Full wwPDB X-ray Structure Validation Report ⓘ

Aug 27, 2023 – 10:48 PM EDT

PDB ID	:	3KWV
Title	:	Structural basis for the unfolding of anthrax lethal factor by protective antigen oligomers
Authors	:	Feld, G.K.; Kintzer, A.F.; Krantz, B.A.
Deposited on	:	2009-12-01
Resolution	:	3.10 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:

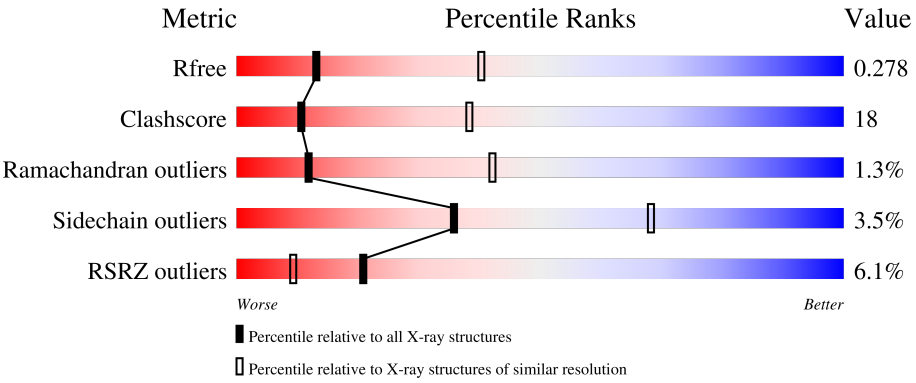
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.35
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35

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 3.10 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	1094 (3.10-3.10)
Clashscore	141614	1184 (3.10-3.10)
Ramachandran outliers	138981	1141 (3.10-3.10)
Sidechain outliers	138945	1141 (3.10-3.10)
RSRZ outliers	127900	1067 (3.10-3.10)

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	548	3% 58% 35%
1	B	548	3% 62% 32%
1	D	548	8% 58% 36%
1	E	548	9% 60% 34%
2	C	263	2% 50% 32% 16%

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Mol	Chain	Length	Quality of chain
2	F	263	

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 20349 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 Protective antigen PA-63.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	527	Total	C	N	O	S	0	0	0
			4178	2617	718	837	6			
1	B	526	Total	C	N	O	S	0	0	0
			4169	2612	717	834	6			
1	D	526	Total	C	N	O	S	0	0	0
			4171	2613	717	835	6			
1	E	528	Total	C	N	O	S	0	0	0
			4187	2622	720	839	6			

There are 87 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	303	PRO	VAL	engineered mutation	UNP P13423
A	304	GLY	HIS	engineered mutation	UNP P13423
A	?	-	GLY	deletion	UNP P13423
A	?	-	ASN	deletion	UNP P13423
A	?	-	ALA	deletion	UNP P13423
A	?	-	GLU	deletion	UNP P13423
A	?	-	VAL	deletion	UNP P13423
A	?	-	HIS	deletion	UNP P13423
A	?	-	ALA	deletion	UNP P13423
A	?	-	SER	deletion	UNP P13423
A	?	-	PHE	deletion	UNP P13423
A	?	-	PHE	deletion	UNP P13423
A	?	-	ASP	deletion	UNP P13423
A	?	-	ILE	deletion	UNP P13423
A	?	-	GLY	deletion	UNP P13423
A	?	-	GLY	deletion	UNP P13423
A	?	-	SER	deletion	UNP P13423
A	?	-	VAL	deletion	UNP P13423
A	?	-	SER	deletion	UNP P13423
A	?	-	ALA	deletion	UNP P13423
A	?	-	GLY	deletion	UNP P13423

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Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	PHE	deletion	UNP P13423
B	303	PRO	VAL	engineered mutation	UNP P13423
B	304	GLY	HIS	engineered mutation	UNP P13423
B	?	-	GLY	deletion	UNP P13423
B	?	-	ASN	deletion	UNP P13423
B	?	-	ALA	deletion	UNP P13423
B	?	-	GLU	deletion	UNP P13423
B	?	-	VAL	deletion	UNP P13423
B	?	-	HIS	deletion	UNP P13423
B	?	-	ALA	deletion	UNP P13423
B	?	-	SER	deletion	UNP P13423
B	?	-	PHE	deletion	UNP P13423
B	?	-	PHE	deletion	UNP P13423
B	?	-	ASP	deletion	UNP P13423
B	?	-	ILE	deletion	UNP P13423
B	?	-	GLY	deletion	UNP P13423
B	?	-	GLY	deletion	UNP P13423
B	?	-	SER	deletion	UNP P13423
B	?	-	VAL	deletion	UNP P13423
B	?	-	SER	deletion	UNP P13423
B	?	-	ALA	deletion	UNP P13423
B	?	-	GLY	deletion	UNP P13423
B	?	-	PHE	deletion	UNP P13423
D	303	PRO	VAL	engineered mutation	UNP P13423
D	304	GLY	HIS	engineered mutation	UNP P13423
D	?	-	GLY	deletion	UNP P13423
D	?	-	ASN	deletion	UNP P13423
D	?	-	ALA	deletion	UNP P13423
D	?	-	GLU	deletion	UNP P13423
D	?	-	VAL	deletion	UNP P13423
D	?	-	HIS	deletion	UNP P13423
D	?	-	ALA	deletion	UNP P13423
D	?	-	SER	deletion	UNP P13423
D	?	-	PHE	deletion	UNP P13423
D	?	-	PHE	deletion	UNP P13423
D	?	-	ASP	deletion	UNP P13423
D	?	-	ILE	deletion	UNP P13423
D	?	-	GLY	deletion	UNP P13423
D	?	-	GLY	deletion	UNP P13423
D	?	-	SER	deletion	UNP P13423
D	?	-	VAL	deletion	UNP P13423
D	?	-	SER	deletion	UNP P13423

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Chain	Residue	Modelled	Actual	Comment	Reference
D	?	-	ALA	deletion	UNP P13423
D	?	-	GLY	deletion	UNP P13423
E	303	PRO	VAL	engineered mutation	UNP P13423
E	304	GLY	HIS	engineered mutation	UNP P13423
E	?	-	GLY	deletion	UNP P13423
E	?	-	ASN	deletion	UNP P13423
E	?	-	ALA	deletion	UNP P13423
E	?	-	GLU	deletion	UNP P13423
E	?	-	VAL	deletion	UNP P13423
E	?	-	HIS	deletion	UNP P13423
E	?	-	ALA	deletion	UNP P13423
E	?	-	SER	deletion	UNP P13423
E	?	-	PHE	deletion	UNP P13423
E	?	-	PHE	deletion	UNP P13423
E	?	-	ASP	deletion	UNP P13423
E	?	-	ILE	deletion	UNP P13423
E	?	-	GLY	deletion	UNP P13423
E	?	-	GLY	deletion	UNP P13423
E	?	-	SER	deletion	UNP P13423
E	?	-	VAL	deletion	UNP P13423
E	?	-	SER	deletion	UNP P13423
E	?	-	ALA	deletion	UNP P13423
E	?	-	GLY	deletion	UNP P13423
E	?	-	PHE	deletion	UNP P13423

- Molecule 2 is a protein called Lethal factor.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	C	222	Total	C	N	O	S	0	0	0
			1816	1164	290	359	3			
2	F	222	Total	C	N	O	S	0	0	0
			1816	1164	290	359	3			

- Molecule 3 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	2	Total	Ca	0	0
			2	2		
3	B	2	Total	Ca	0	0
			2	2		
3	D	2	Total	Ca	0	0
			2	2		

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	E	2	Total Ca 2 2	0	0

- Molecule 4 is water.

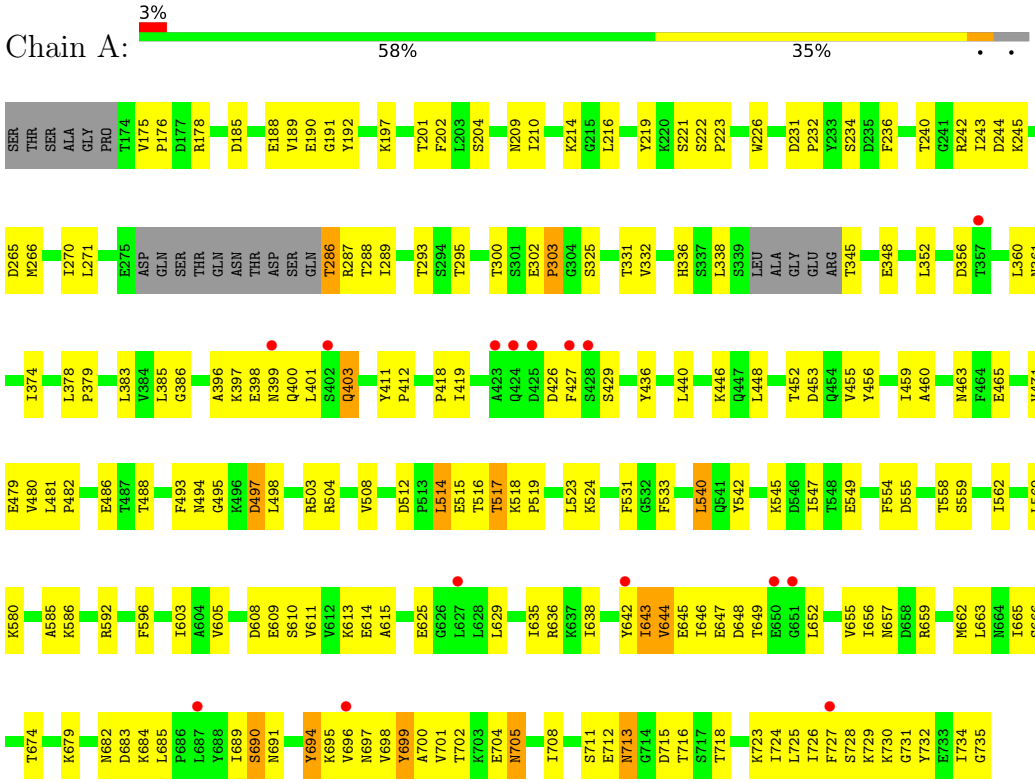
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total O 1 1	0	0
4	B	1	Total O 1 1	0	0
4	D	1	Total O 1 1	0	0
4	E	1	Total O 1 1	0	0

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.

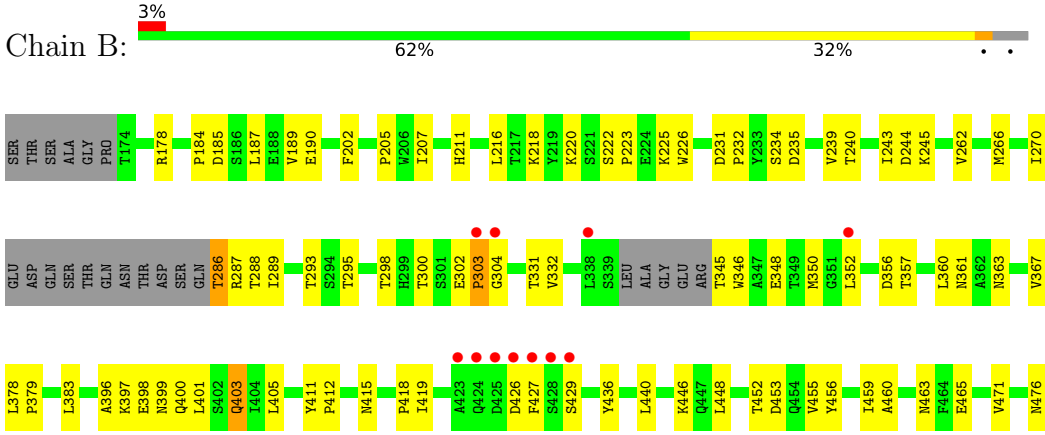
• Molecule 1: Protective antigen PA-63

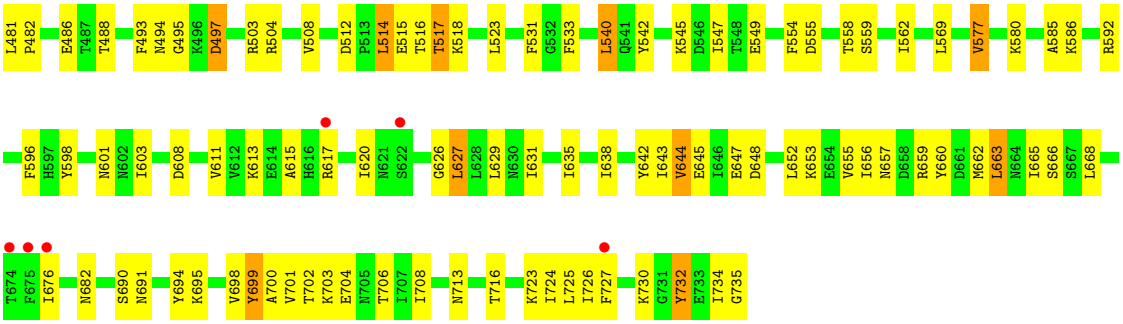
Chain A:



