**Supplementary Data**

# Evaluation of dual inhibition of ErbB family and PI3K kinases for HPV-negative head and neck squamous cell carcinoma

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**Supplementary Figure 1. Copanlisib more effectively inhibited cell proliferation compared to other PI3K inhibitors in FaDu cells.**

Cal27 cells were treated with DMSO or increasing concentrations of different concentrations of Copanlisib and other PI3k inhibitors for 72 hours and cell proliferation was measured by MTT assay. The growth curves are shown. The experiments were performed in triplicate. The associated EC50 to the 6 inhibitors were determined.

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**Supplementary Figure 2 (related to Figure 5A). Combination of Copanlisib and Afatinib induced more apoptosis compared to either single treatment in Cal27 cells.**

A combination of Copanlisib and Afatinib induced more apoptosis compared to either single treatment in Cal27 cells. The representative image of apoptosis for each treatment in Figure 5A is shown.

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**Supplementary Figure 3 (related to Figure 5B). A combination of Copanlisib and Afatinib induced more apoptosis compared to either single treatment in FaDu cells.**

A combination of Copanlisib and Afatinib induced more apoptosis compared to either single treatment in FaDu cells. The representative image of apoptosis for each treatment in Figure 5B is shown.