Research projects

Could a novel molecular tool help to improve the effectiveness of radiotherapy?

Researcher	Dr Gertraud Orend	**Project period**	Apr 2024 - Mar 2027
Country		**Research Institute**	INSERM U1109
Cancer types	General cancer research	**Award amount**	£272,915
Co-funded			

Project aim

Dr Orend and her team are using a new molecular tool to investigate whether targeting the molecules surrounding tumours could help to reduce the chance of cancer coming back after radiotherapy.

Hope for the future

Radiotherapy is an important and effective cancer treatment. In the UK, over 100,000 courses of radiotherapy are given every year. But while radiotherapy is generally very good at eliminating cancer, for some people it can cause unwanted immune effects in the region targeted by treatment. These effects may encourage cancer to return later.

If Dr Orend can find a way to block these troublesome immune effects, it could be the first step towards a new targeted treatment for patients undergoing radiotherapy treatment.

This project is co-funded with Fondation ARC.

Meet the scientist

Gertraud enjoys hiking and biking whenever possible. She also likes visiting art exhibitions, traveling around the world and painting.

The science

Tumours tend to grow in 'nests' that are surrounded by a structure called the extracellular matrix. Although radiotherapy is very effective at killing tumour cells, it can also sometimes cause molecular changes in the matrix that reduce the effectiveness of immune cells in the area. This can be a problem, and may even sometimes encourage tumours to regrow.

Dr Orend and her team are interested in one particular molecule that is highly present in the matrix that appears to control some of these changes, called tenascin-C. The team has developed a special molecular tool called a 'peptide', which can interfere with interactions between tenascin-C and other molecules stimulating anti-tumor immunity. With funding from you, they now want to test this tool on models of breast tumours and tongue tumours in the lab, as these are both cancers that often need radiotherapy treatment.

The aim is to find out if using this approach could help to activate immune cells in the matrix after radiotherapy, and reduce the risk of tumours coming back. If so, the researchers can then begin to design a targeted therapy for patients who need radiotherapy.

Dr Gertraud Orend

"I am very grateful to all Curestarters for supporting my research. Without your funding this research project would not be possible."