

# Matthew S. Bogyo

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## EDUCATION

**Massachusetts Institute of Technology**, Cambridge, MA  
Ph.D. in Biological Chemistry- Department of Chemistry, September 1997  
**Bates College**, Lewiston, ME  
Bachelor of Science in Chemistry, May 1993

## PROFESSIONAL AND ADVISORY POSITIONS

### Positions and Employment

1991-93 Council on Undergraduate Research AIURP Fellow- Bates College, Lewiston, ME  
1993-97 Graduate Student- Massachusetts Institute of Technology, Cambridge, MA.  
1997-98 Post-Doctoral Fellow- Harvard Medical School, Boston, MA  
1998-01 UCSF Faculty Fellow- University of California, San Francisco, San Francisco, CA.  
2001-03 Group Leader, Head of Chemical Proteomics- Celera Genomics, South San Francisco, CA.  
2002- Adjunct Faculty Member – UCSF Department of Pharmaceutical Chemistry  
2003-09 Assistant Professor - Department of Pathology, Stanford University.  
2004-09 Assistant Professor - Department of Microbiology and Immunology, Stanford University.  
2005-09 Assistant Professor by courtesy – Department of Molecular Pharmacology, Stanford University  
2009-13 Associate Professor - Department of Pathology, Stanford University.  
2009-13 Associate Professor - Department of Microbiology and Immunology, Stanford University.  
2009-13 Associate Professor by courtesy – Department of Molecular Pharmacology, Stanford University  
2013- Professor - Department of Pathology, Stanford University.  
2013- Professor - Department of Microbiology and Immunology, Stanford University.  
2013- Professor by courtesy – Department of Molecular Pharmacology, Stanford University

### Other Experience and Professional Memberships

2000-01 Scientific Consultant- Rigel Pharmaceuticals, South San Francisco, CA.  
2000-01 Scientific Consultant- Axys Pharmaceuticals, South San Francisco, CA.  
2002-06 Editorial Board Member – *Biochemical Journal*.  
2003-06 Scientific Consultant- Celera, South San Francisco, CA.  
2011- Scientific Consultant – Calithera Biosciences, South San Francisco, CA  
2011- Academic Editor – *PLoS One*  
2002- Editorial Board Member – *Chemistry and Biology*.  
2002- Editorial Board Member – *Molecular & Cellular Proteomics*.  
2003-10 Scientific Consultant- Proteolix, South San Francisco, CA.  
2005-09 Council Member – International Proteolysis Society  
2005-07 Secretary - International Proteolysis Society  
2007-09 President - International Proteolysis Society  
2005- Faculty Member, Faculty of 1000  
2007-09 Member, DARPA funded Defense Science Study Group  
2007 Vice-Chair, Fifth International Proteolysis Society General Meeting, Petras, Greece  
2011 Co-Organizer, Seventh International Proteolysis Society General Meeting, San Diego, CA  
2008- Co-Founder and Member, Board of Directors – Akrotome Imaging Inc.  
2010- Scientific Advisory Board – Benchfly  
2009 Ad-Hoc Member – SBCB Study Section  
2011, 2012 Ad-Hoc Member – DDR Study Section  
2012, 2014 Ad-Hoc Member – EBIT study Section  
2013 Member of NCI Site Visit External Review Panel

2009 NIH Peer Review – ARRA Challenge Grants  
 2000- Member, American Chemical Society  
 2003- Member of the American Society of Microbiologists  
 2014 Organizer – Keystone Meeting – “The Chemistry and Biology of Cell Death” - Santa Fe, NM  
 2014 Elected member - American Association of University Pathologists – Pluto Club  
 2016 Co Chair – Imaging in 2020 Meeting – Jackson Hole, WI  
 2016 Vice-chair – Gordon Research Conference – “Proteolytic Enzymes and Their Inhibitors”  
 2018 Chair – Gordon Research Conference – “Proteolytic Enzymes and Their Inhibitors”

### AWARDS AND FELLOWSHIPS

**2014** Election to American Association of University Pathologists – Pluto Society  
**2012** Invited to attend NAS Kavli Frontiers of Science Symposium  
**2008** Strategic Program for Asthma Research – Early Excellence Award  
**2005** Burroughs Wellcome Fund – Investigators in Pathogenesis of Infectious Disease Award  
**2004** Searle Scholar Award  
**2003** Recipient of Stanford University Terman Fellowship  
**1995** Recipient of MIT-Japan Science and Technology Prize  
**1992** American Chemical Society-Division of Polymer Chemistry award for organic synthesis  
**1992** American Institute of Chemists award for outstanding performance in chemistry  
**1991–1993** Recipient of pre-doctoral fellowship from Council on Undergraduate Research

