Isolation and cultivation of human skin-derived precursor cells

Commonly used acronym: *SKP*

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Organisation

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Country Belgium

Geographical Area Brussels Region

SCOPE OF THE METHOD

The Method relates to	Human health
The Method is situated in	Basic Research
Type of method	In vitro - Ex vivo
Specify the type of cells/tissues/organs	skin-derived precursor cells

DESCRIPTION

Method keywords

skin

isolation

cultivation

Stem cells

Scientific area keywords

stem cell culture

stem cell isolation

Method description

Freshly collected human foreskin samples are incubated with 0.2 mg/mL Liberase DH solution and incubated overnight at 4°C. The next day, the epidermis is removed and the tissue is incubated at 37°C for another 10-20 minutes, depending on the sample size. After processing the samples, typically 5 - 15 x 10E6 viable cells are obtained per 5 - 8 cm² foreskin. Growth medium for hSKP consists of DMEM + GLUTAMAX / F12 Nutrient Mixture (3:1) supplemented with 7.33 IU/mL benzyl penicillin, 50 ?g/mL streptomycin sulphate, 2.5 ?g/mL fungizone, 2% (v/v) B27 Supplement, 40 ng/mL basic fibroblast growth factor (FGF)-2 and 20 ng/mL epidermal growth factor (EGF). Cell cultures are incubated at 37°C in a 5% (v/v) CO2 humidified atmosphere for 2 weeks. Growth media is replenished every 2 - 3 days. hSKP spheres are passaged every 2 weeks using 0.2 mg/mL Liberase DH solution.

Lab equipment

Biosafety cabinet level 2;

Cell incubator;

Table top centrifuge.

Method status

History of use

Internally validated

Published in peer reviewed journal

PROS, CONS & FUTURE POTENTIAL

Advantages

Easy collection and culturing method for human skin-derived stem cells.

REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION

References

De Kock J, Rodrigues RM, Buyl K, Vanhaecke T, Rogiers V. (2015) Human Skin-Derived Precursor Cells: Isolation, Expansion, and Hepatic Differentiation. Methods Mol Biol. 1250:113-22

De Kock J, Meuleman P, Raicevic G, Rodrigues RM, Branson S, Meganathan K, De Boe V, Sachinidis A, Leroux-Roels G, Vanhaecke T, Lagneaux L, Rogiers V, Najar M. (2014) Human skin-derived precursor cells are poorly immunogenic and modulate the allogeneic immune response. Stem Cells. 32(8):2215-28

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