• Molecule 1: Protective antigen PA-63

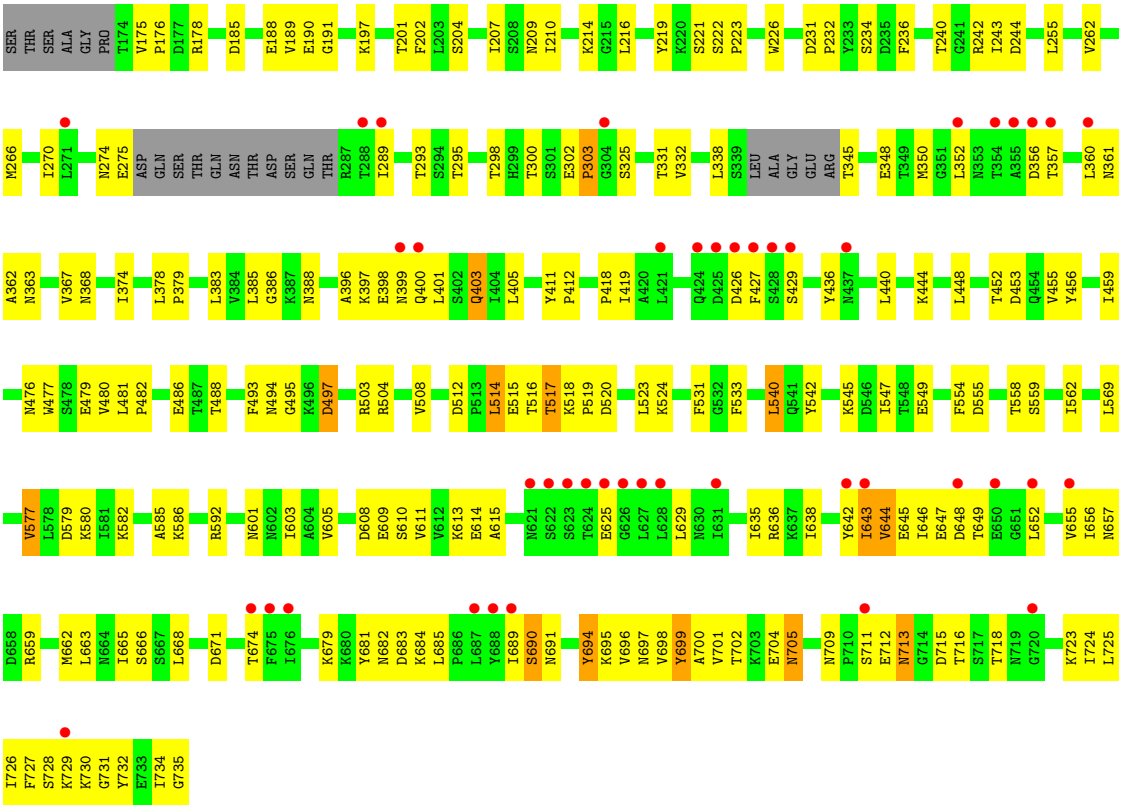
Chain B:





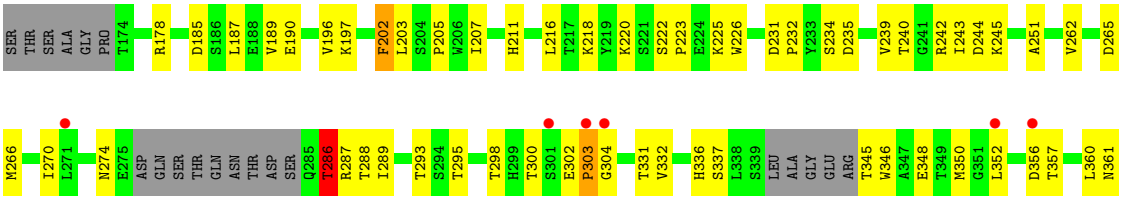
• Molecule 1: Protective antigen PA-63

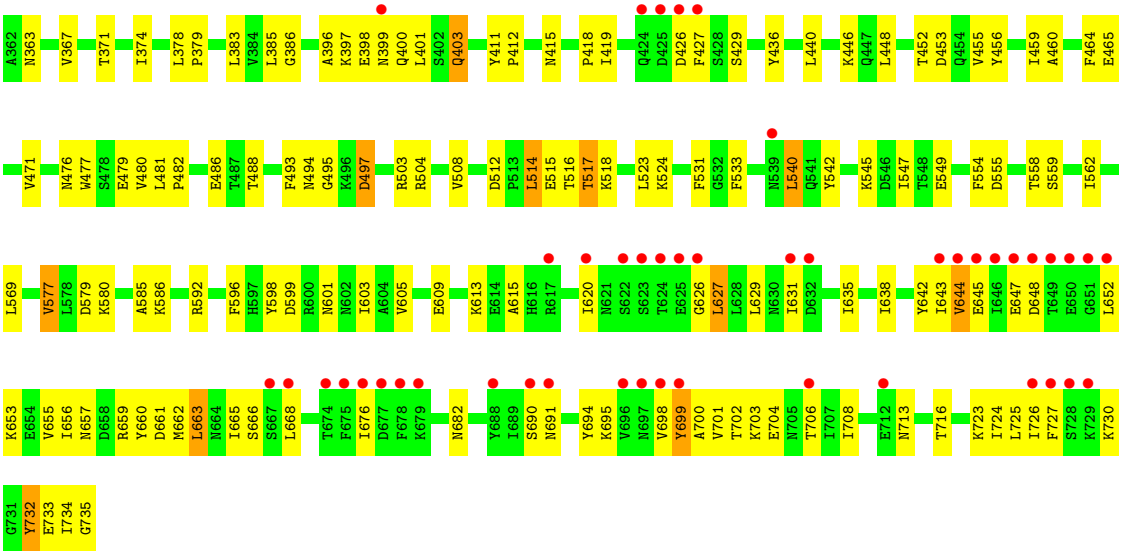
Chain D:



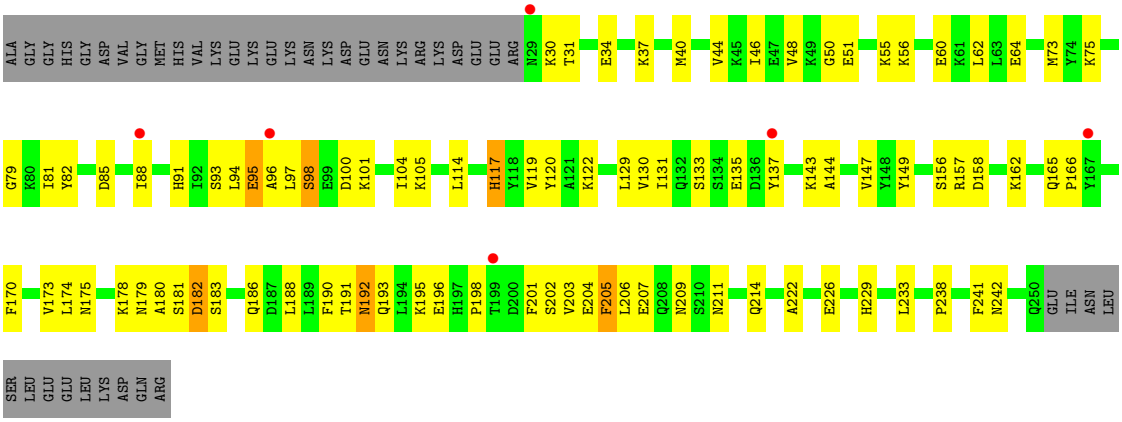
• Molecule 1: Protective antigen PA-63

Chain E:

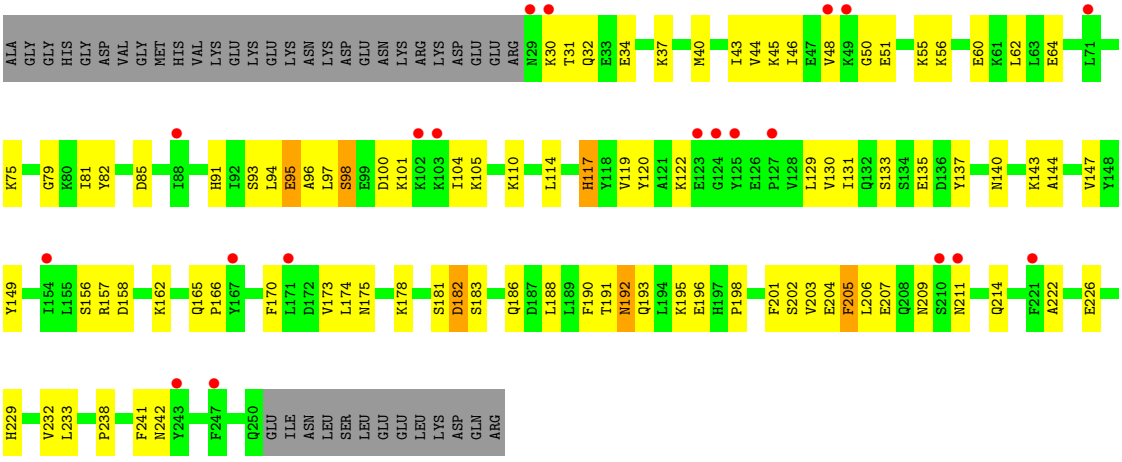




• Molecule 2: Lethal factor



• Molecule 2: Lethal factor



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 4 21 2	Depositor
Cell constants a, b, c, α, β, γ	178.38Å 178.38Å 240.36Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.84 – 3.10 49.84 – 3.10	Depositor EDS
% Data completeness (in resolution range)	92.1 (49.84-3.10) 92.1 (49.84-3.10)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.46 (at 3.12Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.5_2)	Depositor
R, R_{free}	0.249 , 0.281 0.245 , 0.278	Depositor DCC
R_{free} test set	2000 reflections (2.83%)	wwPDB-VP
Wilson B-factor (Å^2)	73.4	Xtriage
Anisotropy	0.171	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.27 , 53.3	EDS
L-test for twinning[2]	$< \|L\| > = 0.44$, $< L^2 > = 0.27$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.89	EDS
Total number of atoms	20349	wwPDB-VP
Average B, all atoms (Å^2)	100.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.67% 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: CA

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	0.26	0/4249	0.41	0/5764
1	B	0.23	0/4240	0.41	0/5752
1	D	0.26	0/4242	0.41	0/5754
1	E	0.25	0/4258	0.41	0/5776
2	C	0.23	0/1850	0.39	1/2493 (0.0%)
2	F	0.23	0/1850	0.39	1/2493 (0.0%)
All	All	0.25	0/20689	0.40	2/28032 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	C	182	ASP	CB-CG-OD2	5.21	122.98	118.30
2	F	182	ASP	CB-CG-OD2	5.19	122.97	118.30

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	4178	0	4149	171	0
1	B	4169	0	4143	145	0
1	D	4171	0	4142	173	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	E	4187	0	4157	154	0
2	C	1816	0	1797	59	0
2	F	1816	0	1797	65	0
3	A	2	0	0	0	0
3	B	2	0	0	0	0
3	D	2	0	0	0	0
3	E	2	0	0	0	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
4	D	1	0	0	0	0
4	E	1	0	0	0	0
All	All	20349	0	20185	746	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 18.

