**Supplementary Table 5.** Kidney-disease gene panel and mean depth of coverage for targeted genes across individuals

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Gene** | | **OMIM ID** | | | | | **Description** | | | | **Mean depth of coverage** | | |
| *ACTN4* | | 604638 | | | | | Actinin alpha 4 | | | | 1057.84 | | |
| *ADCK4* | | 615567 | | | | | AarF domain containing kinase 4 | | | | 1073.85 | | |
| *AHI1* | | 608894 | | | | | Abelson helper integration site 1 | | | | 1332.96 | | |
| *ALMS1* | | 606844 | | | | | ALMS1, centrosome and basal body associated protein | | | | 1607.59 | | |
| *ANKS6* | | 615370 | | | | | Ankyrin repeat and sterile alpha motif domain containing 6 | | | | 1444.39 | | |
| *ANLN* | | 616027 | | | | | Anillin actin binding protein | | | | 1472.02 | | |
| *APOL1* | | 603743 | | | | | Apolipoprotein L1 | | | | 1444.38 | | |
| *ARHGAP24* | | 610586 | | | | | Rho GTPase activating protein 24 | | | | 1590.76 | | |
| *ARHGDIA* | | 601925 | | | | | Rho GDP dissociation inhibitor alpha | | | | 845.85 | | |
| *ARL6* | | 608845 | | | | | ADP ribosylation factor like GTPase 6 | | | | 1383.64 | | |
| *ATXN10* | | 611150 | | | | | Ataxin 10 | | | | 1400.38 | | |
| *B9D1* | | 614144 | | | | | B9 domain containing 1 | | | | 774.92 | | |
| *B9D2* | | 611951 | | | | | B9 protein domain 2 | | | | 1053.38 | | |
| *BBS1* | | 209901 | | | | | Bardet-Biedl syndrome 1 | | | | 1379.49 | | |
| *BBS10* | | 610148 | | | | | Bardet-Biedl syndrome 10 | | | | 1687.62 | | |
| *BBS12* | | 610683 | | | | | Bardet-Biedl syndrome 12 | | | | 1776.89 | | |
| *BBS2* | | 606151 | | | | | Bardet-Biedl syndrome 2 | | | | 1485.58 | | |
| *BBS4* | | 600374 | | | | | Bardet-Biedl syndrome 4 | | | | 1410.75 | | |
| *BBS5* | | 603650 | | | | | Bardet-Biedl syndrome 5 | | | | 1215.70 | | |
| *BBS7* | | 607590 | | | | | Bardet-Biedl syndrome 7 | | | | 1447.53 | | |
| *BBS9* | | 600374 | | | | | Bardet-Biedl syndrome 9 | | | | 1429.48 | | |
| *BICC1* | | 614295 | | | | | BicC family RNA binding protein 1 | | | | 1309.55 | | |
| *C21ORF58* | |  | | | | | Chromosome 21 open reading frame 58 | | | | 808.17 | | |
| *CC2D2A* | | 612013 | | | | | Coiled-coil and C2 domain containing 2A | | | | 1456.64 | | |
| *CD2AP* | | 604241 | | | | | CD2-associated protein | | | | 1378.19 | | |
| *CEP164* | | 614848 | | | | | Centrosomal protein 164 | | | | 1202.15 | | |
| *CEP290* | | 610142 | | | | | Centrosomal protein 290 | | | | 1328.64 | | |
| *CEP41* | | 610523 | | | | | Centrosomal protein 41 | | | | 1495.26 | | |
| *CEP83* | | 615847 | | | | | Centrosomal protein 83 | | | | 1390.68 | | |
| *CFH* | | 134370 | | | | | Complement factor H | | | | 1498.72 | | |
| *CFHR5* | | 608593 | | | | | Complement factor H related 5 | | | | 1395.11 | | |
| *COL4A1* | | 120130 | | | | | Collagen type IV alpha 1 chain | | | | 1366.26 | | |
