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Induction of neurogenesis by extracts of 57 plant species used in Myanmar traditional medicine in PC12 cells

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While study of western drugs leading to dementia or depression has been conducted, many trials to prevent such diseases by herbal medicines have been also done. For instance, effects of ginkgo components or Yokukansan for dementia and Alzheimer's disease, or effect of Chinese herbal medicines for depression have been reported. Herbal medicines are different from western medicines, because they can be prophylactically used by taking from healthy state in some cases.

We focused on biological resources of Myanmar, where democratization has been advanced and accepts foreigners freely. In Myanmar, original traditional medicines have been used rather than Western medicines. Because the country was being isolated for a long term, constituents of Myanmar tradition medicines is uncertain. In the present study, we aimed to introduce new lead compounds for dementia or depression drugs by measuring effects of constituents of Myanmar tradition medicines in a neural model. Among 171 kind of extracts, methanol extract of *Croton tiglium* L. induced phosphorylation of ERK 1/2 as well as NGF, used as the positive reference compound while IC50 of cytotoxicity was >100 µg/mL. Not only ERK 1/2 but also JNK and p38 MAPK were phosphorylated by methanol extract of *C. tiglium*. Remarkable neurite outgrowth and expressions of Neurofilament-M were observed by addition of *C. tiglium* methanol extract at 10, 30, and 100 µg/mL for the medium of PC12 cells. Neurite outgrowth and phosphorylation of ERK 1/2 were down-regulated by addition of inhibitor of MEK (U0126), JNK, or p38MAPK whereas, neurite outgrowth and expressions of Neurofilament-M by NGF was inhibited only by U0126.

Biography

Atsuyoshi Nishina has completed his PhD from Meiji University. He is the Professor of College of Science and Technology, Nihon University, Japan. He has published more than 40 papers in reputed journals.

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