



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 8, 2026 – 01:27 AM UTC

PDB ID : 4OD2 / pdb_00004od2
Title : Crystal structure of the Fab fragment of an anti-DR5 antibody bound to DR5
Authors : Hymowitz, S.G.; Compaan, D.
Deposited on : 2014-01-09
Resolution : 3.20 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

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
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

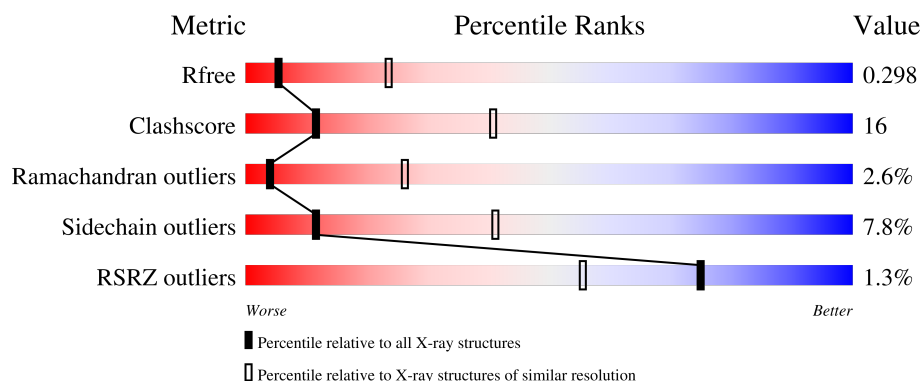
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.20 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	1466 (3.20-3.20)
Clashscore	190562	1573 (3.20-3.20)
Ramachandran outliers	187476	1548 (3.20-3.20)
Sidechain outliers	187428	1547 (3.20-3.20)
RSRZ outliers	180081	1466 (3.20-3.20)

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 $\leq 5\%$. 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	213	
2	B	232	
3	S	111	

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 3896 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 Fab fragment of drozitumab, light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	209	Total	C	N	O	S	0	0	0
			1547	963	260	320	4			

- Molecule 2 is a protein called Fab fragment of drozitumab, heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	214	Total	C	N	O	S	0	0	0
			1601	1013	272	310	6			

- Molecule 3 is a protein called Tumor necrosis factor receptor superfamily member 10B.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	S	97	Total	C	N	O	S	3	0	0
			748	446	135	151	16			

- Molecule 1: Fab fragment of drozitumab, light chain

- Molecule 2: Fab fragment of drozitumab, heavy chain

- Molecule 3: Tumor necrosis factor receptor superfamily member 10B

Amino Acid	Count
ARG	115
SER	5
VAL	10
HIS	15
LYS	20
GLU	25
H32	30
H33	35
D37	40
G38	45
I42	50
Y50	55
S51	60
T52	65
T64	70
R65	75
G66	80
D67	85
S68	90
G69	95
E70	100
W71	105
E72	110
L73	115
S74	120
W75	125
C76	130
L79	135
R80	140
R81	145
T82	150
W83	155
C84	160
R85	165
C86	170
R92	175
G93	180
ASP	185
SER	190
P97	195
K102	200
M111	205
VAL	210
LYS	215
VAL	220
D116	225
M120	230

4 Data and refinement statistics

Property	Value	Source
Space group	P 6	Depositor
Cell constants a, b, c, α , β , γ	128.32Å 128.32Å 68.39Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	30.00 – 3.20 30.00 – 3.20	Depositor EDS
% Data completeness (in resolution range)	97.6 (30.00-3.20) 97.6 (30.00-3.20)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.09	Depositor
$\langle I/\sigma(I) \rangle$ ¹	4.75 (at 3.17Å)	Xtriage
Refinement program	REFMAC 5.6.0117	Depositor
R, R_{free}	0.241 , 0.305 0.240 , 0.298	Depositor DCC
R_{free} test set	1060 reflections (9.86%)	wwPDB-VP
Wilson B-factor (Å ²)	71.6	Xtriage
Anisotropy	0.193	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.27 , 71.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.29$	Xtriage
Estimated twinning fraction	0.063 for h,-h-k,-l	Xtriage
F_o, F_c correlation	0.90	EDS
Total number of atoms	3896	wwPDB-VP
Average B, all atoms (Å ²)	111.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.53% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical 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](#)

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	0.63	0/1583	0.92	5/2163 (0.2%)
2	B	0.65	0/1640	0.92	1/2232 (0.0%)
3	S	0.90	1/763 (0.1%)	0.95	2/1028 (0.2%)
All	All	0.70	1/3986 (0.0%)	0.92	8/5423 (0.1%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	S	123	ILE	CB-CG1	-14.66	1.24	1.53

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	S	123	ILE	CA-CB-CG2	-8.25	96.48	110.50
3	S	123	ILE	CG1-CB-CG2	7.57	133.42	110.70
1	A	56	ILE	CA-C-N	7.50	129.21	119.84
1	A	56	ILE	C-N-CA	7.50	129.21	119.84
2	B	105	GLY	N-CA-C	6.56	122.22	111.27
1	A	164	THR	CA-C-N	5.83	127.12	119.84
1	A	164	THR	C-N-CA	5.83	127.12	119.84
1	A	64	SER	N-CA-C	5.47	116.95	107.93

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	A	1547	0	1490	55	0
2	B	1601	0	1566	54	0
3	S	748	0	670	27	0
All	All	3896	0	3726	122	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 16.