| *COL4A3* | | 120070 | | | | | Collagen type IV alpha 3 chain | | | | 1348.38 | | |
| *COL4A4* | | 120131 | | | | | Collagen type IV alpha 4 chain | | | | 1339.62 | | |
| *COL4A5* | | 303630 | | | | | Collagen type IV alpha 5 chain | | | | 1020.38 | | |
| *COL4A6* | | 303631 | | | | | Collagen type IV alpha 6 chain | | | | 1036.88 | | |
| *COQ2* | | 609825 | | | | | Coenzyme Q2, polyprenyltransferase | | | | 1335.12 | | |
| *COQ6* | | 614647 | | | | | Coenzyme Q6, monooxygenase | | | | 1418.58 | | |
| **Gene** | **OMIM ID** | | | | | **Description** | | | **Mean depth of coverage** | | | | |
| *CRB2* | 609720 | | | | | Crumbs 2, cell polarity complex component | | | 882.93 | | | | |
| *CSPP1* | 611654 | | | | | Centrosome and spindle pole associated protein 1 | | | 1192.19 | | | | |
| *CUBN* | 602997 | | | | | Cubilin | | | 1525.75 | | | | |
| *DACH1* | 603803 | | | | | Dachshund family transcription factor 1 | | | 1146.61 | | | | |
| *DGKE* | 601440 | | | | | Diacylglycerol kinase epsilon | | | 1516.81 | | | | |
| *DYNC2H1* | 603297 | | | | | Dynein cytoplasmic 2 heavy chain 1 | | | 1221.63 | | | | |
| *EMP2* | 602334 | | | | | Epithelial membrane protein 2 | | | 1543.32 | | | | |
| *EYA1* | 601653 | | | | | EYA transcriptional coactivator and phosphatase 1 | | | 1529.69 | | | | |
| *FAN1* | 613534 | | | | | FANCD2- and FANCI-associated nuclease 1 | | | 1371.48 | | | | |
| *FLCN* | 607273 | | | | | Folliculin | | | 1349.67 | | | | |
| *GLA* | 300644 | | | | | Galactosidase alpha | | | 1179.78 | | | | |
| *GLIS2* | 608539 | | | | | GLIS family zinc finger 2 | | | 1011.68 | | | | |
| *HNF1B* | 189907 | | | | | HNF1 homeobox B | | | 1334.08 | | | | |
| *IFT122* | 606045 | | | | | Intraflagellar transport 122 | | | 1123.87 | | | | |
| *IFT140* | 614620 | | | | | Intraflagellar transport 140 | | | 971.29 | | | | |
| *IFT172* | 607386 | | | | | Intraflagellar transport 172 | | | 1445.74 | | | | |
| *IFT43* | 614068 | | | | | Intraflagellar transport 43 | | | 1023.68 | | | | |
| *INF2* | 610982 | | | | | Inverted formin, FH2 and WH2 domain containing | | | 830.30 | | | | |
| *INVS* | 243305 | | | | | Inversin | | | 1445.02 | | | | |
| *IQCB1* | 609237 | | | | | IQ motif containing B1 | | | 1380.35 | | | | |
| *ITGA3* | 605025 | | | | | Integrin subunit alpha 3 | | | 1135.85 | | | | |
| *ITGB4* | 147557 | | | | Integrin subunit beta 4 | | | | 1006.27 | | | | |
| *JAG1* | 601920 | | | | Jagged 1 | | | | 1253.96 | | | | |
| *KANK1* | 607704 | | | | KN motif and ankyrin repeat domains 1 | | | | 1408.09 | | | | |
| *KANK2* | 614610 | | | | KN motif and ankyrin repeat domains 2 | | | | 1004.68 | | | | |
| *KANK4* | 614612 | | | | KN motif and ankyrin repeat domains 4 | | | | 1172.26 | | | | |
| *KIF14* | 611279 | | | | Kinesin family member 14 | | | | 1356.48 | | | | |
| *LAMA5* | 601033 | | | | laminin alpha 5 | | | | 607.01 | | | | |
