



# Full wwPDB X-ray Structure Validation Report ⓘ

Oct 12, 2024 – 09:01 PM EDT

PDB ID : 4XXD  
Title : Crystal Structure of mid-region amyloid beta capture by solanezumab  
Authors : Hermans, S.J.; Crespi, G.A.N.; Parker, M.W.; Miles, L.A.  
Deposited on : 2015-01-30  
Resolution : 2.41 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.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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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  
Xtriage (Phenix) : 1.20.1  
EDS : 3.0  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
CCP4 : 9.0.003 (Gargrove)  
Density-Fitness : 1.0.11  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.39

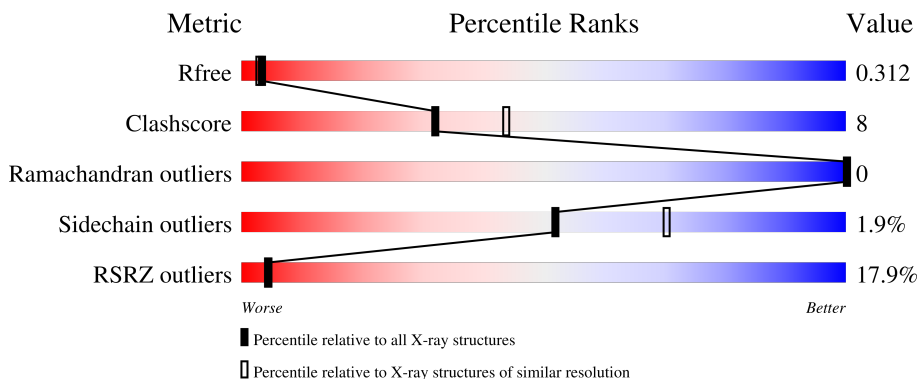
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.41 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.



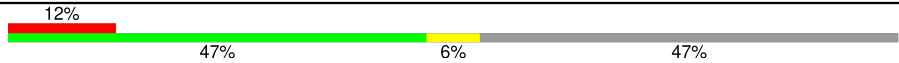
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	164625	5670 (2.44-2.40)
Clashscore	180529	6299 (2.44-2.40)
Ramachandran outliers	177936	6232 (2.44-2.40)
Sidechain outliers	177891	6233 (2.44-2.40)
RSRZ outliers	164620	5670 (2.44-2.40)

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  $\geq 3$ , 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	219	
1	D	219	
2	B	223	
2	E	223	
3	C	17	

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Mol	Chain	Length	Quality of chain
3	F	17	 <p>A horizontal bar chart representing the quality of chain. The bar is divided into four segments: a red segment on the left labeled '12%', a green segment labeled '47%', a yellow segment labeled '6%', and a grey segment on the right labeled '47%'.</p>

## 2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 6854 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 Fab Light Chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	218	Total 1686	C 1060	N 286	O 335	S 5	0	0	0
1	D	217	Total 1677	C 1055	N 285	O 332	S 5	0	0	0

- Molecule 2 is a protein called Fab Heavy Chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	206	Total 1525	C 961	N 256	O 302	S 6	0	0	0
2	E	206	Total 1528	C 964	N 257	O 301	S 6	0	0	0

- Molecule 3 is a protein called Amyloid-beta fragment.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
3	C	11	Total 85	C 57	N 12	O 16	0	0	0
3	F	9	Total 75	C 52	N 10	O 13	0	0	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	76	Total 76	O 76	0	0
4	B	66	Total 66	O 66	0	0
4	C	3	Total 3	O 3	0	0
4	D	56	Total 56	O 56	0	0

