Key to tissue growth may be in anti-wrinkle cream

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The first study to investigate the chemical structure of an advanced class of anti-wrinkle cream has shown that it could be used to promote wound healing and regenerative medicine.

Chemists at the University of Reading researched the nanostructure of a cosmetic ingredient used in high performance skincare creams - a peptide amphiphile (PA).

Many skincare products use peptides to treat wrinkles. Skin is made up mostly of collagen; it is the foundation that gives your skin its support and thickness. Young people have lots of collagen and taut, smooth skin. In contrast, older people have much less collagen and thin, wrinkled skin.

Collagen is protein and is made up of long chains of amino acids strung together, like chains of linked building blocks. When it is broken down, short segments form, called peptides, and these act as a signal to tell your skin it is damaged and needs to make new collagen. The new research has revealed how the chemical structure of the PA allows this to happen.

Professor Ian Hamley, from the Department of Chemistry, investigated the PA found in Matrixyl - an ingredient used in high end/state-of-the-art anti-ageing creams. He found that the PA contains a dense network of fine fibres that can act as an excellent scaffold for collagen to adhere to. This also has potential applications in tissue growth.

Professor Hamley said: "This the first report to our knowledge on a

peptide amphiphile in current commercial use. Understanding the self-assembled structure is important in developing the next generation of collagen-stimulating peptides for applications not just for cosmetic skincare products but for wound healing and in regenerative medicine."

More information: The paper, *Fibrillar Superstructure from Extended Nanotapes Formed by a Collagen-Stimulating Peptide* by Valeria Castelletto, et al. is published in *Chemical Communications*, DOI:10.1039/c0cc03793a

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