

The guide RNA database (3.0)

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ABSTRACT

The RNA editing process within the mitochondria of kinetoplastid organisms is controlled by small, *trans*-acting RNA molecules referred to as guide RNAs. The guide RNA database is a compilation of published guide RNA sequences, currently containing 254 entries from 11 different organisms. Additional information includes RNA secondary and tertiary structure models, information on the gene localisation, literature citations and other relevant facts. The database can be accessed through the World Wide Web (WWW) at <http://www.biochem.mpg.de/~goeringe/>

ORGANISATION OF THE DATABASE

Release 3.0 of the database contains 254 guide RNA (gRNA) sequences including published sequences through September 1998. New to this release are sequence entries for *Bodo saltans* (1), a free living bodonid and for the plant trypanosomatid organism *Phytomonas serpens* (2). Altogether, gRNAs from 11 kinetoplastid species are currently catalogued, with the majority of the sequence entries derived from *Leishmania tarentolae* (45%), from *Trypanosoma brucei* (29%) and *Trypanosoma cruzi* (14%).

The database lists for each entry the organism and name of the gRNAs, their primary sequences and their localisation on the mitochondrial genome. The order in which the gRNAs have been listed is from left-to-right with reference to the linear map of the mitochondrial maxicircle DNA as published by Kable *et al.* (3). The RNAs are given in a 5' to 3' order with respect to the sequence polarity of the complementary mRNA. Postranscriptionally added oligo(U) extensions are not included.

gRNAs function by base pairing to their cognate pre-mRNAs, eventually forming extended gRNA/mRNA hybrid structures. Guide RNA/mRNA alignments for almost all gRNAs in the database can be found in the literature which is provided in an associated hypertext document including MEDLINE identification numbers. Graphical representations for the *T.brucei* gRNA/mRNA hybrids have been deposited within the RNA editing database (<http://www.lifesci.ucla.edu/RNA/trypanosome/gmas.html>) (4)

which also contains the alignments for *L.tarentolae*. As accessory material, the database contains structural information, such as gRNA secondary and tertiary structure models (5,6), as well as data for a gRNA-containing ribonucleoprotein (RNP) complex (6).

The current release of the database provides links to the RNA editing web site (<http://www.lifesci.ucla.edu/RNA/index.html>) and RNA editing sequence database (<http://www.lifesci.ucla.edu/RNA/trypanosome/database.html>) of L. Simpson (4) and to the minicircle sequence database (<http://www.ebi.ac.uk/parasites/kDNA/Source.html>) of D. C. Barker, S. Brewster and M. Aslett (Cambridge, UK).

AVAILABILITY AND CITATION

The gRNA database is available on the internet at the URL: <http://www.biochem.mpg.de/~goeringe/>. New sequence entries will be accepted in any format. Updates of the database are performed on a regular basis and a printed version can be obtained upon request from the corresponding author. Users of the database are kindly requested to cite this publication. Corrections, suggestions and other materials for inclusion in the database are welcome.

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