

The use of induced pluripotent stem cell-derived vascular smooth muscle cells to study aneurysmal diseases

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Contact person

Aline Verstraeten

Organisation

Name of the organisation University of Antwerp (UAntwerpen)

Department Center for Medical Genetics

Country Belgium

Geographical Area Flemish Region

SCOPE OF THE METHOD

| | |
|---|--|
| The Method relates to | Human health |
| The Method is situated in | Basic Research, Translational - Applied Research |
| Type of method | In vitro - Ex vivo |
| Specify the type of cells/tissues/organs | vascular smooth muscle cells (lateral mesoderm and neural crest-derived) |

DESCRIPTION

Method keywords

induced pluripotent stem cells

drug screening

Disease modeling

Lateral mesoderm

Neural crest

Scientific area keywords

thoracic aortic aneurysm

Marfan syndrome

Loeys-Dietz syndrome

Method description

Vascular smooth muscle cell (VSMC) deficiency plays a pivotal role in aneurysm development. Unfortunately, access to native VSMCs of patients and (particularly) control individuals is extremely limited. It has been shown that iPSC-derived VSMCs recapitulate the yet known disease processes very well. They can thus serve as a substitute for their native counterparts when studying and therapeutically targeting human aneurysmal phenotypes. Even the fact that tissue VSMCs of different embryonic origins discretely contribute to disease development and/or progression can be accounted for by using specific differentiation protocols for mesoderm- and neural crest-derived VSMCs. In our research team we use iPSC-VSMCs to assist the search for modifier genes, to further unravel the disease mechanisms and to find novel drug compounds.

Method status

Still in development

Internally validated

REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION

Coordinated by



Financed by



Vlaanderen
verbeelding werkt

