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*Review Article*

**Exploring Seipin: From Biochemistry to Bioinformatics  
Predictions (Supplementary materials)**

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**Supplementary Table 1 - List of genes downregulated in seipin loss-of-function.**

Target gene name		Seipin expression	Adipogenesis stimuli?	Cell type	Reference
From UniProt	From paper				
AATK	AATK	Seipin A212P	Yes	3T3-L1 mouse preadipocyte	[1]
ACACA	ACC1	<i>BSCL2</i> Knockout	No	Mouse Kidney Tissue	[2]
ACOX1	ACOX1	<i>BSCL2</i> Knockout	No	Mouse Kidney Tissue	[2]
AGPAT2	AGPAT2	<i>BSCL2</i> Knockdown	Yes	3T3-L1 mouse preadipocyte	[3]
AGPAT2	AGPAT2	<i>BSCL2</i> Knockdown	Yes	Mouse C3H10t1/2 cells	[4]
AKT2	AKT2	<i>BSCL2</i> Knockout	No	Mouse white adipose tissue	[5]
AKT2	AKT2	<i>BSCL2</i> Knockout	No	Mouse liver	[5]
AKT2	AKT2	<i>BSCL2</i> Knockout	No	Mouse liver	[6]
AKT2	AKT2	<i>BSCL2</i> Knockout	No	Mouse White Adipose Tissue	[6]
AKT2	AKT2	<i>BSCL2</i> Knockout	No	Mouse hepatocytes	[7]
AQP1	AQP1	<i>BSCL2</i> Knockout	No	Mouse Kidney Tissue	[2]
AQP4	AQP4	<i>BSCL2</i> Knockout	No	Mouse Kidney Tissue	[2]
AQP7	AQP7	<i>BSCL2</i> Knockout	No	Mouse Kidney Tissue	[2]
ATP1A1	ATP1A1	<i>BSCL2</i> Knockout	No	Mouse Kidney Tissue	[2]
AVPR2	V2R	<i>BSCL2</i> Knockout	No	Mouse Kidney Tissue	[2]
CEBPA	CEBPA	<i>BSCL2</i> Knockdown	Yes	3T3-L1 mouse preadipocyte	[3]
CEBPA	CEBPA	<i>BSCL2</i> Knockout	Yes	Mouse embryonic fibroblast	[8]
CEBPA	CEBPA	<i>BSCL2</i> Knockdown	Yes	Mouse C3H10t1/2 cells	[4]
CEBPA	CEBPA	<i>BSCL2</i> Knockdown	Yes	3T3-L1 mouse preadipocyte	[9]
CPT1A	CPT1A	<i>BSCL2</i> Knockout	No	Mouse hepatocytes	[7]
CPT1A	CPT1A	<i>BSCL2</i> Knockout	No	Mouse Kidney Tissue	[2]
CREB1	CREB	<i>BSCL2</i> Knockdown	No	Neurons	[10]
DGAT1	DGAT1	<i>BSCL2</i> Knockdown	Yes	3T3-L1 mouse preadipocyte	[3]
DGAT2	DGAT2	<i>BSCL2</i> Knockout	No	Mouse White Adipose Tissue	[11]
DGAT2	DGAT2	<i>BSCL2</i> Knockdown	Yes	3T3-L1 mouse preadipocyte	[3]
DGAT2	DGAT2	<i>BSCL2</i> Knockdown	Yes	Mouse C3H10t1/2 cells	[4]
FABP4	AP2	<i>BSCL2</i> Knockdown	Yes	3T3-L1 mouse preadipocyte	[3]
FABP4	AP2	<i>BSCL2</i> Knockout	Yes	Mouse embryonic fibroblast	[8]
FABP4	AP2	<i>BSCL2</i> Knockdown	Yes	Mouse C3H10t1/2 cells	[4]
FABP4	AP2	<i>BSCL2</i> Knockdown	Yes	3T3-L1 mouse preadipocyte	[9]
FASN	FAS	<i>BSCL2</i> Knockdown	No	Neurons	[10]
G0S2	G0S2	Seipin A212P	Yes	3T3-L1 mouse preadipocyte	[1]
G6PC	G6PASE	<i>BSCL2</i> Knockout	No	Primary Hepatocytes	[12]
G6PC	G6P1	<i>BSCL2</i> Knockout	No	Mouse liver	[5]
G6PC	G6P1	<i>BSCL2</i> Knockout	No	Mouse hepatocytes	[7]
GRIA1	GLUR1	<i>BSCL2</i> Knockout	No	Mouse brain	[13]
GRIA1	GLUR2	<i>BSCL2</i> Knockout	No	Mouse brain	[13]
GRIA1	GLUR1	<i>BSCL2</i> Knockdown	No	Neurons	[10]
GRIA2	GLUR2	<i>BSCL2</i> Knockdown	No	Neurons	[10]
IRS1	IRS1	<i>BSCL2</i> Knockout	No	Mouse white adipose tissue	[5]
IRS1	IRS1	<i>BSCL2</i> Knockout	No	Mouse liver	[5]
IRS1	IRS1	<i>BSCL2</i> Knockout	No	Mouse liver	[6]

