Integrative Structure Validation Report

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The following software was used in the production of this report:

IHMValidation Version 3.0
Python-IHM Version 2.5
MolProbity Version 4.5.2

PDB ID	8ZZJ | pdb_00008zzj
PDB-Dev ID	PDBDEV_00000019
Structure Title	Multiple co-existing states of an RNA four-way junction resolved by FRET, SAXS, and integrative modeling: major state
Structure Authors	Hanke, C.A.; Vardanyan, H.; Sindbert, S.; Kalinin, S.; Barth, A.; Dimura, M.; Soltysinski, T.; Lach, G.; Springstubbe, D.; Apel, B.; Snell, E.; Grant, T.D.; Lipfert, J.; Mueller, S.; Bujnicki, J.M.; Gohlke, H.; Seidel, C.A.M.
Deposited on	2018-06-29

This is a PDB-IHM Structure Validation Report.

We welcome your comments at helpdesk@pdb-ihm.org

A user guide is available at https://pdb-ihm.org/validation_help.html with specific help available everywhere you see the ? symbol.

List of references used to build this report is available here.

1. Overview

1.1. Summary

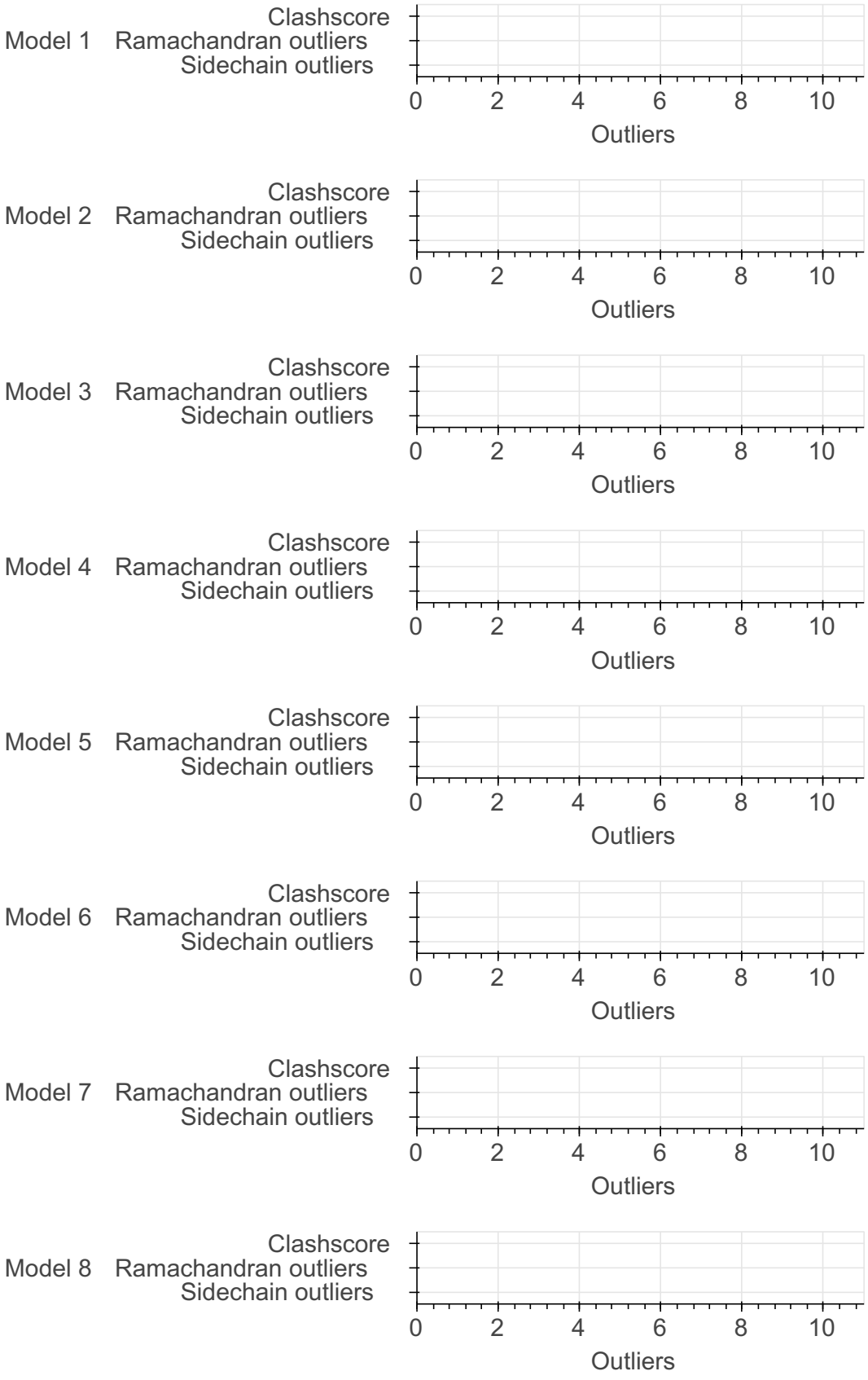
This entry consists of 10 model(s). A total of 54 dataset(s) were used to build this entry.

