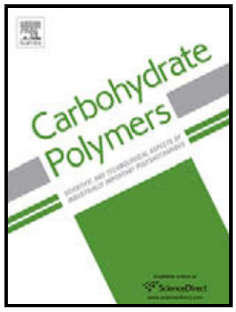

Title: Gallium-modified chitosan/poly(acrylic acid) bilayer coatings for improved titanium implant performances

Authors: Maria A. Bonifacio, Stefania Cometa, Manuela Dicarlo, Federico Baruzzi, Silvia de Candia, Antonio Gloria, Maria M. Giangregorio, Monica Mattioli-Belmonte, Elvira De Giglio

PII: S0144-8617(17)30257-6
DOI: http://dx.doi.org/doi:10.1016/j.carbpol.2017.03.009
Reference: CARP 12098

To appear in:

Received date: 30-7-2016
Revised date: 28-2-2017
Accepted date: 5-3-2017

Please cite this article as: Bonifacio, Maria A., Cometa, Stefania., Dicarlo, Manuela., Baruzzi, Federico., de Candia, Silvia., Gloria, Antonio., Giangregorio, Maria M., Mattioli-Belmonte, Monica., & De Giglio, Elvira., Gallium-modified chitosan/poly(acrylic acid) bilayer coatings for improved titanium implant performances.*Carbohydrate Polymers* http://dx.doi.org/10.1016/j.carbpol.2017.03.009

Gallium-modified chitosan/poly(acrylic acid) bilayer coatings for improved titanium implant performances

Maria A. Bonifacio,[1] Stefania Cometa,[2§] Manuela Dicarlo,[3§] Federico Baruzzi,[4] Silvia de Candia,[4] Antonio Gloria,[5] Maria M. Giangregorio,[6] Monica Mattioli-Belmonte,[3] Elvira De Giglio[1*]

[1*]Dept. of Chemistry, University of Bari Aldo Moro, Bari, Italy

[2]Jaber Innovation srl, Roma, Italy

[3]Dept. of Clinical and Molecular Sciences, Università Politecnica delle Marche, Ancona, Italy

[4]Institute of Sciences of Food Production (ISPA-CNR), National Research Council of Italy, Bari,

[5]Institute of Polymers, Composites and Biomaterials (IPCB-CNR), National Research Council of Italy, Napoli, Italy

[6]Institute of Nanotechnology (NANOTEC-CNR), National Research Council of Italy, Bari, Italy

[§] *These authors equally contributed to the work.*

* Corresponding author. Tel/Fax: +39 080 5442021.

E-mail address: elvira.degiglio@uniba.it (E. De Giglio)

Highlights:

- A gallium-modified chitosan/poly(acrylic acid) bilayer was electrodeposited on Ti.
- Physico-chemical and mechanical properties of the bilayer were accurately studied.
- Gallium loading could be tuned changing deposition time during bilayer synthesis.
- The number of *E. coli* and *P. aeruginosa* cells reduced significantly on the bilayer.
- The proposed titanium coating showed remarkable biocompatibility on MG63 cells.