

Figure S1: Protein structure of the CgEna1/2/3/4 with its homologs in other fungi;

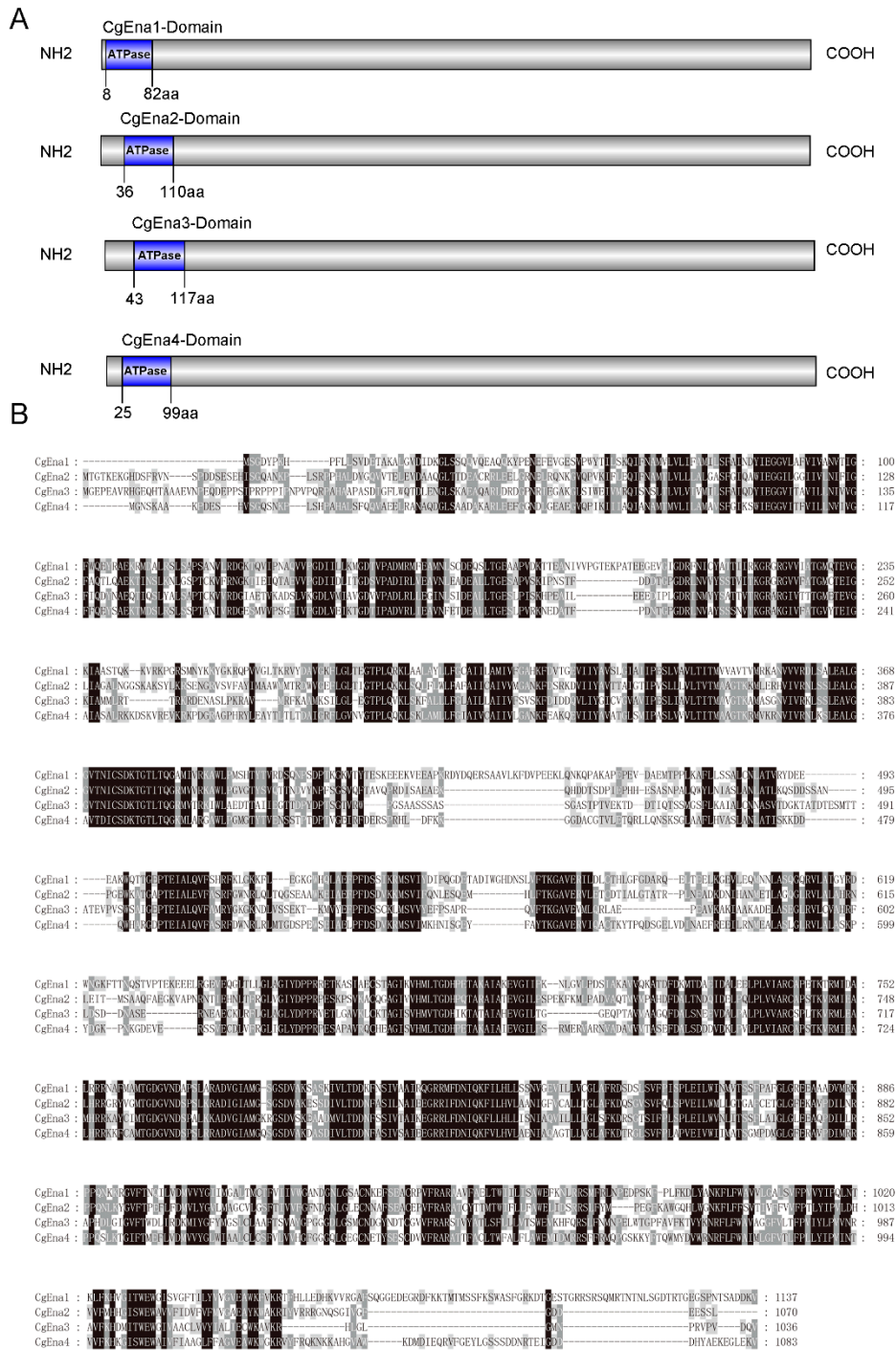


Figure S2: The expression of CgEna1/2/3/4 in mycelium and different stages of infection;

