

## SUPPLEMENTARY INFORMATION

**Functional screening of mammalian mechanosensitive genes using *Drosophila* RNAi library– *Smarcd3/Bap60* is a mechanosensitive pro-inflammatory gene.**

Sandeep Kumar<sup>1\*</sup>, In-hwan Jang<sup>1\*</sup>, Chan Woo Kim<sup>1</sup>, Dong-Won Kang<sup>1</sup>, Won Jae Lee<sup>2</sup>, and Hanjoong Jo<sup>1,3</sup> ¶

<sup>1</sup>Wallace H. Coulter Department of Biomedical Engineering, Georgia Institute of Technology and Emory University, Atlanta, GA, USA, <sup>2</sup>National Creative Research Initiative Center for Hologenomics, and School of Biological Sciences, Seoul National University, Seoul 151-742, South Korea, and <sup>3</sup>Division of Cardiology, Department of Medicine, Emory University, Atlanta, GA, USA.

## Supplementary Table 1

### List of RNAi fly lines showing Drosophila transformant ID and CG numbers with corresponding mouse gene IDs

S. No. (In this study)	Transformant ID	CG Number	Mouse Gene	Illumina Gene_ID	lethality (c564> RNAi)
1	100259	CG8933	Pbx1	ILMN_2913089	
2	100269	CG3724	Pgd	ILMN_3052632	
3	100688	CG32190	Nucb1		
4	100728	CG3209	Agpat6	ILMN_2495363	
5	101340	CG1938	Dync1li2	ILMN_3120652	
6	101403	CG1265	Pqlc3	ILMN_1238215	
7	101960	CG7142	klk10-3	ILMN_2507890	
8	102014	CG14808	Sgcd	ILMN_2633062	
9	103038	CG9796	Ifi30	ILMN_2432550	
10	103249	CG15101	Ephx1	ILMN_1219712	
11	103485	CG8946	Sgpl1	ILMN_2756665	
<b>12</b>	<b>103541</b>	<b>CG1100</b>	<b>Psmid12</b>	<b>ILMN_1225988</b>	
13	103581	CG31992	Tnrc6c	ILMN_2935386	
14	103631	CG9325	Add1	ILMN_2674367	
<b>15</b>	<b>103634</b>	<b>CG4303</b>	<b>Smarcd3</b>	<b>ILMN_2559943</b>	
16	103911	CG2875	Noc4l	ILMN_2761918	
17	104386	CG11121	Six2	ILMN_3013874	
18	104575	CG1542	Ebna1bp2	ILMN_1258788	lethal
19	105111	CG11059	Clstn1	ILMN_2718801	
20	105149	CG10565	Dnajc2	ILMN_1257077	
21	105161	CG8362	Nme7	ILMN_2685023	
22	105269	CG16996	klk10-2	ILMN_2507890	
23	105361	CG9096	Ccnd2	ILMN_3144575	
24	105383	CG6721	Rasa3	ILMN_1228031	
25	105403	CG9135	Rcc2	ILMN_2513570	
26	105408	CG4003	Ruvbl1	ILMN_3150811	lethal
27	105492	CG15669	Ndr3	ILMN_2669404	
28	105604	CG3943	Serhl	ILMN_1248397	
29	105663	CG4755	Arhgap17	ILMN_2474515	
30	105853	CG9224	Chrd	ILMN_1248604	
31	106120	CG4233	Got2	ILMN_2599008	
32	106122	CG31999	Fbln2	ILMN_2993109	
33	106129	CG5033	Bop1	ILMN_2614380	

34	106236	CG8542	Hspa9	ILMN_2727687	lethal
35	106470	CG2789	Tspo	ILMN_1254513	
36	106642	CG9375	Kras	ILMN_1217606	
37	106761	CG9195	Scamp1	ILMN_2622354	
38	106774	CG5408	Trib2	ILMN_1215085	
39	106924	CG1837	Txndc5	ILMN_2678355	
40	107131	CG10465	Kctd10	ILMN_1240256	
41	107176	CG5020	Clip1	ILMN_2833781	
42	107181	CG5497	Mrps28	ILMN_3115796	
43	107190	CG8841	C630004H02Rik	ILMN_2767918	
44	107304	CG3780	Sf3b4	ILMN_1243249	lethal
45	107314	CG3924	Ldb2	ILMN_2891646	
46	107327	CG11711	2700078K21Rik	ILMN_2547840	
47	107590	CG5336	Elmo1	ILMN_2624451	
48	107995	CG2219	Arl4a	ILMN_2666487	
49	108069	CG6218	Nagk	ILMN_2920849	
50	108082	CG5319	Btbd3	ILMN_1226606	
51	108442	CG10724	Wdr1	ILMN_2627179	
52	108449	CG14100	Rnmtl1	ILMN_2618408	
53	108542	CG32758	Snx27	ILMN_1217928	
54	108597	CG4849	Eftud2	ILMN_2757019	lethal
55	108658	CG3723	Dnahc17	ILMN_1249888	
56	108723	CG10728	Wdr77	ILMN_1242787	
57	108773	CG16997	Klk10-1	ILMN_2507890	
58	108840	CG14788	Lsg1	ILMN_2633897	
59	108850	CG3730	Prmt5	ILMN_2706853	
60	109421	CG6136	Cutc	ILMN_2664224	
61	109454	CG4637	dhh		
62	109603	CG5355	Prep	ILMN_2759079	
63	109738	CG6891	Cotl1	ILMN_2598103	
64	109762	CG2173	Ddx27	ILMN_3137804	lethal
65	110321	CG10480	Rcc1	ILMN_1217742	
66	110400	CG8314	Zdhhc3	ILMN_2607880	
67	110454	CG1333	Ero1lb	ILMN_2715558	
68	110682	CG9155	Myo1c	ILMN_2697760	
69	110691	CG4684	Fchsd2	ILMN_1248139	
70	12762	CG6854	Ctps	ILMN_2788593	
71	18873	CG10236	Lama5	ILMN_1221817	
72	22125	CG5433	Klc1	ILMN_2834370	
73	23425	CG5708	Lmo4	ILMN_1224866	
74	25909	CG31917	Znhit1	ILMN_1215879	
75	29096	CG9296	Pde6d	ILMN_2504268	
76	3449	CG31937	Dhrs7	ILMN_1236290	

77	34621	CG3454	Hdc	ILMN_2672190
78	37816	CG10692	Mt2	
79	37823	CG10388	Hoxa7	ILMN_2759563
<b>80</b>	<b>39562</b>	<b>CG4583</b>	<b>ERN1</b>	<b>ILMN_2878071</b>
81	45300	CG5669	Sp4	ILMN_3089584
82	6446	CG8804	Ppap2a	ILMN_2743013
83	7577	CG11576	2310046K01Rik	ILMN_2669441
84	8209	CG16868	Cachd1	ILMN_2699531

## Supplementary Table 2

### List and sequences of qPCR primers for mRNA expression (Drosophila)

Primer	Sequence
Drosomycin_Fw	5'-GCAGATCAAGTACTTGTTGCCCC-3'
Drosomycin_Rv	5'-CTTCGCACCAGCACTTCAGACTGG-3'
Diptericin Fw	5'-GGCTTATCCGATGCCCGACG-3'
Diptericin Rv	5'-TCTGTAGGTGTAGGTGCTTCC-3'
Rp49_Fw	5'-AGATCGTGAAGAAGCGCACCAAG-3'
Rp49_Rv	5'-CACCAGGAAGTCTTGAATCCGG-3'


