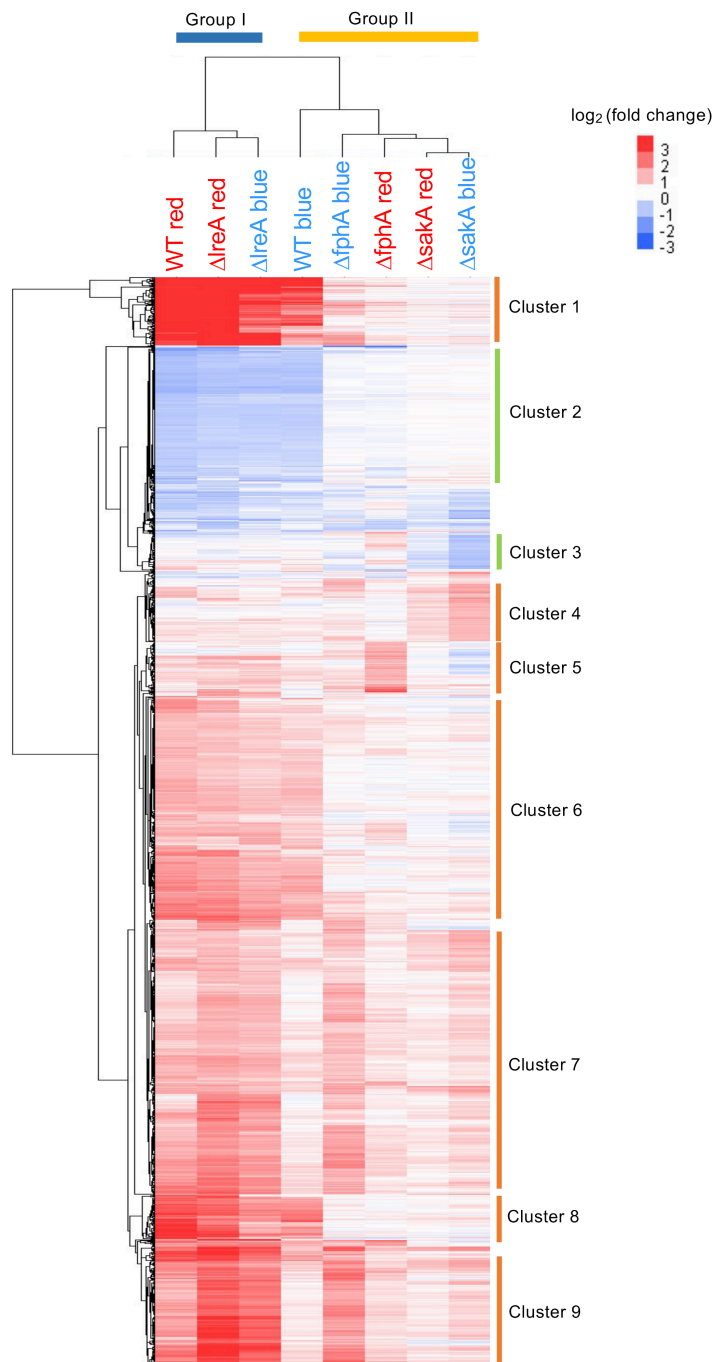


## Supporting information



**Fig. S4: Heatmap of all DEGs identified in all strains in red and blue light in all strains.** The colors of heatmap represent log<sub>2</sub>(fold change) of DEGs. Color scale,  $-3 \leq \log_2(\text{fold change}) \leq 3$ . In cluster 1, 2, 6 and 8, most of the genes are up- or downregulated in wild type (WT) and the  $\Delta lreA$ -deletion strain upon red and blue light did not respond to light anymore in the  $\Delta fphA$ - and the  $\Delta sakA$ -deletion strains. Most of the genes in cluster 3 and 4 are differentially expressed in the  $\Delta sakA$ -deletion strain upon red light and especially upon blue light exposure. Cluster 5 is a gene set of DEGs in the  $\Delta fphA$ -strain upon red light. In cluster 7 and 9, most of the genes could not be induced by blue light in wild type but were upregulated in the  $\Delta fphA$ -deletion strain upon red light. Far-red light responsive genes were not included, because we did not analyze them in the mutants.