

Description of Additional Supplementary Files

File Name: Supplementary Data 1

Description: The test set of 48 RNA motifs with lower case letters indicating fixed regions predefined in Rosetta-SWM.

File Name: Supplementary Data 2

Description: The RNA puzzle test set along with RMSD and DI values for the best pre-refinement model, the best model in BRiQ-predicted models and the best model in BRiQ-sampled models for each RNA puzzle experiment.

File Name: Supplementary Data 3

Description: The change of DDM values before and after BRiQ refinement for Watson-Crick, non-Watson-Crick, and stacking base pairs.

File Name: Supplementary Data 4

Description: Refinement of 2000 FARFAR2-predicted models for 12 RNA Puzzles by BRiQ. Performance is compared by using the best model (smallest RMSD and DI) within top 1% and top 5% predicted by FARFAR2 and BRiQ energy scores.