wwPDB X-ray Structure Validation Summary Report (i)

Feb 16, 2023 – 12:21 pm GMT

PDB ID	:	8AH1
Title	:	BK Polyomavirus VP1 mutant N-Q
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Deposited on	:	2022-07-20
Resolution	:	2.01 Å(reported)

This is a wwPDB X-ray Structure Validation Summary Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the (i) symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

The following versions of software and data (see references (1)) were used in the production of this report:

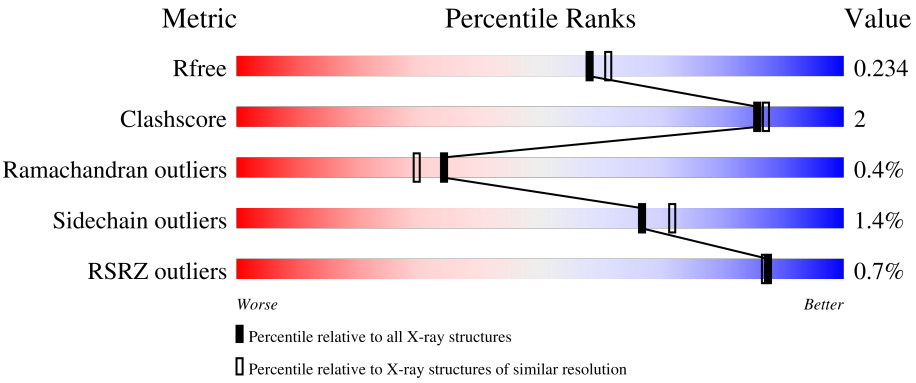
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.32.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.32.1

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.01 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	8085 (2.00-2.00)
Clashscore	141614	9178 (2.00-2.00)
Ramachandran outliers	138981	9054 (2.00-2.00)
Sidechain outliers	138945	9053 (2.00-2.00)
RSRZ outliers	127900	7900 (2.00-2.00)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	AAA	271	90% 6% 5%
1	BBB	271	84% 10% 6%
1	CCC	271	2% 93%
1	DDD	271	89% 5% 6%
1	EEE	271	% 89% 5% 5%

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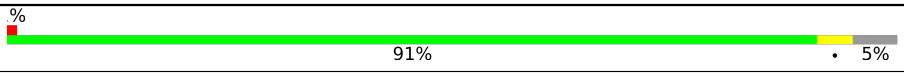
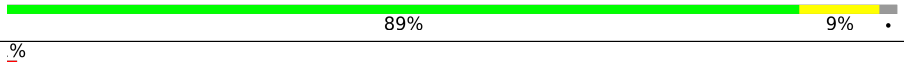
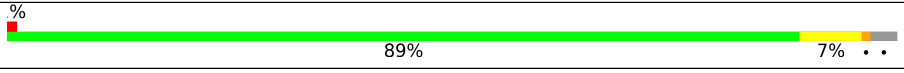
Mol	Chain	Length	Quality of chain
1	FFF	271	
1	GGG	271	
1	HHH	271	
1	III	271	
1	JJJ	271	

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 20804 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Major capsid protein VP1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	AAA	258	Total	C	N	O	S	0	0	0
			1954	1231	339	372	12			
1	BBB	256	Total	C	N	O	S	0	1	0
			1955	1229	339	374	13			
1	CCC	264	Total	C	N	O	S	0	1	0
			2001	1258	348	383	12			
1	DDD	256	Total	C	N	O	S	0	1	0
			1932	1216	332	371	13			
1	EEE	258	Total	C	N	O	S	0	1	0
			1971	1240	344	375	12			
1	FFF	258	Total	C	N	O	S	0	1	0
			1959	1232	339	376	12			
1	GGG	257	Total	C	N	O	S	0	0	0
			1947	1225	340	370	12			
1	HHH	257	Total	C	N	O	S	0	1	0
			1963	1233	343	375	12			
1	III	265	Total	C	N	O	S	0	1	0
			2010	1262	348	387	13			
1	JJJ	264	Total	C	N	O	S	0	3	0
			2019	1268	352	386	13			