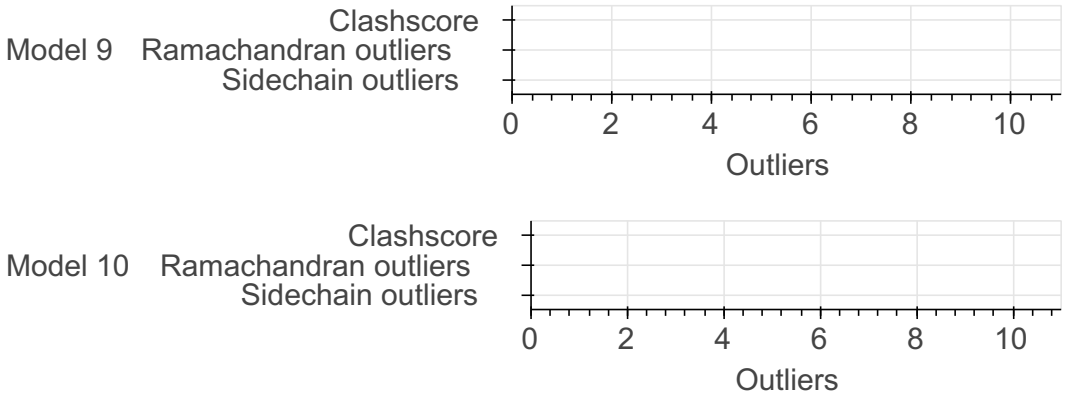
Name	Type	Count
Single molecule FRET data	Experimental data	50
De Novo model	Starting model	4

1.2. Overall quality

This validation report contains model quality assessments for all structures, data quality and fit to model assessments for SAS and crosslinking-MS datasets. Data quality and fit to model assessments for other datasets and model uncertainty are under development. Number of plots is limited to 256.

Model Quality: MolProbity Analysis





2. Model Details

2.1. Ensemble information

This entry consists of 2 distinct ensemble(s).

2.2. Representation

This entry has 1 representation(s).

ID	Model(s)	Entity ID	Molecule name	Chain(s) [auth]	Total residues	Rigid segments	Flexible segments	Model coverage/ Starting model coverage (%)	Scale
1	1-10	1	RNA (37-MER) - strand a	A	37	1-16, 17-37	-	100.00 / 100.00	Atomic
		2	RNA (37-MER) - strand b	B	37	1-21, 22-37	-	100.00 / 100.00	Atomic
		3	RNA (32-MER) - strand c	C	32	1-16, 17-32	-	100.00 / 100.00	Atomic
		4	RNA (32-MER) - strand d	D	32	1-16, 17-32	-	100.00 / 100.00	Atomic

2.3. Datasets used for modeling

There are 54 unique datasets used to build the models in this entry.

