

The diagram illustrates the process of identifying a protein-coding region (CPF1) within a DNA sequence. The top part shows a DNA sequence with a 'GUIDE' region highlighted. A 'PAM' sequence is identified at the start of the 'GUIDE' region. A 'CPF1' sequence is identified within the 'GUIDE' region. The bottom part shows the same DNA sequence with the 'CPF1' sequence highlighted in a box, indicating it is the identified protein-coding region.

Figure 2

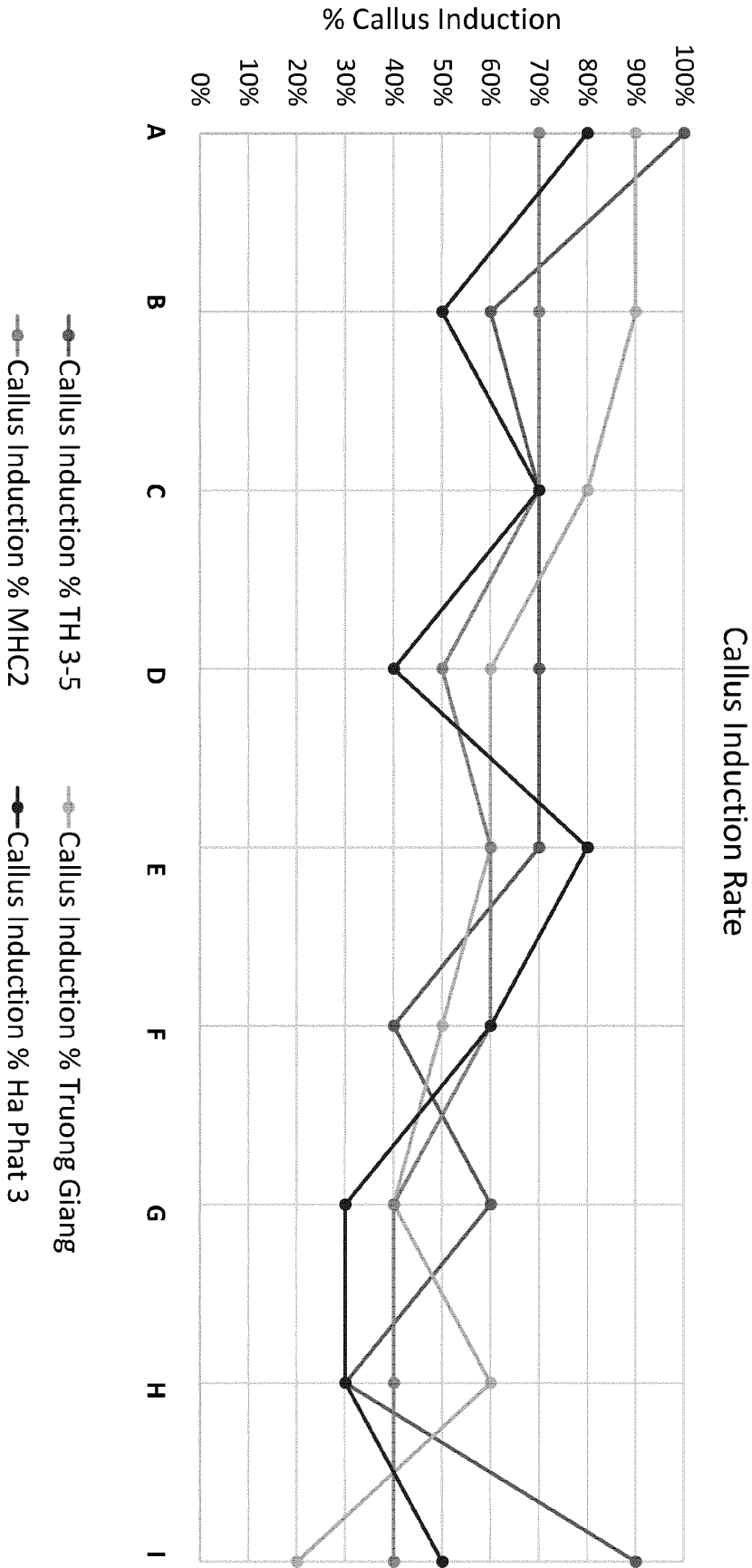


Figure 3a

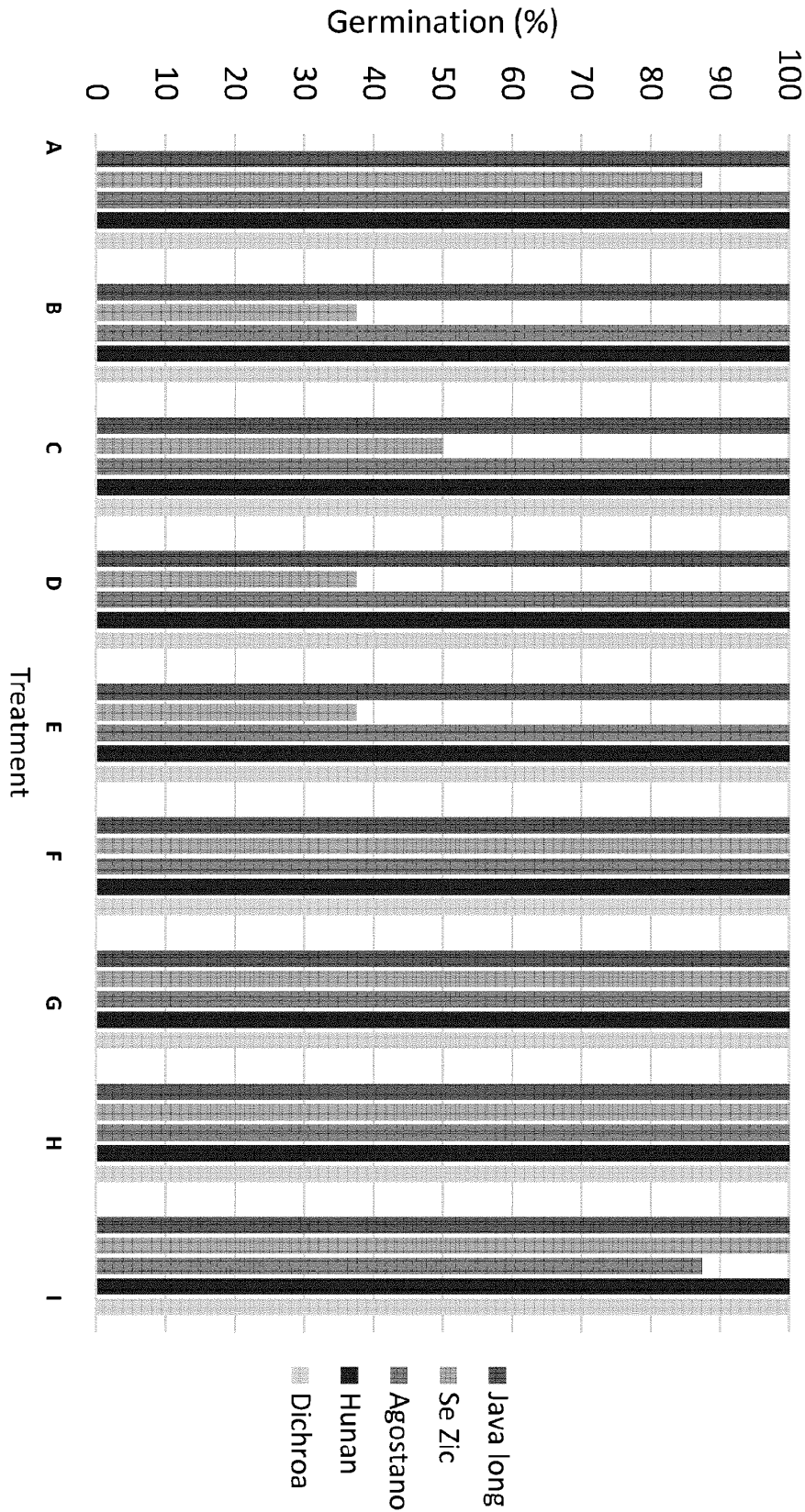


Figure 3b

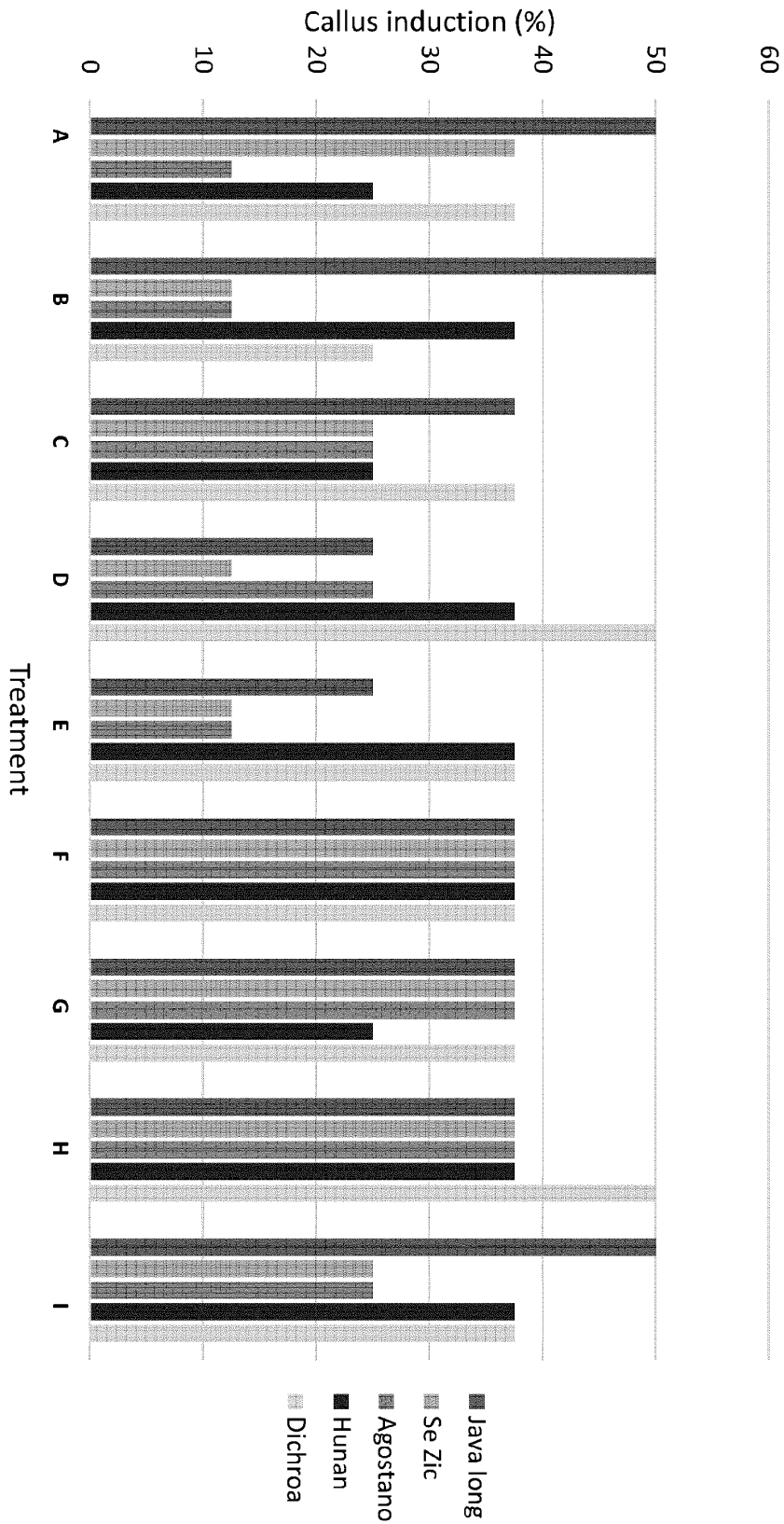


Figure 3c

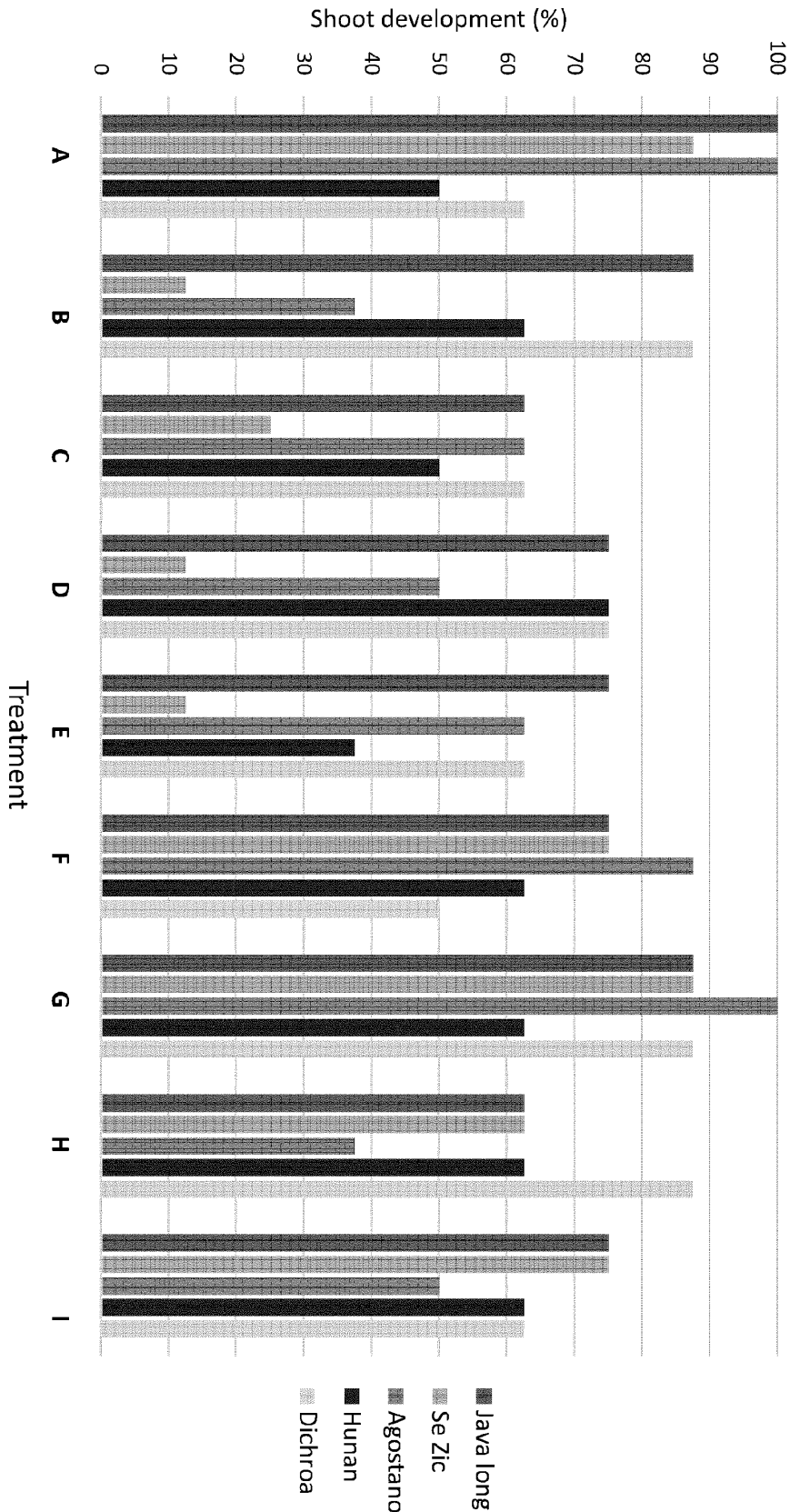


Figure 4

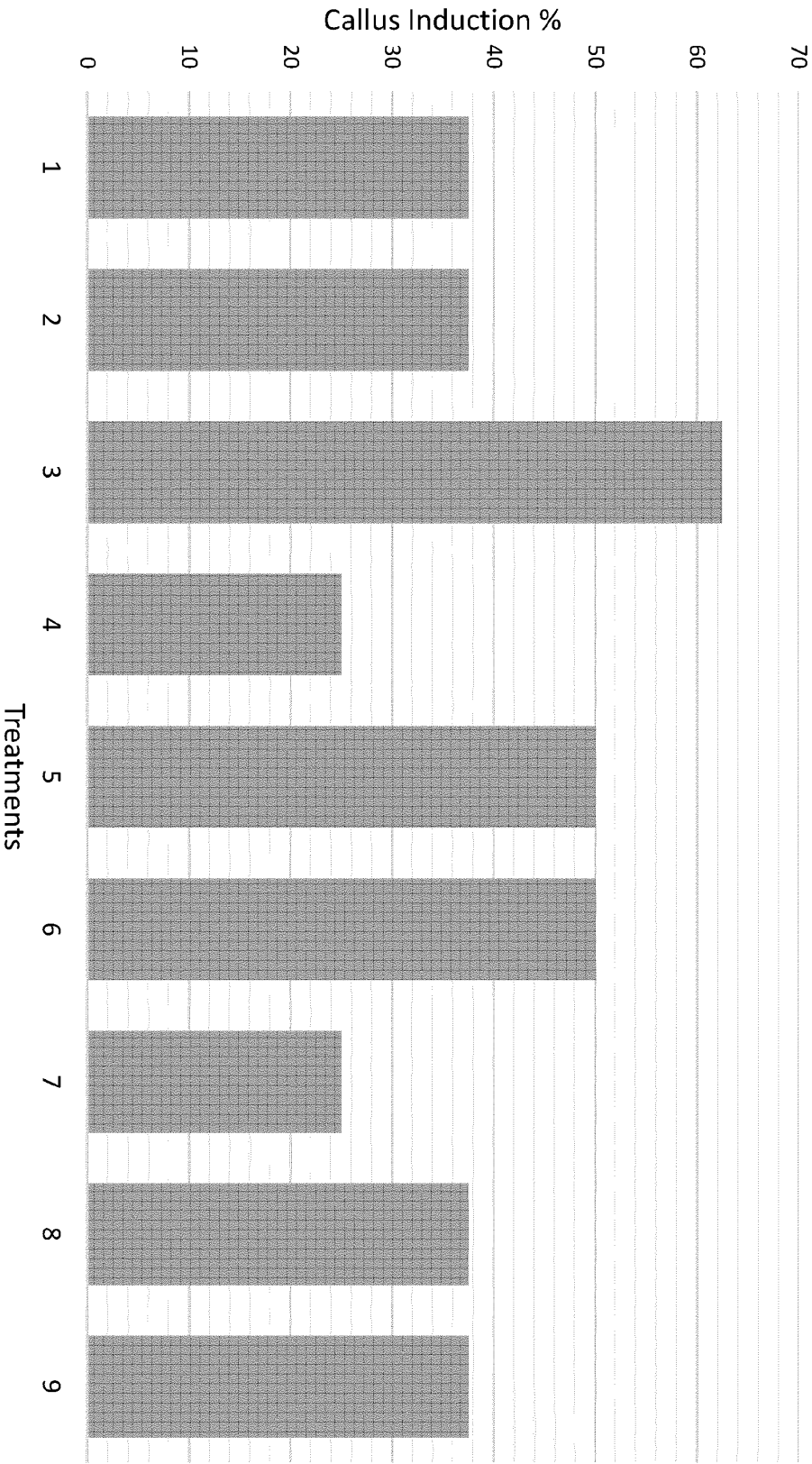


Figure 5a

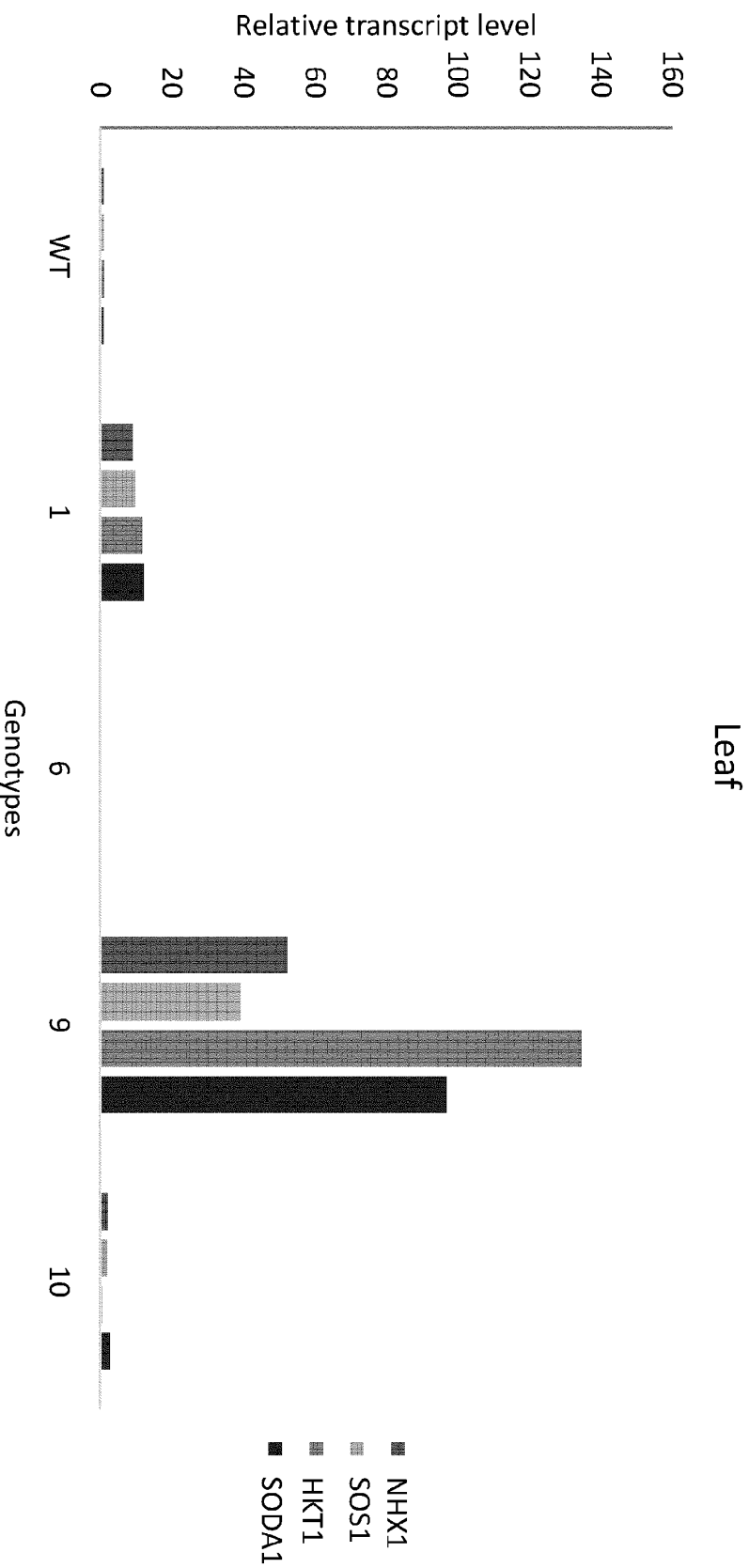


Figure 5b

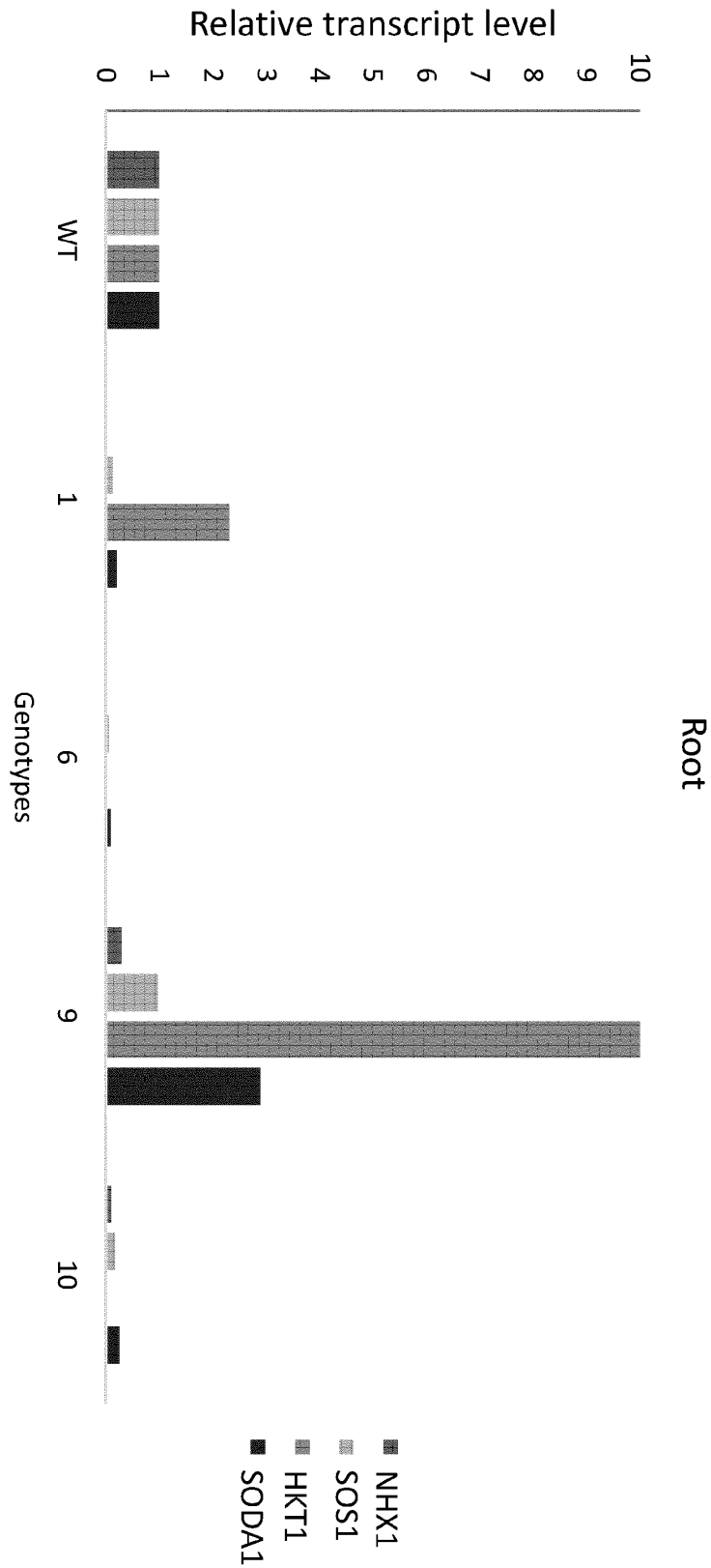
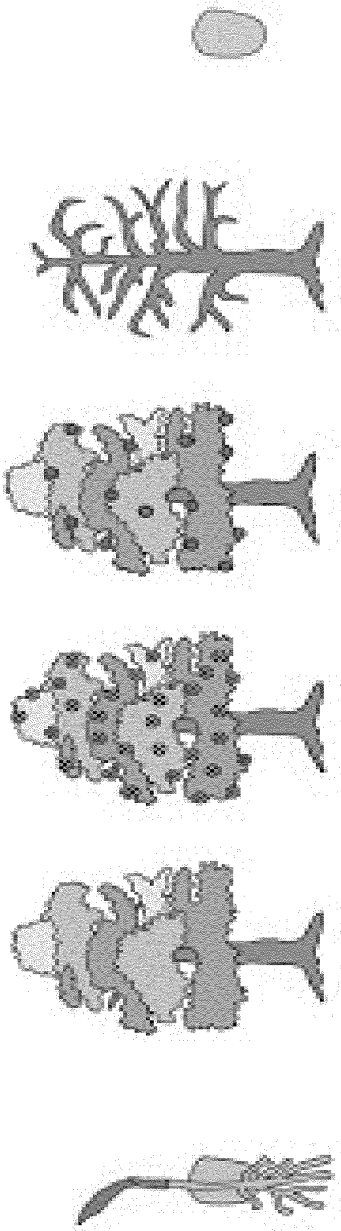


Figure 6

Gene	Enzyme	Orientation of Cut	DNA Inserts w/homology arms (Top=fwd,Bottom=reverse complement)
NHX1	Cpf1	Forward	GCAT / GCCGACCCTTTGGCCACGTGGCAATATATatt (SEQ ID NO: 111)
