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Paul Toth

Education

- **Bachelor of Science** in Biochemistry **December 2019**
The University of Akron
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Research Experience

Research Assistant in Dr. Adam W. Smith's Lab **January 2017 – July 2020**
Department of Chemistry, University of Akron

Research Assistant in Dr. Bingcheng Wang's Lab **June 2018 - July 2020**
Metrohealth Hospital, Cleveland, OH

Joined a research project in 2018 focused on characterizing the structure/function relationship of EphA2 receptors. Contributions are as follows:

- Designed, cloned, and mutated Eph family receptor constructs to assess direct receptor-receptor interactions in biophysical assays and to measure physiological effects in cell and animal models
 - Sourced vectors for, and created, retroviral and lentiviral expression clones of constructs
 - Generated stably expressing cell lines using created viral constructs
 - Participated in cell sorting experiments to purify cells positive for generated EphA2 mutants
 - Maintained various mammalian cell lines, primary and immortalized, and used them for plasmid/viral expression and fluorescent imaging
 - Performed immunoblotting experiments comparing responses of major signaling molecules (e.g. Akt/pAkt) between different Eph receptor mutants before and after stimulation
 - Carried out live-cell imaging (RICM, TIRF, Epifluorescence)
 - Assisted in training both graduate and undergraduate researchers in molecular and microbiology
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Publications

Christie S, Ham T, Gilmore G, **Toth P**, Leipzig N, Smith A. Covalently Immobilizing Interferon- γ Drives Filopodia Production through Specific Receptor-Ligand Interactions Independently of Canonical Downstream Signaling. *Bioconjugate Chem.* 2020 May 20; 31(5): 1362–1369.

Presentations

Paul Toth, A. W. Smith. Poster, Recent approaches to molecular cloning and mutagenesis, *Biology Undergraduate Research Symposium*, 2019 April, Akron, OH.

Manuscripts in Preparation

1. Shi, R.; Cuizon, C.; Herting, C.; Lingerak, R.; **Toth, P.**; Himanen, J.; Nikolov, D.; Hambarzumyan, D.; Smith, A. and Wang, B. (2021) Symmetric and Asymmetric Homotypic Interactions Regulate EphA2 Receptor Oligomerization, Catalytic Activation, Endocytic Trafficking and Oncogenesis.
2. Christie, S.; Kim, S.J.; **Toth, P.**; Muller-Greven, J.; Buck, M.; Smith, A. (2021) Neuropilin-1 and Plexin Family Receptor Transmembrane Domains Have Unique Motifs to Promote Homo- and Hetero-Oligomerization.

Work Experience

- Privately tutored students in biochemistry and general chemistry

Honors and Awards

The University of Akron

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| 1. Emanuel and Rose Gurin Scholarship | 2018 |
| 2. Ernest and Lois McClellan Scholarship | 2018 |
| 3. The Lubrizol Corporation Scholarship | 2019 |
| 4. Dean's List | Fall 2017, Spring 2018, Fall 2018 |

References

Adam W. Smith, Ph.D.

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Bingcheng Wang, Ph.D.

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2500 Metrohealth Drive
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Leah Shriver, Ph.D.

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