



Full wwPDB X-ray Structure Validation Report ⓘ

Feb 1, 2016 – 10:07 AM GMT

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
<http://wwpdb.org/validation/2016/XrayValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467
Mogul : 1.7 (RC4), CSD as536be (2015)
Xtriage (Phenix) : 1.9-1692
EDS : rb-20026688
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)
Refmac : 5.8.0135
CCP4 : 6.5.0
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : trunk26865

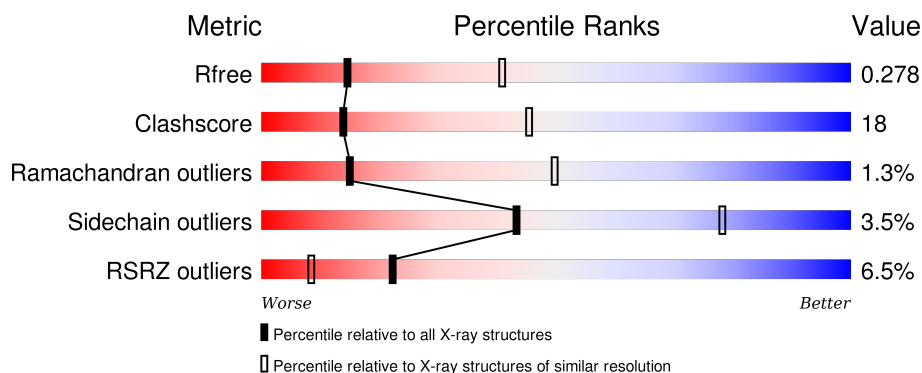
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 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}	91344	1114 (3.14-3.06)
Clashscore	102246	1222 (3.14-3.06)
Ramachandran outliers	100387	1174 (3.14-3.06)
Sidechain outliers	100360	1174 (3.14-3.06)
RSRZ outliers	91569	1119 (3.14-3.06)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. 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	548	<div> <div>3%</div> <div>58%</div> <div>35%</div> <div>• •</div> </div>
1	B	548	<div> <div>3%</div> <div>62%</div> <div>32%</div> <div>• •</div> </div>
1	D	548	<div> <div>8%</div> <div>58%</div> <div>36%</div> <div>• •</div> </div>
1	E	548	<div> <div>10%</div> <div>60%</div> <div>34%</div> <div>• •</div> </div>
2	C	263	<div> <div>3%</div> <div>50%</div> <div>32%</div> <div>• 16%</div> </div>

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Mol	Chain	Length	Quality of chain
2	F	263	<div><div></div><div>8%</div><div>49%</div><div>33%</div><div>•</div><div>16%</div></div>

2 Entry composition

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	UNP P13423
A	304	GLY	HIS	ENGINEERED	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	UNP P13423
B	304	GLY	HIS	ENGINEERED	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	UNP P13423
D	304	GLY	HIS	ENGINEERED	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	UNP P13423
E	304	GLY	HIS	ENGINEERED	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	B	2	Total	Ca	0	0
			2	2		
3	A	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	0	0
			2	2		

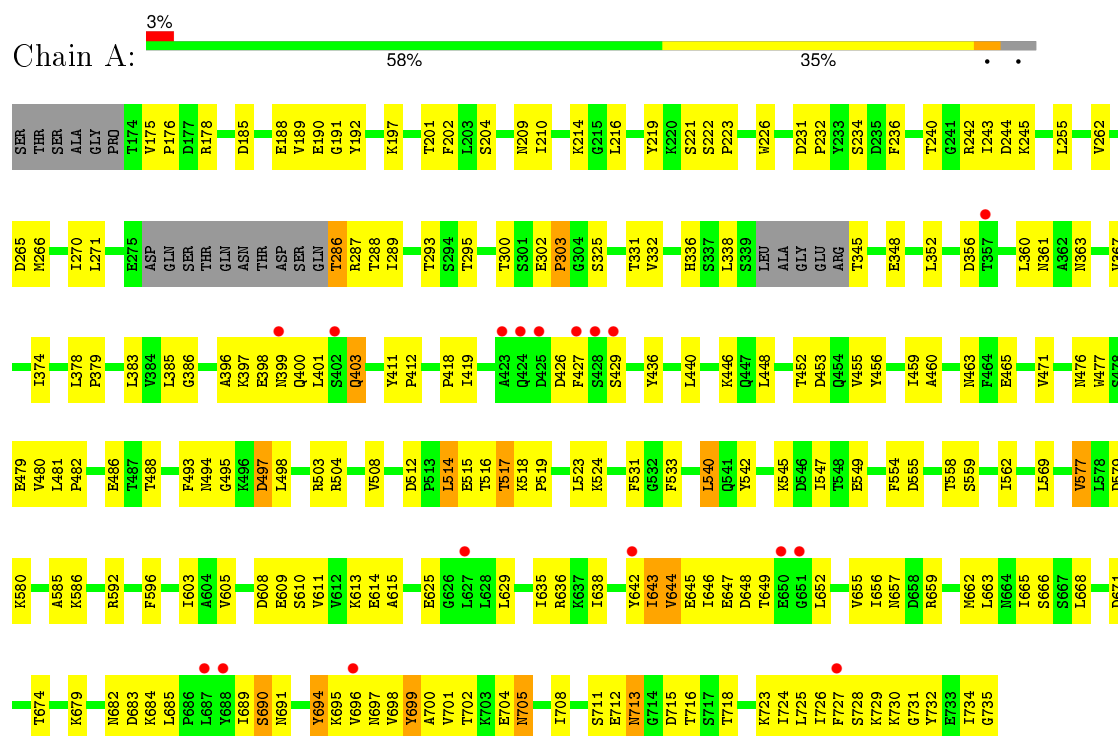
- Molecule 4 is water.

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

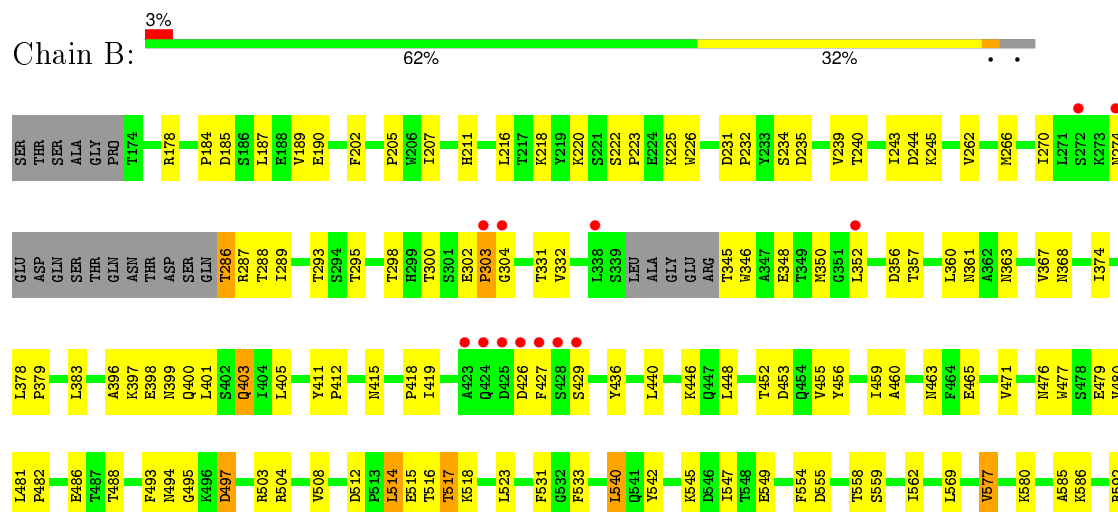
3 Residue-property plots

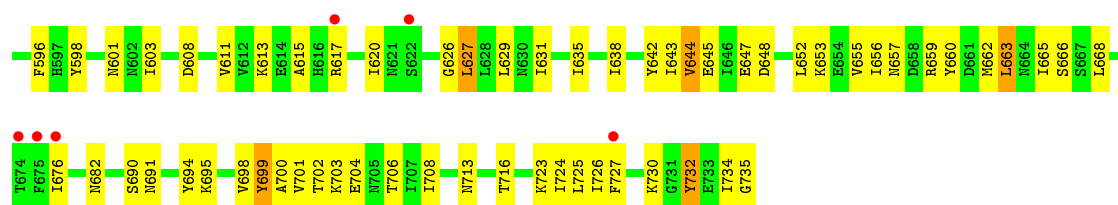
These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according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

