Novel peptide therapy candidates for medically unmet fungal and bacterial infections

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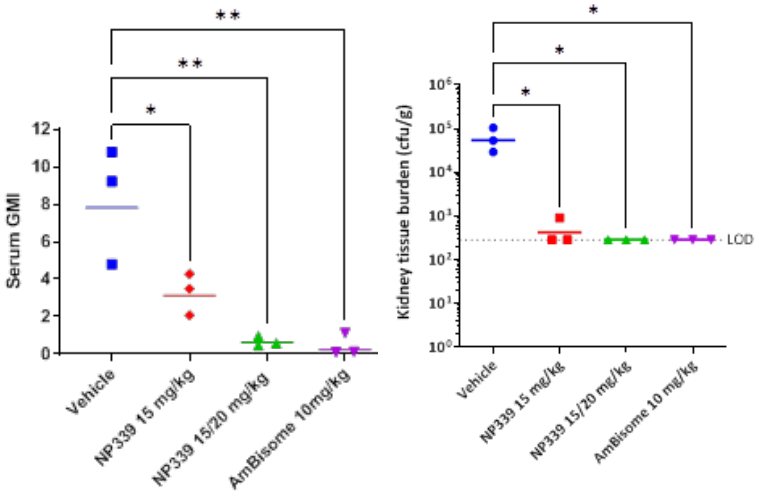
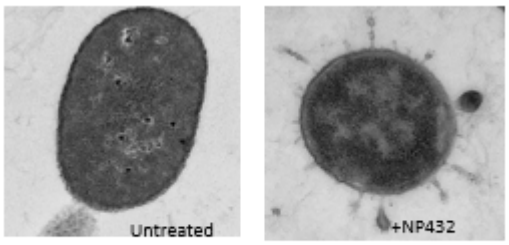
NovaBiotics has generated antifungal and antibacterial therapy candidates from a proprietary cationic antimicrobial peptide technology platform. These peptides are simpler in structure and smaller in size than endogenous host defence peptides (HDP) and are druggable compounds for systemic administration which possess only the antimicrobial functionality of HDP. These include, NP339, a 2 kDa linear fungicidal peptide comprising basic, polar residues and is active against moulds and yeasts including *Aspergillus fumigatus*[1]. NP432 is a linear 2kDa bactericidal peptide comprising both polar and nonpolar, aromatic residues and has activity against Gram-negative and some Gram-positive bacteria including *Acinetobacter baumannii* and *methicillin-resistant Staphylococcus aureus*. Faced with a next pandemic of antimicrobial resistance, the need for new classes of safe and effective antimicrobials has never been more acute. Immune-based, non-antibiotic antimicrobial strategies such as NovaBiotics' peptides have manifold therapeutic advantages over microbiological approaches to combatting infection and existing antifungal and antibacterial therapy classes. These include rapid microbicidal mechanism of action, agnosticism to metabolic and drug-resistance status of the target pathogen and specificity which circumvents off-target pharmacology[1-2].

IV NP339 results in statistically significant lower serum galactomannan index (GMI) and kidney tissue burden (by qPCR) in a roent model of disseminated *A. fumigatus* infection





Membrane acting mechanism of NP432 against *A baumannii* at 0.25% 'MIC', 15 min of exposure

[1] Vanessa Duncan , Daniel Smith , Laura Simpson , Emma Lovie , Laura Katvars , Leon Berge , Jennifer Robertson , Shane Smith , Carol Munro, Derry Mercer, Deborah O'Neil. Preliminary Characterization of NP339, a Novel Polyarginine Peptide with Broad Antifungal Activity. *Antimicrob Agents Chemother*. **2021**. 16, 65.

[2] Deborah O'Neil. Innovation in Infectious Disease Therapy from Immunology. *Drug Discov Today*. **2021** 31:S1359-6446.