



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 12, 2026 – 06:10 AM UTC

PDB ID : 6B27 / pdb_00006b27
Title : Crystal structure of human STAC2 Tandem SH3 Domains (296-411) in complex with a CaV1.1 II-III loop peptide
Authors : Wong King Yuen, S.M.; Van Petegem, F.
Deposited on : 2017-09-19
Resolution : 1.73 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
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

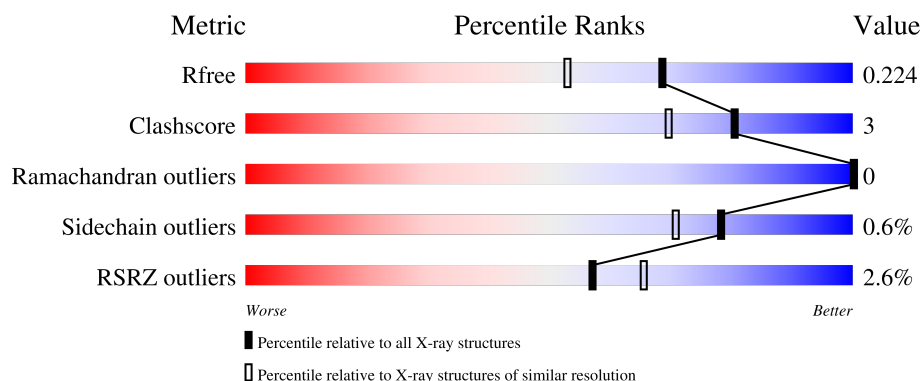
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.73 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	1187 (1.74-1.74)
Clashscore	190562	1207 (1.74-1.74)
Ramachandran outliers	187476	1200 (1.74-1.74)
Sidechain outliers	187428	1200 (1.74-1.74)
RSRZ outliers	180081	1188 (1.74-1.74)

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	120	% 92% 7% .
1	B	120	% 91% . 5%
1	C	120	4% 82% 12% 6%
1	D	120	3% 91% 8% .
1	E	120	% 84% 6% 10%

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Mol	Chain	Length	Quality of chain
1	F	120	
2	G	14	
2	H	14	
2	I	14	
2	J	14	
2	K	14	
2	L	14	

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
3	SO4	A	501	-	-	X	-

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 6602 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 SH3 and cysteine-rich domain-containing protein 2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	118	Total	C	N	O	S	0	5	0
			943	596	170	172	5			
1	B	114	Total	C	N	O	S	0	3	0
			900	570	155	169	6			
1	C	113	Total	C	N	O	S	0	7	0
			925	589	161	168	7			
1	D	118	Total	C	N	O	S	0	5	0
			938	594	164	174	6			
1	E	108	Total	C	N	O	S	0	3	0
			851	541	145	160	5			
1	F	112	Total	C	N	O	S	0	3	0
			906	576	159	165	6			

There are 24 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	292	SER	-	expression tag	UNP Q6ZMT1
A	293	ASN	-	expression tag	UNP Q6ZMT1
A	294	ALA	-	expression tag	UNP Q6ZMT1
A	295	ASN	-	expression tag	UNP Q6ZMT1
B	292	SER	-	expression tag	UNP Q6ZMT1
B	293	ASN	-	expression tag	UNP Q6ZMT1
B	294	ALA	-	expression tag	UNP Q6ZMT1
B	295	ASN	-	expression tag	UNP Q6ZMT1
C	292	SER	-	expression tag	UNP Q6ZMT1
C	293	ASN	-	expression tag	UNP Q6ZMT1
C	294	ALA	-	expression tag	UNP Q6ZMT1
C	295	ASN	-	expression tag	UNP Q6ZMT1
D	292	SER	-	expression tag	UNP Q6ZMT1
D	293	ASN	-	expression tag	UNP Q6ZMT1
D	294	ALA	-	expression tag	UNP Q6ZMT1
D	295	ASN	-	expression tag	UNP Q6ZMT1
E	292	SER	-	expression tag	UNP Q6ZMT1

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Chain	Residue	Modelled	Actual	Comment	Reference
E	293	ASN	-	expression tag	UNP Q6ZMT1
E	294	ALA	-	expression tag	UNP Q6ZMT1
E	295	ASN	-	expression tag	UNP Q6ZMT1
F	292	SER	-	expression tag	UNP Q6ZMT1
F	293	ASN	-	expression tag	UNP Q6ZMT1
F	294	ALA	-	expression tag	UNP Q6ZMT1
F	295	ASN	-	expression tag	UNP Q6ZMT1

- Molecule 2 is a protein called Voltage-dependent L-type calcium channel subunit alpha-1S.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
2	G	10	Total	C	N	O	0	0	0
			79	51	13	15			
2	H	11	Total	C	N	O	0	0	0
			88	57	17	14			
2	I	11	Total	C	N	O	0	0	0
			86	55	17	14			
2	J	10	Total	C	N	O	0	0	0
			75	49	13	13			
2	K	10	Total	C	N	O	0	0	0
			79	51	13	15			
2	L	9	Total	C	N	O	0	0	0
			70	46	12	12			

- Molecule 3 is SULFATE ION (CCD ID: SO4) (formula: O₄S).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total O S 5 4 1	0	0
3	A	1	Total O S 5 4 1	0	0
3	A	1	Total O S 5 4 1	0	0
3	B	1	Total O S 5 4 1	0	0
3	C	1	Total O S 5 4 1	0	0
3	D	1	Total O S 5 4 1	0	0
3	E	1	Total O S 5 4 1	0	0
3	F	1	Total O S 5 4 1	0	0

- Molecule 4 is CHLORIDE ION (CCD ID: CL) (formula: Cl).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	E	2	Total Cl 2 2	0	0

- Molecule 5 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	109	Total O 109 109	0	0
5	B	95	Total O 95 95	0	0
5	C	83	Total O 83 83	0	0
5	D	107	Total O 107 107	0	0
5	E	87	Total O 87 87	0	0
5	F	100	Total O 100 100	0	0
5	G	9	Total O 9 9	0	0
5	H	8	Total O 8 8	0	0
5	I	6	Total O 6 6	0	0

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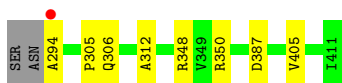
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	J	7	Total	O	0	0
			7	7		
5	K	7	Total	O	0	0
			7	7		
5	L	2	Total	O	0	0
			2	2		

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.

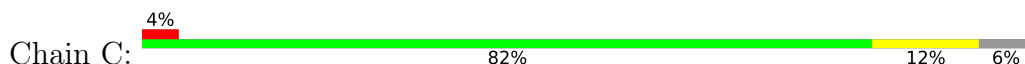
- Molecule 1: SH3 and cysteine-rich domain-containing protein 2



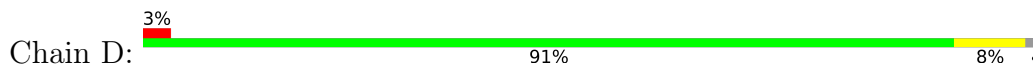
- Molecule 1: SH3 and cysteine-rich domain-containing protein 2



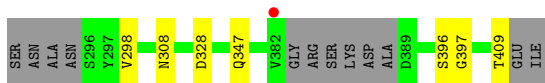
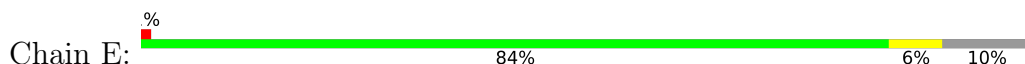
- Molecule 1: SH3 and cysteine-rich domain-containing protein 2



- Molecule 1: SH3 and cysteine-rich domain-containing protein 2



- Molecule 1: SH3 and cysteine-rich domain-containing protein 2



- Molecule 1: SH3 and cysteine-rich domain-containing protein 2

Chain F:  81% 10% 7%



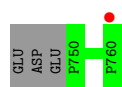
- Molecule 2: Voltage-dependent L-type calcium channel subunit alpha-1S

Chain G:  57% 14% 29%



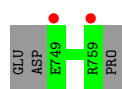
- Molecule 2: Voltage-dependent L-type calcium channel subunit alpha-1S