			ATGC / aaTATATATTGCCACGTGGCCAAAGGGTCGGC (SEQ ID NO: 33)
VHA-A	Cpf1	Forward	AAAA / GCCGACGCCACGTGGCAAGCCGCTATATA (SEQ ID NO: 34)
			TTTT / TATAGCGGCTTGCCACGTGGCTCGGC (SEQ ID NO: 35)
SOS1	Cpf1	Forward	CACtaa / TGTCTGCCGCCGGGAAAAGCCGACGGGAAAA (SEQ ID NO: 36)
			AGTG / TTTTCCCGCTCGGCTTTTCCCGGGGGGAGACatt (SEQ ID NO: 37)
SOS2	Cpf1	Reverse	GTAT / TGTCTGCCGCCGGGAAAAGCCGACGGGAAAA (SEQ ID NO: 38)
			ATAC / TTTTCCCGCTCGGCTTTTCCCGGGGGGAGACA (SEQ ID NO: 39)
AHA3	Cpf1	Forward	TTAT / TGTCTGCCGCCGGGAAAAGCCGACGGGAAAA (SEQ ID NO: 40)
			ATAA / TTTTCCCGCTCGGCTTTTCCCGGGGGGAGACA (SEQ ID NO: 41)
HKT1	Cpf1	Forward	GCTCaa / GCCGACGGGAAAAGCCGACgcccgcCGAC (SEQ ID NO: 42)
			GAGC / GTCGGGGGGCGTCGGCCTTTCCCGCTCGGctt (SEQ ID NO: 43)
SODA1	Cpf1	Reverse	ACGC / GCGGGCGTCGGCTGGCTATATACAAAGG (SEQ ID NO: 44)
			GCGT / CCTTTGTATAGCCGACGCCGACGCCGCC (SEQ ID NO: 45)
SODCC1	Cpf1	Forward	CTGC / aaCCTTTGTATAGCCGACGCCGACGCCGCC (SEQ ID NO: 46)
			GCAG / GCGGGCGTCGGCTGGCTATATACAAAGgtt (SEQ ID NO: 47)
SOD2	Cpf1	Forward	CGTG / CCTTTGTATAGCCGACGCCGACGCCCGg (SEQ ID NO: 48)
			CACG / ccGGGGCGTCGGCTGGCTATATACAAAGGtgc (SEQ ID NO: 49)



