



Full wwPDB X-ray Structure Validation Report ⓘ

May 25, 2020 – 08:19 pm BST

PDB ID : 3ALE
Title : A type III polyketide synthase that produces diarylheptanoid
Authors : Morita, H.; Kato, R.; Sugio, S.; Abe, I.
Deposited on : 2010-08-03
Resolution : 2.50 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467
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

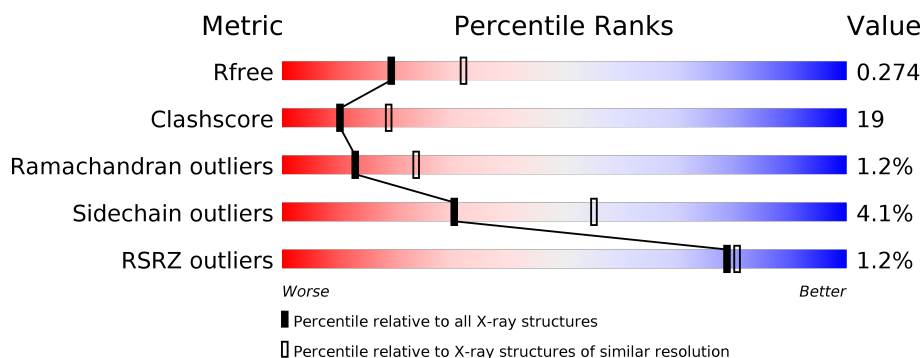
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.50 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	4661 (2.50-2.50)
Clashscore	141614	5346 (2.50-2.50)
Ramachandran outliers	138981	5231 (2.50-2.50)
Sidechain outliers	138945	5233 (2.50-2.50)
RSRZ outliers	127900	4559 (2.50-2.50)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	416	
1	B	416	
1	C	416	
1	D	416	

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 11223 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 Os07g0271500 protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	369	Total	C	N	O	S	0	0	0
			2805	1764	504	519	18			
1	B	366	Total	C	N	O	S	0	0	0
			2778	1746	498	516	18			
1	C	364	Total	C	N	O	S	0	0	0
			2768	1741	496	513	18			
1	D	361	Total	C	N	O	S	0	0	0
			2747	1730	493	506	18			

There are 60 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-13	MET	-	EXPRESSION TAG	UNP Q8LIL0
A	-12	GLY	-	EXPRESSION TAG	UNP Q8LIL0
A	-11	SER	-	EXPRESSION TAG	UNP Q8LIL0
A	-10	SER	-	EXPRESSION TAG	UNP Q8LIL0
A	-9	HIS	-	EXPRESSION TAG	UNP Q8LIL0
A	-8	HIS	-	EXPRESSION TAG	UNP Q8LIL0
A	-7	HIS	-	EXPRESSION TAG	UNP Q8LIL0
A	-6	HIS	-	EXPRESSION TAG	UNP Q8LIL0
A	-5	HIS	-	EXPRESSION TAG	UNP Q8LIL0
A	-4	HIS	-	EXPRESSION TAG	UNP Q8LIL0
A	-3	SER	-	EXPRESSION TAG	UNP Q8LIL0
A	-2	GLN	-	EXPRESSION TAG	UNP Q8LIL0
A	-1	ASP	-	EXPRESSION TAG	UNP Q8LIL0
A	0	PRO	-	EXPRESSION TAG	UNP Q8LIL0
A	46	ILE	PHE	SEE REMARK 999	UNP Q8LIL0
B	-13	MET	-	EXPRESSION TAG	UNP Q8LIL0
B	-12	GLY	-	EXPRESSION TAG	UNP Q8LIL0
B	-11	SER	-	EXPRESSION TAG	UNP Q8LIL0
B	-10	SER	-	EXPRESSION TAG	UNP Q8LIL0
B	-9	HIS	-	EXPRESSION TAG	UNP Q8LIL0
B	-8	HIS	-	EXPRESSION TAG	UNP Q8LIL0

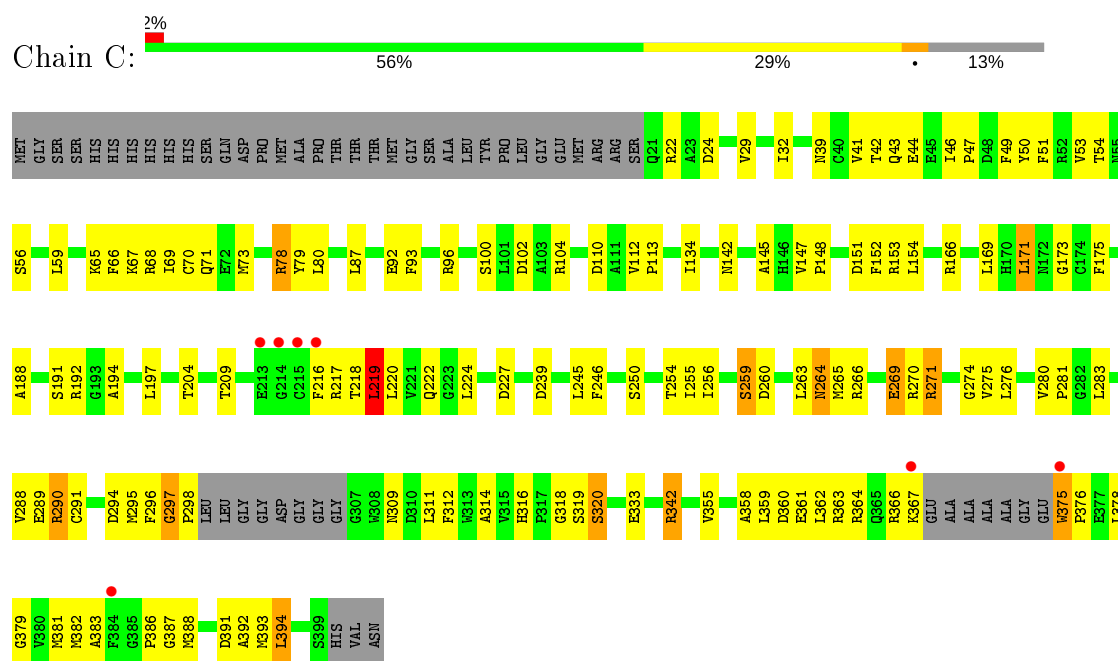
Continued on next page...

Continued from previous page...

