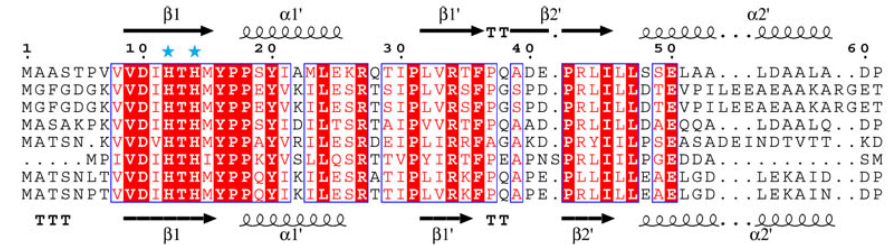


# Supplementary information, Figure S3

A

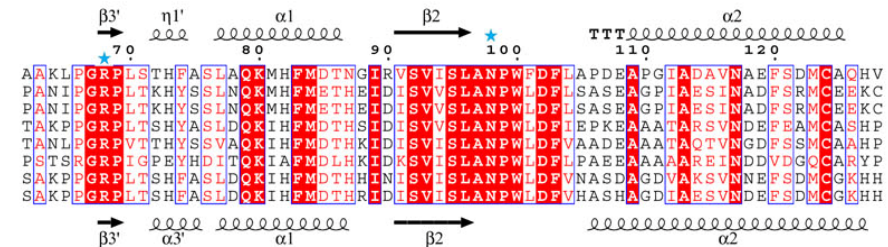
*Cordyceps militaris*

*Cordyceps militaris*  
*Neurospora crassa*  
*Neurospora tetrasperma*  
*Verticillium albo-atrum*  
*Grosmannia clavigera*  
*Pyrenophora tritici-repentis*  
*Metarhizium acridum*  
*Metarhizium anisopliae*  
*Metarhizium anisopliae*



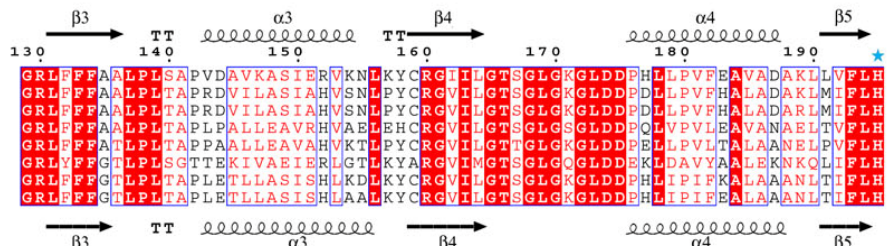
*Cordyceps militaris*

*Cordyceps militaris*  
*Neurospora crassa*  
*Neurospora tetrasperma*  
*Verticillium albo-atrum*  
*Grosmannia clavigera*  
*Pyrenophora tritici-repentis*  
*Metarhizium acridum*  
*Metarhizium anisopliae*  
*Metarhizium anisopliae*



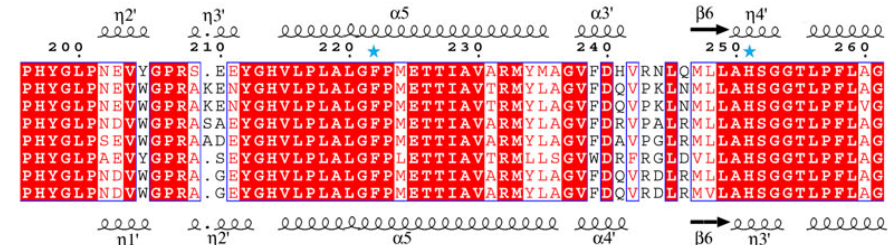
*Cordyceps militaris*

*Cordyceps militaris*  
*Neurospora crassa*  
*Neurospora tetrasperma*  
*Verticillium albo-atrum*  
*Grosmannia clavigera*  
*Pyrenophora tritici-repentis*  
*Metarhizium acridum*  
*Metarhizium anisopliae*  
*Metarhizium anisopliae*



