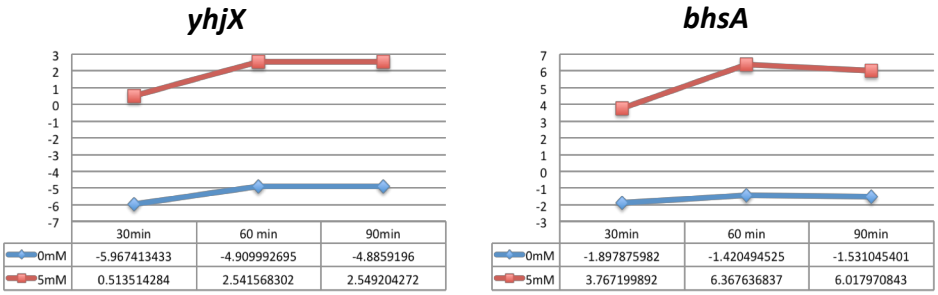

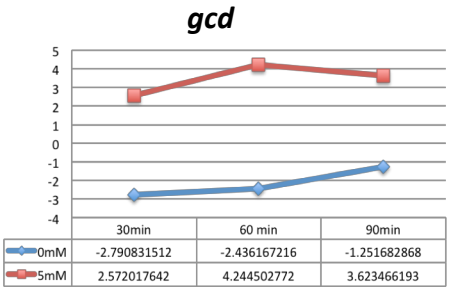

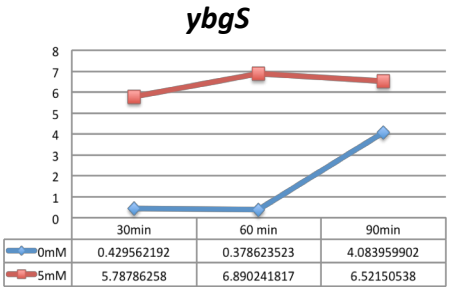

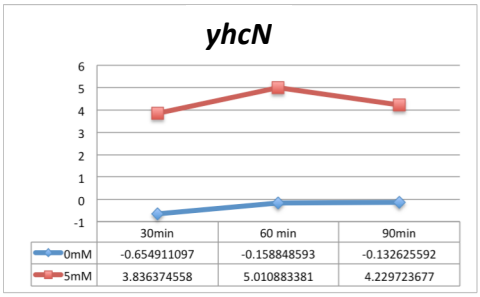

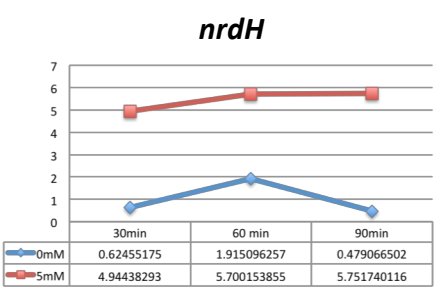

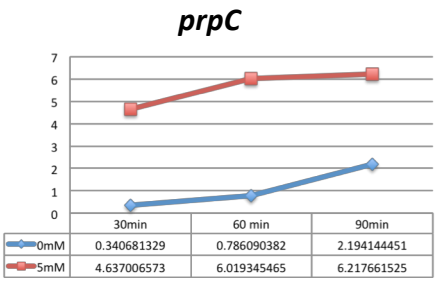

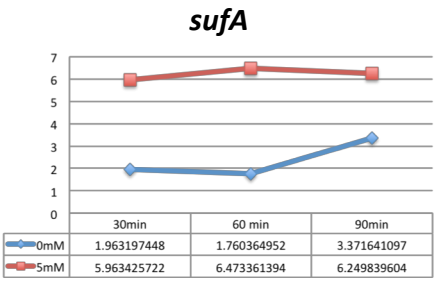

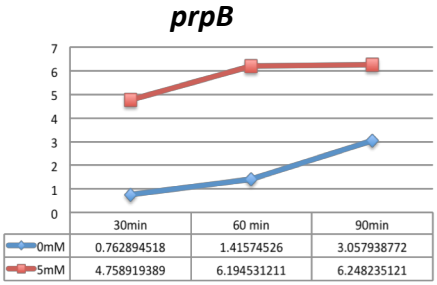

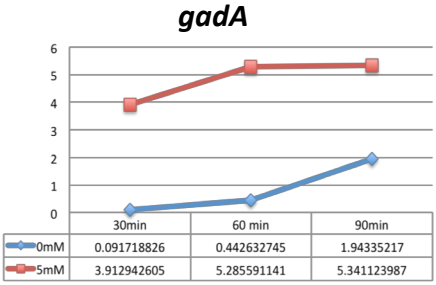

Fig. S1

RNAseq data for the top 10 AA-responsive genes showing relative expression levels over indicated times in presence (red) or absence of AA (blue).

