



Full wwPDB X-ray Structure Validation Report ⓘ

May 29, 2024 – 06:39 PM EDT

PDB ID : 1OLA
Title : THE STRUCTURAL BASIS OF MULTISPECIFICITY IN THE OLIGOPEPTIDE-BINDING PROTEIN OPPA
Authors : Tame, J.; Wilkinson, A.J.
Deposited on : 1994-04-26
Resolution : 2.10 Å(reported)

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

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

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	:	4.02b-467
Xtriage (Phenix)	:	NOT EXECUTED
EDS	:	NOT EXECUTED
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36.2

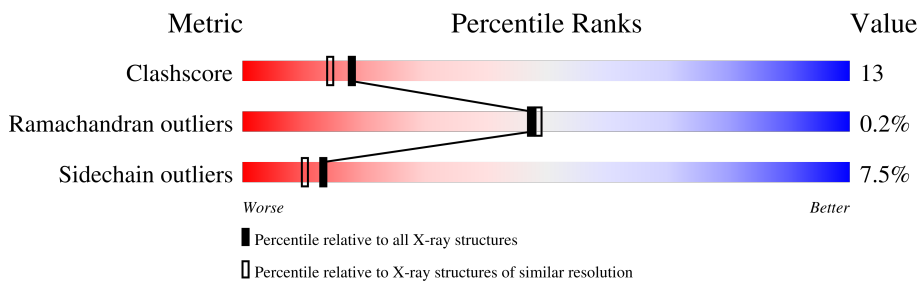
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.10 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	141614	5710 (2.10-2.10)
Ramachandran outliers	138981	5647 (2.10-2.10)
Sidechain outliers	138945	5648 (2.10-2.10)

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

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	517	 66% 28% 5%
2	B	4	 75% 25%

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 4463 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.

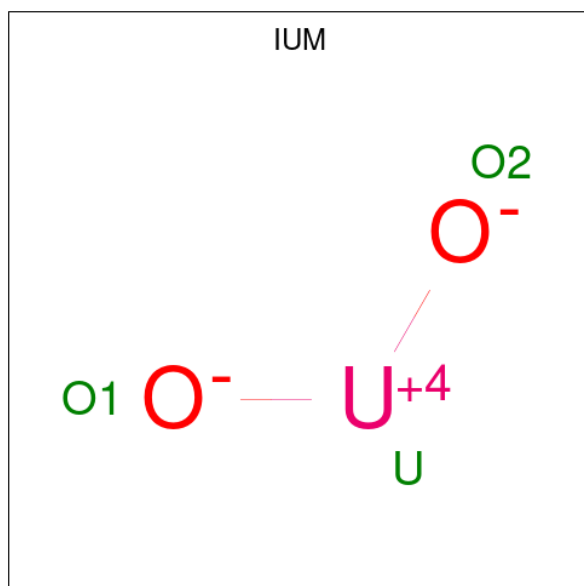
- Molecule 1 is a protein called OLIGO-PEPTIDE BINDING PROTEIN.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	517	Total	C	N	O	S	0	0	0
			4079	2603	681	790	5			

- Molecule 2 is a protein called PEPTIDE VAL-LYS-PRO-GLY.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
2	B	4	Total	C	N	O	0	0	0
			28	18	5	5			

- Molecule 3 is URANYL (VI) ION (three-letter code: IUM) (formula: O₂U).



Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	1	Total	U	0	0
			1	1		
3	A	1	Total	U	0	0
			1	1		

- Molecule 4 is water.

