Supplemental Methods

Primary cultures of human kidney cells

Primary cultures of ADPKD and normal human kidney (NHK) cells were generated with the assistance of the PKD Biomaterials Research Core laboratory at the University of Kansas Medical Center (KUMC). Normal regions of human kidneys, confirmed by histological examination, were collected from nephrectomy specimens removed for the treatment of renal carcinomas. ADPKD kidneys were obtained from UMKC or hospitals participating in the Polycystic Kidney Research Retrieval Program with the assistance of the PKD Foundation (Kansas City, MO). The kidneys were packaged within ice and delivered to the laboratory overnight. A protocol for the use of discarded human tissues complies with federal regulations and was approved by the Institutional Review Board at KUMC.

Primary cell cultures were prepared as described [1]. Cells are propagated in DMEM/F12 supplemented with 5% FBS, 5 µg/ml insulin, 5 µg/ml transferrin and 5 ng/ml sodium selenite (ITS) and 100 IU/ml penicillin G and 0.1 mg/ml streptomycin. Primary cultures of ADPKD and NHK cells appear epithelial [1-3] and stain with *Arachis hypogaea* and *Dolichos biflorus*, lectins that bind the collecting ducts and distal tubules [4].

Reference:

1. Wallace, D.P., Grantham, J.J. & Sullivan, L.P. Chloride and fluid secretion by cultured human polycystic kidney cells. *Kidney Int* **50**, 1327-36 (1996).
2. Yamaguchi, T. et al. cAMP stimulates the in vitro proliferation of renal cyst epithelial cells by activating the extracellular signal-regulated kinase pathway. *Kidney Int* **57**, 1460-71 (2000).
3. Neufeld, T.K. et al. In vitro formation and expansion of cysts derived from human renal cortex epithelial cells. *Kidney Int* **41**, 1222-36 (1992).
4. Yamaguchi, T. et al. Cyclic AMP activates B-Raf and ERK in cyst epithelial cells from autosomal-dominant polycystic kidneys. *Kidney Int* **63**, 1983-94 (2003).