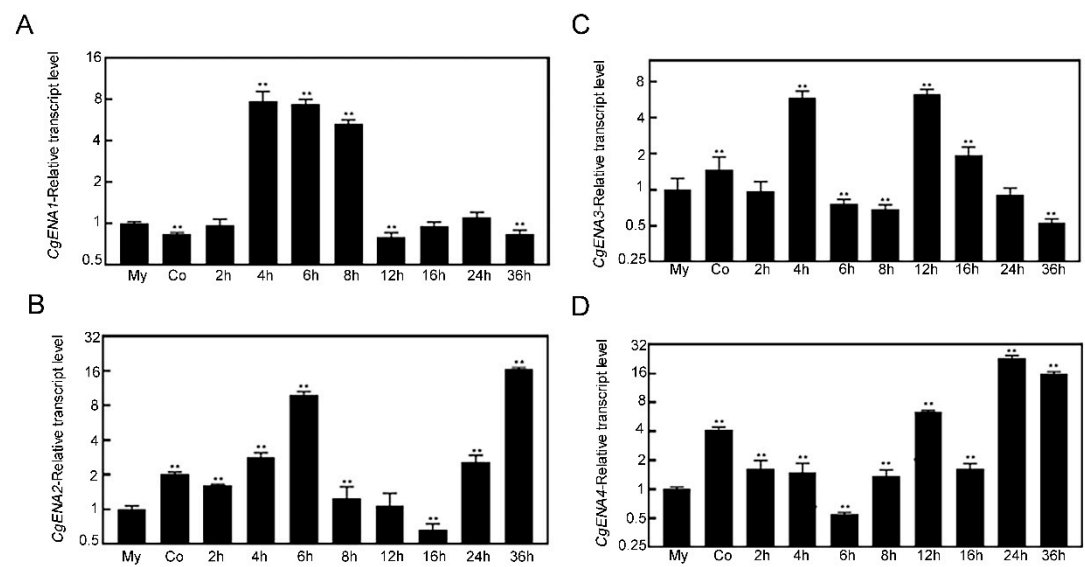
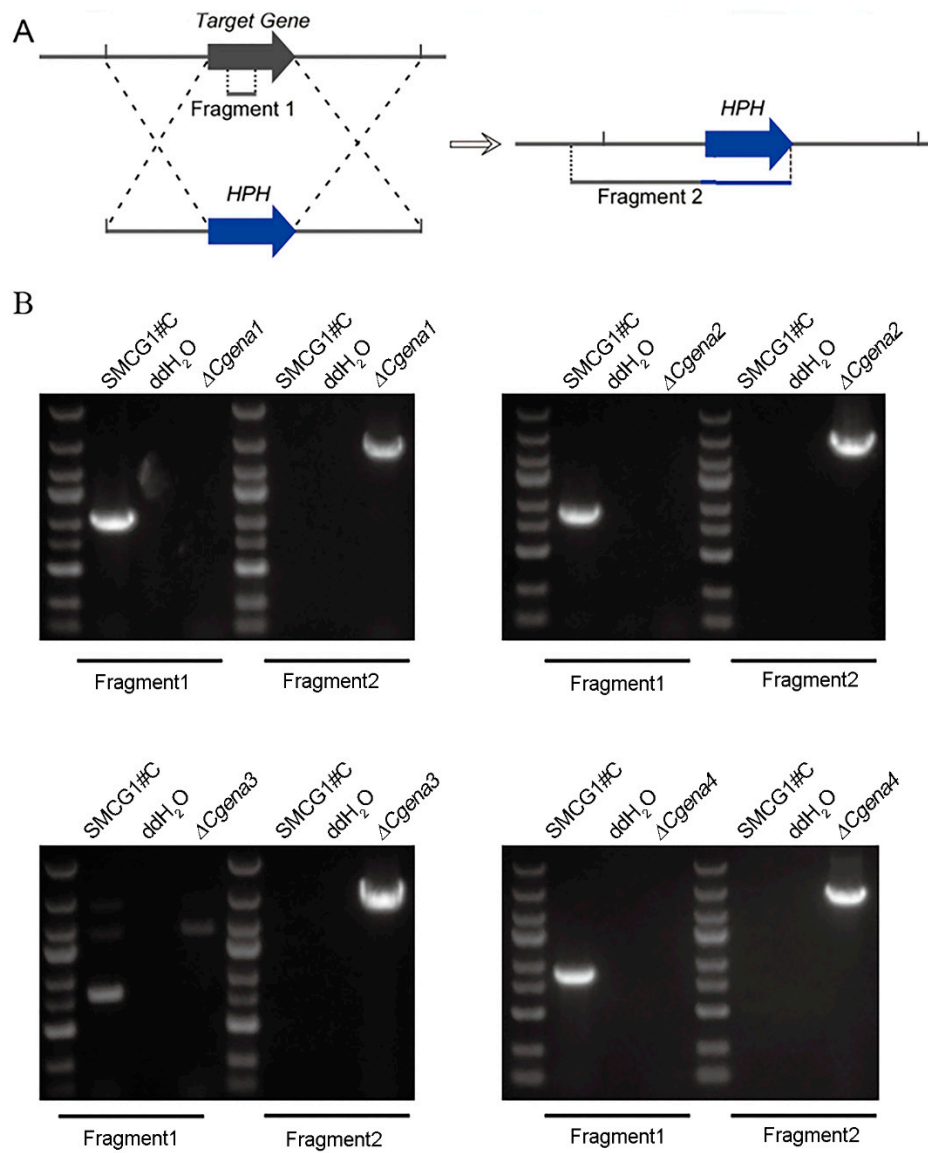


