Human Gene Map

The following listing of presently assigned genes to human chromosomes is being offered as a service to our readers who may not have ready access to such listings. It represents the combined work of many investigators. Authors are encouraged to seek out the original work rather than to cite a general listing. This list represents the internationally agreed upon nomenclature and localization. Two tables are given: one of loci for each chromosome, and a second of all loci in alphabetical order. The list will be published as often as necessary to keep it up to date. Specific references can be found in the following general references.

REFERENCES

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TABLE 1

CHROMOSOME ASSIGNMENT OF HUMAN GENE MARKERS

Chromosome	Gene symbol*	Gene marker	Polymorphic†	E.C. no.	Smallest region‡	Status§
1	*A12M1*	Adenovirus-12 chromosome modification site 1C			q42→q43	P
	A12M2	Adenovirus-12 chromosome modification site 1A			p36	P
	A12M3	Adenovirus-12 chromosome modification site 1B			q21	P
	AK2	Adenylate kinase-2		2.7.4.3	pter→p32	
	AMY1	α-Amylase (salivary)		3.2.1.1	p22.1→q11	
	AMY2	α-Amylase (pancreatic)	+	3.2.1.1	p22.1→q11	
	AT3	Antithrombin III			q23→q25	P
	CAE	Cataract, zonular pulverulent (Fy-linked)				
	CMT1	Charcot-Marie-Tooth disease (slow conduction type)				
	D1S1	DNA segment			p36	P
	D1Z1	DNA satellite 3			q12	P
	Do	Dombrock blood group	+			T
	EL1	Elliptocytosis (Rh-linked)			p	
	EL2	Elliptocytosis (not Rh-linked)				T
	ENO1	Enolase-1		4.2.1.11	p36	
	FH	Fumarate hydratase		4.2.1.2	q42→qter	
	FUCA	α-L-Fucosidase	+	3.2.1.51	p34→p32	
	Fy	Duffy blood group	+		pter→q21 or q25 or q32→qter	
	GALE	UDPGAL-4-epimerase		5.1.3.2	pter→p32	
	GBA	β-Glucosidase, acid		3.2.1.45	p11→qter	P
	GDH	Glucose dehydrogenase	+	1.1.1.47	pter→p21	
	GUK1	Guanylate kinase-1		2.7.4.8	q32→q42	
	GUK2	Guanylate kinase-2		2.7.4.8		
	MTR	Tetrahydropteroylglutamate methyltransferase		2.1.1.13		P
	PEPC	Peptidase-C	+	3.4.11.* or 3.4.13.*	q25 or q42	
	PFKM	Phosphofructokinase, M subunit		2.7.1.11	p32.1→q32	P
	PGD	Phosphogluconate dehydrogenase	+	1.1.1.44	pter→p34	
	PGM1	Phosphoglucomutase-1	+	2.7.5.1	p22.1	
	PKU1	Phenylketonuria				I

(*Continued on next page*)

TABLE 1 (*continued*)

Chromosome	Gene symbol*	Gene marker	Polymorphic†	E.C. no.	Smallest region‡	Status§
1 (continued)	*Rd*	Radin blood group			p34→p22.1	P
	Rh	Rhesus blood group	+		p36→p32	
	RN5S	5S RNA			q42→q43	
	RP1	Retinitis pigmentosa-1				T
	Sc	Scianna blood group	+		p34→p32	
	SDH	Succinate dehydrogenase		1.3.99.1	p22.1→qter	P
	UGP1	UPD glucose pyrophosphorylase-1		2.7.7.9	q21→q22	
	UMPK	Uridine monophosphate kinase	+	2.7.4.*	p32	
Probable gene order: pter-(*ENO1,A12M2,D1S1,PGD,GDH,GALE*)-*EL1-Rh-FUCA*-(*Sc,Rd,AK2*)-*UMPK-PGM1*-(*AMY1,AMY2*)-cen-(*D1Z1,Fy,CAE,A12M3,UGP1*)-*AT3-GUK-PEPC*-(*A12M1,RN5S,FH*)-qter						
2	*ACP1*	Acid phosphatase-1	+	3.1.3.2	p23 or p25	
	ADCP2	Adenosine deaminase complexing protein-2				
	AHH	Arylhydrocarbon hydroxylase		1.14.14.1		P
	D2S1	DNA segment	+			P
	GLAT	Galactose enzyme activator			p22→p11	P
	IDH1	Isocitrate dehydrogenase (soluble)		1.1.1.42	q32→qter	
	IF1	Interferon-1			p23→qter	P
	IGK	Immunoglobulin κ chain, region not specified				
	IGKC	Immunoglobulin κ chain, constant region	+			P
	IGKV	Immunoglobulin κ chain, variable region			p13→cen	P
	Jk	Kidd blood group	+			
	MDH1	Malate dehydrogenase, NAD (soluble)		1.1.1.37	p23	
	POC	Proopiocortin (adrenocorticotropin/β-lipotropin)				P
	RACH	Regulator of acetylcholinesterase				P
	RPE	Ribulose-5-phosphate 3-epimerase		5.1.3.1		P
	UGP2	UDG glucose pyrophosphorylase-2		2.7.7.9		P
Probable gene order: *pter-ACP1-MDH1-GLAT-IGKV*-cen-*IDH1*-qter						
3	*ACY1*	Aminoacylase-1		3.5.1.14	p21	
	AF8T	AF8T temperature sensitivity complementing				P
	D3S1	DNA segment	+			P
	D3S2	DNA segment	+			P

