

Supplementary Table 2: cluster markers and annotations of dataset GSE131685 and GSE140989

| GSE131685 | Marker gene | Annotation                                     |                   |
|-----------|-------------|------------------------------------------------|-------------------|
|           | SLC13A3     | Proximal tubule                                |                   |
|           | SLC22A8     | Proximal convoluted tubule                     |                   |
|           | SLC22A7     | Proximal straight tubule                       |                   |
|           | KRT8        | Glomerular parietal epithelial cells           |                   |
|           | LYZ         | Monocytes                                      |                   |
|           | GNLY        | NK cells and T cells                           |                   |
|           | CD79A       | B cells                                        |                   |
|           | UMOD        | Distal tubule                                  |                   |
|           | AQP2        | Collecting duct principal cells                |                   |
|           | ATP6V1G3    | Collecting duct intercalated cells             |                   |
| GSE140989 | Marker gene | Annotation                                     | Abbreviation      |
|           | MT1HL1      | Proximal tubule cell                           | PT-1              |
|           | UMOD        | Thick ascending limb cell                      | TAL               |
|           | MT1H        | Proximal tubule cell                           | PT-2              |
|           | GSTA1       | Proximal tubule cell                           | PT-3              |
|           | CCL5        | Cytotoxic T cell                               | T-CYT             |
|           | PLVAP       | Endothelial cell, peritubular                  | EC-PT             |
|           | FXYP4       | Principal cell                                 | PC                |
|           | CALB1       | Cortical connecting tubule principal cell      | PC-CNT            |
|           | CUBN        | Proximal tubule cell                           | PT-4              |
|           | IL7R        | T cell, memory                                 | T-CYT-MEN         |
|           | DPEP1       | Proximal tubule cell                           | PT-5              |
|           | CD3E        | T cell, activated                              | T-cell(activated) |
|           | S100A8      | Myeloid cell                                   | MYL1              |
|           | ATP6V0D2    | Intercalated $\alpha$ cell                     | IC-A              |
|           | EHD3        | Glomerular capillary endothelial cell          | GC-EC             |
|           | TAGLN       | Vascular smooth muscle cell and mesangial      | vSMC/MCS          |
|           | VCAM1       | Descending thin limb cell                      | DTL               |
|           | RBP4        | Proximal tubule cell                           | PT -6             |
|           | DUSP9       | Distal convoluted tubule cell                  | DCT               |
|           | NKG7        | NK cell                                        | NKC               |
|           | HLA-DQB1    | Myeloid cell                                   | MYL-2             |
|           | SLPI        | Ascending thin limb cell                       | ATL:              |
|           | RBP4        | Parietal epithelial cell/loop of henle         | PEC               |
|           | SERPINE2    | Endothelial cell                               | EC-AEA            |
|           | SPINK1      | Transitioning principal cell/intercalated cell | tPC-IC:           |
|           | SLC12A3     | Conecting tubule                               | CNT               |
|           | ATP6V1G3    | Intercalated $\beta$ cell                      | IC-B              |
|           | NPHS2       | Podocyte                                       | POD               |
|           | CD79A       | B cell                                         | B cell            |
|           | DCN         | Fibroblast                                     | FIB               |