SYNDECAN-1 EXPRESSION DURING POSTNATAL TOOTH AND ORAL MUCOSA DEVELOPMENT IN 2 DAY TO 6 WEEK OLD RATS

A RESEARCH REPORT SUBMITTED IN PARTIAL FULFILMENT

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2 ABSTRACT

The syndecans are a family of heparan sulphate proteoglycans that regulate cell/matrix interactions which influence cell growth, proliferation and morphology. The expression of syndecan-1 during mouse molar crown development appears to be stage-regulated by epithelial-mesenchymal interactions. The presence of syndecan-1 in the epithelium of the rat oral mucosa, and in immature dental epithelium (Hertwig's epithelial root sheath) during root development is a possibility. Further syndecan-1 expression might be detected in remnant embryonic dental epithelium (epithelial cell rests of Malassez). The aim of this study was to observe changes in the expression of syndecan-1 in both the developing epithelium of the rat oral mucosa, and in the epithelial cell rests of Malassez in the developing periodontium of normal rat molars, from late crown development through to early eruption. Immunohistochemistry (Syndecan-1 N-18) and histochemistry (Alcec Blue) was used to observe changes in the expression of syndecan-1 in 2 day to 6 week old rats. Results indicated that during normal tooth development in the rat, labelling or staining of variable intensity for syndecan-1 was demonstrated in the stratified oral epithelium above the stratum basale in rat tongue and palate, and in ameloblasts of the developing molar in 2 day and 2 week old rats. Histochemical staining of the pre-dentine and dentine layers was consistent in all specimens. Labelling or staining for syndecan-1 was negative in the rat periodontal ligament which might suggest that either syndecan-1 was not expressed during normal molar root development or that continued work is required for identification of a suitable label in rats.

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This report contains no material which has been accepted for the award of any other degree or diploma in any other university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text.

I give consent to this copy of my research report, when deposited in the University Library, being available for loan and photocopying.

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