

# Nucleotide sequence of the gene coding for cyclophilin/peptidyl-prolyl *cis-trans* isomerase of *Neurospora crassa*

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Cyclophilin is an ubiquitous protein, originally isolated from the cytosol of bovine and human tissue as a cyclosporin A-binding protein (1, 2). We showed that in *Neurospora crassa*, cyclophilin has a dual location in the cytosol and the mitochondria, both forms being encoded by a single nuclear gene (3). Recently it was demonstrated that cyclophilin is identical to peptidyl-prolyl *cis-trans* isomerase (PPIase), a novel type of enzyme which is able to accelerate the slow refolding phase of certain proteins *in vitro* (4, 5). Cyclophilin/PPIase mediates cyclosporin A-sensitivity in *N. crassa* and yeast (6). Here I present the nucleotide sequence of the *N. crassa* gene. It contains four introns, the longest of

which is located in the 5'-untranslated region. The gene is probably identical to *csr-1* mapped on *N. crassa* chromosome I (6).

## REFERENCES

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3. Tropschug *et al.* (1988) *J. Biol. Chem.* **263**, 14433–14440.
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1 CCTCAACTGA CGCCGTCCAA GGCCGACCCC TGGCCTTGAC CCAACACCCT  
 51 GACACCAAGA AGCCAGTGGG ACCCAGGAGG TCTGCCAAGA CTTTGAAAAGC  
 101 TTGGCAGCAG CGTCTCAGCT CTTTGAAGCC TGAGTTTTCG GGCAGAAATT  
 151 CTGCTTGTA TCGCGGGCCG GCGACAACC GGGCGGGCG GAGGGGACGT  
 201 CGGGCGCCG AGCTCGCCTC CATGCATTTT GGATGGAGTA AAAATTGTTA  
 251 AACACCCGAC CCGACTCCGT TCTCCCTCTC GTCTCAGGTC TTTGTTGTGC  
 301 ATCCATCGCC GTGTAGCAGA TTCCATCGT TCGTTTGTTC GGACTTTACC  
 351 TTGACTTTT AGTTCATTA TCATCCTACA ATCATCCAGG ATTTCATCTT  
 401 CCACAACCGG TAGGTTATCA TTTTACTTTT TGTTCGCATG TCTTCTTGA  
 451 GCCTTTTCTG TCTAGAGGAG CTCTCCCTGC CGGCTGGGAG CTTGCCAAA  
 501 GCTCCAAGCT CTATCTGTGG CAGAGCTCTG AGAGCTTCCA TTCCCGGGAT  
 551 TTCTTGGCAT CAGATTCBAT TCGAATGTCC TTTTTCAT CCACGCTCGA  
 601 GATGAGGGGT GAGGTTTGT AGTTTGACAA TACCACCACC GCTTTTGGTC  
 651 CTTACCCAG ACATGGCCAT CAAGTCCGTT AATGCCGTCC ATCCCTCTTG  
 701 TTGGGCTTGG GGTATCGTCC ATGGCTCCGC AATGCTGTA ATGGCTGCTA  
 751 TGACAGAGGG GACTCCAAA TGABAGAGGC AATCCGACG CTATGABAGC  
 801 CCAACAAGCC ATATGATGGA GGCATGGGTC TACGGTCTTT TGGCCGGGAT  
 851 GTCTTTGGAT AGCTCTTGGC AGCGCTTTAG CTGCCBACTA TACACACAGC  
 901 GGTGGTGGCA GTTTTGATTG TCATTGCGGT CAGCGTCAGG GCCGACGGGA  
 951 CTTTGGAGAC TCGGGGGGGA AGCCCAACA CCAGATGGGA GCTGTTTACT  
 1001 TTCTTGGTACT GGTGTTCCCTG AGCCAACGAA CCAATCCGAA GCCCACATGC  
 1051 GCCAAGATG AACTTGCAG AGGCTCATA CACTCCAGT TGTCAAGCTG  
 1101 ACCTGCTGTT TCGTCTCTCC GCGCGACTG GCAACGAGA CCGAAGCAGG  
 1151 CGGCGTGGCG ACAGGCGGAC AGCTCGAGTC GCAACBATA ATCAGCTGGC  
 1201 GAGGAGCTAG GTACCTTCTC CGCCCCGAC TTCTCGGATT GGCTGACCCC  
 1251 TCCTTTCCAT TTTAGTAAA ATGTTTGGAC CCCGCCATTT CTCTGCTCTT

1301 AAGACAACAG GTTCTCTGCT CTCTCGACT TTCTCGTCAT CTCTCAAGCC  
 1351 CACTGCAACT TTCTCCTGCG CCAGAGCTTT TTCGAAAACA TCCAGCATCA  
 1401 TGTCCAAGGT GTAGTCCAG CCGCTTCTCC AGGTCCGCGC AAACATGGGA  
 1451 GCTGGCCTA CCTACCCGTA GTTTCAGGGA CACCGACTGA CCTGCATGCT  
 1501 TTAGTTTCTT CGATCTCGAG TGGGAGGGTC CCGTCTCGG CCCCACAAC  
 1551 AAGCCACCA GCGAAATCAA GGGTBACTCT ACTTGCCTT ATCTGCTTTG  
 1601 TCTTCATCAA TCAGGCTCAG GBAACCTTGC GAGCGTCCGT GGGACTTCAC  
 1651 CTGGACGCTC GTCGTGTGTC GCAATGAGCA CGGCGTCCG CCGGTGTTGC  
 1701 CGCAGCCGCA AGCTCCTGAA CTACCCCTCC ATACCGGTGC CCTGAACTC  
 1751 ATAAGCCCGC CACCACTCAG CCTCACCCGC CTCCCGCCG CCCGCCGCTC  
 1801 AACTGTGATG TCATGCCAT CGGATGCTA ACTCCCAATG CAGCTCAGTC  
 1851 TGGCCGCAAT AACTTCACCC TCTACGACGA CGTTGTCCCC AAGACCGCCC  
 1901 GCAACTTCAA GGAGCTCTGC ACTGGCCAGA ACGGCTTCGG CTACAAGGGC  
 1951 TCTTCTTCC ACCGATTAT CCCCAGTTC ATGCTCCAGG GTGGTACTT  
 2001 CACCCGTGGT AACGTBAATC CATGCCCGCC CAACAAGCTA TTGAAACATGG  
 2051 GAAAATAAAG ACCTAACCTC TCTGAACAGG GCACTGGTGG CAAGTCCATC  
 2101 TACGGCGAGA AGTTCGCGGA TGAGAACTTC GCCAAGAAGC ACGTCCGCCC  
 2151 TGGTCTTCTC TCCATGGCCA ACCCGGGCCC CAACACAAC GGCTCCAGT  
 2201 TCTTCGTAC CACTGTCCCC ACCAGTGGC TCGATGGCCG CCACGTCTGC  
 2251 TTCCGGCAGG TCGCTGAGGA TGAGTCCATG AAGTGTGTA AGGCCCTTGA  
 2301 GGCTACTGGC TCCAGCAGCG GTGCTATTCT TACTCCAAG AAGCCACCA  
 2351 TTGTCGACTG CGGCGCTCTC TAAATTCCTT TGTGGACATT GTCGAGGGTT  
 2401 TTAGGGATTG GAGTCCGGT ACCATAATAT TCATATGAAT GTGTGCTAT  
 2451 AATATCTAGA TAGCCATCA AAATGGATT CCTGCGCTGC ACACCCACC  
 2501 TTCTTCACTG CATCGTATC ACTGTGCTT TGATGTTGA TGTGATTACG  
 2551 CAAACTGATG GTTGATGAGA TCACGTAAC TGATGCTTT TCCTAGACAG  
 2601 TTTGAGGTC ATGTGAATG TATCGCAAC ACATTGAAT CTAACACAGAT  
 2651 TGACCTCCAC GCTAGATGAA ACCAAATTA CCTGCTTCT TGTTTTTTA  
 2701 CGCGTAAATG CAGTTGTGT

**Figure 1.** Nucleotide sequence of the cyclophilin/PPIase gene from *N. crassa*. Four introns (nucleotide positions 410–1265; 1411–1504; 1573–1843; 2014–2079) are underlined. The translation initiation sites for the mitochondrial precursor form and the cytosolic form, respectively, are printed in bold. The stop codon is also printed in bold.