

Synergies between bioactive immunostimulatory components in honey

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The bioactive components of New Zealand honeys have therapeutic potential in the treatment of wounds, and prevention of infection. The medical use of honey has re-emerged due to its immune-enhancing activity, but the bioactive components responsible are controversial. It has been reported that various types of honey are able to stimulate the release of the inflammatory cytokine tumour necrosis factor (TNF)- α from macrophages that plays a role in increasing wound strength. A variety of bioactive compounds in honey have been deemed to have immunostimulatory potential. They include a polymyxin B-insensitive 5.8 kDa component isolated from manuka honey, a protein component of acacia honey, and the major royal jelly proteins 1 and 2 of 55 kDa. However, Timm *et al.* in 2008 reported that the immunostimulatory activity of manuka honey is explained solely by its endotoxin content, a notion that was inferred from the observation that the immunostimulatory activity of honey was inhibited by polymyxin B, a known inhibitor of lipopolysaccharide (LPS). Our study reports for the first time that honey-derived arabinogalactan proteins (AGPs) are immunostimulatory honey bioactives that induce TNF- α expression by monocytes, and may thereby promote wound healing. Further investigation has revealed a novel immune-enhancing component in honey that displays synergistic properties with AGPs. The results represent a significant advance in our understanding of the medicinal properties of honey, and how they might be measured, monitored, enhanced, and applied.

Biography

Swapna Gannabathula is pursuing Ph.D. at the University of Auckland working in collaboration with Comvita Innovation. Her research project explores the wound healing and anti-microbial properties of New Zealand honeys, and is conducted under the supervision of Associate Professor Geoff Krissansen and Professor Margot Skinner (The University of Auckland). She is the inaugural recipient of the Claude Alexander Stratford Research Scholarship from Comvita. Her previous appointment was as a Research Assistant at The University of Auckland and Plant and Food Research Crown Research Institute. She is an inventor on three patent applications, and the author of two publications.

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