Curcumin Inhibits Nicotine-Induced Activation of HNSCC
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INTRODUCTION
•To mimic the clinical situation, HNSCC cells were treated with nicotine as 95% of HNSCC are a result of tobacco use, and up to 50% of head and neck cancer patients continue to use tobacco after treatment of their primary malignancy [2].

Curcumin is a natural product with chemopreventive properties and inhibits the Akt/mTOR pathway that is intrinsic to the carcinogenic process and progression, proliferation, and angiogenesis that are often growth-promoting proteins directly related to invasion and angiogenesis are its main targets.

METHODS AND MATERIALS

Curcumin-C3 Complex (98% pure) was obtained from Sigma-Aldrich. Curcumin was dissolved in dimethyl sulfoxide to a concentration of 100 μM, and then a 50 μM stock solution was prepared with nicotine for 30 minutes, and analyzed by western blot

RESULTS
•Nicotine induced activation of the AKT/MTOR pathway that was completely inhibited by curcumin (compare lane 1 no nicotine, lane 2 with curcumin, lane 3 with nicotine and curcumin for SCC40 cells, and lane 7 with nicotine and curcumin for PCI15a cells).

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CONCLUSIONS
Nicotine-induced activation of the AKT/MTOR pathway is an early event, and curcumin inhibits nicotine-induced activation of the AKT/MTOR pathway. Because nicotine is in cigarette smoke, it is possible that curcumin, especially the presence of nicotine, further highlights its chemopreventive properties.

REFERENCES