

Characterisation of genes in the thioredoxin system of *Aspergillus niger* N402 and its mutants

The thioredoxin system is one of the most important redox systems (antioxidants) found in nearly all organisms. It is composed of at least two proteins: thioredoxin (*trx*) and thioredoxin reductase (*trxR*). *Aspergillus niger* N402, which has been widely used as a master strain for research, and its mutants will be used in this study. There are 15 mutants of *A. niger* N402 that are affected in their thioredoxin system. Each mutant has a different phenotype, a different point mutation in one of the thioredoxin genes, and also possibly a difference in organic acid production.

The objective of the project is to characterise the thioredoxin proteins of the mutants. To this end, the thioredoxin genes will be cloned and expressed in *E. coli*. The resulting proteins will be purified and their properties (enzyme activity, kinetic parameters and so on) will be compared.

Laboratory techniques that will be used include (amongst others): PCR, gene cloning, transformation and culturing of *E. coli*, protein purification, measurements of enzyme activity and kinetic parameters.

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