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Manassantin B, a neolignan isolated from the roots of *Saururus Chinensis* inhibits VEGF-A-induced lymphangiogenesis and lymph node metastasis both *in vitro* and *in vivo*

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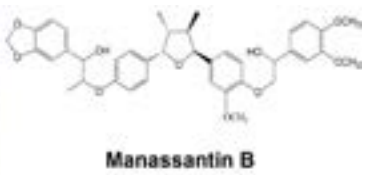
We investigated the effects of manassantin B, a neolignan isolated from the roots of *Saururus Chinensis*, on VEGF-A-induced lymphangiogenesis and lymph node metastasis both *in vitro* and *in vivo*. Manassantin B inhibited the proliferation, tube formation, and migration of recombinant human VEGF-A (rhVEGF-A) -1-treated human lymphatic microvascular endothelial cells (HLMECs). Manassatin B reduced *in vivo* lymphatic vessel formation in VEGF-A-stimulated Matrigel plug. To investigate the *in vivo* inhibitory effects of manassantin B, we established an oral cancer sentinel lymph node animal model using BALB/c mice and oral squamous cell carcinoma SCCVII cells. We confirmed the inhibitory effects of manassantin B on VEGF-A-induced lymphangiogenesis and sentinel lymph node metastasis in the animal model. Manassantin B suppressed the VEGF-A-induced phosphorylation of VEGFR-1 and VEGFR-2. In addition, manassantin B reduced the activation of signaling factors such as FAK, PI3K, AKT, ERK1/2 and p38, involved in VEGF-A/VEGFR-1 and VEGFR-2 signaling pathway. Our results indicate that manassantin B has the inhibitory effect on VEGF-A-induced lymphangiogenesis and lymph node metastasis and these suggest that manassantin B can be a useful anti-tumor agent to restrict the metastatic spread of oral cancer. This study was supported by the Basic Science Research Program through the National Research Foundation of Korea (NRF) funded by the Ministry of Education, Science and Technology (NRF-2016R1A6A3A11933134).



Manassantin B

Biography

Jeon Hwang-Bo has completed her PhD and postdoctoral studies from graduate school of biotechnology, Kyung Hee University, Republic of Korea. She has published more than 20 papers in reputed journals. Currently, she is a research professor at Kyung Hee University, and is conducting research on developing new anticancer drugs from natural products.

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