



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 13, 2026 – 10:20 PM UTC

PDB ID : 3TCF / pdb_00003tcf
Title : Crystal structure of E. coli OppA complexed with endogenous ligands
Authors : Klepsch, M.M.; Kovermann, M.; Low, C.; Balbach, J.; de Gier, J.W.; Slotboom, D.J.; Berntsson, R.P.-A.
Deposited on : 2011-08-09
Resolution : 2.00 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity	:	4-5-2 with Phenix2.0
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

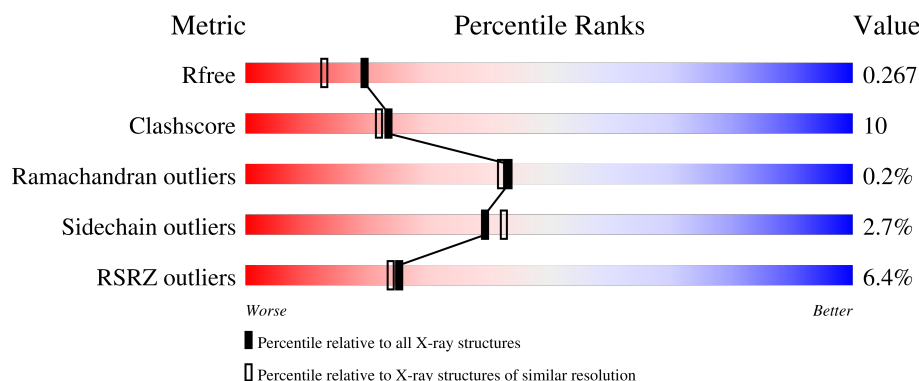
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.00 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.





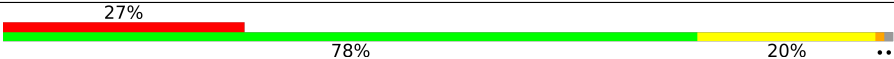




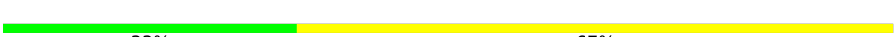


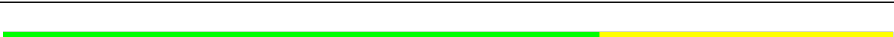
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	10052 (2.00-2.00)
Clashscore	190562	11152 (2.00-2.00)
Ramachandran outliers	187476	11031 (2.00-2.00)
Sidechain outliers	187428	11029 (2.00-2.00)
RSRZ outliers	180081	10067 (2.00-2.00)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	524	<div> <div>%</div> <div>78% 19% ..</div> </div>
1	B	524	<div> <div>5%</div> <div>85% 13% .</div> </div>
1	C	524	<div> <div>3%</div> <div>86% 12% ..</div> </div>
1	D	524	<div> <div>2%</div> <div>85% 12% ..</div> </div>
1	E	524	<div> <div>%</div> <div>85% 13% ..</div> </div>

Continued on next page...

Continued from previous page...

Mol	Chain	Length	Quality of chain
1	F	524	 3% 81% 17% ..
1	G	524	 7% 78% 19% ..
1	H	524	 27% 78% 20% ..
2	I	3	 67% 33%
2	J	3	 67% 33%
2	K	3	 67% 33%
2	L	3	 67% 33%
2	M	3	 33% 67%
2	N	3	 67% 33%
2	O	3	 100%
2	P	3	 67% 33%

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 35615 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 Periplasmic oligopeptide-binding protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	517	Total	C	N	O	S	0	2	0
			4137	2636	695	796	10			
1	B	517	Total	C	N	O	S	0	2	0
			4136	2636	694	796	10			
1	C	517	Total	C	N	O	S	0	1	0
			4129	2632	693	794	10			
1	D	517	Total	C	N	O	S	0	1	0
			4129	2632	693	794	10			
1	E	517	Total	C	N	O	S	0	2	0
			4137	2636	694	797	10			
1	F	517	Total	C	N	O	S	0	4	0
			4155	2649	696	800	10			
1	G	517	Total	C	N	O	S	0	2	0
			4135	2635	694	796	10			
1	H	517	Total	C	N	O	S	0	1	0
			4129	2632	693	794	10			

There are 56 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	26	MET	-	expression tag	UNP P23843
A	544	HIS	-	expression tag	UNP P23843
A	545	HIS	-	expression tag	UNP P23843
A	546	HIS	-	expression tag	UNP P23843
A	547	HIS	-	expression tag	UNP P23843
A	548	HIS	-	expression tag	UNP P23843
A	549	HIS	-	expression tag	UNP P23843
B	26	MET	-	expression tag	UNP P23843
B	544	HIS	-	expression tag	UNP P23843
B	545	HIS	-	expression tag	UNP P23843
B	546	HIS	-	expression tag	UNP P23843
B	547	HIS	-	expression tag	UNP P23843
B	548	HIS	-	expression tag	UNP P23843

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
B	549	HIS	-	expression tag	UNP P23843
C	26	MET	-	expression tag	UNP P23843
C	544	HIS	-	expression tag	UNP P23843
C	545	HIS	-	expression tag	UNP P23843
C	546	HIS	-	expression tag	UNP P23843
C	547	HIS	-	expression tag	UNP P23843
C	548	HIS	-	expression tag	UNP P23843
C	549	HIS	-	expression tag	UNP P23843
D	26	MET	-	expression tag	UNP P23843
D	544	HIS	-	expression tag	UNP P23843
D	545	HIS	-	expression tag	UNP P23843
D	546	HIS	-	expression tag	UNP P23843
D	547	HIS	-	expression tag	UNP P23843
D	548	HIS	-	expression tag	UNP P23843
D	549	HIS	-	expression tag	UNP P23843
E	26	MET	-	expression tag	UNP P23843
E	544	HIS	-	expression tag	UNP P23843
E	545	HIS	-	expression tag	UNP P23843
E	546	HIS	-	expression tag	UNP P23843
E	547	HIS	-	expression tag	UNP P23843
E	548	HIS	-	expression tag	UNP P23843
E	549	HIS	-	expression tag	UNP P23843
F	26	MET	-	expression tag	UNP P23843
F	544	HIS	-	expression tag	UNP P23843
F	545	HIS	-	expression tag	UNP P23843
F	546	HIS	-	expression tag	UNP P23843
F	547	HIS	-	expression tag	UNP P23843
F	548	HIS	-	expression tag	UNP P23843
F	549	HIS	-	expression tag	UNP P23843
G	26	MET	-	expression tag	UNP P23843
G	544	HIS	-	expression tag	UNP P23843
G	545	HIS	-	expression tag	UNP P23843
G	546	HIS	-	expression tag	UNP P23843
G	547	HIS	-	expression tag	UNP P23843
G	548	HIS	-	expression tag	UNP P23843
G	549	HIS	-	expression tag	UNP P23843
H	26	MET	-	expression tag	UNP P23843
H	544	HIS	-	expression tag	UNP P23843
H	545	HIS	-	expression tag	UNP P23843
H	546	HIS	-	expression tag	UNP P23843
H	547	HIS	-	expression tag	UNP P23843
H	548	HIS	-	expression tag	UNP P23843

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
H	549	HIS	-	expression tag	UNP P23843

- Molecule 2 is a protein called Endogenous peptide.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
2	I	3	Total	C	N	O	0	0	0
			15	9	3	3			
2	J	3	Total	C	N	O	0	0	0
			15	9	3	3			
2	K	3	Total	C	N	O	0	0	0
			15	9	3	3			
2	L	3	Total	C	N	O	0	0	0
			15	9	3	3			
2	M	3	Total	C	N	O	0	0	0
			15	9	3	3			
2	N	3	Total	C	N	O	0	0	0
			15	9	3	3			
2	O	3	Total	C	N	O	0	0	0
			15	9	3	3			
2	P	3	Total	C	N	O	0	0	0
			15	9	3	3			

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	360	Total	O	0	0
			360	360		
3	B	268	Total	O	0	0
			268	268		
3	C	285	Total	O	0	0
			285	285		
3	D	265	Total	O	0	0
			265	265		
3	E	351	Total	O	0	0
			351	351		
3	F	344	Total	O	0	0
			344	344		
3	G	305	Total	O	0	0
			305	305		
3	H	221	Total	O	0	0
			221	221		
3	I	2	Total	O	0	0
			2	2		

Continued on next page...

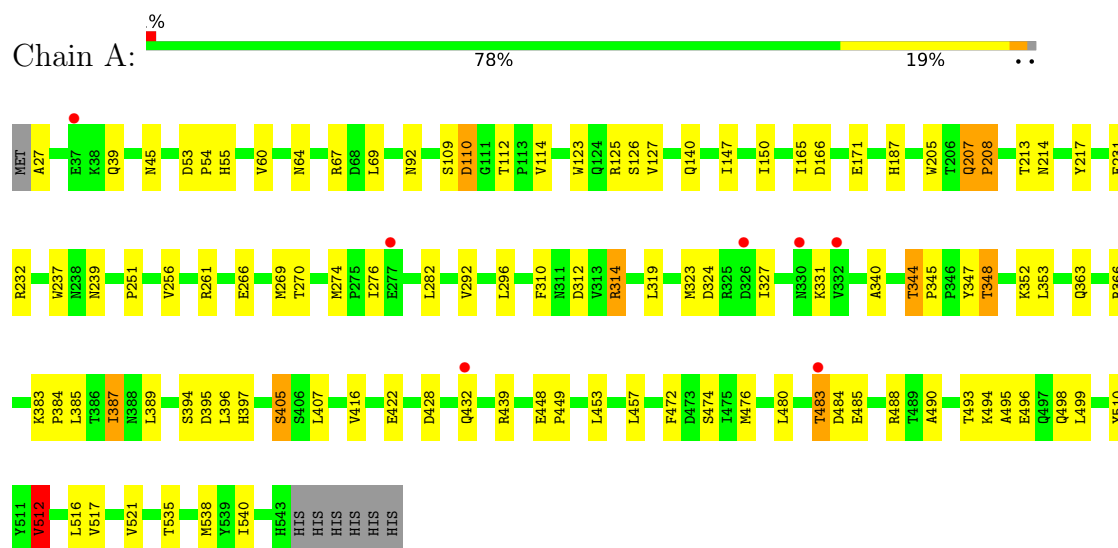
Continued from previous page...

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	J	2	Total	O	0	0
			2	2		
3	K	1	Total	O	0	0
			1	1		
3	M	2	Total	O	0	0
			2	2		
3	P	2	Total	O	0	0
			2	2		

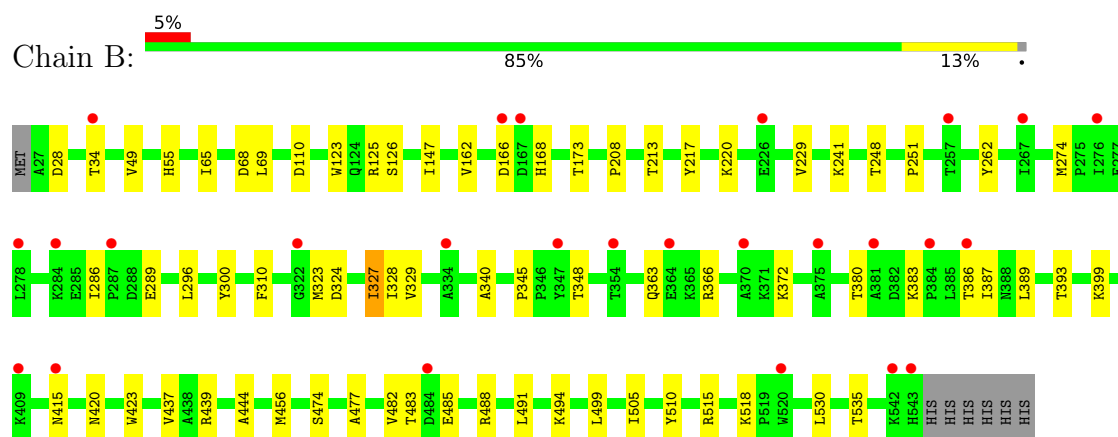
3 Residue-property plots [i](#)

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

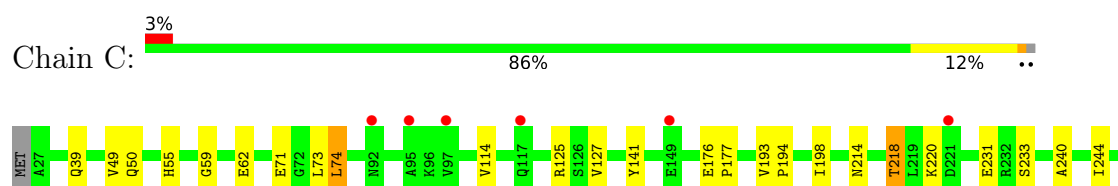
- Molecule 1: Periplasmic oligopeptide-binding protein

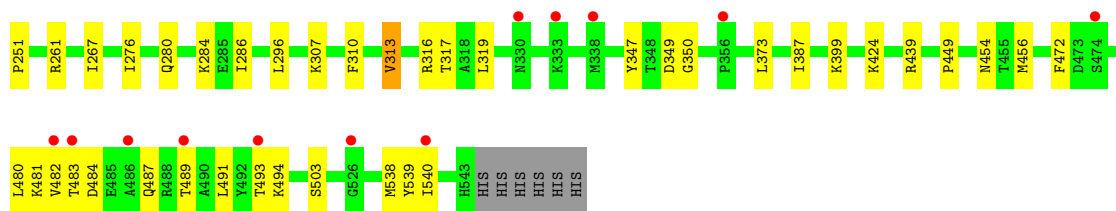


- Molecule 1: Periplasmic oligopeptide-binding protein

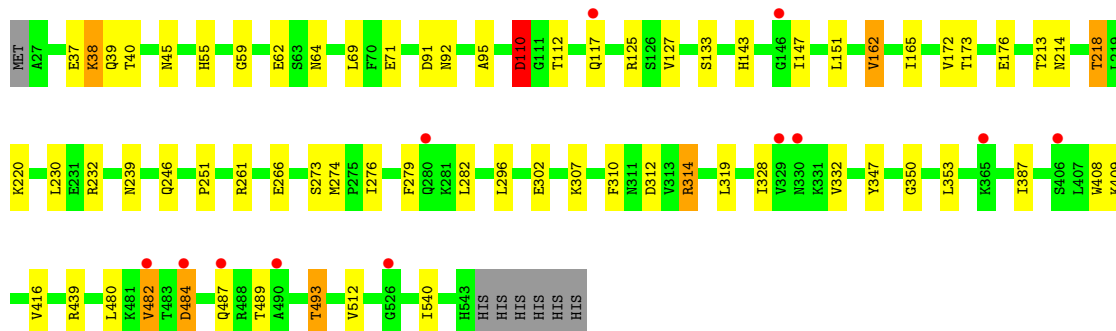
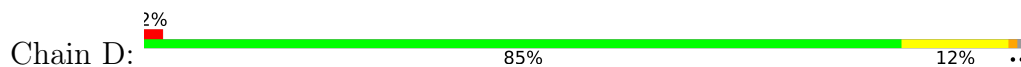


- Molecule 1: Periplasmic oligopeptide-binding protein

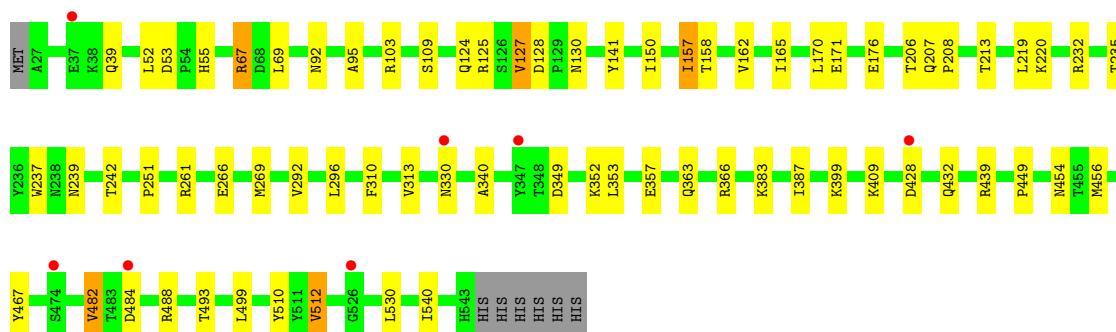
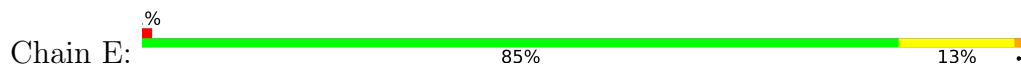




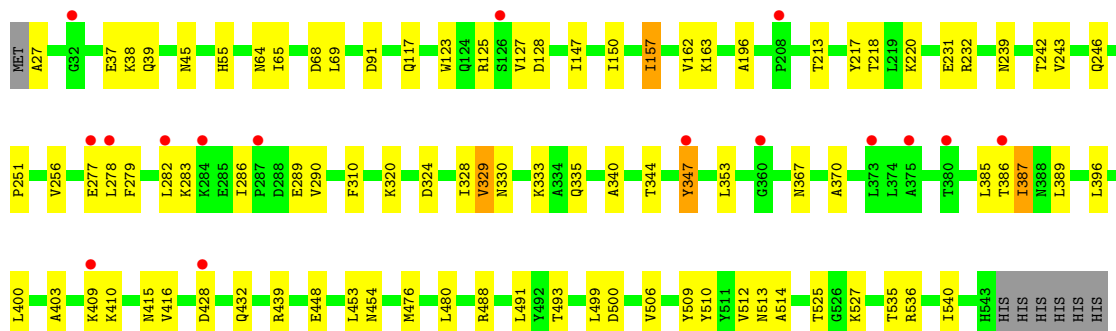
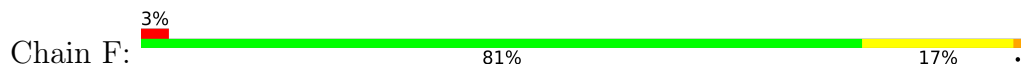
● Molecule 1: Periplasmic oligopeptide-binding protein



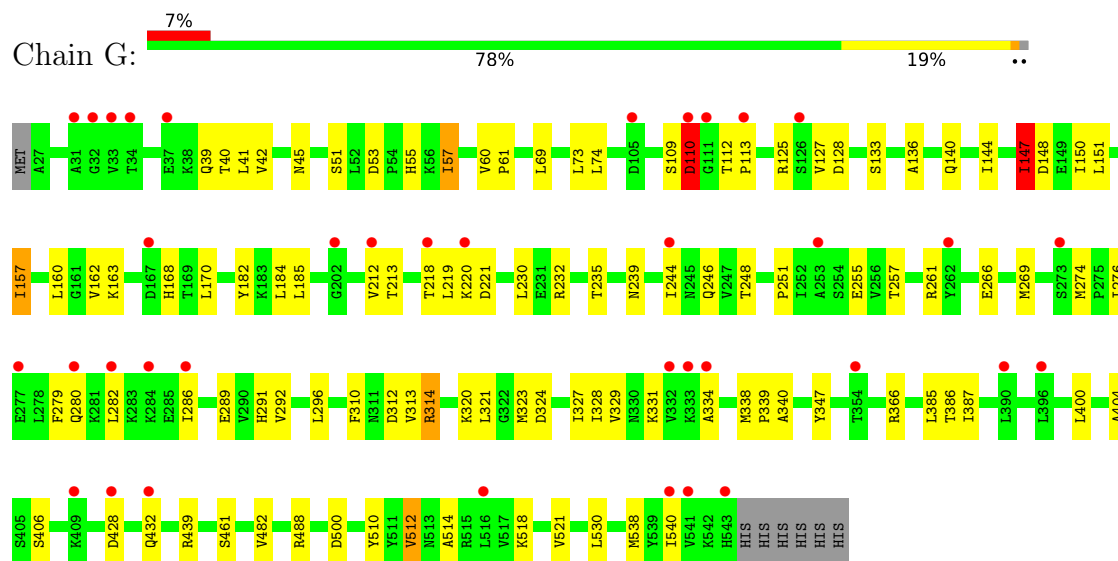
● Molecule 1: Periplasmic oligopeptide-binding protein



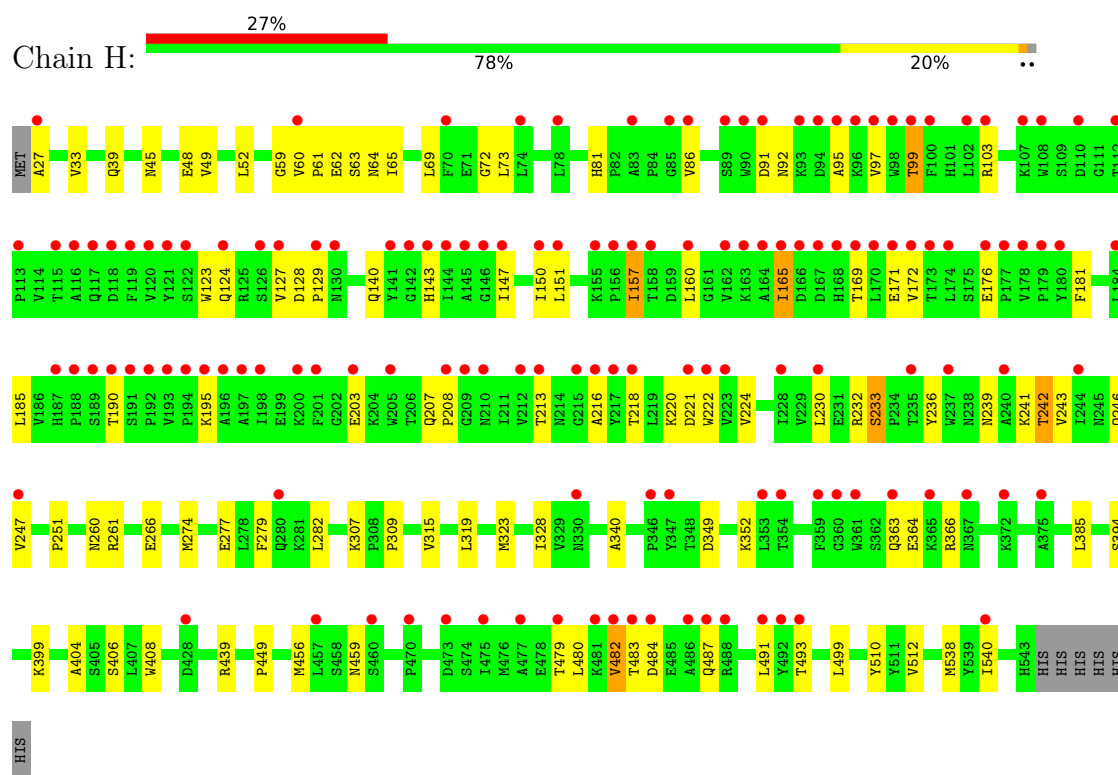
● Molecule 1: Periplasmic oligopeptide-binding protein



- Molecule 1: Periplasmic oligopeptide-binding protein



- Molecule 1: Periplasmic oligopeptide-binding protein



- Molecule 2: Endogenous peptide



- Molecule 2: Endogenous peptide

Chain J:  67% 33%

 X1 X2 X3

- Molecule 2: Endogenous peptide

Chain K:  67% 33%

 X1 X2 X3

- Molecule 2: Endogenous peptide

Chain L:  67% 33%

 X1 X2 X3

- Molecule 2: Endogenous peptide

Chain M:  33% 67%

 X1 X2 X3

- Molecule 2: Endogenous peptide

Chain N:  67% 33%

 X1 X2 X3

- Molecule 2: Endogenous peptide

Chain O:  100%

There are no outlier residues recorded for this chain.

- Molecule 2: Endogenous peptide

Chain P:  67% 33%

 X1 X2 X3

4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	62.62Å 202.60Å 208.95Å 90.00° 95.71° 90.00°	Depositor
Resolution (Å)	48.37 – 2.00 48.37 – 2.00	Depositor EDS
% Data completeness (in resolution range)	98.9 (48.37-2.00) 99.2 (48.37-2.00)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.98 (at 2.00Å)	Xtriage
Refinement program	REFMAC	Depositor
R, R_{free}	0.229 , 0.267 0.230 , 0.267	Depositor DCC
R_{free} test set	17271 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å ²)	25.7	Xtriage
Anisotropy	0.225	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.38 , 47.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.45$, $\langle L^2 \rangle = 0.28$	Xtriage
Estimated twinning fraction	0.033 for h,-k,-h-l	Xtriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	35615	wwPDB-VP
Average B, all atoms (Å ²)	29.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 33.69 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 7.6804e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

¹Intensities estimated from amplitudes.

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

5 Model quality

5.1 Standard geometry

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.98	2/4245 (0.0%)	0.98	8/5790 (0.1%)
1	B	0.85	0/4244	0.84	4/5789 (0.1%)
1	C	0.85	0/4237	0.83	0/5779
1	D	0.82	0/4237	0.86	2/5779 (0.0%)
1	E	0.87	0/4245	0.86	1/5790 (0.0%)
1	F	0.90	0/4264	0.87	4/5817 (0.1%)
1	G	0.86	0/4243	0.88	3/5788 (0.1%)
1	H	0.83	0/4237	0.83	2/5779 (0.0%)
All	All	0.87	2/33952 (0.0%)	0.87	24/46311 (0.1%)

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	B	0	1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	397	HIS	CG-CD2	5.62	1.42	1.35
1	A	60	VAL	CA-CB	5.48	1.57	1.54

All (24) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	110	ASP	N-CA-C	7.22	120.20	111.82
1	A	110	ASP	N-CA-C	7.14	121.09	112.38
1	H	207	GLN	CA-C-N	6.29	127.71	119.84
1	H	207	GLN	C-N-CA	6.29	127.71	119.84
1	B	110	ASP	N-CA-C	6.22	119.71	111.75
1	G	147	ILE	N-CA-CB	6.20	118.21	110.47

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	512	VAL	N-CA-C	-6.04	99.03	108.81
1	G	110	ASP	N-CA-C	6.00	119.42	111.75
1	A	383	LYS	CA-C-N	5.94	125.85	119.85
1	A	383	LYS	C-N-CA	5.94	125.85	119.85
1	E	67	ARG	NE-CZ-NH2	-5.94	113.86	119.20
1	G	147	ILE	CB-CA-C	-5.69	104.59	112.04
1	F	448	GLU	CA-C-N	-5.65	113.85	119.56
1	F	448	GLU	C-N-CA	-5.65	113.85	119.56
1	A	187	HIS	CA-C-N	5.51	125.86	119.47
1	A	187	HIS	C-N-CA	5.51	125.86	119.47
1	B	482	VAL	CB-CA-C	-5.37	105.44	111.45
1	B	147	ILE	N-CA-C	5.11	116.45	110.62
1	D	147	ILE	N-CA-C	5.08	115.80	110.62
1	A	109	SER	CA-C-N	5.07	128.72	120.60
1	A	109	SER	C-N-CA	5.07	128.72	120.60
1	B	423	TRP	N-CA-C	5.06	116.48	111.07
1	F	499	LEU	N-CA-C	-5.04	105.78	111.28
1	F	147	ILE	N-CA-C	5.02	115.74	110.62

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	483	THR	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	4137	0	4046	101	0
1	B	4136	0	4047	59	0
1	C	4129	0	4041	74	0
1	D	4129	0	4041	55	0
1	E	4137	0	4044	69	0
1	F	4155	0	4061	88	0
1	G	4135	0	4046	112	0
1	H	4129	0	4041	102	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	I	15	0	5	2	0
2	J	15	0	5	1	0
2	K	15	0	5	1	0
2	L	15	0	5	1	0
2	M	15	0	5	2	0
2	N	15	0	5	1	0
2	O	15	0	5	0	0
2	P	15	0	5	1	0
3	A	360	0	0	37	0
3	B	268	0	0	12	0
3	C	285	0	0	26	0
3	D	265	0	0	9	0
3	E	351	0	0	20	0
3	F	344	0	0	36	0
3	G	305	0	0	33	0
3	H	221	0	0	41	0
3	I	2	0	0	1	0
3	J	2	0	0	0	0
3	K	1	0	0	0	0
3	M	2	0	0	0	0
3	P	2	0	0	1	0
All	All	35615	0	32407	667	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 10.

All (667) 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:H:147:ILE:HG21	3:H:3221:HOH:O	1.16	1.33
1:E:158:THR:HG23	3:E:3234:HOH:O	1.21	1.30
1:G:184:LEU:HD22	3:G:3263:HOH:O	1.27	1.29
1:A:457:LEU:HD13	3:A:3253:HOH:O	1.11	1.27
1:F:65:ILE:HG22	3:F:3274:HOH:O	1.26	1.26
1:G:269:MET:HE1	1:G:538:MET:CE	1.64	1.26
1:F:403:ALA:HB3	3:F:2122:HOH:O	1.05	1.23
1:H:538:MET:HE2	3:H:3292:HOH:O	1.38	1.21
1:C:193:VAL:CG1	1:C:198:ILE:HD11	1.70	1.21
1:G:185:LEU:HD12	3:G:3189:HOH:O	1.38	1.20
1:A:323:MET:SD	3:A:3197:HOH:O	1.95	1.19
1:C:218:THR:HB	3:C:3250:HOH:O	1.39	1.18

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:472:PHE:CE2	3:C:3252:HOH:O	1.97	1.17
1:H:385:LEU:HD12	3:H:3237:HOH:O	1.44	1.16
1:H:185:LEU:HD23	3:H:2390:HOH:O	1.47	1.14
3:E:3220:HOH:O	2:M:3:UNK:C	1.93	1.12
1:G:269:MET:CE	1:G:538:MET:HE3	1.79	1.10
1:G:127:VAL:HG22	3:G:3275:HOH:O	1.49	1.08
1:E:232:ARG:HD3	1:E:239:ASN:HD21	1.18	1.07
1:B:173:THR:HG23	3:B:1116:HOH:O	1.53	1.05
1:B:535:THR:HG22	3:B:1831:HOH:O	1.57	1.05
1:C:319:LEU:HD12	3:C:2520:HOH:O	1.56	1.05
1:A:274:MET:SD	3:A:3172:HOH:O	2.13	1.04
1:G:269:MET:HE2	1:G:521:VAL:HG11	1.42	1.02
1:E:206:THR:HG21	3:E:3239:HOH:O	1.62	1.00
1:B:393:THR:HG22	1:B:420:ASN:HD22	1.27	1.00
1:C:193:VAL:HG11	1:C:198:ILE:HD11	1.39	0.98
1:D:220:LYS:NZ	1:D:246:GLN:NE2	2.12	0.98
1:B:323:MET:SD	3:B:3160:HOH:O	2.22	0.97
1:A:476:MET:HE2	1:A:495:ALA:HB1	1.44	0.97
1:F:353:LEU:HD11	3:F:3264:HOH:O	1.62	0.97
1:A:428:ASP:OD2	1:A:432:GLN:NE2	1.98	0.96
1:B:477:ALA:HB1	3:B:3251:HOH:O	1.65	0.96
1:G:151:LEU:HD21	3:G:3275:HOH:O	1.64	0.95
1:H:456:MET:HE2	1:H:499:LEU:HD11	1.49	0.95
1:H:242:THR:HG22	3:H:561:HOH:O	1.66	0.94
1:H:160:LEU:HD21	3:H:3244:HOH:O	1.67	0.94
1:F:428:ASP:OD2	1:F:432:GLN:NE2	2.00	0.94
1:D:220:LYS:HZ1	1:D:246:GLN:NE2	1.64	0.94
1:B:386:THR:HG22	1:B:415:ASN:HB2	1.49	0.94
1:E:232:ARG:HD3	1:E:239:ASN:ND2	1.82	0.93
1:A:319:LEU:HD23	3:A:3257:HOH:O	1.68	0.93
1:B:456:MET:HE3	1:B:499:LEU:HD11	1.50	0.93
1:F:476:MET:HE2	3:F:3223:HOH:O	1.65	0.93
1:F:387:ILE:CG2	3:F:3261:HOH:O	2.16	0.93
1:H:456:MET:CE	1:H:499:LEU:HD11	2.00	0.92
1:G:324:ASP:O	1:G:328:ILE:HD12	1.70	0.92
1:C:193:VAL:CG1	1:C:198:ILE:CD1	2.47	0.92
1:G:269:MET:HE1	1:G:538:MET:HE3	0.92	0.92
1:G:220:LYS:NZ	1:G:246:GLN:NE2	2.18	0.92
1:D:220:LYS:NZ	1:D:246:GLN:HE21	1.67	0.92
3:A:3286:HOH:O	2:I:1:UNK:CB	2.18	0.90
1:E:456:MET:HE2	1:E:499:LEU:HD11	1.51	0.90

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:220:LYS:HZ1	1:G:246:GLN:HE21	1.16	0.90
1:D:220:LYS:HZ3	1:D:246:GLN:HE21	1.15	0.90
1:E:232:ARG:CD	1:E:239:ASN:HD21	1.84	0.89
1:H:315:VAL:HG21	3:H:3206:HOH:O	1.71	0.89
1:H:160:LEU:CD2	3:H:3244:HOH:O	2.20	0.89
1:C:456:MET:HB2	3:C:3252:HOH:O	1.73	0.89
1:E:428:ASP:OD2	1:E:432:GLN:NE2	2.05	0.88
1:A:453:LEU:HD13	1:A:476:MET:HE1	1.53	0.88
1:E:39:GLN:HE22	1:E:540:ILE:H	1.18	0.88
1:F:387:ILE:HG22	3:F:3261:HOH:O	1.68	0.88
1:D:540:ILE:HG12	3:D:3217:HOH:O	1.74	0.88
1:G:41:LEU:HD11	1:G:269:MET:HE3	1.56	0.88
1:F:400:LEU:HD23	3:F:3267:HOH:O	1.74	0.87
1:D:127:VAL:HG13	1:D:151:LEU:CD2	2.05	0.86
1:C:276:ILE:HD12	1:C:399:LYS:HD3	1.58	0.86
1:H:406:SER:HB2	3:H:2605:HOH:O	1.76	0.86
1:C:319:LEU:HB2	3:C:2520:HOH:O	1.75	0.85
1:A:453:LEU:HB3	1:A:476:MET:HE3	1.56	0.85
1:D:39:GLN:HE22	1:D:540:ILE:H	1.23	0.85
2:I:1:UNK:CB	3:I:3280:HOH:O	2.25	0.85
1:A:282:LEU:HD12	3:A:2233:HOH:O	1.74	0.85
3:C:3176:HOH:O	2:K:1:UNK:CB	2.25	0.85
1:G:220:LYS:NZ	1:G:246:GLN:HE21	1.72	0.85
1:A:493:THR:HG23	3:A:666:HOH:O	1.77	0.85
1:B:380:THR:HG22	3:B:3213:HOH:O	1.77	0.85
1:G:274:MET:SD	3:G:3205:HOH:O	2.35	0.85
1:G:140:GLN:HG3	1:G:147:ILE:HD13	1.59	0.84
1:G:40:THR:O	1:G:540:ILE:HD11	1.77	0.84
1:D:143:HIS:CD2	1:D:480:LEU:HD11	2.11	0.84
1:B:323:MET:HE1	1:B:328:ILE:CD1	2.07	0.84
1:F:344:THR:HG22	3:F:3264:HOH:O	1.76	0.84
1:A:39:GLN:HE22	1:A:540:ILE:H	1.23	0.84
1:C:456:MET:C	3:C:3252:HOH:O	2.22	0.83
1:G:269:MET:CE	1:G:538:MET:CE	2.47	0.83
1:G:220:LYS:HZ2	1:G:246:GLN:NE2	1.77	0.83
1:G:182:TYR:HA	3:G:3189:HOH:O	1.78	0.82
1:G:57:ILE:HG23	3:G:2129:HOH:O	1.79	0.82
1:G:39:GLN:HE22	1:G:540:ILE:H	1.26	0.81
1:H:213:THR:OG1	1:H:218:THR:HG22	1.80	0.81
1:F:535[A]:THR:HG22	3:F:1234:HOH:O	1.80	0.81
1:A:476:MET:HE2	1:A:495:ALA:CB	2.11	0.81

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:220:LYS:HZ1	1:H:246:GLN:NE2	1.78	0.81
1:E:493:THR:HG23	3:E:949:HOH:O	1.81	0.81
1:H:140:GLN:HA	3:H:3221:HOH:O	1.81	0.80
1:F:220:LYS:HZ3	1:F:246:GLN:HE21	1.26	0.80
1:F:213:THR:OG1	1:F:218:THR:HG22	1.82	0.80
1:C:317:THR:HG22	1:C:503:SER:OG	1.82	0.79
1:C:39:GLN:HA	1:C:540:ILE:HD13	1.62	0.79
1:A:476:MET:CE	1:A:495:ALA:HB1	2.12	0.79
1:C:193:VAL:HG12	1:C:198:ILE:CD1	2.13	0.79
1:A:269:MET:SD	1:A:538:MET:HE1	2.23	0.78
1:G:53:ASP:O	1:G:57:ILE:HD13	1.84	0.78
1:G:286:ILE:HG21	1:G:289:GLU:CD	2.08	0.78
1:E:53:ASP:N	3:E:3239:HOH:O	2.16	0.77
1:H:482:VAL:HG22	1:H:487:GLN:NE2	1.99	0.77
1:F:65:ILE:CG2	3:F:3274:HOH:O	2.01	0.77
1:C:193:VAL:HG13	1:C:194:PRO:HD2	1.66	0.77
1:A:483:THR:HG22	1:A:484:ASP:OD1	1.85	0.77
1:C:456:MET:CB	3:C:3252:HOH:O	2.32	0.77
1:A:237:TRP:CZ2	3:A:3207:HOH:O	2.35	0.76
1:G:69:LEU:HD21	1:G:230:LEU:HD22	1.66	0.76
1:B:34:THR:HG23	3:B:2193:HOH:O	1.85	0.76
3:E:2276:HOH:O	2:M:1:UNK:CB	2.32	0.75
1:G:296:LEU:HD23	1:G:347:TYR:CE2	2.20	0.75
1:D:274:MET:HE2	1:D:279:PHE:CD2	2.21	0.74
1:E:428:ASP:CG	1:E:432:GLN:NE2	2.46	0.74
1:H:185:LEU:HA	3:H:2390:HOH:O	1.86	0.74
1:C:482:VAL:HG12	1:C:484:ASP:H	1.52	0.74
1:C:176:GLU:HG2	1:C:480:LEU:HB3	1.71	0.73
1:D:40:THR:O	1:D:540:ILE:HD11	1.87	0.73
1:D:274:MET:HE2	1:D:279:PHE:HD2	1.53	0.73
1:D:274:MET:SD	3:D:3195:HOH:O	2.46	0.73
1:F:480:LEU:HD23	1:F:488:ARG:HH21	1.54	0.73
1:C:316:ARG:HA	3:C:2520:HOH:O	1.89	0.72
1:F:127:VAL:HG12	1:F:150:ILE:HG22	1.70	0.72
1:H:49:VAL:HG22	3:H:2458:HOH:O	1.89	0.72
1:E:128:ASP:HA	1:E:157:ILE:HD11	1.72	0.72
1:E:428:ASP:CG	1:E:432:GLN:HE21	1.98	0.72
1:H:150:ILE:HG23	1:H:157:ILE:HD12	1.72	0.72
1:F:385:LEU:HG	1:F:387:ILE:HD13	1.72	0.72
1:A:53:ASP:HA	3:A:3229:HOH:O	1.90	0.71
1:B:323:MET:HE1	1:B:328:ILE:HD13	1.72	0.71

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:127:VAL:HG12	1:G:150:ILE:HG22	1.72	0.71
1:B:286:ILE:HG22	1:B:286:ILE:O	1.90	0.70
1:C:218:THR:CB	3:C:3250:HOH:O	2.13	0.70
1:H:190:THR:HG21	3:H:2390:HOH:O	1.90	0.70
1:H:232:ARG:HE	1:H:239:ASN:HD21	1.38	0.70
1:B:248:THR:HG23	3:B:828:HOH:O	1.91	0.70
1:E:428:ASP:OD1	1:E:432:GLN:NE2	2.23	0.70
1:F:69:LEU:HG	3:F:3274:HOH:O	1.90	0.70
1:A:205:TRP:CH2	3:A:3229:HOH:O	2.44	0.70
1:F:453:LEU:HB2	3:F:3223:HOH:O	1.90	0.70
1:A:261:ARG:HD3	1:A:266:GLU:OE2	1.92	0.70
1:F:416:VAL:HG13	3:F:3261:HOH:O	1.92	0.70
1:G:127:VAL:HG13	3:G:3275:HOH:O	1.92	0.70
1:A:205:TRP:CZ2	3:A:3229:HOH:O	2.44	0.69
1:F:286:ILE:O	1:F:286:ILE:HG22	1.90	0.69
1:E:157:ILE:HG22	3:E:3234:HOH:O	1.92	0.69
1:A:476:MET:CE	1:A:495:ALA:CB	2.68	0.69
1:G:257:THR:HG21	3:G:1413:HOH:O	1.92	0.69
1:F:344:THR:CG2	3:F:3264:HOH:O	2.36	0.69
1:G:136:ALA:HB3	3:G:2204:HOH:O	1.93	0.69
1:F:39:GLN:HE22	1:F:540:ILE:H	1.38	0.69
1:F:493[A]:THR:HG23	3:F:1094:HOH:O	1.91	0.69
1:G:162:VAL:HG12	1:G:170:LEU:HD11	1.74	0.68
1:H:52:LEU:HD12	1:H:222:TRP:CZ3	2.29	0.68
1:A:310:PHE:HE1	3:A:3257:HOH:O	1.77	0.67
1:C:317:THR:OG1	1:C:373:LEU:HD13	1.94	0.67
1:H:236:TYR:CZ	3:H:3291:HOH:O	2.47	0.67
1:D:127:VAL:HG13	1:D:151:LEU:HD21	1.75	0.67
1:B:296:LEU:HD22	1:B:348[A]:THR:HG22	1.77	0.67
1:D:218:THR:HG21	3:D:2464:HOH:O	1.93	0.67
1:H:73:LEU:HD12	1:H:185:LEU:HD13	1.76	0.67
1:B:456:MET:CE	1:B:499:LEU:HD11	2.23	0.67
1:H:352:LYS:O	1:H:493:THR:HG21	1.95	0.67
1:C:493:THR:HG23	3:C:2120:HOH:O	1.93	0.67
1:A:39:GLN:HE22	1:A:540:ILE:N	1.92	0.66
1:F:335:GLN:NE2	3:F:3260:HOH:O	2.28	0.66
1:H:127:VAL:HG13	1:H:151:LEU:CD2	2.26	0.66
1:A:453:LEU:HB3	1:A:476:MET:CE	2.26	0.66
1:E:456:MET:HE3	1:E:467:TYR:CD1	2.30	0.66
1:A:312:ASP:OD2	1:A:314:ARG:HD3	1.95	0.66
1:F:386:THR:HG22	1:F:415:ASN:HD22	1.60	0.66

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:110:ASP:HB3	1:A:112:THR:HG23	1.78	0.66
1:G:274:MET:HE1	1:G:282:LEU:HD13	1.78	0.66
1:G:428:ASP:OD2	1:G:432:GLN:NE2	2.29	0.66
1:C:349:ASP:HB3	3:C:3228:HOH:O	1.95	0.66
1:F:220:LYS:NZ	1:F:246:GLN:HE21	1.94	0.66
1:B:220:LYS:HD2	3:B:3283:HOH:O	1.95	0.65
1:G:518:LYS:HB2	3:G:3259:HOH:O	1.96	0.65
1:E:39:GLN:HA	1:E:540:ILE:HD13	1.77	0.65
1:F:127:VAL:CG1	1:F:150:ILE:HG22	2.25	0.65
1:B:393:THR:CG2	1:B:420:ASN:HD22	2.06	0.65
1:E:165:ILE:HD11	1:E:171:GLU:HB2	1.78	0.65
1:H:48:GLU:HG2	3:H:2455:HOH:O	1.97	0.65
1:H:309:PRO:HB2	3:H:3206:HOH:O	1.96	0.65
1:F:220:LYS:HZ3	1:F:246:GLN:NE2	1.94	0.65
1:F:386:THR:HG22	1:F:415:ASN:HB2	1.78	0.65
1:D:92:ASN:HD22	1:D:95:ALA:H	1.45	0.64
1:G:269:MET:HE2	1:G:521:VAL:CG1	2.21	0.64
1:A:123:TRP:O	1:A:126[B]:SER:OG	2.16	0.64
1:H:69:LEU:HD21	1:H:230:LEU:HD22	1.79	0.64
1:D:173:THR:HG23	3:D:1678:HOH:O	1.98	0.64
1:G:128:ASP:HA	1:G:157:ILE:HD11	1.78	0.64
1:A:480:LEU:HD23	1:A:488:ARG:HH21	1.62	0.64
1:A:165:ILE:HD11	1:A:171:GLU:HB2	1.80	0.64
1:B:386:THR:HG22	1:B:415:ASN:HD22	1.63	0.63
1:H:39:GLN:HE22	1:H:540:ILE:H	1.46	0.63
1:H:456:MET:HE3	1:H:499:LEU:HD11	1.80	0.63
1:G:274:MET:HE2	1:G:279:PHE:HD2	1.62	0.63
1:H:147:ILE:HD13	3:H:3221:HOH:O	1.97	0.63
1:G:41:LEU:HD21	1:G:269:MET:HE3	1.80	0.63
1:E:124:GLN:HB3	1:E:157:ILE:HG23	1.80	0.63
1:A:296:LEU:HD23	1:A:347:TYR:CE2	2.34	0.63
1:F:220:LYS:NZ	1:F:246:GLN:NE2	2.47	0.63
1:G:185:LEU:CD1	3:G:3189:HOH:O	2.17	0.63
1:D:310:PHE:HZ	1:D:387:ILE:HG21	1.63	0.62
3:A:1774:HOH:O	1:C:313:VAL:HG23	1.98	0.62
1:A:282:LEU:CD1	3:A:2233:HOH:O	2.38	0.62
1:E:488:ARG:NH2	3:E:2202:HOH:O	2.27	0.62
3:B:2264:HOH:O	2:J:1:UNK:CB	2.48	0.62
1:F:220:LYS:NZ	3:F:2779:HOH:O	2.32	0.62
1:G:144:ILE:O	1:G:147:ILE:HG13	1.99	0.62
1:D:220:LYS:HZ1	1:D:246:GLN:HE22	1.42	0.62

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:480:LEU:HD23	1:F:488:ARG:NH2	2.15	0.62
1:G:274:MET:HE3	3:G:3231:HOH:O	2.00	0.62
1:C:218:THR:HG23	1:C:233:SER:HB2	1.81	0.62
1:D:45:ASN:ND2	1:D:64:ASN:HD22	1.97	0.61
1:E:269:MET:CG	3:E:1154:HOH:O	2.47	0.61
1:C:71:GLU:O	1:C:214:ASN:ND2	2.33	0.61
1:F:410:LYS:HD2	3:F:3294:HOH:O	2.00	0.61
1:H:128:ASP:HA	1:H:157:ILE:HD11	1.81	0.61
3:F:3269:HOH:O	2:N:1:UNK:CB	2.47	0.61
1:G:324:ASP:O	1:G:328:ILE:CD1	2.45	0.61
1:H:143:HIS:NE2	3:H:3262:HOH:O	2.23	0.61
1:E:269:MET:SD	3:E:1154:HOH:O	2.56	0.61
1:C:193:VAL:HG11	1:C:198:ILE:CD1	2.22	0.60
1:A:54:PRO:HD3	3:A:3229:HOH:O	2.00	0.60
1:C:310:PHE:HZ	1:C:387:ILE:HG21	1.66	0.60
1:G:220:LYS:HZ2	1:G:246:GLN:HE22	1.49	0.60
1:H:39:GLN:NE2	1:H:243:VAL:HG12	2.16	0.60
1:A:385:LEU:HG	1:A:387:ILE:HD13	1.83	0.60
1:E:124:GLN:HB3	1:E:157:ILE:CG2	2.31	0.60
1:H:480:LEU:HD11	3:H:3262:HOH:O	2.01	0.60
1:H:127:VAL:HG12	1:H:150:ILE:HG22	1.83	0.60
1:A:345:PRO:O	1:A:348:THR:CG2	2.49	0.60
1:C:313:VAL:O	1:C:317:THR:HG23	2.01	0.60
1:A:319:LEU:CD2	3:A:3257:HOH:O	2.38	0.60
1:A:499:LEU:HG	3:A:3293:HOH:O	1.99	0.60
1:D:71:GLU:O	1:D:214:ASN:ND2	2.35	0.60
1:F:128:ASP:HA	1:F:157:ILE:HD11	1.84	0.60
1:C:286:ILE:O	1:C:286:ILE:HD12	2.03	0.59
1:G:41:LEU:CD1	1:G:269:MET:HE3	2.32	0.59
1:E:352:LYS:O	1:E:493:THR:HG21	2.03	0.59
1:C:310:PHE:CD2	3:C:2179:HOH:O	2.52	0.59
1:C:317:THR:HG22	1:C:503:SER:HG	1.68	0.59
1:G:147:ILE:HD11	3:G:599:HOH:O	2.02	0.59
1:H:232:ARG:HE	1:H:239:ASN:ND2	2.02	0.58
1:B:262:TYR:CZ	1:B:518:LYS:HD3	2.39	0.58
1:H:309:PRO:CG	3:H:3206:HOH:O	2.51	0.58
1:A:232:ARG:HE	1:A:239:ASN:HD21	1.52	0.58
1:A:345:PRO:O	1:A:348:THR:HG23	2.03	0.58
1:C:193:VAL:HG12	1:C:198:ILE:HD12	1.83	0.58
1:A:344:THR:HG23	1:A:496:GLU:OE2	2.04	0.58
1:E:399:LYS:NZ	3:E:2097:HOH:O	2.35	0.58

