



# Full wwPDB X-ray Structure Validation Report ⓘ

May 29, 2020 – 06:02 am BST

PDB ID : 4Q79  
Title : Structure of a HG-derivative CsgG  
Authors : Huang, Y.; Zhang, C.X.; Cao, B.; Zhao, Y.; Kou, Y.; Ni, D.  
Deposited on : 2014-04-24  
Resolution : 3.10 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467  
Xtriage (Phenix) : 1.13  
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

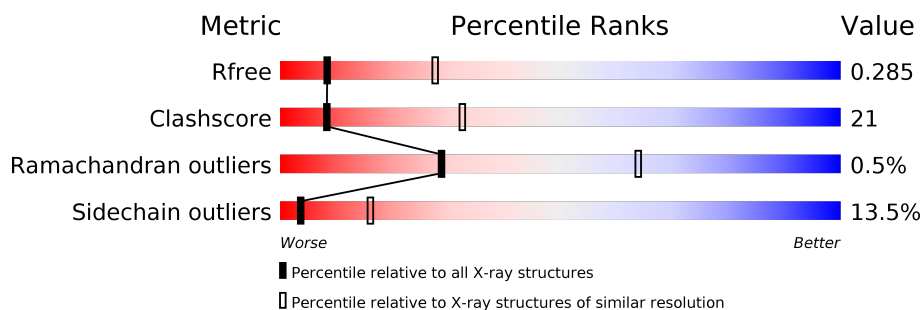
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.10 Å.

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



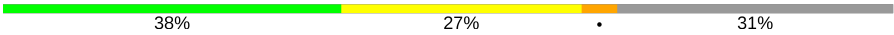
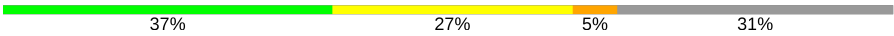
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	1094 (3.10-3.10)
Clashscore	141614	1184 (3.10-3.10)
Ramachandran outliers	138981	1141 (3.10-3.10)
Sidechain outliers	138945	1141 (3.10-3.10)

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  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$

Mol	Chain	Length	Quality of chain
1	A	277	
1	B	277	
1	C	277	
1	D	277	
1	E	277	
1	F	277	
1	G	277	

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Mol	Chain	Length	Quality of chain
1	H	277	 38% 27% 31%
1	I	277	 37% 27% 5% 31%

## 2 Entry composition [i](#)

There are 2 unique types of molecules in this entry. The entry contains 13035 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 CsgG.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	D	189	1424	904	236	279	5	0	0	0
1	A	196	1467	932	243	287	5	0	0	0
1	B	190	1423	902	236	280	5	0	0	0
1	C	198	1494	952	248	289	5	0	0	0
1	E	198	1494	952	248	289	5	0	0	0
1	F	189	1424	904	236	279	5	0	0	0
1	G	190	1440	918	237	280	5	0	0	0
1	H	191	1437	913	238	281	5	0	0	0
1	I	190	1423	902	236	280	5	0	0	0

- Molecule 2 is MERCURY (II) ION (three-letter code: HG) (formula: Hg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	G	1	Total 1	Hg 1	0	0
2	D	1	Total 1	Hg 1	0	0
2	E	1	Total 1	Hg 1	0	0
2	H	1	Total 1	Hg 1	0	0
2	B	1	Total 1	Hg 1	0	0

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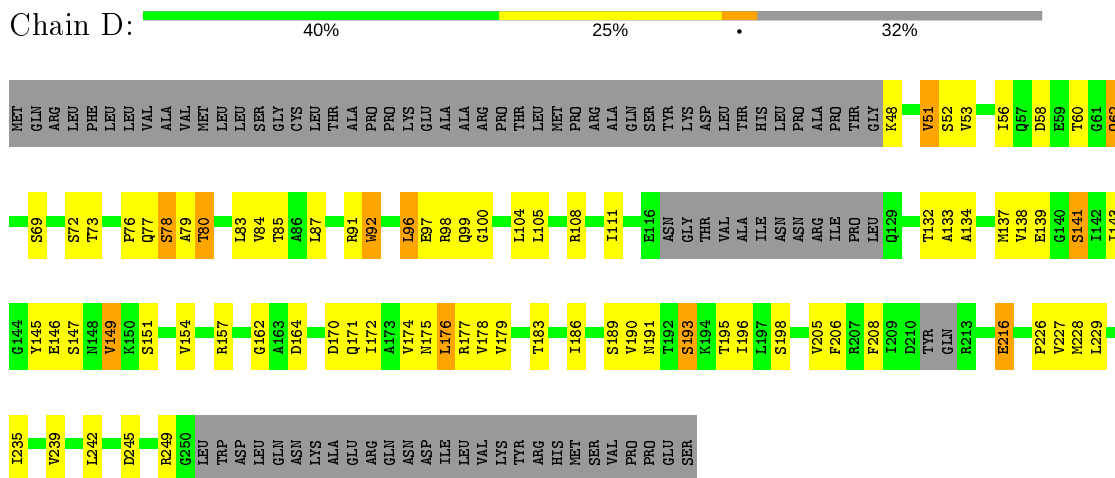
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<b>Mol</b>	<b>Chain</b>	<b>Residues</b>	<b>Atoms</b>		<b>ZeroOcc</b>	<b>AltConf</b>
2	I	1	Total 1	Hg 1	0	0
2	C	1	Total 1	Hg 1	0	0
2	A	1	Total 1	Hg 1	0	0
2	F	1	Total 1	Hg 1	0	0

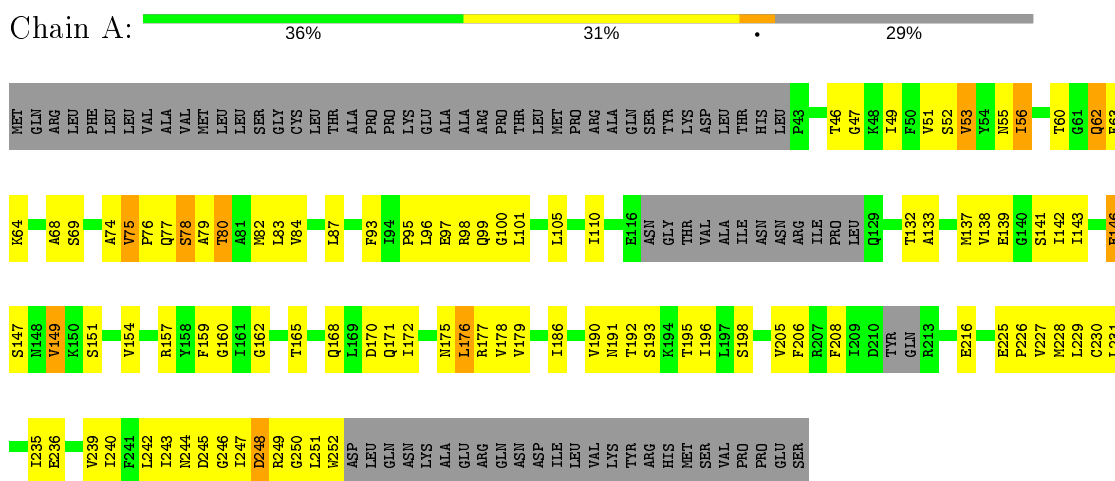
### 3 Residue-property plots [i](#)

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. 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.

