



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 04:39 AM UTC

PDB ID : 1P1K / pdb_00001p1k
Title : Crystal structure of the 1L-myo-inositol 1-phosphate synthase complexed with NADH in the presence of EDTA
Authors : Jin, X.; Geiger, J.H.
Deposited on : 2003-04-12
Resolution : 2.10 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

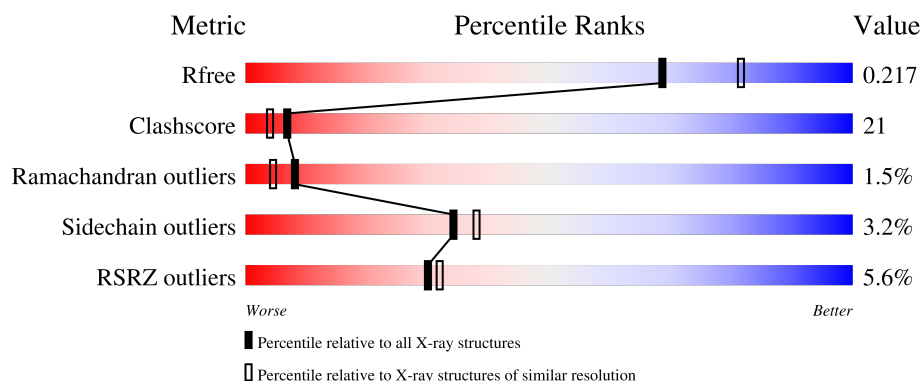
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.10 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))
R_{free}	180053	6658 (2.10-2.10)
Clashscore	190562	7164 (2.10-2.10)
Ramachandran outliers	187476	7099 (2.10-2.10)
Sidechain outliers	187428	7100 (2.10-2.10)
RSRZ outliers	180081	6662 (2.10-2.10)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	533	3% 63% 33% • •
1	B	533	8% 57% 35% • •

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 8450 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 Inositol-3-phosphate synthase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	525	Total	C	N	O	S	0	0	0
			4138	2632	695	795	16			
1	B	512	Total	C	N	O	S	0	0	0
			4046	2577	680	773	16			

There are 20 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	?	-	ARG	SEE REMARK 999	UNP P11986
A	14	VAL	LEU	SEE REMARK 999	UNP P11986
A	?	-	PHE	SEE REMARK 999	UNP P11986
A	60	LEU	GLU	SEE REMARK 999	UNP P11986
A	?	-	ALA	SEE REMARK 999	UNP P11986
A	98	GLU	LYS	SEE REMARK 999	UNP P11986
A	140	ASN	LYS	SEE REMARK 999	UNP P11986
A	141	ASP	HIS	SEE REMARK 999	UNP P11986
A	201	ASN	GLN	SEE REMARK 999	UNP P11986
A	444	PRO	ALA	SEE REMARK 999	UNP P11986
B	?	-	ARG	SEE REMARK 999	UNP P11986
B	14	VAL	LEU	SEE REMARK 999	UNP P11986
B	?	-	PHE	SEE REMARK 999	UNP P11986
B	60	LEU	GLU	SEE REMARK 999	UNP P11986
B	?	-	ALA	SEE REMARK 999	UNP P11986
B	98	GLU	LYS	SEE REMARK 999	UNP P11986
B	140	ASN	LYS	SEE REMARK 999	UNP P11986
B	141	ASP	HIS	SEE REMARK 999	UNP P11986
B	201	ASN	GLN	SEE REMARK 999	UNP P11986
B	444	PRO	ALA	SEE REMARK 999	UNP P11986

- Molecule 2 is 1,4-DIHYDRONICOTINAMIDE ADENINE DINUCLEOTIDE (CCD ID: NAI) (formula: C₂₁H₂₉N₇O₁₄P₂).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			44	21	7	14	2		
2	B	1	Total	C	N	O	P	0	0
			44	21	7	14	2		

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	99	Total	O	0	0
			99	99		
3	B	79	Total	O	0	0
			79	79		

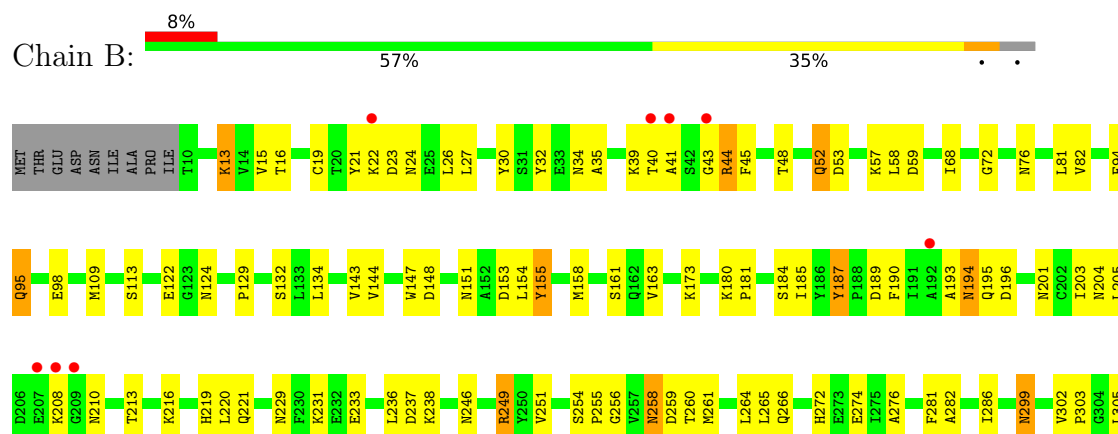
3 Residue-property plots

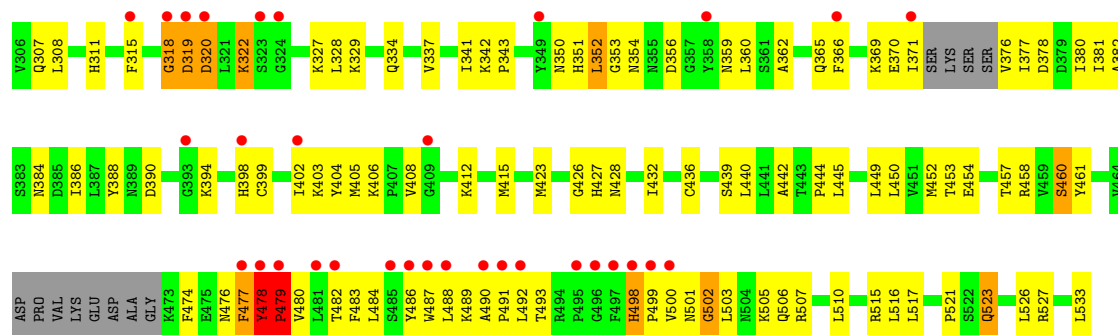
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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: Inositol-3-phosphate synthase



• Molecule 1: Inositol-3-phosphate synthase





4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	151.98Å 97.61Å 121.72Å 90.00° 126.15° 90.00°	Depositor
Resolution (Å)	10.00 – 2.10 10.00 – 2.10	Depositor EDS
% Data completeness (in resolution range)	(Not available) (10.00-2.10) 97.7 (10.00-2.10)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.34 (at 2.10Å)	Xtriage
Refinement program	CNS	Depositor
R, R_{free}	0.209 , 0.261 (Not available) , 0.217	Depositor DCC
R_{free} test set	4136 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å ²)	34.5	Xtriage
Anisotropy	0.401	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.45 , 68.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.34$	Xtriage
Estimated twinning fraction	0.010 for h,-k,-h-l	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	8450	wwPDB-VP
Average B, all atoms (Å ²)	43.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.66% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality

5.1 Standard geometry

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

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	0.44	0/4219	0.92	10/5719 (0.2%)
1	B	0.44	0/4124	0.93	15/5588 (0.3%)
All	All	0.44	0/8343	0.93	25/11307 (0.2%)

There are no bond length outliers.

All (25) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	318	GLY	N-CA-C	10.23	123.39	110.29
1	B	144	VAL	N-CA-C	7.28	118.36	108.17
1	A	386	ILE	N-CA-C	-6.25	104.18	111.00
1	B	72	GLY	N-CA-C	-5.96	106.19	115.67
1	A	327	LYS	N-CA-C	-5.83	104.56	111.03
1	B	143	VAL	N-CA-C	-5.78	99.42	107.80
1	B	478	TYR	CA-C-N	5.76	127.05	119.84
1	B	478	TYR	C-N-CA	5.76	127.05	119.84
1	A	144	VAL	N-CA-C	5.72	117.23	108.71
1	A	47	VAL	N-CA-C	5.60	115.66	107.37
1	B	155	TYR	N-CA-C	-5.54	104.64	111.40
1	B	19	CYS	N-CA-C	5.43	117.75	108.90
1	A	318	GLY	N-CA-C	5.29	125.71	113.18
1	A	143	VAL	N-CA-C	-5.27	99.36	106.85
1	B	151	ASN	N-CA-C	5.26	119.33	113.02
1	B	213	THR	N-CA-C	-5.22	106.14	112.88
1	B	187	TYR	CA-C-N	5.21	126.36	119.84
1	B	187	TYR	C-N-CA	5.21	126.36	119.84
1	A	424	LEU	N-CA-C	5.09	118.46	111.54
1	A	151	ASN	N-CA-C	5.08	119.45	113.16
1	B	98	GLU	N-CA-C	-5.05	106.71	112.92
1	B	342	LYS	N-CA-C	5.03	118.45	108.59

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	187	TYR	CA-C-N	5.01	126.11	119.84
1	A	187	TYR	C-N-CA	5.01	126.11	119.84
1	B	94	PHE	N-CA-C	5.00	117.27	109.52

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	4138	0	4147	173	0
1	B	4046	0	4055	195	0
2	A	44	0	27	1	0
2	B	44	0	27	4	0
3	A	99	0	0	3	0
3	B	79	0	0	5	0
All	All	8450	0	8256	352	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 21.

All (352) 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:445:LEU:HD21	1:B:487:TRP:HB3	1.31	1.12
1:A:332:LEU:HD13	1:A:432:ILE:HD11	1.37	1.06
1:A:115:LEU:HD22	1:A:511:GLU:HG3	1.37	1.04
1:B:261:MET:HE1	1:B:311:HIS:HB2	1.48	0.92
1:B:445:LEU:CD2	1:B:487:TRP:HB3	2.10	0.82
1:A:110:THR:HG23	1:A:111:GLN:HE21	1.50	0.76
1:A:110:THR:HG22	1:A:448:ASP:OD2	1.85	0.76
1:A:104:ASN:ND2	1:A:106:PHE:H	1.84	0.76
1:B:221:GLN:HG3	3:B:704:HOH:O	1.86	0.75
1:B:493:THR:HG21	1:B:499:PRO:HD3	1.68	0.75
1:A:367:ARG:CZ	1:A:371:ILE:HD11	2.16	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:15:VAL:HG11	1:B:48:THR:HG22	1.72	0.72
1:A:104:ASN:HD22	1:A:106:PHE:H	1.37	0.72
1:B:251:VAL:H	1:B:299:ASN:HD21	1.36	0.71
1:A:515:ARG:CZ	1:A:523:GLN:HE21	2.04	0.71
1:A:318:GLY:HA2	1:A:488:LEU:HD13	1.73	0.70
1:A:533:LEU:HD22	1:B:478:TYR:HB2	1.72	0.70
1:B:15:VAL:HG23	1:B:15:VAL:O	1.89	0.70
1:A:254:SER:H	1:A:258:ASN:HD21	1.40	0.70
1:A:445:LEU:HD21	1:A:487:TRP:HB3	1.73	0.68
1:B:381:ILE:HG13	1:B:388:TYR:CG	2.29	0.68
1:B:486:TYR:HA	1:B:506:GLN:NE2	2.09	0.68
1:A:531:ARG:HG3	1:B:482:THR:HB	1.75	0.68
1:A:321:LEU:HD22	1:A:445:LEU:HD22	1.74	0.67
1:A:318:GLY:HA2	1:A:488:LEU:CD1	2.25	0.67
1:B:13:LYS:HE2	1:B:13:LYS:HA	1.74	0.67
1:B:405:MET:O	1:B:408:VAL:HG22	1.95	0.67
1:A:255:PRO:HA	1:A:259:ASP:OD1	1.96	0.66
1:A:412:LYS:HE3	1:A:414:ALA:HB2	1.75	0.66
1:A:376:VAL:HA	1:A:501:ASN:OD1	1.96	0.66
1:B:258:ASN:HD22	1:B:258:ASN:H	1.42	0.66
1:B:445:LEU:HD23	1:B:445:LEU:O	1.96	0.66
1:A:272:HIS:CD2	1:A:274:GLU:HB2	2.31	0.66
1:A:40:THR:HG22	1:A:42:SER:H	1.60	0.66
1:B:52:GLN:C	1:B:52:GLN:HE21	2.04	0.65
1:A:367:ARG:NH2	1:A:371:ILE:HD11	2.11	0.65
1:B:109:MET:HE2	1:B:507:ARG:HE	1.62	0.65
1:B:320:ASP:O	1:B:488:LEU:HD23	1.95	0.65
1:A:375:SER:HA	1:A:378:ASP:OD2	1.97	0.64
1:A:150:ASN:ND2	1:A:152:ALA:H	1.94	0.64
1:A:362:ALA:HB3	1:A:365:GLN:HE21	1.62	0.64
1:A:318:GLY:CA	1:A:488:LEU:HD13	2.28	0.64
1:A:502:GLY:O	1:A:506:GLN:HG3	1.98	0.64
1:B:337:VAL:HG21	1:B:380:ILE:CG2	2.28	0.64
1:B:216:LYS:HA	1:B:219:HIS:CD2	2.34	0.63
1:A:272:HIS:HD2	1:A:274:GLU:HB2	1.63	0.63
1:B:492:LEU:HD13	1:B:493:THR:N	2.14	0.63
1:A:158:MET:SD	1:A:176:MET:HE2	2.38	0.62
1:B:238:LYS:HE2	1:B:454:GLU:OE2	2.00	0.62
1:B:377:ILE:O	1:B:381:ILE:HG22	1.99	0.62
1:B:378:ASP:HA	1:B:381:ILE:CG2	2.30	0.62
1:B:261:MET:HE1	1:B:311:HIS:CB	2.25	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:328:LEU:O	1:A:328:LEU:HD23	2.00	0.62
1:B:95:GLN:HE21	1:B:95:GLN:HA	1.65	0.62
1:B:442:ALA:HB2	2:B:660:NAI:H42N	1.82	0.62
1:A:423:MET:HE3	1:B:444:PRO:HD3	1.82	0.61
1:A:315:PHE:CZ	1:A:477:PHE:HB2	2.36	0.61
1:B:477:PHE:HZ	1:B:483:PHE:CE1	2.18	0.61
1:A:15:VAL:CG1	1:B:48:THR:HG22	2.30	0.61
1:A:104:ASN:HD22	1:A:104:ASN:C	2.09	0.61
1:B:315:PHE:CD2	1:B:479:PRO:HA	2.36	0.61
1:B:318:GLY:CA	1:B:488:LEU:HD13	2.31	0.61
1:B:369:LYS:C	1:B:371:ILE:H	2.09	0.60
1:A:328:LEU:HD21	1:A:432:ILE:HD13	1.82	0.60
1:B:34:ASN:ND2	1:B:35:ALA:H	1.99	0.60
1:B:315:PHE:HD2	1:B:479:PRO:HA	1.66	0.60
1:B:320:ASP:HB3	1:B:489:LYS:HB3	1.82	0.60
1:A:21:TYR:CZ	1:A:26:LEU:HD13	2.37	0.60
1:A:352:LEU:HD23	1:A:352:LEU:H	1.67	0.60
1:B:501:ASN:HA	1:B:506:GLN:OE1	2.02	0.59
1:B:30:TYR:HE1	1:B:32:TYR:HB2	1.68	0.59
1:B:246:ASN:HD22	1:B:359:ASN:HB2	1.67	0.59
1:B:318:GLY:HA2	1:B:488:LEU:HD13	1.86	0.58
1:B:320:ASP:O	1:B:488:LEU:HA	2.03	0.58
1:B:502:GLY:HA3	1:B:505:LYS:HE2	1.84	0.58
1:B:30:TYR:CE1	1:B:32:TYR:HB2	2.39	0.58
1:A:350:ASN:HD21	1:A:402:ILE:HG12	1.68	0.58
1:A:315:PHE:CD1	1:A:481:LEU:HD11	2.39	0.58
1:B:264:LEU:HD21	1:B:305:LEU:HD13	1.86	0.58
1:A:356:ASP:O	1:A:360:LEU:HG	2.04	0.57
1:A:104:ASN:HD21	1:B:423:MET:HA	1.68	0.57
1:B:299:ASN:HD22	1:B:299:ASN:N	2.03	0.57
1:A:256:GLY:HA2	1:A:263:ASN:OD1	2.04	0.57
1:A:328:LEU:CD2	1:A:432:ILE:HD13	2.34	0.57
1:B:260:THR:HA	1:B:307:GLN:NE2	2.20	0.57
1:B:327:LYS:HG2	1:B:503:LEU:HD22	1.86	0.56
1:B:498:HIS:N	1:B:498:HIS:CD2	2.70	0.56
1:A:264:LEU:HD21	1:A:305:LEU:HD13	1.88	0.56
1:A:500:VAL:HG21	1:B:527:ARG:CZ	2.34	0.56
1:B:352:LEU:N	1:B:352:LEU:HD23	2.20	0.56
1:A:217:TRP:O	1:A:221:GLN:HG2	2.06	0.56
1:A:478:TYR:CD2	1:A:479:PRO:HD2	2.41	0.55
1:B:220:LEU:C	1:B:220:LEU:HD23	2.31	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:373:LYS:HG2	1:A:489:LYS:HD3	1.87	0.55
1:A:320:ASP:HB3	1:A:489:LYS:HB3	1.88	0.55
1:B:376:VAL:HG23	1:B:501:ASN:HB2	1.89	0.55
1:B:334:GLN:NE2	1:B:380:ILE:HG12	2.21	0.55
1:B:377:ILE:HG13	1:B:398:HIS:HD1	1.72	0.55
1:A:122:GLU:CD	1:A:122:GLU:N	2.65	0.55
1:B:95:GLN:HA	1:B:95:GLN:NE2	2.22	0.55
1:B:445:LEU:HD23	1:B:445:LEU:C	2.31	0.55
1:B:231:LYS:HG2	1:B:236:LEU:O	2.07	0.55
1:B:95:GLN:HE21	1:B:95:GLN:CA	2.18	0.54
1:B:122:GLU:HB2	1:B:124:ASN:ND2	2.22	0.54
1:A:258:ASN:HD22	1:A:258:ASN:H	1.55	0.54
1:A:318:GLY:O	1:A:319:ASP:HB2	2.07	0.54
1:B:203:ILE:HG13	1:B:204:ASN:N	2.22	0.54
1:B:377:ILE:HG13	1:B:398:HIS:ND1	2.22	0.54
1:A:68:ILE:HD12	1:A:450:LEU:HD13	1.90	0.54
1:A:208:LYS:H	1:A:208:LYS:HD3	1.73	0.54
1:A:258:ASN:H	1:A:258:ASN:ND2	2.05	0.54
1:A:151:ASN:H	1:A:200:ASN:HD21	1.54	0.54
1:B:318:GLY:HA2	1:B:488:LEU:CD1	2.38	0.54
1:B:22:LYS:O	1:B:23:ASP:HB2	2.07	0.53
1:B:318:GLY:O	1:B:319:ASP:HB2	2.07	0.53
1:A:494:ARG:HG3	1:A:495:PRO:HD2	1.90	0.53
1:B:483:PHE:HB3	1:B:510:LEU:CD2	2.39	0.53
1:B:81:LEU:C	1:B:81:LEU:HD13	2.34	0.53
1:A:224:ARG:O	1:A:228:GLN:HG3	2.08	0.53
1:B:82:VAL:HG21	1:B:154:LEU:CD1	2.39	0.53
1:B:194:ASN:HD22	1:B:195:GLN:N	2.07	0.53
1:B:258:ASN:HD22	1:B:258:ASN:N	2.02	0.53
1:B:322:LYS:NZ	1:B:506:GLN:HE22	2.06	0.53
1:B:381:ILE:HD11	1:B:394:LYS:O	2.09	0.53
1:A:516:LEU:C	1:A:516:LEU:HD12	2.34	0.53
1:B:15:VAL:O	1:B:15:VAL:CG2	2.57	0.53
1:A:477:PHE:HZ	1:A:513:PHE:CZ	2.27	0.52
1:A:200:ASN:C	1:A:200:ASN:HD22	2.16	0.52
1:B:57:LYS:HE3	1:B:474:PHE:CE2	2.44	0.52
1:A:461:TYR:O	1:A:474:PHE:HA	2.10	0.52
1:B:109:MET:HE2	1:B:507:ARG:NE	2.23	0.52
1:A:328:LEU:HD23	1:A:328:LEU:C	2.35	0.52
1:B:255:PRO:HA	1:B:259:ASP:OD1	2.09	0.52
1:B:352:LEU:HD12	1:B:354:ASN:OD1	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:29:LYS:HE2	3:A:697:HOH:O	2.09	0.52
1:A:343:PRO:HD2	1:A:388:TYR:OH	2.10	0.52
1:B:190:PHE:CE2	1:B:276:ALA:HB2	2.46	0.52
1:B:57:LYS:HE3	1:B:474:PHE:CD2	2.45	0.51
1:B:299:ASN:HD22	1:B:299:ASN:H	1.57	0.51
1:A:352:LEU:HD23	1:A:352:LEU:N	2.26	0.51
1:A:373:LYS:CG	1:A:489:LYS:HD3	2.41	0.51
1:B:362:ALA:HB3	1:B:365:GLN:OE1	2.11	0.51
1:A:88:ASN:HD21	1:A:104:ASN:CA	2.23	0.51
1:B:486:TYR:CE1	1:B:503:LEU:HG	2.45	0.51
1:B:147:TRP:HB3	1:B:184:SER:HB2	1.91	0.51
1:A:184:SER:OG	1:A:185:ILE:N	2.44	0.51
1:B:52:GLN:NE2	1:B:53:ASP:N	2.58	0.51
1:B:129:PRO:HB2	1:B:132:SER:HB3	1.92	0.51
1:B:477:PHE:CZ	1:B:483:PHE:CE1	2.99	0.51
1:A:527:ARG:CZ	1:B:500:VAL:HG21	2.40	0.51
1:A:272:HIS:HD2	1:A:274:GLU:H	1.59	0.50
1:A:515:ARG:NH1	1:A:523:GLN:HE21	2.07	0.50
1:A:104:ASN:ND2	1:A:104:ASN:C	2.69	0.50
1:A:147:TRP:HB3	1:A:184:SER:HB2	1.94	0.50
1:A:15:VAL:O	1:A:15:VAL:HG13	2.11	0.50
1:A:367:ARG:O	1:A:371:ILE:HG12	2.12	0.50
1:A:500:VAL:HG21	1:B:527:ARG:NH2	2.27	0.50
1:B:76:ASN:HB3	1:B:439:SER:OG	2.10	0.50
1:B:258:ASN:N	1:B:258:ASN:ND2	2.59	0.50
1:A:52:GLN:HG3	1:A:54:TYR:CE1	2.47	0.50
1:A:294:ASN:ND2	1:A:296:SER:H	2.10	0.50
1:A:220:LEU:HD12	1:A:221:GLN:HE21	1.77	0.50
1:A:44:ARG:HG2	1:A:45:PHE:N	2.27	0.50
1:B:58:LEU:HD22	1:B:134:LEU:HD13	1.94	0.49
1:A:40:THR:HG22	1:A:42:SER:N	2.27	0.49
1:A:272:HIS:CD2	1:A:274:GLU:H	2.30	0.49
1:A:531:ARG:CG	1:B:482:THR:HB	2.42	0.49
1:B:194:ASN:HD22	1:B:194:ASN:C	2.20	0.49
1:B:205:LEU:HA	1:B:210:ASN:O	2.11	0.49
1:A:315:PHE:HZ	1:A:477:PHE:HB2	1.75	0.49
1:A:453:THR:O	1:A:457:THR:HG23	2.13	0.49
1:B:26:LEU:O	1:B:57:LYS:HA	2.12	0.49
