

TRANSCRIPTOME ANALYSIS REVEALS DIFFERENTIALLY EXPRESSED GENES INVOLVED IN INCREASED NUCLEAR KINETICS AND POLAR GROWTH IN THE *ASPERGILLUS NIDULANS* (ATMA) MUTANT

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Ataxia telangiectasia (AT) is an inherited disorder characterized by progressive loss of motor function and susceptibility to cancer once the affected gene product, ATM is involved in the regulation of the DNA damage response. In addition to its role in the DNA damage response, we find that the *Aspergillus nidulans* homologue, AtmA, is also required for nuclear proliferation and polarized growth. For a comprehensive evaluation of genes that have their expression modulated by AtmA, we performed two sets of comparisons between the mutant and wild type strain using microarray hybridization approach. The first set of experiments (growth in complete medium for 60, 90, and 120 minutes) revealed that several genes involved in DNA replication and in the pentose phosphate pathway (ppp) are more expressed in the $\Delta atmA$ mutant suggesting that the increased expression of the ppp genes could be important for increased nuclear proliferation in this mutant. The second experiment (HU block-release experiments for polar growth) revealed a decreased mRNA expression in the $\Delta atmA$ mutant for the genes involved in the formation of a polarized hyphae (e.g., *cdc42*) and control of polar growth, genes involved in the synthesis of phosphatidic acid (1,2-diacyl-sn-glycerol-3-phosphate) and in the ergosterol biosynthesis. We are currently investigating some of these genes by constructing double mutants with them and $\Delta atmA$.

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