

# Direct Peptide Reactivity Assay

**Commonly used acronym:** DPRA

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## Contact person

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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

|                                  |   |
|----------------------------------|---|
| <b>The Method relates to</b>     | Human health  |
| <b>The Method is situated in</b> | Basic Research, Regulatory use - Routine production |
| <b>Type of method</b>            | 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 +/-2,5°C. 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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