



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 6, 2026 – 04:19 PM UTC

PDB ID : 1EV9 / pdb_00001ev9
Title : RAT GLUTATHIONE S-TRANSFERASE A1-1 MUTANT W21F WITH GSO3 BOUND
Authors : Adman, E.T.; Le Trong, I.; Stenkamp, R.E.; Nieslanik, B.S.; Dietze, E.C.; Tai, G.; Ibarra, C.; Atkins, W.M.
Deposited on : 2000-04-19
Resolution : 2.20 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
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
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

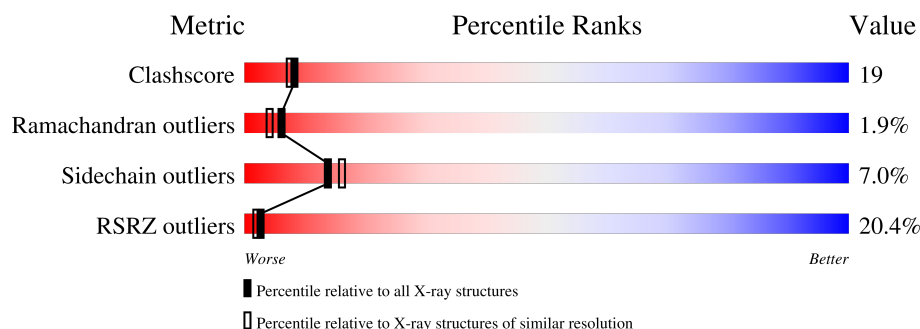
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.20 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))
Clashscore	190562	6851 (2.20-2.20)
Ramachandran outliers	187476	6768 (2.20-2.20)
Sidechain outliers	187428	6769 (2.20-2.20)
RSRZ outliers	180081	6166 (2.20-2.20)

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	221	
1	C	221	
1	D	221	

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 5388 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 GLUTATHIONE S-TRANSFERASE A1-1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	219	Total	C	N	O	S	0	0	0
			1765	1137	296	321	11			
1	C	207	Total	C	N	O	S	0	0	0
			1664	1073	278	302	11			
1	D	216	Total	C	N	O	S	0	0	0
			1709	1100	287	311	11			

There are 6 discrepancies between the modelled and reference sequences:

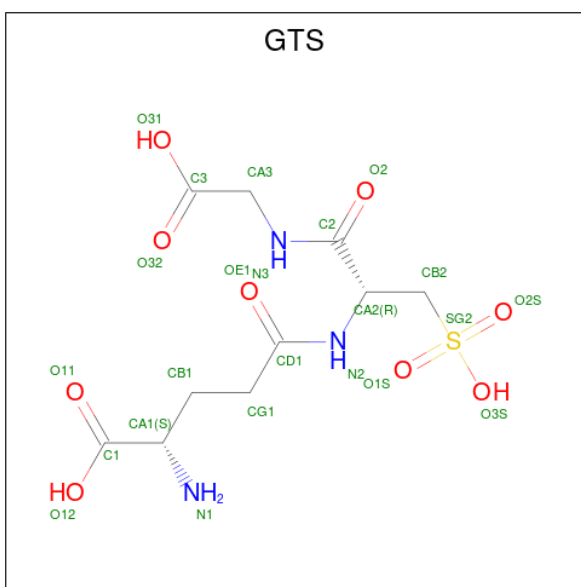
Chain	Residue	Modelled	Actual	Comment	Reference
A	21	PHE	TRP	engineered mutation	UNP P00502
A	96	SER	THR	conflict	UNP P00502
C	21	PHE	TRP	engineered mutation	UNP P00502
C	96	SER	THR	conflict	UNP P00502
D	21	PHE	TRP	engineered mutation	UNP P00502
D	96	SER	THR	conflict	UNP P00502

- Molecule 2 is SULFATE ION (CCD ID: SO4) (formula: O₄S).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	O	S	0	0
			5	4	1		
2	C	1	Total	O	S	0	0
			5	4	1		
2	D	1	Total	O	S	0	0
			5	4	1		

- Molecule 3 is GLUTATHIONE SULFONIC ACID (CCD ID: GTS) (formula: $C_{10}H_{17}N_3O_9S$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	A	1	Total	C	N	O	S	0	0
			23	10	3	9	1		

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
3	C	1	Total	C	N	O	S	0	0
			23	10	3	9	1		
3	D	1	Total	C	N	O	S	0	0
			23	10	3	9	1		

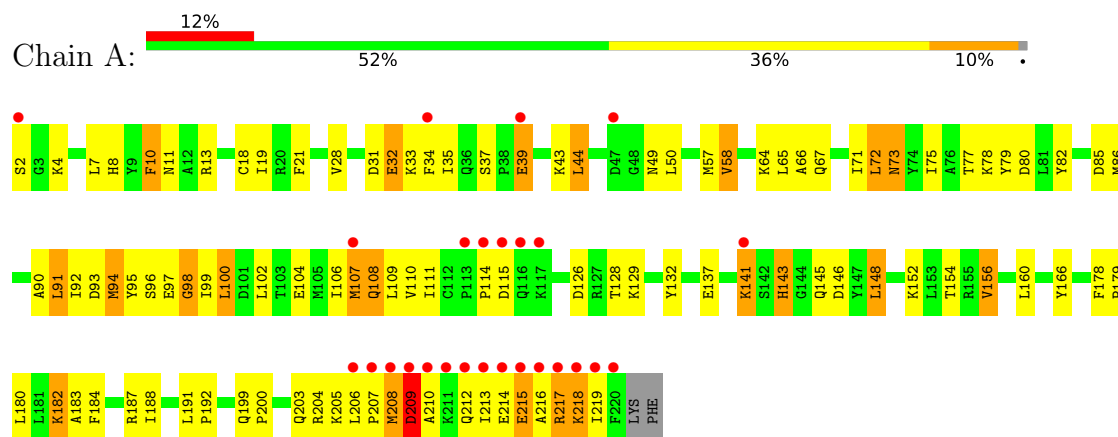
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	118	Total	O	0	0
			118	118		
4	C	20	Total	O	0	0
			20	20		
4	D	28	Total	O	0	0
			28	28		

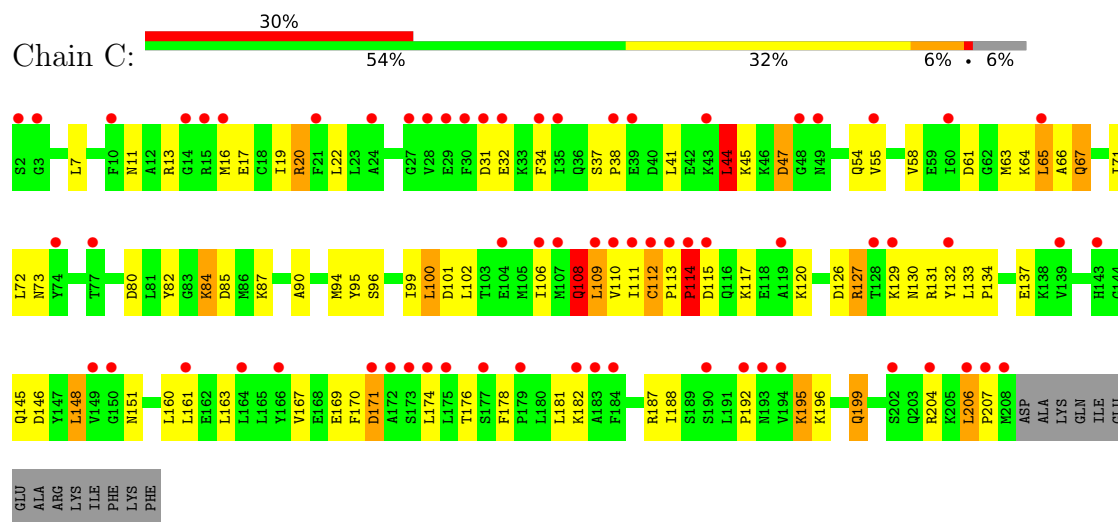
3 Residue-property plots [i](#)

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.

