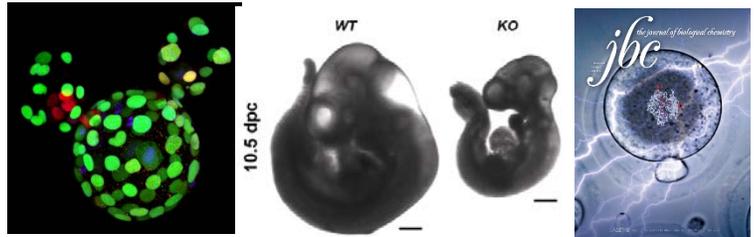
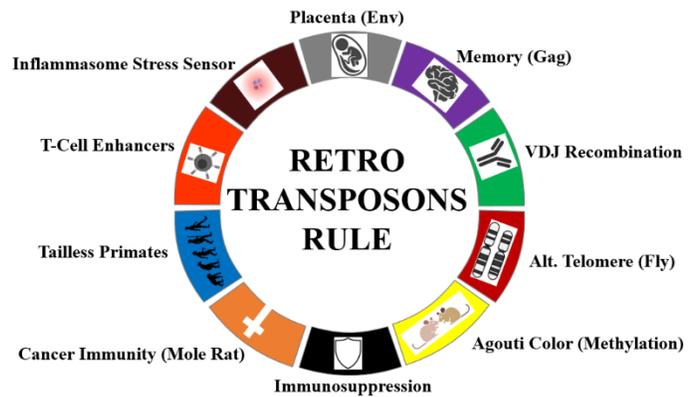


The Modzelewski Lab at the University of Pennsylvania Department of Biomedical Sciences School of Veterinary Medicine is recruiting Research Specialists (A/B) to join an exciting new NIH-NICHD funded project. Our work focuses on understanding the exciting and emerging role of retrotransposons in early development (and beyond). We are currently looking at how retrotransposons impact fertility and preimplantation development.

The lab has two major but linked focuses:

**Developmental Biology & Genome Editing.**



Nearly half of all mammalian genomes originate from ancient retroviral integrations. While silenced in nearly all cells, retrotransposon reactivation is a well-known phenomenon in preimplantation embryos and the germline. Disruptions made in the lab have impacted fundamental biological process, leading to arrested development and implantation defects that resembles human pregnancy complications ([Cell 2021](#)). This highly collaborative project adapts proteomics, genetics, bioinformatics and CRISPR/Cas9 editing to reveal this overlooked but essential form of regulation in development, fertility, and disease.

As no current cell culture system faithfully represents the preimplantation development, the majority of research at this stage must be done directly in the embryo, and sometimes animal models are necessary. Even with CRISPR/Cas9 gene editing, generating mouse models is cost prohibitive and largely inaccessible. Therefore I developed CRISPR-EZ (CRISPR Electroporation of Zygotes) and showed it at least 3-4x more efficient than the gold standard of microinjection, is inexpensive, works in all species tested, but there is still room to improve ([JBC 2016](#), [Nature Protocols 2018](#)). Efforts include the use of AAV, CRISPRa/i (activation/interference), humanized models to study conserved regulatory networks.

**Positions Available:** Research Specialists will be involved in planning and conducting ongoing research. Research will involve molecular biology and biochemical characterization of retrotransposons impact in human cell lines and mouse models, with a goal to discover new therapeutic targets. They will learn and assist in laboratory experiments, with daily management of laboratory equipment, tools, documentation, and ordering of supplies for ongoing research. At the start, they will collaborate closely with the Principle Investigator (PI) to learn techniques and experimental set-up to optimize protocols for the lab.

**Specialist A (RS-A)** will be responsible for the above roles, with a focus on learning research techniques to aid in ongoing projects. The position will require organizational skills with ability to efficiently multi-task.

**Specialist B (RS-B)** position will undertake roles as RS-A, with the additional expectation of greater laboratory experience in order to develop novel research questions for exploration in line with the Lab's focus. This level researcher will eventually make greater contributions to the lab environment, with opportunities to share their work in collaborative settings.

**Qualifications:**

- B.S in biological sciences as well as bioengineering, biostatistics, etc. (3ys+ exp. for RS-B)
- Previous mouse handling experience is a plus but not essential.
- Ideal candidate should be highly motivated and passionate about biology, development, expecting the unexpected and not afraid to challenge assumptions.
- Two-year minimum commitment for RS-A. Familiarity with UPenn system is a plus!

**Application Documents:**

- CV or Resume (with contact information for 2-3 references)
- Brief Cover Letter detailing interest and experience (can be body of email)

Interested applicants are invited to submit their application documents directly to Dr. Modzelewski at

[amodz@upenn.edu](mailto:amodz@upenn.edu).