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IN BRIEF

CHRONIC KIDNEY DISEASE

MicroRNA inhibition in Alport syndrome

Inhibition of microRNA (miRNA)-21 could represent a therapeutic strategy for the treatment of chronic kidney diseases, including Alport nephropathy, say the researchers of a new study. Gomez *et al*. assessed the therapeutic potential of highly specific oligonucleotides that distribute to the kidney and inhibit miRNA function following subcutaneous administration. Injection of these oligonucleotides into mice with Alport nephropathy resulted in milder kidney disease, improved survival and reduced glomerulosclerosis, interstitial fibrosis and inflammation.

Original article Gomez, I. G. *et al*. Anti-microRNA-21 oligonucleotides prevent Alport nephropathy progression by stimulating metabolic pathways. *J. Clin. Invest*. doi:10.1172/JCI75852

TRANSPLANTATION

Sirolimus: effects on malignancy and survival

Use of sirolimus after kidney transplantation is associated with a reduced risk of malignancy but an increased overall risk of death, according to findings of a systematic review and meta-analysis. Knoll and colleagues analysed data from 5,876 participants of randomized controlled trials that compared immunosuppressive regimens with and without sirolimus. Sirolimus use was associated with a 40% reduction in the risk of malignancy and a 56% reduction in the risk of nonmelanoma skin cancer, but an increased risk of death (HR 1.43, 95% CI 1.21–1.71) compared with controls.

Original article Knoll, G. A. *et al*. Effect of sirolimus on malignancy and survival after kidney transplantation: systematic review and meta-analysis of individual patient data. *BMJ* **349**, g6679 (2014)

BASIC RESEARCH

Role of mTOR in regulation of ENaC activity

The epithelial Na^+ channel (ENaC) is a key regulator of Na^+ homeostasis and new findings show that mammalian target of rapamycin (mTOR) can modulate ENaC function. Gleason *et al*. found that administration of mTOR inhibitors to mice prevented mTOR-dependent phosphorylation and activation of the ENaC regulator SGK1, resulting in substantial natriuresis. The researchers then performed patch clamp studies on cortical tubule apical membranes to show that mTOR inhibition reduces ENaC activity.

Original article Gleason, C. E. *et al*. mTORC2 regulates renal tubule sodium uptake by promoting ENaC activity. *J. Clin. Invest*. doi:10.1172/JCI73935

SEPSIS

β1-adrenoreceptor blockade in sepsis

Activation of the sympathetic nervous system during sepsis is thought to be beneficial; however, excessive activation might cause damage. A new study to determine the effects of selective β1-adrenoceptor blockade on cardiac and renal function in sheep with hyperdynamic sepsis found that atenolol reduced heart rate and cardiac output, but not mean arterial pressure. The therapy did not alter the development of acute kidney injury or levels of pro-inflammatory cytokines, but resulted in increased levels of IL-10.

Original article Calzavacca, P. *et al*. Effects of selective β1-adrenoceptor blockade on cardiovascular and renal function and circulating cytokines in ovine hyperdynamic sepsis. *Crit. Care* **18**, 610 (2014)