



**INFORMATION EMBARGOED UNTIL 22TH JANUARY AT 19.00H.**

*The work will be published in the latest issue of Nature Medicine journal*

## **Identified a cause of resistance to colon cancer treatment**

- Catalan scientists point to an acquired mutation during treatment as the causative mechanism of therapeutic failure.
- This discovery leads to new perspectives to improve the efficiency of treatments, the survival of patients and to advance in customized treatments against cancer

**Barcelona, 19 of January 2012-** Doctors and researchers of **Hospital del Mar** and its research institute, the **IMIM**, have lead a study describing a new pharmacological resistance to cancer. This new mechanism is a mutation in an oncogene called EGFR (epidermal growth factor receptor) causing resistance to treatment using a drug called cetuximab, a monoclonal antibody which specifically attacks the EGFR.

**The study proves that, both in lab models and in patients with colon cancer, this mutation appears during the disease and that, when this happens, it stops the drug from being effective and the tumor grows. This finding will benefit a large number of patients since colorectal cancer is the second most frequent tumor and cetuximab is a drug used regularly to treat this form of cancer.**

Also, another extremely relevant fact is that tumors acquire this mutation do respond to a treatment using another similar drug, called panitumumab, which is also available for clinical use. This carries important clinical implications, since it suggests the possibility of carrying out clinical tests to confirm the effectiveness of panitumumab in patients with colon cancer who no longer respond to cetuximab, this increasing the range of therapies that may be used on patients with this cancer.

The relevance of this study is also in the fact that it is the first time that a mutation is detected in the field of oncology instead of a bond with the antibody as a form of resistance. Therefore, it will be interesting to see whether there are other similar mutations causing resistance to other pharmacological antibodies which are used frequently to treat other forms of cancer, such as breast cancer.

Therefore, this is a completely new mechanism of resistance to a drug used very often for a type of cancer with a high incidence and relevant clinical implications for the treatment of patients with this type of cancer.

***“The discovery of this mutation may explain, at a molecular level, the benefits obtained by some patients with colon cancer treated with panitumumab and the inefficiency when***

***treating with cetuximab***” explains Clara Montagut, an associate doctor of the Oncology service of Hospital del Mar and a researcher at IMIM, who has lead this study.

Colorectal cancer is the most frequent form of cancer in men and women and shows an increasing incidence, and is the main cause of death by cancer when studying the cases in male and female patients jointly. However, over the past decade, treatment has been revolutionized with the introduction of new chemotherapy drugs and treatments targeting cellular targets, such as monoclonal antibodies or drugs used to treat colorectal cancer. Dr. Joan Albanell, head of the Medical Oncologic service of Hospital del Mar and head of the research group and the author of the study, states that: ***“This new type of mutation reveals one of the causes why cancer therapy with monoclonal antibodies may cease to be effective at a given moment and, especially, opens the door to looking for solutions.”***

Dr. Montagut concludes by saying: ***“These results justify developing tests to detect this mutation in patients that are being treated with cetuximab for colorectal cancer. Later studies shall also have to validate whether this mutation contributes to acquiring a resistance to cetuximab in tumors for which it is also used, such as head and throat cancer.”***

This study has been carried out in collaboration with researchers from the Genomic Regulation Centre (CRG) from Vall d’Hebron Research Institute (VHIR) and the Genetech Centre in the United States. The group is currently working to establish the prevalence of the mutation and to see if it occurs also to patients with other tumors who are also treated with cetuximab.

#### **Reference article**

---

***“Epidermal growth factor receptor mutation conferring cetuximab resistance in colorectal cancer”*** Clara Montagut, Alba Dalmases, Beatriz Bellosillo, Marta Crespo, Silvia Pairet2, Mar Iglesias, Marta Salido, Manuel Gallen, Scot Marsters, Siao Ping Tsai, André Minoche, Seshagiri Somasekar, Sergi Serrano, Joaquim Bellmunt, Heinz Himmelbauer, Ana Rovira, Jeff Settleman, Francesc Bosch, and Joan Albanell. ***Nature Medicine. DOI: 10.1038/nm.2609.***

#### **For further information:**

---

Verònica Domínguez (93 248 30 72) / Rosa Manaut (618509885) / Maribel Pérez (619885326).  
Communication service at Hospital del Mar/IMIM.