There are 30 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
AAA	68	ASN	LYS	engineered mutation	UNP P03088
AAA	81	GLN	GLU	engineered mutation	UNP P03088
AAA	104	SER	CYS	engineered mutation	UNP P03088
BBB	68	ASN	LYS	engineered mutation	UNP P03088
BBB	81	GLN	GLU	engineered mutation	UNP P03088
BBB	104	SER	CYS	engineered mutation	UNP P03088
CCC	68	ASN	LYS	engineered mutation	UNP P03088
CCC	81	GLN	GLU	engineered mutation	UNP P03088
CCC	104	SER	CYS	engineered mutation	UNP P03088

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Chain	Residue	Modelled	Actual	Comment	Reference
DDD	68	ASN	LYS	engineered mutation	UNP P03088
DDD	81	GLN	GLU	engineered mutation	UNP P03088
DDD	104	SER	CYS	engineered mutation	UNP P03088
EEE	68	ASN	LYS	engineered mutation	UNP P03088
EEE	81	GLN	GLU	engineered mutation	UNP P03088
EEE	104	SER	CYS	engineered mutation	UNP P03088
FFF	68	ASN	LYS	engineered mutation	UNP P03088
FFF	81	GLN	GLU	engineered mutation	UNP P03088
FFF	104	SER	CYS	engineered mutation	UNP P03088
GGG	68	ASN	LYS	engineered mutation	UNP P03088
GGG	81	GLN	GLU	engineered mutation	UNP P03088
GGG	104	SER	CYS	engineered mutation	UNP P03088
HHH	68	ASN	LYS	engineered mutation	UNP P03088
HHH	81	GLN	GLU	engineered mutation	UNP P03088
HHH	104	SER	CYS	engineered mutation	UNP P03088
III	68	ASN	LYS	engineered mutation	UNP P03088
III	81	GLN	GLU	engineered mutation	UNP P03088
III	104	SER	CYS	engineered mutation	UNP P03088
JJJ	68	ASN	LYS	engineered mutation	UNP P03088
JJJ	81	GLN	GLU	engineered mutation	UNP P03088
JJJ	104	SER	CYS	engineered mutation	UNP P03088

- Molecule 2 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	AAA	1	Total Cl 1 1	0	0
2	BBB	1	Total Cl 1 1	0	0
2	CCC	1	Total Cl 1 1	0	0
2	DDD	1	Total Cl 1 1	0	0
2	EEE	1	Total Cl 1 1	0	0
2	FFF	1	Total Cl 1 1	0	0
2	GGG	1	Total Cl 1 1	0	0
2	HHH	1	Total Cl 1 1	0	0
2	III	1	Total Cl 1 1	0	0

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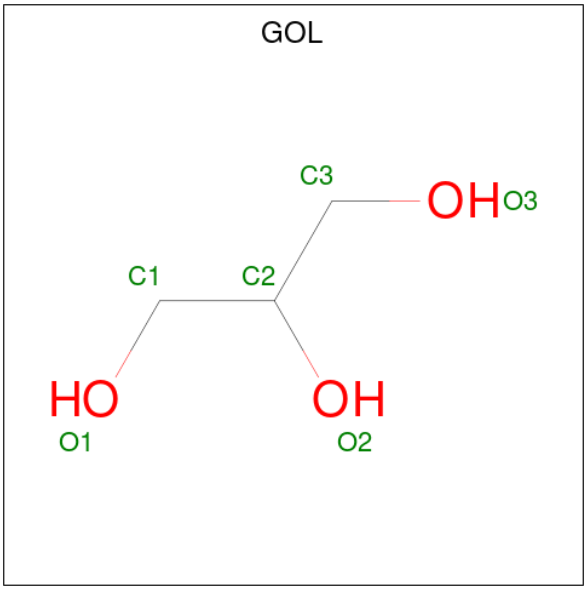
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	JJJ	1	Total Cl 1 1	0	0

