



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 9, 2026 – 01:24 PM UTC

PDB ID : 5J3D / pdb_00005j3d
Title : Crystal structure of human Fab 14N4 in complex with post-fusion RSV F
Authors : Mousa, J.J.; Crowe, J.E.
Deposited on : 2016-03-30
Resolution : 4.08 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	:	4-5-2 with Phenix2.0
Mogul	:	NOT EXECUTED
Xtriage (Phenix)	:	2.0
EDS	:	NOT EXECUTED
Buster-report	:	NOT EXECUTED
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

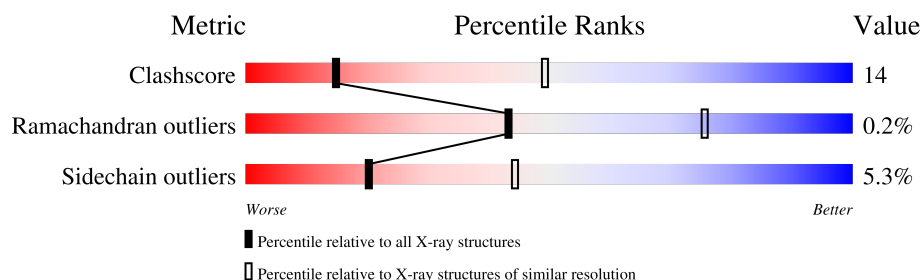
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 4.08 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))
Clashscore	190562	1249 (4.36-3.80)
Ramachandran outliers	187476	1169 (4.36-3.80)
Sidechain outliers	187428	1158 (4.36-3.80)





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 $\leq 5\%$.

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	224	
1	C	224	
1	H	224	
2	B	218	
2	D	218	
2	L	218	
3	E	73	
3	G	73	

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Mol	Chain	Length	Quality of chain
3	J	73	 56% 38% 5%
4	F	394	 59% 27% 9%
4	I	394	 59% 29% 9%
4	K	394	 60% 27% 9%

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 19902 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 14N4 heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	220	Total	C	N	O	S	0	0	0
			1624	1020	275	322	7			
1	C	220	Total	C	N	O	S	0	0	0
			1624	1020	275	322	7			
1	H	220	Total	C	N	O	S	0	0	0
			1624	1020	275	322	7			

- Molecule 2 is a protein called 14N4 light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	215	Total	C	N	O	S	0	0	0
			1665	1044	276	339	6			
2	D	215	Total	C	N	O	S	0	0	0
			1665	1044	276	339	6			
2	L	215	Total	C	N	O	S	0	0	0
			1665	1044	276	339	6			

- Molecule 3 is a protein called Fusion glycoprotein F0.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	E	73	Total	C	N	O	S	0	0	0
			580	366	95	116	3			
3	G	73	Total	C	N	O	S	0	0	0
			580	366	95	116	3			
3	J	73	Total	C	N	O	S	0	0	0
			580	366	95	116	3			

- Molecule 4 is a protein called Fusion glycoprotein F0.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	F	358	Total	C	N	O	S	0	0	0
			2765	1744	458	545	18			

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	I	358	Total	C	N	O	S	0	0	0
			2765	1744	458	545	18			
4	K	358	Total	C	N	O	S	0	0	0
			2765	1744	458	545	18			

There are 87 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F	379	VAL	ILE	conflict	UNP P03420
F	447	VAL	MET	conflict	UNP P03420
F	514	GLY	-	expression tag	UNP P03420
F	515	LEU	-	expression tag	UNP P03420
F	516	GLU	-	expression tag	UNP P03420
F	517	VAL	-	expression tag	UNP P03420
F	518	LEU	-	expression tag	UNP P03420
F	519	PHE	-	expression tag	UNP P03420
F	520	GLN	-	expression tag	UNP P03420
F	521	GLY	-	expression tag	UNP P03420
F	522	PRO	-	expression tag	UNP P03420
F	523	HIS	-	expression tag	UNP P03420
F	524	HIS	-	expression tag	UNP P03420
F	525	HIS	-	expression tag	UNP P03420
F	526	HIS	-	expression tag	UNP P03420
F	527	HIS	-	expression tag	UNP P03420
F	528	HIS	-	expression tag	UNP P03420
F	529	HIS	-	expression tag	UNP P03420
F	530	HIS	-	expression tag	UNP P03420
F	531	SER	-	expression tag	UNP P03420
F	532	ALA	-	expression tag	UNP P03420
F	533	TRP	-	expression tag	UNP P03420
F	534	SER	-	expression tag	UNP P03420
F	535	HIS	-	expression tag	UNP P03420
F	536	PRO	-	expression tag	UNP P03420
F	537	GLN	-	expression tag	UNP P03420
F	538	PHE	-	expression tag	UNP P03420
F	539	GLU	-	expression tag	UNP P03420
F	540	LYS	-	expression tag	UNP P03420
I	379	VAL	ILE	conflict	UNP P03420
I	447	VAL	MET	conflict	UNP P03420
I	514	GLY	-	expression tag	UNP P03420
I	515	LEU	-	expression tag	UNP P03420
I	516	GLU	-	expression tag	UNP P03420

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Chain	Residue	Modelled	Actual	Comment	Reference
I	517	VAL	-	expression tag	UNP P03420
I	518	LEU	-	expression tag	UNP P03420
I	519	PHE	-	expression tag	UNP P03420
I	520	GLN	-	expression tag	UNP P03420
I	521	GLY	-	expression tag	UNP P03420
I	522	PRO	-	expression tag	UNP P03420
I	523	HIS	-	expression tag	UNP P03420
I	524	HIS	-	expression tag	UNP P03420
I	525	HIS	-	expression tag	UNP P03420
I	526	HIS	-	expression tag	UNP P03420
I	527	HIS	-	expression tag	UNP P03420
I	528	HIS	-	expression tag	UNP P03420
I	529	HIS	-	expression tag	UNP P03420
I	530	HIS	-	expression tag	UNP P03420
I	531	SER	-	expression tag	UNP P03420
I	532	ALA	-	expression tag	UNP P03420
I	533	TRP	-	expression tag	UNP P03420
I	534	SER	-	expression tag	UNP P03420
I	535	HIS	-	expression tag	UNP P03420
I	536	PRO	-	expression tag	UNP P03420
I	537	GLN	-	expression tag	UNP P03420
I	538	PHE	-	expression tag	UNP P03420
I	539	GLU	-	expression tag	UNP P03420
I	540	LYS	-	expression tag	UNP P03420
K	379	VAL	ILE	conflict	UNP P03420
K	447	VAL	MET	conflict	UNP P03420
K	514	GLY	-	expression tag	UNP P03420
K	515	LEU	-	expression tag	UNP P03420
K	516	GLU	-	expression tag	UNP P03420
K	517	VAL	-	expression tag	UNP P03420
K	518	LEU	-	expression tag	UNP P03420
K	519	PHE	-	expression tag	UNP P03420
K	520	GLN	-	expression tag	UNP P03420
K	521	GLY	-	expression tag	UNP P03420
K	522	PRO	-	expression tag	UNP P03420
K	523	HIS	-	expression tag	UNP P03420
K	524	HIS	-	expression tag	UNP P03420
K	525	HIS	-	expression tag	UNP P03420
K	526	HIS	-	expression tag	UNP P03420
K	527	HIS	-	expression tag	UNP P03420
K	528	HIS	-	expression tag	UNP P03420
K	529	HIS	-	expression tag	UNP P03420

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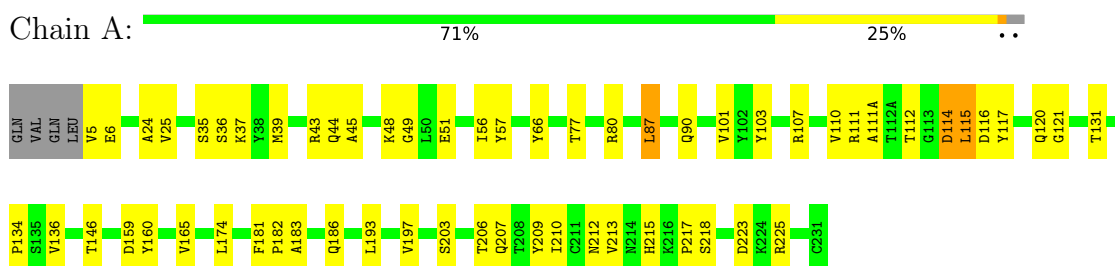
Chain	Residue	Modelled	Actual	Comment	Reference
K	530	HIS	-	expression tag	UNP P03420
K	531	SER	-	expression tag	UNP P03420
K	532	ALA	-	expression tag	UNP P03420
K	533	TRP	-	expression tag	UNP P03420
K	534	SER	-	expression tag	UNP P03420
K	535	HIS	-	expression tag	UNP P03420
K	536	PRO	-	expression tag	UNP P03420
K	537	GLN	-	expression tag	UNP P03420
K	538	PHE	-	expression tag	UNP P03420
K	539	GLU	-	expression tag	UNP P03420
K	540	LYS	-	expression tag	UNP P03420

3 Residue-property plots [i](#)

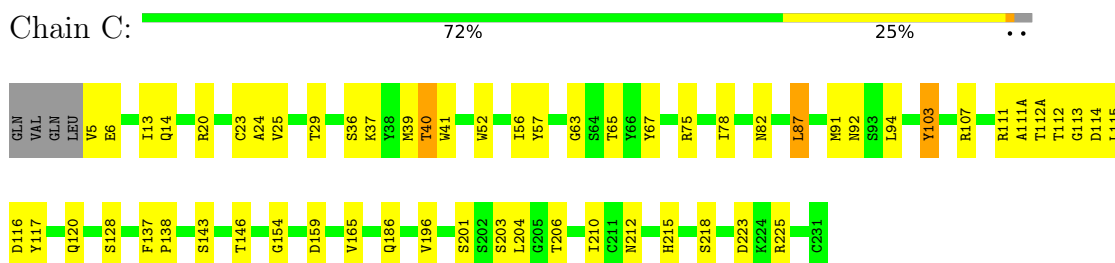
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded 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. 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.

