

Common Variants in Mendelian Kidney Disease Genes and Their Association with Renal Function and CKD -- The CKDGen Consortium

Supplementary Information

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Supplementary Table 1: OMIM search entries categorized as "glomerular/developmental".

OMIM reference	Disease name	Genes	Phenotype
170995	ZELLWEGER SYNDROME 2, ZWS2	<i>ABCD3</i>	peroxisomal import of fatty acids, renal cysts
106180	ANGIOTENSIN I-CONVERTING ENZYME, ACE	<i>ACE</i>	renal tubular dysgenesis and early anuria
603278	FOCAL SEGMENTAL GLOMERULOSCLEROSIS 1, FSGS1	<i>ACTN4</i>	FSGS with nephrotic syndrome, may lead to ESRD
608104	CONGENITAL DISORDER OF GLYCOSYLATION TYPE 1h, CDG1H	<i>ALG8</i>	hypoglycosylation of glycoproteins leading to diffuse renal microcysts
209900	BARDET-BIEDL SYNDROME, BBS: 1-15	<i>ARL6, MKKS, TRIM32, MKS1, CEP290, WDPCP, TTC8, BBS:1,2,4,5,7,9,10, 12</i>	developmental abnormalities with common renal failure
124200	DARIER-WHITE DISEASE, DAR	<i>ATP2A2</i>	uncommon development abnormality with renal failure
124000	MITOCHONDRIAL COMPLEX III DEFICIENCY	<i>BCS1L, UQCRLB, UQCRLQ</i>	tubulointerstitial nephritis
607932	SYNDROMIC MICROPTHALMIA 6, MCOPS6	<i>BMP4</i>	hypoplastic kidneys, renal failure possible
602522	BARTTER SYNDROME, TYPE 4A	<i>BSND</i>	hypokalemic metabolic alkalosis with urine concentrating defect due to defect in basolateral chloride channel
609057	NEPHROPATHY WITH PRETIBIAL EPIDERMOLYSIS BULLOSA AND DEAFNESS	<i>CD151</i>	glomerular basement membrane assembly, can lead to ESRD
604241	CD2-ASSOCIATED PROTEIN; CD2AP	<i>CD2AP</i>	FSGS with ESRD
602868	HOMOLOG OF CELL DIVISION CYCLE 5, S. POMBE; CDC5L	<i>CDC5L</i>	cystic renal dysplasia, pelviureteric junction obstruction
610188	JOUBERT SYNDROME 5, JBTS5	<i>CEP290</i>	nephronophthisis with renal failure
611134	MECKEL SYNDROME, TYPE 4, MKS4	<i>CEP290</i>	renal cysts, renal failure likely
277180	CONGENITAL BILATERAL APLASIA OF VAS DEFERENS, CBAVD	<i>CFTR</i>	renal malformations and dysfunction
203780	AUTOSOMAL RECESSIVE ALPORT SYNDROME	<i>COL4A3, COL4A4</i>	defect in type IV collagen alpha-3 and alpha-4 chains, with basement membrane defect leading to ESRD

141200	THIN BASEMENT SYNDROME	<i>COL4A3, col4a4</i>	nonprogressive isolated microscopic hematuria without ESRD
607426	COENZYME Q10 DEFICIENCY	<i>COQ2, APTX, PDSS2, CABC1, COQ9</i>	coenzyme Q10 deficiency; FSGS with nephrotic proteinuria described
608836	LETHAL NEONATAL CARNITINE PALMITOYLTRANSFERASE II DEFICIENCY	<i>CPT2</i>	mitochondrial long-chain fatty-acid oxidation disorder; cysts and dysplastic parenchyma
270400	SMITH-LEMLI-OPITZ SYNDROME, SLOS	<i>DHCR7</i>	renal hypoplasia with possible renal failure
277300	SPONDYLOCOSTAL DYSOSTOSIS 1	<i>DLL3</i>	renal dysplasia and ureteral abnormalities
242860	IMMUNODEFICIENCY-CENTROMERIC INSTABILITY-FACIAL ANOMALIES SYNDROME 1, ICF1	<i>DNMT3B</i>	renal dysplasia with renal failure
226980	Multiple EPIPHYSEAL DYSPLASIA WITH EARLY-ONSET DIABETES MELLITUS	<i>EIF2AK3</i>	abnormality in collagen synthesis, translation factor, renal failure possible
610965		<i>ERCC4</i>	rare renal hypoplasia with failure
268300	ROBERTS SYNDROME, RBS	<i>ESCO2</i>	rare occurrence of polycystic kidney, horseshoe kidney
231680	GLUTARIC ACIDURIA II	<i>ETFA, EFTB, ETFDH</i>	cortical cysts, selective proximal tubular damage with aciduria; unique ultrastructural change in glomerular basement membrane; aplasia and FSGS described
113650	BRANCHIOOTORENAL SYNDROME 1, BOR1	<i>EYA1</i>	dysplasia, polycystic renal collecting duct with likely renal failure
227650	FANCONI ANEMIA	<i>FANCA, FANCC, FANCE, FANCF, FANCG, FANCI, FANCL, FANCM, PALB2, BRIP1</i>	CAKUT, renal malformations
227646	FANCONI ANEMIA, COMPLEMENTATION GROUP D2	<i>FANCD2</i>	hypoplastic
219100	AUTOSOMAL RECESSIVE CUTIS LAXA, TYPE I	<i>FBLN5, EFEMP2</i>	fibromuscular dysplasia in renal arteries; congenital hydronephrosis, urethral diverticulae
147950	KALLMANN SYNDROME 2, KAL2	<i>FGFR1</i>	Renal agenesis and vesicoureteral reflux
207410	ANTLEY-BIXLER SYNDROME, ABS	<i>FGFR2</i>	kidney dysplasia with renal failure
149730	LACRIMO-AURICULO-DENTODIGITAL SYNDROME, LADD	<i>FGFR2, FGF10</i>	agenesis, sclerosis, can lead to renal failure

612247	CROUZON SYNDROME WITH ACANTHOSIS NIGRICANS, CAN	<i>FGFR3</i>	rare renal dysplasia and membranous nephropathy; with renal failure
601090	FORKHEAD, DROSOPHILA, HOMOLOG-LIKE 7; FKHL7	<i>FOXC1</i>	CAKUT; ureter defect (duplication)
153400	LYMPHEDEMA-DISTICHIASIS SYNDROME	<i>FOXC2</i>	chronic sclerosing glomerulopathy and chronic tubulointerstitial nephritis with possible proteinuria and ESRD
265380	ALVEOLAR CAPILLARY DYSPLASIA WITH MISALIGNMENT OF PULMONARY VEINS, ACDMPV	<i>FOXF1</i>	bilateral pelviureteric junction obstruction (PUJO) with secondary hydronephrosis, renal failure likely
219000	FRASER SYNDROME	<i>FRAS1</i>	Renal agenesis/hypoplasia with likely failure
608980	BIFID NOSE WITH OR WITHOUT ANORECTAL AND RENAL ANOMALIES, BNAR	<i>FREM1</i>	renal development, agenesis; renal failure
146255	HYPOPARATHYROIDISM, SENSORINEURAL DEAFNESS AND RENAL DISEASE	<i>GATA3</i>	renal dysplasia with nephrosis, can lead to renal failure
146510	PALLISTER-HALL SYNDROME, PHS	<i>GLI3</i>	Renal dysplasia/agenesis, with likely failure
204000	LEBER CONGENITAL AMAUROSIS 1, LCA1	<i>GUCY2D</i>	Dysplasia, rena; failure possible
130650	BECKWITH-WIEDEMANN SYNDROME, BWS	<i>H19, CDKN1C, KCNQ1OT1</i>	primary malformations, renal medullary dysplasia, Wim's tumor, nephrocalcinosis and nephrolithiasis
13792	TRANSCRIPTION FACTOR 2; TCF2	<i>HNF1B</i>	renal cyst, renal dysplasia and hypoplasia
140000	HAND-FOOT-UTERUS SYNDROME	<i>HOXA13</i>	ureterovesical reflux with renal failure due to recurrent urinary tract infections
192350	VACTERL ASSOCIATION with hydrocephalus	<i>HOXD13</i>	dysplasia, hydronephrosis with likely failure
218040	COSTELLO SYNDROME	<i>HRAS</i>	Disruption of elastic fiber production, renal abnormalities and failure possible
261515	D-BIFUNCTIONAL PROTEIN DEFICIENCY	<i>HSD17B4</i>	disorder of peroxisomal fatty acid beta-oxidation, renal cortical microcysts described
223900	HEREDITARY SENSORY AND AUTONOMIC NEUROPATHY TYPE III, HSN3	<i>IKBKAP</i>	glomerulosclerosis, renal failure
613237	FOCAL SEGMENTAL GLOMERULOSCLEROSIS 5; FSGS5	<i>INF2</i>	FSGS, may lead to ESRD
213300	JOUBERT SYNDROME 1, JBTS1	<i>INPP5E</i>	Renal cysts (less common)

602088	NEPHRONOPHTHISIS 2, NPHP2	<i>INVS</i>	polyuria, polydipsia, isosthenuria, and ESRD at median age 1 year due to chronic tubulointerstitial nephritis
118450	ALAGILLE SYNDROME 1, ALGS1	<i>JAG1</i>	Renal dysplasia, Renal mesangiolipidosis, Medullary cystic disease
170390	ANDERSEN CARDIODYSRHYTHMIC PERIODIC PARALYSIS	<i>KCNJ2</i>	renal hypoplasia with possible renal failure
115150	CARDIOFACIOCUTANEOUS SYNDROME	<i>KRAS, BRAF, MAP2K1, MAP2K2</i>	hydronephrosis
609049	PIERSON SYNDROME	<i>LAMB2</i>	congenital nephrotic syndrome with diffuse mesangial sclerosis due to loss of laminin beta-2 expression; may lead to early-onset ESRD
161200	NAIL PATELLA SYNDROME	<i>LMX1B</i>	Nephropathy resembling glomerulonephritis, may lead to early-onset ESRD
222448	DONNAI-BARROW SYNDROME	<i>LRP2</i>	proteinuria due to defect in megalin receptor in proximal kidney tubule
601186	MICROPTHALMIA, SYNDROMIC 9, MCOPS9	<i>STRA6</i>	Horseshoe kidney, hydronephrosis, hypoplasia, can lead to ESRD
236700	MCKUSICK-KAUFMAN SYNDROME, MKKS	<i>MKKS</i>	Reproductive system developmental abnormalities, possible association with renal failure. Overlap with BBS6 syndrome.
249000	MECKEL SYNDROME TYPE 1	<i>MKS1</i>	polycystic kidney disease due to dysfunction of primary cilia
153640	FECHTNER SYNDROME; FTNS	<i>MYH9</i>	FSGS with ESRD
122470	CORNELIA DE LANGE SYNDROME 1, CDLS1	<i>NIPBL, SMC3</i>	VUR, renal hypoplasia, renal cysts; renal failure
610205	ALAGILLE SYNDROME 2	<i>NOTCH2</i>	Renal developmental abnormalities. Associated with variety of renal phenotypes, including ESRD
256100	FAMILIAL JUVENILE NEPHRONOPHTHISIS 1	<i>NPHP1</i>	polyuria, polydipsia, isosthenuria, and ESRD at median age 13 years due to chronic tubulointerstitial nephritis
604387	NEPHRONOPHTHISIS 3, NPHP3	<i>NPHP3</i>	polyuria, polydipsia, isosthenuria, and ESRD at median age 19 years due to chronic tubulointerstitial nephritis
606966	NEPHRONOPHTHISIS 4, NPHP4	<i>NPHP4</i>	polyuria, polydipsia, isosthenuria, and ESRD at ages of 11-34 years due to chronic tubulointerstitial nephritis
610189	SENIOR -LOKEN SYNDROME 6	<i>CEP290</i>	polyuria, polydipsia, isosthenuria, and ESRD at ages of 11-13 years due to chronic tubulointerstitial nephritis
256300	Finnish congenital nephrosis, NPHS1	<i>NPHS1</i>	FSGS, may lead to nephrotic proteinuria and ESRD
600995	steroid resistant nephrotic syndrome, NPHS2	<i>NPHS2</i>	FSGS, may lead to nephrotic proteinuria and ESRD
117550	SOTOS SYNDROME	<i>NSD1</i>	rare vesicoureteric reflux

170993	ZELLWEGER SYNDROME 3, ZWS3	<i>PAF1</i>	small cysts in the renal cortices
120330	PAPILLORENAL SYNDROME	<i>PAX2</i>	CAKUT, renal hypoplasia, may lead to ESRD
214100	ZELLWEGER SYNDROME, ZS	<i>PEX1, 5, 6, 12, 14, 26, PXMP3</i>	Absent renal peroxisomes, Renal cortical microcysts, Hydronephrosis; kidney failure and nephrocalcinosis possible
173900	AUTOSOMAL DOMINANT POLYCYCTIC KIDNEY DISEASE, ADPK	<i>PKD1</i>	renal cysts with progressive loss of kidney function, lead to ESRD
613095	AUTOSOMAL DOMINANT POLYCYCTIC KIDNEY DISEASE, ADPK	<i>PKD2</i>	renal cysts with progressive loss of kidney function, lead to ESRD
263200	AUTOSOMAL RECESSIVE POLYCYCTIC KIDNEY DISEASE, ARPK	<i>PKHD1</i>	collecting-duct ectasia, cyst formation, may lead to ESRD
610725	EARLY-ONSET NEPHROTIC SYNDROME, NPHS3	<i>PLCE1</i>	FSGS or diffuse mesangial sclerosis, may lead to nephrotic proteinuria and ESRD
212065	CONGENITAL DISORDER OF GLYCOSYLATION TYPE Ia, CDG1A	<i>PMM2</i>	developmental delay and multiple other symptoms, renal microcysts in some ; due to defect in sialylation of serum glycoproteins
610628	KALLMANN SYNDROME 4, KAL4	<i>PROK2</i>	renal agenesis with kidney failure
244200	KALLMANN SYNDROME 3, KAL3	<i>PROKR2</i>	reproductive dysfunction, angiogenesis; renal agenesis with renal failure
176920	PROTEUS SYNDROME	<i>PTEN</i>	rare renal dysplasia
276950	VACTERL ASSOCIATION WITH HYDROCEPHALUS	<i>PTEN</i>	Renal hypoplasia and associated dysfunction
151100	LEOPARD SYNDROME 1	<i>PTPN11</i>	unilateral renal agenesis and dysplasia, no renal failure described
603554	OMENN SYNDROME	<i>RAG1, RAG2, DCLRE1C</i>	Minimal change disease
182290	SMITH-MAGENIS SYNDROME, SMS	<i>RAI1</i>	genitourinary malformations, especially duplication of collecting system
218600	BALLER-GEROLD SYNDROME, BGS	<i>RECQL4</i>	renal dysplasia
613092	FAMILIAL JUVENILE HYPERURICEMIC NEPHROPATHY-2	<i>REN</i>	hyperuricemia and slowly progressive renal failure and hypoplasia leading to ESRD
267430	RENAL TUBULA DYSGENESIS	<i>REN, AGT, ACE, AGTR1</i>	absence or paucity of proximal tubules, fetal anuria
164761	RET PROTOONCOGENE	<i>RET</i>	renal agenesis, VUR
191830	RENAL ADYSPLASIA	<i>RET, UPK3A</i>	renal adysplasia, agenesis.
610878	VESICoureteral Reflux 2; VUR2	<i>ROBO2</i>	CAKUT; reflux nephropathy