**Supplementary Table 1 (continuation) - List of genes downregulated in seipin loss-of-function.**

Target gene name		Seipin expression	Adipogenesis stimuli?	Cell type	Reference
From UniProt	From paper				
IRS1	IRS1	<i>BSCL2</i> Knockout	No	Mouse White Adipose Tissue	[6]
IRS1	IRS1	<i>BSCL2</i> Knockout	No	Mouse hepatocytes	[7]
IRS2	IRS2	<i>BSCL2</i> Knockout	No	Mouse white adipose tissue	[5]
IRS2	IRS2	<i>BSCL2</i> Knockout	No	Mouse liver	[5]
IRS2	IRS2	<i>BSCL2</i> Knockout	No	Skeletal Muscle	[5]
IRS2	IRS2	<i>BSCL2</i> Knockout	No	Mouse liver	[6]
IRS2	IRS2	<i>BSCL2</i> Knockout	No	Mouse White Adipose Tissue	[6]
IRS2	IRS2	<i>BSCL2</i> Knockout	No	Mouse hepatocytes	[7]
KLF15	KLF15	Seipin A212P	Yes	3T3-L1 mouse preadipocyte	[1]
LDLR	LDLR	<i>BSCL2</i> Knockdown	No	Neurons	[10]
LDLR	LDLR	<i>BSCL2</i> Knockdown	Yes	3T3-L1 mouse preadipocyte	[9]
LPIN1	LIPIN1	<i>BSCL2</i> Knockdown	Yes	3T3-L1 mouse preadipocyte	[3]
LPIN1	LIPIN1	<i>BSCL2</i> Knockdown	Yes	Mouse C3H10t1/2 cells	[4]
LPL	LPL	<i>BSCL2</i> Knockdown	Yes	Mouse C3H10t1/2 cells	[4]
MC2R	MC2R	Seipin A212P	Yes	3T3-L1 mouse preadipocyte	[1]
MGAT1	MGAT1	<i>BSCL2</i> Knockdown	Yes	3T3-L1 mouse preadipocyte	[3]
MRAP	MRAP	Seipin A212P	Yes	3T3-L1 mouse preadipocyte	[1]
MTTP	MTP	<i>BSCL2</i> Knockout	No	Mouse hepatocytes	[7]
MTTP	MTP	<i>BSCL2</i> Knockout	No	Mouse liver	[5]
MTTP	MTP	<i>BSCL2</i> Knockout	No	Mouse liver	[6]
PCK1	PEPCK1	<i>BSCL2</i> Knockout	No	Mouse liver	[5]
PDZK1	PDZK1	Seipin A212P	Yes	3T3-L1 mouse preadipocyte	[1]
PLIN1	PLIN1	<i>BSCL2</i> Knockout	Yes	Mouse embryonic fibroblast	[8]
PLIN1	PERILIPIN A	<i>BSCL2</i> Knockdown	Yes	3T3-L1 mouse preadipocyte	[9]
PNPLA3	ADIPONUTRIN	<i>BSCL2</i> Knockdown	Yes	3T3-L1 mouse preadipocyte	[3]
PPARA	PPARA	<i>BSCL2</i> Knockout	No	Mouse liver	[6]
PPARA	PPARA	<i>BSCL2</i> Knockout	No	Mouse Kidney Tissue	[2]
PPARA	PPARA	<i>BSCL2</i> Knockout	No	HepG2 cells	[14]
PPARA	PPARA	<i>BSCL2</i> Knockout	No	Mouse hepatocytes	[7]
PPARG	PPARG	<i>BSCL2</i> Knockout	No	Mouse brain	[15].
PPARG	PPARG	<i>BSCL2</i> Knockdown	Yes	3T3-L1 mouse preadipocyte	[3]
PPARG	PPARG	<i>BSCL2</i> Knockout	Yes	Mouse embryonic fibroblast	[8]
PPARG	PPARG	<i>BSCL2</i> Knockdown	Yes	Mouse C3H10t1/2 cells	[4]
PPARG	PPARG	<i>BSCL2</i> Knockout	No	Mice neurons	[16]
PPARG	PPARG	<i>BSCL2</i> Knockdown	Yes	3T3-L1 mouse preadipocyte	[9]
PPARGC1B	PPARGC1B	Seipin A212P	Yes	3T3-L1 mouse preadipocyte	[1]
PREF-1	PREF1	<i>BSCL2</i> Knockout	No	Mouse White Adipose Tissue	[8]
SCD	SCD	<i>BSCL2</i> Knockdown	No	Neurons	[10]
SCNN1B	SCNN1B	<i>BSCL2</i> Knockout	No	Mouse Kidney Tissue	[2]
SOD1	SOD1	<i>BSCL2</i> Knockout	No	Mouse Kidney Tissue	[2]
SLC12A2	NCC	<i>BSCL2</i> Knockout	No	Mouse Kidney Tissue	[2]
SLC12A3	NCC	<i>BSCL2</i> Knockout	No	Mouse Kidney Tissue	[2]

