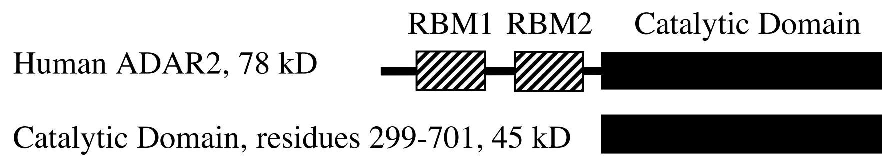
15 min at 30°C before adding 5 nM A37 labeled $tRNA^{ala}$. Reactions were completed as described above.

To observe editing in vivo, total RNA was prepared from the yeast S100 extracts (see above) and the tRNA was amplified by RT-PCR using gene specific primers. The PCR product was sequenced using a ^{32}P-labeled primer that hybridized to the non-template strand, and the Sequenase™ PCR product sequencing kit (USB, Cleveland, OH.) according to the manufacturers instructions. The sequencing products were separated on an 8% denaturing polyacrylamide gel. The gel was dried and exposed to a PhosphorImager plate overnight.

Supporting Figures

A.



B.

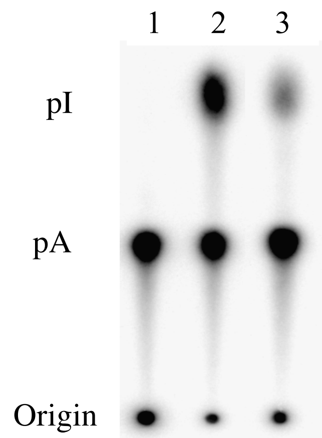


Figure S1. (A) Domain structure of hADAR2 and the catalytic domain construct used in this study. Striped rectangles, dsRBMs; filled rectangle, catalytic domain. **(B)** *In vitro* deamination assay. 10 nM ^{32}P-A-labeled dsRNA was incubated with 100 nM of full-