In 75% of women, the first diagnosis of ovarian cancer is made at an advanced stage with the tumor already metastasized to the peritoneum. Once metastasized, response to chemotherapy is poor and therefore, fatal. There is an urgent need to develop more effective therapies for this type of cancer.

In the TEMPEAT project we aim to develop protein-based nanoparticles that carry anticancer drugs and light-sensitive molecules. They are furthermore decorated with homing devices (nanobodies) that can recognize the specific tumor cells. The particles are injected in the peritoneum and then irradiated with light, which leads to creation of oxygen radicals that kill selectively the cancer cells. Upon washing the peritoneum with a slightly cooled solution, the particles open up and release the anticancer drugs, killing the remaining cancer cells.