

## **SUPPLEMENTARY INFORMATION:**

### **Alternative Splicing of Core Hippo Signaling Components Supports Hepatocyte Proliferation During Liver Regeneration**

Sushant Bangru<sup>1\*</sup>, Waqar Arif<sup>1\*</sup>, Joseph Seimetz<sup>1</sup>, Amruta Bhate<sup>1</sup>, Jackie Chen<sup>1</sup>, Edrees H. Rahan<sup>1</sup>, Russ P. Carstens<sup>2</sup>, Sayeepriyadarshini Anakk<sup>3</sup>, and Auinash Kalsotra<sup>1,4,§</sup>

Departments of <sup>1</sup>Biochemistry and <sup>3</sup>Molecular Integrative Physiology, <sup>4</sup>Carl R. Woese Institute of Genomic Biology, University of Illinois Urbana-Champaign, IL USA. <sup>2</sup>Departments of Medicine and Genetics, Perelman School of Medicine, University of Pennsylvania, Philadelphia, PA, USA.

\*These authors contributed equally to the work.

#### **Supplementary Tables:**

**Supplementary Table 1. Information for RNA sequencing experiments including mapping rates for individual files.** This supplemental table is related to Figure 1, 2.

**Supplementary Table 2. Information for antibodies used in relevant Western blot and Immunofluorescence experiments.** This supplemental table is related to Figure 1, 3, 5.

**Supplementary Table 3. Primer and oligonucleotides sequences used in relevant qRT-PCR and cell culture experiments.** This supplemental table is related to Figure 1, 6, 7.

**Supplementary Table 1: Information for RNA sequencing experiments with mapping rates for individual files.**

<b>Sample Name</b>	<b>Read Length</b>	<b>Total Reads</b>	<b>Mapping percentage</b>
Adult Chow Replicate I	2x100	86,376,423	74.57
Adult Chow Replicate II	2x100	95,808,963	67.43
Adult DDC Replicate I	2x100	97,970,086	87.56
Adult DDC Replicate II	2x100	96,803,084	86.75
Embryonic Day 18 Replicate I	2x100	94,719,035	91.83
Embryonic Day 18 Replicate II	2x100	92,548,892	90.67
Chow Cytoplasmic Replicate I	2x100	54,872,219	81.98
Chow Cytoplasmic Replicate II	2x100	44,390,343	77.31
Chow Monosome Replicate I	2x100	39,213,717	75.75
Chow Monosome Replicate II	2x100	29,429,787	71.95
Chow Light polysome Replicate I	2x100	44,883,816	83.57
Chow Light polysome Replicate II	2x100	43,847,798	72.54
Chow Heavy polysome Replicate I	2x100	35,857,750	85.37
Chow Heavy polysome Replicate II	2x100	31,741,745	72.88
DDC Cytoplasmic Replicate I	2x100	48,518,552	89.62
DDC Cytoplasmic Replicate II	2x100	59,952,761	87.51
DDC Monosome Replicate I	2x100	30,759,613	85.03
DDC Monosome Replicate II	2x100	44,190,000	82.16
DDC Light polysome Replicate I	2x100	41,811,194	91.48
DDC Light polysome Replicate II	2x100	56,498,851	92.87
DDC Heavy polysome Replicate I	2x100	34,155,864	85.27
DDC Heavy polysome Replicate II	2x100	45,733,622	91.10