- Molecule 3 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	BBB	1	Total C O 6 3 3	0	0
3	DDD	1	Total C O 6 3 3	0	0
3	EEE	1	Total C O 6 3 3	0	0
3	FFF	1	Total C O 6 3 3	0	0
3	FFF	1	Total C O 6 3 3	0	0
3	HHH	1	Total C O 6 3 3	0	0
3	III	1	Total C O 6 3 3	0	0
3	III	1	Total C O 6 3 3	0	0
3	III	1	Total C O 6 3 3	0	0
3	JJJ	1	Total C O 6 3 3	0	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	AAA	107	Total O 107 107	0	0
4	BBB	92	Total O 92 92	0	0
4	CCC	96	Total O 96 96	0	0
4	DDD	79	Total O 79 79	0	0
4	EEE	91	Total O 91 91	0	0
4	FFF	99	Total O 99 99	0	0
4	GGG	119	Total O 119 119	0	0
4	HHH	104	Total O 104 104	0	0
4	III	119	Total O 119 119	0	0
4	JJJ	117	Total O 117 117	0	0

3 Residue-property plots (i)

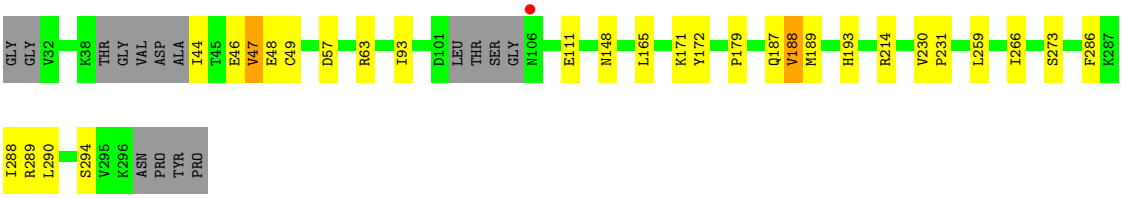
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

• Molecule 1: Major capsid protein VP1

Chain AAA:

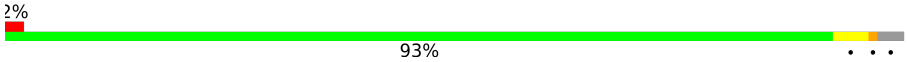
• Molecule 1: Major capsid protein VP1

Chain BBB:



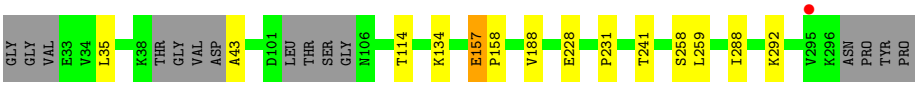
• Molecule 1: Major capsid protein VP1

Chain CCC:



• Molecule 1: Major capsid protein VP1

Chain DDD:

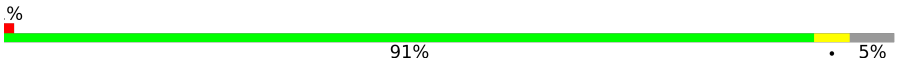


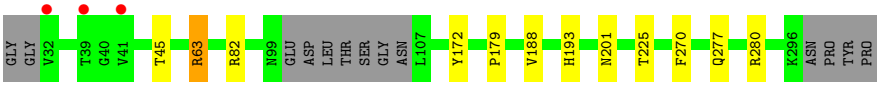
• Molecule 1: Major capsid protein VP1

Chain EEE:

• Molecule 1: Major capsid protein VP1

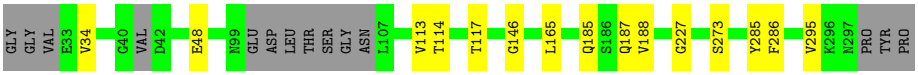
Chain FFF:





• Molecule 1: Major capsid protein VP1

Chain GGG:

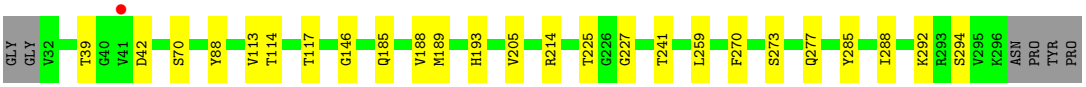


• Molecule 1: Major capsid protein VP1

Chain HHH:

• Molecule 1: Major capsid protein VP1

Chain III:



• Molecule 1: Major capsid protein VP1

Chain JJJ:

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	60.46Å 155.96Å 141.32Å 90.00° 92.64° 90.00°	Depositor
Resolution (Å)	48.78 – 2.01 48.78 – 2.01	Depositor EDS
% Data completeness (in resolution range)	94.5 (48.78-2.01) 94.6 (48.78-2.01)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.38 (at 2.00Å)	Xtriage
Refinement program	REFMAC 5.8.0267	Depositor
R, R_{free}	0.180 , 0.232 0.188 , 0.234	Depositor DCC
R_{free} test set	8246 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	25.9	Xtriage
Anisotropy	0.158	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 49.4	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	0.037 for h,-k,-l	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	20804	wwPDB-VP
Average B, all atoms (Å^2)	30.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.37% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: CL, GOL

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$\|Z\|$ >5	RMSZ	#$\|Z\|$ >5
1	AAA	0.77	0/1998	0.92	0/2719
1	BBB	0.76	0/1999	0.91	1/2720 (0.0%)
1	CCC	0.77	0/2045	0.93	1/2784 (0.0%)
1	DDD	0.77	0/1979	0.91	0/2697
1	EEE	0.77	0/2019	0.90	0/2748
1	FFF	0.79	0/2007	0.95	2/2734 (0.1%)
1	GGG	0.77	0/1991	0.93	0/2708
1	HHH	0.77	0/2008	0.94	0/2733
1	III	0.78	1/2059 (0.0%)	0.95	1/2804 (0.0%)
1	JJJ	0.75	0/2073	0.95	1/2821 (0.0%)
All	All	0.77	1/20178 (0.0%)	0.93	6/27468 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	III	70	SER	CA-CB	-5.20	1.45	1.52

The worst 5 of 6 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	FFF	63	ARG	NE-CZ-NH2	-6.03	117.28	120.30
1	III	214	ARG	NE-CZ-NH2	-5.95	117.33	120.30
1	JJJ	219	ARG	NE-CZ-NH1	5.34	122.97	120.30
1	FFF	280	ARG	NE-CZ-NH1	5.20	122.90	120.30
1	BBB	172	TYR	CB-CA-C	5.04	120.49	110.40

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	AAA	1954	0	1866	7	0
1	BBB	1955	0	1857	17	0
1	CCC	2001	0	1900	9	0
1	DDD	1932	0	1814	6	0
1	EEE	1971	0	1891	7	0
1	FFF	1959	0	1860	6	0
1	GGG	1947	0	1855	7	0
1	HHH	1963	0	1876	9	0
1	III	2010	0	1922	11	0
1	JJJ	2019	0	1935	13	0
2	AAA	1	0	0	0	0
2	BBB	1	0	0	0	0
2	CCC	1	0	0	0	0
2	DDD	1	0	0	0	0
2	EEE	1	0	0	0	0
2	FFF	1	0	0	0	0
2	GGG	1	0	0	0	0
2	HHH	1	0	0	0	0
2	III	1	0	0	1	0
2	JJJ	1	0	0	0	0
3	BBB	6	0	8	0	0
3	DDD	6	0	8	0	0
3	EEE	6	0	8	1	0
3	FFF	12	0	16	1	0
3	HHH	6	0	8	0	0
3	III	18	0	24	0	0
3	JJJ	6	0	8	0	0
4	AAA	107	0	0	1	0
4	BBB	92	0	0	1	0
4	CCC	96	0	0	1	0
4	DDD	79	0	0	0	0
4	EEE	91	0	0	0	0
4	FFF	99	0	0	0	0
4	GGG	119	0	0	0	0
4	HHH	104	0	0	1	0
4	III	119	0	0	0	0
4	JJJ	117	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	20804	0	18856	85	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 2.