268310	ROBINOW SYNDROME	<i>ROR2</i>	hydronephrosis, cystic dysplasia, nephrocalcinosis, and renal failure
113000	BRACHYDACTYLY TYPE B1, BDB1	<i>ROR2</i>	unilateral renal agenesis and dysplasia, no renal failure described
107480	TOWNES-BROCK'S SYNDROME, TBS	<i>SALL1</i>	hypoplastic kidney, multicystic kidneys, dysplastic kidneys, renal failure, bilaterally small kidneys
607323	DUANE-RADIAL RAY SYNDROME, DRRS	<i>SALL4</i>	hypoplasia, hydronephrosis with likely renal failure
147250	SOLITARY MEDIAN MAXILLARY CENTRAL INCISOR, SMMCI	<i>SHH</i>	ectopic kidneys, double renal pelves, and dilated ureters
601205	HOMOLOG OF SINE OCULIS HOMEODOMAIN, DROSOPHILA1; SIX1	<i>SIX1</i>	CAKUT, hypodysplasia, VUR
604994	HOMOLOG OF SINE OCULIS HOMEODOMAIN, DROSOPHILA 2; SIX2	<i>SIX2</i>	Renal hypodysplasia
610896	BRANCHIOOTORENAL SYNDROME 2, BOR2	<i>SIX5</i>	dysplastic and hypoplastic kidneys, renal failure
208050	ARTERIAL TORTUOSITY SYNDROME, ATS	<i>SLC2A10</i>	arterial tortuosity; rare duplication of collecting system, ectopic left kidney
193000	VESICOURETERAL REFLUX 1, VUR1	<i>SOX17</i>	CAKUT and ESRD
114290	CAMPOMELIC DYSPLASIA	<i>SOX9</i>	renal malformations
188400	DIGEORGE SYNDROME, DGS	<i>TBX1</i>	renal hypoplasia, renal insufficiency
137920	RENAL CYSTS AND DIABETES SYNDROME	<i>TCF2</i>	variable, abnormal renal development and mature onset diabetes of the young type 5
113620	BRANCHIOOCULO-FACIAL SYNDROME, BOFS	<i>TFAP2A</i>	agenesis, cysts, hydronephrosis, with possible renal failure
608091	JOUBERT SYNDROME 2, JBTS2	<i>TMEM216</i>	cystic, dysplastic kidneys with CKD and ESRD
607361	MECKEL SYNDROME TYPE 3, MKS3	<i>TMEM67</i>	Renal cystic dysplasia, can lead to renal failure
603965	FOCAL SEGMENTAL GLOMERULOSCLEROSIS 2, FSGS2	<i>TRPC6</i>	FSGS, may lead to nephrotic proteinuria and ESRD
191100	TUBEROUS SCLEROSIS 1, TSC1	<i>TSC1</i>	renal cysts, tumors (angiomyolipoma) without kidney failure
162000	FAMILIAL JUVENILE HYPERURICEMIC NEPHROPATHY-1	<i>UMOD</i>	isosthenuria, hyperuricemia, interstitial nephropathy and progression to ESRD
609886	GLOMERULOCYSTIC KIDNEY DISEASE WITH HYPERURICEMIA AND ISOSTHENURIA (GCKD)	<i>UMOD</i>	cystic dilation of Bowman's space, glomerular collapse and initial proximal tubule with isosthenuria and hyperuricemia; ESRD is possible.
603860	MEDULLARY CYSTIC KIDNEY DISEASE 2 (MCKD2)	<i>UMOD</i>	medullary cysts with gouty arthritis

611559	UROPLAKIN 3A; UPK3A	<i>UPK3A</i>	renal adysplasia, VUR
600390	UPSTREAM STIMULATORY FACTOR 2	<i>USF2</i>	cystic renal dysplasia and hypodysplasia
194190	WOLF-HIRSCHHORN SYNDROME, WHS	<i>WHSC1</i>	renal hypoplasia, renal failure likely
273395	TETRAAMELIA	<i>WNT3</i>	Renal agenesis and renal dysplasia, with likely failure
611812	FEMALE SEX REVERSAL WITH DYSGENESIS OF KIDNEYS, ADRENALS, AND LUNGS, SERKAL	<i>WNT4</i>	Dysgenesis of kidneys, renal dysfunction
158330	MULLERIAN APLASIA AND HYPERANDROGENISM	<i>WNT4</i>	Dysplasia; unilateral renal agenesis
194080	DENYS-DRASH SYNDROME	<i>WT1</i>	Pseudohermaphroditism, Wilms tumor, hypertension, and progressive renal disease.
136680	FRASIER SYNDROME	<i>WT1</i>	progressive glomerulopathy with nephrotic proteinuria, FSGS and ESRD
254900	ACTION MYOCLONUS-RENAL FAILURE SYNDROME, AMRF	<i>SCARB2</i>	FSGS, at times collapsing glomerulopathy, nephrotic syndrome and frequent renal failure.
612285	JOUBERT SYNDROME 6, JBTS6	<i>CCD2D2A</i>	Renal cysts, increase creatinine
612651	ENDOCRINE-CEREBROOSTEODYSPLASIA, ECO	<i>ICK</i>	Cystically dilated renal tubules
212780	CENANI-LENZ SYNDACTYLY SYNDROME; CLSS	<i>LRP4</i>	Renal agenesis and hypoplasia
164280	FEINGOLD SYNDROME	<i>MYCN</i>	Renal failure and dysplasia
225060	CLEFT LIP/PALATE-ECTODERMAL DYSPLASIA SYNDROME, CLPED1 OROFACIAL CLEFT 7, OFC7	<i>PVRL1</i>	Renal dysplasia
129900	ECTRODACTYLY, ECTODERMAL DYSPLASIA, AND CLEFT LIP/PALATE SYNDROME 1, EEC1	<i>TP63</i>	Renal dysplasia, reflux and hydroureter

Supplementary Table 2: OMIM search entries categorized as "tubular function"

OMIM reference	Disease name	Genes	Phenotype
182381	SOLUTE CARRIER FAMILY 5 (SODIUM/GLUCOSE COTRANSPORTER), MEMBER 2; SLC5A2	<i>SLC5A2</i>	Na(+)/glucose cotransporter, associated with renal glycosuria
125800	DIABETES INSIPIDUS, NEPHROGENIC, AUTOSOMAL	<i>AQP2</i>	Aquaporin 2, associated with diabetes insipidus
253260	BIOTINIDASE DEFICIENCY MULTIPLE CARBOXYLASE DEFICIENCY, LATE-ONSET	<i>BTD</i>	Renal biotin loss, acidosis
259730	OSTEOPETROSIS, AUTOSOMAL RECESSIVE 3, OPTB3	<i>CA2</i>	Isozymes of carbonic anhydrase, associated with RTA
170400	HYPOKALEMIC PERIODIC PARALYSIS, HOKPP	<i>CACNA1S, SCN4A</i>	Renal phosphate wasting, associated with hypokalemia and episodic weakness
145980	HYPOCALCIURIC HYPERCALCEMIA, FAMILIAL, TYPE I, HHC1 HYPOCALCIURIC HYPERCALCEMIA, ACQUIRED	<i>CASR</i>	PTH-independent renal tubular defect in calcium reabsorption, associated with hypercalcemia and hypermagnesemia
613090	BARTTER SYNDROME, TYPE 4B	<i>CLCNKA, CLCNKB</i>	Chloride channel defect with renal salt wasting, hypokalemic metabolic alkalosis, and hypercalciuria
607364	BARTTER SYNDROME, TYPE 3	<i>CLCNKB</i>	Voltage-gated chloride channels, associated with salt wasting, hypokalemic alkalosis, hypercalciuria and renal failure
248250	HYPOMAGNESEMIA 3, RENAL, HOMG3	<i>CLDN16</i>	Hypomagnesemia associated with nephrocalcinosis and secondary renal failure
255120	CARNITINE PALMITOYLTRANSFERASE I DEFICIENCY	<i>CPT1A</i>	Decreased fatty acid beta-oxidation, associated with RTA. Move to secondary cause section

261100	MEGALOBlastic ANEMIA 1	<i>CUBN, AMN</i>	Associated with tubular proteinuria and rare malformation of the urinary tract
166250	OSTEOGLOPHONIC DYSPLASIA, OGD	<i>FGFR1</i>	FGF receptor, associated with renal phosphate waisting
154020	HYPOMAGNESEMIA 2, RENAL, HOMG2	<i>FXRD2</i>	Renal hypomagnesemia, associated with decreased calciuria
211900	TUMORAL CALCINOSIS, HYPERPHOSPHATEMIC, FAMILIAL, HFTC	<i>GALNT3, FGF23</i>	Increase renal absorption of phosphate, associated with deposition of basic calcium phosphate crystals
261000	INTRINSIC FACTOR DEFICIENCY; IFD	<i>GIF</i>	Cobolamin transport, associated with tubular proteinuria
266130	GLUTATHIONE SYNTHETASE DEFICIENCY	<i>GSS</i>	Urinary excretion of 5-oxoproline, associated with metabolic acidosis, RTA
140350	HAWKINSINURIA	<i>HPD</i>	Amino acid defect, impaired conversion of 4-hydroxyphenylpyruvate, associated with RTA
612780	SEIZURES, SENSORINEURAL DEAFNESS, ATAXIA, MENTAL RETARDATION, AND ELECTROLYTE IMBALANCE	<i>KCNJ10</i>	Potassium channel, associated with potassium, magnesium and sodium waisting
215600	CIRRHOSIS, FAMILIAL CIRRHOSIS, FAMILIAL, WITH PULMONARY HYPERTENSION	<i>KRT8</i>	Amino aciduria, associated with cryptogenic cirrhosis, rare diabetes insipidus
223000	LACTASE DEFICIENCY, CONGENITAL	<i>LCT</i>	Lactate and hydrolase deficiency, associated with RTA and medullary nephrocalcinosis
251000	METHYLMALONIC ACIDURIA DUE TO METHYLMALONYL-CoA MUTASE DEFICIENCY	<i>MUT</i>	Methylmalonic acidemia, chronic tubulointerstitial nephropathy, renal failure
605115	PSEUDOHYPOLADDOSTERONISM TYPE-1, HYPERTENSION, EARLY-ONSET	<i>NR3C2</i>	Resistance to aldosterone, salt handling, HTN
241200	BARTTER SYNDROME, ANTENATAL, TYPE 2	<i>KCNJ1</i>	Potassium channel, associated with salt wasting, hypokalemic alkalosis, hypercalciuria, low blood pressure and nephrocalcinosis

143870	HYPERCALCIURIA, ABSORPTIVE, 2, HCA2	<i>ADCY10, HCA1</i>	Absorptive hypercalciuria, associated with nephrolithiasis
264350	PSEUDOHYPOALDOSTERONISM, TYPE I, AUTOSOMAL RECESSIVE, PHA1	<i>SCNN1A, SCNN1B, SCNN1G</i>	Pseudohypoaldosteronism, associated with salt wasting, unresponsive to mineralocorticoids
263800	GITELMAN SYNDROME	<i>SLC12A3</i>	Impaired renal electrolyte transport, associated with hypokalemic alkalosis, hypomagnesemia and hypocalciuria
220150	HYPOURICEMIA, RENAL, 1, RHUC1	<i>SLC22A12</i>	Uric acid nephrolithiasis and exercise induced renal failure
274600	PENDRED SYNDROME, PDS	<i>SLC26A4</i>	Renal bicarbonate secretion, overt renal phenotype
241530	HYPOPHOSPHATEMIC RICKETS WITH HYPERCALCIURIA, HEREDITARY, HHRH	<i>SLC34A3</i>	Phosphaturia and calciuria
220100	CYSTINURIA CYSTINURIA, TYPE A	<i>SLC3A1, SLC7A9</i>	Defective transport of cystine and dibasic amino acids through renal tubules, associated with cystine precipitation, obstruction and renal failure
179800	RENAL TUBULAR ACIDOSIS, DISTAL, AUTOSOMAL DOMINANT	<i>SLC4A1</i>	Distal RTA with nephrocalcinosis
604278	RENAL TUBULAR ACIDOSIS, PROXIMAL, WITH OCULAR ABNORMALITIES AND MENTAL RETARDATION	<i>SLC4A4</i>	Sodium bicarbonate cotransporter, associated with RTA
233100	RENAL GLUCOSURIA, GLYS1	<i>SLC5A2</i>	sodium-dependent glucose transport proteins, associated with renal glycosuria
222700	LYSINURIC PROTEIN INTOLERANCE, LPI	<i>SLC7A7</i>	Defective cationic amino acid (CAA) transport in kidney, associated with increased renal excretion of CAA, orotic aciduria
612287	NEPHROLITHIASIS/OSTEOPOROSIS, HYPOPHOSPHATEMIC, 2	<i>SLC9A3R1</i>	Sodium/hydrogen exchanger regulatory cofactor, associated with renal phosphate wasting and calcium nephrolithiasis

612073	MITOCHONDRIAL DNA DEPLETION SYNDROME, ENCEPHALOMYOPATHIC FORM, WITH METHYLMALONIC ACIDURIA, AUTOSOMAL RECESSIVE	<i>SUCLA2</i>	Possibly mitochondrial DNA depletion, rare renal tubular dysfunction
259700	OSTEOPETROSIS, AUTOSOMAL RECESSIVE 1, OPTB1	<i>TCIRG1</i>	Carbonic anhydrase II deficiency, associated with RTA
602014	HYPOMAGNESEMIA 1, INTESTINAL, HOMG1	<i>TRPM6</i>	Severe urinary magnesium wasting
145260	PSEUDOHYPOALDOSTERONISM, TYPE II, PHA2, TYPE IIA, PHA2A	<i>WNK4, WNK1</i>	Hyperkalemia and hypertension with normal renal function
601678	BARTTER SYNDROME, ANTENATAL, TYPE 1	<i>SLC12A1</i>	Sodium/potassium/chloride coupled transport. Associated with salt wasting, hypokalemic alkalosis, hypercalciuria, low BP, nephrocalcinosis
177200	LIDDLE SYNDROME	<i>SCNN1B, SCNN1G</i>	hypertension due to constitutive activation of renal epithelial sodium channel; renal failure rare
25600	LEIGH SYNDROME, DUE TO COX DEFICIENCY	<i>SURF1</i>	Severe proximal RTA
156400	METAPHYSEAL CHONDRODYSPLASIA, MURK JANSSEN TYPE	<i>PTH1R</i>	hypercalcemia, hypophosphatemia, and increased renal excretion of phosphate
208085	ARTHROGRYPOSIS, RENAL DYSFUNCTION, AND CHOLESTASIS 1; ARCS1	<i>VPS33B</i>	Renal tubular cell degeneration, RTA, Fanconi syndrome, nephrogenic diabetes insipidus
613404	ARTHROGRYPOSIS, RENAL DYSFUNCTION, AND CHOLESTASIS 2	<i>VIPAR</i>	Renal tubular cell degeneration, RTA, Fanconi syndrome, nephrogenic diabetes insipidus

Supplementary Table 3: OMIM search entries categorized as "secondary"

OMIM ref.	Disease name	Genes	Phenotype
277900	WILSON DISEASE	<i>ATP7B</i>	Accumulation of intracellular copper, associated with nephrolithiasis
102700	SEVERE COMBINED IMMUNODEFICIENCY, AUTOSOMAL RECESSIVE	<i>ADA</i>	Severe combined immunodeficiency disease, associated with renal mesangial sclerosis
274150	THROMBOTIC THROMBOCYTOPENIC PURPURA, CONGENITAL; TTP	<i>ADAMTS13</i>	microangiopathic hemolysis and thrombocytopenia
259900	HYPEROXALURIA, PRIMARY, TYPE I	<i>AGXT</i>	Calcium oxalate accumulation and renal failure
240300	AUTOIMMUNE POLYENDOCRINE SYNDROME, TYPE I, APS1 POLYGLANDULAR DEFICIENCY SYNDROME, PERSIAN-JEWISH TYPE	<i>AIRE</i>	Associated with rare chronic interstitial nephritis and renal failure
229600	FRUCTOSE INTOLERANCE, HEREDITARY	<i>ALDOB</i>	cytoplasmic accumulation of fructose-1-phosphate, depletion of tissue ATP
105200	AMYLOIDOSIS, FAMILIAL VISCERAL	<i>APOA1, FGA, LYZ</i>	Amyloidosis with renal failure
611771	LIPOPROTEIN GLOMERULOPATHY, LPG	<i>APOE</i>	Glomerular lipoprotein accumulation, renal failure
102600	ADENINE PHOSPHORIBOSYLTRANSFERASE, APRT UROLITHIASIS, 2,8-DIHYDROXYADENINE	<i>APRT</i>	Disturbance in 2,8-dihydroxyadenine resulting in urolithiasis and renal failure
267300	RENAL TUBULAR ACIDOSIS, DISTAL, WITH PROGRESSIVE NERVE DEAFNESS	<i>ATP6B1</i>	Component of vacuolar ATPase, associated with RTA
602722	RENAL TUBULAR ACIDOSIS, DISTAL, AUTOSOMAL RECESSIVE, RTADR	<i>ATP6V0A4</i>	Vacuolar ATPase associated with RTA and nephrocalcinosis
203300	HERMANSKY-PUDLAK SYNDROME, HPS	<i>BLOC1S3</i>	Lysosomal ceroid storage disorder, associated with renal failure
120550	COMPLEMENT COMPONENT 1, q SUBCOMPONENT, C1QA DEFICIENCY	<i>C1QA</i>	Complement pathway, associated with SLE and GN
120700	COMPLEMENT COMPONENT 3, C3, C3a	<i>C3</i>	Reduced binding to factor H, immunocomplex deposition, associated with atypical HUS and GN.
609814	COMPLEMENT FACTOR H DEFICIENCY, MPGN, TYPE II	<i>CFH</i>	Hypocomplementemic nephropathy and MPGN-II with renal failure

