

### **Intrafibrillar Apatite Formation on Phosphorylated Dentine Collagen by CPP-ACP**

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**Background:** CCP-ACP has the potential of inducing intrafibrillar apatite formation in dentine collagen but so far this has not been reported.

**Aim:** To demonstrate the ability of CPP-ACP in forming intrafibrillar apatite crystals on phosphorylated dentine collagen. **Materials and methods:** Human dentine slices were etched with 37% phosphoric acid and treated with sodium trimetaphosphate to phosphorylate the exposed collagen. The slices were then coated with CPP-ACP paste and immersed into remineralizing solution (metastable calcium phosphate) at 37°C. The CPP-ACP paste and remineralizing solution were replaced every 48 hours. The slices were examined using scanning electron microscope (SEM) and X-ray diffraction (XRD) after 10 days.

**Results:** SEM showed the presence of intrafibrillar apatite crystals nucleation and growth along the phosphorylated dentine collagen fibrils. XRD confirmed the intrafibrillar crystals were hydroxyapatite.

**Conclusions:** CPP-ACP induces formation of intrafibrillar apatite on phosphorylated dentine collagen. (This study is supported by NSFC-RGC Grant N\_HKU776/10)