# ***EXPECTED IMPACT OF THE RESULTS.***

* 1. ***Expected impact on the generation of scientific-technical knowledge in the thematic area of the proposal*.**

We anticipate that the outcomes of this proposal will provide insights into the conserved mechanisms governing the stable transmission of the genome across generations. The exploration of meiotic recombination and its correlation with genome stability is crucial for addressing fertility issues and associated genetic disorders. While infertility is traditionally viewed as a genetically non-transmissible factor, advancements in assisted reproductive techniques now facilitate fertilization using defective or deficient gametes, potentially transmitting underlying genetic causes of infertility. Notably, a substantial portion of human infertility and germline mutations can be attributed to deficiencies in the meiotic recombination machinery. Understanding the genetic/molecular basis of genome-wide CO distribution and its regulation holds significance for a rational comprehension of the whole process of DNA repair, improving the informed genetic counseling for couples. From a scientific-technical standpoint, we aim to develop novel genetic models and technical procedures, specifically tailored to comprehending the successful achievement of meiotic recombination in a mammalian model. These resources will be openly accessible to the scientific community..

The **Centro de Investigation del Cáncer** (**IBMCC-CIC**) is located at the Campus Miguel de Unamuno (University of Salamanca) and is a mixed center funded by USAL and CSIC. Accordingly, we can make use of the SPF animal facility of the USAL and all of their services. In this regard, we use routinely the transgenic facility which is located in our building. The service offers the latest technology in gene and embryology manipulation, which is essential for this proposal. In this regard, our group has signed a collaborative contract with the animal facility of the USAL for the incorporation and development of the genome editing technology. The IBMCC-CIC in addition has its own facilities which are essentials for the consecution of the proposal: