IN BRIEF

METABOLIC DISEASE

Targeting aP2 reverses diabetes

Fatty acid-binding protein 4 (FABP4; also known as aP2) is an active adipokine that regulates hepatic glucose production and systemic glucose homeostasis and has been implicated in the pathogenesis of diabetes. However, therapeutically targeting FABP4 has so far been challenging. Now, Burak *et al.* identify a FABP4-specific monoclonal antibody — CA33 — that improved glucose metabolism, decreased fat mass, increased systemic insulin sensitivity and reduced liver steatosis in genetic and dietary mouse obesity models.

ORIGINAL ARTICLE Burak, M. F. *et al.* Development of a therapeutic monoclonal antibody that targets secreted fatty acid–binding protein aP2 to treat type 2 diabetes. *Sci. Transl Med.* **7**, 319ra205 (2015)

DRUG DISCOVERY

Optimizing phenotypic screens

A key challenge in designing phenotypic screens is the selection of optimal imaging biomarkers. Here, Kang *et al.* present a method for systematically identifying the ORACL — optimal reporter cell line for annotating compound libraries — the phenotypic profile of which most accurately classifies compounds into multiple, diverse drug classes. The authors use the ORACL to carry out a single-pass phenotypic screen of several small-molecule compound libraries and validate drug class predictions in secondary assays.

ORIGINAL ARTICLE Kang J. *et al.* Improving drug discovery with high-content phenotypic screens by systematic selection of reporter cell lines. *Nat. Biotech.* **34**, 70–77 (2016)

KIDNEY DISEASE

AIM promotes recovery from AKI

The mechanisms underlying acute kidney injury (AKI) progression are incompletely understood, and there are currently no effective treatments available. Arai *et al.* report a key role of the apoptosis inhibitor of macrophage (AIM) in AKI recovery. During AKI in mice, AIM accumulates on necrotic cell debris within the kidney proximal tubules, interacting with kidney injury molecule 1 (KIM1) expressed on injured tubular epithelial cells to enhance phagocytic removal of debris. Treatment of mice subjected to severe ischaemia–reperfusion-induced AKI with recombinant AIM promoted the clearance of debris and reduced mortality.

ORIGINAL ARTICLE Arai, S. *et al.* Apoptosis inhibitor of macrophage protein enhances intraluminal debris clearance and ameliorates acute kidney injury in mice. *Nat. Med.* http://dx.doi.org/10.1038/nm.4012 (2016)

RESPIRATORY DISEASES

Lung airway-on-a-chip

The development of novel therapies for chronic respiratory diseases has been limited by the lack of appropriate preclinical models. Now, Benam *et al.* have engineered a human lung-derived 'small airway-on-a-chip' that contains a differentiated, mucociliary bronchiolar epithelium composed of cells isolated from healthy subjects or individuals with chronic obstructive pulmonary disease (COPD), underlined by a functional microvascular endothelium. The chips accurately recapitulated the features of asthma, lung inflammation and COPD exacerbations, and chip responses to therapies were consistent with previous clinical findings.

ORIGINAL ARTICLE Benam, K. H. *et al.* Small airway-on-a-chip enables analysis of human lung inflammation and drug responses in vitro. *Nat. Methods* http://dx.doi.org/10.1038/nmeth.3697 (2015)