IN BRIEF

PROSTATE CANCER

A polymeric paste for intratumoural therapy

Focal therapy using ST-4PC, an injectable, polymeric paste containing docetaxel (dtx) and bicalutamide (bic), has shown promise for focal therapy of prostate cancer. The in vitro characteristics of ST-4PC were tested using high-performance liquid chromatography to assess drug release and rodent models used to evaluate in vivo toxicity and efficacy. Sustained and steady release of the drugs was observed with no systemic toxicity. In a subcutaneous tumour model, 0.1%/4% and 0.25%/4% dtx/bic ST-4PC paste significantly reduced PSA progression but did not significantly reduce tumour volume, whereas in the orthotopic xenograft model ST-4PC loaded with 1%/4% dtx/bic significantly reduced tumour volume, serum PSA and bioluminescence. Further investigation of ST-4PC is warranted.

ORIGINAL ARTICLE Kesch, C. et al. A polymeric paste-drug formulation for intratumoral treatment of prostate cancer. *Prostate Cancer Prostatic Dis.* https://doi.org/10.1038/s41391-019-0190-x (2019)

TRANSGENDER MEDICINE

Testosterone and endothelial dysfunction

Transgender men are routinely treated with testosterone (T). As androgen excess in cisgender women is associated with endothelial dysfunction, the effect of testosterone in transgender men is of considerable clinical importance. Flow-mediated vasodilation (FMD) was assessed in 11 transgender men receiving testosterone and 20 cisgender women during early follicular phase. Total T and free T were both greater in transgender men than in cisgender women (484.6 ± 122.5 versus 1.5 ± 0.7 ng/dl and 83.9 ± 32.4 versus 1.9 ± 0.8 pg/dl, respectively). FMD was lower in transgender men than in cisgender women (4.5 ± 2.7% versus 8.1 ± 2.9%, $P = 0.002$), indicating significantly poorer endothelial function in transgender men. As endothelial function is a marker of cardiovascular risk, it should be carefully monitored as part of the management of transgender men.

ORIGINAL ARTICLE Gulanski, B. I. et al. Compromised endothelial function in transgender men taking testosterone. *Clin. Endocrinol.* https://doi.org/10.1111/cen.14132 (2019)

PAEDIATRICS

Embryonal precursors of Wilms tumour

Clonal expansion is a common early event in the development of adult malignancy, but whether this expansion is a precursor to childhood cancers was previously unknown. Phylogenetic analyses were used to study Wilms tumour in order to evaluate its origins. In 61% of cases, premalignant clonal expansions that preceded tumour development were identified in otherwise normal kidney tissue. These expansions were defined by somatic mutations shared between the tumour and normal tissues but not blood cells. Furthermore, hypermethylation of *H19*, a known driver of Wilms tumour, was observed in 58% of the expansions. Analyses of bilateral tumours suggested that clonal expansions can evolve before the embryological divergence of the left and right kidneys, suggesting that embryonal precursors are present, from which both unilateral and multifocal tumours arise.

ORIGINAL ARTICLE Coorens, T. H. H. et al. Embryonal precursors of Wilms tumor. *Science* **366**, 1247–1251 (2019)

FROM THE MEETING

Taking stones out of the box

Credit: P. Morgan/Springer Nature Limited

At the beginning of December 2019, the StoneLab Scientific Symposium at the American Urological Association (AUA) Headquarters in Linthicum, Maryland, USA, brought together a wide range of scientists, clinicians and sponsors engaged in kidney stone disease (KSD) and related areas. Co-sponsored by the AUA and the Endourological Society with programmatic support from the ROCK Society, meeting Chairs Khurshid Ghani (University of Michigan) and Ben H. Chew (University of British Columbia, Chair of Research of the Endourological Society) created a truly multidisciplinary symposium with a wide and varied scope.

"As KSD is an increasing health-care burden and new technologies for treatment and data analysis are becoming established, we felt a meeting that brings together endourologists with scientists at the forefront of these techniques could help catalyse the next wave of ideas and collaborative research in KSD," Ghani tells *Nature Reviews Urology*. "Thus, the overall aim of the StoneLab symposium was to improve collaboration and the generation of new ideas to advance the field and patient care."

Supported by a planning committee of a further 10 key experts in KSD, the team designed an exciting 2-day programme that attracted ~150 attendees, resulting in the largest scientific meeting hosted at the AUA headquarters to date. Creating an inclusive and collaborative symposium format while maintaining focus on the application of ideas and concepts to KSD-focused research and care was essential to ensure that the participants from diverse professional backgrounds would benefit.

"We realized the meeting had to be directed by talks from the scientists with panel discussions moderated by the urologists," explains Ghani. "Content included exciting discoveries in stone biology and formation: geobiology, chemistry, crystallization and microbiome. Engineering advances to break up stones was another area, as well as mechanisms of ureteral drug delivery and biomechanics of upper tract dysfunction. We had a session on how to put everything together using big data and machine learning, as these will soon be important tools. Finally, we looked at the process of scientific discovery and intellectual property with a session on research funding, working with the FDA and commercialization of inventions with the potential to improve clinical care."

The panel sessions at the end of each round of themed talks provided the opportunity to discuss presentations among all participants, ensuring that new insights became relevant and applicable to all attendees. The format was key in fulfilling the symposium aim of 'thinking outside the box' in the search for advances in KSD treatment.

"The meeting was a great way for people with similar interests to meet and make connections and we had terrific feedback from researchers, urologists and industry: everyone found it an incredibly stimulating meeting," summarizes Chew. "Our plan is to use this symposium as a starting point to keep the conversation going. Taking new relationships and collaborations to the next level is a challenge but, as one of the speakers said, "collaborate until it hurts" and that is how we will advance medical care for our patients."

Clemens Thoma