**Supplementary Table S1. Primer sequences used for real-time PCR.**

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| **Gene** Accession # | **Forward** | **Reverse** |
| **ACTB** NM\_001101.3 | GAGCACAGAGCCTCGCC | TCATCATCCATGGTGAGCTGG |
| **AQP1** NM\_001101.3 | CATCCTCTCAGGCATCACCTC | CACACCATCAGCCAGGTCATTG |
| **CAD16** NM\_004062.3 | AGCACGTGTGAAGTCGAAGT | ACTGAGGTTCTGGGAAGTGATG |
| **CD13** NM\_001150.2 | TGGCCACTACACAGATGCAG | CTGGGACCTTTGGGAAGCAT |
| **CTR1** NM\_001859.3 | TGATGCCTATGACCTTCTAC | GAATGCTGACTTGTGACTTAC |
| **CTR2** NM\_001860.3 | CTGTACTGTATGAAGGCATC | AAAGTGACACAAATACCACC |
| **CUBN** NM\_001081.3 | TAGCTTCGTGAAGGTGTGGG | GACTGGAAGACGGCAGTGAA |
| **ECAD** NM\_001317185.1 | CAGGACCAGGACTTTGACTT | AGATACCGGGGGACACTCAT |
| **GLUT5** NM\_003039.2 | GCCAAAGTGCACCCAGAATG | GTCAGCCTCCCTTCCTTCAT |
| **MDR1** NM\_000927 | AGTCGGAGTATCTTCTTC | TTGAATAGCGAAACATTGA |
| **MEG** NM\_004525.2 | GCCAGTGGCCAAGAATGTGA | TCCGCGTCATCTGAACAGTC |
| **NANOG** NM\_024865.3 | ACCTCAGCTACAAACAGGTGAA | AAAGGCTGGGGTAGGTAGGT |
| **NCAD** NM\_001792.4 | AGGCTTCTGGTGAAATCGCA | GCAGTTGCTAAACTTCACATTGAG |
| **OAT1** NM\_004790.4 | AGTATGGAGGTACTCCGGGC | GCATGGAGAGGCAGAGGAAG |
| **OAT3** NM\_004254.3 | CTTTGTGCCCTTGGACTTGC | GGAAGAGGCAGCTGAAGGAG |
| **OCT2** NM\_003058.4 | GAAGCCGAAAATATGCAAAG | TGCAGGGATTTCTACTTTTG |
| **OCT3/4** NM\_001285986.1 | ACCCACACTGCAGCAGATCA | CCACACTCGGACCACATCCT |
| **OCTN2** NM\_001308122.1 | CACCATTGTGACCGAGCAAG | AGCAGGCTTCTTTCCCATCC |
| **PEPT1** NM\_005073.3 | CAAGTGCATCGGTTTTGCCA | CTCTTTAGCCCAGTCCAGCC |
| **PEPT2** NM\_021082.3 | CTGGGAGGACAAGTGGTACA | AGTCCGTTCCTCTGCATGTT |
| **RPL32** NM\_001007074.1 | GTTACGACCCATCAGCCCTTG | CATGATGCCGAGAAGGAGATGG |
| **SGLT2** NM\_003041.3 | CAGTCTCCGGCATAGCAAGG | GGCCTGGGGCTCATTCATC |
| **SOX2** NM\_003106.3 | AGGATAAGTACACGCTGCCC | TAACTGTCCATGCGCTGGTT |
| **ZO1** NM\_003257.4 | GAGAGGATTTGTCCGCTCAG | AGGCCTCAGAAATCCAGCTT |

ACTB = β-actin, AQP1 = aquaporin-1, CAD16 = cadherin 16, CD13 = alanyl aminopeptidase, CTR1/2 = copper transporter 1/2, CUBN = cubilin, ECAD = E-cadherin, GLUT5 = glucose transporter 5, MDR1 = multidrug resistance protein 1, MEG = megalin, NANOG = homeobox protein, NCAD = N-cadherin, OAT1/3 = organic anion transporter 1, OCT 2 = organic cation transporter 2, OCT3/4 = octamer-binding transcription factor 3/4, OCTN2 = organic cation/carnitine transporter 2, PEPT1/2 = peptide transporter 1/2, RPL32 = , SGLT2 = sodium/glucose cotransporter 2, SOX2 = sex determining region Y-box 2, ZO1 = zonula occludens 1

**Supplementary Table S2. Antibodies used.**

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| **Protein** | **Order number** | **Company** | **Dilution used** |
| **AQP1** | ab9566 | Abcam | 1:300 |
| **CD13** | ab108310 | Abcam | 1:500 |
| **CTR1** | ab129067 | Abcam | 1:25 |
| **CTR2** | PA5-53246 | Thermo Scientific | 1:1000 |
| **ECAD** | 610181 | BD | 1:500 |
| **GAPDH** | 2118S | Cell Signalling | 1:4000 |
| **MEG** | ab236244 | Abcam | 1:500 |
| **OCT2** | MB59600162 | Biozol | 1:500 |
| **OCT3/4** | ab183900 | Abcam | 1:100 |
| **URO-10** | Sc-58889 | Santa Cruz biotech | 1:1000 |
| **ZO1** | 61-7300 | Thermo Scientific | 1:1000 |

AQP1 = aquaporin-1, CD13 = alanyl aminopeptidase, CTR1/2 = copper transporter 1/2, ECAD = E-cadherin, GAPDH = Glyceraldehyde 3-phosphate dehydrogenase, MEG = megalin, OCT2 = organic cation transporter 2, OCT4 = octamer-binding transcription factor 4, URO-10 = urothelial glycoprotein, ZO1 = zonula occludens 1

**Figure S1: Expression of differentiation markers in b4-hiPSC differentiated into proximal tubular epithelial cell like cells (PTELC).** Visualization of selected proteins by immunocytochemical staining on b4-hiPSC and b4 on differentiation day 9. Antibodies against the different markers are visualized with FITC-coupled secondary antibodies and nuclei are stained with DAPI. Aqp-1 = aquaporin-1, DAPI = 4′,6-diamidino-2-phenylindole, diffD = differentiation day, E-cad = E-cadherin, FITC = fluorescein isothiocyanate, hiPSC = human induced pluripotent cells, Oct-3/4 = octamer-binding transcription factor 3/4, Uro-10 = urothelial glycoprotein.