610984	COMPLEMENT FACTOR I DEFICIENCY GLOMERULONEPHRITIS WITH ISOLATED C3 DEPOSITS AND FACTOR I DEFICIENCY	<i>CFI</i>	Deficiency of the C3 inactivator associated with GN and renal failure
219900	CYSTINOSIS, LATE-ONSET JUVENILE OR ADOLESCENT NEPHROPATHIC TYPE	<i>CTNS</i>	Lysosomal related cystinosis with glomerular damage and renal failure
187300	TELANGIECTASIA, HEREDITARY HEMORRHAGIC, OF RENDU, OSLER, AND WEBER, HHT	<i>ENG</i>	Vascular dysplasia, associated with rare hematuria
216400	COCKAYNE SYNDROME, TYPE A; CSA	<i>ERCC8</i>	Immune complex mediated GN
276700	TYROSINEMIA, TYPE I, FAH	<i>FAH</i>	Tyrosine increase with tubular dilatation
137950	GLOMERULOPATHY WITH FIBRONECTIN DEPOSITS 1	<i>FN1</i>	Fibrin deposition in glomerulus, associated with renal failure
232200	GLYCOGEN STORAGE DISEASE I, G6PC	<i>G6PC</i>	glycogen storage with renal failure
232240	GLYCOGEN STORAGE DISEASE Ic, Id, ; GSD1D,	<i>SLC37A4</i>	Glycogen storage, associated with proteinuria and renal failure
230500	GM1-GANGLIOSIDOSIS, TYPE I	<i>GLB1</i>	Accumulation of ganglioside in glomerulus
230600	GM1-GANGLIOSIDOSIS, TYPE II , GM1, LATE-INFANTILE TYPE	<i>GLB1</i>	Lysosome storage with rare renal failure
227810	FANCONI-BICKEL SYNDROME, FBS	<i>SLC2A2</i>	Glycogen accumulation with tubular dysfunction
260000	HYPEROXALURIA, PRIMARY, TYPE II	<i>GRHPR</i>	Hyperoxaluria, associated with nephrolithiasis
105120	AMYLOIDOSIS, FINNISH TYPE CEREBRAL AMYLOID ANGIOPATHY, GSN- RELATED	<i>GSN</i>	Amyloid deposition with nephrotic syndrome and renal failure
235400	HEMOLYTIC UREMIC SYNDROME, TYPICAL, ATYPICAL	<i>CFHR3, CFHR1</i>	thrombotic microangiopathy with renal failure
245900	LECITHIN:CHOLESTEROL ACYLTRANSFERASE DEFICIENCY	<i>LCAT</i>	lipoprotein metabolism with proteinuria and renal failure
155950	MELORHEOSTOSIS	<i>LEMD3</i>	Renal arterial-venous malformation, stenosis, associated with renal failure
608709	BARRAQUER-SIMONS SYNDROME	<i>LMNB2</i>	Partial lipodystrophy, C3 hypocomplementemia and MPGN
134610	FAMILIAL MEDITERRANEAN FEVER, AUTOSOMAL DOMINANT	<i>MEFV</i>	amyloidosis

277400	METHYLMALONIC ACIDURIA AND HOMOCYSTINURIA, cbIC TYPE	<i>MMACHC</i>	Thrombotic microangiopathic nephropathy, hematuria, proteinuria and renal failure
226600	EPIDERMOLYSIS BULLOSA DYSTROPHICA, AUTOSOMAL RECESSIVE, RDEB. LOCALISATA VARIANT	<i>MMP1</i>	Amyloidosis associated with renal failure
256000	LEIGH SYNDROME, LS	<i>NDUFS7</i>	Mitochondrial disorder, associated with proximal tubular dysfunction secondary to lactic acidosis
256550	NEURAMINIDASE DEFICIENCY SIALIDOSIS, TYPE I,	<i>NEU1</i>	lysosomal storage, sialyloligosaccharides in the urine
162200	NEUROFIBROMATOSIS, TYPE I, NF1	<i>NF1</i>	Vascular neurofibromatosis, vasculopathy and renal artery stenosis
266150	PYRUVATE CARBOXYLASE DEFICIENCY	<i>PC</i>	Disturbance in gluconeogenesis, lipogenesis, insulin secretion and synthesis of glutamate, associated with RTA
266500	REFSUM DISEASE, ADULT	<i>PHYH</i>	Oxidation of 3-methyl branched fatty acids leading to vacuolization of glomerular and tubular, associated with mesangial sclerosis
239500	HYPERPROLINEMIA, TYPE I, HPI	<i>PRODH</i>	Hyperprolinemia with tubular overload and dysfunction
604416	PYOGENIC STERILE ARTHRITIS, PYODERMA GANGRENOSUM, AND ACNE	<i>PSTPIP1</i>	Proteinuria, possibly immune mediated
242900	IMMUNOSKELETAL DYSPLASIA, SCHIMKE TYPE	<i>SMARCA1</i>	GN with nephrotic syndrome and renal failure
239000	PAGET DISEASE, JUVENILE	<i>TNFRSF11B</i>	Altered osteoblast activity, associated with nephrolithiasis
278300	XANTHINURIA, TYPE I	<i>XDH</i>	Deficiency of xanthine dehydrogenase, associated with xanthine stones and hypouricemia

Supplementary Table 4: Characteristics of stage 1 discovery and stage 2 replication studies

Study	Sample Size eGFRcrea/CKD/eGFRcys	Women % (n)	Age [years]	eGFRcrea [ml/min/1.73 m ²]	eGFRcys [ml/min/1.73 m ²]	CKD % (n)	DM % (n)	HTN % (n)
Stage 1 discovery								
AGES	3219/3219/NA	58.0(1867)	76.4 (5.46)	73.0 (20.0)	NA	24.2(781)	11.5(368)	80.6 (2595)
Amish Studies	1211/NA/783	48.9 (592)	49.5 (16.9)	93.7 (19.7)	114.9 (18.0)	3.1 (37)	1.7 (20)	18.9 (229)
ARIC	8982/8982/7145	53.1 (4767)	61.8 (6.1)	81.4 (17.5)	84.2 (19.7)	8.7 (782)	14.2 (1276)	40.7 (3643)
ASPS	848/848/NA	56.8 (482)	65.2 (8.0)	96.5 (39.9)	NA	8.1 (69)	9.2 (78)	72.5 (615)
BLSA	723/723/-	46.1 (333)	70.4 (15.2)	80.3 (23.1)	NA	17.4 (126)	7.7 (55)	21.9 (147)
Cardiovascular Health Study (CHS)	2820/2353/2475	61.3 (1729)	71.9 (5.0)	77.3 (20.8)	81.0 (17.9)	9.5 (224)	11.0 (307)	51.4 (1441)
ERF	2079/2079/NA	56.3 (1171)	49.2 (14.0)	93.5 (21.4)	NA	3.7 (76)	6.6 (138)	52.5 (1092)
Family Heart Study	883 / 883	51.1 (451)	55.5 (11.1)	88.5 (19.4)	NA	4.4 (39)	7.1 (62)	30.1 (266)
Framingham Heart Study	7782/4140/2992	54.3(4229)	51.2(14.0)	91.7(21.7)	83.8 (17.8)	10.8 (445)	6.4 (496)	29.3 (2283)
GENOA	1163/1163/	56.3 (655)	59 (10.2)	87.7 (24)	NA	10.7 (125)	15.3 (178)	73.3 (852)
Health ABC	1663/1663/1663	47.1 (784)	73.8 (2.8)	71.2 (14.8)	77.0 (19.9)	25.0 (415)	13.0 (216)	63.7 (1060)
Health Professionals Follow-Up Study	818/818	0 (0)	64.7 (8.3)	85.2 (22.7)	NA	9.5 (78)	100 (818)	59 (479)
KORA F3	1641/1641/1642	50.5 (831)	62.5 (10.1)	83.9 (21)	111.8 (26.3)	10.8 (177)	11.1 (179)	41.1 (674)
KORA F4	1814/1814/1811	51.3 (930)	60.9 (8.9)	85.1 (20.2)	109.7 (26.2)	7% (127)	9.2% (167)	20.9 (379)
Korcula	888/888/NA	64.0 (568)	56.3 (13.9)	87.3 (20.6)	NA	7.5 (67)	13.1 (116)	54.2 (474)
MICROS	1201/1201/1198	56.5 (678)	46.2 (16.1)	94.6 (20.9)	107.4 (23.8)	3.8 (46)	4.3 (49)	37.7 (437)
NSPHS	565/565/NA	53.1 (300)	51.7 (18.3)	91.0 (22.1)	NA	5.7 (32)	7.8 (44)	43.4 (242)
Nurses' Health Study	786/786	100 (786)	59.5 (6.5)	86.2 (22.1)	NA	10.7 (84)	100 (786)	70 (554)
ORCADES	704/704/NA	53.6 (377)	54.2 (15.2)	89.4 (20.7)	NA	6.8 (48)	4.0 (28)	41.8 (287)
Popgen	1163/1163/NA	44.4 (516)	54.8 (13.9)	88.1 (18.8)	NA	5.1 (59)	3.8 (44)	46.8 (541)
Rotterdam Study - I	4390/4390/NA	61.4 (2696)	70.0 (9.0)	77.1 (17.2)	NA	13.7 (600)	10.7 (470)	34.1 (1497)
Rotterdam Study - II	1863/1863/NA	54.5 (1015)	64.8 (8.0)	81.3 (17.2)	NA	9.1 (169)	11.1 (207)	28.4 (530)
SHIP	3228/3228/3228	51.7 (1670)	54.5 (15.3)	90.4 (23.6)	97.1 (25.3)	7.7 (248)	11.2 (362)	51.1 (1649)
SORBS	856/856/0	58.5(501)	48.8(15.7)	92.2(19.0)	NA	4.1(35)	9.3 (80)	53.2 (455)
Vis	768/768/NA	58.6 (450)	56.9 (15.2)	88.2 (22.1)	NA	6.9 (53)	12.0 (91)	52.2 (396)
WGHS	21940	21940 (100)	55 (7.1)	90 (22.5)	NA	1329 (6.1)	554 (2.5)	5374 (24.5)

Stage 2 replication studies								
3 city Study	5413/5413/1018	61.3 (3319)	74.08 (5.4)	72.9 (16.5)	91.5 (25.4)	20.3 (1100)	9.6 (515)	78.5 (4250)
BMES	2424/2424/0	56.8 (1376)	69.4 (9.5)	78.7 (20.2)	NA	13.2 (320)	10.9 (264)	76.4 (1852)
CILENTO	817/817/NA	55.2 (451)	54.2 (18.1)	88.7 (21.8)	NA	7.9 (65)	10.4 (85)	38.5 (315)
CoLaus	5409/5409/-	52.93 (2863)	53.43 (10.75)	90.20 (19.52)	NA	3.85 (208)	9.65 (352)	36.21 (1957)
EGCUT	893/14/0	49.2 (439)	37.9 (15.8)	101.1 (20.4)	NA	1.6 (14)	1.8 (16)	22.6 (202)
FamHS	1426 / 1426	56.9 (812)	47.8 (13.2)	93.7 (19.7)	NA	2.2 (31)	4.2 (59)	18.0 (256)
GODARTS	2942/2893	46.4(1368)	66.2(10.7)	65.5(20.5)	NA	14.5(427)	100%	46.6(1368)
INGI-Carlantino-Project	447/0/0	60.8(272)	50.4 (16.2)	93.9 (22.4)	0	0	9.4 (42)	34.9 (156)
INGI-FVG-Project	874/874/0	59.4 (519)	52.4 (16.5)	90.6 (21.8)	0	6 (52)	6.7 (59)	48.8 (427)
JUPITER	8780/8780/NA	32.2(2826)	66.1(7.8)	80.1(18.1)	NA	11.5(1008)	0.6(54)	63.8(5602)
KORA F3 non-GWAS	1498/1498/1493	52.5 (785)	51.6 (13.3)	92.6 (21.3)	123.5 (29.5)	5.5 (82)	5.1 (76)	29.4 (437)
KORA F4 non-GWAS	1201/1201/1198	52.4 (629)	49.2 (15.4)	92.6 (22.4)	118.5 (27.5)	5.8 (70)	4 (48)	13.3 (159)
OGP	3000/3000/NA	57.9 (1737)	63.3 (12.6)	78.7 (23.3)	NA	22.6 (677)	22.6 (679)	35.9 (1078)
OGP-Talana	862/862/NA	57.3 (494)	50.9 (19.1)	91.2 (23.6)	NA	7.5 (65)	5.1 (44)	37.3 (322)
PROSPER/PHASE	5236	51.7 (2718)	75.3(3.4)	72.0 (21.4)	NA	29.6 (1549)	10.4 (544)	62.1 (3251)
SAPALDIA	6026/6026/0	50.2 (3026)	52.2 (11.4)	90.7 (17.3)	NA	2.9 (174)	2.9 (172)	27.5 (1619)
SAPHIR	1721/1721/NA	37.1 (639)	51.4 (6.0)	91.7 (16.1)	NA	1.1 (19)	3.3 (56)	55.7 (959)
Val Borbera	1636/1636/NA	55.8 (913)	55.3 (17.9)	89.2 (23.3)	NA	8.5 (139)	6.5 (107)	43.8 (717)
Young Finns (YFS)	2023/2023/0	54.7 (1107)	37.7 (5.0)	100.3 (15.8)	NA	0.2 (5)	2.1 (42)	20.0 (404)

Supplementary Table 5: Stage 1 association results of GWAS meta-analysis of eGFRcrea

Results are from meta-analysis of a total of 74,354 subjects, using the inverse variance weighted fixed effects method. Gene-specific significance thresholds were defined according to the Bonferroni method, as $0.05 / \text{number of independent linkage disequilibrium blocks within each gene}$ (number of independent blocks were identified by grouping SNPs in LD as defined by $r^2 > 0.2$, based on HAPMAP Phase 2 release 21), NA = no available common SNP listed in HAPMAP. eGFR = estimated glomerular filtration rate, CKD = eGFR < 60 ml/min/1.73m²

Gene	MarkerName	Coded allele frequency	beta	SE	P-value	LD blocks	Bonferroni-adjusted significance threshold, (p-value)	Heterogeneity p-value	Significant
<i>ABCD3</i>	rs17410643	0.09	-0.005	0.0025	0.0517	6	0.0083	0.329	No
<i>ACE</i>	rs4357	0.08	-0.0047	0.004	0.2435	3	0.0167	0.2966	No
<i>ACTN4</i>	rs755690	0.44	-0.0035	0.0012	0.0041	3	0.0167	0.4496	Yes
<i>ADA</i>	rs6031689	0.86	-0.0051	0.002	0.0095	8	0.0063	0.2938	No
<i>ADAMTS13</i>	rs3124776	0.52	-0.0024	0.0013	0.0535	5	0.0100	0.7967	No
<i>ADCY10</i>	rs6427107	0.23	-0.0035	0.0015	0.0175	20	0.0025	0.2598	No
<i>AGT</i>	rs1326886	0.90	0.0033	0.002	0.1027	8	0.0063	0.176	No
<i>AGTR1</i>	rs385338	0.18	0.002	0.0019	0.2935	4	0.0125	0.6438	No
<i>AGXT</i>	rs4538195	0.06	-0.0073	0.0031	0.0176	3	0.0167	0.258	No
<i>AIRE</i>	rs12626391	0.94	0.0054	0.0033	0.0984	8	0.0063	0.5248	No
<i>ALDOB</i>	rs717860	0.07	0.0036	0.0028	0.1876	8	0.0063	0.3567	No
<i>ALG8</i>	rs11237414	0.27	-0.002	0.0015	0.1700	5	0.0100	0.9464	No
<i>AMN</i>	rs2224234	0.80	-0.0033	0.0015	0.0313	4	0.0125	0.5706	No
<i>APOA1</i>	NA	NA	NA	NA	NA	NA	NA	NA	NA
<i>APOE</i>	rs405509	0.48	-0.0022	0.0014	0.1202	3	0.0167	0.2864	No
<i>APRT</i>	rs3826067	0.32	-0.0035	0.0013	0.0096	6	0.0083	0.1436	No
<i>APTX</i>	rs10971277	0.89	-0.0019	0.0019	0.3329	4	0.0125	0.3522	No
<i>AQP2</i>	rs296736	0.52	-0.0035	0.0012	0.0041	5	0.0100	0.1239	Yes
<i>ARL6</i>	rs10511163	0.78	0.0019	0.0015	0.2079	4	0.0125	0.8303	No
<i>ATP2A2</i>	rs3026445	0.65	-0.0009	0.0013	0.4556	2	0.0250	0.424	No
<i>ATP6V0A4</i>	rs3778701	0.05	0.006	0.0029	0.0391	20	0.0025	0.8734	No
<i>ATP6V1B1</i>	rs2234500	0.90	-0.0054	0.0022	0.0151	8	0.0063	0.741	No
<i>ATP7B</i>	rs10870860	0.47	0.0023	0.0012	0.0612	3	0.0167	0.9979	No