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:456:MET:CE	1:E:499:LEU:HD11	2.29	0.58
1:F:514:ALA:HB3	3:F:3186:HOH:O	2.04	0.58
1:A:256:VAL:HG23	1:A:395:ASP:OD2	2.04	0.57
1:B:380:THR:HA	3:B:3213:HOH:O	2.04	0.57
1:C:73:LEU:C	1:C:74:LEU:HD23	2.29	0.57
1:C:482:VAL:CG1	1:C:487:GLN:HB2	2.34	0.57
1:A:217:TYR:OH	1:A:535:THR:HG22	2.04	0.57
1:C:310:PHE:HE1	1:C:319:LEU:HD11	1.69	0.57
1:H:99:THR:HG23	3:H:1470:HOH:O	2.04	0.57
1:D:274:MET:CE	1:D:279:PHE:HD2	2.17	0.57
1:G:113:PRO:HG2	3:G:2745:HOH:O	2.05	0.57
2:P:3:UNK:C	3:P:455:HOH:O	2.52	0.57
1:G:312:ASP:OD2	1:G:314:ARG:HD3	2.04	0.57
1:H:364:GLU:CD	1:H:364:GLU:H	2.13	0.57
1:G:147:ILE:HG23	1:G:160:LEU:HD11	1.86	0.57
1:H:127:VAL:HG13	1:H:151:LEU:HD23	1.87	0.56
1:G:323:MET:SD	1:G:328:ILE:HD11	2.45	0.56
1:B:363:GLN:NE2	1:B:366:ARG:NH2	2.53	0.56
1:F:286:ILE:HG22	1:F:289:GLU:HB2	1.86	0.56
1:G:41:LEU:HD21	1:G:269:MET:CE	2.34	0.56
1:H:220:LYS:NZ	1:H:246:GLN:NE2	2.53	0.56
1:D:312:ASP:OD2	1:D:314:ARG:HD3	2.06	0.56
1:D:353:LEU:HA	1:D:493:THR:CG2	2.36	0.56
1:F:330:ASN:O	1:F:333:LYS:NZ	2.39	0.56
1:G:232:ARG:HE	1:G:239:ASN:HD21	1.52	0.56
1:E:261:ARG:HD3	1:E:266:GLU:OE2	2.05	0.56
1:F:525:THR:O	1:F:527:LYS:NZ	2.38	0.56
1:G:279:PHE:N	3:G:3231:HOH:O	2.38	0.56
1:B:123:TRP:HE3	1:B:162:VAL:HG21	1.71	0.56
1:C:296:LEU:HD23	1:C:347:TYR:CE1	2.40	0.56
1:A:345:PRO:HB2	1:A:348:THR:HG22	1.88	0.55
1:F:385:LEU:HG	1:F:387:ILE:CD1	2.34	0.55
1:C:538:MET:HE2	3:C:2768:HOH:O	2.05	0.55
1:A:521:VAL:CG1	1:A:538:MET:HE2	2.37	0.55
1:D:143:HIS:NE2	1:D:480:LEU:HD11	2.21	0.55
1:H:216:ALA:HB2	3:H:3291:HOH:O	2.06	0.55
1:B:491:LEU:HD23	1:B:494:LYS:HE3	1.89	0.55
1:F:491:LEU:HD23	3:F:1702:HOH:O	2.07	0.55
1:H:129:PRO:HD3	3:H:2123:HOH:O	2.06	0.55
1:A:55:HIS:HE1	3:A:736:HOH:O	1.90	0.55
1:E:52:LEU:C	3:E:3239:HOH:O	2.48	0.55

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:363:GLN:NE2	1:B:366:ARG:HH21	2.05	0.54
1:C:240:ALA:HB3	3:C:2465:HOH:O	2.05	0.54
1:D:127:VAL:HG13	1:D:151:LEU:HD23	1.89	0.54
1:D:37:GLU:HB3	3:D:2127:HOH:O	2.07	0.54
1:A:363:GLN:NE2	1:A:366:ARG:HE	2.06	0.54
1:D:232:ARG:HE	1:D:239:ASN:HD21	1.54	0.54
1:F:320:LYS:HA	1:F:506:VAL:HG13	1.90	0.54
1:B:323:MET:CE	1:B:328:ILE:HD13	2.38	0.54
1:D:45:ASN:HD21	1:D:64:ASN:HD22	1.56	0.54
1:G:296:LEU:HD23	1:G:347:TYR:CD2	2.43	0.53
1:A:324:ASP:OD2	1:A:327:ILE:HD12	2.07	0.53
1:A:55:HIS:CD2	1:A:125:ARG:HH11	2.27	0.53
1:B:286:ILE:HG22	1:B:289:GLU:HB2	1.91	0.53
1:E:55:HIS:HE1	3:E:1549:HOH:O	1.90	0.53
1:H:143:HIS:NE2	1:H:480:LEU:HD11	2.23	0.53
1:A:498:GLN:NE2	3:A:3152:HOH:O	2.40	0.53
1:E:55:HIS:CD2	1:E:125:ARG:HH11	2.26	0.53
1:G:127:VAL:HG12	1:G:150:ILE:CG2	2.39	0.53
1:H:27:ALA:N	1:H:241:LYS:O	2.41	0.53
1:A:276:ILE:HG23	1:A:331:LYS:O	2.08	0.53
1:B:55:HIS:HE1	3:B:1032:HOH:O	1.90	0.53
1:A:407:LEU:HD13	3:A:3197:HOH:O	2.08	0.53
1:C:349:ASP:CB	3:C:3228:HOH:O	2.54	0.53
1:A:407:LEU:CD1	3:A:3197:HOH:O	2.56	0.53
1:E:353:LEU:HD23	1:E:493:THR:HG22	1.91	0.53
1:A:270:THR:HG23	1:A:516:LEU:HB2	1.91	0.53
1:A:389:LEU:HD22	3:A:3282:HOH:O	2.09	0.53
1:D:482:VAL:CG1	1:D:484:ASP:O	2.57	0.53
1:H:274:MET:HE1	1:H:282:LEU:HD13	1.90	0.53
1:H:309:PRO:CB	3:H:3206:HOH:O	2.55	0.52
1:B:274:MET:HE2	1:B:274:MET:HA	1.90	0.52
1:B:386:THR:HG22	1:B:415:ASN:CB	2.33	0.52
1:E:130:ASN:HB3	3:E:2203:HOH:O	2.10	0.52
1:A:319:LEU:CG	3:A:3257:HOH:O	2.56	0.52
1:A:499:LEU:CG	3:A:3293:HOH:O	2.56	0.52
1:G:310:PHE:HZ	1:G:387:ILE:CG1	2.23	0.52
1:C:218:THR:CG2	1:C:233:SER:HB2	2.40	0.52
1:F:217:TYR:CE2	1:F:535[A]:THR:OG1	2.61	0.52
1:D:162:VAL:HG13	1:D:172:VAL:HG22	1.92	0.52
1:H:363:GLN:HE21	1:H:366:ARG:HH21	1.57	0.52
1:A:165:ILE:HD11	1:A:171:GLU:CB	2.39	0.52

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:162:VAL:CG1	1:G:170:LEU:HD11	2.38	0.52
1:G:328:ILE:HG23	1:G:400:LEU:HD22	1.91	0.52
1:H:479:THR:HA	3:H:3242:HOH:O	2.10	0.52
1:A:323:MET:HE2	1:A:323:MET:HA	1.92	0.52
1:G:73:LEU:C	1:G:74:LEU:HD23	2.34	0.52
1:C:349:ASP:O	1:C:449:PRO:HD3	2.10	0.52
1:F:389:LEU:HB2	3:F:3261:HOH:O	2.10	0.52
1:B:399:LYS:NZ	3:B:2260:HOH:O	2.43	0.51
1:F:324:ASP:O	1:F:328:ILE:HD13	2.09	0.51
1:H:491:LEU:HD12	3:H:3242:HOH:O	2.10	0.51
1:A:276:ILE:HD11	1:A:396:LEU:CD1	2.40	0.51
1:C:350:GLY:O	1:C:489:THR:HG22	2.11	0.51
1:F:69:LEU:CD1	3:F:3274:HOH:O	2.59	0.51
1:G:218:THR:HG22	1:G:219:LEU:H	1.75	0.51
1:H:218:THR:HG23	1:H:233:SER:HB2	1.92	0.51
1:E:363:GLN:NE2	1:E:366:ARG:HE	2.09	0.51
1:H:319:LEU:HD12	1:H:408:TRP:CE2	2.45	0.51
1:H:340:ALA:HA	1:H:510:TYR:CE2	2.45	0.51
1:A:448:GLU:CD	1:A:449:PRO:HD2	2.35	0.51
1:A:490:ALA:O	1:A:493:THR:OG1	2.28	0.51
1:B:386:THR:CG2	1:B:415:ASN:HD22	2.24	0.51
1:G:127:VAL:HG13	1:G:151:LEU:CD2	2.40	0.51
1:A:387:ILE:HG22	1:A:416:VAL:HG13	1.92	0.51
1:F:127:VAL:HG12	1:F:150:ILE:CG2	2.39	0.51
1:C:482:VAL:HG13	1:C:487:GLN:HB2	1.93	0.51
1:F:91:ASP:C	3:F:3255:HOH:O	2.52	0.51
1:A:384:PRO:HA	3:A:2492:HOH:O	2.09	0.51
1:B:55:HIS:CD2	1:B:125:ARG:HH11	2.28	0.51
1:F:127:VAL:CG1	1:F:127:VAL:O	2.58	0.50
1:G:310:PHE:HZ	1:G:387:ILE:HG13	1.76	0.50
1:C:310:PHE:CE2	3:C:2179:HOH:O	2.64	0.50
1:D:213:THR:OG1	1:D:218:THR:HG23	2.11	0.50
1:E:292:VAL:HG13	1:E:512:VAL:CG1	2.41	0.50
1:G:244:ILE:HD12	1:G:538:MET:HB2	1.94	0.50
1:E:55:HIS:HD2	1:E:125:ARG:HH11	1.59	0.50
1:F:286:ILE:CG2	1:F:289:GLU:CD	2.84	0.50
1:G:521:VAL:CG2	3:G:3259:HOH:O	2.60	0.50
1:H:482:VAL:HG21	3:H:3242:HOH:O	2.11	0.50
1:C:218:THR:HG21	3:C:1599:HOH:O	2.12	0.50
1:D:38:LYS:O	1:D:540:ILE:HD12	2.11	0.50
1:D:55:HIS:CD2	1:D:125:ARG:HH11	2.30	0.50