Note EDS was not executed.

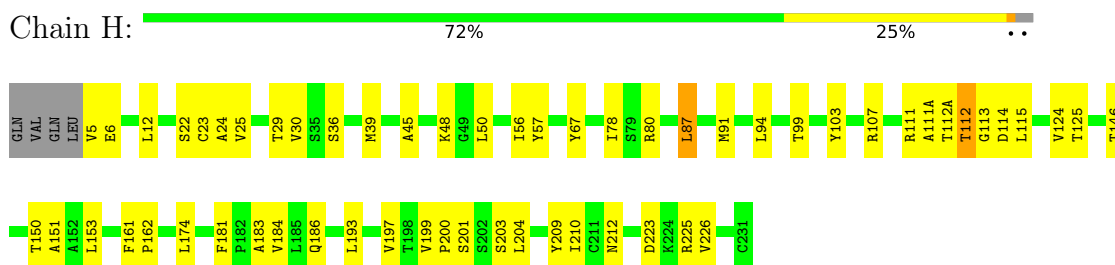
- Molecule 1: 14N4 heavy chain



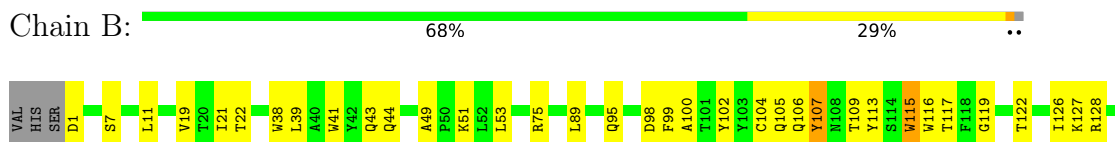
- Molecule 1: 14N4 heavy chain



- Molecule 1: 14N4 heavy chain



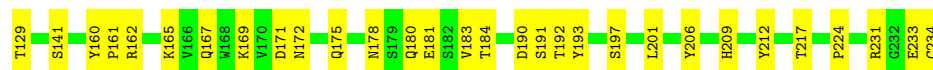
- Molecule 2: 14N4 light chain





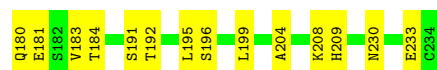
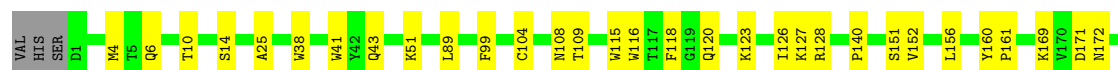
• Molecule 2: 14N4 light chain

Chain D: 71% 27% ..



• Molecule 2: 14N4 light chain

Chain L: 78% 21% .



• Molecule 3: Fusion glycoprotein F0

Chain E: 56% 42% .



• Molecule 3: Fusion glycoprotein F0

Chain G: 73% 26% .



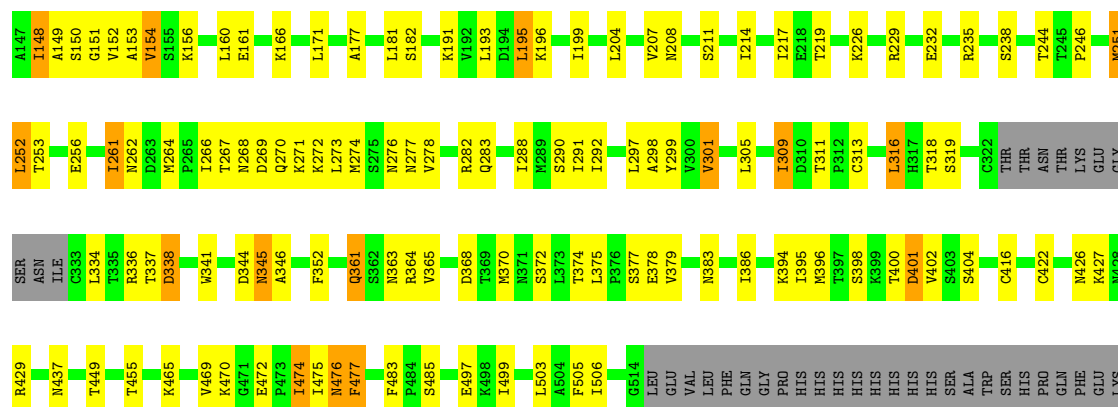
• Molecule 3: Fusion glycoprotein F0

Chain J: 56% 38% 5%



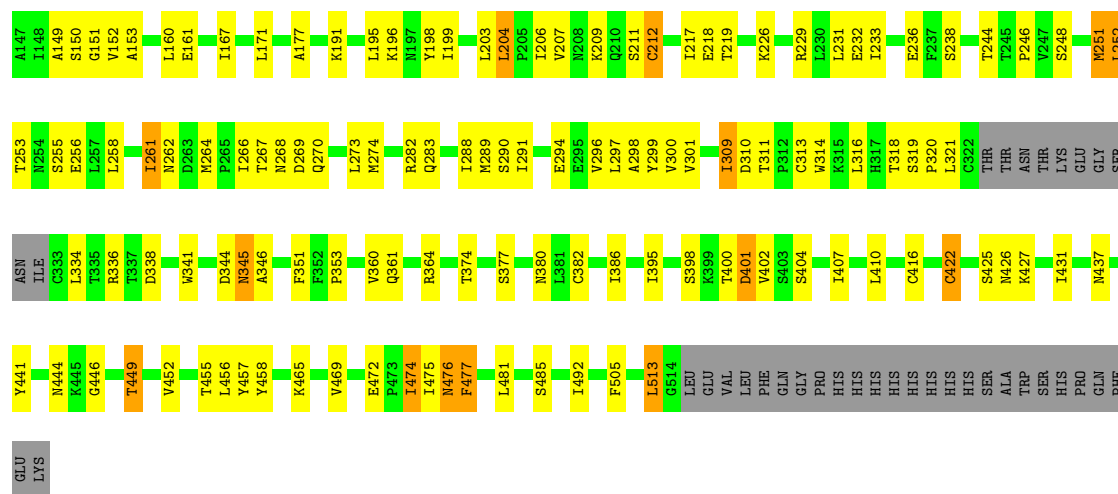
• Molecule 4: Fusion glycoprotein F0

Chain F: 59% 27% 9%



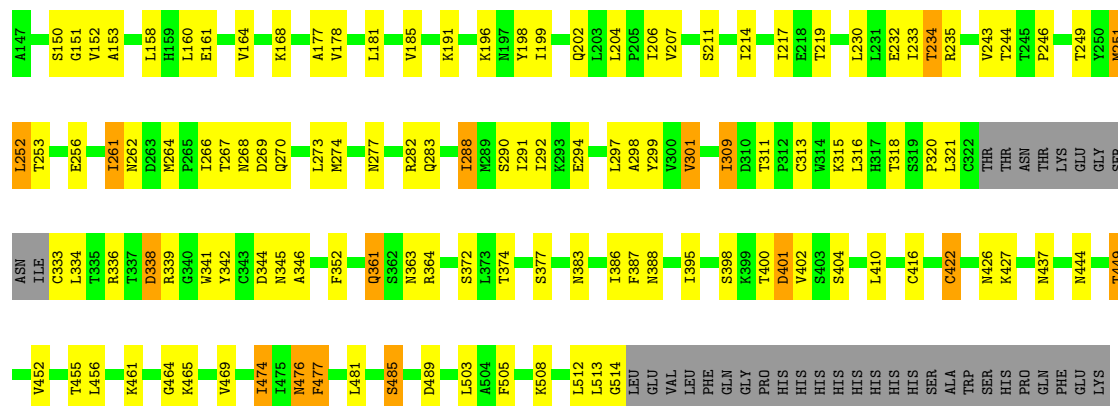
• Molecule 4: Fusion glycoprotein F0

Chain I: 59% 29% 9%



• Molecule 4: Fusion glycoprotein F0

Chain K: 60% 27% 9%



4 Data and refinement statistics

EDS was not executed - this section is therefore incomplete.