• Molecule 1: Protective antigen PA-63

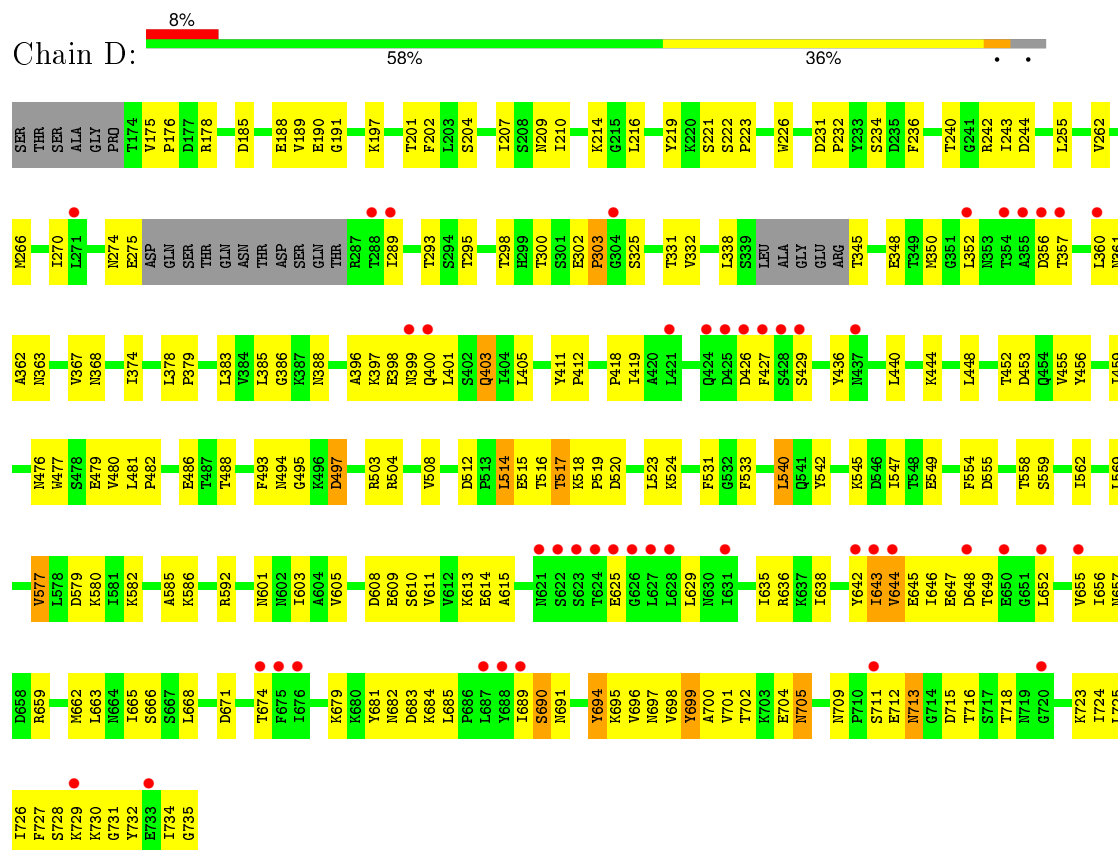


• Molecule 1: Protective antigen PA-63

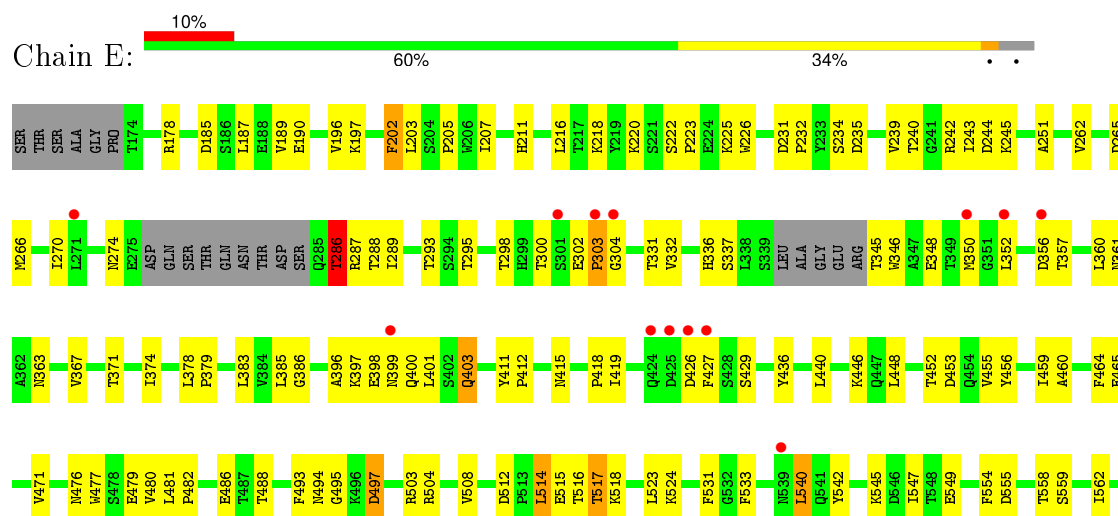


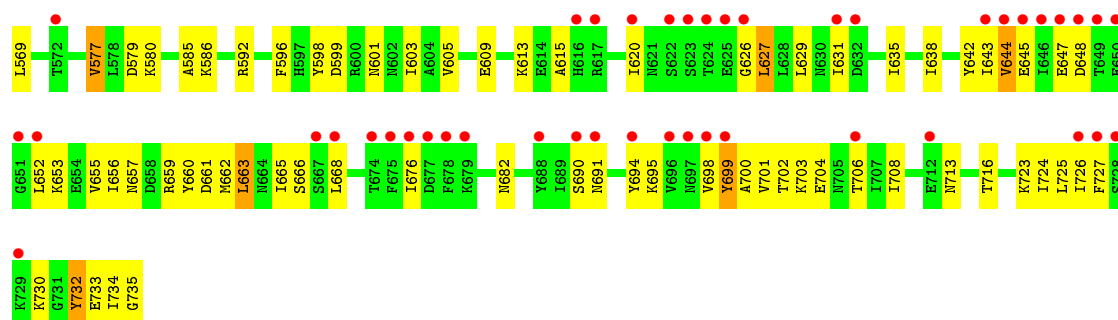


• Molecule 1: Protective antigen PA-63

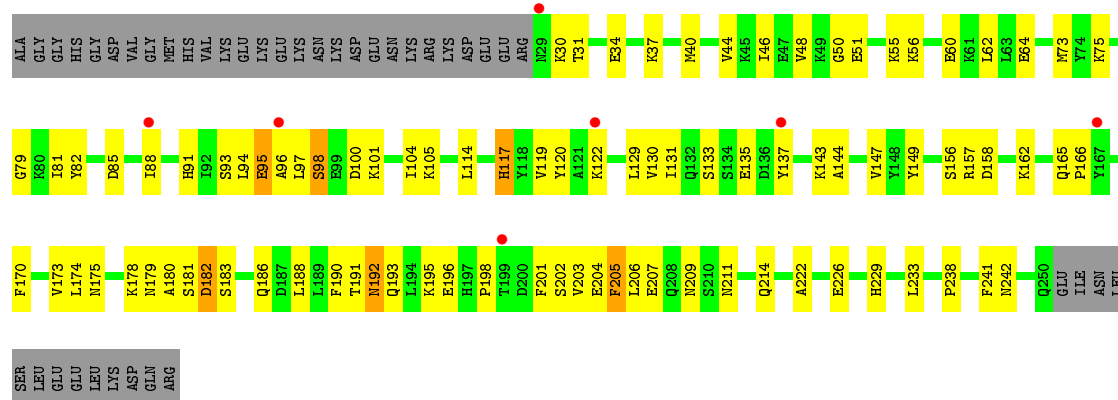


• Molecule 1: Protective antigen PA-63

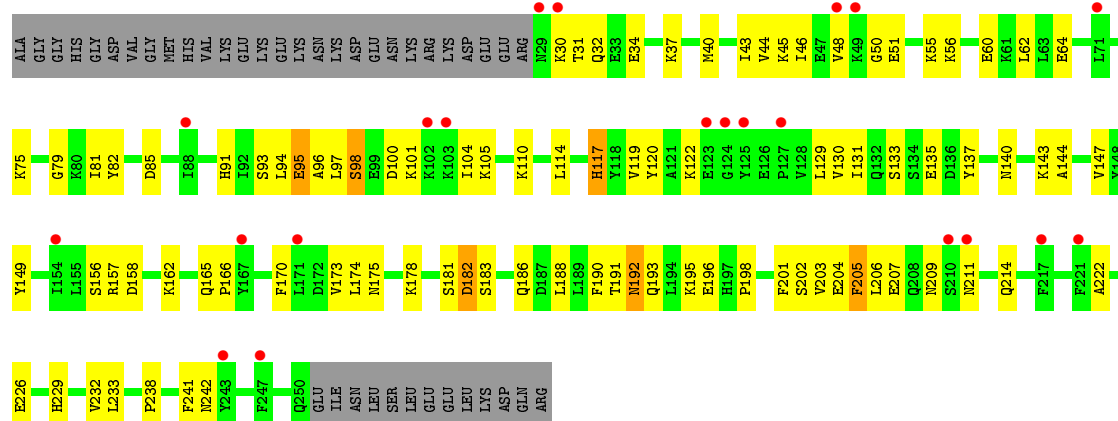




• Molecule 2: Lethal factor



• Molecule 2: Lethal factor



4 Data and refinement statistics

Property	Value	Source
Space group	P 4 21 2	Depositor
Cell constants a, b, c, α , β , γ	178.38 Å 178.38 Å 240.36 Å 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
$\langle I/\sigma(I) \rangle$ ¹	2.46 (at 3.12 Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.6.1_357)	Depositor
R, R_{free}	0.249 , 0.281 0.244 , 0.278	Depositor DCC
R_{free} test set	1871 reflections (2.83%)	DCC
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
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning ²	$\langle L \rangle = 0.44$, $\langle L^2 \rangle = 0.27$	Xtriage
Outliers	1 of 70642 reflections (0.001%)	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.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.375 respectively for untwinned datasets, and 0.333, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: 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(°)	Ideal(°)
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 [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	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:E:231:ASP:HB2	1:E:232:PRO:HD3	1.69	0.75
1:B:659:ARG:HE	1:B:716:THR:HG21	1.52	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:D:577:VAL:HG22	1:D:580:LYS:HB2	1.72	0.70
1:A:577:VAL:HG22	1:A:580:LYS:HB2	1.71	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:F:156:SER:HB2	2:F:214:GLN:HB2	1.74	0.69
2:C:156:SER:HB2	2:C: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:D:266:MET:N	1:D:295:THR:HG21	2.07	0.68
1:A:202:PHE:CE2	1:A:204:SER:HB3	2.27	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:B:266:MET:N	1:B:295:THR:HG21	2.09	0.67
1:A:360:LEU:HD23	1:A:361:ASN:N	2.10	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
1:D:493:PHE:CZ	1:D:495:GLY:HA3	2.31	0.66
1:D:274:ASN:HB3	1:D:357:THR:HG23	1.76	0.66
2:C:48:VAL:HG12	2:C:50:GLY:H	1.58	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:E:401:LEU:HB2	1:E:403:GLN:OE1	1.98	0.64
1:B:493:PHE:CZ	1:B:495:GLY:HA3	2.32	0.64
1:B:401:LEU:HB2	1:B: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:E:659:ARG:NE	1:E:716:THR:HG21	2.13	0.64
1:D:702:THR:CG2	1:D:704:GLU:HG2	2.27	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:D:699:TYR:HB2	1:D:724:ILE:O	1.98	0.63
1:A:702:THR:CG2	1:A:704:GLU:HG2	2.27	0.63
1:D:729:LYS:HD3	1:D:734:ILE:O	1.98	0.63
1:D:396:ALA:HB1	1:D:401:LEU:HD21	1.80	0.63
1:A:729:LYS:HD3	1:A:734:ILE:O	1.98	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:D:704:GLU:HG3	1:D:705:ASN:ND2	2.15	0.62
1:A:704:GLU:HG3	1:A:705:ASN:ND2	2.14	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
2:F:157:ARG:HG3	2:F:158:ASP:N	2.15	0.61
