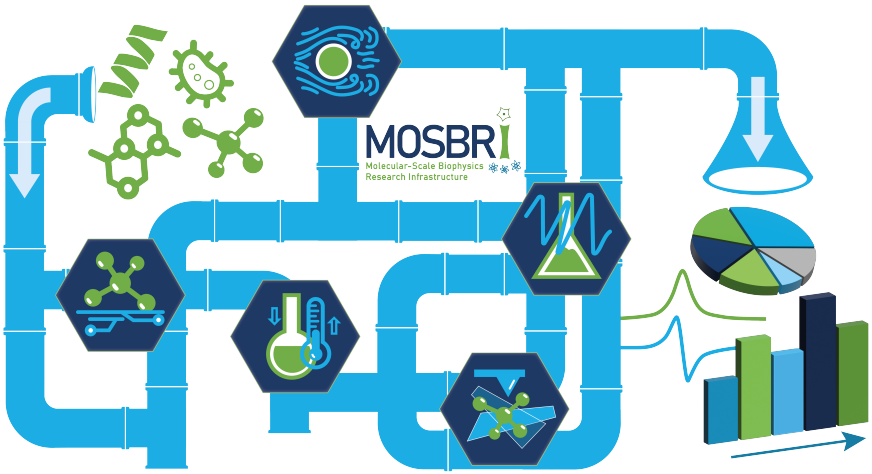
MOSBRI
Molecular-Scale Biophysics Research Infrastructure

TNA Pipelines

The **MOlecular-Scale Biophysics Research Infrastructure**, **MOSBRI**, enables multi-technological studies of biological systems at the *intermediate level between atomic-resolution and cellular-scale observations*.

To this end, **MOSBRI** offers free-of-charge transnational access (TNA) to an integrated synergistic set of biophysical instruments and technologies, called **pipelines**.

*Read more about **MOSBRI** pipelines in this flyer.*



MOSBRI.eu/apply-for-tna

MOSBRI *offers free-of-charge*
transnational access (TNA)
to instruments and expertise at laboratories of excellence.

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101004806

MOSBRI pipelines…

Membrane proteins in membrane models, in vitro and/or in-cellulo

Membrane proteins may be especially challenging with respect to stability and their suitability for biophysical investigations. **MOSBRI** offers its expertise in this pipeline with access to diverse techniques such as IR spectroscopy, microscopy (fluorescence and AFM) as well as high-throughput stability screening to optimize detergents, buffers and additives. *(3, 4, 5, 6, 8)*

Time-resolved folding/unfolding/binding studies, including analysis of intrinsically disordered proteins

MOSBRI has extensive expertise in time-resolved studies and includes the use of real time biosensing, as well as advanced spectroscopic setups based on IR, circular dichroism, absorbance, fluorescence and biolayer interferometry. *(2, 3, 6, 7, 12)*

Amyloid proteins and fibrillation studies: kinetics, shape, stability, formation

MOSBRI has a portfolio of sites that are highly experienced in the study of amyloids and fibrils, including their formation, shape, stability and also kinetics. We offer access to IR and fluorescence spectroscopy and imaging, as well as AFM. Fluorescence probes have also been developed for use both in vitro and in tissues. *(3, 4, 5, 7)*

Kinetics and affinities in biomolecular self-assembly

Many biological systems exhibit self-assembly where biomolecular components spontaneously form functional structures. The rates of complex formation (kinetics) and the strength of binding (affinity) are critical parameters to evaluate the formation and disassembly of such complexes, and therefore of highest relevance to evaluate biological function. A wide range of biophysical methods are well suited for studies of both the kinetics and the affinities of the assembly process at various time scales. **MOSBRI** offers expertise in identifying and pursuing the most optimal research strategy for your self-assembling sample. *(All sites)*

*The numbers at the end of each description indicate the **MOSBRI** TNA sites offering this pipeline - see the map on the back of this flyer for sites.*

Protein binding to prosthetic groups and paramagnetic centres

Prosthetic groups are important for a protein's biological activity e.g. enzymatic function. This pipeline focusses on their activities. As an example, metalloproteins can be studied by EPR at the EPR-MRS TNA site or via spectroscopic rapid kinetics methods at the DSB-UROM site. The latter site also offers real-time biosensing of energy metabolism. *(10, 12)*

Protein sample profiling and optimisation for monodispersity/ stability

Monodispersity and stability are important characteristics of a protein sample and the sample components may be optimized to improve these properties. **MOSBRI** offers its expertise in profiling a sample and identifying possible improved conditions. *(1, 6, 7, 9, 11, 13)*

