Supplementary Table 6. Genes downregulated in ASIP overexpressing males of Kegg pathways “Focal Adhesion and ECM-Receptor Interaction”

Ensembl ID	UniProtKB ID	Gene name	Protein name	Function UniProtKB/Swiss-Prot	Link to human orthologue in GeneCards database	Associated keywords
	VGFAA_DANRE	Vascular endothelial growth factor A-A	vegfaa vegf vegfa	Growth factor active in angiogenesis, vasculogenesis and endothelial cell growth. Induces endothelial cell proliferation, promotes cell migration, inhibits apoptosis, and induces permeabilization of blood vessels. Acts both upstream of kdr and tie1 to stimulate endothelial cell differentiation, and upstream of gata1 to stimulate hematopoietic cell differentiation	VEGFA Gene - GeneCards | VEGFA Protein | VEGFA Antibody	Alternative splicing;Angiogenesis;Developmental protein;Differentiation;Disulfide bond;Glycoprotein;Growth factor;Mitogen;Reference proteome;Secreted;Signal
ENSDARG00000008107	SRC_DANRE	Proto-oncogene tyrosine-protein kinase Src (EC 2.7.10.2) (Proto-oncogene c-Src) (pp60c-src) (p60-Src)	src	Non-receptor protein tyrosine kinase which is activated following engagement of many different classes of cellular receptors including immune response receptors, integrins and other adhesion receptors, receptor protein tyrosine kinases, G protein-coupled receptors as well as cytokine receptors. Participates in signaling pathways that control a diverse spectrum of biological activities including gene transcription, immune response, cell adhesion, cell cycle progression, apoptosis, migration, and transformation. Due to functional redundancy between members of the SRC kinase family, identification of the specific role of each src kinase is very difficult. Src appears to be one of the primary kinases activated following engagement of receptors and plays a role in the activation of other protein tyrosine kinase (PTK) families. Receptor clustering or dimerization leads to recruitment of src to the receptor complexes where it phosphorylates the tyrosine residues within the receptor cytoplasmic domains. Plays an important role in the regulation of cytoskeletal organization through phosphorylation of specific substrates involved in	SRC Gene - GeneCards | SRC Protein | SRC Antibody	ATP-binding;Cell adhesion;Cell cycle;Cell junction;Cell membrane;Cytoplasm;Cytoskeleton;Kinase;Lipoprotein;Membrane;Mitochondrion;Mitochondrion inner membrane;Myristate;Nucleotide-binding;Nucleus;Phosphoprotein;Reference proteome;S-nitrosylation;SH2 domain;SH3 domain;Transferase;Tyrosine-protein kinase

				this process (Probable). When cells adhere via focal adhesions to the extracellular matrix, signals are transmitted by integrins into the cell resulting in tyrosine phosphorylation of a number of focal adhesion proteins, including ptk2/fak1 and paxillin (pxn) (By similarity). Also active at the sites of cell-cell contact adherens junctions and at gap junctions. Implicated in the regulation of pre-mRNA-processing (Probable). Might be involved not only in mediating the transduction of mitogenic signals at the level of the plasma membrane but also in controlling progression through the cell cycle via interaction with regulatory proteins in the nucleus. Involved in anchorage-independent cell growth (By similarity)		
ENSDARG00000008030	Q6NVA6_DANRE	Myosin, light chain 9b, regulatory	myl9b myl9 myl9l	Myosin regulatory subunit that plays an important role in regulation of both smooth muscle and nonmuscle cell contractile activity via its phosphorylation. Implicated in cytokinesis, receptor capping, and cell locomotion	MYL9 Gene - GeneCards | MYL9 Protein | MYL9 Antibody	Calcium;Proteomics identification;Reference proteome
ENSDARG00000034211	Q6DFZ8_DANRE	Calcium-activated neutral proteinase 2 (EC 3.4.22.53) (Calpain M-type) (Calpain-2 catalytic subunit) (Calpain-2 large subunit) (Millimolar-calpain)	capn2l	Calcium-regulated non-lysosomal thiol-protease which catalyses limited proteolysis of substrates involved in cytoskeletal remodelling and signal transduction.	CAPN2 Gene - GeneCards | CAN2 Protein | CAN2 Antibody	Calcium;Hydrolase;Protease;Proteomics identification;Reference proteome;Repeat;Thiol protease
ENSDARG00000043593	A0A2R8QHG1_DANRE	Rap guanine nucleotide exchange factor (GEF) 1a	rapgef1a	Guanine nucleotide-releasing protein that binds to SH3 domain of CRK and GRB2/ASH. Transduces signals from CRK to activate RAS. Involved in cell branching and adhesion mediated by BCAR1-CRK-RAPGEF1 signalling and activation of RAP1. Plays a role in the establishment of basal endothelial barrier function. Plays a role in nerve growth factor (NGF)-induced sustained activation of Rap1 and neurite outgrowth.	rapgef1a related genes - GeneCards Search Results	Guanine-nucleotide releasing factor;Reference proteome
ENSDARG00000005651	A0A1L1QZE5_DANRE	HRas proto-oncogene, GTPase b (Fragment)	hrasb	Involved in the activation of Ras protein signal transduction (PubMed:22821884). Ras proteins bind GDP/GTP and possess intrinsic GTPase activity	HRAS Gene - GeneCards | RASH Protein | RASH Antibody	GTP-binding;Nucleotide-binding;Reference proteome

ENSDARG00000101637	CCND1_DANRE	G1/S-specific cyclin-D1	ccnd1 cycd1	Regulatory component of the cyclin D1-CDK4 (DC) complex that phosphorylates and inhibits members of the retinoblastoma (RB) protein family including RB1 and regulates the cell-cycle during G(1)/S transition. Phosphorylation of RB1 allows dissociation of the transcription factor E2F from the RB/E2F complex and the subsequent transcription of E2F target genes which are responsible for the progression through the G(1) phase. Hypophosphorylates RB1 in early G(1) phase. Cyclin D-CDK4 complexes are major integrators of various mitogenic and antimitogenic signals. {ECO:0000250|UniProtKB:P24385}.	CCND1 Gene - GeneCards | CCND1 Protein | CCND1 Antibody	Cell cycle;Cell division;Cyclin;Cytoplasm;Nucleus;Phosphoprotein;Reference proteome;Transcription;Transcription regulation;Ubl conjugation
ENSDARG00000011407	A0A0H2UKU2_DANRE	Collagen, type II, alpha 1b	col2a1b	Type II collagen is specific for cartilaginous tissues. It is essential for the normal embryonic development of the skeleton, for linear growth and for the ability of cartilage to resist compressive forces.	COL2A1 Gene - GeneCards | CO2A1 Protein | CO2A1 Antibody	Extracellular matrix;Reference proteome;Repeat;Secreted
ENSDARG00000102277	A0A0R4II20_DANRE	Laminin, alpha 1	lama1	Binding to cells via a high affinity receptor, laminin is thought to mediate the attachment, migration and organization of cells into tissues during embryonic development by interacting with other extracellular matrix components.	LAMA1 Gene - GeneCards | LAMA1 Protein | LAMA1 Antibody	Basement membrane;Coiled coil;Disulfide bond;Extracellular matrix;Laminin EGF-like domain;Proteomics identification;Reference proteome;Secreted;Signal
ENSDARG00000068288	A0A0R4IK75_DANRE	Laminin, gamma 2 (Fragment)	lamc2	Binding to cells via a high affinity receptor, laminin is thought to mediate the attachment, migration and organization of cells into tissues during embryonic development by interacting with other extracellular matrix components. Ladsin exerts cell-scattering activity toward a wide variety of cells, including epithelial, endothelial, and fibroblastic cells.	LAMC2 Gene - GeneCards | LAMC2 Protein | LAMC2 Antibody	Coiled coil;Disulfide bond;Laminin EGF-like domain;Reference proteome
ENSDARG00000010785	F1QEE7_DANRE	Thrombospondin 1b	thbs1b	Adhesive glycoprotein that mediates cell-to-cell and cell-to-matrix interactions. Binds heparin. May play a role in dentinogenesis and/or maintenance of dentin and dental pulp (By similarity). Ligand for CD36 mediating antiangiogenic properties. Plays a role in ER stress response, via its interaction with the activating transcription factor 6 alpha (ATF6)	THBS1 Gene - GeneCards | TSP1 Protein | TSP1 Antibody	Calcium;Cell adhesion;Coiled coil;Disulfide bond;EGF-like domain;Heparin-binding;Reference proteome;Repeat;Signal

				which produces adaptive ER stress response factors		
ENSDARG00000019815	A0A2R8Q0R2_DANRE	Fibronectin 1a	fn1a	Fibronectins bind cell surfaces and various compounds including collagen, fibrin, heparin, DNA, and actin. Fibronectins are involved in cell adhesion, cell motility, opsonization, wound healing, and maintenance of cell shape. Involved in osteoblast compaction through the fibronectin fibrillogenesis cell-mediated matrix assembly process, essential for osteoblast mineralization (By similarity). Participates in the regulation of type I collagen deposition by osteoblasts. FINC_HUMAN,P02751 [Anastellin]: Binds fibronectin and induces fibril formation. This fibronectin polymer, named superfibronectin, exhibits enhanced adhesive properties. Both anastellin and superfibronectin inhibit tumor growth, angiogenesis and metastasis. Anastellin activates p38 MAPK and inhibits lysophospholipid signaling.	FN1 Gene - GeneCards | FINC Protein | FINC Antibody	Reference proteome
ENSDARG00000012824	F1R2R3_DANRE	Integrin, alpha 3b	itga3b	Integrin alpha-3/beta-1 is a receptor for fibronectin, laminin, collagen, epiligrin, thrombospondin and CSPG4. Integrin alpha-3/beta-1 provides a docking site for FAP (seprase) at invadopodia plasma membranes in a collagen-dependent manner and hence may participate in the adhesion, formation of invadopodia and matrix degradation processes, promoting cell invasion. Alpha-3/beta-1 may mediate with LGALS3 the stimulation by CSPG4 of endothelial cells migration. ITA3_HUMAN	ITGA3 Gene - GeneCards | ITA3 Protein | ITA3 Antibody	Cell adhesion;Glycoprotein;Integrin;Membrane;Proteomics identification;Receptor;Reference proteome;Repeat;Signal;Transmembrane;Transmembrane helix
ENSDARG00000012942	B0UY54_DANRE	Integrin beta	itgb5	Integrin alpha-V/beta-5 (ITGAV:ITGB5) is a receptor for fibronectin. It recognizes the sequence R-G-D in its ligand.	ITGB5 Gene - GeneCards | ITB5 Protein | ITB5 Antibody	Cell adhesion;Disulfide bond;Glycoprotein;Integrin;Membrane;Proteomics identification;Reference proteome;Signal;Transmembrane;Transmembrane helix
ENSDARG00000002494	A0A0R4IP79_DANRE	Integrin beta (Fragment)	itgb6	Integrin alpha-V:beta-6 (ITGAV:ITGB6) is a receptor for fibronectin and cytotactin. It recognizes the sequence R-G-D in its ligands Internalization of integrin alpha-V/beta-6 via clathrin-mediated endocytosis promotes carcinoma cell invasion. ITGAV:ITGB6 acts as a receptor for fibrillin-1 (FBN1) and mediates R-G-	ITGB6 Gene - GeneCards | ITB6 Protein | ITB6 Antibody	Cell adhesion;Glycoprotein;Integrin;Membrane;Reference proteome;Signal;Transmembrane

				D-dependent cell adhesion to FBN1. Integrin alpha-V:beta-6 (ITGAV:ITGB6) mediates R-G-D-dependent release of transforming growth factor beta-1 (TGF-beta-1) from regulatory Latency-associated peptide (LAP), thereby playing a key role in TGF-beta-1 activation.		
ENSDARG00000077588	E7FB33_DANRE	Platelet-derived growth factor C (Platelet-derived growth factor C, latent form) (Platelet-derived growth factor C, receptor-binding form)	pdgfc	Growth factor that plays an essential role in the regulation of embryonic development, cell proliferation, cell migration, survival and chemotaxis. Potent mitogen and chemoattractant for cells of mesenchymal origin. Required for normal skeleton formation during embryonic development, especially for normal development of the craniofacial skeleton and for normal development of the palate. Required for normal skin morphogenesis during embryonic development. Plays an important role in wound healing, where it appears to be involved in three stages: inflammation, proliferation and remodeling. Plays an important role in angiogenesis and blood vessel development. Involved in fibrotic processes, in which transformation of interstitial fibroblasts into myofibroblasts plus collagen deposition occurs. The CUB domain has mitogenic activity in coronary artery smooth muscle cells, suggesting a role beyond the maintenance of the latency of the PDGF domain. In the nucleus, PDGFC seems to have additional function	PDGFC Gene - GeneCards | PDGFC Protein | PDGFC Antibody	Cleavage on pair of basic residues;Developmental protein;Disulfide bond;Glycoprotein;Growth factor;Mitogen;Reference proteome;Secreted;Signal

Ensembl ID terms were retrieved with Uniprot (Retrieve / ID mapping (uniprot.org) in order to gain potential functionality of upregulated genes. Links to the human gene database GeneCards (GeneCards - Human Genes | Gene Database | Gene Search) are also provided. Gene functions were obtained from UniProtKB/Swiss-Prot database. All genes were downregulated for focal adhesion but only those with blue background also belongs to ECM-Receptor Interaction pathway.