

Crystalline silica impairs the efferocytosis ability of human and mouse macrophages : a pathogenic link between autoimmunity and silica exposure.

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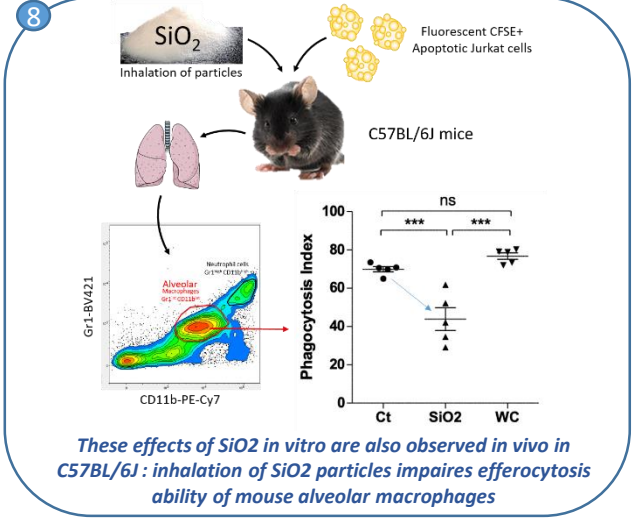
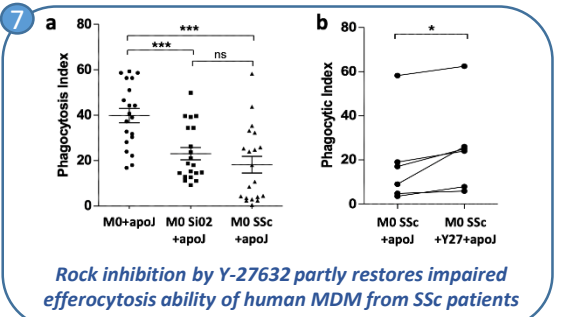
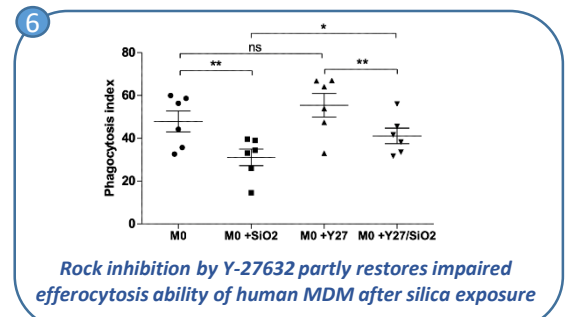
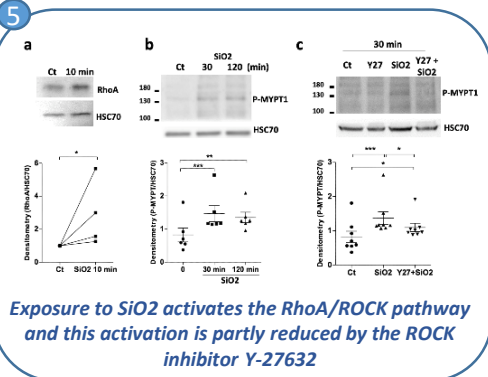
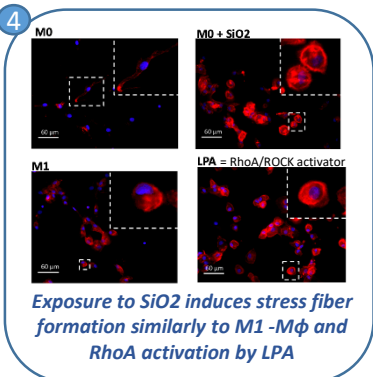
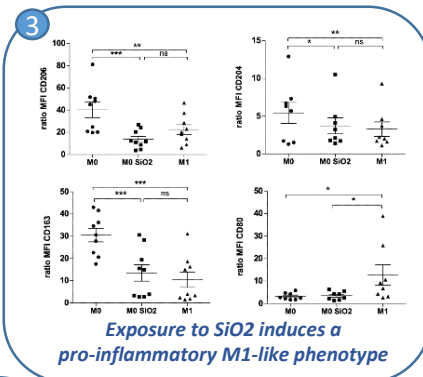
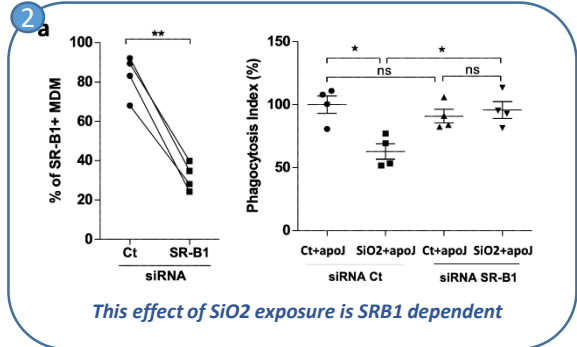
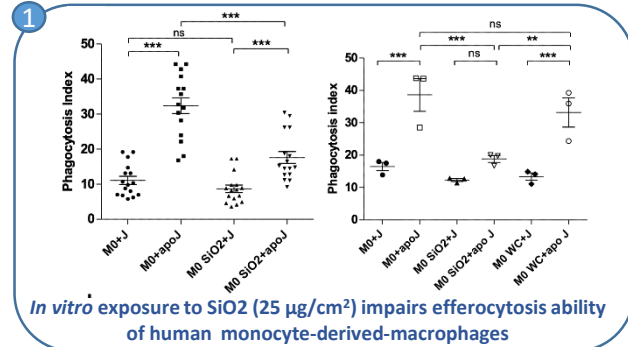
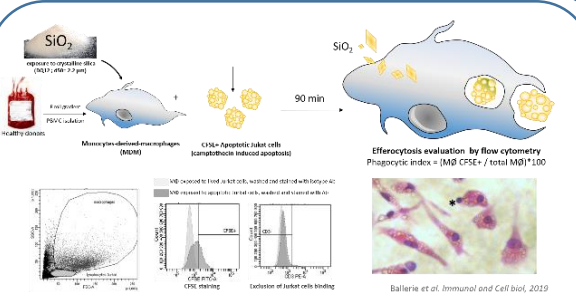
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§ Equal contribution

Background: Inhalation of crystalline silica (SiO₂) can lead to pulmonary diseases and systemic autoimmune disorders, such as systemic sclerosis (SSc). A failure of apoptotic cell clearance, also called efferocytosis, is reported in autoimmune diseases and notably occur in macrophages from SSc patients. However, the precise relationship between crystalline silica exposure and efferocytosis impairment remains to be determined. To explore this question further, this study characterizes the effects of crystalline silica on efferocytosis abilities of human and mouse macrophages.

Methods: Human monocyte-derived macrophages (MDM) or C57BL/6J mice were exposed to crystalline silica and then to CFSE-positive apoptotic Jurkat cells and engulfment efficiency was measured by flow cytometry.

Efferocytosis assay on MDM



Conclusion: Crystalline silica impairs efferocytosis capacities of human and mouse MΦ, and this impairment provides new insights in the possible mechanisms linking silica exposure and the emergence of silica-induced autoimmune diseases characterized by the production of antibodies targeting apoptotic cell-associated antigens

