

1. Record Nr.	UNINA9910559393303321
Autore	Rudolf Rebeka
Titolo	Dental gold alloys and gold nanoparticles for biomedical applications / / Rebeka Rudolf, [and five others]
Pubbl/distr/stampa	Cham, Switzerland : , : Springer, , [2022] ©2022
ISBN	3-030-98746-9
Descrizione fisica	1 online resource (112 pages)
Collana	SpringerBriefs in Materials.
Disciplina	617.675
Soggetti	Dental metallurgy
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Intro -- Preface -- Contents -- About the Authors -- 1 Introduction -- 1.1 Basic Properties of Gold -- 1.2 Aspects of Gold Nanoparticles -- References -- 2 Dental Gold Alloys -- 2.1 Classification and Selection -- 2.2 Examples of Expertise -- 2.2.1 Mechanical Properties of DGAs in Terms of Tensile Testing and Hardness -- 2.2.2 Thermocycling -- 2.2.3 Microstructure, Microhardness and Colour Comparison of Two Gold Dental Alloys -- 2.2.4 Corrosion Resistance of DGAs -- 2.2.5 The Influence of Microstructures on the Corrosion and Biocompatibility in Vitro (An Example of High Noble Au-Pt Dental Alloys) [48] -- References -- 3 Gold Nanoparticles -- 3.1 Gold Nanoparticles' Characteristics and Possibilities of Use -- 3.1.1 Optical Properties and Surface Plasmon Resonance -- 3.1.2 Sizes and Shapes of GNPs -- 3.1.3 Stability, Nanoparticle Surfaces and Functionalisation -- 3.1.4 Characterisation of GNPs -- 3.2 GNP Current and Potential Applications -- 3.2.1 Catalysis -- 3.2.2 Electronics -- 3.2.3 Sensors -- 3.2.4 Biomedical -- 3.2.5 Cosmetics and Optics -- 3.2.6 Microscopy -- 3.3 Synthesis Techniques -- 3.3.1 Top-Down Approaches -- 3.3.2 Bottom- Up Approaches -- 3.3.3 Aerosol-Based Synthesis Methods -- 3.3.4 Biological-Based Synthesis Methods/Green Methods -- 3.4 GNPs' Biocompatibility and Impact on Human Health -- 3.5 The Current State and Development of Gold Nanoparticles for Biomedical Applications -- 3.5.1 Development of GNPs for Dental Applications -- 3.6 Hybrid Gold Nanoparticles with Particles of Other Materials -- 3.6.1 Core-Shell

Bimetallic GNPs -- 3.6.2 Iron Oxide-GNPs -- 3.6.3 Hybrid GNPs with Other Noble Metals -- 3.6.4 Silica Coated GNPs -- 3.7 Synthesis of GNPs through Ultrasonic Spray Pyrolysis and the Lyophilisation Process [51] -- References.

Sommario/riassunto

This book focuses on recent advances in dental gold alloys and gold nanoparticles (GNPs) for biomedical applications. Dental gold alloys combine several highly desirable mechanical properties, such as high strength, ductility, and elasticity, with an extremely robust chemical stability in the mouth
