

TITLE: Malignant Peripheral Nerve Sheath Tumor Clinical and Basic Research

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FACULTY MENTOR DEPARTMENTS

Wallace - Molecular Genetics and Microbiology

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RESEARCH PROJECT DESCRIPTION

Background: Malignant peripheral nerve sheath tumors (MPNSTs) are sarcomas of the peripheral nerves. These rare, aggressive cancers have a 20-50% 5-year survival rate (Kim et al., 2017). There is scant information in the literature about various therapeutic approaches and subsequent outcomes for large cohorts of patients, particularly from orthopedic oncology services. Thus, the field would greatly benefit from additional reports of experience treating MPNST.

Aim 1: Retrospective chart review of MPNSTs treated by the UF Orthopaedic Oncology division.

Aim 2: Test for elevated expression of HIF1, a recently-reported (Fukushima et al., 2017) tumor-promoting gene, in UF MPNST samples and tissue sections.

Methods: For Aim 1, select patient record data will be collected, followed by statistical analysis for correlation with overall survival, including presence of neurofibromatosis and HIF1 expression data from Aim 2. For Aim 2, MPNSTs will be evaluated for HIF1 expression by qRT-PCR, and immunostaining of tissue sections with HIF1.

Role of the medical student: Aim 1: to gather data from previous MPNST cases, and help perform statistics. Time permitting, the student would write a first draft of a manuscript. Aim 2: to gain lab experience, analyzing HIF1 expression in a set of MPNSTs (including some from the chart review). There is funding in the Wallace lab (Children's Tumor Foundation) to cover experiment expenses.

Kim A, Stewart DR, Reilly KM, Viskochil D, Miettinen MM, Widemann BC.

Malignant peripheral nerve sheath tumors state of the science: leveraging clinical and biological insights into effective therapies. *Sarcoma* 2017:7429697. doi: 10.1155/2017/7429697.