<i>BBS1</i>	rs1671062	0.40	0.0042	0.0013	0.0009	3	0.0167	0.007509	Yes
<i>BBS10</i>	rs3087711	0.73	-0.0024	0.0014	0.0811	2	0.0250	0.7382	No
<i>BBS12</i>	rs13135445	0.25	0.0015	0.0014	0.2867	2	0.0250	0.3737	No
<i>BBS2</i>	rs12447295	0.82	0.0032	0.0016	0.0484	5	0.0100	0.9956	No
<i>BBS4</i>	rs7178130	0.65	-0.0024	0.0013	0.0560	3	0.0167	0.1208	No
<i>BBS5</i>	rs3769771	0.13	-0.0025	0.0018	0.1594	6	0.0083	0.6999	No
<i>BBS7</i>	rs4076212	0.86	0.0041	0.0022	0.0646	3	0.0167	0.6535	No
<i>BBS9</i>	rs4720108	0.23	0.0038	0.0014	0.0083	29	0.0017	0.8269	No
<i>BCS1L</i>	rs1344645	0.43	0.0022	0.0012	0.0715	1	0.0500	0.4443	No
<i>BLOC1S3</i>	rs12460985	0.83	0.0021	0.0017	0.2038	3	0.0167	0.8744	No
<i>BMP4</i>	rs11623717	0.58	-0.0043	0.0012	0.0005	2	0.0250	0.4305	Yes
<i>BRAF</i>	rs10487888	0.53	-0.002	0.0012	0.0963	8	0.0063	0.06267	No
<i>BRIP1</i>	rs2378908	0.14	0.004	0.0018	0.0273	7	0.0071	0.8175	No
<i>BSND</i>	rs2149038	0.45	0.002	0.0013	0.1352	7	0.0071	0.2428	No
<i>C1QA</i>	rs587585	0.86	-0.0018	0.0018	0.3081	4	0.0125	0.1261	No
<i>C3</i>	rs1389623	0.11	0.0039	0.002	0.0494	12	0.0042	0.9622	No
<i>CA2</i>	rs3758078	0.36	-0.0035	0.0013	0.0054	1	0.0500	0.5137	Yes
<i>CABC1</i>	rs1801783	0.72	0.0028	0.0013	0.0357	11	0.0045	0.2184	No
<i>CACNA1S</i>	rs3850625	0.12	0.0066	0.0019	0.0004	18	0.0028	0.1794	Yes
<i>CASR</i>	rs7638770	0.25	-0.0048	0.0014	0.0009	10	0.0050	0.3103	Yes
<i>CC2D2A</i>	rs11728225	0.31	-0.002	0.0013	0.1378	4	0.0125	0.8607	No
<i>CD151</i>	rs10902227	0.25	-0.0026	0.0018	0.1481	4	0.0125	0.07656	No
<i>CD2AP</i>	rs9296564	0.88	-0.003	0.0021	0.1419	6	0.0083	0.2993	No
<i>CDC5L</i>	rs9472273	0.13	0.0027	0.0018	0.1266	6	0.0083	0.07345	No
<i>CDKN1C</i>	rs10488671	0.08	-0.0027	0.0023	0.2382	7	0.0071	0.9258	No
<i>CEP290</i>	rs17335988	0.90	-0.0054	0.0021	0.0117	4	0.0125	0.7236	No
<i>CFH</i>	rs419137	0.88	-0.0033	0.0019	0.0934	5	0.0100	0.9338	No
<i>CFHR1</i>	rs436719	0.67	0.0009	0.0013	0.5120	2	0.0250	0.9358	No
<i>CFHR3</i>	rs9427913	0.45	0.0009	0.0012	0.4515	2	0.0250	0.1506	No
<i>CFI</i>	rs6815517	0.72	-0.0027	0.0014	0.0435	5	0.0100	0.1925	No
<i>CFTR</i>	rs12534186	0.09	0.0028	0.0021	0.1776	5	0.0100	0.4831	No
<i>CLCNKA</i>	rs12083572	0.09	-0.0046	0.0022	0.0323	6	0.0083	0.7559	No
<i>CLCNKB</i>	rs6604904	0.22	-0.0032	0.0015	0.0337	5	0.0100	0.5937	No
<i>CLDN16</i>	rs3774006	0.78	0.0033	0.0015	0.0248	6	0.0083	0.8938	No

COL4A3	rs6756834	0.34	-0.003	0.0013	0.0202	25	0.0020	0.9963	No
COL4A4	rs16823202	0.62	0.0031	0.0014	0.0311	15	0.0033	0.2262	No
COQ2	rs4346637	0.14	-0.0031	0.0018	0.0776	2	0.0250	0.9447	No
COQ9	rs509704	0.91	-0.0029	0.0032	0.3658	5	0.0100	0.6972	No
CPT1A	rs10896364	0.65	-0.0026	0.0013	0.0396	7	0.0071	0.718	No
CPT2	rs17108140	0.11	-0.0045	0.002	0.0214	3	0.0167	0.3495	No
CTNS	rs4790530	0.19	0.0033	0.0016	0.0433	4	0.0125	0.3913	No
CUBN	rs10904866	0.26	0.0045	0.0015	0.0022	39	0.0013	0.6706	No
DCLRE1C	rs7922341	0.82	-0.0035	0.0017	0.0325	6	0.0083	0.8213	No
DHCR7	rs7928249	0.27	0.0022	0.0014	0.1075	3	0.0167	0.5222	No
DLL3	rs12461523	0.69	-0.0008	0.0014	0.5328	2	0.0250	0.3978	No
DNMT3B	rs2235758	0.06	0.0068	0.0025	0.0071	5	0.0100	0.4178	No
EFEMP2	rs601863	0.81	0.0024	0.0016	0.1342	2	0.0250	0.3935	No
EIF2AK3	rs7579242	0.92	-0.0017	0.0022	0.4332	4	0.0125	0.2862	No
ENG	rs11789185	0.10	-0.0094	0.0023	0.0001	4	0.0125	0.8853	Yes
ERCC4	rs12597883	0.19	-0.0032	0.002	0.1137	4	0.0125	0.6774	No
ERCC8	rs158938	0.65	-0.0041	0.0013	0.0015	4	0.0125	0.2842	Yes
ESCO2	rs1841313	0.86	0.0044	0.0017	0.0114	5	0.0100	0.8191	No
ETFA	rs2469573	0.89	-0.0043	0.0019	0.0253	5	0.0100	0.6142	No
ETFB	rs12610961	0.63	-0.0028	0.0017	0.1043	6	0.0083	0.7115	No
ETFDH	rs11559290	0.87	-0.0016	0.0018	0.3582	2	0.0250	0.1528	No
EYA1	rs6472582	0.82	0.0032	0.0018	0.0787	24	0.0021	0.7739	No
FAH	rs12910663	0.91	-0.0045	0.0022	0.0370	10	0.0050	0.4646	No
FANCA	rs11861084	0.42	-0.0027	0.0012	0.0278	4	0.0125	0.4962	No
FANCC	rs646350	0.38	-0.0032	0.0012	0.0104	8	0.0063	0.3852	No
FANCD2	rs1053228	0.09	0.0017	0.0025	0.4778	4	0.0125	0.169	No
FANCE	rs4713864	0.68	0.0022	0.0013	0.0919	2	0.0250	0.4338	No
FANCF	rs7109087	0.83	-0.0016	0.0016	0.3317	2	0.0250	0.5998	No
FANCG	rs2073575	0.95	-0.0048	0.0028	0.0945	3	0.0167	0.3169	No
FANCI	rs3087374	0.08	0.0037	0.0023	0.1091	5	0.0100	0.4115	No
FANCL	rs3821211	0.94	0.0023	0.0026	0.3638	7	0.0071	0.287	No
FANCM	rs226984	0.73	0.002	0.0015	0.1920	4	0.0125	0.2293	No
FBLN5	rs4904827	0.92	-0.0067	0.0023	0.0039	13	0.0038	0.632	No
FGA	rs2070016	0.85	0.0033	0.0018	0.0636	4	0.0125	0.6157	No

<i>FGF10</i>	rs13166177	0.91	0.0065	0.0028	0.0200	6	0.0083	0.6055	No
<i>FGF23</i>	rs720333	0.85	-0.005	0.0017	0.0030	5	0.0100	0.9526	Yes
<i>FGFR1</i>	rs11777067	0.23	-0.0022	0.0015	0.1469	6	0.0083	0.7613	No
<i>FGFR2</i>	rs3135812	0.94	0.005	0.0031	0.1132	15	0.0033	0.4697	No
<i>FGFR3</i>	rs2301293	0.11	-0.0057	0.0033	0.0806	2	0.0250	0.594	No
<i>FN1</i>	rs1263	0.36	0.0029	0.0013	0.0211	9	0.0056	0.6637	No
<i>FOXC1</i>	rs2235718	0.10	0.0033	0.002	0.1105	4	0.0125	0.04666	No
<i>FOXC2</i>	rs4843165	0.26	0.0038	0.0015	0.0133	3	0.0167	0.7606	No
<i>FOXF1</i>	rs12924722	0.60	-0.0026	0.0012	0.0387	7	0.0071	0.9585	No
<i>FRAS1</i>	rs13103319	0.30	-0.0038	0.0013	0.0037	28	0.0018	0.6016	No
<i>FREM1</i>	rs1389733	0.57	0.0029	0.0012	0.0188	33	0.0015	0.8854	No
<i>FXVD2</i>	rs4472969	0.18	-0.0052	0.0018	0.0038	12	0.0042	0.1846	No
<i>G6PC</i>	rs2593595	0.81	0.0025	0.0016	0.1248	2	0.0250	0.8123	No
<i>GALNT3</i>	rs1364685	0.14	-0.0041	0.0018	0.0206	7	0.0071	0.709	No
<i>GATA3</i>	rs406103	0.20	0.0032	0.0016	0.0464	5	0.0100	0.9188	No
<i>GIF</i>	rs558660	0.18	0.0043	0.0016	0.0085	2	0.0250	0.2783	Yes
<i>GLB1</i>	rs11707667	0.53	-0.0019	0.0012	0.1229	7	0.0071	0.3062	No
<i>GLI3</i>	rs11764679	0.07	-0.0058	0.0025	0.0223	28	0.0018	0.001338	No
<i>GRHPR</i>	rs7853540	0.63	-0.0022	0.0015	0.1326	4	0.0125	0.481	No
<i>GSN</i>	rs306770	0.79	0.0036	0.0015	0.0169	5	0.0100	0.8375	No
<i>GSS</i>	rs2236270	0.39	-0.0046	0.0012	0.0002	5	0.0100	0.5575	Yes
<i>GUCY2D</i>	rs11078729	0.65	0.0033	0.0013	0.0133	5	0.0100	0.7861	No
<i>H19</i>	rs2839701	0.50	-0.0024	0.0012	0.0515	4	0.0125	0.9556	No
<i>HCA1</i>	rs10019343	0.29	0.0065	0.0016	4.23E-05	2313	2.20E-05	0.7372	No
<i>HNF1B</i>	rs2107133	0.88	0.004	0.0019	0.0332	20	0.0025	0.211	No
<i>HOXA13</i>	rs4722672	0.81	-0.0027	0.0016	0.0889	3	0.0167	0.4014	No
<i>HOXD13.add</i>	rs847148	0.69	0.0055	0.0014	0.0001	4	0.0130	0.7855	Yes
<i>HPD</i>	rs12310752	0.50	0.0028	0.0013	0.0259	3	0.0167	0.8346	No
<i>HRAS</i>	rs11246169	0.83	0.0013	0.0017	0.4671	1	0.0500	0.4656	No
<i>HSD17B4</i>	rs11205	0.59	0.0018	0.0012	0.1340	7	0.0071	0.08651	No
<i>ICK</i>	rs316144	0.43	0.0041	0.0013	0.0011	9	0.0056	0.5674	Yes
<i>IKBKAP</i>	rs10979614	0.56	-0.0032	0.0013	0.0116	13	0.0038	0.9981	No
<i>INF2</i>	rs7140154	0.18	0.0053	0.0019	0.0056	4	0.0125	0.6573	Yes
<i>INPP5E</i>	rs10870193	0.15	0.0022	0.0018	0.2256	5	0.0100	0.9678	No

<i>INVS</i>	rs1415927	0.89	0.0037	0.002	0.0650	5	0.0100	0.8048	No
<i>JAG1</i>	rs6040050	0.29	0.005	0.0014	0.0004	11	0.0045	0.3734	Yes
<i>KCNJ1</i>	rs2238009	0.14	0.005	0.0018	0.0049	6	0.0083	0.5526	Yes
<i>KCNJ10</i>	rs6690889	0.53	0.0011	0.0012	0.3795	5	0.0100	0.905	No
<i>KCNJ2</i>	rs9901104	0.12	0.0028	0.0028	0.3048	5	0.0100	0.2428	No
<i>KCNQ1OT1</i>	rs463924	0.31	0.0013	0.0014	0.3313	4	0.0125	0.4444	No
<i>KRAS</i>	rs7960917	0.78	0.0048	0.0015	0.0014	7	0.0071	0.8234	Yes
<i>KRT8</i>	rs2638504	0.32	0.0013	0.0013	0.3227	6	0.0083	0.5164	No
<i>LAMB2</i>	rs9880088	0.10	0.0073	0.002	0.0002	2	0.0250	0.2948	Yes
<i>LCAT</i>	rs2292318	0.13	-0.005	0.0018	0.0061	2	0.0250	0.6389	Yes
<i>LCT</i>	rs11684545	0.72	0.0025	0.0014	0.0694	3	0.0167	0.7444	No
<i>LEMD3</i>	rs11175678	0.07	0.0054	0.0029	0.0629	4	0.0125	0.5329	No
<i>LMNB2</i>	rs733820	0.09	0.0078	0.0032	0.0145	4	0.0125	0.4729	No
<i>LMX1B</i>	rs7864957	0.44	0.0033	0.0013	0.0088	13	0.0038	0.9273	No
<i>LRP2</i>	rs6433115	0.21	0.0069	0.0015	3.49E-06	20	0.0025	0.4891	Yes
<i>LRP4</i>	rs4752813	0.07	0.0044	0.0037	0.2352	8	0.0063	0.1997	No
<i>LYZ</i>	rs7959452	0.48	0.0015	0.0012	0.2196	3	0.0167	0.4216	No
<i>MAP2K1</i>	rs12911117	0.08	-0.005	0.0023	0.0304	6	0.0083	0.4838	No
<i>MAP2K2</i>	rs350912	0.28	0.0016	0.0016	0.3094	6	0.0083	0.4235	No
<i>MEFV</i>	rs767067	0.94	0.0049	0.0026	0.0632	5	0.0100	0.1511	No
<i>MKKS</i>	rs6032878	0.89	-0.0055	0.002	0.0054	5	0.0100	0.5512	Yes
<i>MKS1</i>	rs12602498	0.67	-0.0027	0.0013	0.0423	4	0.0125	0.006224	No
<i>MMACHC</i>	rs12029322	0.22	-0.0042	0.0014	0.0041	2	0.0250	0.1119	Yes
<i>MMP1</i>	rs1155764	0.83	0.0031	0.0019	0.1000	11	0.0045	0.5089	No
<i>MUT</i>	rs9381784	0.36	-0.0008	0.0012	0.5097	4	0.0125	0.7121	No
<i>MYCN</i>	rs12617996	0.31	-0.0015	0.0014	0.2664	1	0.0500	0.7721	No
<i>MYH9</i>	rs767855	0.34	-0.0026	0.0013	0.0447	13	0.0038	0.6289	No
<i>NDUFS7</i>	rs3848638	0.47	-0.0019	0.0013	0.1461	4	0.0125	0.7444	No
<i>NEU1</i>	rs13118	0.93	0.0099	0.0034	0.0033	4	0.0125	0.2147	Yes
<i>NF1</i>	rs2952993	0.71	0.0026	0.0013	0.0526	2	0.0250	0.8143	No
<i>NIPBL</i>	rs6868809	0.14	0.0022	0.0018	0.2112	5	0.0100	0.6818	No
<i>NOTCH2</i>	rs4659248	0.83	-0.0028	0.002	0.1687	6	0.0083	0.1009	No
<i>NPHP1</i>	rs17463266	0.09	-0.0053	0.0031	0.0845	4	0.0125	0.3315	No
<i>NPHP3</i>	rs10935030	0.08	0.0073	0.0029	0.0122	6	0.0083	0.004868	No

