



# Full wwPDB X-ray Structure Validation Report ⓘ

Mar 10, 2026 – 03:49 PM UTC

PDB ID : 5NI3 / pdb\_00005ni3  
Title : sfGFP 204-204 mutant dimer  
Authors : Worthy, H.L.; Rizkallah, P.J.  
Deposited on : 2017-03-23  
Resolution : 1.28 Å(reported)

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

We welcome your comments at [validation@mail.wwpdb.org](mailto: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 ⓘ 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 ⓘ](#)) were used in the production of this report:

MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

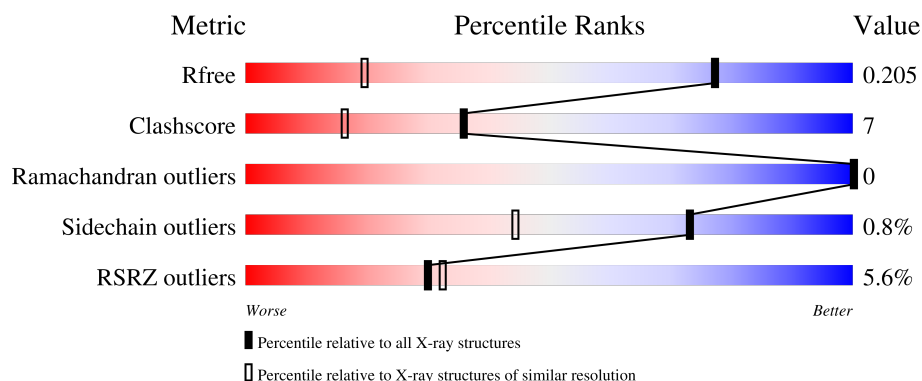
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 1.28 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))
$R_{free}$	180053	2836 (1.30-1.26)
Clashscore	190562	2911 (1.30-1.26)
Ramachandran outliers	187476	2841 (1.30-1.26)
Sidechain outliers	187428	2840 (1.30-1.26)
RSRZ outliers	180081	2832 (1.30-1.26)

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  $\geq 3$ , 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  $\leq 5\%$ . 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	A	225	
2	B	229	
3	C	229	
3	D	229	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard

residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
5	DB5	A	303	-	-	X	-

## 2 Entry composition

There are 8 unique types of molecules in this entry. The entry contains 8346 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 Green fluorescent protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	225	Total	C	N	O	S	0	3	0
			1811	1153	308	345	5			

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	30	ARG	SER	conflict	UNP A0A059PIQ0
A	66	CRO	THR	chromophore	UNP A0A059PIQ0
A	66	CRO	TYR	chromophore	UNP A0A059PIQ0
A	66	CRO	GLY	chromophore	UNP A0A059PIQ0
A	72	SER	ALA	conflict	UNP A0A059PIQ0
A	80	ARG	GLN	conflict	UNP A0A059PIQ0
A	204	PHE	GLN	engineered mutation	UNP A0A059PIQ0
A	206	VAL	ALA	conflict	UNP A0A059PIQ0

- Molecule 2 is a protein called Green fluorescent protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	229	Total	C	N	O	S	0	3	0
			1840	1170	314	350	6			

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	30	ARG	SER	conflict	UNP A0A059PIQ0
B	66	CRO	THR	chromophore	UNP A0A059PIQ0
B	66	CRO	TYR	chromophore	UNP A0A059PIQ0
B	66	CRO	GLY	chromophore	UNP A0A059PIQ0
B	72	SER	ALA	conflict	UNP A0A059PIQ0
B	80	ARG	GLN	conflict	UNP A0A059PIQ0
B	204	PHE	GLN	engineered mutation	UNP A0A059PIQ0
B	206	VAL	ALA	conflict	UNP A0A059PIQ0

- Molecule 3 is a protein called Green fluorescent protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	C	229	Total	C	N	O	S	0	2	0
			1835	1164	316	349	6			
3	D	225	Total	C	N	O	S	0	4	0
			1816	1153	310	348	5			

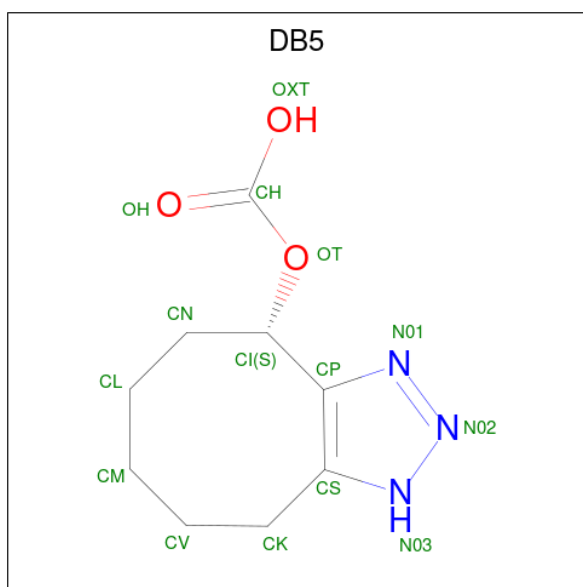
There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
C	30	ARG	SER	conflict	UNP A0A059PIQ0
C	66	CRO	THR	chromophore	UNP A0A059PIQ0
C	66	CRO	TYR	chromophore	UNP A0A059PIQ0
C	66	CRO	GLY	chromophore	UNP A0A059PIQ0
C	72	SER	ALA	conflict	UNP A0A059PIQ0
C	80	ARG	GLN	conflict	UNP A0A059PIQ0
C	204	LYS	GLN	conflict	UNP A0A059PIQ0
C	206	VAL	ALA	conflict	UNP A0A059PIQ0
D	30	ARG	SER	conflict	UNP A0A059PIQ0
D	66	CRO	THR	chromophore	UNP A0A059PIQ0
D	66	CRO	TYR	chromophore	UNP A0A059PIQ0
D	66	CRO	GLY	chromophore	UNP A0A059PIQ0
D	72	SER	ALA	conflict	UNP A0A059PIQ0
D	80	ARG	GLN	conflict	UNP A0A059PIQ0
D	204	LYS	GLN	conflict	UNP A0A059PIQ0
D	206	VAL	ALA	conflict	UNP A0A059PIQ0

