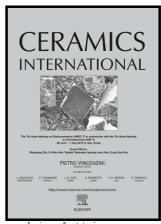
### Author's Accepted Manuscript

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Maryam Rahmati, Masoud Mozafari



www.elsevier.com/locate/ceri

PII: S0272-8842(18)31640-7

DOI: https://doi.org/10.1016/j.ceramint.2018.06.196

Reference: CERI18640

To appear in: Ceramics International

Received date: 23 May 2018 Revised date: 22 June 2018 Accepted date: 23 June 2018

Cite this article as: Maryam Rahmati and Masoud Mozafari, A Critical Review on the Cellular and Molecular Interactions at the Interface of Zirconia-Based B i o m a t e r i a 1 s , *Ceramics International*, https://doi.org/10.1016/j.ceramint.2018.06.196

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#### **ACCEPTED MANUSCRIPT**

# A Critical Review on the Cellular and Molecular Interactions at the Interface of Zirconia-Based Biomaterials

Maryam Rahmati<sup>1,2</sup>, Masoud Mozafari<sup>1,2,3\*</sup>

<sup>1</sup>Bioengineering Research Group, Nanotechnology and Advanced Materials Department, Materials and Energy Research Center (MERC), P.O. Box 14155-4777, Tehran, Iran

<sup>2</sup>Cellular and Molecular Research Center, Iran University of Medical Sciences, Tehran, Iran

<sup>3</sup>Department of Tissue Engineering & Regenerative Medicine, Faculty of Advanced Technologies in Medicine, Iran University of Medical Sciences, Tehran, Iran

\*Corresponding author. M. Mozafari, PhD Tel.: +98-912 6490679; fax: +98-263 6280033 (Ext. 477). mozafari.masoud@gmail.com

#### Abstract

In the past few years, zirconia has gained a great attention among biomedical scientists due to its extraordinary strength and fracture toughness, negligible thermal conductivity, good biocompatibility and chemical inertness. In this regard, there are still room for the manipulation of zirconia-based biomaterials regarding the protein adsorption and subsequently cell responses to the surface. Protein adsorption on biomaterials' surfaces start interpreting the construction and also arranging the surface characteristics into a biological language. In this review, the role of adsorbed proteins as key players in starting interactions between cells and zirconia-based biomaterials will be discussed in detail. The discussion will then highlight discussions on the implementation of innovative strategies to engineer the physiochemical properties of this class

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