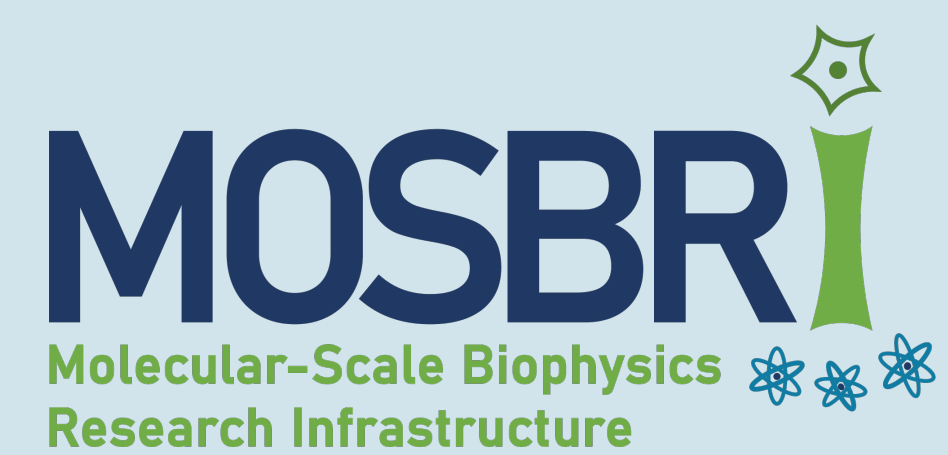


MOLECULAR INTERACTIONS

in the Centre for Molecular Interactions and Structural Biology (CMISB)

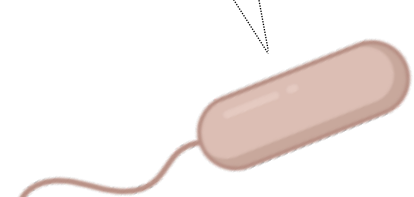


NATIONAL INSTITUTE
OF CHEMISTRY



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Department of Molecular Biology and Nanobiotechnology,
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Molecular cloning



