

11th International Conference on**ALLERGY, ASTHMA & CLINICAL IMMUNOLOGY**

September 07-08, 2017 | Edinburgh, Scotland

Immunomodulatory potency of *Sargassum horneri* via increasing regulatory T cells and suppressing the mast cell activationAreum Kim¹, Jinhee Cho¹, Sumin Shin¹, Khinm Herath¹, Won Jung Lee¹, Ginnae Ahn², You-Jin Jeon¹ and Youngheun Jee¹¹Jeju National University, South Korea²Chonnam National University, South Korea

Sargassum horneri, a species of brown macro algae, has been reported to have several health promoting effects such as anti-viral, anti-coagulant effect, and anabolic activity on bone metabolism or higher plumbum absorption. In the present study, we investigated the immunomodulatory activity of *S. horneri* using murine splenocytes and bone marrow cultured mast cells. *S. horneri* was enzymatically hydrolyzed using the celluclast (SHC). Polyphenol-rich fractions from *S. horneri* (SHP) were also used for assessing the anti-allergic activity in BMCMC. SHC induced the proliferation of splenocytes without cytotoxicity. Treatment with SHC led to a significant increase in the population of CD8⁺ T cells, CD8⁺CD25⁺ regulatory T cells, and granulocytes. SHC also increased the secretion of IFN- γ . Meanwhile, SHP didn't show any cytotoxicity in BMCMC but significantly decreased the release of β -hexosaminidase in stimulated BMCMC. SHP also decreased the mRNA expression of IL-4, IL-6, IL-13, and TSLP in BMCMC. These findings indicate that *S. horneri* might modulate the Th2-type immune responses in immune-mediated disease. Therefore, *S. horneri* could be an excellent candidate for an anti-allergic agent.

Biography

Areum Kim is a PhD student at Jeju National University, Republic of Korea. He has research interest in Immunology and Radiobiology. He completed his BA in Nuclear and Energy Engineering at Jeju national University, South Korea from 2009-2013 and; MS in Interdisciplinary Graduate Program in Advanced Convergence Technology & Science at Jeju National University, Korea from 2013-2016.

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