Chain H:  7% 79% 21%



- Molecule 2: Voltage-dependent L-type calcium channel subunit alpha-1S

Chain I:  14% 79% 21%



- Molecule 2: Voltage-dependent L-type calcium channel subunit alpha-1S

Chain J:  71% 29%



- Molecule 2: Voltage-dependent L-type calcium channel subunit alpha-1S

Chain K:  64% 7% 29%



- Molecule 2: Voltage-dependent L-type calcium channel subunit alpha-1S

Chain L:  29% 50% 14% 36%



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	47.92Å 114.65Å 144.68Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	35.00 – 1.73 35.00 – 1.73	Depositor EDS
% Data completeness (in resolution range)	99.1 (35.00-1.73) 99.1 (35.00-1.73)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.32 (at 1.73Å)	Xtriage
Refinement program	REFMAC 5.8.0158	Depositor
R, R_{free}	0.179 , 0.216 (Not available) , 0.224	Depositor DCC
R_{free} test set	4075 reflections (4.85%)	wwPDB-VP
Wilson B-factor (Å ²)	21.0	Xtriage
Anisotropy	0.345	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.39 , 36.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	6602	wwPDB-VP
Average B, all atoms (Å ²)	25.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 9.49% 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

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: CL, SO4

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	1.25	0/975	1.12	1/1317 (0.1%)
1	B	1.34	2/928 (0.2%)	1.06	0/1252
1	C	1.26	3/965 (0.3%)	1.11	2/1299 (0.2%)
1	D	1.35	4/973 (0.4%)	1.10	0/1313
1	E	1.35	2/879 (0.2%)	1.12	0/1191
1	F	1.34	3/933 (0.3%)	1.15	2/1259 (0.2%)
2	G	1.24	0/82	1.43	1/113 (0.9%)
2	H	1.14	0/92	1.09	0/126
2	I	1.27	0/89	1.20	0/122
2	J	1.16	0/78	0.94	0/108
2	K	1.19	0/82	1.08	0/113
2	L	1.64	2/73 (2.7%)	1.09	0/100
All	All	1.31	16/6149 (0.3%)	1.11	6/8313 (0.1%)

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	339	GLY	CA-C	-6.63	1.45	1.52
1	B	337	ARG	CA-C	-6.26	1.45	1.52
1	B	341	PHE	N-CA	5.89	1.51	1.45
1	E	328	ASP	CA-C	5.58	1.59	1.52
2	L	751	GLU	C-O	-5.53	1.16	1.23
1	C	337	ARG	CZ-NH2	-5.53	1.26	1.33
1	C	403	VAL	C-O	5.37	1.28	1.24
1	D	337	ARG	CZ-NH1	5.33	1.40	1.32
1	F	390	GLY	N-CA	5.33	1.54	1.45
1	D	394	VAL	C-O	5.26	1.29	1.23
1	E	298	VAL	C-O	5.23	1.29	1.24
1	F	395	SER	N-CA	-5.14	1.39	1.45
2	L	752	ILE	N-CA	-5.12	1.42	1.47
1	D	349	VAL	C-O	-5.08	1.18	1.24

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	356	TRP	N-CA	-5.06	1.39	1.45
1	F	297	TYR	N-CA	-5.02	1.39	1.45

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	F	337	ARG	CG-CD-NE	5.64	124.42	112.00
1	C	407	ALA	N-CA-C	5.63	120.14	113.16
1	F	322	VAL	N-CA-C	5.48	116.34	111.90
1	C	360	GLN	N-CA-C	5.25	118.67	107.91
2	G	752	ILE	N-CA-C	-5.17	104.22	109.02
1	A	387	ASP	N-CA-C	5.13	117.77	111.82

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	943	0	916	6	0
1	B	900	0	869	2	0
1	C	925	0	922	6	0
1	D	938	0	913	5	0
1	E	851	0	813	3	0
1	F	906	0	876	9	0
2	G	79	0	79	1	0
2	H	88	0	94	0	0
2	I	86	0	88	0	0
2	J	75	0	75	0	0
2	K	79	0	79	0	0
2	L	70	0	74	0	0
3	A	15	0	0	5	0
3	B	5	0	0	0	0
3	C	5	0	0	0	0
3	D	5	0	0	0	0
3	E	5	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	F	5	0	0	0	0
4	E	2	0	0	0	0
5	A	109	0	0	2	0
5	B	95	0	0	0	0
5	C	83	0	0	0	0
5	D	107	0	0	0	0
5	E	87	0	0	1	0
5	F	100	0	0	0	0
5	G	9	0	0	1	0
5	H	8	0	0	0	0
5	I	6	0	0	0	0
5	J	7	0	0	0	0
5	K	7	0	0	0	0
5	L	2	0	0	0	0
All	All	6602	0	5798	31	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 3.