	GLB1	β-Galactosidase-1		3.2.1.23	p21→q21	
	GPX1	Glutathione peroxidase-1	+	1.11.1.9	p13→q12	
(or 11)	*Hv1S*.....	Herpes simplex virus type 1 sensitivity				I
	TFRC	Transferrin receptor				P
Probable gene order: pter-*ACY1*-(*GLB*,cen,*GPX1*)-qter						
4	*ALB*	Albumin	+		q11→q13	
	DGI	Dentinogenesis imperfecta				P
	GC	Group-specific protein	+		q11→q13	
	MN.....	MN blood group	+		q28→q31	
	PEPS	Peptidase-S		3.4.11.* or 3.4.13.*	p12→q12	
	PGM2.....	Phosphoglucomutase-2	+	2.7.5.1	p14→q12	
	PLG	Plasminogen	+		pter→q22 or q25→qter	P
	PPAT.....	Phosphoribosyl pyrophosphate amidotransferase		2.4.2.14	pter→q21	P
	QDPR.....	Quinoid dehydrogenase reductase		1.6.5.1		P
	Sf	Stoltzfus blood group				P
	Ss	Ss blood group	+		q28→q31	
	TYS.....	Sclerotylosis				P
Probable gene order: pter-(*PGM2*,*PEPS*,cen)-(*ALB*,*GC*)-(ALB,*GC*)-(*MN*,*Ss*)-qter						
5	*ARSB*	Arysulfatase-B		3.1.6.1		
	AVRR	Antiviral state repressor regulator			p	P
	D5S1	DNA segment	+			P
	DTS	Diphtheria toxin sensitivity			q15→qter	
	HEXB.....	Hexosaminidase-B (β subunit)		3.2.1.30	q11→q13	
	IF2	Interferon-2			p	P
	LARS	Leucyl-tRNA synthetase		6.1.1.4		P
Probable gene order: cen-*HEXB*-*DTS*-qter						
6	*ADCP1*.....	Adenosine deaminase complexing protein-1				P
	BEVI.....	Baboon M7 virus infection				
	BF	Properdin factor B (glycine-rich glycoprotein)	+		p23→p2105	
	C2.....	Complement component-2	+		p23→p2105	P
	C4F	Complement component-4F (Rogers)	+		p23→p2105	
	C4S.....	Complement component-4S (Chido)	+		p23→p2105	
	CAH.....	Congenital adrenal hyperplasia III (21-hydroxylase deficiency)			p23→p2105	
	D6S1	DNA segment				P

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TABLE 1 (*continued*)

Chromosome	Gene symbol*	Gene marker	Polymorphic†	E.C. no.	Smallest region‡	Status§
6 (continued)	*GLO*	Glyoxalase I (lactoyl-glutathione lyase)	+	4.4.1.5	p23→p2100	
	HAF	Clotting factor XII (Hageman)				P
	HC	Hypercholesterolemia				P
	HLA-A	HLA-A	+		p23→p2105	
	HLA-B	HLA-B	+		p23→p2105	
	HLA-C	HLA-C	+		p23→p2105	
	HLA-D	HLA-D	+		p23→p2105	
	HLA-DR	HLA-D related	+		p23→p2105	
	IS	Immune suppression				P
	ME1	Malic enzyme (soluble)		1.1.1.40	q12→q15	
	MRBC	Monkey red blood cell receptor				P
	P	P blood group	+			P
	PGM3	Phosphoglucomutase-3	+	2.7.5.1	q12→qter	
	PLA	Plasminogen activator				P
	PRL	Prolactin				P
	S5	Surface antigen (chromosome 6)				P
	SCA1	Spinal cerebellar ataxia				P
	SOD2	Superoxide dismutase (mitochondrial)		1.15.1.1	q21	
	TRM1	$tRNA_i^{met}$				P
	TRM2	$tRNA_i^{met}$				P
Probable gene order: pter-*HLA A-HLA C-HLA B-(BF,C2,C4F,C4S,CAH)-HLA D-HLA DR-GLO*-cen-*MEI-PGM3-SOD2*-qter						
7	*ASL*	Argininosuccinate lyase		4.3.2.1	pter→q22	P
	BLVR	Biliverdin reductase		1.3.1.24	p14-cen	P
	COL1A1	Collagen, type 1, α1				P
	COL1A2	Collagen, type 1, α2				
	COL3A1	Collagen, type III, α1				P
	EGFR	Epidermal growth factor receptor			p13→p11	
	GCF1	Growth control factor-1				P
	GUSB	β-Glucuronidase		3.2.1.31	cen→q22	
	H1	H1 Histone			q22 or q32→q36	
	H2A	H2A Histone			q22 or q32→q36	
	H2B	H2B Histone			q22 or q32→q36	
	H3	H3 Histone			q22 or q32→q36	
	H4	H4 Histone			q22 or q32→q36	
	HADH	Hydroxyacyl-CoA dehydrogenase		1.1.1.35		P
	MDH2	Malate dehydrogenase, NAD (mitochondrial)		1.1.1.37	p22→q22	

	NHCP.....	Nonhistone chromosome protein				P
	NM.....	Neutrophil migration			q22→qter	P
	PSP.....	Phosphoserine phosphatase				P
	S6.....	Surface antigen (chromosome 7)-1 (MW 165,000)			pter→p11	P
	S7.....	Surface antigen (chromosome 7)-2				P
	UP.....	Uridine phosphorylase		2.4.2.3		
Probable gene order: pter-(*S6*,*BLVR*,*EGFR*)-cen-*GUSB*-(*NM*,*H1*,*H2A*,*H2B*,*HC*,*H4*)-qter						
8	*FNS*.....	Fibronectin surface control				P
(or 16)	*GPT*.....	Glutamic-pyruvic transaminase (alanine aminotransferase)		2.6.1.2	8 or 16pter→16p11	I
	GSR.....	Glutathione reductase	+	1.6.4.2	p211	
(or 12)	*SPH1*.....	Spherocytosis-1			8p11 or 12p13	I
Probable gene order: pter-*GSR*-cen						
9	*ABO*.....	ABO blood group	+		q34	
	ACO1.....	Aconitase (soluble)	+	4.2.1.3	p22→p13	
	AK1.....	Adenylate kinase-1	+	2.7.4.3	q34	
	AK3.....	Adenylate kinase-3		2.7.4.10	p24→p13	
	ASS.....	Argininosuccinate synthetase		6.3.4.5	q34→qter	P
	DNCM.....	DNA associated with cytoplasmic membrane			ph	P
	FPGS.....	Folylpolyglutamate synthetase				
	GALT.....	Galactose-1-phosphate uridylyltransferase	+	2.7.7.12	pter→p13	
	IFF.....	Interferon, fibroblast β type			p24→qter	
	IFL.....	Interferon, leukocyte α type				P
	NPS1.....	Nail-patella syndrome type 1			q	
	ORM.....	Orosomucoid			q	P
	WS1.....	Waardenburg syndrome, type 1				T
Probable gene order: pter-*GALT*-(*AK3*,*ACO1*)-cen-(*ABO*,*NPS1*,*AK1*,*ASS*)-qter						
10	*ADK*.....	Adenosine kinase		2.7.1.20	q11→q24	
(18, P)	*CGH*.....	Chorionic gonadotropin				P
	D10S1.....	DNA segment				P
	FUSE.....	Polykaryocytosis promoter				P
	GOT1.....	Glutamic-oxaloacetic transaminase (soluble)	+	2.6.1.1	q24→q25	
	GSAS.....	Glutamate-γ-semialdehyde synthetase				P
	HK1.....	Hexokinase-1		2.7.1.1		
	LIPA.....	Lipase-A				