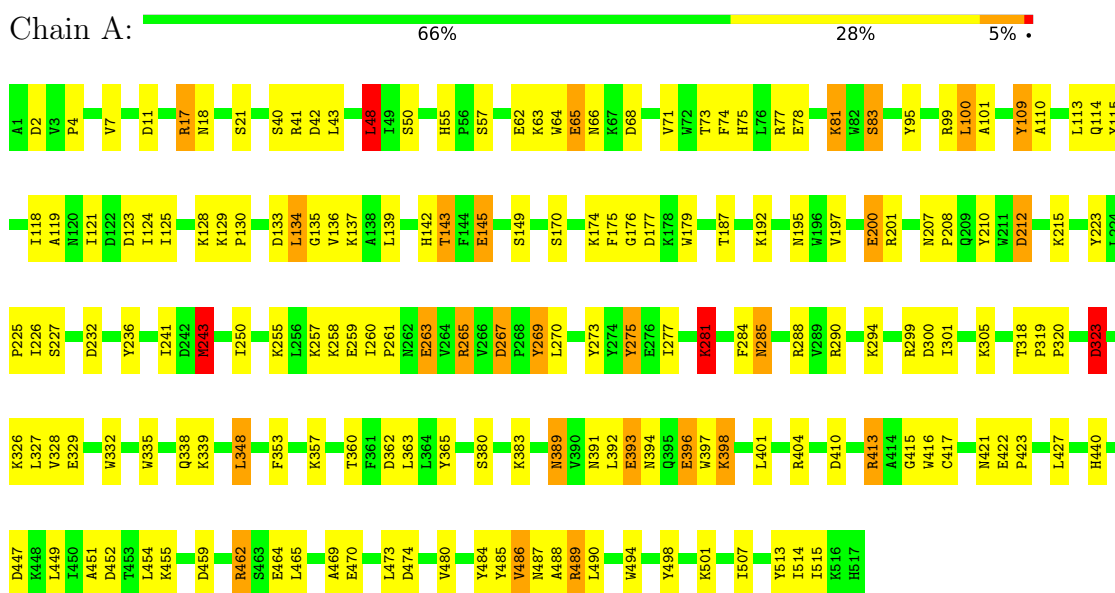
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	352	Total 352	O 352	0	0
4	B	2	Total 2	O 2	0	0

3 Residue-property plots

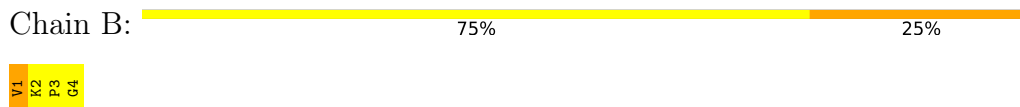
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded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

Note EDS was not executed.

• Molecule 1: OLIGO-PEPTIDE BINDING PROTEIN



• Molecule 2: PEPTIDE VAL-LYS-PRO-GLY



4 Data and refinement statistics

Xtriage (Phenix) and EDS were not executed - this section is therefore incomplete.

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α , β , γ	106.50Å 74.50Å 70.00Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	8.00 – 2.10	Depositor
% Data completeness (in resolution range)	(Not available) (8.00-2.10)	Depositor
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
Refinement program	PROLSQ	Depositor
R, R_{free}	0.167 , (Not available)	Depositor
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	4463	wwPDB-VP
Average B, all atoms (Å ²)	30.0	wwPDB-VP

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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	0.93	1/4190 (0.0%)	1.70	62/5723 (1.1%)
2	B	0.96	0/28	1.89	0/35
All	All	0.93	1/4218 (0.0%)	1.71	62/5758 (1.1%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	83	SER	CA-CB	5.27	1.60	1.52

All (62) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	17	ARG	NE-CZ-NH2	-12.88	113.86	120.30
1	A	17	ARG	CD-NE-CZ	12.69	141.36	123.60
1	A	267	ASP	CB-CG-OD2	10.06	127.36	118.30
1	A	17	ARG	NE-CZ-NH1	9.95	125.28	120.30
1	A	77	ARG	CD-NE-CZ	9.83	137.36	123.60
1	A	48	LEU	CA-CB-CG	9.42	136.97	115.30
1	A	288	ARG	NE-CZ-NH2	-8.55	116.02	120.30
1	A	300	ASP	CB-CG-OD2	-8.49	110.66	118.30
1	A	68	ASP	CB-CG-OD2	-8.27	110.86	118.30
1	A	323	ASP	CB-CG-OD2	-7.87	111.22	118.30
1	A	267	ASP	CB-CG-OD1	-7.87	111.22	118.30
1	A	265	ARG	NE-CZ-NH2	-7.86	116.37	120.30
1	A	243	MET	N-CA-CB	7.77	124.59	110.60
1	A	413	ARG	NE-CZ-NH2	-7.61	116.50	120.30
1	A	265	ARG	NE-CZ-NH1	7.46	124.03	120.30
1	A	288	ARG	NE-CZ-NH1	7.44	124.02	120.30
1	A	275	TYR	CB-CG-CD2	-7.13	116.72	121.00
1	A	269	TYR	CB-CG-CD2	-7.10	116.74	121.00

