

Node Members

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Background:

- Rare Early Onset disorders of the Lower Urinary Tract (REOLUT) are the commonest cause of severe kidney failure in children in the UK.
- Such disorders have negative impacts on children's self-esteem, education and socialisation that are greater than most other physical diseases.
- They have been **greatly understudied** compared with rare kidney diseases and thus very little is known about the genetics and biology of these LUT disorders.
- We have discovered variants of several genes (**MYOCD, HPSE2 and LRIG2**) are associated with Mendelian LUT disorders including Megaureter and urofacial syndromes.

Our Hypotheses:

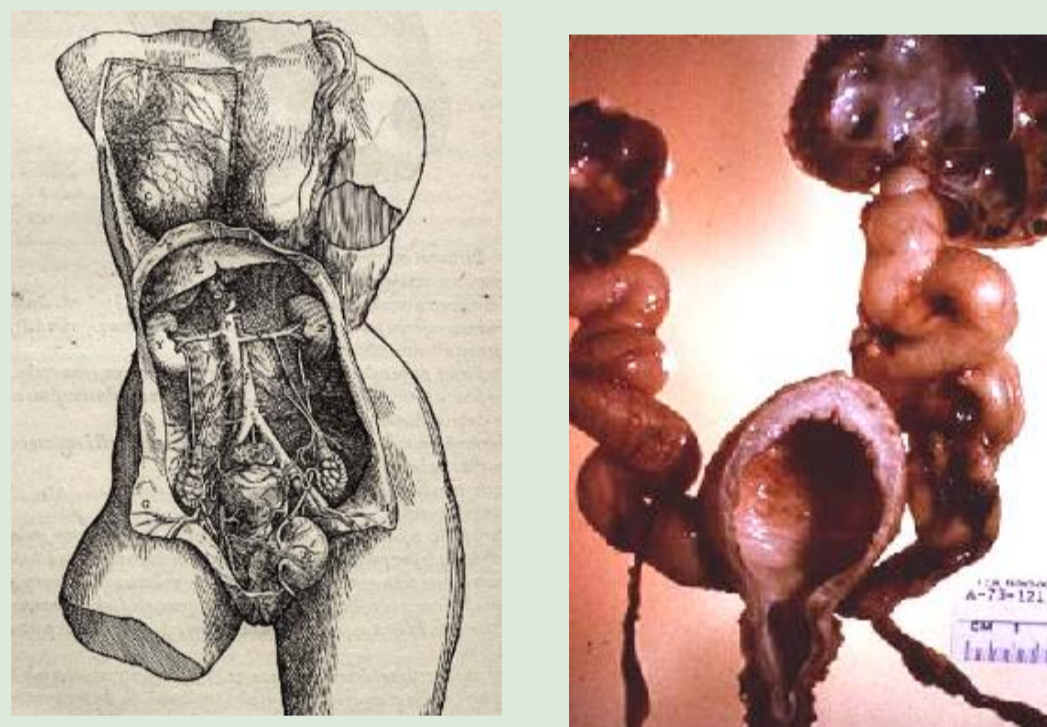
1. Variants in other genes cause these unexplained cases.
2. Understanding gene expression patterns in relevant tissues is an essential step towards therapies.
3. Developing vectors for gene therapy will transform the care of affected children.

PPIE Aim:

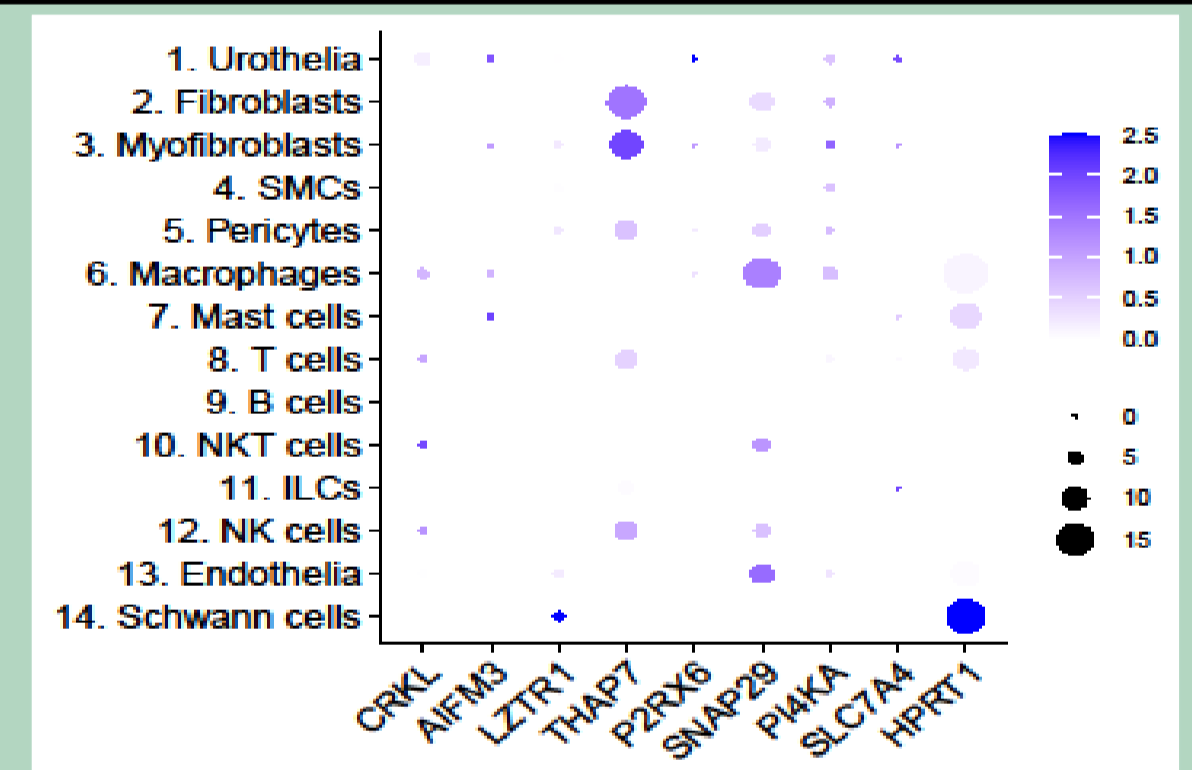
- Working with our partner **ERIC** (the children's bowel and bladder charity, <https://eric.org.uk>) and professional clinical groups **BAPU, BAPN and EPU**, we aim to create a **vibrant interactive network** of researcher, clinician and patient advocacy groups focused on improving the diagnosis and care of patients with REOLUT disorders.