### INVITED LECTURES

**Hamline University** – 17<sup>th</sup> 3M/Ronald A. Mitsch Lecture – April 2016  
**University of British Columbia** – Center for Blood Research – Vancouver, Canada Mar 2016  
**University of Rochester** – Department of Chemistry Seminar series – Mar 2016  
**Keystone Meeting** – Drug Discovery for Parasitic Diseases – Lake Tahoe, CA Jan 2016  
**Pacificchem 2015** – National Meeting – Symposium Organizer and speaker, Hawaii, Dec 2015  
**Eli Lilly Inc.** – Invited Speaker – Indianapolis, ID Nov 2015  
**University of Kansas** – Training grant symposium – Keynote Speaker – Nov 2015  
**The Beijing Symposium 2015** - “Frontiers at the Chemistry and Biology Interface” Beijing China Oct 2015  
**14th International Conference on the Chemistry of Antibiotics and Other Bioactive Substances** – Keynote Speaker – Galveston, TX Oct 2015  
**International Proteolysis Society** – 9<sup>th</sup> General Meeting – Penang Malaysia Oct 2015  
**Agensys Inc.** – Invited Lecture – Santa Monica, CA Sept 2015  
**Harvard University** – Department of Microbiology and Immunology Seminar Series – Boston, MA Sept 2015  
**Genentech** – Invited Lecture – South San Francisco, CA Sept 2015  
**World Molecular Imaging Conference** – Optical Surgical Navigation Symposium – Hawaii Sept 2015  
**American Chemical Society** – National Meeting – Symposium Organizer and speaker, Boston, MA Aug 2015  
**20<sup>th</sup> American Peptide Symposium** – Invited Lecture – Orlando, FL June 2015  
**Gordon Conference** – High Throughput Chemistry and Chemical Biology – New London, NH June 2015  
**Gordon Conference** – Bioorganic Chemistry – Andover, NH June 2015  
**University of Minnesota** - 15th Annual NIH Chemistry-Biology Interface Symposium – May 2015  
**University of Georgia** – Department of Cellular Biology – Seminar series, Athens, GA April 2015  
**Pluto Club Meeting** – New Member Induction Lecture – Playa del Carmen, Mexico March 2015  
**GTCBio – Protease Inhibitors in Drug Discovery** – Keynote Lecture, San Diego, CA Feb 2015  
**University Washington** – Department of Global Health, Pathobiology Seminar Series – Seattle, WA Feb 2015  
**Washington University** – Department of Biochemistry and Molecular Biophysics, St. Louis, MO Dec 2014  
**University of Wroclaw** – Department of Chemistry, Invited Speaker, Wroclaw Poland Oct 2014  
**Brazilian Symposium on Chemistry and Physiology of Proteases and their Inhibitors** – Invited speaker. Sao Carlos Brazil, Sept 2014  
**University of Montpellier** – Invited Speaker, Montpellier France Sept 2014  
**28<sup>th</sup> Protein Society annual Symposium** – Invited speaker, San Diego, CA July 2014  
**Gordon Conference** – Proteolytic Enzymes and Their Inhibitors – invited speaker June 2014  
**National ACS of Medicinal Chemistry Meeting** – “Novel Chemistries Keynote” Invited Speaker May 2012  
**24<sup>nd</sup> World Molecular Engineering Network Conference** – Cabo San Lucas Invited Speaker May 2014  
**Northeastern University** – Department of Chemistry Spring colloquium Series – Invited Speaker – April 2014  
**University of Southern California** – Cellular Homeostasis Lecture Series – Invited Speaker- March 2014  
**Chemprobe: COST meeting** – Cambridge, UK – Keynote speaker. March 2014  
**Keystone Meeting** – “The Chemistry and Biology of Cell Death” – Invited Speaker and Organizer – Feb 2014  
**University of California, Berkeley** – Infectious Diseases & Immunity/CEND – Invited speaker – Nov. 2013