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	11	ASP	CB-CG-OD2	-6.99	112.01	118.30
1	A	462	ARG	NE-CZ-NH1	-6.97	116.81	120.30
1	A	50	SER	N-CA-CB	6.89	120.83	110.50
1	A	201	ARG	NE-CZ-NH1	6.79	123.70	120.30
1	A	329	GLU	OE1-CD-OE2	6.63	131.26	123.30
1	A	474	ASP	CB-CG-OD2	-6.61	112.36	118.30
1	A	447	ASP	CB-CG-OD2	-6.58	112.38	118.30
1	A	462	ARG	NE-CZ-NH2	6.54	123.57	120.30
1	A	473	LEU	CA-CB-CG	6.45	130.12	115.30
1	A	290	ARG	NE-CZ-NH1	6.37	123.48	120.30
1	A	21	SER	N-CA-CB	6.24	119.86	110.50
1	A	99	ARG	NE-CZ-NH2	-6.18	117.21	120.30
1	A	109	TYR	CB-CG-CD1	6.17	124.70	121.00
1	A	223	TYR	CB-CG-CD2	-5.90	117.46	121.00
1	A	42	ASP	CB-CG-OD1	5.87	123.58	118.30
1	A	281	LYS	CA-CB-CG	5.73	126.01	113.40
1	A	201	ARG	NE-CZ-NH2	-5.73	117.44	120.30
1	A	273	TYR	CB-CG-CD2	-5.70	117.58	121.00
1	A	290	ARG	NE-CZ-NH2	-5.66	117.47	120.30
1	A	329	GLU	CG-CD-OE1	-5.65	107.00	118.30
1	A	263	GLU	OE1-CD-OE2	5.63	130.06	123.30
1	A	485	TYR	CA-CB-CG	5.57	123.98	113.40
1	A	81	LYS	CB-CA-C	-5.55	99.29	110.40
1	A	396	GLU	CA-CB-CG	5.51	125.52	113.40
1	A	299	ARG	NE-CZ-NH2	-5.49	117.56	120.30
1	A	323	ASP	OD1-CG-OD2	5.49	133.72	123.30
1	A	269	TYR	CB-CG-CD1	5.37	124.22	121.00
1	A	489	ARG	NE-CZ-NH1	5.36	122.98	120.30
1	A	95	TYR	CB-CG-CD2	5.32	124.19	121.00
1	A	393	GLU	OE1-CD-OE2	5.31	129.67	123.30
1	A	62	GLU	CA-CB-CG	5.30	125.06	113.40
1	A	145	GLU	CG-CD-OE2	-5.26	107.78	118.30
1	A	17	ARG	CB-CA-C	-5.21	99.98	110.40
1	A	270	LEU	CB-CA-C	5.18	120.05	110.20
1	A	513	TYR	CD1-CE1-CZ	-5.18	115.14	119.80
1	A	452	ASP	CB-CG-OD1	5.17	122.96	118.30
1	A	99	ARG	NE-CZ-NH1	5.17	122.89	120.30
1	A	389	ASN	N-CA-CB	5.14	119.85	110.60
1	A	212	ASP	CB-CG-OD2	5.12	122.91	118.30
1	A	259	GLU	CA-CB-CG	5.09	124.59	113.40
1	A	486	VAL	N-CA-CB	5.08	122.69	111.50
1	A	462	ARG	CD-NE-CZ	-5.06	116.52	123.60

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	451	ALA	N-CA-CB	5.03	117.14	110.10
1	A	474	ASP	CB-CG-OD1	5.01	122.81	118.30

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	4079	0	3889	106	0
2	B	28	0	34	7	0
3	A	2	0	0	0	0
4	A	352	0	0	29	2
4	B	2	0	0	1	0
All	All	4463	0	3923	108	2

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 13.