1:D:659:ARG:HA	1:D:716:THR:O	2.00	0.61
1:B:396:ALA:HB1	1:B:401:LEU:HD21	1.80	0.61
2:F:119:VAL:HG23	2:F:131:ILE:HG22	1.82	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:B:555:ASP:OD1	1:B:558:THR:HG22	2.01	0.61
1:A:691:ASN:HB3	1:A:694:TYR:CZ	2.35	0.61
1:A:338:LEU:HD12	1:A:662:MET:HG2	1.81	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:E:699:TYR:HA	1:E:726:ILE:HG12	1.82	0.60
1:B:702:THR:HG22	1:B:704:GLU:HG2	1.83	0.60
1:E:699:TYR:CD2	1:E:699:TYR:N	2.69	0.60
1:B:508:VAL:HG13	1:B:516:THR:HA	1.84	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:D:642:TYR:CE1	1:D:700:ALA:HB2	2.37	0.59
1:B:302:GLU:HB3	1:B:303:PRO:HD2	1.85	0.59
1:A:463:ASN:HB3	1:A:465:GLU:OE2	2.02	0.59
2:F:211:ASN:O	2:F:214:GLN:HG2	2.03	0.59
1:D:302:GLU:HB3	1:D:303:PRO:HD2	1.84	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:699:TYR:N	1:A:699:TYR:HD2	2.01	0.59
1:A:302:GLU:HB3	1:A:303:PRO:HD2	1.85	0.59
2:F:170:PHE:O	2:F:173:VAL:HG12	2.02	0.59
1:D:338:LEU:HD12	1:D:681:TYR:HE1	1.66	0.59
2:C:192:ASN:HA	2:C:195:LYS:HE2	1.84	0.58
1:B:620:ILE:HG12	1:B:629:LEU:HA	1.83	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:178:LYS:HB2	2:F:201:PHE:CE2	2.38	0.58
2:C:170:PHE:O	2:C:173:VAL:HG12	2.03	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:E:508:VAL:HG13	1:E:516:THR:HA	1.84	0.58
1:D:663:LEU:HD13	1:D:701:VAL:HG11	1.84	0.58
1:A:659:ARG:HE	1:A:716:THR:HG21	1.69	0.58
1:A:508:VAL:HG13	1:A:516:THR:HA	1.85	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
1:D:645:GLU:HA	1:D:655:VAL:HA	1.85	0.58
2:C:175:ASN:OD1	2:C:201:PHE:HB2	2.04	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:N	1:D:699:TYR:CD2	2.72	0.57
1:D:699:TYR:N	1:D:699:TYR:HD2	2.02	0.57
1:D:232:PRO:CG	1:D:459:ILE:HD13	2.34	0.57
1:D:659:ARG:HE	1:D:716:THR:HG21	1.68	0.57
1:B:615:ALA:HB1	1:B:631:ILE:HG13	1.86	0.57
1:B:262:VAL:HG21	1:B:374:ILE:HD12	1.86	0.57
1:A:635:ILE:O	1:A:638:ILE:HG12	2.04	0.57
2:F:175:ASN:OD1	2:F:201:PHE:HB2	2.05	0.57
1:D:635:ILE:O	1:D:638:ILE:HG12	2.04	0.57
1:B:699:TYR:CD2	1:B:699:TYR:N	2.69	0.57
1:D:647:GLU:O	1:D:694:TYR:HB2	2.05	0.57
1:D:608:ASP:O	1:D:611:VAL:HG22	2.04	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:E:262:VAL:HG21	1:E:374:ILE:HD12	1.87	0.56
1:D:683:ASP:O	1:D:684:LYS:HG2	2.05	0.56
1:D:345:THR:HB	1:D:348:GLU:HB3	1.88	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
2:F:156:SER:CB	2:F:214:GLN:HB2	2.35	0.56
2:C:156:SER:CB	2:C:214:GLN:HB2	2.35	0.56
1:A:476:ASN:O	1:A:479:GLU:HG2	2.06	0.56
1:E:345:THR:HB	1:E:348:GLU:HB3	1.88	0.56
2:C:81:ILE:HD12	2:C:81:ILE:O	2.06	0.56
1:E:350:MET:HE2	1:E:352:LEU:HD11	1.87	0.56
1:A:302:GLU:HG3	1:B:415:ASN:HB3	1.88	0.56
2:C:186:GLN:HB2	2:C:190:PHE:CD2	2.41	0.56
1:A:345:THR:HB	1:A:348:GLU:HB3	1.88	0.56
1:E:298:THR:HB	1:E:601:ASN:HB3	1.86	0.55
1:B:345:THR:HB	1:B:348:GLU:HB3	1.88	0.55
2:F:81:ILE:O	2:F:81:ILE:HD12	2.06	0.55
1:D:647:GLU:HA	1:D:652:LEU:O	2.06	0.55
1:A:647:GLU:HA	1:A: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:D:190:GLU:CD	2:F:140:ASN:HA	2.28	0.54
1:B:512:ASP:O	1:B:516:THR:HG23	2.08	0.54
1:D:643:ILE:HG22	1:D:663:LEU:HD22	1.89	0.54
1:E:555:ASP:CG	1:E:558:THR:HG22	2.28	0.54