Germination Growth to Maturity Flowering Fruit Development Abscission Seed dormancy

Gibberellin						
Auxin						
Cytokinins						
Ethylene						
ABA						

Figure 7

Figure 8

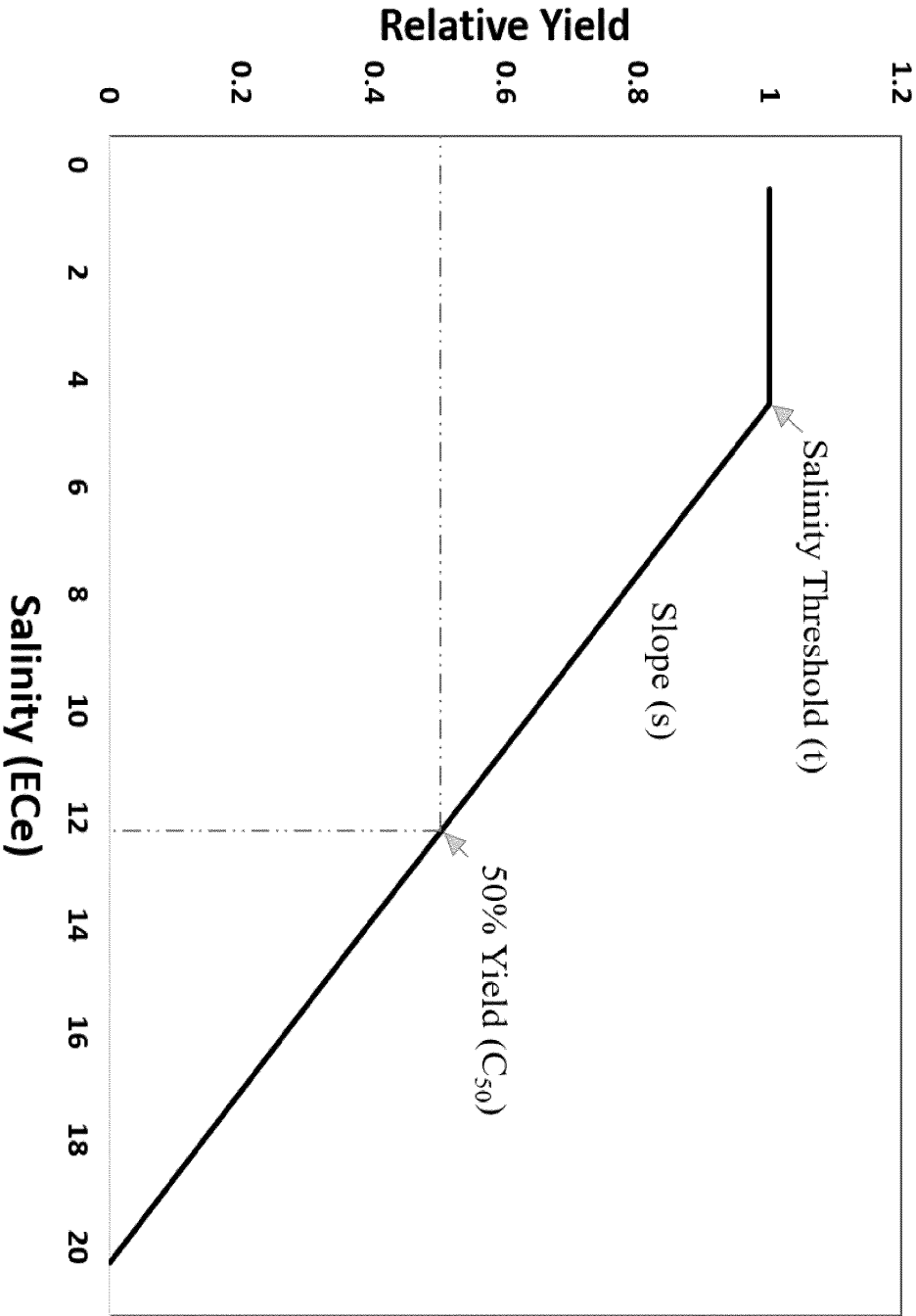


Figure 9a

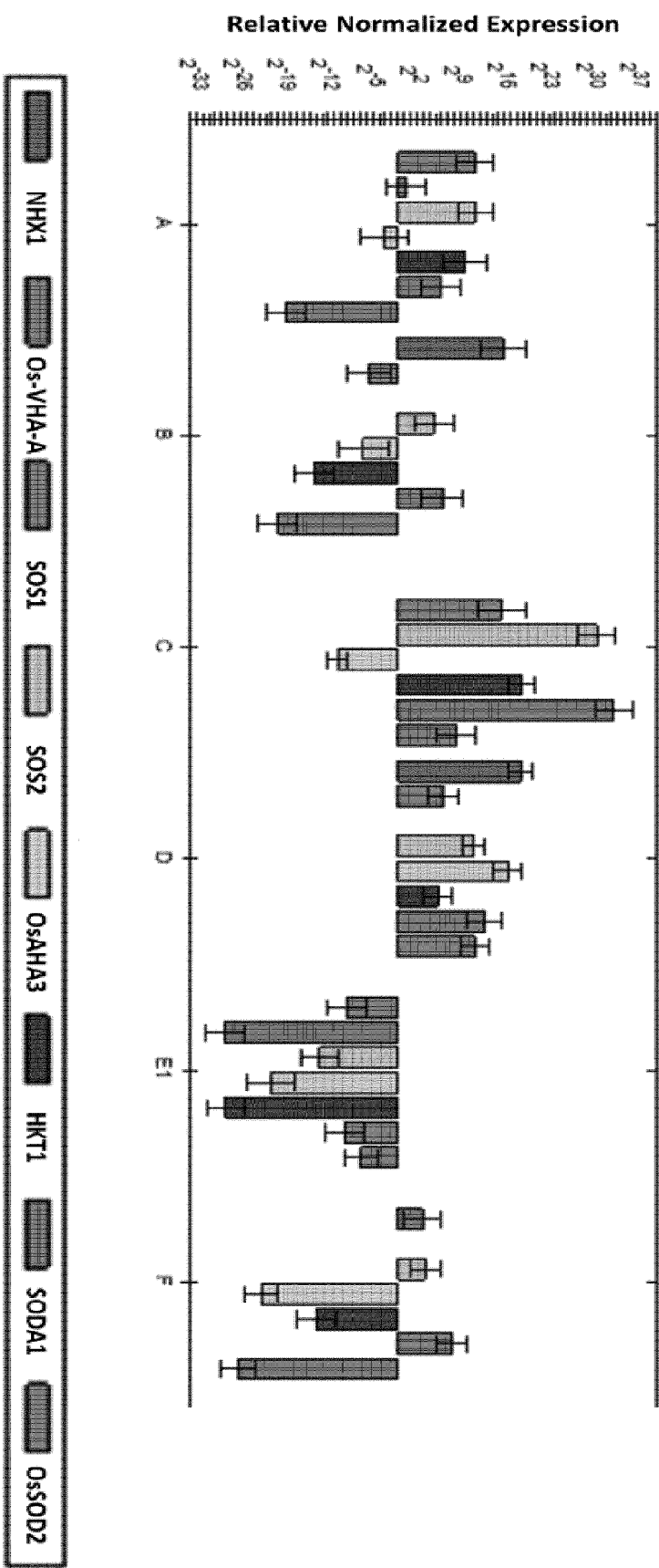


Figure 9a cont

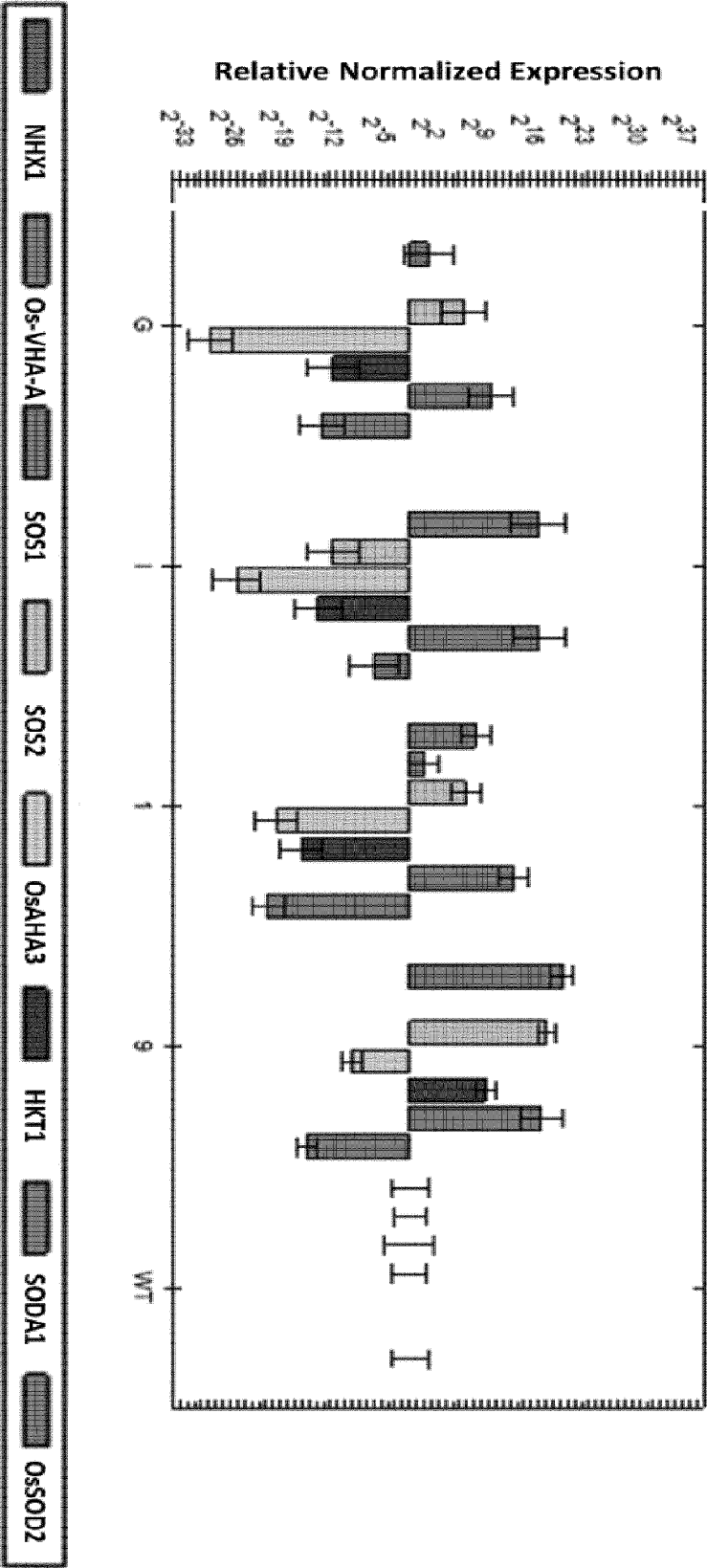


Figure 9b

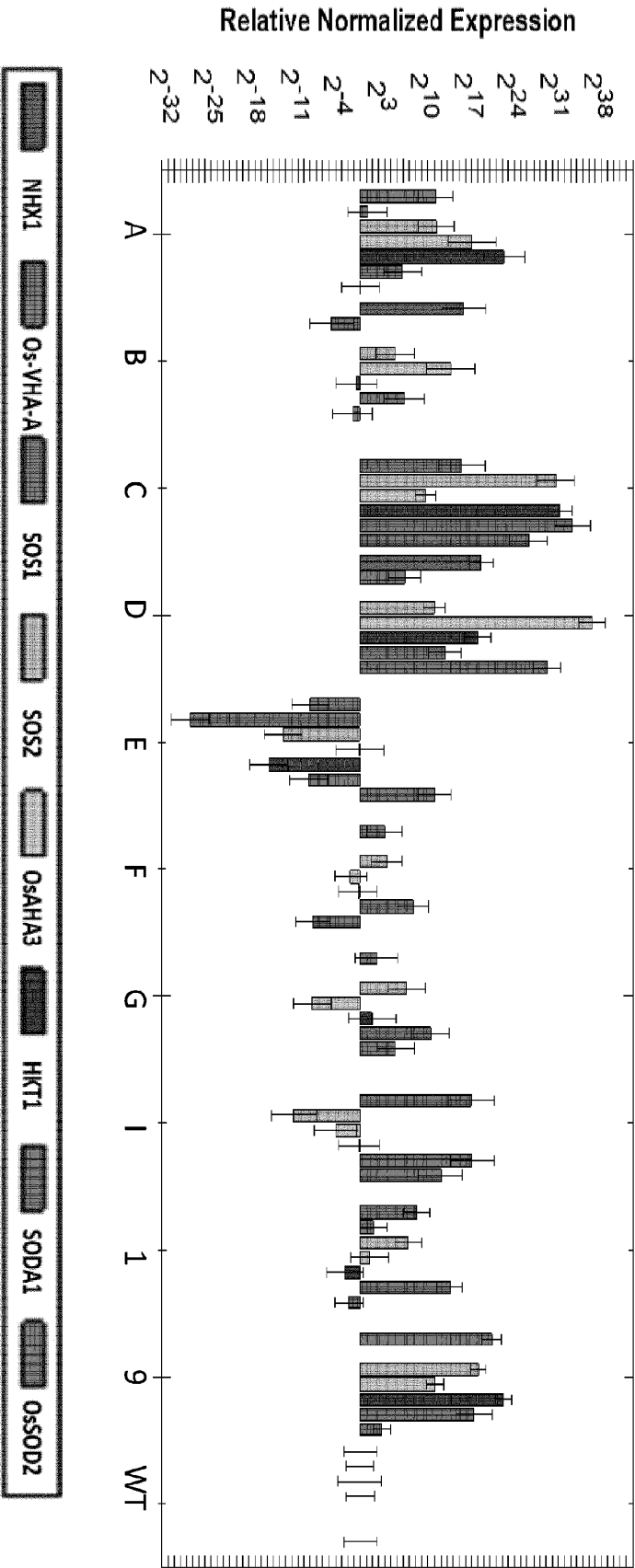


Figure 9c

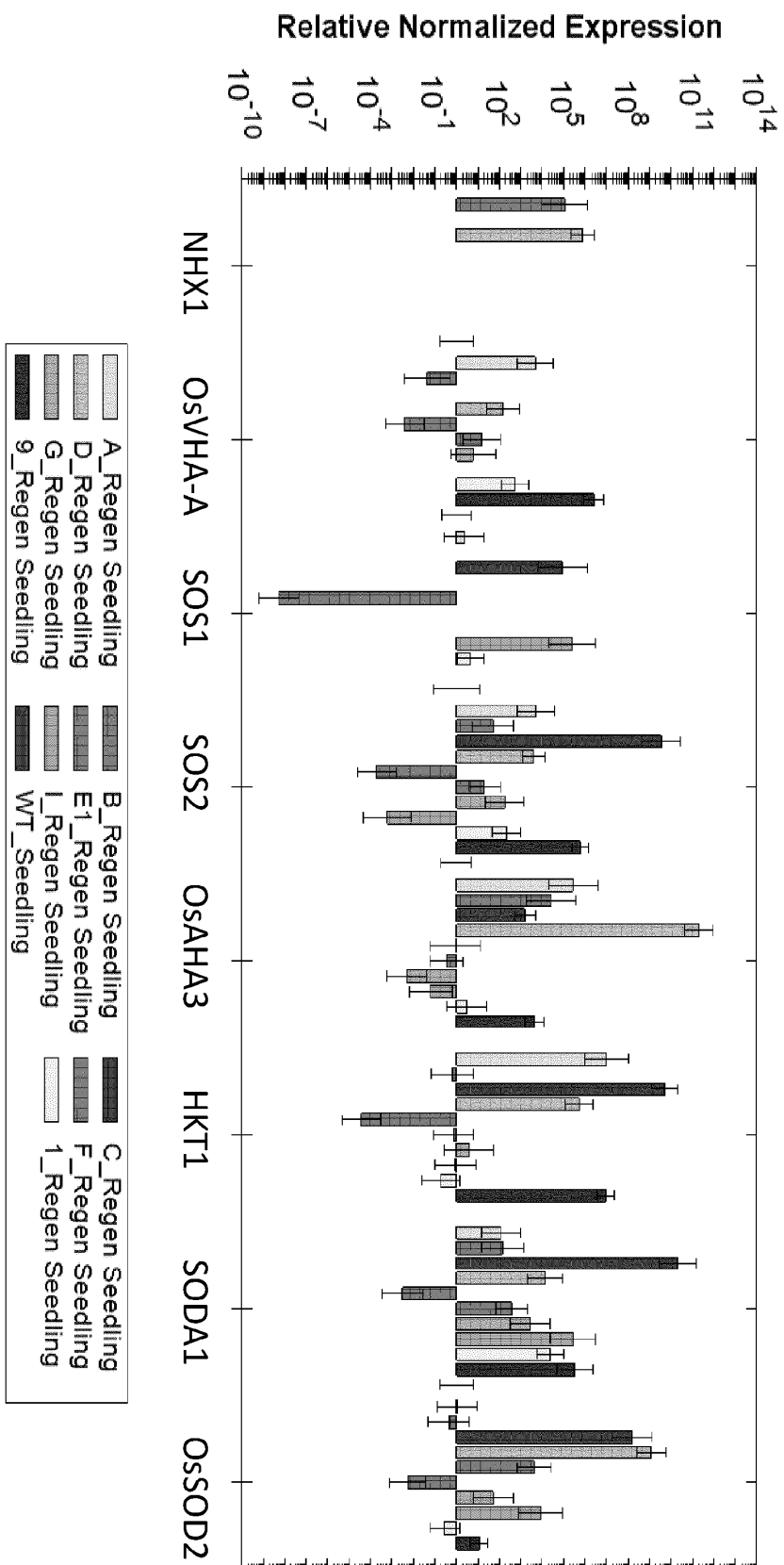
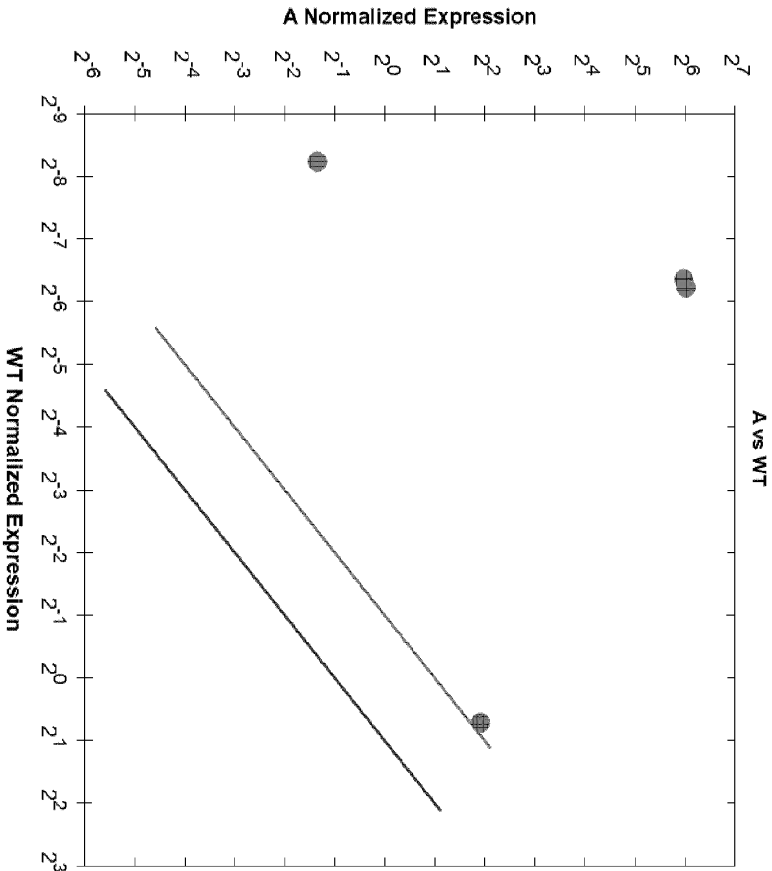
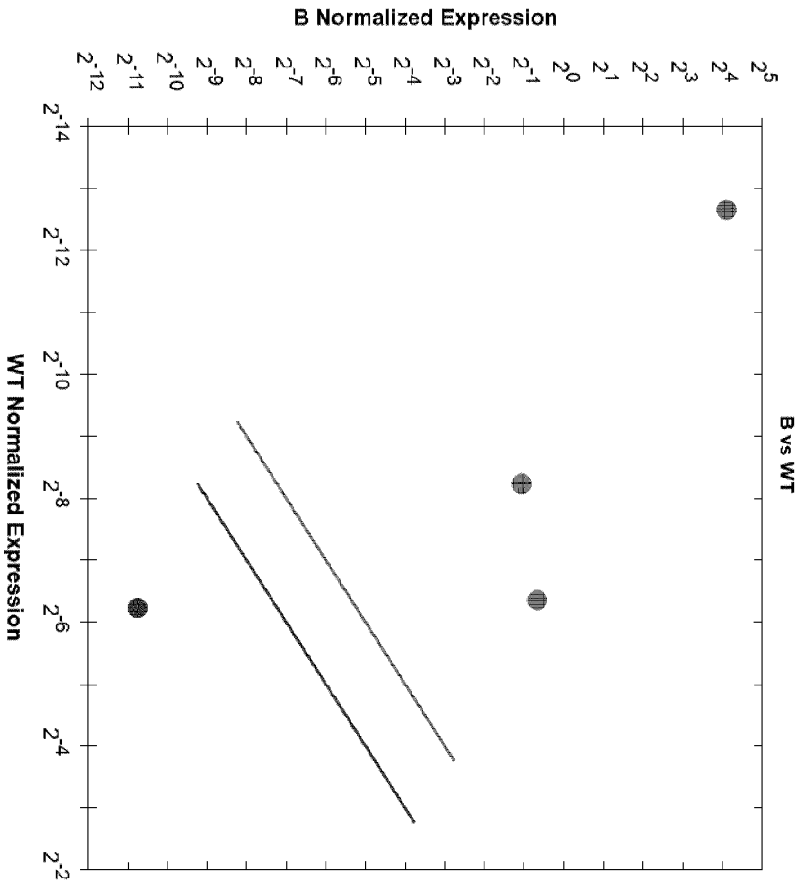


Figure 10a



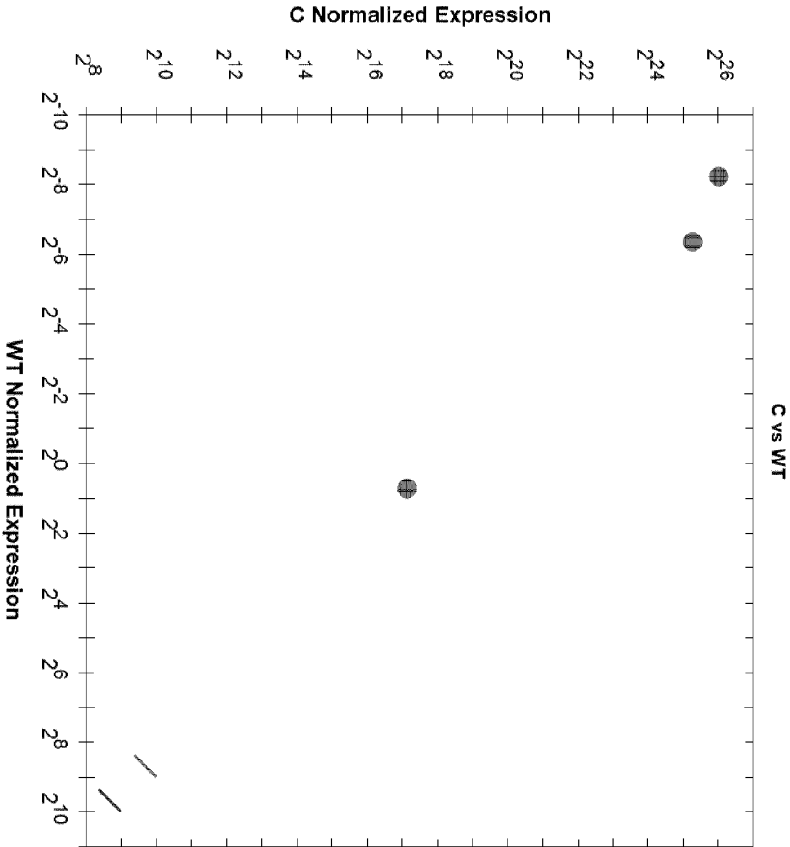
Target	WT Normalized Expression	A Normalized Expression	A Fold Change	Target Regulation
Actin	0.00015			No change
NHX1	0.01333	65.08089	4881.14374	Up regulated
VHA-A	1.63662	3.76864	2.30270	Up regulated
SOS1	0.01220	63.05882	5169.24165	Up regulated
SOS2		650.25699		No change
AHA3		169416.04518		No change
HKT1				No change
SOD1	0.00332	0.39227	118.04762	Up regulated
