

# Can Tumor-associated Macrophages Stop the Evolution of Head and Neck Squamous Cell Carcinoma? †

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**Abstract:** Non-melanoma skin cancer is the most common type of human cancer, the majority of locations in the head and neck area. Here carcinoma can affect the oropharynx, nasopharynx, hypopharynx, larynx, and oral cavity. In the epithelial layer, squamous cell carcinoma (SCC) is detected in 90% of the cases. The most important etiological factor in the occurrence of SCC is chronic exposure to ultraviolet light, which leads to the release of free radicals that form thymidine dimers in DNA. Inflammation is a key component of the tumor environment. Solid tumors are constituted of tumor and non-tumor cells, most of the non-tumor cells being cells of the immune system, of which 50% are tumor-associated macrophages (TAM). New research shows that these specialized cells adapt easily and are relevant for their role in tumor evolution. Currently, two types of TAM are known: M1 with classical activation and M2 with alternative activation. Usually, patients are diagnosed in advanced stages. 60% of the cases are in stage III or IV on their first medical examination. There is a high interest in prevention, early diagnosis, and searching for efficient new treatments for head and neck squamous cell carcinoma. TAM M1-type exosomes induce cell apoptosis and inhibit cancer cell proliferation, migration, and invasion. M1-macrophages derived exosomes are known and already in use for their anti-inflammatory and antitumor features.

**Keywords:** macrophages; squamous cell carcinoma; head and neck cancer.

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