**Supplementary Table 2: Information for antibodies used in Western blot and Immunofluorescence experiments.**

Target	Type	Assay	Origin	Dilution	Source	Catalogue No.
Hnf4a	1 <sup>0</sup>	IF	Mouse	1:500	Abcam	ab41898
Hnf4a	1 <sup>0</sup>	IF	Rabbit	1:500	Cell Signaling Tech.	3113
Esrp2	1 <sup>0</sup>	WB	Mouse	1:5000	Rockland	210-301-C31
hnRNP H	1 <sup>0</sup>	WB	Rabbit	1:10000	Abcam	ab10374
hnRNP C <sub>1</sub> C <sub>2</sub>	1 <sup>0</sup>	WB	Mouse	1:2000	Abcam	ab10294
hnRNP L	1 <sup>0</sup>	WB	Mouse	1:2000	Abcam	ab6106
Celf1 (CUGBP1)	1 <sup>0</sup>	WB	Mouse	1:1000	Santa Cruz Biotech.	sc-20003
Mbnl1	1 <sup>0</sup>	WB	Mouse	1:1000	EMD Millipore	04-048
Ptbp1	1 <sup>0</sup>	WB	Mouse	1:1000	Invitrogen	32-4800
hnRNP A1	1 <sup>0</sup>	WB	Mouse	1:5000	EMD Millipore	04-1469
Srsf1	1 <sup>0</sup>	WB	Mouse	1:1000	Thermo Fisher	32-4600
Tbp	1 <sup>0</sup>	WB	Mouse	1:5000	Thermo Fisher	MA5-14739
Flag	1 <sup>0</sup>	WB	Mouse	1:10000	Sigma Aldrich	A8592
Krt19	1 <sup>0</sup>	IF	Rabbit	1:250	Abcam	602-670
pHistone-3	1 <sup>0</sup>	IF	Rabbit	1:250	EMD Millipore	06-570
Yap1	1 <sup>0</sup>	WB	Mouse	1:500	Santa Cruz Biotech.	sc-101199
pYap1 (S127)	1 <sup>0</sup>	WB	Rabbit	1:1000	Cell Signaling Tech.	13008S
Lats1	1 <sup>0</sup>	WB	Rabbit	1:1000	Cell Signaling Tech.	3477S
pLats1 (S909)	1 <sup>0</sup>	WB	Rabbit	1:500	Cell Signaling Tech.	9157S
Mst1	1 <sup>0</sup>	WB	Rabbit	1:500	Cell Signaling Tech.	3682S
pMst1/2 (T183/T180)	1 <sup>0</sup>	WB	Rabbit	1:1000	Cell Signaling Tech.	3681
Anti-Mouse 488	2 <sup>0</sup>	IF	Goat	1:500	Thermo Fisher	35503
Anti-Mouse 594	2 <sup>0</sup>	IF	Goat	1:500	Thermo Fisher	35511
Anti-Rabbit 488	2 <sup>0</sup>	IF	Goat	1:500	Thermo Fisher	35553
Anti-Rabbit 594	2 <sup>0</sup>	IF	Goat	1:500	Thermo Fisher	35561
Anti-Mouse IgG	2 <sup>0</sup>	WB	Goat	1:5000	Bio-Rad	1721011
Anti-Rabbit IgG	2 <sup>0</sup>	WB	Goat	1:5000	Thermo Fisher	SA5-10033
TEF1	1 <sup>0</sup>	ChIP	Mouse	-	Santa Cruz Biotech.	sc-376113X
Mouse IgG	1 <sup>0</sup>	ChIP	Mouse	-	Thermo Fisher	31903

**Supplementary Table 3: Primer and oligonucleotides sequences used in qRT-PCR and cell culture experiments.**

Target	Type	Primer sense	Sequence (5' -> 3')
Vim	qPCR	F	ATGCTTCTCTGGCACGTCTT
Vim	qPCR	R	AGCCACGCTTTCATACTGCT
Gfap	qPCR	F	CGAAGAAAACCGCATCACCA
Gfap	qPCR	R	GGTGAGCCTGTATTGGGACA
F4/80	qPCR	F	TATCCTGGGGAGAGCCAAGT
F4/80	qPCR	R	GCTGTAGCTTCCCACAGAGT
vWF	qPCR	F	ACCCTCTGCACAGAAAAGCC
vWF	qPCR	R	CAGGAGATAACTGCAGCCCC
Tdo	qPCR	F	TTTACAGGGAGGAGCCTCGA
Tdo	qPCR	R	CTTGGTGCCCAGCATTCTGT
Hnf4 $\alpha$	qPCR	F	GGTCAAGCTACGAGGACAGC
Hnf4 $\alpha$	qPCR	R	CAATCTTCTTTGCCCGAATG
<i>Arhgef10l_15</i>	RT-PCR	F	CTGCTCAATGACATGCTGGT
<i>Arhgef10l_15</i>	RT-PCR	R	TCCTGACCCACCTCTACCAC
<i>Lsm14b_78</i>	RT-PCR	F	AGAAACTGTTGCCAGCAAG
<i>Lsm14b_78</i>	RT-PCR	R	GGTTTTGTCCTCTGGAACGA
<i>Nf2_45</i>	RT-PCR	F	ACACAGCGAGAGCTCAGACA
<i>Nf2_45</i>	RT-PCR	R	ACAAGCCAGCCCTCTACTGA
<i>Tead1_12</i>	RT-PCR	F	TCACATTCAGGTTCTTGCCAGAAG
<i>Tead1_12</i>	RT-PCR	R	CGATCTGGGCTGATGACATGGCAG
<i>Csnk1d_63</i>	RT-PCR	F	GGAACGAGAACGGAAAGTGA
<i>Csnk1d_63</i>	RT-PCR	R	GGGGGCGTGTCACTAGTAAAG
<i>Yap1_48</i>	RT-PCR	F	AACCAGCAGCAGCAAATACA
<i>Yap1_48</i>	RT-PCR	R	CCTGAGACATCCCAGGAGAA
<i>Flnb_72</i>	RT-PCR	F	GGCGAGGAGGTGGGCTTTGTAG
<i>Flnb_72</i>	RT-PCR	R	CCTGACGGCAAATGGAATCACCAA
<i>Sgsm1_165</i>	RT-PCR	F	AGACAAGGAGGACGACGAAG
<i>Sgsm1_165</i>	RT-PCR	R	TGTGAACAGGAAGAGCAGGA
<i>Dgkd_131</i>	RT-PCR	F	CTAAACGCAGCCGTAGTGGT
<i>Dgkd_131</i>	RT-PCR	R	TTCATATGGCCCACTTTGGT
<i>Epb4.1_63</i>	RT-PCR	F	CAGCCATTGCTCAGAGTCAG
<i>Epb4.1_63</i>	RT-PCR	R	GGCATGGTGCTTTTTGATCT
<i>Slk_93</i>	RT-PCR	F	AAGGAGCTGTCCAAGTTCCA
<i>Slk_93</i>	RT-PCR	R	TATTGGCCAACTCTGCCTTC
<i>Kras_124</i>	RT-PCR	F	GATGTGCCTATGGTCCTGGT
<i>Kras_124</i>	RT-PCR	R	TCTTCTTCCATCTTTGCTCA
<i>Sorbs1_168</i>	RT-PCR	F	TCAGAGTCACCAAGACATTTTAT
<i>Sorbs1_168</i>	RT-PCR	R	ATTTGGCTCGAGCAGGTCT
<i>Cpsf4_1455</i>	RT-PCR	F	CCGGAGAGTCATTTGTGTGA
<i>Cpsf4_1455</i>	RT-PCR	R	CCTGCACTGCTGTTTTGACT