ID	Dataset type	Database name	Data access code
1	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
2	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
3	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
4	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
5	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
6	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
7	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962

ID	Dataset type	Database name	Data access code
8	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
9	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
10	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
11	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
12	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
13	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
14	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
15	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
16	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
17	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
18	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
19	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
20	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
21	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
22	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
23	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
24	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
25	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
26	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
27	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
28	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
29	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
30	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
31	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
32	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
33	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
34	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
35	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
36	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
37	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
38	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
39	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
40	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
41	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
42	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962

ID	Dataset type	Database name	Data access code
43	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
44	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
45	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
46	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
47	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
48	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
49	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
50	Single molecule FRET data	Zenodo	10.5281/zenodo.6640962
51	De Novo model	Zenodo	10.5281/zenodo.6640962
52	De Novo model	Zenodo	10.5281/zenodo.6640962
53	De Novo model	Zenodo	10.5281/zenodo.6640962
54	De Novo model	Zenodo	10.5281/zenodo.6640962

2.4. Methodology and software

This entry is a result of 3 distinct protocol(s).

Step number	Protocol ID	Method name	Method type	Method description	Number of computed models	Multi state modeling	Multi scale modeling
1	1	Rigid body docking	Not available	Not available	1000	True	False
2	1	Refinement	Not available	Not available	1000	True	False
3	1	Error estimation (Bootstrapping)	Not available	Not available	100	True	False
1	2	Rigid body docking	Not available	Not available	1000	True	False
2	2	Refinement	Not available	Not available	1000	True	False
3	2	Error estimation (Bootstrapping)	Not available	Not available	100	True	False
4	2	Refinement by restrained MD	MD simulations	Not available	10000	True	False

There are 5 software packages reported in this entry.

ID	Software name	Software version	Software classification	Software location
1	FPS (FRET Positioning and Screening)	1.10	model building and validation	http://www.mpc.hhu.de/software/fps.html
2	Paris	Not available	Burst selection	http://www.mpc.hhu.de/software/software-package.html

ID	Software name	Software version	Software classification	Software location
3	Tatiana	Not available	Photon distribution analysis (PDA)	http://www.mpc.hhu.de/software/software-package.html
4	Python_clustering_script	Not available	Clustering	Not available
5	Amber 11	Not available	model building	http://ambermd.org/

3. Data quality

3.4. Single molecule FRET

Validation for this section is under development.

4. Model quality

For models with atomic structures, MolProbity analysis is performed. For models with coarse-grained or multi-scale structures, excluded volume analysis is performed.

4.1b. MolProbity Analysis

Excluded volume satisfaction for the models in the entry are listed below. The Analysed column shows the number of particle-partice or particle-atom pairs for which excluded volume was analysed.

Standard geometry: bond outliers

There are 389 bond length outliers in this entry (1.19% of 32683 assessed bonds). A summary is provided below. The output is limited to 100 rows.

Chain	Res	Type	Atoms	|Z|	Observed (Å)	Ideal (Å)	Model ID (Worst)	Models (Total)
D	16	C	O3'-P	90.00	2.96	1.61	4	6
B	21	U	O3'-P	85.98	2.90	1.61	7	7
B	31	C	O3'-P	8.10	1.49	1.61	8	1
D	24	C	P-O5'	7.84	1.48	1.59	9	1
D	30	C	C5'-C4'	7.80	1.63	1.51	8	2
C	16	U	C5'-C4'	7.70	1.62	1.51	10	1
C	31	G	O3'-P	7.51	1.72	1.61	9	1
A	32	C	C5'-C4'	7.45	1.62	1.51	10	1
D	23	U	C4'-O4'	7.39	1.34	1.45	9	1
C	23	C	C3'-C2'	7.35	1.63	1.52	9	1
A	13	G	O5'-C5'	7.19	1.31	1.42	9	1
C	24	G	C3'-O3'	7.14	1.31	1.42	10	1
A	36	G	O3'-P	7.00	1.50	1.61	8	1

