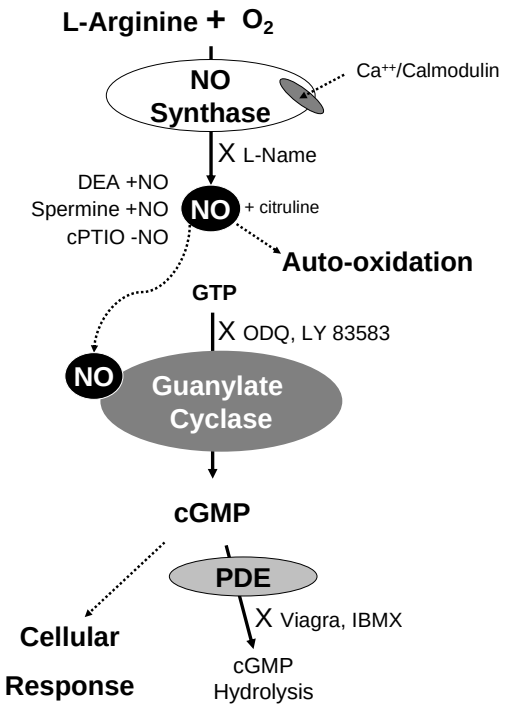
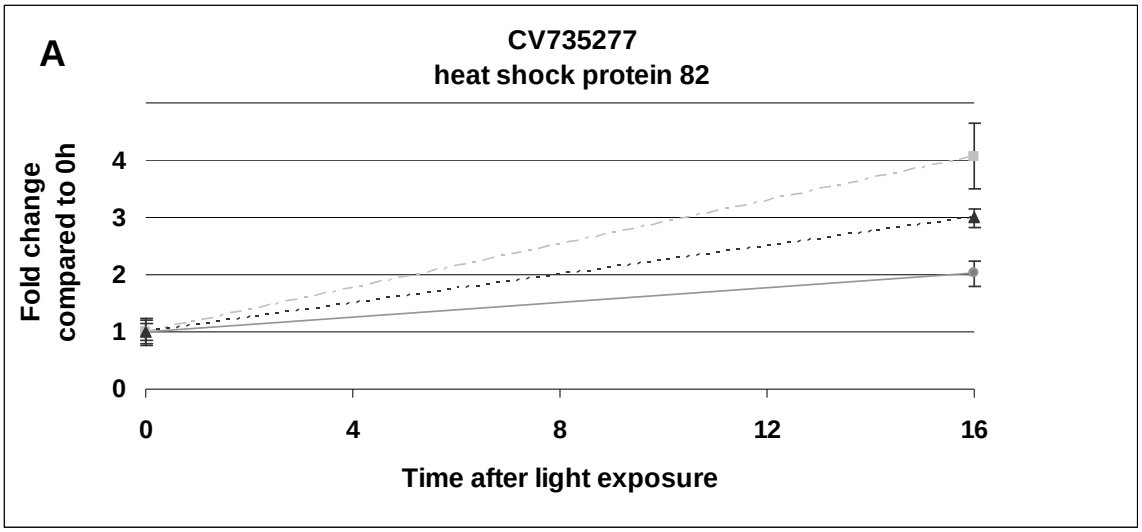
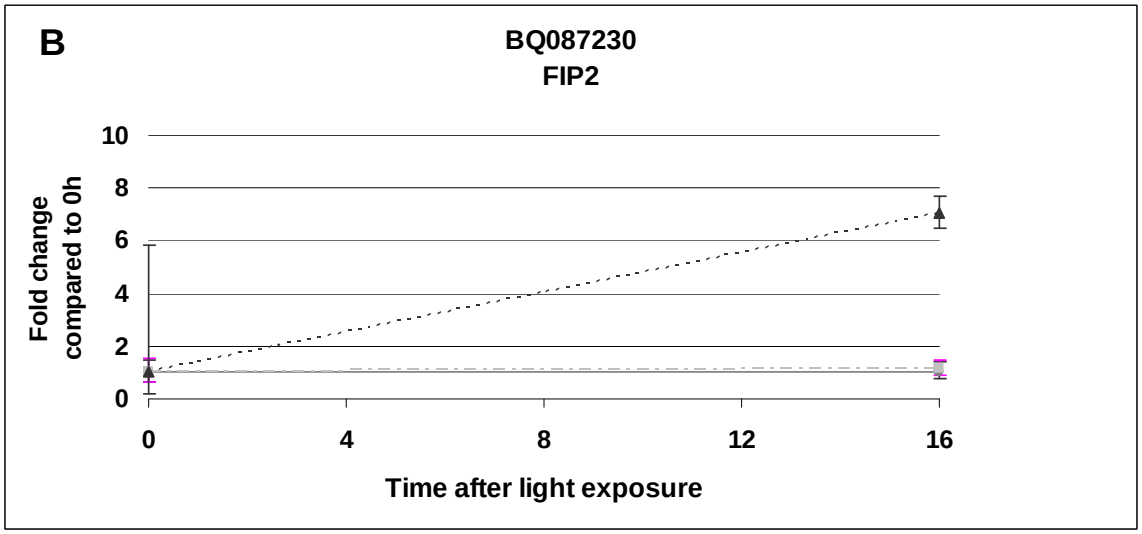
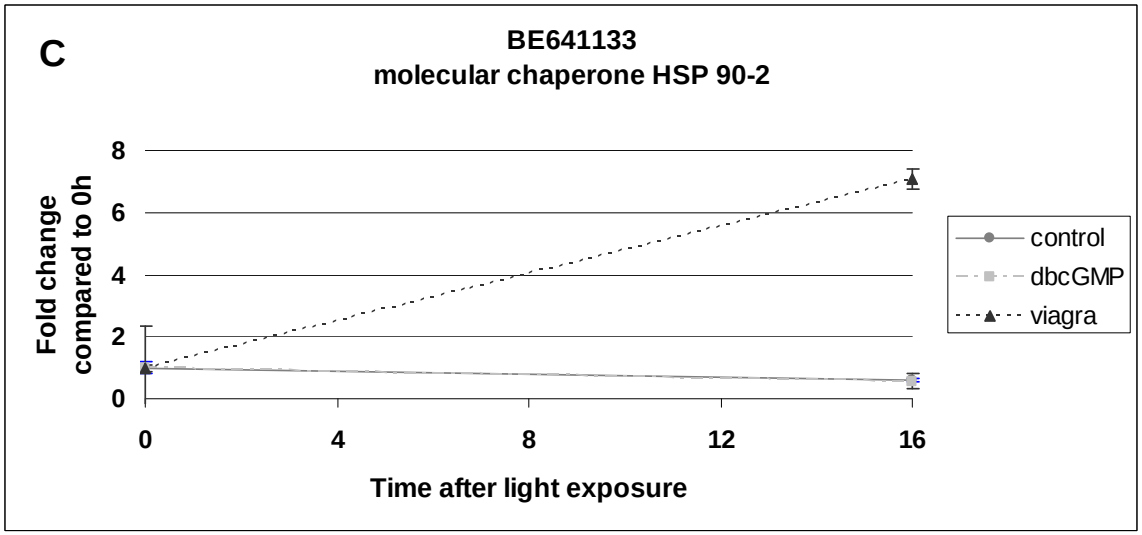


