

Institut für Pathologie

Universitätsmedizin Greifswald

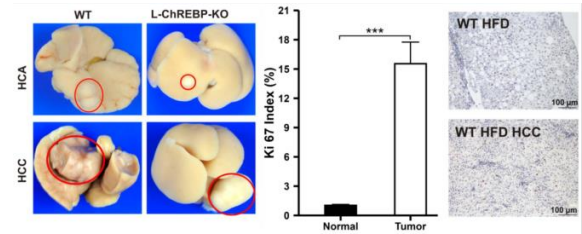
Friedrich-Loeffler-Str. 23e, 17475 Greifswald

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stellv. Direktorin: Prof. Dr. Silvia Ribback

Recent publications and theses

- Karim M, et al. Hepatic Deletion of Carbohydrate Response Element Binding Protein Impairs Hepatocarcinogenesis in a High-Fat Diet-Induced Mouse Model. Int J Mol Sci. 2025 Mar 3;26(5):2246. doi: 10.3390/ijms26052246.
- Hansen K, et al. Knockout of the Carbohydrate Responsive Element Binding Protein Enhances Proliferation and Tumorigenesis in Renal Tubules of Mice. Int J Mol Sci. 2024 Oct 24;25(21):11438. doi: 10.3390/ijms252111438.
- Nürnberger, V. Die Rolle von Carbohydrate responsive element binding protein (ChREBP) in der hormonell induzierten Hepatokarzinogenese bei diabetischen Mäusen in Langzeitanalysen (2022)
https://epub.uni-greifswald.de/frontdoor/index/index/start/0/rows/10/sortfield/score/sortorder/desc/searchtype/advanced/author/N%C3%BCrnberger/authormodifier/contains_all/referee/Ribback/refereemodifier/contains_all/docId/7757



Karim M, et al. 2025 - Tumor development, hepatocyte proliferation activity (Ki 67), and histological staining of Wild-type and Liver-ChREBP-KO mice

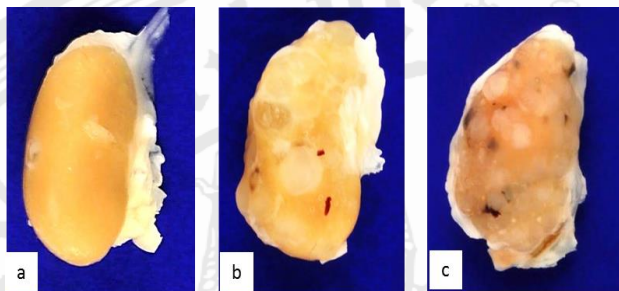
Current and future projects

In vivo

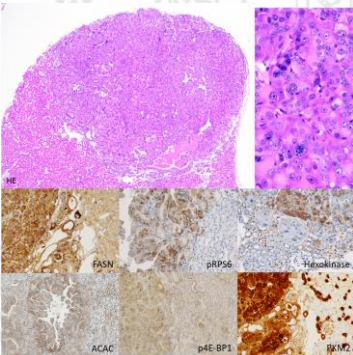


Investigation of mouse models with cell type-specific (conditioned) and global (systemic) knockout (KO) of target genes ChREBP / TXNIP under distinct conditions:

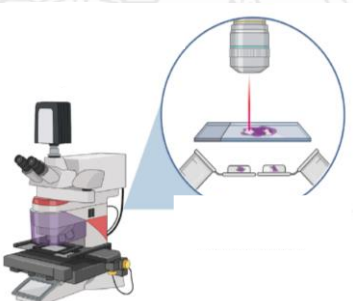
- Induction of diabetic phenotype using streptozotocin
- Application of Diethylnitrosamine (DEN), a potent hepatic carcinogen
- Special diets



Renal adenomas (a) after 3 months and Renal cell carcinomas (RCC) after 6 (b) and 12 months (c) in diabetic mice.



Solid RCC in ChREBP-KO mice with large nuclei and focal necrosis show upregulation of markers for lipogenesis, glycolysis, Akt/mTOR signalling and ribosomal protein S6 by immuno-histochemistry (IHC)



Collection of lesions and unaltered tissue from FFPE sections using laser capture microdissection. The proteins are then extracted and changes in the proteome are determined using mass spectrometry.

Hepato- and Nephro-carcinogenesis

ChREBP

Carbohydrate-responsive element-binding protein
 α/β

TXNIP

Thioredoxin-interacting protein

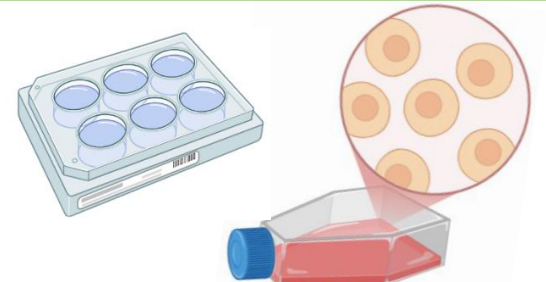
Histopathology and Immunohistochemistry

Immunofluorescence- and Transmission electron microscopy

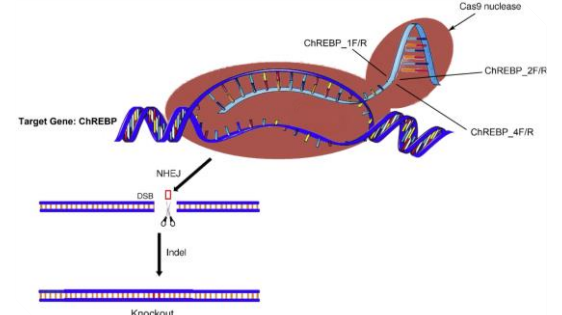
Expression studies using qRT-PCR, Western Blot and Mass spectrometry

Immunological analyses

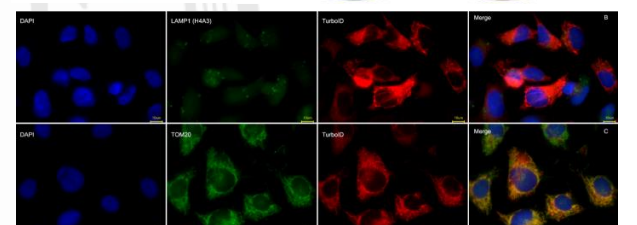
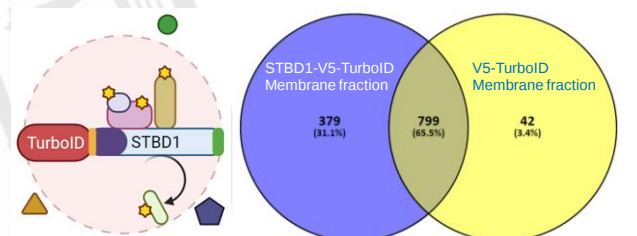
In vitro



Cultivation and investigation of the expression profile of non-cancerous and differently differentiated liver and kidney cell lines under non-, low- and high-glucose conditions.



Generation of isoform-specific ChREBP knockouts using the CRISPR Cas9 method and creation of transient and stable clones using plasmid vectors for ChREBP overexpression in representative cell lines. This will be followed by studies on proliferation and invasion as well as lipid and glycogen metabolism.



Investigation of the interactome of the Starch binding domain 1 (STBD1) in HepG2 by using proximity biotin labelling with a TurboID assay coupled with mass spectrometry and co-localization studies using immunofluorescence microscopy