

miR-205 in situ expression and localization in head and neck tumors - a tissue array study

ABSTRACT

Background: microRNAs are small non-coding RNA that control gene expression by mRNA degradation or translational inhibition. These molecules are known to play essential roles in many biological and physiological processes. miR-205 may be differentially expressed in head and neck cancers; however, there are conflicting data and localization of expression has yet to be determined.

Materials and Methods: miR-205 expression was investigated in 48 cases of inflammatory, benign and malignant tumor tissue array of the neck, oronasopharynx, larynx and salivary glands by Locked Nucleic Acid in situ hybridization (LNA-ISH) technology.

Results: miR-205 expression was significantly differentially expressed across all of the inflammatory, benign and malignant tumor tissues of the neck. A significant increase in miR-205 staining intensity ($p < 0.05$) was observed from inflammation to benign and malignant tumors in head and neck tissue array, suggesting that miR-205 could be a biomarker to differentiate between cancer and non-cancer tissues.

Conclusions: LNA-ISH revealed that miR-205 exhibited significant differential cytoplasmic and nuclear staining among inflammation, benign and malignant tumors of head and neck. miR-205 was not only exclusively expressed in squamous epithelial malignancy. This study offers information and a basis for a comprehensive study of the role of miR-205 that may be useful as a biomarker and/or therapeutic target in head and neck tumors.

Keyword: MiR-205; Head and neck cancers; FFPE; Locked nucleic acid; in situ hybridization; Tumor tissue array