



PRINCIPE FELIPE
CENTRO DE INVESTIGACION

CIPF Seminar

Understanding the placenta in healthy and disease: implications for cancer

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Abstract: All mammalian development depends on a functional placenta. Full functionality of the future placenta depends on the earliest steps during placentation, when trophoblast cells (the building block of the placenta) invade into the endometrium in a fundamental process to establish the definitive maternal-foetal interface. Several pregnancy complications such as miscarriage, preeclampsia, placenta accreta and intrauterine growth restriction are rooted in a trophoblast invasion defect. Despite extensive research to understand placental development, the precise molecular mechanisms that regulate correct trophoblast differentiation and invasion are poorly understood. The fact that cell invasion does exist in healthy (trophoblast invasion) and diseased (metastasis in cancer) tissues points to common and conserved pathways between both processes. By using CRISPR/Cas9 knockout and overexpression technology in trophoblast stem cells, we revisit the pseudo-malignant trophoblast hypothesis which suggests that cancer and trophoblast cells exploit similar molecular mechanisms to regulate proliferation and invasion. Therefore, understanding the mechanistic basis of cellular invasiveness shared by trophoblast and tumour cells will open up new avenues towards the identification of novel potential therapeutics for the treatment of pregnancy disorders as well as certain types of cancer.

Web Page: <https://www.trophoblast.cam.ac.uk/people/vicente-perez-garcia>

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