CNR-IBBC Monterotondo mutant strain production unit (MMP), from 2008 participated in EUCOMM (European Conditional Mouse Mutagenesis) project, that is a cornerstone of the International Knockout Mouse Consortium (IKMC). We produced more than 200 mutant mouse lines, by ESC blastocyst injection, and CrispR/Cas9 editing technologies, feeding of mutant mice, the large scale mouse phenotyping projects EUMODIC (European Mouse Disease Clinic), and IMPC (International Mouse Phenotype Consortium). We was also member of EUCOMM Tools project in which we produced as requested from our work package more than 50 mouse mutants CRE drivers line, as well as dissection from these lines to detect the effective tissue specific CRE expression of the mutants produced. These lines are already cryopreserved in EMMA/INFRAFRONTIER and ready for distribution, to the scientific community. We also have an active “Research and Development” project, with the aim to improve transgenic technologies.

The CNR Monterotondo Mouse Production facility, has greatly increased the possibilities of researchers from all over the world to obtain the mouse model more suitable for their research, already checked both genotypic and often also phenotypic traits, with highly standardized methods, contributing to the reduction and replacement (3R’s), avoiding the wasteful attempt to generate new models, sometimes attempted by personnel inexperienced or individual research groups with little knowledge of the mouse model in general. At the same time the great experience acquired for more than 14 years and the ability to cryopreserve the mouse models generated, in a public repository such as INFRAFRONTIER, allows to increase the generation efficiency with internal control procedures, keeping track and records of each procedure, and external, thanks to the comparison of data and results with different production centers within the consortium. Furthermore, access to standardized cryopreservation avoids unnecessary sacrifices and repetitions. As a reference for the CNR in murine trans-genesis, we make available to the researchers of the Department of Biomedicine and their related project ideas, our skills, gained in these years of active participation in European projects for the production of large-scale mouse models.

References:
- A resource of targeted mutant mouse lines for 5,061 genes
  Marie-Christine Birling, et al., 2020 Nature Genetics (accepted)
  doi: https://doi.org/10.1101/844092.

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Contacts: francesco.chiani@cnr.it  alessia.gambadoro@cnr.it  miriam.pasquini@ibbc.cnr.it

Website(s): http://www.ibbc.cnr.it/mouseclinic-emma/

Other: https://www.mousephenotype.org/