**University of California, San Francisco** – Division of Experimental Medicine – Invited Speaker – Nov 2013  
**8<sup>th</sup> General Meeting of the International Proteolysis Society** – Invited Speaker- Cape Town S. Africa – Oct 2013  
**University of Utah** – Department of Biochemistry – Invited speaker – Oct 2013  
**University of Vermont** – Department of Microbiology Retreat – Keynote speaker – Aug 2013  
**12th International Congress on Toxoplasmosis** - Invited speaker, Oxford UK.  
**Genentech**- Seminar and consulting trip – protein science group – June 2013  
**Biogen/Iddec** – Seminar and site visit – April 2013  
**245th American Chemical Society National Meeting**– “Chemical Biology of Infectious Diseases” symposium - New Orleans - April 2013  
**University of South Florida** – Department of Chemistry Seminar – March 2013  
**University of Wisconsin** – Department of Chemistry Seminar – March 2013  
**University of Washington** – Department of Chemistry Seminar – Feb 2013  
**Oregon Health and Science University** – Department of Cell & Developmental Biology seminar – Feb 2013  
**Bowdoin College** – Department of Chemistry Seminar – Feb 2013  
**Bates College** – Department of Chemistry Seminar – Feb 2013  
**AKIRA Project** –symposium “Towards Understanding of Immune Dynamism” Osaka, Japan Oct 2012  
**Gordon Conference** – Biology of Host-Parasite Interactions – invited speaker June 2012  
**Gordon Conference** – Proteolytic Enzymes and Their Inhibitors – invited speaker June 2012  
**Korean Society for Biochemistry and Molecular Biology** – General Meeting – invited speaker May 2012  
**22<sup>nd</sup> World Molecular Engineering Network Conference** – Cabo San Lucas Invited Speaker May 2012  
**University of Minnesota** – Department of Chemistry Seminar Series – invited speaker April 2012  
**American Chemical Society National Meeting** – “Proteases: from Mechanism to Drug Development” Mar 2012  
**Harvard School of Public Health** - “Cellular and Molecular Biology of Parasites” course lecturer – Mar 2012  
**Harvard University** – Department of Chemistry – Invited Speaker Mar 2012  
**University of Vermont** – Department of Microbiology and Molecular Genetics Seminar Series – Mar 2012  
**Case Western University** – Cancer Center Seminar Series – Invited Speaker Mar 2012  
**Gordon Conference** – Plasminogen Activation and Extracellular Proteolysis – invited speaker Feb 2012  
**University of Michigan** – Department of Microbiology and Immunology Seminar Series – Feb 2012  
**Hoffmann La Roche, Basel Switzerland** – Chemistry Frontier Forum – invited lecturer – Jan 2012  
**National Cancer Institute** – Molecular Discovery Program Seminar series – invited lecturer – Nov 2011  
**University of Lausanne** – Lecturer for “Proteases in Health and Disease” course – Nov. 2011  
**University of California, Berkeley** – Infectious Diseases & Microbial Pathogenesis Seminar Series – Sept. 2011  
**University of Queensland** – Institute for Molecular Biosciences – Invited Speaker – Sept. 2011  
**Queensland University of Technology** – Inst. of Health and Biomed. Innovation – Invited Speaker – Sept 2011  
**Nankai University** – College of Life Science, Invited Speaker, Tianjin, China June, 2011  
**Canadian National Proteomics Network Symposium** – Keynote Speaker, Banff, Canada, May 2011  
**Frontiers in Chemical Biology Symposium** – Invited speaker, Shenzhen, China, April 2011  
**SRI international** – Biosciences Division, Invited Speaker, March, 2011  
**Tel Aviv University** – Imaging workshop, Invited Speaker, March, 2011  
**Hebrew University** – Department of Pharmacology Seminar Series, March 2011  
**Yale University** – Chemical Biology Seminar Series, Invited Speaker, March 2011  
**Boston College** – Department of Chemistry Seminar Series, Invited Speaker, Feb, 2010  
**PacificChem 2010** - Molecular Probes and Fluorophores for Cellular Imaging. Invited speaker, Hawaii Dec. 2010  
**Laboratory Medicine Day Theme: Malaria** - University of Lund, Lund Sweden, Nov. 2010  
**EMBO Conference Series – Chemical Biology 2010** – Invited Speaker, Sept. 2010  
**XIIIth Symposium on Proteases, Inhibitors and Biological Control** – Portoroz Slovenia Sept, 2010  
**EFMC-ISMC Symposium on Medicinal Chemistry** – Invited Speaker, Brussels, Belgium, Sept. 2010  
**University of California Santa Cruz** – Dept. of Chemistry retreat – Keynote Speaker, Sept. 2010  
**American Chemical Society** - Division of Biological Chemistry meeting Boston, MA Aug 2010  
**Gordon Conference** – Cell Death, Invited Speaker Newport RI, Aug 2010  
**Netherlands Cancer Institute** – Invited Speaker – Amsterdam, Holland July 2010.  
**IMP Symposium - Seeing more: Emerging Technologies in Microscopy** – Vienna Austria May 2010  
**US HUPO Annual Conference** – Invited Speaker Denver, CO March 2010.  
**Scripps Research Institute** – Structure & Chemistry Affinity Group lecture series – Feb 2010  
**Johns Hopkins University** – School of Public Health Lecture series – Feb 2010  
**Vanderbilt University** – Institute of Chemical Biology seminar series – Dec 2009  
**Novartis Lecture Series** – Invited Speaker, Basel Switzerland Nov 2009  
**Ubiquitin Drug Discovery Meeting** – Invited Speaker, Philadelphia, PA Oct 2009  
**MaIERA Meeting** – 1 of 25 Invited participants, Harvard Medical School Oct 2009  
**Nature Publishing Group SciCafe** – Invited Speaker, San Francisco, CA Sept 2009  
**Imaging in 2020** – Molecular imaging meeting – invited speaker, Jackson, WY Sept 2009