All (31) 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:A:501:SO4:O1	1:D:348[A]:ARG:NH2	2.06	0.88
1:C:326:ASN:HD22	1:C:329:TRP:H	1.30	0.78
1:F:326:ASN:HD22	1:F:329:TRP:H	1.34	0.75
1:A:405:VAL:HG13	5:A:605:HOH:O	1.87	0.74
1:A:348[A]:ARG:NH1	3:A:501:SO4:O3	2.26	0.68
2:G:749:GLU:OE2	5:G:801:HOH:O	2.11	0.67
3:A:501:SO4:O2	1:D:350:ARG:NE	2.19	0.66
1:F:374:LYS:H	1:F:377:GLN:HE21	1.43	0.63
1:B:320[B]:MET:SD	1:F:360:GLN:OE1	2.56	0.63
1:E:347:GLN:NE2	1:E:397:GLY:H	2.00	0.59
1:A:350:ARG:NE	3:A:501:SO4:O3	2.38	0.56
1:F:374:LYS:H	1:F:377:GLN:NE2	2.04	0.54
1:A:294:ALA:N	3:A:502:SO4:O2	2.41	0.54
1:C:302:LYS:HE2	1:C:304:LEU:HD21	1.88	0.54
1:C:326:ASN:ND2	1:C:329:TRP:H	2.04	0.51
1:F:326:ASN:ND2	1:F:329:TRP:H	2.06	0.49
1:D:347[A]:GLN:NE2	1:D:395[A]:SER:HB2	2.28	0.49
1:B:302:LYS:HE2	1:B:304:LEU:HD21	1.94	0.48
1:F:356[A]:TRP:CD1	1:F:410:GLU:HA	2.48	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:294:ALA:HB1	1:D:348[A]:ARG:NH2	2.32	0.44
1:D:347[A]:GLN:HE22	1:D:395[A]:SER:HB2	1.83	0.43
1:C:359:CYS:O	1:C:375:GLU:OE1	2.36	0.43
1:E:347:GLN:HE22	1:E:396:SER:HA	1.82	0.43
1:C:347[A]:GLN:CD	1:C:397:GLY:H	2.27	0.43
1:F:354:ASN:HB2	1:F:356[A]:TRP:CH2	2.55	0.42
1:F:347:GLN:NE2	1:F:395:SER:OG	2.53	0.42
1:E:308:ASN:ND2	5:E:606:HOH:O	2.48	0.41
1:A:306[B]:GLN:CD	5:A:648:HOH:O	2.62	0.41
1:A:305:PRO:HG3	1:A:312:ALA:HB2	2.01	0.40
1:F:295:ASN:HB3	1:F:297:TYR:CE1	2.57	0.40
1:C:374[A]:LYS:HE3	1:C:374[A]:LYS:HB2	1.85	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	121/120 (101%)	120 (99%)	1 (1%)	0	100	100
1	B	113/120 (94%)	110 (97%)	3 (3%)	0	100	100
1	C	116/120 (97%)	113 (97%)	3 (3%)	0	100	100
1	D	121/120 (101%)	120 (99%)	1 (1%)	0	100	100
1	E	107/120 (89%)	106 (99%)	1 (1%)	0	100	100
1	F	111/120 (92%)	110 (99%)	1 (1%)	0	100	100
2	G	8/14 (57%)	8 (100%)	0	0	100	100
2	H	9/14 (64%)	9 (100%)	0	0	100	100
2	I	9/14 (64%)	9 (100%)	0	0	100	100
2	J	8/14 (57%)	8 (100%)	0	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	K	8/14 (57%)	8 (100%)	0	0	100	100
2	L	7/14 (50%)	7 (100%)	0	0	100	100
All	All	738/804 (92%)	728 (99%)	10 (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	95/102 (93%)	95 (100%)	0	100	100
1	B	97/102 (95%)	97 (100%)	0	100	100
1	C	102/102 (100%)	101 (99%)	1 (1%)	68	54
1	D	100/102 (98%)	100 (100%)	0	100	100
1	E	92/102 (90%)	91 (99%)	1 (1%)	65	50
1	F	97/102 (95%)	96 (99%)	1 (1%)	68	54
2	G	10/14 (71%)	10 (100%)	0	100	100
2	H	11/14 (79%)	11 (100%)	0	100	100
2	I	10/14 (71%)	10 (100%)	0	100	100
2	J	9/14 (64%)	9 (100%)	0	100	100
2	K	10/14 (71%)	9 (90%)	1 (10%)	7	0
2	L	9/14 (64%)	9 (100%)	0	100	100
All	All	642/696 (92%)	638 (99%)	4 (1%)	78	71

