LL37 and Shock Waves

antimicrobial peptides

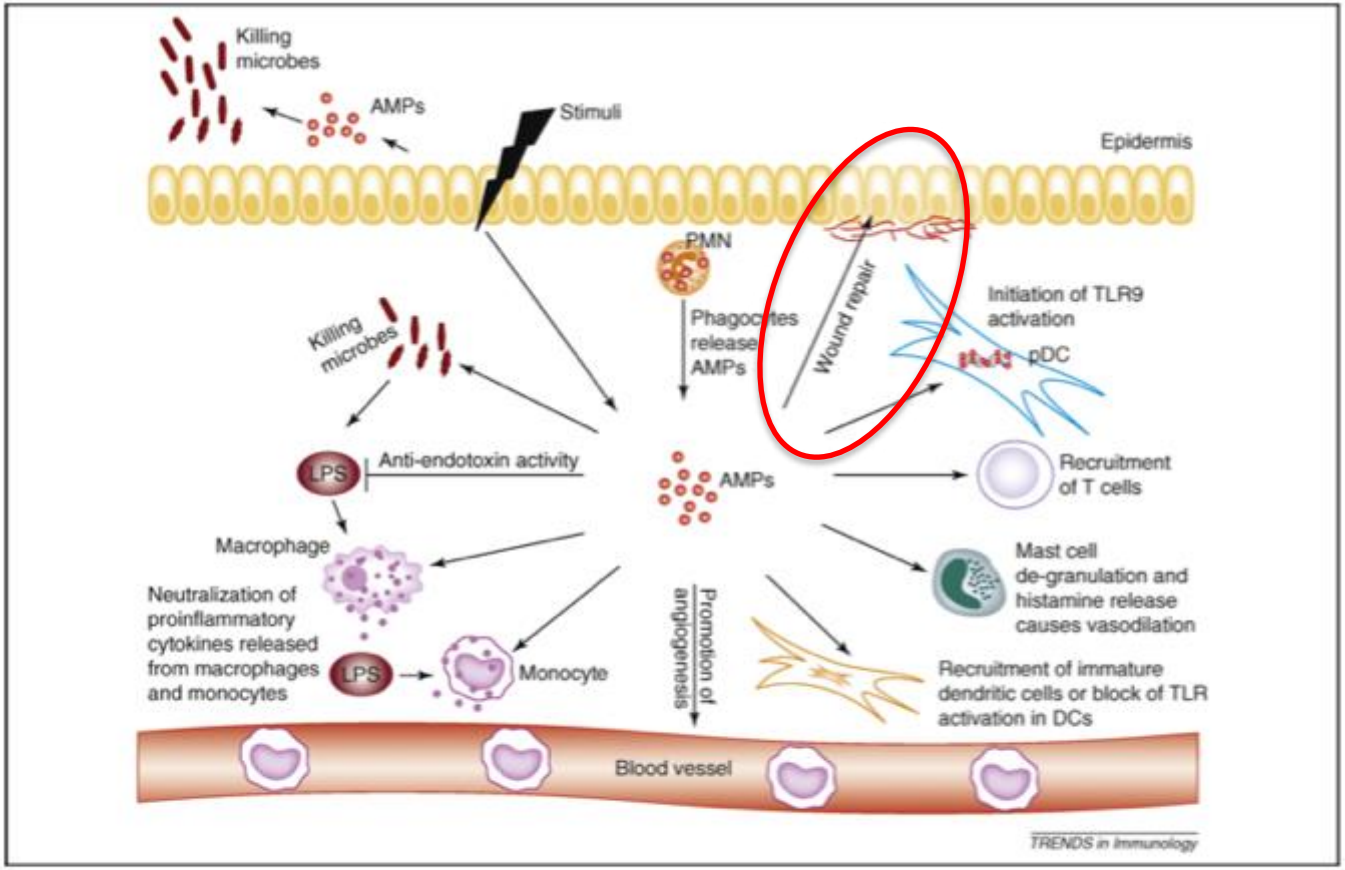
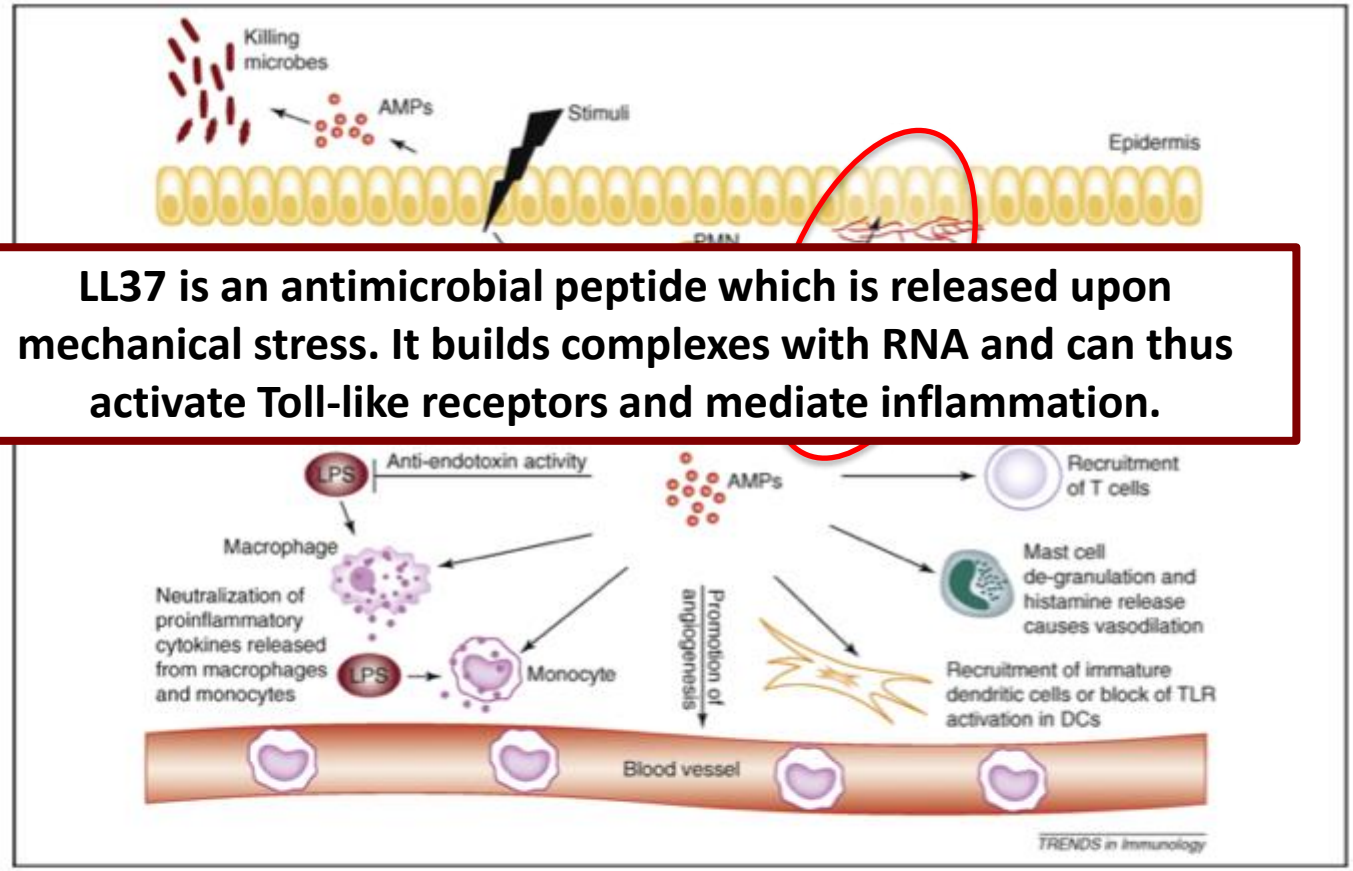