**Korean Society for Microbiology** – International Symposium, Daejeon, Korea, June 2009.  
**FASEB Meetings** - Proteases in Hemostasis and Vascular Biology, Carefree, Az, June 2009.  
**Abbott Research Labs** – Seminar series, Abbott Park, IL – April 2009  
**University of Kentucky** – College of Pharmacy Seminar Series – April 2009.  
**Northwestern University School Medicine** –Gastroenterology Division Lecture Series – March 2009.  
**Mt. Sinai School of Medicine** – Department of Microbiology and Immunology Seminar Series – Dec 2008.  
**National Institutes of Health** – Chemistry seminar series Bethesda, MD November 2008  
**Gordon Conference** – Proteolytic enzymes and their inhibitors - New Hampshire – July 2008  
**Gordon Conference** – Bioorganic Chemistry - New Hampshire – June 2008  
**Department of Molecular Biology** – University of Texas Southwestern Medical Center – Dallas Texas April 2008  
**Max-Planck-Institut für Züchtungsforschung** – Department Seminar – Cologne, Germany – March 2007.  
**Genomes to Systems Conference** - Chemical Genomics: Small molecules with large effects – Manchester, UK March 2007.  
**Lorne Conference on Protein Structure and Function** – Lorne, Victoria, Australia February 2008  
**Department of Microbiology & Immunology** – Albert Einstein College of Medicine – seminar series – Dec 2007  
**Cambridge Healthtech Institute** – in vitro molecular imaging meeting – San Diego November 2008  
**International Proteolysis Society** – General meeting – invited speaker – Petras, Greece Oct. 2007  
**Human Proteome Organization (HUPO)** – 6<sup>th</sup> Annual World Congress – Seoul, Korea Oct. 2007  
**Drug Action and Chemical Biology in the Post-Genomic Era** – Invited speaker – Vienna, Austria Aug 2007  
**Societat Catalana de Biologia** - Perspectives in Genomics and Proteomics – Barcelona, Spain Jul. 2007  
**American Peptide Symposium** – 20<sup>th</sup> National Symposium – Montreal, Canada June 2007  
**Advances in Optics for Biotechnology, Medicine, and Surgery** – Invited Speaker – Naples, FL June 2007  
**Seattle Biomedical Research Institute** - Seattle Parasitology Conference - Seattle, WA – May 2007  
**University of California Riverside** – Dept. of Cell Biology and Neuroscience seminar – Riverside, CA – May 2007  
**Searle Scholars** – Lecture at annual meeting – Chicago, IL April 2007  
**Molecular Cell Biology and Biotechnology seminar series** – Virginia Tech – Feb 2007  
**Department of Pharmacology Seminar** – Yale University – Feb 2007  
**Biochemcial Society** – Proteomics and Proteolysis – London England Jan 2007  
**Department of Chemistry Seminar** - University of California, Berkeley – Nov 2006.  
**Department of Microbiology Seminar** – University of Vermont – Oct 2006  
**American Chemical Society Southwest Regional Meeting** – Invited lecture – Oct 2006  
**5<sup>th</sup> International Conference on Cysteine Proteinases and Their Inhibitors: From structure to regulation and biology** – Portoroz, Slovenia Sept. 2006  
**18<sup>th</sup> International Congress on Fibrinolysis and Proteolysis** – San Diego, CA Aug 2006  
**Gordon Research Conference** – Proprotein Processing, Trafficking & Secretion- July 2006  
**Novartis Institutes for Biomedical Research** – Weekly seminar – Cambridge, MA May 2006  
**University of Iowa** – Bioinformatics lecture series – April 2006  
**Association of Biomolecular Resource Facilities** – Annual Meeting – Long Beach, CA Feb 2006  
**Toxoplasma Infections in the Immune Competent Host-Possible Application to Human Neuropsychiatric Diseases** – Annapolis, MD November 2005  
**University of Southern California** – Chemical Biology Seminar Series – November 2005  
**University of California San Francisco**, Chemistry and Chemical Biology seminar series – Oct 2005  
**International Proteolysis Society** – 4<sup>th</sup> general meeting – Quebec, Canada Oct 2005  
**Society for Molecular Imaging** – 4<sup>th</sup> Annual Meeting – Cologne, Germany Sept 2005  
**University of California San Francisco** –Biophysics/Chemistry & Chemical Biology Seminar Series– Oct 2005  
**IXth International Symposium on Proteinase Inhibitors and Biological Control** – Brdo, Slovenia June 2005  
**Celera Genomics** – Chemistry Department Seminar Series – June 2005  
**American Association for the Study of Liver Diseases** - Functional Genomics and Proteomics of Liver in Health and Diseases – June 2005  
**Genentech** – Invited by Dr. Robert Lazarus Department of Protein Engineering - March 2005  
**Washington University School of Medicine** - Department of Molecular Microbiology Seminar - March 2005  
**Scripps Research Institute** – Molecular and Cell Biology Affinity Group seminar series – November 29, 2004  
**American Society of Microbiologists** - Conference on Functional Genomics and Bioinformatics Approaches to Infectious Disease Research – October 2004  
**Molecular Parasitology Meeting XV** – Woods Hole, MA – September 2004.  
**American Chemical Society** – National Meeting. “Genomic Approaches to Enzymology” – August 2004  
**Gordon Research Conference** – Proteolytic Enzymes and Their Inhibitors - July 2004  
**McGill University** - Chemical Biology/Archibald Macallum Seminar Series – June 2004  
**University of Washington School of Medicine**–Department of Genome Sciences Lecture Series – June 2004  
**Lorne Conference on Protein Structure and Function** – Lorne, Victoria, Australia February 2004  
**Molecular Approaches to Malaria** - Lorne, Victoria, Australia February 2004