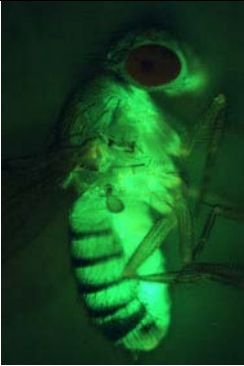


### Supplementary Table 3






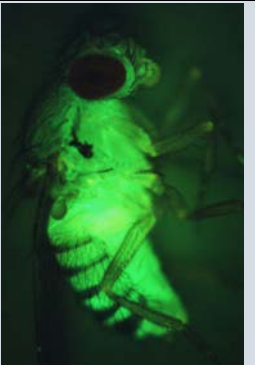
#### List and sequences of qPCR primers for mRNA expression (Mouse/Human)

Primer	Sequence
m KLF2-Fw	5'-CCAACTGCGGCAAGACCTAC-3'
m KLF2-Rv	5'-AGTCGACCCAGGCTACATGTG-3'
m smarcd3_Fw	5'-CATGGAATTCGAACCCAAACA-3'
m smarcd3_Rv	5'-TTTCGGAGCAGGAAAGCCCTGG-3'
m psmd12_Fw	5'- ACATGGTGTCCACGTCCCGCA -3'
m psmd12_Rv	5'-TCGCAGCTTGACTGGCAGGTCT-3'
m ERN1_Fw	5'-TTGAGGAATTACTGGCTTCTCAT-3'
m ERN1_Rv	5'-TCCAGCATCTTGGTGGATG-3'
hm 18s_Fw	5'-AGGAATTGACGGAAGGGCACCA-3'
hm 18s_Rv	5'-GTGCAGCCCCGGACATCTAAG-3'
h KLF2-Fw	5'-AGACCTACACCAAGAGTTCGCATC-3'
h KLF2-Rv	5'-CATGTGCCGTTTCATGTGCAGC-3'
h CXCL8_Fw	5'-CATGACTTCCAAGCTGGCCG-3'
h CXCL8_Rv	5'-TTTATGAATTCTCAGCCCTC-3'
h Smarcd3_Fw	5'-GGAGGAAGATGGCTGACAAA-3'
h Smarcd3_Rv	5'-GCCAAGAGGTCCATGTAAGC-3'
h VCAM1_Fw	5'-CATGGAATTCGAACCCAAACA-3'
h VCAM1_Rv	5'-TTTCGGAGCAGGAAAGCCCTGG-3'


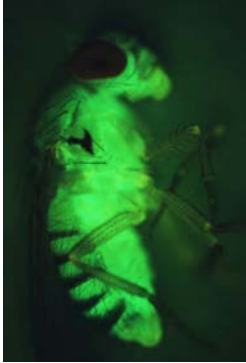

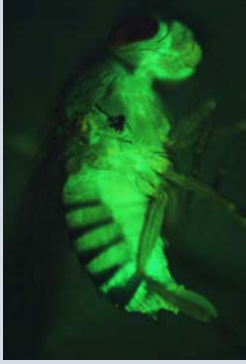


Supplementary Table 4







**Visual Scoring of GFP fluorescence Intensity on a scale of 0 (least) to 5(most) at basal and post Gram-positive bacterial infection in control flies and RNAi fly lines with corresponding mouse gene IDs.**


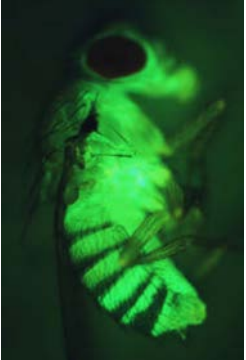

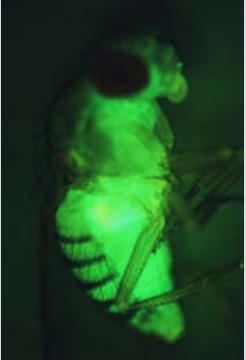

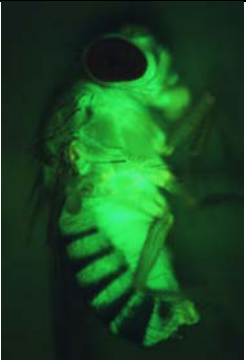
#	CG Number	<i>RNAi</i> Fly Line	Whether embryonic Lethal?	Representative Image of the fly under basal (Non-infection) condition	<u>Visual GFP Scoring</u>  Basal (Non- infection) condition	Representative Image of the fly (Post Gram- positive infection condition)	<u>Visual GFP Scoring</u>  Post Gram- positive infection
I		C564			0 ±0		5 ±0
II		Dif			0.3 ±0.3		0.4 ±0.24







