PULSUS
WWW.PULSUSCONFERENCE.COM

Barbara De Servi et al., J Otol Rhinol 2018, Volume 7
DOI: 10.4172/2324-8785-C4-018

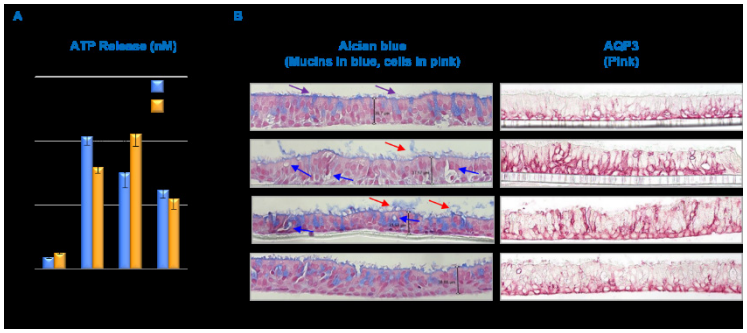
8th International Conference on

Otorhinolaryngology

October 16-17, 2018 Rome, Italy

In vitro, isotonic seawater solution maintains recovery from stress longer than electrodialysed seawater and has similar ionic balance to human plasma

Barbara De Servi[1], Meloni Marisa[1], Culig Josip[2] and Saaid Amina[3]
[1]VitroScreen S.r.l, Italy
[2]University of Applied Health Sciences, Croatia
[3]Laboratoire Fumouze, France



Introduction & Aims: Nasal hygiene is critical to overall nasal health and provides protection against airborne contaminants, allergens and pathogens. Nasal irrigation is often used both for nasal hygiene and managing sinonasal conditions. Its use is endorsed as an adjuvant treatment in conditions such as allergic rhinitis, common cold, rhinosinusitis or post-operative care after sinonasal surgery. The aim of this study is first to evaluate the ionic balance of an isotonic seawater solution (Stérimar Nose Hygiene Baby and Adults, SNH) in comparison to Electrodialysed Seawater (EDS) and, in parallel, to perform the preclinical efficacy evaluation of SNH using a validated and reproducible experimental protocol that mimics nasal congestion: 3D reconstituted human nasal epithelium model co-cultured with human airway fibroblasts (MucilAir™-HF).

Methods: Ionic balance of the solutions was measured by mass-spectrometry and chromatography. For efficacy assessment, ATP release quantification assays and histological (Alcian Blue) together with immunohistochemical (Aquaporin 3, AQP3) staining were performed.

Results: Ionic balance of SNH was more similar to human plasma and pure seawater compared to EDS. SNH helped tissues recover from hypotonic stress as evaluated by measurement of stress-associated ATP release and maintained morphology of the tissues for longer periods than EDS as demonstrated by Alcian Blue and AQP3 staining levels and tissue distribution.

Conclusion: This work shows that the ionic balance of SNH is closer to human plasma compared to EDS and confirms its efficacy in maintaining good nasal hygiene and respecting tissue morphology, consistent with benefits of SNH demonstrated in clinical trials.

Biography

Barbara De Servi has obtained her PhD in Physiology from University of Milan in 2002. She continued her academic career as a Post-doctorate at the Department of Hormones and Signal Transduction at DKFZ (2003-2004) and as a Research Fellow at the Department of Morphological and Biomedical Sciences at University of Verona Medical School (2005-2006). Since 2007, she works as the Research Manager at VitroScreen S.r.l, Milan, Italy. She has published more than 17 papers in reputed journals.

barbara.deservi@vitroscreen.com

Notes: