

INSULIN SIGNALING PANEL PRIMERS (82 genes)

Gene	NCBI Gene ID	Full Gene Name	Forward Primer (5'-3')	Reverse Primer (5'-3')	Product Length (bp)	PCR Efficiency
<i>Acaca</i>	107476	acetyl-Coenzyme A carboxylase alpha(Acaca)	GATCTATCGTGGTGGTCT	GGCCTGGAACATAGTGGTCT	133	96
<i>Acox1</i>	11430	acyl-Coenzyme A oxidase 1, palmitoyl(Acox1)	GGAATTTGGATCGCAGACC	TGCCAAGTGAAGTGCCAAA	92	96
<i>Adra1d</i>	11550	adrenergic receptor, alpha 1d(Adra1d)	CCCTTTTCTGCTCTGCC	TGAAGACCCCTCTGATGG	67	95
<i>Aebp1</i>	11568	AE binding protein 1(Aebp1)	AAGGACATGGCCAGCTGAT	TGAGCCCTCGTAACTCTG	91	93
<i>Akt1</i>	11651	thymoma viral proto-oncogene 1(Akt1)	GACTCTCCGATCAGCTCACC	ACTCTGTCATGTGCACCGG	94	96
<i>Akt2</i>	11652	thymoma viral proto-oncogene 2(Akt2)	CGCCGCTGACAGACGA	TGGCCTCCAGGCTTGATG	169	93
<i>Araf</i>	11836	Araf proto-oncogene, serine/threonine kinase(Araf)	AGAAGCAACGCCAAGATGGAG	TCAGATGGGCTAGGATGAGA	92	97
<i>Bcl2l1</i>	12048	BCL2-like 1(Bcl2l1)	CGGGCTGGGCACTTTTGT	TGCTGCATTTGTCCTGATGA	44	97
<i>Braf</i>	109880	Braf transforming gene(Braf)	TCACGGAAACACCCCAAGTC	ACAGCATTCTGGGATGAGACC	153	99
<i>Cap1</i>	12331	CAP, adenylate cyclase-associated protein 1 (yeast)(Cap1)	GTTCTTCCGGAAAGTGGAGAGC	GCATGTACGCATAATGTTCCAC	83	99
<i>Cbl</i>	12402	Casitas B-lineage lymphoma(Cbl)	CTTGACCTTCTACAGCAGCGA	GAAGCAGCTTGGAGAGCAGTCC	74	100
<i>Dok1</i>	13448	docking protein 1(Dok1)	GGCCGGACAAAGTAAATGTT	GTCTGGAAAGTGAAGTCCC	77	96
<i>Dok2</i>	13449	docking protein 2(Dok2)	AAGCTGCGATGGTCAAGTATG	GGCCACTTCTGCAAAAGG	89	93
<i>Dok3</i>	27261	docking protein 3(Dok3)	CCTACACAGCAGCAGTAA	CTTTGGCCGACATTTCTTG	47	93
<i>Dusp14</i>	56405	dual specificity phosphatase 14(Dusp14)	CGGCACACTCGATCTGATTT	AGCGGTGCTGTTACAGTGA	44	103
<i>Eif2b1</i>	209354	eukaryotic translation initiation factor 2B, subunit 1 (alpha)(Eif2b1)	GCTGTACGGCCGCTGCTTT	AGTATTCAATTAACCTCAGCTCTC	83	95
<i>Eif4ebp1</i>	13685	eukaryotic translation initiation factor 4E binding protein 1(Eif4ebp1)	CTGGGGTCTACTAGCCCTAC	AAGGGCTTACGGGGACATA	172	94
<i>Erc1</i>	13870	excision repair cross-complementing rodent repair deficiency, complementation group 1(Erc1)	AACCTCTCTACCGGGCCAC	TCTGGCTGCTGGTCTGTTC	67	90
<i>Frs2</i>	327826	fibroblast growth factor receptor substrate 2(Frs2)	AGCATCCATCCAGATAGGACAA	ACCAAGTCTCTGTTGGTACT	111	93
<i>Frs3</i>	107971	fibroblast growth factor receptor substrate 3(Frs3)	TTCTCTTTGAGAGTGGCCG	GCCTCGAACAACACTGAATGC	68	96
<i>Gab1</i>	14388	growth factor receptor bound protein 2-associated protein 1(Gab1)	GAAGTGGTGTCTCGGGATG	ACATCCGGGTCTCACTGCAA	119	98
<i>Gck</i>	103988	glucokinase(Gck)	CTGGGCTACTTCTGTTGGAA	GCCAGGATCTGCTACTCTTTT	138	94
<i>Gpd1</i>	14555	glycerol-3-phosphate dehydrogenase 1 (soluble)(Gpd1)	GTGAGACGACCACTCGGCTG	TTGGGTCTGCTCACTAGCTC	70	93
<i>Grb10</i>	14783	growth factor receptor bound protein 10(Grb10)	GAACCAAGTCCAAACCGACA	CACCACTTTCGTGCTCCAT	121	95
<i>Grb2</i>	14784	growth factor receptor bound protein 2(Grb2)	CGTACGGGTGGCATT	TTGGCGATGGTTCATCTT	151	96
<i>Gsk3b</i>	56637	glycogen synthase kinase 3 beta(Gsk3b)	ATCCTTGGACAAAGTCTCCG	CGGGTATGGTGTGATCCAG	85	94
<i>Hk2</i>	15277	hexokinase 2(Hk2)	CACAGTGTTCAGCTGCTGCT	ATCTCGCCAAATACATGCC	93	97
<i>Hras</i>	15461	Harvey rat sarcoma virus oncogene(Hras)	TGCTGCTGACACAGGCTC	TCCATGCGAAGGTCTGGTC	154	94
<i>Igf1</i>	16000	insulin-like growth factor 1(Igf1)	TTCCCTCTATTCTCTGCC	ACGACATAGTGTGATCTTCTTCA	141	91
<i>Igf1r</i>	16001	insulin-like growth factor 1 receptor(Igf1r)	ACACAGGAAACAAGGAGAG	GGTGAGGTTGAACGGAGAA	62	96
<i>Igf2</i>	16002	insulin-like growth factor 2(Igf2)	TCGGTTTGCATCCCGCAG	GGATCCCCATTGGTACTGG	69	98
<i>Igf2bp1</i>	140486	insulin-like growth factor 2 mRNA binding protein 1(Igf2bp1)	CACCTACTTAAACGGGAGC	ACCTTCAGGGTGGTCTTCTC	81	103
<i>Igf2bp2</i>	319765	insulin-like growth factor 2 mRNA binding protein 2(Igf2bp2)	GACCTCTCGGTAAGTGG	CAACAGCCATCAACACCT	139	98
<i>Igf2bp3</i>	140488	insulin-like growth factor 2 mRNA binding protein 3(Igf2bp3)	GCTACGCTCGTGGACTG	GTTACGAATCTCTGCGGTTT	135	94
<i>Igf2r</i>	16004	insulin-like growth factor 2 receptor(Igf2r)	CAGTGTCTCGGAGGGATT	GGGGCTCTGGTAAATGTC	116	96
<i>Igfals</i>	16005	insulin-like growth factor binding protein, acid labile subunit(Igfals)	GTCTGTACAAGGAACAATGGCT	GGGCTGGGCTCTGTCTTCA	45	99
<i>Igfbp1</i>	16006	insulin-like growth factor binding protein 1(Igfbp1)	CAGCAAGACAGTGTGAGACATCC	GTTGGGGTCCCTCTAGTCT	112	95
<i>Igfbp2</i>	16008	insulin-like growth factor binding protein 2(Igfbp2)	GGGGTACTGTGAAAGA	GTCTCATCACTGTCTGCACCC	66	98
<i>Igfbp3</i>	16009	insulin-like growth factor binding protein 3(Igfbp3)	GCAGCCTAAGCACTACTCT	ACTTGGAAATGGCTCACTGG	129	99
<i>Igfbp4</i>	16010	insulin-like growth factor binding protein 4(Igfbp4)	AAGCCCTCGGTACTTATGAT	GCTCATCTTCTGACAGAGT	102	98
<i>Igfbp5</i>	16011	insulin-like growth factor binding protein 5(Igfbp5)	CAGGAATCGCAACAAGGCC	TACAGTITGGCAGGTACAC	107	99
<i>Igfbp6</i>	16012	insulin-like growth factor binding protein 6(Igfbp6)	GCTGTACAAGCCGAGCA	TTGGGGTTCCTCTCTTGTGA	56	99
<i>Igfbp7</i>	29817	insulin-like growth factor binding protein 7(Igfbp7)	GGGAGCAAGGCTCTGATA	GGGGTCTGACTATGGAAGAC	122	94
<i>Igfbp11</i>	75426	insulin-like growth factor binding protein-like 1(Igfbp11)	GACGGCTCTGATCTGAACA	CTGGAAGCACGTTCTGTA	80	97
<i>Igflr1</i>	101883	IGF-like family receptor 1(Igflr1)	GCTGTGTACAGCTGTAGCA	GGGAGGACGGGCTCTTCT	99	99
<i>Ins1</i>	16333	insulin 1(Ins1)	GCTGTGGGCTCCAGTAAC	TGAACAACATGACCTGCTCT	79	96
<i>Insrr</i>	23920	insulin receptor-related receptor(Insrr)	AGAGGAGTCCAGCCTGTAG	GGAGACGAACCATGTGTA	125	101
<i>Klf10</i>	21847	Kruppel-like factor 10(Klf10)	TCACTTCCGGCTCTCTCT	TTCCATTTCCCTCCGAAGC	47	100
<i>Kras</i>	16653	Kirsten rat sarcoma viral oncogene homolog(Kras)	GCTATGGTCTGGTAGGGA	TGCTCAACACCTGCTTCTGT	135	102
<i>Ldlr</i>	16835	low density lipoprotein receptor(Ldlr)	CCAATCGACTACGGGTTCA	AGTTCACCCCTTAGGCTGT	105	97
<i>Map2k1</i>	26395	mitogen-activated protein kinase kinase 1(Map2k1)	CTCGGGGTTAAGCCGAC	CTCCAGGTTGGTCTCGG	44	102
<i>Mapk1</i>	26413	mitogen-activated protein kinase 1(Mapk1)	CCAACTCTCTGTAACACC	GATCTGGTCTGCAACCGG	75	96
<i>Mtor</i>	56717	mechanistic target of rapamycin (serine/threonine kinase)(Mtor)	TGGCATAACAGACTCTGACCC	CAGGGATGCCAAGACAGAT	52	101
<i>Nck1</i>	17973	non-catalytic region of tyrosine kinase adaptor protein 1(Nck1)	GGTGGGCTCTCAGTGACT	GCATCTTTCAGCAGCTG	69	100
<i>Nos2</i>	18126	nitric oxide synthase 2, inducible(Nos2)	GGGACTGAGCTTTAGAGACA	TGCACCTCTGCTCAACCTCA	118	102
<i>Pck2</i>	74551	phosphoenolpyruvate carboxylase 2 (mitochondrial)(Pck2)	TCACTGACTCGGCTTACGTG	CAGGATCCCCATGCCAGTC	141	98
<i>Pdp1k</i>	18607	3-phosphoinositide dependent protein kinase 1(Pdp1k)	CCGACTTGGGCTCATGG	GGGGATGGGCAAGCAATAG	91	101
<i>Pik3ca</i>	18706	phosphatidylinositol 3-kinase, catalytic, alpha polypeptide(Pik3ca)	AGGCAAGAAACAAGGGCGAG	ATGATGTTGCTGTGTGGCC	121	96
<i>Pik3cb</i>	74769	phosphatidylinositol 3-kinase, catalytic, beta polypeptide(Pik3cb)	CGCCGGGGCAGTTCATC	CAGGAGCATGATAGGGCG	149	99
<i>Pik3r2</i>	18709	phosphatidylinositol 3-kinase, regulatory subunit, polypeptide 2 (p85 beta)(Pik3r2)	AGGCCCTTGGATGGATCTTC	CTGGGAGTATGGGCTCAG	43	102
<i>Ppp1ca</i>	19045	protein phosphatase 1, catalytic subunit, alpha isoform(Ppp1ca)	CGACAGCGGAAGCTCAACC	CGCTGAGCCCTGCACTTCTG	64	102
<i>Prkcg</i>	18752	protein kinase C, gamma(Prkcg)	CAGCTCTCTCAGAAGTTGA	CCGCACTCTCTACAATTCGA	61	101
<i>Prkci</i>	18759	protein kinase C, iota(Prkci)	GGACTTTCAGTGAGGTTGG	CATGGGCTCTCTCTCATCT	89	97
<i>Prkcz</i>	18762	protein kinase C, zeta(Prkcz)	ACCTCTGTGAGGAAGTGCGA	TACAAGGCTCAGCTTCACTGT	90	92
<i>Prl</i>	19109	prolactin(Prl)	CCGAAAGAGGAGGACACTC	CAGTACCAGCGGACAGAT	94	100
<i>Ptpn1</i>	19246	protein tyrosine phosphatase, non-receptor type 1(Ptpn1)	CGGCTATTACAGGACATTCG	TCCGACTTGGTCAAAGGGG	120	101
<i>Ptprrf</i>	19268	protein tyrosine phosphatase, receptor type, F(Ptprrf)	AGCTGCGATCAGGTGATTC	ACTCGCACATCAGGTTGGC	124	99
<i>Raf1</i>	110157	v-raf-leukemia viral oncogene 1(Raf1)	CCGGCTCCCTCAGGATAA	GAGCCATCAACACCCGATC	114	96
<i>Rps6ka1</i>	20111	ribosomal protein S6 kinase polypeptide 1(Rps6ka1)	TGGACTTCAGCCTCAAGG	TGGCTACCAGGAAGACTTTG	153	100
<i>Rras</i>	20130	related RAS viral (r-ras) oncogene(Rras)	GCAAGCCGCTGACACTCA	CAGACACAAGATAGGACTGGATGAA	48	97
<i>Rras2</i>	66922	related RAS viral (r-ras) oncogene 2(Rras2)	CCACGAACCTGTCGGGTTA	TCITTCGGGTTGTTCTGG	76	93
<i>Serpine1</i>	18787	serine (or cysteine) peptidase inhibitor, clade E, member 1(Serpine1)	GCACAACCAGCAGAGACAA	ATGAAGCGTCTCTCCAC	74	94
<i>Shc1</i>	20416	src homology 2 domain-containing transforming protein C1(Shc1)	CTTGGTTCGGTACTGGGCT	TGAAGTCAAGGGCTCGCAT	59	102
<i>Slc27a4</i>	26569	solute carrier family 27 (fatty acid transporter), member 4(Slc27a4)	TGCTCTGTACTTGGGGTCT	GAGCACCATGCCCAAGA	89	100
<i>Slc2a1</i>	20525	solute carrier family 2 (facilitated glucose transporter), member 1(Slc2a1)	CATGGATCCAGCAGCAAGAA	CGTAGCGGTGGTTCATGT	158	102
<i>Slc2a2</i>	20526	solute carrier family 2 (facilitated glucose transporter), member 2(Slc2a2)	CCCTCATATTGTCGACGCA	GAGTGTGGTGGAGGCACT	98	94
<i>Slc2a3</i>	20527	solute carrier family 2 (facilitated glucose transporter), member 3(Slc2a3)	TCTGAGGACCCGAGGAACA	GAGATGGGGTCACTTCTGT	116	98
<i>Sorbs1</i>	20411	sorbin and SH3 domain containing 1(Sorbs1)	CGGAATACCGAGCGATCGAA	TCCTCAGGAGTGTCTGTCTA	80	92
<i>Sorbs2</i>	234214	sorbin and SH3 domain containing 2(Sorbs2)	AAGGCTTCTACGACGGAG	CACAGGCTTCCAAAGTGC	133	102
<i>Sorbs3</i>	20410	sorbin and SH3 domain containing 3(Sorbs3)	TTAGTCCCAAGGACCTAACAGAG	GATCACTGGACCTTGTCCC	179	91
<i>Sos1</i>	20662	son of sevenless homolog 1 (Drosophila)(Sos1)	TTCGATCTGACACTCGGC	GTCTCGAGGGGTACAGGA	118	94
<i>Vegfa</i>	22339	vascular endothelial growth factor A(Vegfa)	ACTGCACCCCTGGCTTACTG	CTGGGACACTTGGCATGT	50	101