


REVIEW

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The roles of ribosomal proteins in nasopharyngeal cancer: culprits, sentinels or both



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Abstract

Ribosomal protein genes encode products that are essential for cellular protein biosynthesis and are major components of ribosomes. Canonically, they are involved in the complex system of ribosome biogenesis pivotal to the catalysis of protein translation. Amid this tightly organised process, some ribosomal proteins have unique spatial and temporal physiological activity giving rise to their extra-ribosomal functions. Many of these extra-ribosomal roles pertain to cellular growth and differentiation, thus implicating the involvement of some ribosomal proteins in organogenesis. Consequently, dysregulated functions of these ribosomal proteins could be linked to oncogenesis or neoplastic transformation of human cells. Their suspected roles in carcinogenesis have been reported but not specifically explained for malignancy of the nasopharynx. This is despite the fact that literature since one and half decade ago have documented the association of ribosomal proteins to nasopharyngeal cancer. In this review, we explain the association and contribution of dysregulated expression among a subset of ribosomal proteins to nasopharyngeal oncogenesis. The relationship of these ribosomal proteins with the cancer are explained. We provide information to indicate that the dysfunctional extra-ribosomal activities of specific ribosomal proteins are tightly involved with the molecular pathogenesis of nasopharyngeal cancer albeit mechanisms yet to be precisely defined. The complete knowledge of this will impact future applications in the effective management of nasopharyngeal cancer.

Keywords: Ribosomal proteins, Nasopharyngeal carcinoma, Carcinogenesis, Cancer genetics, Medical genetics