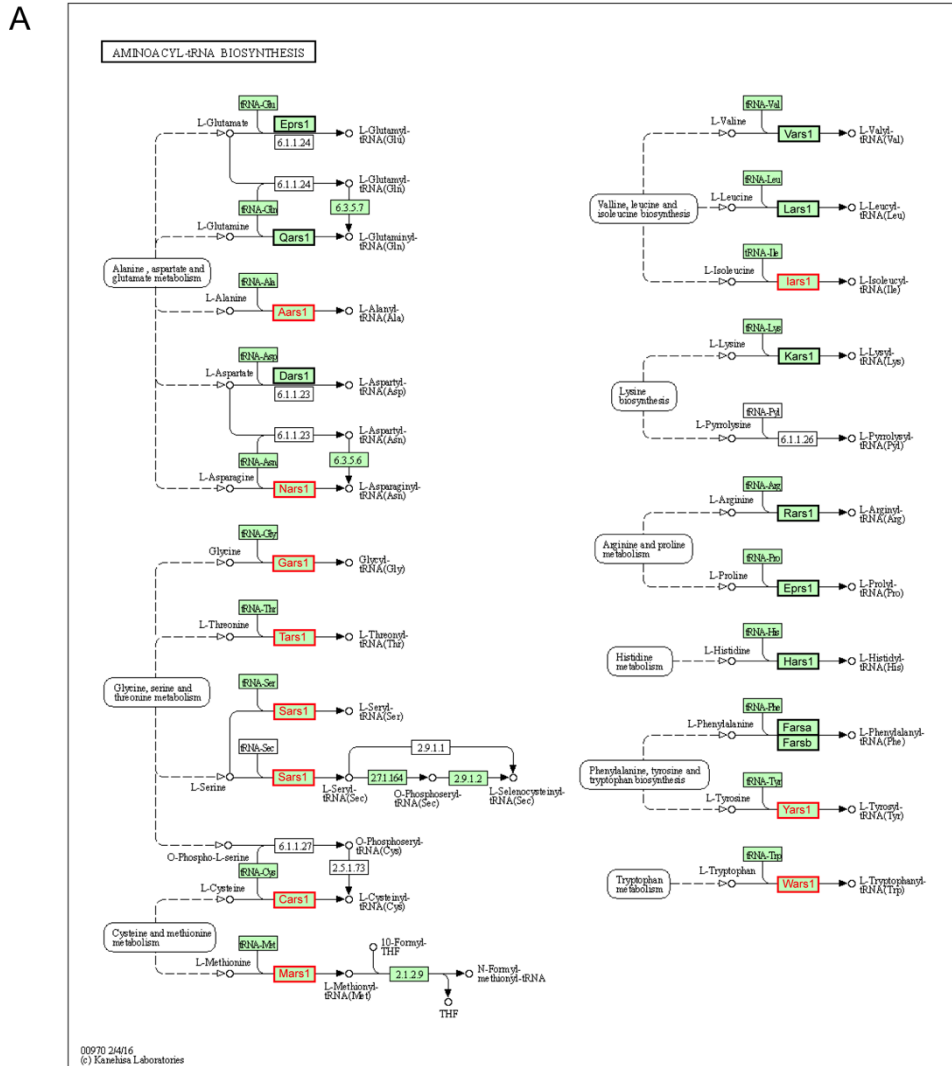


Figure S1. Detection of the interaction between *Myoparr* and TIAR in differentiating C2C12 cells. (A) The interaction between synthesized *Myoparr* and TIAR was detected by immunoblotting using a TIAR antibody. (B) qRT-PCR for the detection of *Myoparr* and *Xist* following RNA-immunoprecipitation using a TIAR antibody. The presence or absence of reverse transcription reaction is shown by (RT+) or (RT-), respectively. Bars indicate the average of two independent experiments, and circles and triangles represent the values of each experiment. (C) Purified TIAR protein from C2C12 cells by immunoprecipitation using a TIAR antibody was confirmed by western blotting.



