

# Isolation and cultivation of human skin-derived precursor cells

**Commonly used acronym:** SKP

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## Organisation

**Name of the organisation** Vrije Universiteit Brussel (VUB)

**Department** Pharmaceutical and Pharmacological Sciences

**Specific Research Group or Service** In Vitro Toxicology and Dermato-Cosmetology

**Country** Belgium

**Geographical Area** Brussels Region

## SCOPE OF THE METHOD

<b>The Method relates to</b>	Human health
<b>The Method is situated in</b>	Basic Research
<b>Type of method</b>	In vitro - Ex vivo
<b>Specify the type of cells/tissues/organs</b>	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 10<sup>6</sup> viable cells are obtained per 5 - 8 cm<sup>2</sup> foreskin. Growth medium for hSKP consists of DMEM + GLUTAMAX / F12 Nutrient Mixture (3:1) supplemented with 7.33 IU/mL benzyl penicillin, 50 µg/mL streptomycin sulphate, 2.5 µg/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) CO<sub>2</sub> 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, Najjar 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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