Chain	Res	Type	Atoms	|Z|	Observed (Å)	Ideal (Å)	Model ID (Worst)	Models (Total)
A	22	G	O4'-C1'	6.95	1.52	1.41	9	1
C	12	G	O3'-P	6.95	1.50	1.61	9	1
A	14	U	C5'-C4'	6.93	1.61	1.51	10	1
D	3	G	O3'-P	6.87	1.50	1.61	9	2
C	7	G	C5'-C4'	6.85	1.61	1.51	8	1
B	9	U	C2'-O2'	6.82	1.52	1.42	9	1
D	15	C	O3'-P	6.70	1.51	1.61	8	2
C	31	G	C3'-C2'	6.64	1.62	1.52	8	1
D	13	C	C5'-C4'	6.63	1.61	1.51	10	1
B	2	C	O3'-P	6.54	1.51	1.61	10	2
A	23	U	C3'-O3'	6.54	1.52	1.42	8	1
B	17	C	C4'-O4'	6.51	1.35	1.45	10	2
C	11	A	O3'-P	6.44	1.51	1.61	8	2
A	6	C	C5'-C4'	6.44	1.60	1.51	8	1
A	28	U	C4'-O4'	6.44	1.35	1.45	9	1
C	14	C	C4'-O4'	6.42	1.35	1.45	9	1
B	10	A	O5'-C5'	6.36	1.32	1.42	8	1
A	21	G	O4'-C1'	6.31	1.51	1.41	9	1
D	30	C	O5'-C5'	6.31	1.33	1.42	10	1
B	18	U	P-O5'	6.24	1.69	1.59	8	2
B	21	U	P-O5'	6.23	1.69	1.59	9	1
C	3	C	C4'-O4'	6.15	1.36	1.45	10	2
C	20	G	C2-N2	6.14	1.22	1.34	8	1
C	25	A	O3'-P	6.14	1.51	1.61	10	2
A	33	A	O3'-P	6.12	1.52	1.61	10	2
D	2	C	C4'-O4'	6.12	1.36	1.45	8	1
C	27	G	C4'-C3'	6.09	1.61	1.52	9	1
A	28	U	C2'-C1'	6.08	1.62	1.53	8	1
C	2	C	C5'-C4'	6.08	1.60	1.51	9	1
D	23	U	O4'-C1'	6.02	1.50	1.41	10	1
C	15	G	C3'-O3'	6.02	1.51	1.42	8	1
B	24	G	C3'-C2'	5.90	1.61	1.52	9	1
D	17	U	C5'-C4'	5.83	1.60	1.51	10	2
B	6	G	C1'-N9	5.82	1.56	1.48	8	1
A	12	U	C5'-C4'	5.77	1.59	1.51	10	1

Chain	Res	Type	Atoms	|Z|	Observed (Å)	Ideal (Å)	Model ID (Worst)	Models (Total)
C	27	G	C5'-C4'	5.76	1.59	1.51	8	1
D	26	U	C5'-C4'	5.75	1.59	1.51	10	1
D	24	C	C4'-O4'	5.72	1.37	1.45	9	1
A	1	C	O3'-P	5.72	1.52	1.61	9	1
D	10	G	C4'-C3'	5.70	1.61	1.52	9	1
D	23	U	C1'-N1	5.70	1.57	1.48	10	1
A	30	A	C3'-C2'	5.70	1.61	1.52	8	1
D	29	G	C3'-C2'	5.68	1.61	1.52	9	1
A	16	A	O3'-P	5.68	1.52	1.61	9	1
D	31	G	O3'-P	5.66	1.52	1.61	10	2
A	37	G	P-O5'	5.63	1.51	1.59	10	1
C	9	C	C5'-C4'	5.61	1.59	1.51	8	1
C	32	G	C3'-C2'	5.59	1.61	1.52	10	1
D	8	U	O5'-C5'	5.55	1.50	1.42	10	1
B	25	C	C4'-C3'	5.55	1.60	1.52	8	1
B	28	U	O3'-P	5.54	1.52	1.61	10	1
A	23	U	O3'-P	5.53	1.52	1.61	8	1
B	29	G	P-O5'	5.52	1.51	1.59	10	1
B	35	G	P-O5'	5.52	1.68	1.59	10	1
C	8	U	C4'-C3'	5.51	1.60	1.52	8	1
C	16	U	C2'-C1'	5.50	1.61	1.53	8	1
B	27	U	C5'-C4'	5.49	1.59	1.51	10	1
B	29	G	O4'-C1'	5.49	1.49	1.41	8	1
B	21	U	C4'-O4'	5.48	1.37	1.45	8	2
D	8	U	C5'-C4'	5.48	1.59	1.51	8	1
C	8	U	C4'-O4'	5.46	1.37	1.45	9	1
B	12	A	P-O5'	5.46	1.67	1.59	9	1
A	12	U	C3'-O3'	5.46	1.50	1.42	8	1
D	6	C	O3'-P	5.45	1.53	1.61	9	1
D	6	C	O5'-C5'	5.45	1.50	1.42	10	1
D	17	U	O5'-C5'	5.44	1.50	1.42	10	1
B	9	U	O3'-P	5.43	1.53	1.61	9	1
C	21	G	C4'-O4'	5.42	1.37	1.45	10	2
B	13	U	P-O5'	5.41	1.67	1.59	8	1
A	22	G	C4'-O4'	5.40	1.37	1.45	10	1

