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Supplementary Information for

Functional Non-coding RNA During Embryonic Myogenesis and Postnatal Muscle Development and Disease

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Supplementary Table 2

Table 2 Functional and regulatory mechanisms of lncRNAs in skeletal muscle development

lncRNA	Function	Mechanisms	Subcellular location	Species	Reference
SRA	Promotes differentiation	Coactives MyoD together with the RNA elicase p68/p72	Nucleus	Mouse	(Caretti et al., 2006; Hube et al., 2011)
Gtl2	Promotes skeletal development during embryogenesis	As a PRC2 cofactor that directs PRC2 to the reciprocally imprinted Dlk1 coding gene	Nucleus	Mouse	(Zhao et al., 2010; Zhou et al., 2010)
linc-MD1	Promotes differentiation	Sponges miR-133 and miR-135 to regulate the expression of MAML1 and MEF2C	Cytoplasm	Mouse	(Cesana et al., 2011; Legnini et al., 2014)
lincRNA Yam-1	Inhibits myoblast differentiation	*in cis* regulation of miR-715, which targets Wnt7b	Nucleus/ Cytoplasm	Mouse	(Lu et al., 2013)
m1/2sbs-RNAs	Regulates myogenesis	Binds to the 3' UTR of mRNA, the m1⁄2-sbsRNA–TRAF6 mRNA duplex binds to STAU1, thus degradation of TRAF6 mRNA	Cytoplasm	Mouse	(Wang et al., 2013)
H19	H19 depletion causes accelerated muscle differentiation	Modulates let-7 availability by acting as a molecular sponge	Nucleus/ Cytoplasm	Human	(Kallen et al., 2013)

	Promotes skeletal muscle differentiation and regeneration	Gives rise to miR-675-3p and miR-675-5p to downregulate Smad1, Smad5 and Cdc6	Cytoplasm	Mouse	(Dey et al., 2014)
	Promotes differentiation	As a molecular scaffold facilitates effective association of KSRP with myogenin and other labile transcripts	Cytoplasm	Mouse	(Giovarelli et al., 2014)
	Promotes porcine satellite cell differentiation	Acts as a scaffold to recruit TDP43 to the promoters of MYOD and activates the transcription of MYOD	Nucleus/ Cytoplasm	Porcine	(Li et al., 2020a)
linc-YY1	Promotes differentiation and regeneration	Activates gene expression in trans by interacting with YY1 and removing YY1/PRC2 complex from target promoters	Nucleus	Mouse	(Zhou et al., 2015)
Dum	Promotes differentiation and regeneration	Silence neighboring gene Dppa2 *in cis* by recruiting Dnmts	Nucleus/ Cytoplasm	Mouse	(Wang et al., 2015)
MUNC	Promotes differentiation	Acts *in trans* to promotes gene expression of MyoD, MyoG and Myh3 mRNA; acts as an eRNA for MyoD	Nucleus	Mouse	(Mueller et al., 2015; Cichewicz et al., 2018)
lncMyoD	Promotes differentiation	Regulates the translation of N-Ras and c-Myc by sequestering IMP2 protein	Nucleus/ Cytoplasm	Mouse	(Gong et al., 2015)
lnc-31	Promotes proliferation, inhibits differentiation	Promotes ROCK1 translation by stabilizing YB-1 protein	Nucleus/ Cytoplasm	Mouse	(Ballarino et al., 2015; Dimartino et al., 2018)
Myoregulin (MLN)	Decreases muscle relaxation with reduced exercise performance and Ca2+ uptake into the SR	Binds to SERCA and inhibits its activity	SR/ER membrane	Mouse	(Anderson et al., 2015)

DWORF	Improves muscle contraction capacity and enhances SR Ca2+ uptake	Binds to SERCA and increases its activity	SR membrane	Vertebrates	(Nelson et al., 2016)
Sirt1 AS lncRNA	Promotes proliferation, inhibits differentiation	miR-34a molecular sponge, stabilizes Sirt1 mRNA	Nucleus/ Cytoplasm	Mouse	(Wang et al., 2016)
lnc-MD	Promotes muscle differentiation	Sequesters miR-125b to increase IGF2 expression	Nucleus/ Cytoplasm	Bovine	(Sun et al., 2016)
Malat1	Inhibits differentiation and regeneration	Recruits Suv39h1 to MyoD-binding loci, causing trimethylation of histone 3 lysine 9 (H3K9me3)	Nucleus	Mouse	(Chen et al., 2017)
linc-RAM	Promotes muscle growth and regeneration	Interacts with MyoD and supporting the assembly of MyoD-Baf60c-Brg complex	Nucleus/ Cytoplasm	Mouse	(Yu et al., 2017)
lnc-mg	Promotes differentiation and regeneration	As a ceRNA for miR-125b to control the protein level of IGF2; as a molecular sponge for miR-351-5p, negatively regulating LACTB	Nucleus/ Cytoplasm	Mouse	(Zhu et al., 2017; Du et al., 2019)
lncRNA Gm7325 (myomixer/Minion/ myomerger)	Promotes fusion and regeneration and muscle formation during embryogenesis	Interacts with Myomaker	Membrane	Vertebrates invertebrates	(Quinn et al., 2017; Zhang et al., 2017; Bi et al., 2018; Leikina et al., 2018)
lncRNA *Six1*	Promotes proliferation and muscle growth	Regulates its neighboring gene Six1 *in cis*	Nucleus/ Cytoplasm	Chicken	(Cai et al., 2017)
LINC00961/ 5430416O09Rik (SPAR)	Inhibits muscle regeneration	Interacts with the lysosomal v-ATPase	Endosome/ Lysosome	Mouse and human	(Matsumoto et al., 2017; Tajbakhsh, 2017)
SYISL	Promotes proliferation, inhibits differentiation and muscle regeneration	Inhibits muscle-specific transcription factors through an EZH2-recruitment mechanism	Nucleus/ Cytoplasm	Mouse	(Jin et al., 2018)

