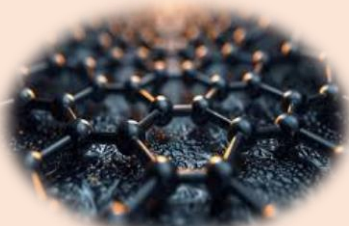


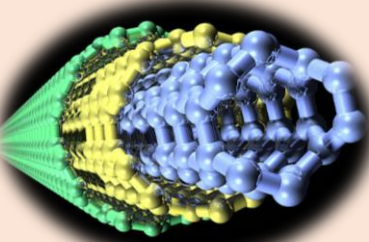
THE NANOTUBE EFFECT : DEMYSTIFYING CEMENTOGENIC POTENTIAL

FORMATION



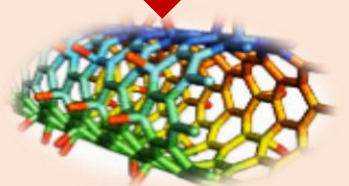
GRAPHENE

1. ARC DISCHARGE
2. LASER ABLATION
3. CVD

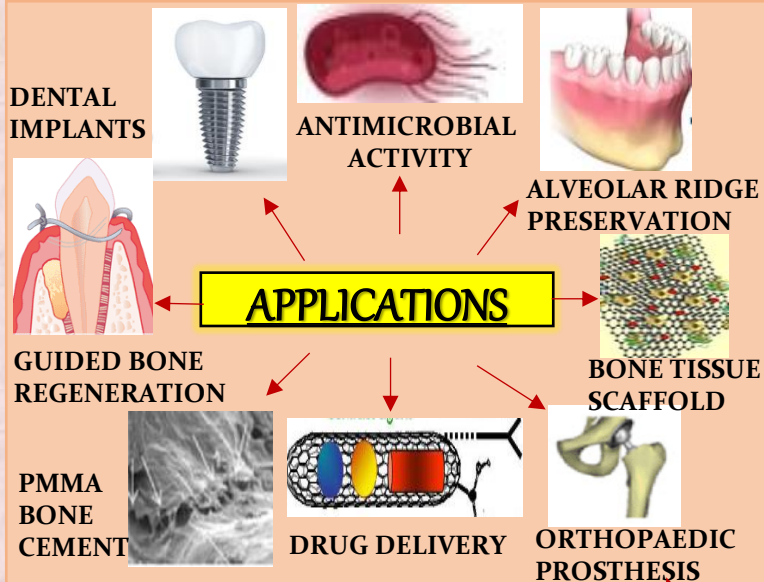


CNT

FUNCTIONALISATION



FUNCTIONALISED CNT



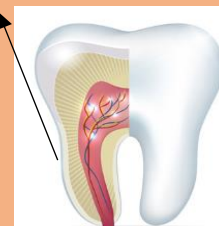
SIZE OF CNT DIAMETER (0.8- 2.5 mm) IS CLOSE TO THAT OF COLLAGEN TRIPLE HELIX

ADVANTAGES

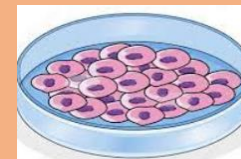
1. CNT derived material with carboxyl group function is biodegradable
2. No reactive oxygen species
3. 1D cylindrical tube structure
4. More flexible
5. Less cytotoxic
6. Stronger as stresses are distributed along wall of tube

CEMENTOGENESIS

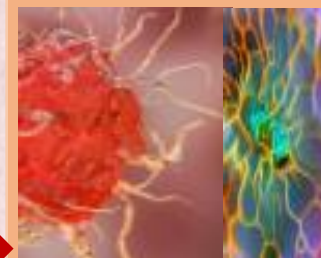
CEMENTUM



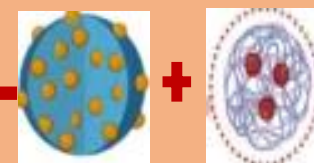
CEMENTUM



CEMENTOBLAST PROLIFERATION



CEMENTOBLAST ADHERE TO CNT WITH CELL PROCESSES



CNT ADDED WITH MINERALISATION MEDIA

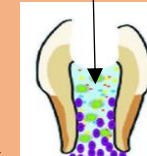
CEMENTUM MINERALISATION

CLINICAL APPLICATION



SCAFFOLD

SCAFFOLD



CEMENTOGENESIS

FUTURE APPLICATIONS

DENTINOGENESIS



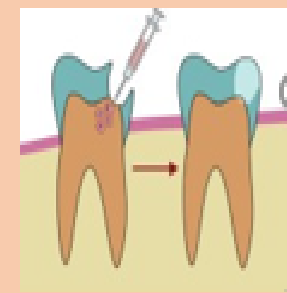
ODONTOBLASTS

CNT ADDED WITH MINERALISATION MEDIA

REGENERATION



CNT PLACEMENT AS A SCAFFOLD



REPAIR OF DAMAGED TOOTH