Monocyte activation test

Commonly used acronym: *MAT*

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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	Regulatory use - Routine production
Type of method	In vitro - Ex vivo
Specify the type of cells/tissues/organs	Whole human blood cells

DESCRIPTION

Method keywords

Pyrogen test

alternative to rabbit pyrogen test

european pharmacopoeia

endotoxins and non-endotoxin pyrogens

Scientific area keywords

quality control of injectable medicines

Method description

The monocyte-activation test (MAT) is used to detect or quantify substances that activate human monocytes or monocytic cells to release endogenous mediators such as pro-inflammatory cytokines, for example tumour necrosis factor alpha (TNF), interleukin-1 beta (IL-1) and interleukin-6 (IL-6). These cytokines have a role in fever pathogenesis. Consequently, the MAT will detect the presence of pyrogens (endotoxins on non-endotoxin pyrogens) in the test sample. The MAT is suitable, after a product-specific validation, as a replacement for the rabbit pyrogen test (see European pharmacopoeia chapter 2.6.30). Although 3 methods (quantitative test, semi-quantitative test or reference lot comparison test) are described in the Ph. Eur.

Lab equipment

Biosafety cabinet ;
CO2-incubator ;
ELISA plate reader.

Method status

Still in development
History of use

PROS, CONS & FUTURE POTENTIAL

Advantages

No rabbits ;
ex-vivo test.

Challenges

Proper storage of whole human blood (store only in nitrogen tank, not at minus 80°C).

REFERENCES, ASSOCIATED DOCUMENTS AND OTHER INFORMATION

References

User Manual of the PyroDetect System Monocyte-Activation Test (MAT) from Merck ; Monocyte Activation Test guideline from European Pharmacopoeia.

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