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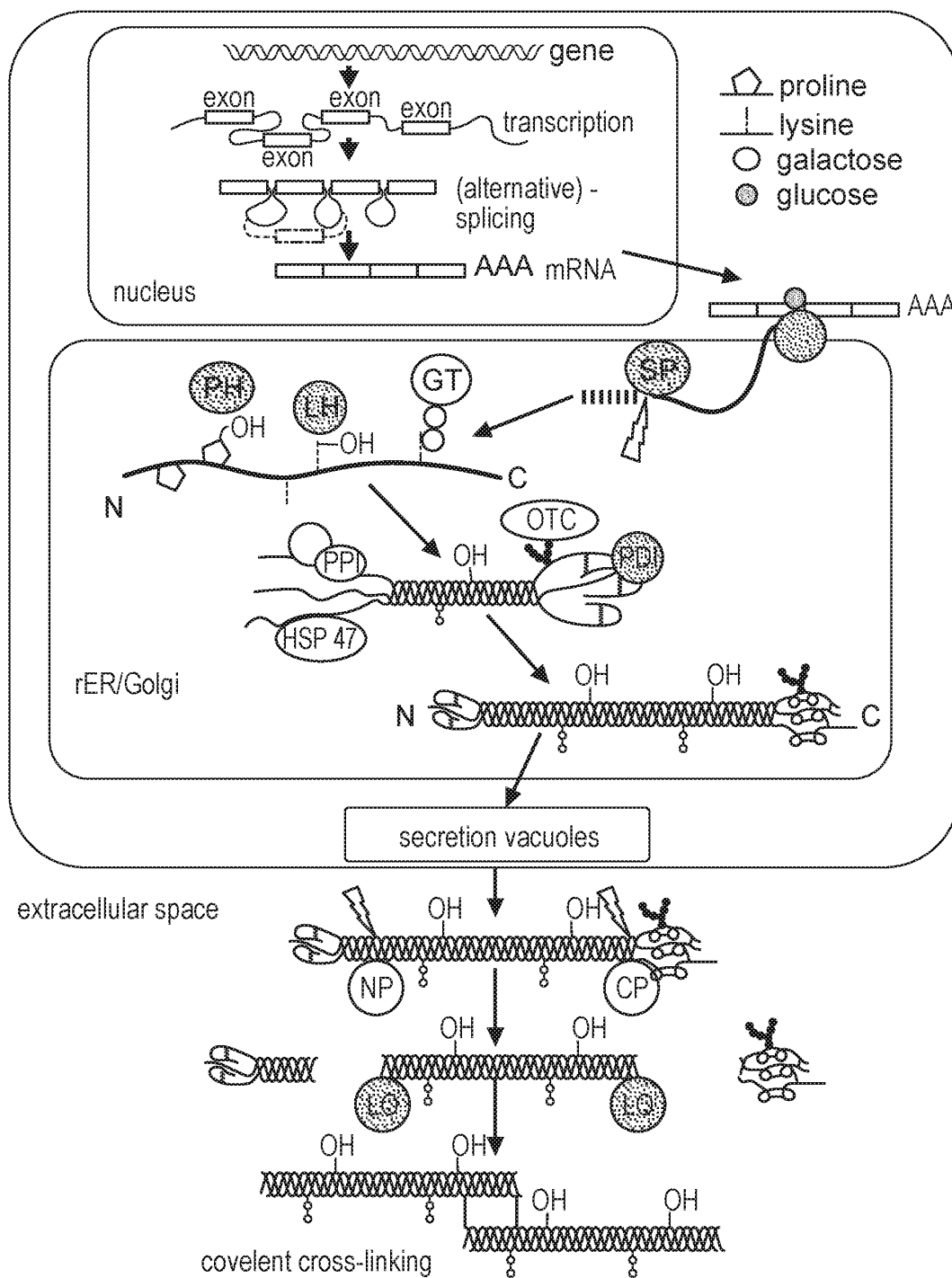


Fig. 1

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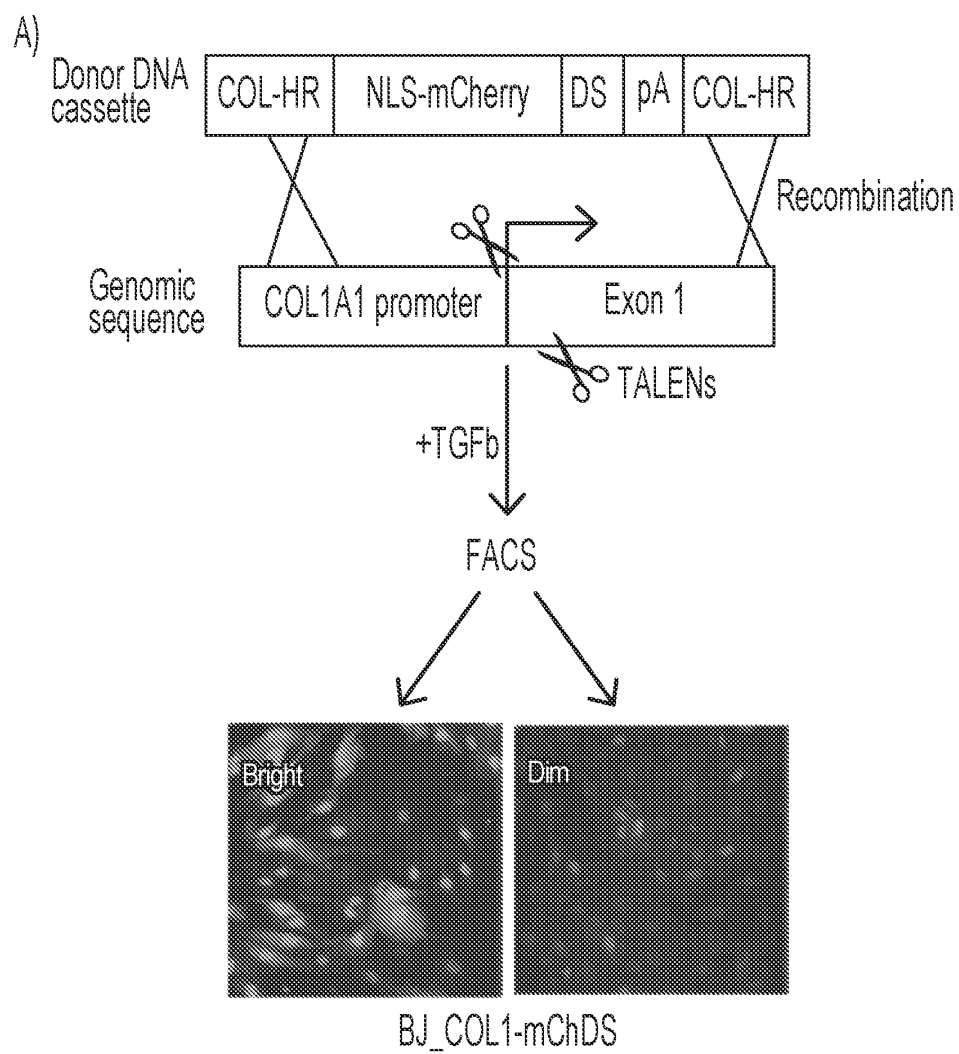


