

The logo of the University of Manchester, featuring a purple rectangular box with the text "MANCHESTER" in white and "1824" in yellow below it. The logo is centered at the top of the slide. The background of the slide is a dark blue gradient with a faint, glowing sunburst pattern in the center.

MANCHESTER
1824

FUNCTIONAL PEPTIDE AMPHIPHILES WITH SELECTIVE RESPONSES TO SKIN CELLS AND BACTERIA

FUNCTIONAL PEPTIDE AMPHIPHILES

- Short peptides for use in skin care preparations, with selective bactericidal effect
- Benign to mammalian cells, without causing immune reactions
- Reliable mode of action in presence of other skin care formulation ingredients
- Can be added to existing products, e.g. as a surfactant alternative, or can be used as a novel active in new formulations
- Easy to manufacture
- Intellectual Property protection in place, licensee sought for commercialization

TECHNOLOGY

- Rationally designed short cationic peptide sequences, each made up of fewer than 12 amino acids
- Suitable for use in skin care preparations
- Hydrophilic and hydrophobic attributes mediate amphiphilicity
- Individual sequences work against a range of G⁺ and G⁻ bacteria, whilst being biocompatible, benign to mammalian cells
- Peptides act as modulators of skin physiology, and as nutrients; promoting the growth of skin cells
- Peptides are designed to be selective in their cytotoxic action on bacteria outer cell surfaces, without acting on skin cell surfaces
- Peptides are simple to make, and reliable in their mode of action in the presence of other formulation ingredients
- Peptides are highly bactericidal when compared to other common bactericidal and antiseptic preparation ingredients
- Peptides are biodegradable

BENEFITS

To the Manufacturer /Formulator

- Simple and cost effective to make, highly suitable for volume production
- Flexibility for addition of the peptides to existing products, as an ingredient (e.g. surfactant) substitute, or to formulate new products
- Access to an ingredient with good environmental, skin friendly, 'natural' credentials
- Such short peptides with bactericidal effect provide a major advancement in the market
- Scientifically proven, from a reputable research group

End User

- Alternative to the more toxic ingredients in skin care preparations, for the increasingly discerning consumer
- Effective, but with fewer side effects
- Biodegradable

CURRENT STATUS - RESULTS

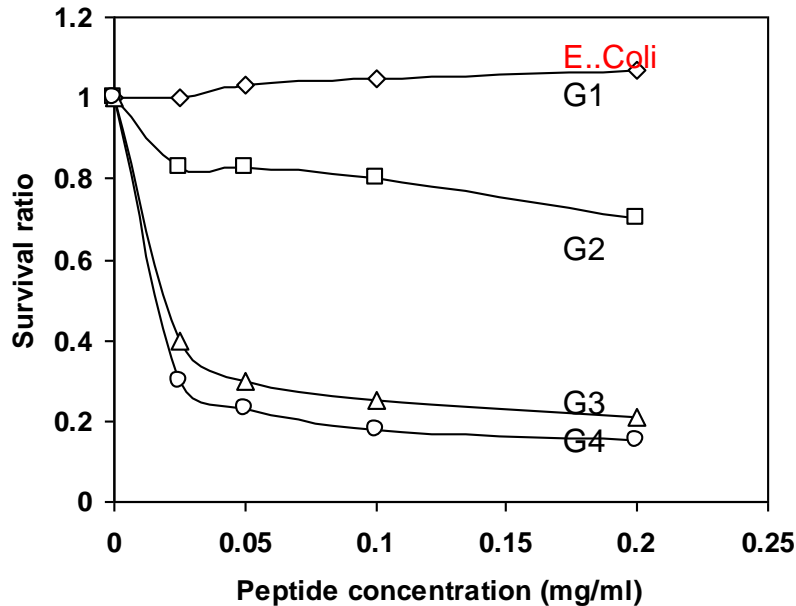
- Bactericidal tests for a range of G+ and G- bacteria
- A number of lead peptide molecules identified
- Cell growth monitored daily by optical and fluorescence microscopy
- Mammalian cell viability tested by MTT assays
- MIC for bacteria and toxicity for hRBCs and 3T3 fibroblasts determined
- Co-culturing to demonstrate high selectivity
- Demonstration of bactericidal actions and selectivity from model formulations
- Performance assessed against selection of industrial products