Property	Value	Source
Space group	P 42 21 2	Depositor
Cell constants a, b, c, α , β , γ	235.13Å 235.13Å 220.14Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.50 – 4.08	Depositor
% Data completeness (in resolution range)	97.3 (49.50-4.08)	Depositor
R_{merge}	0.30	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.06 (at 4.14Å)	Xtriage
Refinement program	PHENIX (1.10.1_2155: ???)	Depositor
R, R_{free}	0.257 , 0.282	Depositor
Wilson B-factor (Å ²)	104.5	Xtriage
Anisotropy	0.118	Xtriage
L-test for twinning ²	$\langle L \rangle = 0.45$, $\langle L^2 \rangle = 0.28$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	19902	wwPDB-VP
Average B, all atoms (Å ²)	153.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.33% 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, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

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	0.25	0/1660	0.49	0/2262
1	C	0.39	0/1660	0.59	0/2262
1	H	0.19	0/1660	0.42	0/2262
2	B	0.24	0/1704	0.48	0/2317
2	D	0.36	0/1704	0.57	0/2317
2	L	0.20	0/1704	0.40	0/2317
3	E	0.46	0/586	0.79	2/789 (0.3%)
3	G	0.59	0/586	0.88	2/789 (0.3%)
3	J	0.46	0/586	0.79	2/789 (0.3%)
4	F	0.51	0/2805	0.83	0/3803
4	I	0.55	0/2805	0.89	3/3803 (0.1%)
4	K	0.55	0/2805	0.89	0/3803
All	All	0.43	0/20265	0.71	9/27513 (0.0%)

There are no bond length outliers.

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	I	212	CYS	CA-CB-SG	9.58	136.43	114.40
3	E	68	LYS	CA-C-N	6.48	133.92	121.54
3	E	68	LYS	C-N-CA	6.48	133.92	121.54
4	I	513	LEU	N-CA-C	5.84	117.54	109.54
3	G	68	LYS	CA-C-N	5.74	132.51	121.54
3	G	68	LYS	C-N-CA	5.74	132.51	121.54
4	I	294	GLU	N-CA-CB	-5.57	101.65	109.94
3	J	68	LYS	CA-C-N	5.14	131.35	121.54
3	J	68	LYS	C-N-CA	5.14	131.35	121.54

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	1624	0	1599	44	0
1	C	1624	0	1599	45	1
1	H	1624	0	1599	36	0
2	B	1665	0	1600	49	0
2	D	1665	0	1600	66	0
2	L	1665	0	1600	35	0
3	E	580	0	589	28	0
3	G	580	0	589	15	0
3	J	580	0	589	28	0
4	F	2765	0	2798	121	0
4	I	2765	0	2798	128	0
4	K	2765	0	2798	117	0
All	All	19902	0	19758	546	1

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 14.