1:B:644:VAL:HB	1:B:698:VAL:HG22	1.90	0.54
1:A:699:TYR:CZ	1:A:723:LYS:HD2	2.43	0.54
1:D:555:ASP:CG	1:D:558:THR:HG22	2.29	0.54
1:B:360:LEU:HD23	1:B:361:ASN:N	2.22	0.54
1:E:401:LEU:HD22	1:E:401:LEU:H	1.73	0.54
1:B:401:LEU:HD22	1:B:401:LEU:H	1.73	0.54
1:D:705:ASN:N	1:D:705:ASN:HD22	2.05	0.54
1:A:643:ILE:HG22	1:A:663:LEU:HD22	1.89	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:E:642:TYR:HE2	1:E:666:SER:HB2	1.73	0.53
1:B:648:ASP:HB2	1:B:652:LEU:HB3	1.90	0.53
1:D:512:ASP:O	1:D:516:THR:HG23	2.08	0.53
1:E:644:VAL:HB	1:E:698:VAL:HG22	1.89	0.53
1:E:379:PRO:HB2	1:E:452:THR:HG23	1.90	0.53
1:B:613:LYS:O	1:B:617:ARG:N	2.42	0.53
1:E:648:ASP:HB2	1:E:652:LEU:HB3	1.90	0.53
1:D:698:VAL:HB	1:D:727:PHE:HB3	1.91	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:E:189:VAL:HG13	1:E:223:PRO:HG3	1.91	0.53
1:A:656:ILE:HD11	1:A:682:ASN:CB	2.39	0.53
1:A:642:TYR:HB2	1:A:665:ILE:HD11	1.89	0.53
1:B:189:VAL:HG13	1:B:223:PRO:HG3	1.91	0.53
1:D:730:LYS:HB2	1:D:734:ILE:HG21	1.90	0.53
1:D:642:TYR:HB2	1:D:665:ILE:HD11	1.89	0.53
1:D:615:ALA:HB2	1:D:635:ILE:HD12	1.91	0.53
1:D:656:ILE:HD11	1:D:682:ASN:CB	2.39	0.53
1:A:698:VAL:HB	1:A:727:PHE:HB3	1.91	0.53
1:A:189:VAL:HG23	1:A:190:GLU:HG3	1.90	0.53
1:D:436:TYR:CE2	1:D:440:LEU:HD11	2.43	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:D:699:TYR:CD1	1:D:725:LEU:HD23	2.44	0.52
1:B:555:ASP:CG	1:B:558:THR:HG22	2.29	0.52
1:B:481:LEU:N	1:B:482:PRO:HD2	2.24	0.52
1:B:436:TYR:CE2	1:B:440:LEU:HD11	2.43	0.52
1:D:401:LEU:HD22	1:D:401:LEU:H	1.74	0.52
2:F:144:ALA:O	2:F:147:VAL:HG22	2.10	0.52
1:A:657:ASN:HA	1:A:662:MET:HE3	1.91	0.52
1:D:659:ARG:HG3	1:D:662:MET:HE1	1.92	0.52
1:A:401:LEU:H	1:A:401:LEU:HD22	1.74	0.52
1:B:644:VAL:HG13	1:B:656:ILE:HG22	1.91	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:E:659:ARG:HB2	1:E:662:MET:HG3	1.91	0.52
1:A:481:LEU:N	1:A:482:PRO:HD2	2.25	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
1:E:659:ARG:HA	1:E:716:THR:O	2.09	0.52
1:E:656:ILE:HD11	1:E:682:ASN:CG	2.30	0.52
2:C:181:SER:O	2:C:182:ASP:HB2	2.10	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:379:PRO:HB2	1:B:452:THR:HG23	1.91	0.51
1:B:187:LEU:HD21	1:B:205:PRO:HG3	1.92	0.51
1:A:642:TYR:CD1	1:A:700:ALA:HB2	2.45	0.51
1:A:383:LEU:HD11	1:A:448:LEU:HD13	1.92	0.51
1:E:481:LEU:N	1:E:482:PRO:HD2	2.26	0.51
1:E:242:ARG:NH2	2:F:43:ILE:HD11	2.25	0.51
1:D:702:THR:HG22	1:D:704:GLU:HG2	1.91	0.51
1:A:712:GLU:HG3	1:A:713:ASN:ND2	2.25	0.51
1:E:202:PHE:CE2	2:F:45:LYS:HG3	2.46	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
1:A:494:ASN:OD1	1:A:592:ARG:HA	2.10	0.51
1:B:585:ALA:O	1:B:586:LYS:HB2	2.10	0.51
1:B:494:ASN:OD1	1:B:592:ARG:HA	2.11	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:E:265:ASP:HA	1:E:295:THR:HG21	1.92	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: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
1:D:222:SER:OG	1:D:517:THR:HG23	2.11	0.51
2:C:191:THR:C	2:C:193:GLN:H	2.13	0.51
1:D:481:LEU:N	1:D:482:PRO:HD2	2.25	0.51
1:D:702:THR:HG22	1:D:704:GLU:H	1.76	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:A:702:THR:HG22	1:A:704:GLU:H	1.76	0.51
1:E:644:VAL:HG13	1:E:656:ILE:HG22	1.92	0.51

