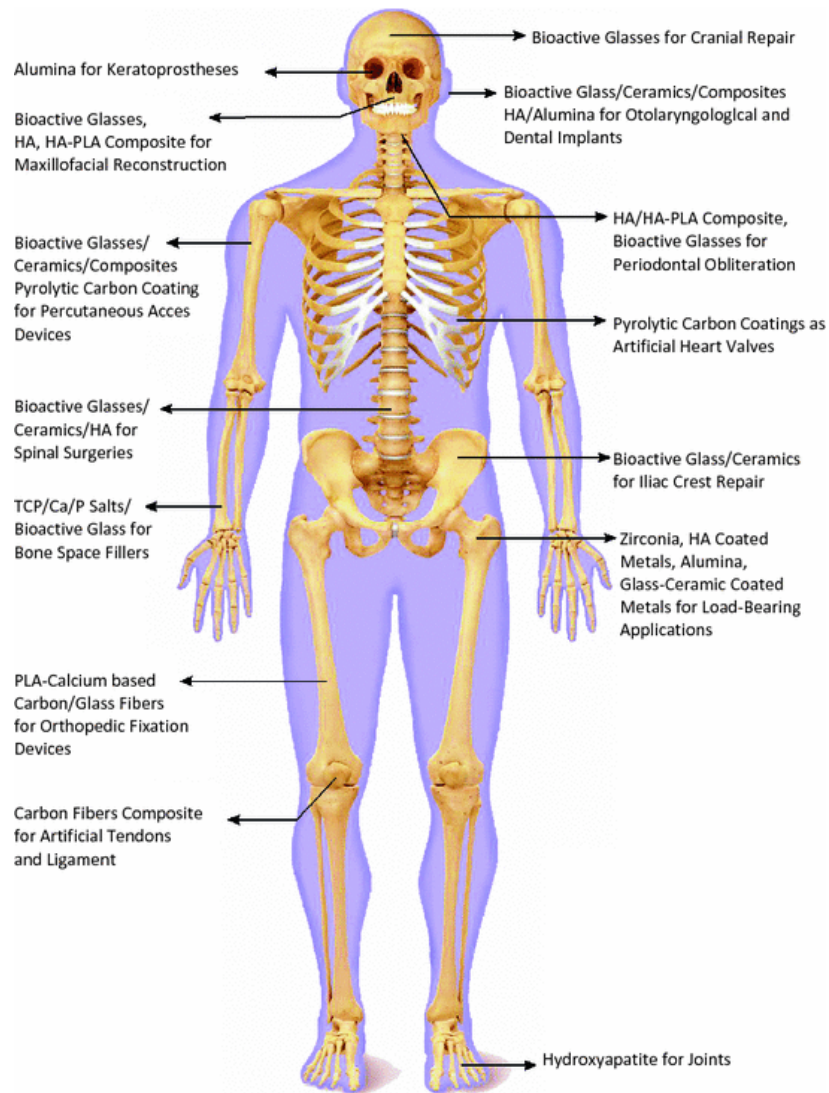
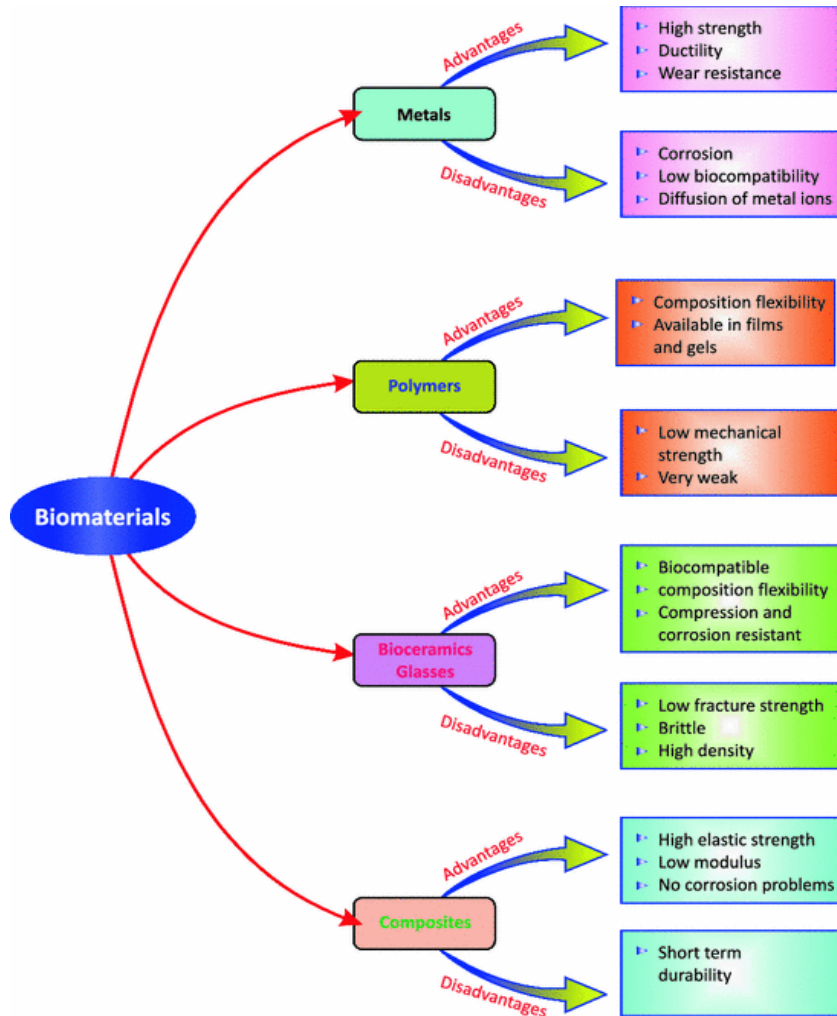




