

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

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## 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>This method makes use of</b>	Human derived cells / tissues / organs
<b>Specify the type of cells/tissues/organs</b>	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 (NH<sub>4</sub>Cl)), 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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### Associated documents

[Urea synthesis.doc](#)

## PARTNERS AND COLLABORATIONS

### Organisation

**Name of the organisation** Vrije Universiteit Brussel

**Department** Pharmaceutical and Pharmacological Sciences (FARM)

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

**Country** Belgium

**Geographical Area** Brussels Region

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