shamji AF, **Wagner BK**, and Schreiber SL. A small-molecule probe of the histone methyltransferase G9a induces cellular senscence in pancreatic adenocarcinoma. ACS Chem Biol 2012; published Apr 30.

5. Kubicek S, Gilbert JC, Fomina-Yadlin D, Gitlin AD, Yuan Y, Wagner FF, Holson EB, Luo T, Lewis TA, Taylor B, Gupta S, Shamji AF, **Wagner BK**, Clemons PA, and Schreiber SL. Chromatin-targeting small molecules cause class-specific transcriptional changes in pancreatic endocrine cells. Proc Natl Acad Sci USA 2012; 109:5364-5369. PMCID: PMC3325696
6. Fomina-Yadlin D, Kubicek S, Vetere A, Schreiber SL, and **Wagner BK**. GW8510 increases insulin expression in pancreatic alpha cells through activation of p53 transcriptional activity. PLoS ONE 2012; 7:e28808. PMCID: PMC3252286
7. Walpita D, Hasaka T, Spoonamore S, Vetere A, Takane KK, Fomina-Yadlin D, Fiaschi-Taesch N, Shamji A, Clemons PA, Stewart AF, Schreiber SL, and **Wagner BK**. A human islet cell-culture system for high-throughput screening. J Biomol Screen 2012; 17:509-518. Featured image on issue cover.
8. **Wagner BK**, Gilbert TJ, Hanai JI, Imamura S, Bodycombe NE, Bon R, Waldmann H, Clemons PA, Sukhatme VP, and Mootha VK. A small-molecule screening strategy to identify suppressors of statin myopathy. ACS Chem Biol 2011; 6:900-904. PMCID: PMC3176973
9. Chou DH-C, Duvall JR, Gerard B, Liu H, Pandya BA, Suh BC, Forbeck EM, Faloon P, **Wagner BK**, and Marcaurelle LA. Synthesis of a novel suppressor of β-cell apoptosis via diversity-oriented synthesis. ACS Med Chem Lett 2011; 2:698-702. PMCID: PMC2924935
10. Faloon PW, Chou DHC, Forbeck EM, Walpita D, Morgan B, Buhrlage S, Ting A, Perez J, MacPherson LJ, Duvall JR, Dandapani S, Marcaurelle LA, Munoz B, Palmer M, Foley M, **Wagner B**, and Schreiber SL. Identification of small molecule inhibitors that suppress cytokine-induced apoptosis in human pancreatic islet cells. Probe Reports from the NIH Molecular Libraries Program (Internet). Bethesda (MD): National Center for Biotechnology Information, May 26, 2011.
11. Clemons PA, Wilson JA, Dančík V, Muller S, Carrinski HA, **Wagner BK**, Koehler AN, and Schreiber SL. Quantifying structure and performance diversity for sets of small molecules comprising small-molecule screening collections. Proc Natl Acad Sci USA 2011; 108:6817. PMCID: PMC3084049
12. Bochner BB, Siri M, Huang RH, Noble S, Lei X-H, Clemons PA, and **Wagner BK**. Assay of the multiple energy-producing pathways of mammalian cells. PLoS ONE 2011; 6:e18147. PMCID: PMC3063803
13. Wagner BK. Screening: Low-fat worms on drugs. Nat Chem Biol 2011; 7:194-195.
14. Kim YK, Lee J-S, Bi X, Ha H-H, Ng SH, Ahn Y, **Wagner BK**, Clemons PA, and Chang YT. The binding of fluorophores to proteins depends on the cellular environment. Angew Chemie 2011; 50:2761-2763.
15. **Wagner BK**. Grand Challenge Commentary: Chemical transdifferentiation and regenerative medicine. Nat Chem Biol 2010; 6:877-879.
16. Clemons PA, Bodycombe NE, Carrinski HA, Wilson JA, Shamji AF, **Wagner BK**, Koehler AN, and Schreiber SL. Small molecules of different synthetic and natural origins have distinct distributions of structural complexity that correlate with protein-binding profiles. Proc Natl Acad Sci USA 2010; 107:18787-18792. PMCID: PMC2973913
17. Cancer Target Discovery and Development Network, Schreiber SL, Shamji AF, Clemons PA, Hon C, Koehler AN, Munoz B, Palmer M, Stern AM, **Wagner BK**, Powers S, Lowe SW, Guo X, Krasnitz A, Sawey ET, Sordella R, Stein L, Trotman LC, Califano A, Dalla-Favera R, Ferrando A, Iavarone A, Pasqualucci L, Silva J, Stockwell BR, Hahn WC, Chin L, DePinho RA, Boehm JS, Gopal S, Huang A, Root DE, Weir BA, Gerhard DS, Zenklusen JC, Roth MG, White MA, Minna JD, MacMillan JB, and Posner BA. Towards patient-based cancer therapeutics. Nat Biotechnol 2010; 28:904-906. PMCID: PMC2939009
18. Fomina-Yadlin D, Kubicek S, Walpita D, Dančík V, Hecksher-Sørensen J, Bittker JA, Sharifnia T, Shamji A, Clemons PA, **Wagner BK**, and Schreiber SL. Small-molecule inducers of insulin expression in pancreatic alpha cells. Proc Natl Acad Sci USA 2010; 107:15099-15104. PMCID: PMC2930573

