

# Matthew S. Bogyo

Department of Pathology  
Stanford Medical School  
300 Pasteur Drive  
Stanford, CA 94305

(650) 725-4132 (office)  
(415) 516-9636 (cell)  
(650) 261-1389 (home)  
mbogyo@stanford.edu

---

## 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 Ad-Hoc Member – DDR Study Section  
2012 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

## AWARDS AND FELLOWSHIPS

**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 fellowships from Council on Undergraduate Research

## INVITED LECTURES

**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/Idec** – 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  
**Korean Society for Biochemistry and Molecular Biology** – General Meeting – invited speaker May 2012  
**22<sup>nd</sup> World Molecular Engineering Network Conference** – Cano 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  
**PacifiChem 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  
**XIIth Symposium on Proteases, Inhibitors and Biological Control** – Portoroz Slovenia Sept, 2010  
**EFMC-ISMIC 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  
**MalERA 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  
**Biochemical 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 Rohovot, 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  
Quantitative Chemical 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., **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 HslV 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, biochemical properties and subcellular localization of rhodesain, the major cysteine protease of *Trypanosoma brucei* rhodesiense. *Molecular & Biochemical Parasitology*, 118, 61-73.
22. **Bogyo, M.**, and Wang, E.W. (2002) Proteasome Inhibitors: Complex tools for a Complex Enzyme. *Current Topics in Microbiology and Immunology*, 268, 185-208.
23. Mathieu, M.A., **Bogyo, M.**, Caffrey, C.R., Choe, Y., Lee, J., Chapman, H., Sajid, M., Craik, C.S., and McKerrow, J.H. (2002) Substrate specificity of schistosome versus human legumain determined by P1-P3 peptide libraries. *Molecular & Biochemical Parasitology*, 121, 99-105.
24. Greenbaum, D.C., Baruch, A., Hayrapetian, L., Medzihradzsky, K.F., Darula, Z., Burlingame, A., and **Bogyo, M.** (2002) Chemical approaches for functionally probing the proteome. *Mol. Cell. Proteomics*, 1, 60-68.
25. Groll, M., Nazif, T., Huber, R., and **Bogyo, M.** (2002) Probing structural determinants distal to the site of hydrolysis that control substrate specificity of the 20S proteasome. *Chemistry and Biology*, 9, 655-662.
26. Greenbaum, D., Arnold, W., Lu, F., Hayrapetian, L., Baruch, A., Krumrine, J., Toba, S., Chehade, K., Bromme, D., Kuntz, I.D., and **Bogyo, M.** (2002) Small Molecule affinity fingerprinting: a tool for enzyme family sub-classification, target identification, and inhibitor design. *Chemistry and Biology*, 9, 1085-1094.
27. Greenbaum, D., Baruch, A., Grainger, M., Bozdech, Z., Medzihradzsky, K., Engel, J., Holder, T., DeRisi, J., and **Bogyo, M.** (2002) A role for the cysteine protease falcipain 1 in host cell invasion by the malaria parasite, *Plasmodium falciparum*. *Science*, 298, 2002-2006.
28. Kessler, B., Hong, X., Petrovic, J., Borodovsky, A., Dantuma, N.P., **Bogyo, M.**, Overkleeft, H.S., Ploegh, H., and Glas, R. (2003) Pathways accessory to proteasomal proteolysis are less efficient in MHC class I antigen presentation. *J. Biol. Chem.* 278, 10013-21.
29. Mikolajczyk, J., Boatright, K.M., Stennicke, H.R., Nazif, T.M., Potempa, J., **Bogyo, M.**, and Salvesen, G.S. (2003) Sequential autocatalytic processing activates the zymogen of the caspase homolog Arg-gingipain. *J. Biol. Chem.* 278, 10458-64.
30. **Bogyo, M.** and Hurley, J. (2003) Proteomics and Genomics. *Current Opinions in Chemical Biology*. 7, 2-4.
31. Jeffery, D., and **Bogyo, M.** (2003) Chemical proteomics and applications to drug discovery. *Current Opinions in Biotechnology*. 14, 82-86.
32. Wang, C.C., Bozdech, Z., Liu, C., Harris, J., and **Bogyo, M.** (2003) Biochemical analysis of the *Tropanosoma brucei* proteasome. *J. Biol. Chem.* 278, 15800-8.
33. Rozman-Pungercar, J., Kopitar Jerala, N., **Bogyo, M.**, Turk, D., Vasiljeva, O., Stefe, I., Vandenabeele, P., Brömme, D., Puizdar, V., Fonovic, M., Trstenjak-Prebanda, M., Dolenc, I., Turk, V., and Turk, B. (2003) When reaction mechanism is more important than specificity: Inhibition of papain-like cysteine proteases and legumain by "caspase-specific" inhibitors. *Cell Death and Differentiation*, 10, 881-888.
34. Yasothornsrikul, S., Greenbaum, D., Medzihradzsky, K., Toneff, T., Bunday, R., Miller, R., Schilling, B., Petermann, I., Dehnert, J., Logvinova, A., Goldsmith, P., Neveu, J., Lane, W., Gibson, G., Reinheckel, T., Peters, C., **Bogyo, M.**\*, and Hook, V. (2003) Cathepsin L in secretory vesicles functions as a prohormone-processing enzyme for production of the enkephalin peptide neurotransmitter. *Proceedings of the National Academy of Sciences, USA*, 100, 9590-9595. \*Co-Senior Authors.
35. Sajid M., McKerrow J.H., Hansell E., Mathieu M.A., Lucas K.D., Hsieh I., Greenbaum D., **Bogyo M.**, Salter J.P., Lim K.C., Franklin C., Kim J.H., Caffrey C.R. (2003) Functional expression and characterization of *Schistosoma mansoni* cathepsin B and its trans-activation by an endogenous asparaginyl endopeptidase. *Mol. Biochem. Parasitol.*, 131, 65-75.