B Cytosolic aminoacyl-tRNA synthetases

Gene Name	Description	log2 Foldchange	padj
<i>Aars</i> (<i>Aars1</i>)	alanyl-tRNA synthetase	1.189588646	6.64E-11
<i>Rars</i> (<i>Rars1</i>)	arginyl-tRNA synthetase	0.717750186	0.00060384
<i>Nars</i> (<i>Nars1</i>)	asparaginyl-tRNA synthetase	1.037402961	1.73E-09
<i>Dars</i> (<i>Dars1</i>)	aspartyl-tRNA synthetase	0.298274648	0.325335115
<i>Cars</i> (<i>Cars1</i>)	cysteinyl-tRNA synthetase	0.872794782	2.21E-05
<i>Qars</i> (<i>Qars1</i>)	glutamyl-tRNA synthetase	0.081217744	0.864024052
<i>Eprs</i> (<i>Eprs1</i>)	glutamyl-prolyl-tRNA synthetase	0.585228462	0.018216177
<i>Gars</i> (<i>Gars1</i>)	glycyl-tRNA synthetase	1.205275471	3.91E-13
<i>Hars</i> (<i>Hars1</i>)	histidyl-tRNA synthetase	0.413615028	0.20047586
<i>Iars</i> (<i>Iars1</i>)	isoleucyl-tRNA synthetase	1.022779598	8.54E-07
<i>Lars</i> (<i>Lars1</i>)	leucyl-tRNA synthetase	0.709821097	0.000114578
<i>Kars</i> (<i>Kars1</i>)	lysyl-tRNA synthetase	0.349181856	0.168606343
<i>Mars</i> (<i>Mars1</i>)	methionyl-tRNA synthetase 1	0.900197979	1.01E-05
<i>Farsa</i>	phenylalanyl-tRNA synthetase, alpha subunit	0.200736108	0.620163384
<i>Farsb</i>	phenylalanyl-tRNA synthetase, beta subunit	0.710725176	0.000803784
<i>Sars</i> (<i>Sars1</i>)	seryl-aminoacyl-tRNA synthetase	1.078993938	2.46E-06
<i>Tars</i> (<i>Tars1</i>)	threonyl-tRNA synthetase	0.905000211	8.27E-07
<i>Wars</i> (<i>Wars1</i>)	tryptophanyl-tRNA synthetase	0.878940288	5.01E-06
<i>Yars</i> (<i>Yars1</i>)	tyrosyl-tRNA synthetase	0.772263805	0.000703005
<i>Vars</i> (<i>Vars1</i>)	valyl-tRNA synthetase	0.593311919	0.003371758

C Mitochondrial aminoacyl-tRNA synthetases

Gene Name	Description	log2 Foldchange	padj
<i>Aars2</i>	alanyl-tRNA synthetase 2, mitochondrial	-0.781345711	0.012684024
<i>Rars2</i>	arginyl-tRNA synthetase 2, mitochondrial	0.020716521	0.976855609
<i>Nars2</i>	asparaginyl-tRNA synthetase 2 (mitochondrial)(putative)	0.356286565	0.378947013
<i>Dars2</i>	aspartyl-tRNA synthetase 2 (mitochondrial)(putative)	-0.118907948	0.852207722
<i>Cars2</i>	cysteinyl-tRNA synthetase 2 (mitochondrial)(putative)	-0.419664503	0.30297916
<i>Ears2</i>	glutamyl-tRNA synthetase 2, mitochondrial	0.432715891	0.343242224
<i>Hars2</i>	histidyl-tRNA synthetase 2	-0.125988909	0.813766049
<i>Iars2</i>	isoleucyl-tRNA synthetase 2, mitochondrial	-0.111305242	0.796505735
<i>Lars2</i>	leucyl-tRNA synthetase, mitochondrial	-0.257452115	0.40655708
<i>Mars2</i>	methionyl-tRNA synthetase 2 (mitochondrial)	-0.463741055	0.383638447
<i>Fars2</i>	phenylalanine-tRNA synthetase 2 (mitochondrial)	0.24527022	0.85503804
<i>Para2</i>	prolyl-tRNA synthetase (mitochondrial)(putative)	0.203237774	0.784806846
<i>Sars2</i>	seryl-aminoacyl-tRNA synthetase 2	-0.782886579	0.038853007
<i>Tars2</i>	threonyl-tRNA synthetase 2, mitochondrial (putative)	0.25526333	0.552363803
<i>Wars2</i>	tryptophanyl-tRNA synthetase 2 (mitochondrial)	0.172212967	0.780056335
<i>Yars2</i>	tyrosyl-tRNA synthetase 2 (mitochondrial)	0.078853278	0.90065489
<i>Vars2</i>	valyl-tRNA synthetase 2, mitochondrial	0.186587495	0.706779801

Figure S2. RNA-Seq revealed the altered expression of a group of genes coding for cytosolic aminoacyl-tRNA synthetases by *hnRNPK* KD. (A) The KEGG pathway diagram of cytosolic aminoacyl-tRNA biosynthesis. The gene names surrounded by the red frame indicate genes that are significantly upregulated by *hnRNPK* KD. (B-C) The results of the RNA-Seq analysis showing the altered expression of genes coding for cytosolic aminoacyl-tRNA synthetases (B) and mitochondrial aminoacyl-tRNA synthetases (C) by *hnRNPK* KD. Red and blue indicate genes that are significantly upregulated or downregulated, respectively, by *hnRNPK* KD.

