

# The tmRNA Website

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## ABSTRACT

**The tmRNA Website collects all available tmRNA sequences into a single public resource, along with alignments and a guide to searching for new sequences. Over the last year, several sequences have been updated or newly found by monitoring ongoing genome sequencing projects; tmRNA sequence data from 70 species are now available. New features include: color-coding of sequences to mark suggested base-paired regions, a list of the literature concerning tmRNA, careful crediting of tmRNA sequence identifications, and a split browser window. Updates are very frequent. The tmRNA Website has a new URL: <http://www.indiana.edu/~tmrna>**

tmRNA (also known by the older biochemical name 10Sa RNA and by the genetic name SsrA) plays a central role in the remarkable process of *trans*-translation, whereby the ribosome switches from a defective mRNA to a short reading frame within tmRNA during translation of a single polypeptide (1). Several unusual features of *trans*-translation suggest that an understanding of tmRNA action will provide new perspectives on standard ribosome function (2). Physiological roles of tmRNA are also under investigation. Research on the mechanism, structure and biology of tmRNA is served by collecting all available tmRNA sequences into one resource, as the tmRNA Website has done since 1997 (3,4).

The tmRNA Website has been enhanced. Sequences are now presented with suggested base-pairing regions marked by color-coding. The browser window has been divided into three frames, with a toggling species list (alphabetical versus

phylogenetic) maintained on one side, while the other two frames allow various useful combinations of the sequences and other materials maintained at the website to be viewed at once. These other materials include a page devoted to the search among ongoing genome sequencing projects for new tmRNA sequences, alignments, a minireview, and an updated list of the literature concerning tmRNA. Not only is sequencing data carefully referenced; the identification of tmRNA sequences is also now credited. The website is updated diligently.

As of this writing, the tmRNA Website contains tmRNA sequence data from 68 species of Eubacteria and certain plastids. tmRNA sequences have not yet been identified in Archaea or eukaryotic nuclear or mitochondrial genomes. Nor have they yet been identified in the alpha-proteobacterial group of Eubacteria, despite completion of the genome of *Rickettsia prowazekii* (5). A PCR assay that was otherwise successful throughout Eubacteria failed to identify tmRNA sequences in this same group; we await the release of the 58 new tmRNA sequences that were collected in this survey (6).

The tmRNA Website has moved; its new URL is <http://www.indiana.edu/~tmrna> (note that all letters are in lower case).

## REFERENCES

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