Differentiation of ovarian stromal cells to steroidogenic theca interna cells

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Organisation

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SCOPE OF THE METHOD

The Method relates to	Human health
The Method is situated in	Basic Research
Type of method	In vitro - Ex vivo

DESCRIPTION

Method keywords

theca cells
differentiation
isolation
Ovarian cells

Scientific area keywords

fertility restoration
artificial ovary
Reproduction
Human ovarian tissue

Method description

We aim to differentiate ovarian cells isolated from postmenopausal ovaries into steroidogenic theca interna cells. For this purpose, cryopreserved ovarian cortex fragments are used to isolate ovarian cells. These cells are cultured on collagen and supplemented with growth factors defined to promote differentiation into theca interna cells. After 8 days of culture, theca interna cells are obtained, characterized by steroidogenic enzymes such as CYP17A1, and by the production of steroidogenic hormones.

Lab equipment

- Tissue chopper;

- Biosafety cabinet;
- Incubator;
- Centrifuge;
- Water bath with shaker

Method status

Published in peer reviewed journal

PROS, CONS & FUTURE POTENTIAL

Advantages

In vitro differentiation and culture of theca interna cells.

Challenges

Theca cells are obtained after 8 days of culture, however, they lose their characteristics when kept in culture for a longer time period.

Modifications

Yes, the pool of cell types within ovarian cells can be reduced to only those that undergo differentiation.

REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION

References

P Asiabi, M M Dolmans, J Ambroise, A Camboni, C A Amorim, In vitro differentiation of theca cells from ovarian cells isolated from postmenopausal women, Human Reproduction, Volume 35, Issue 12, December 2020, Pages 2793–2807, https://doi.org/10.1093/humrep/deaa246

Associated documents

Asiabi et al (2020).pdf