All (108) 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:A:427:LEU:HD23	4:A:764:HOH:O	1.18	1.31
1:A:383:LYS:CA	4:A:858:HOH:O	1.86	1.22
1:A:226:ILE:HG13	4:A:849:HOH:O	1.58	1.01
1:A:192:LYS:CA	4:A:778:HOH:O	2.10	0.99
1:A:149:SER:HA	4:A:686:HOH:O	1.67	0.93
1:A:142:HIS:CD2	4:A:685:HOH:O	2.24	0.90
1:A:109:TYR:HA	4:A:852:HOH:O	1.70	0.89
1:A:142:HIS:HD2	4:A:685:HOH:O	1.54	0.88
1:A:396:GLU:OE2	1:A:398:LYS:HE2	1.79	0.82
1:A:335:TRP:CD2	1:A:339:LYS:HD3	2.22	0.75
1:A:392:LEU:O	4:A:722:HOH:O	2.06	0.73
1:A:226:ILE:CG1	4:A:849:HOH:O	2.26	0.71
1:A:281:LYS:NZ	4:A:696:HOH:O	2.24	0.71

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:455:LYS:HD3	4:A:838:HOH:O	1.91	0.71
1:A:208:PRO:O	4:A:833:HOH:O	2.10	0.68
1:A:17:ARG:HD3	1:A:243:MET:HG3	1.76	0.67
1:A:124:ILE:HD13	1:A:129:LYS:HB2	1.77	0.66
1:A:417:CYS:SG	2:B:3:PRO:HG3	2.36	0.65
1:A:301:ILE:HA	1:A:305:LYS:HD2	1.79	0.64
2:B:4:GLY:HA3	4:B:328:HOH:O	1.98	0.64
1:A:391:ASN:HB2	4:A:868:HOH:O	1.97	0.63
1:A:41:ARG:HG2	4:A:666:HOH:O	1.98	0.62
1:A:123:ASP:HB3	1:A:129:LYS:HG3	1.81	0.62
1:A:66:ASN:HA	1:A:71:VAL:O	2.00	0.62
1:A:139:LEU:HB2	1:A:143:THR:HB	1.82	0.61
1:A:176:GLY:O	1:A:179:TRP:HD1	1.83	0.61
1:A:83:SER:HB2	1:A:187:THR:H	1.65	0.60
1:A:260:ILE:N	1:A:261:PRO:CD	2.63	0.60
1:A:323:ASP:O	1:A:423:PRO:HD3	2.02	0.60
1:A:404:ARG:O	1:A:440:HIS:HE1	1.85	0.60
1:A:255:LYS:CA	4:A:845:HOH:O	2.51	0.58
1:A:335:TRP:CG	1:A:339:LYS:HD3	2.37	0.58
1:A:263:GLU:O	1:A:490:LEU:HA	2.04	0.58
1:A:501:LYS:CA	4:A:840:HOH:O	2.52	0.57
1:A:17:ARG:HD2	4:A:557:HOH:O	2.05	0.55
1:A:40:SER:HB2	4:A:566:HOH:O	2.04	0.55
1:A:265:ARG:O	1:A:488:ALA:HA	2.06	0.55
1:A:124:ILE:HD12	1:A:130:PRO:O	2.07	0.55
1:A:226:ILE:HD13	1:A:226:ILE:N	2.20	0.55
1:A:427:LEU:CD2	4:A:764:HOH:O	2.03	0.55
1:A:197:VAL:HG12	1:A:200:GLU:HB2	1.89	0.55
1:A:207:ASN:ND2	4:A:681:HOH:O	2.35	0.55
1:A:285:ASN:N	1:A:285:ASN:HD22	2.06	0.54
1:A:43:LEU:O	1:A:187:THR:HB	2.08	0.53
1:A:396:GLU:OE2	1:A:398:LYS:CE	2.53	0.53
1:A:130:PRO:HD2	1:A:133:ASP:OD2	2.08	0.52
1:A:416:TRP:HE3	2:B:2:LYS:HD3	1.75	0.52
1:A:489:ARG:NH2	4:A:655:HOH:O	2.26	0.52
1:A:269:TYR:HB2	1:A:487:ASN:HB2	1.92	0.51
1:A:267:ASP:OD2	4:A:572:HOH:O	2.19	0.51
1:A:294:LYS:HE3	1:A:332:TRP:CE2	2.46	0.51
1:A:416:TRP:CE3	2:B:2:LYS:HD3	2.46	0.51
1:A:100:LEU:HD13	1:A:113:LEU:HG	1.91	0.51
1:A:323:ASP:HB2	1:A:421:ASN:OD1	2.11	0.50