All (546) 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)
2:D:38:TRP:CE2	4:I:268:ASN:HB3	1.81	1.15
2:D:38:TRP:HH2	4:I:269:ASP:HA	1.35	0.89
1:A:35:SER:O	4:I:465:LYS:NZ	2.09	0.86
2:D:109:THR:HG23	4:I:267:THR:HA	1.55	0.85
4:F:345:ASN:HD22	4:I:455:THR:HG21	1.42	0.84
4:F:272:LYS:O	4:F:276:ASN:ND2	2.12	0.82
2:B:109:THR:O	2:B:116:TRP:NE1	2.13	0.81
1:C:212:ASN:ND2	1:C:223:ASP:OD1	2.13	0.80
2:D:38:TRP:CZ2	4:I:268:ASN:C	2.61	0.79
3:E:59:ILE:HG23	4:I:469:VAL:HB	1.64	0.79
4:K:318:THR:HG21	4:K:336:ARG:HB2	1.65	0.78
4:I:152:VAL:HG11	4:K:152:VAL:HB	1.67	0.77
4:K:270:GLN:HG2	4:K:309:ILE:HD12	1.67	0.76
2:D:107:TYR:O	4:I:268:ASN:ND2	2.18	0.76
2:D:38:TRP:CH2	4:I:268:ASN:C	2.64	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:F:290:SER:OG	4:F:291:ILE:N	2.19	0.75
4:F:171:LEU:HD23	4:I:513:LEU:HD11	1.68	0.75
2:D:38:TRP:CH2	4:I:269:ASP:HA	2.22	0.74
1:C:36:SER:HA	4:K:465:LYS:NZ	2.03	0.73
4:F:264:MET:HE1	4:F:274:MET:SD	2.29	0.73
2:D:38:TRP:CZ2	4:I:268:ASN:HB3	2.23	0.73
4:F:270:GLN:HG2	4:F:309:ILE:HD12	1.69	0.73
2:B:107:TYR:O	4:F:268:ASN:ND2	2.22	0.72
4:K:252:LEU:O	4:K:282:ARG:NH1	2.23	0.71
4:F:318:THR:HG21	4:F:336:ARG:HB2	1.73	0.71
1:A:212:ASN:ND2	1:A:223:ASP:OD1	2.23	0.70
2:L:6:GLN:HB2	2:L:120:GLN:HE22	1.56	0.70
4:F:261:ILE:HA	4:F:264:MET:HE2	1.72	0.70
1:H:5:VAL:N	1:H:24:ALA:O	2.24	0.70
4:F:166:LYS:NZ	4:K:514:GLY:HA3	2.06	0.70
4:I:270:GLN:HG2	4:I:309:ILE:HD12	1.73	0.70
2:D:43:GLN:HB2	2:D:53:LEU:HD11	1.73	0.69
2:D:96:PRO:HA	2:D:99:PHE:CD2	2.28	0.69
4:I:266:ILE:HD12	4:I:270:GLN:HB2	1.75	0.69
2:D:38:TRP:CD2	4:I:268:ASN:HB3	2.28	0.68
1:C:186:GLN:HA	2:D:180:GLN:HE22	1.58	0.68
1:A:174:LEU:HD21	1:A:197:VAL:HG21	1.74	0.68
2:D:38:TRP:CZ2	4:I:268:ASN:O	2.47	0.68
4:K:449:THR:HG23	4:K:456:LEU:HD11	1.76	0.68
2:D:38:TRP:HH2	4:I:269:ASP:CA	2.05	0.68
4:F:148:ILE:HB	4:F:154:VAL:HG12	1.74	0.68
4:K:334:LEU:HD22	4:K:395:ILE:HD13	1.75	0.67
4:K:230:LEU:O	4:K:234:THR:HG23	1.95	0.66
4:K:264:MET:HE1	4:K:274:MET:SD	2.35	0.66
1:C:23:CYS:HB3	1:C:87:LEU:HD23	1.78	0.66
2:B:43:GLN:O	2:B:51:LYS:N	2.27	0.66
4:F:266:ILE:HD12	4:F:270:GLN:HB2	1.78	0.66
2:D:171:ASP:OD2	2:D:209:HIS:ND1	2.27	0.66
4:F:277:ASN:OD1	4:F:361:GLN:HG2	1.94	0.66
1:A:77:THR:HB	1:A:90:GLN:HB3	1.77	0.66
1:A:43:ARG:NE	1:A:51:GLU:OE1	2.24	0.66
1:A:183:ALA:HA	1:A:193:LEU:HB3	1.79	0.65
4:F:149:ALA:HB3	4:K:152:VAL:HG22	1.78	0.65
1:H:151:ALA:HB3	1:H:204:LEU:HD21	1.78	0.65
4:I:318:THR:HG21	4:I:336:ARG:HB2	1.77	0.65
2:B:171:ASP:OD2	2:B:209:HIS:ND1	2.21	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:5:VAL:N	1:A:24:ALA:O	2.30	0.65
3:J:66:GLU:HA	3:J:79:ILE:HG21	1.78	0.65
3:G:52:TRP:HB2	4:K:461:LYS:HG2	1.80	0.64
1:C:5:VAL:N	1:C:117:TYR:HH	1.95	0.64
2:D:41:TRP:CZ3	2:D:104:CYS:HB3	2.32	0.64
2:L:171:ASP:OD2	2:L:209:HIS:ND1	2.29	0.64
1:A:114:ASP:OD1	1:A:114:ASP:N	2.31	0.64
2:D:169:LYS:HE2	2:D:172:ASN:HA	1.79	0.64
4:F:345:ASN:ND2	4:I:455:THR:HG21	2.12	0.64
2:B:41:TRP:CE2	2:B:89:LEU:HB2	2.32	0.64
4:I:351:PHE:CE2	4:I:353:PRO:HB3	2.32	0.63
3:E:46:SER:HB3	4:F:313:CYS:SG	2.38	0.63
3:E:64:ILE:HG22	4:I:474:ILE:HG13	1.80	0.63
1:C:107:ARG:HD3	1:C:114:ASP:OD1	1.99	0.63
3:E:64:ILE:HD12	3:E:79:ILE:HG23	1.81	0.63
1:A:210:ILE:HG12	1:A:225:ARG:HG2	1.80	0.63
1:A:36:SER:HA	4:I:465:LYS:NZ	2.13	0.62
4:F:251:MET:HG3	4:F:299:TYR:CE1	2.35	0.62
4:I:264:MET:HE3	4:I:266:ILE:HD11	1.79	0.62
1:C:210:ILE:HG12	1:C:225:ARG:HG2	1.82	0.62
3:E:28:ILE:HD11	4:F:363:ASN:HA	1.80	0.62
4:F:199:ILE:HD11	4:I:199:ILE:HD11	1.81	0.62
4:F:199:ILE:HD11	4:K:199:ILE:HD11	1.82	0.62
1:A:57:TYR:HE1	1:A:112:THR:HG21	1.64	0.61
2:D:105:GLN:HB2	2:D:118:PHE:CE1	2.34	0.61
4:F:152:VAL:HG11	4:I:152:VAL:HG21	1.81	0.61
1:A:182:PRO:HD3	2:B:184:THR:HG22	1.82	0.61
2:D:6:GLN:H	2:D:120:GLN:HE22	1.49	0.61
1:C:40:THR:OG1	1:C:41:TRP:N	2.33	0.61
1:C:114:ASP:OD1	1:C:114:ASP:N	2.27	0.61
4:F:253:THR:OG1	4:F:256:GLU:HG3	1.99	0.61
4:K:246:PRO:HB3	4:K:283:GLN:HA	1.81	0.61
4:K:336:ARG:NH1	4:K:383:ASN:OD1	2.34	0.61
1:H:30:VAL:O	1:H:80:ARG:NH1	2.34	0.61
2:B:169:LYS:HE2	2:B:172:ASN:HA	1.83	0.61
4:F:229:ARG:NH2	4:F:256:GLU:OE1	2.29	0.61
4:K:290:SER:OG	4:K:291:ILE:N	2.29	0.61
2:D:56:ASP:OD1	2:D:107:TYR:OH	2.17	0.60
2:L:126:ILE:O	2:L:160:TYR:OH	2.17	0.60
4:K:277:ASN:OD1	4:K:361:GLN:HG2	2.02	0.60
2:D:38:TRP:CH2	4:I:269:ASP:CA	2.83	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:I:345:ASN:OD1	4:K:455:THR:HG21	2.01	0.60
4:I:251:MET:HG3	4:I:299:TYR:CE1	2.37	0.60
4:K:252:LEU:HD22	4:K:301:VAL:HG21	1.82	0.60
1:C:5:VAL:N	1:C:117:TYR:OH	2.35	0.60
4:K:261:ILE:HA	4:K:264:MET:HE2	1.83	0.60
4:F:469:VAL:HB	3:J:59:ILE:HG23	1.83	0.59
4:I:426:ASN:ND2	4:I:446:GLY:O	2.36	0.59
4:F:474:ILE:HG13	3:J:64:ILE:HG22	1.84	0.59
4:I:199:ILE:HD11	4:K:199:ILE:HD11	1.83	0.59
2:L:156:LEU:HB2	2:L:195:LEU:HB3	1.84	0.59
1:A:57:TYR:CE1	1:A:112:THR:HG21	2.36	0.59
4:I:252:LEU:HD23	4:I:256:GLU:HB2	1.83	0.59
2:B:11:LEU:HD23	2:B:19:VAL:HG13	1.82	0.59
4:F:465:LYS:NZ	1:H:36:SER:HA	2.18	0.59
4:I:246:PRO:HB3	4:I:283:GLN:HA	1.83	0.59
4:I:264:MET:HE1	4:I:274:MET:SD	2.43	0.59
4:K:164:VAL:O	4:K:168:LYS:HB2	2.03	0.58
4:I:253:THR:OG1	4:I:256:GLU:HG3	2.03	0.58
4:F:166:LYS:HZ2	4:K:514:GLY:HA3	1.65	0.58
2:L:43:GLN:HB3	2:L:51:LYS:HB3	1.84	0.58
1:C:112(A):THR:CG2	2:D:38:TRP:HE1	2.17	0.58
4:K:253:THR:OG1	4:K:256:GLU:HG3	2.04	0.58
1:A:35:SER:HA	1:A:80:ARG:NH1	2.19	0.58
1:C:107:ARG:NH1	1:C:111:ARG:HG3	2.18	0.58
2:D:175:GLN:OE1	2:D:178:ASN:ND2	2.35	0.57
4:F:278:VAL:HG22	3:J:98:GLN:NE2	2.20	0.57
2:B:1:ASP:HB3	2:B:115:TRP:CE2	2.39	0.57
3:J:46:SER:HB3	4:K:313:CYS:SG	2.45	0.57
1:C:36:SER:HA	4:K:465:LYS:HZ2	1.69	0.57
4:F:152:VAL:HB	4:K:152:VAL:HG21	1.86	0.57
3:G:40:VAL:HG11	3:G:42:LYS:HE2	1.86	0.57
4:K:426:ASN:OD1	4:K:427:LYS:N	2.38	0.57
1:C:114:ASP:O	1:C:115:LEU:HD13	2.05	0.57
2:D:38:TRP:CH2	4:I:269:ASP:N	2.73	0.57
2:B:99:PHE:CE1	2:B:126:ILE:HG12	2.40	0.57
1:C:57:TYR:CE1	1:C:112:THR:HG21	2.39	0.57
1:A:5:VAL:N	1:A:117:TYR:HH	2.03	0.56
3:G:46:SER:HB3	4:I:313:CYS:SG	2.46	0.56
1:A:165:VAL:HG23	1:A:215:HIS:HB2	1.87	0.56
4:I:171:LEU:HD23	4:K:513:LEU:HD11	1.87	0.56
4:I:374:THR:HG21	4:K:404:SER:HB3	1.86	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:I:297:LEU:HD12	4:I:298:ALA:H	1.70	0.56
4:F:226:LYS:HE2	3:J:81:GLN:NE2	2.21	0.56
4:K:251:MET:HG3	4:K:299:TYR:CE1	2.40	0.56
3:J:36:THR:HB	4:K:336:ARG:HD2	1.87	0.56
2:D:38:TRP:CH2	4:I:269:ASP:OD1	2.59	0.56
3:J:90:VAL:HG11	4:K:294:GLU:HG2	1.88	0.56
1:C:103:TYR:HE1	2:D:49:ALA:HA	1.71	0.55
2:L:10:THR:HG22	2:L:123:LYS:HB3	1.87	0.55
1:H:186:GLN:HA	2:L:180:GLN:HE22	1.71	0.55
4:I:334:LEU:HB3	4:I:395:ILE:HD11	1.88	0.55
2:L:4:MET:HE1	2:L:25:ALA:HB2	1.89	0.55
2:B:156:LEU:HD22	2:B:195:LEU:HD13	1.87	0.55
4:F:161:GLU:HA	4:K:160:LEU:HD21	1.88	0.55
4:K:269:ASP:OD1	2:L:38:TRP:CH2	2.60	0.55
1:A:186:GLN:HA	2:B:180:GLN:HE22	1.72	0.55
1:C:111(A):ALA:HB2	4:I:258:LEU:HD22	1.89	0.55
1:A:134:PRO:HB3	1:A:160:TYR:HB3	1.89	0.55
2:B:156:LEU:HB2	2:B:195:LEU:HB3	1.89	0.55
1:C:91:MET:HB3	1:C:94:LEU:HD21	1.88	0.54
4:I:311:THR:HG23	4:I:344:ASP:HB2	1.90	0.54
4:I:422:CYS:HB3	4:I:452:VAL:HG22	1.89	0.54
2:D:160:TYR:CD2	2:D:161:PRO:HA	2.42	0.54
2:B:38:TRP:HH2	4:F:269:ASP:OD1	1.90	0.54
2:D:38:TRP:CZ3	4:I:269:ASP:OD1	2.59	0.54
2:D:99:PHE:CE1	2:D:126:ILE:HG12	2.42	0.54
4:F:475:ILE:CD1	3:J:65:LYS:HE2	2.37	0.54
1:H:107:ARG:NH1	1:H:111:ARG:HG3	2.22	0.54
4:I:261:ILE:HA	4:I:264:MET:HE2	1.89	0.54
3:J:28:ILE:HD11	4:K:363:ASN:HA	1.88	0.54
1:C:36:SER:O	1:C:37:LYS:HG3	2.07	0.54
3:G:64:ILE:HD12	3:G:79:ILE:HG23	1.90	0.54
1:A:103:TYR:HE1	2:B:49:ALA:HA	1.73	0.53
1:A:203:SER:HB2	1:A:206:THR:HB	1.90	0.53
4:K:338:ASP:HB2	4:K:342:TYR:OH	2.08	0.53
1:A:215:HIS:ND1	1:A:218:SER:OG	2.40	0.53
3:E:40:VAL:HG22	4:F:316:LEU:HD12	1.90	0.53
2:B:128:ARG:NH1	2:B:190:ASP:O	2.41	0.53
4:I:204:LEU:HD22	4:K:481:LEU:O	2.08	0.53
3:E:46:SER:OG	4:F:311:THR:HB	2.08	0.53
1:H:114:ASP:OD1	1:H:114:ASP:N	2.41	0.53
2:L:41:TRP:CZ3	2:L:104:CYS:HB3	2.43	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:178:ASN:HD22	2:D:201:LEU:HD21	1.74	0.53
