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|  |  |  הטכניון - מכון טכנולוגי לישראל TECHNION - ISRAEL INSTITUTE OF TECHNOLOGY  |
| הפקולטה להנדסה כימיתע"ש וולפסון |  |  |
| The Wolfson Department of Chemical Engineering |  |  |

**Wolfson Department of Chemical Engineering Seminar**

**Monday, September 9th, 2024 at 13:30**

**Room 1**

**Particular Nano Particles (PNPs): a human proteins-based novel nanotechnology tool for improved inflammation targeting**

**Mrs. Sivan Arber Raviv**

**PhD Mid. Seminar**

Advisor: Assaf Y. Zinger, Ph D

Department of Chemical Engineering, Technion-Israel Institute for Technology

This research aims to develop a novel approach by creating Particular Nano Particles (PNP). PNP are well-defined lipid nanoparticles incorporating well-characterized membrane proteins into the nanoparticle membrane. Membrane protein separation techniques, such as size exclusion chromatography (SEC), and identification techniques such as SDS-PAGE, Western-blot, and proteomics, have been used. Subsequently, PNP have been engineered, assembled, and characterized for their size, zeta potential, concentration, and stability with time. The targeting abilities of PNP compared with those of leukosomes- liposomes that integrate leukocyte membrane proteins. Inflammation targeting was assessed under both static and flow conditions in vitro. Additionally, an ex vivo model was developed to assess the biological activity of PNPs.

The PNP engineering objective is to address the need for well-defined biomimetic nanoparticles. Our primary hypothesis posits that PNP, similar to leukosomes, will exhibit biologically relevant activity by mimicking leukocyte functions and effectively accumulating at sites of inflammation.

Refreshments will be served at 13:15.