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:422:GLU:HG2	4:A:712:HOH:O	2.11	0.50
1:A:17:ARG:CD	1:A:243:MET:HG3	2.41	0.50
1:A:64:TRP:HB3	1:A:74:PHE:CD2	2.47	0.50
1:A:137:LYS:HE3	1:A:145:GLU:OE1	2.13	0.49
1:A:494:TRP:O	1:A:515:ILE:HG13	2.12	0.49
1:A:275:TYR:CD1	1:A:363:LEU:HD11	2.47	0.49
1:A:320:PRO:HD3	1:A:484:TYR:CZ	2.47	0.49
1:A:285:ASN:HD22	1:A:285:ASN:H	1.61	0.48
1:A:18:ASN:ND2	1:A:232:ASP:OD2	2.42	0.48
1:A:2:ASP:OD1	1:A:215:LYS:CE	2.62	0.48
1:A:498:TYR:HE1	1:A:507:ILE:HD11	1.79	0.48
1:A:514:ILE:N	1:A:514:ILE:HD13	2.27	0.48
1:A:114:GLN:HA	1:A:121:ILE:HG21	1.96	0.48
1:A:277:ILE:CG2	1:A:284:PHE:HB3	2.44	0.48
1:A:360:THR:HA	1:A:389:ASN:O	2.14	0.48
1:A:78:GLU:HG3	4:A:719:HOH:O	2.15	0.47
1:A:48:LEU:HB3	1:A:57:SER:O	2.16	0.46
1:A:123:ASP:CB	1:A:129:LYS:HG3	2.44	0.46
1:A:115:TYR:CD1	1:A:115:TYR:N	2.82	0.45
1:A:4:PRO:HG2	1:A:7:VAL:HG21	1.97	0.45
1:A:417:CYS:HB2	2:B:1:VAL:HG23	1.98	0.45
1:A:449:LEU:HD13	1:A:469:ALA:HA	1.98	0.45
1:A:415:GLY:O	2:B:3:PRO:HD2	2.17	0.45
1:A:277:ILE:HD11	1:A:480:VAL:HG23	1.99	0.44
1:A:134:LEU:HD13	1:A:136:VAL:HG13	2.00	0.44
1:A:260:ILE:N	1:A:261:PRO:HD3	2.32	0.44
1:A:119:ALA:HB3	1:A:135:GLY:HA3	1.99	0.43
1:A:118:ILE:CG2	1:A:134:LEU:HD22	2.48	0.43
1:A:174:LYS:HB2	4:A:739:HOH:O	2.17	0.43
1:A:250:ILE:HA	4:A:803:HOH:O	2.17	0.43
1:A:236:TYR:OH	1:A:263:GLU:HB3	2.19	0.43
1:A:360:THR:HG23	1:A:389:ASN:HB2	2.01	0.42
1:A:462:ARG:HH11	1:A:462:ARG:HD2	1.49	0.42
1:A:55:HIS:HD2	4:A:725:HOH:O	2.02	0.42
1:A:65:GLU:CD	1:A:75:HIS:HE1	2.22	0.42
1:A:327:LEU:HD22	1:A:470:GLU:HG3	2.01	0.42
1:A:210:TYR:CE2	1:A:212:ASP:HB3	2.55	0.42
1:A:362:ASP:O	1:A:410:ASP:HB2	2.20	0.42
1:A:365:TYR:CZ	1:A:394:ASN:HB3	2.54	0.42
1:A:64:TRP:HA	1:A:73:THR:O	2.20	0.42
1:A:174:LYS:HD3	1:A:175:PHE:CZ	2.55	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:285:ASN:H	1:A:285:ASN:ND2	2.18	0.42
1:A:348:LEU:HD22	1:A:353:PHE:HD2	1.85	0.42
1:A:397:TRP:CE2	1:A:401:LEU:HD11	2.55	0.42
1:A:465:LEU:HD23	1:A:465:LEU:HA	1.88	0.41
1:A:236:TYR:HA	1:A:241:ILE:HB	2.01	0.41
1:A:101:ALA:HB2	1:A:113:LEU:HD12	2.03	0.41
4:A:568:HOH:O	2:B:2:LYS:HB3	2.20	0.41
1:A:100:LEU:HD22	1:A:110:ALA:HA	2.03	0.41
1:A:128:LYS:HB3	1:A:128:LYS:HE2	1.90	0.41
1:A:318:THR:HA	1:A:319:PRO:HD3	1.94	0.41
1:A:4:PRO:HB2	1:A:7:VAL:HG23	2.02	0.41
1:A:348:LEU:HD23	1:A:348:LEU:HA	1.94	0.40
1:A:4:PRO:CG	1:A:7:VAL:HG21	2.50	0.40

