Proline-rich antimicrobial peptides targeting protein synthesis

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The innate immune system employs a broad array of antimicrobial peptides (AMPs) to attack invading microorganisms. While most AMPs act by permeabilizing the bacterial membrane, specific subclasses of AMPs have been identified that pass through the membrane and inhibit bacterial growth by targeting fundamental intracellular processes. One such class is the proline-rich antimicrobial peptides (PrAMPs) that bind to the ribosome and interfere with the process of protein synthesis (1). Our biochemical and structural studies have revealed that these PrAMPs bind within the ribosomal exit tunnel and interfere with either translation elongation (2,3) or termination (4). In addition to providing mechanistic insight into the action of PrAMPs on the ribosome, structures of PrAMP-ribosome complexes also shed light into the fundamental process of protein synthesis.

References:

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