The role of PPARγ in osteoclastogenesis, osteoclast differentiation and function.

Published: 04-12-2012
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The overall objective of this project is to gain more inside into the role of PPARγ in osteoclastogenesis, osteoclast differentiation and function.

Ethical review	Approved WMO
Status	Recruitment stopped
Health condition type	Bone disorders (excl congenital and fractures)
Study type	Observational invasive

Summary

ID

NL-OMON37089

Source
ToetsingOnline

Brief title
PPARγ and osteoclastogenesis

Condition

- Bone disorders (excl congenital and fractures)

Synonym
Osteoporosis, porous bones

Research involving
Human

Sponsors and support

Primary sponsor: Academisch Medisch Centrum
Source(s) of monetary or material Support: Ministerie van OC&W

Intervention

Keyword: Osteoclastogenesis, Osteoporosis, PPAR&gamma

Outcome measures

Primary outcome

Osteoclasts will be cultured under different conditions (control, with PPARγ-agonist, with PPARγ-agonist). The overall objective of this project is to gain more inside into the role of PPARγ in osteoclastogenesis and osteoclast differentiation. This will be done by assessing the following:

- Osteoclast formation (by assessing the formation of tartrate-resistent acid phosphatase positive multinucleated cells (TRACP+ MNCs))

- Osteoclast activity (by analyzing bone resorption as described previously)

- Osteoclast differentiation (will be quantified by RNA expression of PPARγ, PGC1β, RANK, c-fms, c-fos, NFATc1, TRACP, Cathepsine K, calcitonin receptor, DC-STAMP)

- Osteoclast function (by in vitro resorption of bone slices)

Secondary outcome

NA

Study description

Background summary

Peroxisome proliferator-activated receptor (PPAR)γ is nuclear receptor crucial in many physiologic processes including adipogenesis, lipid metabolism and glucose metabolism. Accumulating evidence reveals that PPARγ is also involved in skeletal metabolism. PPARγ is a metabolic switch for stem cell fate in both mesenchymal and hematopoeitic lineages. Although PPARγ has been shown to inhibit osteoblast differentiation, its specific role in osteoclast function

has not been fully explored.
To gain more inside into the role of PPARγ in osteoclastogenesis and osteoclast differentiation we are isolating peripheral blood mononuclear cells from whole blood to form osteoclasts. These osteoclasts will be cultured under different conditions (control, with PPARγ-agonist, with PPARγ-antagonist) to gain more inside into the role of PPARγ in osteoclastogenesis, osteoclast differentiation and function.

Study objective

The overall objective of this project is to gain more inside into the role of PPARγ in osteoclastogenesis, osteoclast differentiation and function.

Study design

In vitro study with peripheral blood mononuclear cells (PBMCs) from healthy volunteers.

Study burden and risks

Healthy participants (n=6) will visit the AMC one single time. Blood samples will be we drawn once and the total amount of blood samples will not exceed 70ml. Participation in this study has no direct advantage for the participants. However, the risks associated with venapunctions are negligible and little physical or psychological discomfort associated with participation is expected.

Contacts

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Trial sites

Listed location countries

Netherlands

Eligibility criteria

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

Inclusion criteria

The healthy volunteer is willing and able to provide written informed consent prior to study-related procedures.
The healthy volunteer is >= 18 years of age.

Exclusion criteria

Use of anticoagulants

Study design

Design

Study type: Observational invasive

Masking:	Open (masking not used)
Control:	Uncontrolled
Primary purpose:	Basic science

Recruitment

NL

Recruitment status:	Recruitment stopped
Start date (anticipated):	04-12-2012

Enrollment:	6
Type:	Actual

Ethics review

Approved WMO Date:	04-12-2012
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	NL42471.018.12