



Full wwPDB X-ray Structure Validation Report ⓘ

May 13, 2020 – 07:22 am BST

PDB ID : 3PBP
Title : Structure of the yeast heterotrimeric Nup82-Nup159-Nup116 nucleoporin complex
Authors : Debler, E.W.; Hoelz, A.
Deposited on : 2010-10-20
Resolution : 2.60 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 following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.11
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.11

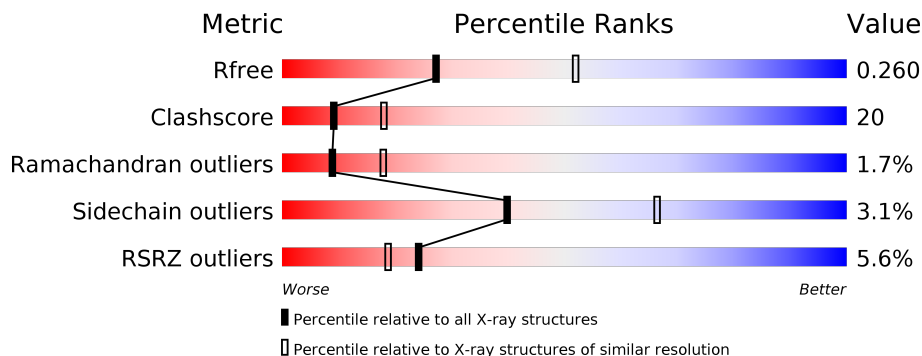
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.60 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	3163 (2.60-2.60)
Clashscore	141614	3518 (2.60-2.60)
Ramachandran outliers	138981	3455 (2.60-2.60)
Sidechain outliers	138945	3455 (2.60-2.60)
RSRZ outliers	127900	3104 (2.60-2.60)

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 respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	452	
1	D	452	
1	G	452	
1	J	452	
2	B	148	
2	E	148	

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Mol	Chain	Length	Quality of chain
2	H	148	
2	K	148	
3	C	36	
3	F	36	
3	I	36	
3	L	36	

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 19653 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 Nucleoporin NUP82.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
			Total	C	N	O	S	Se			
1	A	438	3539	2273	569	686	4	7	0	0	0
1	D	437	3533	2270	568	684	4	7	0	0	0
1	G	438	3539	2273	569	686	4	7	0	0	0
1	J	439	3550	2279	573	687	4	7	0	0	0

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	396	SER	CYS	ENGINEERED MUTATION	UNP P40368
D	396	SER	CYS	ENGINEERED MUTATION	UNP P40368
G	396	SER	CYS	ENGINEERED MUTATION	UNP P40368
J	396	SER	CYS	ENGINEERED MUTATION	UNP P40368

- Molecule 2 is a protein called Nucleoporin NUP116/NSP116.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
			Total	C	N	O	S	Se			
2	B	146	1165	745	204	212	3	1	0	0	0
2	E	146	1165	745	204	212	3	1	0	0	0
2	H	146	1165	745	204	212	3	1	0	0	0
2	K	146	1165	745	204	212	3	1	0	0	0

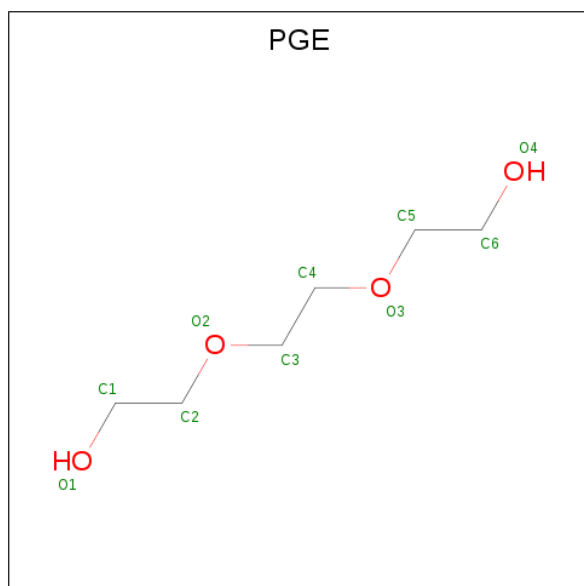
There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	966	MSE	-	INITIATING METHIONINE	UNP Q02630
E	966	MSE	-	INITIATING METHIONINE	UNP Q02630
H	966	MSE	-	EXPRESSION TAG	UNP Q02630
K	966	MSE	-	INITIATING METHIONINE	UNP Q02630

- Molecule 3 is a protein called Nucleoporin NUP159.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	C	26	Total	C	N	O	Se	0	0	0
			204	133	34	35	2			
3	F	26	Total	C	N	O	Se	0	0	0
			204	133	34	35	2			
3	I	28	Total	C	N	O	Se	0	0	0
			222	145	37	38	2			
3	L	24	Total	C	N	O	Se	0	0	0
			192	126	32	33	1			

- Molecule 4 is TRIETHYLENE GLYCOL (three-letter code: PGE) (formula: C₆H₁₄O₄).

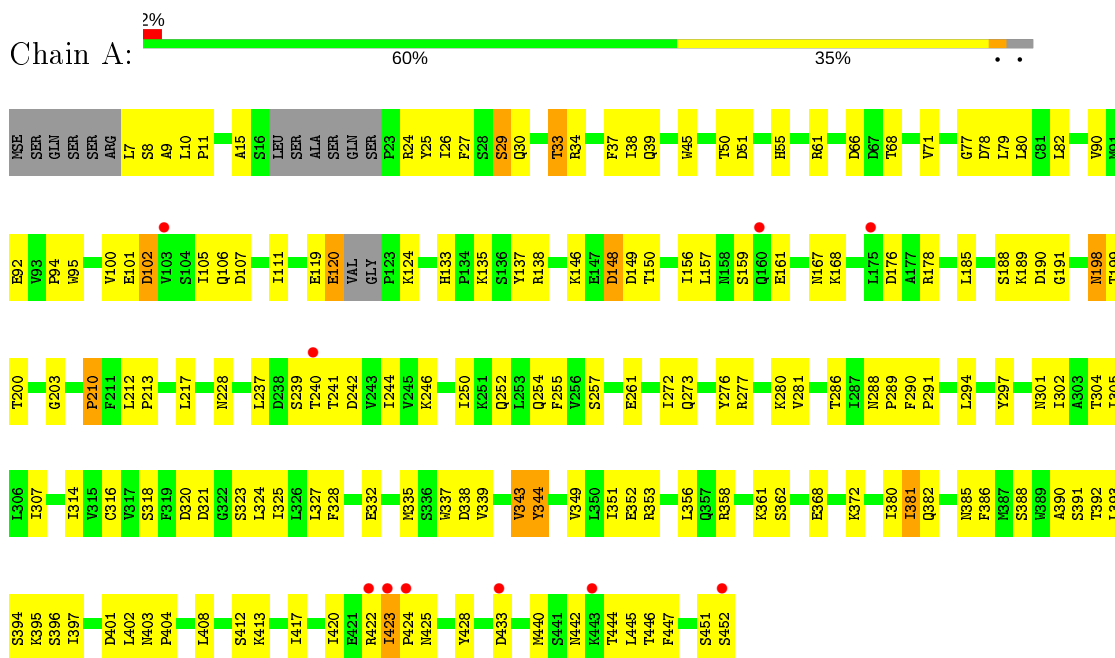


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	D	1	Total	C	O	0	0
			10	6	4		

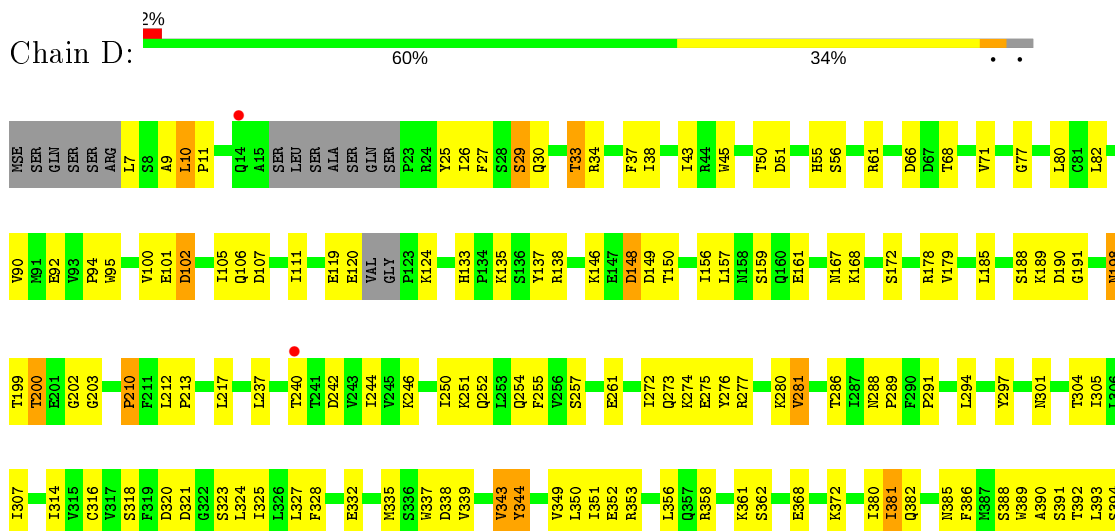
3 Residue-property plots [i](#)

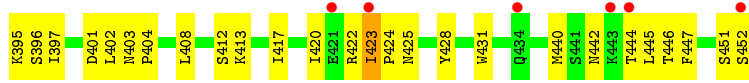
These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are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

