***Curriculum Vitae***

**Jia Guo**

*School of Molecular Sciences Center for Single Molecule Biophysics*

*Arizona State University The Biodesign Institute at ASU*

*Tempe, Arizona 85287 Tempe, AZ 85287*

*Phone: (480) 727-2096 Fax: (480) 965-2747*

*Email:* [*jiaguo@asu.edu*](mailto:jiaguo@asu.edu)

**EDUCATION**

**Columbia University**, New York, NY 2005-2009

Ph. D in Chemistry, *Dissertation with Distinction*

Advisor: Nicholas J. Turro

**University of Science and Technology of China**, Hefei, China 2001-2005

B.S. in Chemical Physics, *Graduation with Honor*

**EMPLOYMENT**

**Assistant Professor** 2013-current

School of Molecular Sciences

The Biodesign Institute

Arizona State University, Tempe, AZ

**Postdoctoral Fellow** 2010-2013

Departments of Chemistry and Biology

Stanford University, Stanford, CA

Advisors: Eric T. Kool and Philip C. Hanawalt

**AWARDS AND HONORS**

Emerging Investigators (Journal of *Analytical Methods*) 2015

Best Poster Presentation (*Environmental Mutagen Society*) 2012

Young Investigator Scholarship (*Alzheimer’s Drug Discovery Foundation*) 2011

Dissertation with Distinction (*Columbia University*) 2009

Pegram Award for Outstanding Graduate Research (*Columbia University*) 2009

Faculty Fellowship (*Columbia University*) 2005-2009

Graduation with Honor (*University of Science and Technology of China*) 2005

Outstanding Student Scholarship (*University of Science and Technology of China*) 2001-2005

University Excellent Project (*University of Science and Technology of China*) 2004

**RESEARCH FUNDING**

**Current research support**

NIGMS R01 (1,650,000/5 years) PI (90%) 2018-2023

Novel in situ proteomics methods to classify cell types in Alzheimer’s brains

NIAID R21 (463,000/2 years) PI of subaward (36%) 2018-2020

Imaging functionally distinct eosinophil subtypes within tissue biopsies using gene expression profiling and an in situ hybridization approach based on a concurrent multiple RNA targeting strategy

Cystic Fibrosis Foundation Grant (400,000/2 years) PI of subaward (10%) 2018-2020

Understanding basal cell niche and cellular heterogeneity in Cystic Fibrosis

**PUBLICATIONS**

†graduate students and ‡undergraduate students in my group

\*corresponding author

citations calculated by google scholar

**A. Journal Articles: (H index = 12)**

**With ASU affiliation:**

1. R. Liao†, M. Mondal†, C. Nazaroff†, D. Mastroeni, P. Coleman and **J. Guo**\***.** “Highly sensitive in situ proteomics with cleavable fluorescent tyramide reveals human neuronal heterogeneity” ***bioRxiv*** DOI: https://doi.org/10.1101/539106.
2. R. Liao†, D. Mastroeni, P. Coleman and **J. Guo**\***.** “Highly sensitive and multiplexed in situ protein profiling with cleavable fluorescent streptavidin” ***bioRxiv*** DOI: https://doi.org /10.1101/555615.
3. R. Liao†, M. Mondal†, and **J. Guo**\***.** “Highly multiplexed single-cell in situ RNA and DNA analysis using bioorthogonal cleavable fluorescent oligonucleotides” ***Methods Mol Biol*** *In press.* (Impact Factor: 1.3; Citations: 0)
4. M. Mondal†, R. Liao†, C. Nazaroff†, A. Samuel‡, and **J. Guo**\***.** “Highly multiplexed single-cell in situ RNA and DNA analysis with bioorthogonal cleavable fluorescent oligonucleotide probes” ***Chem Sci*** 2018, 9:2909-2917. (Impact Factor: 8.7; Citations: 4)
5. L. Xiao†, and **J. Guo**\***.** “Single-cell in situ RNA analysis with switchable fluorescent oligonucleotides” ***Front Cell Dev Biol*** 2018, 6:42. (Impact Factor: 3.4; Citations: 0)
6. M. Mondal†, R. Liao†, and **J. Guo**\***.** “Highly multiplexed single-cell protein analysis” ***Chem Eur J*** 2018, 24:7083-7091*.* (Impact Factor: 5.3; Citations: 1)

* Highlighted in Technology Networks

1. E. N. Tóth, A. Lohith, M. Mondal†, and **J. Guo**, A. Fukamizu, N. Pourmand\*. “Single-cell nanobiopsy reveals compartmentalization of mRNAs within neuronal cells” ***J Biol Chem****,* 2018, 293:4940-4951. (Impact Factor: 4.6; Citations: 6)
2. M. Mondal†, R. Liao†, L. Xiao†, T. Eno‡, and **J. Guo**\***.** “Highly multiplexed single cell in situ protein analysis with cleavable fluorescent antibodies” ***Angew Chem Int Ed***, 2017, 56: 2636-2639. (Impact Factor: 11.7; Citations: 17)