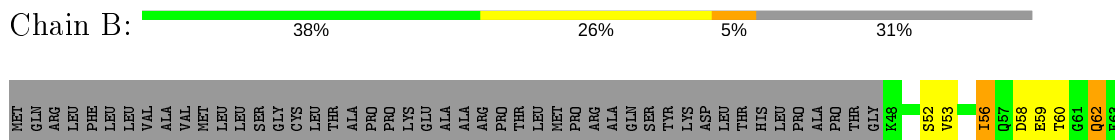
- Molecule 1: CsgG

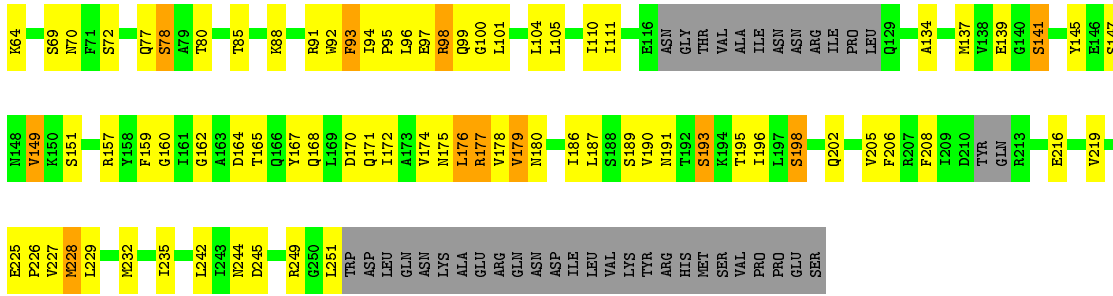


- Molecule 1: CsgG

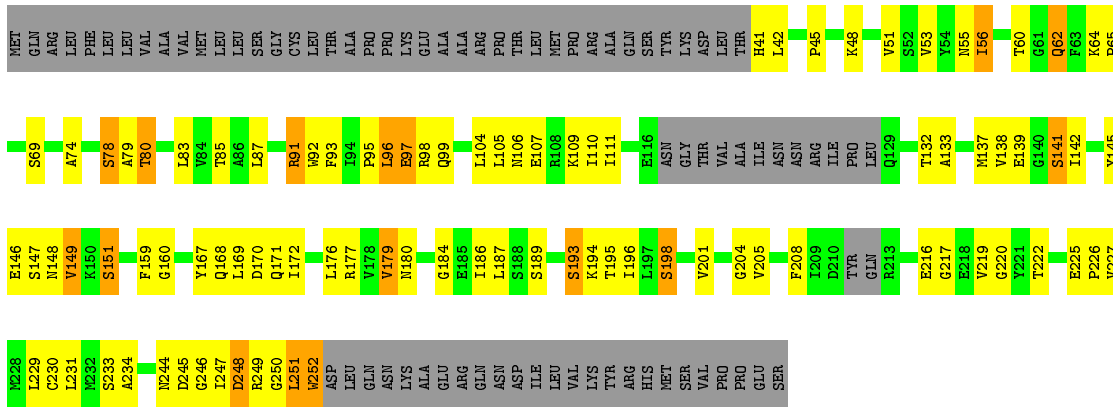


- Molecule 1: CsgG

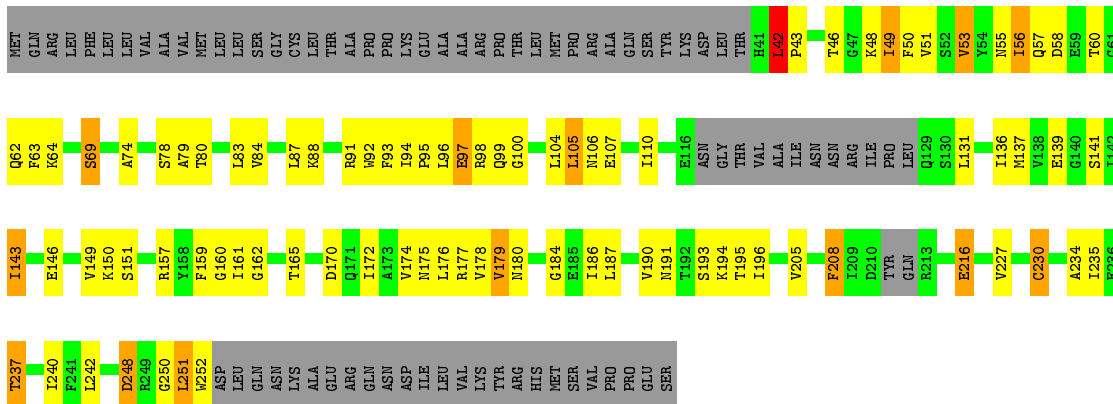
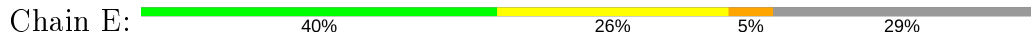




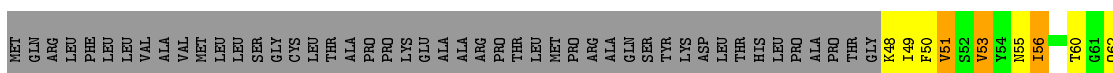
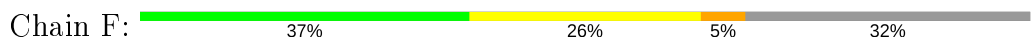
- Molecule 1: CsgG

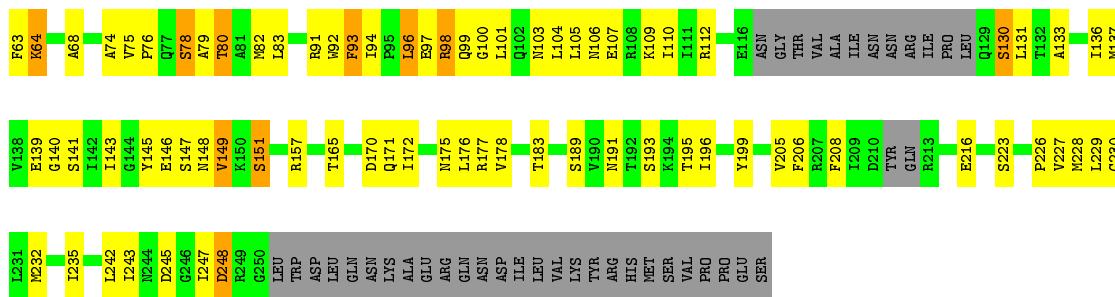


- Molecule 1: CsgG



- Molecule 1: CsgG

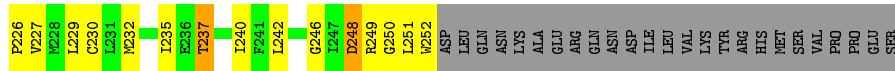
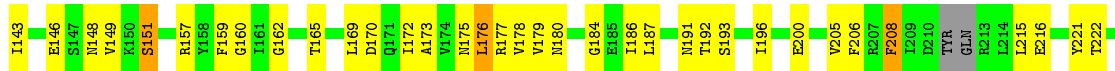
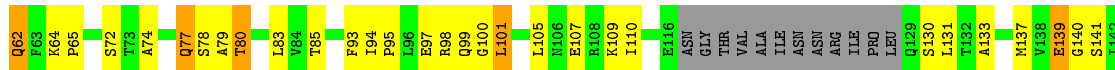
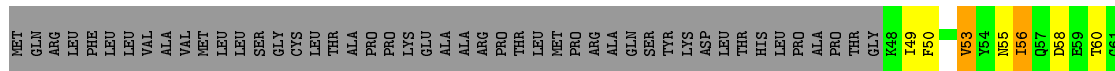




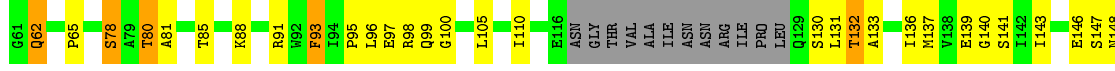
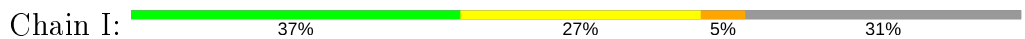
• Molecule 1: CsgG



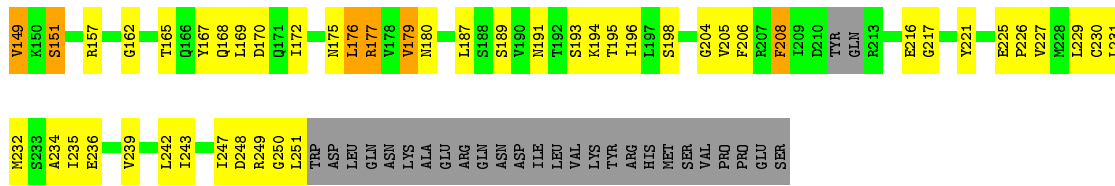
• Molecule 1: CsgG



• Molecule 1: CsgG







## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	171.64Å 176.88Å 104.99Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.25 – 3.10 49.25 – 3.09	Depositor EDS
% Data completeness (in resolution range)	58.3 (49.25-3.10) 59.0 (49.25-3.09)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.19 (at 3.07Å)	Xtrriage
Refinement program	PHENIX (phenix.refine: 1.8_1069)	Depositor
R, $R_{free}$	0.236 , 0.278 0.257 , 0.285	Depositor DCC
$R_{free}$ test set	1760 reflections (5.01%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	82.4	Xtrriage
Anisotropy	1.384	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.29 , 64.5	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.47$ , $\langle L^2 \rangle = 0.30$	Xtrriage
Estimated twinning fraction	0.045 for k,h,-l	Xtrriage
$F_o, F_c$ correlation	0.89	EDS
Total number of atoms	13035	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	84.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.64% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

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

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

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

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	0.32	0/1488	0.60	0/2019
1	B	0.32	0/1440	0.59	0/1951
1	C	0.35	0/1518	0.65	1/2062 (0.0%)
1	D	0.32	0/1443	0.57	0/1956
1	E	0.33	0/1518	0.64	2/2062 (0.1%)
1	F	0.31	0/1443	0.56	0/1956
1	G	0.31	0/1461	0.59	0/1983
1	H	0.30	0/1456	0.58	0/1974
1	I	0.30	0/1440	0.57	0/1951
All	All	0.32	0/13207	0.60	3/17914 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	C	0	1

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	E	251	LEU	CA-CB-CG	5.87	128.80	115.30
1	C	251	LEU	CA-CB-CG	5.82	128.68	115.30
1	E	42	LEU	CA-CB-CG	5.15	127.15	115.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	C	91	ARG	Peptide

## 5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	1467	0	1450	77	0
1	B	1423	0	1410	63	0
1	C	1494	0	1475	82	0
1	D	1424	0	1407	69	0
1	E	1494	0	1475	73	0
1	F	1424	0	1407	76	0
1	G	1440	0	1424	69	0
1	H	1437	0	1420	70	0
1	I	1423	0	1410	58	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
2	C	1	0	0	0	0
2	D	1	0	0	0	0
2	E	1	0	0	0	0
2	F	1	0	0	0	0
2	G	1	0	0	0	0
2	H	1	0	0	0	0
2	I	1	0	0	0	0
All	All	13035	0	12878	544	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 21.

