**BIOCEV – Centre of Molecular Structure**

Project Application Form

**Project name:**

**Applicant**

First name: Surname:

E-mail: Phone:

Position (check box):

Researcher (Ph.D. and above)  Ph.D. student  MA student

Institution:

Institution type (check box):

University or other higher education organisation  Public research organisation

Address (street, city, post code, country):

Type of access:  Standard access  BAG

**Project proposal**

**Max 2 A4 pages, BAG access max 5 A4 pages**

Core facility to be used:

Project:  Internal (Biocev research project)  External

Abstract:

Background (scientific context of the proposed project):

Objectives:

Expected results:

Experimental plan (methods/technical requirements):

References:

Quantification of the project (e.g. number of samples, hours of equipment time needed):

**Please fill in also core facility specific information on the following pages!!!**

# BIOCEV – Centre of Molecular Structure

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| --- | --- | --- | --- |
| **SAMPLE INFORMATION**  *In case of need (e.g. multiple samples), copy the table* | | | |
| **Sample name:** | | | |
| **Sample description:** *(# sample and buffer description - concentration, molecular weight, pH, theoretical pI, usage of His-Tag)* | | | |
| **Do the samples present any risk to human health and/or environment?**   No Yes **Class of risk:**  1  2  3  *if Yes , please specify details in the Other specification field* | | | |
| **Source of origin:** | | | |
| **Is the sample recombinant:**  Yes  No *if Yes , please specify the expression host:* | | | |
| **The sample is:** *(tick if valid)* | | | |
| **active virus** | **virulence factor** | **toxin** | **prion protein** |
| **Other specifications** | | | |

**Please, choose the following services, which are you interested in**

|  |  |
| --- | --- |
| **Surface Plasmon Resonance (SPR) characterization** |  |
| **Prometheus DSF assay** |  |
| **Monolith NT.150 thermophoresis characterization** |  |
| **Monolith NT. LabelFree thermophoresis characterization** |  |
| **Isothermal titration calorimetry on the Microcal iTC200 instrument** |  |
| **Differential scanning calorimetry on the Microcal VP-DSC instrument** |  |
| **UV/visible precision spectroscopy** |  |
| **Circular Dichroism** |  |
| **Dynamic light scattering** |  |
| **FLS1000 Photoluminescence Spectrometer** |  |
| **Vertex 70v Fourier-transform Infrared (FTIR) Spectrometer** |  |
| **Robotic setup of crystallization plates using the Gryphon robot** |  |
| **Robotic setup of crystallization plates using the NT8 robot** |  |
| **Manual setup of crystallization plates** |  |
| **Manual setup of crystallization plates under an inert atmosphere** |  |
| **Automated monitoring of crystallization in the Formulatrix crystal hotel** |  |
| **Crystal handling and preparation for diffraction experiments** |  |
| **Crystal handling and preparation for diffraction experiments in oxygen-free conditions** |  |
| **In-situ (in the crystallisation plates) testing of crystal diffraction using the ISX stage** |  |
| **Testing of diffraction using mounted crystals and measurement of diffraction data** |  |
| **Diffraction data processing** |  |
| **Assistance to solve a 3D structure (incl. a full 3D structure determination service on request)** |  |
| **Small angle X-ray scattering (SAXS) measurement** |  |
| **SAXS data processing** |  |
| **Assistance to interpret SAXS data (ab-initio modelling, rigid body modelling, …)** |  |
| **Measurement of X-ray diffraction data sets at synchrotron radiation sources** |  |
| **Measurement of SAXS data at synchrotron radiation sources** |  |
| **Precise molecular weight determination using Mass Spectrometry analysis** |  |
| **HPLC separation (sample preparation for MS)** |  |
| **Mass spec data interpretation** |  |
| **M(N)ALDI analysis** |  |
| **ESI electrospray analysis** |  |
| **Proteolysis for MS analysis** |  |
| **MS sample preparation and handling** |  |

# BIOCEV – Centre of Molecular Structure

# Biophysical techniques

Core facility – specific information

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| --- | --- |
| **Isothermal Titration Calorimetry**  *This type of experiment is supposed to be managed by the user itself after special training* |  |
|  | |
| **Experiment details:** Time of measurement required: ………….. days  *If you plan to use other liquids than water-based buffers, please specify in “Other information” field !!!*  Number of samples: ……….  Blank measurement required?  Total measurements expected: ............  Do you request measurement at different temperatures? Yes No  *if Yes, please specify, experiments are routinely performed at 25°C* | |
| **Type of experiments:** Standard titration experiments  Single titration injection (continuous titration) | |
| **Method of evaluation:**  Evaluation using in-build software fitting (*binding site model with fixed stoichiometry*)  Expert evaluation (*one or two independent binding site model, cooperativity, competitive binding, kinetics*) | |
| **Other information, or If more description is needed than is covered by the form** | |

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| **Differential Scanning Calorimetry**  *This type of experiment is supposed to be managed by the user itself after special training* |  |
| Time of measurement required: ………….. days | |
| Specify the temperature range of the experiment:  *If you plan to use other liquids than water / water-based buffers, please specify in “Other information” field !!!* | |
| **Type of experiments planned:** | |
| **Other information, or if more description is needed than is covered by the form** | |

