

意義深い研究であるといえます。

《この附随研究の目的》

国立がんセンター中央病院乳腺グループで行っている高齢者の原発性乳がんに対するパクリタキセル週1回±トラスツズマブ投与による術前化学療法第II相試験に参加される患者さんのうち、さらにこの研究にもご協力いただける患者さんを対象に、乳がんの細胞とリンパ球の遺伝子の働きと抗がん剤の効果および副作用の程度との関連をみる研究を行い、これらの研究より乳がんに対する術前化学療法の治療効果と副作用の程度を予測する様々な遺伝子の関連を見つけ出します。その結果、将来、乳がんの術前化学療法を受ける患者さんに対してより安全で有効性の高い治療を選択するための手がかりを得ることを目的としています。

《方法》 * 図 本研究の流れを参照して下さい。

術前化学療法を受けていただく際には、治療方針の決定のために通常行う検査として、乳房の腫瘍に対して針生検を行い、3本の検体（がん組織）を採取します。本研究の参加に同意をいただいた患者さんには、さらに2本の針生検の検体を採取させていただき、本研究のために凍結保存させていただきます。（研究に参加されない場合は、通常の病理検査用にすべてホルマリン固定にします。）針生検では、まず痛みを予防するために皮膚に局所麻酔の注射をおこないます。麻酔をした皮膚に数ミリメートルの傷をつくり、そこから太い針（直径が14Gあるいは16G）を刺入して組織を採取します。この研究のために追加して採取する検体も、続けて同じ皮膚の傷穴から採取します。検体の採取にあたり出血をすることがありますが、体への影響はほとんどありません。痛みのある場合は局所麻酔薬を追加します。検査後に皮下出血となるのを予防するために、傷の上を丸めたガーゼで圧迫します。当日は飲酒・入浴は控えてください。

さらに、第1回目の抗がん剤治療の投与日と手術目的に入院された当日に、通常の採血のほかに約10mLの採血を余分にさせていただきます。この採血による体への悪い影響はありません。

また、手術時に切除した乳腺組織から残っている乳がん組織と正常の乳腺組織を一部凍結保存します。

ご提供いただいた血液や組織について、cDNAマイクロアレイという方法で、がんに関連する約800の遺伝子がどれくらい機能しているかを抗がん剤治療の前後で比較します。それらの遺伝子の機能のしかたや、治療による変化が治療効果および副作用とどのように関連していくかを調べるのです。実際にcDNAマイクロアレイの測定を行うのは三菱化学という外部機関になりますが、検体の搬入の際には患者さん個人名等のプライバシーに関わる情報は伏せられ、検体をいれた容器に患者さんを区別するための番号のみが記されます。

《予想される結果と不利益》

この研究の主たる目的は乳がんの術前化学療法に対する効きやすさ、効きにくさ、および抗がん剤の副作用のやすさや、でにくさの予測に関わる遺伝子を探し出すことにあります。抗がん剤治療によりがん細胞が完全に消失するような患者さんには、将来、乳がんの治療において、手術を行わなくてもよいというようなことも考えられますし、そうでなくても、効果の期待できない抗がん剤は使用しないなど、個別化治療が実現されることが期待されます。また、個々の患者さんに対して副作用のやすいお薬の使用を控えることも可能となることが予想されます。もちろん、この研究自体はまだ探索的なものであり、この附随研究による結果をもって現時点で患者さんの治療方法が変更されることはありません。また、この附随研究への参加によって患者さん本人が直接受ける利益はありませんが、あなたに参加していただければ、この研究を大いに進展させることとなります。

なお、この研究は特定の遺伝子の異常を検出し、がんになりやすさを調べるという性質の研究ではありません。あなたやご家族が社会的差別を受ける可能性や、精神的・心理的不利益を蒙る可能性はほとんどないといえます。

《この附随研究への参加について》

この附随研究への参加の同意はあなたの自由意思にもとづきます。ご協力いただいた場合の謝礼等は一切ありません。ご希望があれば研究計画書や資料を閲覧することも可能です。研究の結果はしかるべき学会または誌上に発表することになりますが、その際に個人名等プライバシーに関わる情報は一切公表されません。

この附随研究にご協力いただけない場合も、治療などの対応について不利益を得ることはまったくありません。本研究には参加せずに「ホルモン高感受性の閉経後乳がんに対するアナストロゾール投与による術前内分泌療法の第Ⅱ相試験」にのみ参加することも可能です。また、一度ご協力に同意いただいた場合も、いつでもこの附随研究への参加の同意を取り下げることができます。同意を取り下げたい場合には、担当医または本附随研究に関する問い合わせ先に口答でお伝えください。その場合は研究目的に保存した血液や組織を、個人が特定できないような処理を施した後に廃棄します。ただし、同意を取り消したときにすでに研究結果が論文などで公表されていた場合には、結果などを廃棄できないことがあります。

《研究期間とご提供いただいた検体の保存について》

研究の期間は2002年10月より約1年間の予定です。この附随研究が終了した後も国立がんセンター中央病院 研究支援施設内にご提供いただいた検体を保存させていただき、将来乳がん治療に関わる重要な知見が得られた際には、乳がんの化学療法の効果や副作用に関する研究目的にご提供いただいた検体を使用させていただく可能性があります。ただ

し、ご提供いただいた検体の保存に関して同意いただけない場合には、血液や組織を、個人が特定できないような処理を施した後に廃棄します。その場合にも患者さんの不利益となることはありません。

《研究施設ならびに責任者》

研究責任者

国立がんセンター中央病院 内科 藤原康弘

検体管理責任者

国立がんセンター中央病院 内科 安藤正志

《この附随研究に関する問い合わせ先》

国立がんセンター中央病院

内科

藤原康弘

〒104-0045 東京都中央区築地 5-1-1

電話 03-2542-2511 (代表)

Pharmacology Custom Array

0			
4			
62			
1185			
GENES			
A01a	liver glyceraldehyde 3-phosphate dehydrogenase (GAPDH; G3PDH)		X01677
A01b	BLANK		
A01c	BLANK		
A01d	BLANK		
A01e	BLANK		
A01f	BLANK		
A01g	BLANK		
A01h	BLANK		
A01i	BLANK		
A01j	BLANK		
A01k	BLANK		
A01l	BLANK		
A01m	BLANK		
A01n	liver glyceraldehyde 3-phosphate dehydrogenase (GAPDH; G3PDH)		X01677
A02a	BLANK		
A02b	BLANK		
A02c	BLANK		
A02d	BLANK		
A02e	BLANK		
A02f	BLANK		
A02g	BLANK		
A02h	BLANK		
A02i	BLANK		
A02j	BLANK		
A02k	BLANK		
A02l	BLANK		
A02m	BLANK		
A02n	BLANK		
A03a	BLANK		
A03b	BLANK		
A03c	liver glyceraldehyde 3-phosphate dehydrogenase (GAPDH; G3PDH)		X01677
A03d	CDC2-related protein kinase CHED		M80629
A03e	cell division cycle 25 homolog B (CDC25B); CDC25HU2; M-phase inducer phosphatase 2 (MPI2)		MB1934; S78187
A03f	cell division cycle 25C homolog (CDC25C)		M34065
A03g	CDC42 homolog; G25K GTP-binding protein (brain isoform + placental isoform)		M35543 + M57298
A03h	CDC42 GTPase-activating protein		U02570
A03i	cell division protein kinase 3 (CDK3)		X66357
A03j	cell division protein kinase 4; cyclin-dependent kinase 4 (CDK4); PSK-J3		M14505
A03k	cell division protein kinase 6 (CDK6); serine/threonine protein kinase PLSTIRE		X66365
A03l	cell division protein kinase 5 (CDK5); tau protein kinase II catalytic subunit (TPKII catalytic subunit); serine/threonine protein		X66364
A03m	G2/mitotic-specific cyclin A (CCNA; CCN1)		X51688
A03n	G2/mitotic-specific cyclin B1 (CCNB1)		M25753
A04a	BLANK		
A04b	BLANK		
A04c	BLANK		
A04d	G1/S-specific cyclin D1 (CCND1); cyclin parathyroid adenomatosis 1 (PRAD1); bcl-1 oncogene		X59798
A04e	G1/S-specific cyclin E (CCNE)		M73812
A04f	G1/S-specific cyclin D2 (CCND2) + KIAK0002		M90813 + D13639
A04g	G1/S-specific cyclin D3 (CCND3)		M92287
A04h	cell cycle progression 2 protein (CPR2)		AF011792
A04i	cell cycle progression restoration protein 8 (CPR8)		AF011794
A04j	checkpoint kinase 1 (CHK1)		AF016582
A04k	cell division protein kinase 9 (CDK9); serine/threonine protein kinase PITALRE		L25676
A04l	CDC-like kinase 2 (CLK2)		L29216
A04m	CDC-like kinase 3 (CLK3)		L29220
A04n	CDC-like kinase 1 (CLK1)		L2
A05a	BLANK		

A05b	BLANK		
A05c	BLANK		
A05d	cyclin-dependent kinase 10 (CDK10); CDC2-related protein kinase		ISSLRE
A05e	cyclin 1		
A05f	cyclin-dependent protein kinase 2 (CDK2); p33 protein kinase		
A05g	G1/S-specific cyclin C		
A05h	cell division cycle 25 homolog A (CDC25A); M-phase inducer phosphatase 1 (MP11)		
A05i	CDC10 protein homolog		
A05j	CDC27HS protein		
A05k	wee1Hu CDK tyrosine 15-kinase; wee-1-like protein kinase		
A05l	tumor protein 53-binding protein 1 (TP53BP1)		
A05m	p53-binding mouse double minute 2 homolog (MDM2)		
A05n	MDM2-like p53-binding protein (MDMX)		
A06a	BLANK		
A06b	BLANK		
A06c	BLANK		
A06d	p53 cellular tumor antigen		
A06e	retinoblastoma-associated protein 1 (RB1); phosphoprotein 110 (pp110)		
A06f	retinoblastoma-like protein 2 (RBL2; RB2); 130-kDa retinoblastoma-associated protein		
A06g	retinoblastoma-binding protein 1 (RBP1) isoform 1 + isoform II		
A06h	RBP2 retinoblastoma binding protein		
A06i	cyclin-dependent kinase inhibitor 1C (CDKN1C); p57-KIP2		
A06j	clone DKFZp434C0820 (RZPD human testis library); similar to chicken cyclin B3 (CCNB3)		
A06k	cyclin E2 (CCNE2)		
A06l	cyclin B2 (CCNB2)		
A06m	68-kDa tumor protein (TP68); p51A; p63-gamma		
A06n	68-kDa tumor protein (TP68); p51B		
A07a	BLANK		
A07b	BLANK		
A07c	BLANK		
A07d	p73 (monallelically expressed p53-related protein)		
A07e	cyclin H (CCNH); MO15-associated protein		
A07f	cyclin-dependent kinase 4 inhibitor 2B (CDKN2B); p14-INK4B; multiple tumor suppressor 2 (MTS2)		
A07g	cyclin-dependent kinase 5 activator isoform p39I precursor (CDK5 activator; NCK5AI)		
A07h	G2/mitotic-specific cyclin G1 (CCNG1; CYCG1)		
A07i	putative cyclin G1-interacting protein (CGI1)		
A07j	cyclin G2 (CCNG2)		
A07k	cell division control protein 2 homolog (CDC2); p34 protein kinase; cyclin-dependent kinase 1 (CDK1)		
A07l	G1 to S phase transition protein 1 homolog; GTP-binding protein GST1-HS		
A07m	cyclin-dependent kinase regulatory subunit 1 (CKS1)		
A07n	cyclin-dependent kinase 5 activator precursor (CDK5 activator); tau protein kinase II 23-kDa subunit; TPKII regulatory subunitX80343		
A08a	BLANK		
A08b	BLANK		
A08c	BLANK		
A08d	cell division protein kinase 8 (CDK8); protein kinase K35		
A08e	CDC6-related protein		
A08f	p21-activated kinase alpha (PAK-alpha; PAK1)		
A08g	p21-activated kinase gamma (PAK-gamma; PAK2); PAK65; S6/H4 kinase		
A08h	cyclin-dependent kinase 4 inhibitor 2 (CDK4); CDKN2); p16-INK4; multiple tumor suppressor 1 (MTS1)		
A08i	retinoblastoma-related protein p107		
A08j	cyclin-dependent kinase 4 inhibitor 2D (CDKN2D); p19-INK4D		
A08k	octamer-binding transcription factor 2 (oct-2; OTF2); lymphoid-restricted immunoglobulin octamer binding protein NF-A2; POIM36542		
A08l	cyclin-dependent kinase inhibitor 1B (CDKN1B); p27; Kip1		
A08m	aurora- & JPL1-like midbody-associated protein kinase 1 (AIM1); ARK2		
A08n	serine/threonine-protein kinase PLK1 (STPK13)		
A09a	BLANK		
A09b	BLANK		
A09c	BLANK		
A09d	peptidyl-prolyl cis-trans isomerase nima-interacting 1 (PIN1)		
A09e	serine/threonine-protein kinase KKIARLE		
A09f	protein serine/threonine kinase STK1; cell division protein kinase 7 (CDK7); CDK-activating kinase (CAK); 39-kDa protein kinase I.20320		
A09g	serine/threonine-protein kinase NEK3; NIMA-related protein kinase 3; HSPK 36		
A09h	serine/threonine-protein kinase NEK2; NIMA-related protein kinase 2; NIMA-like protein kinase 1; HSPK 21		