All (544) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:177:ARG:NH1	1:I:97:GLU:OE2	2.04	0.90
1:G:98:ARG:HG3	1:G:101:LEU:HD12	1.55	0.85
1:F:97:GLU:OE2	1:H:177:ARG:NH1	2.10	0.84
1:H:56:ILE:HG13	1:H:141:SER:HA	1.59	0.83
1:G:170:ASP:HB2	1:G:196:ILE:HB	1.61	0.83

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:170:ASP:HB2	1:F:196:ILE:HB	1.62	0.81
1:F:205:VAL:O	1:F:216:GLU:HA	1.81	0.80
1:C:56:ILE:HG13	1:C:141:SER:HA	1.63	0.80
1:E:60:THR:HG23	1:E:62:GLN:H	1.47	0.79
1:A:196:ILE:HD13	1:A:227:VAL:HG22	1.65	0.79
1:E:175:ASN:ND2	1:E:191:ASN:OD1	2.15	0.79
1:E:177:ARG:NH1	1:H:97:GLU:OE2	2.17	0.78
1:C:205:VAL:O	1:C:216:GLU:HA	1.83	0.77
1:I:205:VAL:O	1:I:216:GLU:HA	1.84	0.77
1:I:60:THR:HG23	1:I:62:GLN:H	1.48	0.77
1:A:186:ILE:HD12	1:B:95:PRO:HB2	1.67	0.77
1:F:196:ILE:HD13	1:F:227:VAL:HG22	1.67	0.76
1:C:194:LYS:HE3	1:C:234:ALA:HA	1.68	0.75
1:A:56:ILE:HG22	1:A:80:THR:HG23	1.68	0.75
1:G:56:ILE:HG13	1:G:141:SER:HA	1.69	0.74
1:D:56:ILE:HG13	1:D:141:SER:HA	1.70	0.74
1:B:196:ILE:HD13	1:B:227:VAL:HG22	1.68	0.74
1:D:56:ILE:HG22	1:D:80:THR:HG23	1.70	0.74
1:E:56:ILE:HG13	1:E:141:SER:HA	1.70	0.73
1:I:143:ILE:HD11	1:I:175:ASN:HB2	1.70	0.73
1:D:186:ILE:HD12	1:C:95:PRO:HB2	1.70	0.73
1:H:205:VAL:O	1:H:216:GLU:HA	1.89	0.73
1:D:170:ASP:HB2	1:D:196:ILE:HB	1.72	0.72
1:G:237:THR:HA	1:G:240:ILE:HD12	1.72	0.72
1:B:205:VAL:O	1:B:216:GLU:HA	1.91	0.71
1:A:205:VAL:O	1:A:216:GLU:HA	1.91	0.71
1:H:175:ASN:ND2	1:H:191:ASN:OD1	2.23	0.70
1:C:137:MET:HB3	1:C:179:VAL:HG13	1.72	0.70
1:A:53:VAL:HG21	1:A:83:LEU:HD12	1.74	0.70
1:A:62:GLN:OE1	1:B:64:LYS:NZ	2.25	0.70
1:H:148:ASN:HB3	1:H:151:SER:HB3	1.74	0.70
1:G:56:ILE:HG22	1:G:80:THR:HG23	1.74	0.69
1:F:103:ASN:ND2	1:H:139:GLU:OE2	2.26	0.69
1:D:196:ILE:HD13	1:D:227:VAL:HG22	1.74	0.69
1:D:48:LYS:HA	1:D:92:TRP:HB3	1.73	0.69
1:A:170:ASP:HB2	1:A:196:ILE:HB	1.74	0.69
1:I:170:ASP:HB2	1:I:196:ILE:HB	1.74	0.69
1:C:170:ASP:O	1:C:195:THR:HA	1.93	0.68
1:G:175:ASN:ND2	1:G:191:ASN:OD1	2.26	0.68
1:A:56:ILE:HG13	1:A:141:SER:HA	1.75	0.68
1:D:97:GLU:OE2	1:F:177:ARG:NH1	2.28	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:53:VAL:HG21	1:H:83:LEU:HD12	1.76	0.67
1:E:175:ASN:HD21	1:H:85:THR:HG21	1.58	0.67
1:I:176:LEU:HB3	1:I:242:LEU:HD11	1.76	0.67
1:G:76:PRO:HG2	1:G:228:MET:HB2	1.77	0.67
1:A:172:ILE:HD11	1:A:227:VAL:HG13	1.78	0.66
1:D:78:SER:OG	1:F:143:ILE:O	2.13	0.66
1:F:56:ILE:HG13	1:F:141:SER:HA	1.76	0.66
1:G:196:ILE:HD13	1:G:227:VAL:HG22	1.77	0.66
1:C:245:ASP:HB3	1:C:249:ARG:HH21	1.60	0.66
1:F:110:ILE:HG22	1:H:133:ALA:HB2	1.78	0.66
1:F:226:PRO:HB2	1:F:229:LEU:HB2	1.78	0.65
1:H:170:ASP:HB2	1:H:196:ILE:HB	1.78	0.65
1:I:157:ARG:HH22	1:I:206:PHE:HB2	1.61	0.65
1:I:172:ILE:HD11	1:I:227:VAL:HG13	1.77	0.65
1:H:176:LEU:HB3	1:H:242:LEU:HD11	1.79	0.65
1:G:140:GLY:HA3	1:G:175:ASN:O	1.96	0.65
1:B:177:ARG:NH1	1:E:97:GLU:OE2	2.30	0.65
1:E:205:VAL:O	1:E:216:GLU:HA	1.97	0.64
1:I:175:ASN:ND2	1:I:191:ASN:OD1	2.27	0.64
1:A:97:GLU:OE2	1:I:177:ARG:NH1	2.30	0.64
1:C:169:LEU:HA	1:C:196:ILE:O	1.96	0.64
1:G:205:VAL:O	1:G:216:GLU:HA	1.97	0.64
1:G:55:ASN:HA	1:G:80:THR:HG21	1.79	0.64
1:H:157:ARG:HH22	1:H:206:PHE:HB2	1.62	0.64
1:D:172:ILE:HG13	1:D:196:ILE:HD11	1.80	0.64
1:C:171:GLN:HG2	1:C:195:THR:HG22	1.80	0.63
1:D:245:ASP:HB3	1:D:249:ARG:HH21	1.64	0.63
1:H:237:THR:HA	1:H:240:ILE:HD12	1.81	0.63
1:E:98:ARG:NH1	1:H:107:GLU:OE1	2.32	0.62
1:B:137:MET:HB3	1:B:179:VAL:HG13	1.80	0.62
1:G:164:ASP:OD2	1:G:166:GLN:NE2	2.33	0.62
1:G:176:LEU:HB3	1:G:242:LEU:HD11	1.81	0.62
1:D:147:SER:HA	1:D:149:VAL:HG23	1.81	0.62
1:D:205:VAL:O	1:D:216:GLU:HA	1.99	0.62
1:E:48:LYS:HG2	1:E:92:TRP:HB2	1.80	0.62
1:C:194:LYS:NZ	1:C:233:SER:OG	2.32	0.62
1:B:56:ILE:HG13	1:B:141:SER:HA	1.82	0.61
1:A:172:ILE:HG13	1:A:196:ILE:HD11	1.83	0.61
1:F:143:ILE:HD11	1:F:175:ASN:HB2	1.81	0.61
1:I:180:ASN:HB2	1:I:187:LEU:HD11	1.83	0.61
1:D:137:MET:HB3	1:D:179:VAL:HG13	1.81	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:172:ILE:HD11	1:D:227:VAL:HG13	1.83	0.61
1:D:99:GLN:HG2	1:F:177:ARG:HH22	1.66	0.61
1:E:55:ASN:HB3	1:E:57:GLN:HE21	1.63	0.61
1:A:157:ARG:HH22	1:A:206:PHE:HB2	1.65	0.60
1:C:56:ILE:HG22	1:C:80:THR:HG23	1.82	0.60
1:E:92:TRP:HE3	1:E:92:TRP:H	1.48	0.60
1:C:53:VAL:HG21	1:C:83:LEU:HD12	1.82	0.60
1:B:178:VAL:HG23	1:B:242:LEU:HD22	1.82	0.60
1:C:64:LYS:HG2	1:C:74:ALA:HA	1.83	0.60
1:G:49:ILE:HB	1:G:252:TRP:HZ3	1.65	0.60
1:H:60:THR:HG23	1:H:62:GLN:H	1.65	0.60
1:E:56:ILE:HG22	1:E:80:THR:HG23	1.84	0.59
1:D:149:VAL:HG13	1:C:226:PRO:HG3	1.83	0.59
1:G:98:ARG:NH2	1:I:110:ILE:HD13	2.17	0.59
1:A:64:LYS:NZ	1:I:62:GLN:OE1	2.34	0.59
1:B:176:LEU:HB3	1:B:242:LEU:HD11	1.84	0.59
1:F:226:PRO:HG2	1:F:229:LEU:HD12	1.84	0.59
1:E:248:ASP:OD1	1:E:248:ASP:N	2.36	0.59
1:A:249:ARG:H	1:A:250:GLY:HA2	1.67	0.59
1:B:172:ILE:HD11	1:B:227:VAL:HG13	1.83	0.59
1:D:172:ILE:O	1:D:193:SER:HA	2.02	0.59
