

## **Small RNA sequences are readily stabilized by inclusion in a carrier rRNA.**

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This laboratory previously showed that an RNA derived from 5S ribosomal RNA could be used as a carrier to harbor a nucleic acid "tag" for monitoring genetically engineered or naturally occurring bacteria. The prototype system expressed a specific tagged RNA that was stable and accumulated to high levels. For such a system to be useful there should, however, be little limitation on the sequence composition and length of the insert. To test these limitations, a collection of insertion sequences were created and introduced into the artificial 5S rRNA cassette. This library consisted of random 13- and 50-base oligonucleotides that were inserted into the carrier RNA. We report here that essentially all of the insert-containing RNAs are stable and accumulate to detectable levels. Tagged RNAs were produced by both plasmid-borne and chromosomally integrated expression systems in *E. coli* and several *Pseudomonas* strains without obvious effect on the host cell. It is anticipated that in addition to its intended use in environmental monitoring, this system can be used for *in vivo* selection of useful artificial RNAs. Because the carrier lends stability to the RNAs, the system may also be useful in RNA production.

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