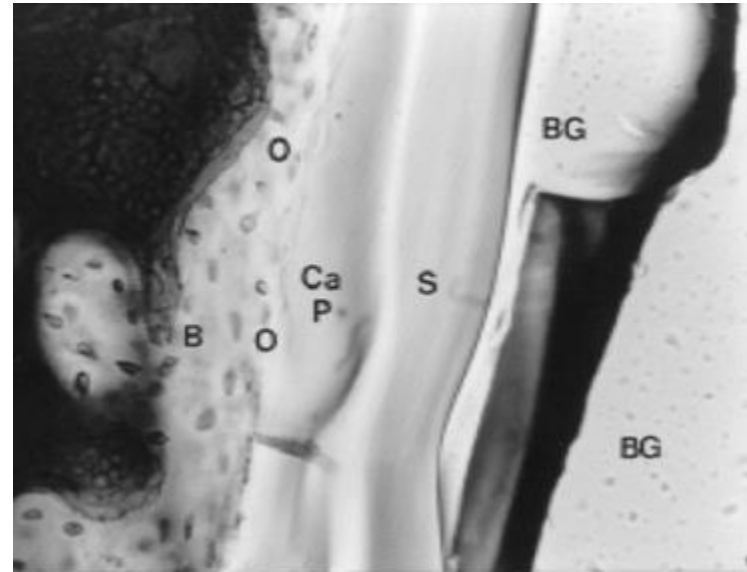
BIOMATERIAL

«a material intended to interface with biological system to evaluate, treat, augment or replace any tissue, organ or function of the body»

(II International consensus conference on biomaterials, Chester – England)



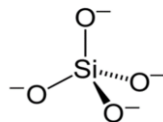
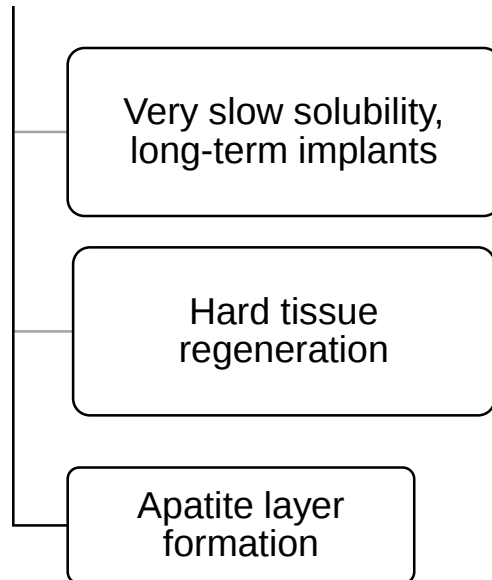
BIOACTIVE GLASSES CONTAINING BIOLOGICALLY IMPORTANT IONS AND MOLECULES



