Autophagy mediates calcium-sensing receptor-induced TNF? production in human preadipocytes

Mattar, Pamela

Bravo-Sagua, Roberto

Tobar, Nicolás

Fuentes, Cecilia

Troncoso, Rodrigo

Breitwieser, Gerda

Lavandero, Sergio

Cifuentes, Mariana

 Obesity is a major current public health problem worldwide due to the severe co-morbid conditions that this disease entails. The development of obesity-related cardiometabolic disorders is in direct association with adipose tissue inflammation that leads to its functional impairment. Activation of the Calcium-Sensing Receptor (CaSR) in adipose tissue contributes to inflammation and adipose dysfunction. Autophagy, a process of cell component degradation, is closely related to inflammation in many diseases, however, whether autophagy is associated with CaSR-induced inflammation remains unknown. Using LS14 and SW872 preadipose cell lines as well as primary human preadipocytes, we show that CaSR activation with the allosteric activator cinacalcet induces autophagosome formation. Cinacalcet-induced LC3II content elevation was precluded by knockdown of the CaSR and enhanced by CaSR overexpression, indicating a specific effect. Autophagy inhibition using 3-methyladenine p