Cytokinesis-block micronucleus method

Commonly used acronym: *CBMN*

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Organisation

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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	Type II lung epithelial cells (RLE)

DESCRIPTION

Method keywords

DNA damage
chromosomal lesions
lung epithelial cells
fluorescence microscope

Scientific area keywords

genotoxicity
mutagenicity
Toxicology
inhaled particles

Method description

The cytokinesis-block micronucleus method allows assessing the presence of DNA damage at the chromosome level. It is an essential part of toxicology, because mutation is a crucial event in carcinogenesis. The capacity of inhaled particles to induce

irreversible mutations in type II lung epithelial cells is evaluated in this assay. By exposing type II lung epithelial cells to particles and blocking the cytokinesis, micronuclei can be scored in divided cells and are the reflection of mutations induced by particles.

Lab equipment

Fluorescence microscope

Method status

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

PROS, CONS & FUTURE POTENTIAL

Advantages

Great predictivity ;
Sensitivity ;
Precision ;
Simple.

Modifications

Other cell lines can be used

REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION

References

Fenech, M., Cytokinesis-block micronucleus cytome assay. Nat Protoc, 2007. 2(5): p. 1084-104.
Fenech, M., The in vitro micronucleus technique. Mutat. Res, 2000. 455(1-2): p. 81-95.

Associated documents

OECD 487.pdf

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