L337;
D503...
M68520
M74091
M81933
S72008
U00001
U10564
U09477
Z12020; M92424
AF007111

M14694; M14695
M15400
X74594
S57153 + S57160
S66431
U22398
AL137550
AF091433
AF002822
AB016072
AB016073

Y11416
U11791; U12685
U17076; L36844
U34051
U47413
U61837
U47414; L49506
X05360
X17644
X54941

X85753
U77949
U24152
U24153
L27211
L14812
U40343; U20498
U10906
AF008552
U01038

U49070
X66358
Z29067
U11050

A09i	CBL-B		
A09j	c-src kinase (CSK); protein-tyrosine kinase cbl		U26710
A09k	c-fos proto-oncogene; GOS7 protein		X59932
A09l	myb proto-oncogene; c-myb		K00650
A09m	c-myc proto-oncogene		M15024
A09n	raf1 proto-oncogene		V00568
A10a	BLANK		X03484
A10b	BLANK		
A10c	BLANK		
A10d	c-jun proto-oncogene; avian sarcoma virus 17 oncogene homolog; transcription factor AP-1		J04111
A10e	c-kit proto-oncogene; mast/stem cell growth factor receptor precursor (SCFR); CD117 antigen		X06182
A10f	rac alpha, serine/threonine kinase (RAC-PK-alpha); c-akt proto-oncogene; protein kinase B (PKB)		M63167
A10g	adenomatous polyposis coli protein (APC); DP2.5		M74088; M73548
A10h	A-raf proto-oncogene serine/threonine-protein kinase; PKS2		L24038
A10i	ataxia telangiectasia (ATM)		U33841
A10j	B-raf proto-oncogene (RAFBI)		M95712
A10k	chromatin assembly factor 1 p48 subunit (CAF1 p48 subunit); retinoblastoma-binding protein 4 (RBBP4); RBAP48; ms1 protein X74262		X74262
A10l	annexin V; lipocortin V; endonexin II; calphobindin I (CBP-I); placental anticoagulant protein I (PAP-I); PP4; thromboplastin inh		X12454
A10m	calcium/calmodulin-dependent protein kinase I (CAMKI)		L41816
A10n	calcium/calmodulin-dependent 3',5'-cyclic nucleotide phosphodiesterase 1A (CAM-PDE1A); HCAM-1		U40370
A11a	BLANK		
A11b	BLANK		
A11c	BLANK		
A11d	calcium/calmodulin-dependent 3',5'-cyclic nucleotide phosphodiesterase 1B (CAM-PDE1B); HCAM2		U56976
A11e	calcium/calmodulin-dependent 3',5'-cyclic nucleotide phosphodiesterase 1C (CAM-PDE1C); HCAM-3		U40371
A11f	calmodulin (CALM; CAM)		D45887
A11g	allograft inflammatory factor 1 (AIF1); ionized calcium-binding adapter molecule 1		U19713
A11h	cAMP-dependent 3',5'-cyclic phosphodiesterase 4B (DPDE4); PDE32		L12686
A11i	casein kinase I delta isoform (CKI-delta); CSNK1D		U29171
A11j	casein kinase I alpha subunit (CK I); CSNK2A2		M55268
A11k	casein kinase II beta subunit (CK II); CSNK2B; CK2N); phosvitin		X16937
A11l	C-cbl proto-oncogene		X57110
A11m	DNA-dependent protein kinase (DNA-PK); DNA-PK catalytic subunit (DNA-PKCS)		U35835; U47077
A11n	epidermal growth factor receptor (EGF receptor; EGFR); ERBB proto-oncogene		X00588; K03193; X00663; U48722
A12a	BLANK		
A12b	BLANK		
A12c	BLANK		
A12d	elk-1; ets-related proto-oncogene		M25269
A12e	mitogen-activated protein kinase p38 (MAP kinase p38); cytokine suppressive anti-inflammatory drug-binding protein (CSAID 1 L35253; L35263		
A12f	mitogen-activated protein kinase p38 beta (MAP kinase P38 beta); stress-activated protein kinase 2 (SAPK2)		U53442
A12g	mitogen-activated protein kinase 3 (MAP kinase 3; MAPK3; PRKM3); extracellular signal-regulated kinase 1 (ERK1); ERT2		X60188
A12h	mitogen-activated protein kinase 1 (MAP kinase 1; MAPK1; PRKM1); extracellular signal-regulated kinase 2 (ERK2)		MB4489
A12i	mitogen-activated protein kinase 4 (MAP kinase 4; MAPK4; PRKM4); p37-MAPK; extracellular signal-regulated kinase 3 (ERK3 X80692		
A12j	mitogen-activated protein kinase 5 (MAP kinase 5; MAPK5; PRKM5); p63-MAPK; extracellular signal-regulated kinase 4 (ERK4 X59727		
A12k	mitogen-activated protein kinase 6 (MAP kinase 6; MAPK6; PRKM6); p87-MAPK; extracellular signal-regulated kinase 5 (ERK5); BMK1 hint		U25278
A12l	mitogen-activated protein kinase 7 (MAP kinase 7; MAPK7; PRKM7); extracellular signal-regulated kinase 6 (ERK6); stress-activated protein kinase-3; mitogen-activated protein kinase p38 gamma; X19483		
A12m	extracellular signal-regulated kinase 6 (ERK6); stress-activated protein kinase-3; mitogen-activated protein kinase p38 gamma; X19483		M12674; X03635; U47678; AF172068
A12n	estrogen receptor 1 (ESR1); estrogen receptor alpha (ER-alpha); estradiol receptor		X16707
A13a	FOS-related antigen 1 (FRA1); FOS-like antigen 1 (FOSL1)		
A13b	BLANK		
A13c	BLANK		
A13d	BLANK		
A13e	fos-related antigen 2 (FRA2); fos-like antigen 2 (FOSL2)		X16706
A13f	cyr61 protein precursor; GIG1 protein; insulin-like growth factor-binding protein 10 (IGFBP10)		Y12084
A13g	Janus tyrosine-protein kinase 1 (JAK1)		M35203
A13h	mitogen-activated protein kinase 9 (MAP kinase 9; MAPK9; PRKM9); c-jun N-terminal kinase 2 (JNK2); JNK55		L31951
A13i	C-jun N-terminal kinase 3 alpha2 (JNK3A2); PRKM10 + MAP kinase p493F12		U34819 + U07620
A13j	c-jun N-terminal kinase 1 (JNK1); JNK46		L26318
A13k	mitogen-activated protein kinase kinase 4 (MAP kinase kinase 4; MKK4; PRKMK4); c-jun N-terminal kinase kinase 1 (JNKK1); L36870		
A13l	mitogen-activated protein kinase kinase 7 (MAP kinase kinase 7; MAPK7; MAPK7); MAPK/ERK kinase 7 (MEK7); (AF022805		
A13m	jun-B		M29039
A13n	junD proto-oncogene		X56681
A13o	jun activation domain binding protein		U6f
A14a	liver glyceraldehyde 3-phosphate dehydrogenase (GAPDH; G3P-...)		X01.

A14b	BLANK		
A14c	BLANK		
A14d	mitogen-activated protein kinase kinase 1 (MAP kinase kinase 1 (MAP kinase kinase 1 (MEK1)	3KK1; MAP2K1; PRKMK1); MAPK/ERK kinase 1 (MEK1)	L056
A14e	mitogen-activated protein kinase kinase 2 (MAP kinase kinase 2; MAPKK2; MAP2K2; PRKMK2); MAPK/ERK kinase 2 (MEK2)	L112b-	
A14f	mitogen-activated protein kinase kinase 3 (MAP kinase kinase 3; MAPKK3; MAP2K3; PRKMK3); MAPK/ERK kinase 3 (MEK3)	L36719	
A14g	mitogen-activated protein kinase kinase 5 (MAP kinase kinase 5; MAPKK5; MAP2K5; PRKMK5); MAPK/ERK kinase 5 (MEK5)	U25265	
A14h	mitogen-activated protein kinase kinase 6 (MAP kinase kinase 6; MAPKK6; MAP2K6; PRKMK6); MAPK/ERK kinase 6 (MEK6);	U39657	
A14i	mitogen-activated protein kinase kinase kinase 5 (MAPKKK5; MAP3K5); MAP/ERK kinase kinase 5 (MEKK5); apoptosis signal-	D84476	
A14j	MAPK/ERK kinase kinase 3 (MEK kinase 3; MEKK3)	AF002715	
A14k	neurotrophin 3 precursor (NT3); nerve growth factor 2 (NGF2)	U78876	
A14l	MYB-related protein B (B-MYB); avian myeloblastosis viral oncogene homolog-like 2 (MYBL2)	X53655; M37763	
A14m	c-myc-binding protein MM-1; prefolidin 5 (PFDN5; PFD5)	X13293	
B01a	liver glyceraldehyde 3-phosphate dehydrogenase (GAPDH; G3PDH)	D89667	
B01b	BLANK	X01677	
B01c	BLANK		
B01d	BLANK		
B01e	BLANK		
B01f	BLANK		
B01g	BLANK		
B01h	BLANK		
B01i	BLANK		
B01j	BLANK		
B01k	BLANK		
B01l	BLANK		
B01m	BLANK		
B01n	BLANK		
B02a	BLANK		
B02b	BLANK		
B02c	BLANK		
B02d	BLANK		
B02e	oncostatin M (OSM)	M27288	
B02f	oncostatin M-specific receptor beta subunit	U60805	
B02g	stathmin; phosphoprotein p19 (PP19); oncoprotein 18 (OP18); leukemia-associated phosphoprotein p18 (LAP18); prosolin; met; J04991	X04571	
B02h	epidermal growth factor precursor (EGF); beta-urogastrone	M95867; M11730	
B02i	ERBB2 proto-oncogene; NEU proto-oncogene; HER2	L07868	
B02j	erbB4 proto-oncogene; HER4; neuregulin receptor	U31383	
B02k	GTP-binding protein G(i)/G(s)/G(o) gamma 10 subunit (GNGT10; GNG10)	AF038955	
B02l	guanine nucleotide-binding protein gamma 5 (GNG5)	U43885	
B02m	GRB2-associated binder 1 (GAB1)	Z29090	
B02n	phosphatidylinositol 3 kinase catalytic subunit alpha isoform (PI3 kinase; PIK3CA)		
B02o	phosphatidylinositol 3 kinase catalytic subunit beta isoform (PIK3CB); PI3 kinase p110 subunit beta (PTDINS 3 kinase beta; PI;	S67334	
B03a	BLANK		
B03b	BLANK		
B03c	BLANK		
B03d	phosphatidylinositol 3-kinase catalytic subunit delta isoform (PI3-kinase p110 subunit delta; PTDINS-3-kinase p110; PI3K)	U86453	
B03e	phosphatidylinositol 3 kinase catalytic subunit gamma isoform (PIK3CG; PTDINS 3 kinase gamma)	X83368	
B03f	phosphatidylinositol 3-kinase regulatory alpha subunit (PTDINS-3-kinase P85-alpha; PI3-kinase P85-alpha)	M61906	
B03g	phosphatidylinositol 3-kinase regulatory beta subunit (PI3-kinase p85-beta subunit; PTDINS-3-kinase p85-beta; PI3-K p85 be	X80907	
B03h	cAMP-dependent protein kinase alpha-catalytic subunit (PKA C-alpha)	X07767	
B03i	cAMP-dependent protein kinase beta catalytic subunit (PKAC-beta; PRKACB)	M34181	
B03j	cAMP-dependent protein kinase gamma-catalytic subunit (PKA C-gamma)	M34182	
B03k	cAMP-dependent protein kinase type I beta regulatory subunit (PRKAR1B)	M65066	
B03l	cAMP-dependent protein kinase type II alpha regulatory subunit (PRKAR2A; PKR2)	X14968	
B03m	cAMP-dependent protein kinase type II beta regulatory subunit (PRKAR2B; PKR2)	M31158	
B03n	protein kinase A anchoring protein	AF037439	
B04a	BLANK		
B04b	BLANK		
B04c	BLANK		
B04d	ribosomal protein kinase B (RSKB)	A-J010119	
B04e	protein kinase C beta I (PKC-beta-1)	M27545; X06318	
B04f	protein kinase C delta (PKC-delta)	D10495	
B04g	protein kinase C epsilon type (NPKC-epsilon)	X65293	
B04h	protein kinase C eta type (NPKC-eta); PKC-L	M55284	

B04i	protein kinase C gamma type (PKC-gamma)	Z15114
B04j	protein kinase C theta (PKC-theta)	L07032
B04k	protein kinase C zeta type (NPKC-zeta)	Z15108
B04l	lung phospholipase A2 group IB (PLA2G1B); phosphatidylcholine 2-acylhydrolase	M21054
B04m	membrane-associated phospholipase A2 group 2A precursor (PLA2G2A); PLA2B; PLA2L; synovial group II phospholipase A2; p	M22430; J04704
B04n	180-kDa secretory phospholipase A2 receptor precursor (PLA2 receptor; PLA2R)	U17033
B05a	BLANK	
B05b	BLANK	
B05c	BLANK	
B05d	phospholipase C (PLCL)	D42108
B05e	phospholipase C beta 2 (PLC-beta 2; PLCB2); 1-phosphatidylinositol 4,5-bisphosphate phosphodiesterase beta 2	M95678
B05f	phospholipase C beta 3 (PLCB3); 1-phosphatidylinositol-4,5-bisphosphate phosphodiesterase beta 3	Z16411
B05g	phospholipase C beta 4 (PLC-beta 4; PLCB4)	L41349
B05h	phospholipase C delta-1 (PLC-delta 1; PLCD1); PLC-III; 1-phosphatidylinositol-4,5-bisphosphate phosphodiesterase delta 1	U09117
B05i	phospholipase C gamma 1 (PLC-gamma 1; PLCG1); PLC-II; PLC-148; 1-phosphatidylinositol 4,5-bisphosphate phosphodiesterase	M34667
B05j	phospholipase C gamma-2 (PLC-gamma 2; PLCG2); PLC-IV; 1-phosphatidylinositol-4,5-bisphosphate phosphodiesterase gamma X14034	X94612
B05k	type II cGMP-dependent protein kinase	
B05l	ras-related C3 botulinum toxin substrate 1 (RAC1); ras-like protein TC25	M29870; M31467
B05m	ras-related C3 botulinum toxin substrate 2; p21-rac2; small G protein	M64595; M29871
B05n	ras-related protein RAP-1A; C21KQ; KREV-1 protein; GTP-binding protein SMG-p21A; G-22K	M22995
B06a	BLANK	
B06b	BLANK	
B06c	BLANK	
B06d	ras-related protein RAP1B; GTP-binding protein SMG p21B	
B06e	ras-related protein RAB11A; YPT3	X08004
B06f	ras-related protein RAB11B; YPT3	X53143
B06g	ras-related protein RAB13	X79780
B06h	ras-related protein RAB1A; YPT1-related protein	X75593
B06i	ras-related protein RAB1C; GTP-binding protein RAY	M28209
B06j	ras-related protein RAB2	X79781
B06k	ras-related protein RAB27A; GTP-binding protein RAM	M28213
B06l	ras-related protein RAB27B	U36654
B06m	ras-related protein RAB28	U57093
B06n	ras-related protein RAB30	X94703
B07a	BLANK	U57092
B07b	BLANK	
B07c	BLANK	
B07d	ras-related protein RAB31	U59877
B07e	ras-related protein RAB32	U71127
B07f	ras-related protein RAB3A	M28210
B07g	ras-related protein RAB4A	M28211
B07h	ras-related protein RAB3B	M28214
B07i	ras-related protein RAB5A	M28215
B07j	ras-related protein RAB5B	X54871
B07k	ras-related protein RAB5C	U18420
B07l	ras-related protein RAB6	M28212
B07m	ras-related protein RAB7	X93499
B07n	ras-related protein RAB8; MEL oncogene	X56741
B08a	BLANK	
B08b	BLANK	
B08c	BLANK	
B08d	ras-like protein TC10	M31470
B08e	kinase suppressor of ras-1 (KSR1)	U43586
B08f	ras homolog gene family member A (RHOA; ARHA); ARH12; H12	L25080
B08g	ras homolog gene family member B (RHOB; ARHB); ARH6; H6	X06820
B08h	RIELOSOMAL PROTEIN S6 KINASE (S6K)	M60724
B08i	retinoid X receptor alpha (RXRA)	X52773
B08j	retinoic acid receptor alpha 1 (RAR-alpha 1; RARA); PML-RAR protein	X06538; X06614; M73779
B08k	retinoic acid receptor beta (RXR-beta; RXRB)	M84820; X63522; S54072
B08l	retinoid X receptor gamma (RXR-gamma; RXRG)	U38480
B08m	stem cell factor precursor (SCF); mast cell growth factor (MGF); c-kit ligand	M59964
B08n	NCK melanoma cytoplasmic src homolog (HSNCK)	X1
B09a	BLANK	

B09b	BLANK		
B09c	BLANK		
B09d	C-src proto-oncogene (SRC1)		
B09e	transforming growth factor alpha (TGF-alpha; TGFA)		
B09f	bone morphogenetic protein 6 precursor (BMP6)		
B09g	tyrosine kinase receptor tie-1 precursor		
B09h	cAMP-dependent protein kinase I alpha regulatory subunit (PRKAR1); tissue-specific extinguisher 1 (TSE1)		
B09i	c-abl proto-oncogene		
B09j	Wilms' tumor protein (WT33; WT1)		
B09k	colorectal cancer suppressor protein precursor (DCC)		
B09l	cot proto-oncogene		
B09m	N-myc proto-oncogene		
B09n	L-myc proto-oncogene (MYCL1)		
B10a	BLANK		
B10b	BLANK		
B10c	BLANK		
B10d	3-phosphoinositide-dependent protein kinase 1 (PDK1)		
B10e	box-dependent myc-interacting protein 1		
B10f	cell surface glycoprotein MUC18; melanoma-associated antigen A32; CD146 antigen; melanoma adhesion molecule		
B10g	cGMP-dependent protein kinase beta (CGK); type I alpha cGMP-dependent protein kinase		
B10h	colorectal mutant cancer protein (MCC)		
B10i	dual-specificity protein phosphatase 8; HVH5		
B10j	EB1 protein		
B10k	FKBP-rapamycin associated protein (FRAP); rapamycin target protein		
B10l	FRAP-related protein 1 (FRP1); ataxia telangiectasia- & RAD3-related protein (ATR)		
B10m	tyrosine-protein kinase receptor tyro3 precursor; rse; sky; dlk		
B10n	metastasis-associated protein 1 (MTA1)		
B11a	BLANK		
B11b	BLANK		
B11c	BLANK		
B11d	neurogenic locus notch protein homolog 1 precursor (NOTCH1); translocation-associated notch protein (TANI)		
B11e	neurogenic locus notch protein homolog 4 (NOTCH4)		
B11f	tyrosine-protein kinase receptor UFO precursor; axl oncogene		
B11g	TSG101 tumor susceptibility protein		
B11h	ribosomal protein S6 kinase II alpha 3 (S6KI1-alpha 3); ribosomal S6 kinase 2 (RSK2); insulin-stimulated protein kinase 1 (ISPK1)		
B11i	serine/threonine-protein kinase PCTAIRE 1 (PCTK1)		
B11j	protein kinase DYRK3		
B11k	protein phosphatase 2C gamma		
B11l	hint protein; protein kinase C inhibitor 1 (PKCI1)		
B11m	serum- & glucocorticoid-regulated serine/threonine protein kinase (SGK)		
B11n	serine/threonine protein kinase SAK		
B12a	BLANK		
B12b	BLANK		
B12c	BLANK		
B12d	protein tyrosine phosphatase sigma		
B12e	phosphotyrosyl phosphatase activator		
B12f	SH3-binding protein 2		
B12g	Janus tyrosine-protein kinase 2 (JAK2); receptor-associated tyrosine kinase		
B12h	serine/threonine protein phosphatase 6 (PP6)		
B12i	serine/threonine protein phosphatase 2B catalytic subunit gamma; calmodulin-dependent calcineurin A subunit gamma; testis-1 S4622		
B12j	PTPCAAX1 nuclear tyrosine phosphatase (PRL-1)		
B12k	tyrosine-protein kinase HCK; P59-HCK & P60-HCK; hematopoietic cell kinase		
B12l	stress-activated protein kinase 4 (SAPK4)		
B12m	protein phosphatase 2A B56-alpha		
B12n	protein phosphatase 2A B56-beta (PP2A)		
B13a	BLANK		
B13b	BLANK		
B13c	BLANK		
B13d	serine/threonine protein kinase PRP4 homolog		
B13e	protein phosphatase PP2A 65-kDa regulatory subunit beta (p65-beta)		
B13f	protein phosphatase PP2A 61-kDa regulatory subunit epsilon		
B13g	phospholipase D1 (PLD1); choline phosphatase 1; phosphatidylcholine-hydrolyzing phospholipase D1		
B13h	guanylate kinase (GMP kinase)		
B13i			
B13j			
B13k			
B13l			
B13m			
B13n			
B13o			
B13p			
B13q			
B13r			
B13s			
B13t			
B13u			
B13v			
B13w			
B13x			
B13y			
B13z			
B14a			
B14b			
B14c			
B14d			
B14e			
B14f			
B14g			
B14h			
B14i			
B14j			
B14k			
B14l			
B14m			
B14n			
B14o			
B14p			
B14q			
B14r			
B14s			
B14t			
B14u			
B14v			
B14w			
B14x			
B14y			
B14z			
B15a			
B15b			
B15c			
B15d			
B15e			
B15f			
B15g			
B15h			
B15i			
B15j			
B15k			
B15l			
B15m			
B15n			
B15o			
B15p			
B15q			
B15r			
B15s			
B15t			
B15u			
B15v			
B15w			
B15x			
B15y			
B15z			
B16a			
B16b			
B16c			
B16d			
B16e			
B16f			
B16g			
B16h			
B16i			
B16j			
B16k			
B16l			
B16m			
B16n			
B16o			
B16p			
B16q			
B16r			
B16s			
B16t			
B16u			
B16v			
B16w			
B16x			
B16y			
B16z			
B17a			
B17b			
B17c			
B17d			
B17e			
B17f			
B17g			
B17h			
B17i			
B17j			
B17k			
B17l			
B17m			
B17n			
B17o			
B17p			
B17q			
B17r			
B17s			
B17t			
B17u			
B17v			
B17w			
B17x			
B17y			
B17z			
B18a			
B18b			
B18c			
B18d			
B18e			
B18f			
B18g			
B18h			
B18i			
B18j			
B18k			
B18l			
B18m			
B18n			
B18o			
B18p			
B18q			
B18r			
B18s			
B18t			
B18u			
B18v			
B18w			
B18x			
B18y			
B18z			
B19a			
B19b			
B19c			
B19d			
B19e			
B19f			
B19g			
B19h			
B19i			
B19j			
B19k			
B19l			
B19m			
B19n			
B19o			
B19p			
B19q			
B19r			
B19s			
B19t			
B19u			
B19v			
B19w			
B19x			
B19y			
B19z			
B20a			
B20b			
B20c			
B20d			
B20e			
B20f			
B20g			
B20h			
B20i			
B20j			
B20k			
B20l			
B20m			
B20n			
B20o			
B20p			
B20q			
B20r			
B20s			
B20t			
B20u			
B20v			
B20w			
B20x			
B20y			
B20z			
B21a			
B21b			
B21c			
B21d			
B21e			
B21f			
B21g			
B21h			
B21i			
B21j			
B21k			
B21l			
B21m			
B21n			
B21o			
B21p			
B21q			
B21r			
B21s			
B21t			
B21u			
B21v			
B21w			
B21x			
B21y			
B21z			
B22a			
B22b			
B22c			
B22d			
B22e			
B22f			
B22g			
B22h			
B22i			
B22j			
B22k			
B22l			
B22m			
B22n			
B22o			
B22p			
B22q			
B22r			
B22s			
B22t			
B22u			
B22v			
B22w			
B22x			
B22y			
B22z			
B23a			
B23b			
B23c			
B23d			
B23e			
B23f			
B23g			
B23h			
B23i			
B23j			
B23k			
B23l			
B23m			
B23n			
B23o			
B23p			
B23q			
B23r			
B23s			
B23t			
B23u			
B23v			
B23w			
B23x			
B23y			
B23z			
B24a			
B24b			
B24c			
B24d			
B24e			
B24f			
B24g			
B24h			
B24i			
B24j			
B24k			
B24l			
B24m			
B24n			
B24o			
B24p			
B24q			
B24r			
B24s			
B24t			
B24u			
B24v			
B24w			
B24x			
B24y			
B24z			
B25a			
B25b			
B25c			
B25d			
B25e			
B25f			
B25g			
B25h			
B25i			
B25j			
B25k			
B25l			
B25m			
B25n			
B25o			
B25p			
B25q			
B25r			
B25s			
B25t			
B25u			
B25v			
B25w			
B25x			
B25y			
B25z			
B26a			
B26b			
B26c			
B26d			
B26e			
B26f			
B26g			
B26h			
B26i			
B26j			
B26k			
B26l			
B26m			
B26n			
B26o			
B26p			
B26q			
B26r			
B26s			
B26t			
B26u			
B26v			
B26w			
B26x			
B26y			
B26z			
B27a			
B27b			
B27c			
B27d			
B27e			
B27f			
B27g			
B27h			
B27i			
B27j			
B27k			
B27l			
B27m			
B27n			
B27o			
B27p			
B27q			
B27r			
B27s			
B27t			
B27u			
B27v			
B27w			
B27x			
B27y			
B27z			
B28a			
B28b			
B28c			
B28d			
B28e			
B28f			
B28g			
B28h			
B28i			
B28j			
B28k			
B28l			
B28m			
B28n			
B28o			
B28p			

B13i	proto-oncogene tyrosine-protein kinase lck; p56-lck; lymphocyte-specific protein tyrosine kinase (LCK); T-cell-specific prote	U07236
B13j	histamine H1 receptor (HRH1)	D28481
B13k	serine/threonine-protein kinase PCTAIRE 3 (PCTK3)	X66362
B13l	serine/threonine-protein kinase PCTAIRE 2 (PCTK2)	X66360
B13m	serine kinase SRPK2	U88666
B13n	protein phosphatase with EF-hands-2 long form (PPEF2)	AF023456
B14a	liver glyceraldehyde 3-phosphate dehydrogenase (GAPDH; G3PDH)	X01677
B14b	BLANK	
B14c	BLANK	
B14d	BLANK	
B14e	BLANK	
B14f	BLANK	
B14g	BLANK	
B14h	BLANK	
B14i	BLANK	
B14j	BLANK	
B14k	BLANK	
B14l	BLANK	
B14m	BLANK	
B14n	BLANK	
C01a	liver glyceraldehyde 3-phosphate dehydrogenase (GAPDH; G3PDH)	X01677
C01b	BLANK	
C01c	BLANK	
C01d	ribosomal protein S6 kinase II alpha 2 (SRKII-alpha 2); ribosomal S6 kinase 3 (RSK3)	X85106
C01e	activating transcription factor 6 (ATF6)	AF005887
C01f	casein kinase I gamma 3 subunit (CSNK1G3)	AF049089
C01g	cbfC proto-oncogene; cbf3	AB028645
C01h	cbf-associated protein SH3P12	AF136381
C01i	cAMP-responsive element-binding protein 3 (CREB3)	U59629
C01j	microtubule-associated protein 2 (MAP2)	U01828
C01k	guanine nucleotide-binding protein gamma 8 subunit (GNG8); GNG8	AF001160
C01l	guanine nucleotide-binding protein gamma 11 subunit (GNG11)	U31384
C01m	guanine nucleotide-binding protein gamma 12 subunit (GNG12)	AF119663; AF188181
C01n	guanine nucleotide-binding protein gamma 3 subunit (GNG3)	AF188177
C02a	BLANK	
C02b	BLANK	
C02c	BLANK	
C02d	guanine nucleotide-binding protein gamma 4 subunit (GNG4)	U31382
C02e	guanine nucleotide-binding protein gamma 8 subunit (GNG8)	AF188179
C02f	casein kinase I alpha isoform (CKI-alpha); CK1; CSNK1A	X80693
C02g	casein kinase I gamma 2 (CKI-gamma 2)	U89896
C02h	carcinoembryonic antigen precursor (CEA); meconium antigen 100; CD66E antigen	M15042
C02i	Abelson murine leukemia viral oncogene homolog 2 (ABL2); Abelson-related gene (ARG)	M35296
C02j	jaeged homolog 2 (JAG2)	AF003521
C02k	smooth muscle & non-muscle myosin light chain kinase (MLCK)	U48959
C02l	receptor-type protein-tyrosine phosphatase sigma precursor (R-PTP-sigma; PTPRS)	U35234
C02m	rac-beta serine/threonine kinase (rac-PK-beta); AKT2	M77198; M95936
C02n	protein expressed in non-metastatic cells 3 (NIME3); DR-NM3; nucleoside diphosphate kinase 3 (NDP kinase 3; NDK3)	U29656
C03a	BLANK	
C03b	BLANK	
C03c	BLANK	
C03d	rho-GAP hematopoietic protein G1 (RGC1); KIAA0131	X78817
C03e	RHO GDP-dissociation inhibitor 1 (RHO-GDI 1); RHO-GDI alpha (GDI1); ARHGDI1A	X69550
C03f	Rho-related GTP-binding protein RhoE; Rho8; ARHE	X95282
C03g	Rho7 protein	X95456
C03h	rho-related GTP-binding protein (RHOG); ARHG	X61587
C03i	RHO-associated coiled-coil containing protein kinase (p160ROCK)	U43195
C03j	ras homolog gene family member C (RHOC; ARHC); ARH9; H9	L25081
C03k	rho GDP dissociation inhibitor 2 (RHO GDI2; RHO-GDI beta); LY-GDI; ARHGDI2; GDID4	L20888
C03l	rhoHPI1	D85815
C03m	ras associated with diabetes 1 (RAD1)	L24564
C03n	G protein-coupled receptor GPR-NGA	U5f
C04a	BLANK	

C04b	BLANK	Z35
C04c	BLANK	Y079zj
C04d	ras-like small GTPase TTF	U82532
C04e	rho GDP-dissociation inhibitor 3 (RHO-GDI 3); RHO-GDI gamma; ARHGDIG	U59752
C04f	rho6 protein	L08246
C04g	cytohesin-1; Sec7p-like protein	M11058
C04i	3-hydroxy-3-methylglutaryl-coenzyme A reductase (HMG-CoA reductase; HMGR)	hy L07414
C04j	tumor necrosis factor superfamily member 5 (TNFSF5); CD40 ligand (CD40L); TNF-related activation protein (TRAP); gp39; hy	L10413
C04k	farnesyltransferase alpha	L10414
C04l	farnesyltransferase beta	M23379
C04m	GTPase-activating protein (GAP); ras p21 protein activator; p120GAP; RASA	Y08200
C04n	rab geranylgeranyltransferase alpha subunit (rab GG transferase; rab GGTase)	
C05a	BLANK	
C05b	BLANK	
C05c	BLANK	
C05d	rab geranylgeranyl transferase beta subunit	Y08201
C05e	geranylgeranyltransferase type I beta subunit (GGTase I beta; PGGT1B)	L25441
C05f	H-ras proto-oncogene; transforming G protein	V00574
C05g	v-Ki-RAS2B proto-oncogene (KRAS2)	M54968
C05h	laminin beta 1 subunit precursor (laminin B1; LAMB1)	M61916
C05i	laminin beta 2 subunit precursor (laminin B2; LAMB2); S-laminin	S77512
C05j	laminin beta 3 subunit precursor (LAMB3); laminin B1K chain; kalinin B1 chain	L25541
C05k	neurofibromatosis protein type 1 (NF1); neurofibromin	M60915
C05l	neuromodulin; growth-associated protein 43 (GAP43); protein F1; calmodulin-binding protein p57	M25667
C05m	n-ras proto-oncogene; transforming protein p21	X02751
C05n	progesterone receptor (PGR)	M15716
C06a	BLANK	
C06b	BLANK	
C06c	BLANK	
C06d	prostaglandin G/H synthase 2 precursor (PGH synthase 2; PGHS2; PTGS2); cyclooxygenase 2 (COX2); prostaglandin-endoperoxidase; M90100	M99487
C06e	prostate-specific membrane antigen (PSMA)	X69141
C06f	farnesyl-diphosphate farnesyltransferase 1 (FDDT1); squalene synthetase (SQS; SS)	U09031 + U28170 + L19956
C06g	phenol-sulfating phenol sulfotransferase 1 (PPST1); thermostable phenol sulfotransferase (TS-PST); HAST1/HAST2; ST1A3; K02054	
C06h	gastrin-releasing peptide (GRP)	M13451
C06i	farnesyl pyrophosphate synthetase (FPS); farnesyl diphosphate synthase (FDPS); dimethylallyltransferase; geranyltransferase	AF071552
C06j	lamin C	AF128406
C06k	Homo sapiens N-acetyltransferase 1 (arylamine N-acetyltransferase) (NAT1) mRNA	X03541
C06l	nuclear prelamin A recognition factor (NARE)	AF048700
C06m	neurotrophic tyrosine kinase receptor type 1 (NTRK1; TRK)	
C06n	gastrointestinal peptide	
C07a	BLANK	
C07b	BLANK	
C07c	BLANK	
C07d	mitochondrial brown fat uncoupling protein 1 (UCP1)	U28480
C07e	guanine nucleotide-binding protein G(Y) alpha 11 subunit (GNA11)	M69013
C07f	peroxisome proliferator-activated receptor alpha (PPAR-alpha; PPARA)	L02932
C07g	tyrosine 3-monooxygenase/tryptophan 5-monooxygenase activation protein epsilon polypeptide (YWHAE); 14-3-3 protein epsilon	U28936
C07h	neuromedin B precursor (NMB)	M21551
C07i	lymphopain	AF013611
C07j	platelet/endothelial cell adhesion molecule 1 (PECAM1); CD31 antigen	M28526
C07k	alpha1 catenin (CTNNA1); cadherin-associated protein; alpha E-catenin	D13866; D14705; L23805; L22080
C07l	beta 1 catenin (CTNBB); cadherin-associated protein	X87838; Z19054
C07m	cathepsin D precursor (CTSD)	M11233
C07n	cathepsin B precursor (CTSB); APP secretase	M14221
C08a	BLANK	
C08b	BLANK	
C08c	BLANK	
C08d	endoglin precursor (ENG; END); CD105 antigen	J05481; X72012
C08e	selectin E precursor (SELE; ESEL); endothelial leukocyte adhesion molecule 1 (ELAM1)	M30640; M61893
C08f	hepatocyte growth factor (HGF); scatter factor (SF); hepatopoietin A	M60718
C08g	integrin alpha 7B precursor (IGA7B)	X74295
C08h	integrin beta 4 precursor (ITGB4); CD104 antigen	X53587; X52186; X51841

C08i	integrin alpha 1 (ITGA1); laminin & collagen receptor; VLA1; CD49A antigen	X68742
C08j	integrin alpha 4 precursor (ITGA4); VLA4; CD49D antigen	L12002; X16983; X15356
C08k	integrin alpha 6 precursor (ITGA6); VLA6; CD49F antigen	X53586; X59512
C08l	integrin alpha 8 (ITGA8)	L36531
C08m	integrin alpha 9 (ITGA9); integrin alpha-RLC	D25303; L24158
C08n	integrin alpha E precursor (ITGAE); mucosal lymphocyte-1 antigen; hml-1 antigen; CD103 antigen	L25851
C09a	BLANK	
C09b	BLANK	
C09c	BLANK	
C09d	integrin beta 1 (ITGB1)	M34189
C09e	integrin beta 5 precursor (ITGB5)	J05633
C09f	integrin beta 6 precursor (ITGB6)	M35198; J05522
C09g	integrin beta 7 precursor (ITGB7)	M62880; S80335
C09h	integrin beta 8 precursor (ITGB8)	M73780
C09i	laminin gamma 1 subunit precursor (LAMC1); laminin B2 subunit (LAMB2)	Z15009
C09j	laminin gamma 2 subunit precursor (LAMC2)	X05231
C09k	matrix metalloproteinase 1 (MMP1); interstitial collagenase precursor (CLG); fibroblast collagenase	X07820; M30461
C09l	matrix metalloproteinase 10 (MMP10); stromelysin 2 precursor (STMY2; SL2); transin 2	X07819
C09m	matrix metalloproteinase 7 (MMP7); matrilysin	L23808
C10a	BLANK	
C10b	BLANK	
C10c	BLANK	
C10d	matrix metalloproteinase 13 (MMP13); collagenase 3 precursor	X75308
C10e	matrix metalloproteinase 14 precursor (MMP14); MMP-X1; membrane-type matrix metalloproteinase 1 (MT-MMP1)	D26512; X83535
C10f	matrix metalloproteinase 15 (MMP15); membrane-type matrix metalloproteinase 2 (MT-MMP2)	Z48482
C10g	matrix metalloproteinase 16 (MMP16)	D83646
C10h	matrix metalloproteinase 10 precursor (MMP16); membrane-type matrix metalloproteinase 3 (MT-MMP3); MMP-X2	D50477
C10i	matrix metalloproteinase 17 (MMP17); membrane-type matrix metalloproteinase 4 (MT-MMP4)	X89576
C10j	matrix metalloproteinase 18 (MMP18); MMP19	Y08622; X92521
C10k	matrix metalloproteinase 2 (MMP2); 72-kDa gelatinase A; 72-kDa type IV collagenase precursor (CLG4A); H-ras-transformed	J03210; J05471
C10l	matrix metalloproteinase 3 (MMP3); stromelysin 1 precursor (STMY1; SL1); transin 1	X05232
C10m	matrix metalloproteinase 7 (MMP7)	X07819
C10n	matrix metalloproteinase 8 (MMP8)	J05556
C11a	BLANK	
C11b	BLANK	
C11c	BLANK	
C11d	matrix metalloproteinase 9 (MMP9); gelatinase B; 92-kDa type IV collagenase precursor (CLG4B)	J05070; D10051
C11e	cathepsin L precursor; major excreted protein (MEP)	X12451
C11f	neutrophil gelatinase--associated lipocalin precursor (NGAL); 25-kDa alpha-2-microglobulin-related subunit of MMP9;	X02811; X02744; M12783; M16288
C11g	beta NGF	X52599
C11h	platelet--derived growth factor A subunit precursor (PDGFA; PDGF1)	X06374
C11i	platelet--derived growth factor B subunit precursor (PDGFB; PDGF2); bacaplermin; c-sis	X02811; X02744; M12783; M16288
C11j	platelet--derived growth factor receptor alpha precursor (PDGFR-alpha; PDGFRA); CD140A antigen	M21574
C11k	platelet--derived growth factor receptor beta subunit (PDGFR-beta; PDGFRB); CD140B antigen	M21616
C11l	endothelial plasminogen activator inhibitor 1 precursor (PAI1; PLANH1)	X04429; M14083
C11m	placental plasminogen activator inhibitor 2 (PAI-2; PLANH2); monocyte ARG-serpin; urokinase inhibitor	M18082; J02685
C11n	protein C inhibitor (PROCI; PCI); plasma serine protease inhibitor precursor; plasminogen activator inhibitor 3 (PLANH3; PAI3)	M68516; J02639
C12a	BLANK	
C12b	BLANK	
C12c	liver glyceraldehyde 3-phosphate dehydrogenase (GAPDH; G3PDH)	X01677
C12d	platelet--derived growth factor (PDGF) receptor beta-like tumor suppressor (PRLTS)	D37965
C12e	angiotensin 1 receptor precursor; tyrosine-protein kinase receptor TIE-2; tyrosine-protein kinase receptor TEK; p140 TEK; tL06139	M32977; M27281
C12f	tissue inhibitor of metalloproteinase 1 precursor (TIMP1); erythroid potentiating activity protein (EPA); fibroblast collagenase ii	X03124
C12g	tissue inhibitor of metalloproteinase 2 precursor (TIMP2)	J05593
C12h	tissue inhibitor of metalloproteinase 3 precursor (TIMP3)	U14394
C12i	tissue inhibitor of metalloproteinase 4 precursor (TIMP4)	U76456
C12j	tissue-type plasminogen activator precursor (T- plasminogen activator; TPA)	M15518; X07393; M18182
C12k	vascular endothelial growth factor precursor (VEGF); vascular permeability factor (VPF)	M32977; M27281
C12l	vascular endothelial cell growth factor 165 receptor; VEGF165; neuropilin	AF016050
C12m	vascular endothelial cell growth factor 165 receptor 2 (VEGF165R2)	AF016098
C12n	vascular endothelial growth factor B precursor (VEGFB) + VE1	U4
C12o	vascular endothelial growth factor 186 (VRF186)	U43369
C13a	BLANK	

C13b	BLANK	
C13c	BLANK	
C13d	BLANK	
C13e	BLANK	
C13f	BLANK	
C13g	BLANK	
C13h	BLANK	
C13i	BLANK	
C13j	BLANK	
C13k	BLANK	
C13l	BLANK	
C13m	BLANK	
C13n	BLANK	
C14a	liver glyceraldehyde 3-phosphate dehydrogenase (GAPDH; G3PDH)	X01677
C14b	BLANK	
C14c	BLANK	
C14d	BLANK	
C14e	BLANK	
C14f	BLANK	
C14g	BLANK	
C14h	BLANK	
C14i	BLANK	
C14j	BLANK	
C14k	BLANK	
C14l	BLANK	
C14m	BLANK	
C14n	liver glyceraldehyde 3-phosphate dehydrogenase (GAPDH; G3PDH)	X01677
D01a	liver glyceraldehyde 3-phosphate dehydrogenase (GAPDH; G3PDH)	X01677
D01b	BLANK	
D01c	BLANK	
D01d	BLANK	
D01e	BLANK	
D01f	BLANK	
D01g	BLANK	
D01h	BLANK	
D01i	BLANK	
D01j	BLANK	
D01k	BLANK	
D01l	BLANK	
D01m	BLANK	
D01n	liver glyceraldehyde 3-phosphate dehydrogenase (GAPDH; G3PDH)	X01677
D02a	BLANK	
D02b	BLANK	
D02c	BLANK	
D02d	BLANK	
D02e	BLANK	
D02f	BLANK	
D02g	BLANK	
D02h	BLANK	
D02i	BLANK	
D02j	BLANK	
D02k	BLANK	
D02l	BLANK	
D02m	BLANK	
D02n	BLANK	
D03a	vascular endothelial growth factor C precursor (VEGFC); vascular endothelial growth factor related protein (VRP); FLT4 ligand U43142	
D03b	vascular endothelial growth factor receptor 1 (VEGFR1); fms-related tyrosine kinase 1 (FLT1); soluble VEGFR; soluble FLT (SI X51602; U01134	
D03c	vascular endothelial growth factor receptor 2 precursor (VEGFR2); kinase insert domain receptor (KDR); FLK1	L04947; X01656
D03d	vascular endothelial growth factor receptor 3 precursor (VEGFR3); FMS-related tyrosine kinase 4 (FLT4)	X68203; X69878; U43143
D03e	cadherin 6 precursor (CDH6); kidney cadherin (K-cadherin)	D31784
D03f	cadherin 11 precursor (CDH11); osteoblast-cadherin (OB-cadherin); OSF4	L34056
D03g	cadherin 12 (CDH12); brain cadherin precursor (BR-cadherin); neural cadherin 2 (N-cadherin 2)	L34057; L33477
D03h	cadherin 13 (CDH13); truncated cadherin precursor (T-cadherin); heart cadherin (H-cadherin)	L34058; U59289; U59288

D03i: cadherin 4 (CDH4); retinal cadherin precursor (R-cadherin; RCAD)
D03j: cadherin 8 (CDH8)
D03k: focal adhesion kinase (FAK); proline-rich tyrosine kinase 2 (PYK2)
D03l: focal adhesion kinase 2 (FAK2); cell adhesion kinase beta (CAKbeta); proline-rich tyrosine kinase 2 (PYK2)
D03m: liver glyceraldehyde 3-phosphate dehydrogenase (GAPDH; G3PDH)
D03n: BLANK
D04a: interleukin 3 receptor beta subunit precursor (IL3R-beta; IL3RB); interleukin 5 receptor beta subunit precursor (IL5R-beta; IL5RB)
D04b: cadherin 1 (CDH1); epithelial cadherin precursor (E-cadherin; CDHE); uvomorulin (UVO); CAM 120/80
D04c: cadherin 2 (CDH2); neural cadherin precursor (N-cadherin; NCAD)
D04d: urkinase-type plasminogen activator precursor (U-plasminogen activator; UPA)
D04e: integrin-linked kinase (ILK)
D04f: 40S ribosomal protein SA (RPSA); 34/67-kDa laminin receptor; laminin receptor 1 (LAMR1); colon carcinoma laminin-binding f. U43901
D04g: laminin alpha 4 subunit precursor (laminin A4; LAMA4)
D04h: collagen VIII alpha 1 subunit (COL8A1)
D04i: collagen VI alpha 3 subunit (COL6A3)
D04j: collagen XI alpha 2 subunit (COL11A2)
D04k: collagen XVI alpha 1 subunit precursor (COL16A1)
D04l: collagen XVIII alpha 1 subunit (COL18A1)
D04m: BLANK
D04n: BLANK
D05a: collagen IV alpha 6 subunit precursor (COL4A6)
D05b: collagen XI alpha 1 subunit precursor (COL11A1)
D05c: ezrin; cytovillin 2; villin 2 (VIL2)
D05d: protocadherin 43 precursor (PCDH43); cadherin-like protein
D05e: beta 3-endonexin
D05f: T-cell surface glycoprotein CD8 beta.1 subunit precursor
D05g: platelet glycoprotein IV (GPIV; PAS IV; PAS4); GPIIB; CD36 antigen
D05h: integrin beta 3 (ITGB3); platelet membrane glycoprotein IIIa precursor (GP3A); CD61 antigen
D05i: wingless-related MMTV integration site 2 protein (WNT2); int-1-related protein (IRP)
D05j: wingless-related MMTV integration site 5a protein (WNT5A)
D05k: wingless-related MMTV integration site 8b protein (WNT8B)
D05l: N-sam; fibroblast growth factor receptor 1 precursor (FGFR1); basic fibroblast growth factor receptor precursor (BFGFR); fms; X66945; M34641; M34186; M37722; M63887; M63888; M63889
D05m: BLANK
D05n: BLANK
D06a: catenin alpha-like protein 1 (CTNNA1)
D06b: female organ- & adipocyte-specific extracellular matrix protein 2 (ECM2)
D06c: extracellular matrix protein 1 (ECM1)
D06d: coagulation factor VIIIc procoagulant component (F8C)
D06e: keratinocyte growth factor receptor (KGF); fibroblast growth factor receptor 2 (FGFR2); heparin-binding growth factor receptor (HBGF-1); M87771; M87772
D06f: matrix metalloproteinase 11 (MMP11)
D06g: OSTEOPOINTIN PRECURSOR (BONE SIALOPROTEIN 1)
D06h: vascular cell adhesion protein 1 precursor (V-CAM1); CD106 antigen
D06i: acidic fibroblast growth factor (AFGF) + heparin-binding growth factor 1 precursor (HBGF-1) + beta-endothelial cell growth fa X65778 + X51943 + M13361
D06j: basic fibroblast growth factor 2 (FGFB; FGF2)
D06k: cadherin 3 (CDH3); placental cadherin precursor (P-cadherin; CDHP)
D06l: cadherin 5 (CDH5); vascular endothelial cadherin precursor (VE-cadherin); 7B4 antigen; CD144 antigen
D06m: BLANK
D06n: BLANK
D07a: urkinase-type plasminogen activator receptor GPII-anchored form precursor (U-PAR; PLAU); monocyte activation antigen 1 M83246; X51675
D07b: growth factor receptor-bound protein 2 (GRB2); abundant SRC homology protein (ASH)
D07c: heparin-binding EGF-like growth factor (HBEGF; HEGFL); diphtheria toxin receptor (DTR)
D07d: insulin-like growth factor II (IGF2); somatomedin A
D07e: insulin-like growth factor binding protein 4 precursor (IGF-binding protein 4; IGFBP4; IBP4)
D07f: insulin-like growth factor binding protein 5 precursor (IGF-binding protein 5; IGFBP5; IBP5)
D07g: insulin-like growth factor binding protein 6 precursor (IGF-binding protein 6; IGFBP6; IBP6)
D07h: insulin precursor (INS)
D07i: insulin-like growth factor binding protein 1 (IGFBP1); placental protein 12 (PP12)
D07j: insulin-like growth factor-binding protein 2 (IGF-binding protein 2; IGFBP2; IBP2)
D07k: insulin receptor precursor (INSR; IR)
D07l: insulin receptor-related protein precursor (IR-related receptor; IRR)
D07m: BLANK
D07n: BLANK
D08a: nerve growth factor receptor (NGF receptor; NGFR)

