

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

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## Organisation

**Name of the organisation** University of Antwerp (UAntwerpen)

**Department** Center for Medical Genetics

**Country** Belgium

**Geographical Area** Flemish Region

## SCOPE OF THE METHOD

<b>The Method relates to</b>	Human health
<b>The Method is situated in</b>	Basic Research, Translational - Applied Research
<b>Type of method</b>	In vitro - Ex vivo
<b>Specify the type of cells/tissues/organs</b>	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*



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