

# Skin Fibroblasts for Cholesterol Research

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To obtain human fibroblasts from extreme dyslipidemia patients or patients with premature atherosclerosis to study cholesterol metabolism.

<b>Ethical review</b>	Approved WMO
<b>Status</b>	Recruitment stopped
<b>Health condition type</b>	Coronary artery disorders
<b>Study type</b>	Observational invasive

## Summary

### ID

NL-OMON41130

### Source

ToetsingOnline

### Brief title

Skin Fibroblasts for Cholesterol Research

### Condition

- Coronary artery disorders
- Lipid metabolism disorders
- Arteriosclerosis, stenosis, vascular insufficiency and necrosis

### Synonym

Cholesterol metabolism, lipid disorder

### Research involving

Human

### Sponsors and support

**Primary sponsor:** Academisch Medisch Centrum

**Source(s) of monetary or material Support:** European Union TransCard: FP7-603091-2]

### Intervention

**Keyword:** Cholesterol metabolism, fibroblast culture, Skin biopsy

## Outcome measures

### Primary outcome

In human skin fibroblasts we study:

- Cholesterol uptake. (LDL binding and uptake assays)
- Receptor trafficking for receptors involved in cholesterol metabolism

(LDL-receptor, ABCA1 and ABCG1).

- Cholesterol efflux from the cells.

### Secondary outcome

not applicable

## Study description

### Background summary

Dyslipidemia is robustly associated with atherosclerosis and cardiovascular disease (CVD) risk. Studies of families displaying extreme tail lipid levels have resulted in the discovery of key regulatory genes in LDL, HDL and TG metabolism. However, studies of genetics only show association with lipid traits, rather than mechanistic insights in metabolism. For this purpose in vitro studies are necessary, preferably using patient material harbouring the genetic variant under study. A well-established approach is the use of cultured fibroblasts derived from a minimal invasive skin biopsy. These skin fibroblasts are then used to study LDL uptake, receptor metabolism and cholesterol efflux. All together this study will lead to a better understanding of cholesterol metabolism and could lead to novel targets for therapy.

### Study objective

To obtain human fibroblasts from extreme dyslipidemia patients or patients with premature atherosclerosis to study cholesterol metabolism.

### Study design

Case control study in families with extreme dyslipidemia and/or premature atherosclerosis, comparing fibroblasts of mutation carriers with fibroblasts

from wild-type family members.

### **Study burden and risks**

Participants do not benefit from this study. Fibroblasts are cultured from a small 3mm skin biopsy, after local anaesthesia, performed by a trained doctor. Potential risks of the procedure are small and include bleeding, infection and formation of a small scar. To minimise scar burden, the biopsy is taken from the inside of the underarm. As participants are selected based on a putative or proven genetic defect, insights from this study might lead to better treatment options which could be of benefit for next generations.

## **Contacts**

### **Public**

Academisch Medisch Centrum

Meibergdreef 9  
Amsterdam 1105AZ  
NL

### **Scientific**

Academisch Medisch Centrum

Meibergdreef 9  
Amsterdam 1105AZ  
NL

## **Trial sites**

### **Listed location countries**

Netherlands

## **Eligibility criteria**

### **Age**

Adults (18-64 years)  
Elderly (65 years and older)

## Inclusion criteria

- Patients with extreme tail LDL-C, HDL-C or TG levels, defined as >95% or <5% adjusted for sex and age, with a putative or proven molecular defect.
- Patients with premature atherosclerosis, defined as a first cardiovascular event <50 years for men and <55 years for women.
- Healthy family members as control
- Participating in Biobank Vascular Medicine (METC2014\_082) and gave written consent for re-contact by the investigators for follow-up studies.

## Exclusion criteria

Age <18 years

## Study design

### Design

Study type:	Observational invasive
Intervention model:	Other
Allocation:	Non-randomized controlled trial
Masking:	Open (masking not used)
Control:	Active
Primary purpose:	Basic science

### Recruitment

NL	
Recruitment status:	Recruitment stopped
Start date (anticipated):	08-06-2015
Enrollment:	100
Type:	Actual

## Ethics review

Approved WMO

Date:	21-01-2015
Application type:	First submission
Review commission:	METC Amsterdam UMC

## Study registrations

### Followed up by the following (possibly more current) registration

No registrations found.

### Other (possibly less up-to-date) registrations in this register

No registrations found.

### In other registers

Register	ID
CCMO	NL49721.018.14