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TABLE 1 (*continued*)

Chromosome	Gene symbol*	Gene marker	Polymorphic†	E.C. no.	Smallest region‡	Status§
10 (continued)	*M130*	External membrane protein-130 (MW 130,000)				P
	PFKF	Phosphofructokinase, F subunit		2.7.1.11		P
	PP	Pyrophosphatase (inorganic)		3.6.1.1	p15→q24	
Probable gene order: cen-*ADK-GOT1*-qter						
11	*ACP2*	Acid phosphatase-2		3.1.3.2	p12→cen	
	BVIX.....	BALB virus induction xenotropic (induction of xenotropic oncornavirus)				P
	CAT	Catalase			p13	
	CPSD.....	Cathepsin D		3.4.23.5	pter→q12	P
	D11S1	DNA segment	+		pter→p13	P
	D11S2	DNA segment			p13→p1208	P
	D11S3	DNA segment			p1208→p11	P
	D11S4	DNA segment			p11→q13	P
	D11S5	DNA segment				P
	D11S6	DNA segment				P
	D11S7	DNA segment				P
	D11S8	DNA segment				P
	D11S9	DNA segment				P
	D11S10	DNA segment				P
	D11S11	DNA segment				P
	ESA4	Esterase-A_4		3.1.1.1	cen→q22	
	FCP	Hemoglobin F cell production				
	FN	Fibronectin (large, external, transformation sensitive protein)				
	GST1	Glutathione *S*-transferase-1				P
	HBB.....	Hemoglobin β	+		p1208→p1205	
	HBD.....	Hemoglobin δ			p1208→p1205	
	HBE.....	Hemoglobin ϵ			p1208→p1205	
	HBG1.....	Hemoglobin γ^A	+		p1208→p1205	
	HBG2.....	Hemoglobin γ^G	+		p1208→p1205	
(or 3)	*HV1S*	Herpes simplex virus type 1 sensitivity				I
	INS.....	Insulin			p15.5→p13	
	LDHA.....	Lactate dehydrogenase-A		1.1.1.27	p1208→p1203	
	M1C1.....	Antigen identified by monoclonal antibody W6/34				P

	M1C4	Antigen identified by monoclonal antibody F10.44.2				P
	S1	Lethal antigen-1			pter→p13	P
	S2	Lethal antigen-2			q13→qter	P
	S3	Lethal antigen-3			pter→p13	P
	S4	Species antigen			p	P
	UPS	Uroporphyrinogen 1 synthase		4.3.1.8	q23→qter	
	WAGR	Wilms' tumor—aniridia, genitourinary abnormalities, and mental retardation triad			p13	
Probable gene order: pter-(*S1*, *S3*,*INS*, *D11S1*)-(*CAT*,*WAGR*, *D11S2*)-(*LDHA*, *HBE*, *HBG2*, *HBG1*, *HBD*, *HBB*, *D11S3*, *ACP2*)-cen-(*ESA4*, *S2*,*UPS*)-qter						
12	*BCT1*	Branched chain aminotransferase-1		2.6.1.26	pter→q12	
	CS	Citrate synthase		4.1.3.7	p11→qter	
	D12S1	DNA segment				P
	ENO2	Enolase-2		4.2.1.11	p11→qter	
	GAPD	Glyceraldehyde-3-phosphate dehydrogenase		1.2.1.12	p13	
	GPD1	Glycerol-3-phosphate dehydrogenase		1.1.1.8		P
	KAR	α-Keto acid (aromatic) reductase			p	P
	LDHB	Lactate dehydrogenase-B		1.1.1.27	p12.4→p12.1	
	M1C3	Antigen identified by monoclonal antibody 602-29				P
	PEPB	Peptidase-B		3.4.11.* or 3.4.13.*	q21	
	S8	Surface antigen (chromosome 12)-1				P
	SHMT	Serine hydroxymethyl transferase		2.1.2.1	q12→q14	
(or 8)	*SPH1*	Spherocytosis-1			8p11 or 12p13	I
	TPI1	Triosephosphate isomerase-1		5.3.1.1	p13	
	TPI2	Triosephosphate isomerase-2		5.3.1.1		
Probable gene order: pter-(*GAPD*,*TPI*)-*LDHB*-cen-*SHMT*-*PEPB*-qter						
13	*ESD*	Esterase-D	+	3.1.1.1	q14	
	RB1	Retinoblastoma-1			q	
(and 14, 15, 21, 22)	*RNR*	Ribosomal RNA			p12	
Probable gene order: pter-*RNR*-cen-*RB1*-*ESD*-qter						
14	*CKBB*	Creatine kinase BB isozyme		2.7.3.2		
	D14S1	DNA segment	+		q21→qter	P
	D14S2	DNA segment				P
	EBV	Epstein-Barr virus				P
	ESAT	Esterase activator				P
	IGHA1	Immunoglobulin α^1 heavy chain				
	IGHA2	Immunoglobulin α^2 heavy chain				

(*Continued on next page*)

TABLE 1 (*continued*)

Chromosome	Gene symbol*	Gene marker	Polymorphic†	E.C. no.	Smallest region‡	Status§
14 (continued)	*IGHD*	Immunoglobulin δ heavy chain				
	IGHE	Immunoglobulin ϵ heavy chain				
	IGHF	Immunoglobulin heavy chain flanking region				
	IGHG1	Immunoglobulin γ^1 heavy chain	+			
	IGHG2	Immunoglobulin γ^2 heavy chain	+			
	IGHG3	Immunoglobulin γ^3 heavy chain	+			
	IGHG4	Immunoglobulin γ^4 heavy chain	+			
	IGHM	Immunoglobulin μ heavy chain				
	IGHV	Immunoglobulin heavy chain, variable region (chain not specified)				
	LCH	Lentil agglutinin binding				P
	M195	External membrane protein-195 (MW 195,000)				P
	NP	Nucleoside phosphorylase		2.4.2.1	q12→q20	
	PFGS	Phosphoribosylformylglycinamide synthetase (formylglycinamide ribotide aminotransferase)		6.3.5.3		P
	PGFT	Phosphoribosylglycinamide formyltransferase		2.1.2.2		P
	PI	α_1-Antitrypsin (α_1-protease inhibitor)	+			
(and 13, 15, 21, 22)	*RNR*	Ribosomal RNA			p12	
	WARS	Tryptophanyl-tRNA synthetase		6.1.1.2	q21→qter	
Probable gene order: pter-*RNR*-cen-*NP*-(*D14S1*,*WARS*)-qter						
15	*B2M*	β_2-Microglobulin			q22→qter	
	BVIN	BALB virus induction N-tropic (induction of N-tropic oncornavirus)				P
	GANC	α-Glucosidase (neutral)-C	+	3.2.1.20		P
	HCVS	Human coronavirus sensitivity			q11→qter	P
	HEXA	Hexosaminidase-A (α subunit)	+	3.2.1.30	q22→q23	
	IDH2	Isocitrate dehydrogenase (mitochondrial)		1.1.1.42	q21→qter	
	MANA	α-Mannosidase-A		3.2.1.24	q11→qter	P
	MPI	Mannose phosphate isomerase		5.3.1.8	q22→qter	
	PKM2	Pyruvate kinase (M2)		2.7.1.40	q22→qter	
	PWS	Prader-Willi syndrome			q11	
(and 13, 14, 21, 22)	*RNR*	Ribosomal RNA			p12	

