HÉMA-QUÉBEC

Blood Products
Stem Cells
Human Tissues

Methods for Detecting and Preventing Inflammation

Application: Detection of extracellular mitochondria or degradation products thereof in platelet concentrates, and interpretation of assay result as quality criterion. Prevention of mitochondrial degradation in platelet concentrates by the addition of an inhibitor. Treatment of individuals suffering from inflammatory conditions by administering an agent that limits the release of pro-inflammatory compounds from mitochondria.

Commercial Interest: Blood component suppliers or blood bank operators, particularly those who supply platelet concentrates. Suppliers of kits for assaying pro-inflammatory markers derived from mitochondria. Businesses from the pharmaceutical sector commercializing anti-inflammatory medicines.

Summary: This technology focuses on the **detection and quantification of pro-inflammatory markers derived from extracellular mitochondria**, in particular degradation products from extracellular mitochondria in platelet concentrates intended for transfusion. The invention claims the detection of the interaction between secreted phospholipase A_2, group IIA ($sPLA_2$-IIA) and extracellular mitochondria. Detection of these inflammatory markers can also be used in diagnostic procedures on clinical samples. **Targeted inflammatory pathologies include transfusion reactions and some autoimmune diseases**. A kit for detecting extracellular mitochondria, either free or encapsulated within microparticles, is also claimed. **A method for inhibiting the *in vitro* or *in vivo* release of mitochondrial pro-inflammatory compounds, through the use of $sPLA_2$-IIA inhibitors**, is reported. The inhibitor can be used as an additive in a labile biological product such as a blood component, or in a pharmaceutical composition intended for a patient suffering from an inflammatory condition. Finally, the invention claims a screening method for anti-inflammatory compounds, as well as a method for isolating extracellular mitochondria.

Intellectual Property: A provisional patent application has been filed in the United States for this invention.

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Information about this technology for licensing purposes can be obtained from:

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