All (122) 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)
2:B:72:ARG:HE	2:B:74:ASN:HD21	1.03	1.02
3:S:67:ASP:HB2	3:S:70:GLU:OE1	1.71	0.90
2:B:33:ALA:HB3	2:B:99:ILE:HG12	1.60	0.84
1:A:11:VAL:CG1	1:A:17:VAL:HB	2.10	0.81
2:B:72:ARG:HE	2:B:74:ASN:ND2	1.79	0.81
3:S:76:CYS:HB2	3:S:82:THR:HG22	1.66	0.77
2:B:72:ARG:NE	2:B:74:ASN:HD21	1.82	0.77
3:S:64:THR:H	3:S:81:ASN:HD21	1.34	0.75
3:S:64:THR:O	3:S:82:THR:HG21	1.88	0.74
2:B:34:MET:HB3	2:B:79:LEU:HD22	1.70	0.73
2:B:62:ASP:HA	2:B:65:LYS:HD3	1.69	0.72
1:A:11:VAL:HG13	1:A:17:VAL:HB	1.72	0.71
2:B:6:GLN:HE22	2:B:112:GLY:HA3	1.55	0.71
1:A:36:GLN:HE22	2:B:39:GLN:HE22	1.41	0.69
2:B:29:PHE:CE1	2:B:34:MET:HE2	2.28	0.67
1:A:27:ARG:HG3	1:A:67:ASN:HB3	1.78	0.65
2:B:98:LYS:HE2	2:B:109:ASP:OD1	1.97	0.65
2:B:131:PRO:HD3	2:B:217:LYS:HE2	1.79	0.65
1:A:11:VAL:HG11	1:A:17:VAL:HB	1.79	0.65
2:B:33:ALA:C	2:B:99:ILE:HG23	2.22	0.64
2:B:4:LEU:CD2	2:B:24:ALA:HB2	2.27	0.64
1:A:18:ARG:HG3	1:A:72:THR:HG23	1.80	0.64
1:A:3:LEU:HD13	1:A:21:CYS:SG	2.38	0.64
1:A:23:GLY:O	1:A:25:SER:N	2.33	0.61
1:A:64:SER:CB	3:S:65:ARG:NH1	2.64	0.61
2:B:107:TYR:CD2	3:S:68:SER:HB3	2.36	0.60
2:B:29:PHE:HE1	2:B:34:MET:HE2	1.66	0.60
1:A:46:ILE:HD13	1:A:52:ARG:HB3	1.85	0.59
1:A:12:ALA:O	1:A:15:GLN:HB2	2.03	0.59
1:A:81:GLU:HG3	1:A:106:VAL:H	1.68	0.59
2:B:107:TYR:CE2	3:S:68:SER:HB3	2.38	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:34:TYR:N	1:A:34:TYR:CD1	2.71	0.58
1:A:168:GLN:HB2	1:A:170:ASN:OD1	2.04	0.58
1:A:46:ILE:CD1	1:A:52:ARG:HB3	2.35	0.57
2:B:4:LEU:HD23	2:B:24:ALA:HB2	1.87	0.56
2:B:2:VAL:HG13	2:B:27:PHE:CE1	2.43	0.54
1:A:87:ASN:HD22	1:A:87:ASN:C	2.15	0.53
1:A:87:ASN:O	1:A:87:ASN:ND2	2.41	0.53
1:A:36:GLN:HE22	2:B:39:GLN:NE2	2.07	0.53
1:A:47:TYR:HB2	2:B:107:TYR:CD1	2.44	0.53
3:S:37:ASP:OD1	3:S:38:GLY:N	2.41	0.53
2:B:6:GLN:OE1	2:B:96:CYS:N	2.36	0.52
1:A:32:SER:HB3	1:A:87:ASN:ND2	2.25	0.52
1:A:46:ILE:HG21	1:A:62:GLY:HA3	1.91	0.52
1:A:146:THR:HB	1:A:197:THR:HB	1.92	0.52
1:A:81:GLU:HG3	1:A:105:THR:HA	1.92	0.52
3:S:81:ASN:ND2	3:S:82:THR:H	2.08	0.52
3:S:111:MET:HB3	3:S:125:CYS:HB3	1.92	0.51
2:B:36:TRP:HD1	2:B:70:ILE:HD11	1.75	0.51
1:A:87:ASN:C	1:A:87:ASN:ND2	2.69	0.51
1:A:125:GLU:HG2	1:A:130:LYS:HB2	1.92	0.51
3:S:76:CYS:HB2	3:S:82:THR:CG2	2.38	0.51
2:B:19:ARG:HG3	2:B:82:GLN:HG2	1.93	0.51
2:B:203:ILE:HG22	2:B:218:LYS:HA	1.92	0.51
2:B:49:SER:HB3	2:B:70:ILE:HD12	1.93	0.51
1:A:53:PRO:O	1:A:56:ILE:HD12	2.11	0.51
1:A:64:SER:HB3	3:S:65:ARG:NH1	2.26	0.51
2:B:67:ARG:CZ	2:B:87:ARG:HD2	2.41	0.50
2:B:30:ASP:OD1	3:S:102:LYS:NZ	2.43	0.50
1:A:9:VAL:HG13	1:A:104:LEU:HD12	1.93	0.50
2:B:99:ILE:CD1	2:B:101:GLY:H	2.24	0.50
1:A:150:LYS:HB2	1:A:193:SER:HB2	1.93	0.50
2:B:38:ARG:O	2:B:39:GLN:HB2	2.12	0.49
2:B:2:VAL:HG13	2:B:27:PHE:CD1	2.47	0.49