Fig. 2

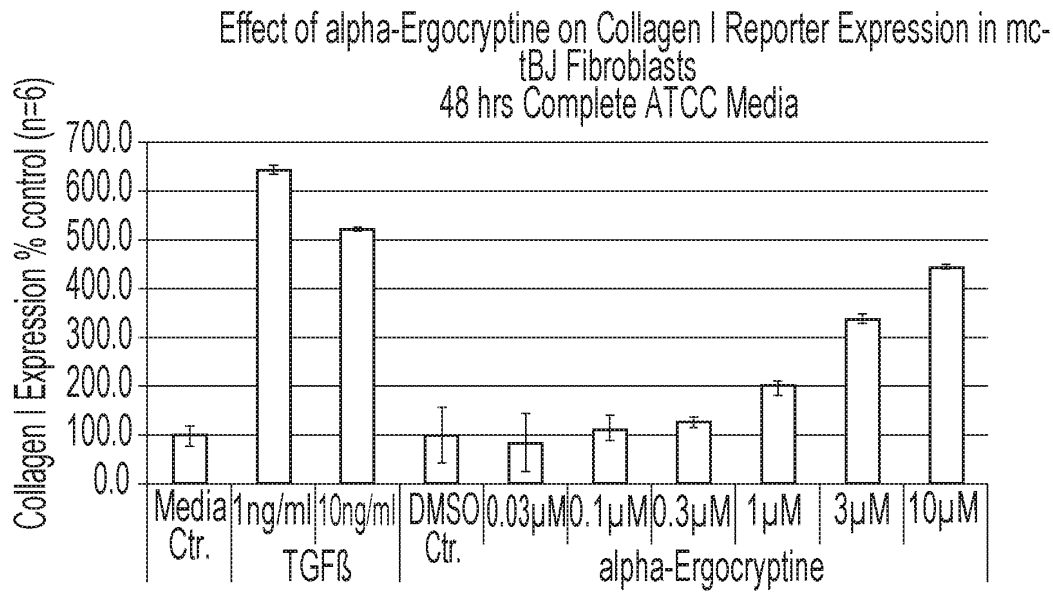


Fig. 3A

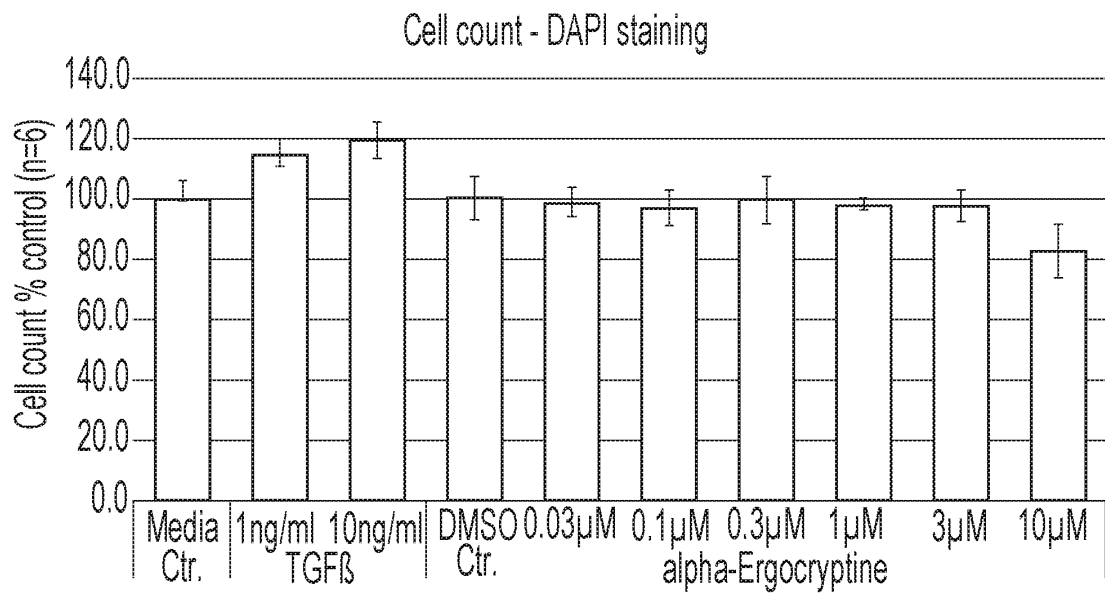


Fig. 3B

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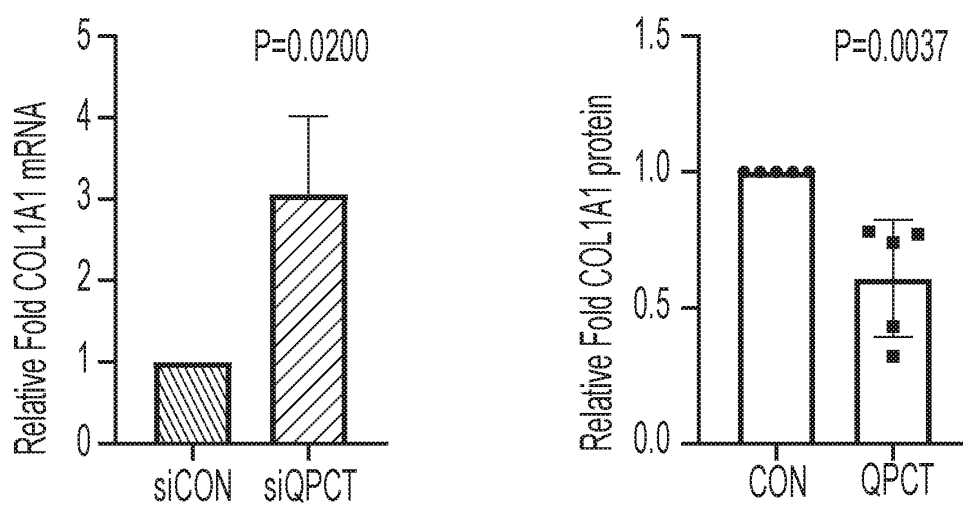