**American Society for Cell Biology National Meeting** – Special Session “The interface Between Small Molecule Chemistry and Cell Biology”– December 2003

**International Proteolysis Society - 3<sup>rd</sup> general meeting** - Nagoya, Japan November 2003

**Oregon Health & Sciences University** - Keynote Lecture for Department of Microbiology and Immunology Retreat. November 2003

**Horizon Symposium** - Third Symposium on Proteolysis - Verona, Italy October, 2003

**Genomics on Target** - IBC conference Boston, MA October , 2003

**Proteomics: The Chemical Tools and Challenges** - Churchill College, Cambridge, UK July 2003

**University of Leiden** - Department of Chemistry Seminar Series - May 2003

**University of Pennsylvania Medical School** - George Raizzis seminar series November 2002

**American Association for Cancer Research** – “Ubiquitination in Normal and Cancer Cells” Vancouver, British Columbia. November 2002

**American Association for Cancer Research** – “Proteases, Extracellular Matrix, and Cancer” Hilton Head, South Carolina October 2002

**International Society for Fibrinolysis and Proteolysis** –Munich, Germany September 2002

**American Chemical Society**- National Meeting Boston, Massachusetts August 2002

**Gordon Research Conference**- “Proteolytic enzymes and their inhibitors” July 2002

**ASBMB Annual Meeting**- Experimental Biology 2002, Proteomics section April 2002

**University of British Columbia** - Protein Engineering Network Symposium - March 2002

**Gordon Research Conference**- “Chemistry and Biology of Peptides” February 2002

**International Proteolysis Society - 2<sup>nd</sup> general meeting** - Munich, Germany November 2001

**Israeli Society for Combinatorial Technologies**- Israeli CombiTech Symposium Rehovot, Israel October 2001

**American Chemical Society**- National Meeting Chicago, Illinois August 2001

**5th International Symposium on Mass Spectrometry in the Health and Life Sciences**- "Molecular and Cellular Proteomics" San Francisco, California August 2001

**Merck Research Laboratories** - Rahway, New Jersey July 2001

**7th Brdo Symposium on Proteinase Inhibitors and Biological Control** -Brdo Slovenia June 2001

**Cold Spring Harbor Symposium**- "Proteolysis and Biological Control" May 2001

**University of Munich**- Department of Clinical Biochemistry Munich, Germany February 2001

**Albert-Ludwigs-University Freiburg**- Institute for Molecular Medicine Freiburg, Germany February 2001

**Surface Logix**- Boston, Massachusetts February 2001

**Affimax Research Institute**- Santa Clara, California February 2001

**The Burnham Institute**- La Jolla, California January 2001

**Axys Pharmaceuticals** - South San Francisco, California November 2000

**Rigel Pharmaceuticals** - South San Francisco, California November 2000

**Cysteine Proteinases and their Inhibitors: The new Millennium**- Portoroz, Slovenia September 2000

**Conference of the World Molecular Engineering Network**- Cabo San Jose, Mexico April 2000

**Axys Pharmaceuticals** - South San Francisco, California March 2000

**University of Utah**- Department of Biochemistry March 2000

**The Scripps Research Institute**- November 1999

**American Chemical Society**- Northwest Regional Meeting June 1999

**University of California, San Francisco**-Department of Pharmaceutical Chemistry retreat December 1998

**Gordon Research Conference**- “Proteolytic enzymes and their inhibitors” June 1998

**Janssen-Cilag Club de la Transplantation meeting** - Paris, France October 1997

**American Peptide Symposium** – Nashville, Tennessee June 1997

**Cold Spring Harbor Symposium**- “Biology of Proteolysis” April 1997

**University of California, San Diego** - Department of Pathology March 1997

## **TEACHING**

### **Graduate Programs**

Cancer Biology  
 Microbiology and Immunology  
 Chemical and Systems Biology

### **Training Grants**

Cancer Biology  
 Microbiology and Immunology  
 Chemical and Systems Biology

**CSB 220** – Co-Founder of course with T. Wandless, D. Hershlag, J. Chen “Chemistry of Biological Processes”. Primary Lecturer Fall 2004, Fall 2005. Fall 2007  
**CSB240** – Lecturer Winter 2009, 2010, 2011  
**CSB260** – Lecturer and discussion leader – Spring 2007, 2008  
**BioE222B** – Lecturer Winter 2010, 2011, 2012  
**Bio 241** – Discussion leader Winter 2004, Lecturer Winter 2006, Discussion leader Winter 2006  
**CBio 241** – Lecturer Fall 2003, 2004, 2005, 2006, 2007, 2008, 2009, 2010 2011 Discussion leader Fall 2005  
**CBio 242** – Lecturer Summer 2007, 2008  
**CBio 280** – Discussion leader Spring 2005  
**M&I 210** - Lecturer Winter 2005, 2006, Spring 2007, 2008, 2009, 2010  
**M&I 215** – Lecturer Winter 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012  
**BMI234** – Lecturer Winter 2005, 2007

