



# Full wwPDB X-ray Structure Validation Report ⓘ

Mar 10, 2026 – 03:57 AM UTC

PDB ID : 2VJA / pdb\_00002vja  
Title : Torpedo Californica Acetylcholinesterase In Complex With A Non Hydrolysable Substrate Analogue, 4-Oxo-N,N,N- Trimethylpentanaminium - Orthorhombic space group - Dataset A at 100K  
Authors : Colletier, J.P.; Bourgeois, D.; Fournier, D.; Silman, I.; Sussman, J.L.; Weik, M.  
Deposited on : 2007-12-09  
Resolution : 2.30 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	NOT EXECUTED
Xtriage (Phenix)	:	2.0
EDS	:	NOT EXECUTED
Buster-report	:	NOT EXECUTED
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

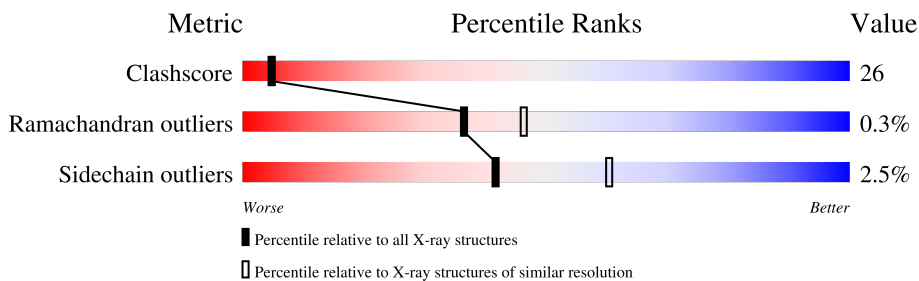
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

## *X-RAY DIFFRACTION*

The reported resolution of this entry is 2.30 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	190562	6919 (2.30-2.30)
Ramachandran outliers	187476	6854 (2.30-2.30)
Sidechain outliers	187428	6854 (2.30-2.30)

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

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	537	
1	B	537	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
4	CCD	A	1541	X	-	-	-
4	CCD	B	1540	X	-	-	-

## 2 Entry composition [i](#)

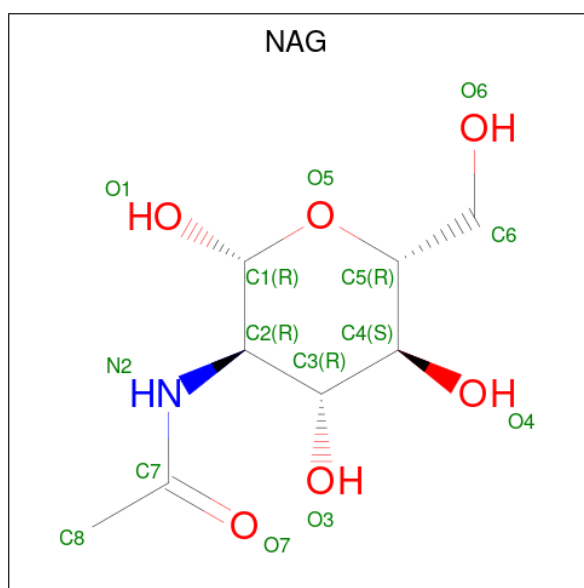
There are 6 unique types of molecules in this entry. The entry contains 10184 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 ACETYLCHOLINESTERASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	528	Total	C	N	O	S	0	0	0
			4210	2702	713	773	22			
1	B	532	Total	C	N	O	S	0	0	0
			4244	2721	720	781	22			

- Molecule 2 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula:  $C_8H_{15}NO_6$ ).

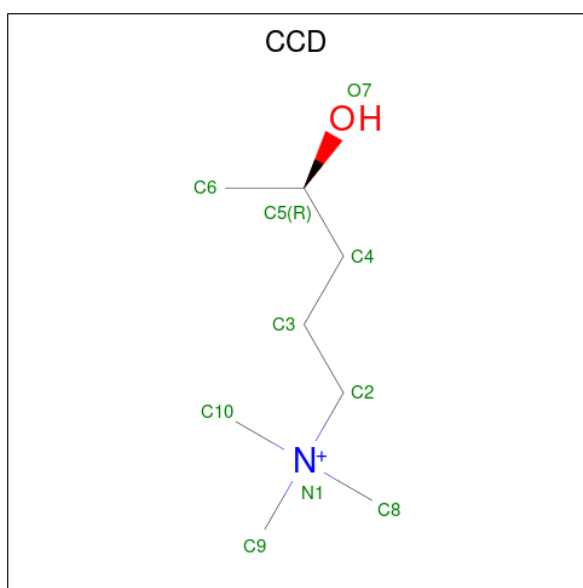


Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	C	N	O	0	0
			14	8	1	5		
2	A	1	Total	C	N	O	0	0
			14	8	1	5		
2	B	1	Total	C	N	O	0	0
			14	8	1	5		
2	B	1	Total	C	N	O	0	0
			14	8	1	5		

- Molecule 3 is CHLORIDE ION (CCD ID: CL) (formula: Cl).

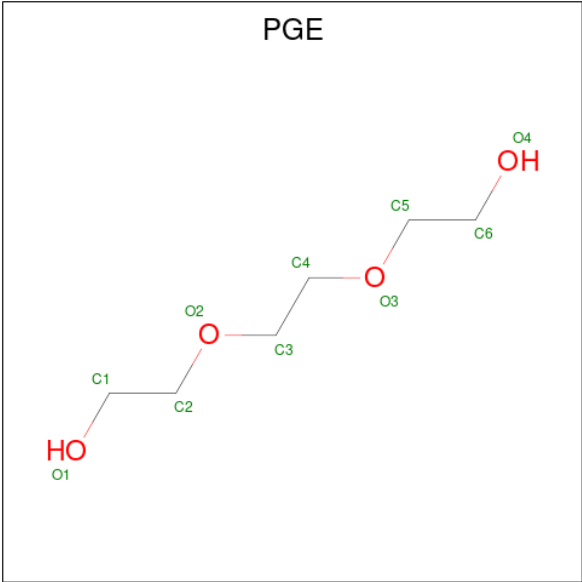
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	3	Total	Cl	0	0
			3	3		
3	B	1	Total	Cl	0	0
			1	1		

- Molecule 4 is (4R)-4-HYDROXY-N,N,N-TRIMETHYLPENTAN-1-AMINIUM (CCD ID: CCD) (formula: C<sub>8</sub>H<sub>20</sub>NO).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	A	1	Total	C	N	O	0	0
			10	8	1	1		
4	A	1	Total	C	N	O	0	0
			10	8	1	1		
4	B	1	Total	C	N	O	0	0
			10	8	1	1		
4	B	1	Total	C	N	O	0	0
			10	8	1	1		

- Molecule 5 is TRIETHYLENE GLYCOL (CCD ID: PGE) (formula: C<sub>6</sub>H<sub>14</sub>O<sub>4</sub>).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total	C	O	0	0
			10	6	4		
5	A	1	Total	C	O	0	0
			10	6	4		
5	B	1	Total	C	O	0	0
			10	6	4		

- Molecule 6 is water.