- Molecule 4 is SODIUM ION (CCD ID: NA) (formula: Na).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	2	Total	Na	0	0
			2	2		
4	B	1	Total	Na	0	0
			1	1		
4	C	3	Total	Na	0	0
			3	3		
4	D	4	Total	Na	0	0
			4	4		

- Molecule 5 is [(4 {S})-4,5,6,7,8,9-hexahydro-1 {H}-cycloocta[d][1,2,3]triazol-4-yl] hydrogen carbonate (CCD ID: DB5) (formula: C<sub>9</sub>H<sub>13</sub>N<sub>3</sub>O<sub>3</sub>).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
5	A	1	Total	C	N	O	0	0
			14	9	3	2		
5	B	1	Total	C	N	O	0	0
			14	9	3	2		

- Molecule 6 is GLYCEROL (CCD ID: GOL) (formula:  $C_3H_8O_3$ ).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	B	1	Total	C	O	0	0
			6	3	3		
6	B	1	Total	C	O	0	0
			6	3	3		

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	B	1	Total	C	O	0	0
			6	3	3		
6	C	1	Total	C	O	0	0
			6	3	3		
6	D	1	Total	C	O	0	0
			6	3	3		

- Molecule 7 is CHLORIDE ION (CCD ID: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	C	1	Total	Cl	0	0
			1	1		

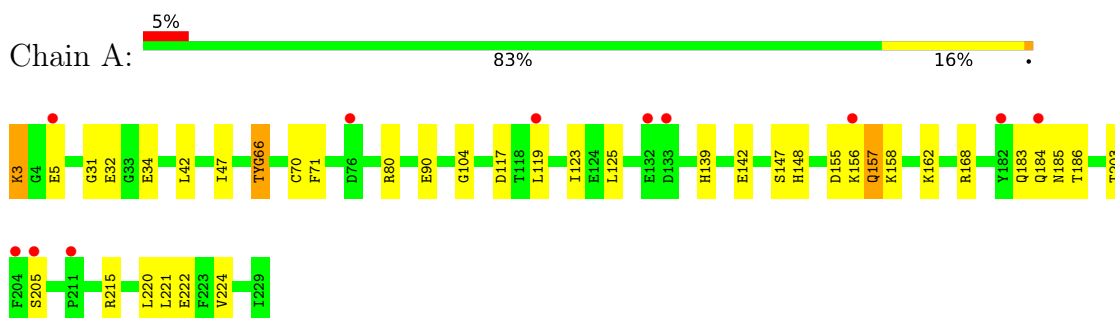
- Molecule 8 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	A	259	Total	O	0	0
			259	259		
8	B	256	Total	O	0	0
			256	256		
8	C	242	Total	O	0	0
			242	242		
8	D	218	Total	O	0	0
			218	218		

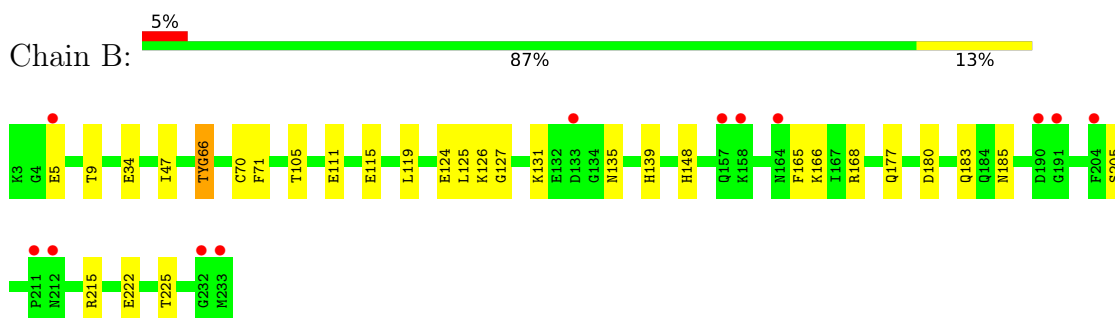
### 3 Residue-property plots

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.