All (746) 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:266:MET:H	1:A:295:THR:HG21	1.36	0.90
1:D:699:TYR:HA	1:D:726:ILE:HG12	1.58	0.86
1:A:699:TYR:HA	1:A:726:ILE:HG12	1.58	0.85
1:D:210:ILE:HD11	2:F:188:LEU:HB2	1.59	0.84
1:D:625:GLU:HB3	1:D:679:LYS:HE3	1.57	0.84
1:A:625:GLU:HB3	1:A:679:LYS:HE3	1.58	0.83
1:B:266:MET:H	1:B:295:THR:HG21	1.45	0.82
1:A:554:PHE:HB3	1:A:558:THR:HG23	1.62	0.82
1:E:554:PHE:HB3	1:E:558:THR:HG23	1.62	0.81
1:D:554:PHE:HB3	1:D:558:THR:HG23	1.62	0.81
1:D:266:MET:H	1:D:295:THR:HG21	1.45	0.81
1:B:554:PHE:HB3	1:B:558:THR:HG23	1.62	0.81
1:A:336:HIS:CD2	1:A:708:ILE:HA	2.18	0.78
1:E:266:MET:H	1:E:295:THR:HG21	1.49	0.78
1:D:648:ASP:HB2	1:D:652:LEU:HB3	1.65	0.77
1:A:648:ASP:HB2	1:A:652:LEU:HB3	1.65	0.77
1:A:266:MET:N	1:A:295:THR:HG21	1.99	0.77
2:F:55:LYS:HB3	2:F:133:SER:HB2	1.67	0.76
2:C:55:LYS:HB3	2:C:133:SER:HB2	1.68	0.76
1:E:231:ASP:HB2	1:E:232:PRO:CD	2.17	0.75
1:B:659:ARG:HE	1:B:716:THR:HG21	1.52	0.75
1:E:231:ASP:HB2	1:E:232:PRO:HD3	1.69	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:463:ASN:HB3	1:B:465:GLU:OE2	1.87	0.75
1:B:231:ASP:HB2	1:B:232:PRO:CD	2.17	0.74
1:E:659:ARG:HE	1:E:716:THR:HG21	1.52	0.74
1:B:231:ASP:HB2	1:B:232:PRO:HD3	1.69	0.74
2:F:157:ARG:HG3	2:F:158:ASP:H	1.52	0.73
1:B:298:THR:HB	1:B:601:ASN:HB3	1.71	0.73
2:C:157:ARG:HG3	2:C:158:ASP:H	1.51	0.73
1:E:577:VAL:HG22	1:E:580:LYS:HB2	1.71	0.72
1:A:231:ASP:HB2	1:A:232:PRO:CD	2.21	0.71
1:D:231:ASP:HB2	1:D:232:PRO:CD	2.21	0.71
1:D:300:THR:HG21	1:E:415:ASN:HD22	1.56	0.70
1:E:699:TYR:HB3	1:E:725:LEU:HA	1.73	0.70
1:A:577:VAL:HG22	1:A:580:LYS:HB2	1.71	0.70
1:D:577:VAL:HG22	1:D:580:LYS:HB2	1.72	0.70
1:D:695:LYS:HD2	1:D:728:SER:HB2	1.73	0.70
1:B:577:VAL:HG22	1:B:580:LYS:HB2	1.72	0.70
1:B:699:TYR:HB3	1:B:725:LEU:HA	1.73	0.70
1:E:274:ASN:HB3	1:E:357:THR:HG23	1.73	0.70
2:C:156:SER:HB2	2:C:214:GLN:HB2	1.74	0.69
2:F:156:SER:HB2	2:F:214:GLN:HB2	1.74	0.69
2:F:48:VAL:HG12	2:F:50:GLY:H	1.58	0.69
1:A:695:LYS:HD2	1:A:728:SER:HB2	1.73	0.69
1:B:663:LEU:HD13	1:B:701:VAL:HG11	1.73	0.69
1:D:656:ILE:HD11	1:D:682:ASN:HB2	1.75	0.68
1:A:202:PHE:CE2	1:A:204:SER:HB3	2.27	0.68
1:D:266:MET:N	1:D:295:THR:HG21	2.07	0.68
1:B:274:ASN:HB3	1:B:357:THR:HG23	1.76	0.68
2:F:40:MET:O	2:F:44:VAL:HG12	1.94	0.68
1:D:202:PHE:CE2	1:D:204:SER:HB3	2.28	0.68
1:B:730:LYS:HB2	1:B:734:ILE:HD11	1.75	0.67
1:E:663:LEU:HD13	1:E:701:VAL:HG11	1.74	0.67
1:A:656:ILE:HD11	1:A:682:ASN:HB2	1.75	0.67
2:C:40:MET:O	2:C:44:VAL:HG12	1.95	0.67
1:A:360:LEU:HD23	1:A:361:ASN:N	2.10	0.67
1:B:266:MET:N	1:B:295:THR:HG21	2.09	0.67
2:F:75:LYS:HA	2:F:79:GLY:H	1.60	0.67
2:C:75:LYS:HA	2:C:79:GLY:H	1.61	0.66
2:C:48:VAL:HG12	2:C:50:GLY:H	1.58	0.66
1:D:274:ASN:HB3	1:D:357:THR:HG23	1.76	0.66
1:D:493:PHE:CZ	1:D:495:GLY:HA3	2.31	0.66
1:D:240:THR:HG23	1:D:242:ARG:H	1.61	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:730:LYS:HB2	1:E:734:ILE:HD11	1.76	0.66
1:E:493:PHE:CZ	1:E:495:GLY:HA3	2.31	0.66
1:A:659:ARG:HB2	1:A:662:MET:HG3	1.78	0.66
1:E:266:MET:N	1:E:295:THR:HG21	2.09	0.65
1:E:298:THR:HG22	1:E:603:ILE:HD11	1.77	0.65
1:A:240:THR:HG23	1:A:242:ARG:H	1.60	0.65
1:A:493:PHE:CZ	1:A:495:GLY:HA3	2.32	0.65
1:B:298:THR:HG22	1:B:603:ILE:HD11	1.79	0.65
1:A:210:ILE:HD11	2:C:188:LEU:HB2	1.79	0.65
1:A:262:VAL:HG21	1:A:374:ILE:HD12	1.79	0.65
1:D:659:ARG:HB2	1:D:662:MET:HG3	1.78	0.65
1:B:401:LEU:HB2	1:B:403:GLN:OE1	1.98	0.64
1:B:493:PHE:CZ	1:B:495:GLY:HA3	2.32	0.64
1:E:401:LEU:HB2	1:E:403:GLN:OE1	1.98	0.64
1:A:401:LEU:HB2	1:A:403:GLN:OE1	1.98	0.64
1:A:514:LEU:O	1:A:517:THR:HG22	1.98	0.64
1:D:401:LEU:HB2	1:D:403:GLN:OE1	1.98	0.64
1:D:702:THR:CG2	1:D:704:GLU:HG2	2.27	0.64
1:E:659:ARG:NE	1:E:716:THR:HG21	2.13	0.64
1:E:702:THR:CG2	1:E:704:GLU:HG2	2.28	0.63
1:B:702:THR:CG2	1:B:704:GLU:HG2	2.28	0.63
1:A:702:THR:CG2	1:A:704:GLU:HG2	2.27	0.63
1:D:699:TYR:HB2	1:D:724:ILE:O	1.98	0.63
1:D:729:LYS:HD3	1:D:734:ILE:O	1.98	0.63
1:A:729:LYS:HD3	1:A:734:ILE:O	1.98	0.63
1:D:396:ALA:HB1	1:D:401:LEU:HD21	1.80	0.63
1:D:514:LEU:O	1:D:517:THR:HG22	1.99	0.63
1:B:514:LEU:O	1:B:517:THR:HG22	1.99	0.63
1:A:699:TYR:HB2	1:A:724:ILE:O	1.99	0.62
1:D:555:ASP:OD1	1:D:558:THR:HG22	1.99	0.62
1:B:659:ARG:NE	1:B:716:THR:HG21	2.13	0.62
1:B:295:THR:HB	1:B:332:VAL:HG22	1.82	0.62
1:E:295:THR:HB	1:E:332:VAL:HG22	1.82	0.62
1:A:704:GLU:HG3	1:A:705:ASN:ND2	2.14	0.62
1:D:704:GLU:HG3	1:D:705:ASN:ND2	2.15	0.62
1:E:655:VAL:HG12	1:E:657:ASN:H	1.64	0.62
1:A:295:THR:HB	1:A:332:VAL:HG22	1.82	0.62
1:D:295:THR:HB	1:D:332:VAL:HG22	1.82	0.62
1:A:659:ARG:HA	1:A:716:THR:O	2.00	0.62
2:C:119:VAL:HG23	2:C:131:ILE:HG22	1.82	0.62
1:D:691:ASN:HB3	1:D:694:TYR:CZ	2.35	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:514:LEU:O	1:E:517:THR:HG22	1.99	0.62
1:B:699:TYR:HA	1:B:726:ILE:HG12	1.82	0.62
1:E:396:ALA:HB1	1:E:401:LEU:HD21	1.80	0.62
1:E:555:ASP:OD1	1:E:558:THR:HG22	1.99	0.61
1:B:396:ALA:HB1	1:B:401:LEU:HD21	1.80	0.61
1:D:659:ARG:HA	1:D:716:THR:O	2.00	0.61
2:F:119:VAL:HG23	2:F:131:ILE:HG22	1.82	0.61
2:F:157:ARG:HG3	2:F:158:ASP:N	2.15	0.61
1:D:444:LYS:HA	1:D:709:ASN:HD21	1.65	0.61
1:D:444:LYS:HA	1:D:709:ASN:ND2	2.15	0.61
2:C:157:ARG:HG3	2:C:158:ASP:N	2.14	0.61
1:A:555:ASP:OD1	1:A:558:THR:HG22	2.00	0.61
1:A:338:LEU:HD12	1:A:662:MET:HG2	1.81	0.61
1:A:691:ASN:HB3	1:A:694:TYR:CZ	2.35	0.61
1:B:555:ASP:OD1	1:B:558:THR:HG22	2.01	0.61
1:A:396:ALA:HB1	1:A:401:LEU:HD21	1.80	0.61
1:B:655:VAL:HG12	1:B:657:ASN:H	1.63	0.61
1:E:702:THR:HG22	1:E:704:GLU:HG2	1.83	0.60
1:A:642:TYR:CE1	1:A:700:ALA:HB2	2.36	0.60
1:E:620:ILE:HG12	1:E:629:LEU:HA	1.83	0.60
1:B:702:THR:HG22	1:B:704:GLU:HG2	1.83	0.60
1:E:699:TYR:HA	1:E:726:ILE:HG12	1.82	0.60
1:B:508:VAL:HG13	1:B:516:THR:HA	1.84	0.60
1:E:699:TYR:N	1:E:699:TYR:CD2	2.69	0.60
2:C:211:ASN:O	2:C:214:GLN:HG2	2.02	0.60
2:F:192:ASN:HA	2:F:195:LYS:HE2	1.83	0.60
1:E:642:TYR:CE2	1:E:666:SER:HB2	2.38	0.59
1:A:663:LEU:HD13	1:A:701:VAL:HG11	1.84	0.59
1:B:302:GLU:HB3	1:B:303:PRO:HD2	1.85	0.59
1:D:642:TYR:CE1	1:D:700:ALA:HB2	2.37	0.59
1:A:463:ASN:HB3	1:A:465:GLU:OE2	2.02	0.59
1:D:302:GLU:HB3	1:D:303:PRO:HD2	1.84	0.59
2:F:211:ASN:O	2:F:214:GLN:HG2	2.03	0.59
1:B:642:TYR:CE2	1:B:666:SER:HB2	2.38	0.59
1:E:302:GLU:HB3	1:E:303:PRO:HD2	1.85	0.59
1:A:302:GLU:HB3	1:A:303:PRO:HD2	1.85	0.59
1:A:699:TYR:N	1:A:699:TYR:HD2	2.01	0.59
1:D:338:LEU:HD12	1:D:681:TYR:HE1	1.66	0.59
2:F:170:PHE:O	2:F:173:VAL:HG12	2.02	0.59
1:B:620:ILE:HG12	1:B:629:LEU:HA	1.83	0.58
2:C:170:PHE:O	2:C:173:VAL:HG12	2.03	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:192:ASN:HA	2:C:195:LYS:HE2	1.84	0.58
2:F:178:LYS:HB2	2:F:201:PHE:CE2	2.38	0.58
1:D:644:VAL:HB	1:D:698:VAL:HG22	1.84	0.58
1:A:645:GLU:HA	1:A:655:VAL:HA	1.84	0.58
1:D:663:LEU:HD13	1:D:701:VAL:HG11	1.84	0.58
1:E:508:VAL:HG13	1:E:516:THR:HA	1.84	0.58
1:A:508:VAL:HG13	1:A:516:THR:HA	1.85	0.58
1:A:659:ARG:HE	1:A:716:THR:HG21	1.69	0.58
1:A:644:VAL:HB	1:A:698:VAL:HG22	1.85	0.58
2:F:186:GLN:O	2:F:190:PHE:HB2	2.03	0.58
2:C:186:GLN:O	2:C:190:PHE:HB2	2.04	0.58
2:C:178:LYS:HB2	2:C:201:PHE:CE2	2.38	0.58
2:C:175:ASN:OD1	2:C:201:PHE:HB2	2.04	0.58
1:D:645:GLU:HA	1:D:655:VAL:HA	1.85	0.58
1:D:508:VAL:HG13	1:D:516:THR:HA	1.85	0.58
1:A:699:TYR:N	1:A:699:TYR:CD2	2.72	0.57
1:A:608:ASP:O	1:A:611:VAL:HG22	2.04	0.57
2:C:94:LEU:HB2	2:C:122:LYS:NZ	2.19	0.57
1:D:699:TYR:CD2	1:D:699:TYR:N	2.72	0.57
1:D:232:PRO:CG	1:D:459:ILE:HD13	2.34	0.57
1:D:699:TYR:N	1:D:699:TYR:HD2	2.02	0.57
1:B:262:VAL:HG21	1:B:374:ILE:HD12	1.86	0.57
1:B:615:ALA:HB1	1:B:631:ILE:HG13	1.86	0.57
1:D:659:ARG:HE	1:D:716:THR:HG21	1.68	0.57
1:A:635:ILE:O	1:A:638:ILE:HG12	2.04	0.57
1:D:635:ILE:O	1:D:638:ILE:HG12	2.04	0.57
2:F:175:ASN:OD1	2:F:201:PHE:HB2	2.05	0.57
1:B:699:TYR:N	1:B:699:TYR:CD2	2.69	0.57
1:D:608:ASP:O	1:D:611:VAL:HG22	2.04	0.57
1:D:647:GLU:O	1:D:694:TYR:HB2	2.05	0.57
1:A:683:ASP:O	1:A:684:LYS:HG2	2.05	0.56
1:B:476:ASN:O	1:B:479:GLU:HG2	2.05	0.56
1:A:647:GLU:O	1:A:694:TYR:HB2	2.05	0.56
1:D:345:THR:HB	1:D:348:GLU:HB3	1.88	0.56
1:D:683:ASP:O	1:D:684:LYS:HG2	2.05	0.56
1:E:262:VAL:HG21	1:E:374:ILE:HD12	1.87	0.56
1:E:627:LEU:HD11	1:E:727:PHE:CD1	2.40	0.56
2:F:94:LEU:HB2	2:F:122:LYS:NZ	2.20	0.56
1:D:298:THR:HG22	1:D:603:ILE:HD11	1.87	0.56
1:D:188:GLU:HB3	1:D:221:SER:O	2.06	0.56
1:D:476:ASN:O	1:D:479:GLU:HG2	2.05	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:186:GLN:HB2	2:F:190:PHE:CD2	2.41	0.56
