

Project proposal

Project title	Visualising the effect of a novel product mix on biofilm formation in medically important microorganisms
First Supervisor	Dr <input type="text" value="Alison Kelly"/>
Second Supervisor	Professor Declan Naughton
School	Life Sciences <input type="text"/>
Other member of supervisory team (no more than three KU supervisors in total)	Professor David Wertheim
Specific requirements beyond 2:1 degree	Microbiology laboratory experience (from placement, internship or independent project).

Project summary (max 4,000 characters)

MSc by Research

One of the major hurdles to overcome in medicine currently is biofilm formation by microorganisms, which is recognised as leading to increased resistance to a variety of antimicrobials. Biofilms are able to form on many surfaces including on and within the human body and are associated with a higher risk of chronic infection, lengthier hospital stays and repeated treatment regimes. Research here at Kingston University with Professor Declan Naughton has identified and investigated a novel antimicrobial mix with activity against *Staphylococcus aureus*, *E. coli* and *Pseudomonas aeruginosa* (Holloway et al, 2012, 2011).

The aim of this research is to view the effect this novel mix has on cells in both the planktonic and biofilm state by a variety of methods, including light microscopy, confocal microscopy and scanning electron microscopy, within the electron microscopy suite run by Mr Richard Giddens.

Holloway, A.C., Mueller-Harvey, I., Gould, S. W. J., Fielder, M. D., Naughton, D. P., and Kelly, A. F. (2012) The effect of copper(II), iron(II) sulphate, and vitamin C combinations on the weak antimicrobial activity of (+)-catechin against *Staphylococcus aureus* and other microbes. *Metallomics*, 4 (12), 1280-1286

Holloway, A. C., Gould, S. W. J., Fielder, M. D., Naughton, D. P. and Kelly A. F. (2011) Enhancement of antimicrobial activities of whole and sub-fractionated white tea by addition of copper (II) sulphate and vitamin C against *Staphylococcus aureus*: a mechanistic approach. *BMC Complementary and Alternative Medicine* 11 (115), 1472-6882