II		Myd88			$0 \pm 0$		$0.4 \pm 0.24$
1	CG8933	Pbx1			$0 \pm 0$		$5 \pm 0$
2	CG3724	Pgd			$1.2 \pm 0.5$		$5 \pm 0$

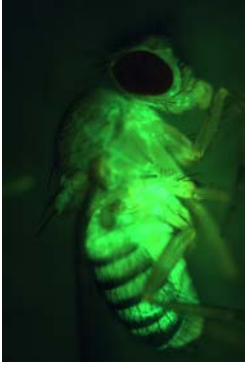
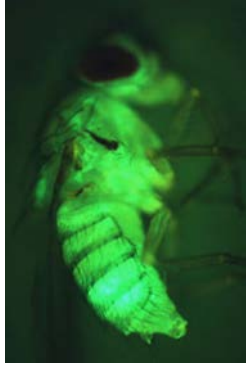



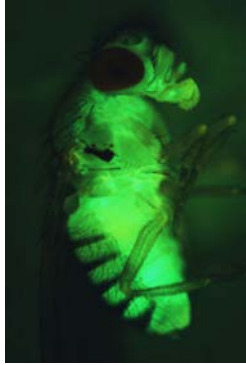



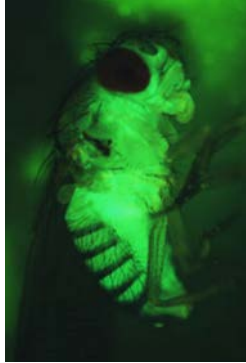




3	CG32190	Nucb1			$0.3 \pm 0.1$		$5 \pm 0$
4	CG3209	Agpat6			$0.3 \pm 0.3$		$4.9 \pm 0.13$
5	CG1938	Dync1li2			$0.3 \pm 0.3$		$5 \pm 0$







6	CG1265	Pqlc3			$0 \pm 0$		$5 \pm 0$
7	CG7142	klk10-3			$0.8 \pm 0.4$		$5 \pm 0$
8	CG14808	Sgcd			$0 \pm 0$		$5 \pm 0$


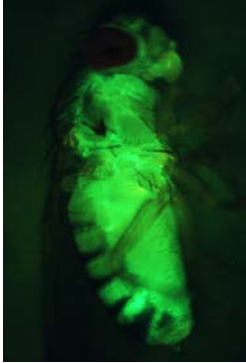

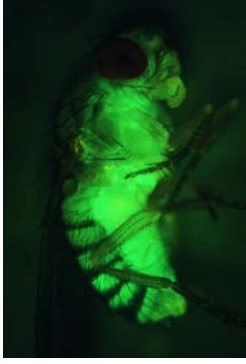

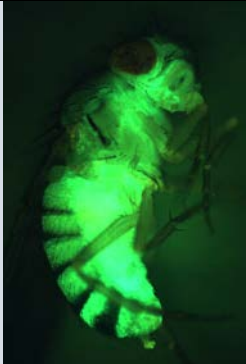
9	CG9796	lfi30			$0.4 \pm 0.4$		$4.9 \pm 0.13$
10	CG15101	Ephx1			$1.4 \pm 0.9$		$5 \pm 0$
11	CG8946	Sgpl1			$1 \pm 0.4$		$5 \pm 0$

12	CG1100	Psmc12			$1.4 \pm 0.9$		$3.7 \pm 0.56$
13	CG31992	Tnrc6c			$0.3 \pm 0.3$		$4.5 \pm 0.21$
14	CG9325	Add1			$0.3 \pm 0.3$		$4.8 \pm 0.25$







