



Full wwPDB X-ray Structure Validation Report

Feb 28, 2014 – 08:50 AM GMT

PDB ID : 1UN9
Title : CRYSTAL STRUCTURE OF THE DIHYDROXYACETONE KINASE
FROM C. FREUNDII IN COMPLEX WITH AMP-PNP AND MG2+
Authors : Siebold, C.; Arnold, I.; Garcia-Alles, L.F.; Baumann, U.; Erni, B.
Deposited on : 2003-09-08
Resolution : 3.10 Å(reported)

This is a full wwPDB validation report for a publicly released PDB entry.
We welcome your comments at validation@mail.wwpdb.org
A user guide is available at <http://wwpdb.org/ValidationPDFNotes.html>

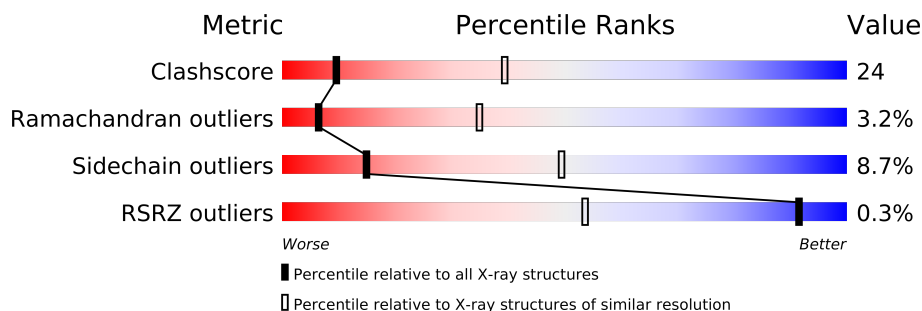
The following versions of software and data (see [references](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.15 2013
Xtriage (Phenix) : dev-1323
EDS : stable22639
Percentile statistics : 21963
Refmac : 5.8.0049
CCP4 : 6.3.0 (Settle)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)
Validation Pipeline (wwPDB-VP) : stable22683

1 Overall quality at a glance

The reported resolution of this entry is 3.10 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	79885	1078 (3.16-3.04)
Ramachandran outliers	78287	1044 (3.16-3.04)
Sidechain outliers	78261	1044 (3.16-3.04)
RSRZ outliers	66119	1008 (3.18-3.02)

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. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density.

Mol	Chain	Length	Quality of chain
1	A	552	
1	B	552	

The following table lists non-polymeric compounds that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Geometry	Electron density
3	MG	A	1553	-	X

2 Entry composition i

There are 4 unique types of molecules in this entry. The entry contains 7982 atoms, of which 0 are hydrogen and 0 are deuterium.

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.

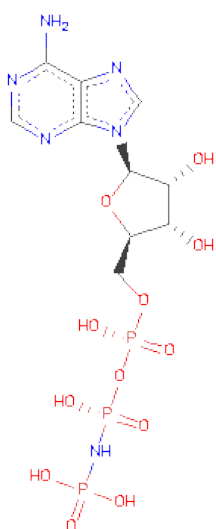
- Molecule 1 is a protein called DIHYDROXYACETONE KINASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	537	Total	C	N	O	S	0	0	0
			3952	2481	692	761	18			
1	B	537	Total	C	N	O	S	0	0	0
			3952	2481	692	761	18			

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	ALA	MET	CONFLICT	UNP P45510
A	538	ALA	ARG	CONFLICT	UNP P45510
B	1	ALA	MET	CONFLICT	UNP P45510
B	538	ALA	ARG	CONFLICT	UNP P45510

- Molecule 2 is PHOSPHOAMINOPHOSPHONICACID-ADENYLATE ESTER (three-letter code: ANP) (formula: $C_{10}H_{17}N_6O_{12}P_3$).

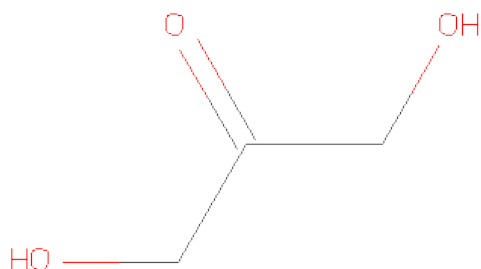


Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			31	10	6	12	3		
2	B	1	Total	C	N	O	P	0	0
			31	10	6	12	3		

- Molecule 3 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	B	2	Total	Mg	0	0
			2	2		
3	A	2	Total	Mg	0	0
			2	2		

- Molecule 4 is DIHYDROXYACETONE (three-letter code: 2HA) (formula: C₃H₆O₃).



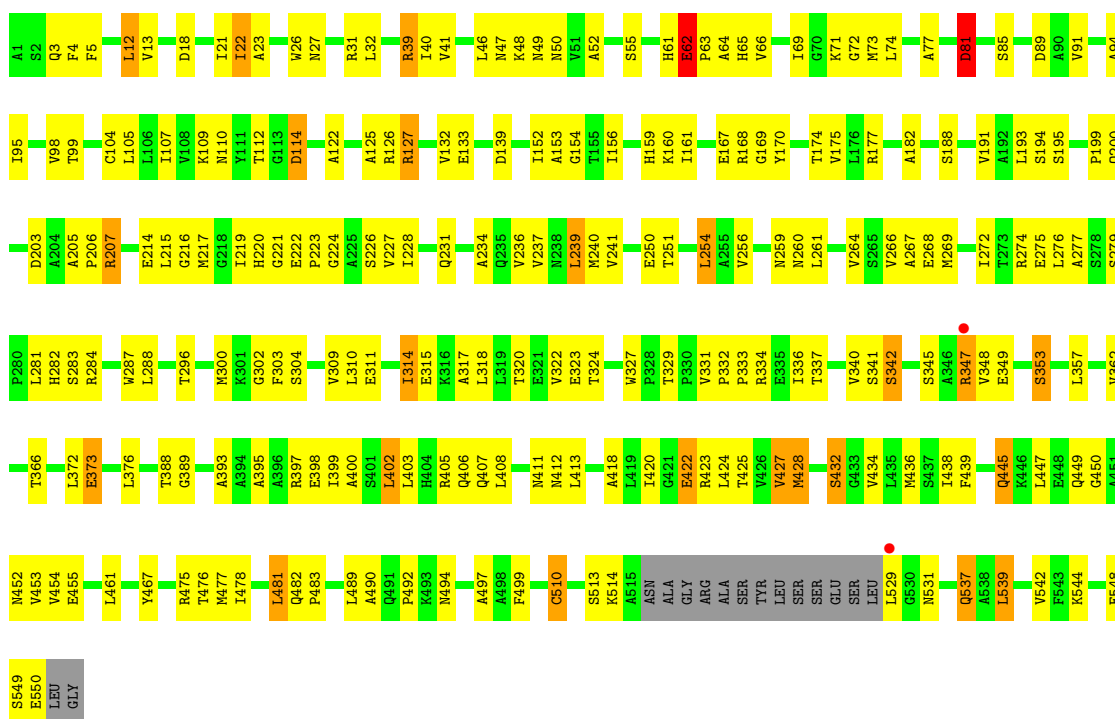
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total	C	O	0	0
			6	3	3		
4	B	1	Total	C	O	0	0
			6	3	3		

3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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.

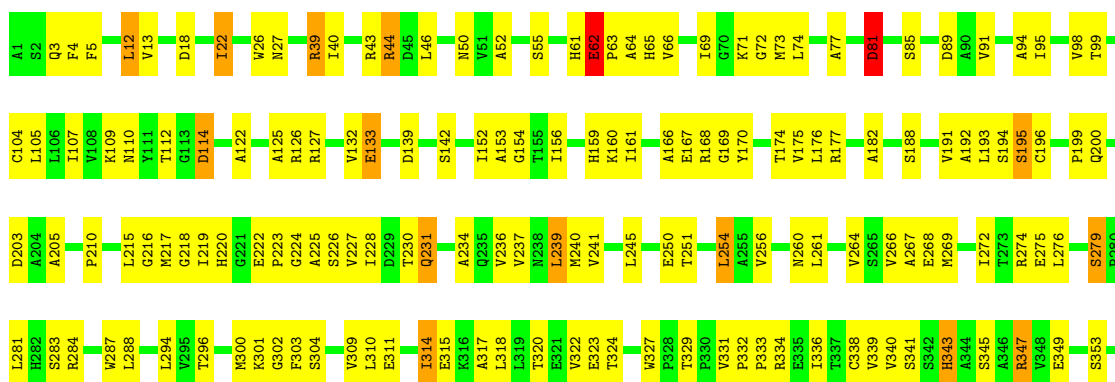
• Molecule 1: DIHYDROXYACETONE KINASE

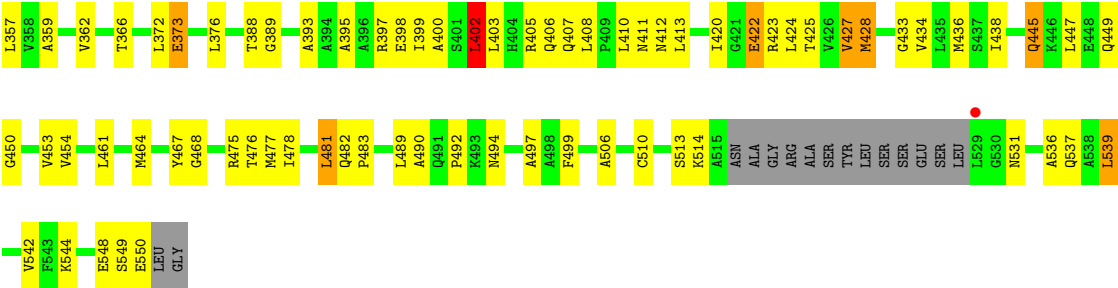
Chain A:



• Molecule 1: DIHYDROXYACETONE KINASE

Chain B:





4 Data and refinement statistics

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α , β , γ	100.79Å 124.87Å 236.53Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	25.00 – 3.10 39.21 – 3.10	Depositor EDS
% Data completeness (in resolution range)	89.1 (25.00-3.10) 93.7 (39.21-3.10)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.63 (at 3.12Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.237 , (Not available) 0.264 , (Not available)	Depositor DCC
R_{free} test set	No test flags present.	DCC
Wilson B-factor (Å ²)	94.6	Xtriage
Anisotropy	0.719	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 44.1	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Outliers	0 of 25746 reflections	Xtriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	7982	wwPDB-VP
Average B, all atoms (Å ²)	87.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.66% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: 2HA, MG, ANP

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	0.47	1/4015 (0.0%)	0.70	4/5459 (0.1%)
1	B	0.45	2/4015 (0.0%)	0.70	4/5459 (0.1%)
All	All	0.46	3/8030 (0.0%)	0.70	8/10918 (0.1%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1
1	B	0	1
All	All	0	2

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	62	GLU	C-N	-5.88	1.23	1.34
1	B	210	PRO	N-CD	5.10	1.54	1.47
1	B	62	GLU	C-N	-5.06	1.24	1.34

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	62	GLU	N-CA-C	14.64	150.52	111.00
1	A	62	GLU	N-CA-C	14.60	150.42	111.00
1	B	62	GLU	C-N-CD	8.75	146.78	128.40
1	A	62	GLU	C-N-CA	-6.49	94.73	122.00
1	B	62	GLU	C-N-CA	-6.10	96.37	122.00
1	A	62	GLU	CB-CA-C	-5.65	99.10	110.40

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	62	GLU	N-CA-CB	-5.34	101.00	110.60
1	A	342	SER	CB-CA-C	5.02	119.64	110.10

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	62	GLU	Peptide
1	B	62	GLU	Peptide

5.2 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 hydrogens added by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, and the number in parentheses is this value normalized per 1000 atoms of the molecule in the chain. The Symm-Clashes column gives symmetry related clashes, in the same way as for the Clashes column.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3952	0	3978	209	1
1	B	3952	0	3978	205	0
2	A	31	0	13	5	0
2	B	31	0	13	4	0
3	A	2	0	0	0	0
3	B	2	0	0	0	0
4	A	6	0	6	1	0
4	B	6	0	6	1	0
All	All	7982	0	7994	390	1

Clashscore is defined as the number of clashes calculated for the entry per 1000 atoms (including hydrogens) of the entry. The overall clashscore for this entry is 24.

All (390) close contacts within the same asymmetric unit are listed below.

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:133:GLU:HA	1:B:133:GLU:OE1	1.29	1.08
1:A:127:ARG:HH11	1:A:127:ARG:HG3	1.13	1.07
1:B:133:GLU:HG3	1:B:176:LEU:HD22	1.35	1.03
1:A:127:ARG:HH11	1:A:127:ARG:CG	1.74	0.99
1:A:348:VAL:HG23	1:B:127:ARG:HH22	1.30	0.96
1:A:127:ARG:NH1	1:A:127:ARG:HG3	1.74	0.92

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:395:ALA:HB1	1:B:424:LEU:HD22	1.55	0.89
1:A:395:ALA:HB1	1:A:424:LEU:HD22	1.55	0.88
1:A:266:VAL:HG11	1:B:62:GLU:O	1.73	0.88
1:B:475:ARG:HH11	1:B:475:ARG:HB3	1.39	0.86
1:B:490:ALA:O	1:B:492:PRO:HD3	1.75	0.85
1:B:133:GLU:CA	1:B:133:GLU:OE1	2.18	0.84
1:A:475:ARG:HH11	1:A:475:ARG:HB3	1.41	0.83
1:B:424:LEU:O	1:B:428:MET:HG3	1.78	0.83
1:A:490:ALA:O	1:A:492:PRO:HD3	1.81	0.80
1:B:74:LEU:HD11	1:B:159:HIS:CD2	2.18	0.78
1:A:482:GLN:HB3	1:A:483:PRO:HD3	1.66	0.78
1:A:477:MET:HG2	2:A:1551:ANP:H8	1.66	0.78
1:B:398:GLU:HB2	1:B:427:VAL:HG11	1.65	0.77
1:B:362:VAL:O	1:B:366:THR:HG23	1.83	0.77
1:A:288:LEU:HG	1:A:333:PRO:HG3	1.68	0.76
1:B:482:GLN:HB3	1:B:483:PRO:HD3	1.66	0.76
1:A:398:GLU:HB2	1:A:427:VAL:HG11	1.67	0.75
1:A:74:LEU:HD11	1:A:159:HIS:CD2	2.22	0.75
1:A:362:VAL:O	1:A:366:THR:HG23	1.85	0.75
1:B:288:LEU:HG	1:B:333:PRO:HG3	1.68	0.75
1:A:65:HIS:HE1	1:A:109:LYS:HE3	1.52	0.74
1:A:272:ILE:HD13	1:A:303:PHE:CD2	2.22	0.74
1:B:264:VAL:HG11	1:B:269:MET:HE2	1.70	0.74
1:B:475:ARG:NH1	1:B:475:ARG:HB3	2.02	0.74
1:B:237:VAL:O	1:B:241:VAL:HG23	1.88	0.73
1:B:388:THR:HA	2:B:1551:ANP:O1A	1.89	0.73
1:B:126:ARG:HG3	1:B:126:ARG:HH11	1.54	0.73
1:A:237:VAL:O	1:A:241:VAL:HG23	1.88	0.73
1:B:272:ILE:HD13	1:B:303:PHE:CD2	2.24	0.72
1:A:266:VAL:CG1	1:B:62:GLU:O	2.37	0.71
1:A:475:ARG:HB3	1:A:475:ARG:NH1	2.04	0.71
1:A:126:ARG:HH11	1:A:126:ARG:HG3	1.55	0.71
1:A:250:GLU:HG3	1:A:251:THR:HG23	1.73	0.70
1:B:464:MET:HE2	2:B:1551:ANP:H2	1.73	0.70
1:B:250:GLU:HG3	1:B:251:THR:HG23	1.75	0.69
1:B:264:VAL:HG11	1:B:269:MET:CE	2.24	0.68
1:B:254:LEU:HA	1:B:310:LEU:HG	1.74	0.68
1:B:127:ARG:HG2	1:B:127:ARG:O	1.93	0.68
1:B:428:MET:SD	1:B:433:GLY:HA2	2.35	0.66
1:A:452:ASN:ND2	1:A:455:GLU:OE2	2.27	0.66
1:A:254:LEU:HA	1:A:310:LEU:HG	1.77	0.66
1:B:276:LEU:O	1:B:279:SER:HB3	1.96	0.65

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:264:VAL:HG11	1:A:269:MET:HE2	1.79	0.65
1:B:72:GLY:HA3	1:B:322:VAL:HG12	1.78	0.65
1:A:395:ALA:HB2	1:A:428:MET:SD	2.37	0.65
1:A:267:ALA:HB2	1:B:62:GLU:OE1	1.96	0.65
1:A:264:VAL:HG11	1:A:269:MET:CE	2.27	0.65
1:A:160:LYS:HE3	1:A:318:LEU:O	1.96	0.64
1:B:43:ARG:NH2	1:B:71:LYS:HA	2.12	0.64
1:A:61:HIS:CE1	1:A:219:ILE:HG13	2.32	0.64
1:A:72:GLY:HA3	1:A:322:VAL:HG12	1.79	0.64
1:B:399:ILE:HD12	1:B:420:ILE:HG12	1.80	0.64
1:A:276:LEU:O	1:A:279:SER:HB3	1.96	0.63
1:A:399:ILE:HD12	1:A:420:ILE:HG12	1.80	0.63
1:B:160:LYS:HE3	1:B:318:LEU:O	1.98	0.63
1:B:261:LEU:HB2	1:B:302:GLY:O	1.99	0.63
1:A:65:HIS:CE1	1:A:109:LYS:HE3	2.33	0.62
1:A:499:PHE:CE1	1:A:544:LYS:HB2	2.34	0.62
1:B:26:TRP:CZ3	1:B:323:GLU:HG2	2.35	0.61
1:B:499:PHE:CE1	1:B:544:LYS:HB2	2.35	0.61
1:A:424:LEU:O	1:A:428:MET:HG3	1.99	0.61
1:B:126:ARG:HG3	1:B:126:ARG:NH1	2.14	0.61
1:B:61:HIS:CE1	1:B:219:ILE:HD12	2.36	0.61
1:B:61:HIS:HA	1:B:296:THR:O	2.01	0.60
1:A:418:ALA:HB1	1:B:127:ARG:NH1	2.16	0.60
1:B:256:VAL:HG11	1:B:276:LEU:HD11	1.83	0.60
1:A:256:VAL:HG11	1:A:276:LEU:HD11	1.83	0.60
1:B:481:LEU:HG	1:B:539:LEU:HD11	1.84	0.60
1:B:74:LEU:HD11	1:B:159:HIS:CG	2.36	0.60
1:A:126:ARG:NH1	1:A:126:ARG:HG3	2.15	0.60
1:B:109:LYS:NZ	4:B:1554:2HA:O1	2.34	0.60
1:B:13:VAL:HG11	1:B:39:ARG:HD3	1.82	0.60
1:A:395:ALA:HB2	1:A:428:MET:HG2	1.84	0.59
1:A:481:LEU:HG	1:A:539:LEU:HD11	1.83	0.59
1:A:46:LEU:HD11	1:A:98:VAL:HB	1.84	0.59
1:B:65:HIS:NE2	1:B:109:LYS:HE3	2.18	0.59
1:A:261:LEU:HG	1:A:300:MET:CE	2.33	0.59
1:A:272:ILE:HD13	1:A:303:PHE:CE2	2.38	0.58
1:A:261:LEU:HB2	1:A:302:GLY:O	2.03	0.58
1:A:13:VAL:HG11	1:A:39:ARG:HD3	1.84	0.58
1:B:454:VAL:HG12	1:B:489:LEU:HD13	1.86	0.58
1:A:353:SER:CB	1:A:411:ASN:HB2	2.33	0.58
1:A:74:LEU:HD11	1:A:159:HIS:CG	2.38	0.57
1:A:324:THR:OG1	1:A:327:TRP:HB3	2.04	0.57

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:353:SER:CB	1:B:411:ASN:HB2	2.34	0.57
1:B:261:LEU:HG	1:B:300:MET:CE	2.33	0.57
1:B:272:ILE:HD13	1:B:303:PHE:CE2	2.40	0.57
1:A:544:LYS:O	1:A:548:GLU:HG3	2.04	0.57
1:A:310:LEU:HD13	1:A:315:GLU:OE1	2.04	0.57
1:A:26:TRP:CZ3	1:A:323:GLU:HG2	2.40	0.57
1:B:152:ILE:HD11	1:B:188:SER:OG	2.05	0.57
1:B:310:LEU:HD22	1:B:315:GLU:HB2	1.85	0.57
1:B:544:LYS:O	1:B:548:GLU:HG3	2.05	0.57
1:A:476:THR:HG23	1:A:478:ILE:HB	1.86	0.56
1:A:152:ILE:HD11	1:A:188:SER:HB3	1.87	0.56
1:A:310:LEU:HD22	1:A:315:GLU:HB2	1.86	0.56
1:A:50:ASN:OD1	1:A:169:GLY:HA2	2.05	0.56
1:A:61:HIS:CE1	1:A:219:ILE:CG1	2.89	0.56
1:B:192:ALA:HB3	1:B:217:MET:CE	2.35	0.56
1:A:216:GLY:O	1:A:224:GLY:HA2	2.05	0.56
1:A:61:HIS:HA	1:A:296:THR:O	2.05	0.56
1:B:461:LEU:HD13	1:B:481:LEU:HD13	1.88	0.56
1:A:348:VAL:CG2	1:B:127:ARG:HH22	2.13	0.56
1:A:177:ARG:HG2	1:A:177:ARG:HH11	1.70	0.56
1:A:226:SER:OG	1:A:227:VAL:N	2.36	0.55
1:B:405:ARG:O	1:B:407:GLN:HG2	2.06	0.55
1:B:105:LEU:HD22	1:B:175:VAL:HG12	1.88	0.55
1:A:418:ALA:HB1	1:B:127:ARG:HH12	1.70	0.55
1:A:454:VAL:HG12	1:A:489:LEU:HD13	1.88	0.55
1:B:476:THR:HG23	1:B:478:ILE:HB	1.88	0.55
1:A:405:ARG:O	1:A:407:GLN:HG2	2.06	0.55
1:A:47:ASN:O	1:A:49:ASN:N	2.40	0.55
1:A:105:LEU:HD22	1:A:175:VAL:HG12	1.88	0.55
1:B:347:ARG:HA	1:B:422:GLU:OE2	2.07	0.55
1:A:107:ILE:HD12	1:A:159:HIS:HD2	1.72	0.55
1:B:192:ALA:HB3	1:B:217:MET:HE3	1.89	0.55
1:A:432:SER:HB2	2:A:1551:ANP:O2A	2.07	0.55
1:A:99:THR:HG23	1:A:104:CYS:HB3	1.88	0.54
1:B:43:ARG:HH22	1:B:71:LYS:HA	1.71	0.54
1:B:332:PRO:HG2	1:B:334:ARG:NH1	2.23	0.54
1:B:324:THR:OG1	1:B:327:TRP:HB3	2.08	0.54
1:A:156:ILE:HA	1:A:159:HIS:HD1	1.73	0.54
1:A:18:ASP:O	1:A:22:ILE:HG13	2.08	0.54
1:B:177:ARG:HH11	1:B:177:ARG:HG2	1.73	0.54
1:A:395:ALA:HB2	1:A:428:MET:CG	2.38	0.54
1:B:261:LEU:HG	1:B:300:MET:HE2	1.89	0.54

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:481:LEU:HG	1:A:539:LEU:HD21	1.89	0.54
1:A:362:VAL:O	1:A:366:THR:CG2	2.54	0.53
1:B:46:LEU:HD11	1:B:98:VAL:HB	1.90	0.53
1:A:274:ARG:HD3	1:A:274:ARG:O	2.08	0.53
1:A:222:GLU:HB3	1:A:223:PRO:HD2	1.90	0.53
1:B:69:ILE:HD11	1:B:77:ALA:HB3	1.90	0.53
1:A:193:LEU:CB	1:B:3:GLN:HE21	2.22	0.53
1:B:4:PHE:CZ	1:B:199:PRO:HG3	2.44	0.53
1:A:347:ARG:HA	1:A:422:GLU:OE2	2.09	0.53
1:B:156:ILE:HA	1:B:159:HIS:ND1	2.24	0.53
1:A:261:LEU:HG	1:A:300:MET:HE3	1.89	0.53
1:B:362:VAL:O	1:B:366:THR:CG2	2.53	0.53
1:B:107:ILE:HD12	1:B:159:HIS:HD2	1.74	0.52
1:A:461:LEU:HD13	1:A:481:LEU:HD13	1.91	0.52
1:B:218:GLY:HA3	1:B:222:GLU:OE1	2.09	0.52
1:A:3:GLN:HE22	1:B:194:SER:HB3	1.75	0.52
1:B:99:THR:HG23	1:B:104:CYS:HB3	1.92	0.52
1:B:254:LEU:HD12	1:B:284:ARG:O	2.09	0.52
1:B:310:LEU:HD13	1:B:315:GLU:OE1	2.08	0.52
1:B:73:MET:SD	1:B:324:THR:HG21	2.49	0.52
1:A:260:ASN:HD22	1:A:269:MET:HG3	1.75	0.52
1:A:168:ARG:HH11	1:A:168:ARG:HG2	1.74	0.52
1:B:481:LEU:HG	1:B:539:LEU:HD21	1.92	0.52
1:A:413:LEU:HB3	1:A:447:LEU:CD1	2.39	0.52
2:A:1551:ANP:H5'2	2:A:1551:ANP:O2B	2.10	0.52
1:A:156:ILE:HA	1:A:159:HIS:ND1	2.24	0.52
1:A:332:PRO:HG2	1:A:334:ARG:NH1	2.25	0.52
1:A:5:PHE:CE2	1:B:193:LEU:HD21	2.45	0.51
1:A:207:ARG:HH22	1:A:217:MET:HG3	1.75	0.51
1:B:413:LEU:HB3	1:B:447:LEU:CD1	2.40	0.51
1:A:279:SER:C	1:A:281:LEU:H	2.13	0.51
1:A:397:ARG:HH11	1:A:397:ARG:HG3	1.74	0.51
1:A:477:MET:CG	2:A:1551:ANP:H8	2.38	0.51
1:B:550:GLU:OE2	1:B:550:GLU:HA	2.10	0.51
1:B:403:LEU:HA	1:B:408:LEU:HD12	1.93	0.51
1:A:61:HIS:CE1	1:A:219:ILE:HD12	2.46	0.51
1:B:261:LEU:O	1:B:296:THR:HB	2.10	0.51
1:A:403:LEU:HA	1:A:408:LEU:HD12	1.93	0.51
1:B:279:SER:C	1:B:281:LEU:H	2.13	0.51
1:A:400:ALA:O	1:A:403:LEU:HB3	2.11	0.51
1:B:50:ASN:HB3	1:B:166:ALA:O	2.10	0.51
1:A:261:LEU:O	1:A:296:THR:HB	2.11	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:91:VAL:O	1:A:95:ILE:HG13	2.10	0.51
1:B:91:VAL:O	1:B:95:ILE:HG13	2.10	0.50
1:A:127:ARG:CG	1:A:127:ARG:NH1	2.44	0.50
1:A:65:HIS:HE1	1:A:109:LYS:CE	2.23	0.50
1:A:69:ILE:HD11	1:A:77:ALA:HB3	1.94	0.50
1:A:161:ILE:HD13	1:A:317:ALA:HB3	1.94	0.50
1:A:269:MET:HA	1:A:269:MET:HE2	1.94	0.49
1:B:250:GLU:CG	1:B:251:THR:HG23	2.42	0.49
1:B:376:LEU:HB2	1:B:389:GLY:CA	2.43	0.49
1:B:400:ALA:O	1:B:403:LEU:HB3	2.12	0.49
1:B:445:GLN:O	1:B:449:GLN:HG2	2.11	0.49
1:A:329:THR:O	1:A:331:VAL:HG23	2.12	0.49
1:B:114:ASP:N	1:B:114:ASP:OD2	2.44	0.49
1:B:216:GLY:O	1:B:224:GLY:HA2	2.11	0.49
1:B:66:VAL:HA	1:B:69:ILE:CD1	2.42	0.49
1:A:62:GLU:OE1	1:B:267:ALA:HB2	2.12	0.49
1:B:336:ILE:HD12	1:B:336:ILE:O	2.12	0.49
1:B:261:LEU:HD23	1:B:302:GLY:C	2.33	0.49
1:A:62:GLU:O	1:B:266:VAL:CG1	2.60	0.49
1:A:376:LEU:HB2	1:A:389:GLY:CA	2.42	0.49
1:A:152:ILE:HD11	1:A:188:SER:CB	2.43	0.49
1:B:475:ARG:CB	1:B:475:ARG:HH11	2.18	0.49
1:A:114:ASP:N	1:A:114:ASP:OD2	2.45	0.49
1:A:73:MET:SD	1:A:324:THR:HG21	2.53	0.49
1:A:152:ILE:O	1:A:154:GLY:N	2.46	0.49
1:B:260:ASN:HD22	1:B:269:MET:HG3	1.77	0.49
1:B:274:ARG:HD3	1:B:274:ARG:O	2.13	0.49
1:A:22:ILE:HG22	1:A:22:ILE:O	2.12	0.49
1:B:397:ARG:HG3	1:B:397:ARG:HH11	1.77	0.49
1:A:168:ARG:HH22	1:A:320:THR:HG21	1.77	0.48
1:B:18:ASP:O	1:B:22:ILE:HG13	2.12	0.48
1:A:539:LEU:O	1:A:542:VAL:HB	2.13	0.48
1:A:4:PHE:CZ	1:A:199:PRO:HG3	2.48	0.48
1:B:329:THR:O	1:B:331:VAL:HG23	2.13	0.48
1:A:445:GLN:O	1:A:449:GLN:HG2	2.13	0.48
1:B:85:SER:HB2	1:B:114:ASP:OD2	2.12	0.48
1:A:62:GLU:O	1:B:266:VAL:HG11	2.12	0.48
1:B:168:ARG:HH22	1:B:320:THR:HG21	1.78	0.48
1:A:259:ASN:OD1	1:A:260:ASN:N	2.47	0.48
1:A:254:LEU:HD12	1:A:284:ARG:O	2.13	0.48
1:B:152:ILE:HD11	1:B:188:SER:CB	2.43	0.48
1:A:127:ARG:O	1:A:127:ARG:HG2	2.12	0.48

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:168:ARG:HH11	1:B:168:ARG:HG2	1.79	0.48
1:B:539:LEU:O	1:B:542:VAL:HB	2.13	0.48
1:A:61:HIS:HE1	1:A:219:ILE:HG13	1.77	0.48
1:A:402:LEU:O	1:A:408:LEU:HG	2.14	0.48
1:A:66:VAL:HA	1:A:69:ILE:HD12	1.96	0.48
1:A:550:GLU:OE2	1:A:550:GLU:HA	2.14	0.48
1:A:261:LEU:HD23	1:A:302:GLY:C	2.34	0.48
1:A:250:GLU:CG	1:A:251:THR:HG23	2.41	0.48
1:B:13:VAL:HG21	1:B:81:ASP:HA	1.95	0.48
1:B:513:SER:HB2	1:B:531:ASN:HB3	1.96	0.48
1:A:475:ARG:HH11	1:A:475:ARG:CB	2.20	0.48
1:A:269:MET:CE	1:A:269:MET:HA	2.44	0.47
1:B:22:ILE:O	1:B:22:ILE:HG22	2.14	0.47
1:B:40:ILE:HD13	1:B:94:ALA:HB2	1.95	0.47
1:A:40:ILE:HD13	1:A:94:ALA:HB2	1.96	0.47
1:A:64:ALA:HA	1:A:65:HIS:HA	1.59	0.47
1:A:269:MET:HE1	1:A:272:ILE:HD12	1.96	0.47
1:A:122:ALA:O	1:A:126:ARG:HG2	2.14	0.47
1:B:287:TRP:CZ3	1:B:332:PRO:HD3	2.50	0.47
1:B:222:GLU:HB3	1:B:223:PRO:HD2	1.97	0.47
1:A:69:ILE:HD11	1:A:77:ALA:CB	2.45	0.47
1:A:109:LYS:NZ	4:A:1554:2HA:O1	2.48	0.47
1:A:193:LEU:HB3	1:B:3:GLN:HE21	1.80	0.47
1:A:537:GLN:HE21	1:A:537:GLN:HA	1.79	0.47
1:A:513:SER:HB2	1:A:531:ASN:HB3	1.95	0.47
1:B:434:VAL:O	1:B:438:ILE:HG13	2.13	0.47
1:B:279:SER:C	1:B:281:LEU:N	2.69	0.47
1:A:168:ARG:HB2	1:A:170:TYR:CD1	2.49	0.47
1:B:269:MET:HE1	1:B:272:ILE:HD12	1.96	0.46
1:B:490:ALA:C	1:B:492:PRO:HD3	2.36	0.46
1:B:69:ILE:HD11	1:B:77:ALA:CB	2.45	0.46
1:B:477:MET:HB2	1:B:539:LEU:HD12	1.96	0.46
1:A:336:ILE:HD12	1:A:336:ILE:O	2.15	0.46
1:B:402:LEU:O	1:B:408:LEU:HG	2.15	0.46
1:B:161:ILE:HD13	1:B:317:ALA:HB3	1.96	0.46
1:A:47:ASN:C	1:A:49:ASN:H	2.19	0.46
1:B:395:ALA:HB2	1:B:428:MET:HG2	1.97	0.46
1:B:122:ALA:O	1:B:126:ARG:HG2	2.16	0.46
1:B:71:LYS:HG3	1:B:167:GLU:OE2	2.15	0.46
1:A:482:GLN:HB3	1:A:483:PRO:CD	2.43	0.46
1:B:398:GLU:OE2	1:B:423:ARG:NH1	2.49	0.46
1:B:241:VAL:CG1	1:B:281:LEU:HB2	2.46	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:41:VAL:HG12	1:A:69:ILE:HD13	1.97	0.46
1:A:85:SER:HB2	1:A:114:ASP:OD2	2.15	0.46
1:A:228:ILE:HD13	1:A:239:LEU:HD23	1.98	0.46
1:B:193:LEU:HD12	1:B:301:LYS:HE2	1.97	0.45
1:B:395:ALA:CB	1:B:424:LEU:HD22	2.39	0.45
1:A:3:GLN:HE21	1:B:193:LEU:CB	2.29	0.45
1:B:309:VAL:HG12	1:B:311:GLU:HG2	1.99	0.45
1:A:279:SER:C	1:A:281:LEU:N	2.69	0.45
1:A:494:ASN:ND2	1:A:497:ALA:HB2	2.32	0.45
1:B:269:MET:CE	1:B:269:MET:HA	2.46	0.45
1:A:3:GLN:NE2	1:B:194:SER:HB3	2.31	0.45
1:B:168:ARG:HB2	1:B:170:TYR:CD1	2.50	0.45
1:B:226:SER:OG	1:B:227:VAL:N	2.48	0.45
1:A:139:ASP:N	1:A:139:ASP:OD1	2.49	0.45
1:A:398:GLU:OE2	1:A:423:ARG:NH1	2.49	0.45
1:B:152:ILE:O	1:B:154:GLY:N	2.50	0.45
1:B:353:SER:HB3	1:B:411:ASN:HB2	1.98	0.45
1:A:277:ALA:O	1:A:282:HIS:HB2	2.17	0.45
1:A:477:MET:HB2	1:A:539:LEU:HD12	1.98	0.45
1:B:264:VAL:HG21	1:B:269:MET:HE3	1.97	0.45
1:B:340:VAL:HG12	1:B:341:SER:N	2.32	0.45
1:A:489:LEU:HA	1:A:489:LEU:HD12	1.73	0.45
1:A:168:ARG:HG2	1:A:168:ARG:NH1	2.31	0.45
1:B:125:ALA:HB3	1:B:132:VAL:HG21	2.00	0.44
1:A:65:HIS:CD2	1:A:159:HIS:HE1	2.35	0.44
1:A:182:ALA:HA	1:A:314:ILE:HD11	1.99	0.44
1:B:476:THR:CG2	1:B:478:ILE:HB	2.47	0.44
1:A:241:VAL:CG1	1:A:281:LEU:HB2	2.48	0.44
1:A:13:VAL:HG21	1:A:81:ASP:HA	1.98	0.44
1:B:343:HIS:O	1:B:343:HIS:CD2	2.70	0.44
1:A:264:VAL:HG21	1:A:269:MET:HE3	1.99	0.44
1:B:489:LEU:HD12	1:B:489:LEU:HA	1.67	0.44
1:A:26:TRP:O	1:A:27:ASN:C	2.55	0.44
1:B:192:ALA:CB	1:B:217:MET:HE3	2.47	0.44
1:B:95:ILE:HG23	1:B:104:CYS:SG	2.58	0.44
1:B:52:ALA:O	1:B:104:CYS:HA	2.17	0.44
1:A:309:VAL:HG12	1:A:311:GLU:HG2	2.00	0.44
1:A:337:THR:HG21	1:B:44:ARG:NH2	2.33	0.44
1:A:264:VAL:HG11	1:A:269:MET:HE3	2.00	0.43
1:A:476:THR:CG2	1:A:478:ILE:HB	2.47	0.43
1:B:55:SER:O	1:B:77:ALA:HA	2.18	0.43
1:A:287:TRP:CZ3	1:A:332:PRO:HD3	2.52	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:55:SER:O	1:A:77:ALA:HA	2.18	0.43
1:A:340:VAL:HG12	1:A:341:SER:N	2.33	0.43
1:A:194:SER:HB3	1:B:3:GLN:HE22	1.83	0.43
1:A:234:ALA:HA	1:A:275:GLU:OE1	2.18	0.43
1:A:207:ARG:NH1	1:A:214:GLU:OE1	2.42	0.43
1:B:182:ALA:HA	1:B:314:ILE:HD11	2.01	0.43
1:B:388:THR:CA	2:B:1551:ANP:O1A	2.62	0.43
1:B:373:GLU:O	1:B:389:GLY:HA3	2.19	0.43
1:A:438:ILE:HD13	1:A:467:TYR:HD1	1.83	0.43
1:B:139:ASP:OD1	1:B:139:ASP:N	2.51	0.43
1:A:397:ARG:HG3	1:A:397:ARG:NH1	2.34	0.43
1:A:372:LEU:O	1:A:373:GLU:C	2.57	0.43
1:A:236:VAL:O	1:A:240:MET:HG3	2.18	0.43
1:B:260:ASN:O	1:B:296:THR:HG22	2.19	0.43
1:B:372:LEU:O	1:B:373:GLU:C	2.56	0.43
1:A:288:LEU:HD23	1:A:288:LEU:HA	1.91	0.43
1:B:372:LEU:HB3	1:B:376:LEU:HG	2.01	0.43
1:B:195:SER:OG	1:B:196:CYS:N	2.52	0.42
1:B:63:PRO:HD2	1:B:294:LEU:O	2.20	0.42
1:B:132:VAL:HG12	1:B:133:GLU:N	2.35	0.42
1:A:264:VAL:HG12	1:A:268:GLU:HB2	2.01	0.42
1:A:61:HIS:CE1	1:A:219:ILE:CD1	3.02	0.42
1:A:220:HIS:HB2	1:A:222:GLU:CD	2.40	0.42
1:B:261:LEU:HA	1:B:261:LEU:HD13	1.80	0.42
1:B:482:GLN:HB3	1:B:483:PRO:CD	2.43	0.42
1:B:261:LEU:HG	1:B:300:MET:HE3	2.02	0.42
1:A:452:ASN:ND2	1:A:452:ASN:H	2.18	0.42
1:B:438:ILE:HD13	1:B:467:TYR:HD1	1.85	0.42
1:B:26:TRP:O	1:B:27:ASN:C	2.58	0.42
1:A:52:ALA:O	1:A:104:CYS:HA	2.20	0.42
1:A:337:THR:HG21	1:B:44:ARG:HH21	1.83	0.42
1:B:234:ALA:HA	1:B:275:GLU:OE1	2.20	0.42
1:A:269:MET:CE	1:A:272:ILE:HD12	2.50	0.42
1:A:260:ASN:O	1:A:296:THR:HG22	2.19	0.42
1:B:264:VAL:HG12	1:B:268:GLU:HB2	2.00	0.42
1:B:261:LEU:HD23	1:B:303:PHE:N	2.35	0.42
1:A:353:SER:HB2	1:A:411:ASN:H	1.85	0.42
1:A:32:LEU:HD12	1:B:339:VAL:O	2.20	0.42
1:B:228:ILE:HD13	1:B:239:LEU:HD23	2.02	0.42
1:B:50:ASN:OD1	1:B:169:GLY:HA2	2.20	0.42
1:B:393:ALA:O	1:B:397:ARG:HG2	2.20	0.42
1:B:168:ARG:NH1	1:B:168:ARG:HG2	2.35	0.42

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:125:ALA:HB3	1:A:132:VAL:HG21	2.02	0.42
1:A:71:LYS:HG3	1:A:167:GLU:OE2	2.19	0.42
1:B:26:TRP:CH2	1:B:323:GLU:HG2	2.55	0.41
1:B:494:ASN:ND2	1:B:497:ALA:HB2	2.35	0.41
1:A:261:LEU:HD13	1:A:261:LEU:HA	1.82	0.41
1:A:99:THR:CG2	1:A:104:CYS:HB3	2.48	0.41
1:B:245:LEU:HA	1:B:245:LEU:HD23	1.88	0.41
1:B:269:MET:HE2	1:B:269:MET:HA	2.02	0.41
1:B:64:ALA:HA	1:B:65:HIS:HA	1.60	0.41
1:A:3:GLN:HE22	1:B:194:SER:CB	2.33	0.41
1:A:221:GLY:O	1:A:222:GLU:C	2.59	0.41
1:B:4:PHE:CE1	1:B:199:PRO:HG3	2.55	0.41
1:A:422:GLU:HG2	1:A:422:GLU:O	2.21	0.41
1:B:142:SER:O	1:B:225:ALA:HB2	2.21	0.41
1:A:261:LEU:HG	1:A:300:MET:HE2	2.01	0.41
1:B:276:LEU:HD23	1:B:276:LEU:C	2.41	0.41
1:B:239:LEU:HD12	1:B:239:LEU:O	2.20	0.41
1:A:21:ILE:C	1:A:23:ALA:H	2.24	0.41
1:A:3:GLN:HE21	1:B:193:LEU:HB3	1.85	0.41
1:A:206:PRO:O	1:A:207:ARG:C	2.57	0.41
1:B:413:LEU:HB3	1:B:447:LEU:HD13	2.02	0.41
1:A:393:ALA:O	1:A:397:ARG:HG2	2.20	0.41
1:B:230:THR:OG1	1:B:231:GLN:N	2.53	0.41
1:B:152:ILE:HD11	1:B:188:SER:HB2	2.01	0.41
1:A:193:LEU:HD21	1:B:5:PHE:CE2	2.56	0.41
1:B:99:THR:CG2	1:B:104:CYS:HB3	2.51	0.41
1:B:468:GLY:O	2:B:1551:ANP:N6	2.54	0.41
1:B:72:GLY:HA3	1:B:322:VAL:CG1	2.48	0.41
1:B:43:ARG:NH2	1:B:71:LYS:CA	2.82	0.41
1:A:72:GLY:HA3	1:A:322:VAL:CG1	2.48	0.41
1:B:220:HIS:HB2	1:B:222:GLU:CD	2.41	0.41
1:A:372:LEU:HB3	1:A:376:LEU:HG	2.03	0.41
1:B:343:HIS:O	1:B:343:HIS:CG	2.74	0.41
1:A:309:VAL:CG1	1:A:311:GLU:HG2	2.51	0.41
1:A:434:VAL:O	1:A:438:ILE:HG13	2.21	0.41
1:A:132:VAL:HG12	1:A:133:GLU:N	2.36	0.41
1:B:309:VAL:CG1	1:B:311:GLU:HG2	2.51	0.41
1:B:506:ALA:HA	1:B:536:ALA:HB1	2.02	0.41
1:A:95:ILE:HG23	1:A:104:CYS:SG	2.60	0.40
1:A:31:ARG:O	1:B:338:CYS:HA	2.20	0.40
1:B:359:ALA:HB2	1:B:410:LEU:HD13	2.03	0.40
1:B:236:VAL:O	1:B:240:MET:HG3	2.21	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:510:CYS:SG	1:A:529:LEU:HA	2.61	0.40
1:A:259:ASN:HB3	1:A:304:SER:OG	2.21	0.40
1:A:388:THR:HA	2:A:1551:ANP:O1A	2.22	0.40
1:A:413:LEU:HB3	1:A:447:LEU:HD13	2.03	0.40
1:A:65:HIS:HD2	1:A:159:HIS:CE1	2.40	0.40
1:A:194:SER:HB3	1:B:3:GLN:NE2	2.37	0.40

All (1) 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	Distance(Å)	Clash(Å)
1:A:342:SER:CB	1:A:342:SER:CB[3_656]	2.08	0.12

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	533/552 (97%)	459 (86%)	56 (10%)	18 (3%)	6	32
1	B	533/552 (97%)	461 (86%)	56 (10%)	16 (3%)	7	37
All	All	1066/1104 (97%)	920 (86%)	112 (10%)	34 (3%)	6	35

All (34) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	62	GLU
1	A	153	ALA
1	B	62	GLU
1	B	153	ALA
1	A	48	LYS
1	A	81	ASP
1	A	203	ASP
1	A	283	SER
1	A	373	GLU
1	B	81	ASP

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	203	ASP
1	B	283	SER
1	B	373	GLU
1	B	549	SER
1	A	549	SER
1	B	110	ASN
1	A	110	ASN
1	A	195	SER
1	A	347	ARG
1	A	450	GLY
1	B	347	ARG
1	B	450	GLY
1	A	12	LEU
1	B	12	LEU
1	B	195	SER
1	A	22	ILE
1	A	439	PHE
1	B	402	LEU
1	A	205	ALA
1	A	314	ILE
1	B	205	ALA
1	B	314	ILE
1	A	63	PRO
1	B	22	ILE

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	414/425 (97%)	379 (92%)	35 (8%)	15	51
1	B	414/425 (97%)	377 (91%)	37 (9%)	14	47
All	All	828/850 (97%)	756 (91%)	72 (9%)	15	49

All (72) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	12	LEU

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	39	ARG
1	A	81	ASP
1	A	89	ASP
1	A	112	THR
1	A	114	ASP
1	A	127	ARG
1	A	174	THR
1	A	191	VAL
1	A	200	GLN
1	A	207	ARG
1	A	215	LEU
1	A	231	GLN
1	A	239	LEU
1	A	254	LEU
1	A	345	SER
1	A	349	GLU
1	A	353	SER
1	A	357	LEU
1	A	402	LEU
1	A	406	GLN
1	A	412	ASN
1	A	422	GLU
1	A	425	THR
1	A	427	VAL
1	A	428	MET
1	A	432	SER
1	A	436	MET
1	A	445	GLN
1	A	453	VAL
1	A	481	LEU
1	A	510	CYS
1	A	514	LYS
1	A	537	GLN
1	A	539	LEU
1	B	12	LEU
1	B	39	ARG
1	B	44	ARG
1	B	62	GLU
1	B	81	ASP
1	B	89	ASP
1	B	112	THR
1	B	114	ASP

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	133	GLU
1	B	174	THR
1	B	191	VAL
1	B	200	GLN
1	B	215	LEU
1	B	231	GLN
1	B	239	LEU
1	B	254	LEU
1	B	279	SER
1	B	304	SER
1	B	343	HIS
1	B	345	SER
1	B	349	GLU
1	B	357	LEU
1	B	402	LEU
1	B	406	GLN
1	B	412	ASN
1	B	422	GLU
1	B	425	THR
1	B	427	VAL
1	B	428	MET
1	B	436	MET
1	B	445	GLN
1	B	453	VAL
1	B	481	LEU
1	B	510	CYS
1	B	514	LYS
1	B	537	GLN
1	B	539	LEU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (17) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	3	GLN
1	A	65	HIS
1	A	96	GLN
1	A	146	ASN
1	A	159	HIS
1	A	406	GLN
1	A	412	ASN
1	A	445	GLN
1	A	537	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	3	GLN
1	B	146	ASN
1	B	159	HIS
1	B	343	HIS
1	B	406	GLN
1	B	412	ASN
1	B	445	GLN
1	B	537	GLN

5.3.3 RNA ⓘ

There are no RNA chains 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 carbohydrates in this entry.

