



# Full wwPDB X-ray Structure Validation Report ⓘ

May 13, 2020 – 12:01 pm BST

PDB ID : 5C0C  
Title : 1E6 TCR in complex with HLA-A02 carrying RQFGPDWIVA  
Authors : Rizkallah, P.J.; Bulek, A.M.; Cole, D.K.; Sewell, A.K.  
Deposited on : 2015-06-12  
Resolution : 1.97 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](mailto: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.

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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 : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.11  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.11

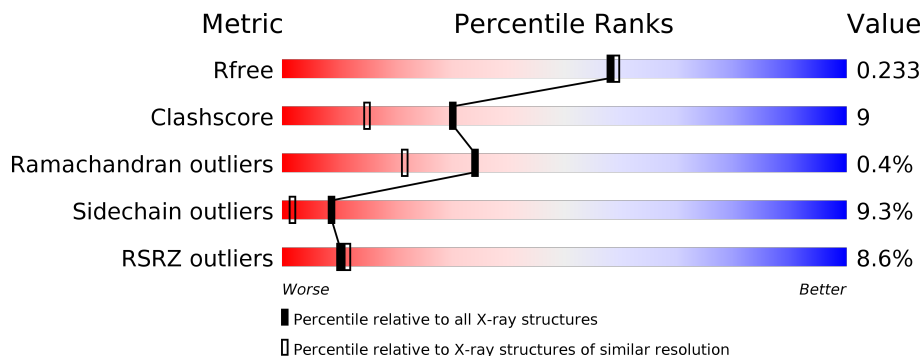
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 1.97 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))
$R_{free}$	130704	11647 (2.00-1.96)
Clashscore	141614	1014 (1.98-1.98)
Ramachandran outliers	138981	1006 (1.98-1.98)
Sidechain outliers	138945	1006 (1.98-1.98)
RSRZ outliers	127900	11410 (2.00-1.96)

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 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	277	<div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 73%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 23%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: red;"></div> </div> <p style="text-align: center;">2%      73%      23%      • •</p>
1	F	277	<div style="display: flex; align-items: center;"> <div style="width: 4%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 75%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 21%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: red;"></div> </div> <p style="text-align: center;">4%      75%      21%      • •</p>
2	B	100	<div style="display: flex; align-items: center;"> <div style="width: 80%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 16%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: red;"></div> </div> <p style="text-align: center;">80%      16%      • •</p>
2	G	100	<div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 78%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 18%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange;"></div> </div> <p style="text-align: center;">2%      78%      18%      •</p>
3	C	10	<div style="display: flex; align-items: center;"> <div style="width: 80%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 10%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 10%; height: 10px; background-color: orange;"></div> </div> <p style="text-align: center;">80%      10%      10%</p>
3	H	10	<div style="display: flex; align-items: center;"> <div style="width: 70%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 30%; height: 10px; background-color: yellow;"></div> </div> <p style="text-align: center;">70%      30%</p>

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Mol	Chain	Length	Quality of chain
4	D	200	
4	I	200	
5	E	247	
5	J	247	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
6	EDO	A	301	-	-	X	-
9	GOL	F	308	-	-	X	-

## 2 Entry composition [i](#)

There are 10 unique types of molecules in this entry. The entry contains 14235 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 HLA class I histocompatibility antigen, A-2 alpha chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	276	Total	C	N	O	S	0	0	0
			2254	1408	410	427	9			
1	F	277	Total	C	N	O	S	0	0	0
			2262	1413	411	428	10			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	0	MET	-	initiating methionine	UNP P01892
F	0	MET	-	initiating methionine	UNP P01892

- Molecule 2 is a protein called Beta-2-microglobulin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	100	Total	C	N	O	S	0	0	0
			837	533	141	159	4			
2	G	100	Total	C	N	O	S	0	0	0
			837	533	141	159	4			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	0	MET	-	initiating methionine	UNP P61769
G	0	MET	-	initiating methionine	UNP P61769

- Molecule 3 is a protein called Marker peptide.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
3	C	10	Total	C	N	O	0	0	0
			85	56	15	14			
3	H	10	Total	C	N	O	0	0	0
			85	56	15	14			

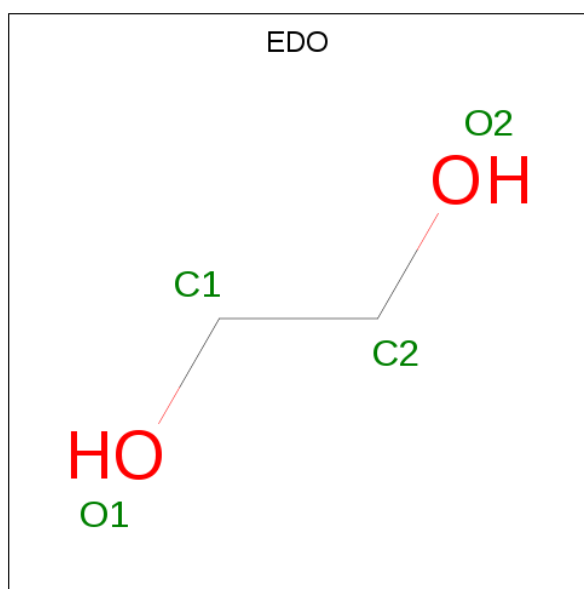
- Molecule 4 is a protein called 1E6 TCR Alpha Chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	D	200	Total	C	N	O	S	0	0	0
			1579	989	260	320	10			
4	I	199	Total	C	N	O	S	0	0	0
			1570	983	258	319	10			

- Molecule 5 is a protein called 1E6 TCR Beta Chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
5	E	247	Total	C	N	O	S	0	0	0
			1982	1254	342	375	11			
5	J	247	Total	C	N	O	S	0	0	0
			1982	1254	342	375	11			

- 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
			Total	C	O		
6	A	1	Total	C	O	0	0
			4	2	2		
6	A	1	Total	C	O	0	0
			4	2	2		
6	A	1	Total	C	O	0	0
			4	2	2		
6	B	1	Total	C	O	0	0
			4	2	2		
6	B	1	Total	C	O	0	0
			4	2	2		

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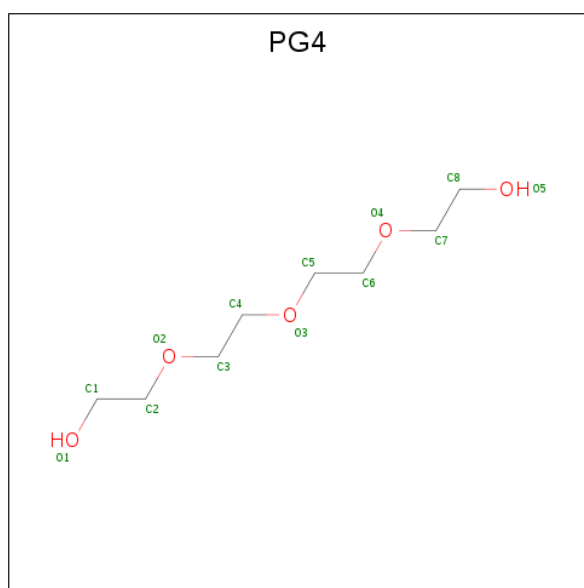
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	D	1	Total 4	C 2	O 2	0	0
6	D	1	Total 4	C 2	O 2	0	0
6	D	1	Total 4	C 2	O 2	0	0
6	E	1	Total 4	C 2	O 2	0	0
6	E	1	Total 4	C 2	O 2	0	0
6	E	1	Total 4	C 2	O 2	0	0
6	E	1	Total 4	C 2	O 2	0	0
6	E	1	Total 4	C 2	O 2	0	0
6	E	1	Total 4	C 2	O 2	0	0
6	F	1	Total 4	C 2	O 2	0	0
6	F	1	Total 4	C 2	O 2	0	0
6	F	1	Total 4	C 2	O 2	0	0
6	F	1	Total 4	C 2	O 2	0	0
6	F	1	Total 4	C 2	O 2	0	0
6	F	1	Total 4	C 2	O 2	0	0
6	F	1	Total 4	C 2	O 2	0	0
6	G	1	Total 4	C 2	O 2	0	0
6	G	1	Total 4	C 2	O 2	0	0
6	I	1	Total 4	C 2	O 2	0	0
6	I	1	Total 4	C 2	O 2	0	0
6	I	1	Total 4	C 2	O 2	0	0

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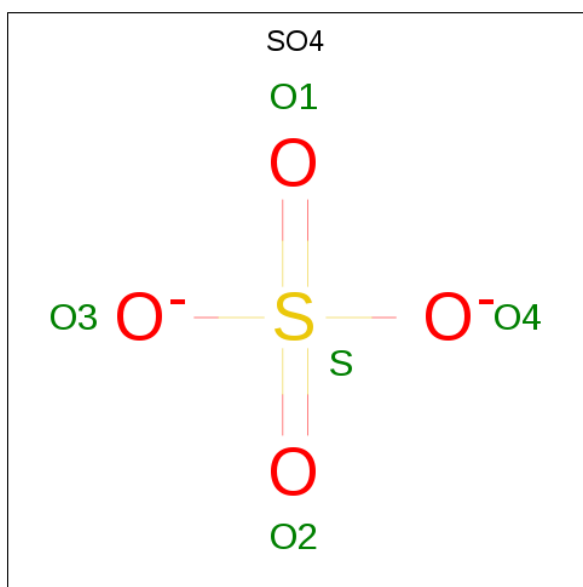
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	J	1	Total	C	O	0	0
			4	2	2		
6	J	1	Total	C	O	0	0
			4	2	2		
6	J	1	Total	C	O	0	0
			4	2	2		
6	J	1	Total	C	O	0	0
			4	2	2		
6	J	1	Total	C	O	0	0
			4	2	2		
6	J	1	Total	C	O	0	0
			4	2	2		

- Molecule 7 is TETRAETHYLENE GLYCOL (three-letter code: PG4) (formula: C<sub>8</sub>H<sub>18</sub>O<sub>5</sub>).