yhjX

CGTAACAGTCACAATTGAAACCATTAAATAACAATAGTTGTGGCGATAGTGGGTG
CTAACTTACCAAATAATAAATTTGGTGAATAATTGTCGCGTCATTCATTCCTGAACT
AAGGCATTTCATTCCGTTCTGATGGCATTTCATGCCGTTTTTCCCCAGGCATAAAG
TGCACTTCGTTATGGTTGTCGGCAGAGATTTTTCCTTTTTATTACTGCAGGAATACT
GCC

bhsA

GATGCCGTTGTACCTGGTGACTGTGAATGAAAGGTTATTATAAAAATAATCACCTC
CGTTCACCAGTCCAGATCCCATAAAAATAATTGCTTTCTATTTAACTGAAATTTAAA
GATTTTTAAATTAATTAATGATTGTTATAAAAAATATCTTGTATGTGATCCAGATCAC
ATCTATCATTTAGTTATCGATCGTTAAGTAATTGCTTGCGACGTCATTCATCTGCATA
AGGCCACTATT

yhcN

TCTCTGCCCCGTCGTTTCTGACGGCGGGGAAAATGTTGCTTATCCCTCTCAACCC
CCTGCTTTCCCCTGCGATTAATTTAACGAATAGTGCGTTTTACTGCGACATGTCATT
CACACAATGAATACATAAGGTAAAAAAAGCACATTATGCAAAATTCATTATCTAATT
GAAAAAACTAGAATTAACGATAAATAACCGTATTTTTAATTCTTTTTTGTTATTAAAA
TTCACATTTTTAACACTTAGTATCAACTGAAACAGTTAGCGCGGTATTAATTAGCTC
AATAATTAGTGTATACTTGATTTTGTGATATGGGTCACGAAACAAAGGCCCAGCTA
AAAGATTATGTCGAGGTAAAAATC

prpB

AGCGCACCGCAAAGTTAAGAAACCGAATATTGGGTTTAGTCTTGTTTCATAATTGT
TGCAATGAAACGCGGTGAAACATTGCCTGAAACGTTAACTGAAACGCATATTTGC
GGATTAGTTCATGACTTTATCTCTAACAAATTGAAATTAAACATTTAATTTTATTAAG
GCAATTGTGGCACACCCCTTGCTTTGTCTTTATCAACGCAAATAACAAGTTGATAA
CAAAGGATGGGCT

***yhcN* Δ108**

CATTCACACAATGAATACATAAGGTAAAAAAAGCACATTATGCAAAATTCATTATCT
AATTGAAAAAACTAGAATTAACGATAAATAACCGTATTTTTAATTCTTTTTTGTTATTA
AAATTCACATTTTTAACACTTAGTATCAACTGAAACAGTTAGCGCGGTATTAATTAG
CTCAATAATTAGTGTATACTTGATTTTGTGATATGGGTCACGAAACAAAGGCCCAG
CTAAAAGATTATGTCGAGGTAAAAATC

Fig. S2

Nucleotide sequences of promoter elements for the indicated genes used in this study.

