# 2ND INTERNATIONAL CONFERENCE ON CELL SCIENCE AND REGENERATIVE MEDICINE

**Alberto Vazquez Sanz,** David Pérez Cabrera & Irene Zamora Marmol

*Takeda, Madrid, Spain*

## Role of PGE-2 in the Immunomodulatory Function of ASC

**Abstract:** The immunomodulatory role of ASC (Adipose-derived Stem Cells) on different immune system cell types has been extensively described. Depending on the stimuli present in the microenvironment, ASC can guide the immune response toward a pro-inflammatory pathway to combat injury or resolve inflammation by polarizing cells into an anti-inflammatory phenotype, thereby preventing prolonged damage.

One of the key molecules is PGE-2 (Prostaglandin E2), whose expression is induced in presence of a inflammatory environment and released into the medium. PGE2 play a critical role in the survival of MSC (Mesenchymal Stem Cells), enhances their immunosuppressive capabilities, and promotes tissue repair. In our previous work, we have demonstrated that PGE-2 secreted by ASC modulate monocyte differentiation and drive macrophage polarization toward an anti-inflammatory M2 phenotype, contributing to the resolution of inflammation and tissue repair.

A PGE2 KO (knockout) ASC line has been generated to study the effect of ASC-conditioned medium on various leukocyte subpopulations. We now aim to expand the study of PGE-2's role using this KO model, examining, for example, how the absence of PGE2 affects the cytotoxicity of PBMCs toward ASC.

**Keywords:** ASC, PGE-2, Knockout, Immune response, conditioned medium.

**Biography:** Quality Control Technician at Takeda with solid expertize in quality within the biopharmaceutical sector. As part of the Global Quality team at Quality Control Madrid CTTC, I focus on achieving excellence in regulated manufacturing operations and ensuring rigurous standards. I actively contribute to the sustainable development and continuos improvement of innovative biological therapies, which are essencial for advancing healthcare.

doi.org/10.51219/URForum.2025.Alberto-Vazquez-Sanz