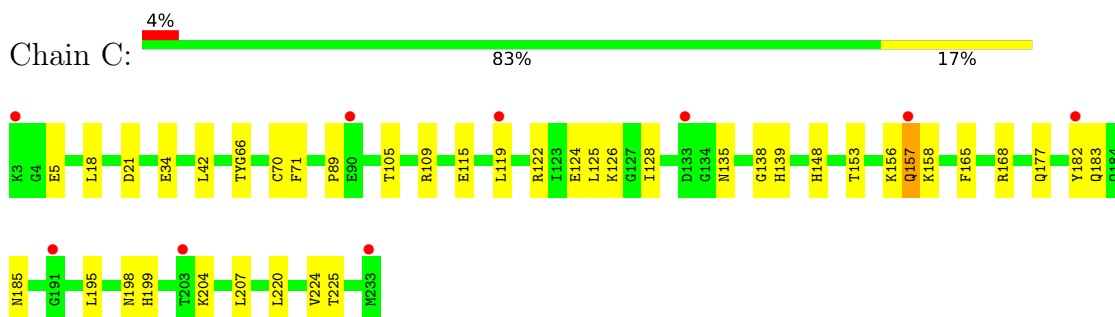
- Molecule 1: Green fluorescent protein



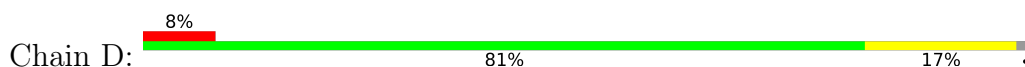
- Molecule 2: Green fluorescent protein



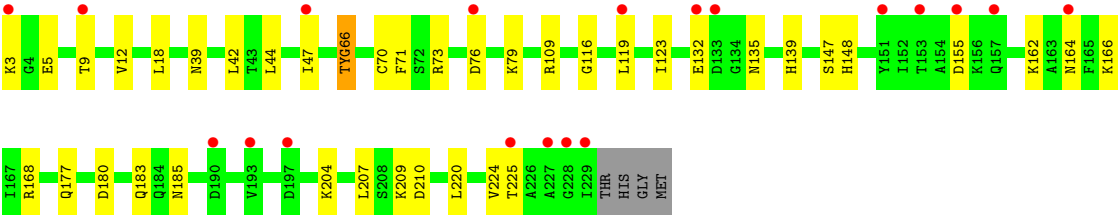
- Molecule 3: Green fluorescent protein



- Molecule 3: Green fluorescent protein







## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	96.70Å 98.02Å 102.64Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	57.17 – 1.28 57.17 – 1.28	Depositor EDS
% Data completeness (in resolution range)	99.9 (57.17-1.28) 99.9 (57.17-1.28)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.64 (at 1.28Å)	Xtriage
Refinement program	REFMAC 5.8.0189	Depositor
R, $R_{free}$	0.174 , 0.191 (Not available) , 0.205	Depositor DCC
$R_{free}$ test set	12228 reflections (4.89%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	17.7	Xtriage
Anisotropy	0.311	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.36 , 37.0	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.48$ , $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	0.015 for k,h,-l	Xtriage
$F_o, F_c$ correlation	0.97	EDS
Total number of atoms	8346	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	25.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.77% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical values of  $\langle |L| \rangle$ ,  $\langle L^2 \rangle$  for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: CRO, DB5, NA, GOL, CL

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	A	1.56	7/1837 (0.4%)	1.22	4/2482 (0.2%)
2	B	1.47	5/1867 (0.3%)	1.18	5/2522 (0.2%)
3	C	1.59	10/1858 (0.5%)	1.27	6/2507 (0.2%)
3	D	1.53	10/1841 (0.5%)	1.14	2/2486 (0.1%)
All	All	1.54	32/7403 (0.4%)	1.20	17/9997 (0.2%)

All (32) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	12	VAL	N-CA	9.78	1.54	1.46
1	A	117	ASP	CG-OD2	8.36	1.41	1.25
3	D	12	VAL	CA-CB	-7.95	1.48	1.54
3	C	224	VAL	CA-CB	-7.23	1.45	1.54
1	A	31	GLY	CA-C	-6.69	1.46	1.51
1	A	222	GLU	CD-OE1	6.38	1.37	1.25
3	D	42	LEU	CB-CG	-6.26	1.41	1.53
3	C	199	HIS	CA-C	-6.23	1.45	1.52
1	A	104	GLY	C-O	6.08	1.29	1.23
2	B	105[A]	THR	C-O	6.05	1.31	1.23
2	B	105[B]	THR	C-O	6.05	1.31	1.23
3	C	105	THR	C-O	5.80	1.30	1.23
2	B	115	GLU	C-O	5.69	1.30	1.24
1	A	32	GLU	CD-OE2	5.60	1.35	1.25
3	D	147[A]	SER	C-O	5.47	1.30	1.23
3	D	147[B]	SER	C-O	5.47	1.30	1.23
3	D	44	LEU	CA-C	-5.46	1.46	1.52
2	B	222	GLU	CD-OE1	5.38	1.35	1.25
3	D	9	THR	C-O	5.33	1.30	1.24
3	C	165	PHE	C-O	5.33	1.30	1.23
3	C	124	GLU	CA-C	-5.31	1.46	1.52
1	A	42	LEU	CB-CG	-5.29	1.42	1.53

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	C	138	GLY	C-O	-5.28	1.17	1.23
3	C	42	LEU	CB-CG	-5.25	1.43	1.53
3	D	164	ASN	C-O	5.25	1.30	1.23
2	B	205	SER	CA-CB	-5.23	1.43	1.53
3	D	47	ILE	CB-CG1	-5.17	1.43	1.53
3	C	182	TYR	CB-CG	5.07	1.62	1.51
1	A	184	GLN	CD-NE2	-5.04	1.22	1.33
3	C	157	GLN	CD-NE2	5.03	1.43	1.33
3	D	116	GLY	C-O	-5.03	1.17	1.24
3	C	124	GLU	CD-OE1	5.01	1.34	1.25

