A mutant tRNA-Met gene in the mitochondrial genome of *Schizosaccharomyces pombe*

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The mitochondrial genome of *S. pombe* has been sequenced entirely (1,2,3) and found to contain 25 tRNA genes (3). One cluster (MET, PHE, ASP, GLY, LEU1, TRP, LEU2) (4) is located between the genes encoding apocytochrome b (cob) and subunit 6 of ATPase (atp6). In three independently isolated mitochondrial deletion mutants (mit-) in the gene encoding subunit 1 of cytochrome oxidase (cox1), a secondary mutation was found in the tRNA-Met gene that affects the recognition site for BclI (T^GATCA). The mutation was separated from the deletion by a genetic cross, and a respiratory competent derivative of the mutant was obtained that still contained the altered BclI site. The tRNA-Met gene of this strain and the corresponding wild-type gene were sequenced (see Figure) and a T—>C transition was found in the region of the anticodon stem. There are two explanations for the respiratory competence of this mutant strain: either this tRNA-Met is still functioning despite the change in the anticodon arm, or the function of this tRNA is taken over by one of the other two tRNA-Met genes.

5'-GUGAAUAAGUU-3'  
CUUUAU-3'  

Deduced cloverleaf structure of the tRNA-Met. The recognition site of the enzyme BclI is indicated. The arrow shows the transition from U to C in the mutant tRNA-Met

References:
3. Lang, B. F., personal communication