15	CG4303	Smarcd3			$3.5 \pm 1.2$		$5 \pm 0$
16	CG2875	Noc4l			$0.2 \pm 0.1$		$5 \pm 0$
17	CG11121	Six2			$0.2 \pm 0.1$		$5 \pm 0$
18	CG1542	Ebna1bp2	lethal		NA		NA







19	CG11059	Clstn1			$0.5 \pm 0.2$		$5 \pm 0$
20	CG10565	Dnajc2			$0.8 \pm 0.6$		$5 \pm 0$
21	CG8362	Nme7			$0.8 \pm 0.6$		$5 \pm 0$





22	CG16996	klk10-2			$1.2 \pm 0.6$		$5 \pm 0$
23	CG9096	Ccnd2			$0.7 \pm 0.6$		$5 \pm 0$
24	CG6721	Rasa3			$0 \pm 0$		$3.9 \pm 0.43$







25	CG9135	Rcc2			$0.4 \pm 0.4$		$4.5 \pm 0.36$
26	CG4003	Ruvbl1	lethal		NA		NA
27	CG15669	Ndr3			$0.3 \pm 0.3$		$5 \pm 0$
28	CG3943	Serhl			$0.4 \pm 0.4$		$5 \pm 0$















29	CG4755	Arhgap17			$0.3 \pm 0.3$		$5 \pm 0$
30	CG9224	Chrd			$0.3 \pm 0.3$		$4.4 \pm 0.24$
31	CG4233	Got2			$0.4 \pm 0.4$		$5 \pm 0$


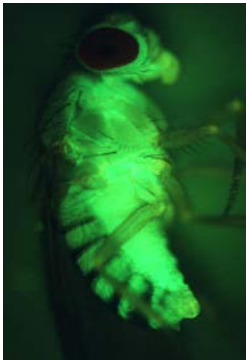

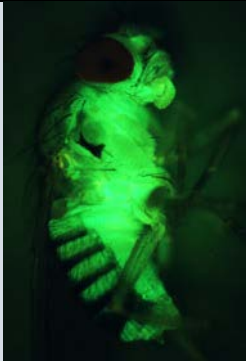


32	CG31999	Fbln2			$0.2 \pm 0.1$		$4.8 \pm 0.25$
33	CG5033	Bop1			$0.2 \pm 0.1$		$5 \pm 0$
34	CG8542	Hspa9	lethal		NA		NA
35	CG2789	Tspo			$1 \pm 0.4$		$5 \pm 0$







36	CG9375	Kras			$0.4 \pm 0.4$		$5 \pm 0$
37	CG9195	Scamp1			$0.3 \pm 0.3$		$5 \pm 0$
38	CG5408	Trib2			$0.8 \pm 0.6$		$4.9 \pm 0.13$

39	CG1837	Txndc5			$0.5 \pm 0.5$		$5 \pm 0$
40	CG10465	Kctd10			$0.7 \pm 0.5$		$4.8 \pm 0.25$
41	CG5020	Clip1			$0.2 \pm 0.1$		$4.4 \pm 0.24$







42	CG5497	Mrps28			$0.8 \pm 0.3$		$4.5 \pm 0.29$
43	CG8841	C630004H02Rik			$0.5 \pm 0.3$		$4.8 \pm 0.25$
44	CG3780	Sf3b4	lethal		NA		NA
45	CG3924	Ldb2			$0.4 \pm 0.4$		$4.9 \pm 0.13$




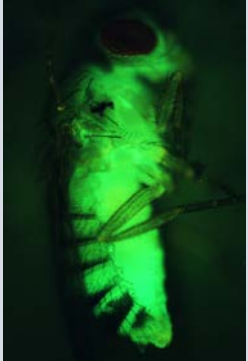


46	CG11711	2700078K21Rik			$0 \pm 0$		$4.8 \pm 0.25$
47	CG5336	Elmo1			$0.2 \pm 0.1$		$4.2 \pm 0.52$
48	CG2219	Arl4a			$0.4 \pm 0.4$		$4.8 \pm 0.25$







