Full wwPDB X-ray Structure Validation Report ⓘ

Jun 25, 2024 – 05:26 AM EDT

PDB ID	:	6O2B
Title	:	Crystal structure of 4493 Fab in complex with circumsporozoite protein DND and anti-kappa VHH domain
Authors	:	Scally, S.W.; Bosch, A.; Prieto, K.; Murugan, R.; Wardemann, H.; Julien, J.P.
Deposited on	:	2019-02-22
Resolution	:	2.10 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

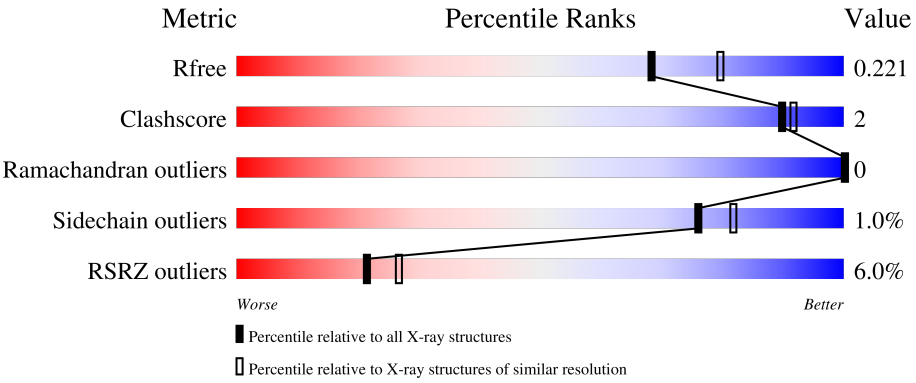
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.37.1
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.37.1

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 2.10 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}	130704	5197 (2.10-2.10)
Clashscore	141614	5710 (2.10-2.10)
Ramachandran outliers	138981	5647 (2.10-2.10)
Sidechain outliers	138945	5648 (2.10-2.10)
RSRZ outliers	127900	5083 (2.10-2.10)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=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	225	7% 92%
1	C	225	7% 92% 6%
1	H	225	4% 92% 5%
1	O	225	4% 91% 6%
2	B	215	4% 94% 5%

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Mol	Chain	Length	Quality of chain
2	D	215	7% 96%
2	I	215	4% 97%
2	P	215	3% 92% 8%
3	E	121	5% 99%
3	J	121	4% 95%
3	M	121	3% 98%
3	N	121	7% 98%
4	F	12	25% 83% 17%
4	G	12	8% 92% 8%
4	K	12	17% 92% 8%
4	L	12	8% 92% 8%

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
5	ACT	C	301	-	-	-	X
5	ACT	O	301	-	-	-	X
6	EDO	A	503	-	-	-	X

2 Entry composition (i)

There are 7 unique types of molecules in this entry. The entry contains 17668 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 4493 Fab heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	217	Total	C	N	O	S	0	1	0
			1631	1029	279	317	6			
1	C	220	Total	C	N	O	S	0	0	0
			1636	1031	279	320	6			
1	H	218	Total	C	N	O	S	0	1	0
			1635	1031	280	318	6			
1	O	218	Total	C	N	O	S	0	1	0
			1635	1031	280	318	6			

- Molecule 2 is a protein called 4493 Kappa light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	214	Total	C	N	O	S	0	0	0
			1644	1029	278	333	4			
2	D	214	Total	C	N	O	S	0	0	0
			1638	1026	275	333	4			
2	I	214	Total	C	N	O	S	0	0	0
			1638	1026	275	333	4			
2	P	214	Total	C	N	O	S	0	0	0
			1644	1029	278	333	4			

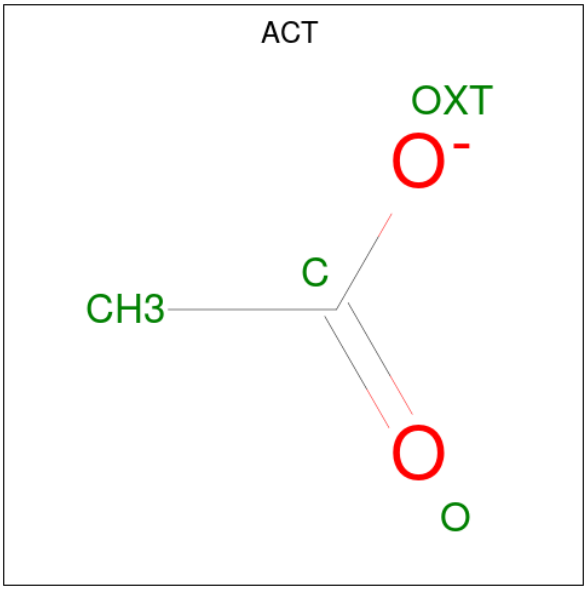
- Molecule 3 is a protein called Anti-kappa VHH domain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	E	120	Total	C	N	O	S	0	0	0
			714	433	135	144	2			
3	J	119	Total	C	N	O	S	0	0	0
			708	430	134	142	2			
3	M	121	Total	C	N	O	S	0	0	0
			719	436	136	145	2			
3	N	120	Total	C	N	O	S	0	0	0
			713	433	135	143	2			