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

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:455:VAL:HG23	1:E:455:VAL:O	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: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:A:695:LYS:HE3	1:A:697:ASN:HD21	1.78	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:E:596:PHE:HD1	1:E:638:ILE:HD13	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:E:286:THR:HG22	1:E:287:ARG:H	1.76	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
2:C:238:PRO:O	2:C:242:ASN:HB2	2.12	0.49
1:A:286:THR:HG22	1:A:287:ARG:H	1.77	0.49
1:A:286:THR:O	1:A:288:THR:HG23	2.12	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:A:325:SER:CB	1:B:415:ASN:HD21	2.26	0.49
1:B:558:THR:O	1:B:562:ILE:HG12	2.13	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:B:642:TYR:HB2	1:B:665:ILE:HD11	1.93	0.49
1:B:642:TYR:CE1	1:B:700:ALA:HB2	2.48	0.49
1:B:515:GLU:OE1	1:B:518:LYS:HE3	2.13	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
1:E:453:ASP:OD1	1:E:455:VAL:HG22	2.13	0.48
2:C:31:THR:HG23	2:C:34:GLU:H	1.78	0.48
1:D:455:VAL:O	1:D:455:VAL:HG23	2.13	0.48
1:A:231:ASP:HB2	1:A:232:PRO:HD3	1.96	0.48
1:D:302:GLU:HG3	1:E:415:ASN:HB3	1.96	0.48
1:A:374:ILE:HD11	1:A:456:TYR:CD1	2.49	0.48
1:E:401:LEU:HD22	1:E:401:LEU:N	2.29	0.48
1:D:689:ILE:HG13	1:D:689:ILE:O	2.13	0.48
1:B:403:GLN:HG2	1:B:411:TYR:CZ	2.48	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:D:515:GLU:OE1	1:D:518:LYS:HE3	2.14	0.48
1:A:689:ILE:O	1:A:689:ILE:HG13	2.14	0.48
1:E:698:VAL:HB	1:E:727:PHE:HB3	1.96	0.48
1:D:398:GLU:C	1:D:400:GLN:H	2.17	0.48
1:A:488:THR:OG1	1:A:504:ARG:HD3	2.13	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: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:453:ASP:OD1	1:A:455:VAL:HG22	2.14	0.48
2:C:37:LYS:HA	2:C:40:MET:HG2	1.96	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:D:374:ILE:HD11	1:D:456:TYR:CD1	2.50	0.47
1:A:515:GLU:OE1	1:A:518:LYS:HE3	2.14	0.47
1:A:231:ASP:HB2	1:A:232:PRO:HD2	1.96	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:B:379:PRO:HB2	1:B:452:THR:CG2	2.44	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
1:E:724:ILE:O	1:E:726:ILE:HG23	2.15	0.47
1:E:643:ILE:HD11	1:E:723:LYS:HD3	1.97	0.47
1:E:222:SER:OG	1:E:225:LYS:HG3	2.15	0.47
2:C:95:GLU:HB2	2:C:96:ALA:H	1.46	0.47
1:D:656:ILE:HD11	1:D:682:ASN:CG	2.34	0.47
1:D:615:ALA:CB	1:D:635:ILE:HD12	2.44	0.47
1:B:222:SER:OG	1:B:225:LYS:HG3	2.15	0.47
1:D:453:ASP:OD1	1:D:455:VAL:HG22	2.14	0.47
2:F:196:GLU:O	2:F:198:PRO:HD3	2.14	0.47
1:A:191:GLY:HA2	1:A:219:TYR:O	2.14	0.47
1:B:398:GLU:C	1:B:400:GLN:H	2.17	0.47
1:D:558:THR:O	1:D:562:ILE:HG12	2.15	0.47
1:A:446:LYS:HG3	1:A:708:ILE:HD12	1.96	0.47
1:A:656:ILE:HD11	1:A:682:ASN:CG	2.35	0.47
1:A:401:LEU:HD22	1:A:401:LEU:N	2.29	0.47
1:A:615:ALA:CB	1:A:635:ILE:HD12	2.44	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:E:398:GLU:C	1:E:400:GLN:H	2.17	0.47
1:A:398:GLU:C	1:A:400:GLN:H	2.17	0.47
1:B:643:ILE:HG23	1:B:663:LEU:HD22	1.96	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:B:374:ILE:HD11	1:B:456:TYR:CD1	2.49	0.47
1:E:515:GLU:OE1	1:E:518:LYS:HE3	2.15	0.47
2:F:37:LYS:HA	2:F:40:MET:HG2	1.96	0.47
1:B:730:LYS:HD2	1:B:732:TYR:OH	2.15	0.47
1:A:603:ILE:O	1:A:605:VAL:HG13	2.14	0.47
2:C:104:ILE:HG22	2:C:105:LYS:H	1.80	0.47
1:E:558:THR:O	1:E:562:ILE:HG12	2.14	0.47
1:B:231:ASP:CB	1:B:232:PRO:CD	2.91	0.47
2:F:104:ILE:HG22	2:F:105:LYS:H	1.80	0.47
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:B:695:LYS:HB3	1:B:730:LYS:HA	1.96	0.46
1:A:379:PRO:HB2	1:A:452:THR:CG2	2.44	0.46
2:C:157:ARG:HB3	2:C: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:N	1:B:401:LEU:HD22	2.29	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
2:F:100:ASP:OD1	2:F:101:LYS:N	2.48	0.46
1:E:503:ARG:HB2	1:E:531:PHE:CZ	2.51	0.46
1:A:644:VAL:HG13	1:A:656:ILE:HG22	1.97	0.46
1:A:460:ALA:HA	1:A:471:VAL:HA	1.98	0.46
1:E:426:ASP:OD2	1:E:429:SER:HB3	2.15	0.46
1:B:643:ILE:HD11	1:B:723:LYS:HD3	1.97	0.46
1:B:185:ASP:O	1:B:189:VAL:HG22	2.15	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:E:226:TRP:CZ2	1:E:234:SER:HB3	2.50	0.46
1:B:608:ASP:O	1:B:611:VAL:HG22	2.15	0.46
1:A:646:ILE:HG23	1:A:696:VAL:HG22	1.98	0.46
1:A:498:LEU:HD11	1:A:596:PHE:CE2	2.50	0.46
1:E:203:LEU:HD22	2:F:44:VAL:HG23	1.98	0.46
1:B:734:ILE:HG13	1:B:735:GLY:N	2.30	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:660:TYR:CE2	1:B:716:THR:HG23	2.50	0.46
1:E:695:LYS:HB3	1:E:730:LYS:HA	1.96	0.46
1:D:379:PRO:HB2	1:D:452:THR:CG2	2.44	0.46
2:C:165:GLN:HA	2:C:166:PRO:C	2.35	0.46
1:E:626:GLY:HA3	1:E:676:ILE:O	2.15	0.46
1:B:207:ILE:HB	1:B:211:HIS:CE1	2.50	0.46
1:B:724:ILE:O	1:B:726:ILE:HG23	2.15	0.46
1:A:486:GLU:OE1	1:A:586:LYS:HE2	2.16	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: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
1:D:426:ASP:OD2	1:D:429:SER:HB3	2.16	0.46
2:F:143:LYS:O	2:F:147:VAL:HG13	2.16	0.45
1:E:730:LYS:HD2	1:E:732:TYR:OH	2.15	0.45
1:A:503:ARG:HB2	1:A:531:PHE:CZ	2.51	0.45
1:B:226:TRP:CZ2	1:B:234:SER:HB3	2.50	0.45
1:A:426:ASP:OD2	1:A:429:SER:HB3	2.16	0.45
1:B:426:ASP:OD2	1:B:429:SER:HB3	2.16	0.45
2:F:62:LEU:HD11	2:F:137:TYR:CD1	2.52	0.45
1:D:243:ILE:HG12	1:D:244:ASP:N	2.31	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:503:ARG:HB2	1:B:531:PHE:CZ	2.51	0.45
1:B:270:ILE:HA	1:B:289:ILE:O	2.16	0.45
1:E:222:SER:HA	1:E:223:PRO:HD3	1.82	0.45
1:A:243:ILE:HG12	1:A:244:ASP:N	2.31	0.45
1:E:609:GLU:O	1:E:613:LYS:HG3	2.16	0.45
1:D:691:ASN:HB3	1:D:694:TYR:CE1	2.51	0.45
1:D:644:VAL:HG13	1:D:656:ILE:HG22	1.97	0.45
1:A:711:SER:OG	1:A:715:ASP:HB3	2.17	0.45
1:A:226:TRP:CZ2	1:A:234:SER:HB3	2.52	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:D:300:THR:HB	1:D:302:GLU:HB2	1.99	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
2:C:98:SER:O	2:C:101:LYS:HG2	2.16	0.45
1:B:626:GLY:HA3	1:B:676:ILE:O	2.16	0.45
1:E:643:ILE:HD11	1:E:723:LYS:HB3	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:648:ASP:OD2	1:B:652:LEU:HB3	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
2:C:60:GLU:O	2:C:64:GLU:HG3	2.17	0.45
1:D:486:GLU:OE1	1:D:586:LYS:HE2	2.16	0.45
1:B:243:ILE:HG12	1:B:244:ASP:N	2.32	0.45
1:E:648:ASP:OD2	1:E:652:LEU:HB3	2.17	0.44
1:E:189:VAL:HG23	1:E:190:GLU:HG3	1.98	0.44
2:C:143:LYS:O	2:C:147:VAL:HG13	2.16	0.44
2:F:98:SER:O	2:F:101:LYS:HG2	2.16	0.44
2:C:226:GLU:HB3	2:C:229:HIS:HB2	1.99	0.44
1:B:554:PHE:HB2	1:B:559:SER:HB2	2.00	0.44
1:E:352:LEU:HB3	1:E:356:ASP:OD2	2.17	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:B:184:PRO:CD	2:C:44:VAL:HG21	2.47	0.44
1:A:300:THR:HB	1:A:302:GLU:HB2	1.99	0.44
1:A:214:LYS:HB2	1:A:216:LEU:HG	1.99	0.44
1:E:412:PRO:HD3	1:E:419:ILE:HG13	1.99	0.44
1:B:643:ILE:CG2	1:B:663:LEU:HD22	2.48	0.44
1:E:690:SER:HB3	1:E:694:TYR:OH	2.17	0.44
1:A:175:VAL:HA	1:A:176:PRO:HD3	1.83	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:300:THR:HB	1:E:302:GLU:HB2	1.99	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: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:A:642:TYR:HA	1:A:700:ALA:HA	1.98	0.44
1:B:690:SER:HB3	1:B:694:TYR:OH	2.17	0.44
1:E:486:GLU:OE1	1:E:586:LYS:HE2	2.18	0.44
1:D:412:PRO:HD3	1:D:419:ILE:HG13	1.98	0.44
1:A:659:ARG:HG3	1:A:662:MET:HE1	1.98	0.44
2:F:104:ILE:HD11	2:F:114:LEU:HB2	2.00	0.44
1:E:211:HIS:HB3	1:E:216:LEU:HD12	2.00	0.44
1:B:412:PRO:HD3	1:B:419:ILE:HG13	1.99	0.44
1:A:352:LEU:HB3	1:A:356:ASP:OD2	2.17	0.44
1:E:197:LYS:HE2	2:F:135:GLU:HG2	2.00	0.44
1:D:690:SER:HB3	1:D:694:TYR:OH	2.18	0.44
1:E:605:VAL:O	1:E:702:THR:HG23	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:B:596:PHE:HD1	1:B:638:ILE:HD13	1.81	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:690:SER:HB3	1:A:694:TYR:OH	2.18	0.43
1:D:704:GLU:HG3	1:D:705:ASN:HD22	1.83	0.43
1:B:446:LYS:HB2	1:B:708:ILE:HD12	1.99	0.43
1:B:211:HIS:HB3	1:B:216:LEU:HD12	2.00	0.43
1:D:636:ARG:HD3	1:D:674:THR:HG21	2.00	0.43
1:B:477:TRP:HA	1:B:480:VAL:HG12	2.00	0.43
1:D:209:ASN:N	1:D:209:ASN:OD1	2.49	0.43
1:A:629:LEU:HD23	1:A:629:LEU:N	2.33	0.43
1:A:412:PRO:HD3	1:A:419:ILE:HG13	1.99	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:O	2:F:174:LEU:HD23	2.18	0.43
1:D:516:THR:OG1	1:E:196:VAL:HG21	2.19	0.43
1:B:222:SER:HA	1:B:223:PRO:HD3	1.81	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:D:222:SER:HA	1:D:223:PRO:HD3	1.77	0.43
2:C:122:LYS:HE3	2:C:122:LYS:HB2	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:477:TRP:HA	1:A:480:VAL:HG12	2.01	0.43
1:E:232:PRO:CG	1:E:459:ILE:HD13	2.48	0.43
1:A:222:SER:HA	1:A:223:PRO:HD3	1.77	0.43
2:C:94:LEU:HB2	2:C:122:LYS:HZ1	1.84	0.43
2:C:82:TYR:HB2	2:C:130:VAL:HG23	2.00	0.43
1:D:711:SER:OG	1:D:715:ASP:HB3	2.17	0.43
1:A:209:ASN:N	1:A:209:ASN:OD1	2.49	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:255:LEU:HD21	1:A:519:PRO: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:E:397:LYS:C	1:E:399:ASN:H	2.22	0.43
1:B:460:ALA:HA	1:B:471:VAL:HA	2.01	0.43
1:D:609:GLU:O	1:D:613:LYS:HG3	2.18	0.43
1:A:609:GLU:O	1:A:613:LYS:HG3	2.19	0.43
1:E:477:TRP:HA	1:E:480:VAL:HG12	2.01	0.43
1:E:554:PHE:HB2	1:E:559:SER:HB2	2.01	0.43
1:D:295:THR:HA	1:D:331:THR:O	2.19	0.43
2:C:56:LYS:O	2:C:60:GLU:HG3	2.19	0.43
1:B:363:ASN:HB3	1:B:418:PRO:HB2	2.01	0.43
2:C:206:LEU:HD23	2:C:207:GLU:H	1.82	0.43
1:B:295:THR:HA	1:B:331:THR:O	2.18	0.42
1:A:554:PHE:HB2	1:A:559:SER:HB2	2.01	0.42
1:D:293:THR:HB	1:D:332:VAL:HG13	2.01	0.42
1:A:705:ASN:N	1:A:705:ASN:ND2	2.67	0.42
1:D:352:LEU:HD22	1:D:356:ASP:OD2	2.19	0.42
1:B:352:LEU:HD22	1:B:356:ASP:OD2	2.19	0.42
1:D:397:LYS:C	1:D:399:ASN:H	2.22	0.42
1:A:636:ARG:HD3	1:A:674:THR:HG21	2.00	0.42
1:D:477:TRP:HA	1:D:480:VAL:HG12	2.01	0.42
1:E:569:LEU:HD13	1:E:577:VAL:HG21	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
1:D:189:VAL:HG13	1:D:223:PRO:HG3	2.00	0.42
1:E:178:ARG:HG3	1:E:185:ASP:OD2	2.19	0.42
2:C:104:ILE:HD11	2:C:114:LEU:HB2	2.00	0.42
2:C:174:LEU:O	2:C:174:LEU:HD23	2.18	0.42
1:D:363:ASN:HB3	1:D:418:PRO:HB2	2.02	0.42
1:E:647:GLU:O	1:E:694:TYR:HB2	2.19	0.42
1:A:397:LYS:C	1:A:399:ASN:H	2.22	0.42
