Direct Peptide Reactivity Assay

Commonly used acronym: *DPRA*

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Organisation

Name of the organisation Sciensano

Department Chemical and physical health risks

Specific Research Group or Service Medicines and health products

Country Belgium

Geographical Area Brussels Region

SCOPE OF THE METHOD

The Method relates to	Human health
The Method is situated in	Basic Research, Regulatory use - Routine production
Type of method	In chemico

DESCRIPTION

Method keywords

toxicology

OECD

AOP

Molecular initiating event

Scientific area keywords

Skin Sensitisation

in vitro

Toxicology

OECD

AOP

molecular initiating event

Method description

The DPRA is an *in chemico* method which quantifies the remaining concentration of cysteine- or lysine-containing peptide following 24 hours incubation with the test chemical at 25 +/-2,5ºC. The synthetic peptides contain phenylalanine to aid in the detection. Relative peptide concentration is measured by highperformance liquid chromatography (HPLC) with gradient elution and UV detection at 220 nm. Cysteineand lysine peptide percent depletion values are then calculated and used in a prediction model (see paragraph 29) which allows assigning the test chemical to one of four reactivity classes used to support the discrimination between sensitisers and non-sensitisers.

Lab equipment

HPLC UV

Method status

History of use

Internally validated

Validated by an external party (e.g. OECD, EURL ECVAM,...)

PROS, CONS & FUTURE POTENTIAL

Advantages

Validated methodology (EURL ECVAM) ;

AOP based ;

High throughput ;

Low cost ;

In chemico.

Challenges

The test method described in this Test Guideline is an *in chemico* method that does not encompass a metabolic system.

Future & Other applications

The methodology behind AOP and MIE can be applied to other toxicological endpoints.

REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION

References

OECD, TG 442C, OECD GUIDELINE FOR THE TESTING OF CHEMICALS, *In Chemico* Skin Sensitisation: Direct Peptide Reactivity Assay (DPRA)

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