一般講演 | B 食品機能 (Food Function)

[3Ea] 血糖調節、認知機能

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11:00 ～ 11:15

[3Ea-08]Ergothioneine stimulates Ca^{2+} signaling-mediated brain-derived neurotrophic factor expression in NE-4C cell

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キーワード：エルゴチオネイン、脳由来神経栄養因子、アルツハイマー病、NE-4C神経細胞

【 Objective】 Ergothioneine (EGT) has been demonstrated to be protective of cognition in animal models and humans. The underlying mechanism, however, is still a mystery to be unveiled. Therefore, in current study, EGT-induced Ca^{2+} signaling-mediated BDNF expression was explored.【 Method】 In cell culture, the mouse NE-4C stem cell was firstly differentiated into progenitor cell and then treated with sample for 48 h. Finally, the CREB phosphorylation and BDNF expression were detected. Besides, the Ca^{2+} real-time change was monitored by multi-mode microplate reader.
【 Result】 EGT significantly increased CREB phosphorylation and BDNF expression in NE-4C nerve cells. The elevated intracellular Ca^{2+} was inhibited by 2-APB (an IP_3R inhibitor). The analogue hercynine also enhanced intracellular Ca^{2+}, yet histidine has no such effect. This suggested the trimethylammonium group may exert crucial role in Ca^{2+} signaling.