

# Cytokinesis-block micronucleus method

*Commonly used acronym: CBMN*

*Created on: 25-11-2019 - Last modified on: 26-11-2019*

## SCOPE OF THE METHOD

|  |   |
|--|---|
| <b>Alternative method relates to</b>                       | Human health                            |
| <b>Alternative method is situated in</b>                   | Basic Research                          |
| <b>Type of alternative method</b>                          | In vitro - Ex vivo                      |
| <b>This method makes use of</b>                            | Animal derived cells / tissues / organs |
| <b>Species from which cells/tissues/organs are derived</b> | Rat                                     |
| <b>Type of cells/tissues/organs</b>                        | 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](#)

## PARTNERS AND COLLABORATIONS

### Organisation

**Name of the organisation** UCLouvain

**Department** The Louvain Centre for Toxicology and Applied Pharmacology

**Country** Belgium

**Geographical Area** Brussels Region

*Coordinated by*



*Financed by*

