

# Measurement of urea synthesis in cultured stem cell-derived hepatocyte-like cells

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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

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	Human stem cells

## DESCRIPTION

#### Method keywords

Stem cells

Hepatocytes

Hepatotoxicity

urea

#### Scientific area keywords

hepaticdifferentiation

hepatic toxicity Hepatotoxicity Cell culture cellular programming

#### **Method description**

The present standard procedure describes a protocol for measuring the urea concentration in supernatant of human stem cell-derived hepatocyte-like cells. This procedure relies on a chromogenic reagent that forms a colored complex specifically with urea. The latter can be measured and is directly proportional to the urea concentration in the sample.

#### Lab equipment

Biosafety cabinet; Multiplate reader; Thermostated bath.

#### Method status

History of use Internally validated

## **PROS, CONS & FUTURE POTENTIAL**

#### Advantages

The current protocol represents a simple and direct method to quantitatively measure the urea concentration in human stem cell-derived hepatocyte-like cell cultures. This assay has no harmful effect on the cultured cells. Therefore, after incubation of the cells with the substrate (ammonium chloride (NH4Cl)), the cultures can be maintained.

#### Future & Other applications

Can be applied to other types of *in vitro* systems of hepatocytes.

## **REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION**

## References

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Snykers S, De Kock J, Rogiers V, Vanhaecke T. (2009) In vitro differentiation of embryonic and adult stem cells into hepatocytes: state of the art. Stem Cells 27:577-605

## Associated documents

Urea synthesis.doc

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