1:D:231:ASP:HB2	1:D:232:PRO:HD3	1.97	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:D:360:LEU:C	1:D:360:LEU:HD23	2.40	0.42
1:D:731:GLY:H	1:D:734:ILE:HG23	1.84	0.42
1:B:647:GLU:O	1:B:694:TYR:HB2	2.19	0.42
1:A:533:PHE:CE1	1:A:542:TYR:HB2	2.55	0.42
1:A:363:ASN:HB3	1:A:418:PRO:HB2	2.01	0.42
2:C:233:LEU:HG	2:C:241:PHE:HB2	2.00	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:E:643:ILE:CG2	1:E:663:LEU:HD22	2.48	0.42
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
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: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:D:642:TYR:CE2	1:D:666:SER:HB2	2.55	0.42
1:E:363:ASN:HB3	1:E:418:PRO:HB2	2.01	0.42
2:F:104:ILE:HG22	2:F:105:LYS:N	2.35	0.42
1:E:336:HIS:CD2	1:E:708:ILE:HA	2.54	0.42
1:E:497:ASP:OD1	1:E:497:ASP:N	2.53	0.42
1:E:533:PHE:CE1	1:E:542:TYR:HB2	2.55	0.42
1:D:325:SER:CB	1:E:415:ASN:HD21	2.33	0.42
1:A:731:GLY:H	1:A:734:ILE:HG23	1.84	0.42
1:A:642:TYR:CE2	1:A:666:SER:HB2	2.55	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
2:F:120:TYR:O	2:F:129:LEU:HD12	2.19	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
1:A:270:ILE:HA	1:A:289:ILE:O	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:E:703:LYS:HA	1:E:706:THR:OG1	2.19	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:A:497:ASP:N	1:A:497:ASP:OD1	2.53	0.42
1:D:609:GLU:HA	1:D:724:ILE:HD13	2.02	0.41
1:E:293:THR:HB	1:E:332:VAL:HG13	2.02	0.41
1:D:705:ASN:ND2	1:D:705:ASN:N	2.67	0.41
1:D:222:SER:OG	1:D:517:THR:CG2	2.68	0.41
2:F:183:SER:O	2:F:186:GLN:HG2	2.20	0.41
1:D:374:ILE:HD11	1:D:456:TYR:CG	2.55	0.41
2:C:120:TYR:O	2:C:129:LEU:HD12	2.19	0.41
1:D:699:TYR:HB3	1:D:725:LEU:HA	2.00	0.41
1:A:189:VAL:HG13	1:A:223:PRO:HG3	2.01	0.41
2:F:56:LYS:O	2:F:60:GLU:HG3	2.19	0.41
1:D:625:GLU:HB3	1:D:679:LYS:CE	2.40	0.41
2:C:183:SER:O	2:C:186:GLN:HG2	2.20	0.41
1:E:374:ILE:HD11	1:E:456:TYR:CG	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:515:GLU:OE2	1:B:245:LYS:HE3	2.20	0.41
1:A:385:LEU:HD12	1:A:386:GLY:H	1.85	0.41
1:D:270:ILE:HA	1:D:289:ILE:O	2.20	0.41
1:A:293:THR:HB	1:A:332:VAL:HG13	2.02	0.41
1:E:295:THR:HA	1:E:331:THR:O	2.19	0.41
1:B:699:TYR:HD2	1:B:699:TYR:N	2.16	0.41
1:A:659:ARG:HE	1:A:716:THR:CG2	2.32	0.41
1:D:524:LYS:CE	1:D:579:ASP:HB3	2.50	0.41
1:B:533:PHE:CE1	1:B:542:TYR:HB2	2.55	0.41
1:B:569:LEU:HD13	1:B:577:VAL:HG21	2.02	0.41
1:E:403:GLN:HG2	1:E:411:TYR:OH	2.20	0.41
1:A:403:GLN:HG2	1:A:411:TYR:OH	2.20	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:E:524:LYS:CE	1:E:579:ASP:HB3	2.50	0.41
1:D:533:PHE:CE1	1:D:542:TYR:HB2	2.55	0.41
1:D:385:LEU:HD12	1:D:386:GLY:H	1.86	0.41
1:E:732:TYR:HB2	1:E:733:GLU:H	1.72	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:E:245:LYS:HA	1:E:245:LYS:HD3	1.89	0.41
1:D:178:ARG:HG3	1:D:185:ASP:OD2	2.20	0.41
1:B:631:ILE:HD11	1:B:635:ILE:HG21	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:B:533:PHE:HB3	1:B:540:LEU:HD21	2.02	0.41
1:D:533:PHE:HB3	1:D:540:LEU:HD21	2.03	0.41
1:A:178:ARG:HG3	1:A:185:ASP:OD2	2.21	0.41
1:E:385:LEU:HD12	1:E:386:GLY:H	1.86	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:B:378:LEU:HB2	1:B:396:ALA:HB2	2.03	0.41
1:A:533:PHE:HB3	1:A:540:LEU:HD21	2.03	0.41
1:D:368:ASN:HB2	1:D:405:LEU:HG	2.03	0.41
1:B:497:ASP:N	1:B:497:ASP:OD1	2.53	0.41
1:B:303:PRO:HB2	1:B:304:GLY:H	1.61	0.41
1:A:188:GLU:HA	1:A:192:TYR:CE2	2.56	0.41
1:D:713:ASN:H	1:D:713:ASN:ND2	2.19	0.41
1:D:378:LEU:HB2	1:D:396:ALA:HB2	2.02	0.40
1:A:713:ASN:N	1:A:713:ASN:ND2	2.69	0.40
1:E:218:LYS:HE2	1:E:220:LYS:HE3	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:245:LYS:HA	1:A:245:LYS:HD3	1.90	0.40
2:C:73:MET:HE3	2:C:73:MET:HB2	1.94	0.40
1:D:361:ASN:OD1	1:D:362:ALA:N	2.54	0.40
1:B:403:GLN:HG2	1:B:411:TYR:OH	2.21	0.40
1:A:378:LEU:HB2	1:A:396:ALA:HB2	2.03	0.40
1:D:190:GLU:OE2	2:F:140:ASN:HA	2.21	0.40
2:C:104:ILE:HG22	2:C:105:LYS:N	2.35	0.40
2:F:149:TYR:HA	2:F:222:ALA:HB2	2.03	0.40
1:B:643:ILE:CD1	1:B:723:LYS:HD3	2.50	0.40
1:A:704:GLU:HG3	1:A:705:ASN:HD22	1.83	0.40
1:E:629:LEU:N	1:E:629:LEU:HD23	2.36	0.40
1:E:592:ARG:HB3	1:E:598:TYR:CZ	2.56	0.40
1:E:533:PHE:HB3	1:E:540:LEU:HD21	2.03	0.40
2:C:149:TYR:HA	2:C:222:ALA:HB2	2.03	0.40
1:B:397:LYS:C	1:B:399:ASN:H	2.22	0.40
1:D:175:VAL:HA	1:D:176:PRO:HD3	1.83	0.40
2:F:44:VAL:O	2:F:44:VAL:HG13	2.22	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
1:D:545:LYS:HE2	1:D:549:GLU:CB	2.52	0.40
2:F:105:LYS:HA	2:F:110:LYS:O	2.21	0.40
1:B:368:ASN:HB2	1:B:405:LEU:HG	2.03	0.40
1:B:218:LYS:HE2	1:B:220:LYS:HE3	2.02	0.40
1:E:378:LEU:HB2	1:E:396:ALA:HB2	2.02	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
2:C:179:ASN:O	2:C:180:ALA:HB2	2.22	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	521/548 (95%)	471 (90%)	45 (9%)	5 (1%)	19	58
1	B	520/548 (95%)	462 (89%)	54 (10%)	4 (1%)	24	63
1	D	520/548 (95%)	468 (90%)	47 (9%)	5 (1%)	19	58
1	E	522/548 (95%)	469 (90%)	47 (9%)	6 (1%)	17	55
2	C	220/263 (84%)	183 (83%)	30 (14%)	7 (3%)	5	26
2	F	220/263 (84%)	183 (83%)	30 (14%)	7 (3%)	5	26
All	All	2523/2718 (93%)	2236 (89%)	253 (10%)	34 (1%)	15	50