Fig. 4A

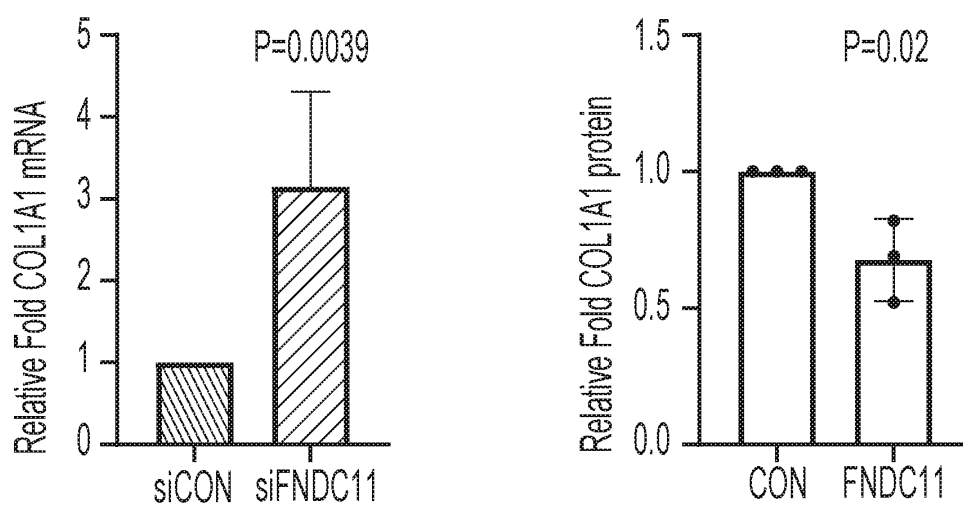


Fig. 4B

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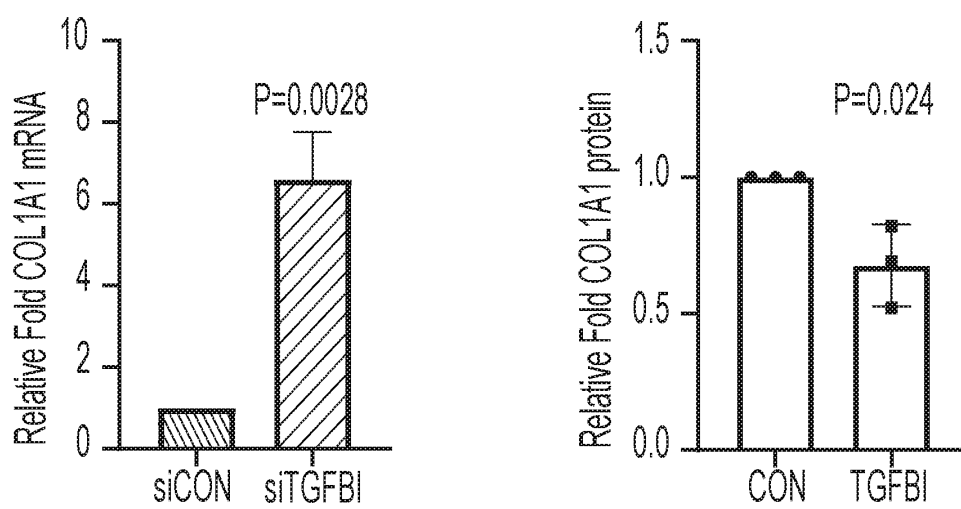


