SEEKING: Postdoctoral Researcher in Peptide Synthesis

Position number: TT-035
POST DATE: September 1, 2024.
OPEN UNTIL: October 31, 2024

Overview: The Trant Team at the University of Windsor is looking for a postdoctoral fellow, 1-year renewable indefinitely based on satisfactory performance at $45,000-50,000/year (Canadian) dependent on expertise (with the potential of a raise in subsequent years). The candidate ***must have*** significant experience (from their doctoral work, industrial career, or previous postdoctoral work) in peptide synthesis using both solution and solid-phase peptide synthesis. The candidate ***must have*** experience in planning, troubleshooting, and executing peptide syntheses of up to 15mers. Strong candidates are also ***likely to have*** experience in peptide purification and peptide characterization. Expertise in medicinal chemistry, small molecule synthetic organic chemistry, and/or separation science/analytical chemistry is ***highly desirable***. Expertise with biological assays ***is preferred*** but by no means necessary.

Individuals from under-represented groups are especially encouraged to apply. This includes ethnic, religious, sexual, disability, and gender minorities as well as first-generation university students (those whose parents do not hold university degrees). Individuals who have faced obstacles that have hindered their education and productivity are encouraged to apply and note their challenges in their cover letter: to get this far, often you will have demonstrated exceptional perseverance and resilience. We see that. And we understand that it cost you time and productivity. We'll take that trade.

We are looking for a good colleague with a demonstrated track record of strong problem solving and outstanding teamwork skills: a flashy CV full of top-journal publications is not necessary, please do not self-select out. The must-have requirements below are clearly stated, but beyond that we hire the person, not the CV. The position is expected to start as soon as filled. **THE PRIORITY DATE FOR APPLICATIONS IS October 31, 2024,** however the position will remain open until filled. We are looking to fill the position as quickly as possible. *If you have come across this ad after that date on any forum other than the Trant Team website, please check the website to determine if we are still hiring for this position (Join the Team Tab).*

Preference for Canadians and those able to legally work in Canada who are already in Canada: As per Canadian employment laws, a preference is given to Canadian Citizens or Permanent Residents, or those with a valid Open Canadian Work Permit. Secondary preference is for international applicants who are currently in Canada. Third preference is given to Mexican and American candidates over other international candidates due to expedited review by the Canadian government. Overriding the above categories, Ukrainian, Palestinian, Israeli, Ethiopian, Congolese, Yemeni, Haitian and Sudanese nationals are given special consideration. However, exceptional candidates with outstanding track records that meet the preferred qualities listed above from outside of Canada and the listed nations should still send an application; we can wait for the perfect person even if Canada drags its feet. We have a long track record of hiring international applicants from that final category.

About You: Position is open to individuals holding a PhD in chemistry or a related discipline. **The PhD must have been obtained in the past 4 years.** The successful candidate ***will have*** doctoral (or postdoctoral)-level expertise in peptide synthesis, and in one or more of: peptide synthesis, medicinal chemistry, peptide synthetic methodology, biological evaluation, computational and/or experimental structural biology, molecular biology. ***Familiarity with automated peptide synthesis, solution-phase peptide synthesis, and the purification of peptides is required. This means that the successful candidate must have HPLC semi-prep or preparative experience.*** Comfort with multi-step organic synthesis, characterization using NMR and mass spec, and handling air- and moisture-sensitive reagents is strongly advised. A strong understanding of organic mechanism and peptide reaction troubleshooting is desirable. Preference will be given for individuals with experience in making peptides with non-canonical amino acids, or post-synthetic modification of peptides both on and off beads. Ideally the candidate will have experience with scale-up chemistry and non-chromatographic separation science (although HPLC experience is an asset). Individuals will be required to work closely with the biological, analytical and computational teams as well as with other small molecules and peptide synthetic chemists. Previous experience in an interdisciplinary environment, or a **strong interest** in developing this experience will be preferred (and will likely make you happier in the position). A collaborative and team-focused philosophy is also required. All work is in teams, if you prefer to work alone on something, this is not the group for you.

About the Team: The Trant Team is currently located at the University of Windsor, in Windsor, Canada and uses synthetic, computational, analytical, and medicinal chemistry coupled with molecular and micro- biology to discover novel molecules that can be used to address under-examined biological processes and develop innovative diagnostic and therapeutic modalities for diseases. Except when we see something cool in supramolecular, organic mechanism, natural product and separation science, or physical organic chemistry that distracts us a bit. Then we do that too. We like doing research on cannabis, whisky, wine, and entheogens as well. The team is actively supported by NSERC, CIHR, the ACS PRF, the New Frontiers Program, the Arthritis Society of Canada and a myriad of other funding agencies and industrial partners (through MITACS, NSERC, and the Ontario Centre of Innovation, and through direct contracts) to provide a very significant operating budget. The lab currently hosts a frankly ridiculous 16 postdoctoral researchers, 18 graduate students, technical and administrative support, and a large team of undergrad researchers. This provides a unique, highly multidisciplinary, highly intellectually stimulating environment. John provides extra support and training in project management and grant writing suitable for scientists looking for future leadership positions in industry, government, and/or academia. PDRs are strongly encouraged to collaborate with other members to advance new ideas and build on existing areas of research within the group, broadly spanning medicinal and materials science, small molecule drug design, peptide science, and the interactions of all of the above with biomolecules. They are also encouraged to build new networks outside the group, and to generate teams to accomplish personal and Team research goals. Within reason, and if the core mission is advancing, I am extremely willing to discuss, refine, and support with appropriate financial and personnel resources, ideas and new projects brought to me by team members. It's how we got into supramolecular chemistry, MRI, MOFs, cosmetics, and whisky research in the first place.