- Molecule 1: Nucleoporin NUP82

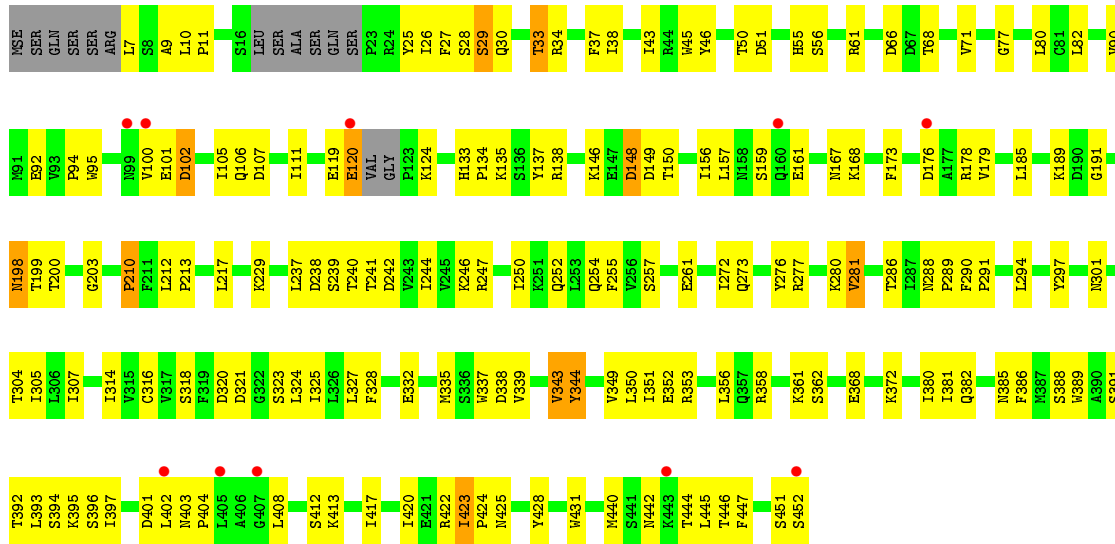


- Molecule 1: Nucleoporin NUP82

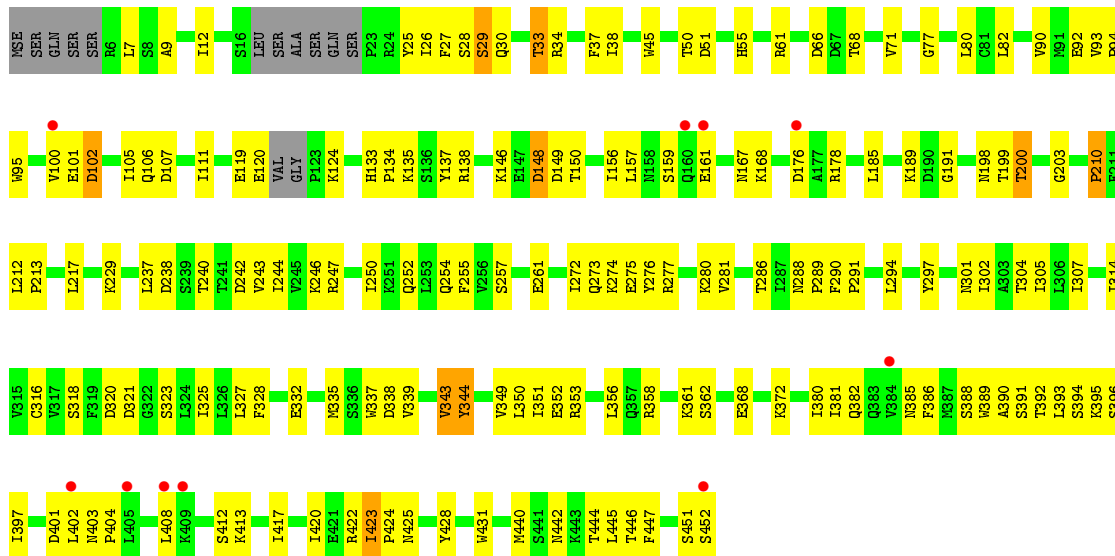




• Molecule 1: Nucleoporin NUP82

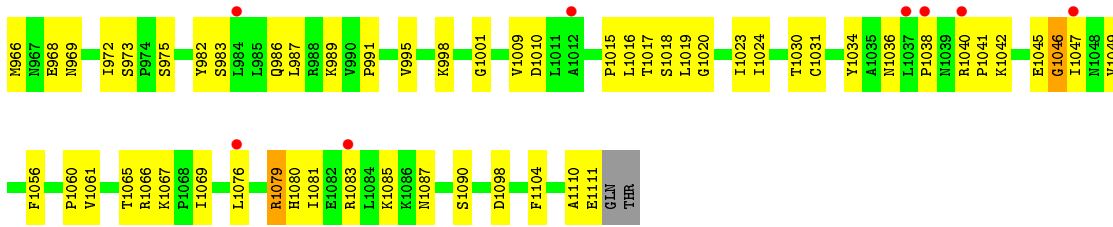


• Molecule 1: Nucleoporin NUP82

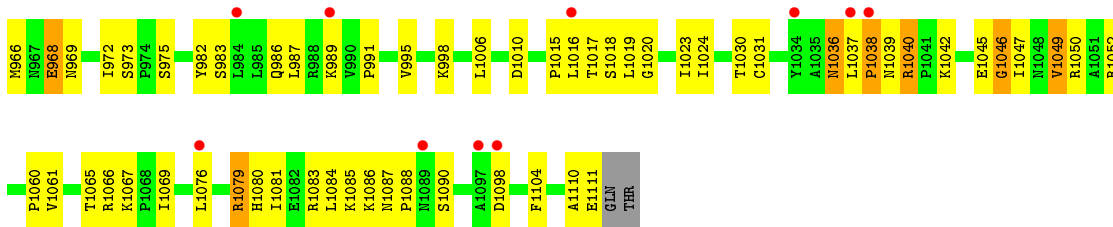


• Molecule 2: Nucleoporin NUP116/NSP116

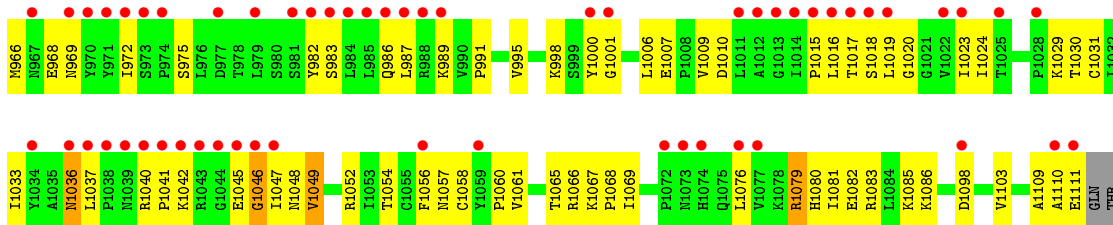
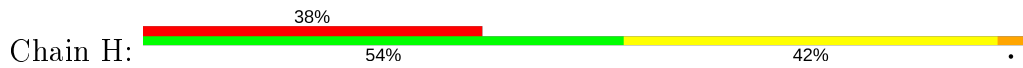




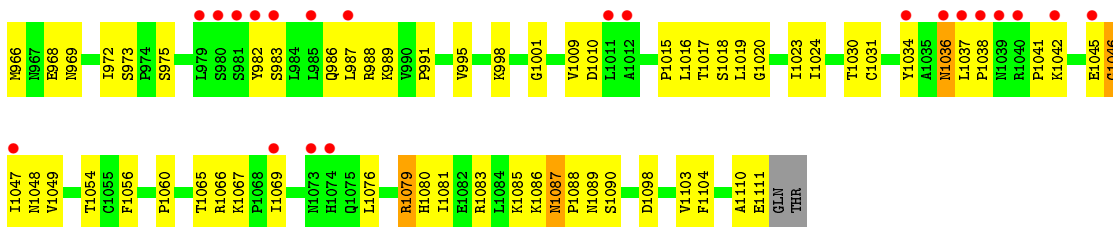
- Molecule 2: Nucleoporin NUP116/NSP116



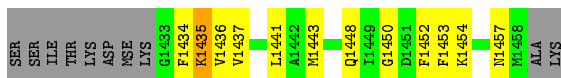
- Molecule 2: Nucleoporin NUP116/NSP116



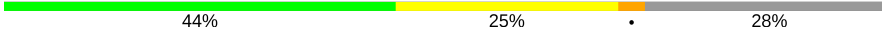
- Molecule 2: Nucleoporin NUP116/NSP116



- Molecule 3: Nucleoporin NUP159



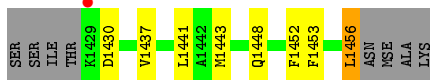
- Molecule 3: Nucleoporin NUP159

Chain F:  44% 25% 28%



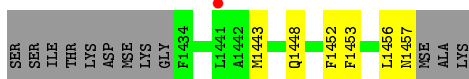
• Molecule 3: Nucleoporin NUP159

Chain I:  3% 56% 19% 22%



• Molecule 3: Nucleoporin NUP159

Chain L:  3% 50% 17% 33%



4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	61.50Å 96.77Å 144.28Å 105.98° 93.97° 108.24°	Depositor
Resolution (Å)	50.00 – 2.60 47.11 – 2.81	Depositor EDS
% Data completeness (in resolution range)	(Not available) (50.00-2.60) 93.3 (47.11-2.81)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.10	Depositor
$\langle I/\sigma(I) \rangle$ ¹	4.40 (at 2.81Å)	Xtrriage
Refinement program	CNS 1.2	Depositor
R, R_{free}	0.257 , 0.272 0.233 , 0.260	Depositor DCC
R_{free} test set	6890 reflections (9.80%)	wwPDB-VP
Wilson B-factor (Å ²)	53.4	Xtrriage
Anisotropy	0.889	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 40.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	0.013 for -h,-k,h+k+l	Xtrriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	19653	wwPDB-VP
Average B, all atoms (Å ²)	74.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.64% 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 [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: PGE

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	0.43	0/3603	0.68	2/4877 (0.0%)
1	D	0.42	0/3597	0.68	2/4869 (0.0%)
1	G	0.42	0/3603	0.68	1/4877 (0.0%)
1	J	0.43	0/3614	0.68	1/4891 (0.0%)
2	B	0.35	0/1193	0.64	0/1617
2	E	0.35	0/1193	0.62	0/1617
2	H	0.41	0/1193	0.63	0/1617
2	K	0.37	0/1193	0.63	0/1617
3	C	0.53	0/204	0.61	0/266
3	F	0.48	0/204	0.56	0/266
3	I	0.44	0/222	0.64	0/288
3	L	0.49	0/193	0.52	0/254
All	All	0.41	0/20012	0.66	6/27056 (0.0%)

There are no bond length outliers.

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	J	343	VAL	N-CA-C	-5.42	96.38	111.00
1	G	343	VAL	N-CA-C	-5.15	97.09	111.00
1	D	343	VAL	N-CA-C	-5.10	97.23	111.00
1	A	343	VAL	N-CA-C	-5.05	97.36	111.00
1	A	381	ILE	N-CA-C	-5.04	97.38	111.00
1	D	381	ILE	N-CA-C	-5.01	97.48	111.00

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	3539	0	3507	141	0
1	D	3533	0	3502	146	0
1	G	3539	0	3507	154	0
1	J	3550	0	3520	157	0
2	B	1165	0	1183	39	0
2	E	1165	0	1183	46	0
2	H	1165	0	1183	54	0
2	K	1165	0	1183	46	0
3	C	204	0	213	11	0
3	F	204	0	213	12	0
3	I	222	0	237	13	0
3	L	192	0	201	10	0
4	D	10	0	14	5	0
All	All	19653	0	19646	784	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 20.

All (784) 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:H:1010:ASP:HB3	2:H:1046:GLY:HA2	1.41	0.99
1:G:10:LEU:HD12	1:G:11:PRO:HD2	1.51	0.92
1:J:444:THR:HG22	1:J:445:LEU:H	1.40	0.86
3:I:1437:VAL:HG11	1:J:243:VAL:HG12	1.58	0.85
1:G:444:THR:HG22	1:G:445:LEU:H	1.40	0.84
1:A:210:PRO:HG3	1:A:335:MSE:HE3	1.60	0.83
1:G:210:PRO:HG3	1:G:335:MSE:HE3	1.59	0.82
1:D:92:GLU:HB2	1:D:111:ILE:HD11	1.62	0.82
1:A:10:LEU:HD12	1:A:11:PRO:HD2	1.59	0.82
1:D:444:THR:HG22	1:D:445:LEU:H	1.41	0.81
1:J:90:VAL:HG11	1:J:156:ILE:HD13	1.62	0.81
1:A:210:PRO:CG	1:A:335:MSE:HE3	2.10	0.81
2:B:983:SER:HB2	2:B:986:GLN:HG2	1.63	0.81
2:E:983:SER:HB2	2:E:986:GLN:HG2	1.64	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:210:PRO:CG	1:G:335:MSE:HE3	2.12	0.80
2:H:983:SER:HB2	2:H:986:GLN:HG2	1.64	0.80
1:G:90:VAL:HG11	1:G:156:ILE:HD13	1.62	0.80
1:A:92:GLU:HB2	1:A:111:ILE:HD11	1.64	0.79
1:D:148:ASP:HB3	1:D:150:THR:HB	1.64	0.79
1:A:444:THR:HG22	1:A:445:LEU:H	1.43	0.79
1:J:381:ILE:HD11	1:J:424:PRO:HG3	1.65	0.79
2:H:1001:GLY:HA2	2:H:1056:PHE:CE2	2.17	0.79
1:A:148:ASP:HB3	1:A:150:THR:HB	1.64	0.78
1:D:343:VAL:HG11	2:E:1066:ARG:NH1	1.98	0.78
1:A:90:VAL:HG11	1:A:156:ILE:HD13	1.65	0.78
1:D:90:VAL:HG11	1:D:156:ILE:HD13	1.64	0.78
1:D:210:PRO:CG	1:D:335:MSE:HE3	2.13	0.78
1:D:210:PRO:HG3	1:D:335:MSE:HE3	1.65	0.77
1:J:343:VAL:HG11	2:K:1066:ARG:NH1	1.99	0.77
1:J:210:PRO:HG3	1:J:335:MSE:HE3	1.66	0.77
2:K:983:SER:HB2	2:K:986:GLN:HG2	1.65	0.77
2:H:972:ILE:HD11	2:H:1019:LEU:HB2	1.67	0.77
1:D:381:ILE:HD11	1:D:424:PRO:HG3	1.66	0.77
2:E:1038:PRO:C	2:E:1040:ARG:H	1.85	0.77
1:J:210:PRO:CG	1:J:335:MSE:HE3	2.15	0.77
1:J:92:GLU:HB2	1:J:111:ILE:HD11	1.65	0.76
1:G:148:ASP:HB3	1:G:150:THR:HB	1.66	0.76
1:G:381:ILE:HD11	1:G:424:PRO:HG3	1.67	0.76
1:A:280:LYS:HD2	1:A:338:ASP:O	1.85	0.76
3:I:1441:LEU:HD11	1:J:243:VAL:HG13	1.68	0.76
1:D:358:ARG:CZ	1:D:380:ILE:HD12	2.17	0.75
1:J:148:ASP:HB3	1:J:150:THR:HB	1.67	0.75
1:J:358:ARG:CZ	1:J:380:ILE:HD12	2.16	0.75
1:J:392:THR:HG21	1:J:408:LEU:HD11	1.67	0.75
1:G:358:ARG:CZ	1:G:380:ILE:HD12	2.16	0.74
2:B:972:ILE:HD11	2:B:1019:LEU:HB2	1.69	0.74
1:G:92:GLU:HB2	1:G:111:ILE:HD11	1.67	0.74
1:G:255:PHE:CD2	1:G:335:MSE:HE1	2.22	0.74
1:G:280:LYS:HD2	1:G:338:ASP:O	1.87	0.74
1:J:361:LYS:HE2	1:J:423:ILE:HD11	1.69	0.74
1:D:289:PRO:HG3	3:F:1457:ASN:HB2	1.69	0.74
1:G:119:GLU:O	1:G:124:LYS:HE2	1.88	0.74
1:D:27:PHE:HZ	1:D:71:VAL:HG23	1.53	0.73
1:J:119:GLU:O	1:J:124:LYS:HE2	1.88	0.73
1:A:358:ARG:CZ	1:A:380:ILE:HD12	2.19	0.73

