

GS03-7 Shortening effect of polygalae Radix on the circadian period length via CaMKII pathway

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The mammalian circadian clock system controls many physiological functions, including sleep-wake cycle and endocrine release. Crude drugs construct Kampō, which are used to remedy various diseases, however, the effect of crude drugs on the circadian clock system has not been well examined yet. Thus, we examined which crude drugs had the most shortening effect on the period length, and examined the mechanism of the shortening effect on the period length using cells. First, we screened crude drugs shortening the period length. Second, we measured the shortening effect on the period length in organisms. Last, we researched the mechanism of shortening effect on the period length using luciferase assay. In luciferase assay, we applied mice embryonic fibroblasts and organs from PER2::LUCIFERASE knock-in mice by using a bioluminescence reporter assay of the circadian clock *Per2* gene, which is one of clock genes constructs the circadian clock system. As a result of screening, Polygalae Radix strongly shortened the period length in fibroblasts compared with others crude drugs. Moreover, the effect of Polygalae Radix on the period length showed a dose-dependency and it shortened the period length in liver clock. Additionally, we identified that Polygalae Radix may lead to a shortening effect on the period length via activation of CaMKII pathway. Taken together, these results suggested that Polygalae Radix through CaMKII pathway would be able to become a therapy tool for delayed sleep phase syndrome and extreme eveningness. This work was partially supported by the Council for Science, SIP.