Colin Kinz-Thompson

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EDUCATION

New York University School of Medicine/Columbia University 2016 - Present
Post-doctoral Research on Active Transport *New York, NY*
Advisors Prof. Da-Neng Wang, Dr. Joseph A. Mindell, and Prof. Ruben L. Gonzalez, Jr.

Columbia University 2010 - 2016
Ph.D., M.Ph., and M.A. in Chemistry *New York, NY*
Thesis Dynamics of Stop-codon Recognition by Release Factor 1
Advisor Prof. Ruben L. Gonzalez, Jr.
Committee Profs. Greene E.C., Hunt J.F., McDermott A.E., and Min W

University of Rochester 2006 - 2010
B.S. in Chemistry, Magna Cum Laude, Highest Distinction *Rochester, NY*
Thesis Photophysics of Excitons and Radicals in DNA.
Advisors Prof. Esther M. Conwell, and Prof. David W. McCammant

FELLOWSHIPS

Department of Energy Office of Science Graduate Fellowship 2012 - 2015
DE-AC05-06OR23100

NIH Training Program in Molecular Biophysics 2011
T32-GM008281 to Columbia University

HONORS AND AWARDS

George Pegram Award for Meritorious Achievement in Chemical Research May 2015
Columbia University, Department of Chemistry *New York, NY*

John McCreary Memorial Prize May 2010
University of Rochester, Department of Chemistry *Rochester, NY*

President's Award in Science and Engineering April 2010
University of Rochester, Undergraduate Research Expo *Rochester, NY*

Merck Scholar Award for Juniors May 2009
University of Rochester, Department of Chemistry *Rochester, NY*

Carl A. Whiteman Jr. Teaching Award May 2008
University of Rochester, Department of Chemistry *Rochester, NY*

PUBLICATIONS

In Preparation

Kinz-Thompson, C.D., Mulligan C., Marden, J., Lopez Redondo, M., Sauer, D., Song, J.M., Trebesch, N., Tajikhorshid, E., Stokes, D., Wang, D., Mindell, J., Gonzalez, Jr., R.L. *Dynamics of Protomer Conformational States Regulate the Transport Cycle of the Homodimeric Dicarboxylate Transporter VcINDY.* In preparation.

Ray, K.K., **Kinz-Thompson, C.D.**, Fei, J., Gonzalez, Jr., R.L. *Ribosomal ligands facilitate protein synthesis by acting as entropic funnels.* In preparation.

Hon, J., **Kinz-Thompson, C.D.**, Gonzalez, Jr., R.L. *Unified, Bayesian Inference Framework for Analyzing Single-molecule Fluorescence Microscopy Experiments.* In preparation.

Huang, B.Y., Hon, J., **Kinz-Thompson, C.D.**, Gonzalez, Jr., R.L. *Mechanism of Enhancement of Translational Accuracy by Release Factors 2 and 3.* In preparation.

Submitted

Aykut, B., Kim, J.I., Chen, R., Wu, D., Shadaloey, S.A.A., Abengozar, R., Preiss, P., Deguzman, J., Wu, L., O'Halloran, C., Saxena, A., Pushalkar, S., Brittingham, G., Banh, R.S., Verma, N., Buom Lee, K., Leinwand, J., Diskin B., Kurz, E., Kochen Rossi, J.A., Wang, W., Concepcion, A.R., Liang, F., Werba, G., Baptiste, F., Berman, M., **Kinz-Thompson, C.**, Pacold, M.E., Feske, S., Saxena, D., Coetzee, W., Miller, G. *Targeting Piezo1 Unleashes Protective Innate and Adaptive Immunity Against Cancer and Infectious Disease.* Nature, Submitted.

Published

Subramanyam, S., **Kinz-Thompson, C.D.**, Gonzalez, R.L., Jr., Spies, M. *Observation and Analysis of RAD51 Nucleation Dynamics at Single-monomer Resolution.* Methods in Enzymology 2018, 600, 201-232.

Kinz-Thompson, C.D., Gonzalez, R.L., Jr. *Increasing the Time Resolution of Single-molecule Experiments with Bayesian Inference.* Biophysical Journal 2018, 114, 289-300. **[Co-corresponding]**

Kinz-Thompson, C.D., Bailey, N.A., Gonzalez, R.L., Jr. *Precisely and Accurately Inferring Single-molecule Rate Constants.* Methods in Enzymology 2016, 581, 187-225.

Kinz-Thompson, C.D.*, Sharma, A.K.*, Frank, J., Gonzalez, R.L., Jr. Chowdhury, D. *Quantitative Connection between Ensemble Thermodynamics and Single-Molecule Kinetics: A Case Study Using Cryogenic Electron Microscopy and Single-Molecule Fluorescence Resonance Energy Transfer Investigations of the Ribosome.* J. Phys. Chem. B 2015, 119(34), 10888-10901.