SOD2		0.16172		No change

Figure 10b



Target	WT Normalized Expression	B Normalized Expression	B Fold Change	Target Regulation
Actin				No change
NHX1	0.00015	17.30225	111761.27055	Up regulated
VHA-A	0.01333	0.00058	-23.02772	Down regulated
SOS1	1.63662			No change
SOS2	0.01220	0.63097	51.72381	Up regulated
AHA3		60.83387		No change
HKT1		0.01087		No change
SODA1	0.00332	0.47937	144.25908	Up regulated
SOD2		0.06722		No change

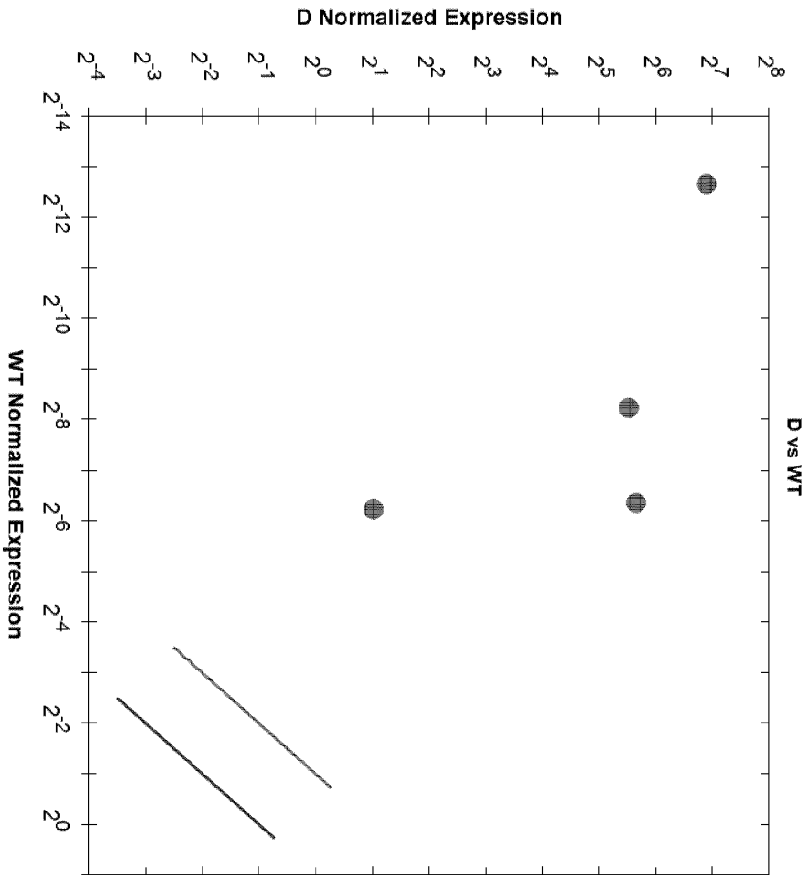
Figure 10c



Target	WT Normalized Expression	B Normalized Expression	B Fold Change	Target Regulation
Actin				No change
NHX1	0.00015			No change
VHA-A	0.01333			No change
SOS1	1.63662	144324.09415	88184.33657	Up regulated
SOS2	0.01220	40556174.22851	3324589238.87363	Up regulated
AHA3		3.75194		No change
HKT1		85881219.52791		No change
SODAL	0.00332	67944790.73094	2044681572.388630	Up regulated
SOD2		23788074.50412		No change