<i>NPHP4</i>	rs4908458	0.10	0.0028	0.0022	0.1964	13	0.0038	0.9605	No
<i>NPHS1</i>	rs3814995	0.31	0.004	0.0019	0.0325	4	0.0125	0.09074	No
<i>NPHS2</i>	rs10798689	0.93	-0.0041	0.0023	0.0743	6	0.0083	0.2387	No
<i>NR3C2</i>	rs17483833	0.21	0.0043	0.0015	0.0047	30	0.0017	0.8415	No
<i>NSD1</i>	rs4073745	0.69	0.0062	0.0013	3.74E-06	4	0.0125	0.6224	Yes
<i>PAF1</i>	rs1629174	0.07	0.0043	0.0025	0.0786	5	0.0100	0.3108	No
<i>PALB2</i>	rs249942	0.10	-0.0075	0.0025	0.0024	6	0.0083	0.1884	Yes
<i>PAX2</i>	rs2077642	0.62	-0.0024	0.0012	0.0559	9	0.0056	0.9483	No
<i>PC</i>	rs11227623	0.10	0.0034	0.0022	0.1282	5	0.0100	0.7755	No
<i>PDSS2</i>	rs9398131	0.85	0.0048	0.0017	0.0060	13	0.0038	0.5664	No
<i>PEX1</i>	rs2111200	0.07	-0.0031	0.0025	0.2217	3	0.0167	0.3822	No
<i>PEX12</i>	rs9900378	0.36	-0.0014	0.0013	0.2697	3	0.0167	0.6348	No
<i>PEX14</i>	rs2242288	0.08	0.0074	0.0032	0.0234	16	0.0031	0.5124	No
<i>PEX26</i>	rs464541	0.80	-0.0033	0.0015	0.0289	8	0.0063	0.1329	No
<i>PEX5</i>	rs12312641	0.09	0.0021	0.0022	0.3205	4	0.0125	0.8364	No
<i>PEX6</i>	rs9986447	0.55	-0.0028	0.0012	0.0218	3	0.0167	0.9302	No
<i>PHYH</i>	rs4615920	0.76	0.0025	0.0014	0.0798	10	0.0050	0.4574	No
<i>PKD1</i>	rs13335638	0.84	0.0015	0.0018	0.4122	2	0.0250	0.3527	No
<i>PKD2</i>	rs2728111	0.77	0.004	0.0014	0.0054	6	0.0083	0.5009	Yes
<i>PKHD1</i>	rs12661470	0.10	0.0048	0.002	0.0165	21	0.0024	0.8272	No
<i>PLCE1</i>	rs12258052	0.31	-0.0043	0.0013	0.0009	19	0.0026	0.7337	Yes
<i>PMM2</i>	rs9926107	0.06	-0.0043	0.0026	0.0948	7	0.0071	0.0874	No
<i>PRODH</i>	rs1808320	0.46	-0.0028	0.0015	0.0532	10	0.0050	0.2804	No
<i>PROK2</i>	rs1374913	0.31	0.0024	0.0013	0.0690	5	0.0100	0.5566	No
<i>PROKR2</i>	rs6053283	0.25	0.0035	0.0014	0.0121	4	0.0125	0.4506	Yes
<i>PSTPIP1</i>	rs3936040	0.17	-0.0045	0.0017	0.0081	7	0.0071	0.9263	Yes
<i>PTEN</i>	rs2248293	0.68	-0.0034	0.0013	0.0093	5	0.0100	0.4664	No
<i>PTH1R</i>	rs4682844	0.58	0.002	0.0012	0.1093	3	0.0167	0.956	No
<i>PTPN11</i>	rs11066301	0.56	0.0023	0.0012	0.0621	4	0.0125	0.6749	No
<i>PVRL1</i>	rs7122134	0.60	-0.0034	0.0013	0.0068	4	0.0125	0.04945	Yes
<i>PXMP3</i>	rs4236857	0.38	-0.0033	0.0013	0.0132	3	0.0167	0.3759	No
<i>RAG1</i>	rs16929071	0.91	-0.0017	0.0021	0.4308	5	0.0100	0.1322	No
<i>RAG2</i>	rs867803	0.91	-0.0019	0.0021	0.3701	3	0.0167	0.1183	No
<i>RAI1</i>	rs8065154	0.43	-0.0034	0.0012	0.0057	7	0.0071	0.8734	No

<i>RECQL4</i>	rs10111332	0.52	-0.0057	0.0019	0.0033	2	0.0250	0.78	Yes
<i>REN</i>	rs6676670	0.18	0.0014	0.0016	0.3594	6	0.0083	0.3362	No
<i>RET</i>	rs1864405	0.25	0.0045	0.0014	0.0016	9	0.0056	0.09432	Yes
<i>ROBO2</i>	rs9827843	0.58	0.005	0.0012	4.82E-05	99	0.0005	0.09733	Yes
<i>ROR2</i>	rs10512219	0.84	0.0042	0.0017	0.0128	20	0.0025	0.2584	No
<i>SALL1</i>	rs7501078	0.40	-0.0031	0.0014	0.0259	4	0.0125	0.2063	No
<i>SALL4</i>	rs13039280	0.87	-0.0033	0.0018	0.0710	6	0.0083	0.03582	No
<i>SCARB2</i>	rs894250	0.50	-0.0055	0.0013	4.57E-05	6	0.0083	0.5858	Yes
<i>SCN4A</i>	rs4968678	0.09	-0.0026	0.0023	0.2641	6	0.0083	0.1951	No
<i>SCNN1A</i>	rs11064153	0.79	-0.0033	0.002	0.0973	10	0.0050	0.4819	No
<i>SCNN1B</i>	rs2106374	0.81	0.0052	0.0016	0.0009	13	0.0038	0.2765	Yes
<i>SCNN1G</i>	rs5735	0.69	0.0032	0.0013	0.0145	6	0.0083	0.1534	No
<i>SHH</i>	rs872723	0.16	0.0036	0.0019	0.0638	6	0.0083	0.4394	No
<i>SIX1</i>	rs11628064	0.07	-0.0053	0.0027	0.0463	3	0.0167	0.09851	No
<i>SIX2</i>	rs2959253	0.49	-0.0024	0.0012	0.0460	2	0.0250	0.01382	No
<i>SIX5</i>	rs725660	0.36	0.0031	0.0013	0.0142	4	0.0125	0.4894	No
<i>SLC12A1</i>	rs1531916	0.82	-0.0014	0.0016	0.3577	3	0.0167	0.7943	No
<i>SLC12A3</i>	rs1529930	0.81	0.0028	0.0016	0.0783	11	0.0045	0.2774	No
<i>SLC22A12</i>	rs3802947	0.05	0.0024	0.0028	0.3869	2	0.0250	0.4359	No
<i>SLC26A4</i>	rs2237679	0.26	-0.0027	0.0014	0.0503	8	0.0063	0.5188	No
<i>SLC2A10</i>	rs4810543	0.92	-0.0051	0.0023	0.0268	4	0.0125	0.6246	No
<i>SLC2A2</i>	rs10513684	0.05	-0.0025	0.0028	0.3812	2	0.0250	0.587	No
<i>SLC34A3</i>	NA	NA	NA	NA	NA	NA	NA	NA	NA
<i>SLC37A4</i>	rs4938619	0.13	0.0036	0.0018	0.0456	5	0.0100	0.804	No
<i>SLC3A1</i>	rs713448	0.23	-0.0026	0.0014	0.0723	5	0.0100	0.09674	No
<i>SLC4A1</i>	rs2074108	0.40	-0.0016	0.0013	0.2211	5	0.0100	0.9098	No
<i>SLC4A4</i>	rs2579307	0.07	0.0045	0.0024	0.0645	17	0.0029	0.2573	No
<i>SLC5A2</i>	rs9927250	0.24	-0.0033	0.0015	0.0278	3	0.0167	0.2249	No
<i>SLC7A7</i>	rs6572754	0.26	-0.0038	0.0018	0.0354	18	0.0028	0.07051	No
<i>SLC7A9</i>	rs12460876	0.61	-0.0085	0.0012	9.50E-12	6	0.0083	0.2989	Yes
<i>SLC9A3R1</i>	rs3178300	0.60	-0.0026	0.0015	0.0819	4	0.0125	0.5002	No
<i>SMARCA1</i>	rs10207455	0.33	-0.0012	0.0013	0.3696	6	0.0083	0.2253	No
<i>SMC3</i>	rs11195183	0.13	-0.002	0.0019	0.2827	5	0.0100	0.5812	No
<i>SOX17</i>	rs16920355	0.81	0.9883	0.0034	0.1855	5	0.0100	0.3479	No

SOX9	rs918080	0.20	-0.0022	0.0016	0.1595	3	0.0167	0.7679	No
STRA6	rs974456	0.23	0.0041	0.0015	0.0082	3	0.0167	0.6515	Yes
SUCLA2	rs6561429	0.91	0.004	0.0021	0.0631	6	0.0083	0.5138	No
SURF1	rs484248	0.48	0.0023	0.0012	0.0595	3	0.0167	0.5257	No
TBX1	rs4819843	0.19	-0.0027	0.0016	0.0823	4	0.0125	0.8891	No
TCIRG1	rs3133269	0.75	-0.0008	0.0015	0.5818	2	0.0250	0.184	No
TFAP2A	rs12526269	0.23	0.0035	0.0015	0.0183	10	0.0050	0.1341	No
TMEM216	rs921635	0.84	0.0013	0.0017	0.4571	1	0.0500	0.911	No
TMEM67	rs7839522	0.74	-0.0011	0.0014	0.4264	3	0.0167	0.708	No
TNFRSF11B	rs7820642	0.81	-0.0029	0.0015	0.0636	6	0.0083	0.1007	No
TP63	rs6790731	0.87	-0.0053	0.0019	0.0056	45	0.0011	0.2212	No
TRIM32	rs17220476	0.76	0.0035	0.0014	0.0137	5	0.0100	0.5648	No
TRPC6	rs12577826	0.18	-0.0029	0.0019	0.1410	14	0.0036	0.6003	No
TRPM6	rs11144073	0.79	-0.0041	0.0018	0.0226	16	0.0031	0.6804	No
TSC1	rs1050700	0.71	-0.0055	0.0014	4.32E-05	10	0.0050	0.7151	Yes
TTC8	rs17700521	0.73	-0.0044	0.0013	0.0011	3	0.0167	0.9952	Yes
UMOD	rs12922822	0.18	0.0167	0.0016	1.15E-25	7	0.0071	1.913e-8	Yes
UPK3A	rs5766632	0.27	-0.0028	0.0014	0.0498	4	0.0125	0.113	No
UQCRB	rs7014324	0.13	-0.0043	0.0019	0.0277	2	0.0250	0.671	No
UQCRQ	rs4705974	0.16	-0.0039	0.0017	0.0214	3	0.0167	0.02271	No
USF2	rs1882694	0.65	-0.0039	0.0013	0.0023	3	0.0167	0.5249	Yes
VIPAR	rs17105824	0.16	-0.0031	0.0017	0.0567	5	0.0100	0.4138	No
VPS33B	rs9920813	0.14	-0.0038	0.0021	0.0755	7	0.0071	0.3326	No
WDPCP	rs1850983	0.97	0.0136	0.004	0.0006	21	0.0023	0.9677	Yes
WHSC1	rs494893	0.11	-0.0045	0.0022	0.0383	5	0.0100	0.3377	No
WNK1	rs9634161	0.84	0.0032	0.0017	0.0538	10	0.0050	0.8231	No
WNK4	rs873084	0.93	0.0031	0.0025	0.2071	1	0.0500	0.298	No
WNT3	rs11655598	0.73	-0.0043	0.0016	0.0056	9	0.0056	0.9269	No
WNT4	rs7515106	0.78	0.0029	0.0015	0.0572	7	0.0071	0.05073	No
WT1	rs5030263	0.93	-0.0036	0.0024	0.1341	8	0.0063	0.7441	No
XDH	rs207432	0.62	-0.0019	0.0012	0.1193	14	0.0036	0.8047	No

Supplementary Table 6: Stage 1 discovery association results of GWAS meta-analysis of CKD

Results are from meta-analysis of a total of 70,484 subjects, using the inverse variance weighted fixed effects method. Gene-specific significance thresholds were defined according to the Bonferroni method, as $0.05 / \text{number of independent linkage disequilibrium blocks within each gene}$ (number of independent blocks were identified by grouping SNPs in LD as defined by $r^2 > 0.2$, based on HAPMAP Phase 2 release 21), NA = no available common SNP listed in HAPMAP. eGFR = estimated glomerular filtration rate, CKD = eGFR < 60 ml/min/1.73m².

Gene	MarkerName	Coded allele frequency	beta	SE	P-value	LD blocks	Bonferroni-adjusted significance threshold, (p-value)	Heterogeneity p-value	Significant
ABCD3	rs17410643	0.09	0.096	0.043	0.0245	6	0.0083	0.9417	No
ACE	rs4357	0.08	0.002	0.067	0.9717	3	0.0167	0.492	No
ACTN4	rs755690	0.44	0.024	0.020	0.2212	3	0.0167	0.7783	No
ADA	rs6031689	0.86	0.067	0.034	0.0466	8	0.0063	0.7956	No
ADAMTS13	rs3124776	0.53	0.000	0.021	0.9838	5	0.0100	0.4153	No
ADCY10	rs6427107	0.23	0.041	0.024	0.0919	20	0.0025	0.1885	No
AGT	rs1326886	0.89	-0.029	0.032	0.3729	8	0.0063	0.4064	No
AGTR1	rs385338	0.18	0.026	0.031	0.4003	4	0.0125	0.05055	No
AGXT	rs4538195	0.06	0.130	0.050	0.0097	3	0.0167	0.2473	Yes
AIRE	rs12626391	0.94	-0.044	0.055	0.4256	8	0.0063	0.9442	No
ALDOB	rs717860	0.07	0.003	0.045	0.9391	8	0.0063	0.1174	No
ALG8	rs11237414	0.27	-0.003	0.025	0.8916	5	0.0100	0.7764	No
AMN	rs2224234	0.80	-0.004	0.025	0.8732	4	0.0125	0.4445	No
APOA1	NA	NA	NA	NA	NA	NA	NA	NA	NA
APOE	rs405509	0.48	0.019	0.023	0.3976	3	0.0167	0.7634	No
APRT	rs3826067	0.31	0.030	0.022	0.1847	6	0.0083	0.1177	No
APTX	rs10971277	0.89	0.037	0.032	0.2524	4	0.0125	0.1431	No
AQP2	rs296736	0.52	0.029	0.020	0.1443	5	0.0100	0.2938	No
ARL6	rs10511163	0.79	-0.001	0.024	0.9811	4	0.0125	0.8218	No
ATP2A2	rs3026445	0.65	0.031	0.021	0.1419	2	0.0250	0.2219	No
ATP6V0A4	rs3778701	0.05	-0.020	0.048	0.6754	20	0.0025	0.7179	No
ATP6V1B1	rs2234500	0.91	0.070	0.038	0.0643	8	0.0063	0.4263	No
ATP7B	rs10870860	0.47	-0.029	0.021	0.1709	3	0.0167	0.4641	No
BBS1	rs1671062	0.40	-0.018	0.021	0.4008	3	0.0167	0.005552	No

<i>BBS10</i>	rs3087711	0.72	0.005	0.023	0.8371	2	0.0250	0.9672	No
<i>BBS12</i>	rs13135445	0.26	-0.012	0.023	0.6126	2	0.0250	0.3977	No
<i>BBS2</i>	rs12447295	0.83	-0.015	0.027	0.5808	5	0.0100	0.9861	No
<i>BBS4</i>	rs7178130	0.65	0.005	0.021	0.8298	3	0.0167	0.09214	No
<i>BBS5</i>	rs3769771	0.13	0.019	0.030	0.5283	6	0.0083	0.05301	No
<i>BBS7</i>	rs4076212	0.86	0.000	0.036	0.9993	3	0.0167	0.615	No
<i>BBS9</i>	rs4720108	0.23	-0.028	0.024	0.2317	29	0.0017	0.9471	No
<i>BCS1L</i>	rs1344645	0.43	-0.001	0.020	0.9606	1	0.0500	0.608	No
<i>BLOC1S3</i>	rs12460985	0.83	-0.021	0.028	0.4438	3	0.0167	0.5952	No
<i>BMP4</i>	rs11623717	0.59	0.018	0.021	0.3868	2	0.0250	0.4177	No
<i>BRAF</i>	rs10487888	0.54	0.016	0.020	0.4122	8	0.0063	0.07086	No
<i>BRIP1</i>	rs2378908	0.14	-0.029	0.030	0.3323	7	0.0071	0.9592	No
<i>BSND</i>	rs2149038	0.45	-0.016	0.021	0.4460	7	0.0071	0.7333	No
<i>C1QA</i>	rs587585	0.87	-0.002	0.029	0.9595	4	0.0125	0.901	No
<i>C3</i>	rs1389623	0.11	-0.067	0.034	0.0469	12	0.0042	0.2568	No
<i>CA2</i>	rs3758078	0.36	0.042	0.021	0.0400	1	0.0500	0.7452	Yes
<i>CABC1</i>	rs1801783	0.72	-0.018	0.022	0.4219	11	0.0045	0.3796	No
<i>CACNA1S</i>	rs3850625	0.12	-0.038	0.032	0.2384	18	0.0028	0.3287	No
<i>CASR</i>	rs7638770	0.25	0.085	0.023	0.0003	10	0.0050	0.9889	Yes
<i>CC2D2A</i>	rs11728225	0.31	0.039	0.022	0.0820	4	0.0125	0.9111	No
<i>CD151</i>	rs10902227	0.25	0.048	0.029	0.1035	4	0.0125	0.08759	No
<i>CD2AP</i>	rs9296564	0.88	0.018	0.035	0.6076	6	0.0083	0.5859	No
<i>CDC5L</i>	rs9472273	0.14	-0.029	0.029	0.3109	6	0.0083	0.3184	No
<i>CDKN1C</i>	rs10488671	0.08	0.016	0.038	0.6710	7	0.0071	0.8497	No
<i>CEP290</i>	rs17335988	0.90	0.011	0.036	0.7505	4	0.0125	0.444	No
<i>CFH</i>	rs419137	0.88	-0.001	0.032	0.9751	5	0.0100	0.9221	No
<i>CFHR1</i>	rs436719	0.66	-0.014	0.022	0.5100	2	0.0250	0.5297	No
<i>CFHR3</i>	rs9427913	0.45	-0.005	0.021	0.8083	2	0.0250	0.2656	No
<i>CFI</i>	rs6815517	0.72	0.059	0.023	0.0094	5	0.0100	0.485	Yes
<i>CFTR</i>	rs12534186	0.09	-0.043	0.035	0.2157	5	0.0100	0.7032	No
<i>CLCNKA</i>	rs12083572	0.09	-0.008	0.035	0.8198	6	0.0083	0.9169	No
<i>CLCNKB</i>	rs6604904	0.22	0.036	0.024	0.1436	5	0.0100	0.537	No
<i>CLDN16</i>	rs3774006	0.79	-0.056	0.024	0.0206	6	0.0083	0.9883	No
<i>COL4A3</i>	rs6756834	0.34	0.019	0.021	0.3735	25	0.0020	0.4891	No