	SORD	Sorbitol dehydrogenase		1.1.1.14	pter→q21	P
Probable gene order: pter-*RNR*-cen-*PWS*-(*MANA*,*IDH2*,*HEXA*,*MPI*,*PKM2*,*B2M*)-qter						
16	*APRT*	Adenine phosphoribosyltransferase		2.4.2.7	q12→q22	
	AVR	Regulator of antiviral state				P
	CTH	Cystathionase		4.4.1.1		P
	CTRB	Chymotrypsinogen B	+			P
	D16S1	DNA segment	+			P
	D16S2	DNA segment				P
	DIA4.....	Diaphorase (NADH/NADPH)			q12→q21	
	ESB3	Esterase-B3				P
	GCF2.....	Growth control factor-2				P
	GOT2.....	Glutamic-oxaloacetic transaminase (mitochondrial)	+	2.6.1.1		
(or 8)	*GPT*.....	Glutamic-pyruvic transaminase	+	2.6.1.2	8 or 16pter→16p11	I
	HAGH	Hydroxyacyl glutathione hydrolase		3.1.2.6		P
	HBA	Hemoglobin α	+		pter→p11	
	HBZ	Hemoglobin ζ			pter→p12	
	HP	Haptoglobin	+		cen→q22	
	IFR.....	Interferon production regulator				P
	LCAT.....	Lecithin-cholesterol acyltransferase		2.3.1.43	cen→q22	
	LIPB.....	Lipase-B				P
	PGP.....	Phosphoglycollate phosphatase	+	3.1.3.18	p13→p12	
	TK2	Thymidine kinase (mitochondrial)		2.7.1.21		P
Probable gene order: pter-(*HBZ*,*HBA*,*PGP*)-cen-(*HP*,*LCAT*,*DIA4*,*APRT*)-qter						
17	*A12M4*	Adenovirus-12 chromosome modification site 17			q21→q22	P
	COLM	Collagen marker				P
	CSH	Chorionic somatomammotropin hormone			q22→q24	
	D17S1	DNA segment				P
	GAA.....	α-Glucosidase (acid)	+	3.2.1.20	q21→q25	
	GALK.....	Galactokinase		2.7.1.6	q21→q22	
	GH.....	Growth hormone			q22→q24	
	GHL.....	Growth hormone-like				P
	S9.....	Surface antigen (chromosome 17)-1				P
	TK1	Thymidine kinase (soluble)		2.7.1.21	q21→q22	
Probable gene order: cen-(*TK1*,*GALK*,*A12M4*)-(*GAA*,*GH*,*CSH*)-qter						
18 (and 10)	*CGH*.....	Chorionic gonadotropin				P
	PEPA	Peptidase-A	+	3.4.11.* or 3.4.13.*	q23	
Probable gene order: cen-*PEPA*-qter						

(*Continued on next page*)

TABLE 1 (*continued*)

Chromosome	Gene symbol*	Gene marker	Polymorphic†	E.C. no.	Smallest region‡	Status§
19	*BCT2*	Branched chain aminotransferase-2		2.6.1.26		P
	C3.....	Complement component-3	+			P
	DNL.....	Lysosomal DNAse			pter→q13	P
	D19S1	DNA segment				P
	E11S.....	ECHO 11 virus sensitivity			q	P
	GPI.....	Glucose phosphate isomerase		5.3.1.9	pter→q13	
	GUSM	Mouse β-glucuronidase modifier				P
	MANB	α-Mannosidase-B (lysosomal)		3.2.1.24	pter→q13	
	M7V1	Baboon virus replication				P
	PEPD.....	Peptidase-D (proline depeptidase)	+	3.4.13.9	pter→q13	
	PVS	Poliovirus sensitivity				
	RDRC.....	RD114 virus receptor				P
20	*ADA*	Adenosine deaminase	+	3.5.4.4	q13.2→qter	
	D20S1	DNA segment				P
	D20S2	DNA segment				P
	D20S3	DNA segment				P
	DCE.....	Desmosterol-to-cholesterol enzyme				P
	ITPA.....	Inosine triphosphatase (nucleoside triphosphate pyrophosphatase)		3.6.1.19	p	
	MEN2.....	Multiple endocrine neoplasia-2			p12.2	P
Probable gene order: pter-*MEN2*-cen-*ADA*-qter						
21	*AABT*.....	β-Amino acid transport				P
	HTOR.....	5-Hydroxytryptamine oxygenase regulator				P
	IFRC	Interferon receptor			q21→qter	
	PAIS.....	Phosphoribosylaminoimidazole synthetase				P
	PFKL.....	Phosphofructokinase, liver type		2.7.1.11		P
	PRGS.....	Phosphoribosylglycinamide synthetase		6.3.4.13		
(and 13, 14, 15, 22)	*RNR*	Ribosomal RNA			p12	
	S14.....	Surface antigen (chromosome 21)				P
	SOD1.....	Superoxide dismutase (soluble)	+	1.15.1.1	q22.1	
Probable gene order: pter-*RNR*-cen-*SOD1*-*IFRC*-qter						
22	*ACO2*.....	Aconitase (mitochondrial)		4.2.1.3	q11→q13	
	ARSA	Arylsulfatase-A		3.1.6.1	q13.31→qter	
	DGS.....	DiGeorge syndrome			q11	P
	DIA1.....	Diaphorase (NADH) (cytochrome b_5 reductase)		1.6.2.2	q13.31→qter	P

