

# Periostin, dentin matrix protein 1 and P2rx7 ion channel in human teeth and periodontal ligament

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The periostin is a matricellular protein present in the human periodontal ligament and human dental pulp-derived cells lines, that up-regulates the in vitro expression of some genes involved in the dentin mineralization, such as dentin matrix protein 1 and P2x7-ion channel receptor. Here we investigated the distribution of periostin in human teeth and periodontal ligaments, mapping in parallel the localization of dentin matrix protein 1 and P2x7-ion channel receptor to establish whether or not they are expressed in the same places as periostin. The periodontal ligament and the subodontoblastic layer of the dental pulp displayed strong periostin immunoreactivity, whereas dentin matrix protein 1 was detected in the periodontal ligament co-localized with periostin in the vicinity of the cement. The P2x7 ion channel receptor was regularly absent in both the periodontal ligament and dental tissues, but in some cases, it was observed in the odontoblasts. Present results demonstrate the occurrence of periostin in the healthy adult human tooth without co-localization with proteins involved in tooth mineralization, the expression of which it regulates. These results might serve as a baseline for future studies on pathological conditions. © 2017 Elsevier GmbH

Dentin matrix protein 1

Human

Matricellular proteins

P2x7 ion channel receptor

Periostin

Tooth

dentin matrix protein 1

purinergic P2X7 receptor

tooth cement

transcription factor RUNX2

cell adhesion molecule

DMP1 protein, human

P2RX7 protein, human

phosphoprotein

POSTN protein, human

purinergic P2X7 receptor

scleroprotein

adult

Article

controlled study

female

human

human cell

human tissue

immunofluorescence

immunohistochemistry

immunoreactivity

male

odontoblast

periodontal ligament

protein analysis

protein expression

protein function

protein localization

protein synthesis regulation

tooth

tooth development

tooth pulp

tooth tissue

chemistry

metabolism

periodontal ligament

tooth

tooth cementum

young adult

Adult

Cell Adhesion Molecules

Dental Cementum

Dental Pulp

Extracellular Matrix Proteins

Female

Humans

Immunohistochemistry

Male

Odontoblasts

Periodontal Ligament

Phosphoproteins

Receptors, Purinergic P2X7

Tooth

Young Adult