1:E:79:ALA:O	1:E:80:THR:OG1	2.19	0.59
1:G:79:ALA:O	1:G:80:THR:OG1	2.18	0.59
1:D:62:GLN:OE1	1:C:64:LYS:NZ	2.32	0.58
1:C:51:VAL:HG11	1:C:87:LEU:HD13	1.85	0.58
1:C:48:LYS:HG2	1:C:92:TRP:HB2	1.84	0.58
1:H:79:ALA:O	1:H:80:THR:OG1	2.18	0.58
1:D:137:MET:HE1	1:C:104:LEU:HA	1.84	0.58
1:C:147:SER:HB2	1:C:148:ASN:HA	1.85	0.58
1:C:177:ARG:NH1	1:G:97:GLU:OE2	2.37	0.58
1:F:172:ILE:HD11	1:F:227:VAL:HG13	1.86	0.58
1:D:177:ARG:HH22	1:C:99:GLN:HG2	1.67	0.58
1:D:60:THR:HG23	1:D:62:GLN:HB2	1.85	0.58
1:D:53:VAL:HG21	1:D:83:LEU:HD12	1.86	0.58
1:G:64:LYS:HG2	1:G:74:ALA:HA	1.85	0.58
1:F:178:VAL:HG23	1:F:242:LEU:HD22	1.86	0.57
1:F:48:LYS:HD3	1:F:94:ILE:HD11	1.86	0.57
1:H:173:ALA:HA	1:H:192:THR:O	2.04	0.57
1:A:248:ASP:OD1	1:A:248:ASP:N	2.37	0.57
1:E:170:ASP:O	1:E:195:THR:HA	2.04	0.57
1:G:248:ASP:OD1	1:G:248:ASP:N	2.38	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:149:VAL:HG11	1:C:171:GLN:HG3	1.85	0.57
1:F:149:VAL:HG21	1:F:171:GLN:HG3	1.87	0.57
1:B:170:ASP:HB2	1:B:196:ILE:HB	1.87	0.56
1:A:68:ALA:HA	1:I:65:PRO:HB3	1.88	0.56
1:C:170:ASP:HB2	1:C:196:ILE:HB	1.86	0.56
1:A:99:GLN:HG2	1:I:177:ARG:HH22	1.71	0.56
1:E:143:ILE:HG12	1:H:78:SER:HB2	1.87	0.56
1:H:143:ILE:HD11	1:H:175:ASN:HB2	1.86	0.56
1:A:143:ILE:HD11	1:A:175:ASN:HB2	1.87	0.56
1:E:161:ILE:HG13	1:E:205:VAL:HG22	1.88	0.56
1:G:148:ASN:HB3	1:G:151:SER:HB3	1.88	0.56
1:I:140:GLY:HA3	1:I:175:ASN:O	2.06	0.56
1:B:98:ARG:NH2	1:E:110:ILE:HD13	2.21	0.55
1:C:167:TYR:HA	1:C:198:SER:O	2.07	0.55
1:D:53:VAL:HG22	1:D:80:THR:HG22	1.87	0.55
1:F:60:THR:HG23	1:F:62:GLN:H	1.72	0.55
1:A:46:THR:HB	1:A:47:GLY:HA3	1.87	0.55
1:B:180:ASN:HB2	1:B:187:LEU:HD11	1.87	0.55
1:E:179:VAL:HB	1:E:186:ILE:HG12	1.88	0.55
1:H:55:ASN:HA	1:H:80:THR:HG21	1.89	0.55
1:A:55:ASN:HA	1:A:80:THR:HG21	1.89	0.55
1:A:147:SER:HA	1:A:149:VAL:HG23	1.88	0.55
1:C:133:ALA:HB1	1:G:111:ILE:HG12	1.87	0.55
1:B:70:ASN:HA	1:E:69:SER:HB2	1.89	0.55
1:H:200:GLU:HB3	1:H:222:THR:HG22	1.89	0.55
1:B:157:ARG:HH22	1:B:206:PHE:HB2	1.72	0.54
1:D:175:ASN:ND2	1:D:191:ASN:OD1	2.30	0.54
1:A:249:ARG:N	1:A:250:GLY:HA2	2.22	0.54
1:D:151:SER:OG	1:C:222:THR:OG1	2.24	0.54
1:D:99:GLN:HB3	1:D:100:GLY:HA3	1.88	0.54
1:C:179:VAL:HG21	1:G:97:GLU:HG3	1.89	0.54
1:D:176:LEU:HB3	1:D:242:LEU:HD11	1.88	0.54
1:G:157:ARG:HH22	1:G:206:PHE:HB2	1.72	0.54
1:B:98:ARG:HG3	1:B:101:LEU:HD12	1.89	0.54
1:D:73:THR:HG21	1:D:77:GLN:HE22	1.72	0.54
1:F:48:LYS:HA	1:F:92:TRP:HB2	1.89	0.54
1:G:82:MET:HB3	1:G:235:ILE:HG21	1.89	0.54
1:I:226:PRO:HB2	1:I:229:LEU:HG	1.89	0.54
1:D:79:ALA:O	1:D:80:THR:OG1	2.21	0.54
1:D:154:VAL:HG12	1:C:219:VAL:HG12	1.89	0.54
1:E:150:LYS:HG3	1:H:221:TYR:HE1	1.73	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:170:ASP:HB2	1:E:196:ILE:HB	1.90	0.54
1:E:237:THR:HA	1:E:240:ILE:HD12	1.90	0.53
1:F:110:ILE:HD13	1:H:98:ARG:NH2	2.23	0.53
1:A:137:MET:HE1	1:B:104:LEU:HA	1.90	0.53
1:B:172:ILE:HG13	1:B:196:ILE:HD11	1.90	0.53
1:H:226:PRO:HB2	1:H:229:LEU:HB2	1.91	0.53
1:A:226:PRO:O	1:A:229:LEU:N	2.39	0.53
1:D:111:ILE:HG12	1:F:133:ALA:HB1	1.89	0.53
1:H:248:ASP:OD1	1:H:248:ASP:N	2.42	0.53
1:E:175:ASN:ND2	1:H:85:THR:HG21	2.23	0.53
1:E:64:LYS:HD3	1:E:74:ALA:HA	1.91	0.53
1:G:150:LYS:HG3	1:I:221:TYR:HE1	1.74	0.53
1:B:60:THR:OG1	1:B:145:TYR:N	2.42	0.53
1:B:174:VAL:O	1:B:191:ASN:HA	2.08	0.52
1:F:97:GLU:HG2	1:H:186:ILE:HG12	1.91	0.52
1:H:196:ILE:HD13	1:H:227:VAL:HG22	1.90	0.52
1:C:92:TRP:H	1:C:92:TRP:HE3	1.56	0.52
1:H:56:ILE:HG22	1:H:80:THR:HG23	1.92	0.52
1:I:98:ARG:NH2	1:I:132:THR:O	2.42	0.52
1:E:180:ASN:HB2	1:E:187:LEU:HD11	1.91	0.52
1:E:196:ILE:HG12	1:E:230:CYS:SG	2.49	0.52
1:B:186:ILE:HD11	1:E:97:GLU:HA	1.90	0.52
1:C:45:PRO:HG3	1:C:92:TRP:CZ2	2.44	0.52
1:D:53:VAL:HG11	1:D:84:VAL:HG22	1.92	0.52
1:F:110:ILE:HG21	1:H:98:ARG:NH2	2.24	0.52
1:F:175:ASN:ND2	1:F:191:ASN:OD1	2.43	0.52
1:H:60:THR:O	1:H:62:GLN:NE2	2.42	0.52
1:G:60:THR:HG23	1:G:62:GLN:H	1.75	0.52
1:I:88:LYS:HB2	1:I:95:PRO:HG2	1.90	0.52
1:C:145:TYR:OH	1:C:170:ASP:OD2	2.15	0.51
1:I:151:SER:HB2	1:I:168:GLN:HA	1.91	0.51
1:F:104:LEU:HD11	1:H:184:GLY:HA2	1.92	0.51
1:A:133:ALA:HB1	1:B:111:ILE:HG12	1.93	0.51
1:C:151:SER:HB2	1:C:168:GLN:HA	1.92	0.51
1:C:177:ARG:HG2	1:C:189:SER:HB2	1.92	0.51
1:F:226:PRO:O	1:F:229:LEU:N	2.41	0.51
1:A:244:ASN:HA	1:A:247:ILE:HB	1.92	0.51
1:B:58:ASP:OD1	1:B:60:THR:HG22	2.10	0.51
1:C:189:SER:OG	1:G:85:THR:HG22	2.11	0.51
1:D:174:VAL:O	1:D:191:ASN:HA	2.11	0.51
1:D:171:GLN:HG2	1:D:195:THR:HG22	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:143:ILE:O	1:I:78:SER:OG	2.23	0.51
1:A:110:ILE:HG22	1:I:133:ALA:HB2	1.93	0.51
1:I:232:MET:HA	1:I:235:ILE:HG22	1.91	0.51
1:D:133:ALA:HB1	1:C:111:ILE:HG12	1.92	0.51
1:H:226:PRO:O	1:H:229:LEU:N	2.42	0.51
1:E:99:GLN:HB3	1:E:100:GLY:HA3	1.91	0.51
1:C:79:ALA:O	1:C:80:THR:OG1	2.26	0.51
1:E:84:VAL:HG13	1:E:95:PRO:HB3	1.93	0.51
1:A:63:PHE:H	1:B:72:SER:HB3	1.76	0.50
1:G:246:GLY:O	1:G:252:TRP:NE1	2.42	0.50
