



## Identification of new therapeutic weapons against the most aggressive form of breast cancer: objective of an ambitious investigation project

- Between 16,000 and 17,000 new cases of breast cancer are diagnosed annually in Spain. Of these, about 20% belong to the so-called triple-negative cancer, the subtype of cancer with the largest rate of recurrence and mortality, especially among younger women
- An agreement has now been reached by the Hospital del Mar, the Center of Genomic Regulation and Roche Diagnostics to investigate this subtype of cancer, with the goal of identifying new biomarkers and therapeutic targets that are susceptible to chemotherapy

**Barcelona (Spain), December the 21<sup>st</sup>.**- Triple-negative breast cancer (Estrogen Receptor-Negative, Progesterone Receptor-Negative, and HER-Negative) is a type of breast cancer with clinical characteristics and specific pathologies that represents a relevant clinic problem, as it affects around 20% of all women with breast cancer, and especially those who are young. On this basis, doctors from the Hospital del Mar and scientists from the IMIM (Institute of Medical Investigation of the Hospital del Mar) and the CRG (Center of Genomic Regulation) have now begun an ambitious project together with Roche Diagnostics to identify new therapeutic targets, as well as biomarkers that are predictive of the clinical evolution of this subtype of cancer.

“Triple-negative” refers to hereditary mutations in genes that are causative of breast cancer. Since these mutations are not detectable in the initial phases of cancer, they can only be diagnosed in the advanced phases, rendering the screening programs ineffective against this type of tumor. Additionally, the absence of hormone receptors (of estrogen and progesterone receptors) and of the biomarker HER implies that the therapies against these receptors (hormonal or anti-HER2 therapy) cannot be used, resulting in a treatment for these patients based solely on chemotherapy. For the majority of patients, treatment with cytotoxic chemotherapy is inefficient and can be toxic.

### Personalized medicine against breast cancer

This highly ambitious project is the result of an collaborative agreement with the Diagnostic Division of Roche and relies on the participation of the Center for the Development of Industrial Technology (CDTI). In the initial phase, the planned investment will be about 1.5 million Euro, with the total investment expecting to reach about five million. **“We would like to study triple-negative breast cancers using the most modern technology for genetic sequencing,”** explained Dr. Joan Albanell, head of the Oncological Services at the Hospital del Mar and the director of the Cancer Research Program of the IMIM. **“We hope that the joint knowledge of clinical, basic and industrial investigators will permit us to discover new therapeutic**

For more information:

**HOSPITAL DEL MAR**  
Press Office  
+34 932483072/+34 932483415  
Or Margarida Mas  
Scientific communication  
[mas-sarda@galenia.net](mailto:mas-sarda@galenia.net)  
+34 626523034

**Genomic Regulation Centre (CRG)**  
Press Office  
Laia Cendrós  
[Laia.cendros@crg.es](mailto:Laia.cendros@crg.es)  
+34 93 316 02 37  
+34 607611798

**ROCHE DIAGNOSTICS**  
Marisa Barrios  
[m.barrios@bypasscomunicacion.com](mailto:m.barrios@bypasscomunicacion.com)  
Sara de Federico  
[s.defederico@bypasscomunicacion.com](mailto:s.defederico@bypasscomunicacion.com)  
+34 91 886 84 22/ +34 667 51 93 41



**targets and biomarkers that will allow us to develop specific treatments and advance personalized medicine for breast cancer,”** he added.

Finding new therapeutic targets and consolidating new pharmaceuticals for these patients will be a long process. For this reason, the team of investigators is also looking for markers that are indicative of the susceptibility of these patients to chemotherapy, to avoid treatments that are highly toxic yet inefficient, and to be able to act more aggressively in the cases in which the chemotherapy will clearly be beneficial. “At the present time, we still don’t have therapies *a la carta* or personalized to fight against triple-negative breast cancer,” indicated Dr. Albanell. He emphasized: “If we manage to successfully discover new genetic alterations that are responsible for growth in this subtype of cancer, we could then design new tools to better predict the individual patient prognostics and to additionally create new selective therapies.”

### **Leading research platform world wide**

This project will combine cutting-edge technology with resources at the highest technical level. **“The investigation platforms that will be used are among the most advanced in the world and require a leading bioinformatic support to be able to process and work in the most efficient way with the obtained data,”** explained Roderic Guigó, Coordinador of the Bioinformatics and Genomics Program at the CRG. **“The contribution of the CRG, which has these ultrasequencing and bioinformatic platforms, will allow us to set up this project with the goal of generating clinically relevant results in the future,”** added Guigó.