1:B:327:LYS:HG3	1:B:503:LEU:HD13	1.94	0.49
1:B:394:LYS:HG2	3:B:709:HOH:O	2.11	0.49
1:A:531:ARG:O	1:A:532:LEU:HD23	2.13	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:258:ASN:H	1:B:258:ASN:ND2	2.09	0.49
1:B:341:ILE:O	1:B:343:PRO:HD3	2.12	0.49
1:B:337:VAL:HG21	1:B:380:ILE:HG22	1.95	0.49
1:A:109:MET:HE3	1:A:487:TRP:CZ2	2.48	0.49
1:A:205:LEU:HA	1:A:210:ASN:O	2.13	0.48
1:A:452:MET:HE2	1:A:510:LEU:HD22	1.94	0.48
1:B:39:LYS:HD3	1:B:45:PHE:CE1	2.48	0.48
1:A:323:SER:HA	3:A:710:HOH:O	2.12	0.48
1:B:486:TYR:HB2	1:B:506:GLN:HB3	1.95	0.48
1:B:328:LEU:HD12	1:B:328:LEU:O	2.12	0.48
1:B:249:ARG:HG3	1:B:249:ARG:O	2.14	0.48
1:A:447:ILE:O	1:A:451:VAL:HG23	2.13	0.48
1:A:372:SER:O	1:A:489:LYS:HG2	2.14	0.48
1:B:148:ASP:HA	2:B:660:NAI:N3A	2.28	0.48
1:A:134:LEU:HB3	1:A:135:PRO:HD2	1.96	0.47
1:A:206:ASP:O	1:A:209:GLY:N	2.46	0.47
1:B:153:ASP:OD2	1:B:155:TYR:HB3	2.14	0.47
1:A:258:ASN:ND2	1:A:258:ASN:N	2.60	0.47
1:B:493:THR:HG21	1:B:499:PRO:CD	2.42	0.47
1:A:296:SER:HB3	1:A:297:PRO:HD2	1.96	0.47
1:A:350:ASN:HB2	1:A:412:LYS:HD3	1.96	0.47
1:B:460:SER:HB2	1:B:474:PHE:HB3	1.96	0.47
1:A:110:THR:CG2	1:A:111:GLN:HE21	2.25	0.47
1:B:220:LEU:HD23	1:B:220:LEU:O	2.15	0.47
1:A:105:TYR:CE2	1:A:139:PRO:HG2	2.50	0.47
1:A:531:ARG:HG2	3:B:737:HOH:O	2.15	0.47
1:B:378:ASP:HA	1:B:381:ILE:HG22	1.96	0.47
1:B:259:ASP:HA	1:B:303:PRO:HB2	1.97	0.47
1:B:369:LYS:C	1:B:371:ILE:N	2.73	0.47
1:A:385:ASP:HA	1:A:388:TYR:O	2.15	0.46
1:A:200:ASN:HD22	1:A:200:ASN:H	1.62	0.46
1:A:282:ALA:HB3	1:A:305:LEU:HD21	1.97	0.46
1:A:381:ILE:HG23	1:A:388:TYR:CG	2.50	0.46
1:A:231:LYS:HE3	1:A:237:ASP:O	2.15	0.46
1:A:286:ILE:HG21	1:A:308:LEU:HG	1.97	0.46
1:A:120:ASP:OD2	1:A:124:ASN:HB2	2.16	0.46
1:A:428:ASN:HD22	1:B:436:CYS:HB3	1.79	0.46
1:A:36:VAL:HG23	1:A:50:THR:HG21	1.98	0.46
1:B:266:GLN:NE2	1:B:266:GLN:HA	2.31	0.46
1:B:153:ASP:OD2	1:B:155:TYR:N	2.46	0.46
1:A:370:GLU:O	1:A:370:GLU:HG2	2.15	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:315:PHE:CZ	1:A:481:LEU:HD21	2.51	0.46
1:B:384:ASN:OD1	1:B:386:ILE:HB	2.15	0.46
1:A:110:THR:HG23	1:A:111:GLN:NE2	2.25	0.45
1:B:356:ASP:O	1:B:360:LEU:HG	2.16	0.45
1:A:134:LEU:HD11	1:A:517:LEU:HB2	1.99	0.45
1:B:52:GLN:NE2	1:B:53:ASP:O	2.49	0.45
1:B:155:TYR:CE2	1:B:173:LYS:HE3	2.51	0.45
1:B:453:THR:O	1:B:457:THR:HG23	2.16	0.45
1:A:149:ILE:O	1:A:199:ALA:HA	2.16	0.45
1:A:254:SER:HB2	1:A:257:VAL:HG21	1.97	0.45
1:A:489:LYS:HE3	1:A:489:LYS:HB2	1.86	0.45
1:B:445:LEU:CD2	1:B:445:LEU:C	2.90	0.45
1:B:483:PHE:HB3	1:B:510:LEU:HD23	1.98	0.45