36. Li, Z., Yasuda, Y., Li, W., **Bogyo, M.**, Katz, N., Gordon, G., Fields, G.B., and Brömme, D. (2004) Regulation of collagenase activities of human cathepsins by glycosaminoglycans. *J Biol Chem.* 279, 5470-5479.
37. Baruch, A., Jeffery D., and **Bogyo, M.** (2004) Enzyme activity – it's all about image. *Trends in Cell Biology.* 14, 29-35.
38. Medzihradzky, K.F., Darula, Z., Perlson, E., Fainzilber, M., Chalkley, R.J., Ball, H., Greenbaum, D., **Bogyo, M.**, Tyson, D.R., Bradshaw, R.A., and Burlingame, A.L. (2004) O-Sulfonation of serine and threonine - mass spectrometric detection and characterization of a new posttranslational modification in diverse proteins throughout the eukaryotes. *Mol. Cell. Proteomics.* 3, 429-440.
39. Goulet, B., Baruch, A., Greenbaum, D., Moon, N.-S., Poirier, M., Erickson, A., **Bogyo, M.\***, and Nepveu, A.\* (2004) A role for the lysosomal cysteine protease cathepsin L in transcriptional regulation in the nucleus. *Molecular Cell.* 14, 207-219.
40. Joyce, J., Baruch, A., Chehade, K., Greenbaum, D., Meyer-Morse, N., Tsai, F-Y., Greenbaum, D., Hager, J., **Bogyo, M.\***, and Hanahan, D.\* (2004) Cathepsin cysteine proteases are effectors of invasive growth and angiogenesis during multistage tumorigenesis. *Cancer Cell.* 5, 443-453. \*Co-Senior Authors.
41. Yasuda Y, Li Z, Greenbaum D, Bogyo M, Weber E, Bromme D. (2004) Cathepsin V: A novel and potent elastolytic activity expressed in activated macrophages. *J Biol Chem.* 279, 36761-36770.
42. Eksi,S., Czesny, B., Greenbaum, D.C., **Bogyo, M.**, and Williamson, K. (2004) Targeted disruption of Plasmodium falciparum cysteine protease, falcipain 1, reduces oocyst production, not erythrocytic stage growth. *Molecular Microbiology.* 53, 243-250.
43. **Bogyo, M.**, Baruch A., Jeffery, D.A., Greenbaum, D., Ovaa, H., Borodovsky, A., and Kessler, B. (2004) Applications of chemical probes of proteolytic activity. *Current Protocols in Protein Science.* Sep;Chapter 21:Unit 21.17
44. Van Der Hoorn RA, Leeuwenburgh MA, **Bogyo M**, Joosten MH, Peck SC. (2004) Activity profiling of papain-like cysteine proteases in plants.*Plant Physiol.* 135, 1170-1178.
45. Oleksy A, Golonka E, Banbula A, Szmyd G, Moon J, Kubica M, Greenbaum D, **Bogyo M**, Foster TJ, Travis J, Potempa J. (2004) Growth phase-dependent production of a cell wall-associated elastinolytic cysteine proteinase by Staphylococcus epidermidis. *Biol Chem.* 385, 525-535.
46. Hook V, Yasothornsrikul S, Greenbaum D, Medzihradzky KF, Troutner K, Toneff T, Bunday R, Logrinova A, Reinheckel T, Peters C, **Bogyo M.** (2004) Cathepsin L and Arg/Lys aminopeptidase: a distinct prohormone processing pathway for the biosynthesis of peptide neurotransmitters and hormones. *Biol Chem.* 385, 473-480.
47. Snipas SJ, Wildfang E, Nazif T, Christensen L, Boatright KM, **Bogyo M**, Stennicke HR, Salvesen GS. (2004) Characteristics of the caspase-like catalytic domain of human paracaspase. *Biol Chem.* 385, 1093-1098.
48. Berger, A.B., Vitorino, P.M., and **Bogyo, M.** (2004) Activity-based protein profiling: applications to biomarker discovery, *in vivo* imaging and drug discovery. *Am. J. of Pharmacogenomics,* 4, 371-381.
49. Borodovsky A, Ovaa H, Meester WJ, Venanzi ES, **Bogyo M**, Hekking BG, Ploegh HL, Kessler BM, Overkleeft HS. (2005) Small-molecule inhibitors and probes for ubiquitin- and ubiquitin-like-specific proteases. *ChemBioChem,* 6, 287-291.
50. Chehade, K.A.H., Baruch, A., Verhelst, S.H.L., and **Bogyo, M.** (2005) An improved preparation of the activity-based probe JPM-OEt and *in situ* applications. *Synthesis,* 2, 240-244.
51. Verhelst, S.H.L., and **Bogyo, M.** (2005) Chemical proteomics applied to target identification and drug discovery. *BioTechniques,* 38, 175-177.
52. Verhelst, S.H.L., and **Bogyo, M.** (2005) Solid Phase Synthesis of double headed epoxysuccinyl activity based probes for selective targeting of papain family cysteine proteases. *ChemBioChem,* 6, 824-827.
53. Phillips, C.I., and **Bogyo, M.** (2005) Proteomics meets microbiology: technical advances in the global mapping of protein expression and function. *Cellular Microbiology* 7(8) 1061-76.