- Molecule 4 is a protein called Circumsporozoite protein.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf	Trace
4	F	12	Total C N O 88 52 16 20	0	0	0
4	G	12	Total C N O 88 52 16 20	0	0	0
4	K	12	Total C N O 88 52 16 20	0	0	0
4	L	12	Total C N O 88 52 16 20	0	0	0

- Molecule 5 is ACETATE ION (three-letter code: ACT) (formula: $C_2H_3O_2$).



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

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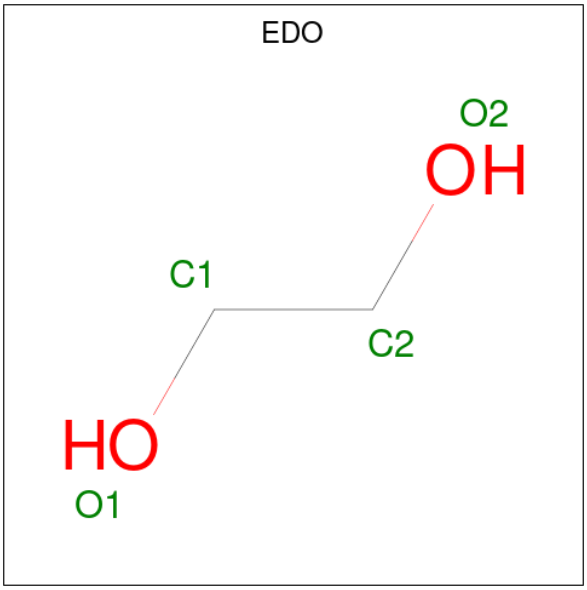
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	P	1	Total C O 4 2 2	0	0

- Molecule 6 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: $C_2H_6O_2$).



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

- Molecule 7 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	A	135	Total O 135 135	0	0
7	B	114	Total O 114 114	0	0
7	C	167	Total O 167 167	0	0
7	D	142	Total O 142 142	0	0
7	H	159	Total O 159 159	0	0
7	I	115	Total O 115 115	0	0
7	O	191	Total O 191 191	0	0

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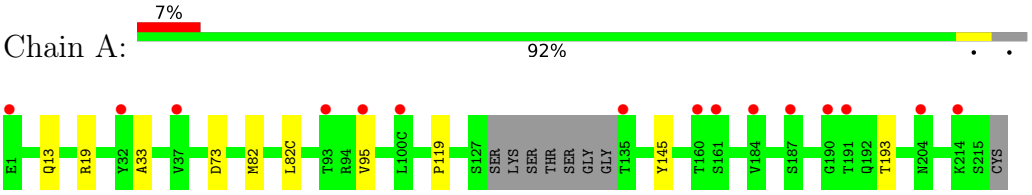
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
7	P	133	Total O 133 133	0	0
7	E	33	Total O 33 33	0	0
7	J	24	Total O 24 24	0	0
7	M	39	Total O 39 39	0	0
7	F	7	Total O 7 7	0	0
7	G	12	Total O 12 12	0	0
7	K	10	Total O 10 10	0	0
7	L	12	Total O 12 12	0	0
7	N	32	Total O 32 32	0	0

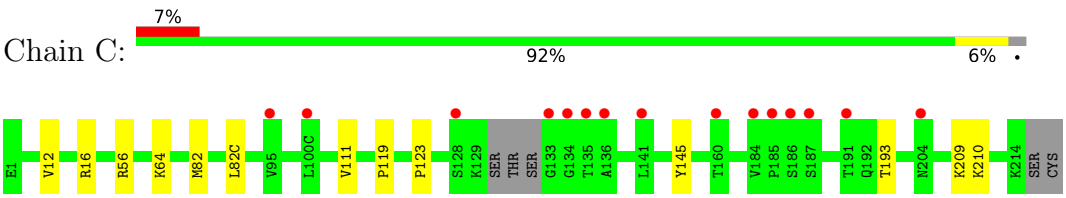
3 Residue-property plots (i)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

