

Engineering mammalian cells for therapeutic applications

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Abstract :

Capitalizing on our latest advances in the design of heterologous mammalian transgene control systems we have designed the first prosthetic networks that sense, monitor and score (disease-) relevant metabolites, process off-level concentrations and coordinate adjusted diagnostic, preventive or therapeutic responses in a seamless, automatic and self-sufficient manner. We believe that the design of synthetic gene networks, which process molecular signals with near digital precision, may provide novel therapeutic opportunities. Highlights will include our proof-of-concept studies on prosthetic networks enabling the treatment of gout, hypertension and obesity as well new concepts for the treatment of diabetes.