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# Intravital microscopy (IVM) with fluorescent biosensors in mouse models of cancer

Provider: Consiglio Nazionale delle Ricerche

## What service do we offer?

### **Intravital microscopy (IVM) with fluorescent biosensors in mouse models of cancer**

The Consiglio Nazionale delle Ricerche (CNR-IBBC) Monterotondo Site provides expertise in performing intravital microscopy (IVM) in the tumour microenvironment using mouse models of brain tumours, particularly glioblastoma. IVM has revolutionised visualisation of tumour-microenvironment interactions in real time and can significantly improve our understanding of cancer by revealing the dynamic interactions governing cancer initiation, progression, and treatment effects in living animals.

**APPLY NOW!!**



### **Included in the service:**

*This is included in the service provision by default.*

Interested users will learn how to inoculate tumour cells in the mouse brain, perform craniotomy with robotic assistance and apply a cranial window to image tumours in the brain by IVM.

### **Additional support:**

*This can be provided on demand if there is canSERV funding available, or on a fee-for-service or collaborative basis and will require further negotiations with the applicant.*

Numerous molecular biosensors were developed that are useful to investigate cell signalling in the tumour microenvironment. For a list of readily available biosensors, please refer to the Addgene public repository at:

<https://www.addgene.org/fluorescent-proteins/biosensors/> .



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Cancer cells can be made to express stably one or more such biosensors following viral transduction before or after implantation into the host. To uncover cell signalling in the tumour microenvironment with the use of molecular biosensors, the CNR-IBBC Monterotondo facility offers customised screens based on IVM of mouse brain tumours. The user's research interests, the nature of cancerous cells and the strain of the (mutant) host mice under investigation will dictate the selection of the most appropriate combination of biosensors and imaging modalities, to provide the most informative customised output for the user.

### Who provides this service?

**Consiglio Nazionale delle Ricerche  
Institute of Biochemistry and Cell  
Biology - Monterotondo Site (Italy)**



The [CNR-IBBC Monterotondo site](#) includes complete infrastructures, equipment and services that are readily available to international users for mouse mutant model production, phenotypic and advanced imaging analysis, cryopreservation and distribution, genotypic and phenotypic data curation and disease model annotation, as well as related training activities.

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## References:

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- Nardin C, Peres C, Putti S, et al. **Connexin Hemichannel Activation by S-Nitrosoglutathione Synergizes Strongly with Photodynamic Therapy Potentiating Anti-Tumor Bystander Killing.** *Cancers (Basel).* 2021; 13(20):5062. [DOI: 10.3390/cancers13205062](https://doi.org/10.3390/cancers13205062).
- Nardin C, Peres C, Mazzarda F, et al. **Photosensitizer Activation Drives Apoptosis by Interorganellar Ca<sup>2+</sup> Transfer and Superoxide Production in Bystander Cancer Cells.** *Cells.* 2019; 8(10):1175. [DOI: 10.3390/cells8101175](https://doi.org/10.3390/cells8101175).



## INFRAFRONTIER

[INFRAFRONTIER, the European Research Infrastructure for Modelling Human Diseases](#), is a non-profit organisation dedicated to advancing disease understanding and treatment through cutting-edge models. Operated by a [network of over 20 leading biomedical research institutes](#), it empowers research on human health and disease. Committed to excellence, INFRAFRONTIER adheres to rigorous scientific benchmarks and prioritises animal welfare. Through [collaboration with other infrastructures](#), it fosters global data sharing and contributes to tackling significant health challenges. INFRAFRONTIER serves as a platform for innovative technologies and knowledge exchange, leveraging the power of disease modelling to improve human health.

INFRAFRONTIER offers a host of cutting-edge in vivo services in [canSERV](#) like generation of precision cancer models, in-depth cancer phenotyping and more! These free-of-charge services are offered by INFRAFRONTIER partners that are world-class experts in disease modelling.