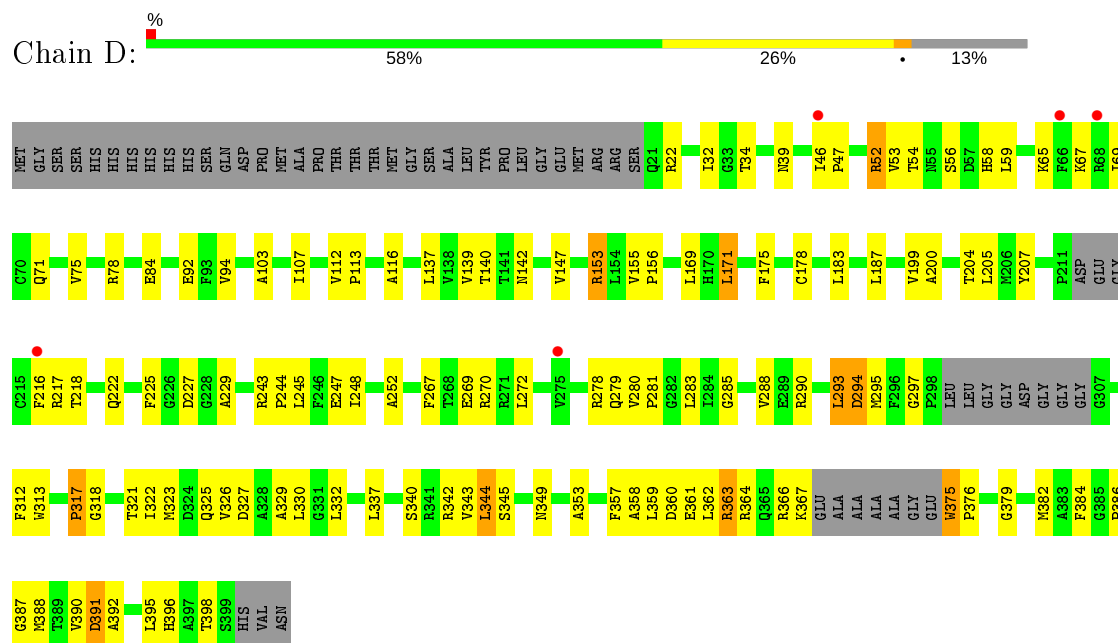
Chain	Residue	Modelled	Actual	Comment	Reference
B	-7	HIS	-	EXPRESSION TAG	UNP Q8LIL0
B	-6	HIS	-	EXPRESSION TAG	UNP Q8LIL0
B	-5	HIS	-	EXPRESSION TAG	UNP Q8LIL0
B	-4	HIS	-	EXPRESSION TAG	UNP Q8LIL0
B	-3	SER	-	EXPRESSION TAG	UNP Q8LIL0
B	-2	GLN	-	EXPRESSION TAG	UNP Q8LIL0
B	-1	ASP	-	EXPRESSION TAG	UNP Q8LIL0
B	0	PRO	-	EXPRESSION TAG	UNP Q8LIL0
B	46	ILE	PHE	SEE REMARK 999	UNP Q8LIL0
C	-13	MET	-	EXPRESSION TAG	UNP Q8LIL0
C	-12	GLY	-	EXPRESSION TAG	UNP Q8LIL0
C	-11	SER	-	EXPRESSION TAG	UNP Q8LIL0
C	-10	SER	-	EXPRESSION TAG	UNP Q8LIL0
C	-9	HIS	-	EXPRESSION TAG	UNP Q8LIL0
C	-8	HIS	-	EXPRESSION TAG	UNP Q8LIL0
C	-7	HIS	-	EXPRESSION TAG	UNP Q8LIL0
C	-6	HIS	-	EXPRESSION TAG	UNP Q8LIL0
C	-5	HIS	-	EXPRESSION TAG	UNP Q8LIL0
C	-4	HIS	-	EXPRESSION TAG	UNP Q8LIL0
C	-3	SER	-	EXPRESSION TAG	UNP Q8LIL0
C	-2	GLN	-	EXPRESSION TAG	UNP Q8LIL0
C	-1	ASP	-	EXPRESSION TAG	UNP Q8LIL0
C	0	PRO	-	EXPRESSION TAG	UNP Q8LIL0
C	46	ILE	PHE	SEE REMARK 999	UNP Q8LIL0
D	-13	MET	-	EXPRESSION TAG	UNP Q8LIL0
D	-12	GLY	-	EXPRESSION TAG	UNP Q8LIL0
D	-11	SER	-	EXPRESSION TAG	UNP Q8LIL0
D	-10	SER	-	EXPRESSION TAG	UNP Q8LIL0
D	-9	HIS	-	EXPRESSION TAG	UNP Q8LIL0
D	-8	HIS	-	EXPRESSION TAG	UNP Q8LIL0
D	-7	HIS	-	EXPRESSION TAG	UNP Q8LIL0
D	-6	HIS	-	EXPRESSION TAG	UNP Q8LIL0
D	-5	HIS	-	EXPRESSION TAG	UNP Q8LIL0
D	-4	HIS	-	EXPRESSION TAG	UNP Q8LIL0
D	-3	SER	-	EXPRESSION TAG	UNP Q8LIL0
D	-2	GLN	-	EXPRESSION TAG	UNP Q8LIL0
D	-1	ASP	-	EXPRESSION TAG	UNP Q8LIL0
D	0	PRO	-	EXPRESSION TAG	UNP Q8LIL0
D	46	ILE	PHE	SEE REMARK 999	UNP Q8LIL0

- Molecule 2 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	28	Total 28	O 28	0	0
2	B	45	Total 45	O 45	0	0
2	C	31	Total 31	O 31	0	0
2	D	21	Total 21	O 21	0	0



- Molecule 1: Os07g0271500 protein



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	72.70 Å 97.20 Å 126.20 Å 90.00° 103.70° 90.00°	Depositor
Resolution (Å)	25.96 – 2.50 25.96 – 2.50	Depositor EDS
% Data completeness (in resolution range)	92.7 (25.96-2.50) 92.7 (25.96-2.50)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.09	Depositor
$\langle I/\sigma(I) \rangle$ ¹	5.03 (at 2.50 Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.221 , 0.272 0.222 , 0.274	Depositor DCC
R_{free} test set	2771 reflections (5.05%)	wwPDB-VP
Wilson B-factor (Å ²)	29.7	Xtriage
Anisotropy	0.078	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 18.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.45$, $\langle L^2 \rangle = 0.28$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	11223	wwPDB-VP
Average B, all atoms (Å ²)	29.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.88% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality

5.1 Standard geometry

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	$\# Z > 5$	RMSZ	$\# Z > 5$
1	A	0.38	0/2858	0.65	0/3877
1	B	0.39	0/2831	0.66	0/3841
1	C	0.36	0/2821	0.63	1/3828 (0.0%)
1	D	0.33	0/2799	0.63	0/3797
All	All	0.36	0/11309	0.64	1/15343 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	219	LEU	CA-CB-CG	5.65	128.30	115.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2805	0	2794	85	0
1	B	2778	0	2759	117	0
1	C	2768	0	2751	130	0
1	D	2747	0	2737	103	0
2	A	28	0	0	2	0
2	B	45	0	0	4	0
2	C	31	0	0	4	0
2	D	21	0	0	1	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	11223	0	11041	416	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 19.