Supplemental Figure 1. The calcium dependent NO/cGMP signaling paradigm as described in animal systems. Nitric oxide synthase (NOS) is activated by the binding of the calcium/calmodulin complex and converts L-arginine and oxygen to citruline and nitric oxide (NO). The NO produced is either oxidized or nitrosylates and activates guanylate cyclase, which converts GTP into cGMP. The cGMP is either hydrolyzed by specific phosphodiesterase enzymes (PDE) or goes on to mediate cellular responses possibly through protein kinase G or through cGMP gated ion channels. This pathway is subject to pharmacological dissection using a handful of compounds. NO levels can be reduced by inhibiting NOS using L-name (analog of arginine) or by chemically scavenging NO using carboxy-PTIO. The most reproducible NO donors are the NONOates (DEA and Spermine). Guanylate cyclase activity is inhibited by ODQ and LY 83583, with ODQ being better as a selective inhibitor of the NO sensitive guanylate cyclase. Viagra (sildenafil citrate) and IBMX are both phosphodiesterase inhibitors, although Viagra™ is a much more specific inhibitor of the cGMP pathway whereas IBMX, like caffeine is more generic in affecting all cyclic nucleotide phosphodiesterases. Also not shown is dibutryl cGMP which is a cell permeable cGMP analog.


A
CV735277
heat shock protein 82
Fold change compared to 0h
0
1
2
3
4
0
4
8
12
16
Time after light exposure


B
BQ087230
FIP2
Fold change compared to 0h
0
2
4
6
8
10
0
4
8
12
16
Time after light exposure


C
BE641133
molecular chaperone HSP 90-2
Fold change compared to 0h
0
2
4
6
8
0
4
8
12
16
Time after light exposure
control
dbcGMP
viagra

Supplemental Figure 2. Quantitative Real-Time RT-PCR analysis of expression changes induced by 50 µM Viagra® treatment and 100 µM dibutyryl cGMP treatment. *C. richardii* TUGs are identified by accession number as well as the name of the *Arabidopsis* gene with highest sequence similarity. Alpha-tubulin was used as control, steady state comparison for all genes analyzed. X axis represents hours after initial light exposure, with 0 h as the time of initial light exposure. Solid lines indicate expression of the gene of interest in untreated spores. Dashed lines indicate expression of the gene of interest in spores treated with 50 µM Viagra® and 100 µM dibutyryl cGMP, added to the spore growth media at 0 h. Expression at 0 h is set as 1X and 16 h of that treatment is normalized relative to 0 h. Data is normalized within a treatment or control, comparisons should not be made between treatment and control. A minimum of three biological replicas is included for each time-point control and treatment samples. Error bars represent 95% credible interval of expression levels.

Real-time RT PCR primers

Target	Labeled forward primer	Unlabeled reverse primer
BQ087230	CGTGTATTCGCCAGCCTCCTTACA[FAM]G	TCTATCACAGAAGGGAAGCCATTT
CV735277	CGCTTATTGCGAAGTTACGCTCAAG[FAM]G	TCGACTTAGCAGCAGCGACAC
BE641133	CGCCATGAAGTAGACGATTGTAGTTGG[FAM]G	TTAATCTCCGCCTGAAATGCAA
BQ086953	CACTTTACTGGTGGTGATCTGGCTAAAG[JOE]G	ACACCTCGCAACACTTGTGGA

Supplemental Table 1