## PATENTS

1. H. L. Ploegh, H. A. Chapman, **M. Bogyo**, and P.R. Wolf. "Suppression of Immune Responses Via Inhibition of Cathepsin S". Patent number 6608030 issued Aug. 19, 2003.
2. **M. Bogyo**, S.H.L. Verhelst and A.M. Sadaghiani “Design and Synthesis of Novel Cysteine Protease Inhibitors” US Utility Filing 11/762,735.
3. **M. Bogyo**, G. von Degenfeld and G. Blum 'Imaging of Protease Activity in Live Cells Using Activity Based Probes' US patent application 11/502,255.
4. **M. Bogyo** and A. Berger “Selective inhibitors and active site probes of caspases” Utility filing US Patent 12/306,215.
5. **M. Bogyo**, M. Fonovic and S. Verhelst “Mild Chemically Cleavable Linker For Proteomic Applications” Utility filing 12/376,053.
6. **M. Bogyo**, G. Blum, A.B. Berger, Z. Chen, S.S. Gambhir “Use of small molecule activity based probes for radiological imaging of enzyme activity” PCT/US2009/3949.
7. **M. Bogyo**, K.C. Garcia, P. Lupardus, A. Shen “One-step Protein Purification” PCT/US2010/02571.
8. **M. Bogyo**, J.. F. Yin, Lee, L.E. Edgington. “Design of specific inhibitors and active site probes for legumain” PCT/US2010/61109.
9. **M. Bogyo**, A.W. Puri, A. Shen “Small molecule inhibitors of Clostridium difficile toxin” US Provisional Application 61/415,669.
10. **Bogyo**, M. Verdoes, L.E. Edgington “Novel non-peptidic quenched fluorescent imaging probes” US Provisional Application 61/447,526.

## PUBLICATIONS

1. Wenzel, T.J., **Bogyo, M.**, and Lebeau, E., (1994) Lanthanide-cyclodextrin complexes as probes for elucidating optical purity by NMR spectroscopy. *Journal of the American Chemical Society*, 116, 4858-4865.
2. Wiertz, E. J. H. J., Jones, T. R., Sun, L., **Bogyo, M.**, Geuze, H. J., and Ploegh, H. L. (1996) The human cytomegalovirus US11 gene product dislocates MHC class I heavy chains from the endoplasmic reticulum to the cytosol. *Cell*, 84, 769-779.
3. Wiertz, E. J. H. J., Tortorella, D., **Bogyo, M.**, Yu, J., Mothes, W., Jones, T. R., Rapoport, T. A., and Ploegh, H. L. (1996) Sec61-mediated transfer of a membrane protein from the endoplasmic reticulum to the proteasome for destruction. *Nature*, 384, 432-438.