All (416) 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:B:75:VAL:HG11	1:B:78:ARG:HD2	1.43	0.99
1:C:259:SER:HB3	1:C:388:MET:H	1.30	0.96
1:C:361:GLU:HA	1:C:364:ARG:HD2	1.49	0.94
1:D:290:ARG:HD2	1:D:293:LEU:HD11	1.51	0.92
1:D:140:THR:HG22	1:D:169:LEU:HB2	1.50	0.90
1:B:318:GLY:HA3	1:B:322:ILE:HD12	1.54	0.87
1:C:29:VAL:HG23	1:C:245:LEU:HB2	1.56	0.86
1:B:46:ILE:HG22	1:B:47:PRO:HD3	1.58	0.85
1:A:183:LEU:HD11	1:B:183:LEU:HD22	1.58	0.84
1:A:46:ILE:HG13	1:A:78:ARG:HH21	1.44	0.82
1:D:155:VAL:HB	1:D:156:PRO:HD3	1.60	0.82
1:B:46:ILE:HD13	1:B:78:ARG:HH22	1.45	0.81
1:B:284:ILE:CD1	1:B:322:ILE:HG23	2.10	0.80
1:B:75:VAL:CG1	1:B:78:ARG:HD2	2.11	0.80
1:A:217:ARG:HB3	1:A:217:ARG:HH21	1.48	0.78
1:B:284:ILE:HD13	1:B:322:ILE:HG23	1.67	0.77
1:D:46:ILE:HG22	1:D:47:PRO:HD3	1.67	0.77
1:A:147:VAL:HG12	1:B:386:PRO:HB2	1.67	0.77
1:B:73:MET:SD	1:B:224:LEU:HD13	2.24	0.76
1:C:220:LEU:HD23	1:C:276:LEU:HD13	1.68	0.76
1:C:192:ARG:HG3	1:C:192:ARG:HH11	1.51	0.75
1:B:270:ARG:HB3	1:B:271:ARG:NH1	2.02	0.74
1:B:363:ARG:HD2	1:B:364:ARG:HD2	1.70	0.73
1:C:259:SER:OG	1:C:283:LEU:HD13	1.89	0.73
1:B:360:ASP:O	1:B:364:ARG:HD3	1.87	0.73
1:A:76:GLN:HG2	1:A:345:SER:O	1.89	0.72
1:A:194:ALA:O	1:A:195:ARG:HD3	1.91	0.70
1:C:147:VAL:HG12	1:D:386:PRO:HB2	1.73	0.70
1:D:34:THR:HB	1:D:357:PHE:CZ	2.27	0.69
1:D:342:ARG:HD3	1:D:342:ARG:O	1.92	0.69
1:B:75:VAL:HG11	1:B:78:ARG:CD	2.21	0.69
1:C:169:LEU:HD23	1:D:169:LEU:HD23	1.73	0.69
1:C:69:ILE:HD11	1:C:219:LEU:HD23	1.75	0.68

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:217:ARG:NH2	1:A:217:ARG:HB3	2.06	0.68
1:B:375:TRP:N	1:B:376:PRO:HD2	2.08	0.68
1:A:207:TYR:CE1	1:A:272:LEU:HD23	2.29	0.68
1:B:153:ARG:HD2	2:B:434:HOH:O	1.94	0.67
1:C:39:ASN:HB3	1:C:80:LEU:O	1.94	0.67
1:A:217:ARG:CB	1:A:217:ARG:HH21	2.08	0.66
1:B:284:ILE:HG13	1:B:285:GLY:N	2.09	0.66
1:C:65:LYS:HG3	1:C:68:ARG:NH1	2.09	0.66
1:C:309:ASN:OD1	1:C:333:GLU:HG3	1.95	0.66
1:C:46:ILE:HD12	1:C:78:ARG:HH21	1.60	0.66
1:D:218:THR:O	1:D:222:GLN:HG2	1.96	0.66
1:C:173:GLY:HA2	1:C:265:MET:HE1	1.78	0.66
1:B:42:THR:OG1	1:B:45:GLU:HG2	1.95	0.66
1:C:316:HIS:HB3	1:C:383:ALA:HA	1.77	0.66
1:A:318:GLY:HA3	1:A:322:ILE:HD12	1.79	0.65
1:C:375:TRP:HA	1:C:375:TRP:CE3	2.30	0.65
1:D:245:LEU:HD13	1:D:363:ARG:NH1	2.12	0.65
1:B:78:ARG:NH1	1:B:223:GLY:HA2	2.12	0.65
1:B:65:LYS:O	1:B:69:ILE:HG13	1.97	0.64
1:B:46:ILE:HD13	1:B:78:ARG:NH2	2.13	0.64
1:C:112:VAL:HB	1:C:113:PRO:HD3	1.80	0.64
1:A:42:THR:OG1	1:A:45:GLU:HG3	1.98	0.64
1:C:46:ILE:HB	1:C:47:PRO:HD3	1.80	0.64
1:B:280:VAL:HB	1:B:281:PRO:HD3	1.79	0.63
1:D:46:ILE:CG2	1:D:47:PRO:HD3	2.29	0.63
1:D:267:PHE:HD2	1:D:272:LEU:HD13	1.63	0.63
1:D:360:ASP:O	1:D:364:ARG:HG3	1.99	0.63
1:D:46:ILE:HG12	1:D:78:ARG:HH22	1.64	0.63
1:C:204:THR:HG23	1:C:227:ASP:OD1	1.99	0.62
1:D:375:TRP:N	1:D:376:PRO:HD2	2.15	0.62
1:C:291:CYS:O	1:C:295:MET:HG3	1.98	0.62
1:B:285:GLY:HA3	1:B:325:GLN:OE1	2.00	0.62
1:D:293:LEU:HD12	1:D:294:ASP:OD1	2.00	0.62
1:B:46:ILE:CG2	1:B:47:PRO:HD3	2.28	0.61
1:C:69:ILE:CD1	1:C:219:LEU:HD23	2.31	0.61
1:D:323:MET:HE1	1:D:340:SER:HB2	1.82	0.61
1:A:19:ARG:HA	1:B:26:LEU:HD21	1.82	0.61
1:D:183:LEU:O	1:D:187:LEU:HD13	2.00	0.61
1:A:46:ILE:HG13	1:A:78:ARG:NH2	2.15	0.61
1:C:29:VAL:HG22	1:C:246:PHE:H	1.66	0.60
1:B:323:MET:HE1	1:B:340:SER:HB2	1.84	0.60

