GLOBAL SKIN HEALTH

NOVEL PHAGES OF SKIN METAVIROMES: POTENTIAL NEW PLAYERS IN THE SKIN HEALTH

C Clavaud [1] - L J Van Zyl [2] - Y Abrahams [2] - E A Stander [2] - B M Kirby-mccollough [2] - R Jourdain [1] - M Trindade [2] - L Breton [1]

L'oréal, Research & Innovation, Aulnay-sous-bois, France [1] - University Of The Western Cape, Institute For Microbial Biotechnology And Metagenomics (imbm), Cape Town, South Africa [2]

Introduction: The skin, a unique barrier to the external environment, is the largest and most exposed organ of the human body. A wide variety of microbes including viruses, bacteria and fungi are capable of colonizing the skin, with different distributions. The few recent skin metavirome studies conducted have established an overall picture by which phages are present on the skin. The link between microbial dysbiosis and disease states has been well reported for the skin microbial population for atopic dermatitis. Phage therapies have been investigated in mouse models for the treatment of Staphylococcus skin infections with some success, and it is recently reported that this is a potential avenue for the treatment of a variety of bacterial-linked skin diseases.

Objective: Here we investigate the presence of individual phages, which could potentially uncover their role in skin health.

Materials and methods: A metaviromic approach was chosen to better understand the potential composition of phage communities on skin from six South African male subjects (18-30 y), by sampling their scalp, axilla and forearm, that are representative of the three main ecosystems of the skin (sebaceous, moist and dry).

Results: Our data set adds over 130 new phage species of the skin to existing databases. We demonstrated that identical phages were present on different individuals and in different body sites. We further found that a bacteriophage related to the Staphylococcus capitis phage may be a common skin commensal phage potentially regulating its host and its activities on the skin.

Conclusions: The identification of natural antibiotics constituting the cutaneous microbiome opens the way to new treatment routes for infectious skin disorders or imbalances in skin flora. This approach paves the road towards a possible stimulation of these natural "antibiotic" defences for regulating some pathogens on the surface of the skin without using

exogenous antibiotics.