54. Kato, D., Boatright, K.M., Berger, A.B., Nazif, T., Blum, G., Ryan, C., Chehade, K.A.H., Salvesen, G., and **Bogyo, M.** (2005) Activity based probes that target diverse cysteine protease families. *Nature Chemical Biology*. 1, 33-38.
55. Blum, G., Mullins, S.R., Keren, K., Fonovic, Jedeszko, C., Rice, M.J., Sloane, B.F., and **Bogyo, M.** (2005) Dynamic imaging of protease activity with fluorescently quenched activity-based probes. *Nature Chemical Biology*, 1, 203-209.
56. Hook V, Toneff T, **Bogyo M**, Greenbaum D, Medzihradzsky KF, Neveu J, Lane W, Hook G, and Reisine T. (2005) Inhibition of cathepsin B reduces beta-amyloid production in regulated secretory vesicles of neuronal chromaffin cells: evidence for cathepsin B as a candidate beta-secretase of Alzheimer's disease. *Biol. Chem.* 386, 931-940.
57. Kato, D., Verhelst, S.H.L., Sexton, K.B. and **Bogyo, M.** (2005) A General Solid Phase Method for the Preparation of Diverse Azapeptide Probes Directed Against Cysteine Proteases. *Organic Letters*, 7, 5649-5652.
58. **Bogyo M.** (2005) Screening for selective small molecule inhibitors of the proteasome using activity-based probes. *Methods Enzymol.* 399, 609-22.
59. Choe Y., Leonetti F., Greenbaum D.C., Lecaille F., **Bogyo M.**, Bromme D., Ellman J.A., Craik C.S. (2006) Substrate profiling of cysteine proteases using a combinatorial peptide library identifies functionally unique specificities. *J Biol Chem.* 281, 12824-12832.
60. Verhelst, S.H.L., Witte, M.D., Arastu-Kapur, S., Fonovic M., and **Bogyo, M.** (2006) Novel aza peptide inhibitors and active site probes of papain family cysteine proteases. *ChemBioChem*, 7, 943-950.
61. Yuan, F., Verhelst, S., Blum, G., Coussens, L., and **Bogyo, M.** (2006) A selective activity-based probe for the papain family cysteine protease dipeptidyl peptidase I/cathepsin C. *J. Am. Chem. Soc.* 128, 5616-5617.
62. Pan Z, Jeffery DA, Chehade K, Beltman J, Clark JM, Grothaus P, **Bogyo M**, Baruch A. (2006) Development of activity-based probes for trypsin-family serine proteases. *Bioorg. Med. Chem. Lett.* 16, 2882-2885.
63. **Bogyo M.** (2006) Metallo proteases see the light. *Nature Chem. Bio.* 2, 229-230.
64. Vasiljeva O, Papazoglou A, Kruger A, Brodoefel H, Korovin M, Deussing J, Augustin N, Nielsen BS, Almholt K, **Bogyo M**, Peters C, Reinheckel T. (2006) Tumor cell-derived and macrophage-derived cathepsin B promotes progression and lung metastasis of mammary cancer. *Cancer Research*, 66, 5242-5250.
65. Berger A.B., Witte M., Sadaghiani A.M., Sexton K.M.B., Denault J.B., Salvesen G.S., and **Bogyo, M.** (2006) Identification of early intermediates of caspase activation during intrinsic apoptosis using selective inhibitors and activity based probes. *Molecular Cell*, 23, 509-521.
66. Denault, J.B., Bekes M., Sexton K.M.B., Scott F.L., **Bogyo M.**, and Salvesen G.S. (2006) Conformational mobility in the activation of executioner caspases. *Molecular Cell*, 23, 523-533.
67. Sadaghiani, M., Verhelst, S.H.L. and **Bogyo, M.** (2006) Solid phase methods for the preparation of epoxysuccinate-based inhibitors of cysteine proteases. *J. Comb. Chem.* 8, 802-804.
68. Berger, A.B., Sexton, K.B., and **Bogyo, M.** (2006) Commonly used caspase inhibitors designed based on substrate specificity profiles lack selectivity. *Cell Research*, 16, 961-963.
69. Sexton, K.B., Kato, D., Berger, A.B., Fonovic, M., Verhelst, S.H.L., and **Bogyo, M.** (2007) Specificity of aza-peptide electrophile activity based probes of caspases. *Cell Death and Differentiation*. 14, 727-732.
70. Sexton, K.B., Witte, M.D., Blum, G., and **Bogyo, M.** (2007) Design of cell permeable, fluorescent activity based probes of the lysosomal cysteine protease asparaginyl endopeptidase (AEP)/legumain. *Bioorg. Med. Chem.* 17, 649-653.
71. Sadaghiani, A.M., Verhelst, S.H.L. and **Bogyo, M.** (2007) Tagging and detection strategies for activity based proteomics. *Cur. Opin. Chem. Bio.* 11, 20-28.