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:47:PRO:HA	1:B:66:PHE:HE2	1.67	0.60
1:D:280:VAL:HB	1:D:281:PRO:HD3	1.83	0.60
1:C:151:ASP:OD2	1:C:166:ARG:HD2	2.02	0.60
1:A:280:VAL:HB	1:A:281:PRO:HD3	1.83	0.60
1:A:284:ILE:O	1:A:288:VAL:HG22	2.02	0.59
1:B:288:VAL:HG13	1:B:289:GLU:N	2.17	0.59
1:C:192:ARG:NH1	1:C:192:ARG:HG3	2.18	0.59
1:D:387:GLY:N	1:D:388:MET:HA	2.17	0.59
1:D:384:PHE:CD1	1:D:390:VAL:HG22	2.37	0.59
1:B:112:VAL:HB	1:B:113:PRO:HD3	1.84	0.59
1:C:375:TRP:HA	1:C:375:TRP:HE3	1.66	0.59
1:C:314:ALA:O	1:C:381:MET:HA	2.03	0.59
1:C:142:ASN:OD1	1:C:171:LEU:HD12	2.03	0.58
1:C:22:ARG:HD3	1:D:22:ARG:HD3	1.83	0.58
1:A:153:ARG:HH11	1:A:153:ARG:CG	2.16	0.58
1:B:323:MET:CE	1:B:337:LEU:HB3	2.32	0.58
1:D:75:VAL:HG22	1:D:344:LEU:CD2	2.33	0.58
1:A:78:ARG:HG2	1:A:347:TYR:O	2.02	0.58
1:D:363:ARG:O	1:D:367:LYS:HG2	2.03	0.58
1:A:386:PRO:HB2	1:B:147:VAL:HG12	1.84	0.58
1:C:216:PHE:O	1:C:219:LEU:HD22	2.03	0.58
1:D:330:LEU:HD12	1:D:332:LEU:HD11	1.84	0.58
1:C:29:VAL:CG2	1:C:245:LEU:HB2	2.33	0.57
1:D:140:THR:CG2	1:D:169:LEU:HD12	2.34	0.57
1:A:102:ASP:HB2	1:B:269:GLU:OE2	2.05	0.57
1:A:363:ARG:O	1:A:367:LYS:HG2	2.04	0.57
1:D:278:ARG:HH11	1:D:278:ARG:HG2	1.69	0.57
1:D:140:THR:HG22	1:D:169:LEU:HD12	1.87	0.57
1:B:56:SER:HB2	1:B:59:LEU:HD12	1.87	0.57
1:C:24:ASP:CG	1:C:192:ARG:HH22	2.08	0.57
1:C:250:SER:O	1:C:393:MET:HA	2.04	0.57
1:D:243:ARG:O	1:D:243:ARG:HG3	2.04	0.57
1:C:312:PHE:CE1	1:C:379:GLY:HA3	2.40	0.57
1:C:153:ARG:CG	1:C:153:ARG:HH11	2.18	0.57
1:B:126:GLU:CD	1:B:363:ARG:HH22	2.09	0.56
1:B:270:ARG:HB3	1:B:271:ARG:HH12	1.67	0.56
1:C:56:SER:HB3	1:C:59:LEU:HD23	1.87	0.56
1:B:137:LEU:HD22	1:B:139:VAL:HG23	1.87	0.56
1:C:217:ARG:NH2	1:C:276:LEU:H	2.04	0.56
1:C:49:PHE:O	1:C:53:VAL:HG13	2.05	0.56
1:C:65:LYS:HE3	1:C:68:ARG:HH12	1.70	0.56

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:267:PHE:CD2	1:D:272:LEU:HD13	2.41	0.56
1:D:290:ARG:HG3	1:D:290:ARG:HH21	1.69	0.56
1:B:78:ARG:HH11	1:B:223:GLY:HA2	1.69	0.56
1:B:47:PRO:HA	1:B:66:PHE:CE2	2.41	0.56
1:C:265:MET:HE1	2:C:411:HOH:O	2.04	0.56
1:A:169:LEU:HD23	1:B:169:LEU:HD22	1.88	0.56
1:B:323:MET:HE1	1:B:337:LEU:HB3	1.88	0.56
1:C:153:ARG:HG3	1:C:153:ARG:HH11	1.70	0.56
1:B:52:ARG:HH22	1:B:84:GLU:CD	2.10	0.55
1:C:288:VAL:HG13	1:C:289:GLU:N	2.22	0.55
1:A:46:ILE:HB	1:A:47:PRO:HD3	1.88	0.55
1:C:148:PRO:HB2	1:C:152:PHE:CB	2.36	0.55
1:D:103:ALA:O	1:D:107:ILE:HG13	2.07	0.55
1:D:285:GLY:HA3	1:D:325:GLN:HE21	1.71	0.55
1:D:313:TRP:O	1:D:362:LEU:HD22	2.07	0.55
1:C:79:TYR:O	1:C:227:ASP:HB2	2.07	0.55
1:D:67:LYS:O	1:D:71:GLN:HG2	2.07	0.55
1:D:75:VAL:HA	1:D:345:SER:HA	1.88	0.54
1:B:137:LEU:CD2	1:B:139:VAL:HG23	2.38	0.54
1:C:264:ASN:O	1:C:274:GLY:HA3	2.07	0.54
1:D:244:PRO:HB2	1:D:398:THR:HG21	1.89	0.54
1:C:173:GLY:HA2	1:C:265:MET:CE	2.36	0.54
1:D:112:VAL:HB	1:D:113:PRO:HD3	1.90	0.54
1:D:323:MET:CE	1:D:340:SER:HB2	2.37	0.54
1:B:288:VAL:HG13	1:B:289:GLU:H	1.73	0.54
1:B:296:PHE:O	1:B:297:GLY:C	2.46	0.54
1:C:366:ARG:HH12	1:C:376:PRO:HD2	1.73	0.54
1:A:278:ARG:HG2	1:A:278:ARG:HH11	1.73	0.54
1:B:168:MET:HE2	2:B:425:HOH:O	2.08	0.54
1:A:168:MET:HB3	1:B:172:ASN:HD21	1.73	0.54
1:B:247:GLU:HB2	1:B:396:HIS:HB3	1.89	0.54
1:C:270:ARG:O	1:C:271:ARG:HB3	2.08	0.54
1:C:355:VAL:O	1:C:358:ALA:HB3	2.08	0.54
1:C:259:SER:OG	1:C:388:MET:HG3	2.08	0.54
1:A:56:SER:HB3	1:A:59:LEU:HD12	1.90	0.53
1:C:68:ARG:HG3	1:C:69:ILE:N	2.23	0.53
1:C:312:PHE:CD1	1:C:379:GLY:HA3	2.42	0.53
1:A:387:GLY:N	1:A:388:MET:HA	2.22	0.53
1:A:342:ARG:HG3	1:A:342:ARG:HH21	1.74	0.53
1:A:198:VAL:O	1:A:231:ALA:HA	2.09	0.53
1:D:285:GLY:O	1:D:329:ALA:HB2	2.08	0.53

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:67:LYS:O	1:A:71:GLN:HG3	2.09	0.53
1:D:343:VAL:HG21	1:D:358:ALA:HA	1.91	0.53
1:A:47:PRO:HG2	1:A:67:LYS:HD2	1.91	0.52
1:D:216:PHE:CD2	1:D:278:ARG:NH2	2.77	0.52
1:D:247:GLU:HB2	1:D:396:HIS:HB3	1.91	0.52
1:A:366:ARG:O	1:A:366:ARG:HG2	2.10	0.52
1:C:256:ILE:O	1:C:259:SER:HB2	2.08	0.52
1:C:288:VAL:HG13	1:C:289:GLU:H	1.73	0.52
1:B:291:CYS:O	1:B:295:MET:HG3	2.08	0.52
1:C:29:VAL:O	1:C:29:VAL:HG23	2.10	0.52
1:C:382:MET:HB2	1:C:392:ALA:HB2	1.92	0.52
1:D:361:GLU:HB2	1:D:364:ARG:HH21	1.75	0.52
1:B:264:ASN:OD1	1:B:275:VAL:HB	2.10	0.52
1:D:318:GLY:HA2	1:D:349:ASN:ND2	2.25	0.52
1:D:56:SER:HB3	1:D:59:LEU:CD1	2.40	0.52
1:D:53:VAL:HG21	1:D:84:GLU:HA	1.92	0.52
1:B:394:LEU:HD23	1:B:394:LEU:C	2.30	0.51
1:A:153:ARG:HH11	1:A:153:ARG:HG3	1.74	0.51
1:D:312:PHE:CD1	1:D:379:GLY:HA3	2.46	0.51
1:A:19:ARG:NE	1:A:20:SER:O	2.41	0.51
1:A:270:ARG:O	1:A:271:ARG:HB3	2.11	0.51
1:A:34:THR:O	1:A:122:LYS:HD2	2.10	0.51
1:B:278:ARG:HG2	1:B:278:ARG:HH11	1.76	0.51
1:C:217:ARG:HG3	1:C:217:ARG:HH21	1.74	0.51
1:A:327:ASP:OD2	1:A:337:LEU:HD12	2.11	0.51
1:A:42:THR:HG23	1:A:45:GLU:OE1	2.10	0.51
1:D:321:THR:O	1:D:325:GLN:HG2	2.11	0.51
1:C:342:ARG:CG	1:C:342:ARG:HH21	2.23	0.51
1:D:278:ARG:HG2	1:D:278:ARG:NH1	2.26	0.51
1:B:284:ILE:HD11	1:B:322:ILE:HG23	1.91	0.51
1:B:363:ARG:CD	1:B:364:ARG:HD2	2.39	0.51
1:B:40:CYS:HB2	1:B:79:TYR:CE1	2.46	0.51
1:C:265:MET:O	1:C:266:ARG:HG3	2.11	0.51
1:C:382:MET:CB	1:C:392:ALA:HB2	2.40	0.51
1:D:116:ALA:HB1	1:D:199:VAL:HG11	1.92	0.51
1:B:212:ASP:O	1:B:214:GLY:N	2.44	0.51
1:C:148:PRO:HB2	1:C:152:PHE:HB3	1.92	0.51
1:C:259:SER:HG	1:C:283:LEU:HD13	1.76	0.51
1:C:224:LEU:HD21	1:C:318:GLY:O	2.11	0.51
1:B:175:PHE:HD2	1:B:385:GLY:HA3	1.75	0.50
1:B:217:ARG:HG2	1:B:217:ARG:NH2	2.25	0.50