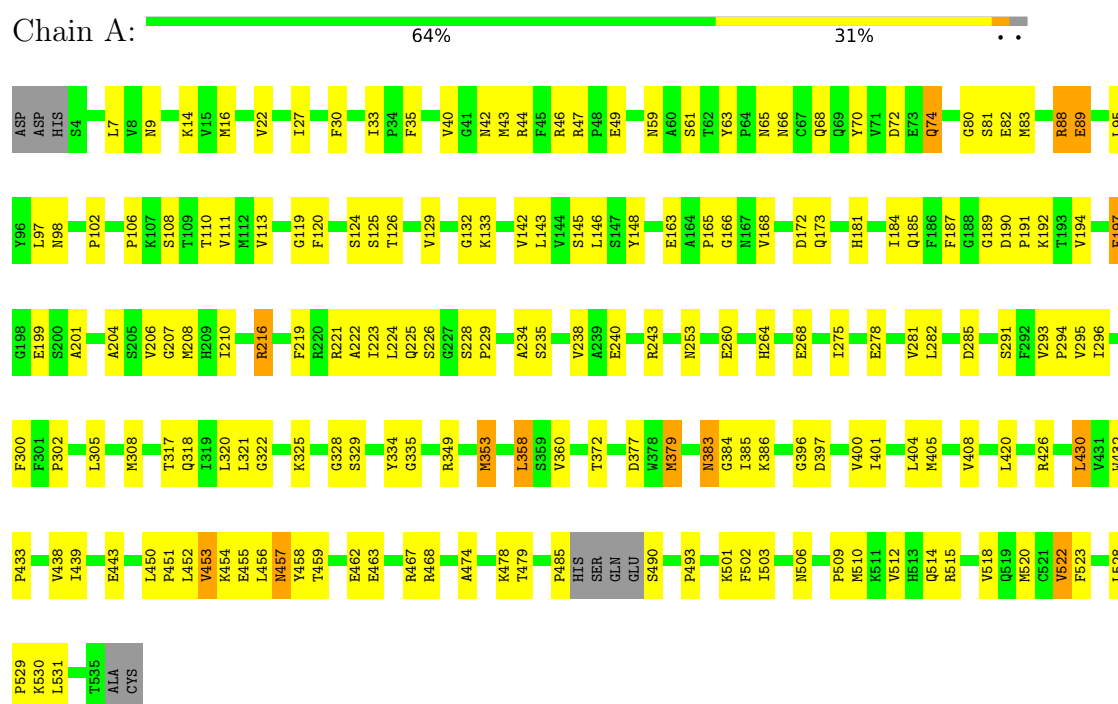
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	853	Total	O	0	0
			853	853		
6	B	747	Total	O	0	0
			747	747		

### 3 Residue-property plots

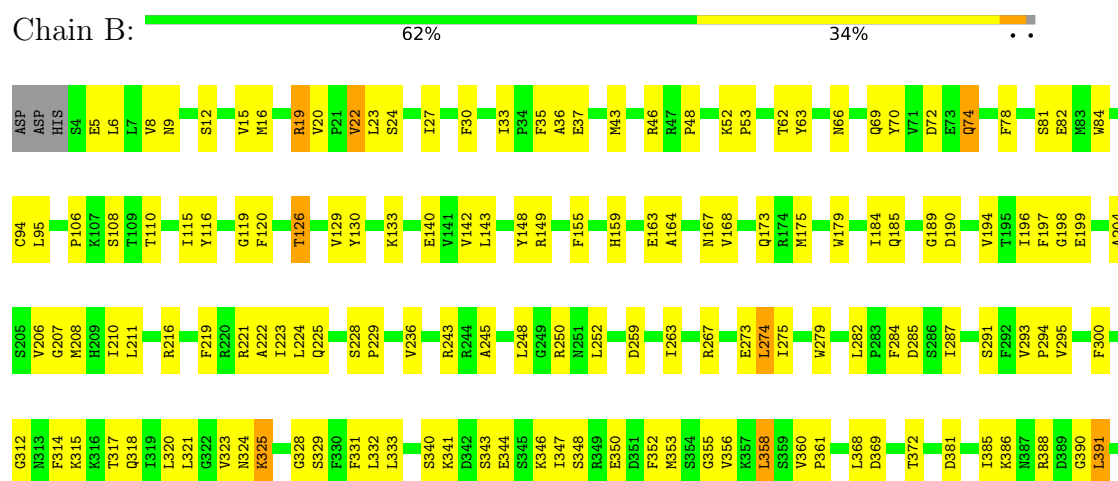
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded 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.

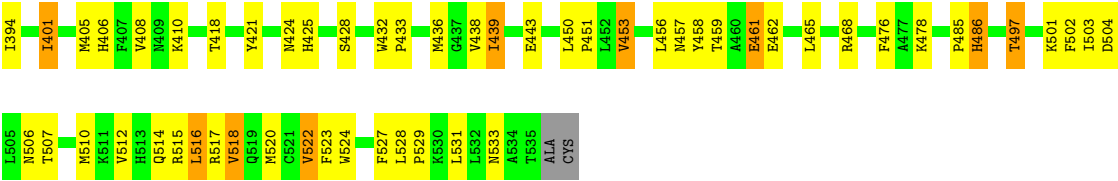
Note EDS was not executed.

#### • Molecule 1: ACETYLCHOLINESTERASE



#### • Molecule 1: ACETYLCHOLINESTERASE





## 4 Data and refinement statistics

EDS was not executed - this section is therefore incomplete.

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	91.82Å 107.57Å 151.16Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	46.41 – 2.30	Depositor
% Data completeness (in resolution range)	99.9 (46.41-2.30)	Depositor
$R_{merge}$	0.08	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.31 (at 2.20Å)	Xtriage
Refinement program	CNS 1.2	Depositor
R, $R_{free}$	0.195 , 0.254	Depositor
Wilson B-factor (Å <sup>2</sup> )	23.2	Xtriage
Anisotropy	0.744	Xtriage
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	10184	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	36.0	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 37.24 % 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 4.4234e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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

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

## 5 Model quality

### 5.1 Standard geometry

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

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	0/4331	0.92	13/5879 (0.2%)
1	B	0.37	0/4367	0.94	20/5929 (0.3%)
All	All	0.38	0/8698	0.93	33/11808 (0.3%)

There are no bond length outliers.

All (33) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	439	ILE	N-CA-C	8.05	120.50	109.80
1	A	443	GLU	N-CA-C	-7.78	103.93	113.50
1	B	401	ILE	N-CA-C	7.68	117.75	110.30
1	B	443	GLU	N-CA-C	-7.58	104.18	113.50
1	A	439	ILE	N-CA-C	7.38	119.62	109.80
1	B	291	SER	N-CA-C	7.35	118.98	110.97
1	A	401	ILE	N-CA-C	6.97	117.48	110.23
1	B	285	ASP	N-CA-C	-6.90	99.61	109.96
1	A	328	GLY	N-CA-C	6.74	123.02	114.66
1	A	285	ASP	N-CA-C	-6.68	99.13	109.76
1	B	328	GLY	N-CA-C	6.56	122.79	114.66
1	A	216	ARG	N-CA-C	6.54	119.24	111.33
1	B	527	PHE	N-CA-C	6.35	117.99	111.14
1	B	504	ASP	N-CA-C	-6.23	102.14	110.55
1	A	522	VAL	N-CA-C	-6.22	104.43	110.72
1	B	329	SER	N-CA-C	5.87	117.68	111.28
1	B	522	VAL	N-CA-C	-5.73	104.94	110.72
1	B	282	LEU	CA-C-N	5.57	124.77	118.97
1	B	282	LEU	C-N-CA	5.57	124.77	118.97
1	B	457	ASN	N-CA-C	5.53	119.21	111.74
1	A	300	PHE	N-CA-C	-5.52	105.34	111.36
1	A	379	MET	N-CA-C	-5.51	106.33	113.16

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	126	THR	N-CA-C	5.41	119.57	112.92
1	B	325	LYS	N-CA-C	5.41	117.17	111.28
1	A	234	ALA	N-CA-C	5.34	119.64	113.18
1	B	164	ALA	CA-C-N	5.25	124.76	119.19
1	B	164	ALA	C-N-CA	5.25	124.76	119.19
1	B	381	ASP	N-CA-C	5.21	118.74	112.38
1	A	360	VAL	CA-C-N	5.21	125.51	119.47
1	A	360	VAL	C-N-CA	5.21	125.51	119.47
1	A	457	ASN	N-CA-C	5.16	118.51	111.39
1	B	360	VAL	CA-C-N	5.13	124.92	119.28
1	B	360	VAL	C-N-CA	5.13	124.92	119.28

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	4210	0	4068	191	0
1	B	4244	0	4095	229	0
2	A	28	0	26	3	0
2	B	28	0	26	1	0
3	A	3	0	0	1	0
3	B	1	0	0	0	0
4	A	20	0	39	6	0
4	B	20	0	39	2	0
5	A	20	0	28	0	0
5	B	10	0	14	3	0
6	A	853	0	0	120	0
6	B	747	0	0	156	0
All	All	10184	0	8335	432	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 26.

All (432) 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:27:ILE:HD11	1:B:133:LYS:HB2	1.51	0.93
1:A:168:VAL:HG13	6:A:2382:HOH:O	1.68	0.92
1:A:191:PRO:HB2	6:A:2401:HOH:O	1.70	0.90
1:A:194:VAL:HG13	6:A:2304:HOH:O	1.71	0.90
1:B:194:VAL:HG12	6:B:2323:HOH:O	1.72	0.89
1:A:295:VAL:HB	6:A:2477:HOH:O	1.74	0.86
1:A:172:ASP:HB3	6:A:2360:HOH:O	1.74	0.85
1:B:273:GLU:HB3	6:B:2395:HOH:O	1.75	0.85
1:B:66:ASN:HB2	6:B:2157:HOH:O	1.76	0.85
1:A:43:MET:HG2	6:A:2126:HOH:O	1.77	0.84
1:B:198:GLY:HA2	6:B:2204:HOH:O	1.76	0.84
1:B:274:LEU:HA	6:B:2396:HOH:O	1.77	0.84
1:B:331:PHE:HB3	6:B:2419:HOH:O	1.77	0.84
1:B:438:VAL:HG12	6:B:2601:HOH:O	1.77	0.83
1:B:421:TYR:HA	6:B:2676:HOH:O	1.79	0.82
1:A:95:LEU:HD22	6:A:2360:HOH:O	1.78	0.82
1:B:206:VAL:HG11	6:B:2350:HOH:O	1.78	0.82
1:A:68:GLN:HB2	6:A:2184:HOH:O	1.79	0.81
1:A:493:PRO:HB2	6:A:2768:HOH:O	1.80	0.81
4:A:1540:CCD:H93	6:A:2445:HOH:O	1.82	0.80
1:B:143:LEU:HG	6:B:2256:HOH:O	1.81	0.79
1:B:385:ILE:HA	6:B:2556:HOH:O	1.82	0.79
1:B:506:ASN:HB3	6:B:2678:HOH:O	1.81	0.78
1:A:468:ARG:HD2	6:A:2740:HOH:O	1.83	0.78
1:B:115:ILE:HB	6:B:2330:HOH:O	1.84	0.78
1:B:514:GLN:HA	6:B:2689:HOH:O	1.83	0.78
1:A:404:LEU:HD21	6:A:2581:HOH:O	1.83	0.78
1:B:48:PRO:HB2	1:B:175:MET:HE2	1.65	0.77
1:B:245:ALA:HA	6:B:2372:HOH:O	1.85	0.77
1:B:252:LEU:HD22	6:B:2395:HOH:O	1.84	0.77
1:A:192:LYS:HB2	6:A:2430:HOH:O	1.84	0.76
1:B:19:ARG:NH2	1:B:19:ARG:HB2	2.01	0.76
1:B:250:ARG:HD3	6:B:2166:HOH:O	1.85	0.76
1:B:206:VAL:HG12	6:B:2334:HOH:O	1.85	0.76
1:A:132:GLY:HA3	1:A:143:LEU:HD23	1.67	0.75
1:A:194:VAL:HB	6:A:2459:HOH:O	1.85	0.75
1:A:386:LYS:HA	6:A:2664:HOH:O	1.85	0.75
1:A:59:ASN:HA	6:A:2161:HOH:O	1.86	0.75
1:A:235:SER:HB2	6:A:2473:HOH:O	1.86	0.75
1:B:142:VAL:HG11	6:B:2317:HOH:O	1.87	0.75
1:B:317:THR:HG22	6:B:2452:HOH:O	1.87	0.75
1:B:70:TYR:HB2	6:B:2409:HOH:O	1.86	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:383:ASN:C	1:A:383:ASN:HD22	1.94	0.74
1:B:149:ARG:HG2	6:B:2097:HOH:O	1.87	0.74
1:A:453:VAL:HG22	1:A:456:LEU:HG	1.70	0.74
1:A:514:GLN:HA	6:A:2778:HOH:O	1.89	0.73
1:A:173:GLN:NE2	6:A:2387:HOH:O	2.21	0.72
1:B:332:LEU:HA	6:B:2458:HOH:O	1.87	0.72
1:B:350:GLU:HG2	6:B:2504:HOH:O	1.89	0.72
1:B:95:LEU:HG	6:B:2167:HOH:O	1.89	0.72
1:A:145:SER:HB2	6:A:2358:HOH:O	1.88	0.72
1:B:46:ARG:HD2	6:B:2070:HOH:O	1.89	0.72
1:B:436:MET:HE2	6:B:2456:HOH:O	1.91	0.71
1:B:315:LYS:HG2	6:B:2452:HOH:O	1.90	0.71
1:A:165:PRO:HG2	6:A:2382:HOH:O	1.91	0.71
1:A:219:PHE:HA	6:A:2459:HOH:O	1.89	0.71
1:B:486:HIS:HB3	6:B:2653:HOH:O	1.89	0.71
1:B:468:ARG:HD2	6:B:2633:HOH:O	1.88	0.71
1:B:194:VAL:CG1	1:B:219:PHE:HA	2.21	0.71
1:B:194:VAL:HG13	1:B:219:PHE:HA	1.72	0.70
1:B:515:ARG:HB3	1:B:518:VAL:CG1	2.22	0.70
3:A:1538:CL:CL	6:A:2062:HOH:O	2.47	0.70
1:B:37:GLU:OE2	1:B:52:LYS:HG2	1.92	0.70
1:B:287:ILE:HG23	6:B:2417:HOH:O	1.92	0.69
1:B:46:ARG:HH21	1:B:267:ARG:HH12	1.40	0.69
1:A:281:VAL:HG23	6:A:2546:HOH:O	1.91	0.69
1:B:27:ILE:HD11	1:B:133:LYS:CB	2.21	0.69
1:B:69:GLN:HA	6:B:2124:HOH:O	1.93	0.69
1:B:252:LEU:HD11	6:B:2396:HOH:O	1.91	0.69
1:B:15:VAL:HB	6:B:2013:HOH:O	1.94	0.68
1:B:287:ILE:HB	6:B:2419:HOH:O	1.92	0.68
1:B:110:THR:OG1	1:B:478:LYS:HG2	1.92	0.68
1:A:438:VAL:HA	6:A:2697:HOH:O	1.94	0.68
1:B:507:THR:HG23	6:B:2679:HOH:O	1.92	0.68
1:A:226:SER:HB3	6:A:2588:HOH:O	1.92	0.68
1:B:512:VAL:HG13	6:B:2675:HOH:O	1.93	0.67
1:B:353:MET:HG3	6:B:2084:HOH:O	1.93	0.67
1:A:329:SER:HB3	6:A:2673:HOH:O	1.93	0.67
1:A:228:SER:HB3	6:A:2464:HOH:O	1.95	0.67
1:A:88:ARG:NH1	1:A:88:ARG:HB3	2.10	0.67
1:A:400:VAL:HG11	6:A:2588:HOH:O	1.95	0.66
1:B:6:LEU:HD11	1:B:19:ARG:HH22	1.60	0.66
1:B:368:LEU:HD23	6:B:2528:HOH:O	1.96	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:155:PHE:HA	6:B:2268:HOH:O	1.95	0.66
1:B:48:PRO:HB2	1:B:175:MET:CE	2.26	0.66
1:B:343:SER:HB3	6:B:2484:HOH:O	1.95	0.66
1:B:248:LEU:HB2	6:B:2372:HOH:O	1.95	0.65
1:B:318:GLN:HB3	6:B:2580:HOH:O	1.97	0.65
1:A:125:SER:HB2	6:A:2358:HOH:O	1.96	0.64
1:B:36:ALA:HB2	1:B:175:MET:HE3	1.79	0.64
1:B:485:PRO:HA	6:B:2651:HOH:O	1.97	0.64
1:B:515:ARG:HB3	1:B:518:VAL:HG13	1.79	0.64
1:B:275:ILE:HG12	6:B:2124:HOH:O	1.97	0.64
1:B:501:LYS:HA	6:B:2689:HOH:O	1.95	0.64
1:A:46:ARG:HD3	6:A:2054:HOH:O	1.98	0.64
1:A:70:TYR:HB2	6:A:2530:HOH:O	1.97	0.64
1:B:62:THR:HG22	6:B:2100:HOH:O	1.98	0.63
1:A:264:HIS:O	1:A:268:GLU:HG2	1.98	0.63
1:B:6:LEU:HD23	6:B:2005:HOH:O	1.97	0.63
1:A:88:ARG:HG3	6:A:2255:HOH:O	1.98	0.63
1:A:207:GLY:HA3	1:A:229:PRO:HD3	1.80	0.63
1:B:353:MET:O	1:B:356:VAL:HG22	1.98	0.63
1:A:44:ARG:HB2	6:A:2263:HOH:O	1.99	0.63
1:B:391:LEU:HG	6:B:2515:HOH:O	1.97	0.63
1:B:36:ALA:CB	1:B:175:MET:HE3	2.28	0.63
1:B:356:VAL:HB	6:B:2508:HOH:O	1.97	0.63
1:A:253:ASN:HB3	6:A:2498:HOH:O	1.98	0.63
1:A:385:ILE:HG22	6:A:2666:HOH:O	1.99	0.63
1:B:502:PHE:HB2	6:B:2676:HOH:O	2.00	0.62
1:B:439:ILE:HG23	6:B:2456:HOH:O	2.00	0.61
1:A:132:GLY:CA	1:A:143:LEU:HD23	2.31	0.61
1:A:275:ILE:HG23	6:A:2530:HOH:O	2.01	0.61
1:B:358:LEU:HB3	6:B:2417:HOH:O	2.00	0.61
1:A:148:TYR:HA	6:A:2360:HOH:O	1.99	0.61
1:A:458:TYR:HB3	6:A:2735:HOH:O	2.01	0.61
1:A:430:LEU:CD1	1:A:432:TRP:H	2.14	0.60
1:A:89:GLU:HG2	6:A:2105:HOH:O	2.01	0.60
1:A:82:GLU:HG2	6:A:2098:HOH:O	2.02	0.60
1:B:106:PRO:HB2	6:B:2314:HOH:O	2.00	0.60
1:A:485:PRO:HA	6:A:2756:HOH:O	2.01	0.60
1:B:184:ILE:HG13	6:B:2317:HOH:O	2.02	0.60
1:B:410:LYS:CG	6:B:2569:HOH:O	2.50	0.60
1:B:353:MET:HE1	1:B:372:THR:CG2	2.32	0.59
2:A:1536:NAG:H2	6:A:2838:HOH:O	2.02	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:19:ARG:HB2	1:B:19:ARG:CZ	2.32	0.59
1:A:451:PRO:HB3	6:A:2735:HOH:O	2.02	0.59
1:B:35:PHE:HB3	6:B:2054:HOH:O	2.03	0.59
1:B:531:LEU:HD23	1:B:531:LEU:C	2.27	0.59
1:B:46:ARG:HD3	6:B:2034:HOH:O	2.03	0.58
1:B:353:MET:HE1	1:B:372:THR:HG21	1.85	0.58
5:B:1541:PGE:H1	5:B:1541:PGE:H4	1.84	0.58
1:A:119:GLY:H	4:A:1540:CCD:HO7	1.51	0.58
1:B:175:MET:HA	6:B:2293:HOH:O	2.03	0.58
1:B:410:LYS:HG3	6:B:2569:HOH:O	2.03	0.58
1:A:40:VAL:HG13	6:A:2262:HOH:O	2.03	0.58
1:B:8:VAL:HB	6:B:2013:HOH:O	2.02	0.58
1:A:405:MET:O	1:A:408:VAL:HG12	2.04	0.58
1:B:140:GLU:HB3	6:B:2253:HOH:O	2.03	0.58
1:A:16:MET:HB3	6:A:2161:HOH:O	2.03	0.58
1:A:396:GLY:HA3	6:A:2675:HOH:O	2.04	0.58
4:A:1540:CCD:H21	6:A:2380:HOH:O	2.03	0.58
1:A:98:ASN:ND2	6:A:2282:HOH:O	2.37	0.57
1:A:192:LYS:HG3	6:A:2429:HOH:O	2.04	0.57
1:A:335:GLY:HA3	6:A:2540:HOH:O	2.04	0.57
1:A:88:ARG:HB3	1:A:88:ARG:CZ	2.35	0.57
1:A:321:LEU:HG	6:A:2581:HOH:O	2.05	0.57
1:B:43:MET:SD	6:B:2070:HOH:O	2.58	0.57
1:B:502:PHE:HD1	6:B:2676:HOH:O	1.87	0.57
1:A:325:LYS:HE2	6:A:2586:HOH:O	2.04	0.57
1:B:224:LEU:HD12	6:B:2350:HOH:O	2.05	0.56
1:A:216:ARG:HD2	6:A:2451:HOH:O	2.05	0.56
1:A:184:ILE:HG13	1:A:189:GLY:HA3	1.87	0.56
1:A:264:HIS:HB3	6:A:2513:HOH:O	2.05	0.56
1:B:461:GLU:HB3	6:B:2622:HOH:O	2.05	0.56
1:A:334:TYR:CG	4:A:1541:CCD:H62	2.40	0.56
1:A:321:LEU:HD23	1:A:321:LEU:H	1.71	0.56
1:A:80:GLY:HA2	6:A:2709:HOH:O	2.05	0.55
1:A:181:HIS:CD2	6:A:2401:HOH:O	2.59	0.55
1:B:507:THR:N	6:B:2679:HOH:O	2.38	0.55
1:B:6:LEU:HD11	1:B:19:ARG:NH2	2.21	0.55
1:A:515:ARG:HD2	6:B:2543:HOH:O	2.07	0.55
1:B:394:ILE:HD12	6:B:2562:HOH:O	2.05	0.55
1:B:516:LEU:HD12	1:B:517:ARG:HG3	1.89	0.55
1:B:116:TYR:N	6:B:2205:HOH:O	2.40	0.54
1:B:43:MET:HA	6:B:2070:HOH:O	2.07	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:430:LEU:HD13	1:A:432:TRP:H	1.73	0.54
1:A:502:PHE:HD2	6:A:2778:HOH:O	1.89	0.54
1:B:223:ILE:N	6:B:2350:HOH:O	2.40	0.54
1:B:287:ILE:HG12	6:B:2417:HOH:O	2.06	0.54
1:B:221:ARG:HD3	1:B:318:GLN:OE1	2.08	0.54
1:B:406:HIS:CD2	6:B:2569:HOH:O	2.60	0.54
1:B:341:LYS:HA	6:B:2469:HOH:O	2.07	0.54
1:B:502:PHE:HD2	6:B:2689:HOH:O	1.90	0.54
1:A:512:VAL:HG21	6:A:2411:HOH:O	2.07	0.54
1:B:287:ILE:HG21	6:B:2458:HOH:O	2.07	0.53
1:B:497:THR:HG21	6:B:2576:HOH:O	2.08	0.53
1:A:528:LEU:HB3	1:A:529:PRO:HD3	1.90	0.53
1:B:468:ARG:HD3	6:B:2637:HOH:O	2.09	0.53
1:B:223:ILE:C	6:B:2350:HOH:O	2.50	0.53
1:A:102:PRO:HG2	1:A:106:PRO:HD3	1.90	0.53
1:A:260:GLU:HB2	6:A:2506:HOH:O	2.07	0.53
1:B:119:GLY:O	1:B:120:PHE:HB2	2.08	0.53
1:A:383:ASN:HD22	1:A:384:GLY:N	2.05	0.53
1:A:146:LEU:N	6:A:2359:HOH:O	2.41	0.53
1:B:194:VAL:HB	6:B:2320:HOH:O	2.09	0.53
1:A:35:PHE:HZ	6:A:2360:HOH:O	1.91	0.53
1:B:405:MET:HA	1:B:408:VAL:HG12	1.90	0.52
1:B:287:ILE:N	6:B:2417:HOH:O	2.41	0.52
1:A:321:LEU:HD23	1:A:321:LEU:N	2.24	0.52
1:A:377:ASP:HB3	6:A:2655:HOH:O	2.10	0.52
1:A:404:LEU:HD12	6:A:2464:HOH:O	2.09	0.52
1:A:349:ARG:NH1	6:A:2618:HOH:O	2.37	0.52
1:A:450:LEU:O	1:A:453:VAL:HG13	2.09	0.52
1:A:194:VAL:HG11	6:A:2457:HOH:O	2.10	0.52
1:B:236:VAL:HG23	1:B:295:VAL:HG12	1.91	0.52
1:A:221:ARG:HB2	6:A:2462:HOH:O	2.09	0.52
1:A:110:THR:OG1	1:A:478:LYS:HB3	2.10	0.52
1:B:74:GLN:NE2	6:B:2132:HOH:O	2.43	0.52
1:A:501:LYS:HA	6:A:2778:HOH:O	2.09	0.51
1:B:333:LEU:HD22	6:B:2469:HOH:O	2.10	0.51
1:B:108:SER:HB3	6:B:2194:HOH:O	2.09	0.51
1:B:358:LEU:HD13	6:B:2507:HOH:O	2.10	0.51
1:B:465:LEU:HD22	6:B:2679:HOH:O	2.11	0.51
1:A:530:LYS:HE3	6:B:2531:HOH:O	2.10	0.51
1:B:168:VAL:HG22	6:B:2268:HOH:O	2.10	0.51
1:B:340:SER:HB3	6:B:2484:HOH:O	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:391:LEU:HA	6:B:2562:HOH:O	2.10	0.51
1:A:506:ASN:HB2	6:A:2787:HOH:O	2.10	0.51
1:A:61:SER:HB3	6:A:2038:HOH:O	2.10	0.50
1:A:426:ARG:HD2	6:A:2700:HOH:O	2.11	0.50
1:A:379:MET:HG2	6:B:2693:HOH:O	2.11	0.50
1:B:224:LEU:HD11	6:B:2334:HOH:O	2.10	0.50
1:B:518:VAL:O	1:B:522:VAL:HG23	2.12	0.50
1:A:432:TRP:HB3	1:A:433:PRO:HD2	1.93	0.50
1:B:211:LEU:HD23	1:B:314:PHE:HB3	1.93	0.50
1:A:518:VAL:O	1:A:522:VAL:HG23	2.12	0.50
1:B:179:TRP:HB2	6:B:2055:HOH:O	2.11	0.50
1:B:320:LEU:HG	6:B:2582:HOH:O	2.12	0.50
1:B:386:LYS:HA	6:B:2559:HOH:O	2.12	0.50
1:B:524:TRP:HB3	6:B:2706:HOH:O	2.12	0.50
1:A:197:PHE:HB3	1:A:223:ILE:HB	1.94	0.50
5:B:1541:PGE:H62	5:B:1541:PGE:H3	1.93	0.50
1:A:49:GLU:HG3	6:A:2138:HOH:O	2.11	0.49
1:B:16:MET:HG2	6:B:2041:HOH:O	2.12	0.49
1:B:520:MET:O	1:B:523:PHE:HB3	2.12	0.49
1:A:27:ILE:HD11	1:A:133:LYS:HB2	1.94	0.49
1:A:321:LEU:N	6:A:2580:HOH:O	2.44	0.49
1:A:65:ASN:HA	6:A:2255:HOH:O	2.12	0.49
1:A:166:GLY:N	6:A:2382:HOH:O	2.45	0.49
1:B:315:LYS:C	6:B:2452:HOH:O	2.55	0.49
1:A:47:ARG:HG3	6:A:2375:HOH:O	2.13	0.49
1:A:463:GLU:N	6:A:2735:HOH:O	2.45	0.49
2:A:1536:NAG:H82	6:A:2833:HOH:O	2.12	0.49
1:B:19:ARG:HD2	6:B:2032:HOH:O	2.11	0.49
1:B:324:ASN:HB3	6:B:2601:HOH:O	2.12	0.49
1:A:66:ASN:N	6:A:2255:HOH:O	2.45	0.49
1:B:228:SER:HB2	1:B:229:PRO:HD2	1.94	0.49
1:B:425:HIS:N	6:B:2678:HOH:O	2.46	0.49
1:A:185:GLN:HA	1:A:189:GLY:O	2.13	0.49
1:A:531:LEU:C	1:A:531:LEU:HD23	2.38	0.49
1:B:207:GLY:HA3	1:B:229:PRO:HD3	1.94	0.49
1:A:191:PRO:HG2	6:A:2429:HOH:O	2.12	0.48
1:B:369:ASP:HB3	6:B:2530:HOH:O	2.12	0.48
1:B:528:LEU:HB3	1:B:529:PRO:HD3	1.96	0.48
1:B:324:ASN:ND2	6:B:2601:HOH:O	2.45	0.48
1:B:12:SER:HA	6:B:2023:HOH:O	2.13	0.48
1:B:52:LYS:HD2	6:B:2085:HOH:O	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:347:ILE:HG22	1:B:348:SER:O	2.14	0.48
1:A:228:SER:HB2	1:A:229:PRO:HD2	1.95	0.48
1:B:6:LEU:CD1	1:B:19:ARG:HH22	2.26	0.48
1:B:450:LEU:N	1:B:451:PRO:CD	2.77	0.48
1:A:420:LEU:HD13	6:A:2316:HOH:O	2.14	0.48
1:A:204:ALA:O	1:A:208:MET:HG3	2.13	0.48
1:B:424:ASN:C	6:B:2678:HOH:O	2.55	0.48
1:B:46:ARG:HH21	1:B:267:ARG:NH1	2.08	0.47
1:B:148:TYR:HE1	6:B:2205:HOH:O	1.96	0.47
1:B:361:PRO:HA	6:B:2510:HOH:O	2.13	0.47
1:B:408:VAL:HG23	1:B:418:THR:HG21	1.96	0.47
1:A:111:VAL:C	6:A:2304:HOH:O	2.57	0.47
1:A:305:LEU:HB3	6:A:2561:HOH:O	2.14	0.47
1:A:146:LEU:HG	6:A:2359:HOH:O	2.14	0.47
1:A:206:VAL:CG1	1:A:222:ALA:HB1	2.44	0.47
1:A:397:ASP:N	6:A:2680:HOH:O	2.48	0.47
1:B:9:ASN:HB2	6:B:2016:HOH:O	2.13	0.47
1:B:173:GLN:NE2	6:B:2288:HOH:O	2.48	0.47
1:A:142:VAL:HG11	6:A:2425:HOH:O	2.13	0.47
1:A:400:VAL:HG21	6:A:2588:HOH:O	2.13	0.47
1:A:197:PHE:CB	1:A:223:ILE:HB	2.44	0.47
1:B:46:ARG:NH2	1:B:267:ARG:HH12	2.10	0.47
1:B:515:ARG:HB3	1:B:518:VAL:HG11	1.94	0.47
1:A:282:LEU:HD23	6:A:2546:HOH:O	2.15	0.47
1:B:250:ARG:HH21	1:B:250:ARG:HG2	1.79	0.47
1:A:450:LEU:O	1:A:456:LEU:HD12	2.15	0.47
1:B:388:ARG:CZ	6:B:2556:HOH:O	2.62	0.47
1:A:515:ARG:HB3	1:A:518:VAL:HB	1.97	0.47
1:B:515:ARG:HD3	1:B:518:VAL:HG11	1.97	0.47
1:A:293:VAL:HB	1:A:294:PRO:HD2	1.98	0.46
1:A:510:MET:HG3	6:A:2738:HOH:O	2.14	0.46
1:B:115:ILE:C	6:B:2204:HOH:O	2.58	0.46
1:B:163:GLU:HB3	1:B:267:ARG:NH2	2.29	0.46
4:A:1540:CCD:H42	6:A:2134:HOH:O	2.15	0.46
1:B:451:PRO:HA	1:B:458:TYR:CD1	2.50	0.46
1:A:353:MET:HG2	6:A:2616:HOH:O	2.15	0.46
1:B:30:PHE:HB3	1:B:33:ILE:HD11	1.97	0.46
1:B:206:VAL:CG1	1:B:222:ALA:HB1	2.45	0.46
1:B:224:LEU:CD1	6:B:2350:HOH:O	2.61	0.46
1:B:503:ILE:N	6:B:2676:HOH:O	2.49	0.46
1:B:352:PHE:CD1	1:B:391:LEU:HD13	2.51	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:238:VAL:HA	6:A:2477:HOH:O	2.16	0.46
1:A:490:SER:N	6:A:2762:HOH:O	2.48	0.46
1:A:520:MET:O	1:A:523:PHE:HB3	2.16	0.46
1:B:394:ILE:CD1	6:B:2562:HOH:O	2.60	0.46
1:A:74:GLN:HG2	6:A:2210:HOH:O	2.15	0.46
1:B:53:PRO:HG3	6:B:2023:HOH:O	2.14	0.46
1:A:142:VAL:HG11	1:A:184:ILE:HD11	1.98	0.46
1:A:358:LEU:HD13	6:A:2631:HOH:O	2.14	0.46
1:B:84:TRP:CE3	4:B:1539:CCD:H91	2.51	0.46
1:B:506:ASN:HB2	6:B:2680:HOH:O	2.16	0.46
1:A:238:VAL:N	6:A:2477:HOH:O	2.49	0.45
1:A:474:ALA:O	1:A:478:LYS:HG2	2.16	0.45
1:B:352:PHE:HD2	1:B:353:MET:HE2	1.81	0.45
1:B:355:GLY:HA3	1:B:391:LEU:HD21	1.97	0.45
1:B:22:VAL:O	1:B:22:VAL:HG13	2.15	0.45
1:B:108:SER:OG	1:B:190:ASP:HB2	2.16	0.45
5:B:1541:PGE:H5	6:B:2091:HOH:O	2.15	0.45
1:A:43:MET:HE3	6:A:2126:HOH:O	2.16	0.45
1:A:405:MET:HA	1:A:408:VAL:HG12	1.98	0.45
1:A:457:ASN:HA	6:A:2729:HOH:O	2.14	0.45
1:B:197:PHE:HB3	1:B:223:ILE:HB	1.99	0.45
1:B:453:VAL:HG13	1:B:456:LEU:HD12	1.97	0.45
1:A:46:ARG:NH2	6:A:2126:HOH:O	2.46	0.45
1:A:240:GLU:OE2	1:A:243:ARG:NH1	2.46	0.45
1:A:66:ASN:ND2	1:A:124:SER:HB3	2.31	0.45
1:A:108:SER:C	1:A:190:ASP:HB2	2.42	0.45
1:A:353:MET:HE1	1:A:372:THR:CG2	2.46	0.45
1:B:197:PHE:CB	1:B:223:ILE:HB	2.46	0.45
1:B:406:HIS:CG	6:B:2569:HOH:O	2.70	0.45
1:B:478:LYS:HE2	6:B:2092:HOH:O	2.17	0.45
2:B:1537:NAG:H62	6:B:2734:HOH:O	2.16	0.45
1:B:5:GLU:HB3	6:B:2006:HOH:O	2.17	0.45
1:A:302:PRO:HD2	1:A:308:MET:CE	2.47	0.45
1:B:159:HIS:HB3	6:B:2271:HOH:O	2.16	0.45
1:B:204:ALA:O	1:B:208:MET:HG3	2.17	0.45
1:B:252:LEU:HD21	6:B:2396:HOH:O	2.16	0.45
1:A:119:GLY:O	1:A:120:PHE:HB2	2.18	0.44
1:B:518:VAL:HG13	6:B:2698:HOH:O	2.15	0.44
1:B:129:VAL:HG13	1:B:130:TYR:CD1	2.53	0.44
1:B:222:ALA:HB1	6:B:2350:HOH:O	2.17	0.44
1:B:300:PHE:HA	6:B:2429:HOH:O	2.16	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:42:ASN:ND2	6:A:2117:HOH:O	2.49	0.44
1:A:224:LEU:HD12	1:A:224:LEU:N	2.33	0.44
1:A:478:LYS:HG3	1:A:479:THR:HG23	1.99	0.44
1:B:20:VAL:CG2	1:B:27:ILE:HG13	2.47	0.44
1:B:502:PHE:N	6:B:2689:HOH:O	2.51	0.44
1:B:189:GLY:HA3	6:B:2317:HOH:O	2.17	0.44
1:B:275:ILE:HG23	6:B:2409:HOH:O	2.18	0.44
1:A:190:ASP:HA	1:A:191:PRO:HD2	1.84	0.44
1:A:503:ILE:CD1	1:A:510:MET:HE2	2.48	0.44
1:B:390:GLY:C	6:B:2562:HOH:O	2.61	0.44
1:B:391:LEU:HA	1:B:391:LEU:HD12	1.80	0.44
1:B:210:ILE:HD12	6:B:2334:HOH:O	2.17	0.44
1:B:210:ILE:HD11	1:B:222:ALA:HB3	2.00	0.44
1:B:140:GLU:HG2	6:B:2251:HOH:O	2.17	0.44
1:A:88:ARG:HD2	1:A:126:THR:HG21	2.00	0.44
1:B:27:ILE:HG22	6:B:2050:HOH:O	2.18	0.44
1:B:476:PHE:HE1	6:B:2580:HOH:O	2.00	0.44
1:A:501:LYS:NZ	6:A:2782:HOH:O	2.49	0.44
1:B:344:GLU:OE2	1:B:346:LYS:HE3	2.18	0.44
1:B:115:ILE:HG13	6:B:2203:HOH:O	2.17	0.43
1:B:510:MET:HE2	6:B:2638:HOH:O	2.17	0.43
1:A:485:PRO:C	6:A:2759:HOH:O	2.60	0.43
1:A:503:ILE:HD13	1:A:510:MET:HE2	2.00	0.43
1:B:199:GLU:HA	1:B:225:GLN:O	2.19	0.43
1:A:63:TYR:CD1	1:A:126:THR:HG22	2.53	0.43
1:A:72:ASP:OD2	1:A:81:SER:HB2	2.19	0.43
1:B:259:ASP:O	1:B:263:ILE:HG13	2.18	0.43
1:A:27:ILE:HD11	1:A:133:LYS:CB	2.48	0.43
1:A:459:THR:OG1	1:A:462:GLU:HG3	2.19	0.43
1:B:325:LYS:HE2	6:B:2454:HOH:O	2.18	0.43
1:A:187:PHE:HB2	6:A:2425:HOH:O	2.18	0.43
1:B:216:ARG:NH1	1:B:314:PHE:HA	2.33	0.43
1:B:321:LEU:H	1:B:321:LEU:HD23	1.83	0.43
1:A:454:LYS:HE2	1:A:454:LYS:N	2.33	0.43
1:B:196:ILE:HB	6:B:2203:HOH:O	2.18	0.43
1:A:317:THR:OG1	1:A:318:GLN:N	2.50	0.43
1:A:379:MET:HE3	6:B:2693:HOH:O	2.17	0.43
1:B:428:SER:HB3	6:B:2590:HOH:O	2.19	0.43
1:A:278:GLU:O	1:A:281:VAL:HG22	2.19	0.43
1:A:453:VAL:HG13	1:A:456:LEU:HD12	2.01	0.43
1:B:323:VAL:HG21	1:B:401:ILE:HG12	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:503:ILE:HG23	6:B:2661:HOH:O	2.18	0.43
1:A:46:ARG:NH1	1:A:163:GLU:OE1	2.45	0.43
1:A:452:LEU:HD13	1:A:467:ARG:NH2	2.33	0.43
1:A:320:LEU:HG	6:A:2580:HOH:O	2.18	0.42
1:B:486:HIS:HB2	6:B:2652:HOH:O	2.19	0.42
1:A:404:LEU:HD23	1:A:404:LEU:C	2.43	0.42
1:B:94:CYS:SG	6:B:2097:HOH:O	2.62	0.42
1:B:72:ASP:OD2	1:B:81:SER:HB2	2.20	0.42
1:B:459:THR:OG1	1:B:462:GLU:HG3	2.19	0.42
2:A:1536:NAG:O3	2:A:1536:NAG:H83	2.19	0.42
1:A:450:LEU:N	1:A:451:PRO:CD	2.82	0.42
1:B:198:GLY:HA3	6:B:2330:HOH:O	2.18	0.42
1:B:353:MET:HE3	6:B:2494:HOH:O	2.20	0.42
1:B:533:ASN:ND2	6:B:2718:HOH:O	2.53	0.42
1:A:88:ARG:HA	6:A:2240:HOH:O	2.19	0.42
1:A:113:VAL:HG13	6:A:2359:HOH:O	2.19	0.42
1:B:23:LEU:O	1:B:24:SER:HB2	2.20	0.42
1:B:62:THR:HA	6:B:2100:HOH:O	2.18	0.42
1:B:63:TYR:CD1	1:B:126:THR:HG22	2.55	0.42
1:B:293:VAL:HB	1:B:294:PRO:HD2	2.02	0.42
1:B:425:HIS:CG	6:B:2679:HOH:O	2.73	0.42
1:A:97:LEU:C	1:A:97:LEU:HD12	2.45	0.42
1:A:296:ILE:HG12	6:A:2473:HOH:O	2.18	0.42
4:A:1541:CCD:H63	6:A:2846:HOH:O	2.19	0.42
1:A:83:MET:HG3	6:A:2230:HOH:O	2.20	0.42
1:A:353:MET:HE1	1:A:372:THR:OG1	2.19	0.41
1:A:83:MET:HE3	1:A:129:VAL:HG11	2.02	0.41
1:B:185:GLN:HA	1:B:189:GLY:O	2.19	0.41
1:A:46:ARG:HG2	6:A:2130:HOH:O	2.20	0.41
1:A:291:SER:HA	6:A:2546:HOH:O	2.21	0.41
1:A:453:VAL:CG2	1:A:456:LEU:HG	2.45	0.41
1:A:88:ARG:NH1	6:A:2247:HOH:O	2.53	0.41
1:A:201:ALA:HB1	6:A:2361:HOH:O	2.20	0.41
1:A:404:LEU:HD11	6:A:2581:HOH:O	2.19	0.41
1:B:503:ILE:HG22	6:B:2675:HOH:O	2.20	0.41
1:A:264:HIS:HD2	6:A:2278:HOH:O	2.03	0.41
1:A:453:VAL:HG22	1:A:453:VAL:O	2.20	0.41
1:B:167:ASN:N	6:B:2268:HOH:O	2.52	0.41
1:B:391:LEU:HD12	6:B:2562:HOH:O	2.21	0.41
1:A:321:LEU:N	1:A:321:LEU:CD2	2.83	0.41
1:B:19:ARG:CD	6:B:2032:HOH:O	2.68	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:197:PHE:C	6:B:2330:HOH:O	2.62	0.41
1:B:250:ARG:HG2	1:B:250:ARG:NH2	2.36	0.41
1:B:279:TRP:CZ2	4:B:1540:CCD:H31	2.56	0.41
1:A:9:ASN:HD21	1:A:14:LYS:HE2	1.86	0.41
1:A:30:PHE:HB3	1:A:33:ILE:HD11	2.03	0.41
1:A:129:VAL:HG13	6:A:2091:HOH:O	2.21	0.41
1:A:210:ILE:HD11	1:A:222:ALA:HB3	2.03	0.41
1:A:353:MET:HE1	1:A:372:THR:HG21	2.02	0.41
1:A:353:MET:CG	6:A:2616:HOH:O	2.68	0.41
1:B:19:ARG:HB2	1:B:19:ARG:HH21	1.81	0.41
1:B:74:GLN:HB3	6:B:2132:HOH:O	2.20	0.41
1:B:353:MET:HE1	1:B:372:THR:HG23	2.02	0.41
1:A:111:VAL:HG21	1:A:184:ILE:HG12	2.02	0.41
1:A:199:GLU:HA	1:A:225:GLN:O	2.21	0.41
1:B:461:GLU:H	1:B:461:GLU:CD	2.29	0.41
1:B:432:TRP:HB3	1:B:433:PRO:HD2	2.02	0.40
1:A:408:VAL:HG11	6:A:2316:HOH:O	2.20	0.40
1:A:509:PRO:HA	6:A:2791:HOH:O	2.21	0.40
1:B:78:PHE:O	1:B:82:GLU:HG3	2.22	0.40
1:B:312:GLY:HA2	1:B:314:PHE:CE2	2.56	0.40
1:A:322:GLY:N	6:A:2581:HOH:O	2.54	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	524/537 (98%)	493 (94%)	30 (6%)	1 (0%)	43	55
1	B	530/537 (99%)	505 (95%)	23 (4%)	2 (0%)	30	38
All	All	1054/1074 (98%)	998 (95%)	53 (5%)	3 (0%)	36	46

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	486	HIS
1	A	22	VAL
1	B	22	VAL

### 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	461/469 (98%)	450 (98%)	11 (2%)	43	62
1	B	465/469 (99%)	453 (97%)	12 (3%)	40	59
All	All	926/938 (99%)	903 (98%)	23 (2%)	42	60

All (23) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	7	LEU
1	A	74	GLN
1	A	88	ARG
1	A	89	GLU
1	A	197	PHE
1	A	353	MET
1	A	358	LEU
1	A	383	ASN
1	A	430	LEU
1	A	453	VAL
1	A	455	GLU
1	B	19	ARG
1	B	74	GLN
1	B	243	ARG
1	B	274	LEU
1	B	284	PHE
1	B	358	LEU
1	B	391	LEU
1	B	453	VAL
1	B	461	GLU

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Mol	Chain	Res	Type
1	B	497	THR
1	B	516	LEU
1	B	518	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (19) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	9	ASN
1	A	42	ASN
1	A	66	ASN
1	A	68	GLN
1	A	257	ASN
1	A	383	ASN
1	A	514	GLN
1	A	526	GLN
1	B	42	ASN
1	B	66	ASN
1	B	68	GLN
1	B	74	GLN
1	B	162	GLN
1	B	181	HIS
1	B	257	ASN
1	B	374	GLN
1	B	382	ASN
1	B	457	ASN
1	B	514	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](#)

Mogul was not executed - this section is therefore empty.

## 5.5 Carbohydrates [i](#)

Mogul was not executed - this section is therefore empty.

## 5.6 Ligand geometry [i](#)

Mogul was not executed - this section is therefore empty.

## 5.7 Other polymers [i](#)

Mogul was not executed - this section is therefore empty.

## 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.