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Differences in the cellular dynamic of two types of mineralizing cells given by the genetic expression.

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Abstract – Types of cells that mineralize hydroxyapatite, like Cementoblast and Osteoblast share several biological markers. We characterized the morphology of intra-nuclear factors by the identification of Nuclear Speckle Pattern, that is the phenotypic representation of molecular events across the splicing for the maturation of pre-mRNA and analyzed the distribution of two proteins involved in mineralization (CAP and CEMP1). Therefore we have reported differences on transcriptional and processing activity of these cells. Furthermore, the localization of CAP and CEMP1 was only in cytoplasm of cementoblast, although CEMP1 also showed signal of dots in nucleus.

There are four periodontal tissues, but two of these are mineralized tissues, formed by Cementoblast and Osteoblast. Both lines cellular share several biological markers like Osteopontin, Osteocalcin, Bone Sialoprotein for forming cement and bone [1], with the same inorganic component that is hidroxyapatite. **Objetive:** Identify the Nuclear Speckle Pattern that is the phenotypic representation of the development by a cascade of molecular events across the splicing for the maturation of pre-mRNA [2] and analyze the distribution of two proteins involved in mineralization Cement Attachment Protein (CAP) [3] and Cement Protein 1 (CEMP1) [4]. **Methods:** We used antibodies (against SR Proteins, CAP y CEMP1) by immunofluorescence and by TEM we observed the ultrastructure and immunolocalization. **Results:** Although both types of cells show nuclear speckled pattern, as seems to be different, suggesting that they have a specific feature of transcription and tests showed that the activity that are more cementoblast osteoblasts (Figure 1 and 2 respectivily). In addition, we observed that the localization of CAP and CEMP1 is only in cementoblast; CAP cytoplasmic and CEMP1 was present in cytoplasm dots and too show sign in nucleus. By TEM, were identified the proteins and fibro-granular material in the nuclear and nucleolar components. **Conclusion:** We reported differences on transcriptional and processing activity of this cells by evaluating the morphology of intra-nuclear factors; finally CAP y CEMP1 are specific of cementoblast and may play a role in mineralization of cement and expression of this cellular line.

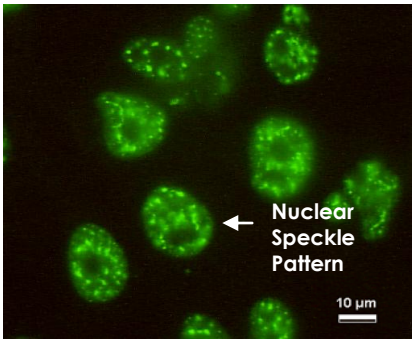

Figure 1: The Nuclear Speckle of CM.

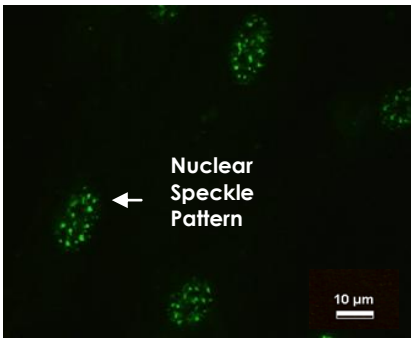

Figure 2: Nuclear Speckle in OB.

References

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