

12<sup>th</sup> International Conference on

# Allergy, Asthma & Clinical Immunology

October 01-02, 2018 | Moscow, Russia

## *In vitro* safety, efficacy and mechanism of action of an isotonic seawater solution for nasal hygiene

Saaid Amina<sup>1</sup>, De Servi Barbara<sup>2</sup>, Meloni Marisa<sup>2</sup> and Culig Josip<sup>3</sup><sup>1</sup>Laboratoire Fumouze, Levallois-Perret, France<sup>2</sup>VitroScreen Srl, Italy<sup>3</sup>University of Applied Health Sciences, Croatia

Nasal hygiene is critical to overall nasal health and provides protection against airborne contaminants and pathogens, including allergens. Nasal irrigation is often used both for nasal hygiene and managing sinonasal conditions. This study evaluated the ionic balance of an isotonic seawater solution (Stérimar Nose Hygiene Baby and Adults, SNH) in comparison to electrolysed seawater (EDS). SNH safety and efficacy for regular nasal hygiene was studied using a 3D reconstituted human nasal epithelium model (MucilAir™). Ionic balance was measured by mass-spectrometry and chromatography. Preclinical efficacy and mechanism of action have been assessed by multiple endpoints to obtain robust body of evidences: mucociliary clearance (MCC), wound repair, decongestant activity by ATP release quantification assay, histomorphological evaluation (alcian blue) and immunohistochemical (AQP3 staining). Safety was evaluated through epithelium integrity and cytotoxicity by transepithelial electrical resistance (TEER), lactate dehydrogenase (LDH) and interleukin 8 (IL-8) release. Ionic balance of SNH was more similar to human plasma and pure seawater compared to EDS. SNH helped tissue recovery from the hypotonic stress-associated ATP release, and maintained tissue morphology for longer periods than EDS. SNH did not compromise tissue integrity and did not have any toxic effects. SNH showed a significant increase in MCC (89 vs. 37  $\mu\text{m/s}$ ,  $p < 0.001$ ) compared to untreated cultures, and a faster wound closure profile compared to saline solution ( $p < 0.001$ ). As a conclusion, this work shows the safety and efficacy of SNH in maintaining good nasal hygiene which can contribute to allergy prevention, consistent with SNH benefits demonstrated in clinical trials.

### Biography

Amina Saaid is currently working at Laboratoire Fumouze, France.

amina.saaid@churchdwight.com

### Notes: