



# Full wwPDB X-ray Structure Validation Report ⓘ

Nov 9, 2024 – 07:41 AM EST

PDB ID : 1AG8  
Title : ALDEHYDE DEHYDROGENASE FROM BOVINE MITOCHONDRIA  
Authors : Steinmetz, C.G.; Hurley, T.D.  
Deposited on : 1997-04-03  
Resolution : 2.65 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 : 4.02b-467  
Xtrriage (Phenix) : 1.20.1  
EDS : 3.0  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
CCP4 : 9.0.003 (Gargrove)  
Density-Fitness : 1.0.11  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.39

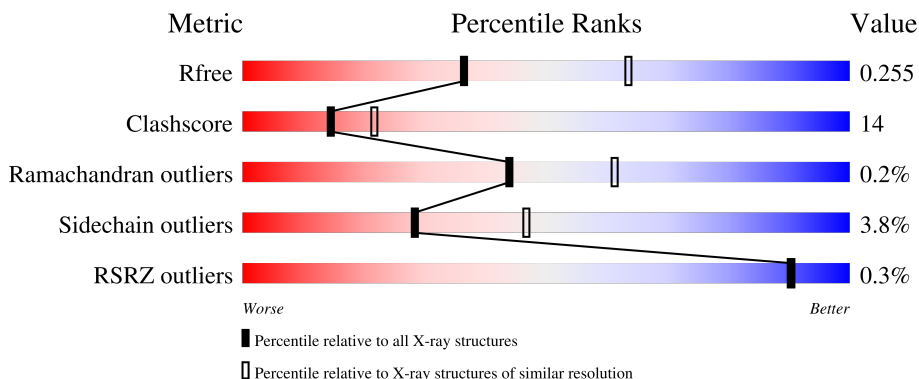
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.65 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))
$R_{free}$	164625	1003 (2.66-2.66)
Clashscore	180529	1063 (2.66-2.66)
Ramachandran outliers	177936	1052 (2.66-2.66)
Sidechain outliers	177891	1052 (2.66-2.66)
RSRZ outliers	164620	1003 (2.66-2.66)

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  $\leq 5\%$ . 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	499	71% (green), 27% (yellow), .. (orange), .. (red)
1	B	499	71% (green), 26% (yellow), .. (orange), .. (red)
1	C	499	68% (green), 29% (yellow), .. (orange), .. (red)
1	D	499	71% (green), 26% (yellow), .. (orange), .. (red)

## 2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 15336 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 ALDEHYDE DEHYDROGENASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	493	3799	2418	650	714	17	0	0	0
1	B	493	3799	2418	650	714	17	0	0	0
1	C	493	3799	2418	650	714	17	0	0	0
1	D	493	3799	2418	650	714	17	0	0	0

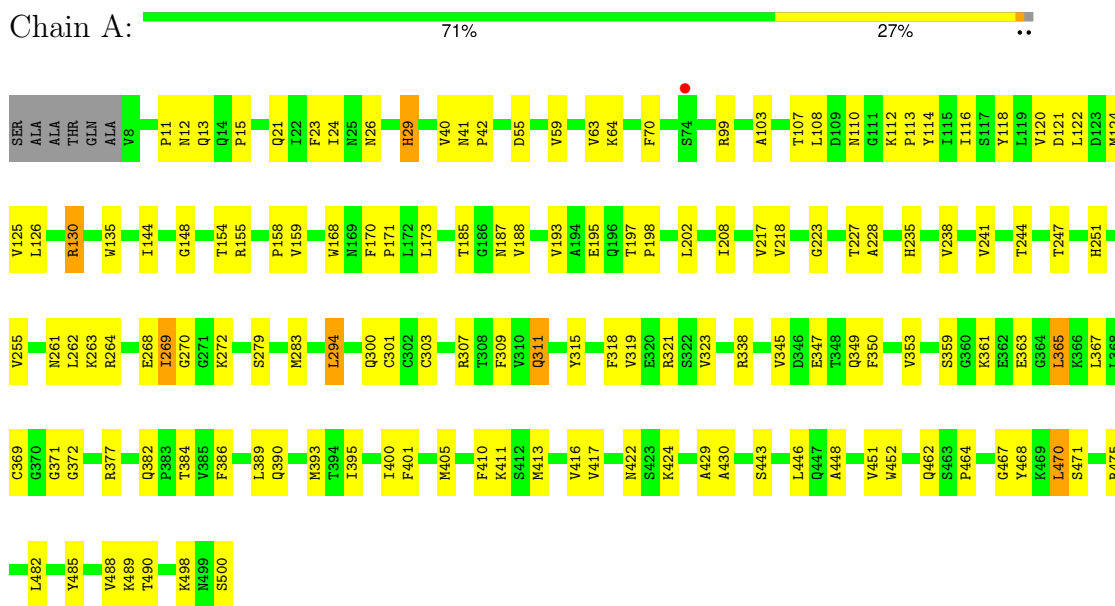
- Molecule 2 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	34	Total	O	0	0
			34	34		
2	B	37	Total	O	0	0
			37	37		
2	C	34	Total	O	0	0
			34	34		
2	D	35	Total	O	0	0
			35	35		

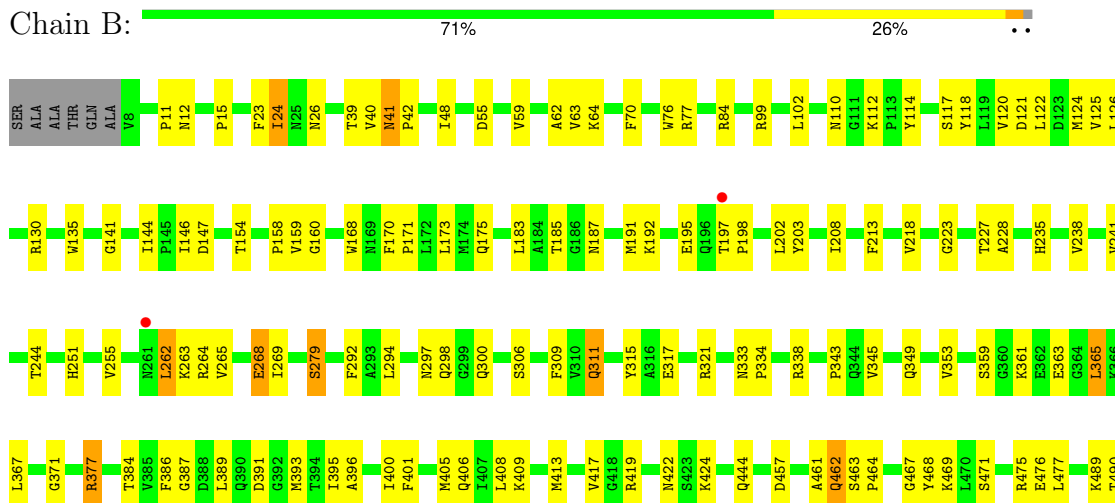
### 3 Residue-property plots

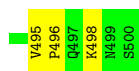
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density.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



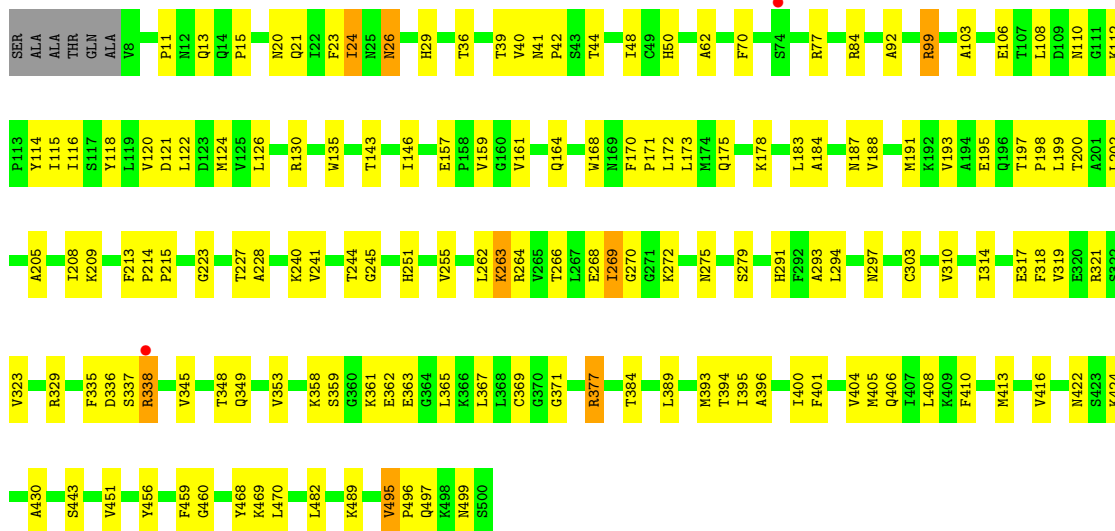
#### • Molecule 1: ALDEHYDE DEHYDROGENASE





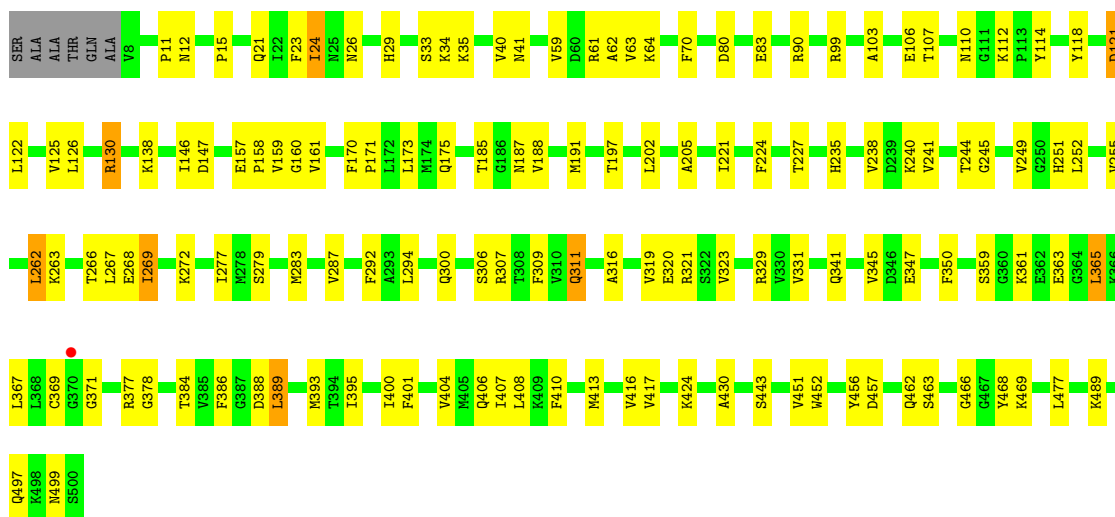
- Molecule 1: ALDEHYDE DEHYDROGENASE

Chain C: 68% 29%



- Molecule 1: ALDEHYDE DEHYDROGENASE

Chain D: 71% 26%



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	122.60Å 198.40Å 91.60Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	8.00 – 2.65 8.00 – 2.65	Depositor EDS
% Data completeness (in resolution range)	83.1 (8.00-2.65) 79.9 (8.00-2.65)	Depositor EDS
$R_{merge}$	0.08	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	4.54 (at 2.65Å)	Xtrriage
Refinement program	XTALVIEW, X-PLOR 3.1	Depositor
R, $R_{free}$	0.217 , 0.282 0.200 , 0.255	Depositor DCC
$R_{free}$ test set	3740 reflections (7.13%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	23.8	Xtrriage
Anisotropy	0.044	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.44 , 53.7	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.91	EDS
Total number of atoms	15336	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	14.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.17% of the height of the origin peak. No significant pseudotranslation is detected.*

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

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

## 5 Model quality [i](#)

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

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	0.39	0/3884	0.63	0/5268
1	B	0.39	0/3884	0.64	0/5268
1	C	0.36	0/3884	0.61	0/5268
1	D	0.38	0/3884	0.64	1/5268 (0.0%)
All	All	0.38	0/15536	0.63	1/21072 (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	D	365	LEU	CA-CB-CG	-5.30	103.11	115.30

There are no chirality outliers.

There are no planarity outliers.

### 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	3799	0	3755	104	0
1	B	3799	0	3755	113	0
1	C	3799	0	3755	107	0
1	D	3799	0	3755	112	0
2	A	34	0	0	1	0
2	B	37	0	0	1	0
2	C	34	0	0	2	0
2	D	35	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	15336	0	15020	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 14.

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:365:LEU:HD12	1:B:395:ILE:HD11	1.31	1.11
1:B:365:LEU:HD13	1:B:386:PHE:HB3	1.49	0.93
1:D:377:ARG:HG3	1:D:378:GLY:H	1.37	0.89
1:D:99:ARG:HG3	1:D:122:LEU:HD13	1.56	0.87
1:D:365:LEU:HD13	1:D:395:ILE:HD11	1.54	0.87
1:B:361:LYS:HE2	1:B:367:LEU:HD22	1.57	0.85
1:D:272:LYS:HG3	1:D:307:ARG:HD2	1.59	0.82
1:B:365:LEU:HG	1:B:393:MET:SD	2.20	0.82
1:D:365:LEU:HD21	1:D:393:MET:SD	2.20	0.81
1:A:365:LEU:HD21	1:A:393:MET:SD	2.21	0.80
1:D:365:LEU:HD11	1:D:393:MET:SD	2.22	0.80
1:D:159:VAL:H	1:D:187:ASN:HD21	1.31	0.79
1:C:365:LEU:HD22	1:C:389:LEU:HD22	1.64	0.79
1:A:159:VAL:HG12	1:A:187:ASN:ND2	1.98	0.79
1:B:389:LEU:HD22	1:B:406:GLN:HB3	1.66	0.77
1:D:323:VAL:HG13	1:D:369:CYS:SG	2.26	0.75
1:B:389:LEU:HD12	1:B:393:MET:SD	2.26	0.75
1:D:359:SER:O	1:D:363:GLU:HG2	1.87	0.75
1:C:365:LEU:HD13	1:C:395:ILE:HD11	1.69	0.74
1:D:361:LYS:HE2	1:D:367:LEU:HD22	1.68	0.74
1:B:365:LEU:HD21	1:B:389:LEU:HA	1.69	0.74
1:A:386:PHE:HB3	1:A:389:LEU:HD21	1.70	0.73
1:A:359:SER:O	1:A:363:GLU:HG2	1.89	0.72
1:B:389:LEU:HD11	1:B:396:ALA:HB2	1.71	0.72
1:A:365:LEU:HD11	1:A:393:MET:SD	2.29	0.71
1:D:251:HIS:O	1:D:255:VAL:HG23	1.92	0.70
1:D:377:ARG:HG3	1:D:378:GLY:N	2.07	0.69
1:C:77:ARG:HH11	1:C:77:ARG:HG2	1.56	0.68
1:C:365:LEU:HD21	1:C:393:MET:SD	2.33	0.68
1:A:365:LEU:CD2	1:A:393:MET:SD	2.81	0.68
1:B:292:PHE:HE2	1:B:457:ASP:HB2	1.56	0.68
1:A:241:VAL:HG23	1:A:263:LYS:HD3	1.77	0.67
1:C:159:VAL:H	1:C:187:ASN:HD21	1.41	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:365:LEU:HD21	1:C:389:LEU:HA	1.78	0.66
1:D:497:GLN:NE2	1:D:499:ASN:HD21	1.94	0.66
1:C:36:THR:OG1	1:C:50:HIS:HB3	1.95	0.66
1:D:159:VAL:N	1:D:187:ASN:HD21	1.92	0.66
1:B:102:LEU:HD21	1:B:203:TYR:HD2	1.61	0.65
1:B:159:VAL:H	1:B:187:ASN:HD21	1.43	0.65
1:C:99:ARG:HD2	1:C:122:LEU:HB3	1.78	0.64
1:B:159:VAL:N	1:B:187:ASN:HD21	1.96	0.64
1:D:389:LEU:HD11	1:D:407:ILE:N	2.12	0.64
1:A:315:TYR:O	1:A:319:VAL:HG23	1.99	0.63
1:D:103:ALA:HB2	1:D:122:LEU:HD12	1.81	0.63
1:B:23:PHE:CZ	1:B:26:ASN:HA	2.33	0.62
1:D:365:LEU:HD13	1:D:389:LEU:HD23	1.81	0.62
1:C:395:ILE:HB	1:C:400:ILE:HD11	1.81	0.62
1:B:359:SER:O	1:B:363:GLU:HG2	2.00	0.62
1:C:495:VAL:HG22	1:C:496:PRO:HD2	1.80	0.62
1:B:171:PRO:HG3	1:B:197:THR:HG21	1.82	0.61
1:D:11:PRO:HB3	1:D:114:TYR:CZ	2.34	0.61
1:D:171:PRO:HG3	1:D:197:THR:HG21	1.82	0.61
1:A:365:LEU:HD11	1:A:389:LEU:HD13	1.83	0.61
1:D:389:LEU:HD13	1:D:406:GLN:HB3	1.83	0.61
1:A:301:CYS:HG	1:A:303:CYS:HG	1.47	0.61
1:B:102:LEU:HD21	1:B:203:TYR:CD2	2.35	0.60
1:B:76:TRP:CH2	1:B:84:ARG:HG2	2.36	0.60
1:C:361:LYS:HE2	1:C:367:LEU:HD22	1.83	0.60
1:A:365:LEU:CD1	1:A:393:MET:SD	2.89	0.60
1:C:294:LEU:CD1	1:C:405:MET:HA	2.31	0.60
1:A:238:VAL:O	1:A:261:ASN:ND2	2.35	0.60
1:C:161:VAL:HA	1:C:188:VAL:HG23	1.83	0.59
1:D:279:SER:HB3	1:D:311:GLN:HG2	1.84	0.59
1:A:365:LEU:HG	1:A:395:ILE:HD11	1.85	0.59
1:C:103:ALA:HB2	1:C:122:LEU:HD12	1.85	0.59
1:B:365:LEU:CD1	1:B:395:ILE:HD11	2.20	0.59
1:D:365:LEU:HD21	1:D:389:LEU:HA	1.84	0.59
1:A:349:GLN:O	1:A:353:VAL:HG23	2.03	0.58
1:D:59:VAL:O	1:D:63:VAL:HG23	2.04	0.58
1:C:77:ARG:HG2	1:C:77:ARG:NH1	2.16	0.58
1:A:294:LEU:HD22	1:A:405:MET:HB2	1.85	0.57
1:A:490:THR:OG1	1:B:464:PRO:HG2	2.04	0.57
1:B:126:LEU:O	1:B:130:ARG:HB2	2.04	0.57
1:A:159:VAL:HG12	1:A:187:ASN:HD21	1.69	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:159:VAL:H	1:A:187:ASN:HD21	1.51	0.57
1:A:193:VAL:HG11	1:A:198:PRO:HA	1.86	0.57
1:A:262:LEU:HG	1:B:251:HIS:CE1	2.39	0.57
1:A:371:GLY:HA2	1:A:384:THR:OG1	2.05	0.57
1:D:197:THR:O	1:D:197:THR:HG23	2.04	0.57
1:C:359:SER:O	1:C:363:GLU:HG2	2.05	0.56
1:A:272:LYS:HG3	1:A:307:ARG:HD2	1.86	0.56
1:C:99:ARG:HG3	1:C:122:LEU:HD13	1.86	0.56
1:D:70:PHE:CZ	1:D:158:PRO:HB2	2.41	0.56
1:D:300:GLN:HE22	1:D:345:VAL:H	1.52	0.56
1:D:389:LEU:HD11	1:D:406:GLN:CA	2.35	0.56
1:C:23:PHE:CZ	1:C:26:ASN:HA	2.40	0.56
1:A:365:LEU:HD11	1:A:389:LEU:HA	1.87	0.56
1:A:365:LEU:HD12	1:A:389:LEU:HD22	1.87	0.56
1:B:309:PHE:CE1	1:B:408:LEU:HD22	2.41	0.56
1:C:15:PRO:HD2	1:C:108:LEU:HD22	1.87	0.56
1:C:443:SER:HA	1:C:451:VAL:HG11	1.87	0.56
1:A:361:LYS:HD3	1:A:367:LEU:HD22	1.88	0.55
1:C:26:ASN:O	1:C:209:LYS:HE2	2.05	0.55
1:A:323:VAL:HG13	1:A:369:CYS:SG	2.46	0.55
1:C:171:PRO:HG3	1:C:197:THR:HG21	1.88	0.55
1:C:20:ASN:HA	1:C:202:LEU:HD13	1.89	0.55
1:B:365:LEU:HD11	1:B:389:LEU:HD13	1.88	0.55
1:D:365:LEU:CD2	1:D:393:MET:SD	2.95	0.55
1:D:365:LEU:CD2	1:D:389:LEU:HA	2.37	0.54
1:A:126:LEU:O	1:A:130:ARG:HB2	2.07	0.54
1:B:170:PHE:HE1	2:B:513:HOH:O	1.89	0.54
1:D:389:LEU:O	1:D:408:LEU:HD23	2.07	0.54
1:A:107:THR:HG23	1:A:112:LYS:O	2.07	0.54
1:C:245:GLY:O	1:C:269:ILE:HG22	2.08	0.54
1:A:15:PRO:HD2	1:A:108:LEU:HD22	1.89	0.53
1:B:365:LEU:HD22	1:B:387:GLY:O	2.08	0.53
1:D:160:GLY:H	1:D:187:ASN:HD22	1.56	0.53
1:B:11:PRO:HB3	1:B:114:TYR:CE1	2.44	0.53
1:D:70:PHE:HZ	1:D:158:PRO:HB2	1.74	0.53
1:A:198:PRO:O	1:A:202:LEU:HG	2.08	0.53
1:C:349:GLN:O	1:C:353:VAL:HG23	2.09	0.53
1:C:460:GLY:HA3	1:D:146:ILE:HG13	1.91	0.53
1:C:371:GLY:HA2	1:C:384:THR:OG1	2.08	0.53
1:A:197:THR:HG23	1:A:197:THR:O	2.07	0.53
1:B:59:VAL:O	1:B:63:VAL:HG23	2.09	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:40:VAL:HG12	1:D:41:ASN:N	2.24	0.52
1:A:443:SER:HA	1:A:451:VAL:HG11	1.91	0.52
1:D:347:GLU:O	1:D:350:PHE:HB3	2.10	0.52
1:D:365:LEU:CD1	1:D:393:MET:SD	2.96	0.52
1:D:329:ARG:HE	1:D:341:GLN:HE21	1.58	0.52
1:A:148:GLY:O	1:A:498:LYS:HD3	2.09	0.52
1:B:268:GLU:OE1	1:B:476:GLU:HG3	2.09	0.52
1:C:294:LEU:HD11	1:C:405:MET:HA	1.92	0.52
1:B:391:ASP:OD2	1:B:419:ARG:HD2	2.09	0.52
1:B:227:THR:HG22	1:B:228:ALA:N	2.25	0.52
1:D:11:PRO:HB3	1:D:114:TYR:CE1	2.44	0.52
1:A:400:ILE:HB	2:A:524:HOH:O	2.09	0.52
1:D:277:ILE:HD12	1:D:277:ILE:N	2.26	0.52
1:C:424:LYS:HB3	1:C:470:LEU:HD12	1.92	0.51
1:A:99:ARG:HG2	1:A:118:TYR:CE2	2.46	0.51
1:A:311:GLN:NE2	1:A:411:LYS:O	2.43	0.51
1:B:235:HIS:HB3	1:B:238:VAL:HG23	1.93	0.51
1:B:55:ASP:CG	1:B:227:THR:HG23	2.31	0.51
1:B:371:GLY:HA2	1:B:384:THR:OG1	2.11	0.51
1:C:99:ARG:NH1	1:C:118:TYR:O	2.44	0.51
1:A:11:PRO:HB3	1:A:114:TYR:CE1	2.46	0.51
1:C:358:LYS:O	1:C:362:GLU:HG3	2.11	0.51
1:D:23:PHE:CZ	1:D:26:ASN:HA	2.45	0.51
1:C:39:THR:HG23	1:C:48:ILE:HB	1.93	0.51
1:A:103:ALA:HB2	1:A:122:LEU:HD12	1.94	0.50
1:D:121:ASP:O	1:D:125:VAL:HG23	2.11	0.50
1:A:11:PRO:HB3	1:A:114:TYR:CZ	2.46	0.50
1:B:241:VAL:CG1	1:B:265:VAL:HG22	2.41	0.50
1:A:227:THR:HG22	1:A:228:ALA:N	2.25	0.50
1:B:77:ARG:HG2	1:B:77:ARG:HH11	1.77	0.50
1:B:409:LYS:O	1:B:419:ARG:NH2	2.43	0.50
1:C:120:VAL:O	1:C:124:MET:HG3	2.12	0.50
1:D:224:PHE:HB2	1:D:227:THR:OG1	2.12	0.50
1:A:193:VAL:CG1	1:A:198:PRO:HA	2.41	0.50
1:B:124:MET:HE3	1:B:173:LEU:HD22	1.94	0.50
1:D:365:LEU:CD1	1:D:395:ILE:HD11	2.34	0.50
1:B:269:ILE:HG13	1:B:471:SER:HA	1.94	0.50
1:B:198:PRO:O	1:B:202:LEU:HG	2.11	0.50
1:C:70:PHE:O	1:C:77:ARG:HD2	2.12	0.50
1:C:413:MET:HA	1:C:416:VAL:HG12	1.94	0.50
1:C:497:GLN:NE2	1:C:499:ASN:HD21	2.08	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:319:VAL:O	1:D:323:VAL:HG23	2.11	0.50
1:A:121:ASP:O	1:A:125:VAL:HG23	2.12	0.50
1:A:309:PHE:HB3	1:A:410:PHE:CD2	2.47	0.50
1:C:291:HIS:NE2	1:C:329:ARG:NH1	2.59	0.50
1:B:183:LEU:HD13	1:B:213:PHE:CE2	2.47	0.49
1:C:489:LYS:HB2	1:D:468:TYR:OH	2.12	0.49
1:D:497:GLN:HE21	1:D:499:ASN:HD21	1.60	0.49
1:B:23:PHE:CE1	1:B:26:ASN:HA	2.48	0.49
1:B:120:VAL:HG12	1:B:124:MET:HE1	1.94	0.49
1:D:21:GLN:HB3	1:D:29:HIS:O	2.12	0.49
1:D:245:GLY:O	1:D:269:ILE:HG22	2.11	0.49
1:D:292:PHE:CE2	1:D:457:ASP:HB2	2.48	0.49
1:B:11:PRO:HB3	1:B:114:TYR:CZ	2.47	0.49
1:B:208:ILE:HD13	1:B:218:VAL:HG11	1.93	0.49
1:B:413:MET:O	1:B:417:VAL:HG23	2.11	0.49
1:A:168:TRP:HA	1:A:197:THR:HG21	1.95	0.49
1:D:365:LEU:CG	1:D:393:MET:SD	3.00	0.49
1:B:294:LEU:CD1	1:B:405:MET:HA	2.42	0.49
1:C:164:GLN:CD	1:C:178:LYS:HB3	2.33	0.49
1:B:349:GLN:O	1:B:353:VAL:HG23	2.12	0.49
1:C:198:PRO:O	1:C:202:LEU:HG	2.13	0.49
1:C:336:ASP:OD2	1:C:338:ARG:HD2	2.12	0.49
1:B:124:MET:HE3	1:B:173:LEU:CD2	2.42	0.49
1:C:251:HIS:HA	1:D:262:LEU:HD11	1.93	0.49
1:B:389:LEU:CD2	1:B:406:GLN:HB3	2.41	0.49
1:C:11:PRO:HB3	1:C:114:TYR:CZ	2.48	0.49
1:A:300:GLN:HE22	1:A:345:VAL:H	1.59	0.48
1:B:192:LYS:HE2	1:B:223:GLY:C	2.34	0.48
1:C:227:THR:HG22	1:C:228:ALA:N	2.27	0.48
1:C:279:SER:HA	1:C:314:ILE:HD13	1.94	0.48
1:B:168:TRP:HA	1:B:197:THR:HG21	1.95	0.48
1:A:270:GLY:O	1:A:471:SER:HB2	2.13	0.48
1:C:255:VAL:HG13	1:D:255:VAL:HG13	1.95	0.48
1:A:70:PHE:CZ	1:A:158:PRO:HB2	2.47	0.48
1:A:171:PRO:HG3	1:A:197:THR:HG21	1.95	0.48
1:A:294:LEU:HD22	1:A:405:MET:CB	2.43	0.48
1:D:389:LEU:HD11	1:D:407:ILE:H	1.77	0.48
1:C:294:LEU:HD13	1:C:405:MET:HA	1.96	0.48
1:A:390:GLN:O	1:A:393:MET:HG3	2.13	0.48
1:A:261:ASN:O	1:A:262:LEU:HB2	2.14	0.48
1:C:183:LEU:HD13	1:C:213:PHE:CE2	2.49	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:99:ARG:HG2	1:D:118:TYR:CE2	2.49	0.48
1:A:40:VAL:HG12	1:A:41:ASN:N	2.28	0.48
1:C:42:PRO:HB3	1:C:345:VAL:O	2.14	0.48
1:C:172:LEU:HD21	1:C:200:THR:HB	1.96	0.48
1:D:126:LEU:O	1:D:130:ARG:HB2	2.14	0.48
1:D:272:LYS:CG	1:D:307:ARG:HD2	2.40	0.48
1:A:185:THR:HG21	1:A:485:TYR:O	2.14	0.47
1:C:389:LEU:HD12	1:C:396:ALA:HB2	1.96	0.47
1:D:430:ALA:HB2	1:D:456:TYR:CD1	2.49	0.47
1:C:319:VAL:O	1:C:323:VAL:HG23	2.13	0.47
1:D:62:ALA:CB	1:D:221:ILE:HD11	2.44	0.47
1:D:159:VAL:HG11	1:D:240:LYS:HB2	1.95	0.47
1:A:188:VAL:HG13	1:A:217:VAL:HA	1.95	0.47
1:B:195:GLU:HB3	1:B:223:GLY:O	2.13	0.47
1:C:365:LEU:HD11	1:C:393:MET:SD	2.54	0.47
1:C:317:GLU:O	1:C:321:ARG:HG2	2.14	0.47
1:C:365:LEU:CG	1:C:393:MET:SD	3.02	0.47
1:B:112:LYS:HE2	1:B:297:ASN:OD1	2.14	0.47
1:A:446:LEU:O	1:B:489:LYS:NZ	2.41	0.47
1:A:467:GLY:O	1:A:475:ARG:NH2	2.48	0.47
1:C:11:PRO:HB3	1:C:114:TYR:CE1	2.50	0.47
1:C:170:PHE:HB3	1:C:173:LEU:HB3	1.97	0.47
1:D:389:LEU:CD1	1:D:407:ILE:N	2.76	0.47
1:A:195:GLU:HB3	1:A:223:GLY:O	2.14	0.47
1:D:316:ALA:O	1:D:320:GLU:HG2	2.15	0.47
1:D:404:VAL:HG12	1:D:406:GLN:OE1	2.15	0.47
1:B:70:PHE:CZ	1:B:158:PRO:HB2	2.50	0.47
1:A:247:THR:HA	1:A:269:ILE:HD12	1.96	0.46
1:D:365:LEU:HD22	1:D:389:LEU:HD23	1.96	0.46
1:A:462:GLN:O	1:B:144:ILE:HG21	2.14	0.46
1:B:424:LYS:O	1:B:469:LYS:HB2	2.15	0.46
1:D:235:HIS:HB3	1:D:238:VAL:HG23	1.96	0.46
1:A:120:VAL:HG12	1:A:124:MET:CE	2.45	0.46
1:A:386:PHE:CB	1:A:389:LEU:HD21	2.40	0.46
1:B:365:LEU:HD23	1:B:365:LEU:HA	1.55	0.46
1:A:451:VAL:HG23	1:B:489:LYS:HD2	1.97	0.46
1:D:389:LEU:CD1	1:D:406:GLN:HB3	2.46	0.46
1:A:251:HIS:O	1:A:255:VAL:HG23	2.16	0.46
1:A:283:MET:HE1	1:A:318:PHE:HA	1.97	0.46
1:B:467:GLY:O	1:B:475:ARG:NH2	2.49	0.46
1:C:157:GLU:OE2	1:C:489:LYS:HE2	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:365:LEU:CD2	1:C:393:MET:SD	3.01	0.46
1:D:389:LEU:HD11	1:D:406:GLN:HA	1.95	0.46
1:A:279:SER:HB3	1:A:311:GLN:HG2	1.98	0.46
1:D:268:GLU:OE2	1:D:466:GLY:HA2	2.15	0.46
1:C:205:ALA:HA	1:C:208:ILE:HD12	1.98	0.46
1:D:266:THR:O	1:D:267:LEU:HD23	2.16	0.46
1:A:429:ALA:HB1	1:A:446:LEU:HD13	1.97	0.46
1:D:424:LYS:O	1:D:469:LYS:HB2	2.15	0.46
1:C:389:LEU:HB3	1:C:408:LEU:HG	1.97	0.45
1:D:12:ASN:O	1:D:15:PRO:HD3	2.15	0.45
1:D:413:MET:HA	1:D:416:VAL:HG12	1.98	0.45
1:A:488:VAL:O	1:B:475:ARG:NH1	2.49	0.45
1:B:395:ILE:HB	1:B:400:ILE:HD11	1.98	0.45
1:C:135:TRP:CG	1:C:482:LEU:HD11	2.50	0.45
1:D:294:LEU:HD12	1:D:306:SER:HA	1.98	0.45
1:D:497:GLN:HE21	1:D:499:ASN:ND2	2.14	0.45
1:A:23:PHE:CZ	1:A:26:ASN:HA	2.52	0.45
1:A:272:LYS:HG3	1:A:307:ARG:CD	2.47	0.45
1:D:306:SER:O	1:D:406:GLN:HB2	2.17	0.45
1:A:42:PRO:HG3	1:A:110:ASN:O	2.17	0.45
1:B:317:GLU:O	1:B:321:ARG:HG3	2.17	0.45
1:C:44:THR:HA	1:C:377:ARG:HD2	1.99	0.45
1:D:70:PHE:CE2	1:D:160:GLY:HA2	2.52	0.45
1:C:24:ILE:HD12	1:C:62:ALA:HB2	1.99	0.45
1:C:293:ALA:HA	1:C:456:TYR:CD2	2.52	0.45
1:B:389:LEU:HD22	1:B:406:GLN:CB	2.42	0.44
1:C:84:ARG:NH1	1:C:184:ALA:O	2.50	0.44
1:D:272:LYS:HG3	1:D:307:ARG:CD	2.38	0.44
1:D:283:MET:O	1:D:287:VAL:HG23	2.16	0.44
1:A:283:MET:CE	1:A:321:ARG:HD2	2.47	0.44
1:C:159:VAL:H	1:C:187:ASN:ND2	2.12	0.44
1:C:269:ILE:HB	1:C:270:GLY:H	1.69	0.44
1:D:107:THR:HG23	1:D:112:LYS:O	2.17	0.44
1:A:185:THR:HG22	1:A:185:THR:O	2.17	0.44
1:C:126:LEU:O	1:C:130:ARG:HB2	2.18	0.44
1:C:389:LEU:HG	1:C:406:GLN:HB3	2.00	0.44
1:D:33:SER:OG	1:D:35:LYS:HG3	2.18	0.44
1:D:175:GLN:HG3	1:D:191:MET:CE	2.48	0.44
1:D:371:GLY:HA2	1:D:384:THR:OG1	2.17	0.44
1:C:241:VAL:HG23	1:C:263:LYS:HG3	2.00	0.44
1:D:241:VAL:CG2	1:D:263:LYS:HE2	2.47	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:113:PRO:HB2	1:A:116:ILE:HG12	2.00	0.44
1:B:294:LEU:HD12	1:B:306:SER:HA	2.00	0.44
1:C:365:LEU:HD13	1:C:395:ILE:CD1	2.45	0.44
1:C:365:LEU:HG	1:C:393:MET:SD	2.56	0.44
1:D:80:ASP:HB2	1:D:83:GLU:HG2	1.99	0.44
1:B:39:THR:HG23	1:B:48:ILE:HB	1.99	0.44
1:B:389:LEU:HD23	1:B:408:LEU:HD11	1.99	0.44
1:C:404:VAL:HG12	1:C:406:GLN:OE1	2.18	0.44
1:C:424:LYS:O	1:C:469:LYS:HB2	2.17	0.44
1:D:170:PHE:HB3	1:D:173:LEU:HB3	1.99	0.44
1:A:120:VAL:HG12	1:A:124:MET:HE1	2.00	0.44
1:B:306:SER:O	1:B:406:GLN:HB2	2.18	0.44
1:B:389:LEU:HD21	1:B:396:ALA:HB2	1.99	0.44
1:C:205:ALA:O	1:C:208:ILE:HB	2.18	0.44
1:B:160:GLY:H	1:B:187:ASN:ND2	2.16	0.44
1:B:463:SER:O	1:B:477:LEU:HB2	2.18	0.44
1:C:410:PHE:CD2	1:C:416:VAL:HB	2.53	0.44
1:D:161:VAL:HA	1:D:188:VAL:HG23	2.00	0.44
1:B:292:PHE:CE2	1:B:457:ASP:HB2	2.45	0.43
1:D:161:VAL:HA	1:D:188:VAL:CG2	2.48	0.43
1:B:42:PRO:HB2	1:B:343:PRO:HG2	2.00	0.43
1:B:251:HIS:O	1:B:255:VAL:HG23	2.18	0.43
1:B:294:LEU:HD13	1:B:405:MET:HA	1.99	0.43
1:B:298:GLN:HG2	1:B:343:PRO:O	2.18	0.43
1:B:315:TYR:CD2	1:B:409:LYS:HE2	2.53	0.43
1:C:21:GLN:HB3	1:C:29:HIS:O	2.17	0.43
1:D:244:THR:HA	1:D:268:GLU:O	2.19	0.43
1:B:42:PRO:HG3	1:B:110:ASN:O	2.19	0.43
1:C:77:ARG:HH11	1:C:77:ARG:CG	2.29	0.43
1:A:365:LEU:HD13	1:A:365:LEU:HA	1.75	0.43
1:A:144:ILE:HG21	1:B:462:GLN:O	2.18	0.43
1:C:365:LEU:HG	1:C:393:MET:CE	2.49	0.43
1:D:443:SER:HA	1:D:451:VAL:HG11	2.01	0.43
1:A:155:ARG:NH2	1:B:444:GLN:HG3	2.34	0.43
1:A:413:MET:O	1:A:417:VAL:HG23	2.19	0.43
1:A:500:SER:OXT	1:D:158:PRO:HD3	2.18	0.43
1:B:121:ASP:O	1:B:125:VAL:HG23	2.19	0.43
1:B:333:ASN:HA	1:B:334:PRO:HD3	1.90	0.43
1:C:240:LYS:HZ1	1:C:266:THR:HB	1.83	0.43
1:C:389:LEU:CB	1:C:408:LEU:HG	2.49	0.43
1:D:249:VAL:HA	1:D:252:LEU:HD12	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:168:TRP:HZ2	1:B:349:GLN:NE2	2.16	0.43
1:D:33:SER:O	1:D:34:LYS:HB2	2.19	0.43
1:A:40:VAL:CG1	1:A:41:ASN:N	2.82	0.43
1:D:40:VAL:CG1	1:D:41:ASN:N	2.81	0.43
1:C:39:THR:HG21	1:C:199:LEU:HD11	2.01	0.43
1:D:386:PHE:HB3	1:D:389:LEU:HD21	2.01	0.43
1:A:99:ARG:HD3	1:A:122:LEU:HB3	2.01	0.42
1:A:448:ALA:O	1:B:489:LYS:HD3	2.19	0.42
1:B:279:SER:CB	1:B:311:GLN:HG2	2.48	0.42
1:D:410:PHE:CD2	1:D:416:VAL:HB	2.54	0.42
1:A:424:LYS:HD2	1:A:470:LEU:CD1	2.49	0.42
1:C:99:ARG:HG2	1:C:118:TYR:CE1	2.54	0.42
1:B:12:ASN:O	1:B:15:PRO:HD3	2.18	0.42
1:A:244:THR:HA	1:A:268:GLU:O	2.20	0.42
1:B:120:VAL:HG12	1:B:124:MET:CE	2.49	0.42
1:C:92:ALA:CB	1:C:130:ARG:HD3	2.50	0.42
1:C:240:LYS:HG2	1:C:241:VAL:N	2.34	0.42
1:C:116:ILE:HG21	2:C:512:HOH:O	2.19	0.42
1:C:272:LYS:HD2	1:C:272:LYS:HA	1.88	0.42
1:D:146:ILE:HG12	1:D:147:ASP:N	2.33	0.42
1:A:347:GLU:O	1:A:350:PHE:HB3	2.19	0.42
1:A:413:MET:HA	1:A:416:VAL:HG12	2.02	0.42
1:B:175:GLN:HG3	1:B:191:MET:CE	2.49	0.42
1:B:208:ILE:CD1	1:B:218:VAL:HG11	2.50	0.42
1:B:24:ILE:HD12	1:B:62:ALA:HB2	2.01	0.42
1:B:300:GLN:HE22	1:B:345:VAL:H	1.68	0.42
1:B:365:LEU:HD11	1:B:389:LEU:CD1	2.48	0.42
1:B:365:LEU:HB3	1:B:386:PHE:CD1	2.54	0.42
1:A:21:GLN:HB3	1:A:29:HIS:O	2.20	0.42
1:B:117:SER:HA	1:B:121:ASP:HB2	2.01	0.42
1:D:185:THR:O	1:D:185:THR:HG22	2.19	0.42
1:D:202:LEU:O	1:D:205:ALA:HB3	2.20	0.42
1:B:244:THR:HG23	1:B:268:GLU:HB3	2.02	0.42
1:B:244:THR:HA	1:B:268:GLU:O	2.20	0.42
1:B:279:SER:HB3	1:B:311:GLN:HG2	2.01	0.42
1:C:106:GLU:O	1:C:110:ASN:HB3	2.20	0.42
1:C:115:ILE:HG12	2:C:524:HOH:O	2.19	0.42
1:D:395:ILE:HB	1:D:400:ILE:HD11	2.02	0.42
1:A:59:VAL:O	1:A:63:VAL:HG23	2.20	0.42
1:C:303:CYS:SG	1:C:459:PHE:HZ	2.43	0.42
1:D:309:PHE:CZ	1:D:408:LEU:HD13	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:154:THR:HA	1:A:489:LYS:O	2.20	0.41
1:C:44:THR:HA	1:C:377:ARG:CD	2.50	0.41
1:C:193:VAL:HG11	1:C:198:PRO:HA	2.02	0.41
1:D:106:GLU:O	1:D:110:ASN:HB3	2.20	0.41
1:A:55:ASP:OD1	1:A:227:THR:HG23	2.20	0.41
1:A:170:PHE:HB3	1:A:173:LEU:HB3	2.02	0.41
1:C:146:ILE:HA	1:D:462:GLN:CG	2.50	0.41
1:C:168:TRP:CB	1:C:197:THR:HG22	2.49	0.41
1:C:175:GLN:HG3	1:C:191:MET:CE	2.50	0.41
1:C:310:VAL:HG21	1:C:318:PHE:CD2	2.56	0.41
1:D:331:VAL:HG22	1:D:341:GLN:HB3	2.02	0.41
1:A:55:ASP:CG	1:A:227:THR:HG23	2.41	0.41
1:B:197:THR:HG23	1:B:197:THR:O	2.20	0.41
1:B:135:TRP:CD1	1:D:138:LYS:HE3	2.55	0.41
1:B:495:VAL:HB	1:B:496:PRO:HD2	2.03	0.41
1:C:430:ALA:HB2	1:C:456:TYR:CD1	2.55	0.41
1:D:413:MET:O	1:D:417:VAL:HG23	2.21	0.41
1:A:389:LEU:HD11	1:A:395:ILE:HD11	2.02	0.41
1:A:430:ALA:HA	1:A:452:TRP:O	2.21	0.41
1:C:214:PRO:HA	1:C:215:PRO:HD3	1.95	0.41
1:A:135:TRP:CG	1:A:482:LEU:HD11	2.56	0.41
1:A:270:GLY:O	1:A:471:SER:CB	2.69	0.41
1:A:464:PRO:HG2	1:B:490:THR:OG1	2.21	0.41
1:B:99:ARG:HG2	1:B:118:TYR:CE2	2.55	0.41
1:C:112:LYS:HE2	1:C:297:ASN:OD1	2.19	0.41
1:D:24:ILE:HD12	1:D:61:ARG:CZ	2.50	0.41
1:A:247:THR:O	1:A:251:HIS:HD2	2.04	0.41
1:B:40:VAL:HG12	1:B:41:ASN:N	2.36	0.41
1:B:185:THR:O	1:B:185:THR:HG22	2.21	0.41
1:A:12:ASN:O	1:A:15:PRO:HD3	2.21	0.41
1:B:241:VAL:HG12	1:B:265:VAL:HG22	2.02	0.41
1:B:377:ARG:HH11	1:B:377:ARG:HG3	1.86	0.41
1:B:461:ALA:HA	1:B:477:LEU:HD22	2.01	0.41
1:C:195:GLU:HB3	1:C:223:GLY:O	2.21	0.41
1:D:33:SER:OG	1:D:35:LYS:HE3	2.21	0.41
1:B:77:ARG:HG2	1:B:77:ARG:NH1	2.36	0.40
1:B:154:THR:HA	1:B:489:LYS:O	2.21	0.40
1:D:430:ALA:HA	1:D:452:TRP:O	2.21	0.40
1:A:208:ILE:HD13	1:A:218:VAL:HG11	2.04	0.40
1:A:365:LEU:CD1	1:A:389:LEU:HD22	2.51	0.40
1:D:157:GLU:OE2	1:D:489:LYS:HE2	2.22	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:13:GLN:HE22	1:C:335:PHE:HB3	1.86	0.40
1:C:41:ASN:ND2	1:C:108:LEU:O	2.55	0.40
1:C:468:TYR:OH	1:D:489:LYS:HB2	2.22	0.40
1:D:463:SER:O	1:D:477:LEU:HB2	2.21	0.40
1:A:63:VAL:HG11	1:A:235:HIS:CE1	2.57	0.40
1:B:262:LEU:HD12	1:B:262:LEU:HA	1.94	0.40
1:C:244:THR:HA	1:C:268:GLU:O	2.21	0.40
1:C:365:LEU:CD2	1:C:389:LEU:HA	2.49	0.40
1:D:365:LEU:HA	1:D:365:LEU:HD23	1.78	0.40
1:A:255:VAL:HG13	1:B:255:VAL:HG13	2.02	0.40
1:A:372:GLY:O	1:A:382:GLN:HG3	2.22	0.40
1:B:141:GLY:HA3	1:C:143:THR:OG1	2.22	0.40
1:B:146:ILE:HG12	1:B:147:ASP:N	2.36	0.40
1:D:160:GLY:H	1:D:187:ASN:ND2	2.19	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	491/499 (98%)	464 (94%)	26 (5%)	1 (0%)	44 61
1	B	491/499 (98%)	464 (94%)	26 (5%)	1 (0%)	44 61
1	C	491/499 (98%)	463 (94%)	27 (6%)	1 (0%)	44 61
1	D	491/499 (98%)	466 (95%)	24 (5%)	1 (0%)	44 61
All	All	1964/1996 (98%)	1857 (95%)	103 (5%)	4 (0%)	44 61

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	24	ILE

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Mol	Chain	Res	Type
1	B	24	ILE
1	C	24	ILE
1	D	24	ILE

### 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	398/401 (99%)	383 (96%)	15 (4%)	28	47
1	B	398/401 (99%)	381 (96%)	17 (4%)	25	41
1	C	398/401 (99%)	380 (96%)	18 (4%)	23	39
1	D	398/401 (99%)	387 (97%)	11 (3%)	38	60
All	All	1592/1604 (99%)	1531 (96%)	61 (4%)	28	47

All (61) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	13	GLN
1	A	29	HIS
1	A	64	LYS
1	A	130	ARG
1	A	264	ARG
1	A	269	ILE
1	A	294	LEU
1	A	311	GLN
1	A	338	ARG
1	A	365	LEU
1	A	377	ARG
1	A	401	PHE
1	A	422	ASN
1	A	468	TYR
1	A	470	LEU
1	B	41	ASN
1	B	64	LYS
1	B	122	LEU

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	B	262	LEU
1	B	263	LYS
1	B	264	ARG
1	B	268	GLU
1	B	279	SER
1	B	311	GLN
1	B	338	ARG
1	B	365	LEU
1	B	377	ARG
1	B	401	PHE
1	B	422	ASN
1	B	462	GLN
1	B	468	TYR
1	B	498	LYS
1	C	26	ASN
1	C	40	VAL
1	C	99	ARG
1	C	121	ASP
1	C	262	LEU
1	C	263	LYS
1	C	264	ARG
1	C	269	ILE
1	C	275	ASN
1	C	337	SER
1	C	338	ARG
1	C	348	THR
1	C	369	CYS
1	C	377	ARG
1	C	394	THR
1	C	401	PHE
1	C	422	ASN
1	C	495	VAL
1	D	64	LYS
1	D	90	ARG
1	D	121	ASP
1	D	130	ARG
1	D	262	LEU
1	D	269	ILE
1	D	311	GLN
1	D	321	ARG
1	D	388	ASP
1	D	389	LEU

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Mol	Chain	Res	Type
1	D	401	PHE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (36) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	13	GLN
1	A	14	GLN
1	A	26	ASN
1	A	71	GLN
1	A	140	HIS
1	A	175	GLN
1	A	187	ASN
1	A	261	ASN
1	A	275	ASN
1	A	300	GLN
1	A	462	GLN
1	B	13	GLN
1	B	26	ASN
1	B	41	ASN
1	B	187	ASN
1	B	300	GLN
1	B	311	GLN
1	B	422	ASN
1	B	447	GLN
1	C	21	GLN
1	C	26	ASN
1	C	41	ASN
1	C	89	ASN
1	C	187	ASN
1	C	275	ASN
1	C	422	ASN
1	C	497	GLN
1	D	26	ASN
1	D	187	ASN
1	D	275	ASN
1	D	300	GLN
1	D	341	GLN
1	D	344	GLN
1	D	422	ASN
1	D	447	GLN
1	D	497	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 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 [i](#)

### 6.1 Protein, DNA and RNA chains [i](#)

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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	493/499 (98%)	-0.65	1 (0%) 92 92	2, 10, 24, 42	0
1	B	493/499 (98%)	-0.63	2 (0%) 89 88	2, 9, 24, 35	0
1	C	493/499 (98%)	-0.41	2 (0%) 89 88	3, 21, 40, 53	0
1	D	493/499 (98%)	-0.50	1 (0%) 92 92	2, 14, 32, 53	0
All	All	1972/1996 (98%)	-0.55	6 (0%) 90 90	2, 12, 32, 53	0

All (6) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	74	SER	3.2
1	D	370	GLY	3.2
1	A	74	SER	2.5
1	B	197	THR	2.5
1	C	338	ARG	2.4
1	B	261	ASN	2.3

### 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 monosaccharides 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.