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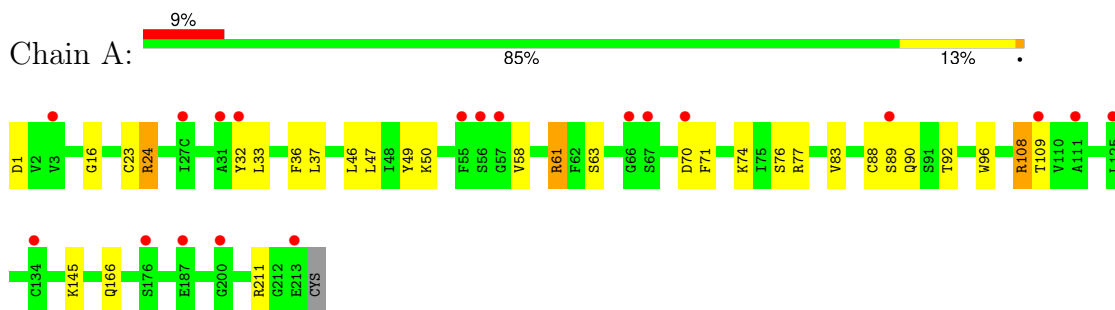
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<b>Mol</b>	<b>Chain</b>	<b>Residues</b>	<b>Atoms</b>		<b>ZeroOcc</b>	<b>AltConf</b>
4	E	75	Total 75	O 75	0	0
4	F	2	Total 2	O 2	0	0

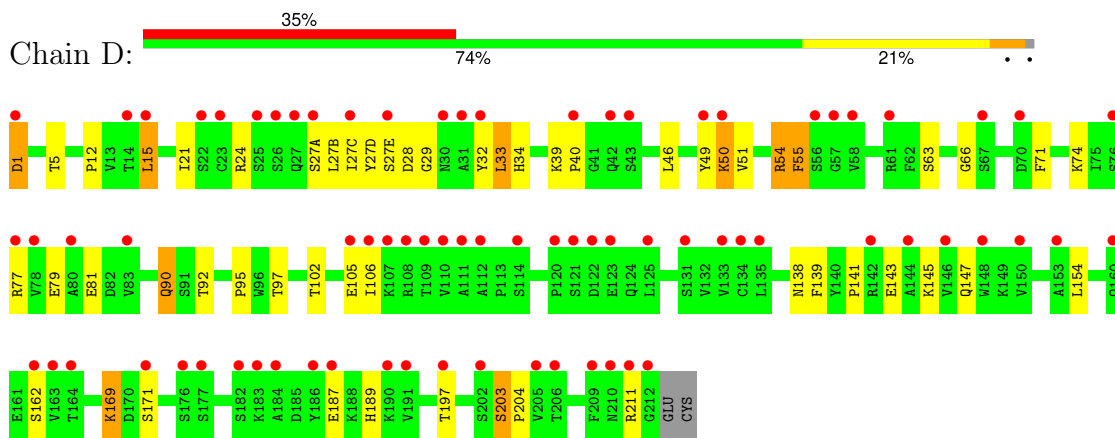
### 3 Residue-property plots [i](#)

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.