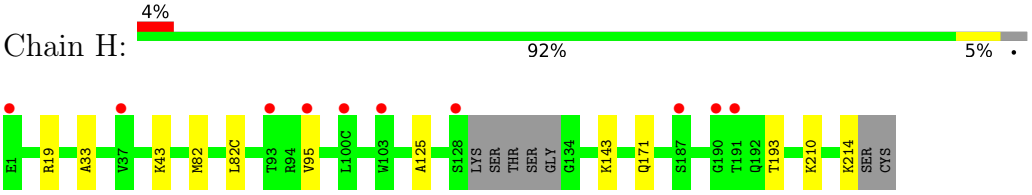
• Molecule 1: 4493 Fab heavy chain



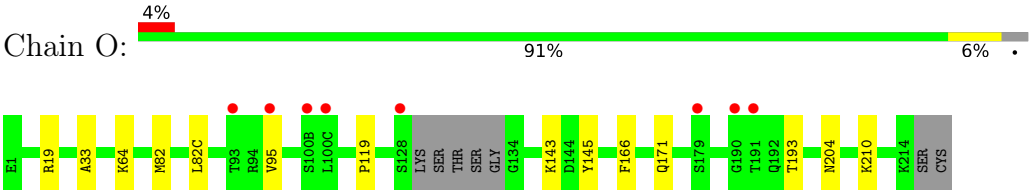
• Molecule 1: 4493 Fab heavy chain



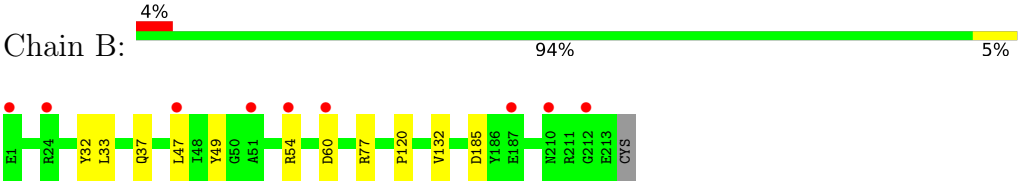
• Molecule 1: 4493 Fab heavy chain



• Molecule 1: 4493 Fab heavy chain

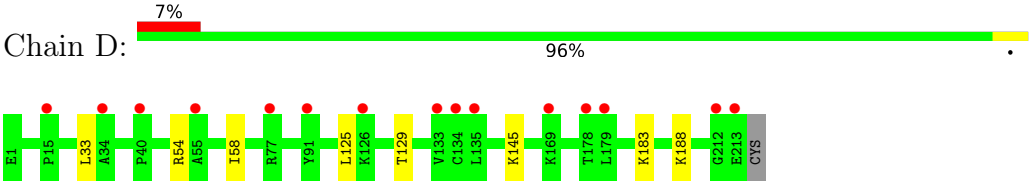


• Molecule 2: 4493 Kappa light chain



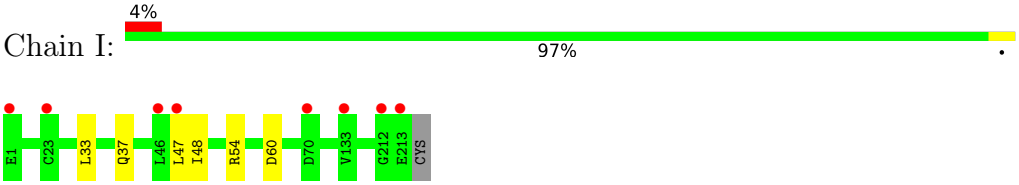
• Molecule 2: 4493 Kappa light chain

Chain D:



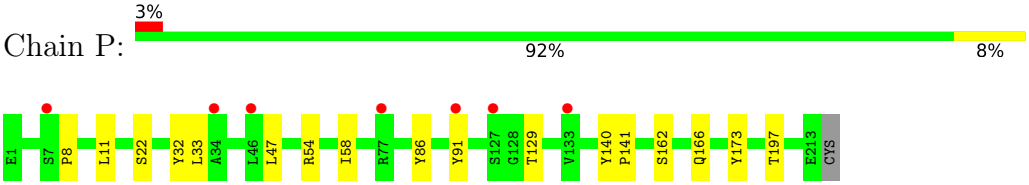
• Molecule 2: 4493 Kappa light chain

Chain I:



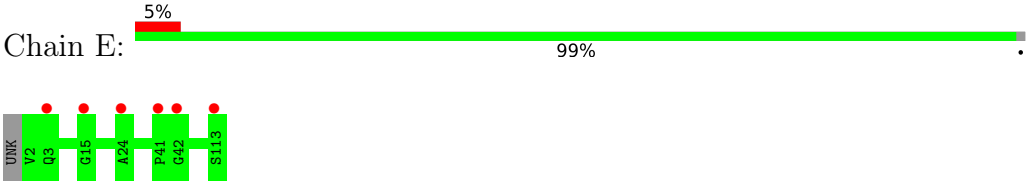
• Molecule 2: 4493 Kappa light chain

Chain P:



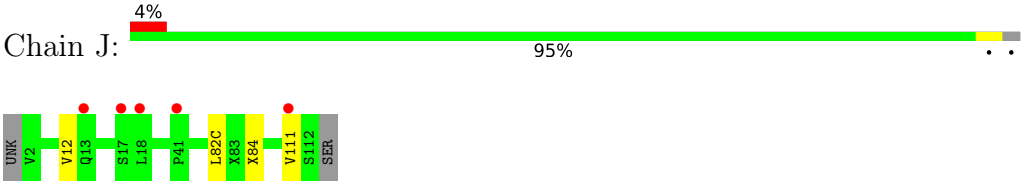
• Molecule 3: Anti-kappa VHH domain

Chain E:



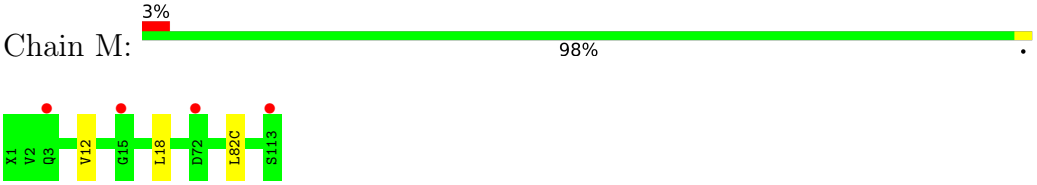
• Molecule 3: Anti-kappa VHH domain

Chain J:



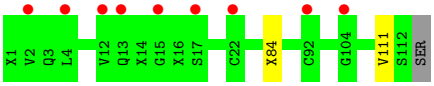
• Molecule 3: Anti-kappa VHH domain

Chain M:

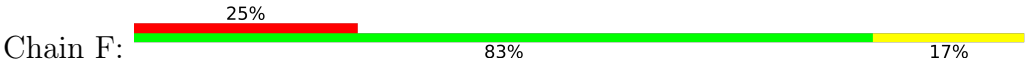


• Molecule 3: Anti-kappa VHH domain

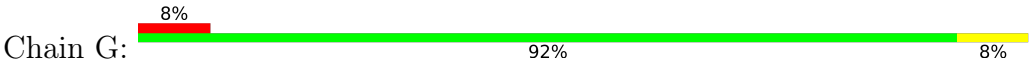
Chain N:



• Molecule 4: Circumsporozoite protein



• Molecule 4: Circumsporozoite protein



• Molecule 4: Circumsporozoite protein

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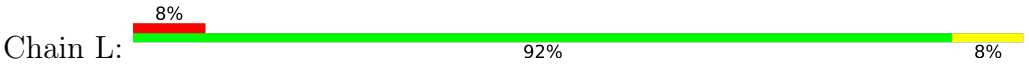

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	83.07Å 93.41Å 94.16Å 82.74° 76.86° 64.45°	Depositor
Resolution (Å)	29.49 – 2.10 29.49 – 2.10	Depositor EDS
% Data completeness (in resolution range)	97.7 (29.49-2.10) 92.0 (29.49-2.10)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.62 (at 2.10Å)	Xtriage
Refinement program	PHENIX 1.14_3260	Depositor
R, R_{free}	0.177 , 0.210 0.203 , 0.221	Depositor DCC
R_{free} test set	1995 reflections (1.41%)	wwPDB-VP
Wilson B-factor (Å^2)	31.7	Xtriage
Anisotropy	0.106	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.31 , 47.2	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.32$	Xtriage
Estimated twinning fraction	0.000 for -h,-h+k,-l	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	17668	wwPDB-VP
Average B, all atoms (Å^2)	44.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 16.11% of the height of the origin peak. No significant pseudotranslation is detected.*

[1] Intensities estimated from amplitudes.

