

EMILY DYKHUIZEN CV

ASSISTANT PROFESSOR • PURDUE UNIVERSITY
DEPARTMENT OF MEDICINAL CHEMISTRY AND MOLECULAR PHARMACOLOGY
HANS105, HANSEN LIFE SCIENCES RESEARCH BUILDING
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EDUCATION

University of Wisconsin-Madison, Madison, WI 2002-2008
Ph.D. Chemistry, August 2008
Thesis advisor: Laura L. Kiessling

Reed College, Portland, OR 1997-2001
B. A. Biochemistry and Molecular Biology, May 2001
Thesis advisor: Arthur Glasfeld

RESEARCH AND PROFESSIONAL EXPERIENCE

Purdue University, West Lafayette, IN 2013-current
Assistant Professor, Department of Medicinal Chemistry and Molecular Pharmacology
Deciphering the role of chromatin regulators in tumorigenesis and elucidating therapeutic targets.

Stanford University, Stanford, CA 2009-2013
Postdoctoral Researcher (Crabtree Lab)
Worked in conjunction with scientists at the Broad Institute of MIT and Harvard to screen for and develop small molecule inhibitors for the mammalian SWI/SNF (BAF) chromatin remodeling complex

University of Wisconsin-Madison, Madison, WI Fall 2008
Postdoctoral Researcher (Kiessling Lab)
Worked on an animal model for testing a tumor-killing strategy based on low affinity multivalent interactions

University of Wisconsin-Madison, Madison, WI 2003-2008
Research assistant-Graduate Student (Kiessling Lab)
Developed inhibitors of an enzyme essential for mycobacterial cell growth.

Abbott Laboratories, Abbott Park, IL Summer 2005
Intern-Process Chemistry (under Dr. Martin J. Babcock)
Worked on improvements for the Clarithromycin synthesis from Erythromycin.

Oregon Health Sciences University/Legacy Hospital, Portland, OR 2001-2002
Research Assistant (Stenzel-Poore/Simon Labs)
Studied the role of inflammation in cerebral ischemia and the mechanisms of ischemic tolerance.

Reed College, Portland, OR 2000-2001
Undergraduate research (Glasfeld lab)
Developed a thesis project investigating ways to use enzymes in the organic synthesis of carbocyclic nucleoside analogs.

Stony Brook University, Stony Brook, NY Summer 1999
NSF Fellow, Research Experience for Undergraduates (Fowler lab)
Worked on the preparation of new, layered polydiacetylenes from cocrystals comprised of a guest diacetylene and a host urea.

ACADEMIC AND PROFESSIONAL HONORS

V Foundation for Cancer Research Scholar Award	2014-2016
American Cancer Society Postdoctoral Fellowship	2011-2013
Stanford Pathology Department Retreat Poster Award	2012
NIH-NIGMS NRSA Postdoctoral Fellowship (awarded)	2011
American Chemical Society Medicinal Chemistry Predoctoral Award	2005-2006
Novartis Graduate Fellowship in Organic Chemistry for Minorities and Women (awarded)	2005
NIH Predoctoral Fellow, Biotechnology Training Program	2003-2005, 2006-2007
UW–Madison Graduate School Predoctoral Fellowship	2002-2003
McElvain Fellowship (University of Wisconsin)	2002
Vilas Welcome Award (University of Wisconsin)	2002
Phi Beta Kappa (Reed College)	2001
Certificate of Commendation (Reed College)	2001, 1999, 1998
Robert C. Byrd Honors Scholarship (New York State)	1997-2001

PUBLICATIONS

Connelly KE, and **Dykhuzen EC**. Compositional and functional diversity of canonical PRC1 complexes in mammals. *Biochemica Biophysica Acta - Gene Regulatory Mechanisms*. Submitted.

Porter EG, and **Dykhuzen EC**. "Individual Bromodomains of Polybromo-1 Contribute to Chromatin Association and Tumor Suppression in Clear Cell Renal Carcinoma". *Journal of Biological Chemistry*. In revision.

Dykhuzen EC, Carmody LC, Tolliday NJ. (2016) High throughput screening of small molecule transcriptional regulators in embryonic stem cells using qRT-PCR. From the book "Epigenetics and Gene Expression in Cancer, Inflammatory and Immune Diseases" Springer publishing. In press.

Connelly KE, Martin EC, and **Dykhuzen EC**. (2016) CBX Chromodomain Inhibition Enhances Chemotherapy Response in Glioblastoma Multiforme. *Yale Journal of Biology and Medicine*. In press.