72. Cuerrier, D., Moldoveanu, T., Campbell, R.L., Kelly, J., Yoruk, B., Verhelst, S.H., Greenbaum, D., **Bogyo, M.**, Davies, P.L. (2007) Development of calpain-specific inactivators by screening of positional-scanning epoxide libraries. *J Biol Chem.* 282, 9600- 9611.
73. Verhelst, S.H.L., Fonovic, M. and **Bogyo, M.** (2007) A mild Chemically Cleavable linker for proteomic applications *Angew. Chem.* 46, 1284-1286.
74. Fonovic, M., and **Bogyo, M.** (2007) Activity based probes for proteases: applications Applications to Biomarker Discovery, Molecular Imaging and Drug Screening. *Curr, Pharm. Des.* 13, 253-261.
75. Teo CF, Zhou XW, **Bogyo, M.**, Carruthers VB. (2007) Cysteine protease inhibitors block *Toxoplasma gondii* microneme secretion and cell invasion. *Antimicrob Agents Chemother.* 51, 679-88.
76. **Bogyo, M** and Cravatt BF. (2007) Genomics and proteomics From genes to function: advances in applications of chemical and systems biology. *Curr Opin Chem Biol.* 11, 1-3.
77. Sojka D, Hajdusek O, Dvorak J, Sajid M, Franta Z, Schneider EL, Craik CS, Vancova M, Buresova V, **Bogyo M**, Sexton KB, McKerrow JH, Caffrey CR, Kopacek P. (2007) IrAE - An asparaginyl endopeptidase (legumain) in the gut of the hard tick *Ixodes ricinus*. *Int J Parasitol.* 37, 713-724.
78. Sadaghiani, A.M., Verhelst, S.H.L., Gocheva, V., Hill, K., Majerova, E., Stinson, S. Joyce, J.A. and **Bogyo, M.** (2007) Design, Synthesis and Evaluation of *in vivo* Potency and Selectivity of Epoxysuccinyl-Based Inhibitors of Papain Family Cysteine Proteases. *Chem. Biol.* 14, 499-511.
79. Rose PP, **Bogyo M**, Moses AV, Fruh K. (2007) Insulin-like Growth Factor II Receptor-mediated intracellular Retention of Cathepsin B is essential for transformation of endothelial cells by Kaposi's sarcoma associated herpesvirus. *J. Virol.* 81, 8050-8062.
80. Burster T, Giffon T, Dahl ME, Bjorck P, **Bogyo M**, Weber E, Mahmood K, Lewis DB, Mellins ED. (2007) Influenza A virus elevates active cathepsin B in primary murine DC. *Int Immunol.* 19, 645-55.
81. Bell-McGuinn, KM, Garfall, AL, **Bogyo, M**, Hanahan, D. and Joyce, JA. (2007) Inhibition of cysteine cathepsin protease activity enhances chemotherapy regimens by decreasing tumor growth and invasiveness in a mouse model of multistage cancer. *Cancer Res.* 67, 7378-7385.
82. Fonović, M., Verhelst, S.H.L., Sorum, M.T., and **Bogyo, M.** (2007) Proteomic evaluation of chemically cleavable activity based probes. *Mol. Cell. Proteomics* 6, 1761-1770.
83. Blum, G., von Degenfeld, G., Merchant, M.J., Blau, H.M., and **Bogyo, M.** (2007) Optical Imaging of Cysteine Protease Activity in Living Subjects Using Quenched Near Infrared Fluorescent Activity Based Probes (NIRF-qABPs). *Nat. Chem. Biol.* 3, 668-677.
84. Goulet B, Sansregret L, Leduy L, **Bogyo M**, Weber E, Chauhan SS, Nepveu A. (2007) Increased expression and activity of nuclear cathepsin L in cancer cells suggests a novel mechanism of cell transformation. *Mol Cancer Res.* 5, 899-907.
85. Ponder EL, **Bogyo M.** (2007) Ubiquitin-like modifiers and their deconjugating enzymes in medically important parasitic protozoa. *Eukaryot Cell.* 6, 1943-52.
86. Arastu-Kapur S., Ponder E.L., Fonovic U., Yeoh S., Yuan F., Fonovic, M., Grainger M., Phillips C.I., Powers J.C., and **Bogyo M.** (2008) A small molecule screen identifies proteases that regulate erythrocyte rupture by the human malaria parasite *Plasmodium falciparum* *Nature Chemical Biology*, 4, 203-213.
87. Paulick MG, **Bogyo M.** (2008) Application of activity-based probes to the study of enzymes involved in cancer progression. *Curr Opin Genet Dev.* 18, 97-106.
88. Yang Z, Fonović M, Verhelst SH, Blum G, **Bogyo M.** (2009) Evaluation of alpha,beta-unsaturated ketone-based probes for papain-family cysteine proteases. *Bioorg Med Chem.* 17, 1071-8
89. Schurigt U, Sevenich L, Vannier C, Gajda M, Schwinde A, Werner F, Stahl A, von Elverfeldt D, Becker AK, **Bogyo M**, Peters C, Reinheckel T. (2008) Trial of the cysteine cathepsin inhibitor JPM-OEt on early and advanced mammary cancer stages in the MMTV-PyMT-transgenic mouse model. *Biol Chem.* 389, 8, 1067-74.