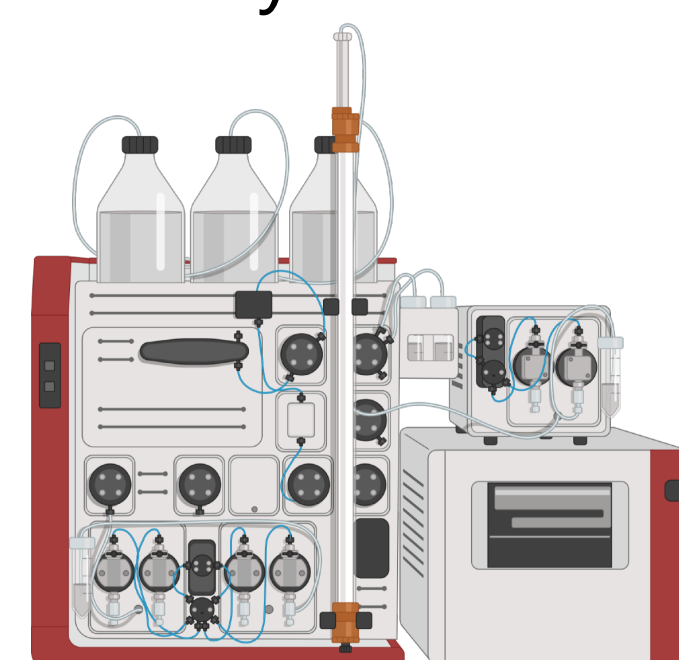
Protein production



in bacterial,
yeast,
insect, and
mammalian cells

Protein purification

- Äkta systems
- analytical HPLC and UPLC systems



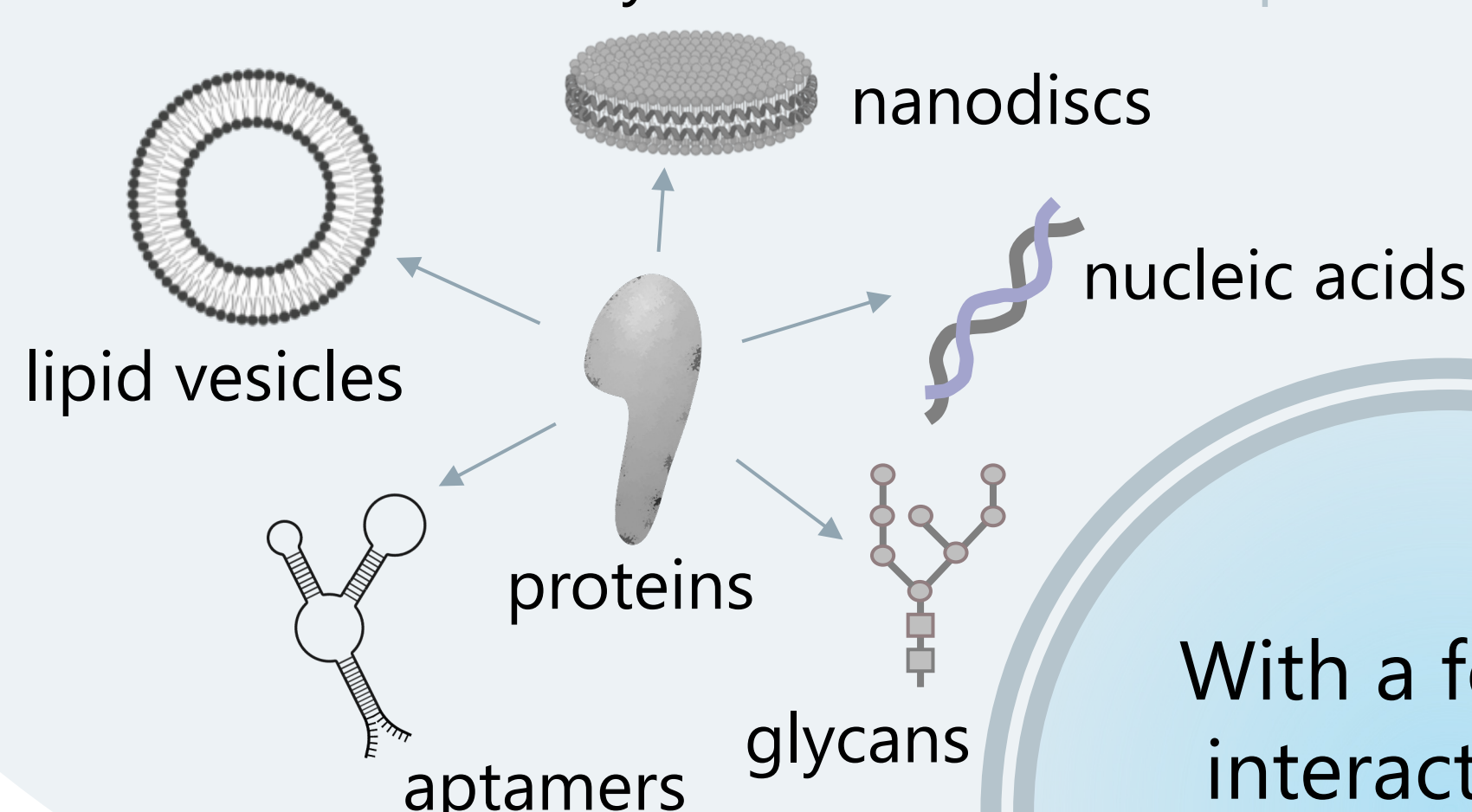
Protein quality control

- Circular dichroism
- Dynamic light scattering
- Differential scanning fluorimetry
- Fluorescence and UV/VIS spectroscopy

Protein characterization

Molecular interactions

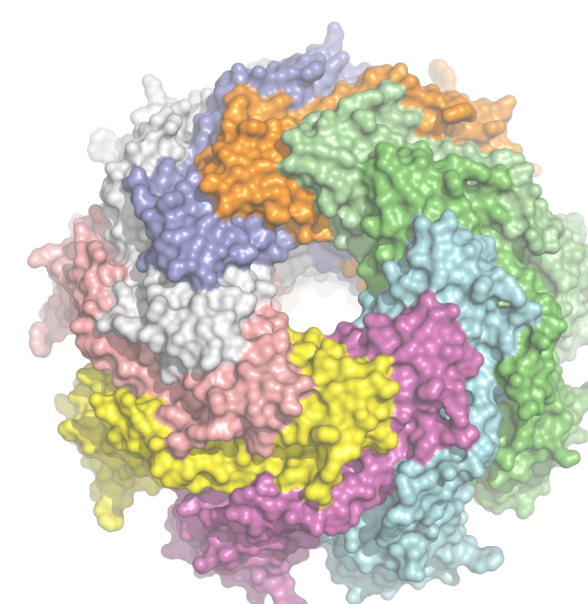
- Surface plasmon resonance: Biacore T200, Biacore X100
- Isothermal calorimetry: MicroCal VP-ITC
- Microscale thermophoresis: Monolith NT.115
- Other: Quartz crystal microbalance OpenQCM



With a focus on
interactions of
PROTEINS with LIPID
MEMBRANES

Structural characterization

- Cryo-transmission electron microscopy
- X-ray crystallography



Other

- Fluorimeter
- Electrophysiology measurements (Orbit mini system, MinION systems)
- Flow cytometry
- Fluorescence microscopy, light microscopy, confocal microscopy

References

- Pirc *et al.* An oomycete NLP cytolysin forms transient small pores in lipid membranes. *Science Advances*. 2022; 8.
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- Omersa *et al.* Design of Protein Logic Gate System Operating on Lipid Membranes. *ACS Synthetic Biology*. 2020; 9:316-328.
- Šakanović *et al.* More than one way to bind to cholesterol: atypical variants of membrane-binding domain of perfringolysin O selected by ribosome display. *RSC Advances*. 2020; 10:38678-38682.
- Lenarčič *et al.* Eudicot plant-specific sphingolipids determine host selectivity of microbial NLP cytolysins. *Science*. 2017; 358(6369): 1431-1434.

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Access to the research infrastructure

MOSBRI TNA: mosbri.eu/apply-for-tna

Molecular interactions consortium:
molecular-interactions.si

Centre for Molecular Interactions and Structural
Biology (CMISB): www.ki.si/en/cmib

CRYO-EM: cryoem@ki.si

Welcome to Ljubljana for

MOSBRI TNA visits (all European researchers),
MOSBRI staff exchange visits (MOSBRI partners only),
MOSBRI scientific conference in 2024,
MOSBRI end user short course on protein-membrane interactions in 2025,
other events organized by our department, National Institute of Chemistry,
Slovenian biochemical society, Slovenian biophysical society, and others,
stunning nature and excellent food!

