Postdoctoral Fellow Position investigating rRNA Modification

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University of Manitoba

Overview

The Kothe group (https://kothegroup.ca/) investigates how functional RNAs are generated in the cell. Specifically, we decipher the interplay of RNA modification with transcription, RNA folding, and RNA processing and how the integration of these processes enhances the functionality of RNAs for protein synthesis. As such, we identify as an RNA research lab, but we have equally strong interest in protein biochemistry and RNA-protein interactions. Our research uncovers fundamental biological processes and identifies disease mechanisms and potential therapeutic targets.

Project: Modification, folding, and processing of ribosomal RNA by H/ACA small nucleolar Ribonucleoproteins (H/ACA snoRNPs)

H/ACA snoRNPs introduce pseudouridine modifications into ribosomal RNA (rRNA) during the early phases of ribosome synthesis, but H/ACA snoRNPs are also involved in rRNA processing and folding. We want to gain deeper insight into these processes because ribosome synthesis is up-regulated in all cancers and dys-regulated in several inherited diseases including Dyskeratosis congenita.

Building on our unique expertise in biochemically investigating H/ACA snoRNPs, you will integrate biochemical and biophysical techniques including fluorescence to characterize how the interaction of H/ACA snoRNPs with rRNA affects the folding of rRNA and the selection of target sites in rRNA. This biochemical approach will be complemented with molecular biology and Nanopore sequencing to expand our understanding of H/ACA snoRNP function *in vivo*. There are also opportunities to investigate other functions of H/ACA snoRNPs beyond ribosome synthesis or to expand this research to C/D snoRNPs.

Learning Opportunities

Molecular Lifesciences: you will gain a well-rounded education in the molecular life sciences including techniques from biochemistry, molecular biology, biophysics, structural biology, and genetics with a special focus on RNA. We have access to many state-of-the-art instruments on campus providing you with hands-on training. This expertise enables you to pursue research careers in academia or in industry.

Collaboration & Networking: you will interact with the Kothe team as well as local and international collaborators gaining experience in teamwork. We are well connected locally through the Manitoba Protein Structure & Function Group, and we are a founding member of the RNA Canada ARN community providing us with strong connections to a vibrant RNA research community across the country.

Communication & Leadership: we place a special emphasis in our training on supporting everybody in developing strong communication skills for diverse audiences and leadership skills. As postdoctoral fellow, you will contribute to the supervision of trainees who will work on related/overlapping research projects. There will be ample opportunities for presentations, participation in scientific meetings, outreach, and scientific writing. All group members are encouraged to pursue volunteer and leadership opportunities.

Expected Qualifications

Applicants must have completed a Ph.D. in biochemistry with outstanding academic achievement in the last 2.5 years. You should have an excellent understanding of biomolecular structure and function, in particular regarding proteins, RNA and DNA. It is expected that applicants have prior research experience in biochemistry including protein purification and characterization. You must have very strong English

language skills (writing, reading, speaking, listening). In addition, applicants should demonstrate experience in teamwork, outstanding interpersonal and communication skills, a strong interest in RNA research, perseverance, and curiosity to learn.

Application

Interested candidates should sent a complete application package to ute.kothe@umanitoba.ca including:

1. A 2-page motivation letter outlining your qualifications and research experience, fit to our research program, and goals in pursuing postdoctoral studies
2. A curriculum vitae
3. Contact information for 2-3 references

Only complete applications will be considered. Please know that you will only be contacted if you are invited for a virtual interview; please refrain from sending multiple applications or inquiries.

About the University of Manitoba and the City of Winnipeg

The University of Manitoba is a driving force of innovation, discovery and advancement and is the main research institution in the province of Manitoba. It is also one of the 15 leading Universities in Canada (U15) offering a high-profile research environment with ample opportunities for advanced education and research collaboration. Our momentum is propelled by our campus community – UM faculty, staff, and students whose determination and curiosity shape our world for the better. Our research, teaching, learning, and work environment is uniquely strengthened and enriched by Indigenous perspectives. With two main campuses in Winnipeg, satellite campuses throughout Manitoba, and world-wide research, UM's impact is global.

The City of Winnipeg (www.tourismwinnipeg.com), located where the Red and Assiniboine Rivers meet, is recognized for its vibrant, multicultural community and diverse culture. The city, with a growing population of more than 766,000, is home to internationally renowned festivals, galleries and museums, the historic Exchange District and The Forks, and ever-expanding research, education, and business sectors. From the Hudson Bay waters, across the farmland fields, to the pulse of the cities and towns, The Province of Manitoba's (www.travelmanitoba.com) people and places – its 100,000 lakes, 92 provincial parks, winding river valleys and storied prairie skies – inspire.

Further information about Postdoctoral Fellows at the University of Manitoba

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