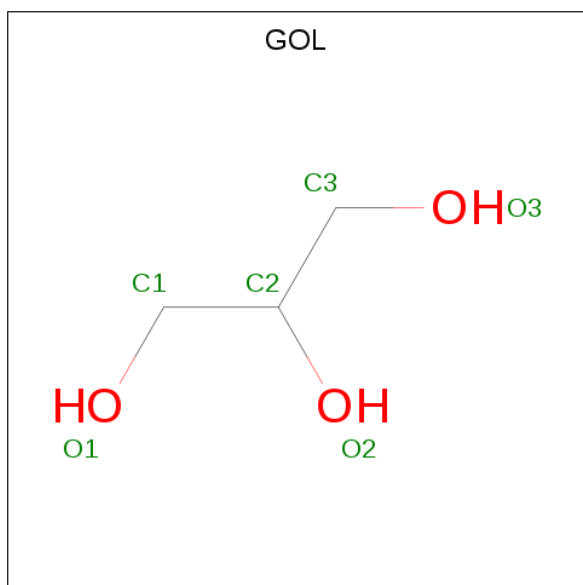
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	A	1	Total	C	O	0	0
			10	6	4		
7	I	1	Total	C	O	0	0
			13	8	5		

- Molecule 8 is SULFATE ION (three-letter code: SO4) (formula: O<sub>4</sub>S).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
8	A	1	Total	O	S	0	0
			5	4	1		
8	J	1	Total	O	S	0	0
			5	4	1		
8	J	1	Total	O	S	0	0
			5	4	1		
8	J	1	Total	O	S	0	0
			5	4	1		

- Molecule 9 is GLYCEROL (three-letter code: GOL) (formula: C<sub>3</sub>H<sub>8</sub>O<sub>3</sub>).





Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
9	B	1	Total	C	O	0	0
			6	3	3		
9	F	1	Total	C	O	0	0
			6	3	3		
9	F	1	Total	C	O	0	0
			6	3	3		

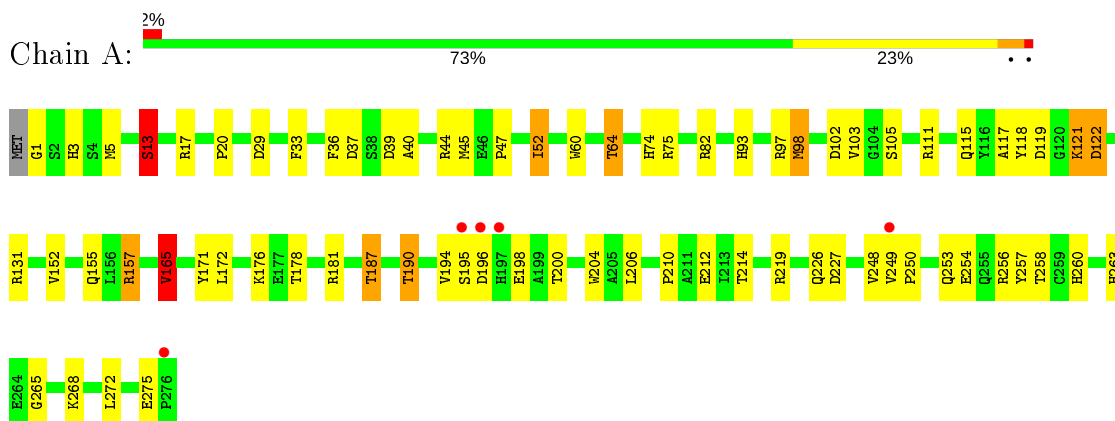
- Molecule 10 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
10	A	85	Total	O	0	0
			85	85		
10	B	45	Total	O	0	0
			45	45		
10	C	7	Total	O	0	0
			7	7		
10	D	43	Total	O	0	0
			43	43		
10	E	84	Total	O	0	0
			84	84		
10	F	113	Total	O	0	0
			113	113		
10	G	39	Total	O	0	0
			39	39		
10	H	6	Total	O	0	0
			6	6		
10	I	46	Total	O	0	0
			46	46		
10	J	101	Total	O	0	0
			101	101		

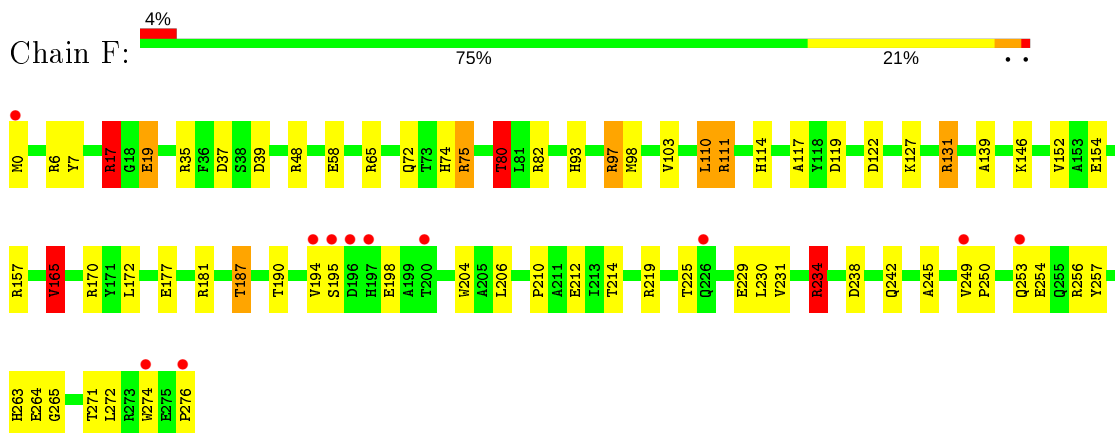
### 3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA and DNA 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.

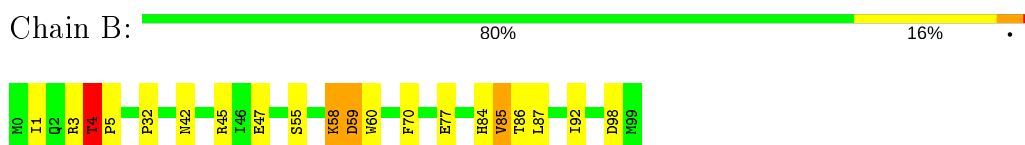
- Molecule 1: HLA class I histocompatibility antigen, A-2 alpha chain



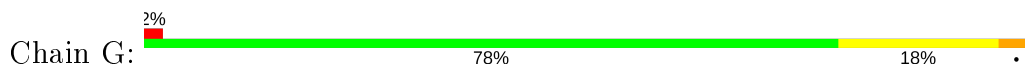
- Molecule 1: HLA class I histocompatibility antigen, A-2 alpha chain



- Molecule 2: Beta-2-microglobulin

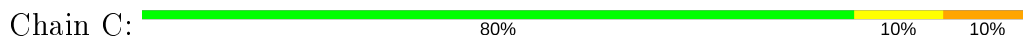


- Molecule 2: Beta-2-microglobulin





• Molecule 3: Marker peptide



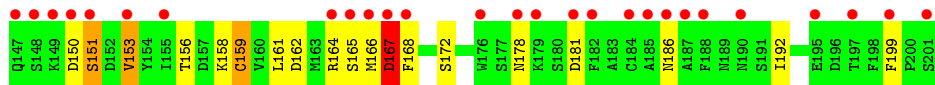
• Molecule 3: Marker peptide



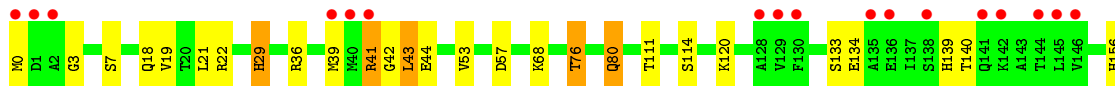
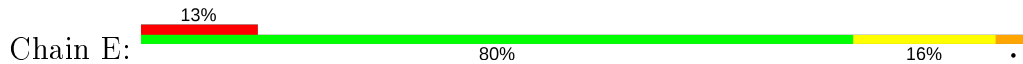
• Molecule 4: 1E6 TCR Alpha Chain



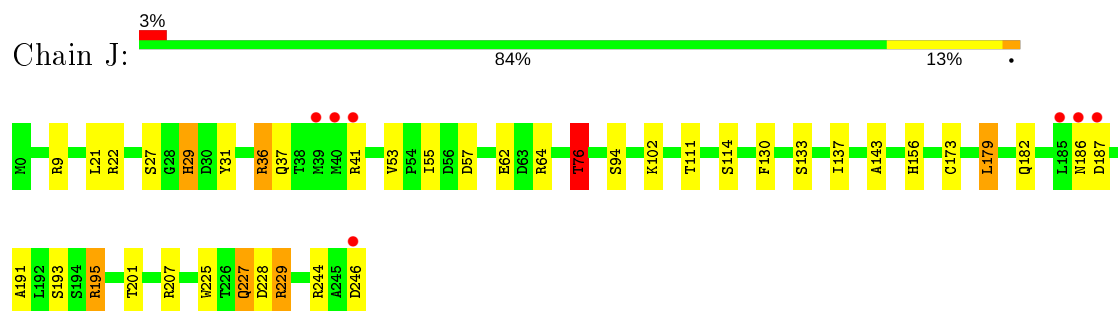
• Molecule 4: 1E6 TCR Alpha Chain



• Molecule 5: 1E6 TCR Beta Chain



## ● Molecule 5: 1E6 TCR Beta Chain



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	43.92Å 100.37Å 122.73Å 96.90° 98.02° 96.07°	Depositor
Resolution (Å)	120.38 – 1.97 120.38 – 1.97	Depositor EDS
% Data completeness (in resolution range)	97.4 (120.38-1.97) 97.4 (120.38-1.97)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	0.05	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.16 (at 1.97Å)	Xtrriage
Refinement program	REFMAC 5.8.0073	Depositor
R, $R_{free}$	0.189 , 0.227 0.196 , 0.233	Depositor DCC
$R_{free}$ test set	7029 reflections (5.02%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	36.6	Xtrriage
Anisotropy	0.218	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.33 , 45.2	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.96	EDS
Total number of atoms	14235	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	52.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.46% of the height of the origin peak. No significant pseudotranslation is detected.*

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

<sup>2</sup>Theoretical 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: GOL, PG4, 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	0.94	3/2320 (0.1%)	1.04	14/3149 (0.4%)
1	F	1.02	6/2328 (0.3%)	1.28	23/3159 (0.7%)
2	B	1.00	1/860 (0.1%)	1.07	6/1162 (0.5%)
2	G	1.01	2/860 (0.2%)	1.12	7/1162 (0.6%)
3	C	1.23	0/88	1.97	2/118 (1.7%)
3	H	1.39	0/88	1.18	1/118 (0.8%)
4	D	0.94	0/1615	1.14	10/2185 (0.5%)
4	I	0.94	2/1606 (0.1%)	1.11	8/2174 (0.4%)
5	E	0.96	0/2037	1.06	7/2769 (0.3%)
5	J	0.95	2/2037 (0.1%)	1.02	8/2769 (0.3%)
All	All	0.97	16/13839 (0.1%)	1.12	86/18765 (0.5%)

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
4	D	0	3
4	I	0	2
All	All	0	5

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	55	SER	CB-OG	8.65	1.53	1.42
2	G	60	TRP	N-CA	8.44	1.63	1.46
1	F	80	THR	CB-CG2	-7.77	1.26	1.52
4	I	97	TYR	CE1-CZ	-7.39	1.28	1.38
1	A	13	SER	CB-OG	-6.94	1.33	1.42
2	G	55	SER	CB-OG	6.76	1.51	1.42

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	13	SER	CA-CB	6.61	1.62	1.52
1	F	165	VAL	CB-CG1	-6.47	1.39	1.52
1	F	58	GLU	CG-CD	5.86	1.60	1.51
1	F	97	ARG	CD-NE	-5.75	1.36	1.46
1	A	254	GLU	CD-OE2	-5.74	1.19	1.25
1	F	97	ARG	CZ-NH2	-5.39	1.26	1.33
5	J	31	TYR	CE1-CZ	-5.39	1.31	1.38
4	I	97	TYR	CE2-CZ	5.36	1.45	1.38
5	J	36	ARG	CD-NE	-5.30	1.37	1.46
1	F	58	GLU	CD-OE1	5.06	1.31	1.25

All (86) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	F	97	ARG	NE-CZ-NH1	25.09	132.85	120.30
1	F	97	ARG	NE-CZ-NH2	-22.27	109.17	120.30
3	C	1	ARG	NE-CZ-NH1	15.04	127.82	120.30
4	I	34	MET	CG-SD-CE	-13.91	77.94	100.20
4	I	60	ARG	NE-CZ-NH2	-12.82	113.89	120.30
4	I	60	ARG	NE-CZ-NH1	12.56	126.58	120.30
1	F	234	ARG	NE-CZ-NH2	11.89	126.25	120.30
4	D	77	ARG	NE-CZ-NH2	-11.79	114.40	120.30
4	D	77	ARG	NE-CZ-NH1	11.25	125.93	120.30
3	C	1	ARG	NE-CZ-NH2	-11.11	114.75	120.30
5	E	229	ARG	NE-CZ-NH2	-10.90	114.85	120.30
5	E	229	ARG	NE-CZ-NH1	10.72	125.66	120.30
1	A	98	MET	CG-SD-CE	-10.31	83.70	100.20
5	J	229	ARG	NE-CZ-NH2	-10.19	115.20	120.30
4	D	60	ARG	NE-CZ-NH1	10.09	125.35	120.30
2	G	59	ASP	C-N-CA	-9.71	97.44	121.70
5	J	229	ARG	NE-CZ-NH1	9.68	125.14	120.30
4	I	34	MET	CA-CB-CG	9.01	128.61	113.30
1	F	82	ARG	NE-CZ-NH1	8.95	124.77	120.30
4	D	60	ARG	NE-CZ-NH2	-8.91	115.84	120.30
1	F	234	ARG	NE-CZ-NH1	-8.71	115.94	120.30
1	F	234	ARG	CB-CG-CD	8.53	133.77	111.60
5	E	36	ARG	NE-CZ-NH2	-8.43	116.09	120.30
1	A	82	ARG	NE-CZ-NH2	-8.08	116.26	120.30
2	G	59	ASP	O-C-N	-7.72	110.34	122.70
1	F	82	ARG	NE-CZ-NH2	-7.68	116.46	120.30
2	B	85	VAL	CB-CA-C	-7.65	96.87	111.40
4	D	99	LEU	CB-CG-CD1	7.40	123.58	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	H	6	ASP	CB-CG-OD1	7.37	124.94	118.30
5	E	36	ARG	NE-CZ-NH1	7.14	123.87	120.30
2	B	45	ARG	NE-CZ-NH1	6.99	123.80	120.30
1	F	39	ASP	CB-CG-OD1	6.85	124.46	118.30
1	F	37	ASP	CB-CG-OD1	6.79	124.41	118.30
4	D	165	SER	N-CA-C	-6.76	92.75	111.00
1	F	110	LEU	CA-CB-CG	6.65	130.60	115.30
1	A	157	ARG	NE-CZ-NH1	-6.57	117.01	120.30
1	F	131	ARG	NE-CZ-NH2	-6.56	117.02	120.30
5	J	64	ARG	NE-CZ-NH2	-6.50	117.05	120.30
1	F	122	ASP	CB-CG-OD1	6.43	124.08	118.30
1	F	165	VAL	CG1-CB-CG2	6.41	121.15	110.90
1	A	39	ASP	CB-CG-OD1	6.36	124.02	118.30
4	D	92	ARG	NE-CZ-NH1	6.35	123.48	120.30
2	B	45	ARG	NE-CZ-NH2	-6.33	117.14	120.30
1	F	39	ASP	CB-CG-OD2	-6.28	112.64	118.30
2	G	45	ARG	NE-CZ-NH1	6.25	123.42	120.30
1	A	13	SER	CA-CB-OG	-6.24	94.37	111.20
1	F	97	ARG	CD-NE-CZ	6.22	132.31	123.60
5	E	43	LEU	CB-CG-CD2	6.13	121.42	111.00
4	I	99	LEU	CB-CG-CD1	6.06	121.31	111.00
5	J	57	ASP	CB-CG-OD1	6.06	123.75	118.30
5	E	57	ASP	CB-CG-OD1	6.04	123.74	118.30
1	F	75	ARG	NE-CZ-NH2	5.94	123.27	120.30
1	F	181	ARG	NE-CZ-NH1	5.86	123.23	120.30
1	F	80	THR	OG1-CB-CG2	5.83	123.42	110.00
2	G	45	ARG	NE-CZ-NH2	-5.80	117.40	120.30
4	D	199	PHE	CB-CG-CD2	5.73	124.81	120.80
1	A	39	ASP	CB-CG-OD2	-5.69	113.18	118.30
4	D	34	MET	CA-CB-CG	5.66	122.92	113.30
5	J	76	THR	N-CA-CB	-5.64	99.58	110.30
1	A	37	ASP	CB-CG-OD1	5.62	123.36	118.30
4	I	92	ARG	NE-CZ-NH1	5.61	123.11	120.30
4	D	37	ARG	NE-CZ-NH1	5.61	123.10	120.30
1	F	17	ARG	NE-CZ-NH1	5.59	123.10	120.30
1	A	52	ILE	N-CA-CB	5.58	123.65	110.80
1	F	170	ARG	NE-CZ-NH2	-5.55	117.53	120.30
4	I	159	CYS	CA-CB-SG	5.50	123.90	114.00
5	J	36	ARG	CB-CG-CD	5.50	125.89	111.60
1	A	75	ARG	NE-CZ-NH1	5.45	123.03	120.30
1	A	102	ASP	CB-CG-OD1	5.41	123.17	118.30
1	F	131	ARG	NE-CZ-NH1	5.40	123.00	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	F	75	ARG	NE-CZ-NH1	-5.36	117.62	120.30
1	F	234	ARG	CG-CD-NE	5.34	123.02	111.80
2	G	59	ASP	CB-CG-OD1	5.31	123.08	118.30
1	A	165	VAL	CG1-CB-CG2	5.27	119.33	110.90
2	G	96	ASP	CB-CG-OD2	-5.25	113.57	118.30
2	G	47	GLU	C-N-CA	-5.23	108.62	121.70
5	J	76	THR	OG1-CB-CG2	5.22	122.00	110.00
4	I	60	ARG	CD-NE-CZ	5.21	130.90	123.60
1	A	97	ARG	NE-CZ-NH1	5.20	122.90	120.30
5	E	19	VAL	CG1-CB-CG2	5.19	119.21	110.90
2	B	47	GLU	C-N-CA	-5.18	108.76	121.70
5	J	64	ARG	NE-CZ-NH1	5.12	122.86	120.30
1	A	122	ASP	CB-CG-OD1	5.11	122.90	118.30
1	A	98	MET	CA-CB-CG	5.09	121.95	113.30
2	B	4	THR	CB-CA-C	-5.03	98.01	111.60
2	B	59	ASP	CB-CG-OD1	5.01	122.81	118.30

There are no chirality outliers.