Fig. 4C

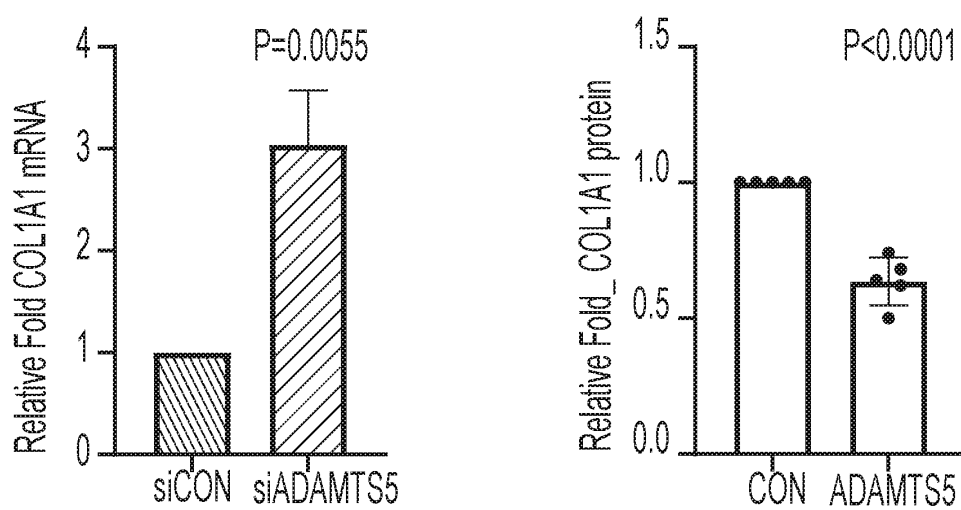


Fig. 4D

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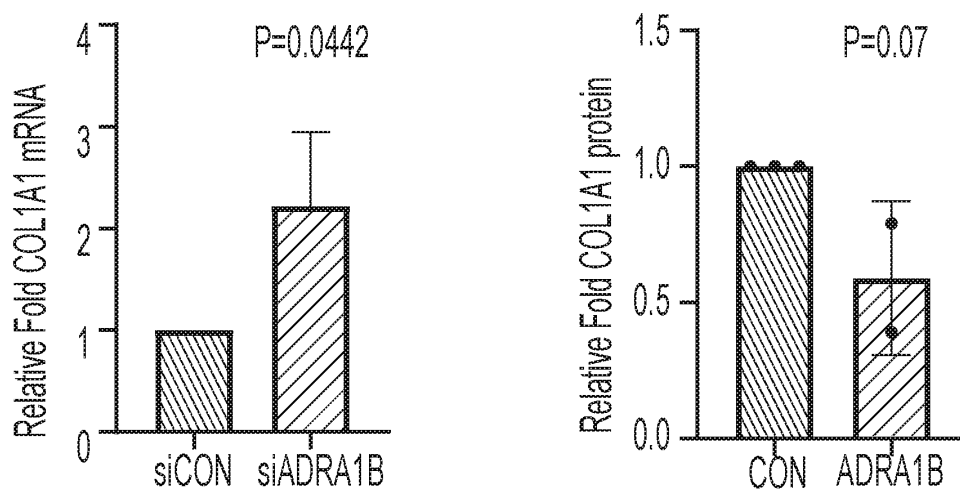


Fig. 4E

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Collagen Synthesizing Genes

Gene Symbol	Gene Name	Gene Symbol	Gene Name
COL1A1	collagen type I alpha 1 chain	LUM	lumican
COL1A2	collagen type I alpha 2 chain	THBS1	thrombospondin 1
COL3A1	collagen type III alpha 1 chain	THBS2	thrombospondin 2
COL4A1	collagen type IV alpha 1 chain	POSTN	perostin
COL5A1	collagen type V alpha 1 chain	CRISPLD2	cysteine rich secretory protein LCCL domain
COL5A2	collagen type V alpha 2 chain	FBN1	fibrillin 1
COL6A1	collagen type VI alpha 1 chain	SFRP2	secreted frizzled related protein 2
COL6A2	collagen type VI alpha 2 chain	SPARC	secreted protein acidic and cysteine rich
COL6A3	collagen type VI alpha 3 chain	GREM1	gremlin 1, DAN family BMP antagonist
COL6A6	collagen type VI alpha 6 chain	CTHRC1	collagen triple helix repeat containing 1
COL7A1	collagen type VII alpha 1 chain	CTSK	cathepsin K
COL12A1	collagen type XII alpha 1 chain	SERPINH1	serpin family H member 1
COL13A1	collagen type XIII alpha 1 chain	PXDN	peroxidasin
COL14A1	collagen type XIV alpha 1 chain	VCAN	versican
HAS1	hyaluronan synthase 1	NID1	nidogen 1
HAS2	hyaluronan synthase 2	CCN4	cellular communication network factor 4
HAS3	hyaluronan synthase 3	FN1	fibronectin 1
ELN	elastin	MFAP2	microfibril associated protein 2
MMP1	matrix metalloproteinase 1	ZEB1	zinc finger E-box binding homeobox 1
MMP2	matrix metalloproteinase 2	HTRA1	HtrA serine peptidase 1
MMP3	matrix metalloproteinase 3	HMCN1	hemicentin 1
MMP11	matrix metalloproteinase 11	ASPN	asporin
MMP13	matrix metalloproteinase 13	DPP4	dipeptidyl peptidase 4
MMP14	matrix metalloproteinase 14	FOXF2	forkhead box F2
MMP15	matrix metalloproteinase 15	TNC	tenascin C
MMP19	matrix metalloproteinase 19	CCN2	cellular communication network factor 2
MMP27	matrix metalloproteinase 27	FBLN1	fibulin 1
TIMP1	TIMP metalloproteinase inhibitor 1	VIM	vimentin
TIMP2	TIMP metalloproteinase inhibitor 2	LAMB1	laminin subunit beta 1
LAMA1	laminin, alpha 1	BGN	biglycan
LAMA2	laminin, alpha 2	ITGB1	integrin subunit beta 1
LAMA3	laminin subunit alpha 3	DCN	decorin
LAMC1	laminin, gamma 1	NID1	nidogen 1
LAMC2	laminin, gamma 2	ITGA1	integrin subunit alpha 1