<i>COL4A4</i>	rs16823202	0.61	-0.034	0.023	0.1470	15	0.0033	0.5133	No
<i>COQ2</i>	rs4346637	0.14	0.033	0.028	0.2501	2	0.0250	0.4217	No
<i>COQ9</i>	rs509704	0.91	-0.086	0.053	0.1023	5	0.0100	0.2671	No
<i>CPT1A</i>	rs10896364	0.65	0.022	0.021	0.2934	7	0.0071	0.09557	No
<i>CPT2</i>	rs17108140	0.11	0.018	0.032	0.5817	3	0.0167	0.7525	No
<i>CTNS</i>	rs4790530	0.19	-0.024	0.027	0.3724	4	0.0125	0.4916	No
<i>CUBN</i>	rs10904866	0.26	-0.019	0.024	0.4248	39	0.0013	0.8915	No
<i>DCLRE1C</i>	rs7922341	0.82	0.015	0.027	0.5822	6	0.0083	0.9695	No
<i>DHCR7</i>	rs7928249	0.27	-0.023	0.023	0.3078	3	0.0167	0.1963	No
<i>DLL3</i>	rs12461523	0.69	0.042	0.023	0.0621	2	0.0250	0.5888	No
<i>DNMT3B</i>	rs2235758	0.06	-0.063	0.043	0.1455	5	0.0100	0.05583	No
<i>EFEMP2</i>	rs601863	0.80	-0.042	0.025	0.0976	2	0.0250	0.8457	No
<i>EIF2AK3</i>	rs7579242	0.92	0.027	0.037	0.4717	4	0.0125	0.855	No
<i>ENG</i>	rs11789185	0.10	0.086	0.037	0.0182	4	0.0125	0.3991	No
<i>ERCC4</i>	rs12597883	0.19	0.021	0.034	0.5402	4	0.0125	0.1474	No
<i>ERCC8</i>	rs158938	0.65	0.023	0.021	0.2880	4	0.0125	0.7313	No
<i>ESCO2</i>	rs1841313	0.86	-0.037	0.029	0.1899	5	0.0100	0.4694	No
<i>ETFA</i>	rs2469573	0.89	0.032	0.032	0.3192	5	0.0100	0.2418	No
<i>ETFB</i>	rs12610961	0.62	0.027	0.027	0.3090	6	0.0083	0.6451	No
<i>ETFDH</i>	rs11559290	0.87	0.013	0.030	0.6595	2	0.0250	0.4451	No
<i>EYA1</i>	rs6472582	0.82	-0.058	0.029	0.0468	24	0.0021	0.9774	No
<i>FAH</i>	rs12910663	0.91	-0.037	0.036	0.3076	10	0.0050	0.5881	No
<i>FANCA</i>	rs11861084	0.41	0.000	0.020	0.9877	4	0.0125	0.2835	No
<i>FANCC</i>	rs646350	0.38	0.029	0.021	0.1598	8	0.0063	0.3036	No
<i>FANCD2</i>	rs1053228	0.09	0.045	0.041	0.2688	4	0.0125	0.08372	No
<i>FANCE</i>	rs4713864	0.68	-0.041	0.022	0.0599	2	0.0250	0.699	No
<i>FANCF</i>	rs7109087	0.84	-0.009	0.027	0.7494	2	0.0250	0.2709	No
<i>FANCG</i>	rs2073575	0.95	0.051	0.050	0.3030	3	0.0167	0.4671	No
<i>FANCI</i>	rs3087374	0.08	-0.021	0.038	0.5766	5	0.0100	0.519	No
<i>FANCL</i>	rs3821211	0.94	-0.091	0.043	0.0325	7	0.0071	0.2126	No
<i>FANCM</i>	rs226984	0.72	-0.037	0.024	0.1272	4	0.0125	0.927	No
<i>FBLN5</i>	rs4904827	0.92	0.039	0.039	0.3214	13	0.0038	0.2386	No
<i>FGA</i>	rs2070016	0.85	0.008	0.029	0.7823	4	0.0125	0.5062	No
<i>FGF10</i>	rs13166177	0.91	0.032	0.048	0.5122	6	0.0083	0.6648	No

<i>FGF23</i>	rs720333	0.85	0.085	0.029	0.0029	5	0.0100	0.2257	Yes
<i>FGFR1</i>	rs11777067	0.23	0.032	0.025	0.2023	6	0.0083	0.9859	No
<i>FGFR2</i>	rs3135812	0.93	-0.018	0.052	0.7282	15	0.0033	0.7509	No
<i>FGFR3</i>	rs2301293	0.11	-0.004	0.054	0.9350	2	0.0250	0.7929	No
<i>FN1</i>	rs1263	0.36	-0.024	0.021	0.2466	9	0.0056	0.4369	No
<i>FOXC1</i>	rs2235718	0.10	-0.037	0.034	0.2693	4	0.0125	0.5955	No
<i>FOXC2</i>	rs4843165	0.26	-0.036	0.025	0.1421	3	0.0167	0.4073	No
<i>FOXF1</i>	rs12924722	0.60	0.030	0.021	0.1424	7	0.0071	0.4938	No
<i>FRAS1</i>	rs13103319	0.29	0.023	0.022	0.3040	28	0.0018	0.5955	No
<i>FREM1</i>	rs1389733	0.57	-0.016	0.021	0.4342	33	0.0015	0.1985	No
<i>FXYD2</i>	rs4472969	0.17	0.059	0.029	0.0392	12	0.0042	0.9139	No
<i>G6PC</i>	rs2593595	0.82	-0.072	0.027	0.0067	2	0.0250	0.1685	Yes
<i>GALNT3</i>	rs1364685	0.14	0.066	0.029	0.0219	7	0.0071	0.673	No
<i>GATA3</i>	rs406103	0.20	-0.033	0.027	0.2276	5	0.0100	0.8877	No
<i>GIF</i>	rs558660	0.17	-0.055	0.027	0.0413	2	0.0250	0.2185	No
<i>GLB1</i>	rs11707667	0.54	-0.007	0.021	0.7385	7	0.0071	0.7451	No
<i>GLI3</i>	rs11764679	0.07	0.115	0.041	0.0054	28	0.0018	0.05269	No
<i>GRHPR</i>	rs7853540	0.63	0.010	0.025	0.6830	4	0.0125	0.6297	No
<i>GSN</i>	rs306770	0.79	-0.051	0.024	0.0355	5	0.0100	0.4018	No
<i>GSS</i>	rs2236270	0.39	0.045	0.020	0.0271	5	0.0100	0.1166	No
<i>GUCY2D</i>	rs11078729	0.65	-0.014	0.022	0.5326	5	0.0100	0.864	No
<i>H19</i>	rs2839701	0.50	0.002	0.020	0.9429	4	0.0125	0.7292	No
<i>HCA1</i>	rs6841704	0.5878	0.095	0.025	0.0001	2313	2.20E-05	0.8782	No
<i>HNF1B</i>	rs2107133	0.87	-0.073	0.030	0.0160	20	0.0025	0.6461	No
<i>HOXA13</i>	rs4722672	0.81	0.009	0.026	0.7428	3	0.0167	0.422	No
<i>HOXD13</i>	rs6752623	0.164	0.063	0.028	0.0236	4	0.0130	0.6207	No
<i>HPD</i>	rs12310752	0.50	-0.029	0.021	0.1626	3	0.0167	0.6871	No
<i>HRAS</i>	rs11246169	0.84	0.014	0.029	0.6202	1	0.0500	0.9978	No
<i>HSD17B4</i>	rs11205	0.59	-0.025	0.020	0.2128	7	0.0071	0.1004	No
<i>ICK</i>	rs316144	0.44	-0.021	0.020	0.3161	9	0.0056	0.8506	No
<i>IKBKAP</i>	rs10979614	0.56	0.021	0.021	0.3313	13	0.0038	0.298	No
<i>INF2</i>	rs7140154	0.18	-0.040	0.031	0.2009	4	0.0125	0.1978	No
<i>INPP5E</i>	rs10870193	0.14	-0.041	0.031	0.1828	5	0.0100	0.9794	No
<i>INVS</i>	rs1415927	0.89	0.005	0.034	0.8827	5	0.0100	0.1662	No

JAG1	rs6040050	0.29	-0.022	0.023	0.3314	11	0.0045	0.4754	No
KCNJ1	rs2238009	0.14	-0.020	0.029	0.4953	6	0.0083	0.4703	No
KCNJ10	rs6690889	0.53	0.004	0.020	0.8315	5	0.0100	0.3124	No
KCNJ2	rs9901104	0.12	-0.039	0.046	0.3878	5	0.0100	0.7145	No
KCNQ1OT1	rs463924	0.31	-0.017	0.022	0.4379	4	0.0125	0.7826	No
KRAS	rs7960917	0.78	-0.018	0.025	0.4546	7	0.0071	0.3278	No
KRT8	rs2638504	0.33	-0.012	0.021	0.5582	6	0.0083	0.316	No
LAMB2	rs9880088	0.11	-0.077	0.033	0.0189	2	0.0250	0.7674	Yes
LCAT	rs2292318	0.13	0.073	0.030	0.0146	2	0.0250	0.826	Yes
LCT	rs11684545	0.73	-0.010	0.023	0.6816	3	0.0167	0.9646	No
LEMD3	rs11175678	0.07	0.039	0.049	0.4220	4	0.0125	0.7173	No
LMNB2	rs733820	0.10	-0.049	0.053	0.3605	4	0.0125	0.2176	No
LMX1B	rs7864957	0.44	-0.047	0.021	0.0263	13	0.0038	0.3813	No
LRP2	rs6433115	0.21	-0.062	0.025	0.0120	20	0.0025	0.5899	No
LRP4	rs4752813	0.07	-0.026	0.062	0.6777	8	0.0063	0.8757	No
LYZ	rs7959452	0.49	0.023	0.020	0.2444	3	0.0167	0.8416	No
MAP2K1	rs12911117	0.08	0.048	0.038	0.1996	6	0.0083	0.7078	No
MAP2K2	rs350912	0.28	-0.015	0.025	0.5439	6	0.0083	0.3269	No
MEFV	rs767067	0.94	-0.026	0.043	0.5523	5	0.0100	0.5171	No
MKKS	rs6032878	0.88	0.034	0.032	0.2970	5	0.0100	0.41	No
MKS1	rs12602498	0.67	0.009	0.022	0.6869	4	0.0125	0.617	No
MMACHC	rs12029322	0.22	0.034	0.024	0.1508	2	0.0250	0.7922	No
MMP1	rs1155764	0.83	0.000	0.031	0.9902	11	0.0045	0.6314	No
MUT	rs9381784	0.36	0.014	0.020	0.4890	4	0.0125	0.3831	No
MYCN	rs12617996	0.31	0.035	0.022	0.1161	1	0.0500	0.6543	No
MYH9	rs767855	0.34	0.031	0.021	0.1478	13	0.0038	0.2498	No
NDUFS7	rs3848638	0.47	0.004	0.022	0.8428	4	0.0125	0.6913	No
NEU1	rs13118	0.88	-0.113	0.054	0.0358	4	0.0125	0.4639	No
NF1	rs2952993	0.71	-0.030	0.022	0.1695	2	0.0250	0.1982	No
NIPBL	rs6868809	0.14	0.019	0.029	0.5185	5	0.0100	0.9032	No
NOTCH2	rs4659248	0.82	0.054	0.032	0.0862	6	0.0083	0.06288	No
NPHP1	rs17463266	0.09	0.048	0.052	0.3596	4	0.0125	0.4471	No
NPHP3	rs10935030	0.08	-0.102	0.050	0.0428	6	0.0083	0.05434	No
NPHP4	rs4908458	0.10	-0.028	0.036	0.4409	13	0.0038	0.4963	No

<i>NPHS1</i>	rs3814995	0.31	0.008	0.031	0.7935	4	0.0125	0.2003	No
<i>NPHS2</i>	rs10798689	0.93	0.034	0.040	0.3944	6	0.0083	0.213	No
<i>NR3C2</i>	rs17483833	0.21	-0.012	0.025	0.6264	30	0.0017	0.8754	No
<i>NSD1</i>	rs4073745	0.68	-0.069	0.022	0.0017	4	0.0125	0.5085	Yes
<i>PAF1</i>	rs1629174	0.07	-0.025	0.040	0.5388	5	0.0100	0.1287	No
<i>PALB2</i>	rs249942	0.08	0.149	0.040	0.0002	6	0.0083	0.7764	Yes
<i>PAX2</i>	rs2077642	0.62	-0.021	0.020	0.2965	9	0.0056	0.2727	No
<i>PC</i>	rs11227623	0.10	-0.016	0.037	0.6684	5	0.0100	0.6037	No
<i>PDSS2</i>	rs9398131	0.86	-0.059	0.029	0.0393	13	0.0038	0.8828	No
<i>PEX1</i>	rs2111200	0.07	0.086	0.042	0.0418	3	0.0167	0.26	No
<i>PEX12</i>	rs9900378	0.35	0.005	0.021	0.8027	3	0.0167	0.7794	No
<i>PEX14</i>	rs2242288	0.06	-0.110	0.056	0.0509	16	0.0031	0.6735	No
<i>PEX26</i>	rs464541	0.80	0.056	0.025	0.0261	8	0.0063	0.3332	No
<i>PEX5</i>	rs12312641	0.09	-0.041	0.036	0.2590	4	0.0125	0.7991	No
<i>PEX6</i>	rs9986447	0.55	0.010	0.020	0.6082	3	0.0167	0.4064	No
<i>PHYH</i>	rs4615920	0.76	-0.047	0.023	0.0441	10	0.0050	0.8304	No
<i>PKD1</i>	rs13335638	0.84	-0.044	0.030	0.1428	2	0.0250	0.5744	No
<i>PKD2</i>	rs2728111	0.76	-0.062	0.023	0.0068	6	0.0083	0.8967	Yes
<i>PKHD1</i>	rs12661470	0.11	-0.021	0.033	0.5331	21	0.0024	0.01625	No
<i>PLCE1</i>	rs12258052	0.31	0.036	0.022	0.0906	19	0.0026	0.02875	No
<i>PMM2</i>	rs9926107	0.06	0.044	0.044	0.3105	7	0.0071	0.117	No
<i>PRODH</i>	rs1808320	0.47	0.009	0.024	0.7135	10	0.0050	0.1036	No
<i>PROK2</i>	rs1374913	0.31	-0.019	0.022	0.3758	5	0.0100	0.5151	No
<i>PROKR2</i>	rs6053283	0.25	-0.038	0.023	0.1007	4	0.0125	0.6757	No
<i>PSTPIP1</i>	rs3936040	0.17	0.043	0.028	0.1162	7	0.0071	0.7157	No
<i>PTEN</i>	rs2248293	0.67	0.023	0.022	0.2855	5	0.0100	0.8736	No
<i>PTH1R</i>	rs4682844	0.58	-0.022	0.020	0.2687	3	0.0167	0.1366	No
<i>PTPN11</i>	rs11066301	0.57	-0.011	0.020	0.5976	4	0.0125	0.9497	No
<i>PVRL1</i>	rs7122134	0.60	0.046	0.021	0.0263	4	0.0125	0.17	No
<i>PXMP3</i>	rs4236857	0.37	0.023	0.022	0.2879	3	0.0167	0.1027	No
<i>RAG1</i>	rs16929071	0.91	-0.048	0.035	0.1684	5	0.0100	0.8381	No
<i>RAG2</i>	rs867803	0.91	-0.039	0.035	0.2690	3	0.0167	0.8613	No
<i>RAI1</i>	rs8065154	0.43	0.034	0.020	0.0960	7	0.0071	0.9559	No
<i>RECQL4</i>	rs10111332	0.52	0.072	0.032	0.0252	2	0.0250	0.7109	No