The worst 5 of 85 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:JJJ:49[B]:CYS:SG	1:JJJ:93:ILE:HD11	2.25	0.76
1:JJJ:259:LEU:HD12	1:JJJ:259:LEU:C	2.11	0.69
1:BBB:49[A]:CYS:SG	1:BBB:93:ILE:HD11	2.34	0.68
1:JJJ:99:ASN:HD21	1:JJJ:108:LEU:H	1.39	0.67
1:DDD:259:LEU:HD21	1:DDD:288:ILE:HD13	1.76	0.67

There are no symmetry-related clashes.

5.3 Torsion angles (i)

5.3.1 Protein backbone (i)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	AAA	252/271 (93%)	239 (95%)	12 (5%)	1 (0%)	34	30
1	BBB	251/271 (93%)	239 (95%)	11 (4%)	1 (0%)	34	30
1	CCC	259/271 (96%)	248 (96%)	10 (4%)	1 (0%)	34	30
1	DDD	251/271 (93%)	238 (95%)	11 (4%)	2 (1%)	19	13
1	EEE	255/271 (94%)	243 (95%)	11 (4%)	1 (0%)	34	30
1	FFF	255/271 (94%)	247 (97%)	7 (3%)	1 (0%)	34	30
1	GGG	251/271 (93%)	237 (94%)	13 (5%)	1 (0%)	34	30
1	HHH	254/271 (94%)	240 (94%)	14 (6%)	0	100	100
1	III	264/271 (97%)	256 (97%)	7 (3%)	1 (0%)	34	30

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	JJJ	263/271 (97%)	248 (94%)	13 (5%)	2 (1%)	19 13
All	All	2555/2710 (94%)	2435 (95%)	109 (4%)	11 (0%)	34 30

5 of 11 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	JJJ	41	VAL
1	AAA	188	VAL
1	BBB	188	VAL
1	CCC	188	VAL
1	DDD	188	VAL

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	AAA	208/232 (90%)	206 (99%)	2 (1%)	76 81
1	BBB	209/232 (90%)	205 (98%)	4 (2%)	57 61
1	CCC	212/232 (91%)	210 (99%)	2 (1%)	78 83
1	DDD	203/232 (88%)	200 (98%)	3 (2%)	65 69
1	EEE	211/232 (91%)	205 (97%)	6 (3%)	43 44
1	FFF	208/232 (90%)	207 (100%)	1 (0%)	88 92
1	GGG	206/232 (89%)	205 (100%)	1 (0%)	88 92
1	HHH	210/232 (90%)	207 (99%)	3 (1%)	67 72
1	III	216/232 (93%)	212 (98%)	4 (2%)	57 61
1	JJJ	217/232 (94%)	214 (99%)	3 (1%)	67 72
All	All	2100/2320 (90%)	2071 (99%)	29 (1%)	67 72

5 of 29 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	EEE	174	ASP

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Mol	Chain	Res	Type
1	JJJ	258	SER
1	FFF	45	THR
1	III	273	SER
1	EEE	287	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

5.3.3 RNA (i)

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains (i)

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 20 ligands modelled in this entry, 10 are monoatomic - leaving 10 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
3	GOL	BBB	401	-	5,5,5	0.13	0	5,5,5	0.34	0
3	GOL	III	501	-	5,5,5	0.14	0	5,5,5	0.32	0
3	GOL	FFF	401	-	5,5,5	0.12	0	5,5,5	0.43	0
3	GOL	FFF	402	-	5,5,5	0.12	0	5,5,5	0.23	0
3	GOL	EEE	401	-	5,5,5	0.16	0	5,5,5	0.39	0
3	GOL	JJJ	401	-	5,5,5	0.25	0	5,5,5	0.61	0
3	GOL	DDD	401	-	5,5,5	0.15	0	5,5,5	0.30	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
3	GOL	III	502	-	5,5,5	0.37	0	5,5,5	0.71	0
3	GOL	HHH	401	-	5,5,5	0.15	0	5,5,5	0.29	0
3	GOL	III	503	-	5,5,5	0.17	0	5,5,5	0.40	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	GOL	BBB	401	-	-	1/4/4/4	-
3	GOL	III	501	-	-	2/4/4/4	-
3	GOL	FFF	401	-	-	4/4/4/4	-
3	GOL	FFF	402	-	-	1/4/4/4	-
3	GOL	EEE	401	-	-	2/4/4/4	-
3	GOL	JJJ	401	-	-	2/4/4/4	-
3	GOL	DDD	401	-	-	4/4/4/4	-
3	GOL	III	502	-	-	2/4/4/4	-
3	GOL	HHH	401	-	-	2/4/4/4	-
3	GOL	III	503	-	-	3/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

