Summary of integrative structure determination of All-atom model of the Rev Response RNA Element of HIV-1 generated by mutagenesis- and FRET-guided FARFAR2 model selection. (PDB ID: 9A9V | pdb_00009a9v)

1. Model Composition	
1.1. Entry composition	RNA (234-MER): chain(s) A (234 residues)
1.2. Datasets used for modeling	- Ensemble FRET data, Zenodo: 10.5281/zenodo.17380954 - Predicted contacts, Not available
2. Representation	
2.1. Number of representations	1
2.2. Scale	Atomic
2.3. Number of rigid and flexible segments	0, 1
3. Restraints	
3.1. Physical principles	Information about physical principles was not provided
3.2. Experimental data	- 86 unique PredictedContactRestraint: Distance: 3.5 - 1 unique DerivedDistanceRestraint: Lower Upper Bound Distance: 50.0-70.0
4. Validation	
4.2. Number of ensembles	0
4.3. Number of models in ensembles	Not applicable
4.4. Number of deposited models	1
4.5. Model precision	Not available
4.6. Data quality	Data quality has not been assessed
4.7. Model quality: assessment of atomic segments	- Clashscore: 1.99 - Ramachandran outliers: 0 - Sidechain outliers: 0
4.8. Fit to data used for modeling	Fit of model to information used to compute it has not been determined
4.9. Fit to data used for validation	Fit of model to information not used to compute it has not been determined
5. Methodology and Software	
1. 5.1. Method name	Not available

5.3. Method description	An ensemble of 89,187 all-atom models of the 234-nt ARV-2/SF2 RRE structure was generated using the Rosetta 3.13 FARFAR2 algorithm. The calculations employed 20,000 Monte Carlo cycles per model with default parameters and used RRE base-pairings derived from a previous SHAPE study (Bai et al. Elife 3, e03656, 2014) as the only restraint. The models were scored with the rna_res_level_energy4 function and a set of 400 lowest-energy models was selected from the ensemble. The separation between subdomains IA and IIB, experimentally determined by FRET, was assessed by measuring the distance between A58 O2' and A219 C4', located close to the cy5 and cy3 fluorophores, respectively, in the cy3/cy5-labeled RRE construct. The model deposited in this entry was selected from a subset of 34 low-energy models exhibiting a subdomain IA-IIB separation distance consistent with the experimental FRET ratios (50-70 A).
5.5. Software	Rosetta (version 3.13 FARFAR2)