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Multifunctional ceramic-metal biocomposites with Zinc containing antimicrobial glass coatings

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Abstract

A biocompatible glassy coating with a high antimicrobial activity (>3 log of reduction) versus the gram-bacterium *E. coli*. has been obtained. The substrates are based on new zirconia ceramic matrix composites reinforced with biological tolerant metals (3Y-TZP/Ta and 3Y-TZP/Nb biocermet). Biocompatibility was studied using NIH-3T3-cells (mouse embryonic fibroblast) and >70% viability was found. These results open up the possibility of using these materials in large panoply in orthopaedics, dentistry and other hard tissue replacement applications where biofunctional, structural and antimicrobial properties are required.

Keywords: biocermet, antimicrobial coating, biocompatible coating, bactericidal glass coating.

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