REN	rs6676670	0.18	0.037	0.026	0.1467	6	0.0083	0.03728	No
RET	rs1864405	0.25	-0.028	0.024	0.2332	9	0.0056	0.1253	No
ROBO2	rs9827843	0.58	-0.052	0.020	0.0105	99	0.0005	0.1412	No
ROR2	rs10512219	0.84	-0.042	0.027	0.1262	20	0.0025	0.8167	No
SALL1	rs7501078	0.40	0.012	0.023	0.6089	4	0.0125	0.4295	No
SALL4	rs13039280	0.87	-0.032	0.030	0.2884	6	0.0083	0.1103	No
SCARB2	rs894250	0.50	0.035	0.022	0.1152	6	0.0083	0.9993	No
SCN4A	rs4968678	0.09	0.021	0.038	0.5898	6	0.0083	0.3976	No
SCNN1A	rs11064153	0.80	0.012	0.035	0.7381	10	0.0050	0.4067	No
SCNN1B	rs2106374	0.81	-0.039	0.026	0.1332	13	0.0038	0.007545	No
SCNN1G	rs5735	0.69	-0.014	0.022	0.5202	6	0.0083	0.5253	No
SHH	rs872723	0.16	-0.010	0.031	0.7577	6	0.0083	0.8525	No
SIX1	rs11628064	0.07	0.064	0.044	0.1462	3	0.0167	0.0535	No
SIX2	rs2959253	0.49	0.015	0.020	0.4512	2	0.0250	0.05009	No
SIX5	rs725660	0.36	-0.026	0.021	0.2064	4	0.0125	0.1536	No
SLC12A1	rs1531916	0.82	0.002	0.026	0.9414	3	0.0167	0.3357	No
SLC12A3	rs1529930	0.81	-0.035	0.026	0.1737	11	0.0045	0.2655	No
SLC22A12	rs3802947	0.05	0.009	0.048	0.8470	2	0.0250	0.3301	No
SLC26A4	rs2237679	0.26	0.034	0.022	0.1276	8	0.0063	0.06639	No
SLC2A10	rs4810543	0.92	0.058	0.039	0.1351	4	0.0125	0.71	No
SLC2A2	rs10513684	0.05	-0.007	0.048	0.8763	2	0.0250	0.1723	No
SLC34A3	NA	NA	NA	NA	NA	NA	NA	NA	NA
SLC37A4	rs4938619	0.13	-0.024	0.030	0.4178	5	0.0100	0.6969	No
SLC3A1	rs713448	0.23	0.022	0.023	0.3407	5	0.0100	0.05905	No
SLC4A1	rs2074108	0.41	0.020	0.022	0.3651	5	0.0100	0.9889	No
SLC4A4	rs2579307	0.07	-0.002	0.040	0.9583	17	0.0029	0.4096	No
SLC5A2	rs9927250	0.23	0.030	0.025	0.2262	3	0.0167	0.005057	No
SLC7A7	rs6572754	0.26	0.034	0.030	0.2550	18	0.0028	0.3915	No
SLC7A9	rs12460876	0.61	0.059	0.021	0.0044	6	0.0083	0.7201	Yes
SLC9A3R1	rs3178300	0.59	0.022	0.024	0.3559	4	0.0125	0.3973	No
SMARCAL1	rs10207455	0.32	0.009	0.022	0.6732	6	0.0083	0.9649	No
SMC3	rs11195183	0.13	-0.020	0.031	0.5229	5	0.0100	0.4676	No
SOX17	rs16920355	0.81	-0.0859	0.03	0.0042	5	0.0100	0.808	Yes
SOX9	rs918080	0.20	0.020	0.026	0.4445	3	0.0167	0.2217	No

<i>STRA6</i>	rs974456	0.24	-0.023	0.026	0.3668	3	0.0167	0.9277	No
<i>SUCLA2</i>	rs6561429	0.91	-0.104	0.034	0.0025	6	0.0083	0.262	Yes
<i>SURF1</i>	rs484248	0.48	-0.005	0.020	0.8045	3	0.0167	0.3681	No
<i>TBX1</i>	rs4819843	0.19	0.065	0.026	0.0112	4	0.0125	0.9915	Yes
<i>TCIRG1</i>	rs3133269	0.75	0.016	0.025	0.5392	2	0.0250	0.9847	No
<i>TFAP2A</i>	rs12526269	0.22	-0.038	0.024	0.1176	10	0.0050	0.03997	No
<i>TMEM216</i>	rs921635	0.85	-0.031	0.028	0.2624	1	0.0500	0.9618	No
<i>TMEM67</i>	rs7839522	0.74	0.010	0.023	0.6727	3	0.0167	0.633	No
<i>TNFRSF11B</i>	rs7820642	0.82	0.053	0.026	0.0424	6	0.0083	0.6864	No
<i>TP63</i>	rs6790731	0.87	0.098	0.033	0.0032	45	0.0011	0.4002	No
<i>TRIM32</i>	rs17220476	0.76	-0.050	0.024	0.0324	5	0.0100	0.5238	No
<i>TRPC6</i>	rs12577826	0.18	0.022	0.032	0.4954	14	0.0036	0.6808	No
<i>TRPM6</i>	rs11144073	0.78	0.038	0.029	0.1872	16	0.0031	0.08431	No
<i>TSC1</i>	rs1050700	0.71	0.051	0.022	0.0232	10	0.0050	0.7165	No
<i>TTC8</i>	rs17700521	0.72	0.063	0.023	0.0052	3	0.0167	0.5105	Yes
<i>UMOD</i>	rs12922822	0.18	-0.230	0.028	5.50E-17	7	0.0071	0.006827	Yes
<i>UPK3A</i>	rs5766632	0.26	0.012	0.023	0.6158	4	0.0125	0.129	No
<i>UQCRB</i>	rs7014324	0.13	0.059	0.031	0.0603	2	0.0250	0.5243	No
<i>UQCRQ</i>	rs4705974	0.16	0.056	0.028	0.0431	3	0.0167	0.02987	No
<i>USF2</i>	rs1882694	0.65	0.025	0.021	0.2266	3	0.0167	0.422	No
<i>VIPAR</i>	rs17105824	0.16	0.060	0.027	0.0272	5	0.0100	0.9724	No
<i>VPS33B</i>	rs9920813	0.15	0.029	0.035	0.4039	7	0.0071	0.527	No
<i>WDPCP</i>	rs1850983	0.97	-0.231	0.061	0.0002	21	0.0023	0.8668	Yes
<i>WHSC1</i>	rs494893	0.11	0.032	0.035	0.3630	5	0.0100	0.6395	No
<i>WNK1</i>	rs9634161	0.84	0.006	0.028	0.8255	10	0.0050	0.4703	No
<i>WNK4</i>	rs873084	0.93	-0.068	0.040	0.0861	1	0.0500	0.6246	No
<i>WNT3</i>	rs11655598	0.73	0.037	0.026	0.1540	9	0.0056	0.8247	No
<i>WNT4</i>	rs7515106	0.78	-0.006	0.025	0.8060	7	0.0071	0.746	No
<i>WT1</i>	rs5030263	0.93	-0.047	0.039	0.2216	8	0.0063	0.4602	No
<i>XDH</i>	rs207432	0.62	0.000	0.020	0.9990	14	0.0036	0.4355	No

Supplementary Table 7: Stage 1 discovery association results of GWAS meta-analysis of eGFRcys

Results are from meta-analysis of a total of 23,308 subjects, using the inverse variance weighted fixed effects method. eGFR = estimated glomerular filtration rate, CKD = eGFR < 60 ml/min/1.73m²

Gene	MarkerName	coded allele frequency	beta	SE	P-value	Heterogeneity p-value
<i>ABCD3</i>	rs17410643	0.0977	0.0053	0.0044	0.235	0.363
<i>ACE</i>	rs4357	0.0561	-0.0019	0.0081	0.8143	0.03172
<i>ACTN4</i>	rs755690	0.4511	-0.0006	0.0022	0.7718	0.7159
<i>ADA</i>	rs6031689	0.8603	-0.0092	0.0039	0.01667	0.1604
<i>ADAMTS13</i>	rs3124776	0.5121	0.0006	0.0022	0.7794	0.1193
<i>ADCY10</i>	rs6427107	0.2358	-0.0029	0.0026	0.2585	0.2429
<i>AGT</i>	rs1326886	0.8943	0.0062	0.0036	0.0847	0.3133
<i>AGTR1</i>	rs385338	0.1782	-0.0015	0.0037	0.6856	0.8457
<i>AGXT</i>	rs4538195	0.0633	-0.0138	0.0055	0.01259	0.9626
<i>AIRE</i>	rs12626391	0.9384	0.0012	0.0054	0.83	0.7581
<i>ALDOB</i>	rs717860	0.0676	0.0058	0.005	0.2522	0.9793
<i>ALG8</i>	rs11237414	0.2686	0.0015	0.0025	0.5654	0.6048
<i>AMN</i>	rs2224234	0.7802	0.0033	0.0027	0.2134	0.3399
<i>APOA1</i>	NA	NA	NA	NA	NA	NA
<i>APOE</i>	rs405509	0.4933	0.0001	0.0033	0.9653	0.8257
<i>APRT</i>	rs3826067	0.3124	0.0009	0.0024	0.7178	0.5038
<i>APT</i>	rs10971277	0.894	0.0008	0.0036	0.828	0.1553
<i>AQP2</i>	rs296736	0.5139	-0.0006	0.0022	0.7641	0.5433
<i>ARL6</i>	rs10511163	0.7653	0.0009	0.0026	0.7228	0.5353
<i>ATP2A2</i>	rs3026445	0.6537	0.0014	0.0022	0.5411	0.8037
<i>ATP6V0A4</i>	rs3778701	0.0541	0.0006	0.0051	0.9082	0.779
<i>ATP6V1B1</i>	rs2234500	0.8981	-0.0029	0.0041	0.4881	0.6132
<i>ATP7B</i>	rs10870860	0.4656	-0.0007	0.0021	0.7554	0.8829
<i>BBS1</i>	rs1671062	0.4018	0.0017	0.0023	0.4525	0.05006
<i>BBS10</i>	rs3087711	0.7385	-0.0022	0.0025	0.3615	0.8774

<i>BBS12</i>	rs13135445	0.2468	0.0062	0.0025	0.01419	0.2637
<i>BBS2</i>	rs12447295	0.8285	0.0003	0.003	0.9117	0.7965
<i>BBS4</i>	rs7178130	0.6433	-0.0065	0.0023	0.004129	0.234
<i>BBS5</i>	rs3769771	0.141	-0.0005	0.0032	0.8641	0.2355
<i>BBS7</i>	rs4076212	0.8786	0.004	0.0042	0.3463	0.1173
<i>BBS9</i>	rs4720108	0.2311	-0.0016	0.0026	0.5314	0.6075
<i>BCS1L</i>	rs1344645	0.4207	0.0014	0.0022	0.506	0.5219
<i>BLOC1S3</i>	rs12460985	0.8384	-0.0005	0.0031	0.8806	0.7919
<i>BMP4</i>	rs11623717	0.585	-0.0084	0.0022	0.000144	0.1522
<i>BRAF</i>	rs10487888	0.5223	-0.0039	0.0021	0.06801	0.8945
<i>BRIP1</i>	rs2378908	0.1438	0.0068	0.0033	0.03819	0.5325
<i>BSND</i>	rs2149038	0.4415	0.0003	0.0025	0.8911	0.3732
<i>C1QA</i>	rs587585	0.8504	-0.0033	0.0031	0.2874	0.3472
<i>C3</i>	rs1389623	0.1079	0.0049	0.0035	0.1649	0.08064
<i>CA2</i>	rs3758078	0.3622	0.001	0.0022	0.6557	0.803
<i>CABC1</i>	rs1801783	0.7194	0.0007	0.0024	0.7841	0.7817
<i>CACNA1S</i>	rs3850625	0.1345	0.0023	0.0032	0.4766	0.705
<i>CASR</i>	rs7638770	0.2404	-0.0053	0.0026	0.04271	0.2734
<i>CC2D2A</i>	rs11728225	0.3154	-0.0066	0.0023	0.004726	0.2329
<i>CD151</i>	rs10902227	0.2433	-0.0062	0.0034	0.06788	0.4751
<i>CD2AP</i>	rs9296564	0.8887	0.0006	0.0038	0.8844	0.4751
<i>CDC5L</i>	rs9472273	0.1345	0	0.0032	0.9942	0.7266
<i>CDKN1C</i>	rs10488671	0.0925	-0.0016	0.0042	0.7076	0.5389
<i>CEP290</i>	rs17335988	0.9065	-0.0008	0.004	0.8329	0.9528
<i>CFH</i>	rs419137	0.8833	-0.0009	0.0037	0.8057	0.008643
<i>CFHR1</i>	rs436719	0.6783	0.0019	0.0024	0.4174	0.2719
<i>CFHR3</i>	rs9427913	0.4609	-0.0024	0.0022	0.2895	0.3345
<i>CFI</i>	rs6815517	0.7185	-0.005	0.0024	0.03738	0.6539
<i>CFTR</i>	rs12534186	0.0957	-0.0001	0.0036	0.9762	0.3755
<i>CLCNKA</i>	rs12083572	0.0856	0.001	0.004	0.8002	0.1638
<i>CLCNKB</i>	rs6604904	0.2146	0.0027	0.0028	0.3276	0.658
<i>CLDN16</i>	rs3774006	0.7847	0.0061	0.0027	0.02173	0.9709
<i>COL4A3</i>	rs6756834	0.3519	-0.0015	0.0023	0.51	0.2516
<i>COL4A4</i>	rs16823202	0.6412	0.0038	0.003	0.2078	0.09484

COQ2	rs4346637	0.1305	-0.0024	0.0032	0.4629	0.3898
COQ9	rs509704	0.9352	0.0001	0.0066	0.9834	0.7112
CPT1A	rs10896364	0.6441	0.0008	0.0023	0.7075	0.89
CPT2	rs17108140	0.1074	-0.0045	0.0036	0.2128	0.5893
CTNS	rs4790530	0.1652	-0.0011	0.003	0.7209	0.1545
CUBN	rs10904866	0.2622	0.0084	0.0027	0.002346	0.9752
DCLRE1C	rs7922341	0.8109	-0.0062	0.003	0.03474	0.8712
DHCR7	rs7928249	0.269	0.0037	0.0024	0.1298	0.7846
DLL3	rs12461523	0.6846	0.0017	0.0026	0.5182	0.7822
DNMT3B	rs2235758	0.0719	0.0061	0.0045	0.1719	0.6314
EFEMP2	rs601863	0.8063	0.0059	0.0029	0.03701	0.9145
EIF2AK3	rs7579242	0.9208	-0.0029	0.004	0.4658	0.677
ENG	rs11789185	0.0897	0	0.0046	0.9947	0.1837
ERCC4	rs12597883	0.1892	0.0021	0.0032	0.516	0.6364
ERCC8	rs158938	0.6584	-0.0041	0.0023	0.07795	0.1479
ESCO2	rs1841313	0.8524	0.0012	0.003	0.6914	0.2011
ETFA	rs2469573	0.8964	-0.0004	0.0036	0.9173	0.4959
ETFB	rs12610961	0.6664	0.0054	0.0038	0.1599	0.6456
ETFDH	rs11559290	0.8661	-0.0016	0.0033	0.6311	0.01861
EYA1	rs6472582	0.8347	0.0071	0.0035	0.04605	0.3327
FAH	rs12910663	0.9124	0.0029	0.004	0.4696	0.2965
FANCA	rs11861084	0.4288	-0.0037	0.0022	0.08904	0.282
FANCC	rs646350	0.3736	-0.0049	0.0022	0.02651	0.4643
FANCD2	rs1053228	0.0885	-0.0009	0.0043	0.8401	0.9149
FANCE	rs4713864	0.6688	-0.0035	0.0024	0.1454	0.8646
FANCF	rs7109087	0.8323	0.0003	0.0029	0.9194	0.205
FANCG	rs2073575	0.9482	-0.0038	0.0053	0.472	0.01822
FANCI	rs3087374	0.085	0	0.0042	0.9928	0.5978
FANCL	rs3821211	0.9373	-0.0057	0.0047	0.2197	0.469
FANCM	rs226984	0.7287	0.0022	0.0029	0.4466	0.41
FBLN5	rs4904827	0.9241	-0.0093	0.0044	0.03352	0.3389
FGA	rs2070016	0.8365	0.0014	0.0032	0.6557	0.2968
FGF10	rs13166177	0.919	0.0028	0.0051	0.5887	0.5931
FGF23	rs720333	0.848	-0.0077	0.003	0.01003	0.5165