Myolinc	Promotes differentiation and regeneration	Recruits TDP-43 to promote of Filip1 in cis, and the Myolinc and TDP-43 complex binds to the promoters of muscle marker genes	Nucleus	Mouse	(Militello et al., 2018)
MAR1	Promotes muscle differentiation and regeneration	ceRNA for miR-487b to regulate Wnt5a protein	Cytoplasm	Mouse	(Zhang et al., 2018b)
linc-smad7	Inhibits proliferation, promotes differentiation and regeneration	miR-125b molecular sponge regulates smad7 and IGF2	Nucleus/ Cytoplasm	Mouse	(Song et al., 2018)
AK017368	Promotes proliferation and suppresses differentiation	ceRNA for miR-30c to regulate trinucleotide repeat containing-6A	Nucleus/ Cytoplasm	Mouse	(Liang et al., 2018)
MUMA	Promotes differentiation	miR-672 molecular sponge	Not determined	Mouse	(Zhang et al., 2018a)
MDNCR	Promotes differentiation	Binds of miR-133a by targeting GosB	Not determined	Bovine	(Li et al., 2018)
Charme	Regulates myogenesis	Acts as a chromatin architect to promote myoblasts differentiation	Nucleus	Mouse and human	(Ballarino et al., 2018)
Neat1	Promotes proliferation and regeneration, inhibits differentiation	Recruits EZH2 to muscle-specific promoters	Nucleus	Mouse	(Wang et al., 2019)
Myoparr	Inhibits proliferation, promotes differentiation	Interacts with MyoD coactivator Ddx17	Nucleus	Mouse	(Hitachi et al., 2019)
Irm	Promotes differentiation and regeneration	Binds to MEF2D and promoting the assembly of MyoD/MEF2D	Nucleus	Mouse	(Sui et al., 2019)
MEG3	Promotes bovine myoblast differentiation	Acts as a ceRNA for miR135 and affects the target gene MEF2C	Nucleus/ Cytoplasm	Bovine	(Liu et al., 2019)

	Promotes differentiation of porcine satellite cells	Spongs miR-423-5p to relieve inhibiting effect on SRF	Cytoplasm	Porcine	(Cheng et al., 2020)
lncIRS1	Promotes proliferation and differentiation	miR-15 molecular sponge	Nucleus/ Cytoplasm	Chicken	(Li et al., 2019)
SAM	Promotes proliferation and regeneration	Interacts and stabilizes Sugt1 thus facilitates Sugt1 mediated kinetochore assembly during cell division	Nucleus	Mouse	(Li et al., 2020c)
MyolncR 4 (1500011 K16RIK)	Promotes muscle formation and regeneration	Codes a 56-aa micropeptide, which was named as LEMP (lncRNA encoded micropeptide)	Plasma membrane and mitochondri a	Mouse and zebrafish	(Wang et al., 2020)
2310043L 19Rik (lnc-231)	Inhibits differentiation and promotes proliferation	As ceRNA to target miR-125a-5p, whereas miR-125a-5p binds to the 3'-UTR of E2F3 mRNA to inhibit its function	Cytoplasm	Mouse	(Li et al., 2020b)
SMaRT	Regulates early myogenesis	Controls translation of a G-quadruplex-containing mRNA antagonizing the DHX36 helicase	Cytoplasm	Mouse	(Martone et al., 2020)
Ppp1r1b-lncRNA	Promotes myogenic differentiation	Compets for PRC2 binding with chromatin of myogenic master regulators	Nucleus	Mouse and human	(Martone et al., 2020)
MGPF	Promotes myogenic differentiation	miR-135a-5p molecular sponge; enhances HuR-mediated mRNA stabilization of MRFs	Nucleus/ Cytoplasm	Mouse, porcine and human	(Lv et al., 2020)

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