All (17) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	80	ARG	NE-CZ-NH2	7.26	125.73	119.20
3	D	109	ARG	NE-CZ-NH1	-7.22	114.28	121.50
1	A	34	GLU	CA-C-N	6.84	126.30	121.65
1	A	34	GLU	C-N-CA	6.84	126.30	121.65
3	D	204	LYS	CD-CE-NZ	6.32	132.14	111.90
2	B	9	THR	CA-C-N	-6.18	110.26	121.32
2	B	9	THR	C-N-CA	-6.18	110.26	121.32
3	C	157	GLN	CB-CG-CD	5.79	122.44	112.60
2	B	34	GLU	CA-C-N	5.57	125.44	121.65
2	B	34	GLU	C-N-CA	5.57	125.44	121.65
2	B	165	PHE	O-C-N	-5.53	117.99	123.46
1	A	80	ARG	NE-CZ-NH1	-5.46	116.04	121.50
3	C	34	GLU	CA-C-N	5.45	125.36	121.65
3	C	34	GLU	C-N-CA	5.45	125.36	121.65
3	C	199	HIS	O-C-N	-5.36	117.26	122.99
3	C	5	GLU	CB-CA-C	-5.34	101.59	110.68
3	C	109	ARG	NE-CZ-NH2	5.34	124.01	119.20

There are no chirality outliers.

There are no planarity outliers.

## 5.2 Too-close contacts

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	A	1811	0	1778	29	0
2	B	1840	0	1804	21	0
3	C	1835	0	1801	29	9
3	D	1816	0	1781	27	9
4	A	2	0	0	0	0
4	B	1	0	0	0	0
4	C	3	0	0	0	0
4	D	4	0	0	0	0
5	A	14	0	0	7	0
5	B	14	0	0	3	0
6	B	18	0	20	4	0
6	C	6	0	8	0	0
6	D	6	0	8	0	0
7	C	1	0	0	0	0
8	A	259	0	0	7	0
8	B	256	0	0	3	0
8	C	242	0	0	5	0
8	D	218	0	0	4	0
All	All	8346	0	7200	106	9

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 7.

All (106) 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)
3:C:71:PHE:CE2	3:C:119:LEU:HD23	1.73	1.21
3:C:157:GLN:OE1	8:C:402:HOH:O	1.57	1.18
3:D:132:GLU:OE2	8:D:401:HOH:O	1.66	1.13
1:A:142:GLU:OE1	8:A:405:HOH:O	1.69	1.09
3:C:115:GLU:OE1	3:C:122:ARG:NH2	1.94	1.00
3:C:71:PHE:CE2	3:C:119:LEU:CD2	2.48	0.96
3:D:71:PHE:CE2	3:D:119:LEU:HD13	2.01	0.95
3:C:71:PHE:HE2	3:C:119:LEU:HD23	1.13	0.95
2:B:71:PHE:CE2	2:B:119:LEU:HD13	2.03	0.93
2:B:124:GLU:HG3	6:B:302:GOL:H11	1.53	0.90
2:B:183:GLN:HE21	2:B:185:ASN:HD21	1.17	0.88
2:B:70:CYS:SG	2:B:119:LEU:HD11	2.15	0.87
1:A:70:CYS:SG	1:A:119:LEU:HD11	2.16	0.84
5:B:305:DB5:N03	3:C:225:THR:HG21	1.93	0.84
3:D:183:GLN:HE21	3:D:185:ASN:HD21	1.25	0.84
3:D:70:CYS:SG	3:D:119:LEU:HD11	2.18	0.83

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:183:GLN:HE21	1:A:185:ASN:HD21	1.27	0.83
1:A:66:CRO:OH	1:A:203[B]:THR:HG21	1.78	0.82
3:C:183:GLN:HE21	3:C:185:ASN:HD21	1.27	0.82
2:B:111:GLU:HG3	6:B:303:GOL:H31	1.64	0.79
3:C:70:CYS:SG	3:C:119:LEU:HD21	2.22	0.78
5:A:303:DB5:N02	3:D:225:THR:HG21	2.00	0.76
5:A:303:DB5:N03	3:D:225:THR:HG21	2.04	0.71
2:B:71:PHE:CZ	2:B:119:LEU:HD13	2.25	0.71
2:B:5:GLU:HG2	8:B:429:HOH:O	1.90	0.71
3:D:71:PHE:CZ	3:D:119:LEU:HD13	2.29	0.67
3:D:148:HIS:HE1	3:D:168:ARG:H	1.44	0.66
2:B:111:GLU:CG	6:B:303:GOL:H31	2.26	0.65
2:B:148:HIS:HE1	2:B:168:ARG:H	1.42	0.65
1:A:71:PHE:CE2	1:A:119:LEU:HD13	2.32	0.63
3:D:3:LYS:HE2	3:D:5:GLU:OE2	1.98	0.63
3:D:135:ASN:HD22	3:D:177:GLN:HE21	1.48	0.61
1:A:203[A]:THR:HG23	1:A:224:VAL:HG22	1.83	0.61
1:A:148:HIS:HE1	1:A:168:ARG:H	1.50	0.60
3:C:115:GLU:CD	3:C:122:ARG:HH21	2.09	0.60
2:B:135:ASN:HD22	2:B:177:GLN:HE21	1.49	0.59
1:A:66:CRO:CZ	1:A:203[B]:THR:HG21	2.33	0.58
2:B:148:HIS:CE1	2:B:168:ARG:H	2.21	0.58
3:C:71:PHE:CZ	3:C:119:LEU:HD23	2.35	0.58
1:A:5:GLU:HG3	8:A:503:HOH:O	2.03	0.58
3:C:135:ASN:HD22	3:C:177:GLN:HE21	1.50	0.57
3:D:148:HIS:CE1	3:D:168:ARG:H	2.22	0.56
1:A:148:HIS:CE1	1:A:168:ARG:H	2.23	0.56
3:C:148:HIS:HE1	3:C:168:ARG:H	1.54	0.55
3:C:71:PHE:CZ	3:C:119:LEU:CD2	2.90	0.54
3:C:148:HIS:CE1	3:C:168:ARG:H	2.25	0.54
3:C:207:LEU:CD2	3:C:220:LEU:HD13	2.37	0.54
5:A:303:DB5:N03	3:D:225:THR:CG2	2.70	0.54
3:C:89:PRO:HD2	8:C:401:HOH:O	2.07	0.54
1:A:148:HIS:O	1:A:203[B]:THR:HG22	2.07	0.54
2:B:70:CYS:HG	2:B:119:LEU:HD11	1.69	0.54
3:C:115:GLU:CD	3:C:122:ARG:NH2	2.65	0.53
3:D:207[B]:LEU:CD2	3:D:220:LEU:HD13	2.39	0.53
2:B:225:THR:HB	5:B:305:DB5:CN	2.39	0.52
3:C:21:ASP:O	3:C:126[A]:LYS:HD2	2.09	0.52
1:A:221:LEU:C	1:A:221:LEU:HD23	2.34	0.52
3:D:183:GLN:HE21	3:D:185:ASN:ND2	2.02	0.52