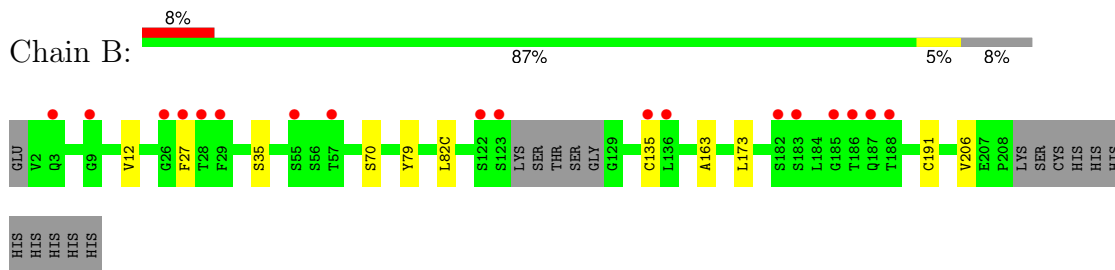
- Molecule 1: Fab Light Chain



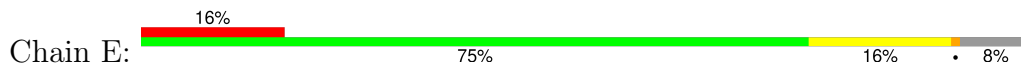
- Molecule 1: Fab Light Chain

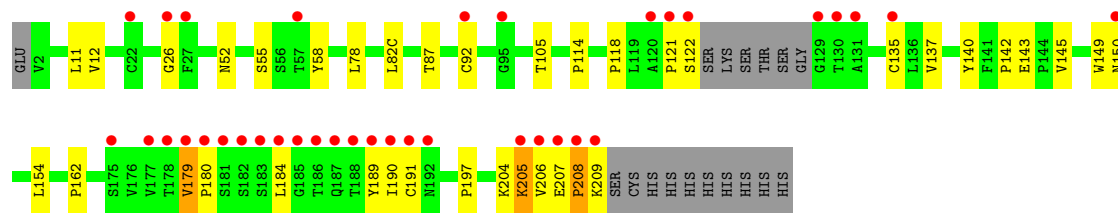


- Molecule 2: Fab Heavy Chain

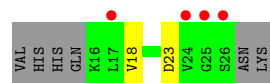


- Molecule 2: Fab Heavy Chain

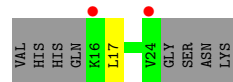




- Molecule 3: Amyloid-beta fragment



- Molecule 3: Amyloid-beta fragment



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	38.80Å 73.56Å 92.12Å 109.91° 93.64° 93.31°	Depositor
Resolution (Å)	46.56 – 2.41 46.56 – 2.41	Depositor EDS
% Data completeness (in resolution range)	97.7 (46.56-2.41) 97.8 (46.56-2.41)	Depositor EDS
$R_{merge}$	0.12	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.21 (at 2.42Å)	Xtrriage
Refinement program	BUSTER 2.10.0	Depositor
R, $R_{free}$	0.249 , 0.290 0.266 , 0.312	Depositor DCC
$R_{free}$ test set	1796 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	30.6	Xtrriage
Anisotropy	0.748	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.29 , 46.4	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.47$ , $\langle L^2 \rangle = 0.30$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.88	EDS
Total number of atoms	6854	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	38.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 19.86 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 9.8675e-03.*

<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

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	0.51	0/1725	0.71	2/2343 (0.1%)
1	D	0.74	1/1716 (0.1%)	0.87	10/2331 (0.4%)
2	B	0.46	0/1559	0.73	2/2125 (0.1%)
2	E	0.48	1/1562 (0.1%)	0.79	4/2128 (0.2%)
3	C	0.40	0/86	0.68	0/114
3	F	0.43	0/76	0.70	0/101
All	All	0.56	2/6724 (0.0%)	0.78	18/9142 (0.2%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	40	PRO	N-CD	9.94	1.61	1.47
2	E	208	PRO	N-CD	5.52	1.55	1.47

All (18) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	184	LEU	CB-CA-C	9.99	129.19	110.20
2	B	27	PHE	N-CA-CB	-8.07	96.07	110.60
1	A	211	ARG	NE-CZ-NH1	7.72	124.16	120.30
1	D	39	LYS	CB-CA-C	7.71	125.82	110.40
1	D	138	ASN	N-CA-C	7.14	130.28	111.00
2	B	27	PHE	N-CA-C	6.97	129.83	111.00
1	D	40	PRO	CA-N-CD	-6.83	101.94	111.50
1	D	15	LEU	CB-CG-CD2	6.14	121.44	111.00
1	A	211	ARG	NE-CZ-NH2	-6.03	117.29	120.30
1	D	50	LYS	CB-CA-C	-6.01	98.38	110.40
1	D	203	SER	C-N-CD	5.78	140.54	128.40
2	E	26	GLY	N-CA-C	5.68	127.30	113.10
1	D	51	VAL	N-CA-CB	5.65	123.92	111.50
1	D	139	PHE	N-CA-CB	-5.64	100.45	110.60
2	E	207	GLU	C-N-CD	5.37	139.67	128.40
1	D	33	LEU	CB-CG-CD1	5.36	120.11	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	E	179	VAL	CB-CA-C	-5.36	101.22	111.40
1	D	50	LYS	N-CA-C	5.08	124.72	111.00

There are no chirality outliers.

There are no planarity outliers.

## 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	1686	0	1649	19	0
1	D	1677	0	1643	48	0
2	B	1525	0	1502	8	0
2	E	1528	0	1510	28	0
3	C	85	0	82	1	0
3	F	75	0	74	1	0
4	A	76	0	0	0	0
4	B	66	0	0	0	0
4	C	3	0	0	0	0
4	D	56	0	0	2	0
4	E	75	0	0	0	0
4	F	2	0	0	0	0
All	All	6854	0	6460	101	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 8.

