Hydrogel scaffold for dental pulp regeneration

_Dental pulp is the soft, connective tissue found within teeth. It provides essential nutrients and is primarily responsible for responding to tooth damage. However, dental pulp is also prone to infection, especially in the presence of tooth decay. Today the most commonly used treatment for dental pulp damage and inflammation is root canal therapy (RCT), in which the dental pulp is completely removed and replaced with a solid material. This eliminates the inherent ability of the tooth to respond to damage, making it susceptible to fracture and loss. This technology is a hydrogel scaffold that can be used to replace damaged dental pulp. The hydrogel promotes dental pulp cell growth and biosynthesis, while regulating cell infiltration, migration, and morphology._

**Biocompatible hydrogel scaffold improves cell response and is a promising material for in vivo tooth repair**

The biocompatible hydrogel scaffolding is comprised of polyethylene glycol-diacrylate that is cross-linked with fibrinogen, a glycoprotein necessary for blood clotting. The polymerization is photo-induced, making the hydrogel compatible with in vivo tooth repair. The fibrinogen concentration in the polymer can be easily modulated to direct cell response. The scaffold can be directly injected into a failing tooth in order to protect against infection and promote tooth repair without loss of tooth vitality. The ability of the scaffold to support dental pulp cell morphology and phenotype has been demonstrated in vitro.

**Lead Inventor:**

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**Applications:**

- Replacement and regeneration of damaged dental pulp
- Therapy for treating tooth decay
Advantages:

- Biocompatible
- Prevents tooth loss by repairing damaged dental pulp
- Prevents tooth replacement

Patent Information:

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