



# wwPDB X-ray Structure Validation Summary Report i

Feb 27, 2014 – 04:43 AM GMT

PDB ID : 3TPU  
Title : 42F3 p5E8/H2-Ld complex  
Authors : Adams, J.J.; Kranz, D.M.; Garcia, K.C.  
Deposited on : 2011-09-08  
Resolution : 3.10 Å(reported)

This is a wwPDB validation summary 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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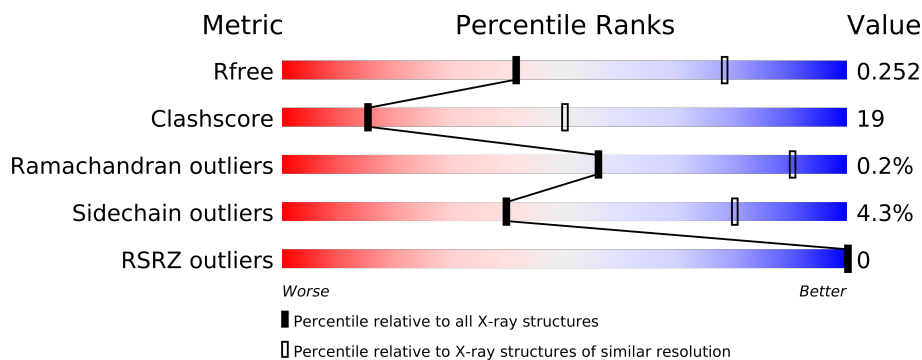
The following versions of software and data (see [references](#)) were used in the production of this report:

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 3.10 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	1007 (3.18-3.02)
Clashscore	79885	1078 (3.16-3.04)
Ramachandran outliers	78287	1044 (3.16-3.04)
Sidechain outliers	78261	1044 (3.16-3.04)
RSRZ outliers	66119	1008 (3.18-3.02)

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	211	
1	C	211	
1	G	211	
1	M	211	
2	B	243	
2	D	243	
2	H	243	
2	N	243	
3	E	180	
3	I	180	
3	K	180	
3	Q	180	
4	F	9	
4	J	9	

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Mol	Chain	Length	Quality of chain
4	L	9	
4	R	9	

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

Mol	Type	Chain	Res	Geometry	Electron density
5	SO4	B	244	-	X
6	EDO	N	244	-	X

## 2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 20148 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 42F3 alpha.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	205	Total	C	N	O	S	0	0	0
			1595	1007	264	316	8			
1	C	204	Total	C	N	O	S	0	0	0
			1584	1000	262	314	8			
1	G	202	Total	C	N	O	S	0	0	0
			1573	994	261	310	8			
1	M	204	Total	C	N	O	S	0	0	0
			1587	1001	263	315	8			

- Molecule 2 is a protein called 42F3 beta.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	240	Total	C	N	O	S	0	0	0
			1900	1197	330	367	6			
2	D	240	Total	C	N	O	S	0	0	0
			1900	1197	330	367	6			
2	H	240	Total	C	N	O	S	0	0	0
			1900	1197	330	367	6			
2	N	240	Total	C	N	O	S	0	0	0
			1900	1197	330	367	6			

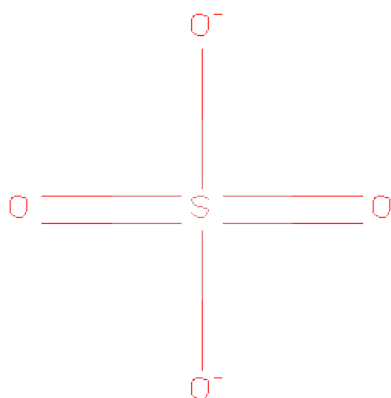
- Molecule 3 is a protein called H2-Ld SBM2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	I	173	Total	C	N	O	S	0	0	0
			1436	900	255	274	7			
3	E	175	Total	C	N	O	S	0	0	0
			1449	907	258	277	7			
3	K	175	Total	C	N	O	S	0	0	0
			1448	908	257	276	7			
3	Q	176	Total	C	N	O	S	0	0	0
			1453	911	258	277	7			

