



Effect of *Thuja occidentalis* and its Polysaccharide on Cell-Mediated Immune Responses and Cytokine Levels of Metastatic Tumor-Bearing Animals

E S Sunil

Amala Cancer Research Centre, India

Abstract:

Tumor microenvironment induces an active immune tolerance and escapes immune surveillance. In order to achieve an effective antitumor immune response, appropriately activated immune cells should maintain their antitumor activity to overcome the immune suppressive tumor microenvironment.

Objectives:

This study focuses on the effect of *Thuja occidentalis* L. (Cupressaceae) extract and its polysaccharide (TPS) on cell-mediated immune response (CMI) in metastasis bearing mice.

Materials and Methods: Metastasis was induced by injecting B16F-10 melanoma cells in mice through the tail vein and effector mechanisms of CMI was studied by analyzing cytotoxic T-lymphocyte (CTL) activity, natural killer (NK) cell activity, antibody-dependent cell-mediated cytotoxicity (ADCC) and antibody-dependent complement-mediated cytotoxicity (ACC). The effect of *T. occidentalis* and TPS on pro-inflammatory cytokines and tissue inhibitor matrix metalloproteinases (TIMP) levels were also analyzed.

Results and Discussion: Administration of *T. occidentalis* and TPS enhanced the NK cell activity, ADCC and ACC much earlier than the control tumor-bearing animals. *T. occidentalis* and TPS were also found to decrease the elevated level of pro-inflammatory cytokines such as interleukin (IL)-1, IL-6, GM-CSF and tumor necrosis



factor (TNF)- α in the serum of metastatic tumor-bearing animals. The level of antitumor factors such as IL-2 and TIMP was elevated by the treatment with *T. occidentalis* and TPS in the serum, which was lowered in the untreated tumor-bearing animals.

Conclusion: This study clearly suggests that *T. occidentalis* and TPS effectively stimulate cell-mediated immune system and decrease pro-inflammatory cytokines, thereby inhibiting metastasis of tumor cells.

Biography:

E S Sunil is currently associated with Amala Cancer Research Centre, India

Recent Publications:

1. Integr Cancer Ther. 2007 Mar;6(1):66-73. doi: 10.1177/1534735406298975.PMID: 17351028.

Webinar on Immunology | August 30, 2020 | Osaka, Japan

Citation: E S Sunil; Effect of *Thuja occidentalis* and its Polysaccharide on Cell-Mediated Immune Responses and Cytokine Levels of Metastatic Tumor-Bearing Animals; Immunology Webinar 2020; August 30, 2020; Osaka, Japan