

**BIOGRAPHICAL SKETCH**

NAME: Dat P. Truong

eRA COMMONS USER NAME (credential, e.g., agency login):

POSITION TITLE: Senior Scientist – Enzymology

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of Houston – Downtown (Houston, TX)	B.S.	05/2014	Chemistry
Texas A&M University (College Station, TX)	Ph.D.	05/2020	Biochemistry
Bondwell Technologies, LLC (College Station, TX)	Postdoctoral	11/2021	Enzymology and Protein-based Materials

**A. Personal Statement**

I obtained my Ph.D. in the field of Biochemistry from the department of Biochemistry and Biophysics at Texas A&M University in May 2020. I have a broad background in biochemistry, with specific training in enzyme evolution and mechanistic enzymology from the laboratory of Dr. Margaret Glasner. During my PhD career, my research focused on understanding the mechanism of how an enzyme could evolve a new function by studying a family of enzyme, in which some members are catalytically promiscuous. I discovered that an enzyme could potentially evolve a new function by a substitution mutation at a second-shell amino acid, which is not in direct contact with the substrates. This second shell amino acid substitution is important for an enzyme to gain a new chemical activity because it could modulate the reactivity of the catalytic residue, without affecting the binding of different substrates. This study was significant because it was one of the first reports that showcased the importance of a second-shell amino acid substitution in allowing an enzyme to evolve a new function. After my Ph.D., I spent 18 months training as a postdoctoral researcher at Bondwell Technologies, LLC in College Station, TX, where I further excellence my expertise in enzymology and recombinant protein expression, purification, analysis, and characterization in both bacteria and yeast. I was leading and in charge of the project of manufacturing pharmaceuticals by biomaterial-based enzyme. The project was funded by the Translational Research Institute for Space Health, which is a part of the NASA Human Research Program. During my time at Bondwell, I successfully immobilized and characterized various enzymes on Bondwell technology bio-based materials. By the end of my training, I managed to make those enzymes to work in tandem to synthesize different target pharmaceuticals, which can be modified for use by astronauts during deep space exploration missions. I am currently working at Solugen, Inc in Houston, TX as a Senior Scientist in Enzymology. At

Solugen, my role is to engineer enzymes to synthesize different chemicals from sugars. One of so many reasons why I decided to join Solugen is the company's core belief in global warming and its pursuit in reducing industrial carbon footprint with green chemistry. With my expertise in enzymology, I believe I can scientifically contribute to the research and development at Solugen and help fight the climate change issues.

## B. Positions and Honors

### Positions

2020-2021 Postdoctoral Researcher, Bondwell Technologies, LLC, College Station, TX  
2021-current Senior Scientist – Enzymology, Solugen Inc, Houston, TX

### Other Experience and Professional Memberships

2011-2014 Member, Scholars Academy, University of Houston – Downtown  
2012 Member, Tau Sigma, University of Houston – Downtown  
2013-2014 Peer Mentor, Scholars Academy, University of Houston – Downtown  
2013-2014 Vice President, SACNAS Student Chapter, University of Houston – Downtown  
2013-2014 Member, American Chemical Society  
2013-2014 Member, Chemistry Club, University of Houston – Downtown  
2015-2018 Mentor, Biochemistry Graduate Association, Texas A&M University  
2017-2018 Treasurer, Biochemistry Graduate Association, Texas A&M University  
2018 Fellow of Academy for Future Faculty, Center for the Integration of Research, Teaching and Learning, Texas A&M University  
2018-2019 Marketing and Communication Coordinator, Academy for Future Faculty, Texas A&M University  
2019 Senior Fellow of Academy for Future Faculty, Center for the Integration of Research, Teaching and Learning, Texas A&M University

### Honors and Distinctions

2014 Travel Scholarship, American Chemical Society  
2014 Excellence in Chemistry Award, University of Houston – Downtown  
2014 Most Outstanding Senior, Undergraduate Organic Chemistry Student, American Chemical Society  
2018 Graduate Teaching Award, Biochemistry Graduate Association, Texas A&M University

## C. Contributions to Science

### List of Patents & Publications

- Patents:

1. Howell, DW; Bondos, SE; Parham, C; **Truong, D**; Booth, R. Protein-based Material for Biocatalysis. US63/144,755. Pending Provisional Application.

- Publications:

1. **Truong, DP**; Rousseau, S; Huddleston, J; Zhu, M; Hull, KG; Romo, D; Raushel, FM; Sacchettini J; and Glasner, ME. Role of the second-shell amino acid R266 in determining N-succinylamino acid racemase reaction specificity. *Accepted to Biochemistry*. 2021
2. Glasner, ME; **Truong, DP**; Morse, BC. How enzyme promiscuity and horizontal gene transfer contribute to metabolic innovation. *FEBS*. 2020
3. Odokonyero, D; McMillan, AW; Ramagopal, UA; Toro, R; **Truong, DP**; Zhu, M; Lopez, MS; Somiari, B; Herman, M; Aziz, A; Bonanno, JB; Hull, KG; Burley, SK; Romo, D; Almo, SC; and Glasner, ME. Comparison of Alicyclobacillus acidocaldarius OSBS to its promiscuous NSAR/OSBS relatives. *Biochemistry*, 2018
4. Erazo-Oliveras, A; Najjar, N; **Truong, D**; Wang, TY; Brock, DJ; Prater, AR; Pellois, JP. The Late Endosome and Its Lipid BMP Act as Gateways for Efficient Cytosolic Access of the Delivery Agent dTAT and Its Macromolecular Cargos, *Cell Chemical Biology*, 2016

5. Jose, R; **Truong, D**; Han, H & Bhowmik, PK. Poly(pyridinium salt)s with Organic Counterions Derived from 3,3'-Dimethylnaphthidine: Thermal, Liquid Crystalline, and Optical Properties. *J Polym Res*, 2015

**D. Additional Information: Research Support and/or Scholastic Performance**