Figure 2. Multiple functions of antimicrobial peptides in host defense. AMPs induce a variety of responses in host innate immune cells such as monocytes, macrophages, neutrophils and epithelial cells. They alter gene expression of host cells, induce production of chemokines and cytokines, promote leukocyte recruitment to the site of infection, influence cell differentiation and activation and block or activate TLR signaling. The outcome of the selective immunomodulation by AMPs results in innate immune responses, leading to protection against infection, selective control of inflammation, promotion of wound healing and initiation of adaptive immune responses. Abbreviations: AMP, anti-microbial peptide; DC, dendritic cell; LPS, lipopolysaccharide; pDC, plasmacytoid dendritic cell; PMN, polymorphonucleocyte; TLR, Toll-like receptor.

Lai Y, Gallo RL. AMPed up immunity: how antimicrobial peptides have multiple roles in immune defense. Trends Immunol. 2009;30(3):131-41.

antimicrobial peptides



LL37 is an antimicrobial peptide which is released upon mechanical stress. It builds complexes with RNA and can thus activate Toll-like receptors and mediate inflammation.

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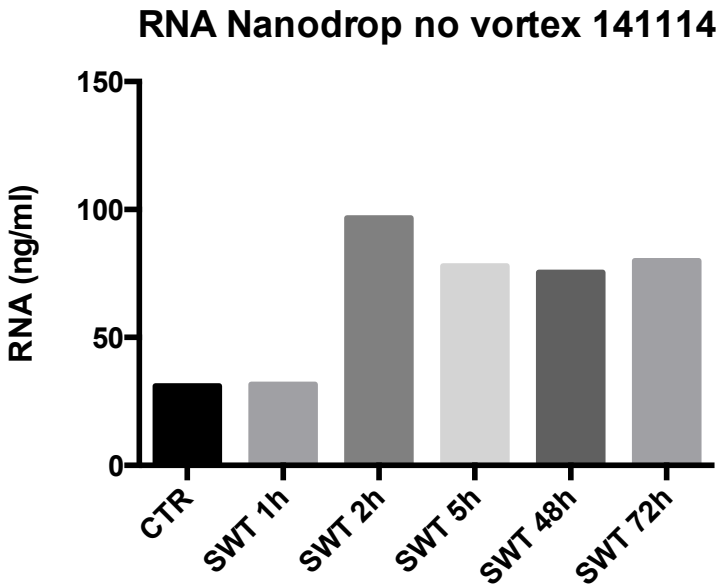
hypothesis

LL37 is released upon SWT and complexes extracellular.

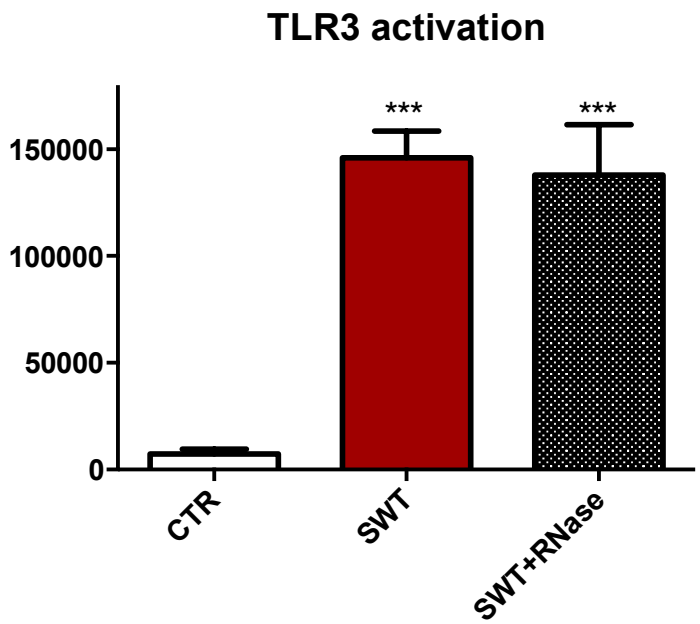
finding no. 1

RNA levels are increased after SWT



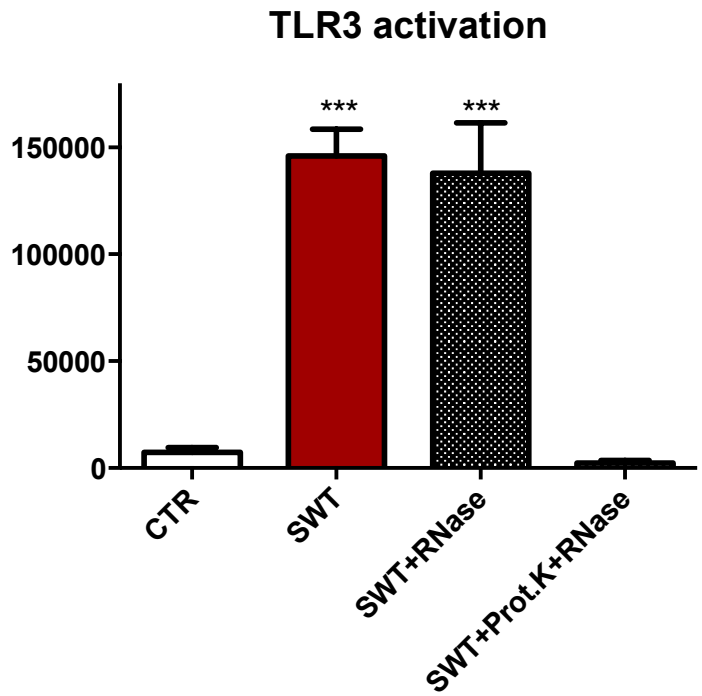
finding no. 2

RNAse is not able to remove RNA in the supernatant of treated cells



finding no. 3

combined treatment with proteinase and RNAse is able to remove RNA from supernatant and abolishes SW effect



-> RNA has to be complexed by a protein (like LL37)

finding no. 4

Protein analysis reveals significantly higher levels of LL37 in SW treated cells !!!