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:322:ILE:HD12	1:D:322:ILE:N	2.26	0.50
1:D:140:THR:HG22	1:D:169:LEU:CB	2.32	0.50
1:A:169:LEU:HD23	1:B:169:LEU:CD2	2.42	0.50
1:A:215:CYS:SG	1:A:217:ARG:CZ	2.99	0.50
1:B:110:ASP:O	1:B:114:GLU:HG2	2.11	0.50
1:D:363:ARG:HG2	1:D:363:ARG:HH11	1.76	0.50
1:B:267:PHE:CD1	1:B:272:LEU:HD13	2.47	0.50
1:B:217:ARG:HG2	1:B:217:ARG:HH21	1.77	0.50
1:B:292:LEU:HA	1:B:295:MET:HE3	1.92	0.50
1:C:260:ASP:HA	2:C:418:HOH:O	2.11	0.50
1:D:323:MET:HE3	1:D:337:LEU:HB3	1.93	0.50
1:D:56:SER:HB3	1:D:59:LEU:HD12	1.94	0.50
1:B:205:LEU:HD12	1:B:205:LEU:C	2.32	0.50
1:B:53:VAL:HG12	1:B:84:GLU:HG3	1.93	0.49
1:D:67:LYS:HE3	1:D:71:GLN:NE2	2.27	0.49
1:A:215:CYS:HB3	2:A:414:HOH:O	2.12	0.49
1:C:290:ARG:NE	1:C:294:ASP:OD2	2.45	0.49
1:A:34:THR:HB	1:A:357:PHE:CZ	2.47	0.49
1:B:387:GLY:N	1:B:388:MET:HA	2.27	0.49
1:C:216:PHE:HA	1:C:219:LEU:CD1	2.43	0.49
1:B:238:ALA:CB	1:B:244:PRO:HG3	2.42	0.49
1:D:52:ARG:C	1:D:52:ARG:HD2	2.33	0.48
1:B:34:THR:O	1:B:122:LYS:HD2	2.13	0.48
1:C:387:GLY:N	1:C:388:MET:HA	2.28	0.48
1:D:200:ALA:O	1:D:229:ALA:HA	2.13	0.48
1:B:220:LEU:O	1:B:224:LEU:HB2	2.13	0.48
1:A:80:LEU:HD22	1:A:82:HIS:CE1	2.48	0.48
1:D:361:GLU:OE1	1:D:364:ARG:NH2	2.47	0.48
1:D:332:LEU:HD13	1:D:337:LEU:CD1	2.43	0.48
1:A:142:ASN:OD1	1:A:171:LEU:HD12	2.14	0.48
1:D:327:ASP:OD1	1:D:337:LEU:HD22	2.14	0.48
1:B:312:PHE:CD1	1:B:379:GLY:HA3	2.49	0.48
1:B:323:MET:CE	1:B:340:SER:HB2	2.44	0.48
1:A:40:CYS:HB2	1:A:79:TYR:CE1	2.49	0.48
1:B:296:PHE:O	1:B:298:PRO:N	2.46	0.48
1:B:52:ARG:NH2	1:B:84:GLU:CD	2.67	0.48
1:B:312:PHE:CE1	1:B:379:GLY:HA3	2.49	0.47
1:D:353:ALA:O	1:D:357:PHE:HD1	1.96	0.47
1:D:375:TRP:CE3	1:D:375:TRP:HA	2.49	0.47
1:B:65:LYS:HD3	1:B:68:ARG:NH2	2.30	0.47
1:C:53:VAL:HB	1:C:87:LEU:HD13	1.96	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:361:GLU:HA	1:D:364:ARG:HE	1.79	0.47
1:A:266:ARG:HH21	1:A:266:ARG:HG2	1.79	0.47
1:C:78:ARG:HD3	1:C:78:ARG:N	2.29	0.47
1:C:153:ARG:NH1	1:C:153:ARG:CG	2.77	0.47
1:C:42:THR:HB	1:C:44:GLU:OE2	2.14	0.47
1:B:283:LEU:O	1:B:287:ASN:ND2	2.42	0.47
1:A:47:PRO:HG2	1:A:67:LYS:CD	2.44	0.47
1:B:375:TRP:N	1:B:376:PRO:CD	2.76	0.47
1:C:102:ASP:OD2	1:D:269:GLU:HG3	2.14	0.47
1:A:266:ARG:O	1:A:272:LEU:HD12	2.15	0.47
1:B:191:SER:HB2	1:B:194:ALA:HB2	1.96	0.47
1:D:322:ILE:O	1:D:326:VAL:HG23	2.14	0.47
1:D:332:LEU:HD13	1:D:337:LEU:HD11	1.97	0.47
1:B:62:LEU:HD21	1:B:211:PRO:HB2	1.96	0.47
1:A:278:ARG:NH1	1:A:278:ARG:HG2	2.29	0.47
1:B:330:LEU:HB2	1:B:332:LEU:HG	1.97	0.47
1:C:263:LEU:HD23	1:C:275:VAL:O	2.15	0.47
1:C:366:ARG:NH1	1:C:376:PRO:HD2	2.30	0.47
1:A:264:ASN:OD1	1:A:275:VAL:HB	2.15	0.46
1:A:75:VAL:HA	1:A:345:SER:HA	1.96	0.46
1:C:191:SER:HB2	1:C:194:ALA:HB2	1.96	0.46
1:A:217:ARG:HG3	1:A:218:THR:N	2.30	0.46
1:B:201:ALA:HA	1:B:229:ALA:HA	1.97	0.46
1:C:46:ILE:HD11	1:C:78:ARG:HE	1.80	0.46
1:D:375:TRP:HE3	1:D:375:TRP:HA	1.79	0.46
1:A:153:ARG:NH1	1:A:153:ARG:CG	2.77	0.46
1:C:32:ILE:CD1	1:C:359:LEU:HD12	2.46	0.46
1:C:363:ARG:HD3	1:C:367:LYS:NZ	2.30	0.46
1:D:137:LEU:HD11	1:D:139:VAL:HG23	1.98	0.46
1:D:137:LEU:HD13	1:D:137:LEU:C	2.36	0.46
1:D:65:LYS:O	1:D:69:ILE:HG13	2.15	0.46
1:A:186:ASP:OD1	1:B:187:LEU:HD23	2.15	0.46
1:C:254:THR:OG1	1:C:255:ILE:N	2.48	0.46
1:C:296:PHE:O	1:C:297:GLY:C	2.53	0.46
1:D:290:ARG:NH2	1:D:294:ASP:OD1	2.48	0.46
1:C:92:GLU:HG3	1:C:100:SER:HB3	1.98	0.46
1:A:145:ALA:O	1:B:266:ARG:HA	2.16	0.46
1:A:51:PHE:CZ	1:A:63:LYS:HA	2.50	0.46
1:B:218:THR:O	1:B:222:GLN:HG2	2.15	0.46
1:C:41:VAL:CG1	1:C:46:ILE:HD13	2.45	0.46
1:D:92:GLU:CD	1:D:92:GLU:H	2.19	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:74:GLY:O	1:B:344:LEU:HD23	2.15	0.46
1:C:188:ALA:HA	1:C:194:ALA:HB3	1.99	0.45
1:B:51:PHE:CZ	1:B:63:LYS:HA	2.51	0.45
1:D:252:ALA:HB3	1:D:295:MET:HB3	1.97	0.45
1:B:270:ARG:O	1:B:271:ARG:HB3	2.16	0.45
1:B:39:ASN:HB3	1:B:80:LEU:O	2.17	0.45
1:C:73:MET:O	1:C:320:SER:HB2	2.17	0.45
1:B:96:ARG:NH2	1:B:215:CYS:SG	2.90	0.45
1:B:56:SER:HA	1:B:58:HIS:CE1	2.51	0.45
1:C:169:LEU:HD13	2:C:428:HOH:O	2.16	0.45
1:C:360:ASP:OD2	1:C:364:ARG:NH2	2.50	0.45
1:D:56:SER:HA	1:D:58:HIS:CE1	2.52	0.45
1:D:207:TYR:HE2	2:D:419:HOH:O	1.99	0.45
1:B:306:GLY:HA2	1:B:310:ASP:OD1	2.17	0.45
1:B:355:VAL:O	1:B:358:ALA:HB3	2.16	0.45
1:C:362:LEU:O	1:C:366:ARG:HG3	2.16	0.45
1:D:142:ASN:OD1	1:D:171:LEU:HD12	2.16	0.45
1:C:110:ASP:O	1:C:113:PRO:HD2	2.16	0.45
1:C:67:LYS:O	1:C:71:GLN:HG3	2.16	0.45
1:C:342:ARG:NH2	1:C:342:ARG:CG	2.80	0.45
1:D:288:VAL:HG23	1:D:384:PHE:HZ	1.82	0.45
1:A:96:ARG:NE	1:A:212:ASP:HB2	2.32	0.44
1:C:43:GLN:HA	1:C:46:ILE:HG12	1.98	0.44
1:B:33:GLY:O	1:B:231:ALA:N	2.49	0.44
1:B:384:PHE:HD1	1:B:390:VAL:HG22	1.82	0.44
1:A:96:ARG:CZ	1:A:212:ASP:HB2	2.47	0.44
1:C:68:ARG:HG3	1:C:69:ILE:HG23	1.98	0.44
1:B:65:LYS:NZ	1:B:65:LYS:HB2	2.33	0.44
1:B:78:ARG:HH11	1:B:223:GLY:CA	2.30	0.44
1:C:216:PHE:HA	1:C:219:LEU:HD13	1.99	0.44
1:C:32:ILE:HD11	1:C:359:LEU:HD12	1.99	0.44
