Role of Caveolin-1 in age-associated vascular amyloidosis (CANVAS)

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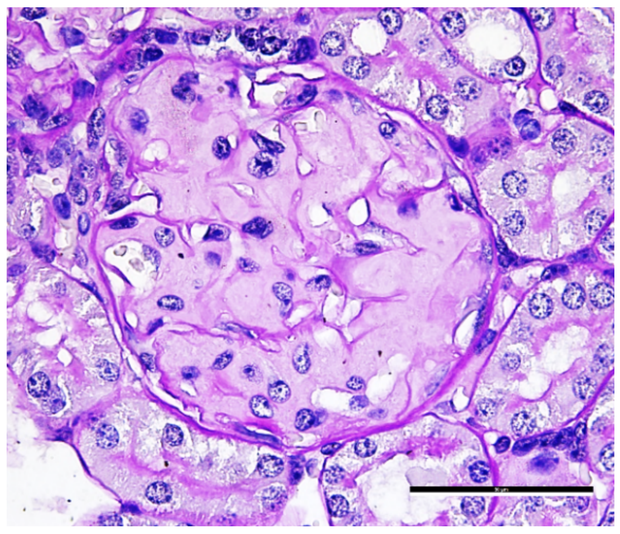
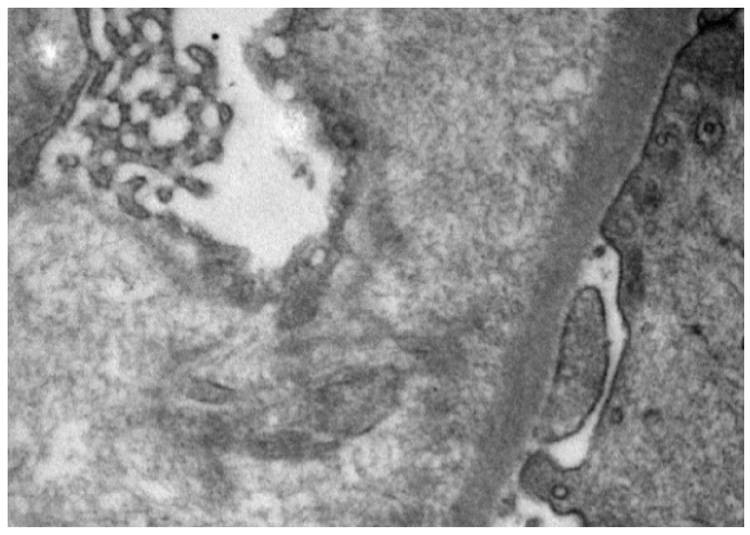
BACKGROUND

Age-associated amyloidosis results from abnormal, multi-organ accumulation of fibrils, formed by a variety of precursor proteins, some still uncharacterized. Early diagnosis is difficult and, with the exception of the genetic transthyretin-derived senile systemic type, there are currently no available targeted therapies for any amyloidosis.

CANVAS is a preclinical, proof-of-concept study, which aims to characterize the specific role of caveolin-1 (Cav1) in the pathogenesis of age-associated vascular amyloidosis, using a wide range of complementary approaches from the fields of genomics, proteomics and structural biology.This work is based on preliminary results showing accumulation of amyloid-like deposits in the kidneys of *CaV1* KO rats.



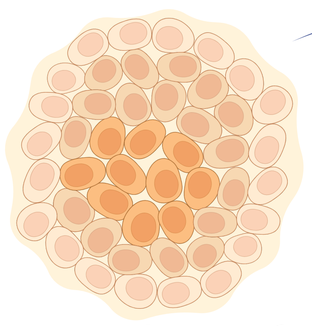
Amyloid deposits in a rat glomerulus as seen by conventional staining in optical microscopy.



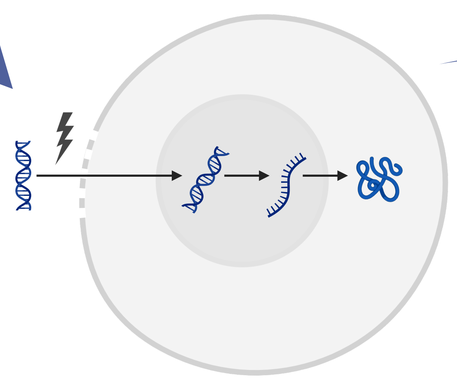
Amyloid deposits in a rat kidney as seen by transmission electron microscopy.

