

## Centre of Molecular Structure

### Biotechnology and Biomedicine Center of the Academy of Sciences and Charles University in Vestec

The Centre of Molecular Structure harbors technology and expertise necessary for access to state-of-art measurements of samples of biological macromolecules of the following types:

1. Crystallization and X-ray diffraction
2. Biophysical techniques
3. Structural mass spectrometry

CMS is organized in three smaller facilities following the above given scheme:

- 1. Crystallization of proteins and nucleic acids, diffraction techniques**  
Equipped by crystallization robot Gryphon LCP, crystallization hotel, dedicated crystallization rooms at high and low temperatures, several stereomicroscopes, crystal vitrification and storage equipment, crystal handling under defined atmosphere, SpectroLight 600 for in drop DLS, etc.; X-ray diffractometer based on Metaljet liquid gallium X-ray source, with automated in-situ setup, dedicated computer room, guest lab.  
Staff: Research scientist (to be hired) responsible for technology use, expertise, provision of service, part time laboratory technician, part time technician, part time researcher participating in methods development.
- 2. Biophysics**  
Equipped by ProteOn XPR36 SPR, Microscale thermophoresis Monolith NT.115, Isothermal Titration Microcalorimeter Microcal iTC200, UV CD spectrometer Chirascan plus, dynamic light scattering instrument Zetasizer Nano ZS90.  
Staff: Research scientist (already hired) responsible for technology use, expertise, provision of service, part time laboratory technician, part time technician.
- 3. Structural mass spectrometry**  
Equipped with high resolution mass spectrometer (MALDI/ESI 15T solarix XR) and multidimensional ultra-power liquid chromatography system. The system will be utilized for high resolution mass spectrometry (15T FT-ICR MS) to determine the composition of molecules (metabolites, nucleic acid, proteins, carbohydrates), mass spectrometric cutting-edge analysis of post-translational modifications, and of structural states of proteins and complexes in solution, to name a few applications.  
Staff: Research scientist (to be hired) responsible for technology use, expertise, provision of service, part time laboratory technician, part time technician.

**Minimum staffing: CMS Managing scientist** (current call), **Research scientists** (3-4), **Laboratory technician** (1 full time shared among facilities), **Technician** (part time, shared among facilities).

CMS fulfils the needs of internal users of structural biology techniques of the research programme number 3 of center Biocev and of the external user community.

The Managing scientist is responsible for expertise level, communication within CMS and outwards, service offer, user access, communication with Czech and potentially international community, involvement of CMS in the infrastructure activities. Employees of CMS are directly responsible to the Managing scientist. The Managing scientist is directly responsible to the Director of the Institute of Biotechnology and the Director of center Biocev.

For further details regarding CMS contact Dr. Jan Dohnalek, dohnalek@ibt.cas.cz.