

Differential expression of transcription factors Snail, Slug, SIP1, and Twist in ameloblastoma

Type: Article

Abstract:

BACKGROUND:

Epithelial-to-mesenchymal transition (EMT) via the mechanism of transcription repression is a crucial process for the induction of invasiveness in many human tumors. Ameloblastoma is a benign odontogenic epithelial neoplasm with a locally infiltrative behavior. Twist, an EMT promoter, has been implicated in its invasiveness. The roles of the other transcription factors remain unclarified.

MATERIALS AND METHODS:

Four transcription factors, namely Snail, Slug, SIP1, and Twist, were examined immunohistochemically in 64 ameloblastoma [18 unicystic (UA), 20 solid/multicystic (SA), 4 desmoplastic (DA), and 22 recurrent (RA)].

RESULTS:

All four transcription factors were differentially expressed in ameloblastoma [Snail: n = 60/64 (94%); Slug: n = 21/64 (33%); SIP: n = 18/64 (28%); Twist: n = 26/64 (41%)] (P < 0.05). Their distribution patterns were heterogeneous and were not significantly different between the tumor invasive front and central area (P > 0.05). Intracellular protein localization was predominantly nuclear for Snail, cytoplasmic>nuclear for Slug and SIP1, and cytoplasmic/nuclear for Twist. Overexpression of Snail in most subsets (UA = 18/18; SMA = 19/20; DA = 4/4; RA = 19/22) compared with the other transcription factors (P < 0.05) and selective expression for Slug, SIP1, and Twist in squamous/keratinous foci and at sites of epithelial cystic degeneration were among the main observations made. Stromal cells surrounding immunoreactive tumor cells tended to stain positive.

CONCLUSIONS:

Present findings suggest that these transcription factors probably play differential roles in mediating local invasiveness in ameloblastoma. Overexpression of Snail in most subsets suggests that this molecule is most likely the prototype transcription factor involved in inducing EMT in the ameloblastoma.

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