

ケミカルバイオロジー研究所

Research Institute for Chemical Biology

第 51 回 ケミカルバイオロジー研究所セミナー
第 135 回 生物科学フロンティアセミナー

Prof. Jaehoon Yu

(韓国) ソウル大学・化学/教育学科

Department of Chemistry & Education,
Seoul National University

Cyclohexylalanine-containing alpha-helical amphipathic peptide with eukaryotic cell penetrating ability targets cardiolipin and rescues mitochondrial dysfunction

令和 5 年 11 月 13 日 (月) 11:00~12:00
A13 棟 323 号室 (講義室 B)

Mitochondrial dysfunction is a major attrition of various degenerative diseases. One cause of mitochondrial dysfunction is destruction of the cristae structure promoted by cardiolipin (CL) remodeling of the inner mitochondrial membrane (IMM). Thus, protection of the cristae structure and CL pathological remodeling could be a plausible approach to retain the function or reverse dysfunction of mitochondria. In a study aimed at identifying substances that block reactive oxygen species (ROS) generation against mitochondrial dysfunction, a library of cyclohexylalanine-containing cell-penetrating α -helical amphipathic “bundle” peptides were synthesized and screened. One member of the library, CMP3013, was found to preferentially bind to aberrant and damaged mitochondria, and block destruction of the cristae structure caused by treatment with hydrogen peroxide or other damaging agents.

大阪公立大学 研究推進機構 協創研究センター
ケミカルバイオロジー研究所・所長 中瀬 生彦
〒599-8531 大阪府堺市中区学園町 1-1
大阪公立大学大学院理学研究科
(連絡先) 藤井 郁雄
TEL: 072-254-9834, fujii@omu.ac.jp



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