

Proceedings of the 5th World Congress on Electrical Engineering and Computer Systems and Sciences (EECSS'19)

Lisbon, Portugal – August, 2019

Paper No. ICBES 129

DOI: 10.11159/icbes19.129

New Approaches in the Manufacture of Biomaterials for Betalactam Allergic Diagnose

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Extended Abstract

Betalactams are the most widely utilized drugs against infections but are the primary cause of allergic reactions to antibiotic drugs. REF1 An accurate diagnosis of these allergic reactions to betalactams is crucial to avoid the use of unnecessary alternative antibiotics that may reduce efficacy, lead to prolonged treatments, have a higher toxicity or induce bacterial resistance. The most consensual approach to diagnose betalactam allergy are *in vivo* tests. However, they are not risky free, require experienced personnel and are both time-consuming and expensive for health-care systems, being so *in vitro* test more appropriate or complementary to the *in vivo* tests. *In vitro* tests are not still widely used on account of their low sensitivity. Current efforts are in progress to improve these assays, thus allowing for better diagnosis of allergic responses within patients. REF 2

We report progress in the preparation of new functional materials for *in vitro* allergic diagnosis testing. In particular, the application of new approaches employing orthogonally functionalised fluorescent dyes based upon 4-amino-1,8 naphthalimide joined with the multivalence of polyamide dendrimers. REF 3 The *in vitro* diagnosis capabilities of these functional materials was verified by testing on patient sera samples, with results demonstrating their potential for application within the healthcare industry.

Acknowledgments: The present study has been supported by MINECO CTQ2016-75870P; by Andalusian Regional Ministry Health (grants: PI-0250-2016); by the European Regional Development Fund (ERDF) and “Plan Propio Universidad de Málaga” (UMA-Andalucía-TECH).

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