1:I:88:LYS:HD3	1:I:95:PRO:HD2	1.93	0.50
1:D:52:SER:HB2	1:D:134:ALA:HB3	1.92	0.50
1:H:140:GLY:HA3	1:H:175:ASN:O	2.11	0.50
1:A:177:ARG:NH1	1:B:97:GLU:OE2	2.44	0.50
1:A:239:VAL:O	1:A:243:ILE:HG13	2.12	0.50
1:E:83:LEU:HD23	1:E:235:ILE:HD11	1.94	0.50
1:F:56:ILE:HG22	1:F:80:THR:HG23	1.94	0.50
1:B:149:VAL:HG11	1:B:171:GLN:HG3	1.93	0.50
1:C:248:ASP:OD1	1:C:248:ASP:N	2.43	0.50
1:B:98:ARG:NH1	1:E:107:GLU:OE1	2.45	0.50
1:C:201:VAL:O	1:C:220:GLY:HA2	2.11	0.50
1:F:145:TYR:HA	1:F:171:GLN:O	2.12	0.50
1:B:177:ARG:HB3	1:B:189:SER:HB3	1.93	0.50
1:F:79:ALA:O	1:F:80:THR:OG1	2.27	0.50
1:A:87:LEU:O	1:A:93:PHE:HB2	2.12	0.49
1:D:183:THR:HB	1:C:132:THR:HG23	1.92	0.49
1:C:106:ASN:OD1	1:C:109:LYS:NZ	2.45	0.49
1:C:193:SER:OG	1:C:193:SER:O	2.27	0.49
1:A:142:ILE:HD13	1:A:231:LEU:HD11	1.95	0.49
1:A:149:VAL:HG13	1:B:226:PRO:HG3	1.94	0.49
1:F:243:ILE:O	1:F:247:ILE:HG13	2.12	0.49
1:I:52:SER:O	1:I:137:MET:HG3	2.12	0.49
1:H:172:ILE:O	1:H:193:SER:HA	2.12	0.49
1:B:167:TYR:HA	1:B:198:SER:O	2.13	0.49
1:D:226:PRO:O	1:D:229:LEU:N	2.45	0.49
1:F:232:MET:HA	1:F:235:ILE:HG22	1.95	0.49
1:D:58:ASP:OD1	1:D:60:THR:HG22	2.13	0.49
1:D:98:ARG:NH2	1:C:110:ILE:HG21	2.28	0.48
1:B:98:ARG:HH22	1:E:110:ILE:HG21	1.78	0.48
1:F:97:GLU:HB3	1:F:98:ARG:H	1.53	0.48
1:G:143:ILE:HD11	1:G:175:ASN:HB2	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:104:LEU:HA	1:H:137:MET:HE1	1.94	0.48
1:G:226:PRO:O	1:G:229:LEU:N	2.45	0.48
1:H:50:PHE:HD1	1:H:94:ILE:HB	1.79	0.48
1:A:191:ASN:OD1	1:B:85:THR:HG21	2.13	0.48
1:D:137:MET:HE2	1:D:137:MET:HB2	1.74	0.48
1:F:107:GLU:HA	1:F:110:ILE:HD12	1.94	0.48
1:G:245:ASP:HB3	1:G:249:ARG:HH21	1.78	0.48
1:G:99:GLN:HB3	1:G:100:GLY:HA3	1.95	0.48
1:A:99:GLN:HB3	1:A:100:GLY:HA3	1.96	0.48
1:A:60:THR:HG23	1:A:62:GLN:HB2	1.95	0.48
1:C:225:GLU:HA	1:C:226:PRO:HD3	1.68	0.48
1:C:246:GLY:O	1:C:250:GLY:HA2	2.12	0.48
1:G:133:ALA:HB2	1:I:110:ILE:HG22	1.96	0.48
1:G:52:SER:O	1:G:137:MET:HG3	2.13	0.48
1:A:79:ALA:O	1:A:80:THR:OG1	2.27	0.48
1:B:232:MET:HA	1:B:235:ILE:HG22	1.95	0.48
1:F:176:LEU:HB3	1:F:242:LEU:HD11	1.95	0.48
1:H:107:GLU:HA	1:H:110:ILE:HD12	1.96	0.48
1:C:55:ASN:HA	1:C:80:THR:HG21	1.94	0.48
1:H:226:PRO:HG2	1:H:229:LEU:HD12	1.95	0.48
1:A:196:ILE:HG12	1:A:230:CYS:SG	2.53	0.48
1:E:91:ARG:HA	1:E:93:PHE:N	2.29	0.48
1:F:99:GLN:HB3	1:F:100:GLY:HA3	1.96	0.48
1:F:107:GLU:CD	1:H:98:ARG:HH12	2.16	0.48
1:E:98:ARG:NH2	1:H:110:ILE:HD13	2.29	0.48
1:D:245:ASP:O	1:D:249:ARG:HB2	2.14	0.47
1:C:244:ASN:O	1:C:247:ILE:HB	2.14	0.47
1:D:177:ARG:NH1	1:C:97:GLU:OE2	2.47	0.47
1:D:96:LEU:HD12	1:D:98:ARG:NH1	2.28	0.47
1:F:60:THR:HG23	1:F:62:GLN:N	2.30	0.47
1:G:83:LEU:HB2	1:G:235:ILE:HD11	1.96	0.47
1:F:64:LYS:HD3	1:F:74:ALA:HA	1.94	0.47
1:D:143:ILE:O	1:C:78:SER:OG	2.20	0.47
1:I:147:SER:HA	1:I:149:VAL:HG23	1.96	0.47
1:A:151:SER:HB2	1:A:168:GLN:HG2	1.97	0.47
1:A:243:ILE:O	1:A:247:ILE:N	2.46	0.47
1:A:178:VAL:HG23	1:A:242:LEU:HD13	1.96	0.47
1:C:60:THR:OG1	1:C:145:TYR:N	2.47	0.47
1:F:98:ARG:HG3	1:F:101:LEU:HD12	1.95	0.47
1:E:55:ASN:HA	1:E:80:THR:HG21	1.96	0.47
1:F:78:SER:HB2	1:F:82:MET:SD	2.55	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:179:VAL:HA	1:C:186:ILE:HA	1.97	0.47
1:C:91:ARG:HA	1:C:93:PHE:N	2.29	0.47
1:C:51:VAL:HG13	1:C:95:PRO:HA	1.97	0.47
1:F:53:VAL:HG21	1:F:83:LEU:HD12	1.97	0.47
1:E:175:ASN:HA	1:E:190:VAL:O	2.15	0.47
1:I:99:GLN:HB3	1:I:100:GLY:HA3	1.97	0.47
1:I:235:ILE:O	1:I:239:VAL:HG23	2.15	0.47
1:A:64:LYS:HD3	1:A:74:ALA:HA	1.97	0.46
1:G:138:VAL:HG22	1:G:178:VAL:HG22	1.97	0.46
1:E:97:GLU:HB3	1:E:98:ARG:H	1.53	0.46
1:G:60:THR:HG23	1:G:62:GLN:N	2.29	0.46
1:B:245:ASP:HB3	1:B:249:ARG:HH21	1.80	0.46
1:B:147:SER:HA	1:B:149:VAL:HG23	1.96	0.46
1:C:172:ILE:HD11	1:C:196:ILE:HD11	1.97	0.46
1:A:143:ILE:O	1:B:78:SER:OG	2.15	0.46
1:C:97:GLU:HB3	1:C:98:ARG:H	1.53	0.46
1:D:138:VAL:HG22	1:D:178:VAL:HG22	1.98	0.46
1:F:149:VAL:HG11	1:F:171:GLN:HG3	1.97	0.46
1:F:55:ASN:HA	1:F:80:THR:HG21	1.97	0.46
1:A:51:VAL:HG21	1:A:87:LEU:HD13	1.98	0.46
1:A:84:VAL:HG13	1:A:95:PRO:HB3	1.97	0.46
1:B:91:ARG:HA	1:B:93:PHE:N	2.30	0.46
1:B:97:GLU:HB3	1:B:98:ARG:H	1.53	0.46
1:D:235:ILE:O	1:D:239:VAL:HG23	2.15	0.46
1:G:177:ARG:HG2	1:G:189:SER:HB2	1.97	0.46
1:G:199:TYR:CZ	1:G:223:SER:HB3	2.50	0.46
1:H:159:PHE:HA	1:H:160:GLY:HA2	1.51	0.46
1:I:55:ASN:HA	1:I:80:THR:HG21	1.98	0.46
1:B:164:ASP:OD1	1:B:202:GLN:HB2	2.16	0.46
1:B:171:GLN:HG2	1:B:195:THR:HG22	1.98	0.46
1:B:60:THR:HG23	1:B:62:GLN:HB2	1.96	0.46
1:G:91:ARG:HA	1:G:93:PHE:N	2.31	0.46
1:H:99:GLN:HB3	1:H:100:GLY:HA3	1.98	0.46
1:A:226:PRO:HG2	1:A:229:LEU:HD12	1.98	0.46
1:C:204:GLY:HA2	1:C:217:GLY:O	2.16	0.46
1:C:65:PRO:HB3	1:G:68:ALA:HA	1.97	0.46
1:D:104:LEU:O	1:D:108:ARG:HG3	2.16	0.46
1:E:159:PHE:HA	1:E:160:GLY:HA2	1.43	0.46
1:I:194:LYS:HG3	1:I:234:ALA:HB2	1.98	0.46
1:A:97:GLU:HG3	1:I:179:VAL:HG21	1.97	0.45
