

Recent Advances in Head and Neck Tumor Microenvironment-Based Therapy

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Muzafar A. Macha, Nissar A. Wani, Rais A. Ganai,
Ajaz A. Bhat, Abid Hamid, Sheema Hashem,
Mohammad Haris, Sham S. Chauhan,
Mohammad A. Zargar, and Surinder K. Batra

Abstract

Head and neck squamous cell carcinomas (HNSCCs) are a group of heterogeneous aggressive tumors affecting more than half a million patients worldwide annually. While the tobacco- and alcohol-associated HNSCC tumors are declining, human papillomavirus (HPV)-induced tumors are on rise. Despite recent advances in multimodality therapeutic interventions including surgery in combination with chemoradiation therapy (CRT), the overall 5-year survival has not improved more than 50%. The underlying reasons for this dismal prognosis is the intrinsic or acquired resistance to CRT. While previous studies

were focused to target tumor cells, recent findings have implicated the involvement of tumor microenvironment (TME) on tumor progression and response to therapy. HNSCC TME includes cancer-associated fibroblasts (CAFs), endothelial cells, immune cells, endocrine cells, and the extracellular matrix (ECM) proteins including collagen and fibronectin. Understanding the crosstalk between TME and cancer cells is important to formulate more effective novel therapies and to overcome resistance mechanisms. Here, we summarized the current literature on recent advances on HNSCC TME with special emphasis on novel cell–cell interactions and therapies currently under development.

M. A. Macha (✉)
Department of Biotechnology, Central University of
Kashmir (CUK),
Ganderbal, Jammu and Kashmir, India

Department of Biochemistry and Molecular Biology,
University of Nebraska Medical Center,
Omaha, NE, USA

N. A. Wani · R. A. Ganai · A. Hamid · M. A. Zargar
Department of Biotechnology, Central University of
Kashmir (CUK),
Ganderbal, Jammu and Kashmir, India

A. A. Bhat · S. Hashem
Functional and Molecular Imaging Laboratory, Sidra
Medicine, Doha, Qatar

M. Haris
Functional and Molecular Imaging Laboratory, Sidra
Medicine, Doha, Qatar

Laboratory Animal Research Center, Qatar
University, Doha, Qatar

S. S. Chauhan
Department of Biochemistry, All India Institute of
Medical Sciences, New Delhi, India

S. K. Batra
Department of Biochemistry and Molecular Biology,
University of Nebraska Medical Center, Omaha, NE, USA

Eppley Institute for Research in Cancer and Allied
Diseases, Omaha, NE, USA

Buffett Cancer Center, University of Nebraska
Medical Center, Omaha, NE, USA