| *LAMB2* | 150325 | | | | Laminin subunit beta 2 | | | | 1186.09 | | | | |
| *LMX1B* | 602575 | | | | LIM homeobox transcription factor 1 beta | | | | 1069.55 | | | | |
| *LZTFL1* | 606568 | | | | Leucine zipper transcription factor like 1 | | | | 1439.17 | | | | |
| *MET* | 164860 | | | | MET proto-oncogene, receptor tyrosine kinase | | | 1475.20 | | | | | |
| *MKKS* | 604896 | | | | McKusick-Kaufman syndrome | | | 1480.13 | | | | | |
| *MKS1* | 609883 | | | | Meckel syndrome, type 1 | | | 1335.02 | | | | | |
| *MUC1* | 158340 | | | | Mucin 1, cell surface associated | | | 1020.69 | | | | | |
| *MYH9* | 160775 | | | | Myosin heavy chain 9 | | | 1092.50 | | | | | |
| *MYO1E* | 601479 | | | | Myosin IE | | | 1416.64 | | | | | |
| *NEIL1* | 608844 | | | | Nei like DNA glycosylase 1 | | | 1296.39 | | | | | |
| *NEK1* | 604588 | | | | NIMA-related kinase 1 | | | 1294.38 | | | | | |
| *NEK8* | 609799 | | | NIMA-related kinase 8 | | | | 1226.30 | | | | | |
| *NOTCH2* | 600275 | | | Notch 2 | | | | | | 1583.12 | | |
| **Gene** | | | **OMIM ID** | | | **Description** | | | | | | **Mean depth of coverage** | |
| *NPHP1* | | | 607100 | | | Nephrocystin 1 | | | | | | 1338.16 | |
| *NPHP3* | | | 608002 | | | Nephrocystin 3 | | | | | | 1422.61 | |
| *NPHP4* | | | 607215 | | | Nephrocystin 4 | | | | | | 1158.91 | |
| *NPHS1* | | | 602716 | | | Nephrin | | | | | | 1178.71 | |
| *NPHS2* | | | 604766 | | | Podocin | | | | | | 1337.41 | |
| *NUP107* | | | 607617 | | | Nucleoporin 107 | | | | | | 1326.10 | |
| *NUP205* | | | 614352 | | | Nucleoporin 205 | | | | | | 1256.14 | |
| *NUP93* | | | 614351 | | | Nucleoporin 93 | | | | | | 1136.91 | |
| *NXF5* | | | 300319 | | | Nuclear RNA export factor 5 | | | | | | 1045.87 | |
| *OFD1* | | | 300170 | | | OFD1, centriole and centriolar satellite protein | | | | | | 1012.72 | |
| *PAX2* | | | 167409 | | | Paired box 2 | | | | | | 968.83 | |
| *PDE6D* | | | 602676 | | | Phosphodiesterase 6D | | | | | | 1300.68 | |
| *PDSS2* | | | 610564 | | | Decaprenyl diphosphate synthase subunit 2 | | | | | | 1557.17 | |
| *PKD1* | | | 601313 | | | Polycystin 1 | | | | | | 851.68 | |
| *PKD2* | | | 173910 | | | Polycystin 2 | | | | | | 1365.88 | |
| *PKHD1* | | | 606702 | | | Fibrocystin/polyductin | | | | | | 1572.14 | |
| *PLCE1* | | | 608414 | | | Phospholipase C epsilon 1 | | | | | | 1563.82 | |
| *POC1A* | | | 614783 | | | POC1 centriolar protein A | | | | | | 1124.36 | |
| *PODXL* | | | 602632 | | | Podocalyxin like | | | | | | 1442.32 | |
| *PRKCSH* | | | 177060 | | | Protein kinase C substrate 80K-H | | | | | | 1027.69 | |
| *PTPRO* | | | 600579 | | | Protein tyrosine phosphatase, receptor type O | | | | | | 1360.29 | |
| *REN* | | | 179820 | | | Renin | | | | | | 1241.00 | |
| *RPGRIP1L* | | | 610937 | | | RPGRIP1 like | | | | | | 1506.50 | |
