Mitochondrial calcium uniporter

During intracellular calcium Ca2+ signalling mitochondria accumulate significant amounts of Ca2+ from the cytosol.

Mitochondrial Ca2+ uptake controls the rate of energy production, shapes the amplitude and spatio-temporal patterns of intracellular Ca2+ signals and is instrumental to cell death.

This Ca2+ uptake is undertaken by the mitochondrial Ca2+ uniporter (MCU) located in the organelle's inner membrane.

The blockage of mitochondrial calcium uniporter (MCU) provided benefit in the early brain injury after experimental subarachnoid hemorrhage.

Blockage of MCU could alleviate iron accumulation and the associated injury following SAH. These findings suggest that the alteration of calcium and iron homeostasis be coupled and MCU be considered to be a therapeutic target for patients suffering from SAH [1)].

1)
Yan H, Hao S, Sun X, Zhang D, Gao X, Yu Z, Li K, Hang CH. Blockage of mitochondrial calcium uniporter prevents iron accumulation in a model of experimental subarachnoid hemorrhage. Biochem Biophys Res Commun. 2015 Jan 24;456(4):835-40. doi: 10.1016/j.bbrc.2014.12.073. Epub 2014 Dec 19. PubMed PMID: 25529443.