1:D:262:VAL:HG21	1:D:374:ILE:HD12	1.88	0.56
1:A:476:ASN:O	1:A:479:GLU:HG2	2.06	0.56
2:C:81:ILE:HD12	2:C:81:ILE:O	2.06	0.56
2:C:156:SER:CB	2:C:214:GLN:HB2	2.35	0.56
1:E:345:THR:HB	1:E:348:GLU:HB3	1.88	0.56
1:E:350:MET:HE2	1:E:352:LEU:HD11	1.87	0.56
2:F:156:SER:CB	2:F:214:GLN:HB2	2.35	0.56
1:A:302:GLU:HG3	1:B:415:ASN:HB3	1.88	0.56
1:A:345:THR:HB	1:A:348:GLU:HB3	1.88	0.56
2:C:186:GLN:HB2	2:C:190:PHE:CD2	2.41	0.56
1:B:345:THR:HB	1:B:348:GLU:HB3	1.88	0.55
1:E:298:THR:HB	1:E:601:ASN:HB3	1.86	0.55
2:F:81:ILE:HD12	2:F:81:ILE:O	2.06	0.55
1:A:647:GLU:HA	1:A:652:LEU:O	2.06	0.55
1:D:647:GLU:HA	1:D:652:LEU:O	2.06	0.55
1:E:270:ILE:HA	1:E:289:ILE:O	2.06	0.55
1:A:188:GLU:HB3	1:A:221:SER:O	2.07	0.55
1:A:724:ILE:O	1:A:726:ILE:HG23	2.07	0.55
1:B:627:LEU:HD11	1:B:727:PHE:CD1	2.41	0.54
1:D:699:TYR:CZ	1:D:723:LYS:HD2	2.43	0.54
1:D:724:ILE:O	1:D:726:ILE:HG23	2.07	0.54
1:E:476:ASN:O	1:E:479:GLU:HG2	2.07	0.54
1:A:705:ASN:N	1:A:705:ASN:HD22	2.05	0.54
1:B:346:TRP:CZ2	1:B:446:LYS:HE3	2.43	0.54
2:C:205:PHE:HD2	2:C:209:ASN:HD22	1.55	0.54
1:B:512:ASP:O	1:B:516:THR:HG23	2.08	0.54
1:D:190:GLU:CD	2:F:140:ASN:HA	2.28	0.54
1:D:643:ILE:HG22	1:D:663:LEU:HD22	1.89	0.54
1:B:644:VAL:HB	1:B:698:VAL:HG22	1.90	0.54
1:E:555:ASP:CG	1:E:558:THR:HG22	2.28	0.54
1:A:699:TYR:CZ	1:A:723:LYS:HD2	2.43	0.54
1:B:360:LEU:HD23	1:B:361:ASN:N	2.22	0.54
1:D:555:ASP:CG	1:D:558:THR:HG22	2.29	0.54
1:A:643:ILE:HG22	1:A:663:LEU:HD22	1.89	0.54
1:B:401:LEU:H	1:B:401:LEU:HD22	1.73	0.54
1:D:705:ASN:N	1:D:705:ASN:HD22	2.05	0.54
1:E:401:LEU:H	1:E:401:LEU:HD22	1.73	0.54
2:F:205:PHE:HD2	2:F:209:ASN:HD22	1.55	0.54
1:A:643:ILE:HD12	1:A:718:THR:HG21	1.90	0.53
1:B:642:TYR:HE2	1:B:666:SER:HB2	1.73	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:643:ILE:HD12	1:D:718:THR:HG21	1.90	0.53
1:A:555:ASP:CG	1:A:558:THR:HG22	2.28	0.53
1:B:648:ASP:HB2	1:B:652:LEU:HB3	1.90	0.53
1:E:642:TYR:HE2	1:E:666:SER:HB2	1.73	0.53
1:B:613:LYS:O	1:B:617:ARG:N	2.42	0.53
1:D:512:ASP:O	1:D:516:THR:HG23	2.08	0.53
1:E:379:PRO:HB2	1:E:452:THR:HG23	1.90	0.53
1:E:644:VAL:HB	1:E:698:VAL:HG22	1.89	0.53
1:E:648:ASP:HB2	1:E:652:LEU:HB3	1.90	0.53
1:A:436:TYR:CE2	1:A:440:LEU:HD11	2.43	0.53
1:D:379:PRO:HB2	1:D:452:THR:HG23	1.91	0.53
1:D:698:VAL:HB	1:D:727:PHE:HB3	1.91	0.53
1:E:189:VAL:HG13	1:E:223:PRO:HG3	1.91	0.53
1:A:642:TYR:HB2	1:A:665:ILE:HD11	1.89	0.53
1:A:656:ILE:HD11	1:A:682:ASN:CB	2.39	0.53
1:B:189:VAL:HG13	1:B:223:PRO:HG3	1.91	0.53
1:D:642:TYR:HB2	1:D:665:ILE:HD11	1.89	0.53
1:D:730:LYS:HB2	1:D:734:ILE:HG21	1.90	0.53
1:D:615:ALA:HB2	1:D:635:ILE:HD12	1.91	0.53
1:A:189:VAL:HG23	1:A:190:GLU:HG3	1.90	0.53
1:A:698:VAL:HB	1:A:727:PHE:HB3	1.91	0.53
1:D:436:TYR:CE2	1:D:440:LEU:HD11	2.43	0.53
1:D:656:ILE:HD11	1:D:682:ASN:CB	2.39	0.53
1:E:436:TYR:CE2	1:E:440:LEU:HD11	2.43	0.53
1:D:494:ASN:OD1	1:D:592:ARG:HA	2.09	0.53
1:B:436:TYR:CE2	1:B:440:LEU:HD11	2.43	0.52
1:B:481:LEU:N	1:B:482:PRO:HD2	2.24	0.52
1:B:555:ASP:CG	1:B:558:THR:HG22	2.29	0.52
1:D:699:TYR:CD1	1:D:725:LEU:HD23	2.44	0.52
1:D:401:LEU:H	1:D:401:LEU:HD22	1.74	0.52
2:F:144:ALA:O	2:F:147:VAL:HG22	2.10	0.52
1:A:401:LEU:HD22	1:A:401:LEU:H	1.74	0.52
1:A:657:ASN:HA	1:A:662:MET:HE3	1.91	0.52
1:B:644:VAL:HG13	1:B:656:ILE:HG22	1.91	0.52
1:D:659:ARG:HG3	1:D:662:MET:HE1	1.92	0.52
1:E:494:ASN:OD1	1:E:592:ARG:HA	2.10	0.52
1:A:730:LYS:HB2	1:A:734:ILE:HG21	1.90	0.52
1:D:642:TYR:CD1	1:D:700:ALA:HB2	2.45	0.52
1:E:615:ALA:HB1	1:E:631:ILE:HG13	1.90	0.52
1:A:699:TYR:CD1	1:A:725:LEU:HD23	2.44	0.52
1:D:189:VAL:HG23	1:D:190:GLU:HG3	1.90	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:191:THR:C	2:F:193:GLN:H	2.13	0.52
1:B:383:LEU:HD11	1:B:448:LEU:HD13	1.92	0.52
1:A:481:LEU:N	1:A:482:PRO:HD2	2.25	0.52
1:E:659:ARG:HB2	1:E:662:MET:HG3	1.91	0.52
2:C:144:ALA:O	2:C:147:VAL:HG22	2.10	0.52
1:B:659:ARG:HB2	1:B:662:MET:HG3	1.91	0.52
2:C:181:SER:O	2:C:182:ASP:HB2	2.10	0.52
1:E:656:ILE:HD11	1:E:682:ASN:CG	2.30	0.52
1:E:659:ARG:HA	1:E:716:THR:O	2.09	0.52
1:A:379:PRO:HB2	1:A:452:THR:HG23	1.91	0.52
1:A:702:THR:HG21	1:A:704:GLU:HG2	1.92	0.52
1:B:187:LEU:HD21	1:B:205:PRO:HG3	1.92	0.51
1:B:379:PRO:HB2	1:B:452:THR:HG23	1.91	0.51
1:A:383:LEU:HD11	1:A:448:LEU:HD13	1.92	0.51
1:A:642:TYR:CD1	1:A:700:ALA:HB2	2.45	0.51
1:E:242:ARG:NH2	2:F:43:ILE:HD11	2.25	0.51
1:E:481:LEU:N	1:E:482:PRO:HD2	2.26	0.51
1:A:712:GLU:HG3	1:A:713:ASN:ND2	2.25	0.51
1:D:702:THR:HG22	1:D:704:GLU:HG2	1.91	0.51
1:E:202:PHE:CE2	2:F:45:LYS:HG3	2.46	0.51
1:A:494:ASN:OD1	1:A:592:ARG:HA	2.10	0.51
1:B:494:ASN:OD1	1:B:592:ARG:HA	2.11	0.51
1:B:585:ALA:O	1:B:586:LYS:HB2	2.10	0.51
1:B:659:ARG:HE	1:B:716:THR:CG2	2.20	0.51
1:B:659:ARG:HA	1:B:716:THR:O	2.09	0.51
2:C:97:LEU:O	2:C:101:LYS:HE2	2.10	0.51
1:A:512:ASP:O	1:A:516:THR:HG23	2.11	0.51
1:B:656:ILE:HD11	1:B:682:ASN:CG	2.31	0.51
1:D:712:GLU:HG3	1:D:713:ASN:ND2	2.25	0.51
1:E:265:ASP:HA	1:E:295:THR:HG21	1.92	0.51
1:A:649:THR:N	1:A:694:TYR:HB3	2.26	0.51
1:A:702:THR:HG22	1:A:704:GLU:HG2	1.92	0.51
2:C:191:THR:C	2:C:193:GLN:H	2.13	0.51
1:D:222:SER:OG	1:D:517:THR:HG23	2.11	0.51
1:D:481:LEU:N	1:D:482:PRO:HD2	2.25	0.51
1:A:615:ALA:HB2	1:A:635:ILE:HD12	1.91	0.51
1:B:592:ARG:HB3	1:B:598:TYR:CZ	2.46	0.51
2:C:202:SER:C	2:C:204:GLU:H	2.14	0.51
1:D:702:THR:HG22	1:D:704:GLU:H	1.76	0.51
1:A:585:ALA:O	1:A:586:LYS:HB2	2.11	0.51
1:A:702:THR:HG22	1:A:704:GLU:H	1.76	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:644:VAL:HG13	1:E:656:ILE:HG22	1.92	0.51
1:A:610:SER:O	1:A:614:GLU:HG2	2.11	0.51
1:D:610:SER:O	1:D:614:GLU:HG2	2.11	0.51
1:D:644:VAL:HG13	1:D:656:ILE:CG2	2.41	0.51
1:B:455:VAL:HG23	1:B:455:VAL:O	2.11	0.50
1:B:645:GLU:OE1	1:B:653:LYS:HD3	2.11	0.50
1:E:642:TYR:CE1	1:E:700:ALA:HB2	2.46	0.50
1:B:286:THR:O	1:B:288:THR:HG23	2.11	0.50
1:D:585:ALA:O	1:D:586:LYS:HB2	2.12	0.50
1:E:648:ASP:HA	1:E:694:TYR:CG	2.46	0.50
1:D:255:LEU:HD21	1:D:519:PRO:HG2	1.94	0.50
1:D:488:THR:OG1	1:D:504:ARG:HD3	2.12	0.50
1:E:187:LEU:HD21	1:E:205:PRO:HG3	1.93	0.50
1:E:512:ASP:O	1:E:516:THR:HG23	2.10	0.50
1:B:691:ASN:HB3	1:B:694:TYR:CE1	2.47	0.50
1:E:645:GLU:OE1	1:E:653:LYS:HD3	2.11	0.50
1:E:691:ASN:HB3	1:E:694:TYR:CE1	2.46	0.50
1:A:446:LYS:CG	1:A:708:ILE:HD12	2.40	0.50
1:A:545:LYS:HE2	1:A:549:GLU:HB3	1.94	0.50
1:D:655:VAL:HG22	1:D:657:ASN:H	1.77	0.50
1:D:657:ASN:HA	1:D:662:MET:HE3	1.93	0.50
1:E:734:ILE:HG13	1:E:735:GLY:H	1.77	0.50
2:F:238:PRO:O	2:F:242:ASN:HB2	2.12	0.50
1:E:383:LEU:HD11	1:E:448:LEU:HD13	1.93	0.50
1:E:460:ALA:HA	1:E:471:VAL:HA	1.94	0.50
1:E:545:LYS:HE2	1:E:549:GLU:HB3	1.94	0.50
1:E:659:ARG:HE	1:E:716:THR:CG2	2.21	0.50
2:F:202:SER:C	2:F:204:GLU:H	2.14	0.50
1:A:455:VAL:O	1:A:455:VAL:HG23	2.11	0.50
1:B:232:PRO:CG	1:B:459:ILE:HD13	2.41	0.50
1:B:734:ILE:HG13	1:B:735:GLY:H	1.77	0.50
1:D:545:LYS:HE2	1:D:549:GLU:HB3	1.94	0.50
1:E:286:THR:O	1:E:288:THR:HG23	2.11	0.50
1:E:488:THR:OG1	1:E:504:ARG:HD3	2.12	0.50
2:F:97:LEU:O	2:F:101:LYS:HE2	2.11	0.50
2:F:181:SER:O	2:F:182:ASP:HB2	2.10	0.50
1:A:644:VAL:HG13	1:A:656:ILE:CG2	2.41	0.50
1:D:350:MET:HE2	1:D:352:LEU:HD11	1.94	0.50
1:B:226:TRP:CE2	1:B:234:SER:HB3	2.47	0.49
1:B:648:ASP:HA	1:B:694:TYR:CG	2.46	0.49
1:E:455:VAL:HG23	1:E:455:VAL:O	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:585:ALA:O	1:E:586:LYS:HB2	2.12	0.49
1:B:286:THR:HG22	1:B:287:ARG:H	1.77	0.49
1:E:226:TRP:CE2	1:E:234:SER:HB3	2.47	0.49
1:B:545:LYS:HE2	1:B:549:GLU:HB3	1.94	0.49
1:D:388:ASN:HB2	1:E:418:PRO:HD2	1.93	0.49
1:A:695:LYS:HE3	1:A:697:ASN:HD21	1.78	0.49
1:D:649:THR:N	1:D:694:TYR:HB3	2.26	0.49
1:D:695:LYS:HE3	1:D:697:ASN:HD21	1.78	0.49
1:E:596:PHE:HD1	1:E:638:ILE:HD13	1.77	0.49
1:E:642:TYR:HB2	1:E:665:ILE:HD11	1.93	0.49
2:F:31:THR:HG23	2:F:34:GLU:H	1.77	0.49
1:A:403:GLN:HG2	1:A:411:TYR:CZ	2.48	0.49
1:A:734:ILE:HG23	1:A:735:GLY:N	2.28	0.49
1:B:350:MET:HE2	1:B:352:LEU:HD11	1.94	0.49
1:D:383:LEU:HD11	1:D:448:LEU:HD13	1.93	0.49
1:E:286:THR:HG22	1:E:287:ARG:H	1.76	0.49
1:A:286:THR:HG22	1:A:287:ARG:H	1.77	0.49
2:C:238:PRO:O	2:C:242:ASN:HB2	2.12	0.49
1:A:286:THR:O	1:A:288:THR:HG23	2.12	0.49
1:A:325:SER:CB	1:B:415:ASN:HD21	2.26	0.49
1:A:338:LEU:CD1	1:A:662:MET:HG2	2.42	0.49
1:A:655:VAL:HG22	1:A:657:ASN:H	1.76	0.49
1:B:515:GLU:OE1	1:B:518:LYS:HE3	2.13	0.49
1:B:558:THR:O	1:B:562:ILE:HG12	2.13	0.49
1:B:642:TYR:CE1	1:B:700:ALA:HB2	2.48	0.49
1:B:642:TYR:HB2	1:B:665:ILE:HD11	1.93	0.49
