



Mouse embryo cryopreservation

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The CNB mouse embryo cryopreservation facility offers to researchers the possibility to freeze, maintain and rescue transgenic and knockout mouse lines in the form of embryos and/or sperm, hence contributing to current animal welfare recommendations and complying with the associated legislation on animal experimentation. Current methods available include freezing sperm, oocytes and/or embryos, the thawing of sperm, oocytes and/or embryos previously frozen and the subsequent revitalisation of the cryopreserved mouse lines through *in vitro* fertilisation, assessment and/or logistical support for importing/exporting frozen or refrigerated embryos or sperm, from and to the CNB, and quality controls and genotyping procedures.

The CNB hosts the Spanish node of the European scientific-technological infrastructure INFRAFRONTIER-EMMA, whose objective is the cryopreservation, organised archiving and coordinated distribution of mouse lines of interest for the scientific community in biomedicine.

The CNB mouse embryo cryopreservation facility has scientific cooperation agreements with the Spanish National Cancer Centre (CNIO) and the University of Kumamoto for the archiving and distribution of mutant mouse lines of interest in biomedical research.

Lluís Montoliu and Julia Fernández participate regularly as instructors in mouse cryopreservation workshops and courses, organized in collaboration with CARD-University of Kumamoto, INFRAFRONTIER-EMMA, ISTT and CIEMAT-SECAL, among other institutions.



Protein tools

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The CNB protein tools unit offers scientific services related to the design, generation and characterisation of custom monoclonal antibodies (mAb); immune response studies; customised immunoassays; antibody purification and labelling, and analysis of biomolecular interactions.

The facility has expertise in immunobiology and immunochemistry, and provides technical assistance, data analysis, training in specific techniques, introduction of new methodologies and technical advice. It also organises theoretical and practical courses and assists with the preparation of manuscripts and oral presentations.

The facility also has a surface plasmon resonance (SPR) based biosensor, Biacore 3000, that allows the characterisation of biomolecular interactions in real time and the determination of kinetic and affinity constants. SPR analysis can be applied to a wide range of molecules or particles such as proteins, nucleic acids, carbohydrates, lipids, low molecular weight compounds, liposomes and viruses.

Protein tools unit is a founder member of the EuroMAbNet, the first European non-profit organisation of multidisciplinary academic laboratories specialised in mAb production, which offers to researchers working in the field a framework for exchange of knowledge, methods and materials, recommendations and training in antibody validation. The facility provides research tools and services to scientists from the CNB, other CSIC institutes, universities, public research organisations and private companies.

SPR analysis of a protein-peptide interaction.