Kinz-Thompson, C.D., Gonzalez, R.L., Jr. *smFRET Studies of the "Encounter" Complexes and Subsequent Intermediate States that Regulate the Selectivity of Ligand Binding.* FEBS Lett. 2014, 588(19), 3526-3538.

Kinz-Thompson, C.D., Palma, M., Pulukkunat, D.K., Chenet, D., Hone, J., Wind, S.J., Gonzalez, R.L., Jr. *Robustly Passivated, Gold Nanoaperture Arrays for Single-Molecule Fluorescence Microscopy.* ACS Nano 2013, 7(9), 8159-8166.

Kravec, S.M., **Kinz-Thompson, C.D.**, Conwell, E.M. *Localization of a Hole on an Adenine- Thymine Radical Cation Embedded in B-Form DNA in Water.* J. Phys. Chem. B 2011, 115(19), 6166-6171.

Kinz-Thompson, C., Conwell, E. *Proton Transfer in Adenine-Thymine Radical Cation Embedded in B-Form DNA.* J. Phys. Chem. Lett. 2010, 1(9), 1403-1407.

Kucherov, V.M., **Kinz-Thompson, C.D.**, Conwell, E.M. *Polarons in DNA Oligomers.* J. Phys. Chem. C 2010, 114(3), 1663-1666.

PRESENTATIONS

Talks

Kinz-Thompson, C.D. *From fluctuations to function: the contribution of protomer conformational dynamics to the VcINDY transport cycle* New York Structural Biology Discussion Group Winter Meeting, New York, NY. January 9, 2020.

Kinz-Thompson, C.D. *The Contribution of Protomer Dynamics to the Transport Cycle of Secondary Active Transporters* the Molecular Biophysics Program at NYU School of Medicine, New York, NY. April 24, 2019.

Kinz-Thompson, C.D. *From Fluctuations to Function: The Role of Dynamics in the Mechanism and (Dys)regulation of Biological Processes.* Merck Drug Discovery Science visit at Columbia University, New York, NY. April 16, 2018.

Kinz-Thompson, C.D. *Machine-learning Approaches to Single-molecule Fluorescence Imaging and Data Analysis.* The RNA Institute, University at Albany, Sate University of New York, Albany, NY. August 4, 2017.

Kinz-Thompson, C.D. *Defeating the Concentration Barrier.* Physical Chemistry Student Seminar, Columbia University, New York, NY. February 5, 2013.

Kinz-Thompson, C.D. *Proton Transfer in the Adenine-Thymine Radical Cation.* The 2010 University of Rochester Undergraduate Research Exposition, Rochester, NY. April 23, 2010.

Posters

Kinz-Thompson, C.D., Gonzalez, R.L., Jr. *Dynamics of Stop-codon Recognition by Release Factor 1.* The Biophysical Society 60th Annual Meeting, Los Angeles, CA. 1170-Pos. Feb 29, 2016.

Kinz-Thompson, C.D., Gonzalez, R.L., Jr. *Bayesian Inference for the Analysis of Sub-Temporal Resolution Data.* The 2014 DOE SCGF Retreat at Fermi National Accelerator Laboratory, Batavia, IL. June 22, 2014.

Kinz-Thompson, C.D., Palma, M., Pulukkunat, D.K., Chenet, D.A., Hone, J., Wind, S.J., Gonzalez, R.L., Jr. *Robustly Passivated, Gold Nanoaperture Arrays for Single-Molecule Fluorescence Microscopy.* The 2013 DOE SCGF Retreat at Lawrence Berkeley National Laboratory, Berkeley, CA. July 30, 2013.

Kinz-Thompson, C.D., Palma, M., Pulukkunat, D.K., Chenet, D.A., Hone, J., Wind, S.J., Gonzalez, R.L., Jr. *Second-Generation Zero-Mode Waveguides.* Gordon Research Conference: Single-Molecule Approaches to Biology. February 21, 2012.

Kinz-Thompson, C.D., Conwell, E.M. *Charge Transport in DNA: The Role of Water.* The 239th ACS National Meeting: Div. Phys. Chem.: Multiscale Nanomaterials, Polymer, and Biomolecular Dynamics, San Francisco, CA, Publication No. 480. March 24, 2010.

PATENTS

Kinz-Thompson, C.D., "Time-resolved translational profiles from single-cells across spatially heterogeneous tissue environments for cancer diagnosis, prognosis, and drug discovery", **February 28, 2019**, US Patent No. 62/812,122.

Kinz-Thompson, C.D., Gonzalez, R.L., Hone, J.C., Palma, M., Godarenko, A.A., Chenet, D.A., Wind, S.J. "Zero-mode Waveguide for Single Biomolecule Fluorescence Imaging", **2013**, US Patent No. 13/655,947.

AFFILIATIONS AND MEMBERSHIPS

Phi Beta Kappa

American Chemical Society

Biophysical Society

New York Academy of Sciences