

論文の内容の要旨

論文題目 Phospho-JMJD1A-dependent SWI/SNF Complex
Regulates Energy Expenditure in Brown Adipocytes
(ヒストン修飾酵素JMJD1AとSWI/SNF複合体による熱産生遺伝子の発現機構に関する研究)

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JMJD1A has been identified to be phosphorylated at serine 265A by PKA. Its phosphorylation results in JMJD1A forms a complex with SWI/SNF and PPAR γ . Although it has been reported that JMJD1A binding to PPRE target sites was induced by isoproterenol stimulation, whether phospho-JMJD1A-SWI/SNF-PPAR γ facilitates JMJD1A binding to target sites is remain unknown. ChIP-seq and microarray analyses identified JMJD1A localization is increased under isoproterenol stimulation. Phospho-S265-JMJD1A and SWI/SNF complex are crucial for isoproterenol-dependent genes, *Adrb1* and *Ucp1*. Further ChIP-seq analyses of SWI/SNF subunits and PPAR γ showed co-localization on ISO-induced JMJD1A target sites. Phospho-JMJD1A-SWI/SNF-PPAR γ also facilitates gene transcription activation through chromatin remodeling. Taken together, I have revealed that ISO-induced JMJD1A localization is mediated by phospho-JMJD1A-SWI/SNF-PPAR γ complex.