1:D:702:THR:HG21	1:D:704:GLU:HG2	1.93	0.49
1:D:734:ILE:HG23	1:D:735:GLY:N	2.28	0.49
1:D:191:GLY:HA2	1:D:219:TYR:O	2.13	0.49
1:E:403:GLN:HG2	1:E:411:TYR:CZ	2.48	0.48
1:D:603:ILE:O	1:D:605:VAL:HG13	2.13	0.48
1:E:235:ASP:O	1:E:239:VAL:HG22	2.13	0.48
2:C:31:THR:HG23	2:C:34:GLU:H	1.78	0.48
1:D:455:VAL:HG23	1:D:455:VAL:O	2.13	0.48
1:E:453:ASP:OD1	1:E:455:VAL:HG22	2.13	0.48
1:A:231:ASP:HB2	1:A:232:PRO:HD3	1.96	0.48
1:A:374:ILE:HD11	1:A:456:TYR:CD1	2.49	0.48
1:D:302:GLU:HG3	1:E:415:ASN:HB3	1.96	0.48
1:D:689:ILE:HG13	1:D:689:ILE:O	2.13	0.48
1:E:401:LEU:HD22	1:E:401:LEU:N	2.29	0.48
1:A:689:ILE:O	1:A:689:ILE:HG13	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:235:ASP:O	1:B:239:VAL:HG22	2.13	0.48
1:B:403:GLN:HG2	1:B:411:TYR:CZ	2.48	0.48
1:D:515:GLU:OE1	1:D:518:LYS:HE3	2.14	0.48
1:A:488:THR:OG1	1:A:504:ARG:HD3	2.13	0.48
1:D:398:GLU:C	1:D:400:GLN:H	2.17	0.48
1:E:698:VAL:HB	1:E:727:PHE:HB3	1.96	0.48
1:A:222:SER:OG	1:A:517:THR:HG23	2.13	0.48
1:D:403:GLN:HG2	1:D:411:TYR:CZ	2.49	0.48
1:A:232:PRO:CG	1:A:459:ILE:HD13	2.44	0.48
1:A:453:ASP:OD1	1:A:455:VAL:HG22	2.14	0.48
1:A:683:ASP:O	1:A:685:LEU:HG	2.13	0.48
1:B:698:VAL:HB	1:B:727:PHE:HB3	1.96	0.48
1:A:515:GLU:OE1	1:A:518:LYS:HE3	2.14	0.47
2:C:37:LYS:HA	2:C:40:MET:HG2	1.96	0.47
1:D:374:ILE:HD11	1:D:456:TYR:CD1	2.50	0.47
1:D:401:LEU:HD22	1:D:401:LEU:N	2.29	0.47
1:D:683:ASP:O	1:D:685:LEU:HG	2.14	0.47
1:A:231:ASP:HB2	1:A:232:PRO:HD2	1.96	0.47
1:B:379:PRO:HB2	1:B:452:THR:CG2	2.44	0.47
1:D:231:ASP:HB2	1:D:232:PRO:HD2	1.94	0.47
1:D:338:LEU:HD12	1:D:681:TYR:CE1	2.48	0.47
1:A:558:THR:O	1:A:562:ILE:HG12	2.14	0.47
1:B:488:THR:OG1	1:B:504:ARG:HD3	2.14	0.47
2:C:196:GLU:O	2:C:198:PRO:HD3	2.14	0.47
2:C:95:GLU:HB2	2:C:96:ALA:H	1.46	0.47
1:E:222:SER:OG	1:E:225:LYS:HG3	2.15	0.47
1:E:643:ILE:HD11	1:E:723:LYS:HD3	1.97	0.47
1:E:724:ILE:O	1:E:726:ILE:HG23	2.15	0.47
1:A:191:GLY:HA2	1:A:219:TYR:O	2.14	0.47
1:B:222:SER:OG	1:B:225:LYS:HG3	2.15	0.47
1:B:398:GLU:C	1:B:400:GLN:H	2.17	0.47
1:D:453:ASP:OD1	1:D:455:VAL:HG22	2.14	0.47
1:D:615:ALA:CB	1:D:635:ILE:HD12	2.44	0.47
1:D:656:ILE:HD11	1:D:682:ASN:CG	2.34	0.47
2:F:196:GLU:O	2:F:198:PRO:HD3	2.14	0.47
1:A:398:GLU:C	1:A:400:GLN:H	2.17	0.47
1:A:401:LEU:HD22	1:A:401:LEU:N	2.29	0.47
1:A:446:LYS:HG3	1:A:708:ILE:HD12	1.96	0.47
1:A:615:ALA:CB	1:A:635:ILE:HD12	2.44	0.47
1:A:656:ILE:HD11	1:A:682:ASN:CG	2.35	0.47
1:B:453:ASP:OD1	1:B:455:VAL:HG22	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:558:THR:O	1:D:562:ILE:HG12	2.15	0.47
1:E:398:GLU:C	1:E:400:GLN:H	2.17	0.47
1:B:374:ILE:HD11	1:B:456:TYR:CD1	2.49	0.47
1:B:643:ILE:HG23	1:B:663:LEU:HD22	1.96	0.47
1:E:515:GLU:OE1	1:E:518:LYS:HE3	2.15	0.47
1:E:643:ILE:HG23	1:E:663:LEU:HD22	1.96	0.47
1:E:734:ILE:HG13	1:E:735:GLY:N	2.29	0.47
1:A:603:ILE:O	1:A:605:VAL:HG13	2.14	0.47
1:B:730:LYS:HD2	1:B:732:TYR:OH	2.15	0.47
2:C:104:ILE:HG22	2:C:105:LYS:H	1.80	0.47
2:F:37:LYS:HA	2:F:40:MET:HG2	1.96	0.47
1:B:231:ASP:CB	1:B:232:PRO:CD	2.91	0.47
1:E:558:THR:O	1:E:562:ILE:HG12	2.14	0.47
2:F:104:ILE:HG22	2:F:105:LYS:H	1.80	0.47
1:A:379:PRO:HB2	1:A:452:THR:CG2	2.44	0.46
1:B:695:LYS:HB3	1:B:730:LYS:HA	1.96	0.46
1:E:660:TYR:CE2	1:E:716:THR:HG23	2.50	0.46
2:F:157:ARG:HB3	2:F:214:GLN:OE1	2.15	0.46
1:A:271:LEU:CD2	1:A:360:LEU:HG	2.45	0.46
1:B:401:LEU:HD22	1:B:401:LEU:N	2.29	0.46
2:C:157:ARG:HB3	2:C:214:GLN:OE1	2.15	0.46
1:D:274:ASN:O	1:D:275:GLU:HB2	2.15	0.46
1:D:642:TYR:HA	1:D:700:ALA:HA	1.97	0.46
1:E:379:PRO:HB2	1:E:452:THR:CG2	2.44	0.46
1:E:503:ARG:HB2	1:E:531:PHE:CZ	2.51	0.46
2:F:100:ASP:OD1	2:F:101:LYS:N	2.48	0.46
1:A:460:ALA:HA	1:A:471:VAL:HA	1.98	0.46
1:A:644:VAL:HG13	1:A:656:ILE:HG22	1.97	0.46
1:E:426:ASP:OD2	1:E:429:SER:HB3	2.15	0.46
1:B:185:ASP:O	1:B:189:VAL:HG22	2.15	0.46
1:B:643:ILE:HD11	1:B:723:LYS:HD3	1.97	0.46
2:C:100:ASP:OD1	2:C:101:LYS:N	2.49	0.46
2:F:165:GLN:HA	2:F:166:PRO:C	2.35	0.46
1:A:498:LEU:HD11	1:A:596:PHE:CE2	2.50	0.46
1:A:646:ILE:HG23	1:A:696:VAL:HG22	1.98	0.46
1:B:608:ASP:O	1:B:611:VAL:HG22	2.15	0.46
1:E:226:TRP:CZ2	1:E:234:SER:HB3	2.50	0.46
1:B:734:ILE:HG13	1:B:735:GLY:N	2.30	0.46
1:E:203:LEU:HD22	2:F:44:VAL:HG23	1.98	0.46
1:E:374:ILE:HD11	1:E:456:TYR:CD1	2.50	0.46
2:F:122:LYS:HE3	2:F:122:LYS:HB2	1.77	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:207:ILE:HB	1:B:211:HIS:CE1	2.50	0.46
1:B:660:TYR:CE2	1:B:716:THR:HG23	2.50	0.46
2:C:165:GLN:HA	2:C:166:PRO:C	2.35	0.46
1:D:379:PRO:HB2	1:D:452:THR:CG2	2.44	0.46
1:E:626:GLY:HA3	1:E:676:ILE:O	2.15	0.46
1:E:695:LYS:HB3	1:E:730:LYS:HA	1.96	0.46
1:A:486:GLU:OE1	1:A:586:LYS:HE2	2.16	0.46
1:B:724:ILE:O	1:B:726:ILE:HG23	2.15	0.46
2:C:62:LEU:HD11	2:C:137:TYR:CD1	2.51	0.46
1:A:265:ASP:HA	1:A:295:THR:HG21	1.97	0.46
1:D:426:ASP:OD2	1:D:429:SER:HB3	2.16	0.46
1:E:185:ASP:O	1:E:189:VAL:HG22	2.15	0.46
1:E:207:ILE:HB	1:E:211:HIS:CE1	2.50	0.46
2:F:60:GLU:O	2:F:64:GLU:HG3	2.16	0.46
2:F:143:LYS:O	2:F:147:VAL:HG13	2.16	0.45
1:A:503:ARG:HB2	1:A:531:PHE:CZ	2.51	0.45
1:E:730:LYS:HD2	1:E:732:TYR:OH	2.15	0.45
1:A:426:ASP:OD2	1:A:429:SER:HB3	2.16	0.45
1:B:226:TRP:CZ2	1:B:234:SER:HB3	2.50	0.45
1:B:426:ASP:OD2	1:B:429:SER:HB3	2.16	0.45
1:D:243:ILE:HG12	1:D:244:ASP:N	2.31	0.45
2:F:62:LEU:HD11	2:F:137:TYR:CD1	2.52	0.45
2:F:226:GLU:HB3	2:F:229:HIS:HB2	1.99	0.45
1:B:189:VAL:HG23	1:B:190:GLU:HG3	1.98	0.45
1:B:270:ILE:HA	1:B:289:ILE:O	2.16	0.45
1:B:503:ARG:HB2	1:B:531:PHE:CZ	2.51	0.45
1:A:243:ILE:HG12	1:A:244:ASP:N	2.31	0.45
1:E:222:SER:HA	1:E:223:PRO:HD3	1.82	0.45
1:E:609:GLU:O	1:E:613:LYS:HG3	2.16	0.45
1:A:226:TRP:CZ2	1:A:234:SER:HB3	2.52	0.45
1:A:711:SER:OG	1:A:715:ASP:HB3	2.17	0.45
1:D:644:VAL:HG13	1:D:656:ILE:HG22	1.97	0.45
1:D:691:ASN:HB3	1:D:694:TYR:CE1	2.51	0.45
1:A:691:ASN:HB3	1:A:694:TYR:CE1	2.51	0.45
1:D:646:ILE:HG23	1:D:696:VAL:HG22	1.98	0.45
1:B:300:THR:HB	1:B:302:GLU:HB2	1.99	0.45
1:B:486:GLU:OE1	1:B:586:LYS:HE2	2.17	0.45
1:B:626:GLY:HA3	1:B:676:ILE:O	2.16	0.45
2:C:98:SER:O	2:C:101:LYS:HG2	2.16	0.45
1:D:300:THR:HB	1:D:302:GLU:HB2	1.99	0.45
1:B:648:ASP:OD2	1:B:652:LEU:HB3	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:60:GLU:O	2:C:64:GLU:HG3	2.17	0.45
1:D:352:LEU:HB3	1:D:356:ASP:OD2	2.17	0.45
1:D:503:ARG:HB2	1:D:531:PHE:CZ	2.52	0.45
1:E:643:ILE:HD11	1:E:723:LYS:HB3	1.98	0.45
1:B:243:ILE:HG12	1:B:244:ASP:N	2.32	0.45
1:D:486:GLU:OE1	1:D:586:LYS:HE2	2.16	0.45
2:C:143:LYS:O	2:C:147:VAL:HG13	2.16	0.44
2:C:226:GLU:HB3	2:C:229:HIS:HB2	1.99	0.44
1:E:189:VAL:HG23	1:E:190:GLU:HG3	1.98	0.44
1:E:648:ASP:OD2	1:E:652:LEU:HB3	2.17	0.44
2:F:98:SER:O	2:F:101:LYS:HG2	2.16	0.44
1:B:554:PHE:HB2	1:B:559:SER:HB2	2.00	0.44
2:C:202:SER:HB2	2:C:204:GLU:HG2	1.99	0.44
1:D:226:TRP:CZ2	1:D:234:SER:HB3	2.52	0.44
1:E:352:LEU:HB3	1:E:356:ASP:OD2	2.17	0.44
1:A:214:LYS:HB2	1:A:216:LEU:HG	1.99	0.44
1:A:300:THR:HB	1:A:302:GLU:HB2	1.99	0.44
1:B:184:PRO:CD	2:C:44:VAL:HG21	2.47	0.44
1:E:412:PRO:HD3	1:E:419:ILE:HG13	1.99	0.44
1:A:175:VAL:HA	1:A:176:PRO:HD3	1.83	0.44
1:B:643:ILE:CG2	1:B:663:LEU:HD22	2.48	0.44
1:D:214:LYS:HB2	1:D:216:LEU:HG	1.99	0.44
1:E:243:ILE:HG12	1:E:244:ASP:N	2.32	0.44
1:E:690:SER:HB3	1:E:694:TYR:OH	2.17	0.44
1:B:352:LEU:HB3	1:B:356:ASP:OD2	2.16	0.44
2:C:135:GLU:O	2:C:135:GLU:HG3	2.18	0.44
1:E:300:THR:HB	1:E:302:GLU:HB2	1.99	0.44
1:A:642:TYR:HA	1:A:700:ALA:HA	1.98	0.44
1:A:699:TYR:HB3	1:A:725:LEU:HA	2.00	0.44
1:B:643:ILE:HD11	1:B:723:LYS:HB3	1.98	0.44
1:B:690:SER:HB3	1:B:694:TYR:OH	2.17	0.44
1:D:412:PRO:HD3	1:D:419:ILE:HG13	1.98	0.44
1:E:486:GLU:OE1	1:E:586:LYS:HE2	2.18	0.44
1:A:352:LEU:HB3	1:A:356:ASP:OD2	2.17	0.44
1:A:659:ARG:HG3	1:A:662:MET:HE1	1.98	0.44
1:B:412:PRO:HD3	1:B:419:ILE:HG13	1.99	0.44
1:E:197:LYS:HE2	2:F:135:GLU:HG2	2.00	0.44
1:E:211:HIS:HB3	1:E:216:LEU:HD12	2.00	0.44
2:F:104:ILE:HD11	2:F:114:LEU:HB2	2.00	0.44
1:B:596:PHE:HD1	1:B:638:ILE:HD13	1.81	0.44
1:D:690:SER:HB3	1:D:694:TYR:OH	2.18	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:303:PRO:HB2	1:E:304:GLY:H	1.61	0.44
1:E:464:PHE:HD2	2:F:32:GLN:HE21	1.66	0.44
1:E:605:VAL:O	1:E:702:THR:HG23	2.18	0.44
1:A:236:PHE:O	1:A:240:THR:HG22	2.18	0.44
1:D:629:LEU:N	1:D:629:LEU:HD23	2.33	0.44
1:A:412:PRO:HD3	1:A:419:ILE:HG13	1.99	0.43
1:A:629:LEU:N	1:A:629:LEU:HD23	2.33	0.43
1:A:690:SER:HB3	1:A:694:TYR:OH	2.18	0.43
1:B:211:HIS:HB3	1:B:216:LEU:HD12	2.00	0.43
1:B:446:LYS:HB2	1:B:708:ILE:HD12	1.99	0.43