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:18:LEU:C	3:C:18:LEU:HD23	2.35	0.51
1:A:3:LYS:NZ	8:A:402:HOH:O	0.66	0.51
1:A:147[A]:SER:H	3:D:39:ASN:ND2	2.09	0.50
1:A:147[C]:SER:H	3:D:39:ASN:ND2	2.09	0.50
1:A:148:HIS:H	1:A:203[B]:THR:HG22	1.76	0.50
1:A:47:ILE:HD13	1:A:215:ARG:CZ	2.42	0.50
3:C:183:GLN:HE21	3:C:185:ASN:ND2	2.04	0.50
1:A:71:PHE:CZ	1:A:119:LEU:HD13	2.46	0.50
5:A:303:DB5:CK	5:A:303:DB5:CN	2.89	0.49
3:C:156:LYS:HG2	3:C:195:LEU:HD13	1.93	0.49
5:A:303:DB5:CV	5:A:303:DB5:CI	2.91	0.49
3:C:158:LYS:HE2	8:C:524:HOH:O	2.12	0.49
2:B:166:LYS:HG2	2:B:180:ASP:OD1	2.12	0.49
1:A:90:GLU:OE1	8:A:401:HOH:O	0.51	0.49
2:B:139:HIS:HD2	8:B:636:HOH:O	1.95	0.48
2:B:131:LYS:NZ	8:B:404:HOH:O	2.48	0.47
2:B:124:GLU:CG	6:B:302:GOL:H11	2.35	0.47
1:A:156:LYS:NZ	8:A:411:HOH:O	2.47	0.46
5:A:303:DB5:CS	3:D:225:THR:HG21	2.45	0.46
3:C:153:THR:HG23	3:C:198:ASN:OD1	2.16	0.46
5:B:305:DB5:N03	3:C:225:THR:CG2	2.73	0.46
3:D:73:ARG:NH1	8:D:404:HOH:O	2.47	0.46
3:D:139:HIS:HD2	8:D:597:HOH:O	1.99	0.45
1:A:162:LYS:CE	8:A:483:HOH:O	2.65	0.45
3:C:139:HIS:HE1	8:C:617:HOH:O	1.99	0.45
1:A:183:GLN:HE21	1:A:185:ASN:ND2	2.06	0.45
3:D:224:VAL:HG11	8:D:461:HOH:O	2.16	0.45
3:C:126[A]:LYS:HE3	3:C:128:ILE:CG2	2.47	0.44
3:D:166:LYS:HG2	3:D:180:ASP:OD1	2.18	0.44
3:C:139:HIS:HD2	8:C:625:HOH:O	1.99	0.44
3:D:66:CRO:OH	3:D:148:HIS:HD2	2.00	0.43
1:A:139:HIS:HD2	8:A:635:HOH:O	1.99	0.43
3:D:18:LEU:C	3:D:18:LEU:HD23	2.44	0.43
3:D:155:ASP:CG	3:D:162:LYS:HE2	2.44	0.43
1:A:66:CRO:CE1	1:A:203[A]:THR:HG21	2.49	0.43
2:B:125:LEU:C	2:B:125:LEU:HD23	2.44	0.43
3:C:135:ASN:HD22	3:C:177:GLN:NE2	2.16	0.43
1:A:158:LYS:HE3	1:A:186:THR:HG21	2.00	0.42
3:D:76:ASP:OD1	3:D:79:LYS:HE2	2.19	0.42
2:B:47[B]:ILE:HD13	2:B:215:ARG:CZ	2.49	0.42
1:A:125:LEU:C	1:A:125:LEU:HD23	2.45	0.42

*Continued on next page...*

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:66:CRO:OH	2:B:148:HIS:HD2	2.01	0.42
3:C:125:LEU:C	3:C:125:LEU:HD23	2.45	0.41
1:A:66:CRO:OH	1:A:148:HIS:HD2	2.04	0.41
1:A:155:ASP:OD1	1:A:157:GLN:HG3	2.21	0.41
3:D:76:ASP:HA	3:D:79:LYS:HG3	2.03	0.41
5:A:303:DB5:N01	3:D:225:THR:HG21	2.37	0.40
1:A:205:SER:OG	1:A:220:LEU:HD11	2.21	0.40