49	CG6218	Nagk			$0.2 \pm 0.1$		$4.8 \pm 0.25$
50	CG5319	Btbd3			$0 \pm 0$		$4.8 \pm 0.25$
51	CG10724	Wdr1			$0.4 \pm 0.4$		$4.2 \pm 0.43$







52	CG14100	Rnmtl1			$0.2 \pm 0.1$		$4.8 \pm 0.25$
53	CG32758	Snx27			$0 \pm 0$		$4.3 \pm 0.48$
54	CG4849	Eftud2	lethal		NA		NA
55	CG3723	Dnahc17			$0.4 \pm 0.2$		$4.8 \pm 0.25$















56	CG10728	Wdr77			$0.3 \pm 0.1$		$4.9 \pm 0.13$
57	CG16997	Klk10-1			$0.4 \pm 0.2$		$4.8 \pm 0.25$
58	CG14788	Lsg1			$1.2 \pm 0.5$		$4.8 \pm 0.25$





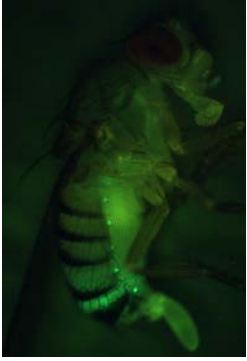

59	CG3730	Prmt5			$0.7 \pm 0.5$		$4.8 \pm 0.25$
60	CG6136	Cutc			$0.2 \pm 0.1$		$4.7 \pm 0.24$
61	CG4637	dhh			$0.7 \pm 0.4$		$5 \pm 0$






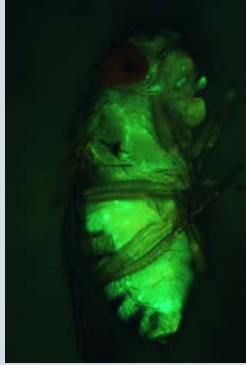
62	CG5355	Prep			$0.2 \pm 0.1$		$5 \pm 0$
63	CG6891	Cot11			$0 \pm 0$		$5 \pm 0$
64	CG2173	Ddx27	lethal		NA		NA
65	CG10480	Rcc1			$0.2 \pm 0.1$		$4.5 \pm 0.29$

66	CG8314	Zdhhc3			$0.2 \pm 0.1$		$4.9 \pm 0.13$
67	CG1333	Ero1lb			$0 \pm 0$		$5 \pm 0$
68	CG9155	Myo1c			$0.5 \pm 0.3$		$5 \pm 0$







69	CG4684	Fchsd2			$0.3 \pm 0.3$		$5 \pm 0$
70	CG6854	Ctps			$0.7 \pm 0.4$		$5 \pm 0$
71	CG10236	Lama5			$0.4 \pm 0.4$		$4.5 \pm 0.21$



72	CG5433	Klc1			$0.2 \pm 0.1$		$4.8 \pm 0.15$
73	CG5708	Lmo4			$0.4 \pm 0.4$		$4.9 \pm 0.13$
74	CG31917	Znhit1			$1.5 \pm 0.5$		$4.8 \pm 0.25$

75	CG9296	Pde6d			$0 \pm 0$		$5 \pm 0$
76	CG31937	Dhrs7			$0.2 \pm 0.1$		$5 \pm 0$
77	CG3454	Hdc			$1 \pm 0.7$		$4.9 \pm 0.13$

78	CG10692	Mt2			$1.2 \pm 0.7$		$5 \pm 0$
79	CG10388	Hoxa7			$0.4 \pm 0.2$		$5 \pm 0$
80	CG4583	Ern1			$1 \pm 0.7$		$3 \pm 0.55$



81	CG5669	Sp4			$0.3 \pm 0.1$		$5 \pm 0$
82	CG8804	Ppap2a			$1 \pm 0.4$		$4.7 \pm 0.24$
83	CG11576	2310046K01Rik			$0.5 \pm 0.3$		$5 \pm 0$

84	CG16868	Cachd1			$1 \pm 0.4$		$5 \pm 0$