19. Chou DH-C, Bodycombe NE, Carrinski HA, Lewis TA, Clemons PA, Schreiber SL, and **Wagner BK**. Small-molecule suppressors of cytokine-induced beta-cell apoptosis. ACS Chem Biol 2010; 5:729-734. PMCID: PMC2924935
20. **Wagner BK** and Clemons PA. Connecting synthetic chemistry decisions to cell and genome biology using small-molecule phenotypic profiling. Curr Opin Chem Biol 2009; 13:539-548. PMCID: PMC2787914
21. **Wagner BK**, Tolliday NJ, and Clemons PA, Eds. Cell-based assays for high-throughput screening. Methods Mol Biol 2009; vol. 486. Humana Press, Totowa, N.J.
22. **Wagner BK** and Arany Z. High-throughput real-time PCR for detection of gene expression levels. (Book Chapter) Methods Mol Biol 2009; 486:167-175.
23. Tanikawa T, Fridman M, Zhu W, Faulk B, Joseph IC, Kahne D, **Wagner BK**, and Clemons PA. Using biological performance similarity to inform disaccharide library design. J Am Chem Soc 2009; 131:5075-5083. PMCID: PMC2730776
24. Arany Z, **Wagner BK**, Ma Y, Chinsomboon J, Laznik D, and Spiegelman BM. Gene expression-based screening identifies microtubule inhibitors as inducers of PGC-1a and oxidative phosphorylation. Proc Natl Acad Sci USA 2008; 105:4721-4726. PMCID: PMC2290788
25. **Wagner BK**, Carrinski HA, Ahn YH, Kim YK, Gilbert TJ, Fomina DA, Schreiber SL, Chang YT, and Clemons PA. Small-molecule fluorophores to detect cell-state switching in the context of high-throughput screening. J Am Chem Soc 2008; 130:4208-4209.
26. **Wagner BK***, Kitami T*, Gilbert TJ, Peck D, Ramanathan A, Schreiber SL, Golub TR, and Mootha VK. Large-scale chemical dissection of the mitochondrial function. Nat Biotechnol 2008; 26:343-351 (News and Views report in same issue, 26:294-296). PMCID: PMC2715872
27. **Wagner BK**, Haggarty SJ, and Clemons PA. Chemical genomics: probing protein function using small molecules. Am J Pharmacogenomics 2004; 4:313-320.
28. **Wagner BK** and Clemons PA. Dual-purpose drug discovery. Trends Biotech 2002; 20:492-493.
29. **Wagner BK** and Clemons PA. An even-handed approach. Trends Biotech 2001; 20:53.
30. Clemons PA and **Wagner BK**. Hay in a needlestack? Trends Biotech 2001; 19:435-436.
31. **Wagner BK** and Clemons PA. Better signaling through chemistry. Trends Biotech 2001; 19:127.
32. Clemons PA, Koehler AN, **Wagner BK**, Sprigings TG, Spring DR, King RW, Schreiber, SL, and Foley MA. A one-bead, one-stock solution approach to chemical genetics, part two. Chem Biol 2001; 8:1183-1195.
33. Andreadis A, **Wagner BK**, Broderick JA, and Kosik KS. A tau promoter region without neuronal specificity. J Neurochem 1996; 66:2257-2263.

ONGOING RESEARCH SUPPORT

1DP2 DK083048-01 (B.K. Wagner) 09/30/08 – 08/31/13
NIDDK/NIH
TYPE 1 DIABETES PATHFINDER AWARD
Small-molecule approaches to restore glycemic control in type 1 diabetes
Role: Principal Investigator

17-2011-260 (Collombat, Patrick) 12/01/10 – 11/30/13
Juvenile Diabetes Research Foundation
ACADEMIC R&D GRANT
Generation of functional beta-cells from alternative pancreatic cell subtypes
Role: PI of subaward

17-2011-642 (Wagner, B.K.) 11/01/11 – 10/31/13
Juvenile Diabetes Research Foundation

STRATEGIC RESEARCH AGREEMENT WITH SANOFI-AVENTIS
Identification of small-molecule inducers of human beta-cell proliferation
Role: Principal Investigator

COMPLETED RESEARCH SUPPORT

17-2008-1030 (S.L. Schreiber & B.K. Wagner) 11/01/08 – 10/31/10
Juvenile Diabetes Research Foundation
ACADEMIC R&D GRANT
Discovery of small molecules that increase beta-cell mass and function
Role: co-PI