All (101) 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:D:147:GLN:OE1	1:D:154:LEU:HD11	1.64	0.98
2:E:190:ILE:HG12	2:E:205:LYS:HD2	1.43	0.96
2:E:118:PRO:HB3	2:E:206:VAL:HG22	1.52	0.91
1:A:36:PHE:HE2	1:A:89:SER:OG	1.57	0.87
1:A:36:PHE:HE2	1:A:89:SER:HG	0.89	0.86
1:D:15:LEU:HD21	1:D:106:ILE:HD13	1.57	0.85

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:1:ASP:OD1	1:D:95:PRO:CG	2.24	0.85
2:B:135:CYS:HG	2:B:191:CYS:HG	0.95	0.84
1:A:16:GLY:HA2	1:A:77:ARG:HG3	1.61	0.82
2:E:118:PRO:CB	2:E:206:VAL:HG22	2.10	0.82
1:D:162:SER:OG	2:E:162:PRO:HD2	1.80	0.81
2:E:135:CYS:HG	2:E:191:CYS:HG	0.79	0.78
1:D:55:PHE:HE1	3:F:17:LEU:HD12	1.52	0.75
1:D:1:ASP:OD1	1:D:95:PRO:HG2	1.86	0.74
2:E:149:TRP:HB3	2:E:154:LEU:HD23	1.70	0.74
1:D:49:TYR:CD1	1:D:55:PHE:HD1	2.04	0.74
2:B:70:SER:OG	2:B:79:TYR:HB2	1.86	0.74
1:D:189:HIS:O	1:D:211:ARG:HD3	1.88	0.74
1:D:15:LEU:CD2	1:D:106:ILE:HD13	2.20	0.71
2:E:208:PRO:O	2:E:209:LYS:HB2	1.91	0.71
2:E:190:ILE:CG1	2:E:205:LYS:HD2	2.19	0.69
2:E:118:PRO:HB3	2:E:206:VAL:CG2	2.22	0.69
2:E:150:ASN:ND2	2:E:154:LEU:HD22	2.08	0.69
1:D:49:TYR:CE1	1:D:55:PHE:HD1	2.10	0.69
1:D:34:HIS:ND1	1:D:49:TYR:O	2.28	0.67
1:A:23:CYS:HG	1:A:88:CYS:HG	1.43	0.66
2:E:52:ASN:HD21	2:E:55:SER:HB2	1.64	0.63
1:D:32:TYR:CE1	1:D:50:LYS:HE2	2.33	0.62
1:D:147:GLN:OE1	1:D:154:LEU:CD1	2.45	0.61
1:D:49:TYR:CD1	1:D:55:PHE:CD1	2.88	0.60
2:E:190:ILE:HG12	2:E:205:LYS:CD	2.24	0.60
1:A:46:LEU:HD21	1:A:49:TYR:HB3	1.84	0.60
1:D:46:LEU:HD21	1:D:49:TYR:HB3	1.82	0.60
1:A:33:LEU:HD13	1:A:71:PHE:CD2	2.37	0.59
1:D:32:TYR:HB2	1:D:92:THR:HG23	1.84	0.59
1:D:169:LYS:HD2	1:D:169:LYS:N	2.18	0.58
1:D:90:GLN:NE2	1:D:97:THR:OG1	2.36	0.58
2:E:150:ASN:HB2	2:E:154:LEU:HB2	1.86	0.58
1:A:33:LEU:HD13	1:A:71:PHE:CE2	2.38	0.58
1:D:106:ILE:HD11	1:D:171:SER:CB	2.34	0.57
1:D:33:LEU:HD22	1:D:71:PHE:CD1	2.39	0.57
2:B:12:VAL:HG11	2:B:82(C):LEU:HD13	1.87	0.57
1:A:24:ARG:HG2	1:A:70:ASP:OD1	2.05	0.57
1:D:1:ASP:OD1	1:D:95:PRO:HG3	2.05	0.56
2:E:118:PRO:HD3	2:E:204:LYS:HE2	1.86	0.55
2:E:137:VAL:HG11	2:E:145:VAL:HG11	1.89	0.55
1:D:33:LEU:HD22	1:D:71:PHE:CG	2.43	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:79:GLU:HB3	1:D:81:GLU:HG2	1.88	0.54
1:D:145:LYS:HB3	1:D:197:THR:HB	1.90	0.53
2:E:179:VAL:HG12	2:E:180:PRO:O	2.08	0.53
1:D:32:TYR:HB2	1:D:92:THR:CG2	2.40	0.51
2:E:78:LEU:HD23	2:E:92:CYS:SG	2.52	0.50
1:D:143:GLU:H	1:D:143:GLU:CD	2.14	0.50
2:B:70:SER:HG	2:B:79:TYR:HB2	1.73	0.49
1:A:33:LEU:HD22	1:A:71:PHE:CD1	2.47	0.49
1:A:108:ARG:HD3	1:A:109:THR:O	2.12	0.49
1:A:83:VAL:HG21	1:A:166:GLN:HB3	1.95	0.49