1:I:91:ARG:HA	1:I:93:PHE:N	2.32	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:52:SER:HB2	1:B:134:ALA:HB3	1.98	0.45
1:E:107:GLU:HA	1:E:110:ILE:HD12	1.98	0.45
1:D:72:SER:HB3	1:F:63:PHE:HB2	1.97	0.45
1:G:186:ILE:CG1	1:I:97:GLU:HG2	2.46	0.45
1:D:226:PRO:HB2	1:D:229:LEU:HB2	1.98	0.45
1:D:60:THR:OG1	1:D:145:TYR:N	2.48	0.45
1:B:226:PRO:O	1:B:229:LEU:N	2.49	0.45
1:C:249:ARG:HB3	1:C:250:GLY:C	2.37	0.45
1:C:83:LEU:HD11	1:C:138:VAL:HG11	1.98	0.45
1:E:50:PHE:HD1	1:E:94:ILE:HB	1.82	0.45
1:F:96:LEU:HD22	1:F:96:LEU:HA	1.65	0.45
1:I:148:ASN:HB3	1:I:151:SER:HB3	1.99	0.45
1:I:208:PHE:HD1	1:I:208:PHE:HA	1.67	0.45
1:G:101:LEU:O	1:G:101:LEU:HD23	2.17	0.45
1:I:167:TYR:HA	1:I:198:SER:O	2.17	0.45
1:I:232:MET:O	1:I:236:GLU:N	2.49	0.45
1:A:46:THR:CB	1:A:47:GLY:HA3	2.46	0.45
1:E:53:VAL:HG22	1:E:80:THR:HG22	1.98	0.45
1:E:51:VAL:HG11	1:E:87:LEU:HD13	1.99	0.45
1:F:82:MET:HE2	1:F:232:MET:HB2	1.99	0.45
1:A:159:PHE:HA	1:A:160:GLY:HA2	1.56	0.45
1:B:225:GLU:HA	1:B:226:PRO:HD3	1.78	0.45
1:D:76:PRO:HG2	1:D:228:MET:HA	1.98	0.45
1:F:94:ILE:O	1:F:96:LEU:HD23	2.17	0.45
1:I:177:ARG:HB3	1:I:189:SER:HB3	1.99	0.45
1:A:225:GLU:HA	1:A:226:PRO:HD3	1.64	0.44
1:B:88:LYS:HA	1:B:88:LYS:HD2	1.85	0.44
1:B:59:GLU:OE1	1:E:78:SER:HA	2.18	0.44
1:F:107:GLU:OE1	1:H:98:ARG:NH1	2.51	0.44
1:H:97:GLU:HB3	1:H:98:ARG:H	1.48	0.44
1:A:236:GLU:O	1:A:240:ILE:HG13	2.18	0.44
1:B:172:ILE:O	1:B:193:SER:HA	2.18	0.44
1:D:157:ARG:HA	1:D:162:GLY:HA2	1.99	0.44
1:E:172:ILE:HG13	1:E:196:ILE:HD11	1.99	0.44
1:C:184:GLY:HA3	1:G:131:LEU:HD11	1.99	0.44
1:D:72:SER:HB3	1:F:63:PHE:N	2.33	0.44
1:H:64:LYS:HG2	1:H:74:ALA:HA	2.00	0.44
1:C:147:SER:HA	1:C:149:VAL:HG23	1.99	0.44
1:E:208:PHE:HA	1:E:208:PHE:HD1	1.69	0.44
1:I:170:ASP:O	1:I:195:THR:HA	2.17	0.44
1:A:246:GLY:HA3	1:A:252:TRP:CZ3	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:142:ILE:HD11	1:C:231:LEU:HD11	1.99	0.44
1:F:109:LYS:HA	1:F:112:ARG:NH1	2.33	0.44
1:D:91:ARG:HA	1:D:92:TRP:C	2.37	0.44
1:E:137:MET:HB3	1:E:179:VAL:HG13	2.00	0.44
1:F:196:ILE:HG12	1:F:230:CYS:SG	2.57	0.44
1:G:66:TYR:CG	1:G:67:PRO:HA	2.53	0.44
1:A:76:PRO:HG2	1:A:228:MET:HA	2.00	0.43
1:B:145:TYR:HD1	1:B:172:ILE:HG12	1.82	0.43
1:G:104:LEU:O	1:G:108:ARG:HG3	2.18	0.43
1:G:159:PHE:HA	1:G:160:GLY:HA2	1.50	0.43
1:G:178:VAL:HG23	1:G:242:LEU:HD13	1.99	0.43
1:C:45:PRO:HG3	1:C:92:TRP:HZ2	1.83	0.43
1:E:250:GLY:O	1:E:252:TRP:CD1	2.71	0.43
1:C:133:ALA:CB	1:G:111:ILE:HG12	2.48	0.43
1:G:58:ASP:OD1	1:G:60:THR:HG22	2.18	0.43
1:A:98:ARG:NH2	1:B:110:ILE:HG21	2.34	0.43
1:E:194:LYS:HE3	1:E:234:ALA:HA	2.00	0.43
1:E:88:LYS:HA	1:E:88:LYS:HD2	1.69	0.43
1:F:106:ASN:HA	1:F:109:LYS:NZ	2.33	0.43
1:F:56:ILE:CG2	1:F:80:THR:HG23	2.48	0.43
1:G:157:ARG:HA	1:G:162:GLY:HA2	1.99	0.43
1:E:60:THR:HG23	1:E:62:GLN:N	2.24	0.43
1:D:157:ARG:HD3	1:C:216:GLU:OE1	2.19	0.43
1:E:105:LEU:HA	1:E:105:LEU:HD23	1.76	0.43
1:E:196:ILE:HD13	1:E:227:VAL:HG22	2.00	0.43
1:E:63:PHE:HB2	1:H:72:SER:HB3	2.00	0.43
1:F:137:MET:HE2	1:F:137:MET:HB2	1.87	0.43
1:H:157:ARG:HA	1:H:162:GLY:HA2	2.01	0.43
1:F:97:GLU:HG2	1:H:186:ILE:CG1	2.49	0.43
1:F:170:ASP:O	1:F:195:THR:HA	2.18	0.43
1:F:68:ALA:HA	1:H:65:PRO:HB3	2.01	0.43
1:B:151:SER:HB2	1:B:168:GLN:HA	2.01	0.43
1:D:96:LEU:HD12	1:D:98:ARG:CZ	2.49	0.43
1:G:105:LEU:HA	1:G:105:LEU:HD23	1.76	0.43
1:G:175:ASN:HD21	1:I:85:THR:HG21	1.84	0.43
1:I:157:ARG:HA	1:I:162:GLY:HA2	1.99	0.43
1:B:60:THR:O	1:B:62:GLN:NE2	2.51	0.43
1:C:196:ILE:HD13	1:C:227:VAL:HA	2.01	0.43
1:C:244:ASN:HA	1:C:247:ILE:HG13	2.00	0.43
1:E:49:ILE:HD13	1:E:252:TRP:CE3	2.54	0.43
1:E:98:ARG:HH12	1:H:107:GLU:CD	2.21	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:105:LEU:HA	1:H:105:LEU:HD23	1.77	0.43
1:A:176:LEU:HD12	1:A:176:LEU:HA	1.77	0.42
1:E:50:PHE:CD1	1:E:94:ILE:HB	2.54	0.42
1:F:245:ASP:N	1:F:245:ASP:OD1	2.52	0.42
1:I:231:LEU:O	1:I:235:ILE:N	2.43	0.42
1:B:99:GLN:HB3	1:B:100:GLY:HA3	2.01	0.42
1:C:53:VAL:HG22	1:C:80:THR:HG22	2.00	0.42
1:G:51:VAL:HG11	1:G:87:LEU:HD13	2.01	0.42
1:D:189:SER:OG	1:C:85:THR:HG22	2.19	0.42
1:E:178:VAL:HG23	1:E:242:LEU:HD13	2.00	0.42
1:B:137:MET:HE1	1:E:104:LEU:HA	2.00	0.42
1:B:159:PHE:HA	1:B:160:GLY:HA2	1.48	0.42
1:C:226:PRO:O	1:C:229:LEU:N	2.44	0.42
1:F:148:ASN:HB3	1:F:151:SER:HB3	2.01	0.42
1:G:177:ARG:HG2	1:G:189:SER:CB	2.49	0.42
1:H:169:LEU:HA	1:H:196:ILE:O	2.19	0.42
1:A:157:ARG:HA	1:A:162:GLY:HA2	2.01	0.42
1:A:97:GLU:HB3	1:A:98:ARG:H	1.53	0.42
1:D:69:SER:O	1:D:72:SER:OG	2.37	0.42
1:E:42:LEU:HA	1:E:43:PRO:HD3	1.83	0.42
1:F:130:SER:OG	1:F:131:LEU:N	2.53	0.42
1:A:75:VAL:HA	1:A:76:PRO:HD3	1.97	0.42
1:B:137:MET:HE2	1:B:137:MET:HB2	1.87	0.42
1:C:179:VAL:HB	1:C:186:ILE:HG12	2.01	0.42
1:F:140:GLY:HA3	1:F:175:ASN:O	2.19	0.42
1:H:246:GLY:O	1:H:250:GLY:HA2	2.19	0.42
1:A:186:ILE:HG12	1:B:97:GLU:HG2	2.01	0.42
1:A:52:SER:HB2	1:A:98:ARG:HH11	1.85	0.42
1:C:146:GLU:OE1	1:G:228:MET:HE1	2.19	0.42
1:C:172:ILE:O	1:C:193:SER:HA	2.20	0.42