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:381:ILE:HD11	1:A:424:PRO:HG3	1.68	0.73
1:D:189:LYS:HG2	1:D:304:THR:CG2	2.19	0.73
1:D:392:THR:HG21	1:D:408:LEU:HD11	1.70	0.73
1:A:361:LYS:HE2	1:A:423:ILE:HD11	1.70	0.73
1:D:280:LYS:HD2	1:D:338:ASP:O	1.87	0.73
1:J:343:VAL:HG11	2:K:1066:ARG:CZ	2.19	0.73
1:D:66:ASP:OD1	1:D:68:THR:HB	1.88	0.73
1:A:392:THR:HG21	1:A:408:LEU:HD11	1.72	0.72
1:J:335:MSE:HE2	1:J:337:TRP:CZ2	2.25	0.72
1:J:66:ASP:OD1	1:J:68:THR:HB	1.89	0.72
2:K:1086:LYS:O	2:K:1087:ASN:HB3	1.88	0.72
2:K:972:ILE:HD11	2:K:1019:LEU:HB2	1.69	0.72
1:A:66:ASP:OD1	1:A:68:THR:HB	1.89	0.72
1:G:189:LYS:HG2	1:G:304:THR:CG2	2.19	0.72
1:G:66:ASP:OD1	1:G:68:THR:HB	1.90	0.72
1:J:37:PHE:HE1	1:J:440:MSE:HE1	1.54	0.72
1:D:335:MSE:HE2	1:D:337:TRP:CZ2	2.23	0.72
1:D:444:THR:HG22	1:D:445:LEU:N	2.04	0.72
1:A:119:GLU:O	1:A:124:LYS:HE2	1.89	0.72
1:A:335:MSE:HE2	1:A:337:TRP:CZ2	2.24	0.72
1:J:255:PHE:CD2	1:J:335:MSE:HE1	2.25	0.72
1:J:444:THR:HG22	1:J:445:LEU:N	2.05	0.72
2:E:972:ILE:HD11	2:E:1019:LEU:HB2	1.70	0.71
1:G:392:THR:HG21	1:G:408:LEU:HD11	1.72	0.71
1:G:361:LYS:HE2	1:G:423:ILE:HD11	1.72	0.71
1:G:444:THR:HG22	1:G:445:LEU:N	2.05	0.71
1:D:119:GLU:O	1:D:124:LYS:HE2	1.90	0.71
1:J:280:LYS:HD2	1:J:338:ASP:O	1.89	0.71
2:K:1090:SER:HB2	2:K:1104:PHE:CD2	2.25	0.71
1:A:27:PHE:HZ	1:A:71:VAL:HG23	1.55	0.70
3:C:1434:PHE:O	3:C:1436:VAL:N	2.24	0.70
1:J:27:PHE:HZ	1:J:71:VAL:HG23	1.54	0.70
1:J:237:LEU:HD22	1:J:246:LYS:HG3	1.73	0.70
1:G:27:PHE:HZ	1:G:71:VAL:HG23	1.55	0.70
1:G:173:PHE:HE2	2:H:1033:ILE:HD12	1.56	0.70
1:A:444:THR:HG22	1:A:445:LEU:N	2.06	0.70
1:D:255:PHE:CD2	1:D:335:MSE:HE1	2.26	0.70
1:G:335:MSE:HE2	1:G:337:TRP:CZ2	2.27	0.69
1:A:189:LYS:HG2	1:A:304:THR:CG2	2.22	0.69
1:G:7:LEU:HB2	1:G:431:TRP:CZ3	2.27	0.69
1:A:255:PHE:CD2	1:A:335:MSE:HE1	2.26	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:34:ARG:HB3	1:D:95:TRP:CH2	2.28	0.69
1:D:361:LYS:HE2	1:D:423:ILE:HD11	1.74	0.69
1:D:440:MSE:HE2	1:D:445:LEU:HD13	1.75	0.69
2:K:1010:ASP:HB3	2:K:1046:GLY:HA2	1.75	0.69
2:H:989:LYS:O	2:H:991:PRO:HD3	1.94	0.68
1:J:325:ILE:HD12	1:J:327:LEU:HD21	1.75	0.68
2:E:989:LYS:O	2:E:991:PRO:HD3	1.94	0.67
2:H:1042:LYS:O	2:H:1045:GLU:HB2	1.95	0.67
1:G:343:VAL:HG11	2:H:1066:ARG:NH1	2.10	0.67
2:K:989:LYS:O	2:K:991:PRO:HD3	1.94	0.67
2:B:989:LYS:O	2:B:991:PRO:HD3	1.95	0.66
2:K:1037:LEU:N	2:K:1038:PRO:HD3	2.09	0.66
2:B:1042:LYS:O	2:B:1045:GLU:HB2	1.95	0.66
1:A:15:ALA:HB2	1:A:24:ARG:HH21	1.61	0.66
1:D:301:ASN:H	1:D:318:SER:HB2	1.61	0.66
1:J:422:ARG:HG3	1:J:442:ASN:HD21	1.58	0.66
3:I:1437:VAL:CG1	1:J:243:VAL:HG12	2.25	0.66
1:A:325:ILE:HD12	1:A:327:LEU:HD21	1.78	0.66
1:A:440:MSE:HE2	1:A:445:LEU:HD13	1.78	0.66
1:J:335:MSE:HE2	1:J:337:TRP:CH2	2.31	0.65
1:A:422:ARG:HG3	1:A:442:ASN:HD21	1.61	0.65
1:D:422:ARG:HG3	1:D:442:ASN:HD21	1.61	0.65
2:H:1010:ASP:HB3	2:H:1046:GLY:CA	2.21	0.65
1:J:189:LYS:HG2	1:J:304:THR:CG2	2.26	0.65
1:J:440:MSE:HE2	1:J:445:LEU:HD13	1.76	0.65
1:D:343:VAL:HG11	2:E:1066:ARG:CZ	2.26	0.65
1:G:440:MSE:HE2	1:G:445:LEU:HD13	1.78	0.65
1:D:30:GLN:O	1:D:33:THR:HB	1.97	0.65
2:H:1082:GLU:HG2	2:H:1086:LYS:HE3	1.79	0.65
1:J:30:GLN:O	1:J:33:THR:HB	1.96	0.65
1:A:92:GLU:HB2	1:A:111:ILE:CD1	2.26	0.64
1:J:92:GLU:HB2	1:J:111:ILE:CD1	2.26	0.64
1:J:34:ARG:HB3	1:J:95:TRP:CH2	2.31	0.64
1:G:255:PHE:CE2	1:G:335:MSE:HE1	2.32	0.64
1:G:34:ARG:HB3	1:G:95:TRP:CH2	2.32	0.64
1:A:301:ASN:H	1:A:318:SER:HB2	1.63	0.64
1:G:335:MSE:HE2	1:G:337:TRP:CH2	2.32	0.64
1:G:422:ARG:HG3	1:G:442:ASN:HD21	1.61	0.64
1:J:307:ILE:HD11	1:J:314:ILE:HD11	1.78	0.64
2:B:1090:SER:HB2	2:B:1104:PHE:CD2	2.33	0.64
1:G:30:GLN:O	1:G:33:THR:HB	1.97	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:K:1042:LYS:O	2:K:1045:GLU:HB2	1.97	0.64
2:K:1069:ILE:HD12	2:K:1076:LEU:HD12	1.80	0.64
1:A:30:GLN:O	1:A:33:THR:HB	1.98	0.64
1:A:34:ARG:HB3	1:A:95:TRP:CH2	2.33	0.64
2:E:1042:LYS:O	2:E:1045:GLU:HB2	1.97	0.64
1:D:92:GLU:HB2	1:D:111:ILE:CD1	2.26	0.63
1:D:25:TYR:CD2	1:D:71:VAL:HG22	2.33	0.63
1:G:25:TYR:CD2	1:G:71:VAL:HG22	2.34	0.63
1:J:255:PHE:CE2	1:J:335:MSE:HE1	2.34	0.63
1:G:92:GLU:HB2	1:G:111:ILE:CD1	2.28	0.63
1:J:301:ASN:H	1:J:318:SER:HB2	1.64	0.63
1:G:29:SER:OG	1:G:77:GLY:HA3	1.98	0.63
1:A:335:MSE:HE2	1:A:337:TRP:CH2	2.34	0.62
1:D:335:MSE:HE2	1:D:337:TRP:CH2	2.33	0.62
1:G:301:ASN:H	1:G:318:SER:HB2	1.63	0.62
2:B:1015:PRO:HG2	2:B:1018:SER:OG	1.99	0.62
1:D:26:ILE:HB	1:D:440:MSE:HE3	1.80	0.62
1:D:255:PHE:CE2	1:D:335:MSE:HE1	2.34	0.62
1:G:380:ILE:HG22	1:G:381:ILE:N	2.14	0.62
1:J:402:LEU:HD21	3:L:1448:GLN:HB3	1.79	0.62
1:J:37:PHE:HE1	1:J:440:MSE:CE	2.12	0.62
1:G:100:VAL:HG12	1:G:106:GLN:HG2	1.82	0.62
2:E:1069:ILE:HD12	2:E:1076:LEU:HD12	1.82	0.62
1:G:307:ILE:HD11	1:G:314:ILE:HD11	1.80	0.62
1:A:25:TYR:CD2	1:A:71:VAL:HG22	2.34	0.62
1:J:444:THR:CG2	1:J:445:LEU:H	2.13	0.62
2:E:1015:PRO:HG2	2:E:1018:SER:OG	2.00	0.62
2:H:1015:PRO:HG2	2:H:1018:SER:OG	2.00	0.62
1:A:372:LYS:HE2	1:A:385:ASN:ND2	2.16	0.61
1:A:255:PHE:CE2	1:A:335:MSE:HE1	2.35	0.61
1:D:100:VAL:HG12	1:D:106:GLN:HG2	1.80	0.61
1:D:380:ILE:HG22	1:D:381:ILE:N	2.14	0.61
1:A:146:LYS:HB2	1:A:150:THR:HG22	1.82	0.61
1:A:38:ILE:HD11	1:A:80:LEU:HD13	1.83	0.61
2:B:1069:ILE:HD12	2:B:1076:LEU:HD12	1.82	0.61
1:D:148:ASP:O	1:D:149:ASP:HB2	2.00	0.61
2:H:1069:ILE:HD12	2:H:1076:LEU:HD12	1.81	0.61
1:A:148:ASP:O	1:A:149:ASP:HB2	2.00	0.61
2:K:1015:PRO:HG2	2:K:1018:SER:OG	1.99	0.61
1:D:372:LYS:HE2	1:D:385:ASN:ND2	2.16	0.61
1:J:380:ILE:HG22	1:J:381:ILE:N	2.15	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:380:ILE:HG22	1:A:381:ILE:N	2.14	0.61
1:D:146:LYS:HB2	1:D:150:THR:HG22	1.81	0.61
1:D:297:TYR:HB3	1:D:320:ASP:HB2	1.83	0.61
1:J:100:VAL:HG12	1:J:106:GLN:HG2	1.83	0.61
2:B:1040:ARG:N	2:B:1041:PRO:HD3	2.15	0.61
1:D:307:ILE:HD11	1:D:314:ILE:HD11	1.83	0.61
1:G:148:ASP:O	1:G:149:ASP:HB2	2.00	0.61
1:A:343:VAL:O	1:A:344:TYR:HB2	2.01	0.60
1:D:38:ILE:HD11	1:D:80:LEU:HD13	1.84	0.60
1:A:307:ILE:HD11	1:A:314:ILE:HD11	1.84	0.60
1:G:444:THR:CG2	1:G:445:LEU:H	2.13	0.60
2:K:1081:ILE:HG22	2:K:1085:LYS:HE3	1.84	0.60
1:J:148:ASP:O	1:J:149:ASP:HB2	2.02	0.60
1:J:25:TYR:CD2	1:J:71:VAL:HG22	2.37	0.60
1:A:297:TYR:HB3	1:A:320:ASP:HB2	1.84	0.60
1:G:38:ILE:HD11	1:G:80:LEU:HD13	1.84	0.60
1:G:146:LYS:HB2	1:G:150:THR:HG22	1.84	0.59
1:J:372:LYS:HE2	1:J:385:ASN:ND2	2.16	0.59
2:K:1065:THR:HG22	2:K:1067:LYS:HG3	1.83	0.59
1:D:325:ILE:HD12	1:D:327:LEU:HD21	1.84	0.59
1:G:325:ILE:HD12	1:G:327:LEU:HD21	1.84	0.59
1:G:10:LEU:HD21	1:G:46:TYR:CE2	2.37	0.59
1:G:343:VAL:O	1:G:344:TYR:HB2	2.03	0.59
1:J:82:LEU:HD12	1:J:82:LEU:N	2.17	0.59
1:A:100:VAL:HG12	1:A:106:GLN:HG2	1.83	0.59
1:D:343:VAL:O	1:D:344:TYR:HB2	2.02	0.59
2:H:1110:ALA:O	2:H:1111:GLU:HG3	2.03	0.59
2:K:969:ASN:O	2:K:998:LYS:HG3	2.03	0.59
1:G:37:PHE:HE1	1:G:440:MSE:HE1	1.68	0.58
1:J:297:TYR:HB3	1:J:320:ASP:HB2	1.84	0.58
2:H:1081:ILE:HG22	2:H:1085:LYS:HE3	1.85	0.58
1:A:343:VAL:HG11	2:B:1066:ARG:NH1	2.18	0.58
2:H:1029:LYS:HE2	2:H:1057:ASN:O	2.03	0.58
1:G:372:LYS:HE2	1:G:385:ASN:ND2	2.17	0.58
1:A:289:PRO:HG3	3:C:1457:ASN:HB2	1.85	0.58
1:J:386:PHE:HB3	1:J:412:SER:OG	2.03	0.58
2:B:1110:ALA:O	2:B:1111:GLU:HG3	2.04	0.58
1:A:305:ILE:HD12	1:A:305:ILE:N	2.19	0.58
1:D:349:VAL:HG11	3:F:1453:PHE:HB2	1.85	0.58
1:G:386:PHE:HB3	1:G:412:SER:OG	2.04	0.58
2:E:1065:THR:HG22	2:E:1067:LYS:HG3	1.84	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:26:ILE:HB	1:G:440:MSE:HE3	1.86	0.57
1:D:444:THR:CG2	1:D:445:LEU:H	2.14	0.57
1:D:402:LEU:HD21	3:F:1448:GLN:HB3	1.84	0.57
1:G:305:ILE:HD12	1:G:305:ILE:N	2.19	0.57
3:I:1437:VAL:CG1	1:J:243:VAL:CG1	2.82	0.57
1:G:297:TYR:HB3	1:G:320:ASP:HB2	1.85	0.57
3:L:1452:PHE:CE1	3:L:1456:LEU:HD22	2.39	0.57
1:G:349:VAL:HG11	3:I:1453:PHE:HB2	1.86	0.57
1:A:444:THR:CG2	1:A:445:LEU:H	2.15	0.57
2:B:966:MSE:HG3	2:B:1020:GLY:HA3	1.86	0.57
1:J:307:ILE:HD11	1:J:314:ILE:CD1	2.34	0.57
1:J:343:VAL:O	1:J:344:TYR:HB2	2.05	0.57
2:K:1110:ALA:O	2:K:1111:GLU:HG3	2.04	0.57
1:A:257:SER:O	1:A:261:GLU:HG3	2.04	0.57
2:B:1065:THR:HG22	2:B:1067:LYS:HG3	1.85	0.57
2:B:1081:ILE:HG22	2:B:1085:LYS:HE3	1.85	0.57