1:D:27(E):SER:C	1:D:29:GLY:H	2.16	0.49
1:D:27(A):SER:OG	1:D:27(C):ILE:HG22	2.13	0.49
1:D:203:SER:OG	1:D:204:PRO:CD	2.61	0.48
1:D:28:ASP:HB2	4:D:338:HOH:O	2.11	0.48
2:E:12:VAL:HG11	2:E:82(C):LEU:HD13	1.95	0.48
1:D:187:GLU:OE1	1:D:211:ARG:NH2	2.47	0.48
1:A:90:GLN:OE1	1:A:92:THR:N	2.46	0.47
1:D:79:GLU:OE2	1:D:81:GLU:OE1	2.32	0.47
1:D:27(B):LEU:O	1:D:92:THR:HG21	2.15	0.47
1:D:106:ILE:HD11	1:D:171:SER:OG	2.14	0.47
1:A:47:LEU:HA	1:A:58:VAL:HG21	1.96	0.47
1:D:32:TYR:HE1	1:D:50:LYS:HE2	1.80	0.46
1:D:141:PRO:HB2	1:D:143:GLU:OE1	2.15	0.46
2:E:118:PRO:HB2	2:E:206:VAL:HG22	1.95	0.46
1:A:37:LEU:HB2	1:A:47:LEU:HD11	1.97	0.46
2:E:87:THR:HG23	2:E:105:THR:HA	1.97	0.46
1:D:27(B):LEU:HD22	1:D:90:GLN:HG3	1.97	0.46
1:A:61:ARG:HB2	1:A:76:SER:HB2	1.98	0.45
1:A:23:CYS:SG	1:A:88:CYS:SG	3.02	0.45
2:E:149:TRP:O	2:E:154:LEU:HB3	2.15	0.45
1:D:27(D):TYR:CG	1:D:27(E):SER:N	2.85	0.45
3:C:18:VAL:HG13	3:C:23:ASP:HB2	1.98	0.44
1:D:54:ARG:HD2	4:D:319:HOH:O	2.18	0.43
2:E:121:PRO:HG2	2:E:208:PRO:HB3	2.01	0.43
1:A:63:SER:HB3	1:A:74:LYS:HG3	1.99	0.43
1:D:145:LYS:HE2	1:D:147:GLN:HE21	1.83	0.42
1:D:95:PRO:HB3	2:E:58:TYR:CE1	2.55	0.42
2:B:135:CYS:SG	2:B:206:VAL:HG21	2.60	0.42
2:E:11:LEU:HD22	2:E:142:PRO:HG3	2.02	0.41
1:A:32:TYR:CE2	1:A:50:LYS:HD3	2.56	0.41
1:D:12:PRO:HA	1:D:105:GLU:O	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:27(E):SER:C	1:D:29:GLY:N	2.73	0.41
2:E:114:PRO:HB3	2:E:140:TYR:HB3	2.02	0.41
1:A:96:TRP:HZ3	2:B:35:SER:OG	2.03	0.41
2:B:163:ALA:HA	2:B:173:LEU:HB3	2.03	0.41
2:E:121:PRO:HD2	2:E:208:PRO:HA	2.02	0.41
1:D:21:ILE:HG12	1:D:102:THR:HG21	2.03	0.41
1:D:63:SER:HB3	1:D:74:LYS:HG3	2.03	0.41
1:D:79:GLU:OE2	1:D:81:GLU:CD	2.59	0.41
2:E:189:TYR:O	2:E:205:LYS:HE3	2.20	0.40
2:E:142:PRO:HD2	2:E:197:PRO:HB2	2.03	0.40
1:D:66:GLY:HA3	1:D:71:PHE:CD1	2.57	0.40
2:B:135:CYS:SG	2:B:206:VAL:CG2	3.09	0.40
1:D:5:THR:HB	1:D:24:ARG:HB3	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	216/219 (99%)	207 (96%)	9 (4%)	0	100	100
1	D	215/219 (98%)	203 (94%)	12 (6%)	0	100	100
2	B	202/223 (91%)	193 (96%)	9 (4%)	0	100	100
2	E	202/223 (91%)	192 (95%)	10 (5%)	0	100	100
3	C	9/17 (53%)	8 (89%)	1 (11%)	0	100	100
3	F	7/17 (41%)	7 (100%)	0	0	100	100
All	All	851/918 (93%)	810 (95%)	41 (5%)	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	194/195 (100%)	189 (97%)	5 (3%)	41	60
1	D	193/195 (99%)	187 (97%)	6 (3%)	35	54
2	B	172/188 (92%)	172 (100%)	0	100	100
2	E	172/188 (92%)	169 (98%)	3 (2%)	56	73
3	C	9/15 (60%)	9 (100%)	0	100	100
3	F	8/15 (53%)	8 (100%)	0	100	100
All	All	748/796 (94%)	734 (98%)	14 (2%)	52	70