All (9) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:157:GLN:NE2	3:D:209:LYS:C[2_454]	0.64	1.56
3:C:157:GLN:CD	3:D:209:LYS:O[2_454]	0.67	1.53
3:C:157:GLN:NE2	3:D:209:LYS:CA[2_454]	1.09	1.11
3:C:157:GLN:OE1	3:D:209:LYS:O[2_454]	1.12	1.08
3:C:157:GLN:NE2	3:D:209:LYS:O[2_454]	1.35	0.85
3:C:157:GLN:CD	3:D:209:LYS:C[2_454]	1.59	0.61
3:C:157:GLN:NE2	3:D:210:ASP:N[2_454]	1.87	0.33
3:C:157:GLN:NE2	3:D:209:LYS:N[2_454]	1.89	0.31
3:C:157:GLN:NE2	3:D:209:LYS:CB[2_454]	2.11	0.09

## 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	A	223/225 (99%)	220 (99%)	3 (1%)	0	100	100
2	B	227/229 (99%)	224 (99%)	3 (1%)	0	100	100
3	C	226/229 (99%)	223 (99%)	3 (1%)	0	100	100
3	D	224/229 (98%)	221 (99%)	3 (1%)	0	100	100

Continued on next page...



*Continued from previous page...*

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
All	All	900/912 (99%)	888 (99%)	12 (1%)	0	100	100

There are no Ramachandran outliers to report.

### 5.3.2 Protein sidechains ⓘ

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	A	199/196 (102%)	196 (98%)	3 (2%)	57	21
2	B	202/199 (102%)	201 (100%)	1 (0%)	81	59
3	C	201/199 (101%)	200 (100%)	1 (0%)	81	59
3	D	200/199 (100%)	199 (100%)	1 (0%)	81	59
All	All	802/793 (101%)	796 (99%)	6 (1%)	73	49

All (6) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	3	LYS
1	A	123	ILE
1	A	157	GLN
2	B	126	LYS
3	C	204	LYS
3	D	123	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (23) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	139	HIS
1	A	146	ASN
1	A	148	HIS
1	A	185	ASN
2	B	139	HIS
2	B	148	HIS

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type
2	B	177	GLN
2	B	185	ASN
2	B	212	ASN
3	C	139	HIS
3	C	146	ASN
3	C	148	HIS
3	C	157	GLN
3	C	164	ASN
3	C	177	GLN
3	C	185	ASN
3	D	39	ASN
3	D	139	HIS
3	D	146	ASN
3	D	148	HIS
3	D	157	GLN
3	D	177	GLN
3	D	185	ASN

### 5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

4 non-standard protein/DNA/RNA residues are modelled in this entry.

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	CRO	C	66	3	22,23,24	3.06	8 (36%)	30,32,34	1.99	7 (23%)
2	CRO	B	66	2	22,23,24	2.71	6 (27%)	30,32,34	2.46	12 (40%)
3	CRO	D	66	3	22,23,24	2.42	5 (22%)	30,32,34	2.70	8 (26%)
1	CRO	A	66	1	22,23,24	2.58	6 (27%)	30,32,34	1.55	6 (20%)

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	CRO	C	66	3	-	0/12/31/32	0/2/2/2
2	CRO	B	66	2	-	0/12/31/32	0/2/2/2
3	CRO	D	66	3	-	0/12/31/32	0/2/2/2
1	CRO	A	66	1	-	0/12/31/32	0/2/2/2

All (25) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	C	66	CRO	CB2-CA2	10.11	1.44	1.35
1	A	66	CRO	CB2-CA2	9.33	1.44	1.35
3	D	66	CRO	CB2-CA2	8.94	1.43	1.35
2	B	66	CRO	CB2-CA2	8.19	1.43	1.35
2	B	66	CRO	CA2-C2	-6.04	1.42	1.48
3	C	66	CRO	CA2-C2	-5.83	1.42	1.48
3	D	66	CRO	C2-N3	-4.18	1.30	1.40
2	B	66	CRO	O2-C2	4.10	1.31	1.23
1	A	66	CRO	CA2-C2	-3.85	1.44	1.48
3	C	66	CRO	CA3-N3	3.83	1.54	1.47
2	B	66	CRO	C2-N3	-3.62	1.31	1.40
3	C	66	CRO	C2-N3	-3.59	1.31	1.40
2	B	66	CRO	CE2-CD2	-3.57	1.33	1.38
1	A	66	CRO	O2-C2	3.45	1.30	1.23
3	C	66	CRO	O2-C2	3.25	1.29	1.23
1	A	66	CRO	C1-N2	3.08	1.36	1.32
3	C	66	CRO	C1-N2	2.97	1.36	1.32
3	D	66	CRO	C1-N2	2.68	1.36	1.32
3	D	66	CRO	CA2-C2	-2.67	1.45	1.48
2	B	66	CRO	CE1-CZ	-2.55	1.34	1.39
1	A	66	CRO	C2-N3	-2.34	1.34	1.40
3	D	66	CRO	O2-C2	2.31	1.27	1.23
3	C	66	CRO	CE1-CZ	2.26	1.43	1.39
3	C	66	CRO	CE2-CD2	-2.16	1.35	1.38
1	A	66	CRO	CA2-N2	-2.06	1.34	1.38

All (33) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	66	CRO	O2-C2-CA2	-9.74	124.81	131.02