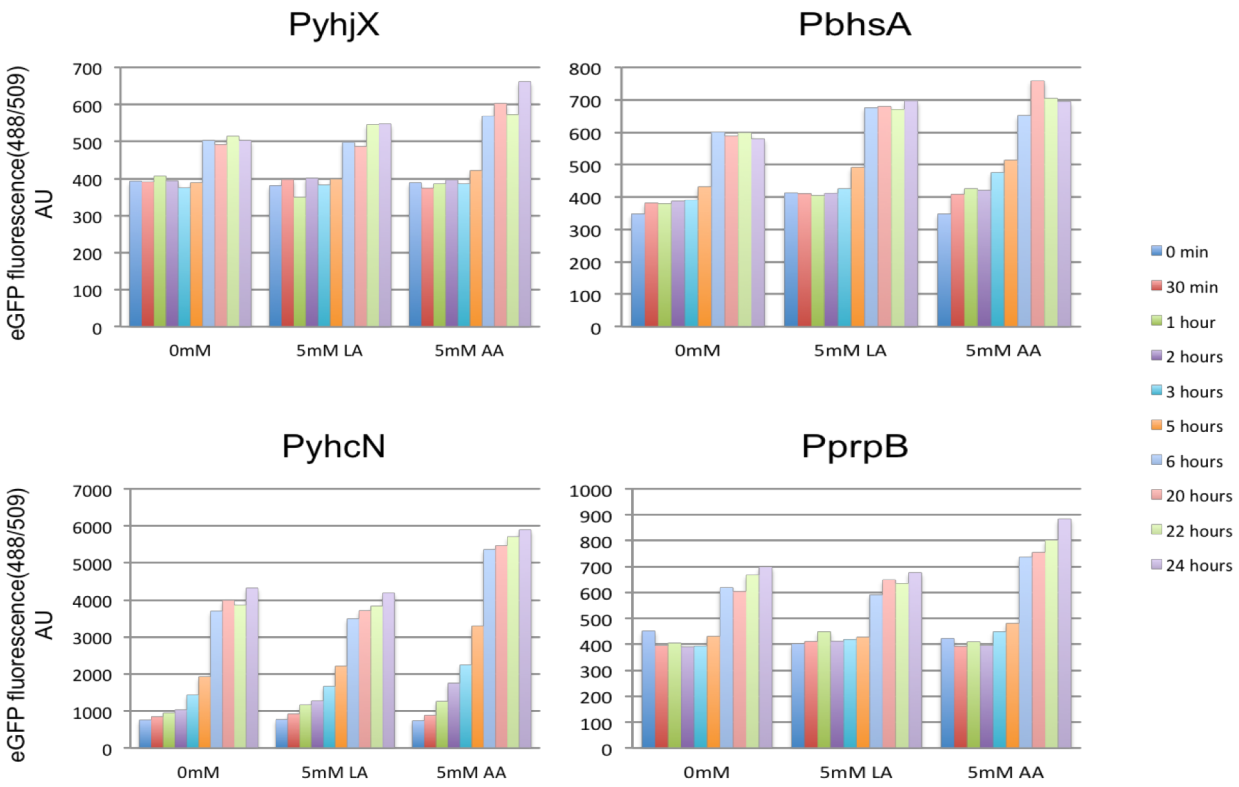

Fig. S3

Sensors (P_{yhjX}-eGFP, P_{bhsA}-eGFP, P_{yhcN}-eGFP and P_{prpB}-eGFP) expressed in *E.coli* cells treated with 5mM acrylic acid. eGFP fluorescence was observed over 24 hours.

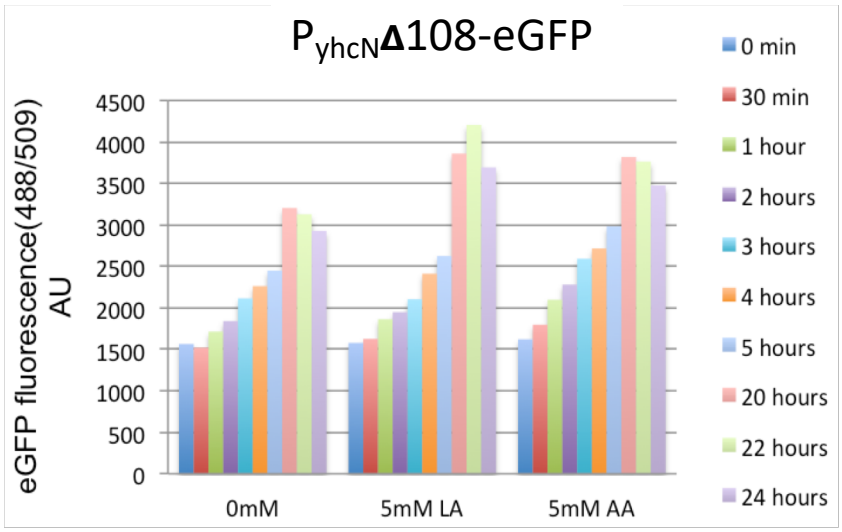

Fig. S4

The *yhcN* promoter in P_{yhcN}-eGFP was truncated by removal of 108 bases at the 5' end to generate P_{yhcN}**Δ**108-eGFP. Cells harbouring this construct were treated with 5mM acrylic acid (AA). Controls include untreated and 5mM lactic acid (LA) treated cells. eGFP fluorescence was measured over 24 hours.