All (14) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	1	ASP
1	A	24	ARG
1	A	61	ARG
1	A	108	ARG
1	A	145	LYS
1	D	1	ASP
1	D	54	ARG
1	D	55	PHE
1	D	77	ARG
1	D	90	GLN
1	D	169	LYS
2	E	122	SER
2	E	143	GLU
2	E	205	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
2	B	76	ASN
1	D	90	GLN

### 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 oligosaccharides in this entry.

### 5.6 Ligand geometry [i](#)

There are no ligands in this entry.

### 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<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	218/219 (99%)	0.94	19 (8%) 17 16	22, 35, 52, 76	0
1	D	217/219 (99%)	1.64	76 (35%) 1 1	22, 50, 81, 103	0
2	B	206/223 (92%)	0.65	18 (8%) 17 16	12, 27, 52, 76	0
2	E	206/223 (92%)	1.01	36 (17%) 5 4	14, 30, 70, 120	0
3	C	11/17 (64%)	1.57	4 (36%) 1 1	33, 38, 60, 78	0
3	F	9/17 (52%)	1.66	2 (22%) 3 3	40, 44, 58, 86	0
All	All	867/918 (94%)	1.08	155 (17%) 4 4	12, 36, 67, 120	0

All (155) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	E	206	VAL	6.5
2	E	121	PRO	4.9
2	E	182	SER	4.8
2	B	123	SER	4.7
2	E	186	THR	4.7
2	E	183	SER	4.6
2	E	135	CYS	4.5
2	E	209	LYS	4.5
1	D	67	SER	4.4
2	E	26	GLY	4.2
2	E	184	LEU	4.0
1	D	183	LYS	4.0
2	E	208	PRO	3.9
2	E	192	ASN	3.8
1	D	134	CYS	3.7
2	E	122	SER	3.7
3	F	24	VAL	3.7
2	E	188	THR	3.6
1	D	212	GLY	3.5

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Mol	Chain	Res	Type	RSRZ
1	D	32	TYR	3.5
1	D	49	TYR	3.5
1	D	30	ASN	3.5
1	D	80	ALA	3.5
1	D	78	VAL	3.4
2	B	186	THR	3.4
2	B	185	GLY	3.4
1	D	40	PRO	3.3
2	E	185	GLY	3.3
2	E	190	ILE	3.3
1	D	27(E)	SER	3.3
2	E	205	LYS	3.2
1	D	186	TYR	3.2
1	D	177	SER	3.2
1	D	77	ARG	3.2
1	D	190	LYS	3.2
1	D	56	SER	3.1
1	D	150	VAL	3.1
1	A	176	SER	3.1
2	E	129	GLY	3.1
1	D	58	VAL	3.1
1	D	105	GLU	3.1
2	E	187	GLN	3.1
3	F	16	LYS	3.0
1	D	153	ALA	3.0
1	D	27	GLN	3.0
1	D	26	SER	3.0
2	B	26	GLY	2.9
1	A	125	LEU	2.9
1	D	209	PHE	2.9
1	D	110	VAL	2.9
2	E	57	THR	2.8
1	A	27(C)	ILE	2.8
1	A	200	GLY	2.8
1	A	56	SER	2.8
1	D	121	SER	2.8
2	B	122	SER	2.8
1	D	111	ALA	2.8
1	D	25	SER	2.8
2	B	182	SER	2.8
1	A	32	TYR	2.8
2	B	135	CYS	2.8

