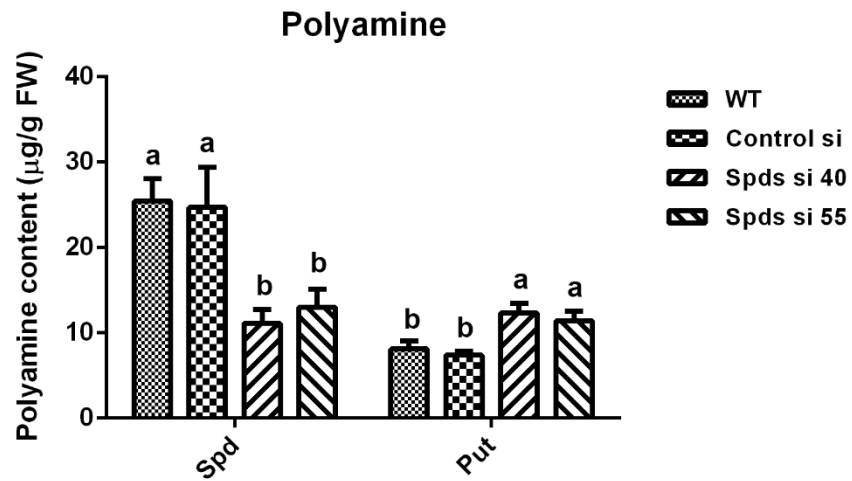
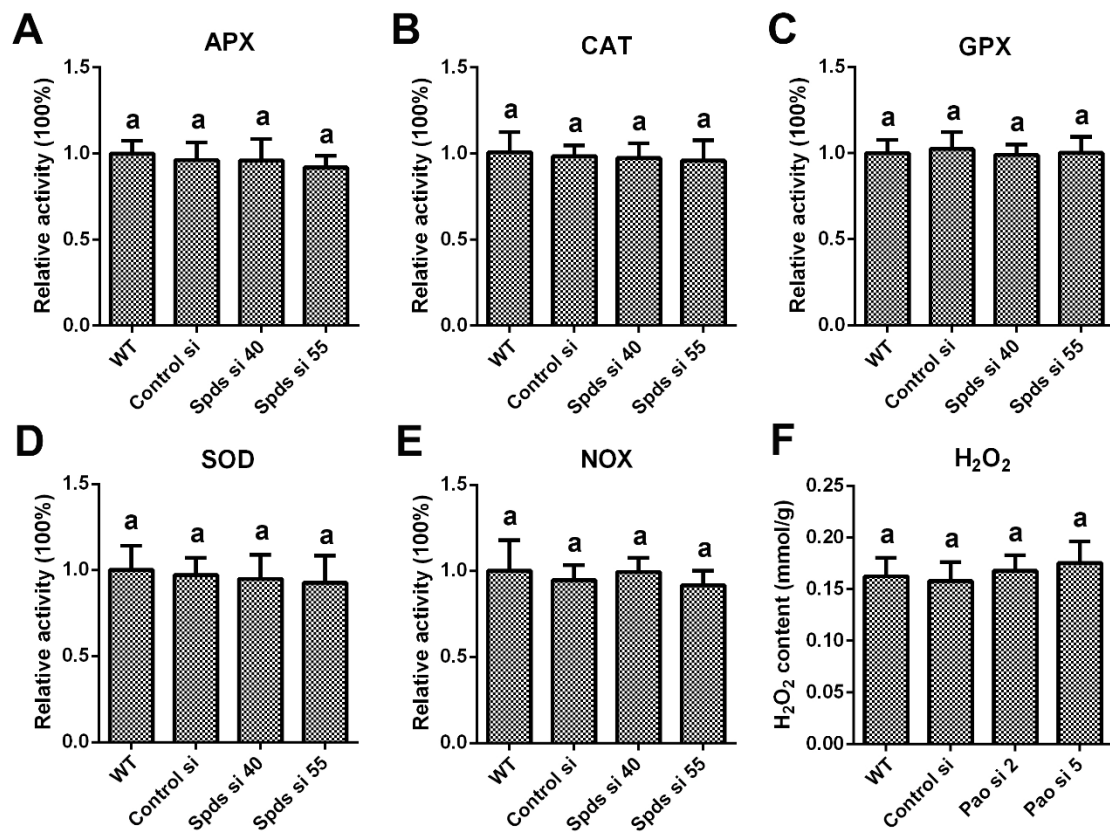


