



Article

Layer by Layer Antimicrobial Coatings Based on Nafion, Lysozyme, and Chitosan

Gibbons, Ella Nicole, Winder, Charis Isobel, Barron, Elliot, Fernandes, Diogo Andre jardoso, Krysmann, Marta, Kellarakis, Antonios, Parry, Adam V. S. and Yeates, Stephen G.

Available at <http://clock.uclan.ac.uk/30573/>

Gibbons, Ella Nicole, Winder, Charis Isobel, Barron, Elliot, Fernandes, Diogo Andre jardoso, Krysmann, Marta ORCID: 0000-0002-8036-4925, Kellarakis, Antonios ORCID: 0000-0002-8112-5176, Parry, Adam V. S. and Yeates, Stephen G. (2019) Layer by Layer Antimicrobial Coatings Based on Nafion, Lysozyme, and Chitosan. Nanomaterials, 9 (11). e1563. ISSN 2079-4991

It is advisable to refer to the publisher's version if you intend to cite from the work.

<http://dx.doi.org/10.3390/nano9111563>

For more information about UCLan's research in this area go to <http://www.uclan.ac.uk/researchgroups/> and search for <name of research Group>.

For information about Research generally at UCLan please go to <http://www.uclan.ac.uk/research/>

All outputs in CLoK are protected by Intellectual Property Rights law, including Copyright law. Copyright, IPR and Moral Rights for the works on this site are retained by the individual authors and/or other copyright owners. Terms and conditions for use of this material are defined in the [policies](#) page.

Layer by Layer Antimicrobial Coatings Based on Nafion, Lysozyme and Chitosan

Ella N. Gibbons ¹, Charis Winder ², Elliot Barron ², Diogo Fernandes ³, Marta J. Krysmann ^{1*}, Antonios Kelarakis ^{2*}, Adam V.S. Parry ⁴, Stephen G. Yeates ⁴

¹ School of Pharmacy and Biomedical Sciences, University of Central Lancashire, Preston PR12HE, U.K.

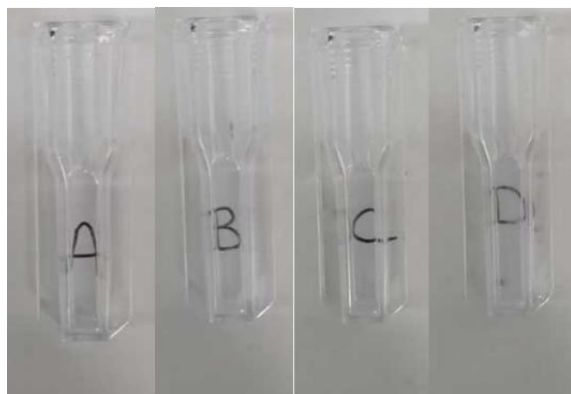
² UCLan Research Centre for Smart Materials, School of Physical Sciences and Computing, University of Central Lancashire, Preston PR12HE, U.K.

³ Malvern Panalytical, Grovewood Road, Enigma Business Park, Malvern, Worcestershire WR14 1XZ, UK

⁴ School of Chemistry, University of Manchester, Manchester M13 9PL.

* Correspondence: akelarakis@uclan.ac.uk; mkrysmann@uclan.ac.uk

i



ii

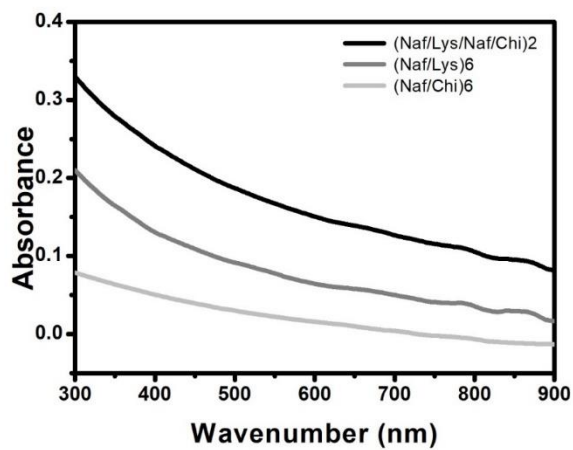


Figure S1. i) Photos of UV-vis polystyrene cuvettes: uncoated (A), (Naf/Lys)₆ (B), (Naf/Chi)₆ (C), (Naf/Lys/Naf/Chi)₂ (D), demonstrating their transparency levels. ii) UV-vis spectra of polystyrene cuvettes coated with (Naf/Lys)₆, (Naf/Chi)₆, and (Naf/Lys/Naf/Chi)₂.

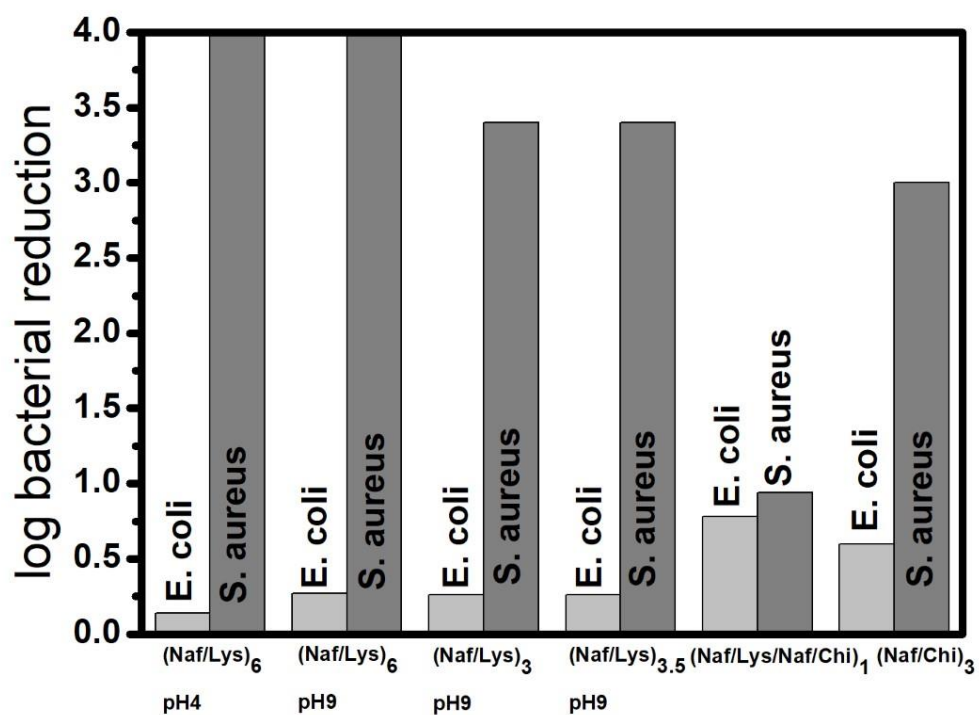


Figure S2. Reduction of the population of *E-coli* and *S. aureus* cultures exposed to QCM-D crystals coated with (Naf/Lys)₆ (pH=4), (Naf/Lys)₆ (pH=9), (Naf/Lys)₃ (pH=9), (Naf/Lys)_{3.5} (pH=9), (Naf/Lys/Naf/Chi)₁ and (Naf/Chi)₃.