Fig. 5

Collagen Inhibiting Genes

Gene Symbol	Gene Name	Gene Symbol	Gene Name
BZW1	basic leucine zipper and W2 domains 1	U2AF2	U2 small nuclear RNA auxiliary factor 2
STKLD1	serine/threonine kinase like domain containing 1	UMODL1	Uromodulin like 1
RAB2A	RAB2A, member RAS oncogene family	USH1G	USH1 protein network component sans
ZNF567	zinc finger protein 567	WDR34	WD repeat domain 34
ACBD6	acyl-CoA binding domain containing 6	ZFP91	zinc finger protein 91
ATMIN	ATM interactor	ZNF584	zinc finger protein 584
FNDC11	fibronectin type III domain containing 11	A1CF	APOBEC1 complementation factor
CCDC57	coiled-coil domain containing 57	AAMP	Angio associated migratory cell protein
CCL27	C-C motif chemokine ligand 27	ADRA1B	adrenoceptor alpha 1B
DNAJC1	DnaJ heat shock protein family (Hsp40) member	ANKLE1	ankyrin repeat and LEM domain containing 1
EEF1D	eukaryotic translation elongation factor 1 delta	AQP12A	aquaporin 12A
FAIM	Fas apoptotic inhibitory molecule	ASCC1	activating signal cointegrator 1 complex subunit 1
FAM107A	family with sequence similarity 107, member A	ATOH7	atonal bHLH transcription factor 7
FAM171A2	family with sequence similarity 171, member A2	ATOX1	antioxidant 1 copper chaperone
NXPE2	neurexophilin and PC-esterase domain family member 2	ATP2C2	ATPase secretory pathway Ca2+ transporting 2
FPR2	formyl peptide receptor 2	BCL7B	BAF chromatin remodeling complex subunit BCL7B
GPN3	GPN-loop GTPase 3	BMP8B	bone morphogenetic protein 8b
HDAC3	histone deacetylase 3	TSPO2	translocator protein 2
HIVEP2	human immunodeficiency virus type 1 enhancer	BBOF1	basal body orientation factor 1
INTS1	integrator complex subunit 1	CBARP	CACN subunit beta associated regulatory protein
ITGB1BP2	integrin subunit beta 1 binding protein 2	TANGO2	transport and golgi organization 2 homolog
L3MBTL2	L3MBTL histone methyl-lysine binding protein	CADPS	calcium dependent secretion activator
LILRB3	leukocyte immunoglobulin like receptor B3	CBR4	carbonyl reductase 4
LRR1Q4	leucine-rich repeats and IQ motif containing 4	CCDC130	coiled-coil domain containing 130
OSCAR	osteoclast associated Ig-like receptor	CENPK	centromere protein K
PFKL	phosphofructokinase, liver type	CETN1	centrin 1
PSMB4	proteasome subunit beta 4	CHD2	chromodomain helicase DNA binding
PTAFR	Platelet activating factor receptor	CHTF18	chromosome transmission fidelity factor 18
RIPK3	receptor interacting serine/threonine kinase 3	COLEC10	collectin subfamily member 10
SNTN	sentan, cilia apical structure protein	CYP4F22	cytochrome P450 family 4 subfamily F
SGK3	serum/glucocorticoid regulated kinase family	ECHDC2	enoyl-CoA hydratase domain containing 2
SLC6A20	solute carrier family 6 member 20	EMP1	epithelial membrane protein 1
SMAD4	SMAD family member 4	UBALD1	UBA like domain containing 1
SNAP47	synaptosome associated protein 47	KDM5D	lysine demethylase 5D
FGF18	fibroblast growth factor 18	KCNE1	potassium voltage-gated channel subfamily E
FGL1	Fibrinogen like 1	KLHL33	kelch like family member 33
FHL2	four and a half LIM domains 2	LILRA5	leukocyte immunoglobulin like receptor A5
FOXN4	forkhead box N4	IGSF23	immunoglobulin superfamily member 23
FOXP2	forkhead box P2	LRR8E	leucine rich repeat containing 8 VRAC
FOXRED2	FAD dependent oxidoreductase domain containing 2	LRRN4CL	LRRN4 C-terminal like
FSD2	fibronectin type III and SPRY domain containing 2	MYCBPAP	MYCBP associated protein
GAS2L2	growth arrest specific 2 like 2	MYLK4	myosin light chain kinase family member 4
GDPD4	glycerophosphodiester phosphodiesterase	NDUFA1	NADH:ubiquinone oxidoreductase subunit
GF11	growth factor independent 1 transcriptional repressor	NEURL2	neutralized E3 ubiquitin protein ligase 2
GFRA1	GDNF family receptor alpha 1	NPIPA1	nuclear pore complex interacting protein