Figure S3: Acquisition and verification of mutants;



[illegible]

Table S1. Primer sequence of CgEna1/2/3/4.

Primer	Sequence (5'-3')	Application
<i>CgEna1</i> -1F	CGAAGTCGGCGAGTCG GTGCC	Amplify <i>CgEna1</i> 5' flank sequence, for gene knock out
<i>CgEna1</i> -2R	CGACAAGGTTTGATAT CACGTGTACG	
<i>HPH</i> -1F	GGCTTGGCTGGAGCTA GTGGAGGTCAA	Amplify <i>HPH</i> sequence, for gene knock out
<i>HPH</i> -2R	CGGTCGGCATCTACTCT ATTCCTTTG	
<i>CgEna1</i> -3F	CATTGGCGATCGCTTCA ACATC	Amplify <i>CgEna1</i> 3' flank sequence, for gene knock out
<i>CgEna1</i> -4R	AACACTGAGTTTGACA CCG	
<i>CgEna1</i> -InnerF	ATGTCTGGTGACTACC CGAAGCACCCCTTCC	For <i>CgEna1</i> complementation
<i>CgEna1</i> -InnerR	TCAGACCTTGTCGTCC GCGCTGGTGTT	
<i>CgEna1</i> -OuterF	GACACGCCTCGCTGAA CTCC	For <i>CgEna1</i> -GFPfusion construct, native promoter
<i>CgEna1</i> -GFP-1F	TTTCGTAGGAACCCAA TCTTCAAAATGTCTGGT GACTACCCGAAGCACC CCTTCC	
<i>CgEna1</i> -GFP-2R	CACCACCCCGGTGAAC AGCTCCTCGCCCTTGC TCACTCAGACCTTGTC GTCCGCGCTGGTGTT	
<i>CgActin</i> -1F	GTGAGGCCCTCAAAGG TAGTGG	
<i>CgActin</i> -2R	GGATCCCAGTGCGAGA CGT	Reference gene for qRT- PCR analysis
<i>CgEna1</i> .qPCR.1F	CCAAGATTGTGCTCAC TGACGA	
<i>CgEna1</i> .qPCR.2R	TCGAACATGCGACGAC CCTG	<i>CgEna1</i> qRT-PCR analysis
<i>CgEna2</i> -1F	TGCGCGAGTGACGAGG CG	Amplify <i>CgEna2</i> 5' flank sequence, for gene knock out
<i>CgEna2</i> -2R	TGGAAACGAACATCATG G	
<i>CgEna2</i> -3F	TCGGCCGCAACGAGCT TCG	Amplify <i>CgEna2</i> 3' flank sequence, for