1:A:6:GLU:OE1	1:A:120:GLN:N	2.42	0.53
1:A:136:VAL:HG21	1:A:213:VAL:HG21	1.89	0.53
4:F:374:THR:HG21	4:I:404:SER:HB3	1.91	0.53
1:H:91:MET:HB3	1:H:94:LEU:HD21	1.91	0.53
4:I:505:PHE:HB2	4:K:177:ALA:HB2	1.91	0.53
4:K:266:ILE:HD12	4:K:270:GLN:HB2	1.91	0.53
2:B:75:ARG:CZ	2:B:95:GLN:HG3	2.38	0.52
1:C:113:GLY:HA2	2:D:116:TRP:CZ2	2.44	0.52
4:F:182:SER:OG	4:K:181:LEU:HD13	2.09	0.52
2:B:7:SER:OG	2:B:22:THR:OG1	2.27	0.52
1:C:159:ASP:OD1	1:C:186:GLN:NE2	2.42	0.52
4:K:269:ASP:OD1	2:L:38:TRP:HH2	1.92	0.52
4:F:318:THR:CG2	4:F:336:ARG:HB2	2.38	0.52
1:A:112:THR:CB	4:F:271:LYS:HZ3	2.23	0.52
2:D:99:PHE:CD1	2:D:126:ILE:HG12	2.45	0.52
3:E:51:GLY:HA3	4:I:458:TYR:HB2	1.91	0.52
1:H:91:MET:HE1	1:H:124:VAL:HG21	1.92	0.52
2:L:128:ARG:NH1	2:L:192:THR:HG23	2.25	0.52
2:L:169:LYS:HE2	2:L:172:ASN:HA	1.92	0.52
1:A:159:ASP:OD1	1:A:186:GLN:NE2	2.43	0.52
4:F:336:ARG:NH1	4:F:383:ASN:OD1	2.39	0.52
2:D:109:THR:HG22	2:D:113:TYR:CD2	2.45	0.51
4:F:152:VAL:HG13	4:I:149:ALA:HB3	1.92	0.51
4:F:219:THR:OG1	4:I:476:ASN:HB3	2.10	0.51
4:F:261:ILE:HG12	4:F:264:MET:HE2	1.92	0.51
4:I:290:SER:OG	4:I:291:ILE:N	2.43	0.51
1:C:112(A):THR:HG22	2:D:38:TRP:HE1	1.75	0.51
4:F:416:CYS:O	4:F:437:ASN:HA	2.10	0.51
2:D:160:TYR:CG	2:D:161:PRO:HA	2.45	0.51
3:G:59:ILE:HG23	4:K:469:VAL:HB	1.92	0.51
4:K:321:LEU:O	4:K:333:CYS:HA	2.11	0.51
4:F:264:MET:HE3	4:F:266:ILE:HD11	1.91	0.51
4:F:426:ASN:OD1	4:F:427:LYS:N	2.44	0.51
1:H:99:THR:HG23	1:H:125:THR:HA	1.92	0.51
3:E:65:LYS:HE2	4:I:475:ILE:CD1	2.41	0.51
1:C:113:GLY:HA3	2:D:107:TYR:CD1	2.45	0.51
1:C:154:GLY:HA3	1:C:196:VAL:HG12	1.93	0.51
4:F:470:LYS:HE2	3:J:60:GLU:OE2	2.10	0.51
4:I:410:LEU:HA	4:I:444:ASN:ND2	2.26	0.51
2:B:113:TYR:H	2:B:113:TYR:HD2	1.59	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:203:SER:HB2	1:C:206:THR:HB	1.93	0.51
3:E:53:TYR:HB2	4:F:305:LEU:HD11	1.91	0.51
4:F:193:LEU:HD13	4:I:492:ILE:HG21	1.92	0.51
4:F:232:GLU:OE1	4:K:235:ARG:NH1	2.44	0.51
1:H:113:GLY:HA2	2:L:116:TRP:CZ2	2.46	0.51
4:F:273:LEU:HD11	4:F:364:ARG:HG2	1.92	0.50
3:G:46:SER:OG	4:I:311:THR:HB	2.11	0.50
4:I:426:ASN:OD1	4:I:427:LYS:N	2.44	0.50
2:B:126:ILE:O	2:B:160:TYR:OH	2.29	0.50
4:F:246:PRO:HB3	4:F:283:GLN:HA	1.93	0.50
4:F:311:THR:HG23	4:F:344:ASP:HB2	1.93	0.50
4:I:152:VAL:CG1	4:K:152:VAL:HB	2.40	0.50
3:J:84:ASP:O	3:J:88:ASN:HB3	2.11	0.50
4:F:214:ILE:HD11	4:K:214:ILE:HD11	1.93	0.50
3:J:38:SER:HB3	4:K:318:THR:HG22	1.93	0.50
2:B:38:TRP:CH2	4:F:269:ASP:OD1	2.64	0.50
4:K:311:THR:HG23	4:K:344:ASP:HB2	1.94	0.50
4:I:233:ILE:HD13	4:I:299:TYR:CE2	2.47	0.50
4:K:266:ILE:HD12	4:K:270:GLN:CB	2.41	0.50
2:B:144:GLN:HG2	2:B:149:THR:O	2.12	0.50
4:F:352:PHE:CD1	4:F:372:SER:HB3	2.46	0.50
3:J:49:ARG:NH1	3:J:52:TRP:CE2	2.80	0.50
2:B:140:PRO:HD3	2:B:152:VAL:HG22	1.94	0.49
2:D:181:GLU:HG2	2:D:197:SER:HB2	1.95	0.49
4:F:177:ALA:HB2	4:K:505:PHE:HB2	1.94	0.49
2:D:36:SER:HB2	2:D:38:TRP:CE3	2.47	0.49
2:D:96:PRO:HA	2:D:99:PHE:HD2	1.75	0.49
4:K:320:PRO:HA	4:K:334:LEU:O	2.11	0.49
2:B:204:ALA:O	2:B:208:LYS:HG3	2.12	0.49
1:C:201:SER:HA	1:C:204:LEU:HG	1.94	0.49
4:I:297:LEU:HD12	4:I:298:ALA:N	2.27	0.49
4:I:321:LEU:HB3	4:I:334:LEU:HB2	1.95	0.49
4:F:368:ASP:OD2	4:F:370:MET:HE2	2.13	0.49
4:I:449:THR:HG23	4:I:456:LEU:HD11	1.94	0.49
4:K:318:THR:H	4:K:339:ARG:HD3	1.78	0.49
4:K:334:LEU:HD22	4:K:395:ILE:CD1	2.42	0.49
1:A:101:VAL:HG12	1:A:103:TYR:HE2	1.77	0.49
2:D:126:ILE:HD12	2:D:191:SER:HB3	1.95	0.49
4:K:318:THR:CG2	4:K:336:ARG:HB2	2.40	0.49
1:C:143:SER:OG	2:D:234:CYS:SG	2.71	0.49
4:F:465:LYS:HZ1	1:H:36:SER:HA	1.78	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:63:GLY:O	1:C:65:THR:HG23	2.12	0.49
4:I:346:ALA:HB2	4:K:455:THR:HG23	1.95	0.49
2:L:160:TYR:CG	2:L:161:PRO:HA	2.48	0.49
2:B:41:TRP:CZ3	2:B:104:CYS:HB3	2.47	0.48
2:D:162:ARG:HB2	2:D:193:TYR:CZ	2.48	0.48
3:E:32:PHE:CE2	3:E:34:GLN:HG2	2.48	0.48
1:C:112(A):THR:O	4:I:262:ASN:ND2	2.46	0.48
1:H:174:LEU:HD21	1:H:197:VAL:HG21	1.95	0.48
4:I:196:LYS:HD3	4:I:196:LYS:C	2.38	0.48
4:I:206:ILE:HD13	4:I:209:LYS:HD2	1.93	0.48
1:C:111(A):ALA:HA	4:I:262:ASN:OD1	2.14	0.48
4:F:252:LEU:O	4:F:282:ARG:NH1	2.43	0.48
3:J:97:MET:SD	4:K:292:ILE:HG22	2.52	0.48
4:F:426:ASN:ND2	4:F:429:ARG:HD2	2.28	0.48
4:K:264:MET:HE3	4:K:266:ILE:HD11	1.96	0.48
4:K:416:CYS:O	4:K:437:ASN:HA	2.14	0.48
3:E:92:GLU:HA	3:E:95:LEU:HD12	1.94	0.48
4:K:243:VAL:HG22	4:K:288:ILE:HG23	1.95	0.48
4:K:400:THR:HG22	4:K:401:ASP:N	2.29	0.48
2:D:105:GLN:HB2	2:D:118:PHE:CD1	2.49	0.48
3:E:64:ILE:HG12	3:E:83:LEU:HD21	1.95	0.48
1:H:201:SER:HA	1:H:204:LEU:HG	1.96	0.48
4:I:314:TRP:HZ2	4:I:380:ASN:HD21	1.58	0.48
1:A:5:VAL:N	1:A:117:TYR:OH	2.47	0.48
1:A:6:GLU:CD	1:A:121:GLY:H	2.22	0.48
4:F:297:LEU:HD12	4:F:298:ALA:H	1.79	0.48
4:I:477:PHE:CD2	4:I:477:PHE:C	2.91	0.48
2:L:99:PHE:CD1	2:L:126:ILE:HG12	2.49	0.48
3:E:36:THR:HB	4:F:336:ARG:HD2	1.96	0.47
4:F:338:ASP:HB3	4:F:394:LYS:HE3	1.95	0.47
4:I:425:SER:HA	4:I:431:ILE:HA	1.95	0.47
1:A:107:ARG:NH1	1:A:111:ARG:HG3	2.30	0.47
2:B:104:CYS:O	2:B:119:GLY:N	2.36	0.47
2:L:156:LEU:HD22	2:L:195:LEU:HD13	1.97	0.47
1:C:39:MET:HE3	1:C:87:LEU:HD22	1.95	0.47
2:D:67:LEU:HD21	2:D:71:VAL:HB	1.95	0.47
3:G:60:GLU:HA	4:I:296:VAL:HG23	1.97	0.47
3:G:66:GLU:HA	3:G:79:ILE:HG21	1.95	0.47
1:H:111(A):ALA:HA	4:K:262:ASN:OD1	2.13	0.47
2:D:39:LEU:HA	2:D:105:GLN:O	2.15	0.47
4:I:238:SER:HB3	4:K:249:THR:OG1	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:5:VAL:N	1:C:24:ALA:O	2.47	0.47
3:E:36:THR:HG22	4:F:386:ILE:CG1	2.45	0.47
3:E:90:VAL:HG22	4:F:292:ILE:HD11	1.96	0.47
4:F:150:SER:HB2	4:F:151:GLY:HA2	1.97	0.47
4:K:422:CYS:HB3	4:K:452:VAL:HG22	1.97	0.47
4:F:506:ILE:HD11	4:K:178:VAL:HG11	1.97	0.47
1:H:210:ILE:HG12	1:H:225:ARG:HG2	1.97	0.47
4:I:321:LEU:O	4:I:334:LEU:N	2.39	0.47
4:I:341:TRP:CZ2	4:I:360:VAL:HG21	2.50	0.47
4:K:267:THR:HB	2:L:109:THR:HG22	1.97	0.47
2:B:206:TYR:O	2:B:212:TYR:OH	2.30	0.47
4:F:337:THR:HG21	4:F:396:MET:HB2	1.97	0.47
4:I:231:LEU:HD23	4:I:231:LEU:HA	1.67	0.47
4:I:481:LEU:HD22	4:K:206:ILE:HG13	1.96	0.47
2:B:165:LYS:HB3	2:B:217:THR:OG1	2.15	0.47
4:F:261:ILE:HG12	4:F:264:MET:CE	2.45	0.47
4:F:153:ALA:HB1	4:F:156:LYS:HB3	1.97	0.46
1:C:107:ARG:HA	1:C:116:ASP:OD1	2.15	0.46
3:E:50:THR:HB	4:I:457:TYR:HA	1.98	0.46
4:K:485:SER:O	4:K:489:ASP:N	2.42	0.46
2:D:206:TYR:O	2:D:212:TYR:OH	2.31	0.46
4:I:160:LEU:HD21	4:K:161:GLU:HB2	1.96	0.46
2:L:14:SER:OG	2:L:127:LYS:HB2	2.16	0.46
2:D:99:PHE:CZ	2:D:126:ILE:HG23	2.50	0.46
3:E:44:TYR:HB2	4:F:313:CYS:HB2	1.98	0.46
4:F:226:LYS:HE2	3:J:81:GLN:HE22	1.79	0.46
4:F:404:SER:HB3	4:K:374:THR:HG21	1.97	0.46
4:I:171:LEU:O	4:I:171:LEU:HG	2.15	0.46
4:I:318:THR:CG2	4:I:336:ARG:HB2	2.45	0.46
4:I:334:LEU:HD22	4:I:395:ILE:HD13	1.97	0.46
4:K:268:ASN:HB2	2:L:108:ASN:O	2.16	0.46
4:K:232:GLU:O	4:K:233:ILE:C	2.59	0.46
2:B:127:LYS:HA	2:B:160:TYR:OH	2.16	0.46
2:B:215:GLU:HG2	2:B:226:THR:OG1	2.16	0.46
4:F:266:ILE:HD12	4:F:270:GLN:CB	2.46	0.46
4:K:474:ILE:H	4:K:474:ILE:HG12	1.52	0.46
3:E:37:CYS:SG	4:F:319:SER:HB3	2.55	0.46
4:F:152:VAL:HG11	4:I:152:VAL:CG2	2.45	0.46
1:H:181:PHE:CZ	2:L:196:SER:HB3	2.51	0.45
4:I:195:LEU:HD23	4:I:195:LEU:HA	1.68	0.45
4:I:252:LEU:O	4:I:282:ARG:NH1	2.45	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:J:36:THR:HG22	4:K:386:ILE:HG12	1.97	0.45
2:L:41:TRP:CE2	2:L:89:LEU:HB2	2.50	0.45
2:B:213:ALA:HB2	2:B:228:SER:HB3	1.97	0.45
2:D:109:THR:HG22	2:D:113:TYR:HD2	1.82	0.45
2:L:43:GLN:O	2:L:51:LYS:N	2.41	0.45
2:L:230:ASN:HD22	2:L:233:GLU:CD	2.24	0.45
4:F:346:ALA:HB2	4:I:455:THR:HG23	1.97	0.45
4:K:297:LEU:HD12	4:K:298:ALA:H	1.82	0.45
4:K:352:PHE:CE1	4:K:372:SER:HB3	2.52	0.45
2:D:128:ARG:NH1	2:D:192:THR:HG23	2.31	0.45
4:F:166:LYS:HZ2	4:K:514:GLY:CA	2.28	0.45
4:F:334:LEU:HD22	4:F:395:ILE:HD13	1.99	0.45
1:H:183:ALA:HA	1:H:193:LEU:HB3	1.98	0.45
2:L:181:GLU:CD	2:L:195:LEU:HD21	2.41	0.45
2:B:39:LEU:HA	2:B:105:GLN:O	2.16	0.45
4:F:161:GLU:HG3	4:K:160:LEU:HD11	1.99	0.45
4:F:476:ASN:ND2	3:J:67:ASN:HB2	2.32	0.45
4:F:477:PHE:CD2	4:F:477:PHE:C	2.94	0.45
3:G:64:ILE:HG22	4:K:474:ILE:HG13	1.98	0.45
4:K:191:LYS:HA	4:K:191:LYS:HD3	1.59	0.45
