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Titel des Beitrags:
The miRNA-212/132 family regulates both cardiac hypertrophy and cardiomyocyte autophagy.

Abstract:
Pathological growth of cardiomyocytes (hypertrophy) is a major determinant for the development of heart failure, one of the leading medical causes of mortality worldwide. Here we show that the microRNA (miRNA)-212/132 family regulates cardiac hypertrophy and autophagy in cardiomyocytes. Hypertrophic stimuli upregulate cardiomyocyte expression of miR-212 and miR-132, which are both necessary and sufficient to drive the hypertrophic growth of cardiomyocytes. MiR-212/132 null mice are protected from pressure-overload-induced heart failure, whereas cardiomyocyte-specific overexpression of the miR-212/132 family leads to pathological cardiac hypertrophy, heart failure and death in mice. Both miR-212 and miR-132 directly target the anti-hypertrophic and pro-autophagic FoxO3 transcription factor and overexpression of these miRNAs leads to hyperactivation of pro-hypertrophic calcineurin/NFAT signalling and an impaired autophagic response upon starvation. Pharmacological inhibition of miR-132 by antagomir injection rescues cardiac hypertrophy and heart failure in mice, offering a possible therapeutic
approach for cardiac failure.

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