90. Obermajer N, Svajger U, **Bogyo M**, Jeras M, Kos J. (2008) Maturation of dendritic cells depends on proteolytic cleavage by cathepsin X. *J Leukoc Biol.* 84, 1306-1315.
91. Jevnikar Z, Obermajer N, **Bogyo M**, Kos J. (2008) The role of cathepsin X in the migration and invasiveness of T lymphocytes. *J Cell Sci.* 121, 2652-61.
92. Lupardus PJ, Shen A, **Bogyo M**, Garcia KC. (2008) Small molecule-induced allosteric activation of the *Vibrio cholerae* RTX cysteine protease domain. *Science.* 322, 265-8.
93. Shen A, **Bogyo M**. (2008) Friend or foe? Turning a host defense protein into a pathogen's accomplice. *Chem Biol.* 15, 879-80.
94. Fonović M, **Bogyo M**. (2008) Activity-based probes as a tool for functional proteomic analysis of proteases. *Expert Rev Proteomics.* 5, 721-30.
95. Kaschani F, Verhelst SH, van Swieten PF, Verdoes M, Wong CS, Wang Z, Kaiser M, Overkleeft HS, **Bogyo M**, van der Hoorn RA. (2008) Minitags for small molecules: detecting targets of reactive small molecules in living plant tissues using 'click-chemistry' *Plant J.* 57, 373-385.
96. Pungercar JR, Caglic D, Sajid M, Dolinar M, Vasiljeva O, Pozgan U, Turk D, Bogyo M, Turk V, Turk B. (2009) Autocatalytic processing of procathepsin B is triggered by proenzyme activity. *FEBS J.* 276, 660-8.
97. Liz MA, Fleming CE, Nunes AF, Almeida MR, Mar FM, Choe Y, Craik CS, Powers JC, **Bogyo M**, Sousa MM. (2009) Substrate specificity of transthyretin: identification of natural substrates in the nervous system. *Biochem J.* 419, 467-474.
98. Edgington L, Berger AB, Blum G, Albrow VE, Lineberry N, **Bogyo M**. (2009) Imaging apoptosis *in vivo* using caspase-targeted activity based probes, *Nature Medicine*, 15, 967-973
99. Shen A, Lupardus PJ, Albrow VE, Guzzetta A, Powers JC, Garcia KC, **Bogyo M**. (2009) Mechanistic and structural insights into the proteolytic activation of *Vibrio cholerae* MARTX toxin. *Nat Chem Bio*, 24, 469-478.
100. Obermajer N, Jevnikar Z, Doljak B, Sadaghiani AM, **Bogyo M**, Kos J (2009) Cathepsin X-mediated beta2 integrin activation results in nanotube outgrowth. *Cell Mol Life Sci.* 66, 1126-34.
101. Cavallo-Medved D, Rudy D, Blum G, **Bogyo M**, Caglic D, Sloane BF. (2009) Live-cell imaging demonstrates extracellular matrix degradation in association with active cathepsin B in caveolae of endothelial cells during tube formation. *Exp Cell Res.* 315,1234-46.
102. Barbero S, Mielgo A, Torres V, Teitz T, Shields DJ, Mikolon D, **Bogyo M**, Barilà D, Lahti JM, Schlaepfer D, Stupack DG. (2009) Caspase-8 association with the focal adhesion complex promotes tumor cell migration and metastasis. *Cancer Res.* 69, 3755-63.
103. Beckham SA, Piedrafita D, Phillips CI, Samarawickrema N, Law RH, Smooker PM, Quinsey NS, Irving JA, Greenwood D, Verhelst SH, **Bogyo M**, Turk B, Coetzer TH, Wijeyewickrema LC, Spithill TW, Pike RN. (2009) A major cathepsin B protease from the liver fluke *Fasciola hepatica* has atypical active site features and a potential role in the digestive tract of newly excysted juvenile parasites. *Int J Biochem Cell Biol.* 41, 1601-12.
104. Chang SH, Kanasaki K, Gocheva V, Blum G, Harper J, Moses MA, Shih SC, Nagy JA, Joyce J, **Bogyo M**, Kalluri R, Dvorak HF. (2009) VEGF-A induces angiogenesis by perturbing the cathepsin-cysteine protease inhibitor balance in venules, causing basement membrane degradation and mother vessel formation. *Cancer Res.* 69, 4537-44.
105. Larson ET, Parussini F, Huynh MH, Giebel JD, Kelley AM, Zhang L, **Bogyo M**, Merritt EA, Carruthers VB. (2009) *Toxoplasma gondii* cathepsin I is the primary target of the invasion inhibitory compound LHVS. *J Biol Chem.* 284, 26839-50.
106. Puri AW, **Bogyo M**. (2009) Using Small Molecules To Dissect Mechanisms of Microbial Pathogenesis. *ACS Chem Biol.* 4, 603-16.
107. Lee JT, Chen DY, Yang Z, Ramos AD, Hsieh JJ, **Bogyo M**. (2009) Design, syntheses, and evaluation of Taspase1 inhibitors. *Bioorg Med Chem Lett.* 19, 5086-90.