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

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:A:665:HOH:O	4:A:665:HOH:O[2_555]	1.50	0.70
4:A:857:HOH:O	4:A:857:HOH:O[2_545]	1.91	0.29

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	515/517 (100%)	493 (96%)	21 (4%)	1 (0%)	47	49
2	B	2/4 (50%)	2 (100%)	0	0	100	100
All	All	517/521 (99%)	495 (96%)	21 (4%)	1 (0%)	47	49

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	225	PRO

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	437/455 (96%)	405 (93%)	32 (7%)	14	11
2	B	3/3 (100%)	2 (67%)	1 (33%)	0	0
All	All	440/458 (96%)	407 (92%)	33 (8%)	13	10

All (33) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	48	LEU
1	A	63	LYS
1	A	65	GLU
1	A	81	LYS
1	A	100	LEU
1	A	125	ILE
1	A	134	LEU
1	A	143	THR
1	A	170	SER
1	A	177	ASP
1	A	195	ASN
1	A	200	GLU
1	A	227	SER
1	A	243	MET
1	A	257	LYS
1	A	258	LYS
1	A	281	LYS
1	A	285	ASN
1	A	323	ASP
1	A	326	LYS
1	A	328	VAL
1	A	338	GLN
1	A	348	LEU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	357	LYS
1	A	380	SER
1	A	393	GLU
1	A	398	LYS
1	A	413	ARG
1	A	454	LEU
1	A	459	ASP
1	A	464	GLU
1	A	486	VAL
2	B	1	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (10) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	24	GLN
1	A	75	HIS
1	A	117	HIS
1	A	142	HIS
1	A	220	GLN
1	A	280	GLN
1	A	285	ASN
1	A	389	ASN
1	A	391	ASN
1	A	440	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 2 ligands modelled in this entry, 2 are modelled with single atom - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [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

EDS was not executed - this section is therefore empty.

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

EDS was not executed - this section is therefore empty.

6.3 Carbohydrates

EDS was not executed - this section is therefore empty.

6.4 Ligands

EDS was not executed - this section is therefore empty.

6.5 Other polymers

EDS was not executed - this section is therefore empty.