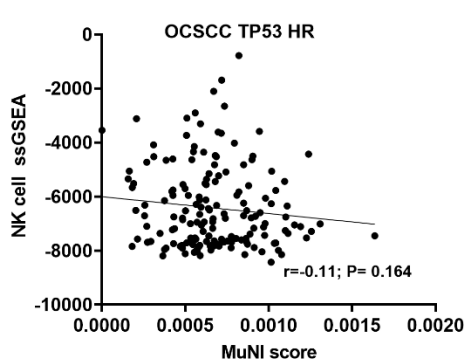
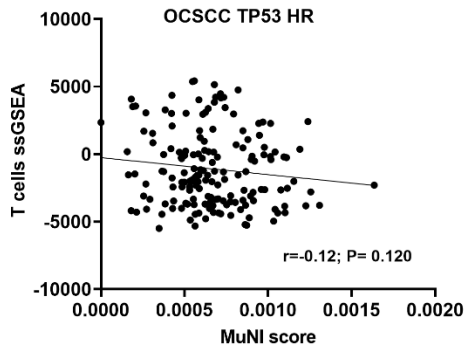
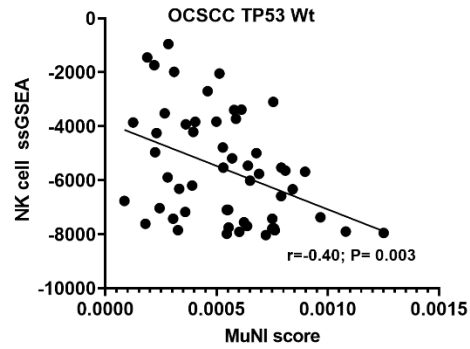
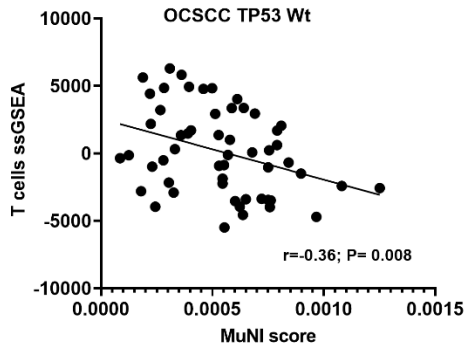


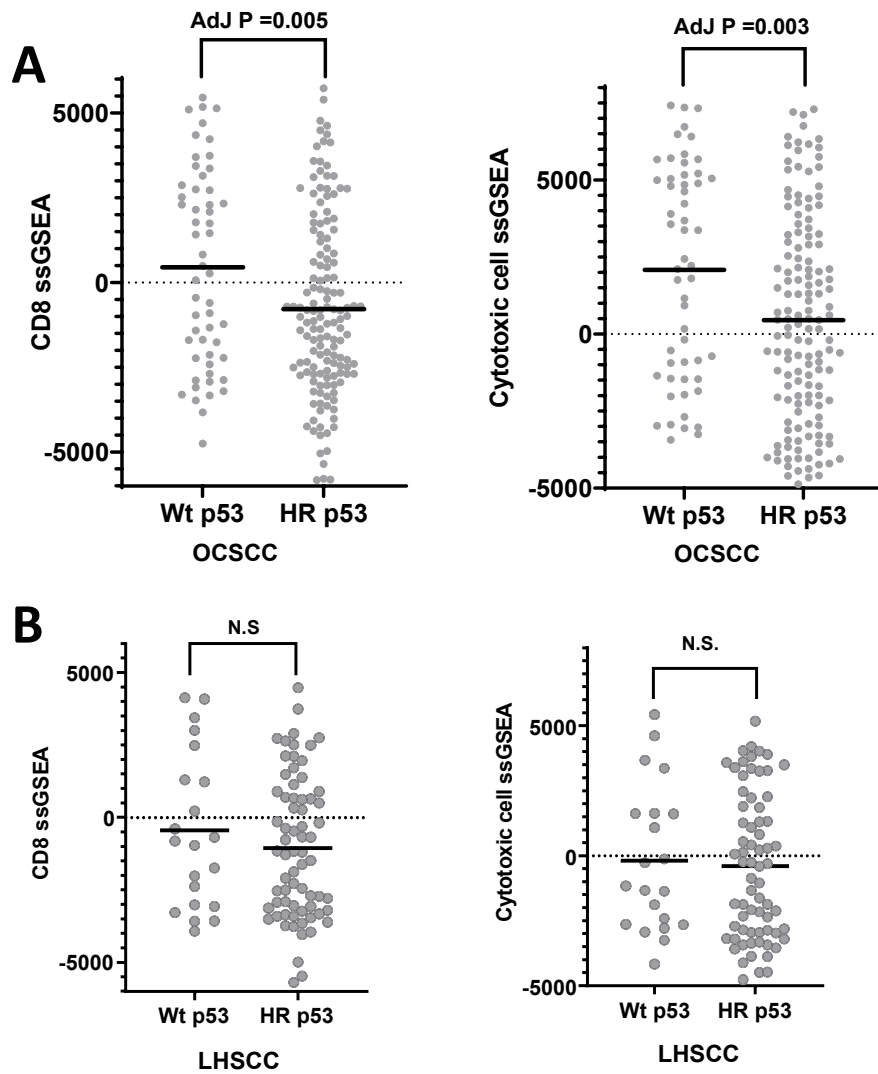
## Supplementary Figure 1

**Supplementary Figure 1. Multinucleation varies as a function of race.** MuNI values calculated for HPV-independent OCSCC and HPV-independent LHSCC tumors dichotomized based on self-reported race.



**Supplementary Figure 2**

**Supplementary Figure 2. MuNI correlation with anti-tumor immunity in OCSCC.** Correlation between MuNI scores and ssGSEA scores for immunocyte subtypes in OCSCC tumor specimens dichotomized by *TP53* mutational status. wt= wild type; HR= high risk/other.



**Supplementary Figure 3**

**Supplementary Figure 3. TP53 dependency of anti-tumor immunity in OCSCC .** CD8 and Cytotoxic cell ssGSEA scores are significantly higher in HPV-independent OCSCC samples harboring wildtype (WT) TP53 compared to high risk (HR) mutations (A). Differences in tumor immunity were not apparent in HPV-independent LHSCC (B).