1:C:379:GLY:O	1:C:394:LEU:HD23	2.18	0.44
1:C:59:LEU:N	1:C:59:LEU:HD22	2.33	0.44
1:A:116:ALA:HB1	1:A:199:VAL:HG11	1.98	0.44
1:D:317:PRO:O	1:D:318:GLY:C	2.56	0.44
1:B:323:MET:HE3	1:B:337:LEU:HB3	2.00	0.44
1:D:217:ARG:HH21	1:D:217:ARG:HG2	1.82	0.44
1:D:330:LEU:HB2	1:D:332:LEU:HG	2.00	0.44
1:D:225:PHE:HD1	1:D:349:ASN:HB3	1.83	0.44
1:D:363:ARG:NH1	1:D:363:ARG:HG2	2.33	0.44
1:D:342:ARG:HH21	1:D:342:ARG:HG2	1.82	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:366:ARG:NH1	1:D:375:TRP:N	2.66	0.43
1:D:312:PHE:CE1	1:D:379:GLY:HA3	2.52	0.43
1:A:285:GLY:HA3	1:A:325:GLN:OE1	2.18	0.43
1:C:311:LEU:HA	1:C:378:LEU:O	2.18	0.43
1:C:92:GLU:HG2	1:C:93:PHE:N	2.32	0.43
1:B:162:PRO:HD2	2:B:438:HOH:O	2.18	0.43
1:C:100:SER:O	1:C:104:ARG:HG3	2.18	0.43
1:C:269:GLU:HG2	1:C:269:GLU:H	1.49	0.43
1:C:41:VAL:HG12	1:C:46:ILE:HD13	2.00	0.43
1:C:362:LEU:O	1:C:366:ARG:CG	2.66	0.43
1:A:178:CYS:HB3	1:A:391:ASP:OD2	2.18	0.43
1:B:284:ILE:CG1	1:B:285:GLY:N	2.79	0.43
1:A:147:VAL:HG12	1:B:386:PRO:CB	2.44	0.43
1:A:375:TRP:N	1:A:376:PRO:CD	2.81	0.43
1:B:290:ARG:HB3	1:B:290:ARG:NH2	2.34	0.43
1:B:82:HIS:HB3	1:B:86:MET:HE1	1.99	0.43
1:C:134:ILE:HD13	1:C:197:LEU:HB2	2.01	0.43
1:C:110:ASP:HB3	2:C:405:HOH:O	2.17	0.43
1:C:151:ASP:CG	1:C:152:PHE:N	2.72	0.43
1:C:22:ARG:HB2	1:D:22:ARG:NH1	2.33	0.43
1:D:155:VAL:CB	1:D:156:PRO:HD3	2.39	0.43
1:D:137:LEU:CD1	1:D:139:VAL:HG23	2.49	0.43
1:A:268:THR:HA	1:B:102:ASP:OD2	2.19	0.42
1:A:270:ARG:N	1:A:270:ARG:HD2	2.34	0.42
1:A:278:ARG:O	1:A:281:PRO:HD2	2.19	0.42
1:C:154:LEU:HD23	1:C:154:LEU:HA	1.92	0.42
1:A:363:ARG:O	1:A:367:LYS:HE3	2.19	0.42
1:C:147:VAL:HA	1:C:148:PRO:C	2.39	0.42
1:C:224:LEU:HD21	1:C:319:SER:HB3	2.01	0.42
1:C:246:PHE:CD2	1:C:359:LEU:HD11	2.54	0.42
1:C:360:ASP:O	1:C:364:ARG:HG3	2.19	0.42
1:C:375:TRP:N	1:C:376:PRO:CD	2.83	0.42
1:A:49:PHE:O	1:A:53:VAL:HG22	2.19	0.42
1:D:382:MET:HB3	1:D:392:ALA:HB2	2.01	0.42
1:A:384:PHE:HA	1:A:389:THR:O	2.19	0.42
1:A:205:LEU:C	1:A:205:LEU:HD12	2.40	0.42
1:A:34:THR:HB	1:A:357:PHE:CE2	2.54	0.42
1:C:65:LYS:NZ	1:C:216:PHE:CE2	2.79	0.42
1:C:280:VAL:HB	1:C:281:PRO:HD3	2.01	0.42
1:B:116:ALA:HB1	1:B:199:VAL:HG11	2.01	0.42
1:B:136:HIS:HB2	1:B:196:VAL:HG22	2.01	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:96:ARG:HH12	1:C:218:THR:HG21	1.84	0.42
1:B:290:ARG:CB	1:B:290:ARG:NH2	2.82	0.42
1:A:175:PHE:HD2	1:A:385:GLY:HA3	1.84	0.42
1:A:238:ALA:HB2	1:A:244:PRO:HG3	2.02	0.42
1:B:225:PHE:CD1	1:B:225:PHE:N	2.88	0.42
1:C:216:PHE:HB3	1:C:219:LEU:HD21	2.01	0.42
1:A:317:PRO:O	1:A:318:GLY:C	2.58	0.42
1:C:218:THR:O	1:C:222:GLN:HG2	2.20	0.42
1:C:290:ARG:HD3	1:C:291:CYS:N	2.35	0.42
1:C:29:VAL:HG22	1:C:246:PHE:N	2.34	0.41
1:A:129:ARG:NH1	1:A:133:ASP:OD1	2.52	0.41
1:C:342:ARG:HG3	1:C:342:ARG:HH21	1.84	0.41
1:D:205:LEU:C	1:D:205:LEU:HD12	2.40	0.41
1:D:245:LEU:HD13	1:D:363:ARG:HH12	1.82	0.41
1:D:279:GLN:O	1:D:283:LEU:HD23	2.20	0.41
1:A:145:ALA:HB1	1:B:267:PHE:CD2	2.55	0.41
1:A:375:TRP:O	1:A:376:PRO:C	2.59	0.41
1:B:290:ARG:HB3	1:B:290:ARG:HH21	1.84	0.41
1:B:67:LYS:O	1:B:71:GLN:NE2	2.54	0.41
1:C:366:ARG:NH1	1:C:375:TRP:N	2.68	0.41
1:B:192:ARG:HD2	2:B:412:HOH:O	2.20	0.41
1:C:32:ILE:HG21	1:C:360:ASP:HB2	2.01	0.41
1:C:66:PHE:CZ	1:C:70:CYS:SG	3.13	0.41
1:A:42:THR:HG23	1:A:45:GLU:CD	2.41	0.41
1:A:293:LEU:O	1:A:297:GLY:N	2.52	0.41
1:B:172:ASN:HD22	1:B:172:ASN:HA	1.60	0.41
1:B:278:ARG:HG2	1:B:278:ARG:NH1	2.35	0.41
1:D:248:ILE:HA	1:D:395:LEU:HD23	2.01	0.41
1:D:54:THR:HG22	1:D:94:VAL:HG13	2.01	0.41
1:A:224:LEU:O	1:A:224:LEU:HD12	2.21	0.41
1:C:386:PRO:HB2	1:D:147:VAL:HG12	2.01	0.41
1:C:51:PHE:HD2	1:C:56:SER:O	2.04	0.41
1:D:153:ARG:HG2	1:D:153:ARG:H	1.71	0.41
1:D:32:ILE:HG21	1:D:360:ASP:HB2	2.02	0.41
1:A:166:ARG:HD2	1:A:166:ARG:HH11	1.77	0.41
1:A:267:PHE:CD1	1:A:272:LEU:HD13	2.55	0.41
1:B:319:SER:H	1:B:322:ILE:HB	1.85	0.41
1:C:175:PHE:C	1:C:175:PHE:CD1	2.95	0.41
1:A:66:PHE:CD1	1:A:219:LEU:HD22	2.56	0.41
1:B:360:ASP:OD1	1:B:364:ARG:NE	2.53	0.41
1:C:96:ARG:HG2	1:C:209:THR:OG1	2.20	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:65:LYS:O	1:C:68:ARG:HG2	2.21	0.41
1:C:263:LEU:HA	1:C:263:LEU:HD23	1.93	0.40
1:A:343:VAL:HG21	1:A:358:ALA:HA	2.03	0.40
1:C:296:PHE:O	1:C:298:PRO:N	2.54	0.40
1:D:204:THR:HG23	1:D:227:ASP:OD2	2.21	0.40
1:D:285:GLY:HA3	1:D:325:GLN:NE2	2.34	0.40
1:A:217:ARG:HG2	2:A:414:HOH:O	2.20	0.40
1:B:161:ARG:HA	1:B:162:PRO:HD3	1.95	0.40
1:B:382:MET:HB2	1:B:392:ALA:HB2	2.03	0.40
1:D:175:PHE:HB2	1:D:391:ASP:HB2	2.02	0.40
1:A:127:TRP:CE2	1:A:129:ARG:HB2	2.57	0.40
1:B:34:THR:HB	1:B:357:PHE:CZ	2.56	0.40
1:C:50:TYR:CE1	1:C:54:THR:HG21	2.57	0.40
1:D:178:CYS:HB3	1:D:391:ASP:HB3	2.03	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	363/416 (87%)	346 (95%)	12 (3%)	5 (1%)	11	20
1	B	360/416 (86%)	340 (94%)	16 (4%)	4 (1%)	14	26
1	C	358/416 (86%)	334 (93%)	19 (5%)	5 (1%)	11	20
1	D	353/416 (85%)	329 (93%)	21 (6%)	3 (1%)	19	35
All	All	1434/1664 (86%)	1349 (94%)	68 (5%)	17 (1%)	13	24

