

Genetic and physical mapping of the *Aspergillus nidulans* pyruvate decarboxylase encoding gene, *pdca*, allowing the anchoring of a small floating contig in the ordered cosmid library

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We have previously isolated and cloned the gene for pyruvate decarboxylase, *pdca*, in *Aspergillus nidulans* (Lockington *et al.* 1977 Gene, in press) using PCR. Here we identify the genetic and physical map position of the gene.

The ordered cosmid library consisting of all clones from the pWE15 and pLORIST2 libraries showing hybridization to chromosome-specific probes (Brody *et al.* 1991 Nucl. Acids Res. 19:305-3109) was screened, initially by PCR analysis of DNA from cosmid pools and finally by colony hybridization. The cosmid SW16B11 was shown to contain the *pdca* gene. This cosmid is part of a small (250 kilobase) contig on chromosome III of *A. nidulans*. All the cosmids in this contig were probed with the PCR probe, and no other cosmids hybridized to the *pdca* probe.

A gene disruption of the *pdca* gene was obtained with a plasmid construct in which the *riboB* gene from pPL3 (Oakley *et al.* 1987 Gene 53:293-298) replaced a portion of the *pdca* gene. The disruption was obtained by screening diploid transformants for integration events on chromosome III and confirmed by Southern transfer analysis of haploid segregants. A strain containing the *pdca* gene disruption marked by the *riboB* gene was used to map the position of *pdca* on chromosome III genetically. Strong linkage of *pdca* was found to the *sorB* and *cnxH* genes in the progeny of a cross between a strain of genotype *yA2;sorB11cnxH14;pyroA4;riboB2* and a strain of genotype *yA1 adE20suA1 adE20; argB2 pdca ::riboB+;aldA67 riboB2*. From 96 progeny the following linkage distances and orders were obtained for the *pdca*, *chxH*, and *sorB* genes.



No recombinants in the two classes requiring a double crossover event were obtained. This result thus positions the *pdca* gene on the *A. nidulans* linkage map and also positions the cosmid containing SW16B11. No other genes are at present mapped to this small contig.

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