Small-molecule and solvent screening

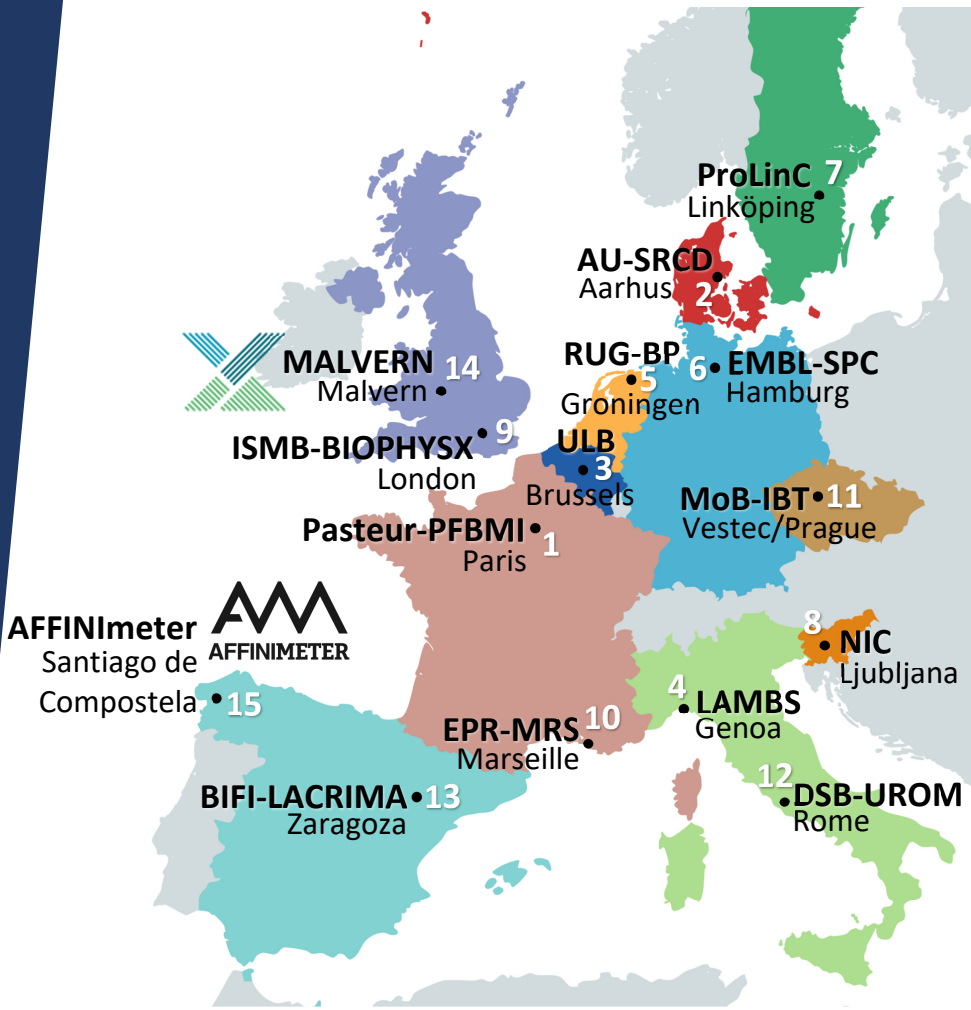
This Pipeline is focused on the optimum choice of solvent components or ligands for protein stability or protein interactions with small molecules, by use of screening. **MOSBRI**'s expertise in thermodynamics and advanced spectroscopies is the basis of this pipeline, the use of which might, for example, include protein stabilization or drug discovery. *(1, 13)*

Architecture of macromolecular assemblies in solution

Using this pipeline, you obtain access to **MOSBRI** expertise in hydrodynamic techniques to investigate the size, shape and stoichiometry of a sample. Techniques used in this pipeline include Analytical Ultra Centrifugation (AUC), Dynamic Light Scattering (DLS), Size Exclusion Chromatography coupled Multi Angle Light Scattering (SEC-MALS), Small Angle X-ray scattering (SAXS), Mass Photometry and Taylor Dispersion (TD). Several **MOSBRI** transnational access sites offer access to this pipeline and each have a selection of the techniques; see the **MOSBRI** techniques page under hydrodynamics. *(1, 6, 7, 9, 11, 13)*

For more details: see www.mosbri.eu
or contact the MOSBRI TNA manager: tna@MOSBRI.eu

Where are the TNA sites located?



The MOSBRI research infrastructure spans across Europe.
Transnational access (TNA) is provided to all facilities numbered 1 – 13.

Want to know more?

Got questions not answered in this flyer or at the **MOSBRI** web site?
Please contact the **MOSBRI** TNA manager: **tna@mosbri.eu**