Chowdhury, B, Porter EG, Stewart JC, Ferreira CR, Schipma MJ, **Dykhuzen EC**. (2016) PBRM1 regulates the expression of genes involved in metabolism and cell adhesion in ccRCC. *PLoS ONE* 0153718

Stoszko M, De Crignis E, Rokx C, Khalid MM, Lungu C, Palstra R-J, Kan TW, Boucher C, Verbon A, **Dykhuzen EC**, Mahmoudi T. (2016) Small Molecule Inhibitors of BAF; A Promising Family of Compounds in HIV-1 Latency Reversal. *EBioMedicine* 3 108–121.

Dykhuzen EC*, Hargreaves DC*, Miller, EL, Cui K, Korshunov A, Kool M, Pfister S, Cho Y-J, Zhao K, Crabtree, GR. (2013) BAF Complexes Facilitate Decatenation by Topoisomerase II α . *Nature* 497, 624-627.
*These authors contributed equally to this work

Dykhuzen EC, Carmody L, Tolliday N, Crabtree GR, Palmer MAJ. (2012) Screening for Inhibitors of an Essential Chromatin Remodeler in Mouse Embryonic Stem Cells by Monitoring Transcriptional Regulation. *Journal of Biomolecular Screening* 17, 1221-30.

Dykhuzen EC, Kiessling LL. (2009) Potent Ligands for Prokaryotic UDP-Galactopyranose Mutase that Exploit an Enzyme Subsite. *Organic Letters* 11, 193-196.

Dykhuizen EC, May JF, Tongpenyai A, Kiessling LL. (2008) Inhibitors of UDP-Galactopyranose Mutase Thwart Mycobacterial Growth. *Journal of the American Chemical Society* **130**, 6706-6707.

Carlson CB, Mowery P, Owen RM, **Dykhuizen EC**, Kiessling LL (2007) Selective Tumor Cell Targeting Using Low-Affinity Multivalent Interactions. *ACS Chemical Biology* **2**, 119-127.

Stevens SL, Shaw TE, **Dykhuizen E**, Lessov NS, Hill JK, Wurst W, Stenzel-Poore MP (2003) Reduced Cerebral Injury in CRH-R1 Deficient Mice After Focal Ischemia: A Potential Link to Microglia and Astrocytes That Express CRH-R1. *Journal of Cerebral Blood Flow and Metabolism* **23**, 1151-1159.

PATENTS

Crabtree GR; **Dykhuizen EC**; Hargreaves DC; Kadoch C. Methods of Identifying Cancer Patients. Patent filed May 21, 2014.

Dykhuizen EC; Kiessling LL; May JF. New substituted heteroaromatic compounds useful for inhibiting growth of bacterium or mycobacterium e.g. tuberculosis and treatment of bacterial or mycobacterial infection and other infection in human or non-human animal. US patent 2,010,056,586, filed April 25, 2008, and issued March 4, 2010.

MEETING ABSTRACTS

Marian CA, Leighty MW, Wang L, Crabtree GR, **Dykhuizen EC** (2104) Development of chromatin remodeling inhibitors to investigate and treat a wide spectrum of human cancers. *Abstract for a Poster Presentation*. 37th Steenbock Symposium. Madison, WI.

Marian CA, Leighty MW, Wang L, Crabtree GR, **Dykhuizen EC** (2104) Development of chromatin remodeling inhibitors to investigate and treat a wide spectrum of human cancers. *Abstract for a Talk*. Midwest Chromatin and Epigenetics Meeting. Madison, WI.

Dykhuizen EC, Hargreaves DC, Miller, EL, Cui K, Korshunov A, Kool M, Pfister S, Cho Y-J, Zhao K, Crabtree, GR. (2013) BAF Complexes Facilitate Decatenation by Topoisomerase II α . *Abstract for a Talk and Poster Presentation*. American Association for Cancer Research-Epigenetics and Cancer. Atlanta, GA.

Dykhuizen EC, May, JH, Tongpenyai A, Kiessling, LL. (2007) Development of Mycobacterial Growth Inhibitors that Target UGM. *Abstract for a Poster Presentation*. American Chemical Society National Meeting. Chicago, IL.

Dykhuizen EC, Phillips JH, Kiessling LL. (2006) Searching for Inhibitors of UDP-Sugar Utilizing Enzymes from an Aminothiazole Library. *Abstract for a Talk*. American Chemical Society National Meeting. San Francisco, CA.

Dykhuizen EC, Phillips JH, Kiessling LL. (2005) Synthesis of a 2-Aminothiazole Library in Search of Potential Glycosyltransferase Inhibitors. *Abstract for Poster Presentation*. Medicinal Chemistry Gordon Conference. New London, NH.