All (5) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
4	D	164	ARG	Peptide
4	D	166	MET	Peptide
4	D	198	PHE	Peptide
4	I	131	LYS	Peptide
4	I	151	SER	Peptide

## 5.2 Too-close contacts [\(i\)](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2254	0	2103	50	0
1	F	2262	0	2112	58	0
2	B	837	0	803	12	0
2	G	837	0	803	10	0
3	C	85	0	81	2	0
3	H	85	0	81	3	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	D	1579	0	1496	44	0
4	I	1570	0	1481	32	0
5	E	1982	0	1896	32	0
5	J	1982	0	1896	27	0
6	A	12	0	17	6	0
6	B	8	0	12	0	0
6	D	12	0	18	3	0
6	E	24	0	36	3	0
6	F	28	0	42	6	0
6	G	8	0	12	1	0
6	I	12	0	18	1	0
6	J	28	0	42	2	0
7	A	10	0	13	1	0
7	I	13	0	18	3	0
8	A	5	0	0	1	0
8	J	15	0	0	2	0
9	B	6	0	8	0	0
9	F	12	0	16	9	0
10	A	85	0	0	6	0
10	B	45	0	0	0	0
10	C	7	0	0	0	0
10	D	43	0	0	4	0
10	E	84	0	0	6	0
10	F	113	0	0	14	0
10	G	39	0	0	0	0
10	H	6	0	0	0	0
10	I	46	0	0	3	0
10	J	101	0	0	4	0
All	All	14235	0	13004	249	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 9.

All (249) 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:5:MET:HE1	1:A:171:TYR:HE2	1.04	1.14
1:A:5:MET:HE1	1:A:171:TYR:CE2	1.95	1.02
1:F:97:ARG:HD3	1:F:114:HIS:HE1	1.30	0.97
4:D:62:THR:OG1	4:D:77:ARG:NH2	1.97	0.97
1:A:5:MET:CE	1:A:171:TYR:HE2	1.79	0.95

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:I:38:GLN:HE22	5:J:37:GLN:HE22	1.20	0.90
4:I:66:ASP:OD2	7:I:304:PG4:H41	1.74	0.88
5:J:244:ARG:NH2	5:J:246:ASP:O	2.07	0.87
1:A:187:THR:HG23	1:A:272:LEU:HD21	1.56	0.86
1:F:187:THR:HG23	1:F:272:LEU:HD21	1.58	0.86
4:I:150:ASP:OD1	4:I:153:VAL:HG13	1.76	0.86
1:F:127:LYS:HE3	9:F:308:GOL:C3	2.06	0.84
1:A:40:ALA:HB3	6:A:301:EDO:H11	1.62	0.82
1:A:60:TRP:O	1:A:64:THR:HG23	1.80	0.82
1:F:127:LYS:HE3	9:F:308:GOL:H32	1.61	0.81
1:F:97:ARG:HD3	1:F:114:HIS:CE1	2.15	0.81
5:E:43:LEU:C	5:E:43:LEU:HD13	2.01	0.81
5:J:102:LYS:NZ	8:J:309:SO4:O4	2.14	0.80
5:E:164:ASN:HB2	10:E:456:HOH:O	1.81	0.80
4:D:101:PHE:CD1	5:E:43:LEU:HD12	2.18	0.79
5:E:164:ASN:OD1	5:E:164:ASN:O	2.01	0.78
5:E:43:LEU:HD13	5:E:44:GLU:N	1.98	0.77
1:F:6:ARG:HD2	9:F:309:GOL:H31	1.68	0.76
4:D:101:PHE:CE1	5:E:43:LEU:HD12	2.20	0.76
5:E:197:ARG:O	10:E:401:HOH:O	2.04	0.74
5:E:76:THR:HG23	10:E:475:HOH:O	1.87	0.74
1:F:93:HIS:HE1	10:F:421:HOH:O	1.70	0.74
1:F:111:ARG:NH1	10:F:401:HOH:O	2.20	0.73
1:F:80:THR:HG21	10:F:466:HOH:O	1.89	0.73
1:F:139:ALA:HA	6:F:305:EDO:H12	1.70	0.73
4:D:167:ASP:HB3	10:D:426:HOH:O	1.89	0.72
4:I:125:ASP:OD1	4:I:133:VAL:N	2.22	0.72
4:I:50:THR:HG23	10:I:427:HOH:O	1.90	0.72
4:D:50:THR:HG23	10:D:419:HOH:O	1.89	0.71
1:A:258:THR:HG23	1:A:260:HIS:NE2	2.05	0.70
4:I:125:ASP:CG	4:I:132:SER:HA	2.10	0.70
1:A:93:HIS:HD2	1:A:119:ASP:OD2	1.74	0.70
1:A:118:TYR:O	1:A:121:LYS:HE3	1.93	0.69
4:I:166:MET:O	4:I:168:PHE:N	2.25	0.69
4:D:65:VAL:HB	4:D:72:ILE:HG22	1.75	0.68
5:E:175:ASP:OD1	5:E:195:ARG:NH1	2.26	0.68
1:F:19:GLU:HG2	6:F:306:EDO:O2	1.94	0.68
1:A:40:ALA:HB3	6:A:301:EDO:C1	2.24	0.67
1:F:127:LYS:CE	9:F:308:GOL:H31	2.25	0.66
4:D:52:SER:O	4:D:67:LYS:HD2	1.94	0.66
1:A:227:ASP:HB3	1:A:248:VAL:HG12	1.79	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:20:PRO:HD2	6:A:302:EDO:H22	1.78	0.65
5:J:114:SER:OG	5:J:156:HIS:HE1	1.80	0.65
5:E:114:SER:OG	5:E:156:HIS:HE1	1.79	0.65
5:E:185:LEU:HB2	5:E:188:SER:HB3	1.79	0.63
4:D:52:SER:O	4:D:67:LYS:HG3	1.98	0.63
5:J:76:THR:HG23	10:J:492:HOH:O	1.98	0.63
4:I:125:ASP:HA	5:J:130:PHE:CD2	2.33	0.63
1:A:190:THR:HG21	2:B:98:ASP:OD2	2.00	0.62
1:F:195:SER:HB3	1:F:198:GLU:HG2	1.80	0.62
1:A:263:HIS:CD2	1:A:265:GLY:H	2.18	0.61
1:A:45:MET:H	1:A:64:THR:HG22	1.65	0.61
6:F:301:EDO:C1	10:F:430:HOH:O	2.47	0.61
4:I:50:THR:HA	10:I:403:HOH:O	2.00	0.61
1:F:263:HIS:CD2	1:F:265:GLY:H	2.17	0.61
1:A:5:MET:CE	1:A:171:TYR:CE2	2.69	0.61
1:A:227:ASP:HB3	1:A:248:VAL:CG1	2.31	0.60
4:I:71:TYR:CD1	7:I:304:PG4:H31	2.36	0.60
5:E:0:MET:HA	5:E:3:GLY:HA3	1.83	0.60
1:F:234:ARG:HD2	1:F:242:GLN:HB2	1.83	0.60
5:E:43:LEU:CD1	5:E:43:LEU:C	2.70	0.60
2:B:4:THR:HG22	2:B:5:PRO:HD2	1.84	0.60
1:A:44:ARG:O	6:A:301:EDO:H21	2.01	0.59
1:F:219:ARG:HD3	1:F:256:ARG:NH2	2.17	0.59
4:I:161:LEU:HB3	5:J:173:CYS:HB2	1.85	0.59
1:F:93:HIS:HD2	1:F:119:ASP:OD2	1.85	0.59
4:D:128:SER:O	4:D:129:SER:OG	2.16	0.58
4:D:113:ILE:N	6:D:302:EDO:O1	2.36	0.58
5:E:198:VAL:HG21	5:E:202:PHE:CD1	2.38	0.58
4:I:129:SER:OG	4:I:131:LYS:HD3	2.04	0.58
1:A:195:SER:C	10:A:441:HOH:O	2.43	0.57
4:D:52:SER:C	4:D:67:LYS:HD2	2.24	0.57
2:B:84:HIS:HD2	2:B:86:THR:OG1	1.87	0.57
1:F:230:LEU:HD12	1:F:245:ALA:HB2	1.87	0.57
5:J:137:ILE:CD1	5:J:143:ALA:HB2	2.34	0.57
4:D:108:LEU:HD13	4:D:108:LEU:C	2.25	0.56
2:B:4:THR:HG23	2:B:86:THR:OG1	2.05	0.56
1:A:93:HIS:HE1	10:A:404:HOH:O	1.87	0.56
1:F:249:VAL:CG2	1:F:257:TYR:CE1	2.88	0.56
1:A:20:PRO:HD2	6:A:302:EDO:C2	2.35	0.56
1:A:249:VAL:CG2	1:A:257:TYR:CE1	2.89	0.56
1:F:35:ARG:NE	10:F:403:HOH:O	2.39	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:18:GLN:HB2	5:E:80:GLN:HG3	1.87	0.56
1:F:131:ARG:HH22	1:F:157:ARG:NH2	2.03	0.56
1:F:234:ARG:HH11	2:G:8:GLN:NE2	2.05	0.55
5:J:76:THR:CG2	10:J:492:HOH:O	2.54	0.55
4:D:110:ARG:HB3	4:D:141:SER:HB3	1.89	0.54
4:D:133:VAL:HG23	4:D:176:TRP:HB3	1.88	0.54
1:F:127:LYS:HE3	9:F:308:GOL:H31	1.81	0.54
6:F:301:EDO:H11	10:F:430:HOH:O	2.06	0.54
1:F:249:VAL:HG22	1:F:250:PRO:O	2.07	0.54
4:D:119:ALA:HA	4:D:198:PHE:HB3	1.90	0.54
2:G:20:SER:OG	2:G:69:GLU:OE2	2.25	0.54
5:E:235:GLN:NE2	6:E:303:EDO:O1	2.41	0.54
4:D:77:ARG:HD2	6:D:301:EDO:C1	2.36	0.54
1:A:131:ARG:NH2	10:A:403:HOH:O	2.41	0.54
1:A:249:VAL:HG22	1:A:250:PRO:O	2.08	0.54
1:A:196:ASP:HB3	1:F:229:GLU:OE2	2.08	0.53
4:I:125:ASP:OD2	4:I:132:SER:HA	2.08	0.53
5:E:41:ARG:HG2	5:E:44:GLU:OE2	2.09	0.53
1:F:234:ARG:HD3	1:F:242:GLN:OE1	2.08	0.53
2:G:84:HIS:HD2	2:G:86:THR:OG1	1.90	0.53
2:B:32:PRO:O	2:B:84:HIS:HE1	1.92	0.53
1:A:36:PHE:CD1	6:A:301:EDO:H22	2.44	0.52
4:D:197:THR:O	4:D:197:THR:HG23	2.08	0.52
1:A:249:VAL:HG23	1:A:257:TYR:CE1	2.44	0.52
4:D:152:ASP:O	4:D:177:SER:OG	2.26	0.52
1:F:80:THR:CG2	10:F:466:HOH:O	2.51	0.52
4:I:125:ASP:HA	5:J:130:PHE:HD2	1.73	0.52
1:F:249:VAL:HG23	1:F:257:TYR:CE1	2.45	0.51
5:J:55:ILE:O	6:J:303:EDO:H11	2.11	0.51
1:F:6:ARG:CD	9:F:309:GOL:H31	2.40	0.51
2:G:32:PRO:O	2:G:84:HIS:HE1	1.92	0.51
4:I:110:ARG:HB3	4:I:141:SER:HB3	1.91	0.51
2:B:42:ASN:ND2	2:B:77:GLU:H	2.08	0.51
4:I:172:SER:HB2	5:J:195:ARG:HD3	1.92	0.51
1:A:195:SER:HB3	1:A:198:GLU:HB2	1.92	0.50
5:J:22:ARG:NE	8:J:308:SO4:O2	2.31	0.50
1:F:154:GLU:HG3	10:F:488:HOH:O	2.11	0.50
2:G:97:ARG:HH11	2:G:97:ARG:HG3	1.76	0.50
1:F:117:ALA:HB2	2:G:60:TRP:CE2	2.45	0.50
4:I:37:ARG:HD3	4:I:39:TYR:CZ	2.47	0.50
1:F:0:MET:O	1:F:0:MET:HG2	2.12	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:1:ARG:HD2	10:I:414:HOH:O	2.11	0.50
5:J:9:ARG:HD2	10:J:430:HOH:O	2.12	0.50
6:F:301:EDO:H12	10:F:430:HOH:O	2.10	0.50
4:I:150:ASP:OD1	4:I:153:VAL:CG1	2.54	0.50
1:F:65:ARG:HD3	10:F:430:HOH:O	2.12	0.49
4:D:172:SER:HB2	5:E:195:ARG:HD3	1.93	0.49
2:B:58:LYS:HE3	2:B:58:LYS:O	2.13	0.49
5:J:21:LEU:HD22	5:J:111:THR:HG21	1.94	0.49
4:D:199:PHE:HB2	4:D:200:PRO:CD	2.42	0.49
5:J:137:ILE:HD11	5:J:143:ALA:HB2	1.94	0.49
1:A:152:VAL:HG21	3:C:8:ILE:HG21	1.94	0.49
4:D:126:SER:O	4:D:127:LYS:C	2.50	0.49
5:E:21:LEU:HD22	5:E:111:THR:HG21	1.94	0.49
4:I:71:TYR:CG	7:I:304:PG4:H31	2.48	0.49
5:E:29:HIS:HE1	6:E:306:EDO:O1	1.95	0.49
1:F:274:TRP:CZ3	1:F:276:PRO:HB3	2.48	0.49
1:A:131:ARG:NE	10:A:403:HOH:O	2.44	0.48
1:A:5:MET:HE3	1:A:33:PHE:CZ	2.47	0.48
4:D:194:PRO:O	4:D:197:THR:HB	2.13	0.48
4:I:108:LEU:C	4:I:108:LEU:CD2	2.81	0.48
4:D:113:ILE:HG13	4:D:113:ILE:O	2.12	0.48
1:A:3:HIS:HD2	1:A:29:ASP:OD2	1.97	0.48
1:F:35:ARG:HD3	1:F:48:ARG:HH21	1.78	0.48
1:A:74:HIS:HD2	10:A:444:HOH:O	1.95	0.48
4:D:53:SER:HA	4:D:65:VAL:HG22	1.95	0.48
4:I:25:TYR:C	6:I:303:EDO:H21	2.34	0.48
1:A:219:ARG:HD3	1:A:256:ARG:NH2	2.29	0.48
4:D:195:GLU:O	4:D:197:THR:HG22	2.14	0.47
5:J:29:HIS:HE1	10:J:498:HOH:O	1.97	0.47
2:B:98:ASP:O	2:B:98:ASP:CG	2.52	0.47
1:A:117:ALA:HB2	2:B:60:TRP:CE2	2.50	0.47
1:F:17:ARG:HH11	1:F:17:ARG:HG3	1.78	0.47
1:A:187:THR:HA	1:A:204:TRP:O	2.14	0.47
1:F:187:THR:HA	1:F:204:TRP:O	2.14	0.47
1:A:47:PRO:HB3	1:A:52:ILE:HD13	1.95	0.47
1:F:127:LYS:CE	9:F:308:GOL:C3	2.81	0.47
4:I:108:LEU:C	4:I:108:LEU:HD22	2.35	0.47
5:E:76:THR:HG21	10:E:483:HOH:O	2.14	0.47
1:A:194:VAL:HG11	1:A:200:THR:OG1	2.15	0.47
1:F:204:TRP:CZ2	2:G:99:MET:HA	2.50	0.47
1:F:234:ARG:CD	1:F:242:GLN:HB2	2.45	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:136:PHE:HB2	4:D:188:PHE:CE2	2.50	0.46
4:I:126:SER:HB3	4:I:129:SER:HB2	1.95	0.46
4:I:172:SER:O	5:J:195:ARG:NH2	2.49	0.46
1:A:3:HIS:HE1	10:A:479:HOH:O	1.97	0.46
2:B:3:ARG:NH1	2:B:59:ASP:OD2	2.38	0.46
5:E:0:MET:HA	5:E:3:GLY:CA	2.45	0.46
4:D:181:ASP:O	4:D:182:PHE:C	2.54	0.46
4:D:101:PHE:CE1	5:E:43:LEU:CD1	2.94	0.46
1:F:234:ARG:HH11	2:G:8:GLN:HE21	1.62	0.46
1:F:127:LYS:CD	9:F:308:GOL:H11	2.46	0.46
4:I:38:GLN:NE2	5:J:37:GLN:HE22	2.02	0.45
4:D:167:ASP:CB	10:D:426:HOH:O	2.58	0.45
5:E:185:LEU:HD12	5:E:187:ASP:HA	1.99	0.45
4:D:52:SER:O	4:D:67:LYS:CD	2.62	0.45
4:I:166:MET:O	4:I:167:ASP:C	2.54	0.45
4:D:52:SER:O	4:D:67:LYS:CG	2.62	0.45
4:I:159:CYS:HB3	5:J:195:ARG:NH2	2.31	0.45
4:D:156:THR:HG21	5:E:193:SER:OG	2.17	0.45
1:A:122:ASP:HB3	7:A:304:PG4:H22	1.99	0.45
1:F:72:GLN:OE1	1:F:75:ARG:NH2	2.50	0.44
1:A:17:ARG:NH2	8:A:305:SO4:O4	2.50	0.44
5:E:42:GLY:HA2	10:E:469:HOH:O	2.18	0.44
4:I:172:SER:HB2	5:J:195:ARG:HH21	1.83	0.44
5:E:185:LEU:HB2	5:E:188:SER:CB	2.48	0.44
1:F:103:VAL:CG1	1:F:165:VAL:HG22	2.48	0.44
1:F:264:GLU:HB2	10:F:410:HOH:O	2.18	0.44
4:D:40:SER:O	4:D:41:ARG:HB2	2.18	0.43
1:A:103:VAL:CG1	1:A:165:VAL:HG22	2.48	0.43
1:F:249:VAL:HG21	1:F:257:TYR:CE1	2.53	0.43
1:F:139:ALA:HA	6:F:305:EDO:C1	2.46	0.43
1:F:210:PRO:O	1:F:263:HIS:HE1	2.02	0.43
2:B:4:THR:CG2	2:B:86:THR:OG1	2.67	0.43
5:E:7:SER:OG	5:E:22:ARG:HD2	2.19	0.43
1:F:127:LYS:HE3	9:F:308:GOL:H11	2.00	0.43
4:D:198:PHE:CE1	4:D:201:SER:OG	2.71	0.43
1:F:0:MET:HG3	1:F:264:GLU:OE2	2.18	0.42
1:A:258:THR:CG2	1:A:260:HIS:NE2	2.79	0.42
5:E:209:HIS:CD2	10:E:402:HOH:O	2.71	0.42
6:E:302:EDO:H12	3:H:9:VAL:HG22	2.01	0.42
4:D:50:THR:HA	10:D:415:HOH:O	2.18	0.42
5:E:114:SER:OG	5:E:156:HIS:CE1	2.67	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:13:SER:HB2	1:A:93:HIS:H	1.85	0.42
1:A:1:GLY:O	1:A:105:SER:HA	2.18	0.42
4:D:164:ARG:HG3	4:D:164:ARG:H	1.69	0.42
4:D:165:SER:O	4:D:166:MET:C	2.57	0.42
2:B:42:ASN:HD21	2:B:77:GLU:H	1.66	0.42
1:F:48:ARG:NH2	10:F:403:HOH:O	2.52	0.42
4:I:37:ARG:HD3	4:I:39:TYR:CE2	2.54	0.42
1:A:5:MET:CE	1:A:33:PHE:CZ	3.02	0.41
10:F:510:HOH:O	6:G:102:EDO:H12	2.19	0.41
4:D:113:ILE:HG12	4:D:140:ASP:HA	2.02	0.41
1:F:152:VAL:HG21	3:H:8:ILE:HG21	2.03	0.41
4:I:40:SER:O	4:I:41:ARG:HB2	2.20	0.41
4:I:158:LYS:HA	4:I:172:SER:O	2.20	0.41
1:F:131:ARG:NH2	1:F:157:ARG:CZ	2.83	0.41
5:J:179:LEU:CD2	5:J:191:ALA:HB3	2.50	0.41
4:D:123:LEU:HD11	4:D:135:LEU:HB2	2.02	0.41
4:D:158:LYS:HA	4:D:172:SER:O	2.21	0.41
4:D:108:LEU:CD1	4:D:108:LEU:C	2.88	0.41
5:J:186:ASN:O	5:J:187:ASP:HB2	2.21	0.41
1:A:210:PRO:O	1:A:263:HIS:HE1	2.03	0.41
1:A:249:VAL:HG21	1:A:257:TYR:CE1	2.55	0.41
1:F:230:LEU:HD12	1:F:245:ALA:CB	2.51	0.41
2:G:57:SER:O	2:G:59:ASP:O	2.37	0.41
4:I:156:THR:HG21	5:J:193:SER:OG	2.21	0.41
5:J:102:LYS:HE2	6:J:306:EDO:C2	2.50	0.41
5:J:29:HIS:HD2	5:J:94:SER:OG	2.04	0.41
4:D:113:ILE:H	6:D:302:EDO:C1	2.32	0.41
1:F:7:TYR:O	1:F:98:MET:HA	2.21	0.41
1:A:178:THR:HA	1:A:181:ARG:HD3	2.02	0.41
1:F:146:LYS:HE2	3:H:9:VAL:O	2.21	0.40
4:D:179:LYS:HE3	4:D:181:ASP:HB2	2.02	0.40
2:G:39:LEU:HD23	2:G:68:THR:HG22	2.04	0.40
5:J:225:TRP:CE2	5:J:227:GLN:HB2	2.57	0.40
1:A:226:GLN:H	1:A:226:GLN:NE2	2.18	0.40
1:F:0:MET:HE1	10:F:413:HOH:O	2.21	0.40
5:E:180:LYS:O	5:E:183:PRO:HG3	2.22	0.40
5:E:186:ASN:O	5:E:187:ASP:HB2	2.22	0.40
4:D:131:LYS:HA	4:D:131:LYS:HE2	2.04	0.40
1:F:35:ARG:HD3	1:F:48:ARG:NH2	2.36	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	274/277 (99%)	271 (99%)	3 (1%)	0	100	100
1	F	275/277 (99%)	269 (98%)	6 (2%)	0	100	100
2	B	98/100 (98%)	96 (98%)	2 (2%)	0	100	100
2	G	98/100 (98%)	97 (99%)	1 (1%)	0	100	100
3	C	8/10 (80%)	7 (88%)	1 (12%)	0	100	100
3	H	8/10 (80%)	7 (88%)	1 (12%)	0	100	100
4	D	198/200 (99%)	181 (91%)	12 (6%)	5 (2%)	5	1
4	I	197/200 (98%)	181 (92%)	14 (7%)	2 (1%)	15	6
5	E	245/247 (99%)	238 (97%)	7 (3%)	0	100	100
5	J	245/247 (99%)	242 (99%)	3 (1%)	0	100	100
All	All	1646/1668 (99%)	1589 (96%)	50 (3%)	7 (0%)	34	22

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	D	197	THR
4	I	167	ASP
4	D	166	MET
4	D	126	SER
4	I	124	ARG
4	D	52	SER
4	D	199	PHE

### 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.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	232/233 (100%)	213 (92%)	19 (8%)	11	3
1	F	233/233 (100%)	211 (91%)	22 (9%)	8	2
2	B	95/95 (100%)	88 (93%)	7 (7%)	13	5
2	G	95/95 (100%)	88 (93%)	7 (7%)	13	5
3	C	8/8 (100%)	8 (100%)	0	100	100
3	H	8/8 (100%)	8 (100%)	0	100	100
4	D	181/181 (100%)	164 (91%)	17 (9%)	8	2
4	I	180/181 (99%)	153 (85%)	27 (15%)	3	0
5	E	217/217 (100%)	195 (90%)	22 (10%)	7	1
5	J	217/217 (100%)	201 (93%)	16 (7%)	13	5
All	All	1466/1468 (100%)	1329 (91%)	137 (9%)	9	2

All (137) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	13	SER
1	A	64	THR
1	A	98	MET
1	A	111	ARG
1	A	115	GLN
1	A	121	LYS
1	A	155	GLN
1	A	157	ARG
1	A	165	VAL
1	A	172	LEU
1	A	176	LYS
1	A	187	THR
1	A	190	THR
1	A	206	LEU
1	A	212	GLU
1	A	214	THR
1	A	253	GLN
1	A	268	LYS
1	A	275	GLU
2	B	1	ILE
2	B	4	THR
2	B	58	LYS
2	B	70	PHE

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	B	85	VAL
2	B	87	LEU
2	B	92	ILE
4	D	3	GLU
4	D	4	VAL
4	D	49	TYR
4	D	50	THR
4	D	53	SER
4	D	81	PRO
4	D	99	LEU
4	D	126	SER
4	D	130	ASP
4	D	132	SER
4	D	135	LEU
4	D	164	ARG
4	D	165	SER
4	D	166	MET
4	D	190	ASN
4	D	192	ILE
4	D	199	PHE
5	E	29	HIS
5	E	39	MET
5	E	41	ARG
5	E	53	VAL
5	E	68	LYS
5	E	76	THR
5	E	80	GLN
5	E	120	LYS
5	E	133	SER
5	E	134	GLU
5	E	139	HIS
5	E	140	THR
5	E	164	ASN
5	E	173	CYS
5	E	179	LEU
5	E	185	LEU
5	E	195	ARG
5	E	207	ARG
5	E	224	GLU
5	E	229	ARG
5	E	244	ARG
5	E	246	ASP

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	F	17	ARG
1	F	19	GLU
1	F	74	HIS
1	F	80	THR
1	F	110	LEU
1	F	111	ARG
1	F	165	VAL
1	F	172	LEU
1	F	177	GLU
1	F	187	THR
1	F	190	THR
1	F	194	VAL
1	F	206	LEU
1	F	212	GLU
1	F	214	THR
1	F	225	THR
1	F	231	VAL
1	F	234	ARG
1	F	238	ASP
1	F	253	GLN
1	F	254	GLU
1	F	271	THR
2	G	39	LEU
2	G	48	LYS
2	G	70	PHE
2	G	89	GLN
2	G	94	LYS
2	G	97	ARG
2	G	98	ASP
4	I	3	GLU
4	I	4	VAL
4	I	11	LEU
4	I	34	MET
4	I	49	TYR
4	I	50	THR
4	I	52	SER
4	I	99	LEU
4	I	108	LEU
4	I	123	LEU
4	I	126	SER
4	I	127	LYS
4	I	129	SER

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
4	I	131	LYS
4	I	132	SER
4	I	140	ASP
4	I	151	SER
4	I	153	VAL
4	I	162	ASP
4	I	164	ARG
4	I	165	SER
4	I	167	ASP
4	I	178	ASN
4	I	181	ASP
4	I	186	ASN
4	I	192	ILE
4	I	199	PHE
5	J	27	SER
5	J	29	HIS
5	J	36	ARG
5	J	41	ARG
5	J	53	VAL
5	J	62	GLU
5	J	76	THR
5	J	133	SER
5	J	179	LEU
5	J	182	GLN
5	J	195	ARG
5	J	201	THR
5	J	207	ARG
5	J	227	GLN
5	J	228	ASP
5	J	229	ARG

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (37) such sidechains are listed below:

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	A	3	HIS
1	A	54	GLN
1	A	74	HIS
1	A	93	HIS
1	A	115	GLN
1	A	174	ASN
1	A	180	GLN
1	A	224	GLN

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Mol	Chain	Res	Type
1	A	226	GLN
1	A	255	GLN
1	A	263	HIS
2	B	8	GLN
2	B	42	ASN
2	B	84	HIS
3	C	2	GLN
4	D	122	GLN
4	D	144	ASN
5	E	29	HIS
5	E	156	HIS
5	E	164	ASN
5	E	235	GLN
1	F	93	HIS
1	F	114	HIS
1	F	180	GLN
1	F	192	HIS
1	F	263	HIS
2	G	8	GLN
2	G	84	HIS
4	I	114	GLN
4	I	122	GLN
4	I	144	ASN
5	J	29	HIS
5	J	37	GLN
5	J	156	HIS
5	J	182	GLN
5	J	186	ASN
5	J	209	HIS

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

### 5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

## 5.6 Ligand geometry

42 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
6	EDO	F	301	-	3,3,3	0.62	0	2,2,2	0.20	0
6	EDO	E	301	-	3,3,3	0.90	0	2,2,2	0.41	0
6	EDO	E	304	-	3,3,3	0.76	0	2,2,2	0.47	0
6	EDO	J	306	-	3,3,3	0.49	0	2,2,2	0.78	0
6	EDO	F	306	-	3,3,3	0.32	0	2,2,2	0.52	0
6	EDO	F	303	-	3,3,3	0.30	0	2,2,2	1.07	0
6	EDO	I	303	-	3,3,3	0.56	0	2,2,2	0.41	0
6	EDO	E	302	-	3,3,3	0.83	0	2,2,2	0.41	0
6	EDO	D	302	-	3,3,3	0.42	0	2,2,2	0.60	0
6	EDO	B	301	-	3,3,3	0.24	0	2,2,2	0.83	0
8	SO4	J	310	-	4,4,4	1.06	0	6,6,6	0.63	0
6	EDO	E	303	-	3,3,3	0.42	0	2,2,2	0.43	0
9	GOL	F	308	-	5,5,5	0.82	0	5,5,5	1.47	1 (20%)
6	EDO	J	302	-	3,3,3	0.37	0	2,2,2	0.62	0
6	EDO	D	303	-	3,3,3	0.89	0	2,2,2	0.70	0
7	PG4	A	304	-	9,9,12	0.71	0	8,8,11	0.98	0
6	EDO	J	301	-	3,3,3	0.68	0	2,2,2	0.37	0
6	EDO	F	305	-	3,3,3	0.48	0	2,2,2	0.34	0
6	EDO	A	303	-	3,3,3	0.28	0	2,2,2	0.61	0
6	EDO	D	301	-	3,3,3	0.39	0	2,2,2	0.65	0
6	EDO	G	102	-	3,3,3	1.70	0	2,2,2	1.57	0
6	EDO	J	303	-	3,3,3	0.62	0	2,2,2	0.90	0
6	EDO	F	304	-	3,3,3	0.50	0	2,2,2	0.88	0
6	EDO	A	301	-	3,3,3	0.92	0	2,2,2	0.94	0
6	EDO	J	307	-	3,3,3	0.86	0	2,2,2	0.50	0
6	EDO	I	302	-	3,3,3	0.75	0	2,2,2	0.78	0
6	EDO	G	101	-	3,3,3	0.61	0	2,2,2	0.26	0
6	EDO	F	307	-	3,3,3	0.44	0	2,2,2	0.57	0
6	EDO	A	302	-	3,3,3	0.57	0	2,2,2	1.80	1 (50%)
6	EDO	F	302	-	3,3,3	0.56	0	2,2,2	0.49	0
6	EDO	J	305	-	3,3,3	0.32	0	2,2,2	0.46	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
9	GOL	F	309	-	5,5,5	0.96	0	5,5,5	1.86	2 (40%)
7	PG4	I	304	-	12,12,12	0.74	0	11,11,11	1.64	3 (27%)
6	EDO	I	301	-	3,3,3	0.88	0	2,2,2	0.36	0
6	EDO	J	304	-	3,3,3	0.66	0	2,2,2	0.29	0
8	SO4	J	309	-	4,4,4	0.82	0	6,6,6	0.55	0
8	SO4	A	305	-	4,4,4	0.58	0	6,6,6	0.49	0
6	EDO	E	305	-	3,3,3	0.47	0	2,2,2	0.15	0
9	GOL	B	303	-	5,5,5	0.73	0	5,5,5	0.87	0
8	SO4	J	308	-	4,4,4	0.58	0	6,6,6	0.77	0
6	EDO	B	302	-	3,3,3	1.00	0	2,2,2	0.36	0
6	EDO	E	306	-	3,3,3	0.62	0	2,2,2	0.80	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
6	EDO	F	301	-	-	0/1/1/1	-
6	EDO	E	301	-	-	0/1/1/1	-
6	EDO	E	304	-	-	1/1/1/1	-
6	EDO	J	306	-	-	0/1/1/1	-
6	EDO	F	306	-	-	0/1/1/1	-
6	EDO	F	303	-	-	0/1/1/1	-
6	EDO	I	303	-	-	0/1/1/1	-
6	EDO	E	302	-	-	0/1/1/1	-
6	EDO	D	302	-	-	0/1/1/1	-
6	EDO	B	301	-	-	1/1/1/1	-
6	EDO	E	303	-	-	1/1/1/1	-
9	GOL	F	308	-	-	3/4/4/4	-
6	EDO	J	302	-	-	1/1/1/1	-
6	EDO	D	303	-	-	0/1/1/1	-
7	PG4	A	304	-	-	2/7/7/10	-
6	EDO	J	301	-	-	0/1/1/1	-
6	EDO	F	305	-	-	1/1/1/1	-
6	EDO	A	303	-	-	1/1/1/1	-
6	EDO	D	301	-	-	1/1/1/1	-
6	EDO	G	102	-	-	1/1/1/1	-
6	EDO	J	303	-	-	1/1/1/1	-
6	EDO	F	304	-	-	0/1/1/1	-
6	EDO	A	301	-	-	1/1/1/1	-
6	EDO	J	307	-	-	1/1/1/1	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	EDO	I	302	-	-	1/1/1/1	-
6	EDO	G	101	-	-	1/1/1/1	-
6	EDO	F	307	-	-	1/1/1/1	-
6	EDO	A	302	-	-	1/1/1/1	-
6	EDO	F	302	-	-	0/1/1/1	-
6	EDO	J	305	-	-	1/1/1/1	-
9	GOL	F	309	-	-	3/4/4/4	-
7	PG4	I	304	-	-	7/10/10/10	-
6	EDO	I	301	-	-	1/1/1/1	-
6	EDO	J	304	-	-	1/1/1/1	-
6	EDO	E	305	-	-	0/1/1/1	-
9	GOL	B	303	-	-	0/4/4/4	-
6	EDO	B	302	-	-	1/1/1/1	-
6	EDO	E	306	-	-	0/1/1/1	-

There are no bond length outliers.

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	I	304	PG4	O4-C6-C5	3.20	124.82	110.39
9	F	309	GOL	O3-C3-C2	2.84	123.82	110.20
7	I	304	PG4	C5-O3-C4	2.77	125.28	113.29
6	A	302	EDO	O1-C1-C2	-2.54	93.63	111.91
9	F	309	GOL	O2-C2-C1	-2.43	98.42	109.12
7	I	304	PG4	O2-C3-C4	2.35	121.01	110.39
9	F	308	GOL	O3-C3-C2	2.16	120.54	110.20

There are no chirality outliers.

All (34) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
9	F	308	GOL	O1-C1-C2-C3
9	F	309	GOL	C1-C2-C3-O3
9	F	309	GOL	O2-C2-C3-O3
7	I	304	PG4	C6-C5-O3-C4
7	I	304	PG4	O3-C5-C6-O4
7	I	304	PG4	O2-C3-C4-O3
7	A	304	PG4	C4-C3-O2-C2
7	A	304	PG4	O1-C1-C2-O2
9	F	308	GOL	O1-C1-C2-O2
6	B	301	EDO	O1-C1-C2-O2

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Mol	Chain	Res	Type	Atoms
6	A	303	EDO	O1-C1-C2-O2
6	J	304	EDO	O1-C1-C2-O2
6	E	303	EDO	O1-C1-C2-O2
6	D	301	EDO	O1-C1-C2-O2
7	I	304	PG4	C3-C4-O3-C5
6	J	303	EDO	O1-C1-C2-O2
9	F	309	GOL	O1-C1-C2-O2
7	I	304	PG4	C5-C6-O4-C7
6	A	301	EDO	O1-C1-C2-O2
6	I	301	EDO	O1-C1-C2-O2
7	I	304	PG4	O4-C7-C8-O5
6	F	305	EDO	O1-C1-C2-O2
6	E	304	EDO	O1-C1-C2-O2
6	A	302	EDO	O1-C1-C2-O2
6	J	302	EDO	O1-C1-C2-O2
6	G	102	EDO	O1-C1-C2-O2
6	J	307	EDO	O1-C1-C2-O2
6	I	302	EDO	O1-C1-C2-O2
6	G	101	EDO	O1-C1-C2-O2
6	J	305	EDO	O1-C1-C2-O2
9	F	308	GOL	C1-C2-C3-O3
6	F	307	EDO	O1-C1-C2-O2
6	B	302	EDO	O1-C1-C2-O2
7	I	304	PG4	C8-C7-O4-C6

There are no ring outliers.

