

# 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

<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>	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](#)

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