

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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Associated documents

[Urea synthesis.doc](#)

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