All (4) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	C	367	GLU
1	E	409	THR
1	F	374	LYS
2	K	749	GLU

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	344	ASN
1	A	368	GLN
1	C	314	GLN
1	C	326	ASN
1	D	314	GLN
1	D	368	GLN
1	E	308	ASN
1	E	309	ASN
1	E	347	GLN
1	E	354	ASN
1	F	295	ASN
1	F	326	ASN
1	F	376	ASN
1	F	377	GLN

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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 10 ligands modelled in this entry, 2 are monoatomic - leaving 8 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	SO4	F	501	-	4,4,4	0.59	0	6,6,6	0.63	0
3	SO4	A	502	-	4,4,4	0.59	0	6,6,6	0.62	0
3	SO4	E	503	-	4,4,4	0.44	0	6,6,6	0.19	0
3	SO4	C	501	-	4,4,4	0.56	0	6,6,6	0.85	0
3	SO4	D	501	-	4,4,4	0.61	0	6,6,6	0.34	0
3	SO4	B	501	-	4,4,4	0.66	0	6,6,6	0.86	0
3	SO4	A	501	-	4,4,4	0.25	0	6,6,6	0.83	0
3	SO4	A	503	-	4,4,4	0.64	0	6,6,6	0.59	0

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

2 monomers are involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	502	SO4	1	0
3	A	501	SO4	4	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, 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	118/120 (98%)	-0.09	1 (0%) 82 88	11, 20, 36, 51	5 (4%)
1	B	114/120 (95%)	-0.10	1 (0%) 81 87	12, 20, 40, 66	3 (2%)
1	C	113/120 (94%)	0.13	5 (4%) 39 48	10, 22, 46, 59	7 (6%)
1	D	118/120 (98%)	-0.14	4 (3%) 48 56	13, 20, 39, 58	5 (4%)
1	E	108/120 (90%)	-0.00	1 (0%) 81 87	11, 22, 38, 53	3 (2%)
1	F	112/120 (93%)	-0.22	0 100 100	9, 20, 34, 47	3 (2%)
2	G	10/14 (71%)	0.80	0 100 100	26, 32, 44, 51	0
2	H	11/14 (78%)	0.72	1 (9%) 15 19	21, 26, 49, 52	0
2	I	11/14 (78%)	0.54	2 (18%) 3 4	21, 26, 53, 55	0
2	J	10/14 (71%)	0.24	0 100 100	22, 24, 35, 41	0
2	K	10/14 (71%)	0.32	0 100 100	25, 29, 40, 58	0
2	L	9/14 (64%)	1.43	4 (44%) 0 1	29, 33, 46, 52	0
All	All	744/804 (92%)	-0.01	19 (2%) 57 65	9, 22, 44, 66	26 (3%)

All (19) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	H	760	PRO	3.9
1	C	294	ALA	3.9
1	D	387	ASP	3.4
1	C	384	ARG	3.2
2	L	750	PRO	3.0
1	B	294	ALA	2.9
2	L	755	SER	2.8
2	L	756	PRO	2.8
1	E	382	VAL	2.7
1	D	385	SER	2.6
1	C	406	ASP	2.4

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Mol	Chain	Res	Type	RSRZ
1	C	358	CYS	2.3
2	L	754	LEU	2.2
2	I	759	ARG	2.2
1	D	386	LYS	2.2
1	C	390	GLY	2.1
1	D	294	ALA	2.1
1	A	294	ALA	2.0
2	I	749	GLU	2.0

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](#)

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, 95th 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
3	SO4	E	503	5/5	0.70	0.12	77,79,84,85	0
3	SO4	A	503	5/5	0.81	0.11	51,53,57,67	0
3	SO4	C	501	5/5	0.82	0.14	53,56,65,69	0
3	SO4	F	501	5/5	0.83	0.12	54,56,61,62	0
3	SO4	A	501	5/5	0.88	0.11	45,53,62,63	0
3	SO4	A	502	5/5	0.92	0.10	37,45,50,54	0
4	CL	E	502	1/1	0.92	0.10	41,41,41,41	0
3	SO4	D	501	5/5	0.94	0.08	42,45,50,56	0
3	SO4	B	501	5/5	0.95	0.07	40,43,46,50	0
4	CL	E	501	1/1	0.99	0.09	27,27,27,27	0

6.5 Other polymers [i](#)

There are no such residues in this entry.