108. Blum G, Weimer RM, Edgington LE, Adams W, **Bogyo M.** (2009) Comparative assessment of substrates and activity based probes as tools for non-invasive optical imaging of cysteine protease activity. *PLoS One* 4(7):e6374.
109. Zhang J, Fonovic M, Suyama K, **Bogyo M,** Scott MP. Rab35 controls actin bundling by recruiting fascin as an effector protein. (2009) *Science* 325, 1250-4.
110. Horn M, Nussbaumerová M, Sanda M, Kovárová Z, Srba J, Franta Z, Sojka D, **Bogyo M,** Caffrey CR, Kopáček P, Mares M. Hemoglobin digestion in blood-feeding ticks: mapping a multipeptidase pathway by functional proteomics. (2009) *Chem. Biol.* 16, 1053-63.
111. Shen A., Lupardus, P.J., Morell, M., Ponder, E.L., Sadaghiani, M., Garcia, K.C., **Bogyo, M.** (2009) Simplified, enhanced protein purification using an inducible, autoprocesing enzyme tag. *PLoS One* 4(12):e8119.
112. Ravindran S, Lodoen MB, Verhelst SH, **Bogyo M,** Boothroyd JC. (2009) 4-bromophenacyl bromide specifically inhibits rhoptry secretion during *Toxoplasma* invasion. *PLoS One.* 4(12):e8143.
113. Drag M, **Bogyo M,** Ellman JA, Salvesen GS. (2010) Aminopeptidase fingerprints, an integrated approach for identification of good substrates and optimal inhibitors. *J Biol Chem.* 2010 Jan 29;285(5):3310-8.
114. **Bogyo M.** (2010) Finding enzymes that are actively involved in cancer. *Proc Natl Acad Sci U S A.* 2010 Feb 9;107(6):2379-80.
115. Lee, J, and **Bogyo, M.** (2010) Development of near-infrared fluorophore (NIRF)-labeled activity-baseprobes for *in vivo* imaging of legumain. *ACS Chem. Bio.* 5(2):233-43.
116. Tedelind S, Poliakova K, Valeta A, Hunegnaw R, Yemanaberhan EL, Heldin NE, Kurebayashi J, Weber E, Kopitar-Jerala N, Turk B, **Bogyo M,** Brix K. (2010) Nuclear cysteine cathepsin variants in thyroid carcinoma cells. *Biol Chem.* 2010 Aug;391(8):923-35.
117. Staudt ND, Aicher WK, Kalbacher H, Stevanovic S, Carmona AK, **Bogyo M,** Klein G. (2010) Cathepsin X is secreted by human osteoblasts, digests CXCL-12 and impairs adhesion of hematopoietic stem and progenitor cells to osteoblasts. *Haematologica.* 2010 May 21. [Epub ahead of print].
118. Konjar S, Yin F, **Bogyo M,** Turk B, Kopitar-Jerala N. (2010) Increased nucleolar localization of SpiA3G in classically but not alternatively activated macrophages. *FEBS Lett.* 2010 Jun 3;584(11):2201-6.
119. Deu E, Yang Z, Wang F, Klemba M, **Bogyo M.** (2010) Use of activity-based probes to develop high throughput screening assays that can be performed in complex cell extracts. *PLoS One.* 2010 Aug 5;5(8). pii: e11985.
120. Deu E, Leyva M, Albrow VE, Rice MJ, Ellman JA, **Bogyo M.** (2010) Functional studies of *Plasmodium falciparum* dipeptidyl aminopeptidase I (DPAP1) using small molecule inhibitors and active site probe. *Chemistry & Biology.* 17, 808-19.
121. Wang F, Krai P, Deu E, Bibb B, Lauritzen C, Pedersen J, **Bogyo M,** Klemba M. (2010) Biochemical characterization of *Plasmodium falciparum* dipeptidyl aminopeptidase 1. *Mol Biochem Parasitol.* Sep 15. [Epub ahead of print].
122. Puri AW, Lupardus, PJ, Deu E, Albrow VA, Garcia KC, **Bogyo M.\*** and Shen A. (2010) Rational Design of Inhibitors and Activity-Based Probes Targeting *Clostridium difficile* Virulence Factor TcdB. *Chemistry and Biology* 17, 1201-2011. \*Senior Author
123. Bowyer PW, Simon GM, Cravatt BF, **Bogyo M.** (2011) Global profiling of proteolysis during rupture of *P. falciparum* from the host erythrocyte. *Mol Cell Proteomics.* 10(5):M110.001636
124. Shen A., Lupardus, P.J., Puri, A.W., Albrow, V.E., Gersch, M.M., Garcia, K.C., and **Bogyo, M.** (2011) Defining an allosteric circuit in the cysteine protease domain of *Clostridium difficile* glucosylating toxins. *Nature Structure and Molecular Biology.* 6: 415-419.

125. Paulick, M and **Bogyo, M.** (2011) Development of Activity-Based Probes for Cathepsin X. *ACS Chem Biol.* 6, 563-572.
126. Mahajan SS, Deu E, Lauterwasser EM, Leyva MJ, Ellman JA, **Bogyo M\***, Renslo AR. (2011) A fragmenting hybrid approach for targeted delivery of multiple therapeutic agents to the malaria parasite. *ChemMedChem.* 6, 415-419. \*Co-senior Author.
127. Ewald SE, Engel A, Lee J, Wang M, **Bogyo M**, Barton GM. (2011) Nucleic acid recognition by Toll-like receptors is coupled to stepwise processing by cathepsins and asparagine endopeptidase. *J Exp Med.* 208, 643-51.
128. Boutté AM, Friedman DB, **Bogyo M**, Min Y, Yang L, Lin PC. (2011) Identification of a myeloid-derived suppressor cell cystatin-like protein that inhibits metastasis. *FASEB J.* 25, 2626-2637.
129. Ponder EL, Albrow VE, Leader BA, Békés M, Mikolajczyk j, Pečar Fonović U, Shen A, Drag M, Xiao J, Deu E, Campbell AJ, Powers JC, Salvesen GS, and **Bogyo M** (2011) Functional characterization of a SUMO deconjugating protease of *Plasmodium falciparum* using newly identified small molecule inhibitors. *Chemistry and Biology*, 18, 711-21.
130. Albrow VE, Ponder EL, Fasci D, Békés M, Deu E, Salvesen GS, and **Bogyo M.** (2011) Development of small molecule inhibitors and probes of human SUMO deconjugating proteases (SENPs). *Chemistry and Biology*, 18, 722-32.
131. Hall CI, Reese M, Weerapana E, Child MA, Bowyer PW, Albrow VE, Haraldsen JG, Phillips MR, Deu E, Ward GE, Cravatt BF, Boothroyd JC, and **Bogyo M.** (2011) A chemical genetic screen identifies Toxoplasma DJ-1 as a regulator of parasite secretion and invasion. *Proc. Natl. Acad. Sci. USA* 108, 10568-73.
132. Li H, Child MA, **Bogyo M.** (2011) Proteases as regulators of pathogenesis: Examples from the apicomplexa. *Biochim Biophys Acta.* Jun 14 Epub ahead of print.
133. Cattaruzza F, Lyo V, Jones E, Pham D, Hawkins J, Kirkwood K, Valdez-Morales E, Ibeakanma C, Vanner SJ, **Bogyo M**, Bunnett NW. (2011). Cathepsin S Is Activated During Colitis and Causes Visceral Hyperalgesia by a PAR(2)-Dependent Mechanism in Mice. *Gastroenterology.* 141, 1864-1874.
134. Kalińska M, Kantyka T, Greenbaum DC, Larsen KS, Władyka B, Jabaiah A, **Bogyo M**, Daugherty PS, Wysocka M, Jaros M, Lesner A, Rolka K, Schaschke N, Stennicke H, Dubin A, Potempa J, Dubin G. (2011) Substrate specificity of Staphylococcus aureus cysteine proteases - Staphopains A, B and C. *Biochimie.* Jun 23 Epub ahead of print.
135. Mikhaylov G, Mikac U, Magaeva AA, Itin VI, Naiden EP, Psakhye I, Babes L, Reinheckel T, Peters C, Zeiser R, **Bogyo M**, Turk V, Psakhye SG, Turk B, Vasiljeva O. (2011) Ferri-liposomes as an MRI-visible drug-delivery system for targeting tumours and their microenvironment. *Nature Nanotechnology.* 6, 594-602.
136. Tedelind S, Jordans S, Resemann H, Blum G, **Bogyo M**, Führer D, Brix K. (2011) Cathepsin B trafficking in thyroid carcinoma cells. *Thyroid Res.* Aug 3;4 Suppl 1:S2.
137. Li J, Hsu HC, Yang P, Wu Q, Li H, Edgington LE, **Bogyo M**, Kimberly RP, Mountz JD. (2011) Treatment of arthritis by macrophage depletion and immunomodulation: Testing an apoptosis-mediated therapy in a humanized death receptor mouse model. *Arthritis Rheum.* Oct 17. Epub ahead of print.
138. Ren G, Blum G, Liu H, Gheysens O, Miao Z, Gambhir S, **Bogyo M**, and Cheng Z. (2011) Non-invasive imaging of cysteine cathepsin activity in solid tumors using a <sup>64</sup>Cu-labeled activity-based probe. *PLoS One.* 6(11):e28029. Epub 2011 Nov 21
139. Edgington LE, Verdoes M, **Bogyo M.** (2011) Functional imaging of proteases: recent advances in the design and application of substrate and activity-based probes. *Current Opinions in Chemical Biology.* 15, 798-805.
140. Deu E, Verdoes M, **Bogyo M.** (2012) New tools for dissecting protease function: implications for inhibitor design, drug discovery and probe development. *Nature Structure and Molecular Biology.* 19, 9-16.
141. Lee J and **Bogyo M.** (2012) Synthesis and evaluation of aza-peptidyl inhibitors of the lysosomal asparaginyl endopeptidase, legumain. *Bioorg. Med. Chem. Lett.* 22, 1340-3.