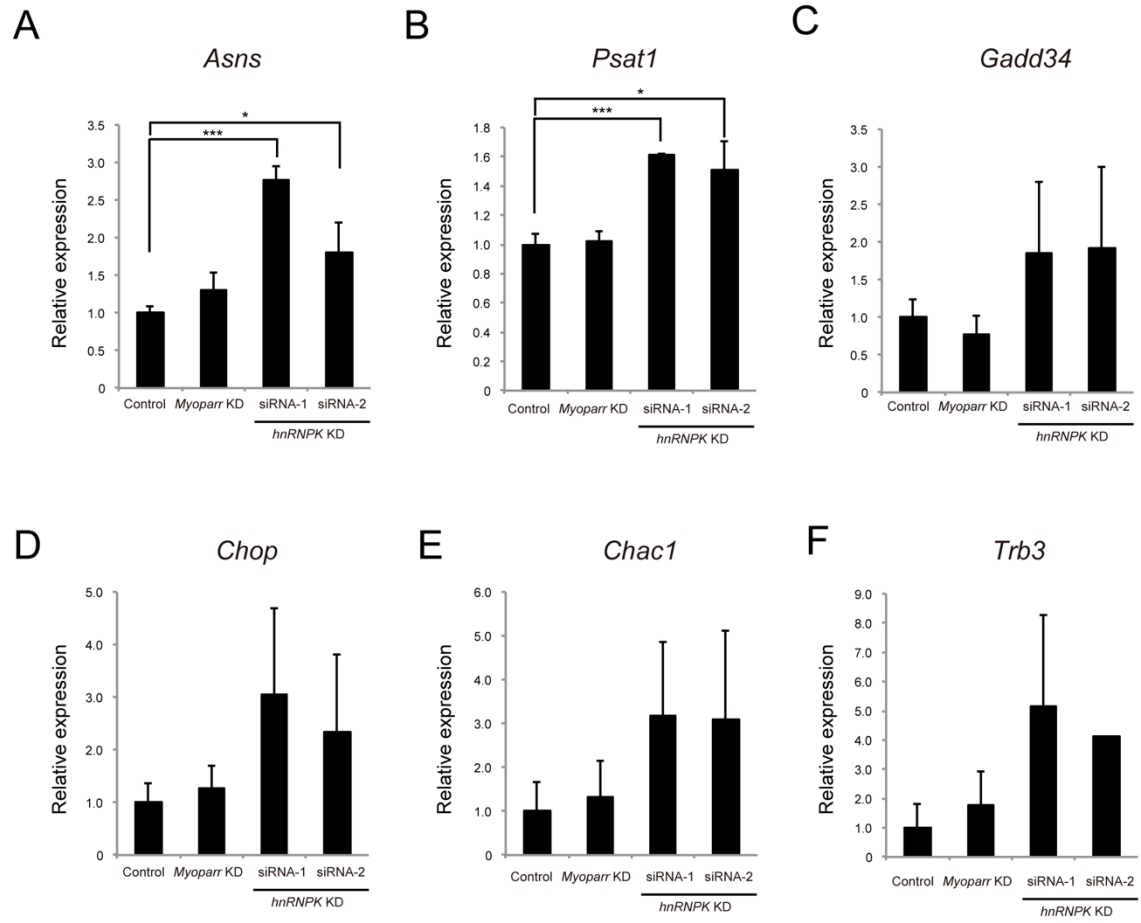


Figure S3. The expression changes of Atf4 target genes by *hnRNPK* KD in differentiating myoblasts. (A-F) The results of qRT-PCR for detecting the expression of *Asns* (A), *Psat1* (B), *Gadd34* (C), *Chop* (D), *Chac1* (E), and *Trb3* (F) 48 h after *hnRNPK* KD. n = 3, mean \pm SD. *** p < 0.001, * p < 0.05.