<i>CgEna2</i> -4R	TCCCATAATAAACATCG CT	gene knock out
<i>CgEna2</i> -InnerF	ATGACTGGCACCAAGG AGAAA	For <i>CgEna2</i> complementation
<i>CgEna2</i> -InnerR	CTATAGAGATGATTCCT CATC	
<i>CgEna2</i> -OuterF	TGTCGGACCTGCTTGC G	
<i>CgEna2</i> -GFP-1F	TTTCGTAGGAACCCAA TCTTCAAAATGACTGG CACCAAGGAGAAA	For <i>CgEna2</i> complementation
<i>CgEna2</i> -GFP-2R	CACCACCCCGGTGAAC AGCTCCTCGCCCTTGC TCACCTATAGAGATGAT TCCTCATC	
<i>CgEna2</i> .qPCR.1F	TTTATCCTCCACGTTCT AGCAG	<i>CgEna2</i> qRT-PCR analysis
<i>CgEna2</i> .qPCR.2R	CTGATCTTTGAAGGCC AACCC	
<i>CgEna3</i> -1F	ACTGGCGTGGTGCTTG	Amplify <i>CgEna3</i> 5' flank sequence, for gene knock out
<i>CgEna3</i> -2R	AGGAACGAGGAAGTAA TGA	
<i>CgEna3</i> -3F	GCGCATGTTCTTGGCA AC	Amplify <i>CgEna3</i> 3' flank sequence, for gene knock out
<i>CgEna3</i> -4R	TCTTCATAGCAGCCTTG AAG	
<i>CgEna3</i> -InnerF	ATGGGAGAACCCGAAG CCGTCA	For <i>CgEna3</i> complementation
<i>CgEna3</i> -InnerR	CTAGACCTGATCGACA GGAA	
<i>CgEna3</i> -OuterF	GCGCATGTTCTTGGCA AC	
<i>CgEna3</i> -GFP-1F	TTTCGTAGGAACCCAA TCTTCAAAATGGGAGA ACCCGAAGCCGTCA	For <i>CgEna3</i> -GFPfusion construct, native promoter
<i>CgEna3</i> -GFP-2R	CACCACCCCGGTGAAC AGCTCCTCGCCCTTGC TCACCTAGACCTGATC GACAGGAA	
<i>CgEna3</i> .qPCR.1F	GGCCGTTATTCCCGAAT CCCT	<i>CgEna3</i> qRT-PCR analysis
<i>CgEna3</i> .qPCR.2R	ACACCTCCAACGGCTT CGAG	

<i>CgEna4</i> -1F	CGTGAGGTGCTGTGCT AT	Amplify <i>CgEna4</i> 5' flank sequence, for gene knock out
<i>CgEna4</i> -2R	TTGTCTTGTCTGAGTGC AGGCTG	
<i>CgEna4</i> -3F	CGAAGTTGGAATCCTG CCGTCCC	Amplify <i>CgEna4</i> 3' flank sequence, for gene knock out
<i>CgEna4</i> -4R	TCGTCGCCCACGTCCA GCC	
<i>CgEna4</i> -InnerF	ATGGGCAACTCAAAGG CAGC	For <i>CgEna4</i> complementation
<i>CgEna4</i> -InnerR	CTAAACCTTCTCCAAG CCTT	
<i>CgEna4</i> -OuterF	GGTAAGGTAAAGTACC TG	For <i>CgEna4</i> -GFP fusion construct, native promoter
<i>CgEna4</i> -GFP-1F	TTTCGTAGGAACCCAA TCTTCAA	
<i>CgEna4</i> -GFP-2R	CACCACCCCGGTGAAC AGCTCCTCGCCCTTGC TCAC	<i>CgEna4</i> qRT-PCR analysis
<i>CgEna4</i> .qPCR.1F	CTCGCTAGTCTTGGTCT TCGT	
<i>CgEna4</i> .qPCR.2R	GTCGTACAGGCCGATT AACCC	