5 of 23 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	DDD	401	GOL	O1-C1-C2-C3
3	FFF	401	GOL	O1-C1-C2-C3
3	FFF	401	GOL	C1-C2-C3-O3
3	III	503	GOL	O1-C1-C2-C3
3	JJJ	401	GOL	O1-C1-C2-C3

There are no ring outliers.

2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	FFF	401	GOL	1	0
3	EEE	401	GOL	1	0

5.7 Other polymers (i)

There are no such residues in this entry.

5.8 Polymer linkage issues (i)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
1	AAA	258/271 (95%)	-0.44	0 100 100	21, 29, 49, 75	0
1	BBB	256/271 (94%)	-0.39	1 (0%) 92 92	21, 30, 49, 72	0
1	CCC	264/271 (97%)	-0.28	5 (1%) 66 65	22, 30, 51, 70	0
1	DDD	256/271 (94%)	-0.33	1 (0%) 92 92	22, 32, 57, 72	0
1	EEE	258/271 (95%)	-0.32	3 (1%) 79 78	20, 31, 50, 69	0
1	FFF	258/271 (95%)	-0.37	3 (1%) 79 78	19, 26, 48, 70	0
1	GGG	257/271 (94%)	-0.44	0 100 100	19, 26, 50, 71	0
1	HHH	257/271 (94%)	-0.42	1 (0%) 92 92	20, 27, 47, 69	0
1	III	265/271 (97%)	-0.53	1 (0%) 92 92	18, 26, 40, 68	0
1	JJJ	264/271 (97%)	-0.42	2 (0%) 86 85	20, 27, 47, 63	0
All	All	2593/2710 (95%)	-0.40	17 (0%) 87 87	18, 28, 50, 75	0

The worst 5 of 17 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	HHH	41	VAL	4.7
1	JJJ	41	VAL	3.6
1	CCC	32	VAL	3.5
1	FFF	39	THR	3.4
1	CCC	105	GLY	3.3

6.2 Non-standard residues in protein, DNA, RNA chains

There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	GOL	JJJ	401	6/6	0.75	0.23	48,57,62,68	0
3	GOL	III	501	6/6	0.76	0.15	63,69,70,71	0
3	GOL	III	502	6/6	0.77	0.25	25,46,48,49	0
3	GOL	III	503	6/6	0.79	0.20	49,57,67,71	0
3	GOL	EEE	401	6/6	0.79	0.18	51,62,62,65	0
3	GOL	HHH	401	6/6	0.82	0.22	42,51,53,58	0
3	GOL	FFF	401	6/6	0.86	0.21	47,53,63,76	0
3	GOL	FFF	402	6/6	0.88	0.15	51,54,58,58	0
3	GOL	BBB	401	6/6	0.88	0.12	48,54,58,61	0
3	GOL	DDD	401	6/6	0.90	0.16	46,50,54,56	0
2	CL	DDD	402	1/1	0.93	0.08	47,47,47,47	0
2	CL	EEE	402	1/1	0.94	0.17	47,47,47,47	0
2	CL	BBB	402	1/1	0.95	0.07	44,44,44,44	0
2	CL	III	504	1/1	0.95	0.07	42,42,42,42	0
2	CL	CCC	401	1/1	0.96	0.06	49,49,49,49	0
2	CL	GGG	401	1/1	0.97	0.07	48,48,48,48	0
2	CL	JJJ	402	1/1	0.98	0.06	36,36,36,36	0
2	CL	FFF	403	1/1	0.99	0.07	38,38,38,38	0
2	CL	AAA	401	1/1	0.99	0.03	34,34,34,34	0
2	CL	HHH	402	1/1	0.99	0.04	36,36,36,36	0

6.5 Other polymers (i)

There are no such residues in this entry.