



# Full wwPDB X-ray Structure Validation Report

Feb 28, 2014 – 02:53 PM GMT

PDB ID : 2J5T  
Title : GLUTAMATE 5-KINASE FROM ESCHERICHIA COLI COMPLEXED  
WITH GLUTAMATE  
Authors : Marco-Marin, C.; Gil-Ortiz, F.; Perez-Arellano, I.; Cervera, J.; Fita, I.; Rubio,  
V.  
Deposited on : 2006-09-19  
Resolution : 2.90 Å(reported)

This is a full wwPDB 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 <http://wwpdb.org/ValidationPDFNotes.html>

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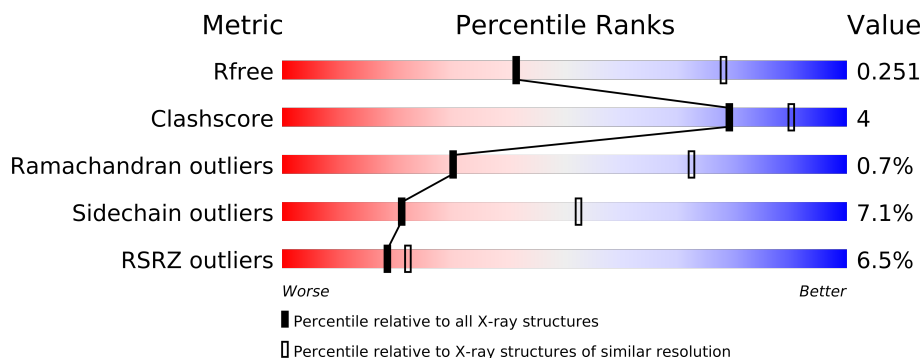
The following versions of software and data (see [references](#)) were used in the production of this report:

MolProbity : 4.02b-467  
Mogul : 1.15 2013  
Xtriage (Phenix) : dev-1323  
EDS : stable22639  
Percentile statistics : 21963  
Refmac : 5.8.0049  
CCP4 : 6.3.0 (Settle)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)  
Validation Pipeline (wwPDB-VP) : stable22683

# 1 Overall quality at a glance

The reported resolution of this entry is 2.90 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))
$R_{free}$	66092	1053 (2.90-2.90)
Clashscore	79885	1326 (2.90-2.90)
Ramachandran outliers	78287	1290 (2.90-2.90)
Sidechain outliers	78261	1292 (2.90-2.90)
RSRZ outliers	66119	1054 (2.90-2.90)

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 on the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density.

Mol	Chain	Length	Quality of chain
1	A	367	
1	B	367	
1	C	367	
1	D	367	
1	E	367	
1	F	367	
1	G	367	
1	H	367	

The following table lists non-polymeric compounds that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Geometry	Electron density
2	GLU	B	1371	-	X

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Mol	Type	Chain	Res	Geometry	Electron density
2	GLU	E	1373	-	X
4	CL	B	1372	-	X
4	CL	G	1375	-	X
5	MG	A	1378	-	X
5	MG	B	1375	-	X
5	MG	E	1377	-	X
5	MG	F	1375	-	X
5	MG	G	1376	-	X
5	MG	H	1371	-	X

## 2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 21612 atoms, of which 0 are hydrogen and 0 are deuterium.

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.

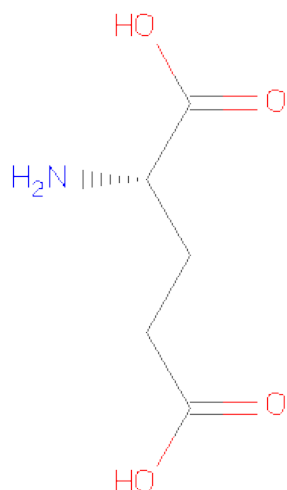
- Molecule 1 is a protein called GLUTAMATE 5-KINASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	355	Total	C	N	O	S	0	0	1
			2656	1653	489	506	8			
1	B	353	Total	C	N	O	S	0	0	0
			2661	1658	490	505	8			
1	C	356	Total	C	N	O	S	0	0	0
			2669	1662	492	507	8			
1	D	365	Total	C	N	O	S	0	0	0
			2728	1696	502	522	8			
1	E	365	Total	C	N	O	S	0	0	0
			2728	1696	502	522	8			
1	F	354	Total	C	N	O	S	0	0	0
			2662	1659	491	504	8			
1	G	356	Total	C	N	O	S	0	0	0
			2674	1665	493	508	8			
1	H	337	Total	C	N	O	S	0	0	0
			2543	1588	466	481	8			

There are 8 discrepancies between the modelled and reference sequences:

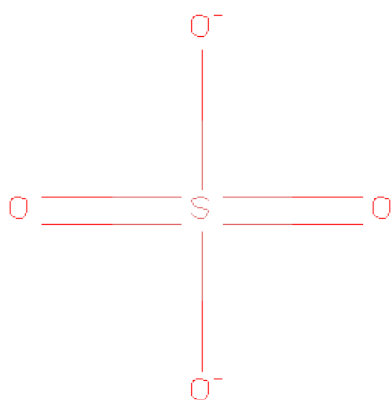
Chain	Residue	Modelled	Actual	Comment	Reference
A	129	VAL	ILE	ENGINEERED MUTATION	UNP P0A7B5
B	129	VAL	ILE	ENGINEERED MUTATION	UNP P0A7B5
C	129	VAL	ILE	ENGINEERED MUTATION	UNP P0A7B5
D	129	VAL	ILE	ENGINEERED MUTATION	UNP P0A7B5
E	129	VAL	ILE	ENGINEERED MUTATION	UNP P0A7B5
F	129	VAL	ILE	ENGINEERED MUTATION	UNP P0A7B5
G	129	VAL	ILE	ENGINEERED MUTATION	UNP P0A7B5
H	129	VAL	ILE	ENGINEERED MUTATION	UNP P0A7B5

- Molecule 2 is GLUTAMIC ACID (three-letter code: GLU) (formula: C<sub>5</sub>H<sub>9</sub>NO<sub>4</sub>).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	C	N	O	0	0
			10	5	1	4		
2	A	1	Total	C	N	O	0	0
			10	5	1	4		
2	B	1	Total	C	N	O	0	0
			10	5	1	4		
2	C	1	Total	C	N	O	0	0
			10	5	1	4		
2	D	1	Total	C	N	O	0	0
			10	5	1	4		
2	D	1	Total	C	N	O	0	0
			10	5	1	4		
2	E	1	Total	C	N	O	0	0
			10	5	1	4		
2	E	1	Total	C	N	O	0	0
			10	5	1	4		
2	F	1	Total	C	N	O	0	0
			10	5	1	4		
2	F	1	Total	C	N	O	0	0
			10	5	1	4		
2	G	1	Total	C	N	O	0	0
			10	5	1	4		
2	G	1	Total	C	N	O	0	0
			10	5	1	4		

- Molecule 3 is SULFATE ION (three-letter code: SO4) (formula: O<sub>4</sub>S).



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

- Molecule 4 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	G	3	Total	Cl	0	0
			3	3		
4	D	2	Total	Cl	0	0
			2	2		
4	E	3	Total	Cl	0	0
			3	3		
4	H	1	Total	Cl	0	0
			1	1		

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	B	3	Total 3	Cl 3	0	0
4	C	3	Total 3	Cl 3	0	0
4	A	3	Total 3	Cl 3	0	0
4	F	2	Total 2	Cl 2	0	0

- Molecule 5 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	G	1	Total 1	Mg 1	0	0
5	D	1	Total 1	Mg 1	0	0
5	E	2	Total 2	Mg 2	0	0
5	H	1	Total 1	Mg 1	0	0
5	B	1	Total 1	Mg 1	0	0
5	A	1	Total 1	Mg 1	0	0
5	F	1	Total 1	Mg 1	0	0

- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	17	Total 17	O 17	0	0
6	B	8	Total 8	O 8	0	0
6	C	10	Total 10	O 10	0	0
6	D	14	Total 14	O 14	0	0
6	E	14	Total 14	O 14	0	0
6	F	12	Total 12	O 12	0	0

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	G	13	Total	O	0	0
			13	13		
6	H	15	Total	O	0	0
			15	15		

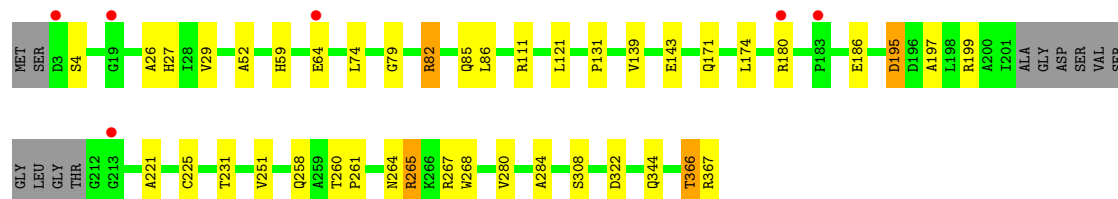


### 3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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.

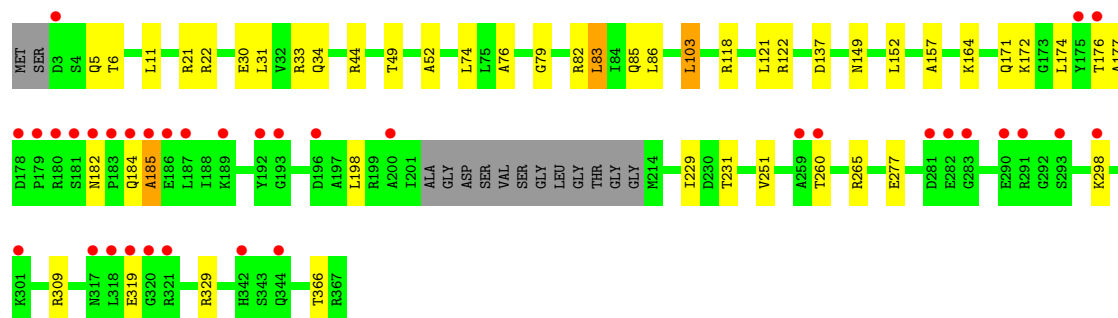
#### • Molecule 1: GLUTAMATE 5-KINASE

Chain A: 



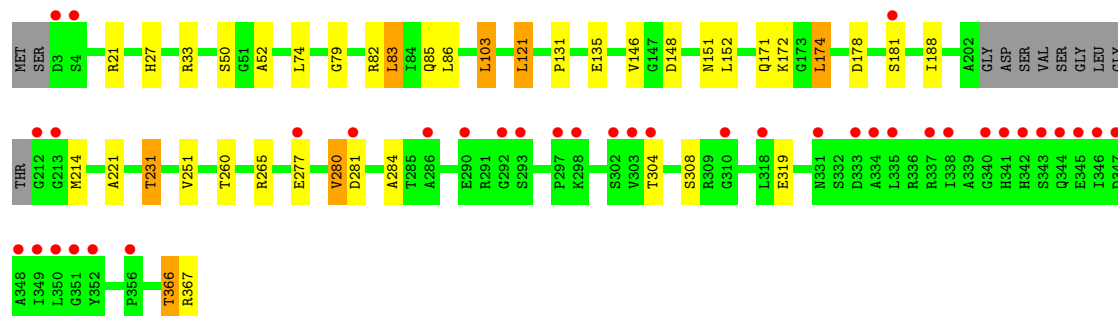
#### • Molecule 1: GLUTAMATE 5-KINASE

Chain B: 



#### • Molecule 1: GLUTAMATE 5-KINASE

Chain C: 



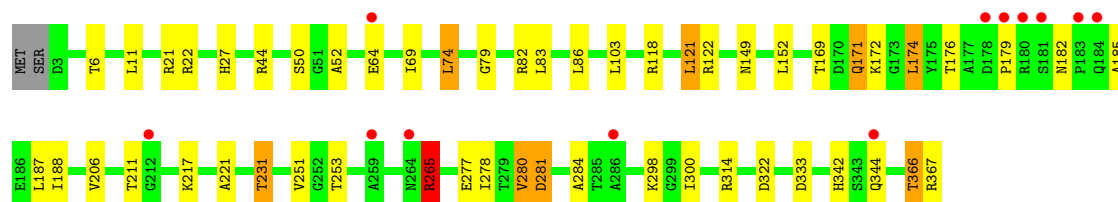
#### • Molecule 1: GLUTAMATE 5-KINASE

Chain D: 



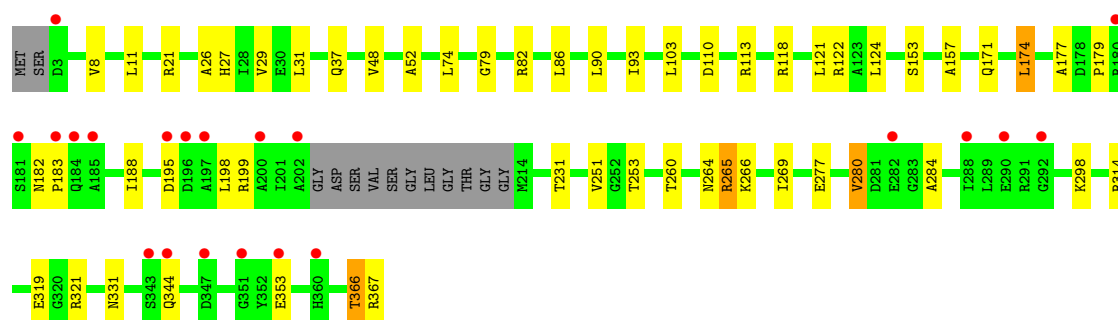
• Molecule 1: GLUTAMATE 5-KINASE

Chain E:



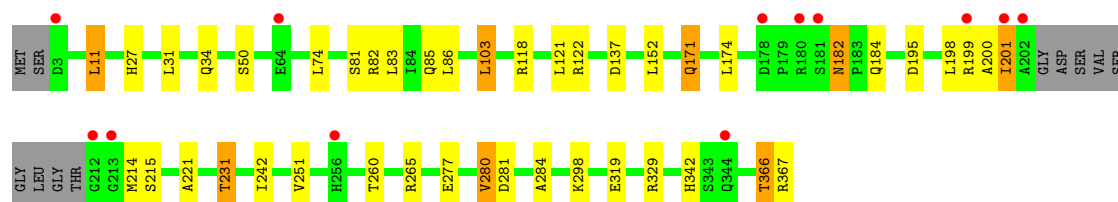
• Molecule 1: GLUTAMATE 5-KINASE

Chain F:



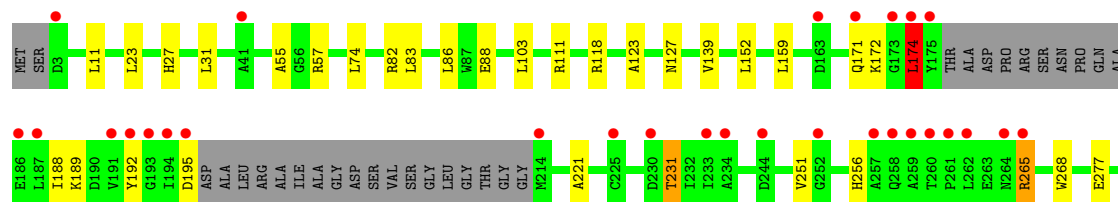
• Molecule 1: GLUTAMATE 5-KINASE

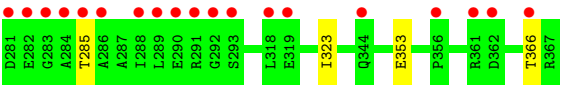
Chain G:



• Molecule 1: GLUTAMATE 5-KINASE

Chain H:





## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	96.30Å 124.11Å 144.93Å 90.00° 93.96° 90.00°	Depositor
Resolution (Å)	25.00 – 2.90 49.63 – 2.90	Depositor EDS
% Data completeness (in resolution range)	99.2 (25.00-2.90) 99.2 (49.63-2.90)	Depositor EDS
$R_{merge}$	0.16	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.68 (at 2.91Å)	Xtriage
Refinement program	REFMAC 5.2.0005	Depositor
R, $R_{free}$	0.197 , 0.246 0.208 , 0.251	Depositor DCC
$R_{free}$ test set	3774 reflections (5.31%)	DCC
Wilson B-factor (Å <sup>2</sup> )	28.2	Xtriage
Anisotropy	0.841	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.37 , 5.2	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning	$\langle  L  \rangle = 0.47$ , $\langle L^2 \rangle = 0.30$	Xtriage
Outliers	1 of 74871 reflections (0.001%)	Xtriage
$F_o, F_c$ correlation	0.88	EDS
Total number of atoms	21612	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	25.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 27.43 % of the origin peak, indicating pseudo translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo translational symmetry is equal to 2.2009e-03. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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

## 5 Model quality

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MG, SO4, 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	0.47	0/2691	0.63	0/3646
1	B	0.41	0/2696	0.58	0/3653
1	C	0.42	0/2704	0.59	0/3663
1	D	0.44	0/2764	0.61	1/3746 (0.0%)
1	E	0.45	0/2764	0.64	1/3746 (0.0%)
1	F	0.45	0/2697	0.62	0/3654
1	G	0.46	0/2709	0.62	0/3670
1	H	0.41	0/2575	0.58	0/3485
All	All	0.44	0/21600	0.61	2/29263 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	D	0	1

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	265	ARG	NE-CZ-NH1	7.57	124.09	120.30
1	D	212	GLY	N-CA-C	-5.95	98.24	113.10

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	D	211	THR	Peptide

## 5.2 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 hydrogens added by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, and the number in parentheses is this value normalized per 1000 atoms of the molecule in the chain. The Symm-Clashes column gives symmetry related clashes, in the same way as for the Clashes column.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2656	0	2690	18	0
1	B	2661	0	2706	17	0
1	C	2669	0	2710	18	0
1	D	2728	0	2768	28	0
1	E	2728	0	2768	31	0
1	F	2662	0	2708	17	0
1	G	2674	0	2717	20	0
1	H	2543	0	2589	13	0
2	A	20	0	10	0	0
2	B	10	0	5	0	0
2	C	10	0	5	0	0
2	D	20	0	10	0	0
2	E	20	0	10	1	0
2	F	20	0	10	0	0
2	G	20	0	10	1	0
3	A	5	0	0	0	0
3	B	5	0	0	0	0
3	C	5	0	0	0	0
3	D	5	0	0	1	0
3	E	5	0	0	0	0
3	F	5	0	0	0	0
3	G	5	0	0	0	0
3	H	5	0	0	0	0
4	A	3	0	0	0	0
4	B	3	0	0	0	0
4	C	3	0	0	0	0
4	D	2	0	0	0	0
4	E	3	0	0	0	0
4	F	2	0	0	0	0
4	G	3	0	0	0	0
4	H	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	A	1	0	0	0	0
5	B	1	0	0	0	0
5	D	1	0	0	0	0
5	E	2	0	0	0	0
5	F	1	0	0	0	0
5	G	1	0	0	0	0
5	H	1	0	0	0	0
6	A	17	0	0	0	0
6	B	8	0	0	0	0
6	C	10	0	0	0	0
6	D	14	0	0	2	0
6	E	14	0	0	0	0
6	F	12	0	0	0	0
6	G	13	0	0	0	0
6	H	15	0	0	0	0
All	All	21612	0	21716	153	0

Clashscore is defined as the number of clashes calculated for the entry per 1000 atoms (including hydrogens) of the entry. The overall clashscore for this entry is 4.

All (153) close contacts within the same asymmetric unit are listed below.

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:G:171:GLN:HE22	1:G:214:MET:CE	1.98	0.76
1:A:280:VAL:HG13	1:A:284:ALA:HB3	1.68	0.75
1:E:298:LYS:HE3	1:E:342:HIS:ND1	2.10	0.66
1:E:280:VAL:HG13	1:E:284:ALA:HB3	1.78	0.65
1:E:50:SER:O	1:E:83:LEU:HD11	1.99	0.62
1:D:280:VAL:HG13	1:D:284:ALA:HB3	1.80	0.62
1:G:280:VAL:HG13	1:G:284:ALA:HB3	1.82	0.61
1:A:59:HIS:CG	1:A:82:ARG:HD2	2.37	0.60
1:D:59:HIS:ND1	1:D:82:ARG:HD2	2.20	0.57
1:D:164:LYS:HG2	6:D:2009:HOH:O	2.04	0.56
1:E:284:ALA:HB2	2:E:1372:GLU:HB3	1.88	0.56
1:A:139:VAL:HG11	1:B:103:LEU:HB3	1.87	0.56
1:D:59:HIS:CG	1:D:82:ARG:HD2	2.41	0.55
1:B:177:ALA:CB	1:B:182:ASN:HD22	2.19	0.55
1:D:174:LEU:HD13	1:D:188:ILE:HD12	1.88	0.55
1:D:221:ALA:HA	1:D:231:THR:HG21	1.90	0.54
1:C:366:THR:O	1:C:367:ARG:HB2	2.08	0.54
1:C:221:ALA:HA	1:C:231:THR:HG21	1.88	0.54
1:G:171:GLN:HE22	1:G:214:MET:HE1	1.69	0.54
1:H:118:ARG:HG3	1:H:159:LEU:O	2.08	0.53

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:F:280:VAL:HG13	1:F:284:ALA:HB3	1.90	0.53
1:C:174:LEU:HD13	1:C:188:ILE:HD12	1.90	0.53
1:B:118:ARG:O	1:B:122:ARG:HG2	2.09	0.53
1:C:85:GLN:HG2	1:D:85:GLN:HG2	1.91	0.52
1:D:164:LYS:NZ	6:D:2009:HOH:O	2.42	0.52
1:D:238:LYS:HD3	1:D:251:VAL:HG22	1.91	0.52
1:E:6:THR:OG1	1:E:44:ARG:HD3	2.10	0.52
1:F:195:ASP:OD1	1:F:198:LEU:HD22	2.09	0.52
1:D:14:SER:OG	3:D:1370:SO4:O3	2.26	0.52
1:C:135:GLU:OE1	1:C:146:VAL:N	2.34	0.51
1:E:171:GLN:H	1:E:171:GLN:HE21	1.57	0.51
1:H:11:LEU:CD2	1:H:31:LEU:HD13	2.40	0.51
1:D:82:ARG:O	1:D:85:GLN:HB2	2.11	0.50
1:C:85:GLN:CG	1:D:85:GLN:HG2	2.42	0.50
1:E:366:THR:O	1:E:367:ARG:HB2	2.11	0.50
1:C:103:LEU:CD1	1:C:152:LEU:HD11	2.41	0.50
1:F:319:GLU:N	1:F:319:GLU:OE2	2.43	0.50
1:A:195:ASP:C	1:A:197:ALA:H	2.14	0.50
1:E:188:ILE:O	1:E:253:THR:HG23	2.12	0.49
1:H:221:ALA:HA	1:H:231:THR:HG21	1.94	0.49
1:C:121:LEU:CD1	1:C:131:PRO:HG2	2.42	0.49
1:F:110:ASP:HB2	1:F:113:ARG:H	1.77	0.49
1:G:198:LEU:HD22	1:G:201:ILE:HD11	1.94	0.49
1:F:8:VAL:HG21	1:F:157:ALA:HA	1.94	0.49
1:A:322:ASP:OD1	1:A:322:ASP:C	2.51	0.49
1:A:264:ASN:HA	1:A:267:ARG:HD2	1.94	0.48
1:G:298:LYS:HE3	1:G:342:HIS:CE1	2.48	0.48
1:B:103:LEU:CD1	1:B:152:LEU:HD11	2.43	0.48
1:E:171:GLN:H	1:E:171:GLN:NE2	2.10	0.48
1:D:69:ILE:O	1:D:73:GLN:HG3	2.14	0.48
1:E:277:GLU:HB3	1:E:314:ARG:HB3	1.94	0.48
1:E:265:ARG:HH11	1:E:265:ARG:CG	2.26	0.48
1:H:123:ALA:O	1:H:127:ASN:ND2	2.43	0.48
1:E:333:ASP:OD2	1:F:331:ASN:ND2	2.45	0.48
1:B:52:ALA:O	1:B:79:GLY:HA3	2.13	0.48
1:F:11:LEU:CD2	1:F:31:LEU:HD13	2.44	0.48
1:H:192:TYR:CE1	1:H:256:HIS:CD2	3.02	0.48
1:D:366:THR:O	1:D:367:ARG:HB2	2.14	0.47
1:E:182:ASN:HB3	1:E:185:ALA:HB2	1.96	0.47
1:B:5:GLN:HE22	1:B:164:LYS:NZ	2.12	0.47
1:C:52:ALA:O	1:C:79:GLY:HA3	2.13	0.47
1:H:174:LEU:HD13	1:H:188:ILE:HD12	1.97	0.47

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:79:GLY:O	1:B:83:LEU:HB2	2.14	0.47
1:C:50:SER:O	1:C:83:LEU:HD11	2.14	0.47
1:G:200:ALA:O	1:G:201:ILE:HG23	2.15	0.47
1:G:182:ASN:ND2	1:G:184:GLN:H	2.12	0.47
1:E:52:ALA:O	1:E:79:GLY:HA3	2.14	0.47
1:H:23:LEU:HD11	1:H:55:ALA:HB2	1.97	0.47
1:A:143:GLU:N	1:A:143:GLU:OE1	2.48	0.47
1:G:137:ASP:OD2	2:G:1372:GLU:N	2.48	0.46
1:E:21:ARG:HG2	1:E:22:ARG:NH1	2.30	0.46
1:C:366:THR:HG23	1:C:367:ARG:N	2.31	0.46
1:A:197:ALA:C	1:A:199:ARG:H	2.20	0.45
1:A:111:ARG:HD2	1:A:268:TRP:CD1	2.51	0.45
1:D:149:ASN:HA	1:D:152:LEU:HB3	1.99	0.45
1:E:121:LEU:HD12	1:E:121:LEU:O	2.17	0.45
1:B:309:ARG:HB2	1:B:329:ARG:O	2.17	0.45
1:B:184:GLN:O	1:B:185:ALA:C	2.54	0.45
1:B:6:THR:OG1	1:B:44:ARG:HD3	2.16	0.45
1:D:10:LYS:NZ	1:D:150:ASP:OD1	2.43	0.44
1:B:11:LEU:CD2	1:B:31:LEU:HD13	2.47	0.44
1:D:5:GLN:HE22	1:D:164:LYS:NZ	2.14	0.44
1:E:171:GLN:N	1:E:171:GLN:HE21	2.15	0.44
1:D:206:VAL:HG11	1:D:211:THR:HG23	1.99	0.44
1:C:277:GLU:HG2	1:C:304:THR:HB	1.98	0.44
1:D:231:THR:HG23	1:D:255:PHE:HB2	1.99	0.44
1:C:148:ASP:CG	1:C:151:ASN:HD22	2.21	0.44
1:H:111:ARG:HD2	1:H:268:TRP:CD1	2.53	0.44
1:A:52:ALA:O	1:A:79:GLY:HA3	2.17	0.44
1:A:85:GLN:HG3	1:B:85:GLN:HG3	2.00	0.44
1:F:188:ILE:O	1:F:253:THR:OG1	2.24	0.44
1:B:30:GLU:O	1:B:34:GLN:HG3	2.18	0.44
1:B:49:THR:O	1:B:149:ASN:ND2	2.51	0.43
1:D:103:LEU:CD1	1:D:152:LEU:HD11	2.48	0.43
1:B:157:ALA:HB1	1:B:229:ILE:HD13	2.00	0.43
1:F:266:LYS:HB2	1:F:269:ILE:HD12	2.00	0.43
1:E:366:THR:HG23	1:E:367:ARG:N	2.33	0.43
1:E:265:ARG:HH11	1:E:265:ARG:HG3	1.84	0.43
1:G:103:LEU:CD1	1:G:152:LEU:HD11	2.49	0.43
1:H:103:LEU:CD1	1:H:152:LEU:HD11	2.49	0.43
1:H:11:LEU:HD22	1:H:31:LEU:HD13	2.00	0.43
1:D:169:THR:HG23	1:D:171:GLN:O	2.20	0.42
1:C:280:VAL:HG13	1:C:284:ALA:HB3	2.01	0.42
1:C:171:GLN:HE21	1:C:214:MET:CE	2.32	0.42

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:G:11:LEU:CD2	1:G:31:LEU:HD13	2.49	0.42
1:E:179:PRO:HA	1:E:185:ALA:HB3	2.00	0.42
1:G:34:GLN:HB2	1:G:242:ILE:HD12	2.00	0.42
1:F:48:VAL:HG21	1:F:153:SER:HA	2.01	0.42
1:E:149:ASN:HA	1:E:152:LEU:HB3	2.01	0.42
1:E:69:ILE:H	1:E:69:ILE:HD12	1.84	0.42
1:E:103:LEU:CD1	1:E:152:LEU:HD11	2.49	0.42
1:A:258:GLN:HE21	1:A:261:PRO:HA	1.84	0.42
1:A:366:THR:O	1:A:367:ARG:HB2	2.20	0.42
1:E:74:LEU:HD13	1:F:124:LEU:HD23	2.02	0.42
1:G:118:ARG:O	1:G:122:ARG:HG2	2.19	0.42
1:A:121:LEU:CD1	1:A:131:PRO:HG2	2.50	0.42
1:E:118:ARG:O	1:E:122:ARG:HG2	2.20	0.42
1:C:178:ASP:HB3	1:C:181:SER:OG	2.20	0.42
1:D:74:LEU:HD12	1:D:74:LEU:C	2.40	0.41
1:D:317:ASN:OD1	1:D:317:ASN:C	2.58	0.41
1:D:209:LEU:O	1:D:210:GLY:O	2.38	0.41
1:D:38:LEU:HD11	1:D:242:ILE:HG22	2.02	0.41
1:A:221:ALA:O	1:A:225:CYS:SG	2.78	0.41
1:G:171:GLN:HE22	1:G:214:MET:HE3	1.84	0.41
1:E:176:THR:HG22	1:E:188:ILE:HG12	2.03	0.41
1:F:26:ALA:O	1:F:29:VAL:HG12	2.21	0.41
1:E:174:LEU:CD1	1:E:188:ILE:HD12	2.50	0.41
1:A:264:ASN:HA	1:A:267:ARG:CD	2.51	0.41
1:A:26:ALA:O	1:A:29:VAL:HG12	2.20	0.41
1:F:52:ALA:O	1:F:79:GLY:HA3	2.21	0.41
1:B:149:ASN:HA	1:B:152:LEU:HB3	2.03	0.41
1:G:298:LYS:HE3	1:G:342:HIS:HE1	1.86	0.41
1:G:103:LEU:HB3	1:H:139:VAL:HG11	2.02	0.41
1:C:171:GLN:HE21	1:C:214:MET:HE1	1.85	0.41
1:F:366:THR:HG23	1:F:367:ARG:HG3	2.02	0.41
1:D:121:LEU:CD1	1:D:131:PRO:HG2	2.50	0.41
1:A:280:VAL:HG13	1:A:284:ALA:CB	2.44	0.41
1:F:277:GLU:HB3	1:F:314:ARG:HB3	2.03	0.41
1:F:90:LEU:O	1:F:93:ILE:HB	2.21	0.41
1:E:281:ASP:HB3	1:E:284:ALA:H	1.85	0.40
1:G:366:THR:O	1:G:367:ARG:HB2	2.20	0.40
1:F:118:ARG:O	1:F:122:ARG:HG2	2.20	0.40
1:E:169:THR:HB	1:E:217:LYS:HE2	2.03	0.40
1:G:50:SER:O	1:G:83:LEU:HD11	2.20	0.40
1:G:195:ASP:HA	1:G:198:LEU:HG	2.03	0.40
1:B:76:ALA:HB1	1:B:137:ASP:HB2	2.03	0.40

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:H:285:THR:HG23	1:H:323:ILE:HD13	2.02	0.40
1:G:221:ALA:HA	1:G:231:THR:HG21	2.04	0.40
1:E:278:ILE:HG23	1:E:300:ILE:HG23	2.03	0.40
1:C:103:LEU:HB3	1:D:139:VAL:HG11	2.04	0.40
1:D:110:ASP:HB2	1:D:113:ARG:H	1.86	0.40
1:G:85:GLN:NE2	1:H:88:GLU:OE2	2.54	0.40
1:E:221:ALA:HA	1:E:231:THR:HG21	2.02	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	351/367 (96%)	334 (95%)	16 (5%)	1 (0%)	50	85
1	B	349/367 (95%)	332 (95%)	14 (4%)	3 (1%)	25	66
1	C	352/367 (96%)	333 (95%)	19 (5%)	0	100	100
1	D	363/367 (99%)	342 (94%)	17 (5%)	4 (1%)	21	60
1	E	363/367 (99%)	346 (95%)	15 (4%)	2 (1%)	33	76
1	F	350/367 (95%)	325 (93%)	18 (5%)	7 (2%)	11	40
1	G	352/367 (96%)	333 (95%)	17 (5%)	2 (1%)	33	76
1	H	331/367 (90%)	313 (95%)	16 (5%)	2 (1%)	33	76
All	All	2811/2936 (96%)	2658 (95%)	132 (5%)	21 (1%)	30	72

All (21) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	298	LYS
1	D	210	GLY
1	D	265	ARG
1	D	281	ASP
1	F	174	LEU

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Mol	Chain	Res	Type
1	F	183	PRO
1	F	199	ARG
1	A	265	ARG
1	B	185	ALA
1	D	214	MET
1	G	281	ASP
1	H	265	ARG
1	E	265	ARG
1	E	322	ASP
1	F	265	ARG
1	H	174	LEU
1	B	176	THR
1	F	177	ALA
1	F	298	LYS
1	G	201	ILE
1	F	179	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	275/285 (96%)	257 (94%)	18 (6%)	24	58
1	B	277/285 (97%)	257 (93%)	20 (7%)	21	51
1	C	276/285 (97%)	256 (93%)	20 (7%)	21	51
1	D	283/285 (99%)	263 (93%)	20 (7%)	21	52
1	E	283/285 (99%)	263 (93%)	20 (7%)	21	52
1	F	276/285 (97%)	255 (92%)	21 (8%)	19	48
1	G	277/285 (97%)	255 (92%)	22 (8%)	18	46
1	H	265/285 (93%)	248 (94%)	17 (6%)	25	59
All	All	2212/2280 (97%)	2054 (93%)	158 (7%)	21	52

All (158) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	4	SER

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Mol	Chain	Res	Type
1	A	27	HIS
1	A	64	GLU
1	A	74	LEU
1	A	82	ARG
1	A	86	LEU
1	A	171	GLN
1	A	174	LEU
1	A	180	ARG
1	A	186	GLU
1	A	195	ASP
1	A	231	THR
1	A	251	VAL
1	A	260	THR
1	A	265	ARG
1	A	308	SER
1	A	344	GLN
1	A	366	THR
1	B	21	ARG
1	B	22	ARG
1	B	33	ARG
1	B	74	LEU
1	B	82	ARG
1	B	83	LEU
1	B	86	LEU
1	B	103	LEU
1	B	121	LEU
1	B	171	GLN
1	B	172	LYS
1	B	174	LEU
1	B	198	LEU
1	B	231	THR
1	B	251	VAL
1	B	260	THR
1	B	265	ARG
1	B	277	GLU
1	B	319	GLU
1	B	366	THR
1	C	21	ARG
1	C	27	HIS
1	C	33	ARG
1	C	74	LEU
1	C	82	ARG

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Mol	Chain	Res	Type
1	C	83	LEU
1	C	86	LEU
1	C	103	LEU
1	C	121	LEU
1	C	172	LYS
1	C	174	LEU
1	C	231	THR
1	C	251	VAL
1	C	260	THR
1	C	265	ARG
1	C	280	VAL
1	C	281	ASP
1	C	308	SER
1	C	319	GLU
1	C	366	THR
1	D	11	LEU
1	D	21	ARG
1	D	27	HIS
1	D	74	LEU
1	D	82	ARG
1	D	86	LEU
1	D	103	LEU
1	D	171	GLN
1	D	174	LEU
1	D	180	ARG
1	D	182	ASN
1	D	207	SER
1	D	216	THR
1	D	251	VAL
1	D	260	THR
1	D	265	ARG
1	D	277	GLU
1	D	344	GLN
1	D	353	GLU
1	D	366	THR
1	E	11	LEU
1	E	27	HIS
1	E	64	GLU
1	E	74	LEU
1	E	82	ARG
1	E	86	LEU
1	E	121	LEU

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Mol	Chain	Res	Type
1	E	171	GLN
1	E	172	LYS
1	E	174	LEU
1	E	187	LEU
1	E	206	VAL
1	E	211	THR
1	E	231	THR
1	E	251	VAL
1	E	265	ARG
1	E	280	VAL
1	E	281	ASP
1	E	344	GLN
1	E	366	THR
1	F	21	ARG
1	F	27	HIS
1	F	37	GLN
1	F	74	LEU
1	F	82	ARG
1	F	86	LEU
1	F	103	LEU
1	F	121	LEU
1	F	171	GLN
1	F	174	LEU
1	F	182	ASN
1	F	231	THR
1	F	251	VAL
1	F	260	THR
1	F	264	ASN
1	F	265	ARG
1	F	280	VAL
1	F	321	ARG
1	F	344	GLN
1	F	353	GLU
1	F	366	THR
1	G	11	LEU
1	G	27	HIS
1	G	74	LEU
1	G	81	SER
1	G	82	ARG
1	G	86	LEU
1	G	103	LEU
1	G	121	LEU

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Mol	Chain	Res	Type
1	G	171	GLN
1	G	174	LEU
1	G	182	ASN
1	G	199	ARG
1	G	215	SER
1	G	231	THR
1	G	251	VAL
1	G	260	THR
1	G	265	ARG
1	G	277	GLU
1	G	280	VAL
1	G	319	GLU
1	G	329	ARG
1	G	366	THR
1	H	27	HIS
1	H	57	ARG
1	H	74	LEU
1	H	82	ARG
1	H	83	LEU
1	H	86	LEU
1	H	171	GLN
1	H	172	LYS
1	H	174	LEU
1	H	189	LYS
1	H	195	ASP
1	H	231	THR
1	H	251	VAL
1	H	265	ARG
1	H	277	GLU
1	H	353	GLU
1	H	366	THR

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (31) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	5	GLN
1	A	85	GLN
1	A	116	ASN
1	A	258	GLN
1	B	5	GLN
1	B	73	GLN
1	B	85	GLN

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Mol	Chain	Res	Type
1	B	182	ASN
1	B	184	GLN
1	C	128	ASN
1	C	171	GLN
1	C	182	ASN
1	C	331	ASN
1	D	5	GLN
1	D	128	ASN
1	D	171	GLN
1	E	85	GLN
1	E	171	GLN
1	E	184	GLN
1	E	344	GLN
1	F	5	GLN
1	F	171	GLN
1	F	182	ASN
1	F	264	ASN
1	F	331	ASN
1	G	116	ASN
1	G	128	ASN
1	G	171	GLN
1	G	182	ASN
1	G	342	HIS
1	H	73	GLN

### 5.3.3 RNA ⓘ

There are no RNA chains 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 carbohydrates in this entry.

### 5.6 Ligand geometry ⓘ

Of 48 ligands modelled in this entry, 28 are monoatomic - leaving 20 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	A	1372	-	4,4,4	0.24	0	6,6,6	0.19	0
2	GLU	A	1373	-	9,9,9	0.88	0	11,11,11	0.99	1 (9%)
2	GLU	A	1374	-	9,9,9	0.87	0	11,11,11	0.86	0
3	SO4	B	1370	-	4,4,4	0.13	0	6,6,6	0.20	0
2	GLU	B	1371	-	9,9,9	0.87	0	11,11,11	0.81	0
3	SO4	C	1370	-	4,4,4	0.17	0	6,6,6	0.32	0
2	GLU	C	1371	-	9,9,9	0.90	0	11,11,11	1.05	1 (9%)
3	SO4	D	1370	-	4,4,4	0.16	0	6,6,6	0.16	0
2	GLU	D	1371	-	9,9,9	0.85	0	11,11,11	1.08	0
2	GLU	D	1372	-	9,9,9	0.85	0	11,11,11	0.98	1 (9%)
3	SO4	E	1371	-	4,4,4	0.19	0	6,6,6	0.19	0
2	GLU	E	1372	-	9,9,9	0.82	0	11,11,11	0.77	0
2	GLU	E	1373	-	9,9,9	0.87	0	11,11,11	1.03	0
3	SO4	F	1370	-	4,4,4	0.13	0	6,6,6	0.11	0
2	GLU	F	1371	-	9,9,9	0.83	0	11,11,11	0.70	0
2	GLU	F	1372	-	9,9,9	0.93	0	11,11,11	0.68	0
3	SO4	G	1370	-	4,4,4	0.25	0	6,6,6	0.16	0
2	GLU	G	1371	-	9,9,9	0.81	0	11,11,11	0.96	0
2	GLU	G	1372	-	9,9,9	0.88	0	11,11,11	0.96	0
3	SO4	H	1369	-	4,4,4	0.12	0	6,6,6	0.07	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	SO4	A	1372	-	-	0/0/0/0	0/0/0/0
2	GLU	A	1373	-	-	0/9/9/9	0/0/0/0
2	GLU	A	1374	-	-	0/9/9/9	0/0/0/0
3	SO4	B	1370	-	-	0/0/0/0	0/0/0/0
2	GLU	B	1371	-	-	0/9/9/9	0/0/0/0
3	SO4	C	1370	-	-	0/0/0/0	0/0/0/0
2	GLU	C	1371	-	-	0/9/9/9	0/0/0/0

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	SO4	D	1370	-	-	0/0/0/0	0/0/0/0
2	GLU	D	1371	-	-	0/9/9/9	0/0/0/0
2	GLU	D	1372	-	-	0/9/9/9	0/0/0/0
3	SO4	E	1371	-	-	0/0/0/0	0/0/0/0
2	GLU	E	1372	-	-	0/9/9/9	0/0/0/0
2	GLU	E	1373	-	-	0/9/9/9	0/0/0/0
3	SO4	F	1370	-	-	0/0/0/0	0/0/0/0
2	GLU	F	1371	-	-	0/9/9/9	0/0/0/0
2	GLU	F	1372	-	-	0/9/9/9	0/0/0/0
3	SO4	G	1370	-	-	0/0/0/0	0/0/0/0
2	GLU	G	1371	-	-	0/9/9/9	0/0/0/0
2	GLU	G	1372	-	-	0/9/9/9	0/0/0/0
3	SO4	H	1369	-	-	0/0/0/0	0/0/0/0

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	1373	GLU	CB-CA-N	-2.17	104.83	110.14
2	D	1372	GLU	OE2-CD-CG	2.09	121.60	114.22
2	C	1371	GLU	OE2-CD-CG	2.08	121.58	114.22

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

## 5.7 Other polymers ⓘ

There are no such residues in this entry.

## 5.8 Polymer linkage issues

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	355/367 (96%)	0.13	6 (1%) 67 76	19, 25, 32, 54	0
1	B	353/367 (96%)	0.49	35 (9%) 8 10	19, 25, 32, 39	0
1	C	356/367 (97%)	0.45	38 (10%) 6 8	19, 25, 31, 36	0
1	D	365/367 (99%)	0.22	15 (4%) 35 43	17, 25, 31, 36	0
1	E	365/367 (99%)	0.20	12 (3%) 44 53	14, 25, 31, 36	0
1	F	354/367 (96%)	0.30	21 (5%) 22 25	19, 25, 33, 53	0
1	G	356/367 (97%)	0.17	12 (3%) 43 51	19, 25, 33, 57	1 (0%)
1	H	337/367 (91%)	0.82	48 (14%) 3 5	19, 25, 30, 35	0
All	All	2841/2936 (96%)	0.34	187 (6%) 18 21	14, 25, 31, 57	1 (0%)

All (187) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	179	PRO	6.0
1	G	256	HIS	6.0
1	F	202	ALA	5.9
1	H	192	TYR	5.6
1	C	344	GLN	5.5
1	H	175	TYR	5.5
1	C	343	SER	5.5
1	H	194	ILE	5.4
1	H	290	GLU	5.3
1	B	184	GLN	5.3
1	F	197	ALA	5.3
1	H	173	GLY	5.0
1	H	3	ASP	5.0
1	F	184	GLN	5.0
1	H	174	LEU	4.9
1	C	351	GLY	4.6

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Mol	Chain	Res	Type	RSRZ
1	H	195	ASP	4.5
1	B	3	ASP	4.4
1	H	261	PRO	4.4
1	C	348	ALA	4.4
1	C	346	ILE	4.3
1	B	283	GLY	4.2
1	H	225	CYS	4.2
1	B	290	GLU	4.2
1	H	260	THR	4.1
1	H	283	GLY	4.1
1	G	202	ALA	4.0
1	G	212	GLY	4.0
1	E	183	PRO	4.0
1	C	213	GLY	3.9
1	B	181	SER	3.9
1	H	193	GLY	3.9
1	G	180	ARG	3.9
1	B	180	ARG	3.8
1	G	181	SER	3.8
1	C	345	GLU	3.7
1	H	214	MET	3.6
1	H	186	GLU	3.6
1	F	200	ALA	3.6
1	B	282	GLU	3.6
1	C	342	HIS	3.5
1	H	289	LEU	3.5
1	C	181	SER	3.5
1	E	181	SER	3.5
1	H	230	ASP	3.5
1	C	297	PRO	3.5
1	H	293	SER	3.4
1	H	244	ASP	3.4
1	C	3	ASP	3.4
1	F	183	PRO	3.4
1	H	288	ILE	3.4
1	B	192	TYR	3.3
1	C	337	ARG	3.3
1	C	318	LEU	3.3
1	C	356	PRO	3.3
1	E	180	ARG	3.3
1	F	344	GLN	3.3
1	C	292	GLY	3.2

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Mol	Chain	Res	Type	RSRZ
1	H	286	ALA	3.2
1	A	213	GLY	3.2
1	B	183	PRO	3.2
1	C	303	VAL	3.2
1	B	187	LEU	3.1
1	C	350	LEU	3.1
1	A	3	ASP	3.1
1	B	318	LEU	3.1
1	H	291	ARG	3.1
1	B	317	ASN	3.1
1	H	187	LEU	3.1
1	H	292	GLY	3.0
1	D	351	GLY	3.0
1	H	282	GLU	3.0
1	E	184	GLN	3.0
1	H	344	GLN	3.0
1	A	180	ARG	2.9
1	B	186	GLU	2.9
1	B	281	ASP	2.9
1	D	344	GLN	2.9
1	F	180	ARG	2.9
1	B	319	GLU	2.9
1	B	175	TYR	2.9
1	B	342	HIS	2.8
1	F	347	ASP	2.8
1	A	19	GLY	2.8
1	C	293	SER	2.8
1	H	262	LEU	2.8
1	F	185	ALA	2.8
1	B	178	ASP	2.8
1	B	291	ARG	2.8
1	H	191	VAL	2.8
1	C	335	LEU	2.8
1	B	260	THR	2.7
1	D	293	SER	2.7
1	H	366	THR	2.7
1	H	356	PRO	2.7
1	F	292	GLY	2.7
1	C	347	ASP	2.7
1	D	212	GLY	2.7
1	B	196	ASP	2.7
1	B	176	THR	2.7

