

Identification of a binding protein for 2ccPA and characterization of its roles in microglial cell death

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Cyclic phosphatidic acid (cPA) is a naturally occurring phospholipid mediator found in mammalian tissues and cells. It has been reported that cPA has novel biological activities; attenuates traumatic brain injury-mediated neuronal cell death and inhibits chronic and acute inflammation. However, there are some seemingly unanswerable questions. In this study, our lab has successfully used Click chemistry approach to derivatize azide-tagged metabolically stabilized cPA analogue, 2-carba-cPA (2ccPA). Using affinity chromatography with 2ccPA beads, we successfully captured a potential target protein (30k) from the mouse microglial cell (SIM-A9). We then analyzed by LC-MS/MS and identified adenine nucleotide translocase 2 (ANT2) as a 2ccPA binding protein. We would like to discuss on potential roles of 2ccPA-ANT2 axis regulating microglial mediated neuroinflammation and related diseases.

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