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 ⓘ

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%)	38	75
1	B	473/491 (96%)	456 (96%)	17 (4%)	42	77
1	D	473/491 (96%)	455 (96%)	18 (4%)	40	76
1	E	475/491 (97%)	457 (96%)	18 (4%)	40	76
2	C	200/236 (85%)	196 (98%)	4 (2%)	63	86
2	F	200/236 (85%)	196 (98%)	4 (2%)	63	86
All	All	2295/2436 (94%)	2215 (96%)	80 (4%)	43	78

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

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

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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

5.5 Carbohydrates ⓘ

There are no carbohydrates in this entry.

5.6 Ligand geometry

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, 95th 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%)	0.07	17 (3%)	51 27	46, 82, 173, 206	0
1	B	526/548 (95%)	0.04	19 (3%)	46 23	45, 83, 158, 206	0
1	D	526/548 (95%)	0.23	46 (8%)	13 4	47, 82, 171, 206	0
1	E	528/548 (96%)	0.31	56 (10%)	8 3	46, 84, 160, 205	0
2	C	222/263 (84%)	0.09	7 (3%)	51 27	69, 126, 169, 201	0
2	F	222/263 (84%)	0.40	21 (9%)	10 4	68, 126, 170, 198	0
All	All	2551/2718 (93%)	0.18	166 (6%)	22 8	45, 92, 169, 206	0

All (166) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	E	674	THR	9.5
1	E	425	ASP	9.0
1	A	427	PHE	8.0
1	A	425	ASP	7.9
1	E	624	THR	7.0
1	A	687	LEU	6.5
1	B	425	ASP	6.4
1	D	399	ASN	6.4
1	E	675	PHE	6.1
1	D	624	THR	6.1
1	D	627	LEU	5.7
1	D	626	GLY	5.6
1	E	667	SER	5.3
1	E	727	PHE	5.2
1	E	697	ASN	4.9
2	F	125	TYR	4.9
1	D	621	ASN	4.8
1	D	425	ASP	4.8
1	E	699	TYR	4.7

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Mol	Chain	Res	Type	RSRZ
1	A	627	LEU	4.6
2	F	49	LYS	4.5
1	B	429	SER	4.4
1	E	677	ASP	4.3
1	E	690	SER	4.3
1	E	623	SER	4.3
1	D	643	ILE	4.2
1	B	428	SER	4.2
1	A	423	ALA	4.1
2	C	29	ASN	4.1
1	E	626	GLY	4.1
2	F	127	PRO	4.0
1	A	424	GLN	4.0
1	E	399	ASN	3.9
1	E	356	ASP	3.8
1	D	429	SER	3.8
1	D	650	GLU	3.7
1	E	644	VAL	3.7
1	D	622	SER	3.7
1	D	631	ILE	3.6
1	D	400	GLN	3.6
1	B	304	GLY	3.6
1	D	652	LEU	3.6
1	E	647	GLU	3.5
1	D	427	PHE	3.5
1	E	620	ILE	3.5
1	D	729	LYS	3.5
1	A	696	VAL	3.4
1	A	428	SER	3.4
1	B	426	ASP	3.4
1	D	674	THR	3.4
1	E	625	GLU	3.4
1	D	356	ASP	3.4
1	E	678	PHE	3.3
1	B	424	GLN	3.3
1	D	689	ILE	3.3
1	E	631	ILE	3.3
1	B	272	SER	3.3
1	D	623	SER	3.3
1	B	352	LEU	3.2
1	E	668	LEU	3.2
1	D	628	LEU	3.2

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Mol	Chain	Res	Type	RSRZ
1	A	399	ASN	3.2
1	E	712	GLU	3.2
1	D	271	LEU	3.2
1	E	646	ILE	3.2
1	B	427	PHE	3.1
1	E	650	GLU	3.0
1	E	729	LYS	3.0
1	D	625	GLU	3.0
2	C	199	THR	3.0
1	D	437	ASN	3.0
1	E	426	ASP	3.0
1	E	652	LEU	3.0
1	D	711	SER	3.0
1	E	643	ILE	3.0
2	F	102	LYS	3.0
2	F	243	TYR	2.9
1	D	642	TYR	2.9
1	E	651	GLY	2.9
2	F	123	GLU	2.9
1	B	617	ARG	2.9
1	E	688	TYR	2.9
1	E	424	GLN	2.9
1	B	622	SER	2.8
2	F	124	GLY	2.8
1	D	354	THR	2.8
1	E	648	ASP	2.8
1	E	649	THR	2.8
1	B	274	ASN	2.8
1	D	428	SER	2.8
1	D	357	THR	2.8
1	D	675	PHE	2.7
1	E	676	ILE	2.7
2	C	88	ILE	2.7
1	E	691	ASN	2.7
1	E	622	SER	2.7
1	E	632	ASP	2.7
1	E	271	LEU	2.7
1	A	642	TYR	2.7
1	E	301	SER	2.7
1	E	696	VAL	2.7
1	E	645	GLU	2.6
1	D	424	GLN	2.6

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Mol	Chain	Res	Type	RSRZ
1	D	360	LEU	2.6
1	D	352	LEU	2.6
2	F	247	PHE	2.6
1	A	650	GLU	2.6
1	D	648	ASP	2.5
1	A	651	GLY	2.5
2	F	167	TYR	2.5
1	E	617	ARG	2.5
1	D	688	TYR	2.5
1	E	304	GLY	2.5
1	D	687	LEU	2.5
2	C	167	TYR	2.4
2	F	154	ILE	2.4
1	A	402	SER	2.4
1	D	426	ASP	2.4
2	F	103	LYS	2.4
1	A	727	PHE	2.4
2	F	71	LEU	2.4
1	D	655	VAL	2.4
1	B	727	PHE	2.4
1	D	421	LEU	2.4
1	E	539	ASN	2.3
1	B	338	LEU	2.3
1	E	427	PHE	2.3
1	A	357	THR	2.3
2	F	29	ASN	2.3
1	E	698	VAL	2.3
1	E	303	PRO	2.3
1	D	304	GLY	2.3
1	E	352	LEU	2.3
2	F	48	VAL	2.3
1	E	679	LYS	2.3
2	C	96	ALA	2.3
1	D	355	ALA	2.2
1	E	706	THR	2.3
1	B	674	THR	2.2
1	B	423	ALA	2.2
2	C	137	TYR	2.2
2	F	171	LEU	2.2
2	F	88	ILE	2.2
1	B	676	ILE	2.2
1	D	676	ILE	2.2

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Mol	Chain	Res	Type	RSRZ
1	B	675	PHE	2.2
2	F	30	LYS	2.2
2	F	211	ASN	2.2
2	F	221	PHE	2.2
1	D	289	ILE	2.2
2	F	210	SER	2.2
1	E	728	SER	2.1
2	C	122	LYS	2.1
1	D	288	THR	2.1
1	E	616	HIS	2.1
1	D	644	VAL	2.1
1	B	303	PRO	2.1
1	E	350	MET	2.1
2	F	217	PHE	2.1
1	E	726	ILE	2.1
1	A	429	SER	2.1
1	D	720	GLY	2.1
1	E	572	THR	2.0
1	A	688	TYR	2.0
1	E	694	TYR	2.0
1	D	733	GLU	2.0

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

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

6.3 Carbohydrates [i](#)

There are no carbohydrates in this entry.

6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95th 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	LLDF	B-factors(Å ²)	Q<0.9
3	CA	D	736	1/1	0.99	0.20	1.13	65,65,65,65	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors(\AA^2)	Q<0.9
3	CA	A	736	1/1	0.98	0.22	0.64	52,52,52,52	0
3	CA	B	736	1/1	0.99	0.22	0.47	57,57,57,57	0
3	CA	E	737	1/1	0.99	0.20	-0.00	48,48,48,48	0
3	CA	D	737	1/1	0.98	0.19	-0.01	55,55,55,55	0
3	CA	B	737	1/1	0.99	0.17	-0.57	48,48,48,48	0
3	CA	E	736	1/1	0.99	0.17	-0.78	52,52,52,52	0
3	CA	A	737	1/1	0.99	0.15	-2.13	45,45,45,45	0

6.5 Other polymers [i](#)

There are no such residues in this entry.