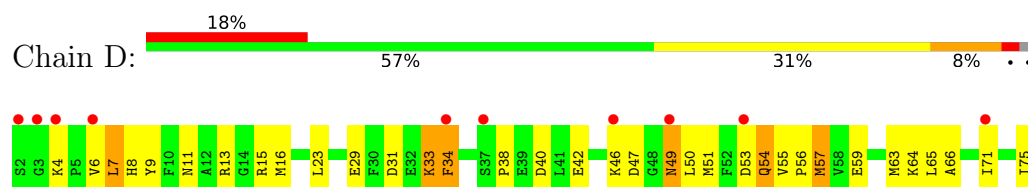
• Molecule 1: GLUTATHIONE S-TRANSFERASE A1-1

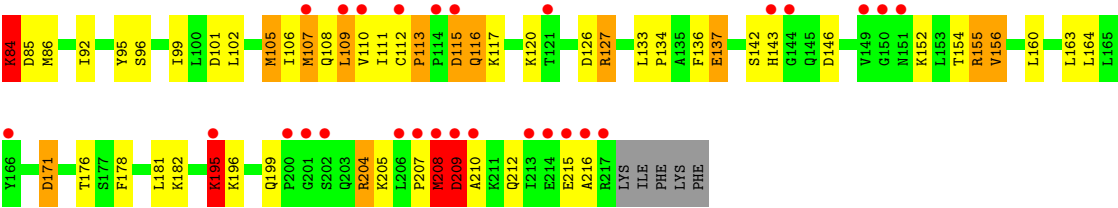


• Molecule 1: GLUTATHIONE S-TRANSFERASE A1-1



• Molecule 1: GLUTATHIONE S-TRANSFERASE A1-1





4 Data and refinement statistics

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α , β , γ	84.70Å 275.10Å 70.50Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	20.00 – 2.20 20.00 – 2.20	Depositor EDS
% Data completeness (in resolution range)	(Not available) (20.00-2.20) 95.4 (20.00-2.20)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	0.56 (at 1.80Å)	Xtriage
Refinement program	X-PLOR 3.843	Depositor
R, R_{free}	0.236 , 0.299 0.256 , (Not available)	Depositor DCC
R_{free} test set	No test flags present.	wwPDB-VP
Wilson B-factor (Å ²)	25.5	Xtriage
Anisotropy	0.469	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 78.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	5388	wwPDB-VP
Average B, all atoms (Å ²)	56.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.62% 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](#)

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

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	1.06	7/1796 (0.4%)	1.49	31/2411 (1.3%)
1	C	0.84	1/1694 (0.1%)	1.54	34/2276 (1.5%)
1	D	0.85	2/1739 (0.1%)	1.53	31/2339 (1.3%)
All	All	0.92	10/5229 (0.2%)	1.52	96/7026 (1.4%)

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	58	VAL	N-CA	-6.71	1.38	1.46
1	D	155	ARG	N-CA	-6.07	1.39	1.46
1	D	209	ASP	N-CA	5.93	1.53	1.46
1	A	108	GLN	N-CA	-5.70	1.39	1.46
1	C	63	MET	N-CA	-5.53	1.39	1.45
1	A	39	GLU	N-CA	-5.47	1.39	1.46
1	A	91	LEU	N-CA	-5.40	1.39	1.46
1	A	73	ASN	N-CA	-5.05	1.40	1.46
1	A	128	THR	N-CA	-5.03	1.40	1.46
1	A	10	PHE	N-CA	-5.01	1.39	1.45

All (96) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	209	ASP	CA-CB-CG	11.78	124.38	112.60
1	D	101	ASP	CA-CB-CG	11.65	124.25	112.60
1	D	85	ASP	CA-CB-CG	11.26	123.86	112.60
1	A	31	ASP	CA-CB-CG	10.40	123.00	112.60
1	C	85	ASP	CA-CB-CG	10.13	122.73	112.60
1	D	86	MET	CB-CA-C	-10.11	94.06	110.84
1	C	31	ASP	CA-CB-CG	9.97	122.57	112.60
1	D	126	ASP	CA-CB-CG	9.81	122.41	112.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	107	MET	CB-CA-C	-9.62	95.41	110.81
1	C	195	LYS	CG-CD-CE	9.62	133.43	111.30
1	D	80	ASP	CA-CB-CG	9.19	121.79	112.60
1	C	206	LEU	N-CA-CB	-9.08	99.23	109.49
1	A	4	LYS	N-CA-CB	-9.07	98.34	110.23
1	A	115	ASP	CA-CB-CG	9.05	121.65	112.60
1	D	204	ARG	N-CA-CB	-8.70	96.37	109.69
1	C	112	CYS	N-CA-CB	-8.69	94.91	110.37
1	C	47	ASP	CA-CB-CG	8.50	121.10	112.60
1	A	85	ASP	N-CA-C	8.40	119.03	108.45
1	C	113	PRO	CA-C-N	8.28	130.19	119.84
1	C	113	PRO	C-N-CA	8.28	130.19	119.84
1	D	146	ASP	CA-CB-CG	8.13	120.73	112.60
1	D	40	ASP	CA-CB-CG	7.88	120.48	112.60
1	A	90	ALA	N-CA-C	-7.78	102.88	111.36
1	A	4	LYS	CB-CA-C	7.54	120.24	109.38
1	D	171	ASP	CA-CB-CG	7.45	120.05	112.60
1	D	105	MET	CB-CA-C	-7.43	99.22	110.88
1	C	11	ASN	N-CA-CB	7.37	120.93	110.46
1	D	34	PHE	N-CA-C	7.25	121.29	109.76
1	D	182	LYS	CB-CG-CD	6.94	127.26	111.30
1	A	72	LEU	CB-CA-C	-6.92	99.73	110.81
1	D	195	LYS	CB-CG-CD	6.90	127.17	111.30
1	C	169	GLU	CB-CA-C	-6.86	100.39	110.96
1	A	64	LYS	N-CA-C	-6.79	98.96	108.54
1	C	84	LYS	CB-CG-CD	-6.77	95.73	111.30
1	C	115	ASP	CA-CB-CG	6.72	119.32	112.60
1	C	37	SER	N-CA-CB	-6.58	104.20	111.10
1	C	61	ASP	CA-CB-CG	6.56	119.16	112.60
1	C	64	LYS	CB-CG-CD	6.52	126.30	111.30
1	D	196	LYS	CB-CA-C	-6.49	100.69	110.88
1	C	126	ASP	CA-CB-CG	6.34	118.94	112.60
1	D	204	ARG	CB-CA-C	6.26	119.67	109.90
1	A	218	LYS	CB-CG-CD	6.22	125.62	111.30
1	C	32	GLU	N-CA-CB	-6.22	100.42	110.69
1	D	31	ASP	CA-CB-CG	6.20	118.80	112.60
1	D	46	LYS	N-CA-C	6.19	118.83	111.71
1	A	98	GLY	N-CA-C	-6.18	105.08	113.37
1	C	80	ASP	CA-CB-CG	6.14	118.75	112.60
1	A	80	ASP	CA-CB-CG	-6.14	106.46	112.60
1	D	86	MET	N-CA-CB	6.14	120.15	109.72
1	A	148	LEU	CB-CA-C	-6.12	101.27	110.88

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	84	LYS	N-CA-CB	-6.00	102.31	110.95
1	D	105	MET	N-CA-CB	5.97	118.67	110.01
1	C	37	SER	N-CA-C	5.95	113.58	108.22
1	C	73	ASN	CA-CB-CG	-5.95	106.65	112.60
1	A	214	GLU	N-CA-CB	-5.93	101.41	110.01
1	D	54	GLN	CB-CA-C	-5.87	97.83	110.45
1	A	178	PHE	CA-C-N	5.79	127.07	119.84
1	A	178	PHE	C-N-CA	5.79	127.07	119.84
1	A	132	TYR	N-CA-C	5.67	117.33	111.03
1	A	126	ASP	CA-CB-CG	5.62	118.22	112.60
1	C	148	LEU	N-CA-C	5.61	117.84	111.11
1	A	108	GLN	OE1-CD-NE2	-5.57	117.03	122.60
1	D	49	ASN	CA-CB-CG	5.52	118.12	112.60
1	D	195	LYS	CG-CD-CE	5.50	123.96	111.30
1	A	49	ASN	CA-CB-CG	-5.50	107.10	112.60
1	C	120	LYS	CB-CG-CD	5.49	123.92	111.30
1	D	178	PHE	CA-C-N	5.48	126.69	119.84
1	D	178	PHE	C-N-CA	5.48	126.69	119.84
1	A	141	LYS	CD-CE-NZ	5.48	129.44	111.90
1	C	101	ASP	CA-CB-CG	5.46	118.06	112.60
1	A	146	ASP	N-CA-C	5.44	118.13	111.82
1	A	129	LYS	CG-CD-CE	5.38	123.67	111.30
1	A	191	LEU	CA-C-N	5.36	126.55	119.84
1	A	191	LEU	C-N-CA	5.36	126.55	119.84
1	A	129	LYS	CB-CG-CD	-5.36	98.97	111.30
1	C	34	PHE	N-CA-C	5.34	117.44	109.59
1	A	43	LYS	CG-CD-CE	5.34	123.58	111.30
1	C	137	GLU	N-CA-C	-5.34	105.38	111.14
1	C	44	LEU	N-CA-C	-5.33	105.58	111.71
1	D	216	ALA	N-CA-C	-5.29	108.59	114.62
1	C	206	LEU	N-CA-C	5.26	116.18	110.13
1	D	142	SER	N-CA-C	5.25	117.69	111.33
1	D	137	GLU	N-CA-C	-5.24	105.64	111.36
1	C	132	TYR	N-CA-C	5.21	116.65	110.97
1	C	65	LEU	CB-CA-C	-5.21	102.44	110.26
1	C	82	TYR	N-CA-CB	-5.19	101.72	110.49
1	D	7	LEU	CB-CA-C	-5.18	101.80	110.19
1	C	199	GLN	CA-C-N	5.17	126.30	119.84
1	C	199	GLN	C-N-CA	5.17	126.30	119.84
1	C	20	ARG	CB-CA-C	-5.13	102.82	110.88
1	A	32	GLU	CB-CA-C	-5.11	98.70	109.38
1	A	182	LYS	N-CA-CB	-5.10	102.47	109.91

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	218	LYS	CG-CD-CE	5.10	123.02	111.30
1	C	195	LYS	N-CA-CB	-5.07	102.46	110.06
1	D	57	MET	N-CA-CB	5.05	119.11	110.57
1	D	152	LYS	N-CA-C	-5.03	101.43	109.23

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	1765	0	1830	89	0
1	C	1664	0	1726	57	0
1	D	1709	0	1750	61	0
2	A	5	0	0	0	0
2	C	5	0	0	0	0
2	D	5	0	0	0	0
3	A	23	0	14	0	0
3	C	23	0	14	5	0
3	D	23	0	14	3	0
4	A	118	0	0	48	0
4	C	20	0	0	2	0
4	D	28	0	0	4	0
All	All	5388	0	5348	204	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 19.

All (204) 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:A:78:LYS:HB3	4:A:681:HOH:O	1.73	0.87
1:A:209:ASP:HA	1:A:213:ILE:HG13	1.57	0.86
1:A:18:CYS:SG	4:A:645:HOH:O	2.36	0.84
1:A:35:ILE:HG13	4:A:660:HOH:O	1.78	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:47:ASP:HB2	1:D:49:ASN:ND2	1.95	0.81
1:D:102:LEU:HD23	1:D:163:LEU:HD21	1.62	0.80
1:A:145:GLN:HB2	4:A:695:HOH:O	1.80	0.80
1:A:160:LEU:HD23	4:A:574:HOH:O	1.82	0.79
1:A:93:ASP:HA	4:A:649:HOH:O	1.83	0.78
1:C:65:LEU:HD13	1:C:71:ILE:HA	1.64	0.78
1:D:71:ILE:HD11	4:D:668:HOH:O	1.83	0.78
1:D:47:ASP:HB2	1:D:49:ASN:HD21	1.49	0.78
1:D:95:TYR:HB2	1:D:156:VAL:HG11	1.66	0.77
1:A:92:ILE:HG23	1:A:156:VAL:HG22	1.68	0.75
1:A:82:TYR:HE2	4:A:522:HOH:O	1.69	0.75
1:A:96:SER:HB2	4:A:649:HOH:O	1.87	0.74
1:D:92:ILE:HG23	1:D:156:VAL:HG22	1.69	0.74
1:A:102:LEU:HB3	4:A:575:HOH:O	1.88	0.72
1:A:8:HIS:HB2	4:A:595:HOH:O	1.90	0.71
1:C:127:ARG:O	1:C:131:ARG:HB3	1.89	0.71
1:A:203:GLN:HG3	4:A:573:HOH:O	1.88	0.71
1:C:54:GLN:HB3	3:C:240:GTS:HG11	1.72	0.71
1:A:82:TYR:HE1	4:A:562:HOH:O	1.74	0.70
1:A:166:TYR:HE1	1:A:204:ARG:HH21	1.37	0.70
1:A:213:ILE:O	1:A:217:ARG:HG3	1.90	0.70
1:C:109:LEU:HD23	1:C:110:VAL:HG22	1.74	0.69
1:A:152:LYS:HB3	4:A:659:HOH:O	1.91	0.68
1:C:90:ALA:HB1	1:D:65:LEU:HD11	1.76	0.68
1:A:97:GLU:HB2	4:A:635:HOH:O	1.92	0.68
1:A:95:TYR:HB2	1:A:156:VAL:HG11	1.76	0.68
1:D:106:ILE:HA	1:D:109:LEU:HD22	1.75	0.67
1:A:215:GLU:O	1:A:218:LYS:HG2	1.94	0.67
1:A:72:LEU:HD21	4:A:645:HOH:O	1.95	0.67
1:A:96:SER:O	1:A:100:LEU:HD22	1.95	0.66
1:D:34:PHE:CE2	1:D:205:LYS:HE3	2.32	0.65
1:A:57:MET:N	4:A:595:HOH:O	2.30	0.64
1:A:208:MET:N	1:A:208:MET:SD	2.70	0.64
1:A:143:HIS:CE1	4:A:695:HOH:O	2.51	0.64
1:A:94:MET:SD	4:A:552:HOH:O	2.55	0.64
1:A:67:GLN:HG2	4:A:509:HOH:O	1.98	0.63
1:D:15:ARG:NH1	3:D:250:GTS:HB11	2.12	0.63
1:A:19:ILE:HG13	4:A:645:HOH:O	1.98	0.63
1:C:55:VAL:O	3:C:240:GTS:HG12	1.99	0.62
1:C:102:LEU:HD23	1:C:163:LEU:HD11	1.81	0.62
1:C:112:CYS:O	1:C:114:PRO:HD3	2.00	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:102:LEU:N	4:A:575:HOH:O	2.33	0.62
1:D:208:MET:SD	1:D:208:MET:N	2.72	0.62
1:A:104:GLU:HA	1:A:107:MET:HG2	1.81	0.62
1:C:129:LYS:HE2	4:C:701:HOH:O	1.99	0.62
1:C:7:LEU:HB3	1:C:16:MET:HE3	1.82	0.61
1:A:187:ARG:HG3	4:A:607:HOH:O	2.00	0.60
1:C:13:ARG:HH11	1:C:207:PRO:HA	1.65	0.60
1:C:16:MET:SD	1:C:19:ILE:HD12	2.40	0.60
1:A:37:SER:HA	1:A:219:ILE:HD11	1.82	0.60
1:C:41:LEU:HG	1:C:45:LYS:HE2	1.82	0.60
1:C:13:ARG:NH1	1:C:207:PRO:HA	2.17	0.60
1:C:127:ARG:HA	1:C:127:ARG:HE	1.67	0.60
1:D:34:PHE:CZ	1:D:205:LYS:CE	2.86	0.59
1:C:146:ASP:HB3	1:C:187:ARG:HD3	1.84	0.59
1:A:206:LEU:CD2	1:A:207:PRO:HD2	2.34	0.58
1:A:215:GLU:HA	1:A:218:LYS:HE3	1.86	0.58
1:C:65:LEU:HB3	1:C:71:ILE:HG12	1.86	0.58
1:A:179:PRO:HG2	4:A:526:HOH:O	2.04	0.57
1:A:206:LEU:HD22	1:A:207:PRO:HD2	1.87	0.57
1:C:106:ILE:O	1:C:109:LEU:HD22	2.04	0.56
1:A:91:LEU:HA	4:A:552:HOH:O	2.05	0.56
1:A:97:GLU:N	4:A:635:HOH:O	2.38	0.56
1:A:203:GLN:NE2	4:A:514:HOH:O	2.39	0.56
1:D:34:PHE:HE2	1:D:205:LYS:HE3	1.69	0.56
1:C:66:ALA:O	1:C:67:GLN:HB2	2.06	0.56
1:D:76:ALA:HB2	1:D:155:ARG:HD2	1.87	0.56
1:A:11:ASN:HD22	1:A:205:LYS:HE3	1.70	0.56
1:C:90:ALA:HA	4:D:342:HOH:O	2.05	0.55
1:C:17:GLU:HA	1:C:20:ARG:NH1	2.22	0.55
1:C:99:ILE:HG23	1:C:163:LEU:HD22	1.89	0.55
1:D:55:VAL:O	3:D:250:GTS:HG12	2.07	0.55
1:A:182:LYS:HE3	4:A:696:HOH:O	2.07	0.54
1:C:133:LEU:HD22	1:C:181:LEU:HD13	1.88	0.54
1:D:107:MET:O	1:D:110:VAL:HG12	2.07	0.54
1:D:76:ALA:CB	1:D:155:ARG:HD2	2.37	0.54
1:D:107:MET:HE3	1:D:107:MET:HA	1.88	0.54
1:A:86:MET:HG2	1:A:86:MET:O	2.06	0.53
1:D:23:LEU:HD21	1:D:75:ILE:HD13	1.89	0.53
1:D:84:LYS:O	1:D:84:LYS:HG2	2.09	0.53
1:A:32:GLU:CD	1:A:34:PHE:HE1	2.17	0.52
1:A:137:GLU:OE2	1:A:179:PRO:HD2	2.08	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:58:VAL:HG21	1:C:71:ILE:HG21	1.90	0.52
1:C:178:PHE:HB3	1:C:181:LEU:HD12	1.91	0.52
1:A:96:SER:OG	1:A:156:VAL:HG13	2.09	0.52
1:D:107:MET:SD	1:D:107:MET:N	2.82	0.52
1:D:99:ILE:HG13	1:D:136:PHE:CZ	2.45	0.52
1:C:94:MET:SD	1:D:66:ALA:HB3	2.50	0.52
1:A:104:GLU:O	1:A:108:GLN:HG2	2.11	0.51
1:C:170:PHE:O	1:C:171:ASP:HB2	2.10	0.51
1:D:116:GLN:O	1:D:120:LYS:HG3	2.10	0.51
1:C:133:LEU:HB2	1:C:134:PRO:HD3	1.93	0.51
1:D:66:ALA:HA	4:D:668:HOH:O	2.11	0.51
1:A:13:ARG:HB2	1:A:208:MET:HE1	1.93	0.51
1:D:34:PHE:HZ	1:D:205:LYS:CE	2.23	0.51
1:A:58:VAL:HG23	1:A:71:ILE:HD13	1.93	0.50
1:A:99:ILE:C	4:A:575:HOH:O	2.54	0.50
1:D:34:PHE:HZ	1:D:205:LYS:HE2	1.76	0.50
1:D:105:MET:HE1	1:D:127:ARG:HG2	1.93	0.50
1:D:34:PHE:CZ	1:D:205:LYS:HE2	2.46	0.50
1:A:34:PHE:HZ	1:A:205:LYS:HZ1	1.58	0.50
1:A:98:GLY:CA	4:A:508:HOH:O	2.60	0.50
1:D:6:VAL:HB	1:D:59:GLU:HB2	1.94	0.50
1:A:75:ILE:HA	4:A:681:HOH:O	2.12	0.50
1:A:91:LEU:HD23	4:A:552:HOH:O	2.12	0.49
1:C:163:LEU:O	1:C:167:VAL:HG23	2.12	0.49
1:A:13:ARG:NH1	1:A:207:PRO:HB3	2.26	0.49
1:A:44:LEU:HD13	1:A:50:LEU:HD11	1.94	0.49
1:D:195:LYS:O	1:D:199:GLN:HG3	2.13	0.49
1:A:33:LYS:HB2	4:A:301:HOH:O	2.11	0.49
1:A:37:SER:HA	1:A:219:ILE:CD1	2.43	0.49
1:A:148:LEU:HG	4:A:574:HOH:O	2.12	0.49
1:C:96:SER:O	1:C:100:LEU:HB2	2.12	0.48
1:A:92:ILE:HB	4:A:562:HOH:O	2.12	0.48
1:C:206:LEU:HB3	1:C:207:PRO:HD2	1.96	0.48
1:D:208:MET:O	1:D:209:ASP:CB	2.61	0.48
1:A:37:SER:OG	1:A:39:GLU:HB3	2.14	0.48
1:A:166:TYR:HE1	1:A:204:ARG:NH2	2.10	0.48
1:A:96:SER:O	1:A:99:ILE:HB	2.13	0.48
1:A:179:PRO:O	1:A:182:LYS:HB3	2.13	0.47
1:A:98:GLY:N	4:A:508:HOH:O	2.47	0.47
1:C:54:GLN:HA	3:C:240:GTS:O2	2.14	0.47
1:D:112:CYS:SG	1:D:117:LYS:HA	2.55	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:196:LYS:HA	1:C:199:GLN:HE21	1.80	0.47
1:C:176:THR:HA	1:C:182:LYS:NZ	2.30	0.47
1:A:106:ILE:O	1:A:109:LEU:HB2	2.14	0.46
1:D:112:CYS:HB3	1:D:120:LYS:HZ3	1.80	0.46
1:A:110:VAL:C	1:A:111:ILE:HG13	2.41	0.46
1:A:10:PHE:HE1	1:A:219:ILE:HG22	1.79	0.46
1:A:183:ALA:HB1	4:A:607:HOH:O	2.16	0.46
1:D:50:LEU:HB2	1:D:53:ASP:HA	1.98	0.46
1:D:212:GLN:HA	1:D:215:GLU:CB	2.46	0.46
1:D:7:LEU:HD13	1:D:16:MET:SD	2.56	0.45
1:A:66:ALA:O	1:A:67:GLN:HB2	2.15	0.45
1:D:57:MET:HA	4:D:668:HOH:O	2.16	0.45
1:D:107:MET:HE2	1:D:208:MET:SD	2.56	0.45
1:A:35:ILE:N	4:A:660:HOH:O	2.49	0.45
1:A:184:PHE:CZ	1:A:188:ILE:HG13	2.52	0.45
1:C:146:ASP:HB3	1:C:187:ARG:CD	2.47	0.45
1:D:34:PHE:CE2	1:D:205:LYS:CE	3.00	0.45
1:C:54:GLN:CB	3:C:240:GTS:HG11	2.44	0.45
1:C:111:ILE:O	1:C:111:ILE:HG22	2.17	0.45
1:D:13:ARG:NH1	1:D:207:PRO:HA	2.32	0.44
1:C:87:LYS:HE2	1:C:87:LYS:HB3	1.79	0.44
1:C:161:LEU:HD22	1:C:188:ILE:HG22	1.99	0.44
1:A:98:GLY:HA3	4:A:508:HOH:O	2.17	0.44
1:D:4:LYS:HZ2	1:D:29:GLU:HB3	1.82	0.44
1:C:114:PRO:HA	1:C:117:LYS:HB2	2.00	0.44
1:A:73:ASN:CB	4:A:522:HOH:O	2.65	0.44
1:A:73:ASN:HB3	4:A:522:HOH:O	2.18	0.44
1:D:160:LEU:O	1:D:164:LEU:HG	2.18	0.44
1:D:137:GLU:OE1	1:D:181:LEU:HG	2.18	0.43
1:D:63:MET:C	1:D:64:LYS:HD2	2.43	0.43
1:D:4:LYS:NZ	1:D:29:GLU:HB3	2.34	0.43
1:A:66:ALA:HB3	4:A:509:HOH:O	2.18	0.43
1:A:143:HIS:CG	4:A:695:HOH:O	2.71	0.43
1:A:154:THR:HG22	4:A:312:HOH:O	2.19	0.43
1:A:102:LEU:CB	4:A:575:HOH:O	2.58	0.43
1:C:130:ASN:HB3	4:C:682:HOH:O	2.19	0.43
1:A:207:PRO:O	1:A:212:GLN:NE2	2.51	0.42
1:D:55:VAL:HA	1:D:56:PRO:C	2.43	0.42
1:C:176:THR:HA	1:C:182:LYS:CE	2.49	0.42
1:D:8:HIS:HE2	1:D:59:GLU:HG3	1.84	0.42
1:D:106:ILE:O	1:D:109:LEU:HB2	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:205:LYS:HD3	1:D:205:LYS:HA	1.74	0.42
1:A:141:LYS:HG3	1:A:180:LEU:HD11	2.01	0.42
1:C:110:VAL:C	1:C:111:ILE:HD12	2.44	0.42
1:D:9:TYR:O	1:D:34:PHE:HA	2.20	0.42
1:A:19:ILE:N	4:A:645:HOH:O	2.50	0.42
1:A:187:ARG:NH1	4:A:607:HOH:O	2.52	0.42
1:C:99:ILE:HG23	1:C:163:LEU:HB2	2.01	0.42
1:C:176:THR:HA	1:C:182:LYS:HE2	2.01	0.42
1:C:7:LEU:HD22	1:C:58:VAL:HG22	2.01	0.42
1:D:113:PRO:HB3	1:D:115:ASP:OD2	2.19	0.41
1:C:95:TYR:CD1	1:D:51:MET:HE1	2.55	0.41
1:C:145:GLN:HB3	1:C:151:ASN:OD1	2.21	0.41
1:A:34:PHE:N	1:A:34:PHE:CD1	2.89	0.41
1:A:94:MET:C	4:A:635:HOH:O	2.62	0.41
1:C:22:LEU:HD22	1:C:72:LEU:HD22	2.01	0.41
1:C:102:LEU:HD23	1:C:163:LEU:HD21	2.01	0.41
1:D:96:SER:OG	1:D:156:VAL:HG13	2.21	0.41
1:C:195:LYS:O	1:C:199:GLN:HG3	2.19	0.41
1:C:108:GLN:O	1:C:112:CYS:SG	2.75	0.41
1:D:154:THR:OG1	1:D:156:VAL:HG23	2.20	0.41
1:C:54:GLN:HB3	3:C:240:GTS:HN2	1.86	0.41
1:D:11:ASN:HA	1:D:34:PHE:CE2	2.55	0.41
1:A:166:TYR:N	1:A:166:TYR:CD1	2.87	0.41
1:C:148:LEU:HD11	1:C:160:LEU:HD22	2.03	0.41
1:D:84:LYS:HB3	1:D:84:LYS:HE2	1.69	0.41
1:D:108:GLN:HE21	1:D:111:ILE:HD12	1.86	0.41
1:D:133:LEU:HB2	1:D:134:PRO:HD3	2.02	0.41
1:A:199:GLN:HA	1:A:200:PRO:HD3	1.96	0.41
1:C:44:LEU:O	1:C:47:ASP:HB2	2.21	0.41
1:A:28:VAL:HG21	1:A:79:TYR:CZ	2.55	0.40
1:C:13:ARG:HB3	1:C:17:GLU:HB2	2.03	0.40
1:A:77:THR:HG23	4:A:589:HOH:O	2.21	0.40
1:A:216:ALA:C	1:A:218:LYS:H	2.28	0.40
1:D:33:LYS:HD2	1:D:33:LYS:HA	1.87	0.40
1:D:54:GLN:HB3	3:D:250:GTS:N2	2.36	0.40
1:C:19:ILE:HA	1:C:72:LEU:HD21	2.02	0.40

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	A	217/221 (98%)	190 (88%)	24 (11%)	3 (1%)	9	7
1	C	205/221 (93%)	177 (86%)	24 (12%)	4 (2%)	6	4
1	D	214/221 (97%)	194 (91%)	15 (7%)	5 (2%)	5	3
All	All	636/663 (96%)	561 (88%)	63 (10%)	12 (2%)	6	4

All (12) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	209	ASP
1	C	114	PRO
1	D	208	MET
1	D	209	ASP
1	D	210	ALA
1	C	171	ASP
1	D	171	ASP
1	A	210	ALA
1	D	176	THR
1	A	217	ARG
1	C	108	GLN
1	C	67	GLN

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.

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	193/195 (99%)	180 (93%)	13 (7%)	15	17
1	C	183/195 (94%)	172 (94%)	11 (6%)	17	21
1	D	183/195 (94%)	168 (92%)	15 (8%)	10	12
All	All	559/585 (96%)	520 (93%)	39 (7%)	14	16

All (39) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	2	SER
1	A	7	LEU
1	A	21	PHE
1	A	44	LEU
1	A	65	LEU
1	A	94	MET
1	A	100	LEU
1	A	114	PRO
1	A	143	HIS
1	A	156	VAL
1	A	192	PRO
1	A	208	MET
1	A	215	GLU
1	C	38	PRO
1	C	44	LEU
1	C	84	LYS
1	C	100	LEU
1	C	108	GLN
1	C	109	LEU
1	C	114	PRO
1	C	127	ARG
1	C	174	LEU
1	C	192	PRO
1	C	204	ARG
1	D	33	LYS
1	D	38	PRO
1	D	42	GLU
1	D	84	LYS
1	D	107	MET
1	D	109	LEU
1	D	113	PRO

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Mol	Chain	Res	Type
1	D	115	ASP
1	D	116	GLN
1	D	127	ARG
1	D	143	HIS
1	D	156	VAL
1	D	195	LYS
1	D	204	ARG
1	D	208	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (6) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	11	ASN
1	A	36	GLN
1	A	199	GLN
1	C	199	GLN
1	D	145	GLN
1	D	193	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

6 ligands 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	$\# Z > 2$
2	SO4	A	260	-	4,4,4	0.42	0	6,6,6	0.41	0
3	GTS	D	250	-	20,22,22	1.47	3 (15%)	26,30,30	1.27	4 (15%)
3	GTS	A	230	-	20,22,22	1.22	3 (15%)	26,30,30	1.24	3 (11%)
3	GTS	C	240	-	20,22,22	1.05	2 (10%)	26,30,30	1.42	5 (19%)
2	SO4	C	261	-	4,4,4	0.31	0	6,6,6	0.16	0
2	SO4	D	262	-	4,4,4	0.22	0	6,6,6	0.17	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	GTS	A	230	-	-	2/27/27/27	-
3	GTS	C	240	-	-	2/27/27/27	-
3	GTS	D	250	-	-	2/27/27/27	-

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	250	GTS	CB2-CA2	-4.80	1.50	1.53
3	A	230	GTS	CB2-CA2	-3.49	1.51	1.53
3	D	250	GTS	O12-C1	-2.54	1.22	1.30
3	A	230	GTS	O31-C3	-2.50	1.22	1.30
3	A	230	GTS	O12-C1	-2.42	1.22	1.30
3	D	250	GTS	O31-C3	-2.41	1.22	1.30
3	C	240	GTS	O31-C3	-2.15	1.23	1.30
3	C	240	GTS	O12-C1	-2.13	1.23	1.30

All (12) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	230	GTS	O1S-SG2-CB2	3.01	111.25	106.76
3	C	240	GTS	O1S-SG2-CB2	2.96	111.18	106.76
3	C	240	GTS	CG1-CB1-CA1	-2.96	107.06	113.86
3	D	250	GTS	CB2-CA2-C2	-2.82	103.16	109.56
3	C	240	GTS	O3S-SG2-CB2	2.59	110.97	105.97

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	230	GTS	O3S-SG2-CB2	2.55	110.89	105.97
3	C	240	GTS	CA2-CB2-SG2	2.53	117.34	113.55
3	C	240	GTS	CG1-CD1-N2	-2.51	111.44	115.86
3	D	250	GTS	O1S-SG2-CB2	2.50	110.48	106.76
3	D	250	GTS	O3S-SG2-CB2	2.38	110.57	105.97
3	A	230	GTS	CB2-CA2-C2	-2.09	104.81	109.56
3	D	250	GTS	CG1-CB1-CA1	-2.06	109.14	113.86

There are no chirality outliers.

All (6) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	C	240	GTS	O12-C1-CA1-N1
3	A	230	GTS	O11-C1-CA1-N1
3	D	250	GTS	O11-C1-CA1-N1
3	D	250	GTS	O12-C1-CA1-N1
3	A	230	GTS	O12-C1-CA1-N1
3	C	240	GTS	C3-CA3-N3-C2

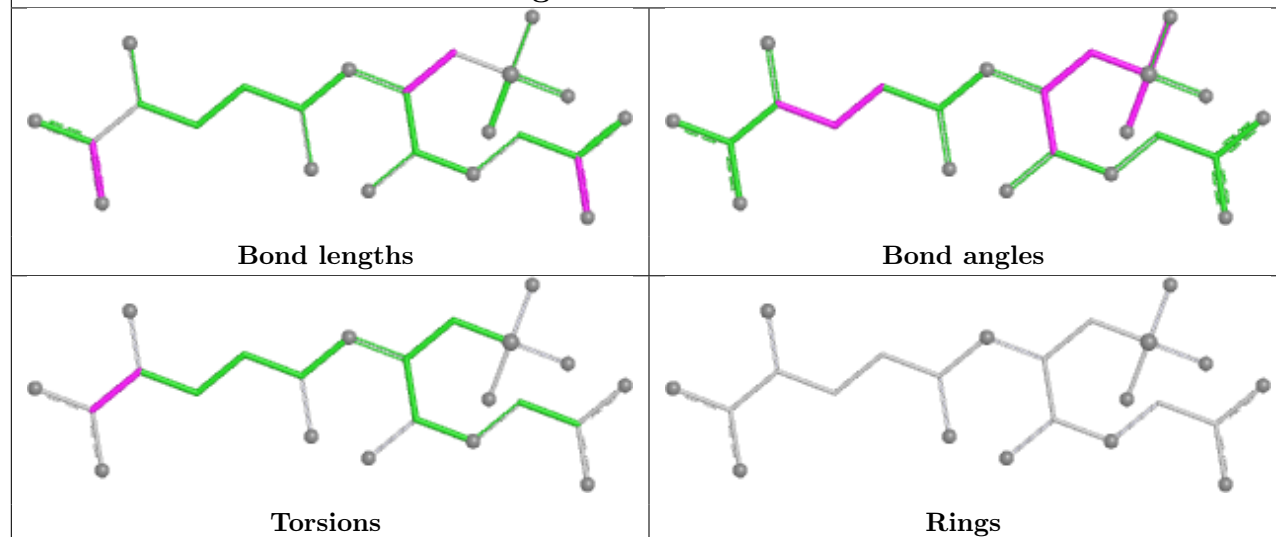
There are no ring outliers.