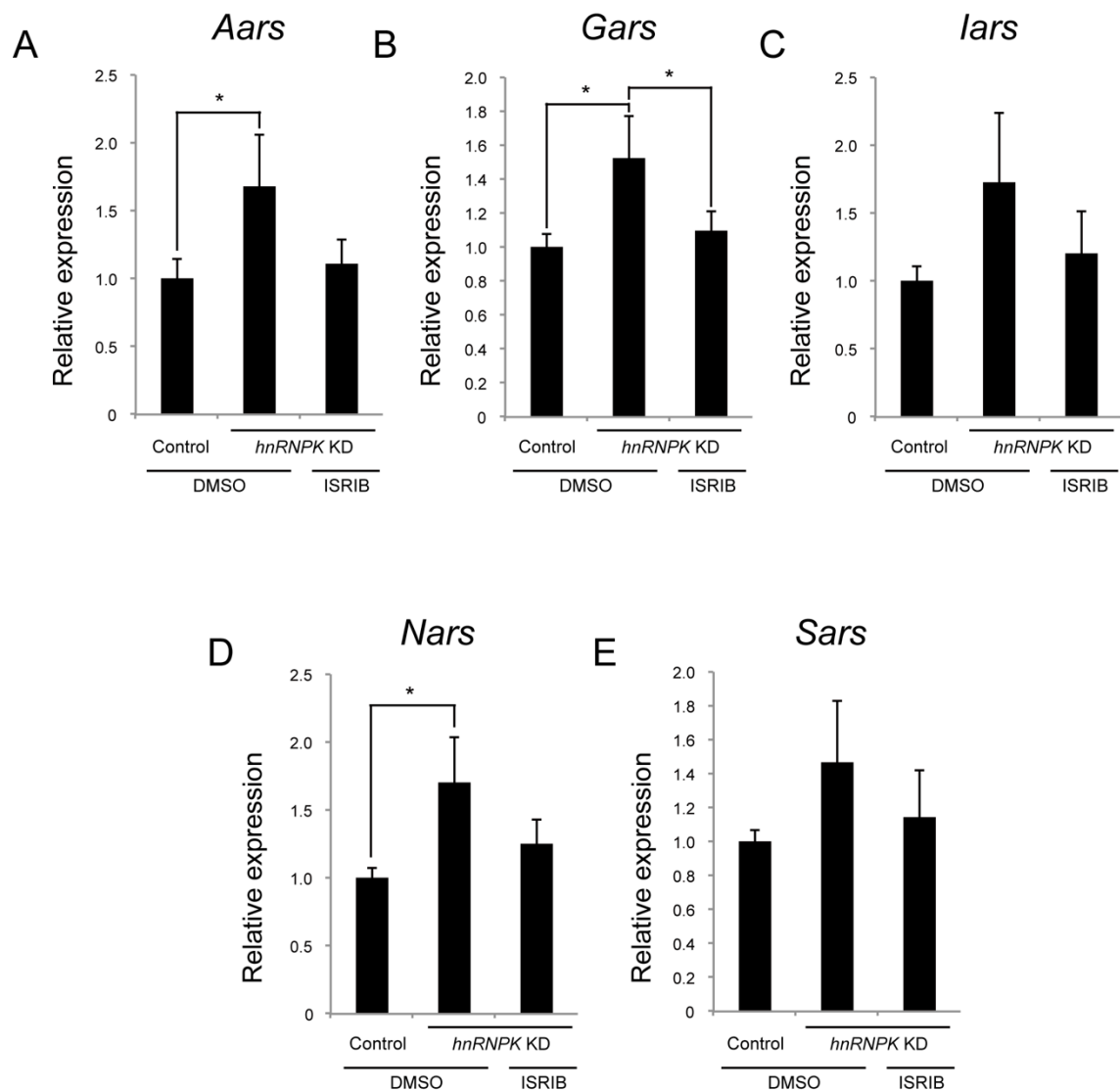


Figure S4. hnRNPK regulates the expression of a group of genes coding for aminoacyl-tRNA synthetases via the eIF2 α /Atf4 pathway. (A-E) The results of qRT-PCR for detecting the altered expression of *Aars* (A), *Gars* (B), *Iars* (C), *Nars* (D), and *Sars* (E) 48 h after *hnRNPK* KD (using a different siRNA from Figure 6) with or without ISRIB treatment. $n = 3$, mean \pm SD. * $p < 0.05$.