Chain	Res	Type	Atoms	|Z|	Observed (Å)	Ideal (Å)	Model ID (Worst)	Models (Total)
C	24	G	O3'-P	5.39	1.53	1.61	8	1
A	37	G	C5'-C4'	5.38	1.59	1.51	8	2
D	17	U	P-O5'	5.38	1.51	1.59	8	1
D	19	A	C4'-O4'	5.35	1.37	1.45	9	2
B	17	C	C2'-O2'	5.34	1.50	1.42	9	1
B	4	G	C4'-O4'	5.33	1.37	1.45	8	1
A	28	U	O5'-C5'	5.33	1.50	1.42	8	2
D	2	C	C3'-O3'	5.32	1.34	1.42	10	1
B	24	G	O4'-C1'	5.31	1.49	1.41	8	1
B	30	A	P-O5'	5.30	1.67	1.59	10	1
B	35	G	C4'-O4'	5.29	1.37	1.45	9	1
A	7	A	C4'-C3'	5.29	1.60	1.52	10	1
B	37	G	C4'-C3'	5.25	1.60	1.52	8	1
A	19	C	C3'-C2'	5.23	1.60	1.52	8	1
B	28	U	C1'-N1	5.22	1.56	1.48	9	1
A	25	A	C5'-C4'	5.22	1.59	1.51	9	1
D	1	C	O5'-C5'	5.20	1.34	1.42	8	1

Standard geometry: angle outliers

There are 1062 bond angle outliers in this entry (2.09% of 50842 assessed bonds). A summary is provided below. The output is limited to 100 rows.

Chain	Res	Type	Atoms	|Z|	Observed (Å)	Ideal (Å)	Model ID (Worst)	Models (Total)
B	21	U	O3'-P-O5'	36.93	48.60	104.00	3	6
B	21	U	C3'-O3'-P	30.97	166.65	120.20	7	6
D	16	C	O3'-P-O5'	28.93	147.39	104.00	6	6
A	12	U	C4'-C3'-C2'	11.65	90.95	102.60	10	2
D	3	G	O5'-C5'-C4'	10.63	127.45	111.50	9	2
A	30	A	O4'-C4'-C3'	10.43	114.43	104.00	10	1
B	30	A	C4'-O4'-C1'	9.48	100.42	109.90	9	1
A	30	A	C4'-C3'-C2'	9.42	93.18	102.60	10	1
D	28	U	C4'-C3'-C2'	9.37	93.23	102.60	9	2
A	30	A	C3'-C2'-C1'	9.31	110.61	101.30	10	2
A	29	A	O4'-C4'-C3'	9.30	113.30	104.00	10	1
A	32	C	O4'-C4'-C3'	9.28	113.28	104.00	10	1
D	31	G	C4'-C3'-C2'	9.21	93.39	102.60	8	2