142. Ferreira KS, Kreutz C, Macnelly S, Neubert K, Haber A, **Bogyo M**, Timmer J, Borner C. (2012) Caspase-3 feeds back on caspase-8, Bid and XIAP in type I Fas signaling in primary mouse hepatocytes. *Apoptosis*. 17,503-15.
143. Withana NP, Blum G, Sameni M, Slaney C, Anbalagan A, Olive MB, Bidwell BN, Edgington L, Wang L, Moin K, Sloane BF, Anderson RL, **Bogyo MS**, Parker BS. (2012) Cathepsin B inhibition limits bone metastasis in breast cancer. *Cancer Res*. 72, 1199-209.
144. Fritz HM, Bowyer PW, **Bogyo M**, Conrad PA, Boothroyd JC. Proteomic analysis of fractionated toxoplasma oocysts reveals clues to their environmental resistance. (2012) *PLoS One*. 2012;7(1):e29955. Epub 2012 Jan 18.
145. Edgington LE, van Raam BJ, Verdoes M, Wierschem C, Salvesen GS, and **Bogyo M** (2012) An optimized activity-based probe for the study of caspase-6 activation. *Chemistry & Biology*. 19, 340-52.
146. Richau KH, Kaschani F, Verdoes M, Pansuriya TC, Niessen S, Stüber K, Colby T, Overkleeft HS, **Bogyo M**, Van der Hoorn RA. (2012) Subclassification and biochemical analysis of plant papain-like cysteine proteases displays subfamily-specific characteristics. *Plant Physiol*. 158, 1583-99.
147. Cutter JL, Cohen NT, Wang J, Sloan AE, Cohen AR, Panneerselvam A, Schluchter M, Blum G, **Bogyo M**, Basilion JP. (2012) Topical Application of Activity-based Probes for Visualization of Brain Tumor Tissue. *PLoS One*. 7(3):e33060.
148. Verdoes M, Edgington LE, Scheeren F, Leyva M, Blum G, Bachman MH, Ellman JA, and **Bogyo M** (2012) A non-peptidic cathepsin S activity-based probe for non-invasive optical imaging of tumor associated macrophages. *Chemistry & Biology*. 9, 619-28.
149. Puri AW, Broz P, Monack D, **Bogyo M**. (2012) An activity-based probe reveals caspase-1 activity is required to bypass apoptosis upon bacterial infection. *Nature Chemical Biology* 8, 745-7.
150. Goussetis DJ, Gounaris E, Wu EJ, Vakana E, Sharma B, **Bogyo M**, Altman JK, Plataniias LC. Autophagic degradation of the BCR-ABL oncoprotein and generation of antileukemic responses by arsenic trioxide. *Blood*. 2012 Aug 16. [Epub ahead of print].
151. Lyo V, Cattaruzza F, Kim TN, Walker AW, Paulick M, Cox D, Cloyd J, Buxbaum J, Ostroff J, Bogyo M, Grady EF, Bunnett NW, Kirkwood KS. Active Cathepsins B, L and S in Murine and Human Pancreatitis. *Am J Physiol Gastrointest Liver Physiol*. 2012, 303, G894-903.
152. Salvesen GS, **Bogyo M**. (2012) Highlight: The universe of proteolytic networks and mechanisms. *Biol Chem*. 393, 841.
153. Sztukowska M, Veillard F, Potempa B, **Bogyo M**, Enghild JJ, Thogersen IB, Nguyen KA, Potempa J. (2012) Disruption of gingipain oligomerization into non-covalent cell-surface attached complexes. *Biol Chem*. 393, 971-7.
154. Misas-Villamil JC, Toenges G, Kolodziejek I, Sadaghiani AM, Kaschani F, Colby T, **Bogyo M**, van der Hoorn RA. Activity profiling of vacuolar processing enzymes reveals a role for VPE during oomycete infection. *Plant J*. Nov 7. doi: 10.1111/tpj.12062. [Epub ahead of print].
155. Stolze SC, Deu E, Kaschani F, Li N, Florea BI, Richau KH, Colby T, van der Hoorn RA, Overkleeft HS, **Bogyo M**, Kaiser M. (2012) The antimalarial natural product symprostatin 4 is a nanomolar inhibitor of the food vacuole falcipains. *Chem Biol*. 19(12):1546-55.
156. Li H, Ponder EL, Verdoes M, Asbjornsdottir KH, Deu E, Edgington LE, Lee JT, Kirk CJ, Demo SD, Williamson KC, **Bogyo M**. (2012) Validation of the proteasome as a therapeutic target in Plasmodium using an epoxyketone inhibitor with parasite-specific toxicity. *Chem Biol*. 19(12):1535-45.
157. Edgington LE, Verdoes M, Ortega A, Withana NP, Lee J, Syed S, Bachmann MH, Blum G, **Bogyo M**. (2013) Functional Imaging of Legumain in Cancer Using a New Quenched Activity-Based Probe. *J Am Chem Soc*. 135(1):174-82