2:B:128:ARG:NH1	2:B:192:THR:HG23	2.32	0.45
2:D:96:PRO:HA	2:D:99:PHE:CE2	2.51	0.45
1:C:6:GLU:OE2	1:C:103:TYR:HA	2.17	0.45
4:I:219:THR:OG1	4:K:476:ASN:HB3	2.17	0.45
3:E:97:MET:O	3:E:98:GLN:HG3	2.17	0.45
4:K:508:LYS:O	4:K:512:LEU:HD13	2.15	0.45
1:H:184:VAL:HG11	2:L:180:GLN:HB3	1.99	0.44
4:I:351:PHE:O	4:I:353:PRO:HD3	2.17	0.44
3:J:44:TYR:HB2	4:K:313:CYS:HB2	1.99	0.44
4:K:352:PHE:CD1	4:K:372:SER:HB3	2.52	0.44
2:L:151:SER:HA	2:L:199:LEU:O	2.16	0.44
4:F:252:LEU:CD2	4:F:301:VAL:HG11	2.48	0.44
4:F:476:ASN:HB3	4:K:219:THR:OG1	2.16	0.44
1:H:45:ALA:HB3	1:H:48:LYS:HB2	1.99	0.44
1:A:66:TYR:CE1	2:B:113:TYR:HD1	2.36	0.44
1:H:181:PHE:HA	2:L:184:THR:HG22	1.99	0.44
1:A:44:GLN:HG3	1:A:49:GLY:O	2.17	0.44
1:A:103:TYR:CE1	2:B:49:ALA:HA	2.53	0.44
1:C:67:TYR:OH	1:C:78:ILE:HG22	2.17	0.44
4:F:264:MET:HE3	4:F:266:ILE:CD1	2.47	0.44
1:H:12:LEU:HA	1:H:125:THR:O	2.16	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:75:ARG:HB3	1:C:92:ASN:O	2.17	0.44
1:H:186:GLN:HG2	2:L:180:GLN:OE1	2.18	0.44
4:I:266:ILE:HD12	4:I:270:GLN:CB	2.45	0.44
4:I:386:ILE:HD13	4:I:395:ILE:CD1	2.48	0.44
1:H:150:THR:HB	1:H:199:VAL:O	2.18	0.44
4:F:150:SER:HB3	4:F:154:VAL:HG11	2.00	0.44
4:K:150:SER:HB2	4:K:151:GLY:HA2	2.00	0.44
4:K:261:ILE:HG12	4:K:264:MET:HE2	1.99	0.44
4:K:387:PHE:O	4:K:388:ASN:C	2.60	0.44
1:A:36:SER:HA	4:I:465:LYS:HZ2	1.81	0.44
4:F:455:THR:HG21	4:K:345:ASN:OD1	2.18	0.44
4:I:407:ILE:HD11	4:I:457:TYR:HB3	1.99	0.44
4:F:252:LEU:HD22	4:F:301:VAL:HG21	1.99	0.43
4:F:497:GLU:O	4:F:497:GLU:HG2	2.17	0.43
4:I:290:SER:HB3	4:I:300:VAL:HG23	2.00	0.43
1:C:57:TYR:HE1	1:C:112:THR:HG21	1.83	0.43
2:D:67:LEU:CD2	2:D:71:VAL:HB	2.48	0.43
4:F:499:ILE:HD11	4:K:185:VAL:HG12	2.00	0.43
3:G:86:TYR:O	3:G:87:LYS:C	2.60	0.43
4:I:309:ILE:CG2	4:I:310:ASP:N	2.80	0.43
3:J:68:LYS:O	3:J:69:CYS:HB3	2.17	0.43
2:B:43:GLN:HB2	2:B:53:LEU:HD21	2.00	0.43
4:F:166:LYS:HZ1	4:K:514:GLY:HA3	1.82	0.43
4:F:196:LYS:HD3	4:F:196:LYS:C	2.42	0.43
4:F:235:ARG:NH1	4:I:232:GLU:OE2	2.51	0.43
4:I:416:CYS:O	4:I:437:ASN:HA	2.18	0.43
1:C:116:ASP:OD1	1:C:116:ASP:N	2.51	0.43
1:C:165:VAL:HG23	1:C:215:HIS:HB2	2.00	0.43
3:J:48:LEU:O	3:J:50:THR:HG23	2.18	0.43
3:J:49:ARG:NH1	3:J:52:TRP:NE1	2.67	0.43
1:A:183:ALA:HB2	1:A:193:LEU:HD23	1.99	0.43
1:C:215:HIS:ND1	1:C:218:SER:OG	2.49	0.43
2:D:38:TRP:HZ2	4:I:268:ASN:O	1.97	0.43
4:F:161:GLU:CA	4:K:160:LEU:HD21	2.49	0.43
1:H:212:ASN:ND2	1:H:223:ASP:OD1	2.51	0.43
4:F:195:LEU:HD23	4:F:195:LEU:HA	1.57	0.43
3:G:38:SER:HB3	4:I:318:THR:HG22	2.00	0.43
1:H:57:TYR:HE1	1:H:112:THR:HG21	1.83	0.43
4:K:252:LEU:HD12	4:K:252:LEU:HA	1.81	0.43
2:B:1:ASP:HB3	2:B:115:TRP:CD2	2.54	0.43
2:B:44:GLN:O	2:B:100:ALA:HB1	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:109:THR:HG22	4:F:267:THR:HA	2.01	0.43
1:C:13:ILE:HD12	1:C:14:GLN:H	1.84	0.43
1:A:111(A):ALA:HA	4:F:262:ASN:OD1	2.18	0.43
1:A:207:GLN:HB3	1:A:209:TYR:CZ	2.54	0.43
3:E:67:ASN:HB2	4:I:476:ASN:CG	2.44	0.43
4:F:217:ILE:HD13	4:I:217:ILE:CG2	2.49	0.43
4:F:217:ILE:HD11	4:I:218:GLU:HG3	2.00	0.43
3:J:46:SER:OG	4:K:311:THR:HB	2.19	0.43
3:J:86:TYR:O	3:J:87:LYS:C	2.62	0.43
2:B:128:ARG:HH12	2:B:192:THR:HG23	1.84	0.43
2:D:43:GLN:O	2:D:51:LYS:N	2.45	0.43
4:F:251:MET:O	4:F:299:TYR:OH	2.30	0.43
4:I:441:TYR:CD2	4:I:441:TYR:C	2.97	0.43
3:E:81:GLN:HE22	4:I:226:LYS:HE2	1.84	0.42
4:I:229:ARG:HH22	4:I:256:GLU:CD	2.27	0.42
3:E:86:TYR:O	3:E:87:LYS:C	2.62	0.42
4:F:364:ARG:HA	4:F:364:ARG:HD3	1.78	0.42
4:K:481:LEU:HD12	4:K:481:LEU:HA	1.70	0.42
1:C:6:GLU:OE1	1:C:120:GLN:N	2.53	0.42
2:D:175:GLN:HB3	2:D:178:ASN:OD1	2.19	0.42
3:E:83:LEU:HD23	3:E:83:LEU:HA	1.84	0.42
1:A:114:ASP:O	1:A:115:LEU:HD13	2.19	0.42
4:F:483:PHE:HD1	4:I:198:TYR:CE2	2.38	0.42
3:E:93:LEU:HD11	4:F:238:SER:OG	2.20	0.42
4:K:181:LEU:O	4:K:181:LEU:HG	2.20	0.42
4:K:196:LYS:HD3	4:K:196:LYS:C	2.44	0.42
4:K:410:LEU:HA	4:K:444:ASN:ND2	2.34	0.42
2:D:165:LYS:HE3	2:D:167:GLN:CD	2.45	0.42
3:G:30:GLU:HG3	3:G:40:VAL:O	2.20	0.42
1:H:67:TYR:CE1	1:H:78:ILE:HG22	2.54	0.42
1:H:50:LEU:O	2:L:118:PHE:HB2	2.20	0.42
1:H:161:PHE:HA	1:H:162:PRO:HA	1.81	0.42
4:I:236:GLU:OE2	4:I:248:SER:OG	2.33	0.42
2:L:160:TYR:CD2	2:L:161:PRO:HA	2.55	0.42
2:L:204:ALA:O	2:L:208:LYS:HG3	2.19	0.42
4:F:375:LEU:HD13	4:F:379:VAL:HG11	2.02	0.42
1:A:116:ASP:OD1	1:A:116:ASP:N	2.50	0.42
1:H:23:CYS:HB3	1:H:87:LEU:HD23	2.00	0.42
4:I:217:ILE:HD13	4:K:217:ILE:HG21	2.02	0.42
4:I:273:LEU:HD11	4:I:364:ARG:HG2	2.02	0.42
3:J:47:ALA:C	3:J:48:LEU:HD23	2.45	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:L:99:PHE:CZ	2:L:126:ILE:HG23	2.55	0.42
2:D:71:VAL:HG12	2:D:72:PRO:HD2	2.01	0.42
4:F:253:THR:HG1	4:F:256:GLU:HG3	1.85	0.42
1:H:114:ASP:O	1:H:115:LEU:HD13	2.20	0.42
4:I:264:MET:O	4:I:266:ILE:N	2.53	0.42
1:H:39:MET:HB2	1:H:87:LEU:HD13	2.02	0.41
4:I:203:LEU:O	4:I:203:LEU:HG	2.19	0.41
4:I:334:LEU:HD23	4:I:334:LEU:HA	1.65	0.41
3:J:83:LEU:HD23	3:J:83:LEU:HA	1.85	0.41
1:A:37:LYS:HD3	1:A:107:ARG:O	2.19	0.41
2:B:181:GLU:HG2	2:B:197:SER:HB2	2.02	0.41
4:F:455:THR:HG23	4:K:346:ALA:HB2	2.02	0.41
1:H:200:PRO:HG2	1:H:203:SER:OG	2.21	0.41
4:I:150:SER:HB2	4:I:151:GLY:HA2	2.02	0.41
4:I:152:VAL:O	4:I:153:ALA:C	2.63	0.41
4:I:400:THR:HG22	4:I:401:ASP:N	2.35	0.41
3:E:65:LYS:HE2	4:I:475:ILE:HD11	2.02	0.41
4:F:191:LYS:HA	4:F:191:LYS:HD3	1.68	0.41
4:F:503:LEU:HA	4:F:503:LEU:HD23	1.85	0.41
3:J:33:TYR:O	3:J:37:CYS:N	2.53	0.41
4:K:400:THR:HG22	4:K:401:ASP:H	1.85	0.41
1:A:39:MET:HE3	1:A:87:LEU:HD22	2.02	0.41
2:D:41:TRP:CD2	2:D:89:LEU:HB2	2.56	0.41
3:G:37:CYS:SG	4:I:319:SER:HB3	2.61	0.41
4:I:505:PHE:CB	4:K:177:ALA:HB2	2.50	0.41
2:B:41:TRP:CD2	2:B:89:LEU:HB2	2.55	0.41
2:D:6:GLN:HB2	2:D:120:GLN:NE2	2.35	0.41
2:D:217:THR:HG22	2:D:224:PRO:HG3	2.02	0.41
4:F:208:ASN:HD21	4:I:481:LEU:H	1.69	0.41
4:K:198:TYR:O	4:K:202:GLN:HB2	2.20	0.41
2:B:21:ILE:HD13	2:B:122:THR:HB	2.03	0.41
4:K:315:LYS:HD2	4:K:341:TRP:CZ2	2.55	0.41
4:I:204:LEU:CD2	4:K:481:LEU:HB3	2.51	0.41
3:J:45:LEU:HA	4:K:311:THR:O	2.20	0.41
4:K:158:LEU:HD23	4:K:161:GLU:OE2	2.21	0.41
2:B:126:ILE:HG13	2:B:186:GLN:CD	2.46	0.41
3:E:53:TYR:CD2	4:F:264:MET:HG2	2.56	0.41
4:F:400:THR:HG22	4:F:401:ASP:N	2.36	0.41
4:K:477:PHE:CD2	4:K:477:PHE:C	2.97	0.41
1:A:45:ALA:HB3	1:A:48:LYS:HB2	2.03	0.41
1:A:131:THR:HG21	1:A:217:PRO:O	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:137:PHE:HB3	2:D:141:SER:OG	2.21	0.41
2:D:190:ASP:OD1	2:D:191:SER:N	2.54	0.41
4:F:252:LEU:HD22	4:F:301:VAL:HG11	2.02	0.41
1:H:153:LEU:HB2	1:H:226:VAL:HG11	2.03	0.41
4:K:261:ILE:HG12	4:K:264:MET:CE	2.51	0.41
4:K:321:LEU:HB3	4:K:334:LEU:HB2	2.03	0.41
4:K:334:LEU:HD13	4:K:386:ILE:HD12	2.03	0.41
2:L:126:ILE:HD12	2:L:191:SER:HB3	2.03	0.41
2:L:140:PRO:HD3	2:L:152:VAL:HG22	2.02	0.41
2:B:98:ASP:HB3	2:B:102:TYR:OH	2.20	0.41
1:C:138:PRO:O	2:D:141:SER:HB3	2.21	0.41
4:F:251:MET:HE2	4:F:251:MET:HB2	1.92	0.41
3:G:70:ASN:C	4:I:212:CYS:SG	3.04	0.41
1:H:153:LEU:HD21	1:H:209:TYR:CD2	2.56	0.41
4:K:273:LEU:HD11	4:K:364:ARG:HG2	2.03	0.41
4:K:426:ASN:OD1	4:K:426:ASN:C	2.64	0.41
2:B:168:TRP:CE2	2:B:199:LEU:HB2	2.57	0.40
4:F:181:LEU:HD23	4:K:181:LEU:CD2	2.51	0.40
4:F:334:LEU:HA	4:F:334:LEU:HD23	1.82	0.40
4:F:505:PHE:CB	4:I:177:ALA:HB2	2.51	0.40
4:I:191:LYS:HD3	4:I:191:LYS:HA	1.78	0.40
1:A:181:PHE:CD2	2:B:184:THR:HG23	2.57	0.40
2:D:83:SER:HA	2:D:87:PHE:CE1	2.56	0.40
2:D:128:ARG:NH2	2:D:129:THR:O	2.51	0.40
4:F:378:GLU:OE1	4:I:400:THR:HG21	2.22	0.40
4:K:503:LEU:HD23	4:K:503:LEU:HA	1.84	0.40
1:A:107:ARG:HA	1:A:116:ASP:OD1	2.21	0.40
2:B:38:TRP:CE2	4:F:268:ASN:HB3	2.56	0.40
2:D:7:SER:OG	2:D:22:THR:OG1	2.39	0.40
3:E:47:ALA:C	3:E:48:LEU:HD23	2.46	0.40
4:F:341:TRP:CZ3	4:F:365:VAL:HG21	2.56	0.40
4:I:167:ILE:CD1	4:K:164:VAL:HG13	2.52	0.40
4:I:386:ILE:HD13	4:I:395:ILE:HD12	2.04	0.40
1:H:6:GLU:HA	1:H:22:SER:O	2.21	0.40
4:I:320:PRO:HA	4:I:334:LEU:O	2.21	0.40
2:B:106:GLN:HE21	2:B:117:THR:N	2.19	0.40
1:C:52:TRP:HB3	2:D:116:TRP:O	2.22	0.40
4:F:160:LEU:HD21	4:I:161:GLU:HB2	2.03	0.40
3:G:53:TYR:CE1	4:K:464:GLY:HA3	2.56	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:14:GLN:OE1	1:C:20:ARG:NH1[8_554]	2.13	0.07