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Mol	Chain	Res	Type	RSRZ
1	C	338	ILE	2.7
1	B	320	GLY	2.6
1	C	340	GLY	2.6
1	H	257	ALA	2.6
1	G	213	GLY	2.6
1	B	185	ALA	2.6
1	B	321	ARG	2.6
1	E	344	GLN	2.6
1	C	281	ASP	2.6
1	H	281	ASP	2.6
1	C	4	SER	2.6
1	B	259	ALA	2.6
1	H	258	GLN	2.6
1	B	182	ASN	2.6
1	B	293	SER	2.5
1	D	352	TYR	2.5
1	H	233	ILE	2.5
1	B	344	GLN	2.5
1	F	196	ASP	2.5
1	C	298	LYS	2.5
1	H	284	ALA	2.5
1	B	193	GLY	2.4
1	D	3	ASP	2.4
1	C	352	TYR	2.4
1	H	265	ARG	2.4
1	H	252	GLY	2.4
1	C	304	THR	2.4
1	H	285	THR	2.4
1	B	189	LYS	2.4
1	H	171	GLN	2.4
1	F	282	GLU	2.4
1	E	259	ALA	2.4
1	G	201	ILE	2.4
1	H	41	ALA	2.4
1	B	301	LYS	2.4
1	C	334	ALA	2.4
1	H	259	ALA	2.4
1	D	337	ARG	2.4
1	C	349	ILE	2.4
1	F	195	ASP	2.3
1	C	341	HIS	2.3
1	F	3	ASP	2.3

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Mol	Chain	Res	Type	RSRZ
1	G	3	ASP	2.3
1	G	178	ASP	2.3
1	F	343	SER	2.3
1	D	353	GLU	2.2
1	C	290	GLU	2.2
1	E	212	GLY	2.2
1	G	199	ARG	2.2
1	H	319	GLU	2.2
1	A	183	PRO	2.2
1	H	361	ARG	2.2
1	F	181	SER	2.2
1	E	179	PRO	2.2
1	F	353	GLU	2.2
1	B	298	LYS	2.2
1	H	234	ALA	2.2
1	G	344	GLN	2.1
1	D	348	ALA	2.1
1	F	351	GLY	2.1
1	G	64	GLU	2.1
1	D	182	ASN	2.1
1	D	291	ARG	2.1
1	D	342	HIS	2.1
1	D	172	LYS	2.1
1	D	292	GLY	2.1
1	D	349	ILE	2.1
1	C	310	GLY	2.1
1	C	286	ALA	2.1
1	E	178	ASP	2.1
1	C	277	GLU	2.1
1	E	286	ALA	2.1
1	H	318	LEU	2.1
1	B	200	ALA	2.1
1	C	331	ASN	2.1
1	F	290	GLU	2.1
1	E	264	ASN	2.0
1	A	64	GLU	2.0
1	C	212	GLY	2.0
1	C	302	SER	2.0
1	F	288	ILE	2.0
1	E	64	GLU	2.0
1	H	264	ASN	2.0
1	F	360	HIS	2.0

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Mol	Chain	Res	Type	RSRZ
1	C	333	ASP	2.0
1	H	163	ASP	2.0
1	H	362	ASP	2.0

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

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

## 6.3 Carbohydrates ⓘ

There are no carbohydrates in this entry.

## 6.4 Ligands ⓘ

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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. 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	RSR	LLDF	B-factors(Å <sup>2</sup> )	Q<0.9
5	MG	G	1376	1/1	0.39	25.38	46,46,46,46	0
5	MG	E	1377	1/1	0.52	13.33	67,67,67,67	0
5	MG	A	1378	1/1	0.30	9.67	26,26,26,26	0
5	MG	F	1375	1/1	0.41	5.13	49,49,49,49	0
5	MG	H	1371	1/1	0.43	4.91	57,57,57,57	0
2	GLU	E	1373	10/10	0.28	3.85	39,39,42,43	0
4	CL	G	1375	1/1	0.23	3.71	39,39,39,39	0
5	MG	B	1375	1/1	0.31	2.73	43,43,43,43	0
4	CL	B	1372	1/1	0.20	2.72	49,49,49,49	0
2	GLU	B	1371	10/10	0.24	2.12	46,46,47,48	0
2	GLU	C	1371	10/10	0.22	1.85	33,34,35,35	0
4	CL	C	1374	1/1	0.20	1.27	36,36,36,36	0
2	GLU	F	1371	10/10	0.34	1.24	50,50,51,51	0
5	MG	D	1369	1/1	0.24	1.18	18,18,18,18	0
3	SO4	F	1370	5/5	0.20	0.91	59,59,60,60	0
2	GLU	G	1371	10/10	0.23	0.49	19,20,22,23	0
2	GLU	D	1372	10/10	0.18	0.25	34,35,35,35	0
2	GLU	E	1372	10/10	0.25	0.18	29,30,31,32	0

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Mol	Type	Chain	Res	Atoms	RSR	LLDF	B-factors( $\text{\AA}^2$ )	Q<0.9
3	SO4	H	1369	5/5	0.23	0.12	80,80,81,81	0
2	GLU	A	1374	10/10	0.19	0.12	39,40,41,41	0
2	GLU	G	1372	10/10	0.19	0.09	30,31,32,32	0
2	GLU	F	1372	10/10	0.18	0.05	35,36,36,36	0
2	GLU	D	1371	10/10	0.27	-0.13	28,29,29,29	0
3	SO4	C	1370	5/5	0.19	-0.22	70,70,70,70	0
2	GLU	A	1373	10/10	0.18	-0.69	12,13,14,15	0
4	CL	H	1370	1/1	0.16	-0.95	46,46,46,46	0
3	SO4	E	1371	5/5	0.17	-1.27	71,72,72,72	0
3	SO4	D	1370	5/5	0.15	-1.40	55,56,56,57	0
3	SO4	B	1370	5/5	0.11	-1.44	65,66,66,66	0
4	CL	G	1373	1/1	0.09	-1.54	32,32,32,32	0
5	MG	E	1370	1/1	0.12	-1.58	17,17,17,17	0
3	SO4	A	1372	5/5	0.13	-1.70	36,38,38,38	0
4	CL	D	1374	1/1	0.10	-2.39	33,33,33,33	0
3	SO4	G	1370	5/5	0.12	-2.49	36,36,37,37	0
4	CL	C	1373	1/1	0.11	-2.73	14,14,14,14	0
4	CL	C	1372	1/1	0.05	-3.34	24,24,24,24	0
4	CL	A	1376	1/1	0.08	-3.43	25,25,25,25	0
4	CL	G	1374	1/1	0.12	-3.54	35,35,35,35	0
4	CL	E	1374	1/1	0.15	-3.62	37,37,37,37	0
4	CL	B	1373	1/1	0.10	-4.99	30,30,30,30	0
4	CL	B	1374	1/1	0.11	-5.15	37,37,37,37	0
4	CL	F	1373	1/1	0.12	-5.65	44,44,44,44	0
4	CL	A	1377	1/1	0.12	-6.08	34,34,34,34	0
4	CL	A	1375	1/1	0.14	-6.57	34,34,34,34	0
4	CL	E	1376	1/1	0.09	-7.86	27,27,27,27	0
4	CL	D	1373	1/1	0.05	-18.44	18,18,18,18	0
4	CL	F	1374	1/1	0.12	-55.00	40,40,40,40	0
4	CL	E	1375	1/1	0.17	-	50,50,50,50	0

## 6.5 Other polymers ⓘ

There are no such residues in this entry.