Enabling Activities

Figure 1. Rare Early Onset Lower Urinary Tract (REOLUT) disorders

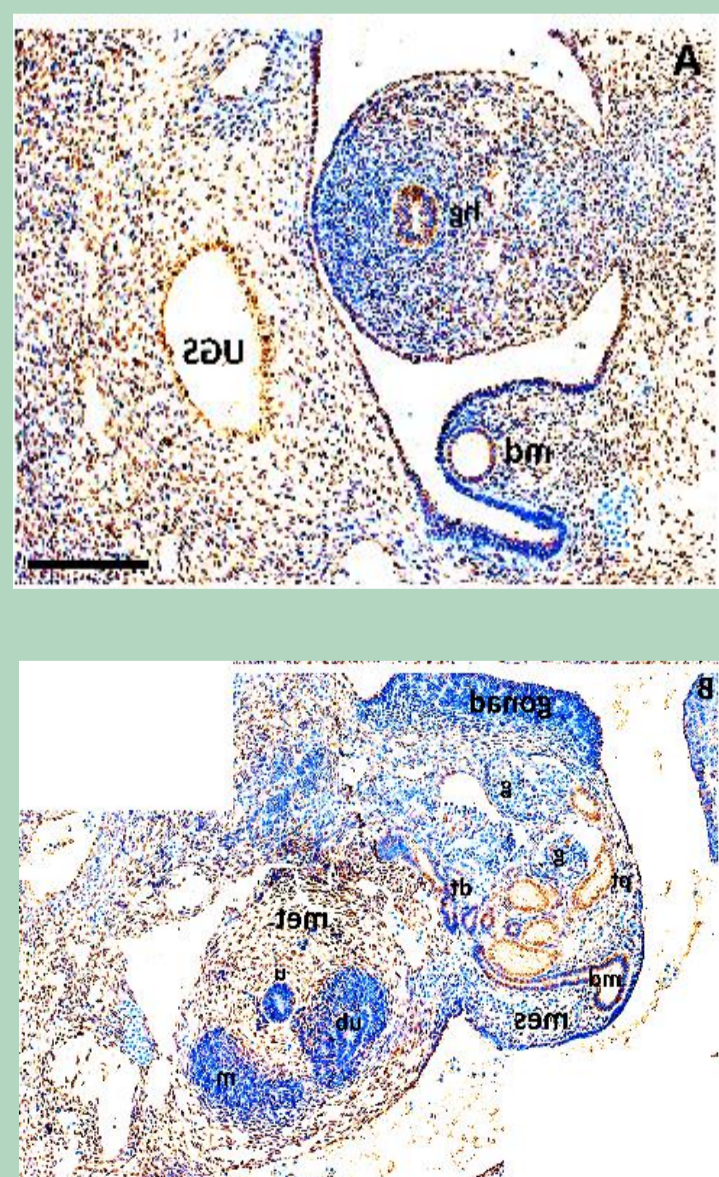
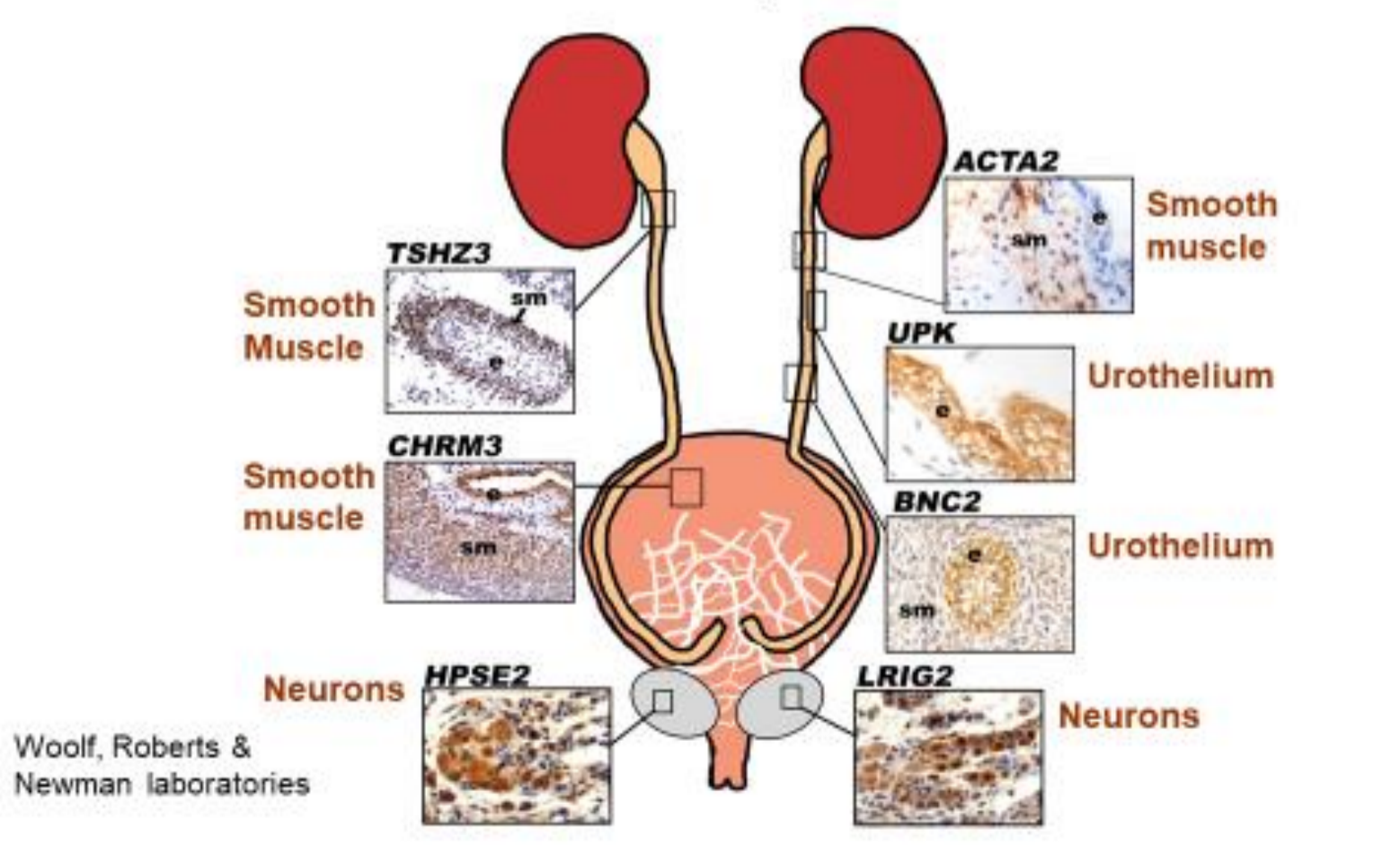


