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A conditional morphological
(fluffy) mutant of A. nidulans

strain was R21 (pabaA yA2) and mutagenesis by N-methyl-N1-nitro-N-nitrosoguanidine. The mutant (M355) produces a mass of sterile aerial hyphae at 37° C (no conidia, no cleistothecia) which may reach the lid of a Petri dish after 4 days incubation in malt extract agar medium supplemented with sucrose (0.02 M). At 18° C the phenotype is intermediate between mutant (at 37° C) and wild type (R21). Conidia form over the surface of a mutant colony if a plate incubated at 37° C is left for a week at room temperature.

The mutant phenotype is due to a single gene defect and is recessive; a diploid constructed between M355 and FGSC A105 (biA1;AcrA1;wA3;phenA2;pyroA4;lysB5;sB3;nicB8;coA1) had a normal morphology. This diploid haploidized (McCully, K.S. and E. Forbes 1965 Genet. Res. 6:352-359) and the mutation localized to chromosome III. A cross between M355 and G338⁸ (pantoC3;cnxH3;sC12) located the gene 3 map units from cnxH3. The gene has been designated fluG1.

Some other properties of the mutant are summarized below:

1. fluG1 strains are invasive in the sense that aerial hyphae overgrow the periphery of other colonies.
2. Aerial hyphae form conidia at the junction between fluG and fluG⁺ strains.
3. A mass of cleistothecia form at the junction between fluG and fluG⁺ strains, and these are present in approximately the same-proportions (selfed and hybrid) as from a normal cross. In fact, crosses can be set up by inoculating fluG and another strain 2 cm apart on a thick malt extract agar plate. This might be an advantage when forcing "difficult" crosses
4. fluG complements moC in heterokaryons (moC is also located on chromosome III, close to adi).

The original mutant M355 (pabaA1 yA2;fluG1) has been lodged with FGSC. - - - Dept. of Biology, Univ. of Ulster at Jordanstown, Newtonabbey BT37 0QB, N. Ireland