

## Hepatic differentiation of rat liver epithelial cells

**Commonly used acronym:** rLEC-Hep

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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>Species from which cells/tissues/organs are derived</b>	Rattus norvegicus
<b>Type of cells/tissues/organs</b>	rat liver epithelial cells

## DESCRIPTION

### Method keywords

liver  
epithelial cells  
Hepatocytes  
cellular differentiation

### Scientific area keywords

liver research  
cellular differentiation

### Method description

Rat liver epithelial cells are cultivated at 100% confluency on 100 µg/mL rat tail collagen type I coated culture dishes in base medium and sequentially exposed to hepatogenic growth factors and cytokines. Base medium consisted of William's E medium without glutamine supplemented with 7.33 IE/mL benzyl penicillin, 50 µg/mL streptomycin

sulphate, 1 mg/mL linoleic-acid bovine serum albumin, 0.1 mM L-ascorbic acid, 0.03 mM nicotinamide, 0.25 mM sodium pyruvate and 1.623 mM L-glutamine. The hepatic differentiation procedure is as follows: days 0–2: base medium + 2% (v/v) FBS + 20 ng/mL HGF; days 3–5: base medium + 30 ng/mL HGF + 0.5% (v/v) ITS; day 6–8: base medium + 30 ng/mL HGF + 0.25 % ITS + 20 µg/L dex; days 9–11: base medium + 20 ng/mL HGF + 20 µg/L dex; days 12–14: base medium + 10 ng/mL HGF + 20 µg/L dex + 10 ng/mL OSM and from day 15 onwards: base medium + 20 µg/L dex + 10 ng/mL OSM. Cell cultures are incubated at 33 °C in a 5 % CO<sub>2</sub> humidified atmosphere. Media were completely changed every three days, unless otherwise defined.

### Method status

History of use

Internally validated

Published in peer reviewed journal

## PROS, CONS & FUTURE POTENTIAL

### Advantages

Homogenous population of rat hepatocyte-like cells with biotransformation capacity comparable to primary rat hepatocytes.

## REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION

### References

De Kock J, Snykers S, Branson S, Jagtap S, Gaspar JA, Sachinidis A, Vanhaecke T, Rogiers V. (2012) A liver-derived rat epithelial cell line from biliary origin acquires hepatic functions upon sequential exposure to hepatogenic growth factors and cytokines. *Curr Med Chem.* 19(26):4523-33

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