	D22S1	DNA segment				P
	GLB2	β-Galactosidase-2			q11→qter	P
	IGLC	Immunoglobulin λ chain, constant region				P
	IGLV.....	Immunoglobulin λ chain, variable region				T
	NAGA.....	α-*N*-Acetyl-galactosaminidase		3.2.1.49	q13	P
(and 13, 14, 15, 21)	*RNR*	Ribosomal RNA			p12	
	S13.....	Surface antigen (chromosome 22)				P
Probable gene order: pter-*RNR*-cen-*DGS-ACO2-NAGA*-(*ARSA*, *DIA1*)-qter						
X	*ALD*.....	Adrenoleukodystrophy			q28→qter	
	BA2R	BALB/c 3T3 ts2 temperature sensitivity complementing			q13→q27	P
	C1HR.....	C1AGOH temperature sensitivity complementing				P
	CBD.....	Color-blindness (deutan)			q	
	CBP	Color-blindness (protan)			q	
	CGD.....	Chronic granulomatous disease				
	DHTR.....	Dihydrotestosterone receptor			p11→q11	
	DXS1	DNA segment			pter→q1	P
	DXS2	DNA segment			pter→q1	P
	DXS3	DNA segment			q1→q21	P
	DXS4	DNA segment			q21→q24	P
	DXS5	DNA segment			q21→q24	P
	DXS6	DNA segment			q2→qter	P
	DXS7	DNA segment				P
	DXS8	DNA segment	+		q	P
	DXS9	DNA segment	+		p	P
	DXZ1	DNA segment (repetitive)			q23→q25	P
	GLA	α-Galactosidase		3.2.1.22	q21→q24	
	G6PD.....	Glucose-6-phosphate dehydrogenase	+	1.1.1.49	q28	
	HEMA	Antihemophilic globulin A (factor VIII, hemophilia A)			q	
	HPRT.....	Hypoxanthine phosphoribosyl transferase		2.4.2.8	q26→q28	
	HYB	Y histocompatibility antigen, regulator			pter→p22.3	P
	HYC.....	Y histocompatibility antigen, receptor				
	MAOA	Monoamine oxidase		1.4.3.4		P
	MDB.....	Muscular dystrophy, Becker type				
	MDD	Muscular dystrophy, Duchenne type			p21	

(*Continued on next page*)

TABLE 1 (*continued*)

Chromosome	Gene symbol*	Gene marker	Polymorphic†	E.C. no.	Smallest region‡	Status§
X (continued)	*M1C2*	Antigen identified by monoclonal antibody 12E7				P
	OA	Ocular albinism				
	OTC	Ornithine transcarbamylase		2.1.3.3		
	PGK	Phosphoglycerate kinase		2.7.2.3	q13	
	PRPS	Phosphoribosyl pyrophosphate synthetase		2.7.6.1	q21→q27	
	RNN1	Nuclear RNA-1				P
	RS	Retinoschisis				
	S10	Surface antigen (X-linked)-1			q26→q28	P
	S11	Surface antigen (X-linked)-2				P
	S12	Surface antigen (X-linked)-3			q26→qter	P
	STS	Steroid sulfatase (microsomal)			pter→p22.3	
	TATR	Tyrosine aminotransferase regulator				
	Xg	Xg blood group	+		pter→p22.3	
	Xk	Kell blood group precursor				
	XM	α_2-Macroglobulin				
	XPAC	Fast kinetic complementation DNA repair in xeroderma pigmentosum, group A				P
Probable gene order: pter-(*Xg*,*STS*,*HYB*)-*MDD*-cen-(*PGK*,*DXS3*)-(*GLA*,*DXS4*,*DXS5*)-(*DXZ1*,*PRPS*,*DXS6*)-(*HPRT*,*S10*,*S12*)-(*G6PD-CBD-CBP-HEMA-ALD*)-qter						
Y	*HYA*	Y histocompatibility antigen				

NOTE: This table was compiled from the Human Gene Mapping Workshop 6 and previous workshops.

* Gene nomenclature follows accepted guidelines.

† Refers to being polymorphic in at least one major ethnic group.

‡ Chromosome terminology follows the Paris Conference, and smallest region refers to the smallest, most consistent region.

§ A provisional assignment is listed as P, a tentative assignment as T, and an inconsistent assignment as I. Assignments without qualifications have been confirmed by two or more independent investigators.

TABLE 2

ALPHABETICAL LISTING OF HUMAN GENES ASSIGNED TO CHROMOSOMES

Gene marker	Gene symbol*	Chromosome assignment†	Status‡
ABO blood group	*ABO*	9	
Acid phosphatase-1	*ACP1*	2	
Acid phosphatase-2	*ACP2*	11	
Aconitase (mitochondrial)	*ACO2*	22	
Aconitase (soluble)	*ACO1*	9	
Adenine phosphoribosyltransferase	*APRT*	16	
Adenosine deaminase	*ADA*	20	
Adenosine deaminase complexing protein-1	*ADCP1*	6	P
Adenosine deaminase complexing protein-2	*ADCP2*	2	
Adenosine kinase	*ADK*	10	
Adenovirus-12 chromosome modification site 1A	*A12M2*	1	P
Adenovirus-12 chromosome modification site 1B	*A12M3*	1	P
Adenovirus-12 chromosome modification site 1C	*A12M1*	1	P
Adenovirus-12 chromosome modification site 17	*A12M4*	17	P
Adenylate kinase-1	*AK1*	9	
Adenylate kinase-2	*AK2*	1	
Adenylate kinase-3	*AK3*	9	
Adrenoleukodystrophy	*ALD*	X	
AF8 temperature sensitivity complementing	*AF8T*	3	P
Albumin	*ALB*	4	
β-Amino acid transport	*AABT*	21	P
Aminoacylase-1	*ACY1*	3	
α-Amylase (pancreatic)	*AMY2*	1	
α-Amylase (salivary)	*AMY1*	1	
Antigen identified by monoclonal antibody W6/34	*MIC1*	11	P
Antigen identified by monoclonal antibody 12E7	*MIC2*	X	P
Antigen identified by monoclonal antibody 602–29	*MIC3*	12	P
Antigen identified by monoclonal antibody F10.44.2	*MIC4*	11	P
Antihemophilic globulin A (factor VIII, hemophilia A)	*HEMA*	X	
Antithrombin III	*AT3*	1	P
α_1-Antitrypsin (α_1-protease inhibitor)	*PI*	14	
Antiviral state repressor regulator	*AVRR*	5	P
Argininosuccinate lyase	*ASL*	7	P
Argininosuccinate synthetase	*ASS*	9	P
Arylhydrocarbon hydroxylase	*AHH*	2	P