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Mol	Chain	Res	Type	RSRZ
1	D	31	ALA	2.8
1	D	176	SER	2.8
1	D	23	CYS	2.8
3	C	24	VAL	2.8
3	C	25	GLY	2.7
2	B	3	GLN	2.7
1	D	50	LYS	2.7
2	B	9	GLY	2.7
2	E	189	TYR	2.7
1	D	187	GLU	2.7
2	E	175	SER	2.7
1	D	15	LEU	2.7
1	A	213	GLU	2.7
3	C	26	SER	2.7
1	A	134	CYS	2.6
1	A	31	ALA	2.6
1	D	122	ASP	2.6
1	A	57	GLY	2.6
1	D	163	VAL	2.6
2	E	130	THR	2.6
1	A	70	ASP	2.6
2	E	131	ALA	2.5
2	E	207	GLU	2.5
1	D	184	ALA	2.5
1	D	210	ASN	2.5
2	B	136	LEU	2.5
1	D	144	ALA	2.5
1	D	14	THR	2.5
2	E	178	THR	2.5
1	D	70	ASP	2.5
2	E	120	ALA	2.5
2	B	57	THR	2.5
1	A	187	GLU	2.4
1	D	202	SER	2.4
1	D	206	THR	2.4
2	B	188	THR	2.4
1	D	135	LEU	2.4
2	E	150	ASN	2.4
1	D	131	SER	2.4
1	D	125	LEU	2.4
2	E	22	CYS	2.4
2	E	191	CYS	2.4

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Mol	Chain	Res	Type	RSRZ
1	D	61	ARG	2.4
2	B	55	SER	2.4
2	E	181	SER	2.4
2	B	28	THR	2.4
1	D	146	VAL	2.3
1	D	106	ILE	2.3
1	D	112	ALA	2.3
1	D	120	PRO	2.3
1	D	123	GLU	2.3
1	D	205	VAL	2.3
1	A	111	ALA	2.3
1	D	42	GLN	2.3
1	D	171	SER	2.3
1	D	182	SER	2.3
2	B	183	SER	2.3
1	D	109	THR	2.3
1	A	66	GLY	2.2
1	D	211	ARG	2.2
2	E	95	GLY	2.2
3	C	17	LEU	2.2
2	E	180	PRO	2.2
1	D	27(A)	SER	2.2
2	E	27	PHE	2.2
2	E	177	VAL	2.2
1	D	1	ASP	2.2
1	D	148	TRP	2.2
1	D	27(C)	ILE	2.2
1	D	107	LYS	2.2
1	D	108	ARG	2.1
1	A	109	THR	2.1
1	A	55	PHE	2.1
1	A	89	SER	2.1
1	A	3	VAL	2.1
1	D	133	VAL	2.1
1	D	197	THR	2.1
2	B	29	PHE	2.1
1	D	22	SER	2.1
1	D	191	VAL	2.1
1	D	142	ARG	2.1
1	D	57	GLY	2.1
2	B	27	PHE	2.1
1	D	43	SER	2.1

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Mol	Chain	Res	Type	RSRZ
2	E	92	CYS	2.1
1	D	114	SER	2.1
1	D	160	GLN	2.1
2	B	187	GLN	2.1
1	A	67	SER	2.0
1	D	162	SER	2.0
1	D	83	VAL	2.0
2	E	179	VAL	2.0
1	D	164	THR	2.0
1	D	76	SER	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](#)

There are no ligands in this entry.

## 6.5 Other polymers [i](#)

There are no such residues in this entry.