| *SCARB2* | | | 602257 | | | Scavenger receptor class B member 2 | | | | | | 1498.08 | |
| *SCLT1* | | | 611399 | | | Sodium channel and clathrin linker 1 | | | | | | 1164.06 | |
| *SDCCAG8* | | | 613524 | | | Serologically defined colon cancer antigen 8 | | | | | | 1359.74 | |
| *SDHB* | | | 185470 | | | Succinate dehydrogenase complex iron sulfur subunit B | | | | | | 1249.37 | |
| *SDHD* | | | 602690 | | | Succinate dehydrogenase complex subunit D | | | | | | 1184.33 | |
| *SEC63* | | | 608648 | | | SEC63 homolog, protein translocation regulator | | | | | | 1460.50 | |
| *SIX1* | | | 601205 | | | SIX homeobox 1 | | | | | | 1301.18 | |
| *SIX2* | | | 604994 | | | SIX homeobox 2 | | | | | | 1009.47 | |
| *SIX5* | | | 600963 | | | SIX homeobox 5 | | | | | | 725.96 | |
| *SLC41A1* | | | 610801 | | | Solute carrier family 41 member 1 | | | | | | 1329.44 | |
| *SMARCAL1* | | | 606622 | | | SWI/SNF-related, matrix-associated, actin-dependent regulator of chromatin, subfamily a like 1 | | | | | | 1382.73 | |
| *TBC1D32* | | | 615867 | | | TBC1 domain family member 32 | | | | | | 1176.94 | |
| *TCTN2* | | | 613846 | | | Tectonic family member 2 | | | | | | 1366.97 | |
| *TFAP2A* | | | 107580 | | | Transcription factor AP-2 alpha | | | | | | 1102.33 | |
| *TMEM138* | | | 614459 | | | Transmembrane protein 138 | | | | | | 1379.59 | |
| *TMEM216* | | | 613277 | | | Transmembrane protein 216 | | | | | | 1381.34 | |
| *TMEM231* | | | 614949 | | | Transmembrane protein 231 | | | | | | 1200.41 | |

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| **Gene** | **OMIM ID** | **Description** | **Mean depth of coverage** |
| *TMEM237* | 614423 | Transmembrane protein 237 | 1449.96 |
| *TMEM67* | 609884 | Transmembrane protein 67 | 1326.68 |
| *TRAF3IP1* | 607380 | TRAF3 interacting protein 1 | 1154.90 |
| *TRIM32* | 602290 | Tripartite motif containing 32 | 1636.49 |
| *TRPC6* | 603652 | Transient receptor potential cation channel subfamily C member 6 | 1456.93 |
| *TSC1* | 605284 | TSC complex subunit 1 | 1610.65 |
| *TSC2* | 191092 | TSC complex subunit 2 | 1070.88 |
| *TTC21B* | 612014 | Tetratricopeptide repeat domain 21B | 1404.98 |
| *TTC8* | 608132 | Tetratricopeptide repeat domain 8 | 1302.07 |
| *UMOD* | 191845 | Uromodulin | 1242.36 |
| *VHL* | 608537 | Von Hippel-Lindau tumor suppressor | 1255.56 |
| *WDPCP* | 613580 | WD repeat containing planar cell polarity effector | 1381.42 |
| *WDR19* | 608151 | WD repeat domain 19 | 1416.47 |
| *WDR34* | 613363 | WD repeat domain 34 | 656.11 |
| *WDR35* | 613602 | WD repeat domain 35 | 1437.01 |
| *WDR60* | 615462 | WD repeat domain 60 | 1095.31 |
| *WDR73* | 616144 | WD repeat domain 73 | 1188.57 |
| *WT1* | 607102 | Wilms tumor 1 | 1230.02 |
| *XPNPEP3* | 613553 | X-prolyl aminopeptidase 3 | 1436.62 |
| *XPO5* | 607845 | Exportin 5 | 1501.99 |
| *ZNF423* | 604557 | Zinc finger protein 423 | 1419.09 |