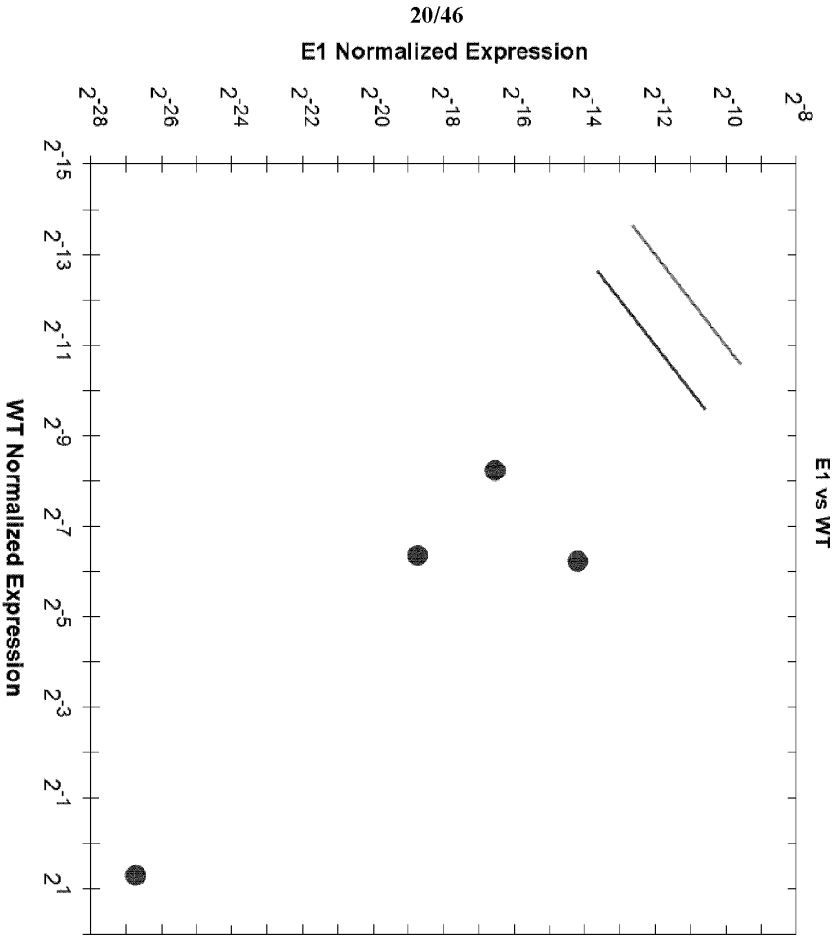
19/46

Figure 10d



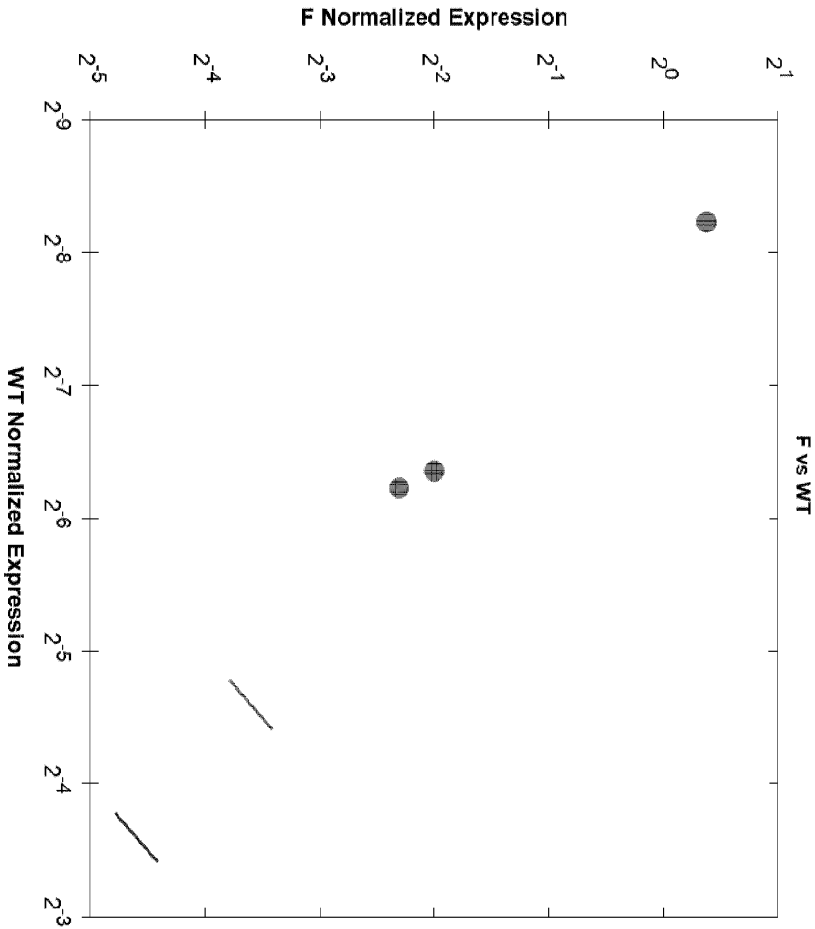
Target	WT Normalized Expression	D Normalized Expression	D Fold Change	Target Regulation
Actin				No change
NHXL	0.00015	119.64775	772846.54984	Up regulated
VHA-A	0.01333	2.03029	152.27431	Up regulated
SOS1	1.63662			No change
SOS2	0.01220	50.51718	4141.14156	Up regulated
AHA3		468694874.69948		No change
HKT1		8628.28616		No change
SODA1	0.00332	46.11149	13876.46023	Up regulated
SOD2		179275453.24972		No change

Figure 10e



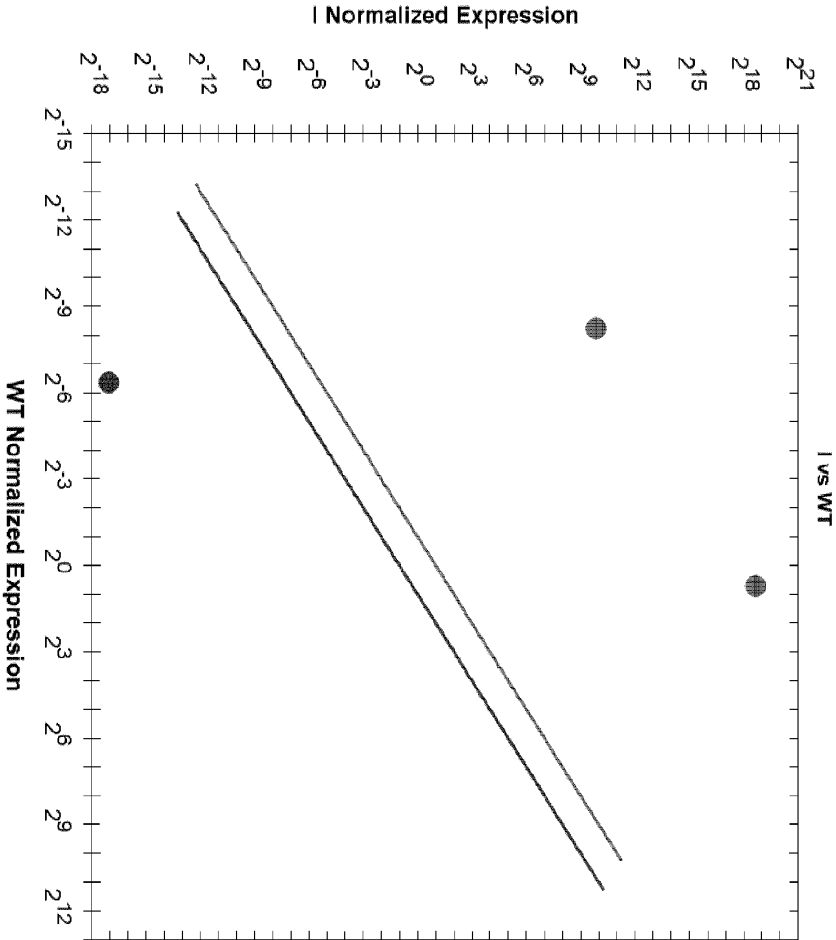
Target	WT Normalized Expression	E1 Normalized Expression	E1 Fold Change	Target Regulation
Actin	0.00015	0.00015		No change
NHX1	0.01333	0.00005	-251.14554	Down regulated
VHA-A	0.00005	0.00005		Down regulated
SOS1	1.63662	0.00000	-182102065.88002	Down regulated
SOS2	0.01220	0.00000	-5328.86384	Down regulated
AHA3	0.00225	0.00000		No change
HKT1	0.00000	0.00000		No change
SODA1	0.00332	0.00001	-317.04408	Down regulated
SOD2	658.46488	658.46488		No change

Figure 10f



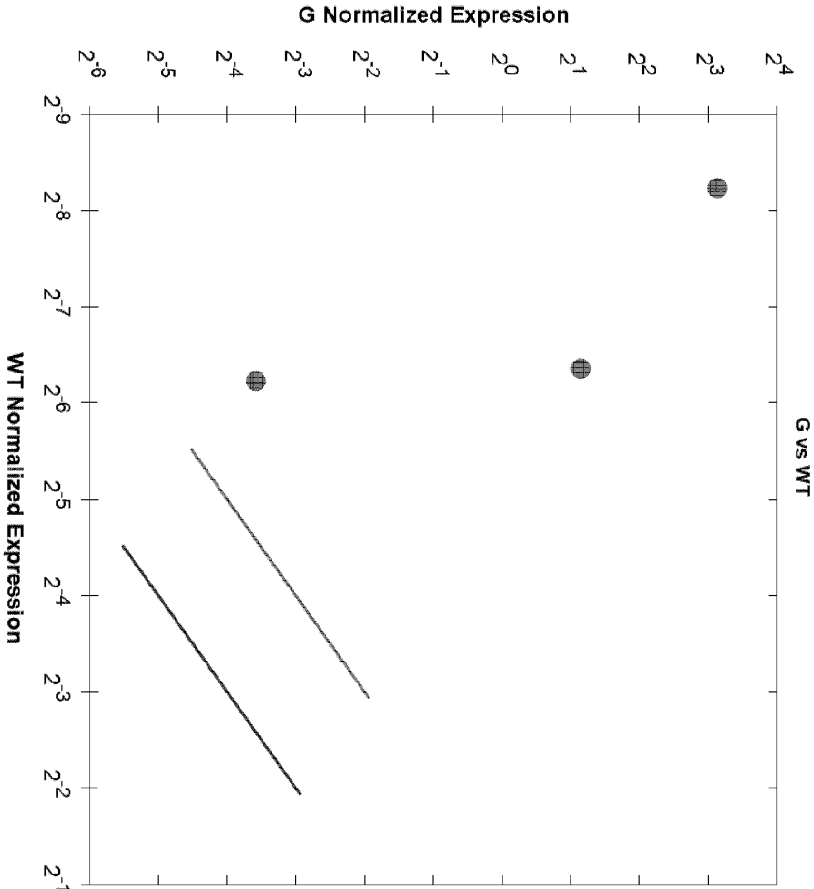
Target	WT Normalized Expression	F Normalized Expression	F Fold Change	Target Regulation
Actin				No change
NHXX1	0.00015			No change
VHA-A	0.01333	0.20291	15.21820	Up regulated
SOS1	1.63662			No change
SOS2	0.01220	0.25093	20.57004	Up regulated
AHA3		0.00082		No change
HKT1		0.01313		No change
SODA1	0.00332	1.30328	392.20063	Up regulated
SOD2		0.00080		No change

Figure 10g



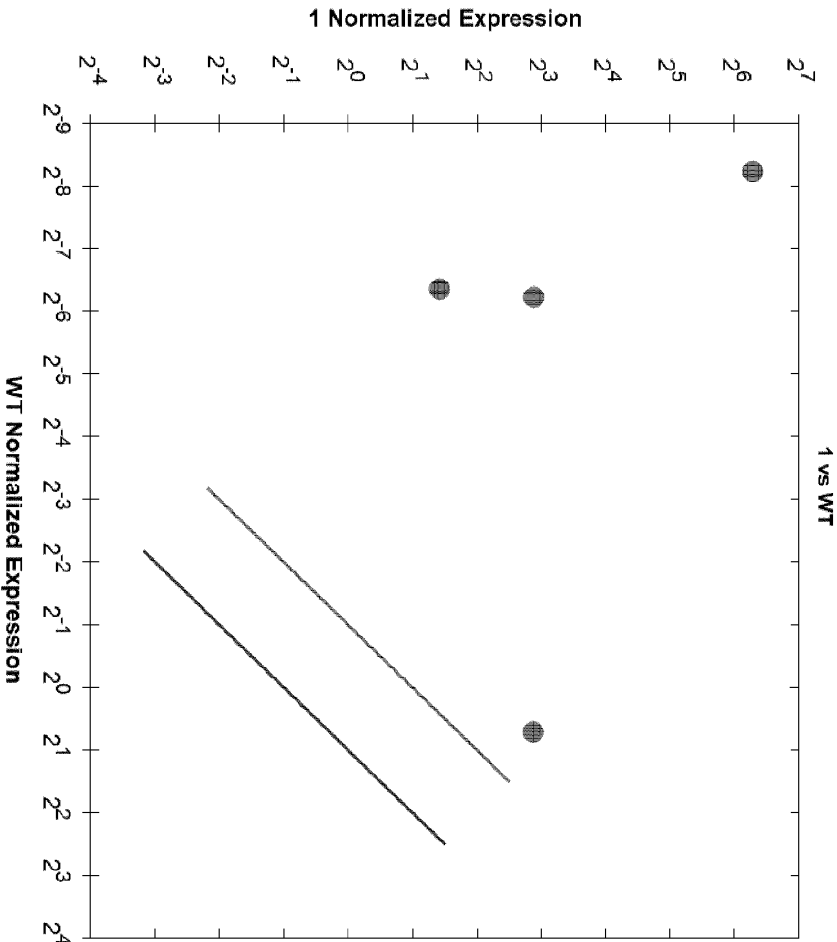
Target	WT Normalized Expression	I Normalized Expression	I Fold Change	Target Regulation
Actin				
NHXY1	0.00015			No change
VHA-A	0.01333			No change
SOS1	1.63662	414910.432	253515.92976	Up regulated
SOS2	0.01220	0.00001	-1653.02929	Down regulated
AHA3		0.00015		No change
HKT1		0.01524		No change
SODA1	0.00332	920.32705	276955.59189	Up regulated
SOD2		1257.07684		No change

Figure 10h



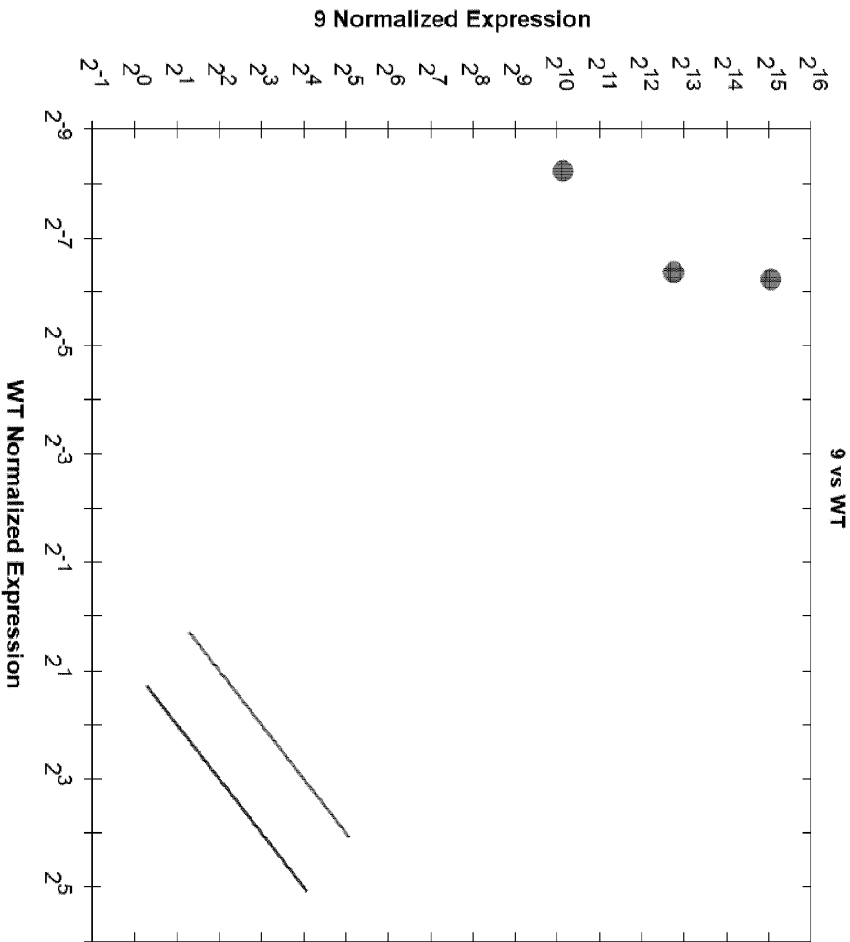
Target	WT Normalized Expression	G Normalized Expression	G Fold Change	Target Regulation
Actin				No change
NHX1	0.00015			No change
VHA-A	0.01333	0.08360	6.27009	Up regulated
SOS1	1.63662			No change
SOS2	0.01220	2.21220	181.34484	Up regulated
AHA3		0.00001		No change
HKT1		0.06534		No change
SODA1	0.00332	8.78991	2645.1734	Up regulated
SOD2		7.92869	6	No change