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:207:GLN:HG3	1:E:208:PRO:HD2	1.93	0.50
1:G:55:HIS:CD2	1:G:125:ARG:HH11	2.30	0.50
1:G:128:ASP:CA	1:G:157:ILE:HD11	2.42	0.50
1:H:220:LYS:NZ	1:H:246:GLN:HE21	2.07	0.50
1:E:261:ARG:CD	1:E:266:GLU:OE2	2.60	0.49
1:F:428:ASP:CG	1:F:432:GLN:HE21	2.19	0.49
1:E:162:VAL:HG12	1:E:170:LEU:HD11	1.95	0.49
1:H:224:VAL:HG13	3:H:2455:HOH:O	2.12	0.49
1:H:72:GLY:O	1:H:86:VAL:HG23	2.13	0.49
1:H:242:THR:HG21	3:H:1088:HOH:O	2.11	0.49
1:A:69:LEU:O	1:A:213:THR:HB	2.13	0.49
1:D:232:ARG:HE	1:D:239:ASN:ND2	2.10	0.49
1:F:55:HIS:HE1	3:F:1079:HOH:O	1.94	0.49
1:E:67:ARG:NH2	3:E:827:HOH:O	2.45	0.49
1:F:283:LYS:HA	1:F:290:VAL:HG21	1.95	0.49
1:C:55:HIS:CD2	1:C:125:ARG:HH11	2.29	0.49
1:C:59:GLY:HA3	1:C:62:GLU:OE1	2.13	0.49
1:G:324:ASP:OD2	1:G:327:ILE:HD12	2.12	0.49
1:C:114:VAL:HG21	1:C:214:ASN:OD1	2.13	0.49
1:C:307:LYS:NZ	3:C:1868:HOH:O	2.38	0.49
1:C:482:VAL:HG11	1:C:484:ASP:O	2.13	0.49
1:G:280:GLN:HE21	1:G:334:ALA:HB2	1.78	0.49
1:B:345:PRO:HB2	1:B:348[A]:THR:HG23	1.95	0.48
1:C:244:ILE:CD1	1:C:539:TYR:HA	2.43	0.48
1:D:409:LYS:HZ1	1:D:416:VAL:H	1.61	0.48
3:E:3240:HOH:O	1:F:37:GLU:HG2	2.13	0.48
1:F:400:LEU:HA	3:F:3267:HOH:O	2.12	0.48
1:G:323:MET:HE1	1:G:404:ALA:HA	1.95	0.48
1:G:127:VAL:CG2	3:G:3275:HOH:O	2.29	0.48
1:D:261:ARG:HD2	1:D:266:GLU:OE2	2.13	0.48
1:H:73:LEU:CD1	1:H:185:LEU:HD13	2.43	0.48
1:C:310:PHE:CE1	1:C:319:LEU:HD11	2.47	0.48
1:G:53:ASP:O	1:G:57:ILE:CD1	2.59	0.48
1:B:300:TYR:CE1	1:B:505:ILE:HD12	2.49	0.48
1:C:220:LYS:HB2	1:C:231:GLU:HG3	1.95	0.48
1:G:244:ILE:CD1	1:G:538:MET:HB2	2.44	0.48
1:H:124:GLN:HB3	1:H:157:ILE:HG23	1.95	0.48
1:B:69:LEU:O	1:B:213:THR:HB	2.14	0.48
1:G:338:MET:HE3	1:G:339:PRO:HD2	1.96	0.48
1:G:232:ARG:HE	1:G:239:ASN:ND2	2.12	0.48
1:A:521:VAL:CG1	1:A:538:MET:CE	2.92	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:39:GLN:NE2	1:E:540:ILE:HD12	2.29	0.47
1:E:383:LYS:CE	3:G:2188:HOH:O	2.61	0.47
1:G:69:LEU:O	1:G:213:THR:HB	2.14	0.47
1:A:521:VAL:HG13	1:A:538:MET:HE2	1.95	0.47
1:F:242:THR:HG21	3:F:858:HOH:O	2.12	0.47
1:H:363:GLN:NE2	1:H:366:ARG:HH21	2.12	0.47
1:A:296:LEU:HD23	1:A:347:TYR:CD2	2.49	0.47
1:H:482:VAL:CG2	3:H:3242:HOH:O	2.62	0.47
1:A:269:MET:HG2	1:A:517:VAL:HG13	1.96	0.47
1:B:323:MET:HE1	1:B:328:ILE:CG1	2.44	0.47
1:C:491:LEU:HD23	1:C:494:LYS:HD2	1.96	0.47
1:E:124:GLN:CB	1:E:157:ILE:HG23	2.42	0.47
1:E:292:VAL:HG13	1:E:512:VAL:HG13	1.95	0.47
1:A:207:GLN:O	1:A:208:PRO:C	2.57	0.47
1:A:353:LEU:HA	1:A:493:THR:HG22	1.96	0.47
1:B:340:ALA:HA	1:B:510:TYR:CE2	2.50	0.47
1:H:92:ASN:HD22	1:H:95:ALA:H	1.62	0.47
1:D:127:VAL:HG12	1:D:127:VAL:O	2.15	0.47
1:E:383:LYS:HE2	3:G:2188:HOH:O	2.13	0.47
1:B:323:MET:CE	1:B:328:ILE:HG12	2.44	0.47
1:C:49:VAL:HG22	3:C:3216:HOH:O	2.15	0.47
1:E:409:LYS:HB2	3:E:2517:HOH:O	2.14	0.47
1:G:73:LEU:O	1:G:74:LEU:HD23	2.15	0.47
1:H:45:ASN:ND2	1:H:64:ASN:HD22	2.13	0.47
1:H:482:VAL:HG13	1:H:483:THR:N	2.28	0.46
1:H:165:ILE:HD12	1:H:165:ILE:N	2.31	0.46
1:A:217:TYR:CZ	1:A:535:THR:HG22	2.51	0.46
1:B:485:GLU:OE2	1:B:488:ARG:NH1	2.49	0.46
1:D:55:HIS:HD2	1:D:125:ARG:HH11	1.63	0.46
1:D:274:MET:HE1	1:D:282:LEU:HD13	1.97	0.46
1:A:405:SER:N	3:A:3282:HOH:O	2.48	0.46
1:G:51:SER:C	1:G:57:ILE:HD11	2.40	0.46
1:H:39:GLN:HA	1:H:540:ILE:HD13	1.98	0.46
1:H:482:VAL:HG21	1:H:487:GLN:HB3	1.97	0.46
1:A:165:ILE:HD12	1:A:165:ILE:H	1.81	0.46
1:A:476:MET:HE1	1:A:495:ALA:CB	2.45	0.46
1:D:117:GLN:HG3	3:D:2160:HOH:O	2.16	0.46
1:F:123:TRP:HE3	1:F:162:VAL:HG21	1.81	0.46
1:G:127:VAL:CG1	3:G:3275:HOH:O	2.60	0.46
1:A:207:GLN:HG3	1:A:208:PRO:HD2	1.98	0.46
1:E:52:LEU:HD13	1:E:219:LEU:HD22	1.98	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:330:ASN:HB3	3:E:3278:HOH:O	2.15	0.46
1:C:310:PHE:HE1	1:C:319:LEU:CD1	2.28	0.46
1:H:171:GLU:HB3	3:H:2194:HOH:O	2.15	0.46
1:E:165:ILE:CD1	1:E:171:GLU:HB2	2.44	0.46
1:E:363:GLN:HE21	1:E:366:ARG:HH21	1.64	0.46
1:G:428:ASP:HB2	3:G:2431:HOH:O	2.14	0.46
1:B:324:ASP:CG	1:B:327:ILE:HD13	2.41	0.45
1:E:141:TYR:CE2	1:E:454:ASN:HB3	2.51	0.45
1:G:55:HIS:HE1	3:G:2761:HOH:O	1.99	0.45
1:G:276:ILE:HG23	1:G:331:LYS:O	2.17	0.45
1:H:538:MET:CE	3:H:3292:HOH:O	2.20	0.45
1:A:114:VAL:HG21	1:A:214[A]:ASN:OD1	2.16	0.45
1:D:482:VAL:HG22	1:D:487:GLN:HB3	1.97	0.45
1:B:49:VAL:HG11	1:B:65:ILE:HD12	1.98	0.45
1:D:319:LEU:HD12	1:D:408:TRP:CE2	2.51	0.45
1:E:482:VAL:CG1	1:E:484:ASP:O	2.64	0.45
1:H:274:MET:HE2	1:H:279:PHE:HD2	1.82	0.45
1:A:352:LYS:O	1:A:493:THR:HG21	2.17	0.45
1:D:482:VAL:HG11	1:D:484:ASP:O	2.16	0.45
1:A:67:ARG:NH2	3:A:3030:HOH:O	2.49	0.45
1:C:456:MET:CA	3:C:3252:HOH:O	2.59	0.45
1:F:45:ASN:ND2	1:F:64:ASN:HD22	2.13	0.45
1:F:232:ARG:HE	1:F:239:ASN:HD21	1.65	0.45
1:F:340:ALA:HA	1:F:510:TYR:CE2	2.52	0.45
1:A:385:LEU:HG	1:A:387:ILE:CD1	2.46	0.45
1:B:286:ILE:HG21	1:B:289:GLU:CD	2.42	0.45
1:G:220:LYS:HZ1	1:G:246:GLN:NE2	1.87	0.45
1:B:444:ALA:HB3	1:B:530:LEU:CD2	2.47	0.45
1:A:274:MET:HE1	1:A:282:LEU:CD1	2.46	0.45
1:C:193:VAL:HG13	1:C:198:ILE:HD11	1.86	0.45
1:G:147:ILE:HD12	1:G:148:ASP:N	2.32	0.45
1:G:261:ARG:HD3	1:G:266:GLU:OE2	2.16	0.45
1:G:320:LYS:NZ	1:G:500:ASP:O	2.50	0.45
1:C:141:TYR:CE1	1:C:454:ASN:HB3	2.51	0.45
1:F:127:VAL:CG1	1:F:150:ILE:CG2	2.92	0.45
1:G:212:VAL:HG11	3:G:2550:HOH:O	2.18	0.45
1:H:172:VAL:HG11	1:H:181:PHE:CZ	2.51	0.45
1:H:213:THR:HG1	1:H:218:THR:HG22	1.76	0.45
1:A:422:GLU:HG2	3:A:2751:HOH:O	2.17	0.44
1:F:310:PHE:HZ	1:F:387:ILE:CG1	2.29	0.44
1:B:229:VAL:HG22	1:B:248:THR:HG22	1.99	0.44