- Molecule 4 is a protein called p5E8 peptide.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
4	J	9	Total	C	N	O	0	0	0
			85	62	10	13			
4	F	9	Total	C	N	O	0	0	0
			85	62	10	13			
4	L	9	Total	C	N	O	0	0	0
			85	62	10	13			
4	R	9	Total	C	N	O	0	0	0
			85	62	10	13			

- Molecule 5 is SULFATE ION (three-letter code: SO4) (formula: O<sub>4</sub>S).



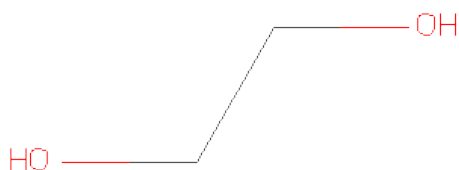
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total	O	S	0	0
			5	4	1		
5	B	1	Total	O	S	0	0
			5	4	1		
5	B	1	Total	O	S	0	0
			5	4	1		
5	B	1	Total	O	S	0	0
			5	4	1		
5	D	1	Total	O	S	0	0
			5	4	1		
5	D	1	Total	O	S	0	0
			5	4	1		
5	E	1	Total	O	S	0	0
			5	4	1		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	G	1	Total	O	S	0	0
			5	4	1		
5	H	1	Total	O	S	0	0
			5	4	1		
5	H	1	Total	O	S	0	0
			5	4	1		
5	K	1	Total	O	S	0	0
			5	4	1		
5	K	1	Total	O	S	0	0
			5	4	1		
5	N	1	Total	O	S	0	0
			5	4	1		
5	N	1	Total	O	S	0	0
			5	4	1		
5	Q	1	Total	O	S	0	0
			5	4	1		

- Molecule 6 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: C<sub>2</sub>H<sub>6</sub>O<sub>2</sub>).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	N	1	Total	C	O	0	0
			4	2	2		

- Molecule 7 is water.

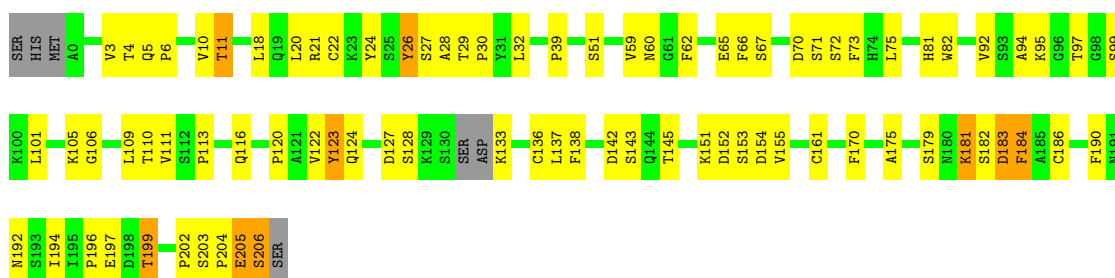
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	I	1	Total 1	O 1	0	0
7	H	1	Total 1	O 1	0	0
7	K	1	Total 1	O 1	0	0
7	N	1	Total 1	O 1	0	0

### 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.

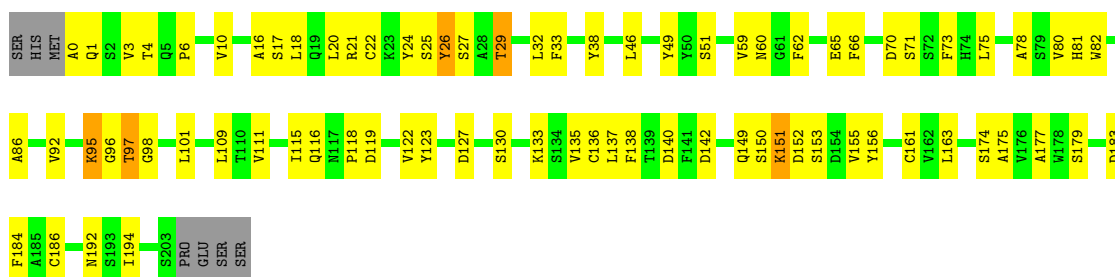
#### • Molecule 1: 42F3 alpha

Chain A: 



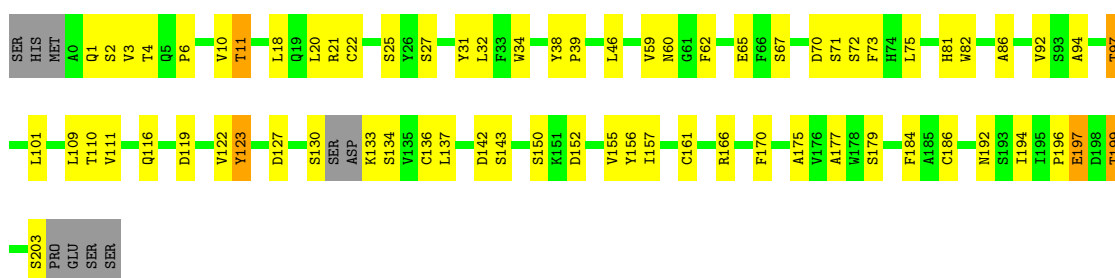
#### • Molecule 1: 42F3 alpha

Chain C: 



#### • Molecule 1: 42F3 alpha

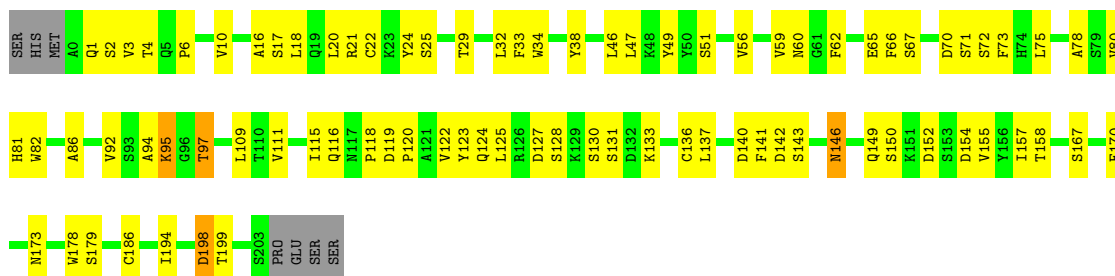
Chain G: 



#### • Molecule 1: 42F3 alpha

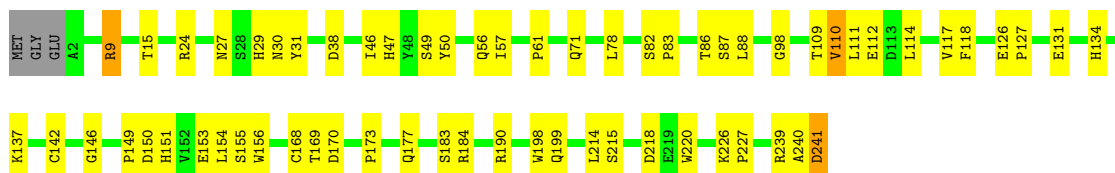
Chain M: 





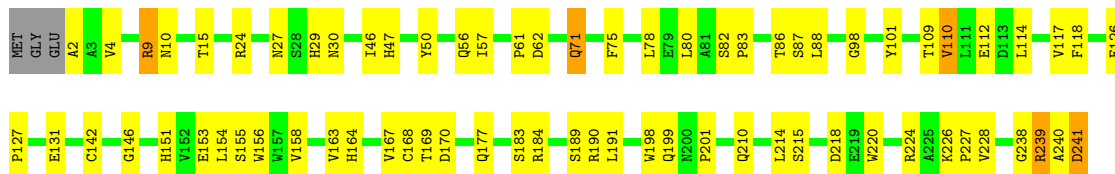
• Molecule 2: 42F3 beta

Chain B:



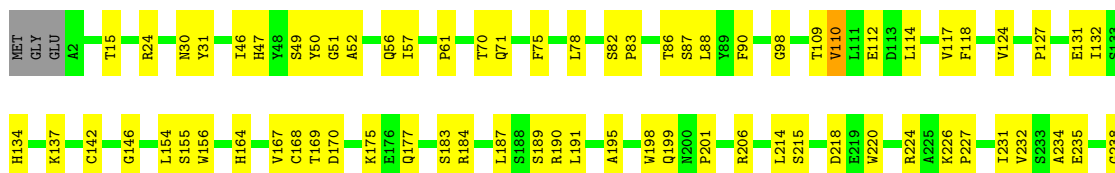
• Molecule 2: 42F3 beta

Chain D:



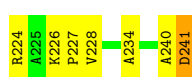
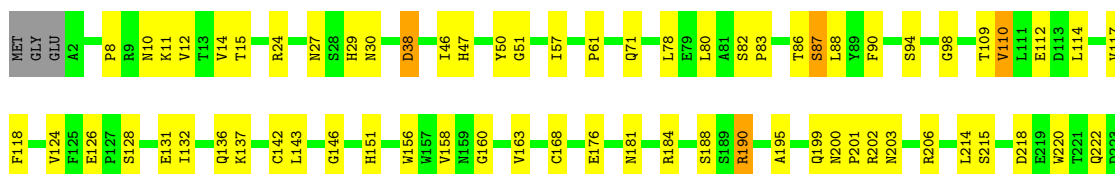
• Molecule 2: 42F3 beta

Chain H:



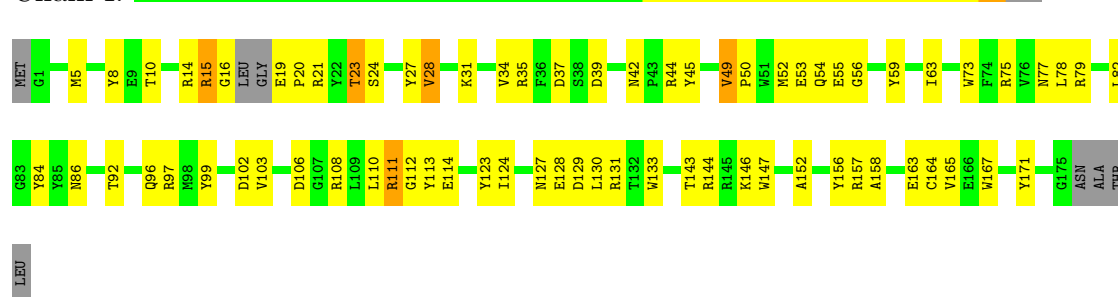
• Molecule 2: 42F3 beta

Chain N:



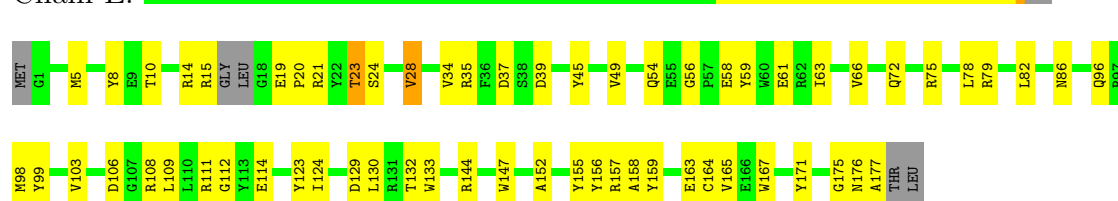
- Molecule 3: H2-Ld SBM2

Chain I:



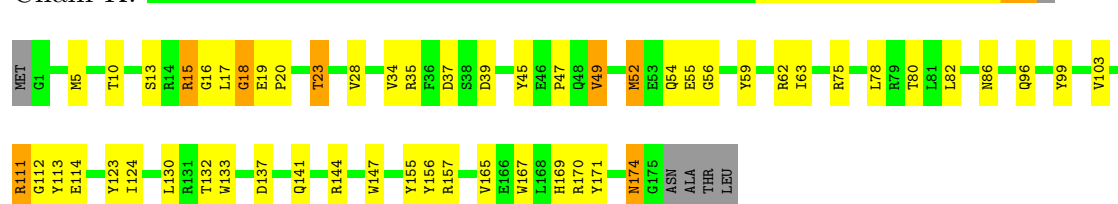
- Molecule 3: H2-Ld SBM2

Chain E:



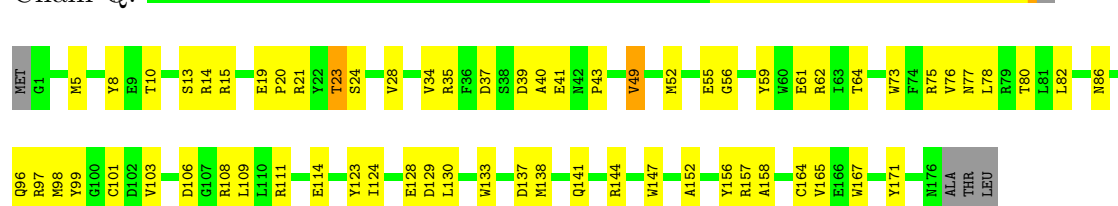
- Molecule 3: H2-Ld SBM2

Chain K:



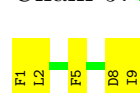
- Molecule 3: H2-Ld SBM2

Chain Q:



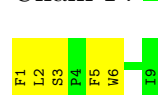
- Molecule 4: p5E8 peptide

Chain J:



- Molecule 4: p5E8 peptide

Chain F:



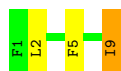
- Molecule 4: p5E8 peptide

Chain L: 



- Molecule 4: p5E8 peptide

Chain R: 



## 4 Data and refinement statistics

Property	Value	Source
Space group	H 3 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	291.33Å 291.33Å 291.24Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	45.31 – 3.10 45.31 – 3.10	Depositor EDS
% Data completeness (in resolution range)	99.7 (45.31-3.10) 99.6 (45.31-3.10)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.98 (at 3.12Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.7_650)	Depositor
R, $R_{free}$	0.231 , 0.258 0.226 , 0.252	Depositor DCC
$R_{free}$ test set	4268 reflections (5.01%)	DCC
Wilson B-factor (Å <sup>2</sup> )	67.0	Xtriage
Anisotropy	0.432	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.30 , 25.8	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.33$	Xtriage
Outliers	1 of 85361 reflections (0.001%)	Xtriage
$F_o, F_c$ correlation	0.91	EDS
Total number of atoms	20148	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	70.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.96% of the height of the origin peak. No significant pseudotranslation is detected.*

<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: SO4, EDO

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	0.59	0/1634	0.73	1/2214 (0.0%)
1	C	0.57	0/1623	0.73	1/2200 (0.0%)
1	G	0.64	0/1611	0.78	0/2182
1	M	0.58	0/1626	0.81	0/2204
2	B	0.61	0/1952	0.71	0/2662
2	D	0.58	0/1952	0.71	1/2662 (0.0%)
2	H	0.59	0/1952	0.74	2/2662 (0.1%)
2	N	0.62	1/1952 (0.1%)	0.73	1/2662 (0.0%)
3	E	0.59	1/1488 (0.1%)	0.70	0/2014
3	I	0.59	0/1475	0.69	0/1996
3	K	0.69	0/1488	0.73	1/2015 (0.0%)
3	Q	0.57	0/1493	0.74	0/2022
4	F	0.66	0/90	0.60	0/121
4	J	0.68	0/90	0.67	0/121
4	L	0.82	0/90	0.70	0/121
4	R	1.02	0/90	0.76	0/121
All	All	0.61	2/20606 (0.0%)	0.73	7/27979 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	N	8	PRO	N-CD	-5.60	1.40	1.47
3	E	72	GLN	CD-OE1	5.33	1.35	1.24

The worst 5 of 7 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	4	VAL	N-CA-C	-6.27	94.07	111.00
2	H	240	ALA	N-CA-CB	5.88	118.33	110.10
2	N	203	ASN	N-CA-C	5.68	126.35	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	K	18	GLY	N-CA-C	-5.34	99.74	113.10
1	C	142	ASP	N-CA-C	5.21	125.07	111.00

There are no chirality outliers.

There are no planarity outliers.

## 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	1595	0	1523	78	0
1	C	1584	0	1509	70	0
1	G	1573	0	1505	58	0
1	M	1587	0	1515	67	1
2	B	1900	0	1797	57	0
2	D	1900	0	1797	72	0
2	H	1900	0	1797	69	0
2	N	1900	0	1796	67	1
3	E	1449	0	1333	56	0
3	I	1436	0	1322	73	0
3	K	1448	0	1339	48	0
3	Q	1453	0	1341	55	0
4	F	85	0	77	8	0
4	J	85	0	77	11	0
4	L	85	0	77	8	0
4	R	85	0	77	7	0
5	A	5	0	0	0	0
5	B	15	0	0	0	0
5	D	10	0	0	1	0
5	E	5	0	0	4	0
5	G	5	0	0	0	0
5	H	10	0	0	1	0
5	K	10	0	0	0	0
5	N	10	0	0	3	0
5	Q	5	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	N	4	0	6	0	0
7	H	1	0	0	0	0
7	I	1	0	0	0	0
7	K	1	0	0	0	0
7	N	1	0	0	0	0
All	All	20148	0	18888	735	1

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 19.

The worst 5 of 735 close contacts within the same asymmetric unit are listed below.

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:161:CYS:HB3	2:B:168:CYS:SG	1.13	1.69
1:G:161:CYS:HB3	2:H:168:CYS:SG	1.34	1.63
1:C:161:CYS:HB3	2:D:168:CYS:SG	1.34	1.62
1:A:161:CYS:CB	2:B:168:CYS:SG	2.08	1.40
1:C:161:CYS:CB	2:D:168:CYS:SG	2.25	1.25

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:M:167:SER:O	2:N:136:GLN:NE2[2_555]	2.03	0.17

## 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	201/211 (95%)	183 (91%)	16 (8%)	2 (1%)	22	68
1	C	202/211 (96%)	184 (91%)	18 (9%)	0	100	100
1	G	198/211 (94%)	181 (91%)	15 (8%)	2 (1%)	22	68
1	M	202/211 (96%)	189 (94%)	13 (6%)	0	100	100
2	B	238/243 (98%)	223 (94%)	15 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	D	238/243 (98%)	225 (94%)	13 (6%)	0	100	100
2	H	238/243 (98%)	224 (94%)	14 (6%)	0	100	100
2	N	238/243 (98%)	226 (95%)	11 (5%)	1 (0%)	43	84
3	E	171/180 (95%)	160 (94%)	11 (6%)	0	100	100
3	I	169/180 (94%)	158 (94%)	11 (6%)	0	100	100
3	K	173/180 (96%)	158 (91%)	15 (9%)	0	100	100
3	Q	174/180 (97%)	161 (92%)	12 (7%)	1 (1%)	33	78
4	F	7/9 (78%)	7 (100%)	0	0	100	100
4	J	7/9 (78%)	7 (100%)	0	0	100	100
4	L	7/9 (78%)	7 (100%)	0	0	100	100
4	R	7/9 (78%)	6 (86%)	1 (14%)	0	100	100
All	All	2470/2572 (96%)	2299 (93%)	165 (7%)	6 (0%)	56	90

5 of 6 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	184	PHE
3	Q	43	PRO
2	N	87	SER
1	G	94	ALA
1	A	39	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	180/186 (97%)	169 (94%)	11 (6%)	26	67
1	C	178/186 (96%)	166 (93%)	12 (7%)	23	63
1	G	177/186 (95%)	167 (94%)	10 (6%)	30	70
1	M	179/186 (96%)	171 (96%)	8 (4%)	38	78
2	B	206/208 (99%)	199 (97%)	7 (3%)	49	86
2	D	206/208 (99%)	198 (96%)	8 (4%)	43	83

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	H	206/208 (99%)	200 (97%)	6 (3%)	55	88
2	N	206/208 (99%)	198 (96%)	8 (4%)	43	83
3	E	144/148 (97%)	140 (97%)	4 (3%)	56	89
3	I	143/148 (97%)	137 (96%)	6 (4%)	40	81
3	K	144/148 (97%)	136 (94%)	8 (6%)	30	70
3	Q	144/148 (97%)	140 (97%)	4 (3%)	56	89
4	F	9/9 (100%)	9 (100%)	0	100	100
4	J	9/9 (100%)	9 (100%)	0	100	100
4	L	9/9 (100%)	9 (100%)	0	100	100
4	R	9/9 (100%)	8 (89%)	1 (11%)	9	33
All	All	2149/2204 (98%)	2056 (96%)	93 (4%)	40	80

5 of 93 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	D	239	ARG
1	G	123	TYR
2	N	190	ARG
2	D	241	ASP
3	E	86	ASN

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 7 such sidechains are listed below:

Mol	Chain	Res	Type
3	I	127	ASN
2	H	134	HIS
3	E	176	ASN
2	B	134	HIS
2	H	47	HIS

### 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 ⓘ

16 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	$\# Z  > 2$
5	SO4	A	208	-	4,4,4	0.09	0	6,6,6	0.82	0
5	SO4	B	242	-	4,4,4	0.17	0	6,6,6	0.48	0
5	SO4	B	243	-	4,4,4	0.37	0	6,6,6	0.32	0
5	SO4	B	244	-	4,4,4	0.67	0	6,6,6	0.29	0
5	SO4	D	242	-	4,4,4	0.29	0	6,6,6	0.50	0
5	SO4	D	243	-	4,4,4	0.25	0	6,6,6	0.39	0
5	SO4	E	180	-	4,4,4	0.60	0	6,6,6	0.19	0
5	SO4	G	208	-	4,4,4	0.74	0	6,6,6	0.21	0
5	SO4	H	242	-	4,4,4	0.21	0	6,6,6	0.38	0
5	SO4	H	243	-	4,4,4	0.26	0	6,6,6	0.47	0
5	SO4	K	180	-	4,4,4	0.07	0	6,6,6	0.32	0
5	SO4	K	181	-	4,4,4	1.56	0	6,6,6	1.64	1 (16%)
5	SO4	N	242	-	4,4,4	0.35	0	6,6,6	0.06	0
5	SO4	N	243	-	4,4,4	0.20	0	6,6,6	0.41	0
6	EDO	N	244	-	3,3,3	0.49	0	2,2,2	0.43	0
5	SO4	Q	180	-	4,4,4	0.19	0	6,6,6	0.34	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the chemical component dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	SO4	A	208	-	-	0/0/0/0	0/0/0/0
5	SO4	B	242	-	-	0/0/0/0	0/0/0/0
5	SO4	B	243	-	-	0/0/0/0	0/0/0/0
5	SO4	B	244	-	-	0/0/0/0	0/0/0/0
5	SO4	D	242	-	-	0/0/0/0	0/0/0/0
5	SO4	D	243	-	-	0/0/0/0	0/0/0/0
5	SO4	E	180	-	-	0/0/0/0	0/0/0/0
5	SO4	G	208	-	-	0/0/0/0	0/0/0/0
5	SO4	H	242	-	-	0/0/0/0	0/0/0/0
5	SO4	H	243	-	-	0/0/0/0	0/0/0/0
5	SO4	K	180	-	-	0/0/0/0	0/0/0/0
5	SO4	K	181	-	-	0/0/0/0	0/0/0/0
5	SO4	N	242	-	-	0/0/0/0	0/0/0/0
5	SO4	N	243	-	-	0/0/0/0	0/0/0/0
6	EDO	N	244	-	-	0/1/1/1	0/0/0/0
5	SO4	Q	180	-	-	0/0/0/0	0/0/0/0