1:A:96:VAL:HG12	1:A:97:VAL:N	2.28	0.49
2:B:33:ALA:O	2:B:99:ILE:HG23	2.12	0.49
3:S:64:THR:O	3:S:82:THR:CG2	2.60	0.49
2:B:6:GLN:NE2	2:B:112:GLY:HA3	2.27	0.48
2:B:6:GLN:HE22	2:B:112:GLY:CA	2.22	0.48
1:A:23:GLY:C	1:A:25:SER:H	2.20	0.48
2:B:4:LEU:HD21	2:B:24:ALA:HB2	1.94	0.48
3:S:29:PRO:HG2	3:S:32:HIS:CD2	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:50:GLY:O	2:B:58:THR:HA	2.14	0.47
3:S:68:SER:C	3:S:70:GLU:H	2.21	0.47
2:B:33:ALA:HB3	2:B:99:ILE:CG1	2.37	0.47
1:A:53:PRO:HG2	1:A:56:ILE:HD11	1.97	0.47
1:A:3:LEU:HD22	1:A:26:LEU:HD11	1.96	0.46
2:B:106:TRP:CZ2	3:S:68:SER:HA	2.50	0.46
2:B:38:ARG:NE	2:B:46:GLU:OE1	2.38	0.46
1:A:46:ILE:O	1:A:46:ILE:HG22	2.15	0.46
1:A:37:LYS:HB2	1:A:40:GLN:OE1	2.16	0.46
1:A:47:TYR:CE2	1:A:51:ASN:ND2	2.84	0.46
1:A:99:GLY:C	1:A:101:GLY:H	2.23	0.46
1:A:31:ALA:HB2	1:A:69:ALA:HB2	1.99	0.45
3:S:68:SER:O	3:S:70:GLU:N	2.49	0.45
2:B:20:LEU:HD12	2:B:81:LEU:HD23	1.99	0.45
1:A:64:SER:HB3	3:S:65:ARG:HH12	1.82	0.44
3:S:33:HIS:CE1	3:S:42:ILE:HB	2.52	0.44
1:A:80:ASP:O	1:A:104:LEU:HD23	2.17	0.44
2:B:34:MET:CB	2:B:79:LEU:HD22	2.41	0.44
2:B:43:LYS:O	2:B:44:GLY:O	2.35	0.44
3:S:71:VAL:O	3:S:84:CYS:HA	2.18	0.44
1:A:34:TYR:O	1:A:84:TYR:HA	2.18	0.44
2:B:64:VAL:O	2:B:65:LYS:C	2.60	0.44
3:S:86:CYS:SG	3:S:92:ARG:HD3	2.57	0.44
1:A:45:VAL:O	1:A:56:ILE:HD13	2.17	0.44
2:B:97:ALA:HB1	2:B:108:PHE:HB3	2.00	0.43
2:B:4:LEU:HD22	2:B:22:CYS:SG	2.59	0.43
2:B:36:TRP:HD1	2:B:70:ILE:CD1	2.32	0.43
1:A:12:ALA:HA	1:A:107:LEU:HB2	2.00	0.43
1:A:170:ASN:O	1:A:171:ASN:HB2	2.17	0.43
2:B:6:GLN:HE21	2:B:6:GLN:HB2	1.60	0.42
1:A:32:SER:HB3	1:A:87:ASN:HD21	1.85	0.42
1:A:48:GLY:O	1:A:49:ALA:C	2.61	0.42
1:A:17:VAL:HG11	1:A:104:LEU:HD11	2.02	0.42
2:B:6:GLN:O	2:B:7:SER:HB2	2.19	0.42
2:B:132:LEU:HD21	2:B:149:LEU:HB2	2.00	0.42
1:A:53:PRO:CG	1:A:56:ILE:HD11	2.49	0.42
1:A:26:LEU:HG	3:S:65:ARG:NH2	2.35	0.42
2:B:40:ALA:HB1	2:B:41:PRO:HD2	2.02	0.42
3:S:22:SER:HA	3:S:23:PRO:HD3	1.77	0.42
3:S:50:TYR:CE2	3:S:81:ASN:HB2	2.54	0.41
1:A:143:GLY:HA3	1:A:173:TYR:CG	2.54	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:47:TYR:HB2	2:B:107:TYR:CE1	2.56	0.41
1:A:87:ASN:HB2	1:A:97:VAL:O	2.21	0.41
2:B:60:TYR:OH	2:B:70:ILE:N	2.48	0.41
2:B:73:ASP:OD1	2:B:75:ALA:HB3	2.21	0.41
3:S:52:THR:HG22	3:S:79:THR:O	2.21	0.41
1:A:85:TYR:HE2	2:B:44:GLY:HA2	1.86	0.41
2:B:156:GLU:HG3	2:B:157:PRO:CA	2.51	0.41
1:A:3:LEU:CD2	1:A:26:LEU:HD11	2.50	0.40
1:A:28:SER:HB2	3:S:72:GLU:OE1	2.21	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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	207/213 (97%)	183 (88%)	13 (6%)	11 (5%)	1	12
2	B	210/232 (90%)	189 (90%)	19 (9%)	2 (1%)	12	45
3	S	91/111 (82%)	84 (92%)	7 (8%)	0	100	100
All	All	508/556 (91%)	456 (90%)	39 (8%)	13 (3%)	4	26