1:E:106:ASN:O	1:E:110:ILE:HG13	2.20	0.42
1:E:172:ILE:O	1:E:193:SER:HA	2.19	0.42
1:F:91:ARG:HA	1:F:93:PHE:N	2.35	0.42
1:G:137:MET:HE3	1:G:181:VAL:HG22	2.00	0.42
1:G:52:SER:OG	1:G:98:ARG:NH1	2.46	0.42
1:I:225:GLU:HA	1:I:226:PRO:HD3	1.58	0.42
1:A:138:VAL:HA	1:A:177:ARG:O	2.20	0.42
1:A:250:GLY:C	1:A:252:TRP:H	2.23	0.42
1:D:157:ARG:HH22	1:D:206:PHE:HB2	1.85	0.42
1:D:73:THR:HG21	1:D:77:GLN:NE2	2.34	0.42
1:H:58:ASP:HB3	1:H:77:GLN:NE2	2.35	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:56:ILE:HG13	1:I:141:SER:HA	2.02	0.42
1:B:157:ARG:HA	1:B:162:GLY:HA2	2.02	0.42
1:B:175:ASN:HA	1:B:190:VAL:O	2.19	0.42
1:G:105:LEU:O	1:G:109:LYS:HG3	2.20	0.42
1:H:250:GLY:C	1:H:252:TRP:H	2.24	0.42
1:C:60:THR:HG23	1:C:62:GLN:H	1.85	0.42
1:E:194:LYS:HG2	1:E:234:ALA:HB2	2.02	0.42
1:F:76:PRO:HG2	1:F:228:MET:HA	2.01	0.42
1:F:51:VAL:HG22	1:F:53:VAL:HG12	2.02	0.42
1:A:52:SER:O	1:A:137:MET:HG3	2.19	0.41
1:E:46:THR:OG1	1:E:252:TRP:O	2.27	0.41
1:F:248:ASP:OD1	1:F:248:ASP:N	2.52	0.41
1:H:105:LEU:O	1:H:109:LYS:HG3	2.20	0.41
1:H:232:MET:O	1:H:235:ILE:HG22	2.19	0.41
1:I:204:GLY:HA2	1:I:217:GLY:O	2.20	0.41
1:C:159:PHE:HA	1:C:160:GLY:HA2	1.54	0.41
1:C:60:THR:HG23	1:C:62:GLN:N	2.34	0.41
1:D:96:LEU:HA	1:D:96:LEU:HD22	1.67	0.41
1:E:157:ARG:HA	1:E:162:GLY:HA2	2.02	0.41
1:A:171:GLN:HG2	1:A:195:THR:HG22	2.02	0.41
1:A:172:ILE:CG1	1:A:196:ILE:HD11	2.49	0.41
1:C:107:GLU:O	1:C:111:ILE:HG13	2.20	0.41
1:E:83:LEU:O	1:E:87:LEU:HG	2.20	0.41
1:I:58:ASP:OD1	1:I:60:THR:HG22	2.21	0.41
1:A:244:ASN:O	1:A:247:ILE:HB	2.21	0.41
1:E:179:VAL:HG21	1:H:97:GLU:HG3	2.02	0.41
1:F:157:ARG:HH22	1:F:206:PHE:HD2	1.67	0.41
1:D:178:VAL:HG23	1:D:242:LEU:HD22	2.03	0.41
1:E:174:VAL:HG12	1:E:176:LEU:HD13	2.02	0.41
1:H:178:VAL:HG12	1:H:187:LEU:HB2	2.03	0.41
1:H:215:LEU:HD23	1:H:216:GLU:N	2.36	0.41
1:A:176:LEU:HB3	1:A:242:LEU:HD11	2.02	0.41
1:B:178:VAL:HG23	1:B:242:LEU:HD13	2.02	0.41
1:B:94:ILE:HA	1:B:94:ILE:HD13	1.89	0.41
1:D:97:GLU:HB3	1:D:98:ARG:H	1.56	0.41
1:H:98:ARG:HG3	1:H:101:LEU:HD12	2.03	0.41
1:I:243:ILE:O	1:I:247:ILE:HG13	2.20	0.41
1:I:249:ARG:N	1:I:250:GLY:HA2	2.36	0.41
1:A:154:VAL:HG12	1:B:219:VAL:HG12	2.01	0.41
1:D:175:ASN:HA	1:D:190:VAL:O	2.20	0.41
1:F:91:ARG:HA	1:F:92:TRP:C	2.41	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:172:ILE:O	1:I:193:SER:HA	2.21	0.41
1:A:246:GLY:HA3	1:A:252:TRP:CH2	2.56	0.41
1:A:77:GLN:HB2	1:I:59:GLU:O	2.21	0.41
1:C:180:ASN:HB2	1:C:187:LEU:HD11	2.02	0.41
1:C:230:CYS:O	1:C:234:ALA:N	2.40	0.41
1:C:249:ARG:HB3	1:C:250:GLY:O	2.20	0.41
1:E:98:ARG:HD2	1:E:98:ARG:N	2.36	0.41
1:D:132:THR:HG23	1:F:183:THR:HB	2.02	0.41
1:G:88:LYS:HD3	1:G:95:PRO:HD2	2.03	0.41
1:I:50:PHE:HD1	1:I:50:PHE:HA	1.74	0.41
1:E:58:ASP:OD1	1:E:60:THR:HG22	2.20	0.41
1:F:199:TYR:CE1	1:F:223:SER:HB3	2.56	0.41
1:G:107:GLU:O	1:G:111:ILE:HG13	2.21	0.41
1:E:184:GLY:HA3	1:H:131:LEU:HD11	2.01	0.41
1:H:249:ARG:HB3	1:H:250:GLY:C	2.40	0.41
1:I:169:LEU:HA	1:I:196:ILE:O	2.20	0.41
1:D:111:ILE:HG12	1:F:133:ALA:CB	2.50	0.41
1:E:186:ILE:HD12	1:H:95:PRO:HB2	2.02	0.41
1:F:110:ILE:HG21	1:H:98:ARG:HH22	1.85	0.41
1:F:147:SER:HA	1:F:149:VAL:HG23	2.02	0.41
1:H:208:PHE:HD1	1:H:208:PHE:HA	1.68	0.41
1:G:186:ILE:HG12	1:I:97:GLU:HG2	2.03	0.41
1:A:245:ASP:O	1:A:249:ARG:HB2	2.21	0.41
1:C:252:TRP:N	1:C:252:TRP:CD1	2.89	0.41
1:D:51:VAL:HG11	1:D:87:LEU:HD13	2.01	0.41
1:I:93:PHE:HD1	1:I:93:PHE:HA	1.80	0.41
1:A:78:SER:HB2	1:A:82:MET:HG3	2.01	0.40
1:C:138:VAL:HA	1:C:177:ARG:O	2.21	0.40
1:G:98:ARG:HA	1:G:101:LEU:HB2	2.02	0.40
1:G:184:GLY:HA3	1:I:131:LEU:HD11	2.03	0.40
1:H:180:ASN:HB2	1:H:187:LEU:HD21	2.03	0.40
1:A:146:GLU:OE1	1:B:228:MET:HB3	2.21	0.40
1:C:96:LEU:O	1:C:98:ARG:HD2	2.21	0.40
1:F:75:VAL:HA	1:F:76:PRO:HD3	1.96	0.40
1:G:226:PRO:HG2	1:G:229:LEU:HD12	2.02	0.40
1:H:60:THR:HG23	1:H:62:GLN:N	2.34	0.40
1:A:172:ILE:CD1	1:A:196:ILE:HD11	2.51	0.40
1:B:91:ARG:HA	1:B:92:TRP:C	2.41	0.40
1:F:149:VAL:HG11	1:F:171:GLN:HE21	1.86	0.40
1:G:53:VAL:HG21	1:G:83:LEU:HD12	2.03	0.40
1:A:235:ILE:O	1:A:239:VAL:HG23	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:85:THR:HG22	1:F:189:SER:OG	2.21	0.40
1:E:91:ARG:HA	1:E:92:TRP:C	2.42	0.40
1:G:180:ASN:OD1	1:G:183:THR:N	2.44	0.40
1:I:78:SER:O	1:I:81:ALA:HB3	2.21	0.40
1:A:190:VAL:HG12	1:A:192:THR:HG23	2.03	0.40
1:A:242:LEU:HA	1:A:242:LEU:HD23	1.84	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	190/277 (69%)	177 (93%)	12 (6%)	1 (0%)	29 64
1	B	184/277 (66%)	175 (95%)	8 (4%)	1 (0%)	29 64
1	C	192/277 (69%)	176 (92%)	15 (8%)	1 (0%)	29 64
1	D	183/277 (66%)	173 (94%)	9 (5%)	1 (0%)	29 64
1	E	192/277 (69%)	174 (91%)	17 (9%)	1 (0%)	29 64
1	F	183/277 (66%)	174 (95%)	8 (4%)	1 (0%)	29 64
1	G	184/277 (66%)	174 (95%)	9 (5%)	1 (0%)	29 64
1	H	185/277 (67%)	174 (94%)	10 (5%)	1 (0%)	29 64
1	I	184/277 (66%)	176 (96%)	7 (4%)	1 (0%)	29 64
All	All	1677/2493 (67%)	1573 (94%)	95 (6%)	9 (0%)	29 64