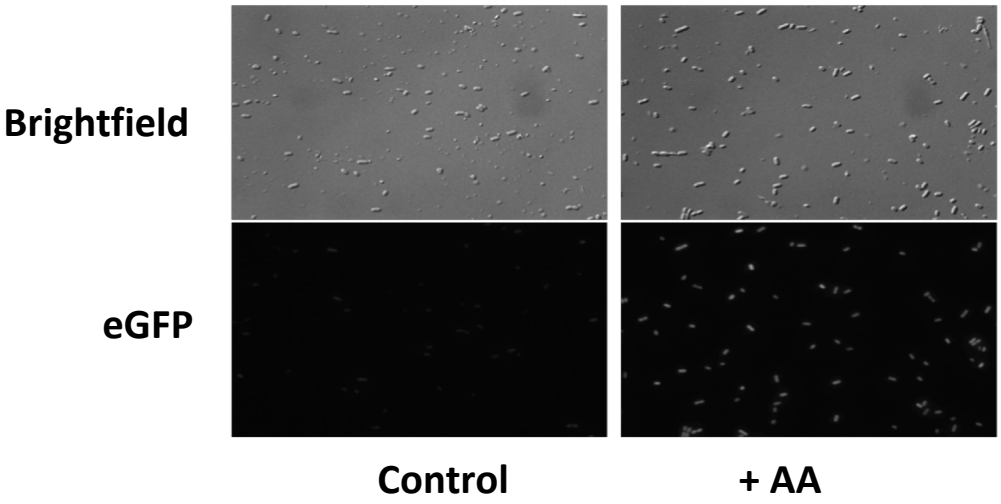

Fig. S5
E.coli cells stably integrated with the acrylic acid sensor shows eGFP fluorescence when exposed to acrylic acid (AA) (5mM) for 4 hours.

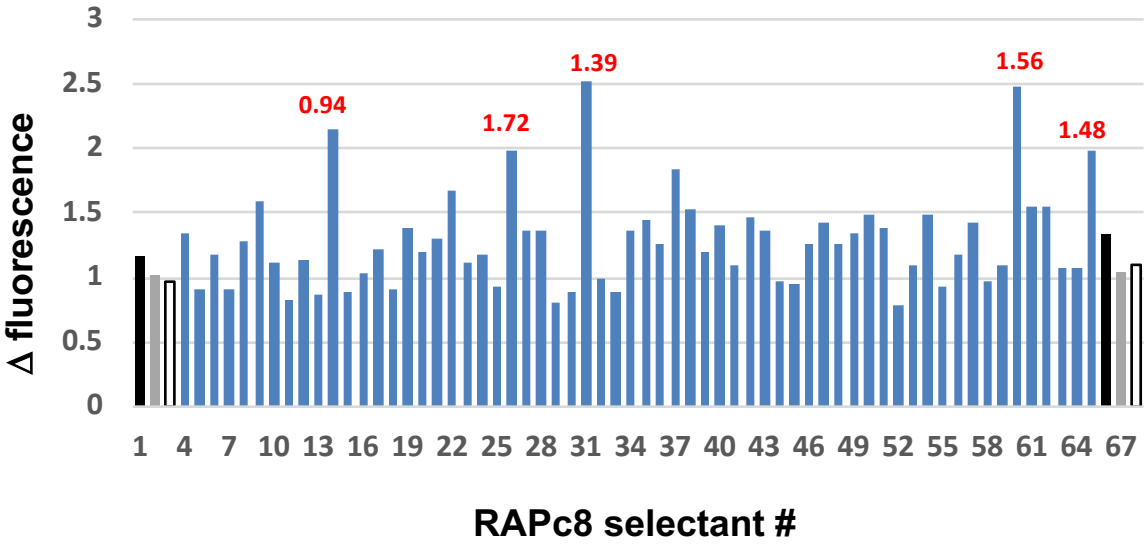

Fig. S6
Secondary assay indicating AA reporter gene activity for indicated RAPc8 selectants. Cells were treated with acrylamide (25mM) and fluorescence measured after 2 hours. Black, grey and white bars respectively indicate values for cells expressing WT RAPc8 and inactive E142D, E142L mutants. Values highlighted in red denote fold change in mean cell fluorescence over cells expressing WT enzyme determined by subsequent FACS analysis of top 5 selectants.