

Foreword

Molecular Oncology Programme

Structural Biology and Biocomputing Programme

BBVA Foundation – CNIO Cancer Cell Biology Programme

Molecular Pathology Programme

Human Cancer Genetics Programme

Experimental Therapeutics Programme

Biotechnology Programme

Clinical Research Programme

Animal Facility

Facts and Figures

186 Animal Facility

188 Genetically Modified Mouse Strains



The CNIO has had a state-of-the-art Animal Facility managed by Charles River Laboratories since June 2006. The primary responsibility of the Animal Facility is the supply, husbandry and quality control of laboratory animals used by the research Programmes in experimental protocols. The strict compliance to National, European Union and International Recommendations regarding the use and care of animals in research is of paramount importance to the CNIO.

Our Animal Facility has the capacity to house 19,000 type III cages (each of an average capacity of 3.5 mice) in its barrier area where Specific Pathogen Free (SPF) health status is assured through a comprehensive health surveillance programme.

Microbiological and environmental parameters in animal areas are constantly monitored. Bedding, water, and cages are sterilised by autoclaving, and diet is irradiated. Air shower and sterile clothes are required for anyone entering the barrier area. All mouse strains housed in the barrier are either generated within the barrier or introduced by rederivation. No live mice are introduced in the barrier regardless of their health status.

We also have an additional area with a capacity for 1792 type II cages dedicated to the use of non-replicative strains of adenovirus, lentivirus and retrovirus. To maintain clean air in the premises mice are housed in ventilated racks with Integration of Individually Ventilated Caging (IVC) systems in the building ventilation systems. Mice are manipulated in a Type II Biosecurity Cabin.

Daily operations and husbandry procedures are highly automated; robotic devices perform the potentially hazardous tasks such as the processing of dirty bedding, the washing/filling of cages and bottles, etc. In this way our personnel are consequently protected from associated risks. These automated systems also provide us with the highest productivity and quality standards in our washing and sterilising areas.

All records concerning breeding protocol and animal inventory are computerised and stored in a web-based application accessible via the CNIO intranet.



Figure 1: Detail of washing area: drinking bottles after the cleaning process is finished.



Figure 2: Example of mice housing: sleeping mice shelter inside a hut made of enrichment material.

The Animal Facility was established to assist researchers in the development and analysis of *in vivo* models. We are currently collaborating closely with the following research groups:

Molecular Oncology Programme:

- Telomeres and Telomerase Group
- Experimental Oncology Group
- Tumour Suppression Group
- Signalling and Cell Cycle Group
- Cell Division and Cancer Group
- DNA Replication Group
- Genomic Instability Group
- DNA Hypermutation and Cancer Group
- Cell Competition Group
- Chromosome Dynamics Group

Molecular Pathology Programme:

- Epithelial Carcinogenesis Group
- Melanoma Group

Experimental Therapeutics Programme:

- Assays Development Section
- Cell Signalling Therapies Section
- Animal Pharmacology Section
- *In Vivo* Target Validation Section

Biotechnology Programme:

- Monoclonal Antibodies Core Unit
- Transgenic Mice Core Unit

BBVA Foundation – CNIO Cancer Cell Biology Programme:

- Genes, Development and Disease Group
- Epithelial Cell Biology Group
- Growth Factors, Nutrients and Cancer Group

Clinical Research Programme:

- Stem Cells and Cancer Group
- Breast Cancer Clinical Research Unit
- Gastrointestinal Cancer Clinical Research Unit

All the work carried out by the Animal Facility complies with both national and EU legislation – Spanish Royal Decrees, RD#223-1988 and RD#1201-2005, and Order of the Regional Government of Madrid BOCM 4-8-1989; EU Directive 86/609/CEE as modified by 2003/65/CE – for the protection of animals used for research experimentation and other scientific purposes.

The Royal Decree RD1201/2005 establishes that all animal procedures be carried out by qualified people in the possession of the corresponding accreditation as issued by the competent authority. To abide with the former requirement the Animal Facility offers CNIO staff an official Category C Qualification Annual Training Course on the education and training of personnel performing work with laboratory animals. This course strictly adheres to the guidelines approved by FELASA (European Federation of Laboratory Animals Science) which issues the Diploma Certificate.