1:D:29:SER:OG	1:D:77:GLY:HA3	2.05	0.57
1:G:257:SER:O	1:G:261:GLU:HG3	2.05	0.57
2:B:983:SER:CB	2:B:986:GLN:HG2	2.35	0.56
2:H:1065:THR:HG22	2:H:1067:LYS:HG3	1.87	0.56
3:I:1456:LEU:O	3:I:1456:LEU:HD12	2.05	0.56
1:J:146:LYS:HB2	1:J:150:THR:HG22	1.87	0.56
1:J:440:MSE:CE	1:J:445:LEU:HD13	2.35	0.56
1:A:29:SER:OG	1:A:77:GLY:HA3	2.05	0.56
1:A:29:SER:HB3	1:A:34:ARG:HD3	1.87	0.56
2:E:983:SER:CB	2:E:986:GLN:HG2	2.35	0.56
2:H:966:MSE:HG3	2:H:1020:GLY:HA3	1.87	0.56
2:K:966:MSE:HG3	2:K:1020:GLY:HA3	1.86	0.56
3:C:1434:PHE:C	3:C:1436:VAL:H	2.08	0.56
1:J:305:ILE:HD12	1:J:305:ILE:N	2.21	0.56
2:K:1065:THR:HG21	2:K:1067:LYS:HD2	1.88	0.56
2:E:1065:THR:HG21	2:E:1067:LYS:HD2	1.86	0.56
2:H:1010:ASP:CB	2:H:1046:GLY:HA2	2.27	0.56
2:E:1081:ILE:HG22	2:E:1085:LYS:HE3	1.86	0.56
1:G:82:LEU:HD12	1:G:82:LEU:N	2.21	0.56
1:D:276:TYR:CE2	4:D:6119:PGE:H5	2.40	0.56
2:H:969:ASN:O	2:H:998:LYS:HG3	2.06	0.56
1:D:257:SER:O	1:D:261:GLU:HG3	2.05	0.56
1:J:242:ASP:OD1	1:J:244:ILE:N	2.39	0.56
2:E:1110:ALA:O	2:E:1111:GLU:HG3	2.06	0.56
1:J:38:ILE:HD11	1:J:80:LEU:HD13	1.88	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:29:SER:HB3	1:G:34:ARG:HD3	1.87	0.56
1:A:402:LEU:HD21	3:C:1448:GLN:HB3	1.88	0.55
1:D:242:ASP:OD1	1:D:244:ILE:N	2.39	0.55
1:J:29:SER:HB3	1:J:34:ARG:HD3	1.87	0.55
2:B:1010:ASP:HB3	2:B:1046:GLY:HA2	1.87	0.55
3:F:1434:PHE:N	3:F:1434:PHE:CD1	2.73	0.55
1:J:29:SER:OG	1:J:77:GLY:HA3	2.06	0.55
2:B:1065:THR:HG21	2:B:1067:LYS:HD2	1.87	0.55
2:B:969:ASN:O	2:B:998:LYS:HG3	2.06	0.55
2:E:969:ASN:O	2:E:998:LYS:HG3	2.05	0.55
2:H:983:SER:CB	2:H:986:GLN:HG2	2.35	0.55
1:A:386:PHE:HB3	1:A:412:SER:OG	2.06	0.55
2:K:1041:PRO:HB2	2:K:1048:ASN:HB2	1.88	0.55
2:H:1065:THR:HG21	2:H:1067:LYS:HD2	1.89	0.55
1:A:343:VAL:HG11	2:B:1066:ARG:CZ	2.37	0.55
1:J:257:SER:O	1:J:261:GLU:HG3	2.07	0.55
1:J:381:ILE:HD11	1:J:420:ILE:HG21	1.89	0.55
2:E:966:MSE:HG3	2:E:1020:GLY:HA3	1.88	0.54
1:D:386:PHE:HB3	1:D:412:SER:OG	2.07	0.54
1:G:10:LEU:CD1	1:G:11:PRO:HD2	2.31	0.54
2:H:995:VAL:HG21	2:H:1024:ILE:HD12	1.88	0.54
1:A:210:PRO:HG3	1:A:335:MSE:CE	2.34	0.54
1:G:37:PHE:HE1	1:G:440:MSE:CE	2.21	0.54
1:J:189:LYS:NZ	1:J:304:THR:HG22	2.21	0.54
1:D:137:TYR:CE2	1:D:138:ARG:HG3	2.43	0.54
1:J:332:GLU:CB	3:L:1443:MSE:HE3	2.38	0.54
1:G:307:ILE:HD11	1:G:314:ILE:CD1	2.38	0.54
1:D:202:GLY:HA2	2:E:1079:ARG:HH12	1.72	0.54
1:G:210:PRO:HG3	1:G:335:MSE:CE	2.37	0.53
2:K:1001:GLY:HA2	2:K:1056:PHE:CE2	2.43	0.53
1:G:402:LEU:HD21	3:I:1448:GLN:HB3	1.91	0.53
1:J:402:LEU:HD21	3:L:1448:GLN:CB	2.38	0.53
1:G:332:GLU:CB	3:I:1443:MSE:HE3	2.39	0.53
2:K:1017:THR:HG22	2:K:1017:THR:O	2.08	0.53
1:A:349:VAL:HG11	3:C:1453:PHE:HB2	1.90	0.53
1:D:212:LEU:O	1:D:277:ARG:HD2	2.08	0.53
1:G:10:LEU:HD21	1:G:46:TYR:HE2	1.73	0.53
1:A:26:ILE:HB	1:A:440:MSE:HE3	1.90	0.53
2:H:982:TYR:HB2	2:H:987:LEU:HD13	1.90	0.53
1:A:242:ASP:OD1	1:A:244:ILE:N	2.42	0.53
1:D:7:LEU:HB2	1:D:431:TRP:CZ3	2.44	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:242:ASP:OD1	1:G:244:ILE:N	2.41	0.53
1:G:173:PHE:CZ	2:H:1109:ALA:O	2.62	0.53
1:A:138:ARG:NH2	1:A:157:LEU:HD13	2.24	0.53
1:A:380:ILE:CG2	1:A:381:ILE:N	2.71	0.53
1:A:82:LEU:HD12	1:A:82:LEU:N	2.24	0.53
1:G:199:THR:O	1:G:199:THR:HG22	2.09	0.53
1:D:307:ILE:HD11	1:D:314:ILE:CD1	2.39	0.52
2:H:1000:TYR:C	2:H:1056:PHE:CD2	2.83	0.52
2:K:982:TYR:HB2	2:K:987:LEU:HD13	1.91	0.52
2:K:1009:VAL:HG13	2:K:1046:GLY:O	2.10	0.52
1:D:82:LEU:N	1:D:82:LEU:HD12	2.24	0.52
1:D:402:LEU:HD21	3:F:1448:GLN:CB	2.40	0.52
1:J:381:ILE:HD11	1:J:424:PRO:CG	2.38	0.52
1:D:305:ILE:N	1:D:305:ILE:HD12	2.24	0.52
1:D:380:ILE:CG2	1:D:381:ILE:N	2.72	0.52
1:G:380:ILE:CG2	1:G:381:ILE:N	2.72	0.52
1:J:289:PRO:HG3	3:L:1457:ASN:HB2	1.92	0.52
1:D:27:PHE:CZ	1:D:71:VAL:HG23	2.40	0.52
2:E:1037:LEU:N	2:E:1038:PRO:HD3	2.24	0.52
1:D:29:SER:HB3	1:D:34:ARG:HD3	1.90	0.52
2:B:1017:THR:O	2:B:1017:THR:HG22	2.10	0.52
1:J:356:LEU:O	1:J:358:ARG:HG3	2.10	0.52
3:I:1441:LEU:CD1	1:J:243:VAL:HG13	2.38	0.52
2:K:995:VAL:HG21	2:K:1024:ILE:HD12	1.91	0.52
1:D:138:ARG:NH2	1:D:157:LEU:HD13	2.25	0.52
1:A:307:ILE:HD11	1:A:314:ILE:CD1	2.40	0.51
1:G:381:ILE:HD11	1:G:420:ILE:HG21	1.92	0.51
1:J:138:ARG:NH2	1:J:157:LEU:HD13	2.25	0.51
1:J:422:ARG:CG	1:J:442:ASN:HD21	2.22	0.51
2:K:1087:ASN:C	2:K:1089:ASN:H	2.13	0.51
1:A:440:MSE:CE	1:A:445:LEU:HD13	2.39	0.51
1:G:138:ARG:NH2	1:G:157:LEU:HD13	2.25	0.51
1:D:440:MSE:CE	1:D:445:LEU:HD13	2.39	0.51
2:E:995:VAL:HG21	2:E:1024:ILE:HD12	1.92	0.51
1:J:393:LEU:O	1:J:397:ILE:HG13	2.10	0.51
2:K:983:SER:CB	2:K:986:GLN:HG2	2.35	0.51
1:D:393:LEU:O	1:D:397:ILE:HG13	2.11	0.51
1:D:403:ASN:HB2	1:D:404:PRO:HD3	1.93	0.51
1:D:422:ARG:O	1:D:423:ILE:C	2.49	0.51
1:G:27:PHE:CZ	1:G:71:VAL:HG23	2.42	0.51
1:J:238:ASP:OD2	1:J:240:THR:HB	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:321:ASP:OD2	1:J:323:SER:HB2	2.09	0.51
1:A:420:ILE:HG21	1:A:424:PRO:HG3	1.93	0.51
1:J:349:VAL:HG11	3:L:1453:PHE:HB2	1.92	0.51
1:J:403:ASN:HB2	1:J:404:PRO:HD3	1.92	0.51
1:G:422:ARG:O	1:G:423:ILE:C	2.49	0.51
1:J:380:ILE:CG2	1:J:381:ILE:N	2.73	0.51
1:A:381:ILE:HD11	1:A:420:ILE:HG21	1.93	0.51
1:D:332:GLU:CB	3:F:1443:MSE:HE3	2.41	0.51
1:A:210:PRO:CB	1:A:335:MSE:HE3	2.40	0.51
1:J:27:PHE:CZ	1:J:71:VAL:HG23	2.40	0.51
1:A:393:LEU:O	1:A:397:ILE:HG13	2.11	0.50
1:D:381:ILE:HD11	1:D:420:ILE:HG21	1.92	0.50
2:E:1017:THR:HG22	2:E:1017:THR:O	2.11	0.50
1:G:238:ASP:OD2	1:G:240:THR:N	2.40	0.50
1:A:199:THR:O	1:A:199:THR:HG22	2.10	0.50
1:G:356:LEU:O	1:G:358:ARG:HG3	2.12	0.50
1:J:199:THR:O	1:J:199:THR:HG22	2.10	0.50
1:A:237:LEU:HD22	1:A:246:LYS:HG3	1.93	0.50
1:D:210:PRO:HG3	1:D:335:MSE:CE	2.39	0.50
2:H:1009:VAL:HG13	2:H:1046:GLY:O	2.10	0.50
1:J:137:TYR:CE2	1:J:138:ARG:HG3	2.46	0.50
1:A:388:SER:OG	1:A:413:LYS:HE3	2.11	0.50
3:L:1456:LEU:HG	3:L:1456:LEU:O	2.11	0.50
1:G:388:SER:OG	1:G:413:LYS:HE3	2.12	0.50
1:G:420:ILE:HG21	1:G:424:PRO:HG3	1.94	0.50
1:A:37:PHE:HE1	1:A:440:MSE:CE	2.25	0.50
2:B:1001:GLY:HA2	2:B:1056:PHE:CE2	2.47	0.50
2:H:1017:THR:HG22	2:H:1017:THR:O	2.12	0.50
1:J:210:PRO:CB	1:J:335:MSE:HE3	2.42	0.50
1:J:425:ASN:HB3	1:J:440:MSE:HB3	1.94	0.50
1:A:250:ILE:O	1:A:254:GLN:HG3	2.11	0.50
1:A:422:ARG:O	1:A:423:ILE:C	2.50	0.50
1:D:237:LEU:HD22	1:D:246:LYS:HG3	1.93	0.50
1:G:250:ILE:O	1:G:254:GLN:HG3	2.12	0.50
1:G:381:ILE:HD11	1:G:424:PRO:CG	2.38	0.50
1:A:403:ASN:HB2	1:A:404:PRO:HD3	1.94	0.50
1:G:7:LEU:HB2	1:G:431:TRP:CH2	2.46	0.50
1:A:446:THR:HG22	1:A:447:PHE:N	2.26	0.49
1:J:325:ILE:O	1:J:325:ILE:HG13	2.12	0.49
1:G:167:ASN:O	1:G:178:ARG:NH1	2.43	0.49
1:A:356:LEU:O	1:A:358:ARG:HG3	2.12	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:33:THR:HG22	1:D:34:ARG:HG3	1.94	0.49
1:G:403:ASN:HB2	1:G:404:PRO:HD3	1.93	0.49
1:J:422:ARG:O	1:J:423:ILE:C	2.50	0.49
1:A:27:PHE:CZ	1:A:71:VAL:HG23	2.42	0.49
2:B:995:VAL:HG21	2:B:1024:ILE:HD12	1.93	0.49
1:G:440:MSE:CE	1:G:445:LEU:HD13	2.40	0.49
1:A:343:VAL:O	1:A:344:TYR:CB	2.61	0.49
1:D:199:THR:HG22	1:D:199:THR:O	2.12	0.49
1:G:45:TRP:CZ2	1:G:94:PRO:HB2	2.47	0.49
1:A:425:ASN:HB3	1:A:440:MSE:HB3	1.94	0.49
1:A:332:GLU:CB	3:C:1443:MSE:HE3	2.43	0.49
1:D:212:LEU:HD13	1:D:272:ILE:HD13	1.95	0.49
1:D:189:LYS:HG2	1:D:304:THR:HG21	1.91	0.49
1:D:356:LEU:O	1:D:358:ARG:HG3	2.13	0.49
2:E:1018:SER:HB3	2:E:1023:ILE:HG13	1.94	0.49
1:G:240:THR:HG22	1:G:240:THR:O	2.12	0.49
1:G:30:GLN:CG	1:G:34:ARG:HD2	2.42	0.49
1:G:425:ASN:HB3	1:G:440:MSE:HB3	1.94	0.49
1:D:250:ILE:O	1:D:254:GLN:HG3	2.12	0.49
1:G:189:LYS:HG2	1:G:304:THR:HG22	1.94	0.49
2:E:982:TYR:HB2	2:E:987:LEU:HD13	1.93	0.49
1:A:167:ASN:O	1:A:178:ARG:NH1	2.46	0.48
1:A:392:THR:CG2	1:A:408:LEU:HD11	2.43	0.48
2:B:982:TYR:HB2	2:B:987:LEU:HD13	1.93	0.48
1:D:45:TRP:CZ2	1:D:94:PRO:HB2	2.48	0.48
1:J:392:THR:CG2	1:J:408:LEU:HD11	2.41	0.48
1:A:444:THR:CG2	1:A:445:LEU:N	2.75	0.48
1:D:210:PRO:CB	1:D:335:MSE:HE3	2.43	0.48
1:D:45:TRP:CE2	1:D:55:HIS:HB2	2.49	0.48
1:J:30:GLN:CG	1:J:34:ARG:HD2	2.44	0.48
1:A:189:LYS:HG2	1:A:304:THR:HG22	1.95	0.48
1:A:381:ILE:HD11	1:A:424:PRO:CG	2.39	0.48
1:A:45:TRP:CZ2	1:A:94:PRO:HB2	2.48	0.48
1:D:189:LYS:HG2	1:D:304:THR:HG22	1.95	0.48
1:D:343:VAL:O	1:D:344:TYR:CB	2.62	0.48
1:D:422:ARG:CG	1:D:442:ASN:HD21	2.25	0.48
3:L:1453:PHE:O	3:L:1457:ASN:ND2	2.43	0.48
1:D:133:HIS:CE1	1:D:213:PRO:HD3	2.49	0.48
1:G:273:GLN:OE1	1:G:276:TYR:HE1	1.97	0.48
1:G:325:ILE:HG13	1:G:325:ILE:O	2.14	0.48
1:G:451:SER:O	1:G:452:SER:HB3	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:420:ILE:HG21	1:J:424:PRO:HG3	1.95	0.48
1:J:451:SER:O	1:J:452:SER:HB3	2.13	0.48
1:A:61:ARG:NH1	1:A:107:ASP:OD1	2.46	0.48
3:F:1456:LEU:HG	3:F:1456:LEU:O	2.14	0.48
1:J:391:SER:O	1:J:395:LYS:HG3	2.14	0.48
1:D:420:ILE:HG21	1:D:424:PRO:HG3	1.96	0.48
1:D:446:THR:HG22	1:D:447:PHE:N	2.28	0.48
1:D:9:ALA:O	1:D:10:LEU:C	2.52	0.48
1:A:198:ASN:O	1:A:203:GLY:HA2	2.14	0.48
1:A:422:ARG:CG	1:A:442:ASN:HD21	2.26	0.48
1:D:381:ILE:HD11	1:D:424:PRO:CG	2.38	0.48
1:D:425:ASN:HB3	1:D:440:MSE:HB3	1.95	0.48
1:D:451:SER:O	1:D:452:SER:HB3	2.13	0.48
2:E:1038:PRO:C	2:E:1040:ARG:N	2.57	0.48
3:F:1452:PHE:CE1	3:F:1456:LEU:HD22	2.49	0.48
1:G:237:LEU:HD22	1:G:246:LYS:HG3	1.96	0.48
1:J:250:ILE:O	1:J:254:GLN:HG3	2.14	0.48
1:A:321:ASP:OD2	1:A:323:SER:HB2	2.14	0.48
1:J:229:LYS:HE3	1:J:332:GLU:CD	2.34	0.48
1:J:189:LYS:HZ3	1:J:304:THR:HG22	1.79	0.47
2:B:1018:SER:HB3	2:B:1023:ILE:HG13	1.96	0.47
2:H:1036:ASN:O	2:H:1037:LEU:HB2	2.13	0.47
1:D:148:ASP:HB3	1:D:150:THR:CB	2.41	0.47
1:G:391:SER:O	1:G:395:LYS:HG3	2.15	0.47
1:J:361:LYS:O	1:J:362:SER:HB3	2.14	0.47
1:A:451:SER:O	1:A:452:SER:HB3	2.14	0.47
3:I:1437:VAL:HG12	1:J:243:VAL:CG1	2.45	0.47
1:G:30:GLN:HG3	1:G:34:ARG:HD2	1.97	0.47
1:G:33:THR:HG22	1:G:34:ARG:HG3	1.96	0.47
2:K:1060:PRO:HG3	2:K:1080:HIS:CG	2.49	0.47
1:G:396:SER:HB2	1:G:401:ASP:O	2.15	0.47
1:J:7:LEU:N	1:J:431:TRP:CZ3	2.82	0.47
1:A:33:THR:HG22	1:A:34:ARG:HG3	1.96	0.47
1:A:396:SER:HB2	1:A:401:ASP:O	2.14	0.47
1:A:37:PHE:HE1	1:A:440:MSE:HE1	1.78	0.47
1:G:328:PHE:HB2	1:G:351:ILE:HD11	1.97	0.47
1:J:446:THR:HG22	1:J:447:PHE:N	2.29	0.47
1:G:137:TYR:CE2	1:G:138:ARG:HG3	2.49	0.47
1:G:393:LEU:O	1:G:397:ILE:HG13	2.14	0.47
1:A:148:ASP:HB3	1:A:150:THR:CB	2.42	0.47
1:D:396:SER:HB2	1:D:401:ASP:O	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:167:ASN:O	1:J:178:ARG:NH1	2.46	0.47
1:J:37:PHE:CE1	1:J:440:MSE:HE1	2.43	0.47
1:A:240:THR:O	1:A:241:THR:C	2.54	0.47
1:D:37:PHE:HE1	1:D:440:MSE:CE	2.28	0.47
1:G:173:PHE:HZ	2:H:1109:ALA:O	1.97	0.47
1:D:388:SER:OG	1:D:413:LYS:HE3	2.15	0.46
1:G:30:GLN:CD	1:G:34:ARG:HD2	2.36	0.46
1:G:45:TRP:CE2	1:G:55:HIS:HB2	2.50	0.46
1:J:380:ILE:CG2	1:J:382:GLN:HG3	2.45	0.46
1:J:45:TRP:CZ2	1:J:94:PRO:HB2	2.50	0.46
1:A:422:ARG:O	1:A:424:PRO:N	2.48	0.46
1:D:198:ASN:O	1:D:203:GLY:HA2	2.15	0.46
3:F:1434:PHE:O	3:F:1436:VAL:N	2.49	0.46
1:G:352:GLU:CG	1:G:353:ARG:N	2.78	0.46
1:G:422:ARG:CG	1:G:442:ASN:HD21	2.26	0.46
1:G:343:VAL:HG11	2:H:1066:ARG:CZ	2.45	0.46
1:J:352:GLU:CG	1:J:353:ARG:N	2.78	0.46
2:K:1034:TYR:CE2	2:K:1041:PRO:HG2	2.51	0.46
1:D:9:ALA:O	1:D:10:LEU:O	2.33	0.46
1:G:198:ASN:O	1:G:203:GLY:HA2	2.15	0.46
1:G:343:VAL:O	1:G:344:TYR:CB	2.62	0.46
1:G:361:LYS:O	1:G:362:SER:HB3	2.15	0.46
1:J:45:TRP:CE2	1:J:55:HIS:HB2	2.50	0.46
1:G:212:LEU:HD13	1:G:272:ILE:HD13	1.98	0.46
2:H:1001:GLY:CA	2:H:1056:PHE:CE2	2.96	0.46
1:D:321:ASP:OD2	1:D:323:SER:HB2	2.15	0.46
1:G:133:HIS:CE1	1:G:213:PRO:HD3	2.50	0.46
1:G:392:THR:CG2	1:G:408:LEU:HD11	2.44	0.46
1:A:380:ILE:CG2	1:A:382:GLN:HG3	2.45	0.46
2:B:972:ILE:HD11	2:B:1019:LEU:CB	2.43	0.46
1:G:61:ARG:NH1	1:G:107:ASP:OD1	2.49	0.46
1:D:50:THR:HG22	1:D:51:ASP:OD1	2.15	0.46
1:D:251:LYS:NZ	4:D:6119:PGE:O2	2.45	0.46
2:H:1018:SER:HB3	2:H:1023:ILE:HG13	1.96	0.46
2:H:1007:GLU:CD	2:H:1049:VAL:HG22	2.36	0.46
2:B:1060:PRO:HG3	2:B:1080:HIS:CG	2.50	0.46
1:D:273:GLN:OE1	1:D:276:TYR:HE1	1.98	0.46
1:D:352:GLU:CG	1:D:353:ARG:N	2.78	0.46
1:D:289:PRO:HD2	1:D:350:LEU:HB3	1.98	0.46
2:E:1090:SER:HB3	2:E:1104:PHE:CD2	2.51	0.46
1:G:120:GLU:HG3	1:G:120:GLU:H	1.47	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:1040:ARG:N	2:H:1041:PRO:HD3	2.30	0.46
2:H:1060:PRO:HG3	2:H:1080:HIS:CG	2.51	0.46
2:K:1030:THR:HG22	2:K:1031:CYS:N	2.31	0.46
1:A:212:LEU:HD13	1:A:272:ILE:HD13	1.98	0.45
1:J:388:SER:OG	1:J:413:LYS:HE3	2.16	0.45
1:A:402:LEU:HD21	3:C:1448:GLN:CB	2.46	0.45
2:E:1087:ASN:HB3	2:E:1090:SER:HB2	1.99	0.45
1:G:446:THR:HG22	1:G:447:PHE:N	2.30	0.45
1:D:380:ILE:CG2	1:D:382:GLN:HG3	2.47	0.45
1:D:422:ARG:O	1:D:424:PRO:N	2.50	0.45
1:J:210:PRO:HB3	1:J:335:MSE:HE3	1.97	0.45
2:K:1018:SER:HB3	2:K:1023:ILE:HG13	1.98	0.45
1:A:137:TYR:CE2	1:A:138:ARG:HG3	2.51	0.45
1:A:45:TRP:CE2	1:A:55:HIS:HB2	2.52	0.45
2:B:972:ILE:HG12	2:B:995:VAL:HG22	1.97	0.45
2:E:1030:THR:HG22	2:E:1031:CYS:N	2.32	0.45
1:G:422:ARG:O	1:G:424:PRO:N	2.49	0.45
1:J:273:GLN:OE1	1:J:276:TYR:HE1	1.99	0.45
1:A:135:LYS:HD2	1:A:191:GLY:HA3	1.98	0.45
1:G:307:ILE:CG2	1:G:394:SER:HB3	2.47	0.45
1:J:198:ASN:O	1:J:203:GLY:HA2	2.16	0.45
2:K:1015:PRO:O	2:K:1017:THR:N	2.50	0.45
1:A:325:ILE:HG13	1:A:325:ILE:O	2.15	0.45
2:H:1082:GLU:O	2:H:1086:LYS:HG3	2.17	0.45
1:J:189:LYS:HG2	1:J:304:THR:HG21	1.95	0.45
1:J:30:GLN:HB2	1:J:33:THR:HG22	1.98	0.45
1:J:61:ARG:NH1	1:J:107:ASP:OD1	2.49	0.45
1:J:7:LEU:C	1:J:9:ALA:H	2.20	0.45
1:A:352:GLU:CG	1:A:353:ARG:N	2.79	0.45
1:A:368:GLU:HG2	1:A:428:TYR:CE2	2.51	0.45
2:B:1040:ARG:N	2:B:1041:PRO:CD	2.80	0.45
1:G:173:PHE:CE2	2:H:1033:ILE:HD12	2.45	0.45
2:H:1041:PRO:HB2	2:H:1048:ASN:HB2	1.99	0.45
1:J:321:ASP:CG	1:J:323:SER:HB2	2.37	0.45
1:J:422:ARG:O	1:J:424:PRO:N	2.49	0.45
2:K:1037:LEU:H	2:K:1038:PRO:HD3	1.80	0.45
1:D:255:PHE:HB2	4:D:6119:PGE:H6	1.98	0.45
1:J:343:VAL:O	1:J:344:TYR:CB	2.64	0.45
2:B:1009:VAL:HG13	2:B:1046:GLY:O	2.17	0.45
1:D:361:LYS:O	1:D:362:SER:HB3	2.16	0.45
1:D:368:GLU:HG2	1:D:428:TYR:CE2	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:212:LEU:HD13	1:J:272:ILE:HD13	1.98	0.45
1:J:307:ILE:CG2	1:J:394:SER:HB3	2.47	0.45
1:A:15:ALA:HB2	1:A:24:ARG:NH2	2.31	0.45
1:A:307:ILE:HG12	1:A:390:ALA:HB1	1.98	0.45
1:D:202:GLY:HA2	2:E:1079:ARG:NH1	2.32	0.45
1:J:210:PRO:HG3	1:J:335:MSE:CE	2.42	0.45
1:J:396:SER:HB2	1:J:401:ASP:O	2.17	0.45
1:J:82:LEU:HD12	1:J:82:LEU:H	1.81	0.45
2:K:972:ILE:HG12	2:K:995:VAL:HG22	1.99	0.44
1:D:392:THR:CG2	1:D:408:LEU:HD11	2.42	0.44
1:G:189:LYS:HG2	1:G:304:THR:HG21	1.95	0.44
2:H:972:ILE:HD11	2:H:1019:LEU:CB	2.43	0.44
1:A:328:PHE:HB2	1:A:351:ILE:HD11	1.99	0.44
2:H:1030:THR:HG22	2:H:1031:CYS:N	2.31	0.44
2:H:1029:LYS:HE2	2:H:1058:CYS:HA	2.00	0.44
1:J:30:GLN:HG3	1:J:34:ARG:HD2	2.00	0.44
1:D:30:GLN:CG	1:D:34:ARG:HD2	2.47	0.44
1:G:239:SER:C	1:G:241:THR:H	2.21	0.44
1:J:199:THR:CG2	1:J:199:THR:O	2.64	0.44
2:K:1060:PRO:HG3	2:K:1080:HIS:CD2	2.53	0.44
1:D:307:ILE:CG2	1:D:394:SER:HB3	2.48	0.44
1:G:380:ILE:CG2	1:G:382:GLN:HG3	2.48	0.44
1:J:368:GLU:HG2	1:J:428:TYR:CE2	2.52	0.44
1:J:380:ILE:HG21	1:J:382:GLN:HG3	2.00	0.44
1:D:188:SER:HB3	1:D:190:ASP:OD1	2.18	0.44
1:G:148:ASP:HB3	1:G:150:THR:CB	2.43	0.44
1:G:288:ASN:O	1:G:349:VAL:HA	2.18	0.44
1:G:321:ASP:OD2	1:G:323:SER:HB2	2.16	0.44
1:J:30:GLN:CD	1:J:34:ARG:HD2	2.38	0.44
2:B:1034:TYR:CE2	2:B:1041:PRO:HG2	2.52	0.44
1:D:167:ASN:O	1:D:178:ARG:NH1	2.51	0.44
1:D:291:PRO:HB2	1:D:294:LEU:HD12	2.00	0.44
1:D:391:SER:O	1:D:395:LYS:HG3	2.17	0.44
1:A:273:GLN:OE1	1:A:276:TYR:HE1	2.00	0.44
1:A:210:PRO:HB3	1:A:335:MSE:HE3	1.99	0.44
1:A:78:ASP:O	1:A:79:LEU:HD23	2.18	0.44
3:C:1450:GLY:O	3:C:1454:LYS:HG3	2.18	0.44
1:D:102:ASP:HB3	1:D:105:ILE:H	1.82	0.44
2:E:1049:VAL:HG13	2:E:1050:ARG:N	2.33	0.44
2:E:1060:PRO:HG3	2:E:1080:HIS:CG	2.52	0.44
1:G:368:GLU:HG2	1:G:428:TYR:CE2	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:199:THR:O	1:A:199:THR:CG2	2.65	0.43
1:D:61:ARG:NH1	1:D:107:ASP:OD1	2.49	0.43
1:D:30:GLN:HG3	1:D:34:ARG:HD2	2.00	0.43
1:J:102:ASP:HB3	1:J:105:ILE:H	1.83	0.43
1:A:30:GLN:CG	1:A:34:ARG:HD2	2.48	0.43
1:G:210:PRO:CB	1:G:335:MSE:HE3	2.48	0.43
1:A:133:HIS:CE1	1:A:213:PRO:HD3	2.54	0.43
2:B:1030:THR:HG22	2:B:1031:CYS:N	2.33	0.43
1:D:358:ARG:NH2	1:D:380:ILE:HD12	2.33	0.43
1:G:229:LYS:HE3	1:G:332:GLU:CD	2.39	0.43
1:A:381:ILE:O	1:A:417:ILE:HB	2.18	0.43
1:D:172:SER:HB3	2:E:1030:THR:HG23	1.98	0.43
2:K:1079:ARG:O	2:K:1083:ARG:HG2	2.19	0.43
