Drosomycin counteracts the detrimental effects of salivary gland hypertrophy in *Drosophila melanogaster*

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By constitutive activation of the Ras/MAPK-pathway via Ras^{V12}-overexpression in the postmitotic salivary glands of *Drosophila* larvae, we overrode the glands adaptability to growth signals and induced hypertrophy. The hypertrophy was accompanied by loss of tissue integrity and secretory activity, reduced apicobasal polarity of epithelial cells and redistribution of basement membrane components leading to fibrotic lesions in the tissue. All of the above-mentioned factors led to a strong immune response to counteract the negative effects. Transcriptome profiling of the fat body and the salivary glands revealed a characteristic immune response mediated via immune effectors including antimicrobial peptides. Specifically, ectopic overexpression of the antimicrobial peptide drosomycin in salivary glands alleviated the detrimental effects through inhibition of a feedback-loop in JNK-signalling. While this interaction might allow growing salivary glands to cope with temporary stress, continuous drosomycin expression in Ras^{V12}-glands still permitted unrestricted hypertrophy. Dysplastic salivary glands also attracted hemocytes which attached to the surface of glands to mediate cellular immune reactions. Using single cell RNA sequencing of tumor-associated and control hemocytes we identified five populations with distinct expression patterns. Moreover, the presence of hemocyte transcripts derived from other cell-types suggests communication between tissues.