

# **The Role of Biological MR Imaging in the Treatment of Head & Neck Cancer**

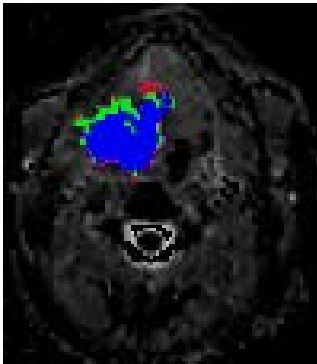
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## **Learning objectives:**

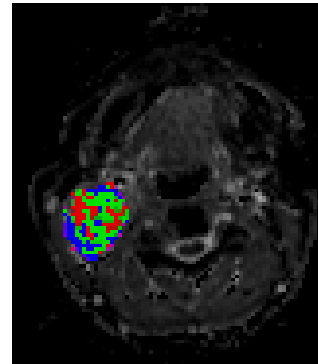
1. Review the Current Applications of MR Diffusion in evaluating Head and Neck Squamous Cell Carcinoma (HNSCCA)
2. Review the Current Applications of evolving techniques of MR diffusion in evaluating Squamous Cell Carcinoma (HNSCCA)
3. Present early results of MR perfusion in predicting response in HNSCCA

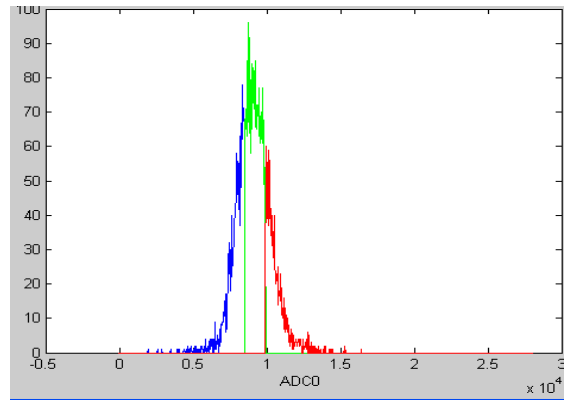
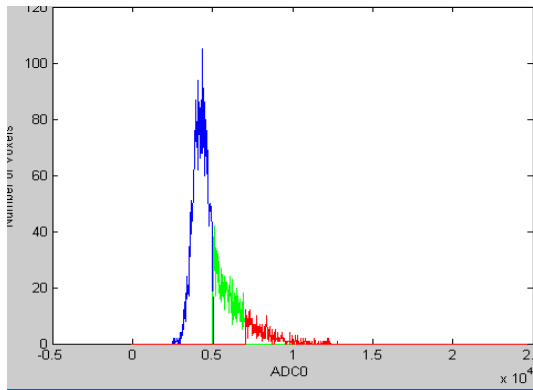
MR diffusion and perfusion are commonly used to detect infarcts in patients presenting with acute neurological changes. More recently, the alterations in molecular motion have been used to predict response in patients with intracranial and head and neck tumors. The intent of this presentation will review the current applications of DWI and MR perfusion in the treatment of squamous cell carcinoma of the head and neck. Early results have suggested that DWI performed at 3T can help differentiate benign versus malignant lesions of the head and neck and help distinguish between recurrent tumor and post-treatment changes. In addition new techniques such as Parametric Response Maps and histogram analysis have shown promise in detecting early molecular changes that can predict early response and survival.

**Malignant Tumor**



**Benign Tumor**





#### References

Srinivasan A, Dvorak R, Rohrer S, Mukherji SK. Differentiation of Benign and Malignant Pathology in the Head and Neck Using 3T Apparent Diffusion Coefficient Values: Early Experience. *AJNR* 2008;29: 40-44

Kim S, Loevner L, Quon H, Sherman E, Weinstein G, Kilger A, Poptani H. Diffusion-Weighted Magnetic Imaging for Predicting and Detecting Early Response to Chemoradiation Therapy of Squamous Cell Carcinomas of the Head and Neck. *Clin Cancer Res* 2009;15:986-994

