***Université Clermont Auvergne, CNRS UMR 6293, INSERM U1103, GreD :* « Approche translationnelle des lésions épithéliales et de leur réparation » (équipe 10, Pr. SAPIN)**

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Sevoflurane in the treatment of acute respiratory distress syndrome: a translational approach.

The acute respiratory distress syndrome (ARDS) is a major cause of respiratory failure and death that still lacks specific therapy. Sevoflurane, a volatile anesthetic agent widely used for general anesthesia, may be relevant to main processes that depend on the receptor for advanced glycation end-products (RAGE) pathway and that contribute to mortality in ARDS, namely epithelial injury, impaired alveolar fluid clearance (AFC), and severe inflammation (TAURA project, funded by ANR/DGOS PRTS 2013).
In the current project proposal, mechanistic pathways for the effects of sevoflurane on AFC, epithelial injury, and macrophage activation will be investigated in experimental studies (mouse and piglet models of ARDS, primary culture of human lung alveolar epithelial cells) to identify biological markers and therapeutic targets that will be subsequently assessed in samples from patients previously enrolled in a multicenter, randomized, enriched clinical trial of sevoflurane to treat ARDS (SESAR study, funded within the frame of the 2018 French « PHRC-National » action, that will enroll a total of 600 ARDS patients).

Jabaudon, et al. Sevoflurane for Sedation in ARDS: A Randomized Controlled Pilot Study. Am J Respir Crit Care Med. 2017 Mar 15;195(6):792-800.
Blondonnet R, et al. RAGE inhibition reduces acute lung injury in mice. Sci Rep. 2017 Aug 3;7(1):7208.