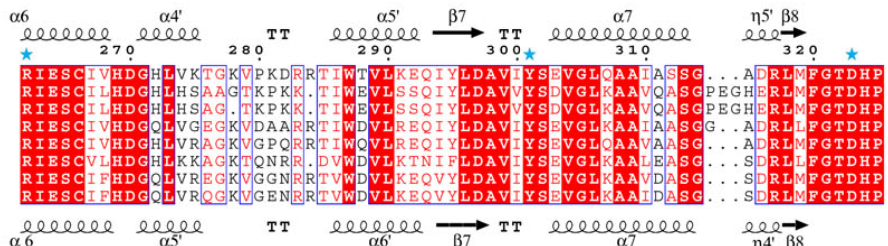
*Cordyceps militaris*

*Cordyceps militaris*  
*Neurospora crassa*  
*Neurospora tetrasperma*  
*Verticillium albo-atrum*  
*Grosmannia clavigera*  
*Pyrenophora tritici-repentis*  
*Metarhizium acridum*  
*Metarhizium anisopliae*  
*Metarhizium anisopliae*



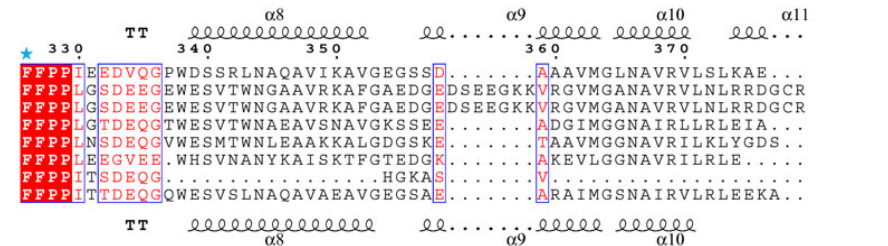
*Cordyceps militaris*

*Cordyceps militaris*  
*Neurospora crassa*  
*Neurospora tetrasperma*  
*Verticillium albo-atrum*  
*Grosmannia clavigera*  
*Pyrenophora tritici-repentis*  
*Metarhizium acridum*  
*Metarhizium anisopliae*  
*Metarhizium anisopliae*

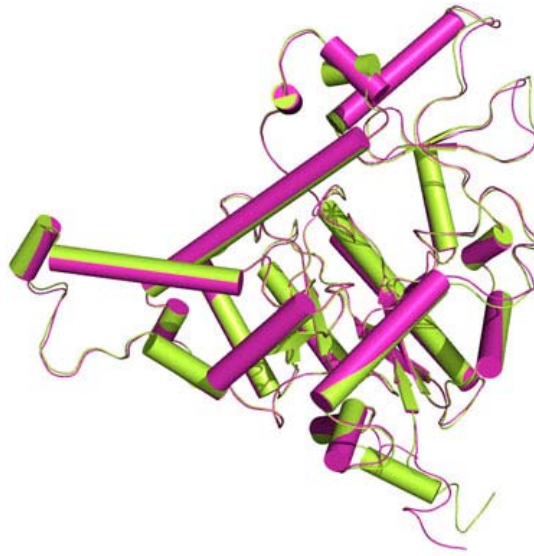


*Cordyceps militaris*

*Cordyceps militaris*  
*Neurospora crassa*  
*Neurospora tetrasperma*  
*Verticillium albo-atrum*  
*Grosmannia clavigera*  
*Pyrenophora tritici-repentis*  
*Metarhizium acridum*  
*Metarhizium anisopliae*  
*Metarhizium anisopliae*



**B**



**Figure S3** Comparison of IDCases from different fungi species. **(A)** Sequence alignment of IDCases from different fungi species. The sequence number and secondary structures of CmIDCase are placed on the top of the alignment and the secondary structures of MaIDCase at the bottom of the alignment. IDCases from *Cordyceps militaris*, *Neurospora crassa*, *Neurospora tetrasperma*, *Verticillium albo-atrum*, *Grosmannia clavigera*, *Pyrenophora tritici-repentis*, *Metarhizium acridum*, and *Metarhizium anisopliae* are included in the alignment. Strictly conserved residues are highlighted in shaded red boxes and conserved residues in open red boxes. The key residues of CmIDCase involved in the catalysis, the metal binding, and the substrate binding are marked with blue asterisks. The insertion domains in these proteins show notable differences in both sequence and structure. **(B)** Comparison of the overall structures of the apo CmIDCase (green) and the apo MaIDCase (magenta).