1:A:189:LYS:HG2	1:A:304:THR:HG21	1.97	0.43
1:A:391:SER:O	1:A:395:LYS:HG3	2.18	0.43
1:G:289:PRO:HD2	1:G:350:LEU:HB3	2.00	0.43
2:H:1060:PRO:HG3	2:H:1080:HIS:CD2	2.53	0.43
1:J:133:HIS:CE1	1:J:213:PRO:HD3	2.54	0.43
1:J:307:ILE:HG12	1:J:390:ALA:HB1	2.01	0.43
1:A:361:LYS:O	1:A:362:SER:HB3	2.18	0.43
1:D:288:ASN:O	1:D:349:VAL:HA	2.19	0.43
1:G:199:THR:CG2	1:G:199:THR:O	2.65	0.43
1:G:381:ILE:O	1:G:417:ILE:HB	2.17	0.43
2:H:1047:ILE:HG22	2:H:1047:ILE:O	2.19	0.43
2:B:1015:PRO:O	2:B:1017:THR:N	2.51	0.43
2:B:1060:PRO:HG3	2:B:1080:HIS:CD2	2.54	0.43
1:J:291:PRO:HB2	1:J:294:LEU:HD12	2.00	0.43
2:E:968:GLU:HG3	2:E:968:GLU:H	1.45	0.43
1:G:102:ASP:HB3	1:G:105:ILE:H	1.84	0.43
1:A:316:CYS:SG	1:A:324:LEU:HG	2.59	0.43
1:J:247:ARG:NH1	1:J:338:ASP:OD2	2.49	0.43
2:K:1036:ASN:O	2:K:1037:LEU:HB2	2.19	0.43
2:K:1047:ILE:O	2:K:1047:ILE:HG22	2.19	0.43
1:A:380:ILE:HG21	1:A:382:GLN:HG3	2.00	0.43
1:D:213:PRO:O	1:D:277:ARG:HD3	2.18	0.43
1:G:168:LYS:O	1:G:178:ARG:HD3	2.19	0.43
2:H:1006:LEU:HD21	2:H:1052:ARG:NH1	2.34	0.43
2:H:1079:ARG:O	2:H:1083:ARG:HG2	2.18	0.43
3:I:1452:PHE:C	3:I:1452:PHE:CD1	2.92	0.43
1:J:328:PHE:HB2	1:J:351:ILE:HD11	2.01	0.43
1:J:386:PHE:HB2	1:J:389:TRP:CE2	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:307:ILE:CG2	1:A:394:SER:HB3	2.49	0.42
2:E:966:MSE:HE2	2:E:1020:GLY:CA	2.49	0.42
1:J:381:ILE:O	1:J:417:ILE:HB	2.18	0.42
1:A:102:ASP:HB3	1:A:105:ILE:H	1.84	0.42
1:A:212:LEU:O	1:A:277:ARG:HD2	2.18	0.42
1:A:321:ASP:OD2	1:A:353:ARG:NH2	2.52	0.42
1:D:10:LEU:HA	1:D:11:PRO:HD3	1.93	0.42
1:D:199:THR:O	1:D:200:THR:C	2.56	0.42
1:D:328:PHE:HB2	1:D:351:ILE:HD11	2.01	0.42
1:D:210:PRO:HB3	1:D:335:MSE:HE3	1.99	0.42
1:D:307:ILE:HG12	1:D:390:ALA:HB1	2.01	0.42
1:J:159:SER:C	1:J:161:GLU:H	2.22	0.42
1:J:238:ASP:OD2	1:J:240:THR:CB	2.68	0.42
1:J:451:SER:O	1:J:452:SER:CB	2.67	0.42
3:L:1452:PHE:C	3:L:1452:PHE:CD1	2.92	0.42
1:D:274:LYS:HG3	1:D:275:GLU:OE2	2.20	0.42
2:E:1037:LEU:N	2:E:1038:PRO:CD	2.82	0.42
2:E:972:ILE:HG12	2:E:995:VAL:HG22	1.99	0.42
1:G:252:GLN:HG3	1:G:335:MSE:SE	2.69	0.42
1:J:440:MSE:HB2	1:J:440:MSE:HE2	1.98	0.42
1:A:168:LYS:O	1:A:178:ARG:HD3	2.19	0.42
1:A:188:SER:HB3	1:A:190:ASP:OD1	2.20	0.42
3:C:1452:PHE:C	3:C:1452:PHE:CD1	2.92	0.42
1:D:135:LYS:HD2	1:D:191:GLY:HA3	2.01	0.42
1:D:316:CYS:SG	1:D:324:LEU:HG	2.59	0.42
1:G:247:ARG:NH1	1:G:338:ASP:OD2	2.50	0.42
1:J:148:ASP:HB3	1:J:150:THR:CB	2.43	0.42
1:J:358:ARG:NH2	1:J:380:ILE:HD12	2.33	0.42
2:K:1065:THR:HG22	2:K:1067:LYS:CG	2.49	0.42
1:D:159:SER:C	1:D:161:GLU:H	2.23	0.42
1:J:135:LYS:HD2	1:J:191:GLY:HA3	2.02	0.42
1:A:120:GLU:H	1:A:120:GLU:HG3	1.47	0.42
1:D:276:TYR:CD2	4:D:6119:PGE:H5	2.53	0.42
2:E:1079:ARG:O	2:E:1083:ARG:HG2	2.20	0.42
3:F:1434:PHE:C	3:F:1436:VAL:H	2.23	0.42
1:J:199:THR:O	1:J:200:THR:C	2.58	0.42
1:A:358:ARG:NH2	1:A:380:ILE:HD12	2.34	0.42
1:D:199:THR:CG2	1:D:199:THR:O	2.68	0.42
1:G:386:PHE:HB2	1:G:389:TRP:CE2	2.54	0.42
1:J:50:THR:HG22	1:J:51:ASP:OD1	2.20	0.42
1:A:290:PHE:HA	1:A:291:PRO:HD3	1.86	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:325:ILE:O	1:D:325:ILE:HG13	2.18	0.42
2:E:1010:ASP:HB3	2:E:1046:GLY:HA2	2.02	0.42
3:F:1450:GLY:O	3:F:1454:LYS:HG3	2.20	0.42
2:E:1015:PRO:O	2:E:1017:THR:N	2.52	0.42
2:E:972:ILE:CG2	2:E:973:SER:N	2.83	0.42
1:G:28:SER:HA	1:G:34:ARG:O	2.19	0.42
1:G:82:LEU:HD12	1:G:82:LEU:H	1.84	0.42
1:J:28:SER:HA	1:J:34:ARG:O	2.19	0.42
1:J:343:VAL:CG1	2:K:1066:ARG:CZ	2.95	0.42
1:A:239:SER:HA	1:A:246:LYS:NZ	2.34	0.42
1:A:213:PRO:O	1:A:277:ARG:HD3	2.19	0.42
1:A:288:ASN:O	1:A:349:VAL:HA	2.20	0.42
1:D:10:LEU:HG	1:D:11:PRO:HD2	2.02	0.42
1:D:43:ILE:O	1:D:56:SER:HA	2.19	0.42
1:G:358:ARG:NH2	1:G:380:ILE:HD12	2.34	0.42
2:H:972:ILE:HG12	2:H:995:VAL:HG22	2.02	0.42
2:K:972:ILE:CG2	2:K:973:SER:N	2.82	0.42
1:A:50:THR:HG22	1:A:51:ASP:OD1	2.19	0.41
1:D:380:ILE:HG21	1:D:382:GLN:HG3	2.01	0.41
1:G:451:SER:O	1:G:452:SER:CB	2.67	0.41
1:G:332:GLU:HG2	3:I:1443:MSE:HE3	2.02	0.41
1:J:168:LYS:O	1:J:178:ARG:HD3	2.20	0.41
1:A:15:ALA:HB2	1:A:39:GLN:OE1	2.19	0.41
2:B:1065:THR:HG22	2:B:1067:LYS:CG	2.49	0.41
2:B:1061:VAL:CG1	2:B:1066:ARG:HA	2.51	0.41
2:B:1079:ARG:O	2:B:1083:ARG:HG2	2.20	0.41
3:C:1437:VAL:O	3:C:1441:LEU:HG	2.21	0.41
1:G:50:THR:HG22	1:G:51:ASP:OD1	2.21	0.41
2:H:1054:THR:HG23	2:H:1103:VAL:HG22	2.01	0.41
1:J:33:THR:HG22	1:J:34:ARG:HG3	2.01	0.41
1:A:159:SER:C	1:A:161:GLU:H	2.24	0.41
1:G:210:PRO:HB2	1:G:212:LEU:HG	2.02	0.41
1:G:380:ILE:HG21	1:G:382:GLN:HG3	2.02	0.41
1:A:252:GLN:HG3	1:A:335:MSE:SE	2.70	0.41
2:B:966:MSE:HE2	2:B:1020:GLY:CA	2.50	0.41
1:D:451:SER:O	1:D:452:SER:CB	2.68	0.41
2:E:1039:ASN:O	2:E:1040:ARG:C	2.58	0.41
2:E:1006:LEU:HD21	2:E:1052:ARG:NH1	2.35	0.41
1:G:159:SER:C	1:G:161:GLU:H	2.22	0.41
2:H:966:MSE:HE2	2:H:1020:GLY:CA	2.51	0.41
1:J:213:PRO:O	1:J:277:ARG:HD3	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:K:966:MSE:HE2	2:K:1020:GLY:CA	2.50	0.41
1:A:302:ILE:HA	1:A:316:CYS:O	2.21	0.41
1:D:381:ILE:O	1:D:417:ILE:HB	2.20	0.41
1:G:189:LYS:NZ	1:G:304:THR:HG22	2.36	0.41
1:G:30:GLN:HB2	1:G:33:THR:HG22	2.02	0.41
1:G:210:PRO:CD	1:G:335:MSE:HE3	2.50	0.41
1:G:440:MSE:HE2	1:G:440:MSE:HB2	2.00	0.41
2:H:1067:LYS:HA	2:H:1068:PRO:HD3	1.90	0.41
1:J:7:LEU:HB2	1:J:431:TRP:CE3	2.55	0.41
1:D:137:TYR:CD2	1:D:138:ARG:HG3	2.56	0.41
2:E:1061:VAL:CG1	2:E:1066:ARG:HA	2.51	0.41
1:G:212:LEU:O	1:G:277:ARG:HD2	2.21	0.41
1:G:43:ILE:O	1:G:56:SER:HA	2.20	0.41
2:H:1030:THR:CG2	2:H:1031:CYS:N	2.83	0.41
1:J:252:GLN:HG3	1:J:335:MSE:SE	2.71	0.41
1:D:252:GLN:HG3	1:D:335:MSE:SE	2.71	0.41
2:E:1060:PRO:HG3	2:E:1080:HIS:CD2	2.56	0.41
1:G:133:HIS:HA	1:G:134:PRO:HD3	1.93	0.41
1:J:93:VAL:HA	1:J:94:PRO:HD3	1.90	0.41
1:A:30:GLN:CD	1:A:34:ARG:HD2	2.40	0.41
1:A:7:LEU:HG	1:A:9:ALA:HB3	2.02	0.41
2:B:972:ILE:CG2	2:B:973:SER:N	2.83	0.41
1:D:386:PHE:HB2	1:D:389:TRP:CE2	2.55	0.41
2:E:1030:THR:CG2	2:E:1031:CYS:N	2.84	0.41
2:E:1084:LEU:C	2:E:1086:LYS:H	2.23	0.41
1:G:179:VAL:HG21	1:G:281:VAL:HG11	2.01	0.41
1:G:321:ASP:OD2	1:G:353:ARG:NH2	2.54	0.41
1:G:402:LEU:HD21	3:I:1448:GLN:CB	2.50	0.41
2:H:1015:PRO:O	2:H:1017:THR:N	2.54	0.41
1:J:288:ASN:O	1:J:349:VAL:HA	2.21	0.41
1:J:289:PRO:HD2	1:J:350:LEU:HB3	2.02	0.41
1:J:386:PHE:HB2	1:J:389:TRP:CZ2	2.55	0.41
1:A:239:SER:HA	1:A:246:LYS:HZ1	1.86	0.41
1:A:291:PRO:HB2	1:A:294:LEU:HD12	2.03	0.41
1:D:444:THR:CG2	1:D:445:LEU:N	2.74	0.41
3:F:1452:PHE:CD1	3:F:1452:PHE:C	2.93	0.41
2:K:1030:THR:CG2	2:K:1031:CYS:N	2.82	0.41
1:J:332:GLU:HG2	3:L:1443:MSE:HE3	2.01	0.41
1:A:451:SER:O	1:A:452:SER:CB	2.68	0.41
2:H:1000:TYR:C	2:H:1056:PHE:HD2	2.22	0.41
1:J:133:HIS:HA	1:J:134:PRO:HD3	1.92	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:26:ILE:HB	1:J:440:MSE:HE3	2.03	0.41
2:K:1087:ASN:O	2:K:1087:ASN:CG	2.60	0.41
1:D:168:LYS:O	1:D:178:ARG:HD3	2.21	0.41
1:D:386:PHE:HB2	1:D:389:TRP:CZ2	2.56	0.41
1:G:291:PRO:HB2	1:G:294:LEU:HD12	2.02	0.41
1:G:290:PHE:HA	1:G:291:PRO:HD3	1.86	0.41
1:D:240:THR:OG1	1:G:9:ALA:HB2	2.21	0.41
1:J:137:TYR:CD2	1:J:138:ARG:HG3	2.56	0.41
1:J:274:LYS:HG3	1:J:275:GLU:OE2	2.20	0.41
2:K:1054:THR:HG23	2:K:1103:VAL:HG22	2.03	0.41
1:A:372:LYS:HE2	1:A:385:ASN:HD21	1.84	0.40
1:D:251:LYS:HB3	4:D:6119:PGE:H62	2.03	0.40
1:G:135:LYS:HD2	1:G:191:GLY:HA3	2.03	0.40
1:G:316:CYS:SG	1:G:324:LEU:HG	2.61	0.40
1:J:210:PRO:HB2	1:J:212:LEU:HG	2.03	0.40
1:A:228:ASN:ND2	3:C:1435:LYS:HB2	2.36	0.40
2:B:1047:ILE:HG22	2:B:1047:ILE:O	2.20	0.40
2:E:1036:ASN:O	2:E:1037:LEU:HB2	2.21	0.40
1:G:321:ASP:CG	1:G:323:SER:HB2	2.41	0.40
1:G:386:PHE:HB2	1:G:389:TRP:CZ2	2.55	0.40
2:H:966:MSE:HG3	2:H:1020:GLY:CA	2.50	0.40
1:J:302:ILE:HA	1:J:316:CYS:O	2.21	0.40
1:J:321:ASP:OD2	1:J:353:ARG:NH2	2.54	0.40
1:A:321:ASP:CG	1:A:323:SER:HB2	2.41	0.40
2:B:1038:PRO:C	2:B:1040:ARG:H	2.24	0.40
1:D:179:VAL:HG21	1:D:281:VAL:HG11	2.04	0.40
2:E:1047:ILE:HG22	2:E:1047:ILE:O	2.20	0.40
1:J:290:PHE:HA	1:J:291:PRO:HD3	1.85	0.40
2:K:988:ARG:HA	2:K:1010:ASP:HA	2.02	0.40
2:H:1061:VAL:CG1	2:H:1066:ARG:HA	2.52	0.40
1:J:343:VAL:HG12	1:J:344:TYR:N	2.36	0.40
2:K:1087:ASN:N	2:K:1088:PRO:HD3	2.36	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