All (17) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	213	GLU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	297	GLY
1	A	145	ALA
1	A	271	ARG
1	A	297	GLY
1	B	145	ALA
1	C	145	ALA
1	C	271	ARG
1	C	297	GLY
1	B	271	ARG
1	D	171	LEU
1	A	171	LEU
1	A	317	PRO
1	C	171	LEU
1	C	239	ASP
1	D	297	GLY
1	D	317	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	291/324 (90%)	278 (96%)	13 (4%)	27	51
1	B	288/324 (89%)	276 (96%)	12 (4%)	30	54
1	C	287/324 (89%)	276 (96%)	11 (4%)	33	58
1	D	285/324 (88%)	274 (96%)	11 (4%)	32	57
All	All	1151/1296 (89%)	1104 (96%)	47 (4%)	30	55

All (47) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	19	ARG
1	A	22	ARG
1	A	57	ASP
1	A	85	GLU
1	A	102	ASP

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	153	ARG
1	A	183	LEU
1	A	192	ARG
1	A	217	ARG
1	A	243	ARG
1	A	270	ARG
1	A	288	VAL
1	A	342	ARG
1	B	65	LYS
1	B	78	ARG
1	B	137	LEU
1	B	143	SER
1	B	153	ARG
1	B	172	ASN
1	B	241	VAL
1	B	264	ASN
1	B	344	LEU
1	B	363	ARG
1	B	375	TRP
1	B	391	ASP
1	C	78	ARG
1	C	219	LEU
1	C	259	SER
1	C	264	ASN
1	C	269	GLU
1	C	290	ARG
1	C	320	SER
1	C	342	ARG
1	C	375	TRP
1	C	391	ASP
1	C	394	LEU
1	D	39	ASN
1	D	52	ARG
1	D	153	ARG
1	D	270	ARG
1	D	293	LEU
1	D	294	ASP
1	D	344	LEU
1	D	359	LEU
1	D	363	ARG
1	D	375	TRP
1	D	391	ASP

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (14) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	55	ASN
1	A	76	GLN
1	A	222	GLN
1	A	279	GLN
1	A	365	GLN
1	B	71	GLN
1	B	172	ASN
1	C	71	GLN
1	C	82	HIS
1	C	90	HIS
1	C	222	GLN
1	C	325	GLN
1	D	21	GLN
1	D	325	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

5.6 Ligand geometry [i](#)

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 ⓘ

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	369/416 (88%)	-0.31	1 (0%) 94 94	8, 21, 44, 71	0
1	B	366/416 (87%)	-0.33	4 (1%) 80 82	9, 21, 41, 67	0
1	C	364/416 (87%)	-0.15	7 (1%) 66 69	16, 30, 52, 75	0
1	D	361/416 (86%)	-0.05	5 (1%) 75 77	17, 35, 58, 72	0
All	All	1460/1664 (87%)	-0.21	17 (1%) 79 80	8, 27, 52, 75	0

All (17) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	215	CYS	4.3
1	B	216	PHE	4.2
1	B	20	SER	3.3
1	C	214	GLY	3.1
1	C	375	TRP	3.1
1	B	213	GLU	3.1
1	D	66	PHE	3.0
1	B	240	ASP	2.9
1	A	213	GLU	2.8
1	C	216	PHE	2.7
1	C	367	LYS	2.6
1	D	46	ILE	2.6
1	D	68	ARG	2.4
1	C	213	GLU	2.3
1	C	384	PHE	2.2
1	D	275	VAL	2.1
1	D	216	PHE	2.1

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

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

6.3 Carbohydrates [i](#)

There are no carbohydrates in this entry.

6.4 Ligands [i](#)

There are no ligands in this entry.

6.5 Other polymers [i](#)

There are no such residues in this entry.