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	218/224 (97%)	198 (91%)	20 (9%)	0	100	100
1	C	218/224 (97%)	199 (91%)	19 (9%)	0	100	100
1	H	218/224 (97%)	199 (91%)	19 (9%)	0	100	100
2	B	213/218 (98%)	198 (93%)	15 (7%)	0	100	100
2	D	213/218 (98%)	198 (93%)	13 (6%)	2 (1%)	14	49
2	L	213/218 (98%)	198 (93%)	15 (7%)	0	100	100
3	E	71/73 (97%)	65 (92%)	5 (7%)	1 (1%)	9	39
3	G	71/73 (97%)	65 (92%)	5 (7%)	1 (1%)	9	39
3	J	71/73 (97%)	65 (92%)	5 (7%)	1 (1%)	9	39
4	F	354/394 (90%)	333 (94%)	21 (6%)	0	100	100
4	I	354/394 (90%)	334 (94%)	20 (6%)	0	100	100
4	K	354/394 (90%)	332 (94%)	21 (6%)	1 (0%)	36	70
All	All	2568/2727 (94%)	2384 (93%)	178 (7%)	6 (0%)	43	75

All (6) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	G	69	CYS
3	J	69	CYS
3	E	69	CYS
4	K	153	ALA
2	D	233	GLU
2	D	231	ARG