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	66	CRO	CA2-C2-N3	7.02	109.39	103.50
3	D	66	CRO	CA2-C2-N3	6.43	108.90	103.50
2	B	66	CRO	O2-C2-CA2	-5.77	127.34	131.02
3	C	66	CRO	O2-C2-CA2	-5.52	127.50	131.02
2	B	66	CRO	C2-CA2-N2	-5.29	105.16	108.95
3	D	66	CRO	C2-CA2-N2	-5.23	105.20	108.95
1	A	66	CRO	CA2-C2-N3	4.60	107.37	103.50
3	C	66	CRO	CA2-C2-N3	4.39	107.19	103.50
3	C	66	CRO	C1-CA1-N1	-3.66	103.23	109.78
2	B	66	CRO	C2-N3-C1	-3.44	106.47	108.07
3	D	66	CRO	C1-CA1-N1	-3.24	103.99	109.78
1	A	66	CRO	C1-CA1-N1	-3.18	104.09	109.78
3	C	66	CRO	CD2-CE2-CZ	3.17	123.23	119.88
3	C	66	CRO	N3-C1-N2	-3.08	109.06	111.48
3	D	66	CRO	CA2-N2-C1	2.90	108.07	105.80
2	B	66	CRO	CD2-CE2-CZ	2.74	122.77	119.88
2	B	66	CRO	CD1-CE1-CZ	2.64	122.67	119.88
3	C	66	CRO	C2-CA2-N2	-2.58	107.10	108.95
3	D	66	CRO	CB2-CA2-C2	2.57	125.47	122.36
3	C	66	CRO	O3-C3-CA3	-2.41	114.64	125.47
3	D	66	CRO	C3-CA3-N3	2.29	117.65	112.43
2	B	66	CRO	OG1-CB1-CG1	2.24	116.39	109.68
1	A	66	CRO	OG1-CB1-CA1	2.24	113.77	109.00
1	A	66	CRO	O3-C3-CA3	-2.17	115.71	125.47
2	B	66	CRO	O3-C3-CA3	-2.15	115.82	125.47
2	B	66	CRO	C1-CA1-N1	-2.12	105.99	109.78
1	A	66	CRO	O2-C2-CA2	-2.05	129.71	131.02
2	B	66	CRO	CB2-CA2-C2	2.05	124.84	122.36
1	A	66	CRO	C2-N3-C1	-2.05	107.12	108.07
3	D	66	CRO	N3-C1-N2	-2.04	109.87	111.48
2	B	66	CRO	CE2-CZ-CE1	-2.02	116.55	119.77
2	B	66	CRO	CG1-CB1-CA1	-2.02	107.58	112.18

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

3 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	66	CRO	1	0
3	D	66	CRO	1	0

*Continued on next page...*

*Continued from previous page...*

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	A	66	CRO	4	0

## 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

Of 18 ligands modelled in this entry, 11 are monoatomic - leaving 7 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
5	DB5	A	303	1,3	12,15,16	2.42	4 (33%)	13,19,21	7.49	8 (61%)
6	GOL	D	301	-	5,5,5	0.56	0	5,5,5	0.94	0
5	DB5	B	305	2,3	12,15,16	3.54	5 (41%)	13,19,21	2.81	8 (61%)
6	GOL	B	301	-	5,5,5	0.63	0	5,5,5	0.99	0
6	GOL	B	302	6	5,5,5	2.50	1 (20%)	5,5,5	1.43	0
6	GOL	B	303	6	5,5,5	2.78	2 (40%)	5,5,5	1.00	0
6	GOL	C	301	-	5,5,5	0.76	0	5,5,5	1.33	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
5	DB5	A	303	1,3	-	1/1/15/16	1/2/2/2
6	GOL	D	301	-	-	2/4/4/4	-
5	DB5	B	305	2,3	-	1/1/15/16	0/2/2/2
6	GOL	B	301	-	-	3/4/4/4	-
6	GOL	B	302	6	-	0/4/4/4	-
6	GOL	B	303	6	-	0/4/4/4	-

*Continued on next page...*

*Continued from previous page...*

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	GOL	C	301	-	-	1/4/4/4	-

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	B	305	DB5	OT-CH	8.12	1.50	1.33
5	B	305	DB5	OT-CI	-5.81	1.36	1.44
5	A	303	DB5	OT-CH	5.74	1.45	1.33
6	B	303	GOL	O2-C2	5.55	1.59	1.43
6	B	302	GOL	O2-C2	5.14	1.58	1.43
5	B	305	DB5	N03-N02	-5.06	1.29	1.35
5	B	305	DB5	CK-CS	3.96	1.55	1.50
5	A	303	DB5	CP-N01	3.75	1.41	1.36
5	A	303	DB5	N03-N02	-3.19	1.31	1.35
5	A	303	DB5	CK-CS	2.56	1.53	1.50
6	B	303	GOL	O1-C1	2.55	1.53	1.42
5	B	305	DB5	CS-N03	-2.14	1.33	1.35

All (16) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	A	303	DB5	CS-CP-N01	-18.43	97.93	108.81
5	A	303	DB5	CP-CS-N03	12.49	117.49	105.92
5	A	303	DB5	CI-CP-N01	9.79	139.23	121.58
5	A	303	DB5	OT-CH-OH	-7.62	115.92	125.70
5	A	303	DB5	CS-N03-N02	-5.61	103.43	112.64
5	B	305	DB5	OT-CH-OH	-4.86	119.46	125.70
5	A	303	DB5	CK-CS-N03	-4.69	117.49	125.07
5	B	305	DB5	CV-CK-CS	-4.10	104.06	114.15
5	B	305	DB5	CS-CP-N01	3.77	111.03	108.81
5	B	305	DB5	CK-CS-N03	3.69	131.04	125.07
5	B	305	DB5	CI-CP-N01	3.24	127.42	121.58
5	A	303	DB5	CK-CS-CP	-3.01	124.24	130.90
5	A	303	DB5	CM-CV-CK	-2.91	109.41	116.05
5	B	305	DB5	CP-CS-N03	-2.62	103.49	105.92
5	B	305	DB5	CK-CS-CP	-2.47	125.43	130.90
5	B	305	DB5	CP-N01-N02	-2.18	103.63	108.19

There are no chirality outliers.

