

GSI – BIOPHYSICS SEMINAR

Thursday, October 22, 2026 at 10 a.m.

KBW-Hörsaal
Planckstraße 1, 64291 Darmstadt

Dr. Monica Olcina del Molino

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Department of Oncology, Immune Radiation Biology

„Radiotherapy and the complement system”

The tumour microenvironment is composed of a complex network of tumour cells, immune and stromal cells which co-operate to provide a pro-tumourigenic milieu. Several cellular members of the tumour microenvironment express and/or produce complement proteins locally, including tumour cells. In cancer patients, local complement expression within the tumour microenvironment exists alongside systemic complement dysregulation. However, how expression of complement proteins is regulated in both the tumour microenvironment and systemically following treatment is still unclear. Our work indicates that chemo- and radiotherapy dysregulate systemic complement levels in anal squamous cell carcinoma, with changes in Factor D being predictive of treatment failure. Here, we explore expression of complement proteins in the tumour microenvironment and systemically in colorectal cancer patients and investigate how standard-of-care treatments modulate complement system changes in these two compartments. How such changes impact crosstalk with the rest of the innate and adaptive immune system to impact treatment outcome will also be explored. With this work we aim to improve our understanding of the role of systemic and local complement proteins in the response to cancer treatment to identify therapeutic vulnerabilities.

Organized by Prof. Dr. Claudia Fournier & Prof. Dr. Marco Durante
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