* Highlighted as hot paper in Angew Chem Int Ed
* Highlighted in ACS Chem Biol

1. M. Mondal†, and **J. Guo**\***.** “Comet-FISH for ultra-sensitive strand-specific detection of DNA damage in single cells”***Methods Emzymol***. 2017, 591: 83-95. (Impact Factor: 2.1; Citations: 2)
2. L. Xiao†, and **J. Guo**\***.** “Multiplexed single-cell in situ RNA analysis by reiterative hybridization” ***Analytical Methods***, 2015, 7: 7290-7295. (Impact Factor: 1.9; Citations: 11)

**Prior to ASU:**

1. **J. Guo**,P. C. Hanawalt, and G. Spivak\*. “Comet-FISH with strand-specific probes reveals transcription-coupled repair of 8-oxoGuanine in human cells” ***Nucleic Acids Res***, 2013, 41: 7700-7712. (Impact Factor: 9.1, Citations: 65)
2. **J. Guo**, J. Ju and N. J. Turro\*. “Fluorescent hybridization probes for nucleic acid detection” ***Anal Bioanal Chem***, 2012, 402:3115-3125. (Impact Factor: 3.4, Citations: 86)
3. S. Wang, **J. Guo**, T. Ono and E. T. Kool\*. “DNA polyfluorophores for real-time multicolor tracking of dynamic biological systems” ***Angew Chem Int Ed***, 2012, 51:7176-7180. (Impact Factor: 11.3, Citations: 24)
4. C. Qiu, S. Kumar, **J. Guo**, J. Lu, S. Shi, S. Kalachikov, J. Russo, A. Naini, E. Schon and J. Ju\*. “Mitochondrial SNP genotyping by MALDI-TOF mass spectrometry using cleavable biotinylated dideoxynucleotides” ***Anal Biochem***, 2012, 427:202-210. (Impact Factor: 2.2, Citations: 13)
5. C. Qiu, S. Kumar, **J. Guo**, L. Yu, W. Guo, S. Shi, J. Russo and J. Ju\*. “Design and synthesis of cleavable biotinylated dideoxynucleotides for DNA sequencing by matrix-assisted laser desorption/ionization time-of-flight mass spectrometry” ***Anal Biochem***, 2012, 427:193-201. (Impact Factor: 2.2, Citations: 11)
6. **J. Guo**, S. Wang, N. Dai, Y. N. Teo and E. T. Kool\*. “Multispectral labeling of antibodies with polyfluorophores on a DNA backbone and application in cellular imaging” ***PNAS***, 2011, 108: 3493-3498. (Impact Factor: 9.7, Citations: 50)

* Highlighted in Nat Methods

1. N. Dai, **J. Guo**, Y. N. Teo and E. T. Kool\*. “Protease probes built from DNA: multispectral fluorescent DNA–peptide conjugates as caspase sensors” ***Angew Chem Int Ed***, 2011, 50:5105-5109. (Impact Factor: 11.3, Citations: 24)

* Highlighted as hot paper in Angew Chem Int Ed

1. **J. Guo**, L. Yu, N. J. Turro\* and J. Ju\*. “An integrated system for DNA sequencing by synthesis using novel nucleotide analogues” ***Acc Chem Res***, 2010, 43: 551-563. (Impact Factor: 22.3, Citations: 61)
2. **J. Guo**, N. Xu, Z. Li, S. Zhang, J. Wu, D. H. Kim, M. S. Marma, Q. Meng, H. Cao, X. Li, S. Shi, L. Yu, S. Kalachikov, J. Russo, N. J. Turro\* and J. Ju\*. “Four-color DNA sequencing with 3’-*O*-modified nucleotide reversible terminators and chemically cleavable fluorescent dideoxynucleotides” ***PNAS***, 2008, 105: 9145-9150. (Impact Factor: 9.7, Citations: 170)

* Highlighted in PNAS, ranked 50 most read PNAS papers

1. Z. Wang, X. Xu\*, Y. Chen, S. Zhou, N. Kong, **J. Guo**, H. Liu and C. Shi. “Characteristics of the ZnxMg1-xO films grown by electrophoresis method” ***Acta Physica Sinica***, 2004, 53: 3924-3928. (Impact Factor: 0.8, Citations: 3)

**B. Chapters in Books:**

**Prior to ASU:**

1. L. Yu, **J. Guo**, N. Xu, Z. Li and J. Ju\*. “DNA sequencing by synthesis using novel nucleotide analogues" ***The Handbook of Plant Mutation Screening***, 2010, 319-336.

**PATENTS**

**With ASU affiliation:**

1. **J. Guo.** “System and method for iterative detection of biological molecules” 2018, US Patent 9,933,431.
2. **J. Guo.** “Consecutive hybridization for multiplexed analysis of biological samples” *PCT Int. Appl.* 2017*,* WO 2017196527.
3. **J. Guo**,M. Mondal, R. Liao, L. Xiao. “Cleavable fluorescent tyramide for sensitive and multiplexed analysis of biological samples” *Patent filed*.

