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iDAC

Implant Disposable Antibacterial Coating

Under the EU's Seventh Framework Programme for Research

SEVENTH FRAMEWORK PROGRAMME

Grant Agreement no. 277988

I.D.A.C. Project

Implant Disposable Antibacterial Coating (I.D.A.C.): a Novel Approach to Implant-Related Infections in Orthopaedics and Trauma Surgery.

With a share of 38%, orthopaedic and traumatology (O&T) are the worldwide leading markets of implanted biomaterials, involving millions of new patients each year at an increasing trend. Infection related to implanted medical devices is directly related to bacterial capability to establish multilayered, highly structured biofilms on artificial surfaces.

Bacterial infections due to implanted biomaterials represent the most devastating complication in O&T, involving millions of European citizens. Aim of the present research is to develop, validate and bring to the market a disposable coating of implanted biomaterial (Implant Disposable Antibacterial Coating, I.D.A.C.).

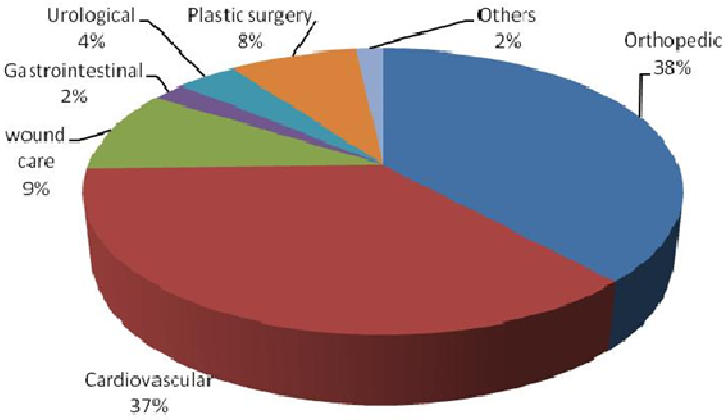

Fig. 1. Worldwide biomaterials market (2008-2009). Ortopaedic holds the first place.
(http://marketsandmarkets.files.wordpress.com/2009/08/biomaterial.jpg)

The device, based on a novel, proprietary, resorbable hydrogel, would act as a fast resorbable local delivery carrier of antibiofilm and antibacterial compounds. The active drug (antibiofilm and antibiotic agents) will be mixed at the time of the hydrogel application, allowing the correct choice for any given patient, reducing regulatory requirements, improving storage life and versatility. In particular, I.D.A.C. will be tested as a resorbable carrier of drugs (e.g.: N-acetylcisteine and its derivatives, serratia peptidase and other peptides, etc.) already known from our studies for having excellent antibiofilm properties, while others are able to by-pass the intact biofilm barrier and kill the underlying bacteria, when locally administered.

The final purpose of the present research is to set a novel approach to early control of biofilm formation, to prevent bacterial colonization of implanted material and to treat established implant-related infections and chronic wounds, without any risk of inducing new drug resistance and alter the environment.

The research will be conducted under the aegis of the European Bone and Joint Infection Society and the European Hip Society, through a network of upper standard European research and clinical centers and experienced SMEs from eight Countries around Europe.

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