(*Continued on next page*)

TABLE 2 (*continued*)

Gene marker	Gene symbol*	Chromosome assignment†	Status‡
Arylsulfatase-A	*ARSA*	22	
Arylsulfatase-B	*ARSB*	5	
Baboon M7 virus infection	*BEVI*	6	
Baboon virus replication	*M7VI*	19	P
BALB virus induction N-tropic (induction of N-tropic oncornavirus)	*BVIN*	15	P
BALB virus induction xenotropic (induction of xenotropic oncornavirus)	*BVIX*	11	P
BALB/c 3T3 ts2 temperature sensitivity complementing	*BA2R*	X	P
Biliverdin reductase	*BLVR*	7	P
Branched-chain aminotransferase-1	*BCT1*	12	
Branched-chain aminotransferase-2	*BCT2*	19	P
C1AGOH temperature sensitivity complementing	*C1HR*	X	P
Catalase	*CAT*	11	
Cataract, zonular pulverulent (*Fy*-linked)	*CAE*	1	
Cathepsin D	*CPSD*	11	P
Charcot-Marie-Tooth disease (slow conduction type)	*CMT1*	1	
Chorionic gonadotropin	*CGH*	10 & 18	P
Chorionic somatomammotropin hormone	*CSH*	17	
Chronic granulomatous disease	*CGD*	X	
Chymotrypsinogen B	*CTRB*	16	P
Citrate synthase	*CS*	12	
Clotting factor XII (Hageman)	*HAF*	6	P
Collagen, type I, α1	*COL1A1*	7	P
Collagen, type I, α2	*COL1A2*	7	
Collagen, type III, α1	*COL3A1*	7	P
Collagen marker	*COLM*	17	P
Color-blindness (deutan)	*CBD*	X	
Color-blindness (protan)	*CBP*	X	
Complement component-2	*C2*	6	P
Complement component-3	*C3*	19	P
Complement component-4F	*C4F*	6	
Complement component-4S	*C4S*	6	
Congenital adrenal hyperplasia III (21-hydroxylase deficiency)	*CAH*	6	
Creatine kinase BB isozyme	*CKBB*	14	
Cystathionase	*CTH*	16	P
Dentinogenesis imperfecta	*DGI*	4	P
Desmosterol-to-cholesterol enzyme	*DCE*	20	P
Diaphorase (NADH) (cytochrome b_5 reductase)	*DIA1*	22	P
Diaphorase (NADH/NADPH)	*DIA4*	16	

DiGeorge syndrome	*DGS*	22	P
Dihydrotestosterone receptor	*DHTR*	X	
Diphtheria toxin sensitivity	*DTS*	5	
DNA associated with cytoplasmic membrane	*DNCM*	9	P
DNA satellite 3	*D1Z1*	1	P
DNA segment on chromosome 1	*D1S1*	1	P
DNA segment on chromosome 2	*D2S1*	2	P
DNA segment on chromosome 3	*D3S1*	3	P
DNA segment on chromosome 3	*D3S2*	3	P
DNA segment on chromosome 5	*D5S1*	5	P
DNA segment on chromosome 6	*D6S1*	6	P
DNA segment on chromosome 10	*D10S1*	10	P
DNA segment on chromosome 11	*D11S1*	11	P
DNA segment on chromosome 11	*D11S2*	11	P
DNA segment on chromosome 11	*D11S3*	11	P
DNA segment on chromosome 11	*D11S4*	11	P
DNA segment on chromosome 11	*D11S5*	11	P
DNA segment on chromosome 11	*D11S6*	11	P
DNA segment on chromosome 11	*D11S7*	11	P
DNA segment on chromosome 11	*D11S8*	11	P
DNA segment on chromosome 11	*D11S9*	11	P
DNA segment on chromosome 11	*D11S10*	11	P
DNA segment on chromosome 11	*D11S11*	11	P
DNA segment on chromosome 12	*D12S1*	12	P
DNA segment on chromosome 14	*D14S1*	14	P
DNA segment on chromosome 14	*D14S2*	14	P
DNA segment on chromosome 16	*D16S1*	16	P
DNA segment on chromosome 16	*D16S2*	16	P
DNA segment on chromosome 17	*D17S1*	17	P
DNA segment on chromosome 19	*D19S1*	19	P
DNA segment on chromosome 20	*D20S1*	20	P
DNA segment on chromosome 20	*D20S2*	20	P
DNA segment on chromosome 20	*D20S3*	20	P
DNA segment on chromosome 22	*D22S1*	22	P
DNA segment on chromosome X	*DXS1*	X	P
DNA segment on chromosome X	*DXS2*	X	P
DNA segment on chromosome X	*DXS3*	X	P
DNA segment on chromosome X	*DXS4*	X	P
DNA segment on chromosome X	*DXS5*	X	P
DNA segment on chromosome X	*DXS6*	X	P
DNA segment on chromosome X	*DXS7*	X	P
DNA segment on chromosome X	*DXS8*	X	P

(*Continued on next page*)

TABLE 2 (*continued*)

Gene marker	Gene symbol*	Chromosome assignment†	Status‡
DNA segment on chromosome X	*DXS9*	X	P
DNA segment (repetitive) X	*DXZ1*	X	P
Dombrock blood group	*Do*	1	T
Duffy blood group	*Fy*	1	
ECHO 11 virus sensitivity	*E11S*	19	P
Elliptocytosis (Rh-linked)	*EL1*	1	
Elliptocytosis (not Rh-linked)	*EL2*	1	T
Enolase-1	*ENO1*	1	
Enolase-2	*ENO2*	12	
Epidermal growth factor receptor	*EGFR*	7	
Epstein-Barr virus	*EBV*	14	P
Esterase-A_4	*ESA4*	11	
Esterase activator	*ESAT*	14	P
Esterase-B3	*ESB3*	16	P
Esterase-D	*ESD*	13	
External membrane protein-130 (MW 130,000)	*M130*	10	P
External membrane protein-195 (MW 195,000)	*M195*	14	P
Fast kinetic complementation DNA repair in xeroderma pigmentosum, group A	*XPAC*	X	P
Fibronectin	*FN*	11	
Fibronectin surface control	*FNS*	8	P
Folylpolyglutamate synthetase	*FPGS*	9	
α-L-Fucosidase	*FUCA*	1	
Fumarate hydratase	*FH*	1	
Galactokinase	*GALK*	17	
Galactose enzyme activator	*GLAT*	2	P
Galactose-1-phosphate uridylyltransferase	*GALT*	9	
α-Galactosidase	*GLA*	X	
β-Galactosidase-1	*GLB1*	3	
β-Galactosidase-2	*GLB2*	22	P
Glucose dehydrogenase	*GDH*	1	
Glucose phosphate isomerase	*GP1*	19	
Glucose-6-phosphate dehydrogenase	*G6PD*	X	
α-Glucosidase, acid	*GAA*	17	
β-Glucosidase, acid	*GBA*	1	P
α-Glucosidase (neutral)-C	*GANC*	15	P
β-Glucuronidase	*GUSB*	7	
Glutamate-γ-semialdehyde synthetase	*GSAS*	10	P
Glutamic-oxaloacetic transaminase (mitochondrial)	*GOT2*	16	

