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IN BRIEF

GENETICS

Genetic links between diabetes and albuminuria

Loci that are associated with albuminuria in diabetes mellitus have been identified by GWAS meta-analysis of albuminuria traits in the general population. An association between *CUBN* and urinary albumin-to-creatinine ratio (UACR) was replicated, and gene-by-diabetes interactions were detected at the *HS6ST1* and *RAB38/CTSC* loci, where a genetic effect on the UACR was found in those with diabetes. *Rab38*$^{-/-}$ rats had higher urinary albumin concentrations and reduced levels of megalin and cubilin at the proximal tubule cell surface compared to controls, and the expression of *RAB38* was higher in the tubuli of patients with diabetic kidney disease than controls.

ORIGINAL ARTICLE Teumer, A. *et al.* Genome-wide association studies identify genetic loci associated with albuminuria in diabetes. *Diabetes* http://dx.doi.org/10.2337/db15-1313

IMMUNOSUPPRESSION

Modulation of BK polyomavirus replication

The effects of immunosuppressive drugs on BK polyomavirus (BKV) replication have been compared in a new study. Sirolimus inhibited viral replication up to 24 h postinfection, but not thereafter, and similar results were found for other mTOR inhibitors and ciclosporin A. Conversely, tacrolimus — a calcineurin inhibitor — activated BKV replication. The effects of tacrolimus and sirolimus were mediated through FKBP12 in renal tubular epithelial cells. The researchers propose that these data provide a rationale for clinical trials aimed at reducing the risk of BKV replication in renal transplantation.

ORIGINAL ARTICLE Hirsch, H. H. *et al.* BK polyomavirus replication in renal tubular epithelial cells is inhibited by sirolimus, but activated by tacrolimus through a pathway involving FKBP-12. *Am. J. Transplant.* http://dx.doi.org/10.1111/ajt.13541

BASIC RESEARCH

TMEM107: a new ciliopathy transition zone gene

A bioinformatics-based analysis has identified *TMEM107* as a candidate transition zone (TZ) ciliary gene that is mutated in oral–facial–digital and Joubert syndromes. Functional analyses performed in *C. elegans* showed that TMEM107 contributes to ciliary composition and function in a redundant manner with NPHP-4, and regulates cilium integrity, TZ docking, and assembly of membrane-to-microtubule (Y-link) connectors. TMEM107 localizes to layer three of the 'MKS module' in the TZ, where it organizes recruitment of ciliopathy proteins.

ORIGINAL ARTICLE Lambacher, N. J. *et al.* TMEM107 recruits ciliopathy proteins to subdomains of the ciliary transition zone and causes Joubert syndrome. *Nat. Cell Bio.* http://dx.doi.org/10.1038/ncb3273

PROGENITOR CELLS

Promotion of nephron progenitor cell self-renewal

BMP, FGF, and WNT signalling regulate self-renewal of nephron progenitor cells (NPCs). A molecular analysis by Muthukrishnan *et al.* to delineate these pathways found that BMP7 activates TAK1 and JNK, resulting in JUN phosphorylation, *Myc* and *Ccnd1* transcriptional regulation, and NPC proliferation. JUN is regulated by BMP7, whereas its partner FOS is regulated by FGF9. The researchers show that BMP7 and FGF9 both regulate *AP-1* transcription, cell cycle progression, and NPC proliferation, and highlight the cooperation between these two NPC self-renewal pathways.

ORIGINAL ARTICLE Muthukrishnan, S. D. *et al.* Concurrent BMP7 and FGF9 signalling governs AP-1 function to promote self-renewal of nephron progenitor cells. *Nat. Commun.* http://dx.doi.org/10.1038/ncomms10027