of similar resolution.

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	432/452 (96%)	396 (92%)	32 (7%)	4 (1%)	17	35
1	D	431/452 (95%)	397 (92%)	29 (7%)	5 (1%)	13	27
1	G	432/452 (96%)	396 (92%)	32 (7%)	4 (1%)	17	35
1	J	433/452 (96%)	399 (92%)	29 (7%)	5 (1%)	13	27
2	B	144/148 (97%)	120 (83%)	19 (13%)	5 (4%)	3	5
2	E	144/148 (97%)	117 (81%)	20 (14%)	7 (5%)	2	2
2	H	144/148 (97%)	121 (84%)	19 (13%)	4 (3%)	5	7
2	K	144/148 (97%)	120 (83%)	19 (13%)	5 (4%)	3	5
3	C	24/36 (67%)	21 (88%)	2 (8%)	1 (4%)	3	3
3	F	24/36 (67%)	21 (88%)	3 (12%)	0	100	100
3	I	26/36 (72%)	25 (96%)	1 (4%)	0	100	100
3	L	22/36 (61%)	21 (96%)	1 (4%)	0	100	100
All	All	2400/2544 (94%)	2154 (90%)	206 (9%)	40 (2%)	9	18

All (40) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	344	TYR
2	B	1036	ASN
3	C	1435	LYS
1	D	344	TYR
1	G	344	TYR
1	J	344	TYR
2	B	1016	LEU
2	E	1016	LEU
1	G	339	VAL
2	H	1016	LEU
1	J	339	VAL
2	K	1016	LEU
1	A	339	VAL
2	B	975	SER
1	D	339	VAL
2	E	975	SER
2	E	1040	ARG
2	H	975	SER

