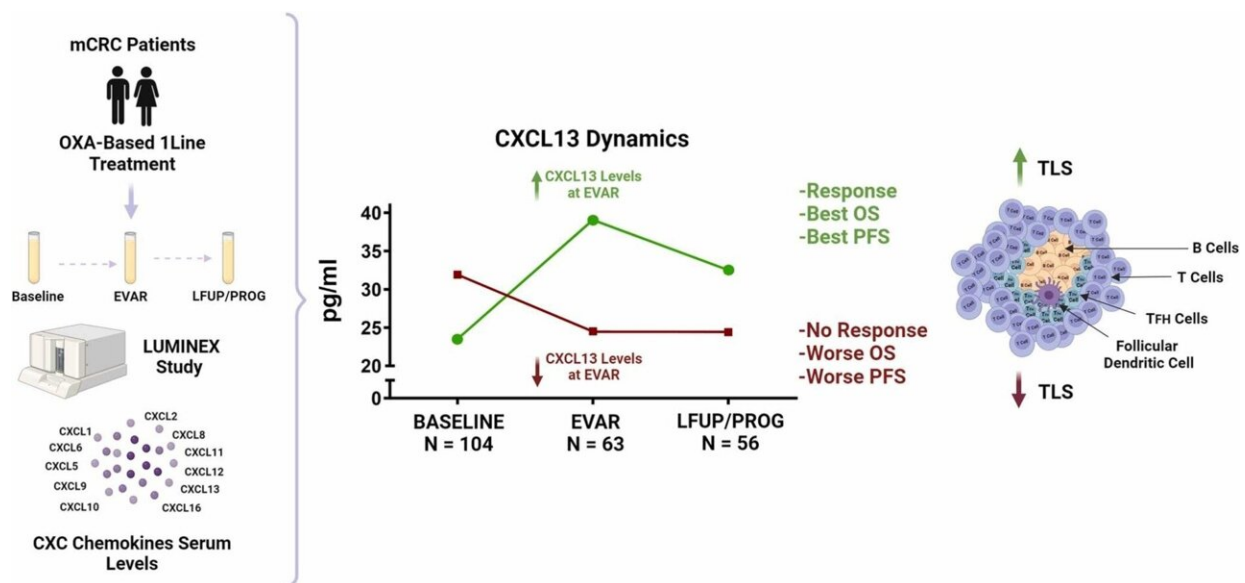


New biomarker shows potential to evaluate treatment response for metastatic colorectal cancer

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Graphical abstract. Credit: *Biomedicine & Pharmacotherapy* (2024). DOI: 10.1016/j.biopha.2024.116857

Colorectal cancer is the second leading cause of cancer deaths worldwide and the third most diagnosed cancer, affecting over a million people annually. The problem worsens if the tumor is metastatic, meaning it moves from the original organ to other parts of the body. In this scenario, the five-year survival rate drops from 70–90% to just 10%.

While some subgroups of [colorectal cancer](#) patients are beginning to have new therapeutic options, the vast majority of metastatic patients still follow conventional treatments, typically involving chemotherapy with biological agents. Initially effective, these treatments often encounter resistance over time, leading to inevitable disease progression.

Proteins with potential to measure treatment response

Researchers at the Can Ruti Campus, collaborating through the CARE and ProCURE programs of IGTP and Institut Català d'Oncologia (ICO) respectively, have been searching for reliable biomarkers for years to select the best therapeutic option for each patient. Their research has led them to study chemokines, small proteins secreted by [tumor cells](#) that attract other cells from the [immune system](#).

They focused on the CXC family, which plays an important role in pathological processes in cancer by modifying the tumor microenvironment. Previous results in cell models indicate that high secretion of these proteins is associated with resistance to oxaliplatin, one of the most used chemotherapies in this neoplasm.

Thus, the authors of the study [published](#) in *Biomedicine & Pharmacotherapy* analyzed the blood of 104 patients with [metastatic colorectal cancer](#) undergoing oxaliplatin-based treatment. They collected serum samples before treatment, during response evaluation, and at disease progression or the last follow-up visit, and analyzed possible changes and their relationship with treatment response and prognosis.

This approach with [blood samples](#) is more comprehensive than other methods that only analyze part of a lesion. Additionally, it is a non-invasive and time-specific sample extraction method.

The chemokine CXCL13 shows promising results

The study examined 11 CXC chemokines. The researchers observed that first-line oxaliplatin-based treatment causes changes in the levels of these proteins. One of them, CXCL13, stands out because it shows a different behavior: increasing levels are associated with a positive treatment response and improved survival, while a decrease is associated with non-response and poorer prognosis.

Dr. Eva Martínez Balibrea, leader of the Resistance, Chemotherapy, and Predictive Biomarkers (RCPB) group at IGTP and ICO, explains the significance of this finding, "CXCL13 is an opportunity to measure the response to oxaliplatin chemotherapy in a minimally invasive way using simple techniques that can be used by any clinical laboratory."

She adds, "This is the first study to show a correlation between serum CXCL13 and prognosis in patients with colorectal cancer treated with oxaliplatin." It is important to note that oxaliplatin is quite toxic, often causing patients to abandon treatment:

"Having a tool that allows us to choose the treatment will also help avoid unnecessary toxicities and improve the quality of life for patients."

The authors obtained comparable results using computational data from a similar patient group. In this other analysis, they also observed the correlation between CXCL13, the presence of tertiary lymphoid structures—aggregates of immune cells formed in chronic inflammation sites, including tumors—and the correlation of both with prognosis.

Martínez-Balibrea is cautious considering it is a study in a specific cohort of patients, but she is optimistic about the future and says, "We are making progress in the search for predictive and prognostic markers. Finding a potential biomarker with non-invasively extracted samples is

great news. We will continue this line of research in future studies."

More information: Sara Cabrero-de las Heras et al, Changes In Serum CXCL13 Levels Are Associated With Outcomes of Colorectal Cancer Patients Undergoing First-Line Oxaliplatin-Based Treatment, *Biomedicine & Pharmacotherapy* (2024). [DOI: 10.1016/j.biopha.2024.116857](https://doi.org/10.1016/j.biopha.2024.116857)

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