Fig.S1



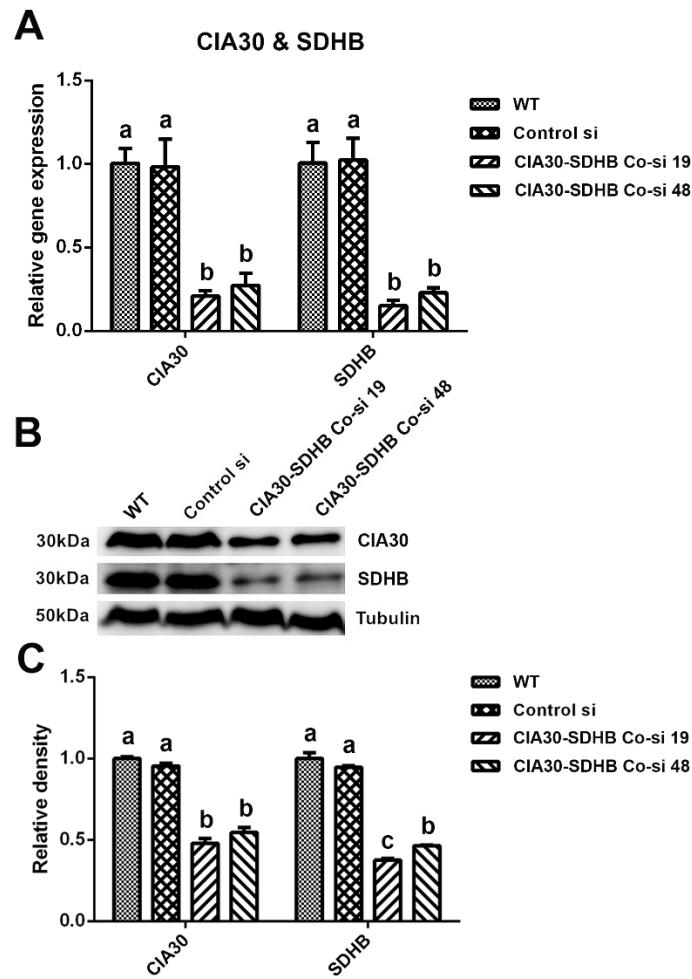
**Fig. S1** Decrease of spermidine (Spd) and accumulation of putrescine (Put) after the *spds* knockdown. Spermidine and putrescine content in WT, Control si, two *spds* knockdown strains from five-day-old plate mycelia. The values presented are the mean  $\pm$  standard deviation (SD) of data from three independent experiments. Different letters indicate significant differences between the lines ( $P < 0.05$ , according to Duncan's multiple range test).

Fig.S2



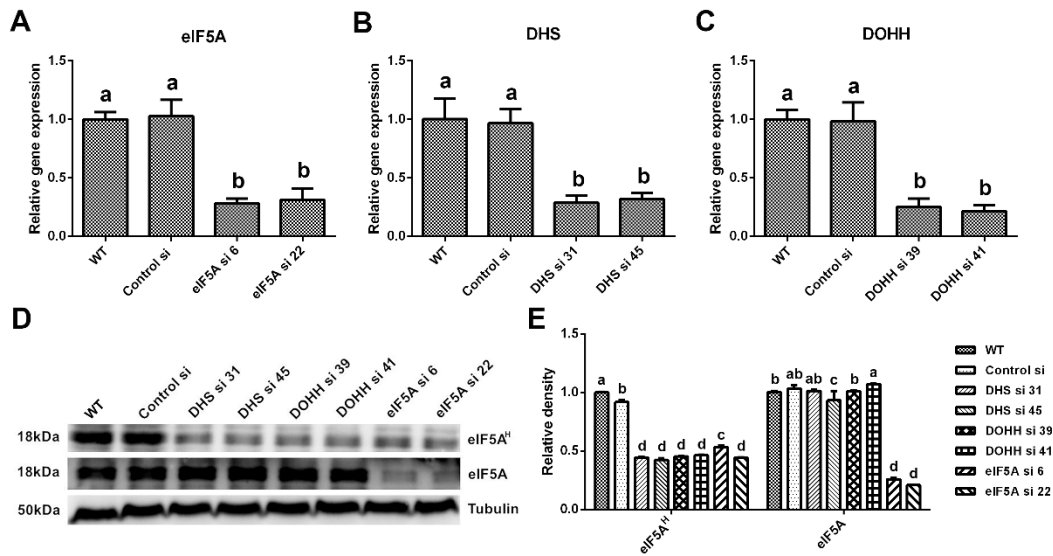
**Fig. S2** Relative enzymatic activity and H<sub>2</sub>O<sub>2</sub> content. **A-E.** Relative activity of four major antioxidant enzymes (ascorbate peroxidase (APX), catalase (CAT), glutathione peroxidase (GPX) and superoxide dismutase (SOD)) and NADPH oxidase (NOX) in WT, Control si and two *spds* knockdown strains from five-day-old plate mycelia. **F.** H<sub>2</sub>O<sub>2</sub> content in WT, Control si and two polyamine oxidase gene (*pao*) knockdown strains from five-day-old plate mycelia. The values presented are the mean  $\pm$  standard deviation (SD) of data from three independent experiments. Different letters indicate significant differences between the lines (P<0.05, according to Duncan's multiple range test).

Fig.S3



**Fig. S3** Construction of co-knockdown of mitochondrial complex I and II. **A.** Gene expression level of complex I assembly factor NDUFAF1 (CIA30) gene and complex II succinate dehydrogenase subunit b (SDHB) gene in WT, Control si and two complex I and II co-knockdown strains from five-day-old plate mycelia. **B.** Proteins content of CIA30 and SDHB detected by Western blotting in WT, Control si and two complex I and II co-knockdown mutants from five-day-old plate mycelia. **C.** Relative density of B. The values presented are the mean  $\pm$  standard deviation (SD) of data from three independent experiments. Different letters indicate significant differences between the lines ( $P < 0.05$ , according to Duncan's multiple range test).

Fig.S4



**Fig. S4** Screening out greatest efficiency gene knockdown strains. **A.** Expression level of the *eIF5A* gene in *eIF5A* knockdown strains from five-day-old plate mycelia. **B.** Expression level of the *dhs* gene in *dhs* knockdown strains. **C.** Expression level of the *dohh* gene in *dohh* knockdown strains. **D.** *eIF5A* protein content and *eIF5A* hypusination level detected by Western blotting in WT, Control si and *eIF5A/dhs/dohh* knockdown strains from five-day-old plate mycelia. **E.** Relative density of D. The values presented are the mean  $\pm$  standard deviation (SD) of data from three independent experiments. Different letters indicate significant differences between the lines ( $P < 0.05$ , according to Duncan's multiple range test).