



investigadores predoctorales en Investigaciones Biomédicas de Aragón

Welcome to the ipIBA seminar series 2023/2024

Short informal talks given by **predoctoral researches of Aragón** with the aim to promote 2 main goals:

1. **Networking** between predoctoral and postdoctoral researchers in Aragón.
2. Improve our **communicative skills**.

“ADVANCED WOUND DRESSINGS IN THE MANAGEMENT OF INFECTED WOUNDS: CYTOTOXICITY AND ANTIMICROBIAL ABILITY EVALUATION”

Tuesday, February 27, 2024

From 9:30 to 10:30

Summary:

One way to treat infected wounds is by using medicated dressings, which are bandages that contain an active ingredient that speeds up the regenerative process, making them highly beneficial for chronic wounds and/or those showing signs of infection. Therefore, we have developed antimicrobial dressings for wound treatment using 3D printing of polymers combined with an antiseptic. Bactericidal tests were performed against methicillin-resistant *Staphylococcus aureus* (MRSA) (ATCC® 25923™) using chlorhexidine, octenidine dihydrochloride (octenidine), and fusidic acid, both untreated and treated at 220°C, to observe if their bactericidal properties could be affected during the printing process because this is a thermal procedure. Subsequently, dressings made of polylactic acid (PLA) combined with polyethylene oxide (PEO), loaded and unloaded with octenidine, were fabricated to assess their antimicrobial effect on *S. aureus* and their cytotoxicity on human keratinocytes and fibroblasts. The results demonstrated that octenidine dihydrochloride maintained its antimicrobial effect after the thermal treatment, leading to the production of antimicrobial dressings using 3D printing of PLA and PLA:PEO loaded with octenidine. Additionally, it was observed that dressings with PEO exhibited higher release of octenidine and improved antimicrobial effect compared to dressings without the copolymer. Furthermore, the studies demonstrated that the concentration of released octenidine from the dressings was cytocompatible for keratinocytes and fibroblasts. In conclusion, an octenidine-medicated dressing could be an effective treatment for MRSA-infected wounds while maintaining cellular viability.

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Organizes: Institute for Health Research Aragon

Link to join the seminar:

[https://us02web.zoom.us/webinar/register/WN_ycZ](https://us02web.zoom.us/webinar/register/WN_ycZ5dFjuQHmy5dEA0hrZMg)

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 CIBA and online via ZOOM

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