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Masters of the mitochondria

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Understanding the mechanisms governing transcription of the mammalian mitochondrial DNA genome may offer the possibility of novel treatments for human diseases of mitochondrial dysfunction. In an Advanced Online Publication in Nature Genetics, Falkenberg *et al.* report the characterization of two proteins that behave as transactivating factors to regulate mitochondrial DNA transcription (*Nature Genetics,* 17 June 2002, DOI:10.1038/ng909). They performed a sequence homology search to discover two genes (TFB1M and TFB2M) that resemble the yeast Mtf1 protein and bacterial rRNA dimethyltransferases. The two proteins are ubiquitously expressed and are localized in the mitochondria. Both of these mitochondrial proteins can drive mitochondrial DNA transcription *in vitro*in the presence of mitochondrial RNA polymerase (POLRMT) and transcription factor A (TFAM).

References

1. Replication and transcription of vertebrate mitochondrial DNA.

2. *Nature Genetics*, [http://www.nature.com/ng/]