METHODS - IDENTIFICATION OF AMYLOID PRECURSORS/SPECIES

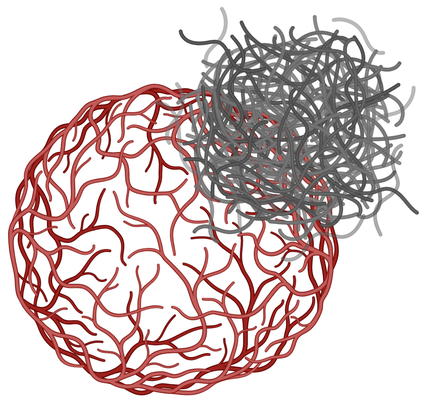
1. in vitro



iPSC cultures for blood vessel organoids

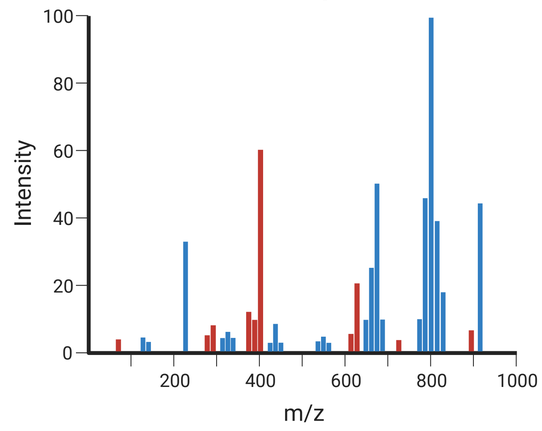


KO of CaV1 gene by CRISPR

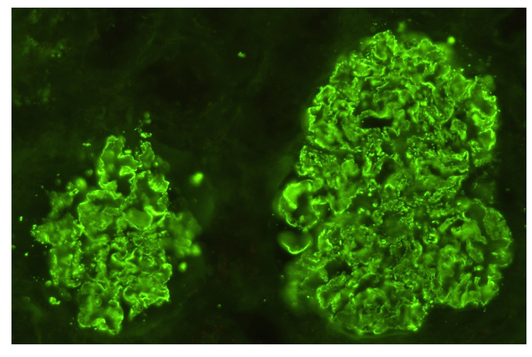


Development of CaV1-dependent amyloid deposits

Mass spec

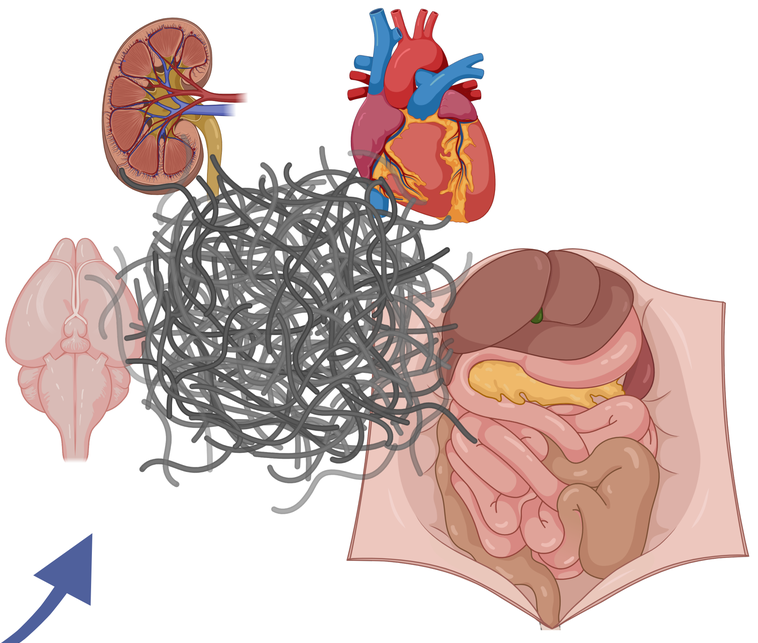


Immunofluorescence/ immunohistochemistry



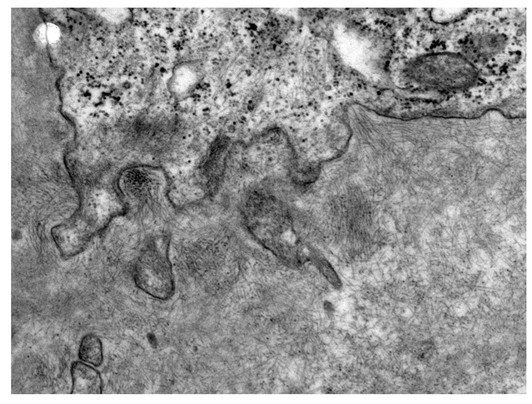
2. in vivo

CaV1 KO murine model



Development of CaV1-dependent amyloid deposits in various organs

Transmission electron microscopy



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