Chain	Res	Type	Atoms	|Z|	Observed (Å)	Ideal (Å)	Model ID (Worst)	Models (Total)
A	24	A	C4'-C3'-C2'	9.04	93.56	102.60	10	2
B	28	U	C3'-C2'-C1'	8.92	92.38	101.30	10	1
B	30	A	O4'-C4'-C3'	8.76	112.76	104.00	9	1
B	31	C	C4'-C3'-C2'	8.74	93.86	102.60	8	1
D	16	C	O3'-P-OP2	8.69	81.94	108.00	6	2
D	18	G	O4'-C4'-C3'	8.51	112.51	104.00	8	2
B	4	G	C5'-C4'-C3'	8.48	103.28	116.00	8	1
A	27	A	C4'-C3'-C2'	8.43	94.17	102.60	9	1
B	22	A	O4'-C4'-C3'	8.32	112.32	104.00	10	2
D	32	G	C4'-C3'-C2'	8.27	94.33	102.60	9	3
D	8	U	C4'-O4'-C1'	8.26	118.16	109.90	8	1
B	18	U	C5'-C4'-C3'	8.21	128.32	116.00	9	2
C	19	U	C3'-C2'-C1'	8.16	109.46	101.30	9	1
B	4	G	C5'-C4'-O4'	7.99	121.79	109.80	8	1
A	12	U	O4'-C1'-N1	7.95	120.42	108.50	9	1
A	19	C	C4'-C3'-C2'	7.92	94.68	102.60	10	1
B	26	C	O4'-C1'-C2'	7.86	99.74	107.60	10	1
A	10	A	O5'-C5'-C4'	7.85	123.28	111.50	9	1
D	29	G	C4'-C3'-C2'	7.83	94.77	102.60	8	1
D	25	C	O4'-C1'-N1	7.83	120.24	108.50	10	1
A	29	A	C4'-O4'-C1'	7.79	102.11	109.90	10	1
B	35	G	C3'-C2'-C1'	7.78	93.52	101.30	9	2
A	2	C	O3'-P-O5'	7.78	115.66	104.00	10	1
A	21	G	C4'-C3'-C2'	7.76	94.84	102.60	10	1
A	37	G	C4'-C3'-C2'	7.73	94.87	102.60	8	1
D	20	C	C4'-C3'-C2'	7.71	94.89	102.60	9	1
A	9	G	O3'-P-O5'	7.69	115.54	104.00	10	1
B	17	C	O4'-C1'-N1	7.69	120.03	108.50	10	1
B	22	A	C4'-C3'-O3'	7.65	101.52	113.00	8	2
D	7	U	C4'-C3'-C2'	7.64	94.96	102.60	9	1
D	32	G	C5'-C4'-C3'	7.64	104.54	116.00	9	1
C	21	G	C4'-C3'-C2'	7.61	94.99	102.60	8	2
B	1	C	C3'-C2'-C1'	7.60	108.90	101.30	9	1
C	8	U	C4'-O4'-C1'	7.59	117.49	109.90	9	1
C	11	A	C4'-C3'-C2'	7.57	95.03	102.60	9	2

Chain	Res	Type	Atoms	|Z|	Observed (Å)	Ideal (Å)	Model ID (Worst)	Models (Total)
C	14	C	C4'-C3'-C2'	7.56	95.04	102.60	8	2
C	25	A	C4'-C3'-C2'	7.56	95.04	102.60	8	2
A	33	A	O4'-C4'-C3'	7.56	111.56	104.00	10	1
A	4	C	C3'-C2'-C1'	7.55	93.75	101.30	8	2
D	17	U	O4'-C1'-C2'	7.53	100.07	107.60	8	2
D	26	U	O3'-P-O5'	7.51	115.26	104.00	9	2
A	36	G	O4'-C4'-C3'	7.51	96.49	104.00	8	1
C	19	U	C5'-C4'-C3'	7.49	104.76	116.00	9	1
A	27	A	C5'-C4'-O4'	7.45	120.97	109.80	8	1
D	9	C	C3'-C2'-C1'	7.44	108.74	101.30	10	1
B	9	U	C4'-C3'-C2'	7.43	95.17	102.60	8	1
A	33	A	C4'-O4'-C1'	7.43	102.47	109.90	10	1
C	10	A	C4'-C3'-C2'	7.42	95.18	102.60	9	3
A	22	G	C5'-C4'-O4'	7.37	120.86	109.80	8	1
D	7	U	O4'-C4'-C3'	7.37	111.37	104.00	9	1
C	4	C	O4'-C1'-N1	7.37	119.55	108.50	8	1
D	22	G	O3'-P-O5'	7.36	115.04	104.00	10	1
B	3	G	C5'-C4'-O4'	7.34	120.81	109.80	9	1
C	31	G	O4'-C4'-C3'	7.34	111.34	104.00	8	1
C	23	C	C4'-C3'-C2'	7.34	95.26	102.60	8	2
D	7	U	C3'-C2'-C1'	7.34	108.64	101.30	9	1
D	31	G	O4'-C4'-C3'	7.33	111.33	104.00	8	2
D	16	C	C4'-C3'-C2'	7.33	95.27	102.60	9	2
C	7	G	C4'-O4'-C1'	7.33	102.57	109.90	8	1
C	31	G	O4'-C1'-C2'	7.32	100.28	107.60	9	2
B	20	G	C4'-C3'-C2'	7.30	95.30	102.60	10	1
A	37	G	C3'-C2'-C1'	7.29	108.59	101.30	8	1
C	8	U	C4'-C3'-C2'	7.27	95.33	102.60	8	1
B	30	A	C5'-C4'-C3'	7.27	105.09	116.00	9	1
A	1	C	O4'-C1'-N1	7.25	119.37	108.50	8	3
B	22	A	C4'-O4'-C1'	7.19	102.71	109.90	10	2
B	36	G	O4'-C1'-N9	7.19	119.29	108.50	9	1
B	9	U	C3'-C2'-C1'	7.18	108.48	101.30	8	2
A	37	G	C5'-C4'-C3'	7.18	105.23	116.00	8	1
D	30	C	O4'-C1'-C2'	7.16	100.44	107.60	8	1

