



Yarmouk University

**Faculty of
Pharmacy**

Nanotechnology Lab

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Laboratory Overview:

Nanotechnology lab focuses on research related to formulation of nanoparticles for various drug delivery applications. The aim of these research activities is to develop pharmaceutical preparations using nanotechnology to enhance the therapeutic effects of different types of drugs and reduce their side effects.

Different types of nanoparticles are being prepared in this lab such as liposomes, niosomes, gold nanoparticles, polymeric nanoparticles, and many others.

In the nanotechnology lab, several methods of nanoparticles preparation are used such as microfluidic mixing, thin film hydration, ether injection, extractions.

The prepared nanoparticles are characterized for their size and charge, drug encapsulation efficiency, drug release, and stability. Next, the formulations will be evaluated for their activity in vitro depending on the type of the drug loaded within these nanocarriers.

Devices available in the lab

1. Microfluidic mixing systems for preparation of vascular nanoparticles such as liposomes and niosomes.
2. Rotary evaporator for nanoparticles preparation using the thin film hydration method
3. Dynamic light scattering for measuring the size, poly-dispersity index, and surface charge of the nanoparticles.
4. Electrophoresis system for protein separation and Western Blot.
5. -80 freezer for samples storage
6. Orbital Rocker for sample homogenization.
7. Centrifuge for samples separation.
8. Water purification system for generating deionized and ultrapure water.
9. Fridge and freezers for samples storage



Microfluidic mixing systems



Malvern Dynamic light scattering



Electrophoresis system



-80 freezer



Orbital Rocker



Centrifuge



Water purification system



Fridge and freezer