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:50:GLN:HA	1:C:424:LYS:HD3	1.99	0.44
1:D:59:GLY:HA3	1:D:62:GLU:OE2	2.17	0.44
1:F:27:ALA:HB3	1:F:243:VAL:HG23	1.99	0.44
1:G:292:VAL:HG13	1:G:512:VAL:CG1	2.46	0.44
1:G:385:LEU:HG	1:G:387:ILE:CD1	2.47	0.44
1:G:386:THR:C	1:G:387:ILE:HD12	2.41	0.44
1:G:540:ILE:HG12	3:G:3201:HOH:O	2.16	0.44
1:B:166:ASP:HB3	1:B:168:HIS:H	1.82	0.44
1:D:310:PHE:HZ	1:D:387:ILE:CG2	2.29	0.44
1:D:350:GLY:O	1:D:489:THR:HG23	2.18	0.44
1:F:127:VAL:HG12	1:F:127:VAL:O	2.17	0.44
1:F:453:LEU:CB	3:F:3223:HOH:O	2.57	0.44
1:G:110:ASP:HB3	1:G:112:THR:HG23	2.00	0.44
1:H:81:HIS:HD2	3:H:2341:HOH:O	2.01	0.44
1:H:352:LYS:O	1:H:493:THR:CG2	2.65	0.44
1:E:103:ARG:HD3	1:E:237:TRP:CD2	2.52	0.44
1:H:39:GLN:NE2	1:H:540:ILE:HD12	2.33	0.44
1:H:349:ASP:O	1:H:449:PRO:HD3	2.17	0.44
1:D:69:LEU:O	1:D:213:THR:HB	2.18	0.44
1:G:109:SER:HA	1:G:235:THR:OG1	2.17	0.44
1:H:123:TRP:HB3	3:H:3244:HOH:O	2.18	0.44
1:B:389:LEU:CD1	1:B:437:VAL:HG12	2.47	0.44
1:F:69:LEU:CG	3:F:3274:HOH:O	2.58	0.44
1:F:286:ILE:HG21	1:F:289:GLU:CD	2.43	0.44
1:G:218:THR:HG22	1:G:219:LEU:N	2.32	0.44
1:G:321:LEU:HD22	1:G:366:ARG:HG2	1.99	0.44
1:A:147:ILE:HA	1:A:150:ILE:HD12	1.99	0.44
1:C:482:VAL:CG1	1:C:484:ASP:O	2.66	0.44
1:G:296:LEU:CD2	1:G:347:TYR:CD2	3.00	0.44
1:A:27:ALA:N	3:A:1804:HOH:O	2.51	0.43
1:A:405:SER:CA	3:A:3282:HOH:O	2.66	0.43
1:A:448:GLU:CD	1:A:449:PRO:CD	2.91	0.43
1:G:128:ASP:HA	1:G:157:ILE:CD1	2.47	0.43
1:G:274:MET:HE2	1:G:279:PHE:CD2	2.50	0.43
1:H:63:SER:HB2	3:H:1280:HOH:O	2.18	0.43
1:A:345:PRO:O	1:A:348:THR:HG22	2.17	0.43
1:H:459:ASN:OD1	1:H:459:ASN:C	2.61	0.43
1:F:242:THR:HG22	1:F:536:ARG:HB2	2.00	0.43
1:G:291:HIS:O	1:G:514:ALA:HA	2.18	0.43
1:H:195:LYS:HB3	3:H:1528:HOH:O	2.17	0.43
1:B:300:TYR:CD1	1:B:505:ILE:HG23	2.53	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:323:MET:HE1	1:B:328:ILE:HG12	2.00	0.43
1:C:310:PHE:HD2	3:C:2179:HOH:O	1.93	0.43
1:D:296:LEU:HD23	1:D:347:TYR:CE2	2.53	0.43
1:F:347[A]:TYR:CD1	1:F:347[A]:TYR:N	2.85	0.43
1:E:296:LEU:HD12	1:E:530:LEU:CD1	2.49	0.43
1:G:521:VAL:HG22	3:G:3201:HOH:O	2.17	0.43
1:H:165:ILE:N	1:H:165:ILE:CD1	2.81	0.43
1:E:124:GLN:CG	1:E:157:ILE:HG23	2.48	0.43
1:E:349:ASP:O	1:E:449:PRO:HD3	2.17	0.43
1:G:340:ALA:HA	1:G:510:TYR:CE2	2.54	0.43
1:C:176:GLU:HG3	1:C:177:PRO:HD2	2.00	0.43
1:E:109:SER:HA	1:E:235:THR:OG1	2.18	0.43
1:G:136:ALA:O	3:G:3275:HOH:O	2.21	0.43
1:H:220:LYS:HZ1	1:H:246:GLN:HE21	1.54	0.43
1:E:269:MET:HG3	3:E:1154:HOH:O	2.17	0.43
1:G:127:VAL:CB	3:G:3275:HOH:O	2.61	0.43
1:A:485:GLU:OE2	1:A:488:ARG:NH1	2.52	0.43
1:F:256:VAL:HG13	1:F:278:LEU:HD11	2.00	0.43
1:F:278:LEU:O	1:F:282:LEU:HG	2.19	0.43
1:F:500:ASP:HB3	3:F:1241:HOH:O	2.19	0.43
1:H:60:VAL:N	1:H:61:PRO:CD	2.82	0.43
1:H:277:GLU:HG3	1:H:399:LYS:NZ	2.34	0.43
1:A:405:SER:HA	3:A:3282:HOH:O	2.19	0.42
1:B:68:ASP:OD2	1:B:535:THR:HG23	2.19	0.42
1:C:472:PHE:CZ	3:C:3252:HOH:O	2.52	0.42
1:D:69:LEU:HD21	1:D:230:LEU:HD22	2.00	0.42
1:H:143:HIS:CE1	1:H:480:LEU:HD11	2.53	0.42
1:H:261:ARG:HD2	1:H:266:GLU:OE2	2.18	0.42
1:F:409:LYS:HG3	3:F:2305:HOH:O	2.18	0.42
1:G:488:ARG:NH2	3:G:2501:HOH:O	2.52	0.42
1:H:59:GLY:HA3	1:H:62:GLU:OE1	2.20	0.42
1:H:97:VAL:HG13	3:H:2194:HOH:O	2.18	0.42
1:C:310:PHE:CE1	1:C:319:LEU:CD1	3.03	0.42
1:F:68:ASP:OD2	1:F:535[A]:THR:HG23	2.19	0.42
1:G:163:LYS:HD3	3:G:2241:HOH:O	2.18	0.42
1:A:274:MET:HE3	3:A:2233:HOH:O	2.20	0.42
1:E:313:VAL:HG11	1:G:314:ARG:HD2	2.02	0.42
1:F:387:ILE:HG22	1:F:416:VAL:HG13	2.00	0.42
1:C:193:VAL:HG13	1:C:194:PRO:CD	2.44	0.42
1:E:232:ARG:HG3	1:E:242:THR:HG21	2.01	0.42
1:F:279:PHE:HB2	3:F:3260:HOH:O	2.19	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:513:ASN:C	1:F:513:ASN:ND2	2.76	0.42
1:H:128:ASP:HA	1:H:157:ILE:CD1	2.46	0.42
3:A:2316:HOH:O	1:C:313:VAL:HG22	2.19	0.42
1:B:300:TYR:HD1	1:B:505:ILE:HG23	1.85	0.42
1:B:485:GLU:CD	1:B:488:ARG:HH11	2.27	0.42
1:F:277:GLU:HB2	3:F:2128:HOH:O	2.19	0.42
1:F:386:THR:HG22	1:F:415:ASN:ND2	2.31	0.42
1:A:140:GLN:NE2	3:A:558:HOH:O	2.52	0.42
1:A:296:LEU:CD2	1:A:347:TYR:CD2	3.03	0.42
1:D:110:ASP:HB3	1:D:112:THR:H	1.85	0.42
3:D:3300:HOH:O	2:L:2:UNK:CB	2.68	0.42
1:E:310:PHE:HZ	1:E:387:ILE:CG2	2.33	0.42
1:E:310:PHE:HZ	1:E:387:ILE:HG21	1.84	0.42
1:F:213:THR:HG1	1:F:218:THR:HG22	1.78	0.42
1:H:127:VAL:HG21	1:H:147:ILE:CD1	2.50	0.42
1:B:300:TYR:CD1	1:B:505:ILE:HD12	2.55	0.42
1:F:329:VAL:HG23	1:F:509:TYR:HB3	2.01	0.42
1:A:324:ASP:CG	1:A:327:ILE:HD12	2.45	0.42
1:A:485:GLU:OE1	1:A:488:ARG:HD2	2.20	0.42
1:C:261:ARG:HB2	1:C:267:ILE:HD12	2.02	0.42
1:D:37:GLU:CB	3:D:2127:HOH:O	2.68	0.42
1:G:127:VAL:HA	3:G:3275:HOH:O	2.19	0.42
1:G:385:LEU:HD11	1:G:387:ILE:HD11	2.02	0.42
1:A:292:VAL:HG13	1:A:512:VAL:HG13	2.01	0.41
1:D:55:HIS:O	1:D:133:SER:HB2	2.19	0.41
1:E:92:ASN:HD22	1:E:95:ALA:H	1.68	0.41
1:E:399:LYS:CE	3:E:2255:HOH:O	2.68	0.41
1:F:117:GLN:NE2	3:F:2475:HOH:O	2.53	0.41
1:G:41:LEU:CD2	1:G:269:MET:HE3	2.48	0.41
1:F:386:THR:O	1:F:387:ILE:HD12	2.20	0.41
1:G:60:VAL:N	1:G:61:PRO:CD	2.83	0.41
1:C:127:VAL:O	1:C:127:VAL:HG12	2.19	0.41
1:G:385:LEU:HG	1:G:387:ILE:HD13	2.02	0.41
1:H:274:MET:CE	1:H:279:PHE:HD2	2.33	0.41
1:A:310:PHE:CE1	3:A:3257:HOH:O	2.57	0.41
1:B:310:PHE:HZ	1:B:387:ILE:HG21	1.85	0.41
1:D:273:SER:HB3	3:D:600:HOH:O	2.21	0.41
1:E:69:LEU:O	1:E:213:THR:HB	2.20	0.41
1:A:127:VAL:O	1:A:127:VAL:HG12	2.20	0.41
1:F:55:HIS:CD2	1:F:125:ARG:HH21	2.38	0.41
1:F:367:ASN:O	1:F:370:ALA:HB3	2.21	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:454:ASN:N	3:F:3223:HOH:O	2.54	0.41
1:H:52:LEU:HD12	1:H:222:TRP:CE3	2.56	0.41
1:H:260:ASN:ND2	3:H:1449:HOH:O	2.46	0.41
1:E:363:GLN:NE2	1:E:366:ARG:HH21	2.19	0.41
1:G:461:SER:HB3	3:G:2204:HOH:O	2.20	0.41
1:H:274:MET:HE2	1:H:279:PHE:CD2	2.56	0.41
1:B:123:TRP:CE3	1:B:162:VAL:HG21	2.52	0.41
1:C:424:LYS:HD2	3:C:756:HOH:O	2.20	0.41
1:F:286:ILE:O	1:F:286:ILE:CG2	2.63	0.41
1:A:45:ASN:ND2	1:A:64:ASN:HD22	2.19	0.41
1:A:166:ASP:HB2	3:A:1863:HOH:O	2.21	0.41
1:B:123:TRP:O	1:B:126[A]:SER:HB3	2.20	0.41
1:C:50:GLN:HG2	1:C:424:LYS:HD2	2.03	0.41
1:D:276:ILE:HG12	1:D:332:VAL:HG12	2.03	0.41
1:H:92:ASN:HD22	1:H:95:ALA:HA	1.85	0.41
1:E:456:MET:HE3	1:E:467:TYR:CG	2.56	0.41
1:F:196:ALA:HB3	3:F:1857:HOH:O	2.21	0.41
1:G:168:HIS:CD2	3:G:958:HOH:O	2.74	0.41
1:H:150:ILE:CG2	1:H:157:ILE:HD12	2.44	0.41
1:H:236:TYR:CE1	3:H:3291:HOH:O	2.71	0.41
1:A:165:ILE:CD1	1:A:171:GLU:HB2	2.47	0.40
1:C:280:GLN:NE2	3:C:3302:HOH:O	2.51	0.40
1:C:350:GLY:O	1:C:489:THR:CG2	2.69	0.40
1:E:127:VAL:HG13	1:E:150:ILE:CG2	2.52	0.40
1:A:340:ALA:HA	1:A:510:TYR:CE2	2.56	0.40
1:B:28:ASP:OD1	1:B:241:LYS:NZ	2.44	0.40
1:C:317:THR:HG21	3:C:621:HOH:O	2.21	0.40
1:E:340:ALA:HA	1:E:510:TYR:CE2	2.56	0.40
1:A:499:LEU:C	3:A:3293:HOH:O	2.64	0.40
1:B:286:ILE:CG2	1:B:289:GLU:HB2	2.51	0.40
1:B:386:THR:HG22	1:B:415:ASN:ND2	2.33	0.40
1:E:313:VAL:HG12	1:G:313:VAL:HG12	2.04	0.40
1:F:540:ILE:N	1:F:540:ILE:HD12	2.36	0.40
1:H:352:LYS:HG3	3:H:2487:HOH:O	2.21	0.40
1:B:217:TYR:CE2	1:B:535:THR:OG1	2.75	0.40
1:D:55:HIS:O	1:D:133:SER:CB	2.69	0.40
1:G:42:VAL:HG22	1:G:248:THR:HB	2.02	0.40
1:H:195:LYS:HG3	3:H:2094:HOH:O	2.21	0.40
1:H:323:MET:HE1	1:H:404:ALA:HB1	2.04	0.40
1:A:472:PHE:CZ	1:A:476:MET:HE3	2.57	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	517/524 (99%)	500 (97%)	15 (3%)	2 (0%)	30	27
1	B	517/524 (99%)	504 (98%)	12 (2%)	1 (0%)	43	42
1	C	516/524 (98%)	497 (96%)	18 (4%)	1 (0%)	43	42
1	D	516/524 (98%)	501 (97%)	14 (3%)	1 (0%)	43	42
1	E	517/524 (99%)	500 (97%)	16 (3%)	1 (0%)	43	42
1	F	519/524 (99%)	503 (97%)	15 (3%)	1 (0%)	43	42
1	G	517/524 (99%)	503 (97%)	13 (2%)	1 (0%)	43	42
1	H	516/524 (98%)	498 (96%)	16 (3%)	2 (0%)	30	27
All	All	4135/4192 (99%)	4006 (97%)	119 (3%)	10 (0%)	43	42

All (10) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	251	PRO
1	F	251	PRO
1	G	251	PRO
1	A	251	PRO
1	A	394	SER
1	C	251	PRO
1	E	251	PRO
1	H	251	PRO
1	H	394	SER
1	D	251	PRO

5.3.2 Protein sidechains

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	453/458 (99%)	439 (97%)	14 (3%)	35	37
1	B	453/458 (99%)	445 (98%)	8 (2%)	51	58
1	C	452/458 (99%)	445 (98%)	7 (2%)	57	64
1	D	452/458 (99%)	436 (96%)	16 (4%)	32	32
1	E	453/458 (99%)	445 (98%)	8 (2%)	51	58
1	F	455/458 (99%)	444 (98%)	11 (2%)	43	47
1	G	453/458 (99%)	437 (96%)	16 (4%)	32	32
1	H	452/458 (99%)	431 (95%)	21 (5%)	24	22
All	All	3623/3664 (99%)	3522 (97%)	101 (3%)	39	41

All (101) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	92	ASN
1	A	207	GLN
1	A	208	PRO
1	A	231	GLU
1	A	314	ARG
1	A	344	THR
1	A	348	THR
1	A	387	ILE
1	A	405	SER
1	A	439	ARG
1	A	474	SER
1	A	483	THR
1	A	494	LYS
1	A	512	VAL
1	B	208	PRO
1	B	327	ILE
1	B	329	VAL
1	B	372	LYS
1	B	383	LYS
1	B	439	ARG
1	B	474	SER
1	B	515	ARG
1	C	74	LEU
1	C	218	THR

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	C	284	LYS
1	C	313	VAL
1	C	439	ARG
1	C	481	LYS
1	C	483	THR
1	D	38	LYS
1	D	91	ASP
1	D	110	ASP
1	D	162	VAL
1	D	165	ILE
1	D	176	GLU
1	D	218	THR
1	D	302	GLU
1	D	307	LYS
1	D	314	ARG
1	D	328	ILE
1	D	439	ARG
1	D	482	VAL
1	D	484	ASP
1	D	493	THR
1	D	512	VAL
1	E	127	VAL
1	E	157	ILE
1	E	176	GLU
1	E	220	LYS
1	E	357	GLU
1	E	439	ARG
1	E	482	VAL
1	E	512	VAL
1	F	38	LYS
1	F	157	ILE
1	F	163	LYS
1	F	231	GLU
1	F	329	VAL
1	F	347[A]	TYR
1	F	347[B]	TYR
1	F	387	ILE
1	F	396	LEU
1	F	439	ARG
1	F	512	VAL
1	G	45	ASN
1	G	57	ILE

