

Personal Information

- Name: **Qunzhao Wang**
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Education

- Doctor of Philosophy 1997-2001
Major: Organic Synthesis
Duquesne University (Pittsburgh, PA)
Thesis Topic: Unsaturated Nitriles: Chelation-Controlled Conjugate Additions
Supervisor: Professor Fraser F. Fleming

- Master of Science 1993-1996
Major: Polymer Chemistry
Zhongshan University (Guangzhou, P. R. China)
Thesis Topic: Relation between Structure and Properties of Biaxial Oriented Polypropylene (BOPP) Capacitor Films
Supervisor: Professor Shaohui Huang

- Bachelor of Science 1987-1991
Major: Chemistry
Beijing University (Beijing, P. R. China)

Professional Experience - *Employment History*

Research Assistant Professor, School of Pharmacy, University of North Carolina at Chapel Hill, 2008- present

- Develop methods for light-activable RBC based drug or peptide delivery
- Develop an optimized peptide substrate for measuring protein kinase B activity in single cells
- Develop multicolor sensors for monitoring proteasome's chymotrypsin-, trypsin-, and caspase-like activities simultaneously
- Develop near-red fluorescent sensors for LynB kinase
- Develop fluorescent reporters to monitor two kinases at the same time.
- Develop selective reporters for Abl kinase.

Summary:

Successfully developed an optimized peptide substrate for measuring protein kinase B activity in single cells with the collaboration of Allbritton group, and developed three sensors for monitoring proteasome's chymotrypsin-, trypsin-, and caspase-like

activities simultaneously. In the process develop methods for light-activable RBC based drug delivery.

Research Associate, Albert Einstein College of Medicine, 2003- 2007

- Develop and Synthesis of fluorescent reporters for real time visualization of tyrosine kinase in living cells

Post Doctoral Associate, Cornell University, 2001–2003

- Develop multicomponent condensation reaction preparing di-substituted and tri-substituted oxazoles with isocyanides

Graduate Research Assistant and Teaching Assistant, Duquesne University, 1997–2001

- Developed a convenient synthesis of hydroxylated α , β -unsaturated nitriles; a chelation-controlled, stereoselective conjugate addition of Grignard reagents to α , β -unsaturated; Explored the synthesis of the matrine alkoxide leontalbinine through radical and cationic cyclizations

Chemical Engineer, Gaoming Second Plastics Holding Shares Ltd., China, 1996–1997

- Investigated the use of pigments in the production of PVC (polyvinyl chloride) roll film

Lecturer in Chemistry, Hunan Provincial Zijiang Chemical Industry College, Lengshuijiang, P. R. China, 1991–1993

Presentations

- “Multicolor Monitoring of Imatinib- and Dasatinib-inhibited Dysregulated Protein Kinases in Chronic Myelogenous Leukemia” BIT's 8th Annual Congress of International Drug Discovery Science and Technology (IDDST-2010), Beijing, China, Oct 2010
- “Better Living through Chemistry | New Tools in Chemical Biology: Fluorescent Reporters of Protein Tyrosine Kinase Activity”, Chemical Biology Discussion Group, New York Academy of Sciences : Special End-of-Year Meeting, New York, May 2006
- “ γ -Hydroxy Unsaturated Nitriles: Chelation-Controlled Conjugate Additions,” Central Regional ACS Meeting, Ohio, June 1999

Publications

- (1). "Development of a protease-resistant reporter to quantify BCR-ABL activity in intact cells", Proctor A, Zigoneanu IG, Wang Q, Sims CE, Lawrence DS, Allbritton NL, *Analyst*. **2016**, *141*(21), 6008.
- (2). "An Integrated Chemical Cytometry Method: Shining a Light on Akt Activity in Single Cells", Mainz ER, Wang Q, Lawrence DS, Allbritton NL., *Angew Chem Int Ed Engl*. **2016**, *55*(42), 13095.
- (3). "The Plasma Membrane as a Reservoir, Protective Shield, and Light-Triggered Launch Pad for Peptide Therapeutics", O'Banion CP, Nguyen LT, Wang Q, Priestman MA, Holly SP, Parise LV, Lawrence DS., *Angew Chem Int Ed Engl*. **2016**, *55*(3), 950-4.
- (4). "Rational Design of a Dephosphorylation-Resistant Reporter Enables Single-Cell Measurement of Tyrosine Kinase Activity", Turner AH, Lebhar MS, Proctor A, Wang Q, Lawrence DS, Allbritton NL. *ACS Chem Biol*. **2015 Dec 4**. [Epub ahead of print] PMID: 26587880.
- (5). "Multicolor Monitoring of the Proteasome's Catalytic Signature", Priestman MA, Wang Q, Jernigan FE, Chowdhury R, Schmidt M, Lawrence DS. *ACS Chem. Biol.*, **2015**, *10*(2), 433.
- (6). "Measurement of protein kinase B activity in single primary human pancreatic cancer cells", Proctor A, Herrera-Loeza SG, Wang Q, Lawrence DS, Yeh JJ, Allbritton NL. *Anal. Chem.*, **2014**, *86* (9), 4573.
- (7). "Monitoring of Protein Arginine Deiminase Activity by Using Fluorescence Quenching: Multicolor Visualizaton of Citrullination", Wang Q, Priestman MA, Lawrence DS. *Angew Chem Int Ed Engl.*, **2013**, *52* (8), 2323.
- (8). "Development of a peptidase-resistant substrate for single-cell measurement of protein kinase B activation", Proctor A, Wang Q, Lawrence DS, Allbritton NL. *Anal Chem.*, **2012**, *84* (16), 7195.
- (9). "Metabolism of peptide reporters in cell lysates and single cells", Proctor A, Wang Q, Lawrence DS, Allbritton NL. *Analyst.*, **2012**, *137* (13), 3028.
- (10). "Multicolor Monitoring of Dysregulated Protein Kinases in Chronic Myelogenous Leukemia", Qunzhao Wang, Eric I. Zimmerman, Alexei Toutchkine, Timothy D. Martin, Lee M. Graves and David S. Lawrence. *ACS Chem. Biol.*, **2010**, *5* (9), 887–95.
- (11). "Peptide-based fluorescent sensors of protein kinase activity: design and applications", Sharma V, Wang Q, Lawrence DS., *Biochim Biophys Acta*. **2008** Jan; *1784*(1):94-9.
- (12). "Potassium Hydride", Wang, Q., Albert Einstein College of Medicine, Bronx, NY, USA (First Update), *e-EROS Encyclopedia of Reagents for Organic Synthesis*, (Online Version of *Encyclopedia*