The team operates a large synthetic chemistry, analytical chemistry, and computational chemistry facility, along with a biochemistry/molecular biology/microbiology/ bioprinting facility. We also have a dedicated Food Lab equipped with a rather large spray dryer and a high pressure homogenizer. This is supported by an in-lab suite of analytical tools to size particles, measure thermal and mechanical properties, and to image them. The group has two automated solid-phase peptide synthesizers (one in batch, one in flow), and 7 HPLCs (including semiprep and LC-MS), and shared access to an LC-MS/MS. Departmental tools are available **including 5 NMR machines with limited use** (yes you can walk up and just USE an NMR machine at any time… suck on that, other places with your fully-booked calendars!) We collaborate extremely closely with cell biology, immunology, structural biology and tissue culture labs as well as with engineers, materials scientists, physicists, translational biologists, clinicians, and other synthetic and medicinal chemists both in Windsor, across the country, and around the world. We think we have more fun than all the other labs. But I think all labs think that. It's just that we are right.

About the Project: There is no set project. We are looking for a new team member who will assist the current efforts of the graduate students and the peptide synthesis and broader organic chemistry team on a large variety of synthetic and medicinal chemistry challenges. On the peptide side, this includes making, isolating, and purifying macro- and micro-cyclic and polycyclic peptides, incorporating unnatural amino acids, dyes, affinity tags, small molecule (peptide-drug conjugates), and peptidomimetic residues; conducting peptide post-synthetic organic chemistry on-resin; functionalizing soft and hard drug-containing nanoparticles with peptides; and making some rather routine peptides for standard biological testing. The position also likely involves small molecule synthesis, likely around unnatural amino acids and these other labelling molecules. Central to our mission is the generation of new fields of research through collaboration with other personnel in the group with very different backgrounds. We are still overwhelmed with projects, ideas, goals, students, and unwritten papers. **We need help.**

The position will involve undergraduate student mentorship, small team and project leadership, and article writing. Depending on the career stage of the candidate, the role also involves graduate student supervision, industrial partner co-ordination, project management, grant writing, patent writing, and short seminar delivery (internal to the group). Training will be provided for any of these roles. We aim to give you the soft-skills training and experience you need to succeed in the scientific industry, whether academia, industry, or the government/not-for profit sector.

About Windsor: The University of Windsor provides a stimulating and friendly working environment in the Southernmost, and warmest city of Eastern Canada, right next to Lake Erie. The towns of La Salle and Amherstburg, ranked as the safest places to live in Canada, are within a 10 to 20- minute drive. Windsor has the small-town charm but quick access to big-city amenities with the campus less than 10 minutes' drive from downtown Detroit. The cost of living is lower than in comparable University towns in Canada, meaning the salary stretches A LOT further than it would in Toronto, Montreal, Ottawa, Calgary, Edmonton or Vancouver, and the city is located in the middle of a wine-growing region, as well as being the historic centre for both whisky and beer production in Canada with many microdistilleries and microbreweries. The city is 28% foreign-born, making it one of the most culturally diverse cities in the country. This is reflected in

both the restaurant and the food retail experience. The city is crisscrossed by recreational trails making an active outdoor lifestyle easy; although we lack hills. It is very flat. Great for biking.

About John: He wrote this. Mostly in the third person. The tone should really tell you all you need to know. He's an Associate Professor and the Faculty of Science Research Chair, and he started the lab in July 2016 at Windsor. He's published a bunch of papers, filed many patents, has received a bunch of grants, and been awarded some certificates for research, teaching and mentorship. He focuses on mentorship, or at least really tries to. Specifics are on the website.

BSc in biopharmaceutical sciences (medicinal chemistry option) from UOttawa in 2006 (Honours thesis with William Ogilvie on organocatalysis and research with Natalie Goto on protein production for NMR structure analysis of membrane proteins); PhD UOttawa in 2012 with Robert Ben (carbohydrate total synthesis and ice recrystallization chemical physics); PDF with Tomas Hudlicky at Brock (total synthesis, methodology, chemoenzymatic synthesis) 2011-2012; PDF with Beth Gillies at Western (chemical engineering, polymer science, nanoparticle stuff, more synthesis) 2013-2016; PDF with Joe Gilroy at Western as a failed inorganic chemist and making nylon (2014-2015). Married with two cats, a dog, and a baby.

How to Apply: Interested individuals, please send a current CV (including contacts of three references) and a cover letter stating your research interest and career plan, and how your skill set matches that of the requirements, to Dr. John Trant via the online portal on our webpage **with TT-035** mentioned in the "position number" field. Email applications will not be responded to, nor will incomplete submissions. Competitive candidates will receive a rapid response for additional screening.