Measurement of the extracellular release of lactate dehydrogenase in cultured primary rat hepatocytes

Commonly used acronym: *LDH assay*

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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
Species from which cells/tissues/organs are derived	Rat
Type of cells/tissues/organs	Primary rat hepatocytes

DESCRIPTION

Method keywords

Hepatotoxicity

Hepatocytes

cytotoxicity

LDH

Scientific area keywords

Toxicology

Hepatotoxicity

Primary hepatocytes

cytotoxicity

Method description

This method assesses general cytotoxicity. Upon disruption of the cell membrane, lactate dehydrogenase (LDH) is released. LDH catalyzes the interconversion of pyruvate and lactate with concomitant interconversion of reduced (NADH) and oxidized (NAD+) nicotinamide adenine dinucleotide. The principle of the assay described in the current standard operating procedure is based on this reaction. In particular, the consumption of NADH is spectrophotometrically assessed and serves as a measure that is proportional to the LDH activity.

Lab equipment

Spectrophotometer

Method status

History of use

PROS, CONS & FUTURE POTENTIAL

Advantages

Easy-to-apply method

Challenges

Cell membrane damage is a rather late and rough marker of cytotoxicity that mainly indicates necrosis and that may yield false negative results

REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION

References

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