All (8) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	303	DB5	OH-CH-OT-CI
5	B	305	DB5	OH-CH-OT-CI
6	D	301	GOL	O1-C1-C2-C3
6	B	301	GOL	O1-C1-C2-C3
6	B	301	GOL	O1-C1-C2-O2
6	D	301	GOL	O1-C1-C2-O2
6	B	301	GOL	O2-C2-C3-O3
6	C	301	GOL	O1-C1-C2-O2

All (1) ring outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	A	303	DB5	CI-CK-CL-CM-CN-CP-CS-CV

4 monomers are involved in 14 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	A	303	DB5	7	0
5	B	305	DB5	3	0
6	B	302	GOL	2	0
6	B	303	GOL	2	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<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	224/225 (99%)	0.46	11 (4%) 35 38	11, 21, 35, 48	3 (1%)
2	B	228/229 (99%)	0.47	12 (5%) 32 35	12, 22, 39, 52	3 (1%)
3	C	228/229 (99%)	0.47	9 (3%) 43 46	12, 22, 35, 48	2 (0%)
3	D	224/229 (97%)	0.63	19 (8%) 16 18	9, 23, 43, 56	4 (1%)
All	All	904/912 (99%)	0.51	51 (5%) 30 32	9, 22, 38, 56	12 (1%)

All (51) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
3	D	229	ILE	4.0
2	B	232	GLY	3.9
3	C	157	GLN	3.4
2	B	5	GLU	3.3
2	B	164	ASN	3.2
3	D	225	THR	3.1
1	A	182	TYR	3.1
2	B	233	MET	2.9
2	B	212	ASN	2.8
3	D	157	GLN	2.8
1	A	211	PRO	2.8
2	B	133	ASP	2.7
1	A	205	SER	2.7
3	C	119	LEU	2.7
3	D	193	VAL	2.6
3	D	164	ASN	2.6
1	A	76	ASP	2.4
1	A	204	PHE	2.4
3	C	182	TYR	2.4
3	D	153	THR	2.4
2	B	204	PHE	2.4

*Continued on next page...*



*Continued from previous page...*

Mol	Chain	Res	Type	RSRZ
3	C	133	ASP	2.4
3	C	233	MET	2.3
1	A	132	GLU	2.3
3	C	191	GLY	2.3
3	D	190	ASP	2.3
1	A	119	LEU	2.3
1	A	133	ASP	2.3
3	D	151	TYR	2.3
1	A	184	GLN	2.2
1	A	156	LYS	2.2
2	B	158	LYS	2.2
3	D	133	ASP	2.2
3	D	76	ASP	2.2
1	A	5	GLU	2.2
3	D	9	THR	2.2
3	D	155	ASP	2.2
2	B	157	GLN	2.2
3	D	119	LEU	2.1
3	D	47	ILE	2.1
3	C	203	THR	2.1
2	B	211	PRO	2.1
3	D	197	ASP	2.1
3	D	3	LYS	2.1
3	D	227	ALA	2.1
3	D	132	GLU	2.1
3	C	90	GLU	2.1
2	B	191	GLY	2.0
3	C	3	LYS	2.0
3	D	228	GLY	2.0
2	B	190	ASP	2.0

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

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<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
3	CRO	D	66	22/23	0.97	0.05	14,16,18,18	0
2	CRO	B	66	22/23	0.98	0.05	13,14,17,18	0
3	CRO	C	66	22/23	0.98	0.05	15,16,18,19	0

*Continued on next page...*

*Continued from previous page...*

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
1	CRO	A	66	22/23	0.98	0.05	13,14,16,18	0

### 6.3 Carbohydrates [i](#)

There are no oligosaccharides 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<sup>th</sup> 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( $\text{\AA}^2$ )	Q<0.9
6	GOL	B	302	6/6	0.47	0.18	47,62,67,69	0
6	GOL	B	303	6/6	0.61	0.17	47,62,68,77	0
6	GOL	B	301	6/6	0.69	0.17	29,40,45,47	0
6	GOL	C	301	6/6	0.70	0.16	33,41,42,43	0
5	DB5	B	305	14/15	0.76	0.17	34,42,44,45	0
5	DB5	A	303	14/15	0.79	0.15	32,44,49,49	0
4	NA	A	301	1/1	0.79	0.25	39,39,39,39	0
4	NA	B	304	1/1	0.80	0.28	45,45,45,45	0
4	NA	A	302	1/1	0.81	0.14	38,38,38,38	0
4	NA	D	304	1/1	0.83	0.23	38,38,38,38	0
4	NA	D	303	1/1	0.84	0.29	32,32,32,32	0
4	NA	C	304	1/1	0.86	0.13	40,40,40,40	0
6	GOL	D	301	6/6	0.86	0.13	32,42,46,50	0
4	NA	D	302	1/1	0.88	0.18	32,32,32,32	0
4	NA	C	303	1/1	0.88	0.20	37,37,37,37	0
4	NA	D	305	1/1	0.90	0.10	45,45,45,45	0
7	CL	C	305	1/1	0.90	0.20	45,45,45,45	0
4	NA	C	302	1/1	0.95	0.09	39,39,39,39	0

### 6.5 Other polymers [i](#)

There are no such residues in this entry.