158. Mullins SR, Sameni M, Blum G, **Bogyo M**, Sloane B, Moin K. (2013) Three-dimensional cultures modeling premalignant progression of human breast epithelial cells: role of cysteine cathepsins. *Biol Chem.* 393, 1405-16.
159. Edgington, LE and **Bogyo, M**. (2013) In Vivo Imaging and Biochemical Characterization of Protease Function Using Fluorescent Activity-Based Probes *Current Protocols in Chemical Biology* 5, 1-20.
160. Lu H, Wang Z, Shabab M, Oeljeklaus J, Verhelst SH, Kaschani F, Kaiser M, **Bogyo M**, van der Hoorn RA. (2013) A substrate-inspired probe monitors translocation, activation, and subcellular targeting of bacterial type III effector protease AvrPphB. *Chem Biol.* 20, 168-76.
161. Lee J, **Bogyo M**. (2013) Target deconvolution techniques in modern phenotypic profiling. *Curr Opin Chem Biol.* 17, 118-26.
162. Xiao J, Broz P, Puri AW, Deu E, Morell M, Monack DM, **Bogyo M**. (2013) A coupled protein and probe engineering approach for selective inhibition and activity-based probe labeling of the caspases. *J Am Chem Soc* 135, 9130-8.
163. Morell M, Nguyen Duc T, Willis AL, Syed S, Lee J, Deu E, Deng Y, Xiao J, Turk BE, Jessen JR, Weiss SJ, **Bogyo M**. (2013) Coupling protein engineering with probe design to inhibit and image matrix metalloproteinases with controlled specificity. *J Am Chem Soc.* 135, 9139-48.
164. Godinat A, Park HM, Miller SC, Cheng K, Hanahan D, Sanman LE, **Bogyo M**, Yu A, Nikitin GF, Stahl A, Dubikovskaya EA. (2013) A biocompatible *in vivo* ligation reaction and its application for noninvasive bioluminescent imaging of protease activity in living mice. *ACS Chem Biol.* 8, 987-99.
165. Tanaka TQ, Deu E, Molina-Cruz A, Ashburne MF, Ali O, Suri A, Kortagere S, **Bogyo M**, Williamson KC. Plasmodium dipeptidyl aminopeptidases as malaria transmission blocking drug targets. *Antimicrob Agents Chemother.* 2013 Jul 8. [Epub ahead of print].
166. Gloeckl S, Ong VA, Patel P, Tyndall JD, Timms P, Beagley KW, Allan JA, Armitage CW, Turnbull L, Whitchurch CB, Merdanovic M, Ehrmann M, Powers JC, Oleksyszyn J, Verdoes M, **Bogyo M**, Huston WM. Identification of a serine protease inhibitor which causes inclusion vacuole reduction and is lethal to Chlamydia trachomatis. *Mol Microbiol.* 2013 Jun 25. doi: 10.1111/mmi.12306. [Epub ahead of print].

## Book Chapters

1. **Bogyo M**. and Wang E. (2002) Proteasome Inhibitors: Complex Tools for a Complex Enzyme. The Proteasome-Ubiquitin Proteoin Degradation Pathway. Springer Publishing. Eds. Zwickl P and Baumeister W. p. 185- 208.
2. Dive V, Paulick MG, McIntyre JO, Matrisian LM and **Bogyo M** (2008). Activity-Based Imaging and Biochemical Profiling Tools for Analysis of the Cancer Degradome. *The Cancer Degradome- Proteases and Cancer Biology*. Springer Publishing. Eds. Edwards DR, Hoer-Hansen G, Blasi F, Sloane BF. p. 101-135.
3. Edgington LE and **Bogyo M**. (2010) Applications for Activity-based Probes in Drug Discovery. Royal Society of Chemistry. Ed. Bunage M. P. 33-63.