2 monomers are involved in 8 short contacts:

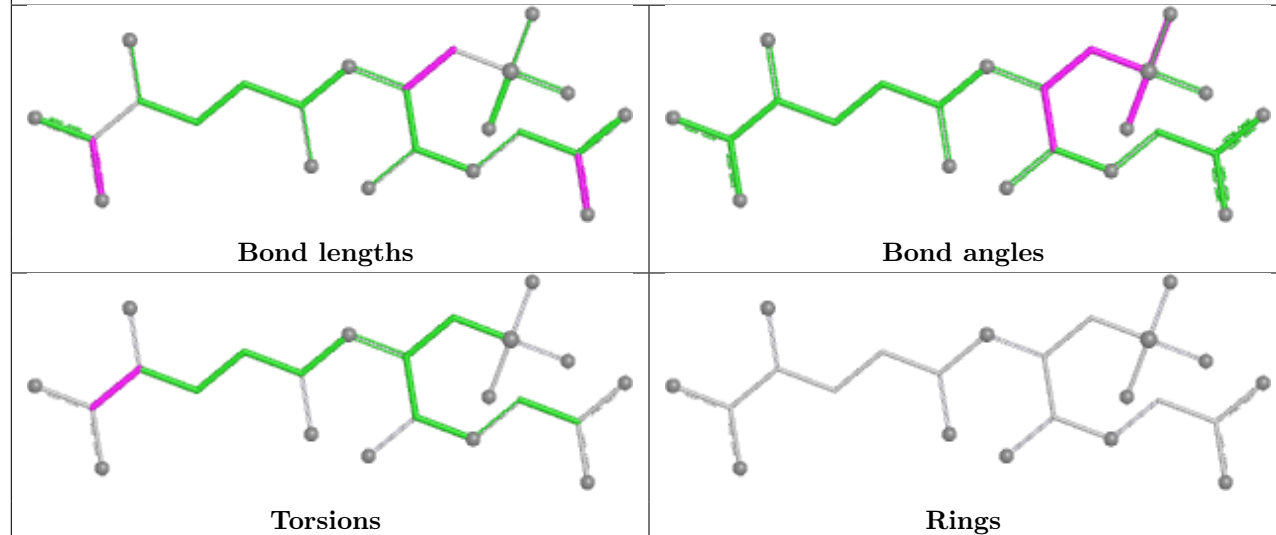
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	D	250	GTS	3	0
3	C	240	GTS	5	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

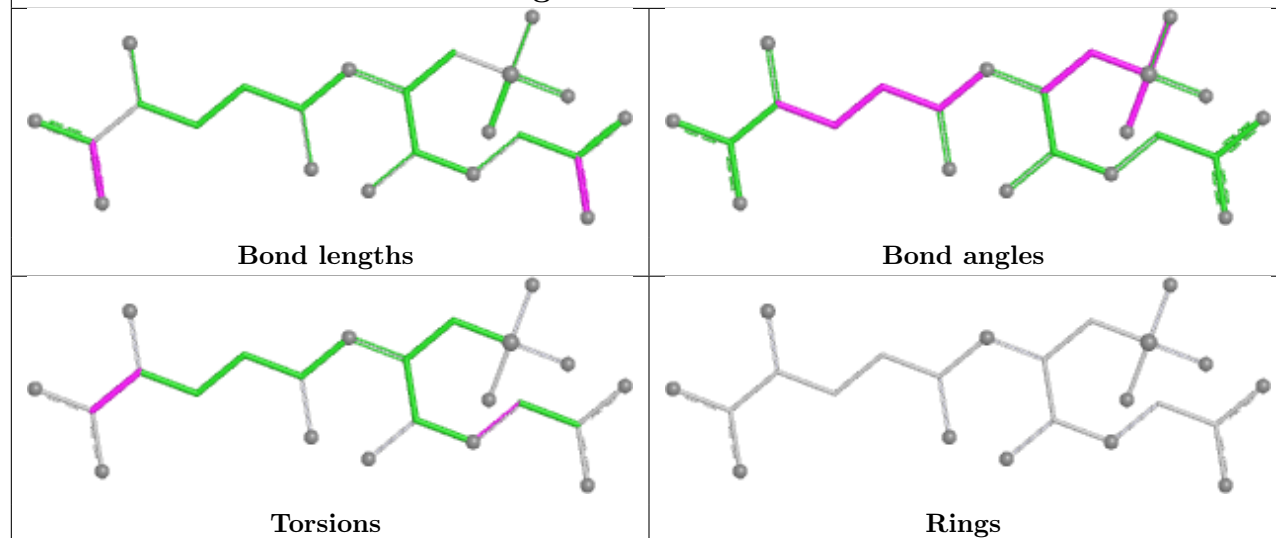
Ligand GTS D 250



Ligand GTS A 230



Ligand GTS C 240



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	219/221 (99%)	0.70	26 (11%) 9 7	20, 35, 93, 100	0
1	C	207/221 (93%)	1.71	66 (31%) 1 0	42, 70, 99, 100	0
1	D	216/221 (97%)	1.12	39 (18%) 3 2	34, 53, 90, 100	0
All	All	642/663 (96%)	1.17	131 (20%) 3 2	20, 53, 96, 100	0

All (131) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	219	ILE	7.3
1	A	212	GLN	7.2
1	A	220	PHE	6.6
1	A	213	ILE	5.4
1	C	16	MET	5.1
1	D	166	TYR	5.1
1	A	206	LEU	4.8
1	C	34	PHE	4.7
1	C	110	VAL	4.7
1	C	35	ILE	4.6
1	A	34	PHE	4.4
1	D	206	LEU	4.3
1	C	109	LEU	4.3
1	C	2	SER	4.3
1	D	216	ALA	4.1
1	C	14	GLY	4.0
1	A	215	GLU	4.0
1	D	151	ASN	3.8
1	A	210	ALA	3.6
1	A	47	ASP	3.6
1	C	112	CYS	3.6
1	C	182	LYS	3.6
1	C	31	ASP	3.6

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Mol	Chain	Res	Type	RSRZ
1	C	128	THR	3.5
1	A	208	MET	3.5
1	C	107	MET	3.5
1	A	209	ASP	3.4
1	A	114	PRO	3.4
1	A	216	ALA	3.4
1	C	114	PRO	3.3
1	C	202	SER	3.3
1	A	115	ASP	3.3
1	A	207	PRO	3.3
1	D	34	PHE	3.3
1	C	179	PRO	3.2
1	A	217	ARG	3.2
1	C	113	PRO	3.1
1	C	3	GLY	3.1
1	C	15	ARG	3.1
1	D	210	ALA	3.1
1	D	202	SER	3.0
1	A	218	LYS	3.0
1	D	207	PRO	3.0
1	C	206	LEU	3.0
1	C	60	ILE	3.0
1	C	111	ILE	3.0
1	C	208	MET	3.0
1	C	38	PRO	3.0
1	A	211	LYS	2.9
1	C	115	ASP	2.9
1	D	49	ASN	2.9
1	D	214	GLU	2.9
1	D	215	GLU	2.9
1	C	174	LEU	2.8
1	D	3	GLY	2.8
1	D	83	GLY	2.8
1	A	116	GLN	2.8
1	C	119	ALA	2.8
1	C	77	THR	2.7
1	D	213	ILE	2.7
1	C	29	GLU	2.7
1	C	106	ILE	2.7
1	D	2	SER	2.7
1	C	39	GLU	2.7
1	D	46	LYS	2.6

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Mol	Chain	Res	Type	RSRZ
1	D	53	ASP	2.6
1	D	209	ASP	2.6
1	C	27	GLY	2.6
1	A	113	PRO	2.6
1	D	200	PRO	2.6
1	D	217	ARG	2.6
1	C	175	LEU	2.6
1	C	204	ARG	2.6
1	D	208	MET	2.6
1	C	161	LEU	2.6
1	D	4	LYS	2.6
1	D	80	ASP	2.6
1	C	192	PRO	2.6
1	A	2	SER	2.5
1	C	74	TYR	2.5
1	C	150	GLY	2.5
1	D	195	LYS	2.5
1	C	10	PHE	2.5
1	C	28	VAL	2.5
1	D	110	VAL	2.4
1	D	114	PRO	2.4
1	D	121	THR	2.4
1	C	149	VAL	2.4
1	A	39	GLU	2.4
1	D	149	VAL	2.4
1	C	207	PRO	2.3
1	D	143	HIS	2.3
1	D	115	ASP	2.3
1	C	166	TYR	2.3
1	D	37	SER	2.3
1	C	30	PHE	2.3
1	C	184	PHE	2.3
1	D	6	VAL	2.3
1	D	112	CYS	2.3
1	A	117	LYS	2.3
1	A	141	LYS	2.3
1	A	214	GLU	2.3
1	C	172	ALA	2.3
1	C	194	VAL	2.3
1	A	107	MET	2.2
1	D	107	MET	2.2
1	C	177	SER	2.2

