

Voltage-sensing phosphatase as the molecule for electro-phospholipid regulation and its potential as a novel molecular tool for imaging of electrical signal in vivo

● Title has been changed. 演題が変更となりました。

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PLACE: LECTURE ROOM 2, MEDICAL EDUCATION & LIBRARY BLDG 3F.

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Voltage sensor has long been studied as the structure unique to voltage-gated ion channels.

But this textbook idea has been changed by the discovery of voltage-sensing phosphatase, VSP, which lacks pore domain but contains cytoplasmic enzyme region showing similarity to the phosphatase and tensin homolog deleted on chromosome ten (PTEN). VSP is depolarization-activated phosphoinositide phosphatase that dephosphorylates PI(3,4,5)P₃ and PI(4,5)P into PI(3,4) and PI(4)P, respectively. VSP is conserved from unicellular organism to human. In my talk, I will introduce (1) recent findings of molecular mechanisms by which voltage sensor domain regulates phosphoinositide phosphatase activities in VSP, (2) potential biological roles of VSP in different organisms, (3) examples of potential usages of VSP as molecular tools to develop gene-targetable voltage-sensitive probe in in vivo heart and brain.

References:

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