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PII: S1874-9399(16)30284-X
DOI: doi:10.1016/j.bbagrm.2016.11.008
Reference: BBAGRM 1113

To appear in: *BBA - Gene Regulatory Mechanisms*

Received date: 30 September 2016
Revised date: 25 November 2016
Accepted date: 26 November 2016

Please cite this article as: Peter Hortschansky, Hubertus Haas, Eva M. Huber, Michael Groll, Axel A. Brakhage, The CCAAT-binding complex (CBC) in *Aspergillus* species, *BBA - Gene Regulatory Mechanisms* (2016), doi:10.1016/j.bbagrm.2016.11.008

The CCAAT-binding complex (CBC) in *Aspergillus* species

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Keywords
CCAAT-binding complex, Hap complex, Aspergillus, HapX, gene regulation, iron, virulence, azole resistance

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ABSTRACT
Background: The CCAAT binding complex (CBC), consisting of a heterotrimeric core structure is highly conserved in eukaryotes and constitutes an important general transcriptional regulator.
Scope of the review: In this review we discuss the scientific history and the current state of knowledge of the multiple gene regulatory functions, protein motifs and structure of the CBC in fungi with a special focus on *Aspergillus* species.
Major conclusions and general significance: Initially identified as a transcriptional activator of respiration in *Saccharomyces cerevisiae*, in other fungal species the CBC was found to be involved in highly diverse pathways but a general rational for its involvement was missing. Subsequently, the CBC was found to sense reactive oxygen species through oxidative modifications of cysteine residues in order to mediate redox regulation. Moreover, via interaction with the iron-sensing bZIP transcription factor HapX, the CBC was shown to mediate adaptation to both iron starvation and iron excess. Due to the control of various pathways in primary and secondary metabolism the CBC is of crucial importance for fungal virulence in both animal and plant hosts as well as antifungal resistance. Consequently, CBC-mediated control affects biological processes that are of high interest in biotechnology, agriculture and infection medicine.