

Thursday, 9th January, 12.00 pm, Seminar Room

Host: Dr. Niels C. Reichardt

Neutralizing Dual-SMAD Inhibition Proteins as a Therapeutic Mechanism of Action

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Transforming growth factor- β (TGF- β) signaling plays a key role tissue homeostasis, which is accomplished through dynamic regulation of many cellular processes, including cell growth and differentiation. The secreted TGF- β family of ligands binds to homo/heterodimeric cell surface receptors, which triggers the phosphorylation of cytoplasmic SMAD signaling molecules and their translocation to the nucleus to initiate target gene expression. Secreted TGF-B ligands can be divided into two classes: TGF- β -like ligands that signal through SMADs 2/3 and BMPs that signal through SMADs 1/5. Recent evidence demonstrated that simultaneous synthetic suppression of these two classes of ligands results in expansion of basal cell populations from epithelial tissues from all three germ layers. We discovered that a TGF- β -like ligand naturally performs a dual SMAD inhibiting function to promote the self-renewal of tumorigenic drug resistant breast cancer cells. Furthermore, the ligand has a previously undescribed interaction with a specific cell surface receptor; this interaction is highly enriched on tumorigenic cells in multiple breast cancer PDX models. We created Onena Medicines S.L. to discover antibody medicines that neutralize DSIPs that drive the pathology of cancer selected rare diseases. We are currently the only company in the world that is targeting dual-SMAD inhibition as a therapeutic mechanism of action.

DSIP: Dual SMAD Inhibiting Protein; SMADs: family of structurally similar proteins that are the main signal transducers for receptors of the TGF-B superfamily; PDX: Patient-Derived Xenograft.

Onena Medicines S.L. is a startup biotechnology company located in the BIC incubator at the Parque Científico y Tecnológico de Gipuzkoa. We are keenly interested in collaborations and partnerships with the CIC biomaGUNE. Specifically, we are interested to explore protein labeling and conjugation technologies, drug delivery technologies, nanoparticles, computational and biophysical biology, molecular and functional biomarkers as well as regenerative medicine applications. Please visit us at <http://www.onenameds.com>.