**Prior to ASU:**

1. J. Ju, D. H. Kim, **J. Guo**, Q. Meng, Z. Li and H. Cao. “DNA sequencing with non-fluorescent nucleotide reversible terminators and cleavable label modified nucleotide terminators” 2015, US Patent 9,115,163.
2. J. Ju, H. Cao, Z. Li, Q. Meng, **J. Guo**, and S. Zhang. “Synthesis of cleavable fluorescent nucleotides as reversible terminators for DNA sequencing by synthesis” 2015, US Patent 9,175,342.

**PRESENTATIONS**

**With ASU affiliation:**

**Invited talks:**

1. “Highly multiplexed single-cell in situ analysis with cleavable fluorescent probes” *Barrow Neurological Institute,* Phoenix, AZ, Sep 11, 2018.
2. “Novel fluorescent probes for single cells in situ genomics and proteomics analysis” *University of California San Diego, Jacobs School of Engineering*, San Diego, CA, June 5, 2018.
3. *“*Novel fluorescent probes for single cells in situ genomics and proteomics analysis” *ASU Biodesign Center for Immunotherapy, Vaccines, and Virotherapy Seminar Series*, Tempe, AZ, Jan 24, 2018.
4. “Comprehensive and integrated DNA, RNA and protein profiling in single cells in situ with cleavable fluorescent probes” *5th NIH Common Fund Single Cell Analysis Program Investigators Meeting*, Bethesda, MD, June 28-30, 2017.
5. “Highly multiplexed single-cell in situ analysis with cleavable fluorescent probes” *University of Southern California, School of Pharmacy,* Los Angeles, CA, May 16, 2017.
6. “Cleavable fluorescent probes for highly multiplexed single-cell in situ analysis”*DNA repair conference 2017,* Pacific Grove, CA, May 13-15, 2017.
7. “Highly multiplexed single-cell in situ analysis with cleavable fluorescent probes” *University of California Irvine, Department of Biological Chemistry,* Irvine, CA, May 12, 2017.
8. “Highly multiplexed single-cell in situ analysis with cleavable fluorescent probes” *The 2nd Single Cell Analysis USA Congress Annual Meeting,* Boston, MA, October 3-4, 2016.
9. “Cleavable fluorescent probes for highly multiplexed single-cell in situ analysis”*Mayo Clinic,* Scottsdale, AZ, December 3, 2015
10. “Single-cell proteomics with highly multiplexed immunofluorescence” *The 11th US HUPO Annual Meeting,* Tempe, AZ, March 15-18, 2015.

**Oral presentation at meetings:**

1. “Highly multiplexed single-cell in situ analysis with cleavable fluorescent probes” *The 48th Society of Western Analytical Professors (SWAP) Annual Meeting,* Riverside, CA, January 29-30, 2016.
2. “Single-cell systems biology” *The 46th Society of Western Analytical Professors (SWAP) Annual Meeting,* Tempe, AZ, January 10-11, 2014.
3. “Single-cell systems biology with cleavable fluorescent probes” *The joint ASU/BSHRI neuroscience symposium,* Tempe, AZ, May 22, 2014.

**Prior to ASU:**

**Invited talks:**

1. “Comet-FISH reveals transcription-coupled repair of 8-oxoGuanine” *The 2013 Gordon Research Conferences Mammalian DNA Repair,* Ventura, CA, February 10-15, 2013.
2. “Toward the $1000 genome: molecular engineering approaches for DNA sequencing by synthesis*” Columbia Chemistry/Biology Interface Workshop*, New York, NY, February 24, 2009.

**Oral presentation at meetings:**

1. “High throughput four-color DNA sequencing by synthesis on a chip” *The Wyeth/Columbia Research Workshop*, New York, NY, May 6, 2008.

**Poster presentation at meetings:**

1. “Comet-FISH with strand-specific probes reveals transcription-coupled repair of 8-oxoGuanine in human cells” *The 43rd Environmental Mutagen Society Annual Meeting*, Bellevue, WA, September 8-12, 2012.
2. “Multispectral labeling of antibodies with polyfluorophores on a DNA backbone and application in cellular imaging” *The 5th International Meeting on Synthetic Biology,* Stanford, CA, June 15-17, 2011.
3. “Four-color DNA sequencing with 3’-O-modified nucleotide reversible terminators and chemically cleavable fluorescent dideoxynucleotides” *The 238th ACS National Meeting*, Washington, DC, August 16-20, 2009.
4. “Design and synthesis of labile azido linkers for conjugation of fluorescent dyes to nucleotides for use as reversible terminators in DNA sequencing by synthesis” *The Symposium on Newer Trends in Photochemistry*, New York, NY, May 23, 2008.
5. “Four-color DNA sequencing with hybrid Sanger and SBS approach” *The NHGRI Sequencing Technology Conference*, San Diego, CA, March 18, 2008. \*\*
6. “Fluorescent cDNA Labeling with Click Chemistry for DNA Microarray Analysis” *The International Conference on Genomics*, Hangzhou, China, October 25, 2006. \*\*