D08b	growth inhibitory factor (GIF); metallothionein-III (MT-III; MT3)	
D08c	hepatocyte growth factor-like protein (HGF activator-like protein-); hyaluronan-binding protein (PHBP)	D13365; M93311
D08d	transforming growth factor beta 3 (TGF-beta3; TGFb3)	D49749; S83182
D08e	fibroblast growth factor receptor 4 (FGFR4)	J0
D08f	growth-arrest-specific protein 1 (GAS1)	L036-J
D08g	fibroblast growth factor receptor 3 precursor (FGFR3); JTK4; fibroblast growth factor receptor 2 precursor (FLG2)	L13698
D08h	epidermal growth factor receptor kinase substrate EPS8	M58051; X58255
D08i	fibroblast growth factor 8 (FGF8); androgen-induced growth factor precursor (AIGF); HBGF8	U12535
D08j	PDGF-associated protein	U36223
D08k	p53-dependent cell growth regulator CGR19	U41745
D08l	transforming growth factor beta (TGF-beta; TGFB)	U66469
D08m	BLANK	X02812; J05114
D08n	BLANK	
D09a	fibroblast growth factor 3 (FGF3); HBGF3; int2 proto-oncogene precursor	X14445
D09b	fibroblast growth factor 6 precursor (FGF6); HBGF6; HST2	X63454
D09c	TIS11B protein; butyrate response factor 1 (BRF1); EGF response factor 1 (ERF1)	X79067
D09d	insulin-like growth factor I receptor (IGF1R)	X04434; M24599
D09e	transforming growth factor beta receptor III precursor (TGF beta receptor III; TGFb3); betaglycan	L07594
D09f	insulin-like growth factor-binding protein 3 precursor (IGF-binding protein 3; IGFbP3; IBP3)	M31159; M35878
D09g	erbB3 proto-oncogene; HER3	M29366; M34309
D09h	insulin-like growth factor IA precursor (IGF1A); IGFbP1; somatomedin C + insulin-like growth factor I (IGF1)	M27544 + M37484
D09i	keratinocyte growth factor (KGF); fibroblast growth factor 7 (FGF7)	M60828
D09j	ephrin type-B receptor 2 precursor; tyrosine-protein kinase receptor EPH-3; DRT; HEK; ERK	L41939
D09k	erythropoietin receptor (EPOR)	M60459
D09l	platelet-activating factor receptor (PAFR)	M54995; M38441
D09m	BLANK	
D09n	BLANK	
D10a	interferon alpha/beta receptor alpha subunit precursor (IFN-alpha receptor; IFNAR)	J03171
D10b	interferon alpha/beta receptor beta subunit precursor (IFN-alpha-R); type I interferon receptor (IFN-R)	X77722
D10c	interferon gamma receptor (IFNGR)	A09781
D10d	interleukin 1 alpha precursor (IL1-alpha; IL1A); hematopoietin 1	X02851
D10e	interleukin 1 receptor-like protein 2 (IL1RL2)	U49065
D10f	interleukin 12 alpha subunit precursor (IL12-alpha; IL12A); cytotoxic lymphocyte maturation factor 35-kDa subunit (CLMF p35 M65291)	M65290
D10g	interleukin 12 beta subunit precursor (IL12-beta; IL12B); cytotoxic lymphocyte maturation factor 40-kDa subunit (CLMF p40); M65290	U03187
D10h	interleukin 12 receptor precursor (IL12R)	U14407
D10i	interleukin 15 (IL15)	U31628
D10j	interleukin 15 receptor alpha subunit precursor	U31628
D10k	interleukin 18 precursor (IL18); interferon gamma-inducing factor (IFN-gamma-inducing factor; IGIF); interleukin 1 gamma (IL1-D49950)	U14407
D10l	interleukin 1 beta precursor (IL1-beta ; IL1B); catabolin	U31628
D10m	BLANK	K02770
D10n	BLANK	
D11a	interleukin 2 precursor (IL2); T-cell growth factor (TCGF)	A14844
D11b	interleukin 2 receptor alpha subunit precursor (IL2 receptor alpha subunit; IL2RA); TAC antigen; CD25 antigen	X01057; X01058; X01402
D11c	interleukin 2 receptor beta subunit precursor (IL2 receptor beta; IL2RB); p70-75; CD122 antigen	M26082
D11d	interleukin 2 receptor gamma subunit (IL2R-gamma; IL2RG); cytokine receptor common gamma chain precursor	D11086
D11e	interleukin 6 precursor (IL6); B-cell stimulatory factor 2 (BSF2); interferon beta 2 (IFNB2); hybridoma growth factor	X04602; M14584
D11f	interleukin 6 receptor alpha subunit precursor (IL6R-alpha; IL6RA); CD126 antigen	X12830
D11g	interleukin 6 receptor beta subunit precursor (IL6R-beta; interleukin 6 signal transducer (L6ST); membrane glycoprotein 130 (M57230)	
D11h	interleukin 8 precursor (IL8); monocyte-derived neutrophil chemotactic factor (MDNCF); T-cell chemotactic factor; neutrophil Y00787	X17543; M30134
D11i	interleukin 9 precursor (IL9); T-cell growth factor p40	M84747
D11j	interleukin 9 receptor precursor (IL9R)	X01394
D11k	tumor necrosis factor alpha precursor (TNF-alpha; TNFA); cachectin	
D11l	tumor necrosis factor receptor superfamily member 1B (TNFRSF1B); tumor necrosis factor receptor 2 precursor (TNFR2); tur M32315; M55994	
D11m	BLANK	
D11n	BLANK	
D12a	tumor necrosis factor receptor superfamily member 1A (TNFRSF1A); tumor necrosis factor receptor 1 (TNFR1); tumor necros M33294	
D12b	tumor necrosis factor type 1 receptor-associated protein (TRAP1)	U12595
D12c	interferon gamma receptor (IFNR-gamma; IFNGR1); CDW119 antigen	J03143
D12d	gamma-interferon-inducible protein; IP-30	J03909
D12e	interleukin 13 precursor (IL13); NC30	L06801
D12f	interleukin 7 (IL7)	J04156
D12g	interleukin 14 precursor (IL14); high molecular weight B-cell growth factor (HMW-BCGF)	L15344
D12h	interleukin 4 precursor (IL4); B-cell stimulatory factor 1 (BSF-1); lymphocyte stimulatory factor 1	MT3982

D12i	interleukin 3 precursor (IL3); multipotential colony-stimulating factor; hematopoietic growth factor; P-cell stimulating factor; r M14743; M17115		
D12j	interferon-inducible protein AIM2		AF024714
D12k	interferon beta (IFN-beta; IFNB); fibroblast interferon		M28622
D12l	interferon-induced guanylate-binding protein 1; guanine nucleotide-binding protein 1		M55542
D12m	BLANK		
D12n	BLANK		
D13a	interferon-induced guanylate-binding protein 2; guanine nucleotide-binding protein 2		M55543
D13b	interleukin 10 precursor (IL10); cytokine synthesis inhibitory factor (CSIF)		M57627
D13c	interleukin 11 (IL11); adipogenesis inhibitory factor (AGIF)		M57765
D13d	interleukin 1 receptor antagonist protein precursor (IL1RA; IRAP)		M63099
D13e	interleukin 16 (IL16); lymphocyte chemoattractant factor (LCF)		M90391
D13f	interferon gamma (IFN-gamma) receptor beta subunit precursor; IFN-gamma accessory factor 1 (AF1); IFN-gamma transducer U05875		U32659
D13g	interleukin 17 precursor (IL17); cytotoxic T-lymphocyte-associated antigen 8 (CTLA8)		U58917
D13h	IL-17 receptor		U70981
D13i	interleukin 13 receptor		X01992; M29383
D13j	interferon gamma precursor (IFN-gamma; IFNG); immune interferon		X02530
D13k	interferon gamma-induced protein precursor (gamma-IP10)		X04688; J03478
D13l	interleukin 5 precursor (IL5); T-cell replacing factor (TRF); eosinophil differentiation factor; B-cell differentiation factor 1		
D13m	BLANK		
D13n	BLANK		
D14a	interferon regulatory factor 1 (IRF1)		X14454
D14b	interferon alpha-induced 11.5-kDa protein		X67325
D14c	MHC class I molecule; MHC class I subunit-related protein A (MICA); PERB11.1		U65416; U69631; X92841
D14d	HLA class II histocompatibility antigen alpha chain precursor		K01171
D14e	heparan sulfate proteoglycan (HSPG2)		M85289
D14f	CC chemokine receptor type 4 (CKCR4; CCR4)		X85740
D14g	GlcNac-1-P transferase		Z82022
D14h	UDP-N-acetyl-alpha-D-galactosamine:polypeptide N-acetylgalactosaminyltransferase 2 (GALNACT2; GALNT2)		X85019
D14i	BCL2-associated X protein membrane (BAX)		L22474
D14j	B-cell leukemia/lymphoma protein 2 (BCL2)		M14745
D14k	fas soluble protein; apoptosis antigen 1 (APO1; APT1) [alternatively spliced]		Z70519
D14l	DNA-binding protein SMBP-2; glial factor-1 (GF-1)		L14754
D14m	BLANK		
D14n	liver glyceraldehyde 3-phosphate dehydrogenase (GAPDH; G3PDH)		X01677
E01a	BLANK		
E01b	BLANK		
E01c	BLANK		
E01d	BLANK		
E01e	BLANK		
E01f	BLANK		
E01g	BLANK		
E01h	BLANK		
E01i	BLANK		
E01j	BLANK		
E01k	BLANK		
E01l	BLANK		
E01m	BLANK		
E01n	liver glyceraldehyde 3-phosphate dehydrogenase (GAPDH; G3PDH)		X01677
E02a	caspase 2 precursor (CASP2); ICH11 cysteine protease; ICHTS		U13021; U13022
E02b	caspase 4 precursor (CASP4); CASP5; ICE2 cysteine protease; ICE3; TX protease; TY protease; ICE(REL) III		U28014; U28015
E02c	caspase 8 precursor (CASP8); MCH5; ICE-LIKE apoptotic protease 5; MORT1-associated CED-3 homolog (MACH); FADD-hor U60520; U58143; X98172; X98173; X98174; AF00962		D38122; U08137
E02d	tumor necrosis factor superfamily member 6 (TNFSF6); fas antigen ligand (FASL); apoptosis antigen ligand (APTL; APT1LGI)		D38122; U08137
E02e	fas antigen; fasL receptor precursor; apoptosis antigen 1 (APO1; APT1); tumor necrosis factor receptor superfamily member 6 M67454		AF016267
E02f	TRAIL receptor 3; decoy receptor 1 (DCR1)		L41690
E02g	tumor necrosis factor receptor 1-associated death domain protein (TNFR1-associated death domain protein; TRADD)		AF022385
E02h	apoptosis-related protein TFAR15		X86779
E02i	fas-activated serine/threonine kinase (FAST)		X89986; U34584
E02j	BCL2-interacting killer protein (BIK); NBK apoptotic inducer protein; BP4; BIP1		U84388
E02k	caspase & RIP adaptor with death domain (CRADD); RIP-associated protein with death domain (RAIDD)		U58334
E02l	BCL2 & p53 binding protein Bbp/53BP2 (BBP/53BP2)		
E02m	BLANK		
E02n	BLANK		
E03a	BCL2 homologous antagonist/killer (BAK)		U2304; U16811; X84213