Figure 10i



Target	WT Normalized Expression	1 Normalized Expression	1 Fold Change	Target Regulation
Actin				No change
NHX1	0.00015			No change
VHA-A	0.01333	7.39941	554.96427	Up regulated
SOS1	1.63662	7.34997	4.49095	Up regulated
SOS2	0.01220	2.67760	219.49605	Up regulated
AHA3		0.00713		No change
HKT1		0.00308		No change
SODAL1	0.00332	77.99679	23471.79272	Up regulated
SOD2		0.04343		No change

Figure 10j



Target	WT Normalized Expression	9 Normalized Expression	9 Fold Change	Target Regulation
Actin				No change
NHX1	0.00015			No change
VHA-A	0.01333	34077.66143	2555864.95283	Up regulated
SOS1	1.63662			No change
SOS2	0.01220	6930.77542	568149.7773	Up regulated
AHA3		10.75767		No change
HKT1		151357.51015		No change
SODAL	0.00332	1125.10238	338580.20302	Up regulated
SOD2		1.74377		No change

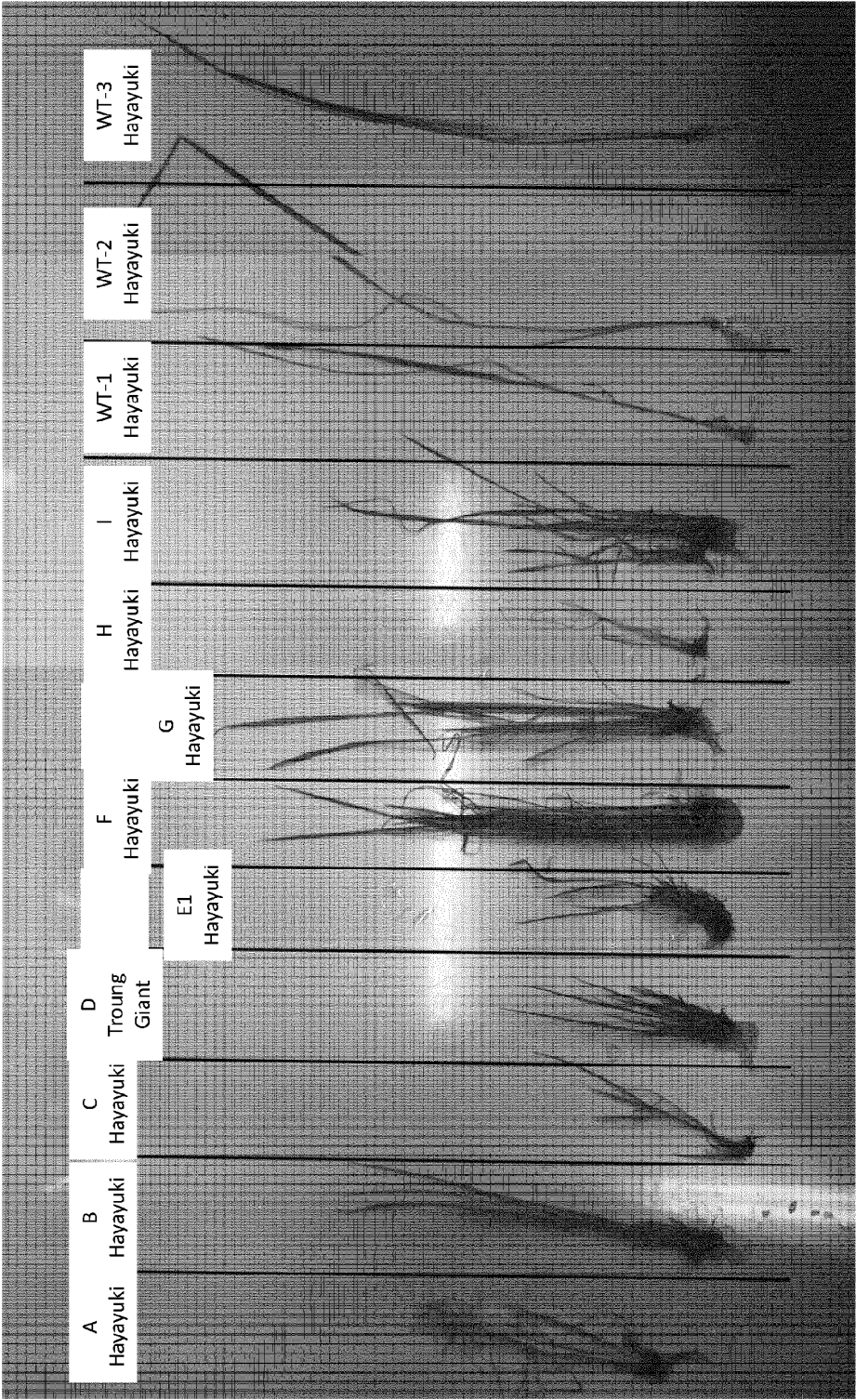


Figure 11

Figure 12a

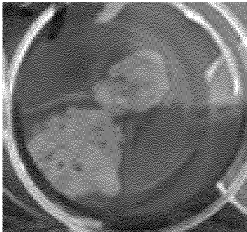
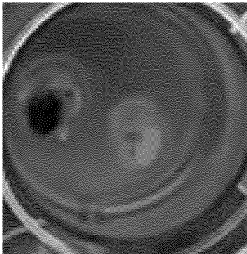
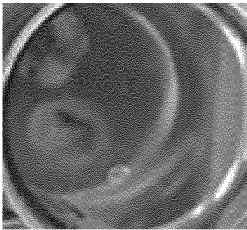
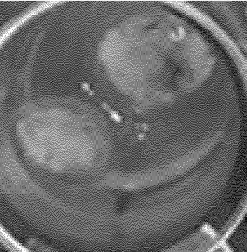
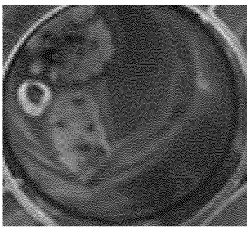
% Net Growth Change from 2g -> 15g NaCl Over a 12 Day period		
1.a5	29.5%	
1.b5	19.4%	
1.b6	24.2%	
1.c4	23.3%	
1.c5	31.4%	

Figure 12b

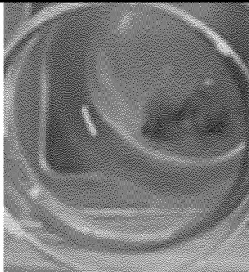
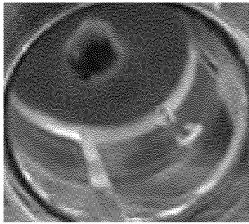
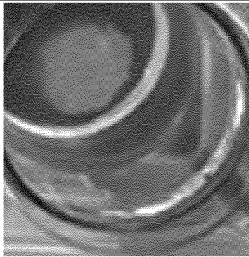
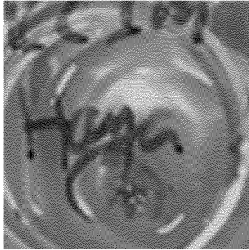
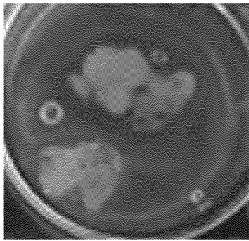
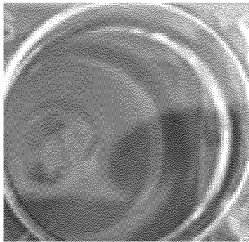
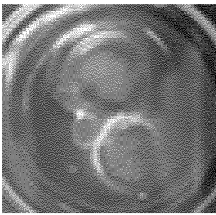
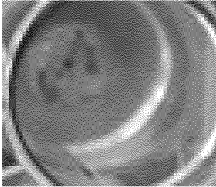
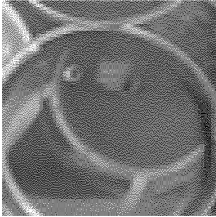
1.d1	17.3%	
1.d5	18.8%	
1.d6	0.8%	
2.a1	13.5%	
2.a4	19.0%	
2.a6	15.1%	

Figure 12c

2.b3	15.6%	
2.c6	28.8%	
2.d2	58.9%	

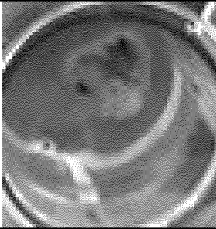
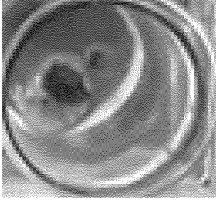
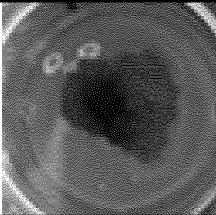
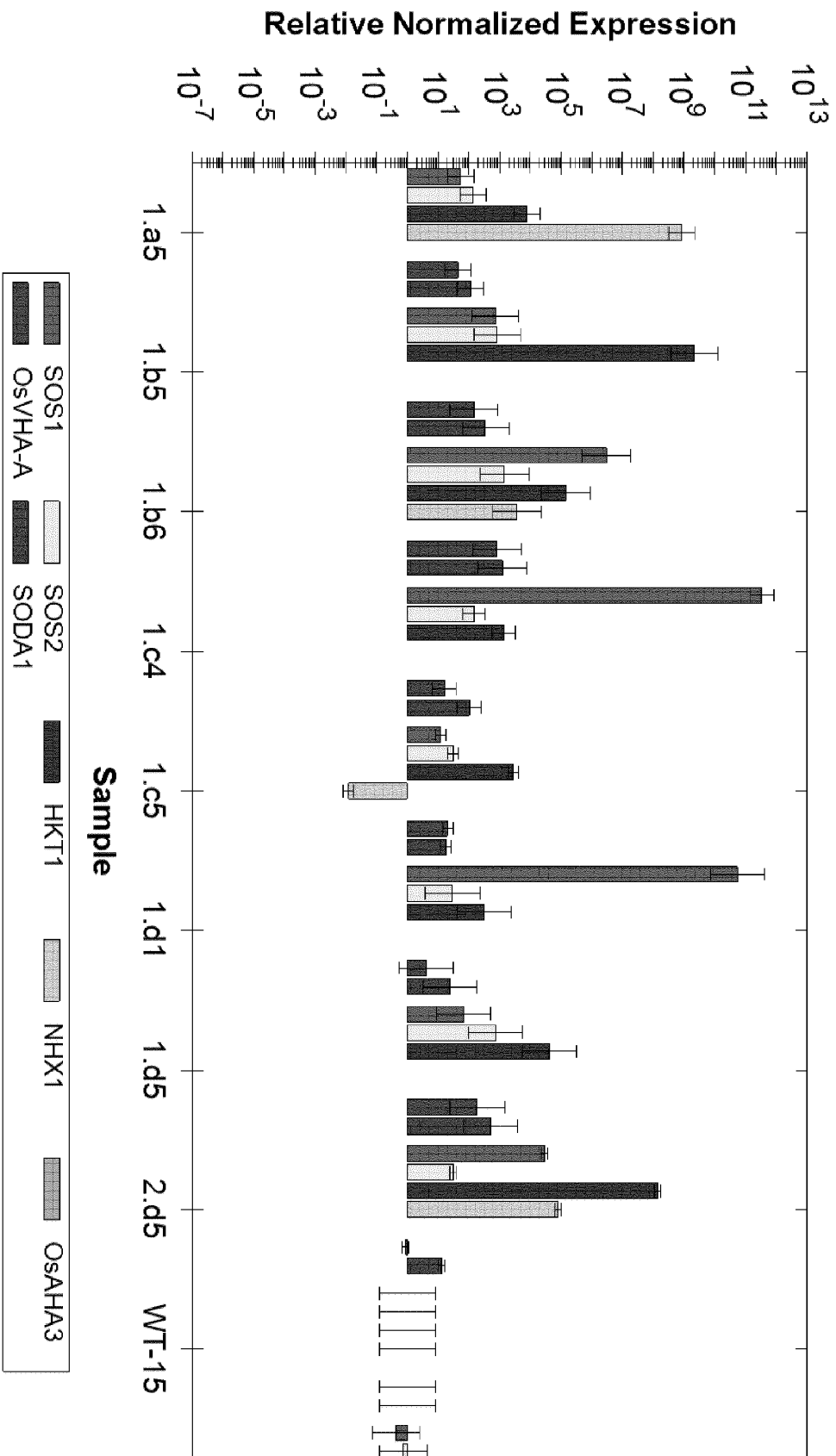
2.d5	13.8%	
2.d6	44.8%	
WT Average	-32.1%	

Figure 13



Relative Normalized Expression

Y-axis (log scale): 10^{-14} , 10^{-11} , 10^{-8} , 10^{-5} , 10^{-2} , 10^1 , 10^4 , 10^7 , 10^{10} , 10^{13}

X-axis (Time Points): WT-0, WT-2, WT-4, WT-6, WT-8, WT-10, WT-12.5, WT-15

Legend:

- HKT1 (Black)
- NHX1 (Light Gray)
- OsAHA3 (Dark Gray)
- OsVHA-A (Medium Gray)
- SODA1 (Dark Gray)
- SOS1 (Dark Gray)
- SOS2 (Light Gray)

