SIYAO XIAO, PhD

siyao.xiao@uniroma1.it

RESEARCH PROFILE

Nanobiotechnology researcher with hands-on experience in nanoparticle–biofluid interactions, protein corona, and fluorescence-lifetime workflows. Interests include nano-enabled detection/diagnostics and LNP delivery, supported by wet-lab and data-analysis experience in nanoparticle characterization and cell-based assays.

RESEARCH EXPERIENCES

Postdoctoral Fellow 01/2025 – 12/2025
Sapienza University of Rome, Italy Rome, Italy
Worked on lipid nanoparticle (LNP)-based gene delivery, focusing on formulation optimization (LNP characterization, in vitro validation, and cytotoxicity testing), process refinement, and PEG minimization.

Doctoral Candidate 01/2022 – 02/2025
Sapienza University of Rome, Italy Rome, Italy
Contributed to the development of a portable fluorescence-lifetime platform for early detection of micro(nano)plastics in water with an industrial partner; supported technical exchanges between the laboratory team and the industrial partner; conducted in vitro experiments for nanoplastic risk assessment.

Visiting Researcher 07/2023 – 11/2023
UCL Great Ormond Street Institute of Child Health (ICH) London, UK
Investigated the impact of nanoplastics on T-cell activation, leveraging flow cytometry and mouse-derived samples to study early immune biomarkers.

Master's Student 08/2020 – 10/2021
University of Camerino, Italy Camerino, Italy
Worked on DNA vaccine development against SARS-CoV-2 variants (molecular cloning-related workflows; in vitro validation).

EDUCATION

PhD in Biology and Molecular Medicine (Morphogenesis & Tissue Engineering) 01/2022 – 02/2025
Sapienza University of Rome, Italy Rome, Italy
Thesis: Detection of micro- and nano-plastics using fluorescence lifetime-based techniques and assessment of potential health risks. (Final defense: Excellent).

MSc in Biosciences (Biotechnology & Molecular Diagnostics) 10/2019 – 10/2021
University of Camerino, Italy Camerino, Italy
Master's thesis: Development of DNA vaccines against SARS-CoV-2 variants. (Final defense: full marks with honors).

BSc in Biosciences and Biotechnology (Biotechnology) 11/2015 – 02/2020
University of Camerino, Italy Camerino, Italy
Bachelor's thesis: *Assessment of probiotic bacterial viability in the presence of graphene-based composites.*

TECHNICAL SKILLS

- Nanoparticle-biofluid interaction assays
- Nanoparticle characterization: DLS, NTA
- Mammalian cell culture and cell-based assays
- Fluorescence lifetime workflows
- Protein corona workflows
- Flow cytometry (FlowJo)

LANGUAGES

Chinese ●●●●● **English** ●●●●○

Italian ●○○○○

AWARDS

Winner, Research Grant, PRIN 2022 PNRR (NextGenerationEU), project "PlasticHealth" 2024
Department of Molecular Medicine, Sapienza University of Rome

Winner, PhD position with scholarship (PON "Ricerca e Innovazione" track) 2022
Sapienza University of Rome

First Prize (Category C), National English Competition for College Students 2015
National Organizing Committee of NECCS (China)

PUBLICATIONS

First-Line Detection of PET and PVC Microplastics in Water Using a Portable Fluorescence Lifetime Platform 08/2025
Journal of Hazardous Materials Advances

Protein corona alleviates adverse biological effects of nanoplastics in breast cancer cells 09/2024
Nanoscale

Fast and portable fluorescence lifetime analysis for early warning detection of micro- and nanoplastics in water 03/2024
Environmental Research

Insights into the effect of polyethylene terephthalate (PET) microplastics on HER2 signaling pathways 09/2023
Toxicology in Vitro

RELEVANT INDUSTRY EXPERIENCE

Application Specialist (Part-time) 06/2023 – 06/2024
Italy

Analyzed user pain points in fluorescence lifetime detection workflows; supported Asia-Pacific technical communication. Improved user onboarding via writing/translating application notes and technical manuals.

SOFTWARE

- GraphPad Prism
- ImageJ
- FlowJo
- Microsoft Office

Syao Xiao