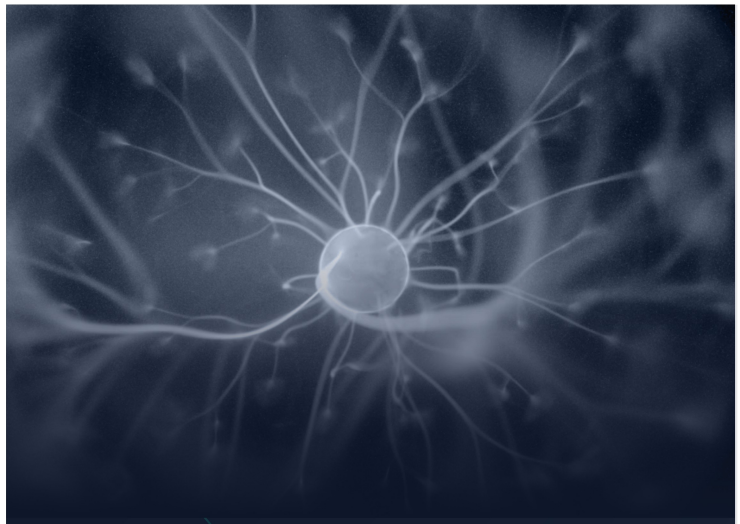

Advanced Bio-Nanotechnology & Synthesis

Transitioning from theoretical molecular design to practical, automated laboratory synthesis.

TOPIC

Curcumin-Loaded Chitosan Nanoparticle Preparation

SCAN ME

Event Registration

Book your spot today to join leading researchers and innovators in exploring the future of bio-nanotechnology.

Register on Protoly →

Contact the Organizers

biopractify@gmail.com

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Who Should Attend?

This track is designed for professionals actively working on scaling drug delivery systems or integrating lab automation.

Formulation Scientists
Focusing on nanocarrier stability.

Automation Engineers
Building high-throughput environments.

Biomedical Researchers
Conducting preliminary cancer screening.

SUPPORTED BY

aws

THE CONTEXT

Translating Theory into Practice

The development of effective nanocarriers is one of the most critical bottlenecks in modern oncology research.

While theoretical molecular design has advanced rapidly, the physical preparation of these materials in the laboratory often relies on manual, inconsistent processes.

This symposium focuses entirely on the intersection of chemistry and laboratory automation. We will examine how automated liquid handling and precise synthesis protocols can reduce batch-to-batch variability and accelerate the development of bio-nanomaterials.

CORE SUBJECT

The Chitosan-Curcumin Matrix

The Therapeutic Challenge

Curcumin possesses significant anti-proliferative properties against cancer cells. However, its clinical application is severely limited by poor aqueous solubility, rapid in-vivo degradation, and low bioavailability.

The Polymer Solution

Chitosan, a highly biocompatible polycationic polymer, serves as an ideal stabilization matrix. By inducing ionic gelation, curcumin can be securely encapsulated within chitosan nanoparticles.

> *"The resulting nanocarrier protects the active compound from premature degradation while facilitating targeted cellular uptake for preliminary screening."*

METHODOLOGY

Automated Preparation Protocols

Attendees will review the practical workflow for synthesizing and characterizing these particles using automated benchtop systems.

01 **Formulation Optimization**

Balancing the tripolyphosphate (TPP) to chitosan ratio via automated titration.

02 **Encapsulation Efficiency**

High-throughput spectrophotometric analysis of free vs. bound curcumin.

03 **Characterization**

Evaluating particle size distribution and zeta potential using DLS techniques.