[2] Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: ACT, 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	0.27	0/1671	0.50	0/2271
1	C	0.28	0/1673	0.50	0/2274
1	H	0.27	0/1675	0.50	0/2276
1	O	0.28	0/1675	0.51	0/2276
2	B	0.27	0/1681	0.51	0/2284
2	D	0.27	0/1675	0.51	0/2277
2	I	0.26	0/1675	0.50	0/2277
2	P	0.27	0/1681	0.52	0/2284
3	E	0.26	0/348	0.54	0/433
3	J	0.24	0/342	0.51	0/425
3	M	0.27	0/348	0.54	0/433
3	N	0.26	0/342	0.53	0/425
4	F	0.34	0/90	0.46	0/126
4	G	0.28	0/90	0.44	0/126
4	K	0.28	0/90	0.47	0/126
4	L	0.29	0/90	0.52	0/126
All	All	0.27	0/15146	0.51	0/20439

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1631	0	1618	7	0
1	C	1636	0	1613	8	0
1	H	1635	0	1621	6	0
1	O	1635	0	1621	9	0
2	B	1644	0	1594	6	0
2	D	1638	0	1583	4	0
2	I	1638	0	1583	4	0
2	P	1644	0	1594	8	0
3	E	714	0	408	0	0
3	J	708	0	403	2	0
3	M	719	0	412	2	0
3	N	713	0	407	1	0
4	F	88	0	78	1	0
4	G	88	0	78	0	0
4	K	88	0	78	1	0
4	L	88	0	78	0	0
5	A	8	0	6	1	0
5	C	12	0	9	0	0
5	H	4	0	3	0	0
5	O	4	0	3	0	0
5	P	4	0	3	0	0
6	A	4	0	6	1	0
7	A	135	0	0	2	0
7	B	114	0	0	0	0
7	C	167	0	0	2	0
7	D	142	0	0	1	0
7	E	33	0	0	0	0
7	F	7	0	0	0	0
7	G	12	0	0	0	0
7	H	159	0	0	1	0
7	I	115	0	0	0	0
7	J	24	0	0	0	0
7	K	10	0	0	0	0
7	L	12	0	0	0	0
7	M	39	0	0	0	0
7	N	32	0	0	0	0
7	O	191	0	0	3	0
7	P	133	0	0	0	0
All	All	17668	0	14799	57	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 2.

