

Table S3 Cellular functions of differentially regulated genes in Δ nox1 protoperithecia compared to wild type protoperithecia

Direction of regulation	<i>S. macrospora</i> locus tag	Gene designation	Cellular function of the corresponding protein in several organisms	
Genes involved in cytoskeleton remodeling and hyphal fusion				
Upregulated	SMAC_00609	<i>ham-10</i>	Hyphal fusion ^a	
	SMAC_00958	<i>profilin</i>	Profilin binds actin monomers ^b	
	SMAC_02216	<i>cdc42</i>	Regulation of septin ^c , STE20 ^d , NoxA localization ^e , leads to actin assembly and polarized growth in response to pheromones ^f	
	SMAC_02227	<i>crn-1</i>	Establishment of polarity, growth and stable Spitzenkörper ^g	
	SMAC_02633	<i>rts-1</i>	Bud growth, accumulation of G1 cyclin ^h	
	SMAC_04679	<i>rdi1</i>	Recycling of CDC42 ⁱ	
	SMAC_05207	<i>las17</i>	Stabilization of actin patches (endocytosis) ^b	
	SMAC_07118	<i>dynactin 6</i>	Active transport along the microtubules ^j	
	SMAC_04212	<i>kinesin</i>	Active transport along the microtubules ^j	
	SMAC_06372	<i>kinesin</i>	Active transport along the microtubules ^j	
	SMAC_07150	<i>kinesin</i>	Active transport along the microtubules ^j	
	SMAC_07711	<i>kinesin</i>	Active transport along the microtubules ^j	
	Downregulated	SMAC_01612	<i>rax1</i>	Bipolar budding of diploid cells ^k
		SMAC_02720	<i>rsr1/bud1</i>	Localization ^l and regulation ^m CDC42
SMAC_02963		<i>cbk1</i>	Septum disruption after cell division ⁿ	
SMAC_05949		<i>bem3</i>	GAP of CDC42 ^o	
SMAC_09273		<i>cofilin</i>	De-polymerization of actin filaments ^p	
Genes involved in ubiquitin mediated protein degradation or autophagy				
Upregulated	SMAC_01774	<i>ubiquitin-activating E1 1</i>	Ubiquitin binding ^q	
	SMAC_03099	<i>ubiquitin-conjugating E</i>	Ubiquitin binding ^q	
	SMAC_05013	<i>ubiquitin-conjugating E2 13</i>	Ubiquitin binding ^q	
	SMAC_05407	<i>apc5</i>	Protein degradation ^r	
	SMAC_05726	<i>pex4</i>	Ubiquitin binding ^q	
	SMAC_06684	<i>cul-4</i>	Protein degradation ^r	
	SMAC_06747	<i>ubiquitin-protein ligase gene</i>	Ubiquitin binding ^q	
Downregulated	SMAC_06998	<i>atg12</i>	Autophagosome formation ^s	
Genes involved in sexual development				
Upregulated	SMAC_00047	<i>fl</i>	Transcription factor ^t	
	SMAC_02283	<i>pre-1</i>	Pheromone receptor ^u	
	SMAC_05401	<i>SmtA-1</i>	Mating type factor ^v	

	SMAC_05403	<i>SmtA-3</i>	Mating type factor ^v
Downregulated	SMAC_06479	<i>ste12</i>	Ascospore germination ^w
Genes involved in mitochondrial respiratory chain			
Upregulated	SMAC_01349	<i>nuo9.5</i>	Subunit of complex I (mitochondrial respiration) ^x
	SMAC_02450	<i>nuo78</i>	Subunit of complex I (mitochondrial respiration) ^x
	SMAC_04043	<i>nuo11.5</i>	Subunit of complex I (mitochondrial respiration) ^x
	SMAC_04093	<i>cytochrome-c oxidase chain VIIc</i>	Cytochrome c oxidase of complex III (mitochondrial respiration) ^y
	SMAC_05824	<i>nuo49</i>	Subunit of complex I (mitochondrial respiration) ^x
	SMAC_07036	<i>nuo10.4</i>	Subunit of complex I (mitochondrial respiration) ^x
	SMAC_07180	<i>nuo21</i>	Subunit of complex I (mitochondrial respiration) ^x
	SMAC_08634	<i>nuo14</i>	Subunit of complex I (mitochondrial respiration) ^x
Downregulated	SMAC_12686	<i>ATP synthase subunit 6</i>	Mitochondrial ATPase ^z
	SMAC_12688	<i>ATP synthase subunit 9</i>	Mitochondrial ATPase ^z

^a(Fu *et al.* 2011); ^b(Berepiki *et al.* 2011); ^c(Dagdas *et al.* 2012); ^d(Chen and Thorner 2007); ^e(Semighini and Harris 2008); ^f(Jones and Bennett 2011); ^g(Echauri-Espinosa *et al.* 2012); ^h(Artiles *et al.* 2009); ⁱ(Das *et al.* 2013); ^j(Rank and Rayment 2013); ^k(Krappmann *et al.* 2007); ^l(Pulver *et al.* 2013); ^m(Park *et al.* 1997); ⁿ(Brace *et al.* 2011); ^o(Knaus *et al.* 2007); ^p(Berepiki and Read 2013); ^q(Strieter and Korasick 2012); ^r(van der Veen and Ploegh 2012); ^s(Iino and Noji 2013); ^t(Bailey and Ebbole 1998); ^u(Mayrhofer *et al.* 2006); ^v(Klix *et al.* 2010); ^w(Nolting and Pöggeler 2006); ^x(Tanida 2011); ^y(Duarte and Videira 2000); ^z(Mavridou *et al.* 2013)