All (9) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	149	VAL
1	A	149	VAL

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Mol	Chain	Res	Type
1	B	149	VAL
1	C	149	VAL
1	E	149	VAL
1	F	149	VAL
1	G	149	VAL
1	H	149	VAL
1	I	149	VAL

### 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	157/236 (66%)	135 (86%)	22 (14%)	3	15
1	B	153/236 (65%)	130 (85%)	23 (15%)	3	12
1	C	160/236 (68%)	139 (87%)	21 (13%)	4	17
1	D	153/236 (65%)	137 (90%)	16 (10%)	7	26
1	E	160/236 (68%)	138 (86%)	22 (14%)	3	16
1	F	153/236 (65%)	132 (86%)	21 (14%)	3	16
1	G	155/236 (66%)	135 (87%)	20 (13%)	4	18
1	H	154/236 (65%)	134 (87%)	20 (13%)	4	18
1	I	153/236 (65%)	129 (84%)	24 (16%)	2	11
All	All	1398/2124 (66%)	1209 (86%)	189 (14%)	4	16

All (189) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	D	51	VAL
1	D	62	GLN
1	D	78	SER
1	D	80	THR
1	D	92	TRP
1	D	96	LEU
1	D	105	LEU

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	D	139	GLU
1	D	141	SER
1	D	146	GLU
1	D	164	ASP
1	D	176	LEU
1	D	193	SER
1	D	198	SER
1	D	208	PHE
1	D	216	GLU
1	A	49	ILE
1	A	53	VAL
1	A	56	ILE
1	A	62	GLN
1	A	69	SER
1	A	75	VAL
1	A	78	SER
1	A	80	THR
1	A	96	LEU
1	A	101	LEU
1	A	105	LEU
1	A	132	THR
1	A	139	GLU
1	A	146	GLU
1	A	165	THR
1	A	176	LEU
1	A	179	VAL
1	A	193	SER
1	A	198	SER
1	A	208	PHE
1	A	248	ASP
1	A	251	LEU
1	B	53	VAL
1	B	56	ILE
1	B	62	GLN
1	B	69	SER
1	B	77	GLN
1	B	78	SER
1	B	80	THR
1	B	93	PHE
1	B	96	LEU
1	B	98	ARG
1	B	105	LEU

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	B	139	GLU
1	B	141	SER
1	B	165	THR
1	B	176	LEU
1	B	177	ARG
1	B	179	VAL
1	B	193	SER
1	B	198	SER
1	B	208	PHE
1	B	228	MET
1	B	244	ASN
1	B	251	LEU
1	C	41	HIS
1	C	42	LEU
1	C	56	ILE
1	C	62	GLN
1	C	69	SER
1	C	78	SER
1	C	80	THR
1	C	96	LEU
1	C	97	GLU
1	C	105	LEU
1	C	139	GLU
1	C	141	SER
1	C	151	SER
1	C	176	LEU
1	C	179	VAL
1	C	193	SER
1	C	198	SER
1	C	208	PHE
1	C	248	ASP
1	C	251	LEU
1	C	252	TRP
1	E	42	LEU
1	E	49	ILE
1	E	53	VAL
1	E	56	ILE
1	E	69	SER
1	E	96	LEU
1	E	97	GLU
1	E	105	LEU
1	E	131	LEU

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	E	136	ILE
1	E	139	GLU
1	E	143	ILE
1	E	146	GLU
1	E	151	SER
1	E	165	THR
1	E	179	VAL
1	E	208	PHE
1	E	216	GLU
1	E	230	CYS
1	E	237	THR
1	E	248	ASP
1	E	251	LEU
1	F	49	ILE
1	F	50	PHE
1	F	51	VAL
1	F	53	VAL
1	F	56	ILE
1	F	64	LYS
1	F	78	SER
1	F	80	THR
1	F	93	PHE
1	F	96	LEU
1	F	98	ARG
1	F	105	LEU
1	F	130	SER
1	F	136	ILE
1	F	139	GLU
1	F	146	GLU
1	F	151	SER
1	F	165	THR
1	F	193	SER
1	F	208	PHE
1	F	248	ASP
1	G	49	ILE
1	G	50	PHE
1	G	56	ILE
1	G	62	GLN
1	G	77	GLN
1	G	93	PHE
1	G	130	SER
1	G	131	LEU

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	G	136	ILE
1	G	139	GLU
1	G	146	GLU
1	G	151	SER
1	G	165	THR
1	G	179	VAL
1	G	198	SER
1	G	208	PHE
1	G	214	LEU
1	G	228	MET
1	G	248	ASP
1	G	251	LEU
1	H	49	ILE
1	H	53	VAL
1	H	56	ILE
1	H	62	GLN
1	H	77	GLN
1	H	80	THR
1	H	93	PHE
1	H	101	LEU
1	H	130	SER
1	H	139	GLU
1	H	146	GLU
1	H	151	SER
1	H	165	THR
1	H	176	LEU
1	H	179	VAL
1	H	208	PHE
1	H	230	CYS
1	H	237	THR
1	H	248	ASP
1	H	251	LEU
1	I	49	ILE
1	I	50	PHE
1	I	53	VAL
1	I	56	ILE
1	I	62	GLN
1	I	78	SER
1	I	80	THR
1	I	93	PHE
1	I	96	LEU
1	I	105	LEU

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Mol	Chain	Res	Type
1	I	130	SER
1	I	132	THR
1	I	136	ILE
1	I	139	GLU
1	I	146	GLU
1	I	151	SER
1	I	165	THR
1	I	176	LEU
1	I	177	ARG
1	I	179	VAL
1	I	208	PHE
1	I	230	CYS
1	I	248	ASP
1	I	251	LEU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	D	102	GLN
1	E	57	GLN
1	F	102	GLN
1	F	135	ASN
1	F	175	ASN
1	F	191	ASN
1	I	102	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

Of 9 ligands modelled in this entry, 9 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

## 5.7 Other polymers

There are no such residues in this entry.

## 5.8 Polymer linkage issues

There are no chain breaks in this entry.

## 6 Fit of model and data

### 6.1 Protein, DNA and RNA chains

Unable to reproduce the depositors R factor - this section is therefore empty.

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

Unable to reproduce the depositors R factor - this section is therefore empty.

### 6.3 Carbohydrates

Unable to reproduce the depositors R factor - this section is therefore empty.

### 6.4 Ligands

Unable to reproduce the depositors R factor - this section is therefore empty.

### 6.5 Other polymers

Unable to reproduce the depositors R factor - this section is therefore empty.