Figure 15

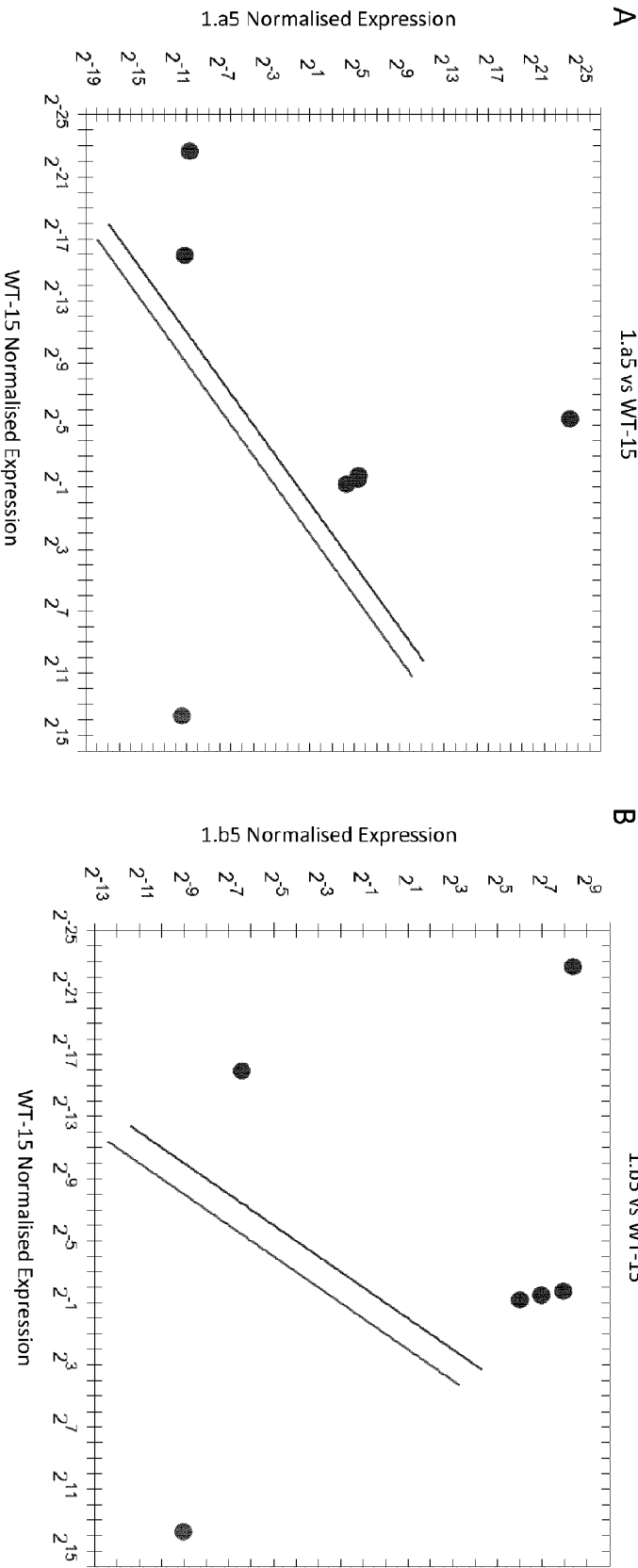
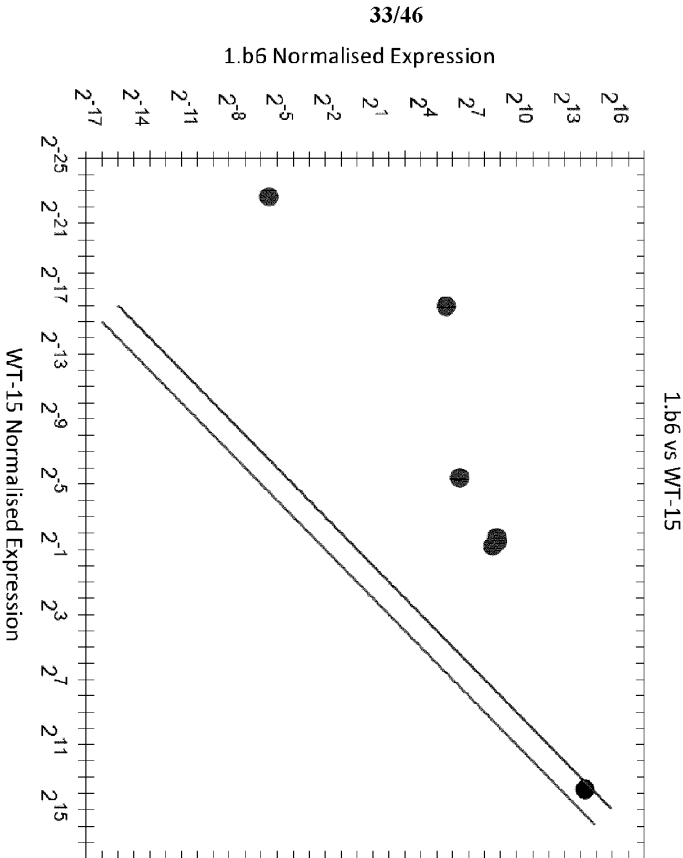


Figure 15 cont

C



D

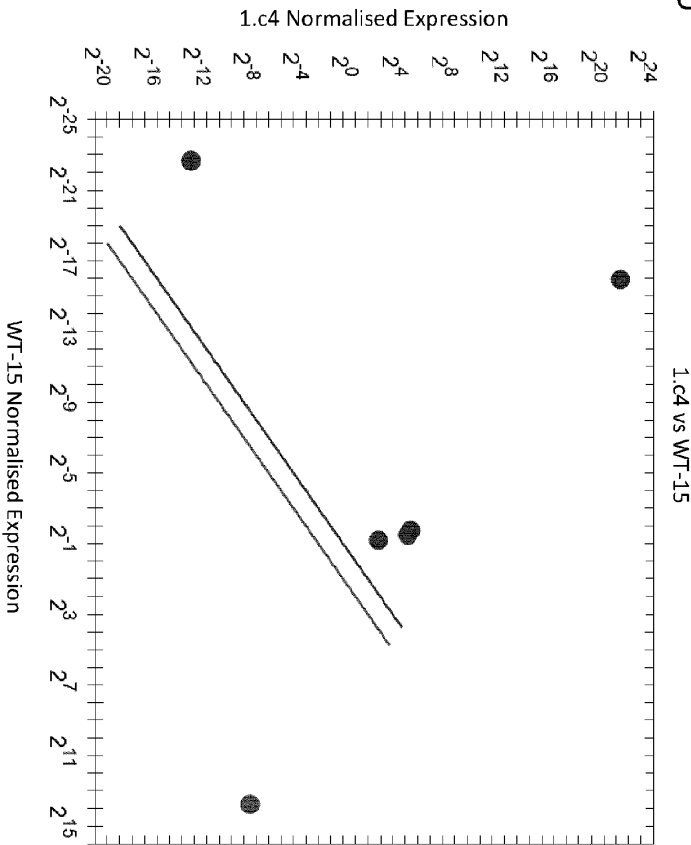


Figure 15 cont

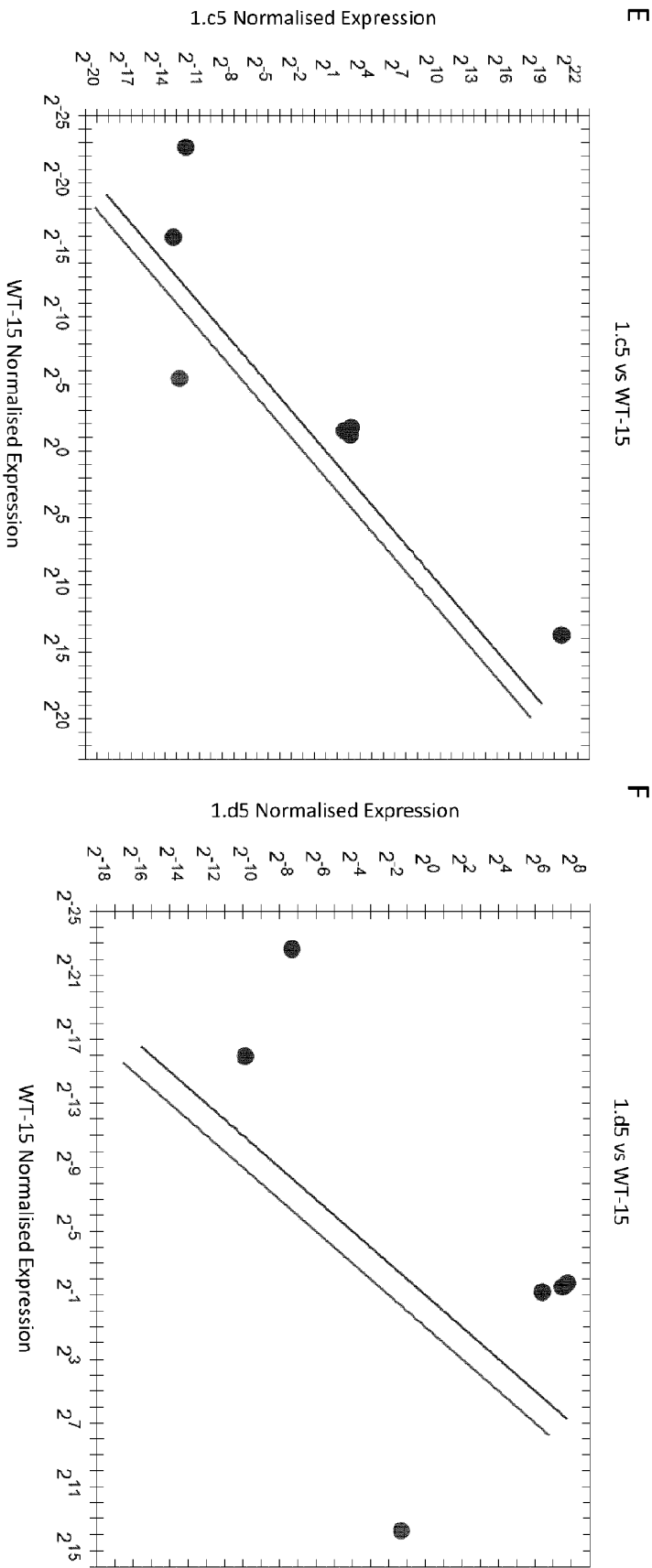


Figure 15 cont

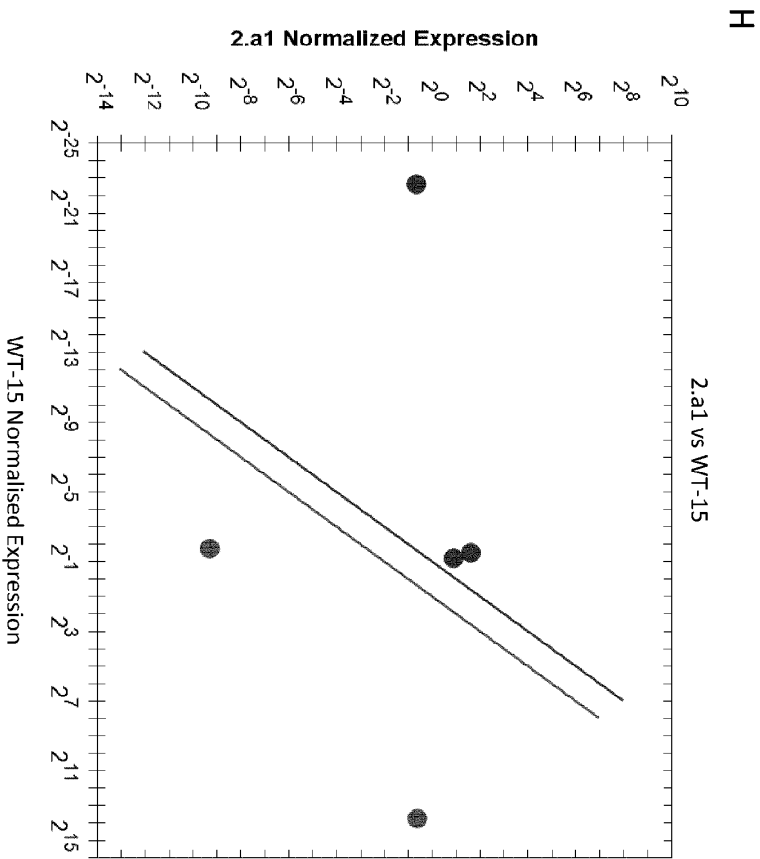
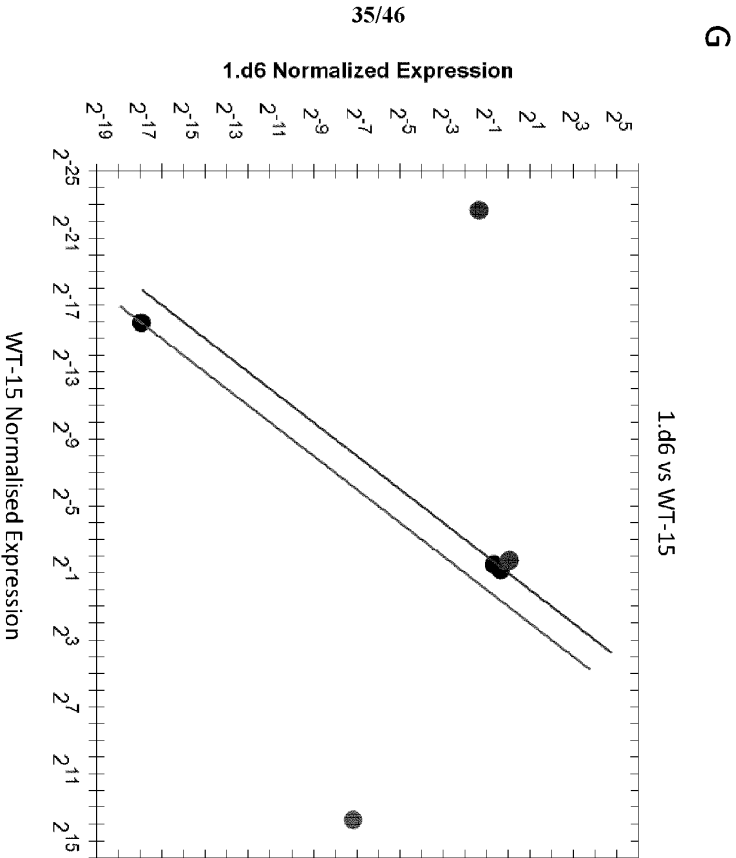