Chain	Res	Type	Atoms	|Z|	Observed (Å)	Ideal (Å)	Model ID (Worst)	Models (Total)
D	2	C	C3'-C2'-O2'	7.15	121.42	110.70	8	1
C	1	C	O5'-C5'-C4'	7.09	122.13	111.50	9	2
A	36	G	C4'-O4'-C1'	7.08	116.98	109.90	8	2
D	20	C	O4'-C1'-C2'	7.06	100.54	107.60	10	1
B	29	G	C4'-C3'-C2'	7.02	95.58	102.60	9	2
B	20	G	O4'-C4'-C3'	7.01	111.01	104.00	10	3
B	18	U	O3'-P-O5'	7.00	93.50	104.00	8	1
A	6	C	O5'-C5'-C4'	7.00	122.00	111.50	9	1
D	6	C	C5'-C4'-C3'	7.00	105.50	116.00	8	1
C	31	G	C4'-C3'-O3'	6.98	102.53	113.00	10	1
A	32	C	C4'-C3'-C2'	6.98	95.62	102.60	10	1
D	10	G	C4'-C3'-O3'	6.97	123.45	113.00	9	1
B	6	G	C5'-C4'-O4'	6.95	120.23	109.80	8	1
B	12	A	O3'-P-O5'	6.91	114.36	104.00	10	3
B	34	G	C4'-C3'-C2'	6.90	95.70	102.60	10	2
C	29	U	O3'-C3'-C2'	6.89	103.36	113.70	10	3
B	6	G	O4'-C1'-C2'	6.89	100.71	107.60	8	1

Too-close contacts

The following all-atom clashscore is based on a MolProbity analysis. All-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The table below contains clashscores for all atomic models in this entry.

Model ID	Clash score	Number of clashes
1	0.00	0
2	0.00	0
3	0.00	0
4	0.00	0
5	0.00	0
6	0.00	0
7	0.00	0
8	0.00	0
9	0.00	0
10	0.00	0

There are no too-close contacts.

Torsion angles: Protein backbone

In the following table, Ramachandran outliers are listed. The Analysed column shows the number of residues for which the backbone conformation was analysed.

Model ID	Analysed	Favored	Allowed	Outliers
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0

Torsion angles : Protein sidechains

In the following table, sidechain rotameric outliers are listed. The Analysed column shows the number of residues for which the sidechain conformation was analysed.

Model ID	Analysed	Favored	Allowed	Outliers
1	0	0	0	0
2	0	0	0	0
3	0	0	0	0
4	0	0	0	0
5	0	0	0	0
6	0	0	0	0
7	0	0	0	0
8	0	0	0	0
9	0	0	0	0
10	0	0	0	0

5. Fit to Data Used for Modeling Assessment

5.4. Single molecule FRET

Validation for this section is under development.

6. Fit to Data Used for Validation Assessment

Validation for this section is under development.

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