**Supplementary Table 1 (continuation) - List of genes downregulated in seipin loss-of-function.**

Target gene name		Seipin expression	Adipogenesis stimuli?	Cell type	Reference
From UniProt	From paper				
SLC2A4	GLUT4	<i>BSCL2</i> Knockout	No	Mouse White Adipose Tissue	[5]
SLC2A4	GLUT4	<i>BSCL2</i> Knockout	No	Mouse White Adipose Tissue	[6]
SLC2A4	GLUT4	<i>BSCL2</i> Knockdown	Yes	Mouse C3H10t1/2 cells	[4]
SLC2A4	GLUT4	<i>BSCL2</i> Knockdown	Yes	3T3-L1 mouse preadipocyte	[9]
SLC2A4	GLUT4	<i>BSCL2</i> Knockout	No	Mouse Kidney Tissue	[2]
SREBF1	SREBP1C	<i>BSCL2</i> Knockdown	No	Neurons	[10]
SREBF1	SREBP1C	<i>BSCL2</i> Knockdown	Yes	3T3-L1 mouse preadipocyte	[3]
SREBF1	SREBP1C	<i>BSCL2</i> Knockdown	Yes	Mouse C3H10t1/2 cells	[4]
SREBF2	SREBP2	<i>BSCL2</i> Knockdown	No	Neurons	[10]
THRSP	THRSP	Seipin A212P	Yes	3T3-L1 mouse preadipocyte	[1]
TMCC3	TMCC3	Seipin A212P	Yes	3T3-L1 mouse preadipocyte	[1]

Supplementary Table 2 - List of genes upregulated in seipin loss-of-function.