Glutamic-oxaloacetic transaminase (soluble)	*GOT1*	10	
Glutamic-pyruvic transaminase (alanine aminotransferase)	*GPT*	8 or 16	I
Glutathione peroxidase-1	*GPX1*	3	
Glutathione reductase	*GSR*	8	
Glutathione S-transferase-1	*GST1*	11	P
Glyceraldehyde-3-phosphate dehydrogenase	*GAPD*	12	
Glycerol-3-phosphate dehydrogenase	*GPD1*	12	P
Glyoxalase I (lactoyl-glutathione lyase)	*GLO*	6	
Group-specific protein	*GC*	4	
Growth control factor-1	*GCF1*	7	P
Growth control factor-2	*GCF2*	16	P
Growth hormone	*GH*	17	
Growth hormone-like	*GHL*	17	P
Guanylate kinase-1	*GUK1*	1	
Guanylate kinase-2	*GUK2*	1	
H1 Histone	*H1*	7	
H2A Histone	*H2A*	7	
H2B Histone	*H2B*	7	
H3 Histone	*H3*	7	
H4 Histone	*H4*	7	
Haptoglobin	*HP*	16	
Hemoglobin α	*HBA*	16	
Hemoglobin β	*HBB*	11	
Hemoglobin δ	*HBD*	11	
Hemoglobin ϵ	*HBE*	11	
Hemoglobin γ^A	*HBG1*	11	
Hemoglobin γ^G	*HBG2*	11	
Hemoglobin ζ	*HBZ*	16	
Hemoglobin F cell production	*FCP*	11	
Herpes simplex virus type 1 sensitivity	*HV1S*	3 or 11	I
Hexokinase-1	*HK1*	10	
Hexosaminidase-A (α subunit)	*HEXA*	15	
Hexosaminidase-B (β subunit)	*HEXB*	5	
HLA-A	*HLA-A*	6	
HLA-B	*HLA-B*	6	
HLA-C	*HLA-C*	6	
HLA-D	*HLA-D*	6	
HLA-D related	*HLA-DR*	6	
Human coronavirus sensitivity	*HCVS*	15	P
Hydroxyacyl glutathione	*HAGH*	16	P
Hydroxyacyl-CoA dehydrogenase	*HADH*	7	P

(*Continued on next page*)

TABLE 2 (*continued*)

Gene marker	Gene symbol*	Chromosome assignment†	Status‡
5-Hydroxytryptamine oxygenase regulator	*HTOR*	21	P
Hypercholesterolemia	*HC*	6	P
Hypoxanthine phosphoribosyl transferase	*HPRT*	X	
Immune suppression	*IS*	6	P
Immunoglobulin α^1 heavy chain	*IGHA1*	14	
Immunoglobulin α^2 heavy chain	*IGHA2*	14	
Immunoglobulin δ heavy chain	*IGHD*	14	
Immunoglobulin ϵ heavy chain	*IGHE*	14	
Immunoglobulin heavy-chain flanking region	*IGHF*	14	
Immunoglobulin γ^1 heavy chain	*IGHG1*	14	
Immunoglobulin γ^2 heavy chain	*IGHG2*	14	
Immunoglobulin γ^3 heavy chain	*IGHG3*	14	
Immunoglobulin γ^4 heavy chain	*IGHG4*	14	
Immunoglobulin μ heavy chain	*IGHM*	14	
Immunoglobulin heavy chain, variable region (chain not specified)	*IGHV*	14	
Immunoglobulin κ chain, constant region	*IGKC*	2	P
Immunoglobulin κ chain, variable region	*IGKV*	2	P
Immunoglobulin λ chain, constant region	*IGLC*	22	P
Immunoglobulin λ chain, variable region	*IGLV*	22	P
Inosine triphosphatase (nucleoside triphosphate pyrophosphatase)	*ITPA*	20	
Insulin	*INS*	11	
Interferon-1	*IF1*	2	P
Interferon-2	*IF2*	5	P
Interferon, fibroblast β type	*IFF*	9	
Interferon, leukocyte α type	*IFL*	9	P
Interferon production regulator	*IFR*	16	P
Interferon receptor	*IFRC*	21	
Isocitrate dehydrogenase (mitochondrial)	*IDH2*	15	
Isocitrate dehydrogenase (soluble)	*IDH1*	2	
Kell blood group precursor	*Xk*	X	
α-Keto acid (aromatic) reductase	*KAR*	12	P
Kidd blood group	*Jk*	2	
Lactate dehydrogenase-A	*LDHA*	11	
Lactate dehydrogenase-B	*LDHB*	12	
Lecithin-cholesterol acyltransferase	*LCAT*	16	
Lentil agglutinin binding	*LCH*	14	P
Lethal antigen-1	*S1*	11	P
Lethal antigen-2	*S2*	11	P