4. Jallepalli, P. and **Bogyo, M.** (1997) A degrading Business: the biology of proteolysis. *Trends in Cell Biology*, 7, 333-335.
5. **Bogyo, M.**, McMaster, J. S., Gaczynska, M., Tortorella, D., A.L. Goldberg and Ploegh, H. L. (1997) Covalent modification of the active site threonine of proteasomal b-subunits and the *Escherichia coli* homologue HsIV by a new class of inhibitors. *Proceedings of the National Academy of Sciences USA*, **94**, 6629-6634.
6. **Bogyo, M.**, Gaczynska, M., Ploegh, H. L. (1997) Proteasome inhibitors and antigen presentation. *Biopolymers Peptide Science*. 47, 269-280.
7. Ruepp, A., Eckerskorn, C., **Bogyo, M.**, and Baumeister, W. (1998) Proteasome function is dispensable under normal but not under heat shock conditions in *Thermoplasma acidophilum*. *FEBS Lett.*, 425, 87-90.
8. Glas, R., **Bogyo, M.**, McMaster, J. S., Gaczynska, M., Ploegh, H. L. (1998) A proteolytic system that compensates for loss of proteasome function. *Nature*, 392, 618-622.
9. **Bogyo, M.**, McMaster, J. S., Shin, S., Ploegh, H. L. (1998) Substrate binding and sequence selectivity of the proteasome revealed by active site directed affinity probes. *Chemistry and Biology*, **5**, 307-320.
10. **Bogyo, M.** and Ploegh, H. L. (1998) A protease draws first blood. *Nature*. 396, 625-27.
11. Selzer, P. M., Pingel, S., Hsieh, I., Ugele, B., Chan, V. J., Engel, J. C., **Bogyo, M.**, Russell, D. G., Sakanari, J. A., and McKerrow, J. H. (1999) Cysteine protease inhibitors as chemotherapy: Lessons from a parasite target. *Proceedings of the National Academy of Sciences, USA*, 96, 11015-11022.
12. Schmidtke, G., Holzhütter, **Bogyo, M.**, Kairies, N., Groll, M., de Giuli, R., Emch, S., and Groettrup, M. (1999) How an inhibitor of the HIV-1 protease modulates proteasome activity. *J. Biol. Chem.*, 274. 35734-35740.
13. **Bogyo, M.**, Verhelst, S., Bellingard-Dubouchaud, V., Tobe, S., and Greenbaum, D. (2000). Selective targeting of lysosomal cysteine proteases with radio-labeled substrate analogs. *Chemistry and Biology*. **7**, 27-38.
14. Caffrey, C.R., Mathieu, M.A., Gaffney, A.M., Salter, J.P., Sajid, M., Lucas, K.D., Franklin, C., **Bogyo, M.**, and McKerrow, J.H. (2000) Identification of a cDNA encoding an active asparaginyl endopeptidase of *Schistosoma mansoni* and its expression in *Pichia pastoris*. *FEBS Letters*. 466. 1-5.
15. Greenbaum, D. Medzihradzky, K.F. Burlingame, A. and **Bogyo, M.** (2000) Epoxide Electrophiles as Activity-Dependent Cysteine Protease Profiling and Discovery Tools. *Chemistry and Biology*, **7**, 569-581.
16. Wang, E., Kessler, B., Borodovsky, A., Cravatt, B., **Bogyo, M.**, Ploegh, H. L., and Glas, R., (2000) Integration of the ubiquitin-proteasome pathway with a cytosolic oligopeptidase activity. *Proceedings of the National Academy of Sciences, USA*, 97, 9990-9995.
