BRITISH COUNCIL

RESEARCHER LINKS

Newton Fund

Research Profile

Name: Melissa Rodrigues

Position: PhD researcher
Institute/division: Cardiff University/School of Pharmacy
Email:rodriguesmc@cardiff.ac.uk
Tel:00447513470458

SUMMARY OF MY RELEVANT RESEARCH AREAS:

I am interested in the medical-devices area, and related research to improve their performance. In particular joint replacements, that in the last decades have shown an increasing rate of revision surgeries, affecting mainly the elderly population.

Brief summary of your research areas, in Chinese *we will translate this for non-Chinese speaking UK participants*

Primary Research interests: *A fuller description of your main research areas.*

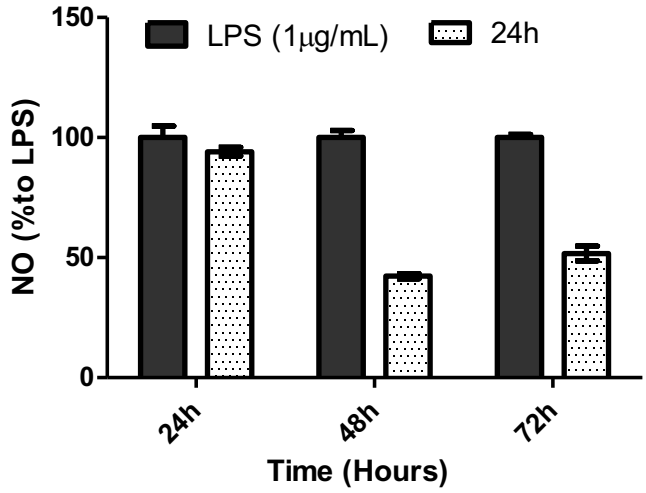
1. Surface modification of Total Joint Replacements: aiming to improve the performance of these devices and avoid post-implantation complications such as revision surgery.

2. Bioactive delivery systems development: to achieve local deliver of drugs or bioactive compounds on implant-bone site or site of interest, avoiding systemic side-effects out coming from conventional routes of administration.
3. Bioactive delivery systems characterisation to evaluate surface functionalization, drug loading, and drug release studies of potential novel drug delivery systems.
4. *In vitro* behaviour: Assess the behaviour of novel delivery systems *in vitro* models to mimic biological environment for potential *in vivo* applications.

Topics in which you would like to develop collaborative research:
Please indicate here research areas for which you would like to find partners to undertake joint research.
Total joint replacement improvement
Implant surface functionalization
Local-Drug (nano) delivery systems
In vitro studies; Immune response to novel drug-delivery systems

Relevant existing collaborations (academic/clinical/commercial) inside or outside China.
Include here any relevant collaborations you have
Committee member of Cardiff Institute of Tissue engineering and regeneration (CITER)

Relevant graphics, figures, pictures:
Use this area to show pictures or scientific figures which illustrate your research



Influence of dexamethasone released from TiO_2 particles after 24h (broths collected from release studies performed at pH=7) in nitric oxide (NO) production in LPS-activated RAW 264.7 macrophages, after 24h, 48h and 72h of exposure. This graph shows that dexamethasone released from TiO_2 particles is able to reduce the levels of nitric oxide on LPS-activated cells, thus suggesting that dexamethasone present an anti-inflammatory activity.

Publications and other outputs relevant to your interest in this programme (up to 5)
Please give references to your key recent research publications

1. Dexamethasone-loaded TiO_2 nanoparticles to locally target wear-debris induced inflammation. Frontiers. Bioeng. Biotechnol. Conference Abstract: 10th World Biomaterials Congress (2016).
2. "Hollow chitosan/alginate nanocapsules for bioactive compound delivery" in *International journal of biological macromolecules* (2015), Volume 76, pp 95-102.
3. "Design of bio-nanosystems for functional compounds delivery" in Food Engineering Reviews (2014), Volume 6, Issue 1, pp 1–19
4. "Edible Bio-Based Nanostructures: Delivery, Absorption and Potential Toxicity" in Food Engineering Reviews (2015), Volume 7, Issue 4, pp 491-513.