Target gene name		Seipin expression	Adipogenesis stimuli?	Cell type	Reference
From UniProt	From paper				
ACACA	ACC	<i>BSCL2</i> Knockout	No	HepG2 cells	[14]
AGPAT2	AGPAT2	<i>BSCL2</i> Knockout	No	Mouse White Adipose Tissue	[11]
AGPAT2	AGPAT2	<i>BSCL2</i> Knockout	No	HepG2 cells	[14]
ATF4	ATF4	<i>BSCL2</i> Knockout	No	HepG2 cells	[14]
CD36	CD36	<i>BSCL2</i> Knockout	No	HepG2 cells	[14]
CEBPB	CEBPB	<i>BSCL2</i> Knockout	No	Mouse White Adipose Tissue	[8]
CIDEA	CIDEA	<i>BSCL2</i> Knockout	No	Mouse White Adipose Tissue	[8]
CIDEA	CIDEA	<i>BSCL2</i> Knockout	No	HepG2 cells	[14]
COL3A1	COL3A1	<i>BSCL2</i> Knockout	No	Mouse Kidney Tissue	[2]
CPT1A	CPT1	<i>BSCL2</i> Knockout	No	Mouse White Adipose Tissue	[8]
CYBA	P22PHOX	<i>BSCL2</i> Knockout	No	Mouse Kidney Tissue	[2]
CYCS	CYTC	<i>BSCL2</i> Knockout	No	Mouse White Adipose Tissue	[8]
DDIT3	CHOP	<i>BSCL2</i> Knockout	No	HepG2 cells	[14]
DGAT1	DGAT1	<i>BSCL2</i> Knockout	No	Mouse hepatocytes	[7]
EIF2AK3	PERK	<i>BSCL2</i> Knockout	No	HepG2 cells	[14]
ELOVL1	ELOVL1	<i>BSCL2</i> Knockout	No	Mouse White Adipose Tissue	[11]
ELOVL3	ELOVL3	<i>BSCL2</i> Knockout	No	Mouse White Adipose Tissue	[8]
ELOVL3	ELOVL3	<i>BSCL2</i> Knockout	No	Mouse White Adipose Tissue	[11]
FADS1	FADS1	<i>BSCL2</i> Knockout	No	Mouse White Adipose Tissue	[11]
FADS2	FADS2	<i>BSCL2</i> Knockout	No	Mouse White Adipose Tissue	[11]
FASN	FAS	<i>BSCL2</i> Knockout	No	Mouse liver	[5]
FASN	FAS	<i>BSCL2</i> Knockout	No	HepG2 cells	[14]
FASN	FAS	<i>BSCL2</i> Knockout	No	Mouse hepatocytes	[7]
FASN	FASN	<i>BSCL2</i> Knockout	No	Primary Hepatocytes	[12]
GREM1	GREM1	Seipin A212P	Yes	3T3-L1 mouse preadipocyte	[1]
HSPA5	GRP78	<i>BSCL2</i> Knockout	No	HepG2 cells	[14]
IGFBP5	IGFBP5	Seipin A212P	Yes	3T3-L1 mouse preadipocyte	[1]
IL6	IL6	<i>BSCL2</i> Knockout	No	Mice Hippocampus	[17]
IL6	IL6	Seipin A212P	Yes	3T3-L1 mouse preadipocyte	[1]
IL6	IL6	<i>BSCL2</i> Knockout	No	Mice neurons	[16]
KLF4	KLF4	Seipin A212P	Yes	3T3-L1 mouse preadipocyte	[1]
MGAT1	MGAT1	<i>BSCL2</i> Knockout	No	Primary Hepatocytes	[12]
MLXIPL	CHREBP	<i>BSCL2</i> Knockout	No	Mouse hepatocytes	[7]
MMP13	MMP13	Seipin A212P	Yes	3T3-L1 mouse preadipocyte	[1]
NCF2	P67PHOX	<i>BSCL2</i> Knockout	No	Mouse Kidney Tissue	[2]
PLIN1	PLIN	<i>BSCL2</i> Knockout	No	HepG2 cells	[14]
PPARG	PPARG	<i>BSCL2</i> Knockout	No	Mouse liver	[5]
PPARG	PPARG	<i>BSCL2</i> Knockout	No	Mouse liver	[6]
PPARG	PPARG	<i>BSCL2</i> Knockout	No	HepG2 cells	[14]
PRKCB	PKCB	<i>BSCL2</i> Knockout	No	Mouse Kidney Tissue	[2]
RND1	RND1	Seipin A212P	Yes	3T3-L1 mouse preadipocyte	[1]