E03b	BCL2-binding athanogene 1 (BAG1); glucocorticoid receptor-associated protein RAP46	S83171; Z35491
E03c	BCL2-associated death promoter (BAD); BCL2-binding component 6 (BBC6); BCL2L8	U66000q
E03d	BCL2-like 2 (BCL2L2); BCL-W; KIAA0271	U5
E03e	caspase 9 precursor (CASP9); MCH6; ICE-like apoptotic protease 6 (ICE-LAP6); apoptotic protease activating factor 3 (APAF U56330; U60521	U37448
E03f	caspase 7 precursor (CASP7); MCH3; ICE-like apoptotic protease 3 (ICE-LAP3); CMH-1	U13737
E03g	caspase 3 (CASP3); apain precursor; cysteine protease CPP32; YAMA protein; SREBP cleavage activity 1 protein (SCA1)	U33286
E03h	cellular apoptosis susceptibility protein (CAS); chromosome segregation gene homolog	U45878 + U37546
E03i	inhibitor of apoptosis protein 1 (IAP1); APl1 + IAP homolog C; TNFR2-TRAF signaling complex protein 1; MHC	U45879; U37547
E03j	inhibitor of apoptosis protein 2 (IAP2); IAP2; IAP homolog B; TNFR2-TRAF signaling complex protein 2; MHC	U45880; U32974
E03k	inhibitor of apoptosis protein 3 (IAP3); IAP3; X-linked IAP; XIAP; IAP-like protein (HILP)	U77352
E03l	MAP kinase-activating death domain protein	
E03m	BLANK	
E03n	BLANK	
E04a	TNF-alpha converting enzyme (TACE); a disintegrin & metalloproteinase domain 17 (ADAM17)	U69611
E04b	poly(ADP-ribose) polymerase (PARP); ADPRT; ADPRP; PPOL; NAD(+)-ADP-ribose transferase; poly(ADP-ribose) synthetase	M18112; J03473
E04c	methylacetoacetate isomerase (MAAI); glutathione transferase zeta 1	U86529
E04d	TNF-related apoptosis inducing ligand (TRAIL); APO-2 ligand (APO2L)	U57059
E04e	caspase 6 precursor (CASP6); MCH2-alpha; MCH2-beta	U20536; U20537
E04f	ionizing radiation resistance-conferring protein + death-associated protein 3 (DAP3)	U18321 + X83544
E04g	excision repair cross-complementing rodent repair deficiency complementation group 1 (ERCC1)	M13194
E04h	xeroderma pigmentosum group D complementing protein (XPD); X-ray repair-complementing defective repair in Chinese hamst X52221	
E04i	xeroderma pigmentosum group B complementing protein (XPB); excision repair cross-complementing rodent repair deficiency 1 M31899	
E04j	xeroderma pigmentosum group F complementing protein (XPF); excision repair cross-complementing rodent repair deficiency c L77890	
E04k	xeroderma pigmentosum group G complementing protein (XPG); X-ray repair-complementing defective repair in Chinese hamst L20046; X69978	
E04l	excision repair cross-complementing rodent repair deficiency complementation group 6 (ERCC6); Cockayne syndrome protein L04791	
E04m	BLANK	
E04n	BLANK	
E05a	growth arrest & DNA damage-inducible protein (GADD45); DNA damage-inducible transcript 1 (DDIT1)	M60974
E05b	growth arrest & DNA damage-inducible protein 45 beta (GADD45 beta)	AF078077
E05c	growth arrest & DNA damage-inducible protein 45 gamma (GADD45 gamma)	AF078078
E05d	DNAJ protein homolog 2 (DNAJ2; hDJ2; HJ2)	D13388
E05e	high mobility group protein isoforms 1 & Y (HMG1Y)	M23619
E05f	high mobility group protein HMG2	X62534
E05g	polypyrimidine tract-binding protein (PTB); heterogeneous nuclear ribonucleoprotein 1 (HNRNP 1); 57-kDa RNA-binding protein X65372	
E05h	heterogeneous nuclear ribonucleoprotein K (HNRNPK); 4C-stretch-binding protein (CSBP); transformation-upregulated nucle: S74678	J03250
E05i	DNA topoisomerase I (TOP1)	J04088
E05j	DNA topoisomerase II alpha (TOP2A)	X68060
E05k	DNA topoisomerase II beta (TOP2B)	D45132
E05l	zinc-finger DNA-binding protein	
E05m	BLANK	
E05n	BLANK	
E06a	PRB-binding protein E2F1; retinoblastoma-binding protein 3 (RBBP3); retinoblastoma-associated protein 1 (RBAP1); PBR3	M96577
E06b	E2F transcription factor 3 (E2F3); KIAA0075	Y10479
E06c	nuclear factor NF-kappa-B p100 subunit; nuclear factor NF-kappa-B p52 subunit; H2TF1; oncogene lvt-10	X61498
E06d	IkappaB epsilon (IKBE)	U91616
E06e	IkappaB kinase beta subunit (IKK beta)	AF031416
E06f	IkappaB kinase gamma subunit (IKK gamma)	AF074382
E06g	nucleoside diphosphate kinase B (NDP kinase B; NDKB); expressed in non-metastatic cells 2 protein (NME2); myc purine-binding L16785; M36981	
E06h	nuclear factor kappa-B DNA binding subunit (NF-kappaB; NFkB)	M58603
E06i	relA proto-oncogene; nuclear factor of kappa light polypeptide gene enhancer in B-cells 3 (NFkB3)	L19067
E06j	natural killer cell enhancing factor (NKEFB); thiol-specific antioxidant protein (TSA); thioredoxin peroxidase 1 (TDPX1); thiore: L19185; Z22548; X82321	
E06k	thioredoxin peroxidase 2 (TDPX2); thioredoxin-dependent peroxide reductase 2; proliferation-associated gene (PAG); natural k X67851	
E06l	adenovirus E1A enhancer-binding protein; E1A-F; ets translocation variant 4	U18018
E06m	BLANK	
E06n	BLANK	
E07a	RAD51C truncated protein	AF029670
E07b	DNA recombination & repair protein HNGS1	AF022778
E07c	homeobox protein D3 (HOXD3); HOX4A	D11117
E07d	chromodomain-helicase-DNA-binding protein 1 (CHD1)	AF006513
E07e	recA-like protein HsRad51; DNA repair protein RAD51 homolog	D13804
E07f	xeroderma pigmentosum group C complementing protein (XPC)	D21089
E07g	DNA nucleotidyltransferase; terminal addition enzyme; terminal deoxynucleotidyltransferase (DNNT; TDT)	M11722; K01919
E07h	6-O-methylguanine-DNA methyltransferase (MGMT); methylated-DNA-protein-cysteine methyltransferase	M29971

E07i	Ku (p70/p80) subunit; ATP-dependent DNA helicase II 86-kDa subunit; lupus ku autoantigen protein; thyroid-lupus autoantigen M30938	
E07j	X-ray repair-complementing defective repair in Chinese hamster cells 1 (XRCC1)	M36089
E07k	proliferating cyclic nuclear antigen (PCNA); cyclin	M15796; J04718
E07l	DNA mismatch repair protein MSH2	U04045; L47583
E07m	BLANK	
E07n	BLANK	
E08a	mutL protein homolog1 (MLH1); colon cancer nonpolyposis type 2 protein (COCA2)	U07418
E08b	DNA mismatch repair protein PMS1 (PMS1 protein homolog 1)	U13695
E08c	DNA mismatch repair protein PMS2 (PMS1 protein homolog 2)	U13696
E08d	histone deacetylase 2 (HD2)	U31814
E08e	X-ray repair-complementing defective repair in Chinese hamster cells 4 (XRCC4)	U40622
E08f	DNA topoisomerase III alpha (TOP3A)	U43431
E08g	DNA mismatch repair protein MSH6; mutS alpha 160-kDa subunit; G/T mismatch binding protein (GTMBP; GTBP)	U54777
E08h	RAD50	U63139
E08i	BRCA1-associated ring domain protein 1 (BARD1)	U76638
E08j	BRCA1-associated ring domain protein	X82200
E08k	BRCA2 region clone CG018	U50527
E08l	DNA cytosine-5-methyltransferase (DNA metase; MCM1)	X63692
E08m	BLANK	
E08n	BLANK	
E09a	DNA-binding protein RFX5	X85786
E09b	DNA repair protein RAD54 homolog	X97795
E09c	zinc finger protein	Y14443
E09d	DNA fragmentation factor 45 (DFF45)	U91985
E09e	thymidylate synthase (TYMS; TS)	X02308
E09f	DNA polymerase alpha catalytic subunit (POLA)	X06745
E09g	X-ray repair-complementing defective repair in Chinese hamster cells 9 (XRCC9)	U70310
E09h	TRAF-interacting protein 1 (-TRAF) + TRAF family member-associated NF-kappaB activator TANK	U59863 + U63830
E09i	early growth response protein 1 (EGR1); transcription factor ETR103; KROX24; zinc finger protein 225 (ZNF225); AT225	X52541; M62829
E09j	ubiquitin-conjugating enzyme E2 17-kDa (UBE2A); ubiquitin-protein ligase; ubiquitin carrier protein; HR6A	M74524
E09k	histone deacetylase 3C (HD3C)	AF005482
E09l	histone 4 (H4)	X67081
E09m	BLANK	
E09n	BLANK	
E10a	phosphatidic acid phosphatase 2B	AF017786
E10b	RNA helicase	X98743
E10c	AP-2 BETA TRANSCRIPTION FACTOR	X95694
E10d	GTP synthase; GTP synthetase; UTP-ammonia ligase	X52142
E10e	dihydrofolate reductase (DHFR)	V00507
E10f	DNA polymerase iota (POLI); RAD30B	AF140501
E10g	DNA polymerase lambda (POLL); POL-kappa	AJ131890
E10h	DNA (cytosine-5-)-methyltransferase 2 (DNMT2)	AJ223333
E10i	heterogeneous nuclear ribonucleoprotein L (HNRNPL)	X16135
E10j	phenylethanolamine N-methyltransferase (PNMTase); noradrenaline N-methyltransferase	J03727
E10k	UMP-CMP kinase	AF070416
E10l	activating transcription factor 3 (ATF3)	L19871
E10m	BLANK	
E10n	BLANK	
E11a	activating transcription factor 4 (ATF4); tax-responsive enhancer element B67 (TAXREB67); cAMP-response element-binding D90209	X03473
E11b	H1 histone family member 0 (H1F0; H10); H1FV	U35116
E11c	ubiquitin-specific protease 5 (USP5); isopeptidase T (ISOT)	D63004
E11d	ubiquitin-conjugating enzyme E2N (UBE2N); UBC13	U39318
E11e	ubiquitin-conjugating enzyme E2D 3 (UBE2D3); UBC15C	AF064019
E11f	CAD; DNA fragmentation factor 40-kDa subunit (DFF40)	X96666; U12982; U13007
E11g	Y box-binding protein 1 (YBX1; YB1); nuclease sensitive element binding protein 1 (NSEP1); DNA-binding protein B (DBPB)	L27943
E11h	cytidine deaminase (CDA)	L39874
E11i	deoxycytidylate deaminase (dCMP deaminase)	D21235
E11j	UV excision repair protein RAD23 homolog A (RAD23A; hHR23A)	U12134
E11k	DNA damage repair & recombination protein 52 (RAD52)	L13857
E11l	guanine nucleotide release/exchange factor (GNRF); ras-GRF; sos	
E11m	BLANK	
E11n	BLANK	
E12a	telomerase reverse transcriptase (hTRT)	AFc -50