Lethal antigen-3	*S3*	11	P
Leucyl-tRNA synthetase	*LARS*	5	P
Lipase-A	*LIPA*	10	
Lipase-B	*LIPB*	16	P
Lysosomal DNAse	*DNL*	19	P
α_2-Macroglobulin	*XM*	X	
Malate dehydrogenase, NAD (mitochondrial)	*MDH2*	7	
Malate dehydrogenase, NAD (soluble)	*MDH1*	2	
Malic enzyme (soluble)	*ME1*	6	
Mannose phosphate isomerase	*MPI*	15	
α-Mannosidase-A	*MANA*	15	P
α-Mannosidase-B (lysosomal)	*MANB*	19	
β_2-Microglobulin	*B2M*	15	
MN blood group	*MN*	4	
Monoamine oxidase	*MAOA*	X	P
Monkey red blood cell receptor	*MRBC*	6	P
Mouse β-glucuronidase modifier	*GUSM*	19	P
Multiple endocrine neoplasia-2	*MEN2*	20	P
Muscular dystrophy, Becker type	*MDB*	X	
Muscular dystrophy, Duchenne type	*MDD*	X	
α-*N*-acetyl-galactosaminidase	*NAGA*	22	P
Nail-patella syndrome type 1	*NPS1*	9	
Neutrophil migration	*NM*	7	P
Non-histone chromosome protein	*NHCP*	7	P
Nuclear RNA-1	*RNN1*	X	P
Nucleoside phosphorylase	*NP*	14	
Ocular albinism	*OA*	X	
Ornithine transcarbamylase	*OTC*	X	
Orosomucoid	*ORM*	9	P
P blood group	*P*	6	P
Peptidase-A	*PEPA*	18	
Peptidase-B	*PEPB*	12	
Peptidase-C	*PEPC*	1	
Peptidase-D (proline dipeptidase)	*PEPD*	19	
Peptidase-S	*PEPS*	4	
Phenylketonuria	*PKU1*	1	I
Phosphofructokinase, F subunit	*PFKF*	10	P
Phosphofructokinase, liver type	*PFKL*	21	P
Phosphofructokinase, M subunit	*PFKM*	1	P

(*Continued on next page*)

TABLE 2 (*continued*)

Gene marker	Gene symbol*	Chromosome assignment†	Status‡
Phosphoglucomutase-1	*PGM1*	1	
Phosphoglucomutase-2	*PGM2*	4	
Phosphoglucomutase-3	*PGM3*	6	
Phosphogluconate dehydrogenase	*PGD*	1	
Phosphoglycerate kinase	*PGK*	X	
Phosphoglycollate phosphatase	*PGP*	16	
Phosphoribosyl pyrophosphate amidotransferase	*PPAT*	4	P
Phosphoribosyl pyrophosphate synthetase	*PRPS*	X	
Phosphoribosylaminoimidazole synthetase	*PAIS*	21	P
Phosphoribosylformylglycinamide synthetase (formylglycinamide ribotide aminotransferase)	*PFGS*	14	P
Phosphoribosylglycinamide formyltransferase	*PGFT*	14	P
Phosphoribosylglycinamide synthetase	*PRGS*	21	
Phosphoserine phosphatase	*PSP*	7	P
Plasminogen	*PLG*	4	P
Plasminogen activator	*PLA*	6	P
Poliovirus sensitivity	*PVS*	19	
Polykaryocytosis promoter	*FUSE*	10	P
Prader-Willi syndrome	*PWS*	15	
Prolactin	*PRL*	6	P
Proopiocortin (adrenocorticotropin/β-lipotropin)	*POC*	2	P
Properdin factor B (glycine-rich-β-glycoprotein)	*BF*	6	
Pyrophosphatase (inorganic)	*PP*	10	
Pyruvate kinase (M2)	*PKM2*	15	
Quinoid dehydrogenase reductase	*QDPR*	4	P
Radin blood group	*Rd*	1	P
RD114 virus receptor	*RDRC*	19	P
Regulator of acetylcholinesterase	*RACH*	2	P
Regulator of antiviral state	*AVR*	16	P
Retinitis pigmentosa-1	*RP1*	1	T
Retinoblastoma-1	*RB1*	13	
Retinoschisis	*RS*	X	
Rhesus blood group	*Rh*	1	
Ribosomal RNA	*RNR*	13, 14, 15, 21, 22	
Ribulose-5-phosphate 3-epimerase	*RPE*	2	P
RNA, 5S	*RN5S*	1	

Scianna blood group	*Sc*	1	
Sclerotylosis	*TYS*	4	P
Serine hydroxymethyl transferase	*SHMT*	12	
Sorbitol dehydrogenase	*SORD*	15	P
Species antigen	*S4*	11	P
Spherocytosis-1	*SPH1*	8 or 12	I
Spinal cerebellar ataxia	*SCA1*	6	P
Ss blood group	*Ss*	4	
Steroid sulfatase (microsomal)	*STS*	X	
Stoltzfus blood group	*Sf*	4	P
Succinate dehydrogenase	*SDH*	1	P
Superoxide dismutase (mitochondrial)	*SOD2*	6	
Superoxide dismutase (soluble)	*SOD1*	21	
Surface antigen (chromosome 6)	*S5*	6	P
Surface antigen (chromosome 7)-1 (MW 165,000)	*S6*	7	P
Surface antigen (chromosome 7)-2	*S7*	7	P
Surface antigen (chromosome 12)-1	*S8*	12	P
Surface antigen (chromosome 17)-1	*S9*	17	P
Surface antigen (chromosome 22)	*S13*	22	P
Surface antigen (chromosome 21)	*S14*	21	P
Surface antigen (X-linked)-1	*S10*	X	P
Surface antigen (X-linked)-2	*S11*	X	P
Surface antigen (X-linked)-3	*S12*	X	P
Tetrahydropteroylglutamate methyltransferase	*MTR*	1	P
Thymidine kinase (mitochondrial)	*TK2*	16	P
Thymidine kinase (soluble)	*TK1*	17	
Transferrin receptor	*TFRC*	3	P
Triosephosphate isomerase$_1$	*TPI1*	12	
Triosephosphate isomerase$_2$	*TPI2*	12	
$tRNA_i^{met}$	*TRM1*	6	P
$tRNA_i^{met}$	*TRM2*	6	P
Tryptophanyl-tRNA synthetase	*WARS*	14	
Tyrosine aminotransferase regulator	*TATR*	X	

(*Continued on next page*)

TABLE 2 (*continued*)

Gene marker	Gene symbol*	Chromosome assignment†	Status‡
UDP glucose pyrophosphorylase-1	*UGP1*	1	
UDP glucose pyrophosphorylase-2	*UGP2*	2	P
UDPGAL-4-epimerase	*GALE*	1	
Uridine monophosphate kinase	*UMPK*	1	
Uridine phosphorylase	*UP*	7	
Uroporphyrinogen I synthase	*UPS*	11	
Waardenburg syndrome, type I	*WS1*	9	T
Wilms' tumor—aniridia, genitourinary abnormalities, and mental retardation triad	*WAGR*	11	
Xg blood group	*Xg*	X	
Y histocompatibility antigen	*HYA*	Y	
Y histocompatibility antigen, regulator	*HYB*	X	P
Y histocompatibility antigen, receptor	*HYC*	X	

* The gene symbols follow nomenclature guidelines.

† The assignments have been compiled from the Human Gene Mapping Workshops.

‡ Status refers to whether an assignment is confirmed (blank), provisional (P), tentative (T), or inconsistent (I).