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| **Microscale Thermophoresis (Monolith NT .115, Monolith NT. LabelFree)/ Differential Scanning Fluorimetry (Prometheus NT.48)**  *This type of experiment is supposed to be managed by the user itself after special training* |  |
| **Used instrument for measurement:**  Monolith NT.115  Monolith NT. LabelFree  Prometheus NT.48 |  |
| **Number of runs required**: …………..  *(1 run = 1 binding curve of 16 points for Microscale Thermophoresis / 48 samples using Differential scanning fluorimetry)* | |
| **Specify used label (for Monolith NT.115)**: …………………………… | |
| **Specify used label-free (for Monolith NT. LabelFree)**: …………………………… | |
| **Extinction coef. at 280 nm (for Prometheus NT.48):** …………….. | |
| **Type of experiments planned:** | |
| **Other information, or if more description is needed than is covered by the form** | |

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| **Surface Plasmon Resonance (BioRad ProteOn XPR36)**  *This type of experiment is supposed to be managed by the user itself after special training* |  |
| Time of measurement required: ………….. days | |
| **Sensor chips for measurement:**  I will use my own chip  I need a chip provided by CF  If you want sensor chips to be supplied by CF, please fill in the number of chips of each type you request.  ………….x Covalent immobilization  GLC  GLM  GLH  NLC  HTG  HTE   I need appropriate immobilization chemicals | |
| **Type of experiments planned:** | |
| **Other information, or if more description is needed than is covered by the form** | |

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| **Dynamic Light Scattering (Zetasizer Nano ZS90, Zetasizer Ultra)**  *This type of experiment is supposed to be managed by the user itself after special training* |  |
| Time of measurement required: …….. hours | |
| **Temperature of experiments:**  **Type of experiments:** | |
| **Other information, or if more description is needed than is covered by the form** | |

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| --- | --- |
| **FLS1000 Photoluminescence Spectrometer**  *This type of experiment is supposed to be managed by the user itself after special training* |  |
| Time of measurement required: …….. hours | |
| **Sample:**  **Temperature of experiments:**  **Type of experiments:** | |
| **Other information, or if more description is needed than is covered by the form** | |

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| --- | --- |
| **Vertex 70v Fourier-transform Infrared (FTIR) Spectrometer**  *This type of experiment is supposed to be managed by the user itself after special training* |  |
| Time of measurement required: …….. hours | |
| **Sample:**  **Temperature of experiments:**  **Type of experiments:** | |
| **Other information, or if more description is needed than is covered by the form** | |

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| **Circular Dichroism (Chirascan Plus)/ UV/Vis Spectrophotometer (Specord 50 Plus)**  *This type of experiment is supposed to be managed by the user itself after special training* |  |
| Circular dichroism  UV/Vis spectrophotometer  Time of measurement required: ………….. hours | |
| **Cuvette types required:**  1 mm path  2 mm path  5 mm path  10 mm path  10 mm path; 50 µl for Specord 50 Plus  10 mm path; 100 µl for Specord 50 Plus  10 mm path; 1400 µl for Specord 50 Plus | |
| **Type of experiments:** | |
| **Other information, or if more description is needed than is covered by the form** | |

BIOCEV – Centre of Molecular Structure Crystallization and Diffraction

Core facility – specific information

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| **GENERAL SERVICE INFORMATION** |
| Are you interested in data evaluation service (if relevant)?  Yes  No  *if Yes , please specify in which method* |
| Are you interested in training in data processing (if relevant)?  Yes  No  *if Yes , please specify in which method* |
| Are you interested in expert consulting assistance?  Yes  No  *if Yes , please specify in which method* |

**Please, indicate your interest in specific service(s) on the next pages.**

|  |  |
| --- | --- |
| **Crystallization and Diffraction** |  |
| Number of samples: ………. | |
| **Requested technique:**  Robotic setup of crystallization plates – Gryphon robot  Number of screen plates per sample required: …..  *specify screens required in the “Other information” field*  Robotic setup of crystallization plates – NT8 robot  Number of screen plates per sample required: …..  *specify screens required in the “Other information” field*  Manual setup of crystallization plates  Manual setup of crystallization plates in oxygen-free conditions  96 well plate storage and automated monitoring in the Formulatrix hotel  Crystal handling and preparation for diffraction experiments  Crystal handling and preparation for diffraction experiments in oxygen-free conditions  In-situ (in the crystallisation plates) testing of crystal diffraction using the ISX stage  Testing of diffraction and measurement of diffraction data  Number of crystals: ………..  Diffraction data processing  Assistance in 3D structure solution (incl. a full 3D structure determination service on request)  Small angle X-ray scattering (SAXS) measurement  SAXS data processing  Assistance with SAXS data interpretation  Measurement of X-ray diffraction data sets at synchrotron radiation sources  Measurement of SAXS data at synchrotron radiation sources | |
| **Other information, or if more description is needed than is covered by the form** | |

BIOCEV – Centre of Molecular Structure

Structural mass spectrometry

Core facility – specific information

**Sample characteristics**

*Organism:*

Sample origin (solution, gel etc; incl. solvent/buffer/salts/detergent information), max. 100 words:

*Protein in gel*

1D 2D % T: Staining (MS compatible):

*Protein in solution:*

Sample concentration: µM

Sample volume: µL

Sample storage requirements:

Sample stability:

Other:

**Services required:**

Protein fractionation/separation (1D, LC)

Determination of precise MW of intact protein

Protein identification

Characterisation of protein modifications. Please specify:

Relative protein quantification

Other molecules identification. Please specify:

Hydrogen/deuterium exchange

Chemical cross-linking

Limited proteolysis

Analysis of small molecules (metabolites)

MS data processing and reporting