E12b	cytosolic thymidine kinase (TK1)	K02581
E12c	thymidine phosphorylase precursor (TDRPase); platelet-derived endothelial cell growth factor (PDEC/GF); gliostatin	M63193
E12d	G/T mismatch-specific thymine DNA glycosylase (TDG)	Uf
E12e	cytochrome P450 reductase	S9, ., j
E12f	S-mephenytoin 4-hydroxylase; cytochrome P450 IIC9 (CYP2C9); CYP2C10; CYP2C17; CYP2C18; CYP2C19	M21940; M15331; M21939; M61858; M61854
E12g	cytochrome P450 IA1 (CYP1A1); P450-P1; P450 form 6; P450-G	K03191
E12h	cytochrome P450 IA2 (CYP1A2); P450-P3; P450-4	Z00036
E12i	cytochrome P450 ID6 (CYP2D6)	M20403; M19697
E12j	cytochrome P450 IE1 (CYP2E1)	J02625
E12k	cytochrome P450 IIIA3 (CYP3A3); CYP3A4; CYP3A5; CYP3A7	M13785; M18907; J04813; D00408
E12l	E2F dimerization partner 1; DRTF1-polypeptide 1 (DP1)	L23959
E12m	BLANK	
E12n	BLANK	
E13a	NADP+ dihydropyrimidine dehydrogenase precursor (DPD); dihydrouracil dehydrogenase; dihydrothymine dehydrogenase (DPYE U09178	
E13b	microsomal UDP-glucuronosyltransferase 1-1 precursor (UDP-GT; UGT1.1; UGT1A; GNT1); bilirubin-specific isozyme 1 (hUG-E M57899	
E13c	microsomal UDP-glucuronosyltransferase 1-2 precursor (UDP-GT; UGT1.2; UGT1B; GNT1); HLUGP4	S55985
E13d	microsomal UDP-glucuronosyltransferase 1-3 precursor (UDP-GT; UGT1.3; UGT1C; GNT1)	M84127
E13e	microsomal UDP-glucuronosyltransferase 1-4 precursor (UDP-GT; UGT1.4; UGT1D; GNT1); bilirubin-specific isozyme 2 (hUG-E M57951	J04093
E13f	microsomal UDP-glucuronosyltransferase 1-6 precursor (UDP-GT; UGT1.6; UGT1F; GNT1)	J04093
E13g	microsomal UDP-glucuronosyltransferase 2B15 precursor (UDP-GT); UDP-GT-H-3; UGT2B15 + microsomal 2B10 precursor (UDF U08854; X63359; U06641; J05428; Y00317	
E13h	thymidylate kinase	L18991
E13i	deoxycytidine kinase	M60527
E13j	adenine phosphoribosyltransferase (APRT)	Y00486
E13k	adenosine deaminase (ADA); adenosine aminohydrolase	X02994; K02567
E13l	aldehyde oxidase (hAOX)	L11005
E13m	BLANK	
E13n	BLANK	
E14a	BLANK	
E14b	BLANK	
E14c	BLANK	
E14d	BLANK	
E14e	BLANK	
E14f	BLANK	
E14g	BLANK	
E14h	BLANK	
E14i	BLANK	
E14j	BLANK	
E14k	BLANK	
E14l	BLANK	
E14m	BLANK	
E14n	liver glyceraldehyde 3-phosphate dehydrogenase (GAPDH; G3PDH)	X01677
F01a	fatty acid synthase	S80437
F01b	nm23-H4; nucleoside-diphosphate kinase; nucleoside 5'-diphosphate phosphotransferase (NDK)	Y07604
F01c	uridine phosphorylase (UDRPase; UP)	X90858
F01d	xanthine dehydrogenase/oxidase	U39487
F01e	phosphoribosyl pyrophosphate synthetase I (PRPS1)	D00860
F01f	uridine diphosphoglucose pyrophosphorylase; UTP-glucose-1-phosphate uridylyltransferase	U27460
F01g	ornithine decarboxylase	X16277
F01h	ribonucleoside-diphosphate reductase M1 subunit; ribonucleotide reductase	X59543
F01i	uridine 5'-monophosphate synthase (UMP synthase)	J03626
F01j	5-methyltetrahydrofolate-homocysteine methyltransferase (MTR)	U71285
F01k	alkylglycerone phosphate synthase (AGPS); alkyl-dihydroxyacetonephosphate (ADHAP)	Y09443
F01l	cytochrome P450 IIC19 (CYP2C19)	M61854
F01m	BLANK	
F01n	liver glyceraldehyde 3-phosphate dehydrogenase (GAPDH; G3PDH)	X01677
F02a	cytochrome P450 IIC8 (CYP2C8); mephenytoin 4-hydroxylase	Y00498
F02b	cytochrome P450 IIIA3 (CYP3A3); CYP3A4; niphedipine oxidase; CYP3A5; CYP3A7	M13785; M18907; J04813; D00408
F02c	cytochrome P450 IIIA3 (CYP3A3); CYP3A4; niphedipine oxidase	M18907
F02d	NADH-cytochrome B5 reductase	Y09501
F02e	microsomal UDP-glucuronosyltransferase 1-2 precursor (UDP-GT; UGT1.2; UGT1B; GNT1); HLUGP4	S55985
F02f	UDP-glucuronosyltransferase 1A7	U89507
F02g	UDP-glycosyltransferase 2 family polypeptide B (UGT2B)	AF030310
F02h	folylpolyglutamate synthase (FPGS)	M98045

F02i	DNA polymerase alpha 70-kDa subunit (POLA2)	L24559
F02j	DNA polymerase beta (POLB)	D29013
F02k	gamma-glutamyl hydrolase precursor (GGH; GH); folicypolyglammaglutamyl hydrolase; gamma-glu-X carboxypeptidase; conjugase	U55206
F02l	glutamate decarboxylase 65-kDa isoform; 65-kDa glutamic acid decarboxylase (GAD-65); GAD2	M81882
F02m	BLANK	
F02n	BLANK	
F03a	glutamate decarboxylase 67-kDa isoform; 67-kDa glutamic acid decarboxylase (GAD-67); GAD1	M81883
F03b	ribonucleoside-diphosphate reductase M2 subunit; ribonucleotide reductase	X59618
F03c	methylenetetrahydrofolate dehydrogenase- methylentetrahydrofolate cyclohydrolase-formyltetrahydrofolate synthetase	J04031
F03d	adducin gamma subunit	U37122
F03e	elongation factor 1 alpha (EF1-alpha; EF1A)	M27364
F03f	elongation factor 2 (EEF2; EF2)	X51486
F03g	eukaryotic translation initiation factor 4E 25-kDa subunit (EIF4E); mRNA cap-binding protein	M15353
F03h	metalloprotease/disintegrin/cysteine-rich protein precursor (MDC9)	U41766
F03i	tissue inhibitor of metalloproteinases 3 (TIMP3); mitogen-inducible gene 5 (MIG5)	Z30183
F03j	ubiquitin-conjugating enzyme E2 32-kDa complementing protein; ubiquitin-protein ligase; ubiquitin carrier protein; CDC34	L22005
F03k	cytosolic superoxide dismutase 1 (SOD1)	K00065; X02317
F03l	endothelial nitric oxide synthase (EC-NOS)	M93718
F03m	BLANK	
F03n	BLANK	
F04a	glutathione peroxidase (GSHPX1; GPX1)	Y00483; M21304
F04b	glutathione synthetase (GSH synthetase; GSH-S); glutathione synthase	U34683
F04c	glutathione S-transferase homolog	U90313
F04d	glutathione S-transferase pi (GSTP1); GST3	X08058; M24485
F04e	microsomal glutathione S-transferase II (microsomal GSTII)	U77604
F04f	microsomal glutathione S-transferase I (MGST1); GST12	J03746
F04g	glutathione S-transferase theta 2	L38503
F04h	27-kDa heat shock protein (HSP27); stress-responsive protein 27 (SRP27); estrogen-regulated 24-kDa protein; HSPB1	X54079
F04i	heat shock protein 40 homolog (HSP40 homolog); DNAJW	U40992
F04j	heat shock 70-kDa protein 6; heat shock 70-kDa protein B	X51757; M11236
F04k	heat shock 70-kDa protein 4 (HSPA4); HSP70RY; heat shock 70-related protein APG-2	L12723
F04l	heat shock cognate 71-kDa protein; heat shock 70-kDa protein 8 (HSPA8; HSC70); HSP73	Y00371
F04m	BLANK	
F04n	BLANK	
F05a	heat shock protein beta 2 (HSPB2); DMPK-binding protein; MKBP	S67070
F05b	90-kDa heat-shock protein A (HSP90A); HSP86; HSPCA	X07270
F05c	inducible nitric oxide synthase (iNOS); type II NOS; hepatocyte NOS (HEP-NOS)	L09210
F05d	cytoplasmic dynein light chain 1 (hDLC1; DLC1); protein inhibitor of neuronal nitric oxide synthase (PIN)	U32944
F05e	thioredoxin reductase	X91247
F05f	bleomycin hydrolase (BLM hydrolase)	X92106
F05g	glutathione S-transferase mu1 (GSTM1); GST1; HB subunit 4; GTH4	X68676; S01719
F05h	glutathione S-transferase M4 (GSTM4)	M96233
F05i	glutathione S-transferase theta 1 (GSTT1)	X79389
F05j	metallothionein 2A (MT2A)	V00594
F05k	thioredoxin (TRDX; TXN); ATL-derived factor (ADF); surface-associated sulphhydrylprotein (SASP)	J04026
F05l	glutathione reductase (GRase; GSR; GR)	X15722
F05m	BLANK	
F05n	BLANK	
F06a	major vault protein (MVP); lung resistance-related protein (LRP)	X79882
F06b	multidrug resistance-associated protein 1 (MRP1); ABCC1	L05628
F06c	canalicular multispecific organic anion transporter; multidrug resistance-associated protein 2 (MRP2); canalicular multidrug res; U63970	
F06d	ATP-binding cassette subfamily B (MDR1/TAP) member 1 (ABCB1); multiple drug resistance 1 protein (MDR1); P glycoprotein	M14758
F06e	multidrug resistance-associated protein 3 (MRP3); MLP2; ABCC3	Y17151
F06f	MRP/organic anion transporter (MOAT-B)	AF071202
F06g	ATP-binding cassette subfamily C member 3 (ABCC3); multidrug resistance-associated protein 5 (MRP5)	U83661
F06h	anthracycline resistance-associated protein (ARA)	X95715
F06i	ATP-binding cassette subfamily G (white) member 2 (ABCG2); breast cancer resistance protein (BCRP); mitoxantrone resista	AF098951
F06j	sulfonyleurea receptor (SUR); ATP-binding cassette subfamily C (CFTR/MRP) member 8 (ABCC8)	L78207
F06k	mediator protein; SUR2	AF135022
F06l	ATP-binding cassette subfamily A member 3 (ABCA3)	U78735
F06m	BLANK	
F06n	BLANK	
F07a	cystic fibrosis transmembrane conductance regulator (CFTR); Ca^{2+} -dependent chloride channel	M2L