

## 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

<b>The Method relates to</b>	Human health
<b>The Method is situated in</b>	Regulatory use - Routine production
<b>Type of method</b>	In vitro - Ex vivo
<b>Specify the type of cells/tissues/organs</b>	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 $\alpha$ ), interleukin-1 beta (IL-1 $\beta$ ) and interleukin-6 (IL-6). These cytokines have a role in fever pathogenesis. Consequently, the MAT will detect the presence of pyrogens (endotoxins or 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 ;  
CO<sub>2</sub>-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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verbeelding werkt

