

# Metabolic rewiring of the failing heart

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## Propositions

Belonging to the thesis

### **Metabolic rewiring of the failing heart – unraveling cause and effect**

By Annika-Ricarda Kuhn  
18 November 2021

1. Metabolic syndrome-associated HFpEF is accompanied by extensive cardiometabolic rewiring, particularly affecting mitochondrial function. *(This thesis)*
2. HFpEF comorbidities impact plasma metabolite levels, limiting the suitability of circulating metabolites as biomarkers for this disease. *(This thesis)*
3. Local metabolite profile changes precede the deposition of extracellular matrix in myocardial infarct regions, reflecting the dynamic nature of the fibrotic process. *(This thesis)*
4. Phenotypical modulation of cardiac fibroblasts alters cellular metabolism, and vice versa, modulation of cellular metabolism alters the phenotype of fibroblasts. *(This thesis)*
5. Metabolic interventions designed to improve cardiomyocyte function may be detrimental to other cardiac cell types due to differential substrate demands. *(This thesis)*
6. Subclassification of HFpEF patients based on the underlying pathophysiology provides the basis for the development of more individualized treatment strategies.
7. Early identification and treatment of individuals with high cardiometabolic risk will prove beneficial in the long term by reducing HFpEF incidence and associated health care expenditures.
8. Success in research needs four Gs: Glück, Geduld, Geschick und Geld.  
*Luck, patience, skill and money.*  
— Paul Ehrlich
9. Whatever it is you're seeking won't come in the form you're expecting.  
— Haruki Murakami