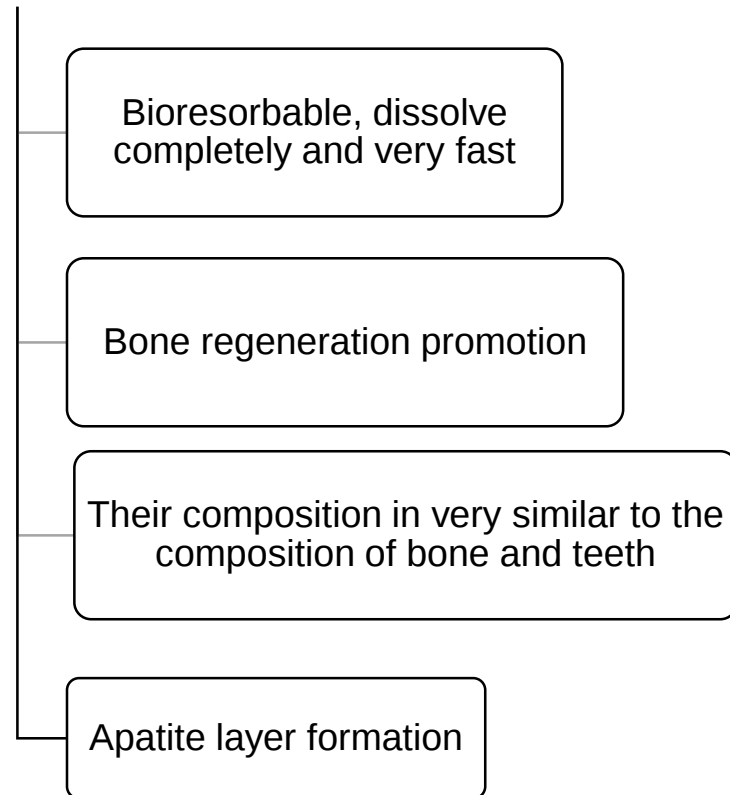
Bioactive glasses and bioactivity

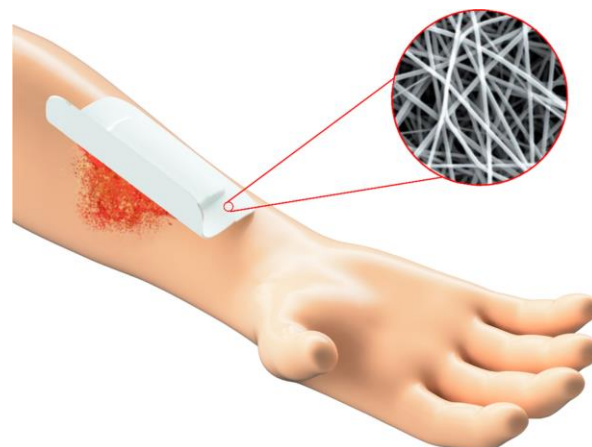
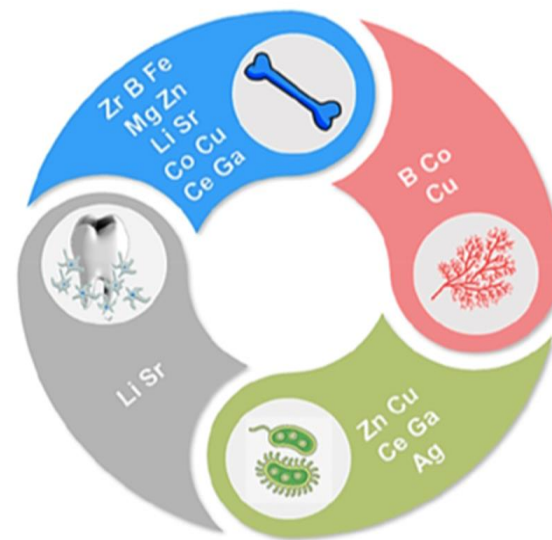
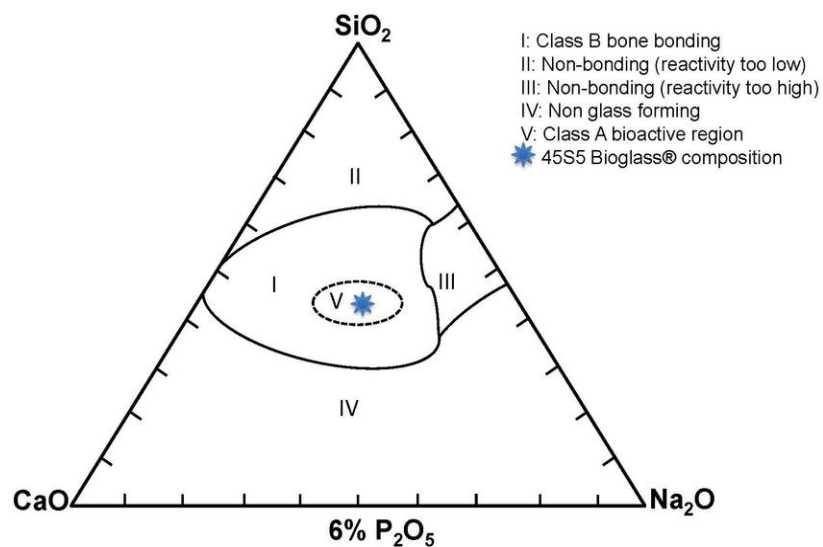
in contact with biological fluids form an apatitic layer of $[\text{Ca}_{10}(\text{PO}_4)_6(\text{OH})_2]$ responsible for binding to living tissue

