Western

Postdoctoral Associate

About Western

Western ranks as one of Canada's top research-intensive universities. From fundamental to applied discovery and other scholarly activities, its scholars advance knowledge that provides tangible benefits for the economic, social, health and cultural development of citizens in London, in Canada and around the world. Western Research supports scholars through collaboration, communication, and service. Western University and its affiliate colleges received more than $267 million in research funding over the past year.

Job Title: Postdoctoral Associate in Translational Ovarian Cancer Research

Project Title: Interrogating Bioenergetic Stress-Associated Kinase Signaling Vulnerabilities to Disrupt Ovarian Cancer Metastasis

Project Outline: Epithelial ovarian cancer (EOC) remains the deadliest gynecologic malignancy because most patients are first diagnosed with metastatic disease. Unlike many solid tumours, EOC metastasizes through multicellular spheroids that disseminate throughout the peritoneal cavity, where they survive under profound metabolic and mechanical stress before colonizing distant sites. Our previous work has identified bioenergetic stress-associated kinases, including STK11 (encoding LKB1), NUAK1, CAMKK2, and ULK1, as critical regulators of spheroid viability, metabolism, autophagy, invasion, and metastatic progression, yet to different degrees. Recent phosphor-proteomic profiling further demonstrated that these kinases converge on conserved MAPK, receptor tyrosine kinase, and stress-response signaling networks while also regulating distinct pathways controlling mitochondrial function, DNA repair, extracellular matrix interactions, and MYC signaling. These findings suggest that stress-associated kinase signaling impacts multiple non-canonical pathways and together represent a central vulnerability in metastatic EOC.

The overall objective of this proposed postdoctoral project is to define the networks that integrate with abrogated stress signaling that impact EOC spheroid cell survival and identify novel therapeutic strategies to exploit these dependencies.

The first step will be to validate candidate phospho-proteomic pathways using our CRISPR-engineered EOC models in spheroid culture and further assess relevance in patient-derived ascites cells and organoids. Spatial and temporal image analysis of pathway activity in these 3D structures will be performed using our SPoRTS platform. Emphasis will be to define mechanisms linking either LKB1 or ULK1 ablation to biological processes implicated in tumour dormancy and chemotherapy resistance mechanisms. Additional assays to assess how these signaling pathways regulate metastatic fitness will be done using mesothelial clearance assays, three-dimensional spheroid invasion and organoid growth models, and intraperitoneal xenograft studies. These experiments will establish how stress-associated kinase signaling coordinates dormant-to-proliferative plasticity, invasive potential, and metastatic colonization. Lastly, we foresee that these studies will lead to rational therapeutic strategies targeting lead pathway(s) using clinically relevant inhibitors alone and in combination with ULK1 inhibitor DCC-3116 or LKB1 inhibitors (in development). Drug responses will be assessed in established EOC spheroid models, patient-derived organoids, and patient-derived xenografts. Opportunities to identify predictive biomarkers and define mechanisms of sensitivity and resistance may be pursued.

This research will generate a comprehensive systems-level understanding of stress-associated kinase signaling during EOC metastasis and identify actionable therapeutic vulnerabilities. The proposed studies are expected to provide the preclinical rationale for biomarker-guided therapies that target metastatic EOC, with the long-term goal of improving outcomes for patients with advanced ovarian cancer.

Expectations of the Postdoctoral Associate:
- perform the proposed research project efficiently, productively and independently
- seek opportunities to expand the project through collaborations and innovative technologies
- update supervisor with progress and issues by regular one-on-one meetings weekly and at group lab meetings
- assist with grant proposal preparation for work related to the above studies
- present research findings at local, national and international cancer research symposia
- prepare research manuscripts for publication of findings
- mentor junior laboratory personnel and students on relevant projects
- foster a collegial working and training environment
- receive training and follow occupational health and safety guidelines set by London Health Sciences Centre Research Institute and Western University.

Supervisor: Dr. Trevor G. Shepherd, Professor, Depts. of Obstetrics & Gynaecology, Oncology and Anatomy & Cell Biology, Western University; Translational Oncology Scientist, Verspeeten Family Cancer Centre, London Health Sciences Centre Research Institute

Further information on the Shepherd laboratory in the Mary & John Knight Translational Ovarian Cancer Research Unit at the Verspeeten Family Cancer Centre can be found at: https://www.theshepherdlab.ca/

Academic Unit: Department of Anatomy & Cell Biology, Schulich School of Medicine & Dentistry, Western University

Salary: $50,000 per year plus 14% benefits. This amount may be negotiated based on experience of the candidate. The contract period will be for one year with the opportunity for renewal on an annual basis.

Eligibility: Applicants must have received a PhD degree from a valid graduate program at a recognized university within the last three years. Research experience in study areas relevant to the proposed project is not expected but will be considered an asset.

Application must include: one-page cover letter outlining personal interest and suitability for the position, up-to-date CV, proof of PhD degree, and contact information for two references. The application must be merged into a single PDF-formatted document and emailed directly to **Dr. Trevor Shepherd (trevor.shepherd@schulich.uwo.ca)** by the deadline of **July 31, 2026**.

Start date: September 1, 2026 (or to be negotiated).

Western Values Diversity
The University invites applications from all qualified individuals. Western is committed to employment equity and diversity in the workplace and welcomes applications from women, members of racialized groups/visible minorities, Indigenous persons, persons with disabilities, persons of any sexual

orientation, and persons of any gender identity or gender expression. Accommodations are available for applicants with disabilities throughout the recruitment process.