17. Weihofen, A., Lemberg, M. K., Ploegh, H., **Bogyo, M.** and Martiglio, B. (2000) Release of signal peptide fragments into the cytosol requires intramembrane cleavage by a protease activity that is specifically blocked by a novel cysteine protease inhibitor. *J. Biol. Chem.*, 275, 30951-30956.
18. Li, J., Gao, J., Ortega, J., Nazif, T., Joss, L., **Bogyo, M.**, Steven, A., and Rechsteiner, M. (2001). Proteasome activation by 11S REG (PA28) homologs: lysine 188 substitutions convert the pattern of proteasome activation by REG  $\gamma$  to that of REGs  $\alpha$  and  $\beta$ . *EMBO J.*, 20, 3359-3369.
19. Nazif, T., and **Bogyo, M.** (2001) Global analysis of proteasomal substrate specificity using positional-scanning libraries of covalent inhibitors. *Proceeding of the National Academy of Sciences, USA*, 98, 2967-2972.
20. Baruch, A., Greenbaum, D., Levy E.T., Nielsen P.A., Gilula, N.B., Kumar, N.M., and **Bogyo, M.** (2001) Defining a link between gap junction communication, proteolysis, and cataract formation. *J. Biol. Chem.*, 276, 28999-29006.
21. Caffrey, C.R., Hansel, E., Lucas, K D., Brinen, L.S., Alvarez Hernandez, A., Cheng, J., Gwaltney, S.L.II, Roush, W.R., Stierhof, Y-D., **Bogyo, M.**, Steverding, D. and McKerrow, J.H. (2001) Active site mapping,

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### Book Chapters

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### Current Funding

#### ACTIVE

R01CA11179253 (Bogyo, PI) 04/01/2014 – 02/28/2019  
NIH (SPO 108971)

Chemical Probes for Specific Targeting of Matrix Metallo Proteases

This revised proposal is focused on our plans to generate probes and apply them to study the function of MMP-14 and MMP-15 in cell morphogenesis and cancer progression. If funded before the end of the existing grants, effort will be reduced on the current R01 grants by 5% each to all for the 25% effort from this grant.

R01GM111703 (Bogyo, PI) 09/01/2014 – 05/31/2018  
NIH

Chemical methods to study protein palmitoylation pathways

This is a new R01 application to follow up on our finding of a protein depalmitoylase as a regulator of parasite invasion. This grant will focus on using new chemical methods to identify and validate specific palmitoylated substrates that are key regulators of cellular processes that are essential for host cell invasion.

R01 AI105106 (Renslo PI) 07/01/2013 – 06/30/2018  
NIH

Chemical Methods for Iron Dependent Drug Delivery and Diagnostics

This is a subcontract on a grant by Dr. Adam Renslo. The focus of the Bogyo aim is to test new classes of drug delivery agents in human malaria parasite cultures.

R21CA190361-01 (Bogyo, Winslow PIs)

08/01/2014 – 07/31/2016

NIH

Multiplexed in vivo drug screening: Inhibitors of metastatic seeding

Overlap: None  
This is a collaborative R21 application focused on the development of an in vivo screening method to identify covalent protease inhibitors that block metastatic seeding of tumors.

**PENDING**

**Overlap:** none