Silicate-based glasses



Phosphate-based glasses



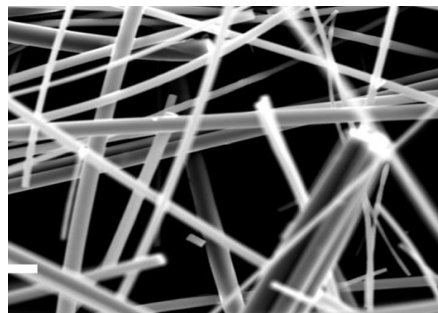
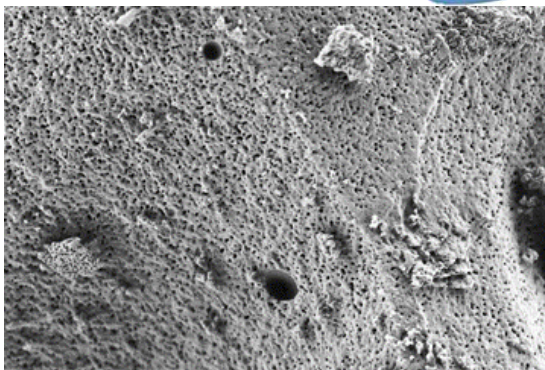
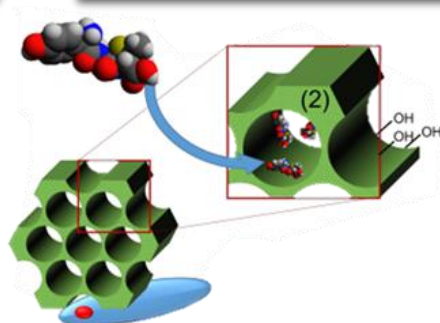


Route synthesis

MELT QUENCHING

SOL-GEL

COACERVATE



- interaction with biomolecules (drugs and polyphenols) to obtain drug delivery systems
- characterization before and after *in vitro* tests (simulated biological fluids and cell cultures) by AE, XRPD, SEM, TEM, AFM, UV-Vis, BET, ICP, DTA
- evaluation of catalase (CAT) and superoxide dismutase mimetic (SOD) activity (antioxidant properties)
- *in vivo* applications

Tirocinio esterno

Barchemicals

Applicazione delle nanotecnologie per la rimozione di inquinanti nelle acque a consumo umano

- sintesi di NPs
- caratterizzazione: XRPD, SEM, TEM, AFM, UV-Vis, ICP
- test efficacia batterica



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