5.6 Ligand geometry ⓘ

Of 8 ligands modelled in this entry, 4 are monoatomic - leaving 4 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the chemical component dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
2	ANP	A	1551	3	33,33,33	4.41	8 (24%)	51,52,52	2.13	12 (23%)
4	2HA	A	1554	1	5,5,5	4.99	1 (20%)	5,5,5	4.53	3 (60%)
2	ANP	B	1551	3	33,33,33	4.17	6 (18%)	51,52,52	2.20	12 (23%)
4	2HA	B	1554	1	5,5,5	5.17	1 (20%)	5,5,5	4.14	2 (40%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the chemical component dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	ANP	A	1551	3	-	0/18/38/38	0/1/3/3
4	2HA	A	1554	1	-	1/4/4/4	0/0/0/0
2	ANP	B	1551	3	-	0/18/38/38	0/1/3/3
4	2HA	B	1554	1	-	1/4/4/4	0/0/0/0

All (16) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	1551	ANP	PG-N3B	13.54	1.76	1.64
2	A	1551	ANP	PB-N3B	13.15	1.75	1.64
2	B	1551	ANP	PG-N3B	11.99	1.74	1.64
2	B	1551	ANP	PB-N3B	11.50	1.74	1.64
4	B	1554	2HA	O2-C2	11.43	1.43	1.21
4	A	1554	2HA	O2-C2	11.09	1.42	1.21
2	B	1551	ANP	PB-O1B	10.62	1.59	1.46
2	B	1551	ANP	PG-O1G	10.57	1.59	1.46
2	A	1551	ANP	PG-O1G	10.46	1.59	1.46
2	A	1551	ANP	PB-O1B	10.19	1.58	1.46
2	B	1551	ANP	C4-N3	5.26	1.43	1.35
2	A	1551	ANP	C4-N3	4.91	1.43	1.35
2	A	1551	ANP	C4-N9	-3.86	1.32	1.37
2	B	1551	ANP	C4-N9	-3.61	1.32	1.37
2	A	1551	ANP	C5-C4	2.63	1.46	1.40
2	A	1551	ANP	PA-O1A	2.06	1.59	1.51

All (29) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	1551	ANP	PB-N3B-PG	-9.35	114.34	130.07
4	B	1554	2HA	O2-C2-C3	-7.55	107.70	120.70
4	A	1554	2HA	O2-C2-C3	-7.10	108.48	120.70
2	A	1551	ANP	O4'-C1'-N9	7.04	114.99	108.44
4	A	1554	2HA	O2-C2-C1	-6.60	109.34	120.70
2	B	1551	ANP	N3-C2-N1	-5.87	123.80	128.71
2	A	1551	ANP	PB-N3B-PG	-5.62	120.61	130.07
2	A	1551	ANP	N3-C2-N1	-5.47	124.14	128.71
4	B	1554	2HA	O2-C2-C1	-4.93	112.22	120.70
2	B	1551	ANP	C4-C5-N7	-4.76	105.44	109.52

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	1551	ANP	C4'-O4'-C1'	-3.98	105.42	109.75
2	A	1551	ANP	PA-O3A-PB	-3.97	118.25	131.81
2	A	1551	ANP	C8-N9-C4	-3.64	104.12	106.90
2	B	1551	ANP	C3'-C2'-C1'	3.55	106.46	100.91
2	A	1551	ANP	C4-C5-N7	-3.27	106.72	109.52
2	B	1551	ANP	PA-O3A-PB	-2.98	121.63	131.81
2	B	1551	ANP	C8-N9-C4	-2.93	104.66	106.90
2	B	1551	ANP	O1B-PB-N3B	-2.64	107.84	111.83
4	A	1554	2HA	C3-C2-C1	-2.61	111.41	117.24
2	A	1551	ANP	C2-N1-C6	2.58	123.42	118.77
2	B	1551	ANP	C5-C4-N9	2.51	110.79	107.16
2	A	1551	ANP	O3A-PB-N3B	2.47	113.43	106.59
2	A	1551	ANP	O2G-PG-N3B	2.38	113.06	106.61
2	B	1551	ANP	C4'-O4'-C1'	2.32	112.27	109.75
2	A	1551	ANP	O3G-PG-O1G	-2.25	107.82	113.60
2	B	1551	ANP	O3A-PB-N3B	2.22	112.75	106.59
2	B	1551	ANP	C6-C5-N7	2.10	139.35	131.34
2	A	1551	ANP	C5-C4-N9	2.05	110.12	107.16
2	B	1551	ANP	C5-C4-N3	-2.04	121.25	125.70

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	B	1554	2HA	O2-C2-C3-O3
4	A	1554	2HA	O2-C2-C3-O3

There are no ring outliers.

5.7 Other polymers ⓘ

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	537/552 (97%)	-0.06	2 (0%)	90 45	14, 86, 114, 146	0
1	B	537/552 (97%)	-0.09	1 (0%)	93 61	14, 90, 113, 139	0
All	All	1074/1104 (97%)	-0.07	3 (0%)	91 53	14, 88, 114, 146	0

All (3) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	529	LEU	2.8
1	A	347	ARG	2.5
1	A	529	LEU	2.4

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 ⓘ

There are no carbohydrates in this entry.

6.4 Ligands ⓘ

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled ‘Q < 0.9’ lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSR	LLDF	B-factors(\AA^2)	Q<0.9
3	MG	A	1553	1/1	0.21	3.51	76,76,76,76	0
4	2HA	B	1554	6/6	0.19	-0.42	12,16,16,17	0
2	ANP	A	1551	31/31	0.14	-0.79	59,64,77,79	0
2	ANP	B	1551	31/31	0.17	-0.81	50,57,70,72	0
3	MG	A	1552	1/1	0.06	-1.46	90,90,90,90	0
3	MG	B	1552	1/1	0.07	-1.46	65,65,65,65	0
4	2HA	A	1554	6/6	0.12	-2.28	12,15,17,17	0
3	MG	B	1553	1/1	0.06	-2.47	100,100,100,100	0

6.5 Other polymers ⓘ

There are no such residues in this entry.