All (13) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	2	GLU
1	A	24	ASP
1	A	32	SER
2	B	44	GLY
1	A	31	ALA
1	A	59	ARG
2	B	9	GLY
1	A	92	SER

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Mol	Chain	Res	Type
1	A	152	ASP
1	A	93	GLY
1	A	38	PRO
1	A	48	GLY
1	A	165	PRO

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	172/176 (98%)	162 (94%)	10 (6%)	18	51
2	B	174/188 (93%)	159 (91%)	15 (9%)	10	36
3	S	89/102 (87%)	80 (90%)	9 (10%)	7	30
All	All	435/466 (93%)	401 (92%)	34 (8%)	11	41

All (34) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	3	LEU
1	A	11	VAL
1	A	13	LEU
1	A	51	ASN
1	A	56	ILE
1	A	72	THR
1	A	79	GLU
1	A	87	ASN
1	A	103	LYS
1	A	166	SER
2	B	6	GLN
2	B	30	ASP
2	B	35	SER
2	B	43	LYS
2	B	57	SER
2	B	78	SER
2	B	82	GLN

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Mol	Chain	Res	Type
2	B	96	CYS
2	B	98	LYS
2	B	99	ILE
2	B	104	ARG
2	B	113	LYS
2	B	115	THR
2	B	121	SER
2	B	191	THR
3	S	64	THR
3	S	65	ARG
3	S	71	VAL
3	S	73	LEU
3	S	74	SER
3	S	82	THR
3	S	92	ARG
3	S	116	ASP
3	S	120	TRP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (14) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	35	GLN
1	A	51	ASN
1	A	87	ASN
1	A	171	ASN
2	B	6	GLN
2	B	39	GLN
2	B	54	GLN
2	B	74	ASN
2	B	82	GLN
2	B	172	HIS
2	B	179	GLN
3	S	33	HIS
3	S	81	ASN
3	S	85	GLN

5.3.3 RNA ⓘ

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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

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 [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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, 95th 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	A	209/213 (98%)	0.18	1 (0%) 87 76	54, 107, 226, 279	0
2	B	214/232 (92%)	0.09	4 (1%) 66 46	37, 76, 246, 274	0
3	S	97/111 (87%)	0.08	2 (2%) 63 43	52, 74, 136, 203	1 (1%)
All	All	520/556 (93%)	0.13	7 (1%) 75 55	37, 85, 234, 279	1 (0%)

All (7) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
3	S	97	PRO	3.0
2	B	192	VAL	2.9
2	B	149	LEU	2.7
1	A	121	PRO	2.4
2	B	160	VAL	2.4
3	S	65	ARG	2.2
2	B	131	PRO	2.2

6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

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

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

There are no ligands in this entry.

6.5 Other polymers [i](#)

There are no such residues in this entry.