

IDDST2010 国際創薬科学技術学会 (北京 : 平成 22 年 10 月)

北京で開催された国際創薬科学技術学会は、一般薬や漢方薬の分野の新薬開発をメインにした学会で、革新的で有用性の高い新薬を開発し医療の現場に提供していくことを目指しています。また、創製された新しい薬を提供していくため、医薬品の有効性・安全性・品質面での研究発表があります。この学会の特徴は、日本や中国に古くから伝わる漢方薬の作用機序の研究や、新しい漢方薬の研究発表が盛んに行われていることです。



IDDST2010 参加者の記念写真



横溝先生の発表風景

このような分野の多くの研究の中で、伝統的漢方の経験を踏まえた健康飲料である美露仙寿の研究発表がなされました。横溝先生が発表された美露仙寿の成分、抗疲労効果、抗酸化作用や免疫増強効果など、本冊子に紹介する内容の研究は、海外の多くの研究者の注目を浴びました。

## 発表要旨

### **Title: Roles of Antioxidants and Heat Shock Protein Inducers as an Antifatigue Effect induced by Health Supplements**

*Dr. Kazumi Yokomizo\*, Xinyuan Liu, and Takeshi Miyata*

#### ***Abstract***

Meirusenju (MRSJ), which is composed of the essences of *Lycium chinense* Miller, *Crataegus cuneata* Siebold et Zuccarini, *Phyllanthus emblica* L, *Chrysanthemum morifolium*, *Zizyphus jujuba* Miller var. *inermis* Rehd, *Ganoderma lucidum*, and *Coix lacryma-jobi* L. var. *mayuen* Stapf is an increasingly popular herbal supplement. It was developed by University of Illinois and Beijing Medical University in 1985. In a clinical study, after administration of MRSJ, IL-2 and IL-6 levels increased and decreased levels of lymphocyte transformation returned to normal levels in aged volunteers. Follow-up medical examinations showed that inspiration (100%), good appetite (95%) and sound sleep (95%) were the general clinical manifestations. We are interested in the improved general clinical manifestations following MRSJ treatment; however, it is still unknown whether the underlying pharmacological mechanism involves immunomodulation and/or other pathways. Although MRSJ has a significant folk history in Japan, further scientific investigation of MRSJ-induced effects is required, as it is important to provide an evidence-based health supplement. Therefore, we investigated the antifatigue effect of MRSJ in aged mice using open-field and rotarod tests, and assessed whether its mechanism of action is related to antioxidant activity and expression of heat shock proteins. Chronic supplementation with MRSJ in aged mice induced a good appetite; and the mice exhibited a lower rate of body weight increase compared to control mice. MRSJ significantly increased the riding time of mice on the rotarod for 2.8~6.7 times longer than that of control group. MRSJ treatment resulted in higher spontaneous locomotor activity; the rearing and ambulation behaviors were increased 3.4 and 2.2 times, respectively. MRSJ intake caused a significant augmentation of SOD activity in mice spleen and an increasing tendency in testis. It also significantly increased GSH level in liver. MRSJ-treated MKN-45 cells increased the expressions of HSP72 and GRP78 by 1.7 and 2.6 times, respectively. MRSJ may be utilized as an antifatigue agent, which might be due in part to the protective effect against exercise-induced oxidative stress and cytoprotection *via* induction of HSP72 and GRP78.

#### ***Biography***

Kazumi Yokomizo, male, microbiologist and presymptomatic medical pharmacologist, was graduated from the Graduated School (Master Course) of pharmaceutical department,

Kumamoto University in 1988, and joined the Chemo-Sero- Therapeutic Research Institute. In the company, he worked at the field of blood plasma products for three years, then moved to Faculty of Pharmaceutical Sciences, Kumamoto University in 1991. He became the Assistant Professor in the Laboratory of Pharmaceutical Microbiology, and studied for antiherpetic agents produced by Actinimycetes. Since 2005, he moved to Faculty of Pharmaceutical Sciences, Sojo University. He became the Associate Professor in the Laboratory of Presymptomatic Medical Pharmacology, and had been studying for the characterization of molecular mechanisms of actions of traditional oriental herbal medicines and health supplements.

***Dr. Kazumi Yokomizo***

Associate Professor

Sojo University, Japan

E-mail: [yoko0514@ph.sojo-u.ac.jp](mailto:yoko0514@ph.sojo-u.ac.jp)