LETM1 exchanges protons (mitochondrial intermembrane space) for calcium (mitochondrial matrix)

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Introduction

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Literature references


Reactome database release: 73

This document contains 1 reaction (see Table of Contents)
LETM1 exchanges protons (mitochondrial intermembrane space) for calcium (mitochondrial matrix)

Stable identifier: R-HSA-8949687

Type: transition

Compartments: mitochondrial inner membrane

Inferred from: Letm1 exchanges protons (mitochondrial intermembrane space) for calcium (mitochondrial matrix) (Mus musculus)

LETM1, which is located in the mitochondrial inner membrane (Tamai et al. 2008), exchanges two protons from the mitochondrial intermembrane space for a divalent calcium ion from the mitochondrial matrix (Tsai et al. 2014, Shao et al. 2016). LETM1 appears to participate in both calcium efflux and calcium influx (Doonan et al. 2014). Overexpression of LETM1, however, does not elevate calcium efflux from the mitochondrial matrix so the role of LETM1 in mitochondrial calcium flux is controversial (De Marchi et al. 2014). In human HeLa cells, knockdown of LETM1 causes an increase in mitochondrial calcium (Shao et al. 2016) however in mice, knockdown of Letm1 causes a reduction in mitochondrial calcium uptake and proton extrusion at low cytosolic calcium concentration (Jiang et al. 2013). LETM1 has also been proposed to act as a K+/H+ exchanger (Froschauer et al. 2005).

Literature references


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