Jaime Vives, the General Director at Roche Diagnostics, stated: **“Roche and the Hospital del Mar share a strategic vision aimed at promoting personalized medicine. For this reason, we are betting on the know-how of the investigators at the Hospital del Mar, the IMIM and the CRG in applying the genetic and molecular analysis technology and in investigating biomarkers and experimental therapies in breast cancer.”**

The importance of this alliance resides in the union of the biomedical industry with professionals who are fighting to improve public health. This is why an obvious exponent will be the health sector, which will play as an important role as the motor of a new economic model, to generate wealth as well as to energize the economic context.

### **About the Functional Unit of Breast Pathology at the Hospital del Mar**

The Hospital del Mar was one of the first centers in Catalonia to create a Unit that covers the process from early diagnosis- with the most consolidated program and the most registered years - to breast reconstruction following breast cancer surgery. The Unit brings together all of the specialists necessary for diagnostics (e.g., radiologists, gynecologists and pathologists), the oncological and surgical treatment, during rehabilitation, for case management nurses and in an important research program. Research arising from this will pioneer various fields, such as the detection of markers indicative of a response to treatment, and will have the objective to optimize the treatment from the start, thus avoiding inefficient treatments with multiple secondary effects. The goal of this is to progress to the point that treatments *a la carta* can be offered, introducing an era of a high-quality technical medicine that can be personalized and thus more humane.

**For more information:**

**HOSPITAL DEL MAR**  
Press Office  
+34 932483072/+34 932483415  
Or Margarida Mas  
Scientific communication  
[mas-sarda@galenia.net](mailto:mas-sarda@galenia.net)  
+34 626523034

**Genomic Regulation Centre (CRG)**  
Press Office  
Laia Cendrós  
[Laia.cendros@crg.es](mailto:Laia.cendros@crg.es)  
+34 93 316 02 37  
+34 607611798

**ROCHE DIAGNOSTICS**  
Marisa Barrios  
[m.barrios@bypasscomunicacion.com](mailto:m.barrios@bypasscomunicacion.com)  
Sara de Federico  
[s.defederico@bypasscomunicacion.com](mailto:s.defederico@bypasscomunicacion.com)  
+34 91 886 84 22/ +34 667 51 93 41



## About Roche

With its headquarters in Basel, Switzerland, Roche is a leading company in healthcare. Roche is the world's largest biotech company, with highly differentiated medicines in oncology, virology, inflammation, metabolism, and the central nervous system. Roche is also the world leader in *in vitro* diagnostics, including histology cancer diagnostics, and is a pioneer in diabetes management. The goal of the personalized healthcare strategy at Roche is to provide medicine and diagnostic tools that allow tangible improvements in the health, quality of life and survival of patients. In Spain, the Diagnostic Division of Roche is located in Sent Cugat del Vallés, Barcelona.

## About the Center of Genomic Regulation

The Center of Genomic Regulation is a dynamic, independent and well-established research center of excellence that works within the field of genomics and proteomics, producing high-quality science as a new platform for facing the challenges that exist in the fields of therapy and diagnostics.

The combination of the scientific know-how of world-class researchers and the availability of cutting-edge equipment makes the CRG a unique center that produces high-quality science at an international level and offers the best scientific and technical research services.

The center is committed to technology transfers as well as to returning knowledge to the society. To this end, it has a technology transfer office with an team of professionals experienced in biotech and pharmaceutical transactions. The CRG technology transfer office manages the intellectual property generated at the CRG and facilitates its transfer to enterprises, in the form of patents and licenses, which allows the development of innovative products and services. The collaborative spirit inherent to the center promotes relationships with enterprises and strengthens the economic growth in the biomedical sector in Catalonia.

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**HOSPITAL DEL MAR**  
Press Office  
+34 932483072/+34 932483415  
Or Margarida Mas  
Scientific communication  
[mas-sarda@galenia.net](mailto:mas-sarda@galenia.net)  
+34 626523034

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[Laia.cendros@crg.es](mailto:Laia.cendros@crg.es)  
+34 93 316 02 37  
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Marisa Barrios  
[m.barrios@bypasscomunicacion.com](mailto:m.barrios@bypasscomunicacion.com)  
Sara de Federico  
[s.defederico@bypasscomunicacion.com](mailto:s.defederico@bypasscomunicacion.com)  
+34 91 886 84 22/ +34 667 51 93 41