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	K	181	SO4	O4-S-O3	3.86	125.39	109.08

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	205/211 (97%)	-0.07	0 100 100	42, 77, 113, 124	0
1	C	204/211 (96%)	0.03	0 100 100	24, 81, 114, 125	0
1	G	202/211 (95%)	0.12	0 100 100	44, 80, 119, 130	0
1	M	204/211 (96%)	0.14	0 100 100	49, 82, 119, 140	0
2	B	240/243 (98%)	-0.26	0 100 100	34, 54, 94, 130	0
2	D	240/243 (98%)	-0.31	0 100 100	32, 55, 95, 133	0
2	H	240/243 (98%)	-0.17	0 100 100	33, 56, 100, 131	0
2	N	240/243 (98%)	-0.15	0 100 100	34, 55, 100, 133	0
3	E	175/180 (97%)	-0.22	0 100 100	44, 61, 109, 155	0
3	I	173/180 (96%)	-0.21	0 100 100	46, 64, 111, 154	0
3	K	175/180 (97%)	-0.16	0 100 100	43, 59, 113, 153	0
3	Q	176/180 (97%)	-0.18	0 100 100	46, 64, 119, 137	0
4	F	9/9 (100%)	-0.18	0 100 100	45, 50, 55, 58	0
4	J	9/9 (100%)	-0.20	0 100 100	49, 54, 70, 71	0
4	L	9/9 (100%)	-0.13	0 100 100	39, 45, 52, 53	0
4	R	9/9 (100%)	-0.18	0 100 100	49, 55, 62, 65	0
All	All	2510/2572 (97%)	-0.12	0 100 100	24, 66, 111, 155	0

There are no RSRZ outliers to report.

### 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
6	EDO	N	244	4/4	0.34	2.69	60,62,75,79	0
5	SO4	B	244	5/5	0.31	2.11	49,62,74,75	5
5	SO4	A	208	5/5	0.25	0.69	78,93,101,101	5
5	SO4	B	243	5/5	0.18	-0.04	79,83,100,128	0
5	SO4	K	180	5/5	0.10	-0.91	59,68,72,82	5
5	SO4	N	243	5/5	0.21	-1.01	91,98,118,124	5
5	SO4	D	242	5/5	0.11	-1.13	63,72,93,94	0
5	SO4	K	181	5/5	0.22	-1.16	88,91,95,97	5
5	SO4	B	242	5/5	0.10	-1.27	57,71,84,89	0
5	SO4	Q	180	5/5	0.17	-1.41	79,86,105,119	5
5	SO4	H	242	5/5	0.10	-1.63	77,89,102,117	0
5	SO4	H	243	5/5	0.12	-1.89	86,88,91,118	0
5	SO4	E	180	5/5	0.20	-2.17	60,68,75,77	5
5	SO4	N	242	5/5	0.17	-2.71	96,97,97,98	5
5	SO4	G	208	5/5	0.16	-3.89	45,56,62,76	5
5	SO4	D	243	5/5	0.15	-7.48	45,68,82,97	5

### 6.5 Other polymers ⓘ

There are no such residues in this entry.