All (57) 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:73:ASP:H	5:A:501:ACT:H1	1.52	0.74
1:O:19[B]:ARG:NH1	7:O:401:HOH:O	2.27	0.66
2:I:54:ARG:NH1	2:I:60:ASP:OD2	2.26	0.64
1:H:19[A]:ARG:NH2	7:H:402:HOH:O	2.29	0.60
1:H:82:MET:HE2	1:H:82(C):LEU:HD21	1.84	0.60
1:C:64:LYS:NZ	7:C:402:HOH:O	2.29	0.59
3:M:12:VAL:HG11	3:M:18:LEU:HG	1.84	0.58
1:H:193:THR:HG23	1:H:210:LYS:HE3	1.86	0.57
2:P:166:GLN:HG3	2:P:173:TYR:CZ	2.39	0.57
1:O:64:LYS:NZ	7:O:402:HOH:O	2.31	0.56
1:C:123:PRO:HD3	1:C:209:LYS:HE3	1.87	0.55
2:P:54:ARG:HG2	2:P:58:ILE:HB	1.88	0.54
1:O:82:MET:HE2	1:O:82(C):LEU:HD21	1.88	0.54
3:N:84:UNK:HA	3:N:111:VAL:HB	1.90	0.54
1:O:143:LYS:NZ	1:O:171:GLN:OE1	2.40	0.54
1:A:19[B]:ARG:HB3	6:A:503:EDO:H21	1.92	0.52
2:I:37:GLN:HB2	2:I:47:LEU:HD11	1.90	0.52
3:J:84:UNK:HA	3:J:111:VAL:HB	1.92	0.52
4:K:1:ASN:ND2	4:K:1:ASN:O	2.41	0.51
2:D:125:LEU:O	2:D:183:LYS:HD2	2.10	0.51
1:C:12:VAL:HG22	1:C:16:ARG:HB2	1.93	0.51
1:O:193:THR:HG23	1:O:210:LYS:HE3	1.93	0.51
1:A:119:PRO:HB3	1:A:145:TYR:HB3	1.93	0.51
2:P:47:LEU:HD11	2:P:86:TYR:HE2	1.76	0.51
2:D:54:ARG:HG2	2:D:58:ILE:HB	1.94	0.50
1:O:166:PHE:HB3	2:P:162:SER:OG	2.11	0.50
1:A:19[B]:ARG:NH2	7:A:604:HOH:O	2.44	0.50
1:C:119:PRO:HB3	1:C:145:TYR:HB3	1.94	0.49
1:C:56:ARG:NE	7:C:409:HOH:O	2.45	0.49
1:C:82:MET:HE2	1:C:82(C):LEU:HD21	1.95	0.48
1:O:119:PRO:HB3	1:O:145:TYR:HB3	1.96	0.48
2:B:54:ARG:NH1	2:B:60:ASP:OD1	2.47	0.47
3:M:12:VAL:HG21	3:M:82(C):LEU:HD13	1.97	0.47
2:D:145:LYS:NZ	7:D:304:HOH:O	2.44	0.47
1:O:204:ASN:ND2	7:O:407:HOH:O	2.46	0.47
1:H:125:ALA:HB3	1:H:214:LYS:HE2	1.95	0.47
2:P:47:LEU:HD11	2:P:86:TYR:CE2	2.51	0.46
2:B:54:ARG:HH11	2:B:60:ASP:HA	1.81	0.45
2:P:140:TYR:CG	2:P:141:PRO:HA	2.51	0.45
2:P:32:TYR:HA	2:P:91:TYR:CE1	2.52	0.45
2:B:32:TYR:CZ	4:F:2:VAL:HG21	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:82:MET:HE2	1:A:82(C):LEU:HD21	2.00	0.43
2:I:54:ARG:NH1	2:I:60:ASP:HA	2.33	0.43
1:A:13:GLN:NE2	7:A:610:HOH:O	2.51	0.43
2:P:8:PRO:HG2	2:P:11:LEU:HG	2.00	0.42
1:A:33:ALA:HB3	1:A:95:VAL:HB	2.01	0.42
1:C:193:THR:HG23	1:C:210:LYS:HE2	2.02	0.42
2:B:37:GLN:HB2	2:B:47:LEU:HD11	2.02	0.42
1:H:33:ALA:HB3	1:H:95:VAL:HB	2.02	0.42
3:J:12:VAL:HG21	3:J:82(C):LEU:HD13	2.02	0.42
2:D:188:LYS:HB2	2:D:188:LYS:HE2	1.72	0.41
2:B:77:ARG:O	2:B:77:ARG:HG3	2.21	0.41
1:O:33:ALA:HB3	1:O:95:VAL:HB	2.02	0.41
2:B:120:PRO:HD3	2:B:132:VAL:HG22	2.02	0.41
1:C:12:VAL:O	1:C:111:VAL:HA	2.20	0.40
1:H:143:LYS:NZ	1:H:171:GLN:OE1	2.54	0.40
2:I:48:ILE:HD13	2:I:54:ARG:HA	2.04	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	214/225 (95%)	212 (99%)	2 (1%)	0	100	100
1	C	216/225 (96%)	213 (99%)	3 (1%)	0	100	100
1	H	215/225 (96%)	213 (99%)	2 (1%)	0	100	100
1	O	215/225 (96%)	213 (99%)	2 (1%)	0	100	100
2	B	212/215 (99%)	207 (98%)	5 (2%)	0	100	100
2	D	212/215 (99%)	207 (98%)	5 (2%)	0	100	100
2	I	212/215 (99%)	208 (98%)	4 (2%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	P	212/215 (99%)	207 (98%)	5 (2%)	0	100	100
3	E	47/121 (39%)	47 (100%)	0	0	100	100
3	J	46/121 (38%)	46 (100%)	0	0	100	100
3	M	48/121 (40%)	48 (100%)	0	0	100	100
3	N	47/121 (39%)	47 (100%)	0	0	100	100
4	F	10/12 (83%)	10 (100%)	0	0	100	100
4	G	10/12 (83%)	10 (100%)	0	0	100	100
4	K	10/12 (83%)	10 (100%)	0	0	100	100
4	L	10/12 (83%)	10 (100%)	0	0	100	100
All	All	1936/2292 (84%)	1908 (99%)	28 (1%)	0	100	100

There are no Ramachandran outliers to report.

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	183/188 (97%)	182 (100%)	1 (0%)	88	92
1	C	182/188 (97%)	182 (100%)	0	100	100
1	H	183/188 (97%)	182 (100%)	1 (0%)	88	92
1	O	183/188 (97%)	183 (100%)	0	100	100
2	B	185/186 (100%)	182 (98%)	3 (2%)	62	69
2	D	184/186 (99%)	182 (99%)	2 (1%)	73	79
2	I	184/186 (99%)	183 (100%)	1 (0%)	88	92
2	P	185/186 (100%)	181 (98%)	4 (2%)	52	57
3	E	39/39 (100%)	39 (100%)	0	100	100
3	J	38/39 (97%)	38 (100%)	0	100	100
3	M	39/39 (100%)	39 (100%)	0	100	100
3	N	38/39 (97%)	38 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
4	F	11/11 (100%)	10 (91%)	1 (9%)	9 6
4	G	11/11 (100%)	10 (91%)	1 (9%)	9 6
4	K	11/11 (100%)	10 (91%)	1 (9%)	9 6
4	L	11/11 (100%)	10 (91%)	1 (9%)	9 6
All	All	1667/1696 (98%)	1651 (99%)	16 (1%)	76 82

All (16) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	193	THR
2	B	33	LEU
2	B	49	TYR
2	B	185	ASP
2	D	33	LEU
2	D	129	THR
1	H	43	LYS
2	I	33	LEU
2	P	22	SER
2	P	33	LEU
2	P	129	THR
2	P	197	THR
4	F	1	ASN
4	G	1	ASN
4	K	1	ASN
4	L	1	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
2	B	42	GLN
3	E	13	GLN
4	G	1	ASN

5.3.3 RNA

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 monosaccharides in this entry.

5.6 Ligand geometry (i)

9 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	A	503	-	3,3,3	0.46	0	2,2,2	0.31	0
5	ACT	C	302	-	3,3,3	1.33	0	3,3,3	1.52	0
5	ACT	A	501	-	3,3,3	1.32	0	3,3,3	1.54	0
5	ACT	C	301	-	3,3,3	1.32	0	3,3,3	1.51	0
5	ACT	O	301	-	3,3,3	1.38	0	3,3,3	1.34	0
5	ACT	A	502	-	3,3,3	1.42	1 (33%)	3,3,3	1.32	0
5	ACT	P	301	-	3,3,3	1.26	0	3,3,3	1.44	0
5	ACT	H	301	-	3,3,3	1.43	1 (33%)	3,3,3	1.49	0
5	ACT	C	303	-	3,3,3	1.33	0	3,3,3	1.41	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	A	503	-	-	0/1/1/1	-

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	H	301	ACT	CH3-C	2.15	1.58	1.49
5	A	502	ACT	CH3-C	2.10	1.57	1.49

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
6	A	503	EDO	1	0
5	A	501	ACT	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

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^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	217/225 (96%)	0.27	15 (6%)	16	21	26, 38, 69, 84	0
1	C	220/225 (97%)	0.33	15 (6%)	17	21	22, 36, 66, 96	0
1	H	218/225 (96%)	0.20	10 (4%)	32	38	25, 36, 64, 88	0
1	O	218/225 (96%)	0.17	8 (3%)	41	48	23, 33, 55, 82	0
2	B	214/215 (99%)	0.23	9 (4%)	36	42	29, 43, 64, 81	0
2	D	214/215 (99%)	0.31	15 (7%)	16	20	27, 40, 64, 86	0
2	I	214/215 (99%)	0.28	8 (3%)	41	48	29, 45, 65, 92	0
2	P	214/215 (99%)	0.09	7 (3%)	46	53	26, 38, 61, 83	0
3	E	49/121 (40%)	0.73	6 (12%)	4	5	34, 48, 76, 93	0
3	J	48/121 (39%)	0.73	5 (10%)	6	8	47, 67, 87, 96	0
3	M	49/121 (40%)	0.33	4 (8%)	11	15	28, 45, 71, 83	0
3	N	48/121 (39%)	0.94	9 (18%)	1	1	42, 61, 79, 93	0
4	F	12/12 (100%)	1.45	3 (25%)	0	0	30, 52, 74, 107	0
4	G	12/12 (100%)	0.55	1 (8%)	11	14	26, 34, 68, 103	0
4	K	12/12 (100%)	1.06	2 (16%)	1	2	32, 48, 65, 100	0
4	L	12/12 (100%)	0.54	1 (8%)	11	14	27, 38, 54, 89	0
All	All	1971/2292 (85%)	0.29	118 (5%)	21	27	22, 40, 69, 107	0

All (118) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	128	SER	7.8
3	E	113	SER	6.5
4	F	1	ASN	6.0
4	K	1	ASN	5.5
3	E	41	PRO	5.4