<i>FGFR1</i>	rs11777067	0.2346	-0.0045	0.0026	0.08731	0.7465
<i>FGFR2</i>	rs3135812	0.9385	-0.002	0.0057	0.7214	0.7198
<i>FGFR3</i>	rs2301293	0.0852	-0.0008	0.0068	0.9089	0.3547
<i>FN1</i>	rs1263	0.3619	0.0015	0.0023	0.5198	0.8621
<i>FOXC1</i>	rs2235718	0.0999	0.0015	0.0037	0.6939	0.5446
<i>FOXC2</i>	rs4843165	0.2605	0.0066	0.0028	0.01922	0.1545
<i>FOXF1</i>	rs12924722	0.5891	-0.0019	0.0022	0.3828	0.4966
<i>FRAS1</i>	rs13103319	0.3044	-0.0052	0.0023	0.02758	0.5689
<i>FREM1</i>	rs1389733	0.5757	-0.0017	0.0023	0.4629	0.7894
<i>FXD2</i>	rs4472969	0.176	-0.0005	0.0035	0.8813	0.7404
<i>G6PC</i>	rs2593595	0.8249	0.0005	0.0029	0.8625	0.8535
<i>GALNT3</i>	rs1364685	0.1355	0.0017	0.0032	0.5878	0.1686
<i>GATA3</i>	rs406103	0.201	0.0037	0.003	0.2144	0.8361
<i>GIF</i>	rs558660	0.1799	0.0029	0.0031	0.3379	0.1706
<i>GLB1</i>	rs11707667	0.5214	0.0007	0.0023	0.7687	0.6527
<i>GLI3</i>	rs11764679	0.0707	-0.0065	0.0046	0.1631	0.549
<i>GRHR</i>	rs7853540	0.617	-0.0004	0.0026	0.8748	0.09429
<i>GSN</i>	rs306770	0.7842	0.0029	0.0026	0.2621	0.2877
<i>GSS</i>	rs2236270	0.3882	0.0005	0.0022	0.822	0.2036
<i>GUCY2D</i>	rs11078729	0.6393	0.0029	0.0024	0.2248	0.4195
<i>H19</i>	rs2839701	0.5021	0.0001	0.0023	0.9731	0.9045
<i>HCA1</i>	rs6841704	0.601	-0.0026	0.0029	0.3622	0.698
<i>HNFB</i>	rs2107133	0.8828	0.005	0.0035	0.1568	0.0997
<i>HOXA13</i>	rs4722672	0.8053	0.0061	0.0029	0.03703	0.03921
<i>HOXD13</i>	rs6752623	0.1763	-0.0039	0.0031	0.2014	0.4273
<i>HPD</i>	rs12310752	0.4984	-0.0021	0.0023	0.3658	0.1945
<i>HRAS</i>	rs11246169	0.8362	0.0003	0.0032	0.9139	0.6374
<i>HSD17B4</i>	rs11205	0.5859	0.006	0.0022	0.006557	0.8879
<i>ICK</i>	rs316144	0.4234	0.0007	0.0023	0.7489	0.1626
<i>IKBKAP</i>	rs10979614	0.5634	-0.0016	0.0023	0.4978	0.6281
<i>INF2</i>	rs7140154	0.1674	-0.004	0.0042	0.346	0.2673
<i>INPP5E</i>	rs10870193	0.1234	0.0058	0.0034	0.08489	0.5245
<i>INVS</i>	rs1415927	0.894	0.0031	0.0036	0.3832	0.251
<i>JAG1</i>	rs6040050	0.2981	0.0076	0.0025	0.002486	0.1309

KCNJ1	rs2238009	0.1368	0.0048	0.0032	0.1272	0.2797
KCNJ10	rs6690889	0.5428	0.0004	0.0022	0.8605	0.847
KCNJ2	rs9901104	0.1092	0.0063	0.005	0.2068	0.5808
KCNQ1OT1	rs463924	0.2957	0.002	0.0024	0.4172	0.09682
KRAS	rs7960917	0.7658	-0.0025	0.0027	0.3568	0.6427
KRT8	rs2638504	0.3219	0.003	0.0023	0.1959	0.1963
LAMB2	rs9880088	0.1014	0.0078	0.0035	0.02484	0.3129
LCAT	rs2292318	0.129	-0.0006	0.0033	0.846	0.7518
LCT	rs11684545	0.7099	-0.0058	0.0024	0.0148	0.5519
LEMD3	rs11175678	0.0679	-0.0027	0.0053	0.6138	0.8942
LMNB2	rs733820	0.0827	-0.0023	0.0069	0.7414	0.3734
LMX1B	rs7864957	0.4406	0.0046	0.0022	0.03673	0.3845
LRP2	rs6433115	0.7973	-0.0045	0.0027	0.08953	0.7868
LRP4	rs4752813	0.0449	0.0037	0.009	0.6763	0.1248
LYZ	rs7959452	0.4845	-0.0005	0.0022	0.8309	0.3311
MAP2K1	rs12911117	0.0819	0.0009	0.004	0.8234	0.6145
MAP2K2	rs350912	0.2476	0.0027	0.0036	0.4477	0.3304
MEFV	rs767067	0.9356	0.0047	0.0047	0.314	0.2283
MKKS	rs6032878	0.8936	-0.0044	0.0036	0.2207	0.006719
MKS1	rs12602498	0.6751	-0.0031	0.0024	0.1974	0.6962
MMACHC	rs12029322	0.2281	-0.0045	0.0026	0.08389	0.9309
MMP1	rs1155764	0.82	0.0006	0.0033	0.8602	0.2198
MUT	rs9381784	0.3624	-0.0001	0.0022	0.9476	0.5882
MYCN	rs12617996	0.311	-0.0014	0.0025	0.5793	0.003227
MYH9	rs767855	0.3413	0.0049	0.0023	0.03336	0.8319
NDUFS7	rs3848638	0.4565	-0.0015	0.0026	0.5469	0.8825
NEU1	rs13118	0.865	-0.0006	0.0055	0.9127	0.5978
NF1	rs2952993	0.7114	0.0011	0.0024	0.6425	0.2238
NIPBL	rs6868809	0.1371	0.0034	0.0031	0.2819	0.9548
NOTCH2	rs4659248	0.8502	-0.0056	0.0045	0.2165	0.224
NPHP1	rs17463266	0.084	-0.0029	0.0055	0.6046	0.1209
NPHP3	rs10935030	0.0682	-0.0028	0.0056	0.6234	0.2796
NPHP4	rs4908458	0.0938	-0.0009	0.0039	0.815	0.3117
NPHS1	rs3814995	0.2848	0.0113	0.0047	0.01611	0.05467

<i>NPHS2</i>	rs10798689	0.9209	-0.008	0.004	0.04818	0.3891
<i>NR3C2</i>	rs17483833	0.2082	0.0047	0.0026	0.07366	0.1073
<i>NSD1</i>	rs4073745	0.6931	0.0034	0.0024	0.1667	0.7872
<i>PAF1</i>	rs1629174	0.0672	-0.0002	0.0045	0.9715	0.2075
<i>PALB2</i>	rs249942	0.0661	-0.006	0.0046	0.187	0.02157
<i>PAX2</i>	rs2077642	0.6091	-0.0017	0.0022	0.4306	0.3982
<i>PC</i>	rs11227623	0.0898	0.0019	0.0042	0.6462	0.4195
<i>PDSS2</i>	rs9398131	0.8518	0.001	0.0031	0.7558	0.4162
<i>PEX1</i>	rs2111200	0.0788	0.0049	0.0044	0.2619	0.3054
<i>PEX12</i>	rs9900378	0.3596	-0.0013	0.0022	0.5529	0.8602
<i>PEX14</i>	rs2242288	0.039	0.0088	0.006	0.1453	0.7522
<i>PEX26</i>	rs464541	0.8073	-0.0027	0.0027	0.3296	0.8576
<i>PEX5</i>	rs12312641	0.0858	0.0019	0.004	0.6426	0.3309
<i>PEX6</i>	rs9986447	0.5477	-0.0009	0.0022	0.6897	0.3903
<i>PHYH</i>	rs4615920	0.7434	0.0006	0.0025	0.8065	0.06608
<i>PKD1</i>	rs13335638	0.8597	0.0048	0.0038	0.2075	0.3697
<i>PKD2</i>	rs2728111	0.7645	0.0046	0.0025	0.0709	0.1411
<i>PKHD1</i>	rs12661470	0.1009	0.0007	0.0036	0.8382	0.9479
<i>PLCE1</i>	rs12258052	0.3045	-0.0023	0.0023	0.3293	0.3389
<i>PMM2</i>	rs9926107	0.0598	-0.0073	0.0047	0.121	0.8016
<i>PRODH</i>	rs1808320	0.4474	-0.0045	0.0028	0.1098	0.08405
<i>PROK2</i>	rs1374913	0.314	-0.0013	0.0024	0.5728	0.3892
<i>PROKR2</i>	rs6053283	0.2445	-0.0015	0.0025	0.5611	0.03838
<i>PSTPIP1</i>	rs3936040	0.1765	-0.0028	0.0031	0.3775	0.997
<i>PTEN</i>	rs2248293	0.6849	0.0009	0.0024	0.6977	0.7951
<i>PTH1R</i>	rs4682844	0.5707	0.0006	0.0022	0.789	0.1145
<i>PTPN11</i>	rs11066301	0.551	0.0084	0.0023	0.000204	0.7
<i>PVRL1</i>	rs7122134	0.6116	-0.0054	0.0023	0.01822	0.6693
<i>PXMP3</i>	rs4236857	0.3796	-0.004	0.0025	0.1166	0.9897
<i>RAG1</i>	rs16929071	0.8999	-0.0041	0.0036	0.2595	0.1393
<i>RAG2</i>	rs867803	0.8989	-0.0045	0.0037	0.221	0.1521
<i>RAI1</i>	rs8065154	0.4273	-0.0044	0.0022	0.04285	0.06
<i>RECQL4</i>	rs10111332	0.5231	-0.0027	0.0038	0.4757	0.6381
<i>REN</i>	rs6676670	0.1835	-0.0005	0.0028	0.8705	0.2146

<i>RET</i>	rs1864405	0.2461	-0.0002	0.0026	0.9482	0.005919
<i>ROBO2</i>	rs9827843	0.5736	0.0047	0.0022	0.03134	0.306
<i>ROR2</i>	rs10512219	0.8424	0.0028	0.003	0.3465	0.9934
<i>SALL1</i>	rs7501078	0.4144	0.0003	0.0025	0.9	0.3004
<i>SALL4</i>	rs13039280	0.8723	-0.0001	0.0033	0.9767	0.6941
<i>SCARB2</i>	rs894250	0.5034	-0.0028	0.0025	0.2703	0.6379
<i>SCN4A</i>	rs4968678	0.077	-0.0028	0.0048	0.5569	0.8011
<i>SCNN1A</i>	rs11064153	0.7961	-0.0036	0.0031	0.2526	0.1062
<i>SCNN1B</i>	rs2106374	0.8142	0.0091	0.0029	0.002021	0.5868
<i>SCNN1G</i>	rs5735	0.6842	-0.0004	0.0024	0.8744	0.9609
<i>SHH</i>	rs872723	0.1386	0.0031	0.0042	0.4618	0.6357
<i>SIX1</i>	rs11628064	0.068	-0.0007	0.005	0.8874	0.03781
<i>SIX2</i>	rs2959253	0.5007	-0.0011	0.0022	0.6131	0.5496
<i>SIX5</i>	rs725660	0.3642	0.004	0.0023	0.0726	0.1571
<i>SLC12A1</i>	rs1531916	0.8289	-0.0051	0.0028	0.07066	0.3258
<i>SLC12A3</i>	rs1529930	0.8184	-0.0038	0.0029	0.1841	0.02836
<i>SLC22A12</i>	rs3802947	0.0501	0.0046	0.0051	0.3719	0.09531
<i>SLC26A4</i>	rs2237679	0.2591	0.0012	0.0025	0.6217	0.4301
<i>SLC2A10</i>	rs4810543	0.9275	-0.0068	0.0043	0.1114	0.723
<i>SLC2A2</i>	rs10513684	0.0489	-0.0089	0.0053	0.09093	0.3492
<i>SLC34A3</i>		NA	NA	NA	NA	NA
<i>SLC37A4</i>	rs4938619	0.1314	0.0037	0.0033	0.2653	0.4589
<i>SLC3A1</i>	rs713448	0.2294	-0.0005	0.0026	0.8344	0.1719
<i>SLC4A1</i>	rs2074108	0.3974	0.003	0.0025	0.224	0.9551
<i>SLC4A4</i>	rs2579307	0.0684	-0.001	0.0045	0.8279	0.2007
<i>SLC5A2</i>	rs9927250	0.2361	-0.0009	0.0028	0.7382	0.4585
<i>SLC7A7</i>	rs6572754	0.2501	-0.0036	0.0029	0.2172	0.05951
<i>SLC7A9</i>	rs12460876	0.602	-0.0063	0.0022	0.005038	0.4991
<i>SLC9A3R1</i>	rs3178300	0.6014	-0.0014	0.0035	0.6997	0.3781
<i>SMARCAL1</i>	rs10207455	0.3251	0.0034	0.0023	0.1497	0.02572
<i>SMC3</i>	rs11195183	0.1272	-0.003	0.0033	0.3645	0.7842
<i>SOX17</i>	rs16920355	0.8198	-0.002	0.0033	0.5504	0.1668
<i>SOX9</i>	rs918080	0.2023	0.0014	0.003	0.6353	0.005973
<i>STRA6</i>	rs974456	0.2271	0.0021	0.0028	0.453	0.04301

<i>SUCLA2</i>	rs6561429	0.9151	0.0031	0.0039	0.4167	0.5873
<i>SURF1</i>	rs484248	0.4883	0	0.0022	0.9873	0.2432
<i>TBX1</i>	rs4819843	0.1829	-0.0027	0.0029	0.3424	0.7474
<i>TCIRG1</i>	rs3133269	0.7532	-0.0011	0.0028	0.6868	0.1963
<i>TFAP2A</i>	rs12526269	0.2089	0.0043	0.0027	0.1054	0.2054
<i>TMEM216</i>	rs921635	0.8573	0.0031	0.0031	0.3101	0.8544
<i>TMEM67</i>	rs7839522	0.7324	-0.0015	0.0024	0.5325	0.8295
<i>TNFRSF11B</i>	rs7820642	0.8234	-0.0021	0.0028	0.4607	0.08524
<i>TP63</i>	rs6790731	0.8636	-0.0028	0.0034	0.3992	0.3201
<i>TRIM32</i>	rs17220476	0.7612	0.0018	0.0026	0.4797	0.4104
<i>TRPC6</i>	rs12577826	0.1714	-0.0004	0.0039	0.9219	0.4519
<i>TRPM6</i>	rs11144073	0.8053	0.0028	0.0034	0.4207	0.7138
<i>TSC1</i>	rs1050700	0.7067	-0.0059	0.0024	0.01528	0.07384
<i>TTC8</i>	rs17700521	0.7369	-0.0041	0.0025	0.09111	0.2066
<i>UMOD</i>	rs12922822	0.1878	0.0189	0.0028	1.19E-11	0.004598
<i>UPK3A</i>	rs5766632	0.2675	-0.0024	0.0026	0.3503	0.09998
<i>UQCRB</i>	rs7014324	0.1212	-0.0019	0.0036	0.605	0.6679
<i>UQCRQ</i>	rs4705974	0.152	0.0044	0.0031	0.1515	0.7994
<i>USF2</i>	rs1882694	0.6492	-0.0032	0.0023	0.1626	0.5371
<i>VIPAR</i>	rs17105824	0.1603	-0.0011	0.003	0.7104	0.2742
<i>VPS33B</i>	rs9920813	0.129	-0.0027	0.0042	0.5312	0.4911
<i>WDPCP</i>	rs1850983	0.972	0.0087	0.0074	0.2378	0.2423
<i>WHSC1</i>	rs494893	0.0881	-0.0022	0.0045	0.6194	0.53
<i>WNK1</i>	rs9634161	0.8398	0.0061	0.003	0.047	0.884
<i>WNK4</i>	rs873084	0.9354	0.0015	0.0046	0.744	0.2235
<i>WNT3</i>	rs11655598	0.7376	0.0001	0.0028	0.9679	0.1949
<i>WNT4</i>	rs7515106	0.7874	-0.0006	0.0027	0.8128	0.9538
<i>WT1</i>	rs5030263	0.9318	-0.0063	0.0044	0.1495	0.158
<i>XDH</i>	rs207432	0.6154	0.0003	0.0022	0.8866	0.4825