Fig. 6

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GNRHR	gonadotropin releasing hormone receptor	NSMCE4A	NSE4 homolog A, SMC5-SMC6 complex component
GP1BB	glycoprotein Ib platelet subunit beta	OVOL1	ovo like transcriptional repressor 1
ADGRF5	adhesion G protein-coupled receptor F5	PDE1C	phosphodiesterase 1C
GTPBP6	GTP binding protein 6 (putative)	PNLIP	pancreatic lipase
LAMTOR5	late endosomal/lysosomal adaptor, MAPK and	RCBTB1	RCC1 and BTB domain containing protein 1
HIPK2	homeodomain interacting protein kinase 2	SCARF1	scavenger receptor class F member 1
ING5	inhibitor of growth family member 5	SDCBP2	syndecan binding protein 2
INHBC	inhibin subunit beta C	SERPINF7	serpin family B member 7
INSL5	insulin like 5	ARHGEF26	Rho guanine nucleotide exchange factor 26
IPP	intracisternal A particle-promoted polypeptide	SLIT3	slit guidance ligand 3
DVL1	dishevelled segment polarity protein 1	SMURF1	SMAD specific E3 ubiquitin protein ligase 1
SGCG	sarcoglycan gamma	SPACA3	sperm acrosome associated 3
ZNF16	zinc finger protein 16	SPATA17	spermatogenesis associated 17
ZNF17	zinc finger protein 17	SSX2IP	SSX family member 2 interacting protein
CYP39A1	cytochrome P450 family 39 subfamily A	STX10	syntaxin 10
ERCC5	ERCC excision repair 5, endonuclease	TAS2R1	taste 2 receptor member 1
INHBA	inhibin subunit beta A	THOP1	thimet oligopeptidase 1
NCAM1	neural cell adhesion molecule 1	TMEM102	transmembrane protein 102
PCCA	propionyl-CoA carboxylase subunit alpha	TMEM14A	transmembrane protein 14A
QPCT	glutamyl-peptide cyclotransferase	TMEM26	transmembrane protein 26
TGFB1	transforming growth factor beta induced	TNFRSF9	TNF receptor superfamily member 9
RBSN	rabenosyn, RAB effector	TPRKB	TP53RK binding protein
ZNF583	zinc finger protein 583	TPST2	tyrosylprotein sulfotransferase 2
ZNF655	zinc finger protein 655	TRAPPC6B	trafficking protein particle complex 6B
GPR18	G protein-coupled receptor 18	TRIM29	tripartite motif containing 29
ZNF764	zinc finger protein 764	TRIM65	tripartite motif containing 65
ADAMTS5	ADAM metalloproteinase with thrombospondin type 1	RNF103	ring finger protein 103
TNFRSF17	TNF receptor superfamily member 17	TTC23L	tetratricopeptide repeat domain 23 like

Fig. 6
(CONTINUED)