

# BioSyM Seminar Series 2018

## Testing anti-angiogenic potency of novel compounds in a 3D microfluidic assay and in a Zebrafish model

### Annalisa Mercurio

Singapore-MIT Alliance for Research and Technology

Email: [lisa.mercurio87@gmail.com](mailto:lisa.mercurio87@gmail.com)

**Date** : 12<sup>th</sup> March 2018, Monday

**Time** : 12 pm to 1 pm

**Venue** : Level 5, Perseverance Room



### Abstract

Potential immunomodulatory, anti-inflammatory, anti-angiogenic and sedative properties make thalidomide a good candidate for the treatment of several diseases such as multiple myeloma (FDA approval in 2006). Although its various therapeutic properties Thalidomide has also with severe side effects, which requires a careful and monitored use. Therefore, new safer and less toxic drugs, analogs of Thalidomide, are emerging as potentially beneficial for the treatment of multiple myeloma. After the synthesis of new Thalidomide analogues that are structurally modified phthalimide derivatives bearing a benzothiazole moiety, I am now investigating their anti-angiogenic potency by means of a 3D *in vitro* angiogenesis assays in a microfluidic device. The device allows to quantify the angiogenic sprouting of endothelial cells in 3D with or without the drug treatment. This system offers a novel more physiological approach compared to standard 2D systems for the screening of potential anti-angiogenic drugs to aid their development. Furthermore, the best compound selected from the *in vitro* results is tested in a zebrafish embryo model to confirm its anti-angiogenic properties *in vivo* and to determine if there are any teratogenic effects.

### Short Biography

Annalisa Mercurio after her MS in Medical Biotechnology in 2011 at University of Turin, is currently completing her PhD in Biomolecular, Pharmaceutical and Medical Sciences at the Department of Pharmacy at University of Bari in Italy. Her doctoral work in Italy consisted in the chemical synthesis of new phthalimide derivatives. She is currently working at the Singapore-MIT Alliance for Research and Technology (SMART) center supervised by Dr. G. Adriani and Prof. R.D. Kamm. Her research work in SMART focuses on testing these new phthalimide derivatives as potential anti-angiogenic agents in a *in vitro* 3D microfluidic angiogenesis assay and in a *in vivo* Zebrafish embryo model.