H2afy_9	RT-PCR	F	AAGTGAGCAAGGCGGCCAG
H2afy_9	RT-PCR	R	AGCTACCTCCAAGGGCCCGTT
Gpr137_226	RT-PCR	F	TAGGAGGGCAATCTCAATGG
Gpr137_226	RT-PCR	R	AGCTGCCAGGTTGTAACAGG
Idua_88	RT-PCR	F	GTGTCCATGACCACACAAGG
Idua_88	RT-PCR	R	AAGGAATCCCCAGGACCA
Gtf2a2_149	RT-PCR	F	TTCAGCATTGGCTCAGAGAG
Gtf2a2_149	RT-PCR	R	TCAGGCCTTTGAAATCTCAGT
Neb_114	RT-PCR	F	GGAAAGACCTGGAAGAAAGCA
Neb_114	RT-PCR	R	GCAATGTCCGGTAGCATTCT
Myo18a_21	RT-PCR	F	TCCTGGCTTCCATCTACCAC
Myo18a_21	RT-PCR	R	TGAAGATAGCCGAGGACAGC
Jmjd1c_125	RT-PCR	F	CTGGGTGAAGGAACAGAAGG
Jmjd1c_125	RT-PCR	R	GAAGGATCGACATTCTGTGGT
Mprip_66	RT-PCR	F	GTGTTACCCGGCAACTCAGA
Mprip_66	RT-PCR	R	GGAATTGACAGGGAGGGACT
Idua_186	RT-PCR	F	CCAGACCACCATGACTTTGA
Idua_186	RT-PCR	R	CTCCACAACCTGCCATCTCCT
Mtss_12	RT-PCR	F	GCTGCAGAAGAAGGCCAAAA
Mtss_12	RT-PCR	R	TTCTCCGTTTCTCCAACAG
Bag6_108	RT-PCR	F	CCTGGTGGTGTGCCAAGT
Bag6_108	RT-PCR	R	GAGTTGGTGTCTGTTGGGAAG
Casp3	qPCR	F	TCTGACTGAAAGCCGAAAC
Casp3	qPCR	R	ATCTTCTGGCAAGCCATCTC
Ankrd1	qPCR	F	GTCATTACGAGTGCGCTGAG
Ankrd1	qPCR	R	ATAGCGGTTTCAGCCTCACAG
Cyr61	qPCR	F	GGAAAAGGCAGCTCACTGAA
Cyr61	qPCR	R	TCTGAACGATGCATTTCTGG
Ctgf	qPCR	F	CTGCCTACCGACTGGAAGAC
Ctgf	qPCR	R	TAGAACAGGCGCTCCACTCT
Inhba	qPCR	F	ATCATCACCTTTGCCGAGTC
Inhba	qPCR	R	CACTTCTGCACGCTCCACTA
Ccne1	qPCR	F	CACTTCCCGTCTTGAATTGG
Ccne1	qPCR	R	AGGATGACGCTGCAGAAAGT
Birc5	qPCR	F	CTGATTTGGCCCAGTGTTTT
Birc5	qPCR	R	CAGGGGAGTGCTTTTCTATGC
Ccnd1	qPCR	F	TCCTCTCCAAAATGCCAGAG
Ccnd1	qPCR	R	AGGGTGGGTTGGAAATGAAC
Std. Control Oligo	ASO	-	CCTCTTACCTCAGTTACAATTTATA
Nf2_45	ASO	-	GGGCTTGAGGCTAAATGAGCAAAAT
Tead1_12	ASO	-	AGAGAACATACTTACCATGCTTGTT
Csnk1d_63	ASO	-	ACCACGAGCACACTCACCCAGTG
Yap1_48	ASO	-	ACATCATATAAGAGCCTACCTGACA
Birc5_Pro_Tead1	ChIP-qPCR	F	AACAGTCACACCCAGGAAGC
Birc5_Pro_Tead1	ChIP-qPCR	R	CAGCGCTGGAAAAGAAAGTC

Hnf4a_Pro_Tead1	ChIP-qPCR	F	GGGTGTTTTACCTGCGTGTT
Hnf4a_Pro_Tead1	ChIP-qPCR	R	TGGTAGCTCACAGCCATCTG