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Mol	Chain	Res	Type
2	K	975	SER
2	K	1036	ASN
1	A	200	THR
1	D	10	LEU
2	H	1036	ASN
2	B	1087	ASN
1	D	200	THR
1	J	200	THR
2	E	1036	ASN
2	E	1038	PRO
2	E	1088	PRO
1	G	200	THR
2	K	1046	GLY
2	B	1046	GLY
2	E	1046	GLY
2	H	1046	GLY
1	A	423	ILE
1	G	423	ILE
1	J	12	ILE
1	J	423	ILE
2	K	1087	ASN
1	D	423	ILE

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
1	A	411/415 (99%)	396 (96%)	15 (4%)	35 61
1	D	410/415 (99%)	398 (97%)	12 (3%)	42 68
1	G	411/415 (99%)	398 (97%)	13 (3%)	39 65
1	J	412/415 (99%)	400 (97%)	12 (3%)	42 68
2	B	132/133 (99%)	128 (97%)	4 (3%)	41 67
2	E	132/133 (99%)	128 (97%)	4 (3%)	41 67
2	H	132/133 (99%)	128 (97%)	4 (3%)	41 67

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	K	132/133 (99%)	128 (97%)	4 (3%)	41	67
3	C	22/28 (79%)	22 (100%)	0	100	100
3	F	22/28 (79%)	21 (96%)	1 (4%)	27	52
3	I	24/28 (86%)	22 (92%)	2 (8%)	11	22
3	L	21/28 (75%)	21 (100%)	0	100	100
All	All	2261/2304 (98%)	2190 (97%)	71 (3%)	40	66

All (71) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	8	SER
1	A	29	SER
1	A	33	THR
1	A	101	GLU
1	A	102	ASP
1	A	120	GLU
1	A	148	ASP
1	A	176	ASP
1	A	185	LEU
1	A	198	ASN
1	A	210	PRO
1	A	217	LEU
1	A	281	VAL
1	A	286	THR
1	A	433	ASP
2	B	968	GLU
2	B	1049	VAL
2	B	1079	ARG
2	B	1098	ASP
1	D	29	SER
1	D	33	THR
1	D	101	GLU
1	D	102	ASP
1	D	120	GLU
1	D	148	ASP
1	D	185	LEU
1	D	198	ASN
1	D	210	PRO
1	D	217	LEU
1	D	281	VAL

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Mol	Chain	Res	Type
1	D	286	THR
2	E	968	GLU
2	E	1049	VAL
2	E	1079	ARG
2	E	1098	ASP
3	F	1434	PHE
1	G	29	SER
1	G	33	THR
1	G	101	GLU
1	G	102	ASP
1	G	120	GLU
1	G	148	ASP
1	G	176	ASP
1	G	185	LEU
1	G	198	ASN
1	G	210	PRO
1	G	217	LEU
1	G	281	VAL
1	G	286	THR
2	H	968	GLU
2	H	1049	VAL
2	H	1079	ARG
2	H	1098	ASP
3	I	1430	ASP
3	I	1456	LEU
1	J	29	SER
1	J	33	THR
1	J	101	GLU
1	J	102	ASP
1	J	120	GLU
1	J	148	ASP
1	J	176	ASP
1	J	185	LEU
1	J	210	PRO
1	J	217	LEU
1	J	281	VAL
1	J	286	THR
2	K	968	GLU
2	K	1049	VAL
2	K	1079	ARG
2	K	1098	ASP

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (20) such

sidechains are listed below:

Mol	Chain	Res	Type
1	A	262	ASN
1	A	430	ASN
2	B	967	ASN
2	B	969	ASN
2	B	1075	GLN
2	B	1087	ASN
1	D	262	ASN
1	D	430	ASN
2	E	967	ASN
2	E	969	ASN
2	E	1075	GLN
3	F	1457	ASN
1	G	262	ASN
2	H	967	ASN
2	H	969	ASN
3	I	1448	GLN
1	J	262	ASN
2	K	967	ASN
2	K	969	ASN
2	K	1075	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

5.6 Ligand geometry [i](#)

1 ligand is modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The

Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	PGE	D	6119	-	9,9,9	0.92	1 (11%)	8,8,8	0.98	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	PGE	D	6119	-	-	1/7/7/7	-

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	D	6119	PGE	C5-C6	2.23	1.61	1.49

There are no bond angle outliers.

There are no chirality outliers.

All (1) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	D	6119	PGE	O1-C1-C2-O2

There are no ring outliers.

1 monomer is involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	D	6119	PGE	5	0

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 i

6.1 Protein, DNA and RNA chains i

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	431/452 (95%)	0.15	10 (2%) 60 54	44, 65, 97, 118	0
1	D	430/452 (95%)	0.13	8 (1%) 66 62	41, 65, 98, 118	0
1	G	431/452 (95%)	0.12	10 (2%) 60 54	43, 65, 97, 117	0
1	J	432/452 (95%)	0.14	10 (2%) 60 54	41, 64, 99, 117	0
2	B	145/148 (97%)	0.45	8 (5%) 25 19	53, 90, 116, 129	0
2	E	145/148 (97%)	0.41	10 (6%) 16 12	52, 90, 116, 129	0
2	H	145/148 (97%)	1.80	56 (38%) 0 0	58, 94, 119, 144	0
2	K	145/148 (97%)	0.73	21 (14%) 2 1	56, 92, 117, 137	0
3	C	24/36 (66%)	0.09	0 100 100	59, 69, 91, 108	0
3	F	24/36 (66%)	0.29	0 100 100	58, 69, 89, 109	0
3	I	26/36 (72%)	0.25	1 (3%) 40 33	57, 71, 118, 123	0
3	L	23/36 (63%)	0.10	1 (4%) 35 28	62, 70, 89, 96	0
All	All	2401/2544 (94%)	0.31	135 (5%) 24 19	41, 70, 106, 144	0

All (135) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	H	1038	PRO	7.5
2	H	1037	LEU	7.4
2	H	1036	ASN	6.9
2	H	1039	ASN	6.8
2	K	1037	LEU	6.6
2	B	1037	LEU	6.1
2	H	1012	ALA	6.1
1	A	452	SER	6.1
2	H	986	GLN	5.9
2	E	1037	LEU	5.6
2	H	985	LEU	5.4

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Mol	Chain	Res	Type	RSRZ
2	H	1019	LEU	5.3
2	K	982	TYR	5.3
2	H	982	TYR	5.2
2	H	1034	TYR	4.9
2	H	1072	PRO	4.9
2	H	1040	ARG	4.9
2	H	974	PRO	4.8
2	H	972	ILE	4.7
2	H	989	LYS	4.6
2	K	1038	PRO	4.6
2	E	1038	PRO	4.5
2	H	1011	LEU	4.4
2	H	1041	PRO	4.4
1	D	421	GLU	4.3
2	H	1044	GLY	4.3
2	K	985	LEU	4.3
2	H	988	ARG	4.2
2	H	1047	ILE	4.1
2	B	984	LEU	4.0
2	H	1074	HIS	3.8
2	H	1018	SER	3.7
1	D	443	LYS	3.7
2	H	1000	TYR	3.6
2	H	971	TYR	3.6
2	K	1039	ASN	3.6
2	H	984	LEU	3.5
1	J	452	SER	3.4
1	A	160	GLN	3.4
1	A	424	PRO	3.4
2	K	1047	ILE	3.4
2	H	1017	THR	3.3
1	D	423	ILE	3.3
2	K	1040	ARG	3.2
2	H	1076	LEU	3.2
2	H	1045	GLU	3.2
1	G	160	GLN	3.2
1	J	160	GLN	3.2
2	H	1111	GLU	3.1
2	H	1059	TYR	3.1
2	E	1076	LEU	3.1
2	K	979	LEU	3.1
2	H	977	ASP	3.0

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Mol	Chain	Res	Type	RSRZ
1	G	452	SER	3.0
2	H	1098	ASP	3.0
2	H	1013	GLY	3.0
1	D	452	SER	3.0
2	E	1016	LEU	3.0
2	K	987	LEU	3.0
2	H	981	SER	3.0
1	J	409	LYS	3.0
2	H	983	SER	3.0
1	A	240	THR	3.0
2	H	970	TYR	2.9
2	H	973	SER	2.9
2	H	1016	LEU	2.9
2	E	1097	ALA	2.9
2	B	1076	LEU	2.8
2	K	1011	LEU	2.8
2	H	1001	GLY	2.8
2	H	1022	VAL	2.8
2	K	1042	LYS	2.8
2	H	1023	ILE	2.8
2	B	1038	PRO	2.8
1	A	103	VAL	2.7
2	K	981	SER	2.7
2	K	1034	TYR	2.7
1	G	100	VAL	2.7
2	K	983	SER	2.7
2	H	1042	LYS	2.6
1	A	423	ILE	2.6
1	G	407	GLY	2.6
2	H	969	ASN	2.6
2	H	1043	ARG	2.6
1	G	443	LYS	2.6
2	K	1074	HIS	2.6
1	J	408	LEU	2.5
2	H	1014	ILE	2.5
2	E	989	LYS	2.4
1	J	100	VAL	2.4
2	H	987	LEU	2.4
1	J	402	LEU	2.4
2	H	1046	GLY	2.4
1	A	175	LEU	2.3
2	B	1012	ALA	2.3

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Mol	Chain	Res	Type	RSRZ
1	G	402	LEU	2.3
2	H	1056	PHE	2.3
2	K	1045	GLU	2.3
1	G	176	ASP	2.3
1	J	176	ASP	2.3
1	A	443	LYS	2.3
3	I	1429	LYS	2.3
2	H	1110	ALA	2.3
1	D	444	THR	2.3
2	H	1025	THR	2.3
2	E	984	LEU	2.2
2	H	979	LEU	2.2
2	H	1073	ASN	2.2
2	E	1089	ASN	2.2
2	H	967	ASN	2.2
2	K	1073	ASN	2.2
2	H	1077	VAL	2.2
1	J	384	VAL	2.2
2	B	1040	ARG	2.2
2	H	1015	PRO	2.2
2	B	1047	ILE	2.2
2	K	1036	ASN	2.2
2	H	1028	PRO	2.2
2	B	1083	ARG	2.2
1	J	161	GLU	2.2
2	K	1069	ILE	2.1
2	E	1098	ASP	2.1
1	D	14	GLN	2.1
1	G	99	ASN	2.1
1	D	434	GLN	2.1
1	D	240	THR	2.1
2	E	1034	TYR	2.1
1	A	422	ARG	2.1
1	A	433	ASP	2.1
1	G	405	LEU	2.0
1	J	405	LEU	2.0
2	K	1012	ALA	2.0
2	K	980	SER	2.0
1	G	120	GLU	2.0
3	L	1441	LEU	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. 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	B-factors(\AA^2)	Q<0.9
4	PGE	D	6119	10/10	0.82	0.26	70,72,77,80	0

6.5 Other polymers [i](#)

There are no such residues in this entry.