INVITED TALKS

2017 NIH-NIEHS, Chapel Hill NC

2016 Indiana University School of Medicine, Department of Biochemistry, Bloomington IN

2015 Purdue University, Department of Chemistry, West Lafayette IN

2014 Chemical Biology Interface Career Symposium, Madison WI

2013 Purdue University, Biochemistry Department, West Lafayette IN
 2013 Purdue University Department of Chemistry, West Lafayette IN
 2013 Purdue University, Medicinal Chemistry and Molecular Pharmacology Department, W. Lafayette IN
 2013 University of Georgia, Biochemistry and Genetics Departments, Athens, GA
 2013 Oregon State University, Chemistry Department, Corvallis, OR
 2008 Stanford University, Pathology Department, Stanford, CA
 2007 University of Wisconsin-Madison, Biotechnology Training Program, Madison WI

TEACHING

Purdue University, West Lafayette, IN 2014-2016
 Lecturer, MCMP204, Organic Chemistry I
 Lecturer, PHRM 864, Integrated Pharmacotherapeutics
 Lecturer, PHRM 824, Pathophysiology and Drug Action

Stanford University, Stanford, CA 2012-2013
Mentoring of a visiting Harvard Medical School Fellow in the Crabtree lab.

University of Wisconsin-Madison, Madison, WI 2006-2008
Mentoring of a visiting Thai undergraduate scholar and subsequent graduate student in the Kiessling lab.

University of Wisconsin-Madison, Madison, WI 2003
Teaching Assistant- Organic Chemistry

University of Wisconsin-Madison, Madison, WI 2002
Teaching Assistant-General Chemistry

Reed College, Portland, OR 2000-2001
Tutor- Individual tutoring and Science Center group help

Reed College, Portland, OR 1998-2000
HHMI funded Biology Outreach- teaching to local public elementary school students

RESEARCH SUPPORT

Current:

Purdue University Startup Funds 2013-2018

V Foundation for Cancer Research Scholar Award 2014-2017
Chromatin targeting by the bromodomains of PBRM1, a tumor suppressor subunit of the P-BAF chromatin remodeling complex

Purdue Cancer Center Research Shared Resource Award 2016
Targeting Epigenetic Regulator CBX8 to Treat Glioblastoma Multiformae

Indiana Clinical and Translational Science Institute Core Pilot Grant 2016-2017
Proteomic Analysis of Polycomb Complex Composition in Glioblastoma

Completed:

Purdue Cancer Center Research Seed Grant Co-PI with Michael Wendt 2016
The Relationship Between SWI/SNF-mediated Chromatin Remodeling and

Epithelial-Mesenchymal Transition in Breast Cancer

American Cancer Society Institutional Grant for Junior Investigators 2014-2015
The role of the bromodomains of PBRM1, a tumor suppressive chromatin targeting subunit of the P-BAF complex.

Ralph W. And Grace M. Showalter Research Trust 2014-2015
Development of chromatin remodeling inhibitors to investigate and treat a wide spectrum of human cancers

Submitted:

NIH NCI R01 2017-2022
The tumor suppressive role of PBRM1, the bromodomain-containing subunit of the PBAF chromatin remodeling complex

American Cancer Society Research Scholar Award 2017-2021
Polybromo1-mediated chromatin binding and tumor suppression in renal cancer

Department of Defense Career Development Award 2017-2020

PERSONNEL

Jane Stewart: Lab Manager/Research Associate	2013-present
Katelyn Connolly: Graduate Student (Medicinal Chemistry and Molecular Pharmacology)	2013-present
Elizabeth Porter: Graduate Student (Purdue University interdisciplinary Life Science)	2014-present
Basudev Chowdhury: Postdoctoral Researcher	2015-present
Aktan Alpsoy: Graduate Student (Purdue University interdisciplinary Life Science)	2015-present
Mikala Hillia: Pharmacy Student research	2016-present
Milan Abramov: Chemical Engineering undergraduate research	2016-present
Emily Martin: High School Student research	2015-2016
Vivianne Morales: Undergraduate work study	2015-2016
Robert Wilson: Undergraduate research	2014-2015
Laura Deemer: Undergraduate research	2014-2015
Olivia: Undergraduate Work Study	2014-2015
Christine Marian: Postdoctoral Researcher	2013-2014
Serene Hsu: Undergraduate Work Study	2013-2014
Madeline Powell: Undergraduate Work Study	2013-2014

CURRENT RESEARCH PROJECTS

The development of chromatin remodeling inhibitors to investigate and treat a wide spectrum of human cancers and reverse HIV latency.

Deciphering the mechanism of oncogenesis by CBX8, a subunit of polycomb repressive complex 1, and developing targeted CBX8-specific inhibitors.

The role of the bromodomains of PBRM1, a chromatin targeting subunit of the P-BAF complex that is frequently mutated in renal clear cell carcinoma.

PROFESSIONAL SOCIETIES

American Chemical Society
American Association for Cancer Research

2005-current
2013-current