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Mol	Chain	Res	Type	RSRZ
4	G	1	ASN	4.8
1	C	191	THR	4.8
1	A	187	SER	4.7
4	F	12	PRO	4.5
3	J	41	PRO	4.3
1	O	128	SER	4.2
1	O	190	GLY	4.1
1	H	100(C)	LEU	4.1
1	A	100(C)	LEU	4.0
1	C	204	ASN	4.0
3	E	3	GLN	3.9
1	H	191	THR	3.9
1	O	191	THR	3.9
1	C	134	GLY	3.8
4	L	1	ASN	3.7
1	A	190	GLY	3.7
2	D	133	VAL	3.7
1	C	187	SER	3.7
3	J	13	GLN	3.7
3	M	3	GLN	3.6
2	P	34	ALA	3.6
1	A	160	THR	3.6
1	C	133	GLY	3.6
1	H	128	SER	3.5
1	C	95	VAL	3.5
2	I	46	LEU	3.4
1	H	190	GLY	3.4
3	J	111	VAL	3.4
1	O	95	VAL	3.3
3	N	22	CYS	3.3
4	K	12	PRO	3.3
1	C	186	SER	3.2
2	D	212	GLY	3.1
2	I	212	GLY	3.1
1	A	191	THR	3.1
3	E	42	GLY	3.0
3	E	24	ALA	3.0
3	M	113	SER	3.0
3	N	2	VAL	3.0
1	H	37	VAL	2.9
2	D	77	ARG	2.9
2	I	70	ASP	2.9

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Mol	Chain	Res	Type	RSRZ
2	D	34	ALA	2.9
3	J	17	SER	2.8
2	D	126	LYS	2.8
2	P	7	SER	2.7
2	B	51	ALA	2.7
3	M	72	ASP	2.7
3	M	15	GLY	2.7
1	O	100(C)	LEU	2.7
3	N	13	GLN	2.7
1	C	135	THR	2.7
1	H	95	VAL	2.6
1	A	1	GLU	2.6
1	C	136	ALA	2.6
1	H	103	TRP	2.6
2	D	169	LYS	2.5
1	A	204	ASN	2.5
1	A	184	VAL	2.5
2	B	47	LEU	2.5
2	B	187	GLU	2.5
2	P	127	SER	2.5
2	B	1	GLU	2.5
2	D	178	THR	2.5
3	N	92	CYS	2.4
1	O	93	THR	2.4
2	B	212	GLY	2.4
1	H	93	THR	2.4
2	D	135	LEU	2.3
2	I	213	GLU	2.3
2	D	55	ALA	2.3
2	B	210	ASN	2.3
1	O	100(B)	SER	2.3
3	N	17	SER	2.3
2	B	54	ARG	2.3
2	B	24	ARG	2.3
1	A	95	VAL	2.3
1	A	214	LYS	2.3
2	D	213	GLU	2.3
1	A	93	THR	2.2
2	I	1	GLU	2.2
3	N	12	VAL	2.2
1	A	161	SER	2.2
2	D	134	CYS	2.2

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Mol	Chain	Res	Type	RSRZ
1	C	100(C)	LEU	2.2
3	N	4	LEU	2.2
1	A	32	TYR	2.2
2	D	91	TYR	2.2
2	D	40	PRO	2.2
1	A	135	THR	2.2
1	C	160	THR	2.2
3	N	15	GLY	2.2
2	B	60	ASP	2.2
2	P	133	VAL	2.2
2	D	15	PRO	2.2
2	P	77	ARG	2.2
2	I	47	LEU	2.1
2	P	46	LEU	2.1
3	N	104	GLY	2.1
4	F	11	ASP	2.1
1	A	37	VAL	2.1
3	E	15	GLY	2.1
3	J	18	LEU	2.1
1	H	187	SER	2.1
1	O	179	SER	2.0
2	D	179	LEU	2.0
1	C	184	VAL	2.0
2	I	133	VAL	2.0
1	C	141	LEU	2.0
1	H	1	GLU	2.0
2	P	91	TYR	2.0
1	C	185	PRO	2.0
2	I	23	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 monosaccharides 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^{th} 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^2)	Q<0.9
6	EDO	A	503	4/4	-0.11	1.03	120,120,121,121	0
5	ACT	O	301	4/4	0.37	0.68	108,110,110,110	0
5	ACT	C	301	4/4	0.50	0.62	136,137,137,137	0
5	ACT	A	501	4/4	0.72	0.21	66,67,67,68	0
5	ACT	C	302	4/4	0.78	0.34	77,77,77,77	0
5	ACT	C	303	4/4	0.88	0.17	41,49,49,52	0
5	ACT	H	301	4/4	0.88	0.16	32,33,37,40	0
5	ACT	P	301	4/4	0.89	0.16	70,71,71,71	0
5	ACT	A	502	4/4	0.97	0.17	34,34,36,37	0

6.5 Other polymers (i)

There are no such residues in this entry.