

Opportunity ERC -STG 0916

RIF PROPOSAL NUMBER	TITLE	COORDINATOR	HOST ORGANIZATION	PARTNER ORGANIZATION	PROGECT BUDGET	RIF FUNDING	PUBLISHABLE SUMMARY
OPPORTUNITY/0916/ERC-STG/0003	Uncovering the reciprocal interactions of viruses and stem cells	Katerina Strati	University of Cyprus		700.000,00 €	700.000,00 €	<p>Discoveries made in the field of stem cell biology, particularly in the last decade have not only unveiled the unprecedented flexibility of cells to differentiate into distinct cell types, but also, and perhaps most strikingly, their ability to de-differentiate under certain conditions. Cellular plasticity, dependent in large part on the epigenetic landscape of the cell is now understood to play key roles in processes other than development. For example, initial evidence suggests that the interaction of stem cells with bacteria is crucial to tissue homeostasis and disease, such as cancer. Nevertheless, little is known about the interaction of stem cells with viruses. I propose to use papillomaviruses as a model to understand how stem cell dynamics and cellular plasticity are affected by viral infection. Furthermore I aim to uncover the role of stemness in the viral life cycle and eventual carcinogenesis. Strikingly, our preliminary evidence that oncogenic human papillomaviruses can change tissue stem cell dynamics and promote acquired stemness in vitro and in vivo. We propose that this can have profound repercussions in the maintenance of the virus in the tissue and possibly affect disease progression. We are already integrating technologies from the stem cell and virology fields to conclusively address these questions. We will combine an array of reprogramming technologies, transgenic mouse models, as well as mouse infection models, and genetic ablation to study the mechanisms through which papillomaviruses promote stemness. We aim to elucidate the reciprocal effects of papillomaviruses and stem cells. Since little is known how this specific virus-host interaction affects cancer and particularly the viral lifecycle our work will have a major impact in the field of basic virology and viral oncology and produce state of the art technologies which can be used by other labs.</p>