**Title:** Increased expression of the CrkII proto-oncogene in malignant salivary gland tumors and pleomorphic adenoma

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**Abstract:**<p><strong>Introduction:</strong> Salivary gland carcinomas are among comparatively rare heterogeneous malignancies that show locoregional invasion and distant metastasis. Experimental results support the hypothesis that increased CrkII proto-oncogene is associated with cytokine-induced tumor initiation and progression by altering cell motility signaling pathway. The aim of the study was to assess the CrkII expression in common salivary gland tumors and pleomorphic adenoma.<br></p><p><strong>Method:</strong> Immunohistochemical analysis of CrkII expression was performed on paraffin blocks of 64 carcinomas of salivary glands, 10 pleomorphic adenomas and 10 normal salivary glands. Biopsies were subjected to immunostaining with EnVision detection system using monoclonal anti-CrkII. Evaluation of immunoreactivity of CrkII was based on the immunoreaction intensity and percentage of stained tumor cells which were scored semi-quantitatively on a scale with four grades 0 to 3.<br></p><p><strong>Results:</strong> Increased expression of CrkII was seen (P=0.005) in all malignant tumors including: mucoepidermoid carcinoma, adenoid cystic carcinoma, acinic cell carcinoma and carcinoma ex pleomorphic adenoma (CaexPA). CrkII expression in pleomorphic adenoma was weak or negative in some biopsies. A weak staining was seen in normal acinar serous cell, while CrkII positive immunostaining reaction was totally absent in normal epithelial duct cells. There was significant positive association between CrkII expression and pathological features of tumor invasiveness.<br></p><p><strong>Conclusions:</strong> Increased expression of CrkII and its relation to the invasiveness in carcinomas of salivary gland is consistent with a role for this proto-oncogene in salivary gland tumorigenesis and cancer progression.<br></p>