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Mol	Chain	Res	Type	RSRZ
1	C	43	LYS	2.2
1	C	55	VAL	2.2
1	C	49	ASN	2.2
1	C	24	ALA	2.2
1	C	193	ASN	2.2
1	C	139	VAL	2.1
1	C	104	GLU	2.1
1	C	190	SER	2.1
1	C	129	LYS	2.1
1	C	65	LEU	2.1
1	C	164	LEU	2.1
1	C	48	GLY	2.1
1	D	144	GLY	2.1
1	D	201	GLY	2.1
1	C	173	SER	2.0
1	C	32	GLU	2.0
1	C	183	ALA	2.0
1	C	171	ASP	2.0
1	D	71	ILE	2.0
1	C	132	TYR	2.0
1	D	150	GLY	2.0
1	C	21	PHE	2.0
1	C	143	HIS	2.0
1	D	109	LEU	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](#)

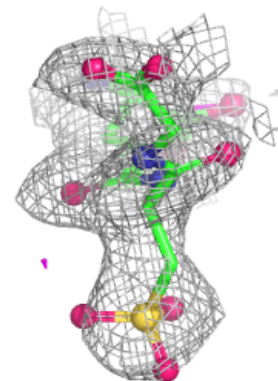
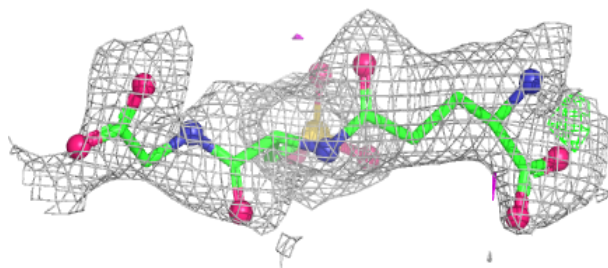
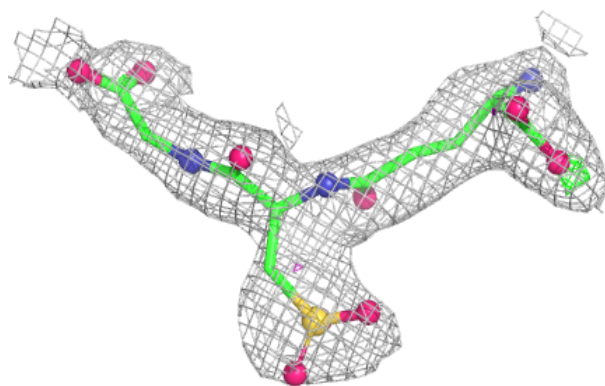
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists 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
2	SO4	D	262	5/5	0.72	0.17	97,98,100,100	0
3	GTS	C	240	23/23	0.74	0.18	63,87,95,98	0
3	GTS	D	250	23/23	0.78	0.15	52,62,74,76	0
2	SO4	A	260	5/5	0.85	0.15	64,66,69,72	0
3	GTS	A	230	23/23	0.85	0.16	26,54,78,82	0
2	SO4	C	261	5/5	0.86	0.11	86,86,87,88	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

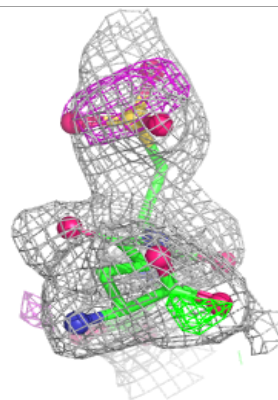
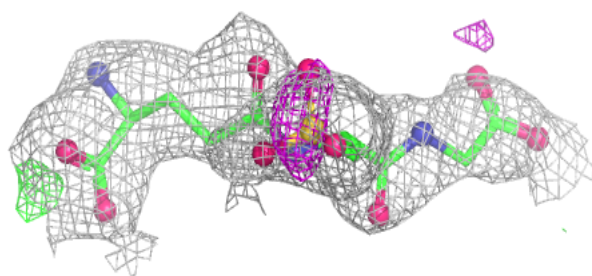
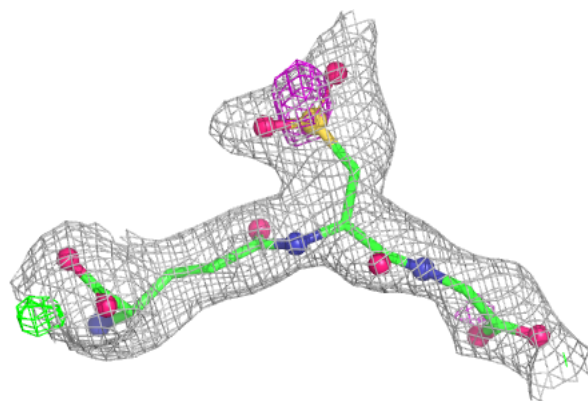
Electron density around GTS C 240:

2mF_o-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

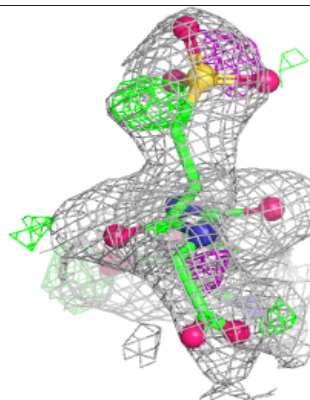
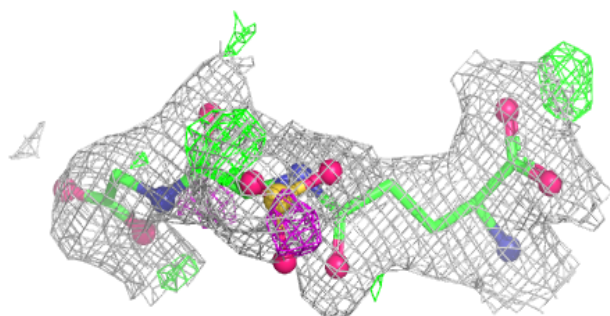
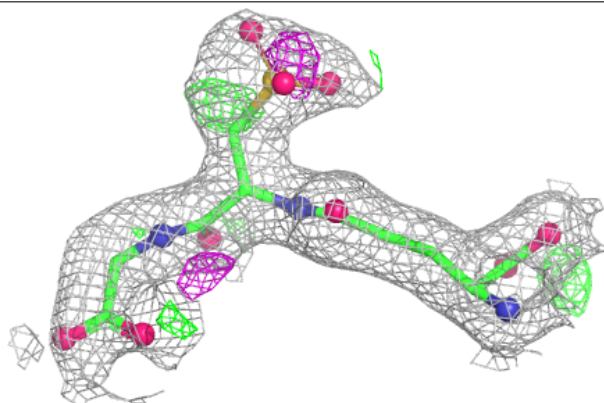


Electron density around GTS D 250:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

**Electron density around GTS A 230:**

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



6.5 Other polymers ⓘ

There are no such residues in this entry.