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	G	110	ASP
1	G	133[A]	SER
1	G	133[B]	SER
1	G	147	ILE
1	G	157	ILE
1	G	221	ASP
1	G	255	GLU
1	G	314	ARG
1	G	329	VAL
1	G	406	SER
1	G	439	ARG
1	G	482	VAL
1	G	512	VAL
1	G	530	LEU
1	H	33	VAL
1	H	65	ILE
1	H	91	ASP
1	H	99	THR
1	H	103	ARG
1	H	157	ILE
1	H	165	ILE
1	H	169	THR
1	H	176	GLU
1	H	203	GLU
1	H	208	PRO
1	H	221	ASP
1	H	233	SER
1	H	242	THR
1	H	247	VAL
1	H	307	LYS
1	H	328	ILE
1	H	439	ARG
1	H	482	VAL
1	H	484	ASP
1	H	512	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (85) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	39	GLN
1	A	45	ASN
1	A	55	HIS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	140	GLN
1	A	239	ASN
1	A	337	ASN
1	A	363	GLN
1	A	420	ASN
1	A	421	GLN
1	A	497	GLN
1	A	498	GLN
1	A	513	ASN
1	A	532	ASN
1	B	55	HIS
1	B	225	ASN
1	B	271	ASN
1	B	355	GLN
1	B	363	GLN
1	B	415	ASN
1	B	420	ASN
1	C	55	HIS
1	C	81	HIS
1	C	280	GLN
1	C	306	GLN
1	C	454	ASN
1	D	39	GLN
1	D	45	ASN
1	D	55	HIS
1	D	92	ASN
1	D	239	ASN
1	D	246	GLN
1	D	363	GLN
1	D	421	GLN
1	D	513	ASN
1	E	39	GLN
1	E	45	ASN
1	E	55	HIS
1	E	92	ASN
1	E	210	ASN
1	E	239	ASN
1	E	363	GLN
1	E	432	GLN
1	E	513	ASN
1	F	39	GLN
1	F	45	ASN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	F	55	HIS
1	F	117	GLN
1	F	239	ASN
1	F	246	GLN
1	F	305	ASN
1	F	355	GLN
1	F	363	GLN
1	F	420	ASN
1	F	421	GLN
1	F	432	GLN
1	F	498	GLN
1	F	513	ASN
1	G	39	GLN
1	G	45	ASN
1	G	55	HIS
1	G	124	GLN
1	G	140	GLN
1	G	207	GLN
1	G	239	ASN
1	G	246	GLN
1	G	280	GLN
1	G	335	GLN
1	G	363	GLN
1	G	513	ASN
1	H	39	GLN
1	H	45	ASN
1	H	92	ASN
1	H	124	GLN
1	H	140	GLN
1	H	168	HIS
1	H	207	GLN
1	H	239	ASN
1	H	246	GLN
1	H	337	ASN
1	H	363	GLN
1	H	420	ASN
1	H	421	GLN
1	H	487	GLN
1	H	513	ASN
1	H	532	ASN

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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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	517/524 (98%)	0.19	7 (1%) 73 73	8, 22, 36, 51	2 (0%)
1	B	517/524 (98%)	0.46	26 (5%) 34 33	9, 28, 47, 61	2 (0%)
1	C	517/524 (98%)	0.47	18 (3%) 47 46	12, 29, 42, 53	1 (0%)
1	D	517/524 (98%)	0.49	12 (2%) 61 60	13, 30, 42, 53	1 (0%)
1	E	517/524 (98%)	0.28	7 (1%) 73 73	10, 25, 36, 44	2 (0%)
1	F	517/524 (98%)	0.40	16 (3%) 51 50	9, 25, 41, 57	4 (0%)
1	G	517/524 (98%)	0.71	37 (7%) 21 20	11, 30, 51, 64	2 (0%)
1	H	517/524 (98%)	1.42	140 (27%) 1 1	22, 38, 67, 79	1 (0%)
2	I	0/3	-	-	-	-
2	J	0/3	-	-	-	-
2	K	0/3	-	-	-	-
2	L	0/3	-	-	-	-
2	M	0/3	-	-	-	-
2	N	0/3	-	-	-	-
2	O	0/3	-	-	-	-
2	P	0/3	-	-	-	-
All	All	4136/4216 (98%)	0.55	263 (6%) 25 24	8, 28, 48, 79	15 (0%)

All (263) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	H	126[A]	SER	6.4
1	H	97	VAL	6.2
1	H	193	VAL	5.7
1	H	209	GLY	4.7
1	D	330	ASN	4.6
1	H	482	VAL	4.5
1	H	86	VAL	4.3
1	H	484	ASP	4.2

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	H	347	TYR	4.2
1	H	162	VAL	4.2
1	H	223	VAL	4.1
1	H	147	ILE	4.0
1	H	145	ALA	3.9
1	E	484	ASP	3.9
1	H	169	THR	3.8
1	H	120	VAL	3.8
1	H	196	ALA	3.8
1	B	284	LYS	3.8
1	H	191	SER	3.8
1	H	93	LYS	3.7
1	H	218	THR	3.7
1	H	96	LYS	3.7
1	C	482	VAL	3.6
1	G	333	LYS	3.6
1	F	347[A]	TYR	3.6
1	H	141	TYR	3.6
1	H	119	PHE	3.6
1	H	102	LEU	3.6
1	H	122	SER	3.6
1	H	486	ALA	3.5
1	B	370	ALA	3.5
1	E	330	ASN	3.5
1	H	173	THR	3.5
1	H	170	LEU	3.4
1	H	178	VAL	3.4
1	H	479	THR	3.4
1	H	165	ILE	3.4
1	H	144	ILE	3.4
1	H	230	LEU	3.4
1	H	192	PRO	3.4
1	G	286	ILE	3.4
1	H	74	LEU	3.4
1	H	90	TRP	3.3
1	H	99	THR	3.3
1	H	129	PRO	3.3
1	H	98	TRP	3.3
1	H	208	PRO	3.3
1	B	278	LEU	3.3
1	H	457	LEU	3.3
1	H	354	THR	3.3

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	H	216	ALA	3.3
1	H	166	ASP	3.3
1	H	483	THR	3.2
1	H	116	ALA	3.2
1	H	157	ILE	3.2
1	H	95	ALA	3.2
1	G	110	ASP	3.2
1	H	168	HIS	3.2
1	H	100	PHE	3.1
1	H	215	GLY	3.1
1	H	150	ILE	3.1
1	H	491	LEU	3.1
1	H	180	TYR	3.1
1	B	334	ALA	3.1
1	G	212	VAL	3.1
1	H	108	TRP	3.1
1	H	194	PRO	3.1
1	D	117	GLN	3.0
1	H	177	PRO	3.0
1	H	201	PHE	3.0
1	G	284	LYS	3.0
1	H	103	ARG	3.0
1	G	540	ILE	3.0
1	D	406	SER	2.9
1	H	197	ALA	2.9
1	G	543	HIS	2.9
1	H	143	HIS	2.9
1	C	489	THR	2.9
1	G	37	GLU	2.9
1	C	540	ILE	2.9
1	H	112	THR	2.9
1	C	330	ASN	2.9
1	H	127	VAL	2.8
1	D	146	GLY	2.8
1	H	353	LEU	2.8
1	H	113	PRO	2.8
1	G	334	ALA	2.8
1	H	198	ILE	2.8
1	A	326	ASP	2.8
1	G	262	TYR	2.8
1	F	278	LEU	2.8
1	D	329	VAL	2.8

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	H	475	ILE	2.8
1	H	221	ASP	2.7
1	H	428	ASP	2.7
1	B	322	GLY	2.7
1	H	27	ALA	2.7
1	H	171	GLU	2.7
1	D	484	ASP	2.7
1	H	94	ASP	2.7
1	C	117	GLN	2.7
1	G	432	GLN	2.7
1	H	156	PRO	2.7
1	A	330	ASN	2.7
1	H	89	SER	2.7
1	B	166	ASP	2.7
1	D	526	GLY	2.7
1	H	117	GLN	2.6
1	B	381	ALA	2.6
1	H	210	ASN	2.6
1	H	375	ALA	2.6
1	H	107	LYS	2.6
1	G	541	VAL	2.6
1	B	375	ALA	2.6
1	F	375	ALA	2.6
1	F	126[A]	SER	2.6
1	A	37	GLU	2.6
1	G	218	THR	2.6
1	H	235	THR	2.6
1	H	240	ALA	2.6
1	E	428	ASP	2.6
1	H	70	PHE	2.5
1	B	276	ILE	2.5
1	H	142	GLY	2.5
1	H	146	GLY	2.5
1	B	354	THR	2.5
1	G	428	ASP	2.5
1	H	158	THR	2.5
1	H	188	PRO	2.5
1	H	487	GLN	2.5
1	F	284	LYS	2.5
1	C	221	ASP	2.5
1	B	409	LYS	2.5
1	C	333	LYS	2.5

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	H	155	LYS	2.5
1	H	200	LYS	2.5
1	H	172	VAL	2.5
1	F	282	LEU	2.5
1	F	373	LEU	2.5
1	G	282	LEU	2.5
1	G	220	LYS	2.5
1	B	364	GLU	2.4
1	B	484	ASP	2.4
1	D	487	GLN	2.4
1	C	483	THR	2.4
1	H	477	ALA	2.4
1	G	390	LEU	2.4
1	G	33	VAL	2.4
1	F	380	THR	2.4
1	G	354	THR	2.4
1	H	346	PRO	2.4
1	G	31	ALA	2.4
1	H	363	GLN	2.4
1	B	34	THR	2.4
1	B	542	LYS	2.4
1	H	190	THR	2.4
1	H	481	LYS	2.4
1	H	493	THR	2.4
1	C	356	PRO	2.4
1	H	160	LEU	2.4
1	G	202	GLY	2.4
1	H	330	ASN	2.4
1	B	386	THR	2.4
1	C	493	THR	2.4
1	H	115	THR	2.4
1	H	151	LEU	2.3
1	C	338	MET	2.3
1	G	409	LYS	2.3
1	H	222	TRP	2.3
1	H	237	TRP	2.3
1	H	164	ALA	2.3
1	H	492	TYR	2.3
1	C	526	GLY	2.3
1	H	85	GLY	2.3
1	H	488	ARG	2.3
1	H	365	LYS	2.3

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	H	189	SER	2.3
1	H	187	HIS	2.3
1	B	257	THR	2.3
1	B	347	TYR	2.3
1	G	516	LEU	2.3
1	F	409	LYS	2.3
1	H	460	SER	2.3
1	H	244	ILE	2.3
1	H	130	ASN	2.3
1	G	111	GLY	2.3
1	H	163	LYS	2.3
1	H	174	LEU	2.3
1	D	280	GLN	2.2
1	B	267	ILE	2.2
1	G	244	ILE	2.2
1	A	483	THR	2.2
1	B	384	PRO	2.2
1	G	34	THR	2.2
1	D	490	ALA	2.2
1	H	83	ALA	2.2
1	E	37	GLU	2.2
1	H	121	TYR	2.2
1	H	205	TRP	2.2
1	F	208	PRO	2.2
1	F	360	GLY	2.2
1	C	149	GLU	2.2
1	H	203	GLU	2.2
1	E	347	TYR	2.2
1	H	217	TYR	2.2
1	G	126[A]	SER	2.2
1	H	110	ASP	2.2
1	H	473	ASP	2.2
1	H	60	VAL	2.2
1	G	32	GLY	2.2
1	H	124	GLN	2.2
1	D	365	LYS	2.2
1	H	195	LYS	2.2
1	B	167	ASP	2.2
1	H	91	ASP	2.2
1	B	226	GLU	2.1
1	A	332	VAL	2.1
1	H	247	VAL	2.1

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	H	360	GLY	2.1
1	C	95	ALA	2.1
1	H	367	ASN	2.1
1	A	277	GLU	2.1
1	F	428	ASP	2.1
1	G	277	GLU	2.1
1	F	287	PRO	2.1
1	H	361	TRP	2.1
1	G	280	GLN	2.1
1	H	540	ILE	2.1
1	E	526	GLY	2.1
1	E	474	SER	2.1
1	G	396	LEU	2.1
1	B	415	ASN	2.1
1	H	167	ASP	2.1
1	G	113	PRO	2.1
1	H	179	PRO	2.1
1	C	97	VAL	2.1
1	G	253	ALA	2.1
1	H	184	LEU	2.1
1	G	105	ASP	2.1
1	B	287	PRO	2.1
1	H	372	LYS	2.1
1	G	332	VAL	2.1
1	C	474	SER	2.1
1	F	277	GLU	2.0
1	G	273	SER	2.1
1	H	176	GLU	2.0
1	H	78	LEU	2.0
1	G	167	ASP	2.0
1	H	118	ASP	2.0
1	H	470	PRO	2.0
1	F	32	GLY	2.0
1	H	228	ILE	2.0
1	D	482	VAL	2.0
1	H	212	VAL	2.0
1	H	359	PHE	2.0
1	B	520	TRP	2.0
1	C	486	ALA	2.0
1	C	92	ASN	2.0
1	A	432	GLN	2.0
1	H	280	GLN	2.0

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	B	543	HIS	2.0
1	F	386	THR	2.0
1	H	213	THR	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 oligosaccharides in this entry.

6.4 Ligands [i](#)

There are no ligands in this entry.

6.5 Other polymers [i](#)

There are no such residues in this entry.