1:B:477:TRP:HA	1:B:480:VAL:HG12	2.00	0.43
1:D:209:ASN:OD1	1:D:209:ASN:N	2.49	0.43
1:D:636:ARG:HD3	1:D:674:THR:HG21	2.00	0.43
1:D:704:GLU:HG3	1:D:705:ASN:HD22	1.83	0.43
1:A:378:LEU:HA	1:A:379:PRO:HD3	1.90	0.43
2:C:30:LYS:HD2	2:C:34:GLU:HB3	1.99	0.43
2:F:233:LEU:HG	2:F:241:PHE:HB2	2.00	0.43
1:D:554:PHE:HB2	1:D:559:SER:HB2	2.00	0.43
1:E:337:SER:HA	1:E:661:ASP:HB2	1.99	0.43
2:F:174:LEU:HD23	2:F:174:LEU:O	2.18	0.43
1:B:222:SER:HA	1:B:223:PRO:HD3	1.81	0.43
1:D:516:THR:OG1	1:E:196:VAL:HG21	2.19	0.43
1:E:242:ARG:HH22	2:F:43:ILE:HD11	1.83	0.43
1:E:346:TRP:CZ2	1:E:446:LYS:HE3	2.53	0.43
1:A:477:TRP:HA	1:A:480:VAL:HG12	2.01	0.43
2:C:122:LYS:HE3	2:C:122:LYS:HB2	1.77	0.43
1:D:222:SER:HA	1:D:223:PRO:HD3	1.77	0.43
1:E:270:ILE:CG1	1:E:361:ASN:HB3	2.49	0.43
2:F:30:LYS:HD2	2:F:34:GLU:HB3	2.00	0.43
2:F:135:GLU:O	2:F:135:GLU:HG3	2.18	0.43
1:A:209:ASN:OD1	1:A:209:ASN:N	2.49	0.43
1:A:222:SER:HA	1:A:223:PRO:HD3	1.77	0.43
2:C:82:TYR:HB2	2:C:130:VAL:HG23	2.00	0.43
2:C:94:LEU:HB2	2:C:122:LYS:HZ1	1.84	0.43
1:D:711:SER:OG	1:D:715:ASP:HB3	2.17	0.43
1:E:232:PRO:CG	1:E:459:ILE:HD13	2.48	0.43
1:A:255:LEU:HD21	1:A:519:PRO:HG2	2.00	0.43
1:B:374:ILE:HD11	1:B:456:TYR:CG	2.54	0.43
2:F:202:SER:HB2	2:F:204:GLU:HG2	2.00	0.43
1:A:374:ILE:HD11	1:A:456:TYR:CG	2.54	0.43
1:B:178:ARG:HG3	1:B:185:ASP:OD2	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:460:ALA:HA	1:B:471:VAL:HA	2.01	0.43
1:E:397:LYS:C	1:E:399:ASN:H	2.22	0.43
1:A:609:GLU:O	1:A:613:LYS:HG3	2.19	0.43
1:D:609:GLU:O	1:D:613:LYS:HG3	2.18	0.43
1:E:477:TRP:HA	1:E:480:VAL:HG12	2.01	0.43
1:B:363:ASN:HB3	1:B:418:PRO:HB2	2.01	0.43
2:C:56:LYS:O	2:C:60:GLU:HG3	2.19	0.43
2:C:206:LEU:HD23	2:C:207:GLU:H	1.82	0.43
1:D:295:THR:HA	1:D:331:THR:O	2.19	0.43
1:E:554:PHE:HB2	1:E:559:SER:HB2	2.01	0.43
1:A:554:PHE:HB2	1:A:559:SER:HB2	2.01	0.42
1:A:636:ARG:HD3	1:A:674:THR:HG21	2.00	0.42
1:A:705:ASN:ND2	1:A:705:ASN:N	2.67	0.42
1:B:295:THR:HA	1:B:331:THR:O	2.18	0.42
1:B:352:LEU:HD22	1:B:356:ASP:OD2	2.19	0.42
1:D:293:THR:HB	1:D:332:VAL:HG13	2.01	0.42
1:D:352:LEU:HD22	1:D:356:ASP:OD2	2.19	0.42
1:D:397:LYS:C	1:D:399:ASN:H	2.22	0.42
1:D:477:TRP:HA	1:D:480:VAL:HG12	2.01	0.42
1:A:569:LEU:HD13	1:A:577:VAL:HG21	2.01	0.42
1:B:702:THR:HG21	1:B:704:GLU:HG2	2.01	0.42
2:C:104:ILE:HD11	2:C:114:LEU:HB2	2.00	0.42
2:C:174:LEU:HD23	2:C:174:LEU:O	2.18	0.42
1:D:189:VAL:HG13	1:D:223:PRO:HG3	2.00	0.42
1:D:363:ASN:HB3	1:D:418:PRO:HB2	2.02	0.42
1:E:178:ARG:HG3	1:E:185:ASP:OD2	2.19	0.42
1:E:569:LEU:HD13	1:E:577:VAL:HG21	2.01	0.42
1:A:397:LYS:C	1:A:399:ASN:H	2.22	0.42
1:E:647:GLU:O	1:E:694:TYR:HB2	2.19	0.42
1:D:231:ASP:HB2	1:D:232:PRO:HD3	1.97	0.42
1:D:360:LEU:C	1:D:360:LEU:HD23	2.40	0.42
1:D:569:LEU:HD13	1:D:577:VAL:HG21	2.02	0.42
1:E:643:ILE:CD1	1:E:723:LYS:HD3	2.49	0.42
2:F:206:LEU:HD23	2:F:207:GLU:H	1.82	0.42
1:A:363:ASN:HB3	1:A:418:PRO:HB2	2.01	0.42
1:A:533:PHE:CE1	1:A:542:TYR:HB2	2.55	0.42
1:B:647:GLU:O	1:B:694:TYR:HB2	2.19	0.42
2:C:233:LEU:HG	2:C:241:PHE:HB2	2.00	0.42
1:D:731:GLY:H	1:D:734:ILE:HG23	1.84	0.42
2:F:82:TYR:HB2	2:F:130:VAL:HG23	2.00	0.42
1:B:293:THR:HB	1:B:332:VAL:HG13	2.02	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:236:PHE:O	1:D:240:THR:HG22	2.20	0.42
1:E:251:ALA:HB2	1:E:371:THR:HB	2.00	0.42
1:E:643:ILE:CG2	1:E:663:LEU:HD22	2.48	0.42
2:F:91:HIS:CD2	2:F:93:SER:HB3	2.54	0.42
1:A:609:GLU:HA	1:A:724:ILE:HD13	2.02	0.42
1:D:642:TYR:CE2	1:D:666:SER:HB2	2.55	0.42
1:D:649:THR:OG1	1:D:694:TYR:HB3	2.20	0.42
1:D:659:ARG:HE	1:D:716:THR:CG2	2.32	0.42
1:E:336:HIS:CD2	1:E:708:ILE:HA	2.54	0.42
1:E:363:ASN:HB3	1:E:418:PRO:HB2	2.01	0.42
1:E:497:ASP:N	1:E:497:ASP:OD1	2.53	0.42
1:E:533:PHE:CE1	1:E:542:TYR:HB2	2.55	0.42
2:F:104:ILE:HG22	2:F:105:LYS:N	2.35	0.42
1:A:642:TYR:CE2	1:A:666:SER:HB2	2.55	0.42
1:A:731:GLY:H	1:A:734:ILE:HG23	1.84	0.42
1:B:644:VAL:HG13	1:B:656:ILE:CG2	2.50	0.42
2:C:91:HIS:CD2	2:C:93:SER:HB3	2.54	0.42
1:D:325:SER:CB	1:E:415:ASN:HD21	2.33	0.42
2:F:120:TYR:O	2:F:129:LEU:HD12	2.19	0.42
1:A:270:ILE:HA	1:A:289:ILE:O	2.20	0.42
1:A:295:THR:HA	1:A:331:THR:O	2.19	0.42
1:A:649:THR:OG1	1:A:694:TYR:HB3	2.20	0.42
2:F:95:GLU:HB2	2:F:96:ALA:H	1.46	0.42
1:A:352:LEU:HD22	1:A:356:ASP:OD2	2.19	0.42
1:A:497:ASP:OD1	1:A:497:ASP:N	2.53	0.42
1:B:703:LYS:HA	1:B:706:THR:OG1	2.19	0.42
1:D:497:ASP:OD1	1:D:497:ASP:N	2.53	0.42
1:E:703:LYS:HA	1:E:706:THR:OG1	2.19	0.42
2:C:120:TYR:O	2:C:129:LEU:HD12	2.19	0.41
1:D:222:SER:OG	1:D:517:THR:CG2	2.68	0.41
1:D:374:ILE:HD11	1:D:456:TYR:CG	2.55	0.41
1:D:609:GLU:HA	1:D:724:ILE:HD13	2.02	0.41
1:D:705:ASN:ND2	1:D:705:ASN:N	2.67	0.41
1:E:293:THR:HB	1:E:332:VAL:HG13	2.02	0.41
2:F:183:SER:O	2:F:186:GLN:HG2	2.20	0.41
1:A:189:VAL:HG13	1:A:223:PRO:HG3	2.01	0.41
1:D:699:TYR:HB3	1:D:725:LEU:HA	2.00	0.41
2:F:56:LYS:O	2:F:60:GLU:HG3	2.19	0.41
1:A:385:LEU:HD12	1:A:386:GLY:H	1.85	0.41
1:A:515:GLU:OE2	1:B:245:LYS:HE3	2.20	0.41
2:C:183:SER:O	2:C:186:GLN:HG2	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:270:ILE:HA	1:D:289:ILE:O	2.20	0.41
1:D:625:GLU:HB3	1:D:679:LYS:CE	2.40	0.41
1:E:374:ILE:HD11	1:E:456:TYR:CG	2.56	0.41
1:A:293:THR:HB	1:A:332:VAL:HG13	2.02	0.41
1:A:659:ARG:HE	1:A:716:THR:CG2	2.32	0.41
1:B:533:PHE:CE1	1:B:542:TYR:HB2	2.55	0.41
1:B:699:TYR:N	1:B:699:TYR:HD2	2.16	0.41
1:D:524:LYS:CE	1:D:579:ASP:HB3	2.50	0.41
1:E:295:THR:HA	1:E:331:THR:O	2.19	0.41
1:A:403:GLN:HG2	1:A:411:TYR:OH	2.20	0.41
1:B:569:LEU:HD13	1:B:577:VAL:HG21	2.02	0.41
1:B:629:LEU:N	1:B:629:LEU:HD23	2.35	0.41
1:D:298:THR:HB	1:D:601:ASN:HB3	2.01	0.41
1:D:385:LEU:HD12	1:D:386:GLY:H	1.86	0.41
1:D:533:PHE:CE1	1:D:542:TYR:HB2	2.55	0.41
1:E:403:GLN:HG2	1:E:411:TYR:OH	2.20	0.41
1:E:524:LYS:CE	1:E:579:ASP:HB3	2.50	0.41
1:A:222:SER:HG	1:A:517:THR:HG23	1.85	0.41
1:A:300:THR:HG21	1:B:415:ASN:HD22	1.86	0.41
1:D:178:ARG:HG3	1:D:185:ASP:OD2	2.20	0.41
1:E:245:LYS:HA	1:E:245:LYS:HD3	1.89	0.41
1:E:732:TYR:HB2	1:E:733:GLU:H	1.72	0.41
1:A:178:ARG:HG3	1:A:185:ASP:OD2	2.21	0.41
1:B:533:PHE:HB3	1:B:540:LEU:HD21	2.02	0.41
1:B:631:ILE:HD11	1:B:635:ILE:HG21	2.03	0.41
1:D:533:PHE:HB3	1:D:540:LEU:HD21	2.03	0.41
1:E:352:LEU:HD22	1:E:356:ASP:OD2	2.19	0.41
1:E:596:PHE:CD1	1:E:638:ILE:HD13	2.54	0.41
1:A:524:LYS:CE	1:A:579:ASP:HB3	2.51	0.41
2:C:88:ILE:H	2:C:88:ILE:HG13	1.71	0.41
1:E:385:LEU:HD12	1:E:386:GLY:H	1.86	0.41
1:A:533:PHE:HB3	1:A:540:LEU:HD21	2.03	0.41
1:B:378:LEU:HB2	1:B:396:ALA:HB2	2.03	0.41
1:B:497:ASP:OD1	1:B:497:ASP:N	2.53	0.41
1:D:368:ASN:HB2	1:D:405:LEU:HG	2.03	0.41
1:A:188:GLU:HA	1:A:192:TYR:CE2	2.56	0.41
1:B:303:PRO:HB2	1:B:304:GLY:H	1.61	0.41
1:D:713:ASN:ND2	1:D:713:ASN:H	2.19	0.41
1:A:245:LYS:HA	1:A:245:LYS:HD3	1.90	0.40
1:A:713:ASN:ND2	1:A:713:ASN:N	2.69	0.40
2:C:73:MET:HB2	2:C:73:MET:HE3	1.94	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:361:ASN:OD1	1:D:362:ALA:N	2.54	0.40
1:D:378:LEU:HB2	1:D:396:ALA:HB2	2.02	0.40
1:E:218:LYS:HE2	1:E:220:LYS:HE3	2.03	0.40
1:A:378:LEU:HB2	1:A:396:ALA:HB2	2.03	0.40
1:B:403:GLN:HG2	1:B:411:TYR:OH	2.21	0.40
2:C:104:ILE:HG22	2:C:105:LYS:N	2.35	0.40
1:D:190:GLU:OE2	2:F:140:ASN:HA	2.21	0.40
2:F:149:TYR:HA	2:F:222:ALA:HB2	2.03	0.40
1:A:704:GLU:HG3	1:A:705:ASN:HD22	1.83	0.40
1:B:397:LYS:C	1:B:399:ASN:H	2.22	0.40
1:B:643:ILE:CD1	1:B:723:LYS:HD3	2.50	0.40
2:C:149:TYR:HA	2:C:222:ALA:HB2	2.03	0.40
1:D:175:VAL:HA	1:D:176:PRO:HD3	1.83	0.40
1:E:533:PHE:HB3	1:E:540:LEU:HD21	2.03	0.40
1:E:592:ARG:HB3	1:E:598:TYR:CZ	2.56	0.40
1:E:629:LEU:HD23	1:E:629:LEU:N	2.36	0.40
1:B:218:LYS:HE2	1:B:220:LYS:HE3	2.02	0.40
1:B:368:ASN:HB2	1:B:405:LEU:HG	2.03	0.40
1:D:545:LYS:HE2	1:D:549:GLU:CB	2.52	0.40
1:E:360:LEU:HD23	1:E:361:ASN:N	2.37	0.40
1:E:631:ILE:HD11	1:E:635:ILE:HG21	2.03	0.40
2:F:44:VAL:O	2:F:44:VAL:HG13	2.22	0.40
2:F:105:LYS:HA	2:F:110:LYS:O	2.21	0.40
2:C:179:ASN:O	2:C:180:ALA:HB2	2.22	0.40
1:D:207:ILE:HD11	2:F:232:VAL:HG11	2.03	0.40
1:D:520:ASP:HB3	1:D:582:LYS:NZ	2.37	0.40
1:E:378:LEU:HB2	1:E:396:ALA:HB2	2.02	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	521/548 (95%)	471 (90%)	45 (9%)	5 (1%)	15	49
1	B	520/548 (95%)	462 (89%)	54 (10%)	4 (1%)	19	54
1	D	520/548 (95%)	468 (90%)	47 (9%)	5 (1%)	15	49
1	E	522/548 (95%)	469 (90%)	47 (9%)	6 (1%)	14	46
2	C	220/263 (84%)	183 (83%)	30 (14%)	7 (3%)	4	22
2	F	220/263 (84%)	183 (83%)	30 (14%)	7 (3%)	4	22
All	All	2523/2718 (93%)	2236 (89%)	253 (10%)	34 (1%)	12	42