**Supplementary Table 2 (continuation) - List of genes upregulated in seipin loss-of-function.**

Target gene name		Seipin expression	Adipogenesis stimuli?	Cell type	Reference
From UniProt	From paper				
SCD	SCD1	<i>BSCL2</i> Knockout	No	Primary Hepatocytes	[12]
SCD	SCD1	<i>BSCL2</i> Knockout	No	Mouse liver	[5]
SCD	SCD1	<i>BSCL2</i> Knockout	No	Mouse liver	[6]
SCD	SCD1	<i>BSCL2</i> Knockout	No	Mouse liver	[14]
SCD	SCD1	<i>BSCL2</i> Knockout	No	Mouse hepatocytes	[7]
SNCA	$\alpha$ SYN	<i>BSCL2</i> Knockout	No	Mice neurons	[16]
SREBF1	SCREBP1	<i>BSCL2</i> Knockout	No	HepG2 cells	[14]
TGFB1	TGFB	<i>BSCL2</i> Knockout	No	Mouse Kidney Tissue	[2]
TNF	TNF	<i>BSCL2</i> Knockout	No	Mice Hippocampus	[17]
UCP1	UCP1	<i>BSCL2</i> Knockout	No	Mouse White Adipose Tissue	[8]
VLDLR	VLDLR	<i>BSCL2</i> Knockout	No	Mouse White Adipose Tissue	[11]

**Supplementary Table 3 - List of genes upregulated in seipin gain-of-function.**

Target gene name		Seipin expression	Adipogenesis stimuli?	Cell type	Reference
From UniProt	From paper				
DDIT3	CHOP	Seipin N88S	No	Mouse brain neuroblastoma (N2a)	[18]
DDIT3	CHOP	Seipin N88S	No	Mouse brain neuroblastoma (N2a)	[19]
DDIT3	CHOP	Seipin S90L	No	Mouse brain neuroblastoma (N2a)	[19]
HERPUD1	HERP	Seipin N88S	No	Mouse brain neuroblastoma (N2a)	[19]
HERPUD1	HERP	Seipin S90L	No	Mouse brain neuroblastoma (N2a)	[19]
HSP90B1	GRP94	Seipin N88S	No	Mouse brain neuroblastoma (N2a)	[19]
HSP90B1	GRP94	Seipin S90L	No	Mouse brain neuroblastoma (N2a)	[19]
HSPA5	BIP	Seipin N88S	No	Mouse brain neuroblastoma (N2a)	[18]
HSPA5	BIP	Seipin S90L	No	Mouse brain neuroblastoma (N2a)	[19]
HSPA5	BIP	Seipin N88S	No	Mouse brain	[20]
P4HB	PDI	Seipin N88S	No	Mouse brain	[20]
STC2	STC2	Seipin N88S	No	Mouse brain neuroblastoma (N2a)	[19]
STC2	STC2	Seipin S90L	No	Mouse brain neuroblastoma (N2a)	[19]

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