CURRENT STATUS – INTELLECTUAL PROPERTY

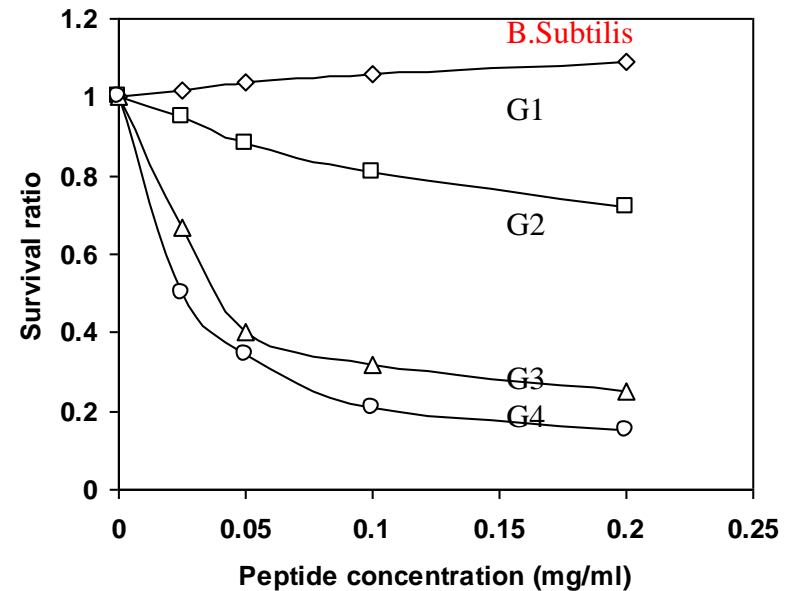
- Created at the University of Manchester
- Technology is the subject of a PCT patent application, with publication no. WO2013/038201
- Backed up by ongoing research

Antibacterial activity

A

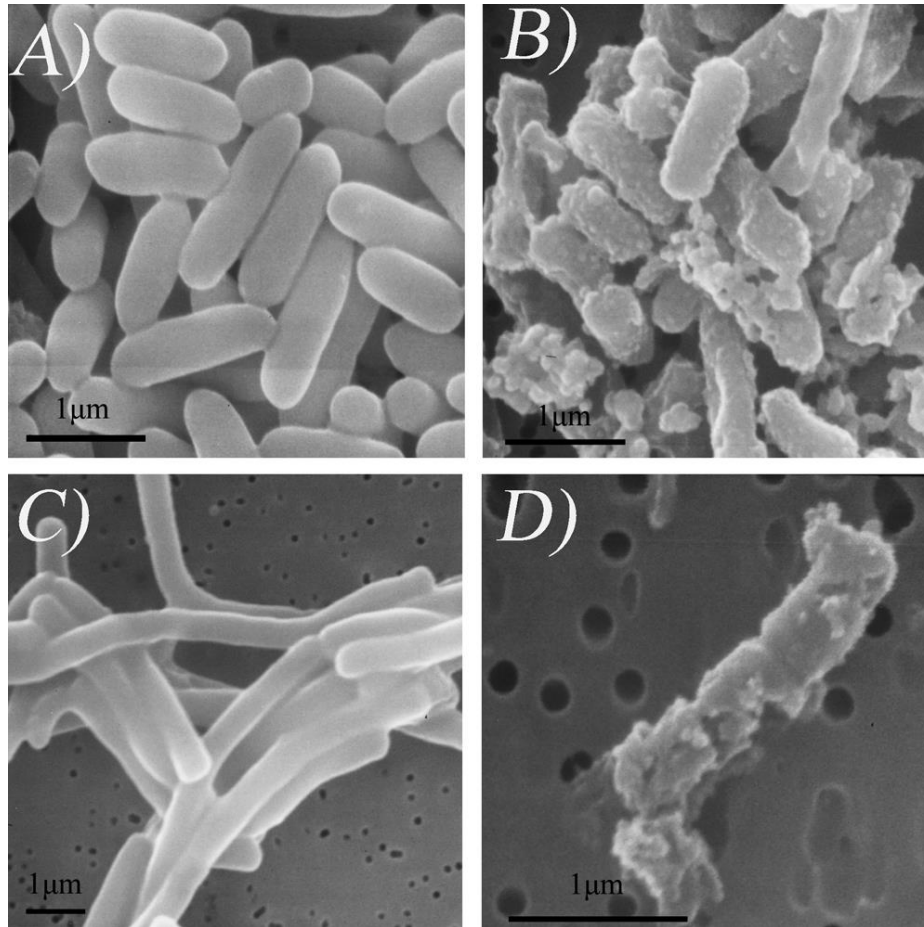


B



Antibacterial activities of helical peptides on (A) E.Coli & (B) B. Subtilis after the bacteria were incubated with the peptides at different concentrations at 37°C for 1H, and samples were then taken for further incubation for 24HRs before live numbers were counted.

Antibacterial activity



Membrane lysis of E.Coli (panels A-B) and B. Subtilis (panels C-D) in the presence of Peptide G3 at MIC (panels B, D) or with control (Panels A, C) as observed by SEM.

LICENSING INTEREST - CONTACT

If you would like to explore licensing possibilities, please contact –

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- for further discussion, and access to The University of Manchester research team under confidentiality, leading to collaboration.