Protein Purification

- Tangential flow filtration
- Ni-NTA affinity chromatography
- Ion exchange chromatography
- Size exclusion chromatography

Biophysical characterization

- Differential scanning calorimetry
- Chemical denaturation
- Fluorescence and circular dichroism
- Static and dynamic light scattering
- Analytical size exclusion chromatography
- Aggregation kinetics

Leadership and Teaching Experience

Teaching and Mentoring

- **Teaching Assistant** for Bio-Based Materials (Fall 2011) and Thermodynamics (Spring 2013)
- **Mentored 3 undergraduate students and 1 graduate rotational student** on experimental techniques and analysis, communication, and presentation of data

Leadership Experience

- **Served as President** for the Colburn Club Graduate Student Organization (2012-2013) and RPI Resident Student Association (2009-2010)
- **Held numerous leadership positions** including Class Representative (Colburn Club, 2010-2014), Resident Assistant (RPI, 2009-2010), National Communications Coordinator (RPI Resident Student Association, 2008-2009), Vice Chair (RPI Judicial Board, 2009), Student Orientation Advisor (RPI, 2008), and Residence Hall Council Chair (RPI, 2007-2008)

Publications

- **O'Brien, C.J.**, Blanco, M.A., Costanzo, J.A., Enterline, M., Fernandez, E.J., Robinson, A.S., and Roberts C.J. (2016) Modulating Non-Native Aggregation and Electrostatic Protein-Protein Interactions with Computationally Designed Single-Point Mutations. *Protein Engineering, Design & Selection* 29(6), 231-243
- **O'Brien, C.J.,** Robinson, A.S., and Roberts, C.J. (2016). Engineering Aggregation Resistance in a Single-Chain Variable Fragment (scFv) with Rationally Designed Single-Point Mutations. *(Manuscript in preparation)*
- *C*ostanzo, J. A., **O'Brien, C. J**., Tiller, K., Tamargo, E., Robinson, A. S., Roberts, C. J., and Fernandez, E. J. (2014). Conformational stability as a design target to control protein aggregation. Protein Engineering, Design & Selection: *Protein Engineering, Design & Selection*, 27(5), 157–67.

Conference Presentations

- **O'Brien, C.J.**, Blanco, M.A., Costanzo, J.A., Enterline, M., Fernandez, E.J., Robinson, A.S., and Roberts C.J. Combining theory and experiment for rational design of single-charge-altering point mutations to reduce multi-domain protein aggregation. *245th ACS National Meeting, April 2013, New Orleans, LA*
- Poster presentation**.** *Center for Pharmaceutical Development Industrial Advisory Board Meeting, November 2015, Newark DE*
- Poster presentation**.** *Biomolecular Interactions Technology Center Symposium, August 2014, Newark, DE*

Honors and Awards

- Genentech PR&D Outstanding Student Award 2009
- Omega Chi Epsilon Chemical Engineering Honor Society 2008 - 2010
- National Residence Hall Honorary 2008 - 2010
- Tau Beta Pi Engineering Honor Society 2008 - 2010