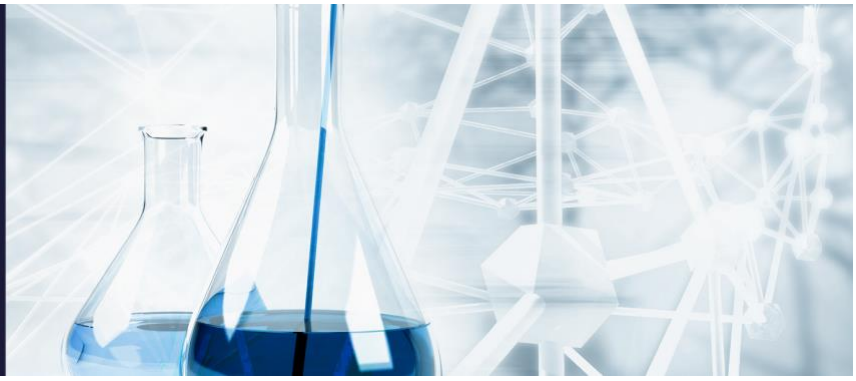
Faculté de pharmacie
Université de Montréal
et du monde.



SÉMINAIRE DE L'AXE | Formulation et analyse du médicament

Translational application of nanostructured biosensors: diagnostics at the point of care

Sara Mahshid
Department of Bioengineering, McGill University
Montréal, Québec, Canada

Mardi 27 janvier 2026 à 11h30 au pavillon Jean-Coutu, S1-139

L'Axe Formulation et analyse du médicament de la Faculté de pharmacie a le plaisir de vous inviter à un séminaire présenté par **Sara Mahshid** du Département de bio-ingénierie de l'Université McGill.

Biographie
Dr. Sara Mahshid is an associate professor of Bioengineering at McGill University, a Tier 2 Canada Research Chair, and an associate member of the Division of Experimental Medicine and interdisciplinary initiatives such as MI4 and the AMR Centre at McGill. She develops innovative nano-biosensing diagnostic devices that integrate nanomaterials, microfluidics, and artificial intelligence. With multiple patents, over 70 high-impact publications in top-tier journals, and leadership roles in international networks, she is at the forefront of translating fundamental research into bedside applications for cancer, infectious diseases and antimicrobial resistance. Her honors include the Pfizer-MI4 Early Career Investigator Award, the PerkinElmer Analytical Sciences and Spectroscopy Award, the Canadian Society for Chemistry Fred Beamish Award, and election to the Royal Society of Canada-College of New Scholars.

Résumé
Development of diagnostic devices with clinically relevant sensitivity and rapidity is highly desirable for decreasing the delay between diagnosis and treatment. Diagnostic inefficiency permeates multiple medical fields, including infectious diseases and antimicrobial resistance (both recognized by WHO among paramount threats and research priorities). Molecular detection is also central to cancer, where therapies are often out of step with disease complexity and progression. The respective challenges may be addressed through the application of nanomaterials and high-throughput devices that offer unique advantages. In Mahshid Lab, we develop novel paradigms in point-of-care diagnosis via synergistically combining innovative nanostructured sensors with fluidic sample delivery systems and analytical approaches. From an engineering perspective, the lab seeks to use the remarkable intrinsic properties of novel nanomaterials to render them capable of sensing specific biomolecules. Such miniaturized sensors could be integrated with automated lab-chip devices and deployed to diagnose molecular changes in biological systems and in diseases such as cancer (by targeting new cancer biomarkers) or to detect infectious agents in biological samples, e.g. in blood, saliva and urine. From a health industry perspective, we target the advancement of the automated and portable tools for in-field testing, remote locations and hospitals. The proposed hybrid devices are capable of working with small sample volumes and precise dosing of reagents, enabling the transition to a portable diagnostic tool.