Figure 15 cont

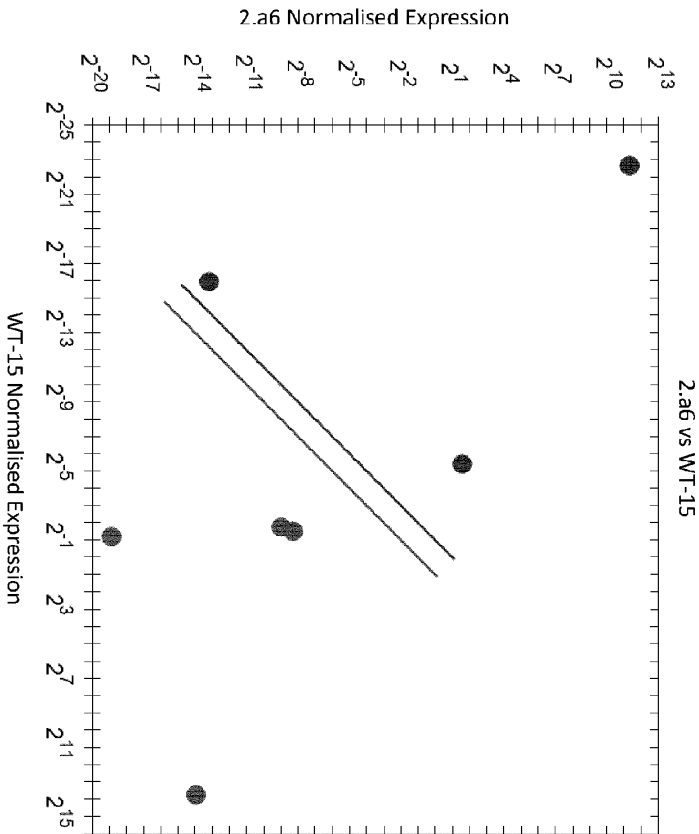
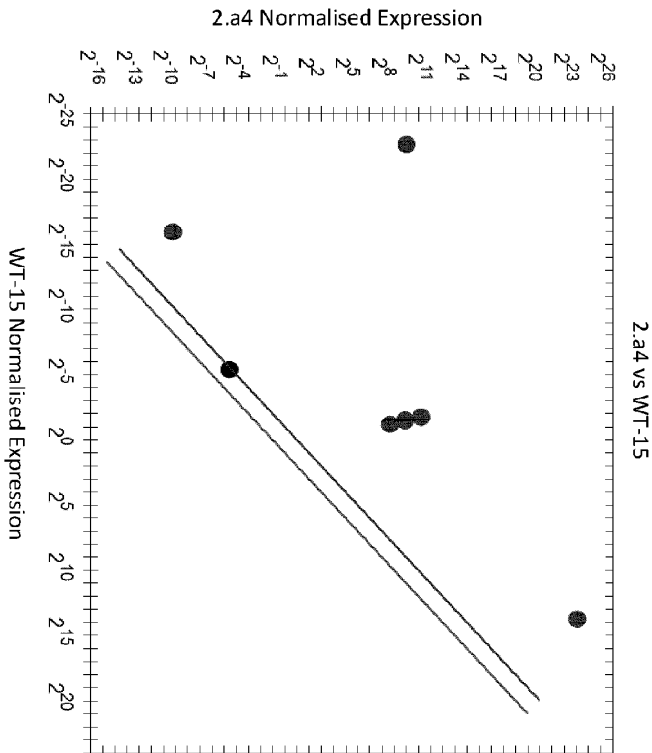
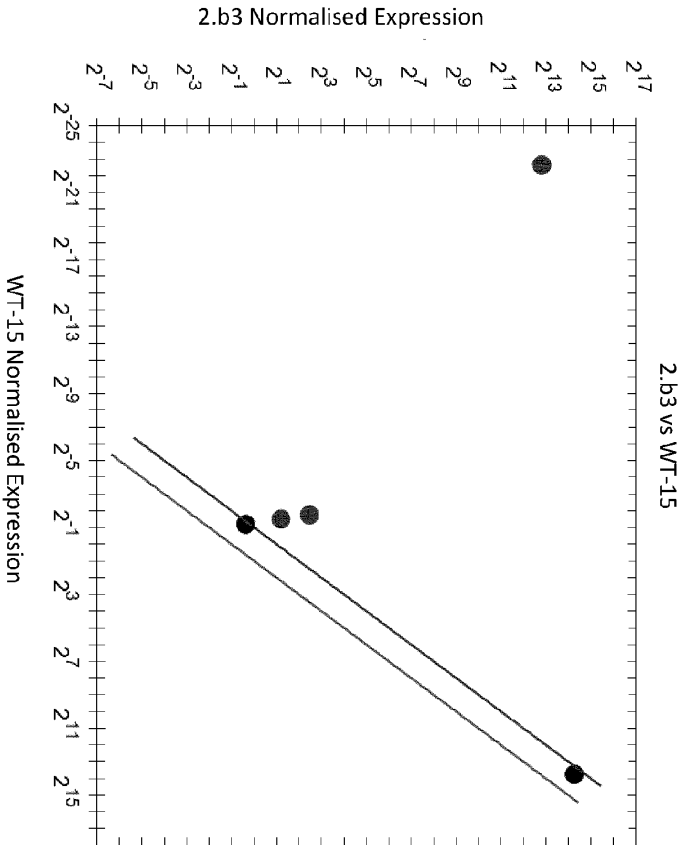


Figure 15 cont

K



L

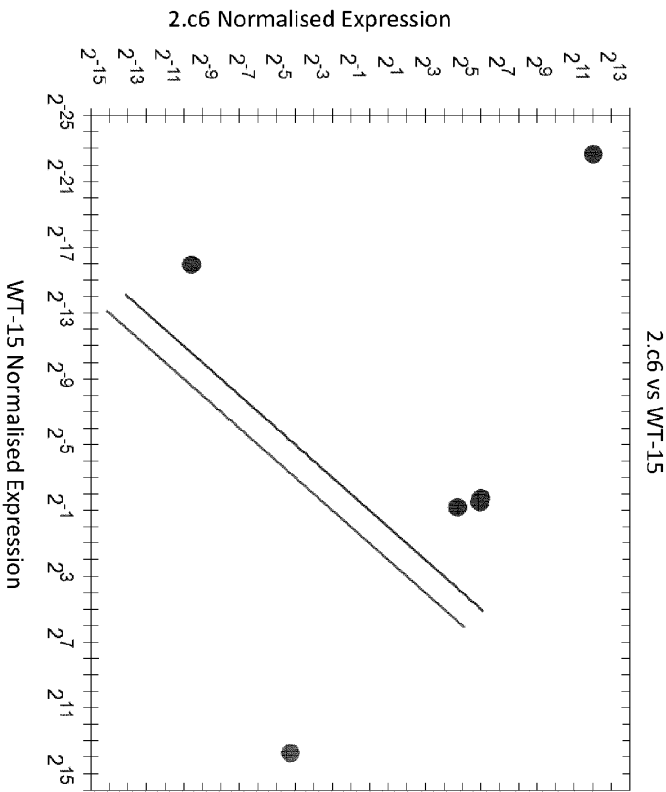
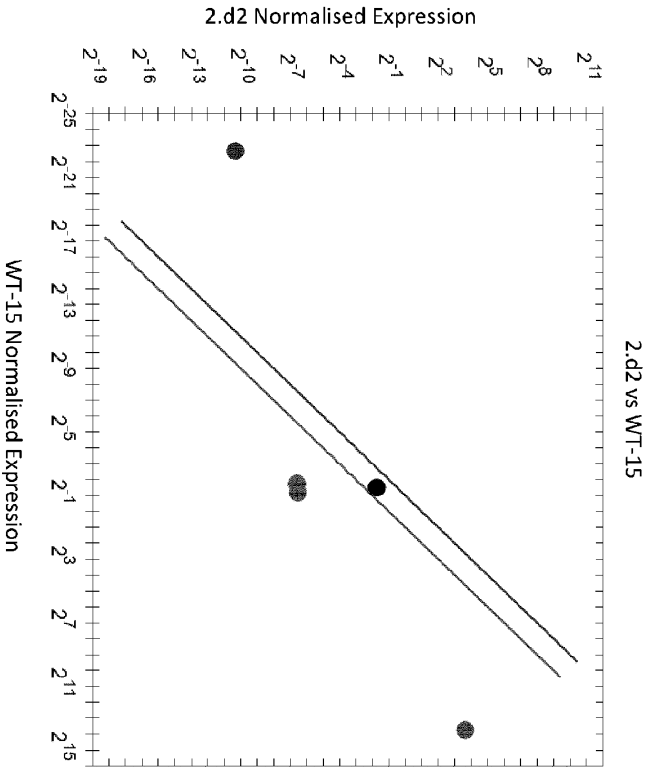


Figure 15 cont

M



N

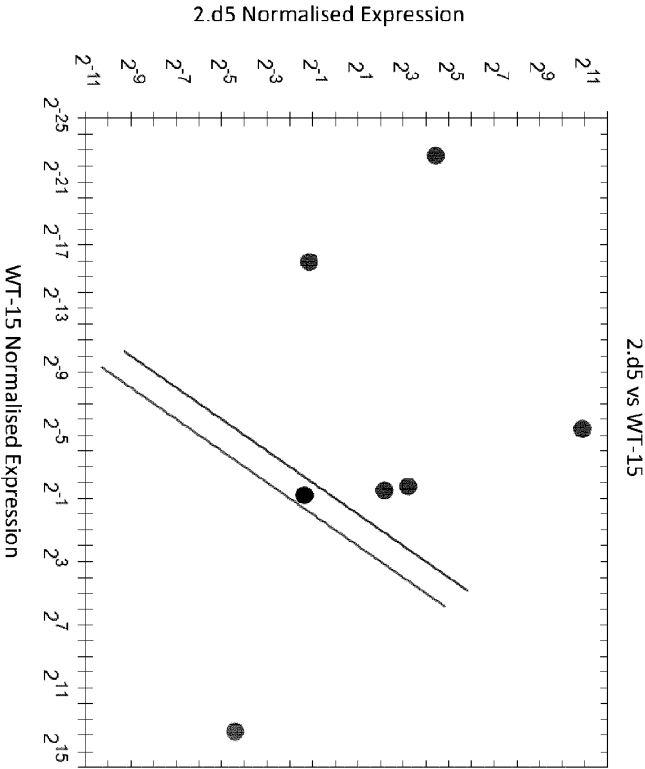


Figure 15 cont

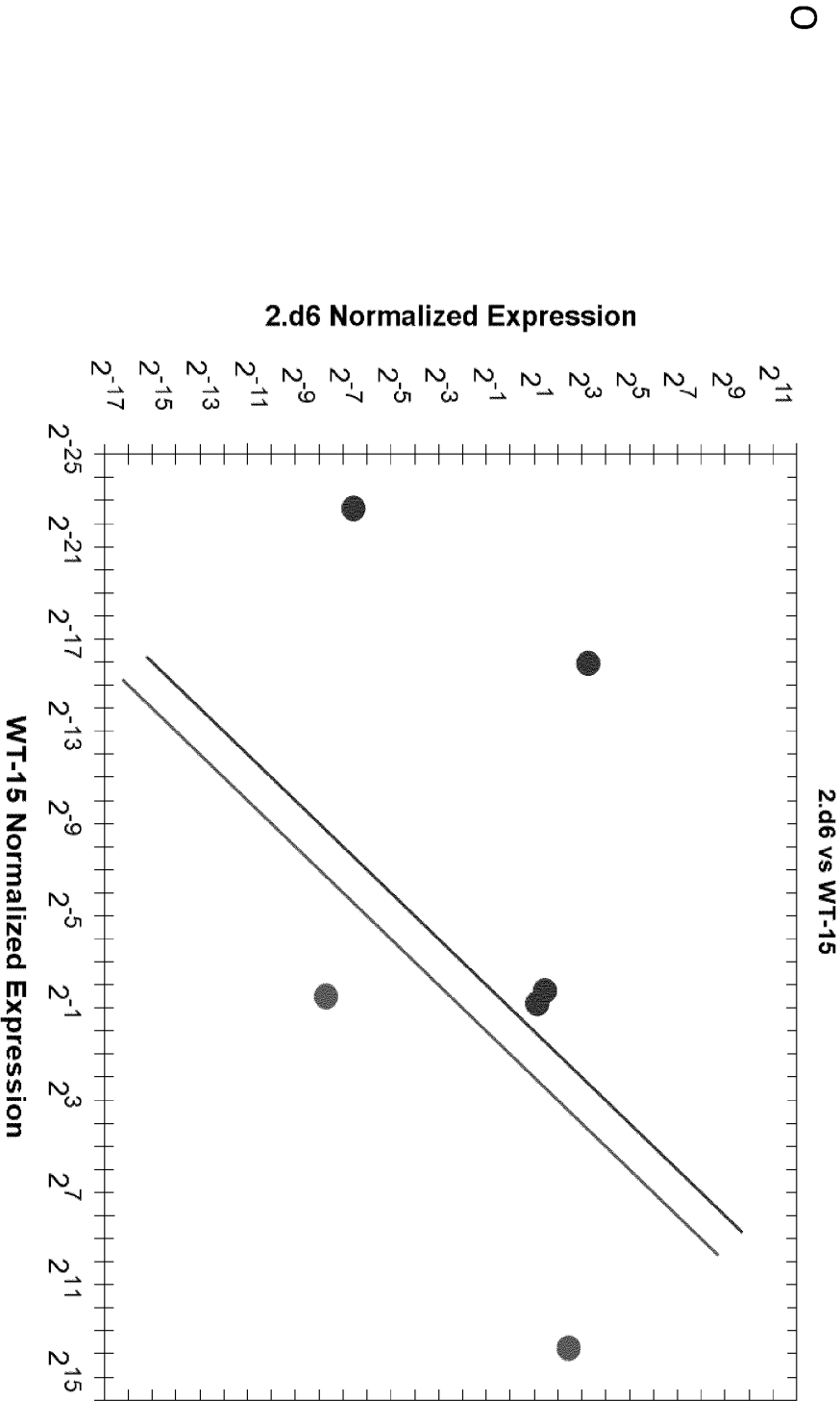




Figure 16A



Figure 16B



Figure 16C



Figure 16D



Figure 16E

Figure 17

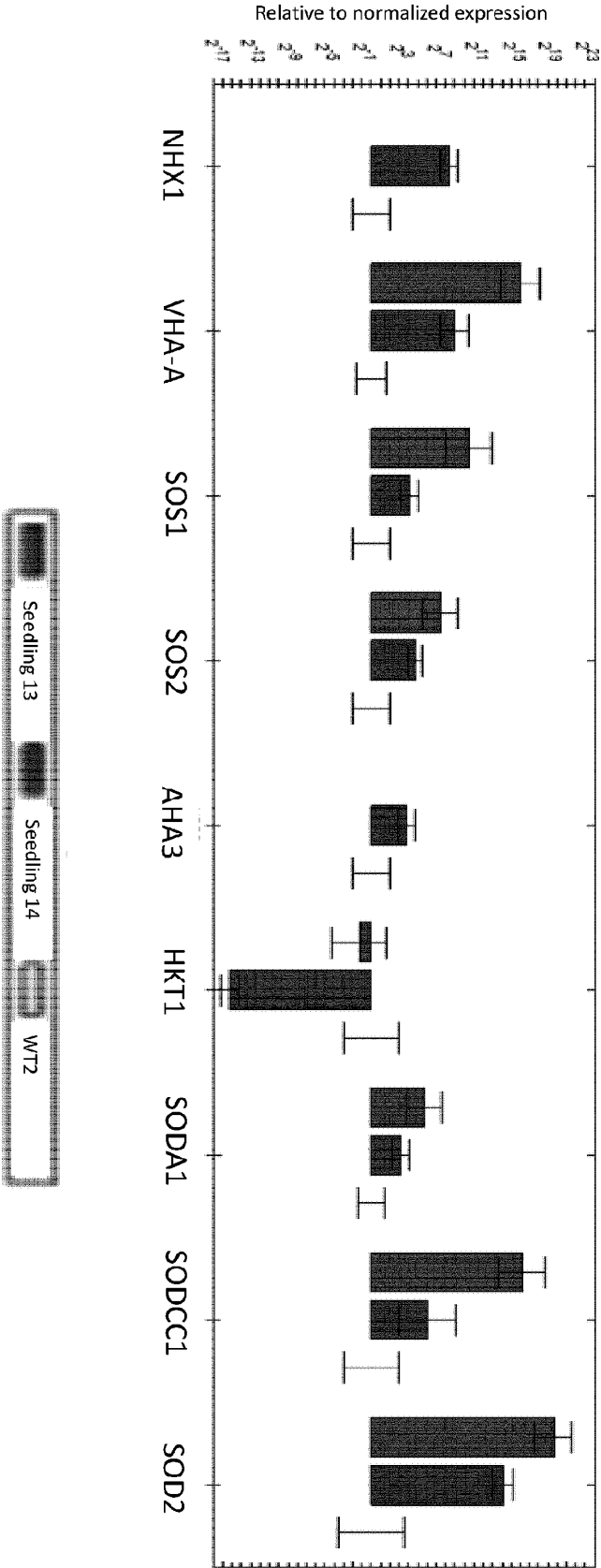


Figure 18