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	183/187 (98%)	176 (96%)	7 (4%)	29	51
1	C	183/187 (98%)	174 (95%)	9 (5%)	22	46
1	H	183/187 (98%)	175 (96%)	8 (4%)	25	48
2	B	190/193 (98%)	187 (98%)	3 (2%)	55	70
2	D	190/193 (98%)	185 (97%)	5 (3%)	40	61
2	L	190/193 (98%)	188 (99%)	2 (1%)	65	74
3	E	66/66 (100%)	63 (96%)	3 (4%)	24	48
3	G	66/66 (100%)	63 (96%)	3 (4%)	24	48
3	J	66/66 (100%)	63 (96%)	3 (4%)	24	48
4	F	329/362 (91%)	301 (92%)	28 (8%)	10	32
4	I	329/362 (91%)	301 (92%)	28 (8%)	10	32
4	K	329/362 (91%)	305 (93%)	24 (7%)	13	36
All	All	2304/2424 (95%)	2181 (95%)	123 (5%)	20	44

All (123) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	25	VAL
1	A	56	ILE
1	A	87	LEU
1	A	110	VAL
1	A	114	ASP
1	A	115	LEU
1	A	146	THR
2	B	107	TYR
2	B	115	TRP
2	B	183	VAL
1	C	25	VAL
1	C	29	THR
1	C	40	THR
1	C	56	ILE

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Mol	Chain	Res	Type
1	C	82	ASN
1	C	87	LEU
1	C	103	TYR
1	C	128	SER
1	C	146	THR
2	D	107	TYR
2	D	109	THR
2	D	115	TRP
2	D	183	VAL
2	D	184	THR
3	E	30	GLU
3	E	88	ASN
3	E	90	VAL
4	F	148	ILE
4	F	154	VAL
4	F	195	LEU
4	F	204	LEU
4	F	207	VAL
4	F	211	SER
4	F	244	THR
4	F	251	MET
4	F	252	LEU
4	F	261	ILE
4	F	288	ILE
4	F	301	VAL
4	F	309	ILE
4	F	316	LEU
4	F	338	ASP
4	F	345	ASN
4	F	361	GLN
4	F	377	SER
4	F	398	SER
4	F	401	ASP
4	F	402	VAL
4	F	422	CYS
4	F	449	THR
4	F	472	GLU
4	F	474	ILE
4	F	476	ASN
4	F	477	PHE
4	F	485	SER
3	G	30	GLU

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Mol	Chain	Res	Type
3	G	88	ASN
3	G	90	VAL
1	H	25	VAL
1	H	29	THR
1	H	56	ILE
1	H	87	LEU
1	H	103	TYR
1	H	112(A)	THR
1	H	112	THR
1	H	146	THR
4	I	204	LEU
4	I	207	VAL
4	I	211	SER
4	I	244	THR
4	I	251	MET
4	I	252	LEU
4	I	255	SER
4	I	261	ILE
4	I	288	ILE
4	I	289	MET
4	I	301	VAL
4	I	309	ILE
4	I	316	LEU
4	I	338	ASP
4	I	345	ASN
4	I	361	GLN
4	I	377	SER
4	I	382	CYS
4	I	398	SER
4	I	401	ASP
4	I	402	VAL
4	I	422	CYS
4	I	449	THR
4	I	472	GLU
4	I	474	ILE
4	I	476	ASN
4	I	477	PHE
4	I	485	SER
3	J	30	GLU
3	J	88	ASN
3	J	90	VAL
4	K	204	LEU

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Mol	Chain	Res	Type
4	K	207	VAL
4	K	211	SER
4	K	234	THR
4	K	244	THR
4	K	251	MET
4	K	252	LEU
4	K	261	ILE
4	K	288	ILE
4	K	301	VAL
4	K	309	ILE
4	K	316	LEU
4	K	338	ASP
4	K	361	GLN
4	K	377	SER
4	K	398	SER
4	K	401	ASP
4	K	402	VAL
4	K	422	CYS
4	K	449	THR
4	K	474	ILE
4	K	476	ASN
4	K	477	PHE
4	K	485	SER
2	L	115	TRP
2	L	183	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (38) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	90	GLN
1	A	92	ASN
1	A	179	HIS
1	A	214	ASN
2	B	6	GLN
2	B	43	GLN
2	B	95	GLN
2	B	106	GLN
2	B	157	ASN
2	B	230	ASN
1	C	85	ASN
2	D	95	GLN
2	D	180	GLN

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Mol	Chain	Res	Type
3	E	26	GLN
3	E	81	GLN
4	F	225	GLN
4	F	270	GLN
4	F	345	ASN
4	F	380	ASN
4	F	388	ASN
4	F	454	ASN
3	G	26	GLN
3	G	81	GLN
3	G	94	GLN
1	H	90	GLN
1	H	92	ASN
1	H	214	ASN
4	I	225	GLN
4	I	279	GLN
4	I	380	ASN
3	J	26	GLN
3	J	81	GLN
4	K	270	GLN
4	K	454	ASN
2	L	3	GLN
2	L	6	GLN
2	L	95	GLN
2	L	144	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

Mogul was not executed - this section is therefore empty.

5.5 Carbohydrates ⓘ

Mogul was not executed - this section is therefore empty.

5.6 Ligand geometry [i](#)

Mogul was not executed - this section is therefore empty.

5.7 Other polymers [i](#)

Mogul was not executed - this section is therefore empty.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

EDS was not executed - this section is therefore empty.

6.2 Non-standard residues in protein, DNA, RNA chains

EDS was not executed - this section is therefore empty.

6.3 Carbohydrates

EDS was not executed - this section is therefore empty.

6.4 Ligands

EDS was not executed - this section is therefore empty.

6.5 Other polymers

EDS was not executed - this section is therefore empty.