21 monomers are involved in 38 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	F	301	EDO	3	0
6	J	306	EDO	1	0
6	F	306	EDO	1	0
6	I	303	EDO	1	0
6	E	302	EDO	1	0
6	D	302	EDO	2	0
6	E	303	EDO	1	0
9	F	308	GOL	7	0
7	A	304	PG4	1	0
6	F	305	EDO	2	0
6	D	301	EDO	1	0
6	G	102	EDO	1	0
6	J	303	EDO	1	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	A	301	EDO	4	0
6	A	302	EDO	2	0
9	F	309	GOL	2	0
7	I	304	PG4	3	0
8	J	309	SO4	1	0
8	A	305	SO4	1	0
8	J	308	SO4	1	0
6	E	306	EDO	1	0

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

## 6 Fit of model and data [i](#)

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

In the following table, the column labelled '#RSRZ > 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	276/277 (99%)	0.18	5 (1%) 68 69	25, 49, 77, 103	0
1	F	277/277 (100%)	0.25	11 (3%) 38 40	24, 44, 90, 113	0
2	B	100/100 (100%)	-0.01	0 100 100	30, 43, 63, 75	0
2	G	100/100 (100%)	0.02	2 (2%) 65 66	28, 44, 67, 83	0
3	C	10/10 (100%)	-0.14	0 100 100	31, 32, 38, 48	0
3	H	10/10 (100%)	0.03	0 100 100	27, 27, 32, 34	0
4	D	200/200 (100%)	1.22	46 (23%) 0 0	26, 56, 117, 147	0
4	I	199/200 (99%)	1.00	41 (20%) 1 0	30, 58, 110, 123	0
5	E	247/247 (100%)	0.81	32 (12%) 3 3	23, 51, 94, 119	0
5	J	247/247 (100%)	0.20	7 (2%) 53 55	24, 43, 81, 107	0
All	All	1666/1668 (99%)	0.49	144 (8%) 10 11	23, 47, 98, 147	0

All (144) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
4	D	200	PRO	12.4
4	D	151	SER	8.5
4	D	199	PHE	8.1
4	I	199	PHE	7.7
4	I	201	SER	7.6
4	I	130	ASP	7.3
5	E	2	ALA	6.9
4	D	119	ALA	6.7
4	D	120	VAL	6.7
4	D	166	MET	6.6
4	D	176	TRP	6.5
4	D	192	ILE	6.5
5	E	246	ASP	6.5

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
5	E	183	PRO	6.2
4	I	52	SER	6.1
4	I	166	MET	5.9
5	E	1	ASP	5.9
1	F	0	MET	5.8
4	D	197	THR	5.6
4	D	201	SER	5.6
5	E	210	PHE	5.5
4	I	164	ARG	5.4
4	I	128	SER	5.4
4	D	191	SER	5.3
4	D	136	PHE	5.3
4	I	129	SER	5.1
4	D	130	ASP	5.1
4	D	52	SER	5.0
1	F	197	HIS	5.0
1	A	276	PRO	4.9
4	I	149	LYS	4.8
4	I	167	ASP	4.8
4	I	131	LYS	4.8
5	E	138	SER	4.7
5	E	182	GLN	4.7
5	E	0	MET	4.7
4	D	182	PHE	4.7
5	J	246	ASP	4.6
4	D	150	ASP	4.6
5	E	135	ALA	4.5
5	J	40	MET	4.5
4	D	178	ASN	4.5
4	D	190	ASN	4.5
4	I	182	PHE	4.4
5	J	186	ASN	4.4
5	E	144	THR	4.3
1	F	249	VAL	4.3
4	I	148	SER	4.3
4	D	149	LYS	4.2
4	D	127	LYS	4.2
5	E	186	ASN	4.1
4	I	132	SER	4.1
2	G	0	MET	4.1
4	D	134	CYS	4.1
5	E	146	VAL	4.0

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
4	D	2	LYS	4.0
4	I	190	ASN	4.0
1	A	195	SER	3.9
1	F	196	ASP	3.8
1	A	197	HIS	3.8
4	I	178	ASN	3.8
1	F	276	PRO	3.8
5	E	179	LEU	3.7
4	D	148	SER	3.6
4	I	195	GLU	3.6
1	F	274	TRP	3.4
1	A	196	ASP	3.4
5	E	203	TRP	3.4
4	I	184	CYS	3.4
5	E	185	LEU	3.3
5	E	129	VAL	3.3
5	E	243	GLY	3.2
4	I	197	THR	3.2
4	I	53	SER	3.2
5	E	142	LYS	3.2
5	E	40	MET	3.2
1	F	195	SER	3.1
5	E	128	ALA	3.1
5	E	41	ARG	3.1
4	I	186	ASN	3.1
4	I	136	PHE	3.0
5	E	141	GLN	3.0
4	D	139	PHE	3.0
4	D	124	ARG	2.9
4	D	189	ASN	2.9
5	J	185	LEU	2.9
4	D	195	GLU	2.9
5	E	187	ASP	2.8
2	G	1	ILE	2.8
4	D	175	ALA	2.8
4	I	153	VAL	2.8
4	I	179	LYS	2.8
4	D	123	LEU	2.7
4	D	165	SER	2.7
4	I	142	GLN	2.7
4	D	146	SER	2.7
4	I	126	SER	2.7

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
5	E	136	GLU	2.7
4	D	181	ASP	2.6
4	D	152	ASP	2.6
5	J	187	ASP	2.6
1	F	200	THR	2.5
4	D	121	TYR	2.5
5	E	39	MET	2.5
5	J	39	MET	2.5
4	D	155	ILE	2.5
5	J	41	ARG	2.5
4	I	176	TRP	2.5
4	I	151	SER	2.5
4	I	145	VAL	2.5
4	D	147	GLN	2.4
4	I	114	GLN	2.4
5	E	169	HIS	2.4
4	D	164	ARG	2.4
5	E	198	VAL	2.4
4	I	147	GLN	2.4
4	D	188	PHE	2.4
4	D	186	ASN	2.4
4	D	154	TYR	2.4
1	F	194	VAL	2.4
5	E	165	GLY	2.3
4	I	165	SER	2.3
4	I	155	ILE	2.2
4	I	188	PHE	2.2
4	D	41	ARG	2.2
5	E	145	LEU	2.2
4	I	168	PHE	2.2
1	A	249	VAL	2.2
1	F	226	GLN	2.1
4	D	198	PHE	2.1
4	D	51	TYR	2.1
4	I	185	ALA	2.1
4	I	187	ALA	2.1
4	D	167	ASP	2.1
4	D	128	SER	2.1
1	F	253	GLN	2.1
4	I	181	ASP	2.0
4	D	114	GLN	2.0
5	E	130	PHE	2.0

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Mol	Chain	Res	Type	RSRZ
4	I	127	LYS	2.0
4	I	125	ASP	2.0
4	I	150	ASP	2.0
5	E	164	ASN	2.0
5	E	212	CYS	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 carbohydrates 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, 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	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
6	EDO	D	303	4/4	0.50	0.28	52,65,67,72	0
6	EDO	G	102	4/4	0.69	0.19	43,49,54,56	0
7	PG4	A	304	10/13	0.73	0.31	52,64,73,75	0
8	SO4	J	309	5/5	0.74	0.39	55,74,82,114	0
6	EDO	D	302	4/4	0.77	0.14	69,69,71,78	0
9	GOL	F	309	6/6	0.79	0.27	42,62,65,70	0
6	EDO	J	303	4/4	0.79	0.16	50,62,64,67	0
6	EDO	J	304	4/4	0.80	0.33	36,51,53,59	0
6	EDO	E	304	4/4	0.80	0.11	60,61,61,62	0
9	GOL	F	308	6/6	0.81	0.20	51,58,66,66	0
9	GOL	B	303	6/6	0.81	0.21	49,56,60,65	0
7	PG4	I	304	13/13	0.83	0.22	47,56,71,72	0
6	EDO	E	303	4/4	0.84	0.19	56,60,61,67	0
6	EDO	B	302	4/4	0.85	0.13	43,45,49,58	0
6	EDO	J	306	4/4	0.86	0.14	54,60,62,67	0
6	EDO	E	306	4/4	0.86	0.14	51,53,53,54	0
6	EDO	I	301	4/4	0.87	0.14	42,43,47,53	0
6	EDO	F	303	4/4	0.87	0.15	66,67,71,75	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
6	EDO	F	301	4/4	0.88	0.22	54,57,61,66	0
6	EDO	J	305	4/4	0.88	0.10	60,61,61,69	0
6	EDO	F	305	4/4	0.89	0.13	54,59,62,67	0
6	EDO	F	304	4/4	0.89	0.13	43,49,50,60	0
8	SO4	A	305	5/5	0.89	0.17	65,66,73,80	0
6	EDO	D	301	4/4	0.90	0.18	54,61,61,66	0
6	EDO	F	302	4/4	0.90	0.17	46,54,57,62	0
6	EDO	F	307	4/4	0.91	0.12	40,50,53,53	0
8	SO4	J	310	5/5	0.91	0.20	50,56,67,71	0
6	EDO	I	303	4/4	0.91	0.19	55,59,64,64	0
6	EDO	A	302	4/4	0.92	0.15	34,37,47,51	0
6	EDO	B	301	4/4	0.93	0.12	45,46,47,51	0
8	SO4	J	308	5/5	0.93	0.16	60,75,81,85	0
6	EDO	I	302	4/4	0.93	0.12	47,47,48,53	0
6	EDO	E	305	4/4	0.93	0.10	50,55,56,56	0
6	EDO	J	302	4/4	0.94	0.11	50,52,52,55	0
6	EDO	A	303	4/4	0.94	0.15	62,67,70,79	0
6	EDO	G	101	4/4	0.95	0.13	39,42,43,46	0
6	EDO	E	302	4/4	0.95	0.13	32,35,41,46	0
6	EDO	J	307	4/4	0.96	0.10	27,34,36,42	0
6	EDO	J	301	4/4	0.96	0.14	29,29,34,36	0
6	EDO	E	301	4/4	0.97	0.15	27,31,34,39	0
6	EDO	F	306	4/4	0.98	0.16	43,50,51,55	0
6	EDO	A	301	4/4	0.98	0.21	34,39,40,42	0

## 6.5 Other polymers [\(i\)](#)

There are no such residues in this entry.