Measurement of Cytochrome P450 Enzyme Induction and Inhibition in human cells

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Contact person

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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	parenchymal liver cells, stem cell-derived hepatocyte-like cells

DESCRIPTION

Method keywords

in vitro

hepatic cell line

luminescence

liver enzyme

viability test

Scientific area keywords

Toxicology
Drug metabolism
drug screening
in vitro cell culture

Method description

By the use of monolayer cultures as an *in vitro* system, the effects of drugs on CYP3A activity can be evaluated. It relies on the use of a luminogenic CYP3A substrate, namely luciferin-6′-pentafluorobenzylether (luciferin- PFBE). Upon biotransformation by CYP3A, luciferin-PFBE is converted into luciferin, which generates light when combined with a luciferin detection reagent. The normalization of the data relies on the cell number and cell viability and is evaluated by another bioluminescence reaction in which the levels of adenosine- 5′-triphosphate (ATP), the basic energy source of living cells, is measured.

Lab equipment

Biosafety cabinet;
Luminescence plate reader;
White opaque;
96-well plates.

Method status

History of use

PROS, CONS & FUTURE POTENTIAL

Advantages

Quick and easy to use.

REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION

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