Project 2: Transcriptomics of human LUT cells

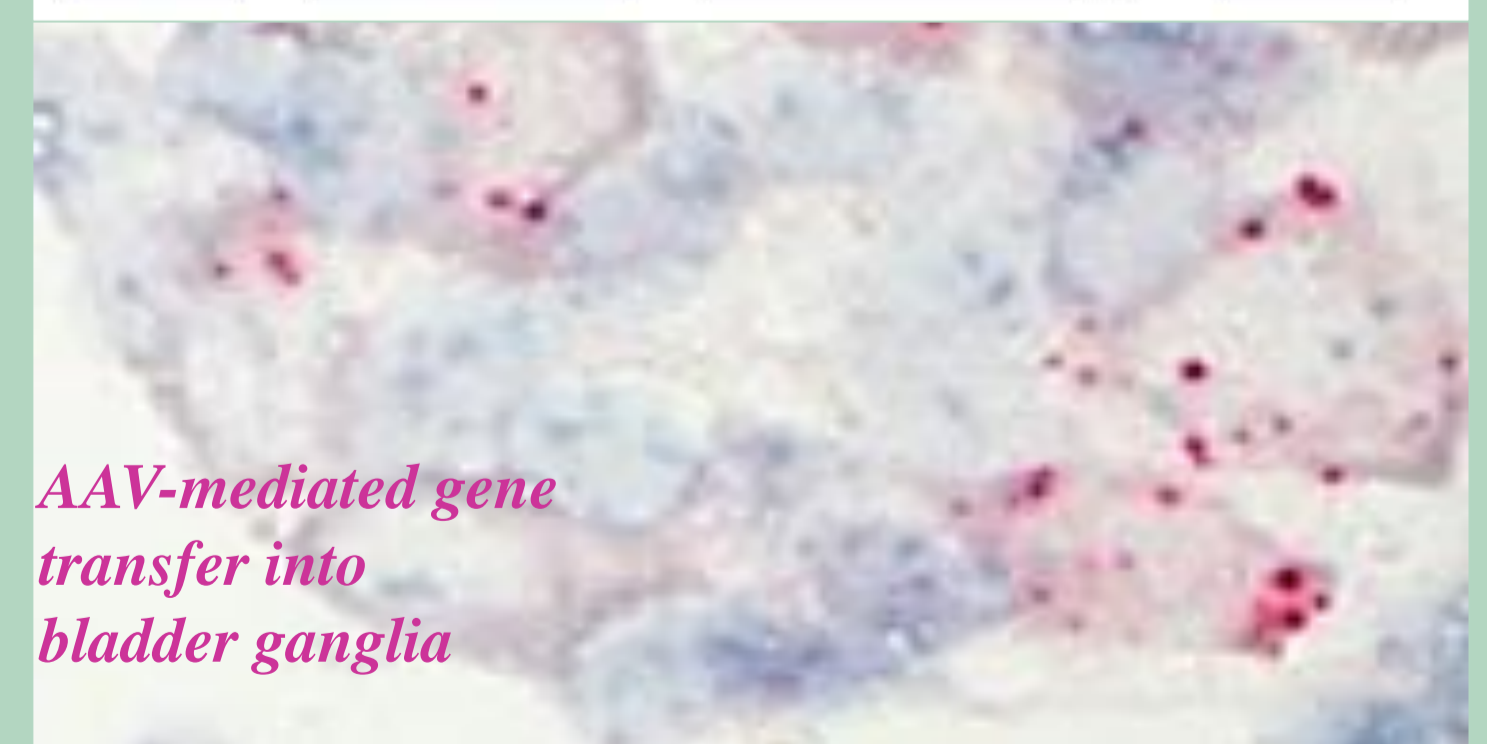
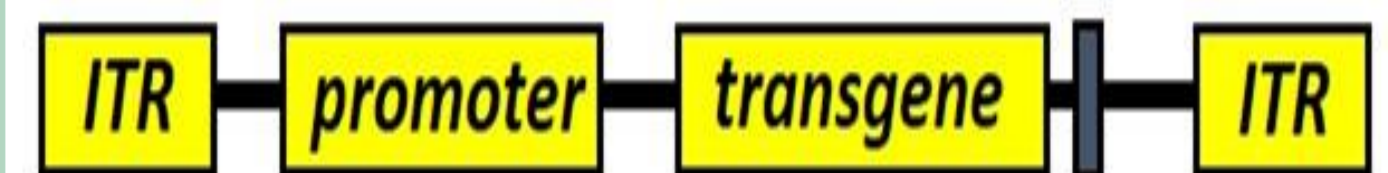


Project 1: Genomic discovery & mapping spatial expression of implicated genes during human development

Some monogenic causes of human bladder and lower urinary tract malformations



Project 3: Optimising gene transfer into human LUT cells as a prelude to gene therapy



AAV-mediated gene transfer into bladder ganglia

JOINTLY FUNDED BY



REOLUT WORKSHOP

Thursday 27th June (2pm)

UCL Great Ormond Street Institute of Child Health.

Contact d.long@ucl.ac.uk for more information.