of Reagents for Organic Synthesis), John Wiley & Sons, Ltd.,
Article Online Posting Date: March 15, **2007**.

(13). "Seeing is believing: peptide-based fluorescent sensors of protein tyrosine kinase activity", Wang, Q.; Lawrence, D. S. *CHemBiochem.* **2007**, *8*, 373-378, Review.

(14). "Protein Kinase/Phosphatase Sensors including Environmentally Sensitive or Fluorescent Labels and Screening Uses", Lawrence, D.S.; Wang, Q. *PCT Int. Appl.* (2006), WO 2006094116 A2 20060908.

(15). "Light-regulated sampling of protein tyrosine kinase activity", Wang, Q.; Dai, Z.; Cahill, S. M.; Blumenstein, M.; Lawrence, D. S. *J. Am. Chem. Soc.* **2006**, *128*, 14106-14107.

(16). "Self-Reporting Fluorescent Substrates of Protein Tyrosine Kinases", Wang, Q.; Cahill, S. M.; Blumenstein, M.; Lawrence, D. S. *J. Am. Chem. Soc.* **2006**, *128*, 1808-1809.

(17). "Phosphorylation-Driven Protein-Protein Interactions: A Protein Kinase Sensing System", Wang, Q.; Lawrence, D. S. *J. Am. Chem. Soc.* **2005**, *127*, 7684-7685.

(18). "Oxonitriles: Multicomponent Grignard Addition-Alkylations", Fleming, F. F.; Zhang, Z.; Wang, Q.; and Steward, O. *Angew. Chem. Int. Ed.* **2004**, *43*, 1126-1129.

(19). "Cyclic Alkenenitriles: Synthesis, Conjugate Addition, and Stereoselective Annulation", Fleming, F. F.; Zhang, Z.; Wang, Q.; and Steward, O. *J. Org. Chem.* **2003**, *68*, 7646-7650.

(20). "New four-component condensations leading to 2,4,5-trisubstituted oxazoles", Wang, Q.; Ganem, B. *Tetrahedron Letters* **2003**, *44*, 6829-6832.

(21). "A general synthesis of 2-substituted-5-aminooxazoles: building blocks for multifunctional heterocycles", Wang, Q.; Xia, Q.; Ganem, B. *Tetrahedron Letters* **2003**, *44*, 6825-6827.

(22). "Hydroxy Alkenenitrile: Diastereoselective Conjugate Addition-Alkylations", Fleming, F. F.; Wang, Q. *J. Org. Chem.*, **2003**, *68*, 4235-4238.

(23). "Unsaturated Nitriles: Conjugate Additions of Carbon Nucleophiles to Recalcitrant Class of Acceptors", Fleming, F. F.; Wang, Q. *Chem. Rev.* **2003**, *103*, 2035-2077, Review.

(24). " γ -Hydroxy- α , β -Alkenenitriles: Chelation-Controlled Conjugate Additions", Fleming, F. F.; Wang, Q.; Zhang, Z.; Steward, O.W. *J. Org. Chem.* **2002**, *67*, 5953-5956.

(25). "Alkenenitriles: Annulations with α -Halo Grignard Reagents", Fleming, F. F.; Zhang, Z.; Wang, Q.; Steward, O.W. *Org. Lett.* **2002**, *4*, 2493-2495.

- (26). "Oxidation of bicyclic oxazolines: applications to glycomimetics and novel saccharide derivatives", Clark, M. A.; Wang, Q.; Ganem, B. *Tetrahedron Lett.* **2002**, 43, 347-349.
- (27). "Unsaturated Nitriles: Chelation-Controlled Conjugate Additions", Wang, Q. *Dissertation Written in English, Duquesne University, Pittsburgh, PA (2001)*, 99 pp.
- (28). "Hydroxylated, α , β -Unsaturated Nitriles: Stereoselective Synthesis", Fleming, F. F.; Wang, Q.; Steward, O.W. *J. Org. Chem.* **2001**, 66, 2171-2174.
- (29). " γ -Hydroxy Unsaturated Nitriles: Chelation-Controlled Conjugate Additions", Fleming, F. F.; Wang, Q.; Steward, O.W. *Org. Lett.* **2000**, 2, 1477-1479.
- (30). "Unsaturated Oxo-Nitriles: Stereoselective, Chelation-Controlled Conjugate Additions" Fleming, F. F.; Guo, J.; Wang, Q.; Weaver, D. *J. Org. Chem.* **1999**, 64, 8568-8575.