

# Cancer Research

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## Abstract LB-045: Detection of keratin fusions in oral squamous cell carcinoma

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### Abstract

Keratin cytoskeleton proteins form intermediate filaments in epithelial cells to regulate cell shape, mobility, membrane trafficking and cellular signaling. Although keratin-6 (K6) and -14 (K14) are highly expressed in certain squamous cell carcinomas and have been suggested as tumor markers, molecular mechanisms of how keratins contribute to cancer development still remain elusive. Here, we demonstrated novel K6-K14 chimeras in oral squamous cell carcinomas (OSCCs) by pair-ended transcriptome sequencing and subsequent validation by fluorescence in situ hybridization and junction site mapping. Two unique fusion types (type-1 and type-2) were identified with a total of 23 in-frame fusion variants verified in OSCCs. Clinical screening confirmed high detection rate of K6-K14 fusions in tumor samples: 33% for type-1 and 25% for type-2. Notably, K6-K14 fusions could be only detected in tumor lesions at late carcinoma stage, but not the ones at early stages, suggesting potential benefits of K6-K14 fusions in promoting aggressive tumors. Functional domain analyses revealed a potent role involved in EMT and metastasis.

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