

Definitions

Allograft: Transplant between unrelated individuals of the same species

Autograft: Transplant within an individual, from one part of the body to another

Bioactivity: A material which elicits a specific response at the interface of the material, which results in the formation of a bond between the tissue and the material

Biocompatibility: The ability of a material to perform with an appropriate host response in a specific application; tissue friendliness in a specific application

Biodegradation: Gradual breakdown of a material by bacterial or enzymatic action

Biomaterial: A material intended to interface with biological systems to evaluate, treat, augment, or replace any tissue, organ, or function of the body (1992); a nonviable material used in a medical device intended to interact Williams et al biological systems

Biomimics: Materials science and engineering through biology

Buccal: The tooth surface which is next to the cheek

Cement abbreviation system: A for Al_2O_3 , C for CaO, S for SiO_2 , H for H_2O , and so on

Centrals: The two upper and two lower teeth in the very centre of the mouth

Graft: A transplant

Host response: The reaction of a living system to the presence of a material

Implant: A medical device made from one or more biomaterials which is intentionally placed within the body

Incisal: The biting edge of the centrals and laterals

in vitro: An experiment carried out in a controlled environment outside the living organism

in vivo: An experiment carried out in or on a living organism

Laterals: Teeth just adjacent to the centrals (see centrals)

Lingual: The tooth surface next to the tongue

Nano: 10^{-9} m

Nanosize: Size interval 1 – 100 nm

Occlusal: The chewing or grinding surface of posterior teeth (molars and pre-molars)

Osteoconduction: A material property which allows only an extracellular response at the interface

Osteoinduction: Both intracellular and extracellular affinity of bone formation

Proximal: The surfaces of teeth which touch the next teeth

Resorption: Absorption of a material, a polymer or a ceramic

Stem cells: Undifferentiated cells capable of proliferation, self-renewal, and differentiation into at least one type of specialised cell

Tissue engineering: An interdisciplinary field for the development of biological substitutes containing living cells

Transplant: A complete structure, such as an organ, which is transferred from a site in a donor to a site in a recipient for the purpose of reconstruction of the recipient site

Abbreviations

A	Al_2O_3
AH ₃	$\text{Al}(\text{OH})_3$ or $\text{Al}_2\text{O}_3 \cdot \text{H}_2\text{O}$
BET	Brunauer–Emmett–Teller test for specific surface area
BMP	bone morphogenetic protein
C	CaO
CA	calcium mono-aluminate, $\text{CaO} \cdot \text{Al}_2\text{O}_3$
CA ₂	calcium di-aluminate, $\text{CaO} \cdot 2\text{Al}_2\text{O}_3$
C ₃ A	$3\text{CaO} \cdot \text{Al}_2\text{O}_3$
C ₁₂ A ₇	$12\text{CaO} \cdot 7\text{Al}_2\text{O}_3$
CAC	calcium aluminate cement
CAH	calcium aluminate hydrate
CAPH	$\text{CaO} - \text{Al}_2\text{O}_3 - \text{P}_2\text{O}_5 - \text{H}_2\text{O}$, calcium aluminate–calcium phosphate
CAPSH	$\text{CaO} - \text{Al}_2\text{O}_3 - \text{P}_2\text{O}_5 - \text{SiO}_2 - \text{H}_2\text{O}$
CBC	chemically bonded ceramic
CBBC	chemically bonded bioceramic
CitA	Citric acid
CIP	Control Investigation Plan
CP	Ca-phosphate
CPC	calcium phosphate cement
CPH	$\text{CaO} - \text{P}_2\text{O}_5 - \text{H}_2\text{O}$
cpo	chronic periapical osteitis
CRO	Contract Research Organisation
CS	$\text{CaO} \cdot \text{SiO}_2$
C ₂ S	$\text{CaO} \cdot 2\text{SiO}_2$
C ₃ S	$\text{CaO} \cdot 3\text{SiO}_2$
CSC	calcium silicate cement

CSH	calcium silicate hydrate
CT	computed tomography
EDAX	energy-dispersive X-ray analysis
EDS	energy-dispersive X-ray spectrometer
ESEM	environmental scanning electron microscopy
FIB	focused ion beam
FM	filler material
FPD	fixed partial denture
FT-IR	Fourier transform infrared spectroscopy
GCP	good clinical practice
GIC	glass ionomer cement (polyalkenoate)
H	H ₂ O
HA	hydroxyapatite
HRTEM	high-resolution transmission electron microscopy
HV	Vickers hardness
<i>l/p</i>	liquid-to-powder ratio
IBT	inflatable balloon tamp
IPA	isopropanole
ISO	International Organisation for Standardisation
KVP	kypho-vertebroplasty
MODDE	software for design of experiments and optimisation
MRI	magnetic resonance imaging
μ -SiO ₂	fumed silica
Na-PAA	poly(acrylic acid) sodium salt
Na-PAMA	poly(acrylic-co-maleic acid) sodium salt
OPC	ordinary Portland cement
PAA	poly(acrylic acid)
PAMA	poly(acrylic-co-maleic acid)
PBS	phosphate buffered saline
PI	principal investigator, who leads the study conduct at an individual study site (every study site has a PI.)
PIC	patient informed consent
PLS	partial least square
PMMA	poly(methyl methacrylate)

PVC	poly(vinyl chloride)
PVP	percutaneous vertebroplasty
QoL	quality of life
rf	root filling
RMGI	resin-modified glass ionomer
SAE	serious adverse event
SBF	simulated body fluid
SEM	scanning electron microscopy
ST	setting time
STEM	scanning transmission electron microscopy
TAT	thrombin–anti-thrombin complex
TCP	tri-calcium phosphate
TEM	transmission electron microscopy
TGB- β	transforming growth factor beta
TSH	thyroid-stimulating hormone
TTA	tartaric acid
USPHS	United States Public Health Service
VAS	visual analogue scale
VCP	vertebral compression fracture
w/c	water-to-cement ratio
w/p	water-to-powder ratio
WT	working time
XRD	X-ray diffraction
XPS	X-ray photoelectron spectroscopy

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