

COLLABORATION OPPORTUNITY

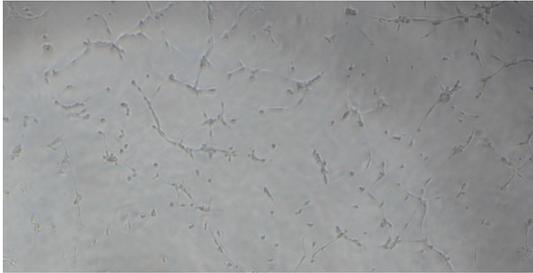
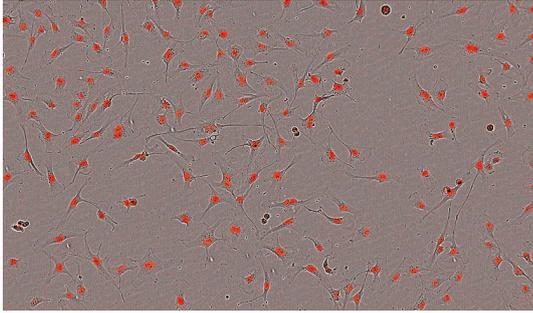
Angiogenesis *in vitro* to *in vivo* toolbox

- Blood vessel formation or angiogenesis is key in various pathologies such as cancer, myocardial infarction and wound healing
- Validated functional models to analyse your (anti-) angiogenic compounds
- Assays can be used for biocompatibility testing of tissue engineering materials
- Building on our vast experience in angiogenesis



UHASSELT

KNOWLEDGE IN ACTION



IN VITRO MODELS

Validated models mimicking *in vitro* steps for angiogenesis

Available assays using endothelial cells:

VIABILITY/CYTOTOXICITY USING INCUCYTE® LIVE-CELL ANALYSIS SYSTEMS

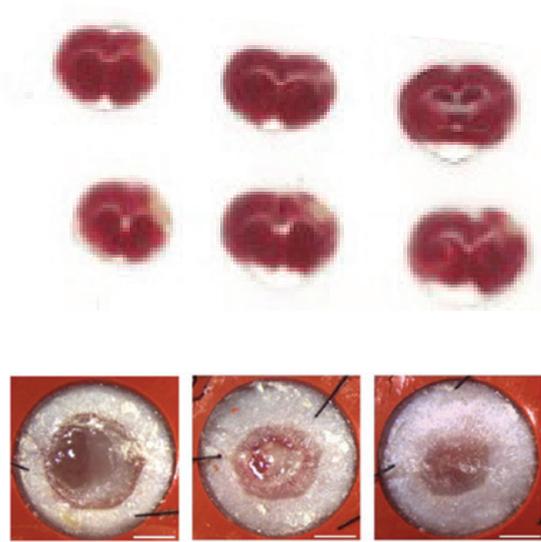
- Detection of both living as well as apoptotic cells
- No end-point but real-time kinetic data
- Apoptotic cells are specifically monitored based on caspase activity
- Assay can be adopted to any cell type e.g. to monitor cytotoxicity on tumour cells

DIRECTIONAL MIGRATION (TRANSWELL SYSTEM)

- Migration towards chemokines or chemotactic cells
- Classical end-point assay as well as live cell migration assays with Incucyte®

MATRIGEL TUBE ASSAY

- Ability of endothelial cells to form tubular structures (quantitative assay).
- Number of tubes and/or meshes are quantified



IN VIVO MODELS

Validated animal models to test activity of (anti)-angiogenic compounds or tissue engineering materials.

CHICKEN CHORIOALLANTOIC MEMBRANE ASSAY

- Fast assay to test (anti-) angiogenic compounds using fertilized chicken eggs (read-out within 1 week)
- Can also be used to test biocompatibility of tissue engineering materials

MOUSE MATRIGEL PLUG MODEL

- *In vivo* model using nude mice in which plugs containing (anti)-angiogenic compounds are implanted subcutaneously
- Analysis with qRT-PCR and/or immunohistochemistry

MOUSE DMCAO MODEL

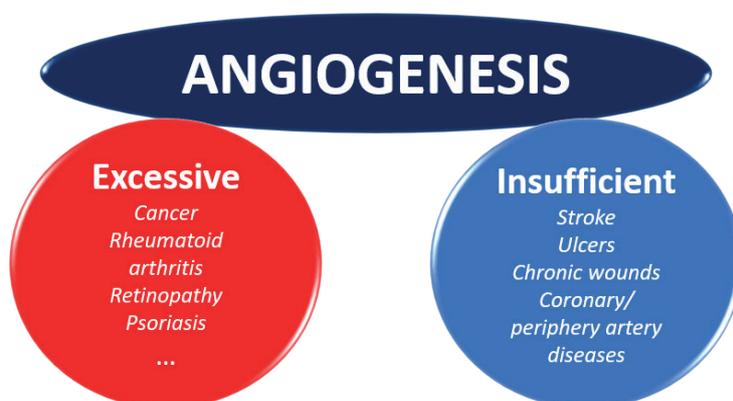
- Mouse model of permanent ischemic stroke to test angiogenic or neuroprotective agents
- Lesion size with TTC staining
- MRI imaging available with other partners

MOUSE SPLINT WOUND MODEL

- Mouse model used to investigate agents that can induce skin wound healing
- Wounds are monitored with macroscopic pictures or (immune)histology

APPLICATIONS

Angiogenesis is a key process in normal physiological processes such as reproduction and wound healing as well as in various pathologies, such as tumour growth and metastasis.



Any compounds that you develop for upregulation or inhibition of angiogenesis can be tested upon biological activity in our *in vitro* and *in vivo* models.

Our models are also fit for testing biocompatibility of tissue engineering materials by blood vessel formation.

COLLABORATION OPTIONS

1. Fee-for-Service: performing the relevant experiments for you
2. Consultancy and training: guiding your experimental set-up and training researchers at your location or at our facilities
3. Research collaboration: open for joint grant applications when the project is complementary with our own research lines and goals

RELEVANT PUBLICATIONS

- Merckx G, et al. (2020) Cells. Jan 28;9(2)
- Merckx G, et al. (2020) Tissue Engineering part B: Reviews t B Rev.
- Font LP et al (2019) Frontiers in Neuroscience
- Ratajczak J et al. (2018) Scientific Reports
- Hilkens P et al (2014) Stem Cell Research

COORDINATION

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