All (34) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	732	TYR
2	C	162	LYS
1	D	732	TYR
2	F	162	LYS
1	A	303	PRO
1	A	497	ASP
1	B	303	PRO
1	B	497	ASP
1	B	732	TYR
2	C	98	SER
1	D	303	PRO
1	D	497	ASP
1	E	303	PRO
1	E	497	ASP
1	E	732	TYR
2	F	98	SER
2	C	192	ASN
2	C	203	VAL
1	E	286	THR
2	F	192	ASN
2	F	203	VAL
1	A	690	SER
1	D	690	SER
2	C	51	GLU
2	C	117	HIS
2	F	117	HIS
1	A	577	VAL
1	B	577	VAL
1	D	577	VAL
1	E	577	VAL

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Mol	Chain	Res	Type
1	E	599	ASP
2	F	51	GLU
2	C	46	ILE
2	F	46	ILE

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	474/491 (96%)	455 (96%)	19 (4%)	31	65
1	B	473/491 (96%)	456 (96%)	17 (4%)	35	67
1	D	473/491 (96%)	455 (96%)	18 (4%)	33	66
1	E	475/491 (97%)	457 (96%)	18 (4%)	33	66
2	C	200/236 (85%)	196 (98%)	4 (2%)	55	80
2	F	200/236 (85%)	196 (98%)	4 (2%)	55	80
All	All	2295/2436 (94%)	2215 (96%)	80 (4%)	36	68

All (80) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	197	LYS
1	A	201	THR
1	A	286	THR
1	A	367	VAL
1	A	403	GLN
1	A	427	PHE
1	A	514	LEU
1	A	517	THR
1	A	523	LEU
1	A	540	LEU
1	A	547	ILE
1	A	643	ILE
1	A	644	VAL
1	A	668	LEU

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Mol	Chain	Res	Type
1	A	671	ASP
1	A	694	TYR
1	A	699	TYR
1	A	705	ASN
1	A	713	ASN
1	B	202	PHE
1	B	240	THR
1	B	286	THR
1	B	367	VAL
1	B	403	GLN
1	B	427	PHE
1	B	514	LEU
1	B	517	THR
1	B	523	LEU
1	B	540	LEU
1	B	547	ILE
1	B	627	LEU
1	B	644	VAL
1	B	663	LEU
1	B	668	LEU
1	B	699	TYR
1	B	713	ASN
2	C	85	ASP
2	C	95	GLU
2	C	117	HIS
2	C	205	PHE
1	D	197	LYS
1	D	201	THR
1	D	367	VAL
1	D	403	GLN
1	D	427	PHE
1	D	514	LEU
1	D	517	THR
1	D	523	LEU
1	D	540	LEU
1	D	547	ILE
1	D	643	ILE
1	D	644	VAL
1	D	668	LEU
1	D	671	ASP
1	D	694	TYR
1	D	699	TYR

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Mol	Chain	Res	Type
1	D	705	ASN
1	D	713	ASN
1	E	202	PHE
1	E	240	THR
1	E	286	THR
1	E	367	VAL
1	E	403	GLN
1	E	427	PHE
1	E	465	GLU
1	E	514	LEU
1	E	517	THR
1	E	523	LEU
1	E	540	LEU
1	E	547	ILE
1	E	627	LEU
1	E	644	VAL
1	E	663	LEU
1	E	668	LEU
1	E	699	TYR
1	E	713	ASN
2	F	85	ASP
2	F	95	GLU
2	F	117	HIS
2	F	205	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

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 monosaccharides in this entry.

5.6 Ligand geometry

Of 8 ligands modelled in this entry, 8 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95^{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	527/548 (96%)	0.04	15 (2%) 53 30	46, 82, 173, 206	0
1	B	526/548 (95%)	0.02	19 (3%) 42 22	45, 83, 158, 206	0
1	D	526/548 (95%)	0.20	44 (8%) 11 4	47, 82, 171, 206	0
1	E	528/548 (96%)	0.28	52 (9%) 7 2	46, 84, 160, 205	0
2	C	222/263 (84%)	0.06	6 (2%) 54 31	69, 126, 169, 201	0
2	F	222/263 (84%)	0.36	20 (9%) 9 3	68, 126, 170, 198	0
All	All	2551/2718 (93%)	0.15	156 (6%) 21 9	45, 92, 169, 206	0

All (156) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	E	674	THR	9.5
1	E	425	ASP	8.8
1	A	427	PHE	7.8
1	A	425	ASP	7.8
1	E	624	THR	6.8
1	B	425	ASP	6.2
1	D	399	ASN	6.2
1	A	687	LEU	6.1
1	E	675	PHE	6.0
1	D	624	THR	5.8
1	D	627	LEU	5.5
1	D	626	GLY	5.3
1	E	667	SER	5.1
1	E	727	PHE	5.0
1	D	621	ASN	4.8
1	E	697	ASN	4.7
2	F	125	TYR	4.7
1	D	425	ASP	4.6
1	E	699	TYR	4.5

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Mol	Chain	Res	Type	RSRZ
1	A	627	LEU	4.5
1	B	429	SER	4.4
2	F	49	LYS	4.3
1	E	677	ASP	4.2
1	E	623	SER	4.1
1	A	423	ALA	4.1
2	C	29	ASN	4.1
1	B	428	SER	4.1
1	D	643	ILE	4.0
1	E	690	SER	4.0
1	E	626	GLY	4.0
1	E	399	ASN	3.9
2	F	127	PRO	3.9
1	D	622	SER	3.7
1	A	424	GLN	3.7
1	D	429	SER	3.7
1	E	356	ASP	3.6
1	D	400	GLN	3.6
1	D	650	GLU	3.6
1	D	631	ILE	3.6
1	E	644	VAL	3.5
1	B	304	GLY	3.5
1	D	674	THR	3.5
1	D	729	LYS	3.5
1	D	652	LEU	3.5
1	A	696	VAL	3.4
1	E	647	GLU	3.4
1	D	427	PHE	3.4
1	E	625	GLU	3.3
1	B	424	GLN	3.3
1	B	272	SER	3.3
1	A	428	SER	3.3
1	B	426	ASP	3.3
1	E	620	ILE	3.3
1	D	356	ASP	3.3
1	D	689	ILE	3.3
1	E	678	PHE	3.2
1	D	623	SER	3.2
1	A	399	ASN	3.2
1	E	631	ILE	3.2
1	E	646	ILE	3.1
1	D	271	LEU	3.0

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Mol	Chain	Res	Type	RSRZ
1	B	352	LEU	3.0
1	E	712	GLU	3.0
1	E	668	LEU	3.0
1	E	650	GLU	3.0
1	E	729	LYS	3.0
1	B	427	PHE	3.0
1	D	628	LEU	3.0
2	F	102	LYS	2.9
1	E	643	ILE	2.9
1	D	625	GLU	2.9
1	E	426	ASP	2.9
2	C	199	THR	2.9
1	E	651	GLY	2.9
1	E	688	TYR	2.9
2	F	243	TYR	2.9
1	D	437	ASN	2.8
1	E	652	LEU	2.8
2	F	123	GLU	2.8
1	B	617	ARG	2.8
1	D	642	TYR	2.8
1	E	649	THR	2.8
1	D	354	THR	2.7
1	B	622	SER	2.7
1	D	711	SER	2.7
1	D	675	PHE	2.7
1	E	676	ILE	2.7
2	F	124	GLY	2.7
1	D	357	THR	2.7
1	E	645	GLU	2.7
1	E	648	ASP	2.7
1	D	428	SER	2.7
1	B	274	ASN	2.6
1	E	424	GLN	2.6
1	E	622	SER	2.6
1	E	632	ASP	2.6
2	C	88	ILE	2.6
1	E	696	VAL	2.6
1	E	301	SER	2.6
1	E	691	ASN	2.6
1	D	424	GLN	2.6
1	D	360	LEU	2.6
1	A	650	GLU	2.5

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Mol	Chain	Res	Type	RSRZ
1	E	271	LEU	2.5
1	A	642	TYR	2.5
1	D	655	VAL	2.5
1	E	617	ARG	2.5
2	F	247	PHE	2.5
1	D	352	LEU	2.5
1	E	304	GLY	2.4
1	A	727	PHE	2.4
1	D	688	TYR	2.4
1	A	651	GLY	2.4
2	F	167	TYR	2.4
1	A	402	SER	2.4
1	D	426	ASP	2.4
2	F	103	LYS	2.4
1	D	648	ASP	2.3
2	F	48	VAL	2.3
1	E	427	PHE	2.3
1	D	687	LEU	2.3
2	F	71	LEU	2.3
2	C	167	TYR	2.3
2	F	154	ILE	2.3
1	E	706	THR	2.3
1	B	423	ALA	2.3
1	A	357	THR	2.3
1	B	727	PHE	2.3
1	D	355	ALA	2.2
1	B	338	LEU	2.2
1	E	303	PRO	2.2
2	C	96	ALA	2.2
1	D	421	LEU	2.2
1	B	676	ILE	2.2
1	E	679	LYS	2.2
1	B	674	THR	2.2
1	E	539	ASN	2.2
1	E	352	LEU	2.2
2	F	29	ASN	2.2
1	D	304	GLY	2.2
1	D	676	ILE	2.2
1	D	720	GLY	2.2
1	E	698	VAL	2.2
2	F	88	ILE	2.2
2	F	171	LEU	2.1

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Mol	Chain	Res	Type	RSRZ
1	E	726	ILE	2.1
1	B	675	PHE	2.1
2	F	221	PHE	2.1
2	C	137	TYR	2.1
1	D	289	ILE	2.1
1	D	288	THR	2.1
2	F	211	ASN	2.1
1	E	728	SER	2.1
2	F	210	SER	2.1
1	B	303	PRO	2.0
2	F	30	LYS	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
3	CA	A	736	1/1	0.98	0.22	52,52,52,52	0
3	CA	D	737	1/1	0.98	0.19	55,55,55,55	0
3	CA	B	736	1/1	0.99	0.22	57,57,57,57	0
3	CA	B	737	1/1	0.99	0.17	48,48,48,48	0
3	CA	D	736	1/1	0.99	0.20	65,65,65,65	0
3	CA	A	737	1/1	0.99	0.15	45,45,45,45	0
3	CA	E	736	1/1	0.99	0.17	52,52,52,52	0
3	CA	E	737	1/1	0.99	0.20	48,48,48,48	0

6.5 Other polymers (i)

There are no such residues in this entry.