1:A:180:LYS:HA	1:A:181:PRO:HD3	1.81	0.45
1:A:445:LEU:CD2	1:A:487:TRP:HB3	2.44	0.45
1:A:475:GLU:HB3	1:B:533:LEU:HD12	1.98	0.45
1:A:298:GLN:HE21	1:A:298:GLN:HB3	1.62	0.45
1:A:283:ALA:O	1:A:287:LEU:HG	2.17	0.44
1:B:26:LEU:C	1:B:27:LEU:HD22	2.41	0.44
1:B:366:PHE:HE1	1:B:402:ILE:HG12	1.81	0.44
1:B:180:LYS:HA	1:B:181:PRO:HD3	1.87	0.44
1:B:229:ASN:O	1:B:233:GLU:HB3	2.16	0.44
1:A:190:PHE:O	1:A:248:GLU:HA	2.18	0.44
1:A:254:SER:H	1:A:258:ASN:ND2	2.13	0.44
1:A:513:PHE:O	1:A:516:LEU:HG	2.17	0.44
1:B:480:VAL:CG1	1:B:492:LEU:HD12	2.47	0.44
1:B:415:MET:HA	1:B:432:ILE:O	2.17	0.44
1:B:449:LEU:HD21	1:B:487:TRP:HB2	1.98	0.44
1:A:39:LYS:HA	1:A:44:ARG:O	2.17	0.44
1:A:40:THR:O	1:A:41:ALA:C	2.61	0.44
1:A:494:ARG:CG	1:A:495:PRO:HD2	2.47	0.44
1:A:241:VAL:HG23	1:A:290:VAL:HG11	1.98	0.44
1:A:252:GLU:N	1:A:274:GLU:OE1	2.50	0.44
1:A:373:LYS:HB3	1:A:400:ILE:HD13	2.00	0.44
1:A:440:LEU:CD1	1:B:426:GLY:HA3	2.48	0.44
2:B:660:NAI:O5D	2:B:660:NAI:H2N	2.18	0.44
1:A:452:MET:HG3	1:A:487:TRP:CH2	2.53	0.44
1:B:109:MET:HE2	1:B:507:ARG:CD	2.48	0.44
1:B:282:ALA:HB3	1:B:305:LEU:HD21	2.00	0.44
1:B:327:LYS:HG3	1:B:503:LEU:CD1	2.48	0.44
1:A:533:LEU:N	1:B:461:TYR:OH	2.51	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:52:GLN:C	1:B:52:GLN:NE2	2.74	0.43
1:A:37:VAL:HG12	1:A:38:THR:N	2.32	0.43
1:A:263:ASN:N	1:A:263:ASN:HD22	2.15	0.43
1:B:371:ILE:C	1:B:489:LYS:NZ	2.77	0.43
1:B:427:HIS:HE1	3:B:710:HOH:O	2.00	0.43
1:B:480:VAL:HG13	1:B:492:LEU:HD12	2.01	0.43
1:A:75:GLY:HA3	2:A:650:NAI:O5B	2.19	0.43
1:B:452:MET:HE2	1:B:510:LEU:HD22	2.01	0.43
1:A:71:ILE:HG21	1:A:243:TRP:CE3	2.54	0.43
1:A:110:THR:HG23	1:A:111:GLN:HG2	2.01	0.43
1:A:366:PHE:HE1	1:A:402:ILE:HG13	1.83	0.43
1:B:492:LEU:HD13	1:B:493:THR:H	1.80	0.43
1:B:44:ARG:HH11	1:B:44:ARG:HB3	1.82	0.43
1:B:68:ILE:HD12	1:B:450:LEU:HD13	1.99	0.43
1:B:184:SER:OG	1:B:185:ILE:N	2.51	0.43
1:A:67:GLY:HA3	1:A:236:LEU:HD13	2.00	0.43
1:B:193:ALA:O	1:B:196:ASP:HB2	2.18	0.43
1:B:390:ASP:OD1	1:B:394:LYS:HE2	2.18	0.43
1:B:412:LYS:HA	3:B:715:HOH:O	2.19	0.43
1:B:489:LYS:C	1:B:491:PRO:HD3	2.44	0.43
1:B:523:GLN:HA	1:B:523:GLN:HE21	1.83	0.43
1:A:81:LEU:C	1:A:81:LEU:HD13	2.43	0.43
1:A:206:ASP:O	1:A:207:GLU:C	2.61	0.43
1:A:196:ASP:C	1:A:196:ASP:OD2	2.62	0.43
1:B:398:HIS:HD2	1:B:399:CYS:H	1.67	0.43
1:A:200:ASN:C	1:A:200:ASN:ND2	2.76	0.43
1:B:476:ASN:O	1:B:478:TYR:N	2.51	0.43
1:A:88:ASN:HD21	1:A:104:ASN:HA	1.82	0.42
1:A:426:GLY:HA3	1:B:440:LEU:CD1	2.48	0.42
1:B:21:TYR:CD1	1:B:21:TYR:N	2.86	0.42
1:A:282:ALA:CB	1:A:305:LEU:HD21	2.49	0.42
1:A:436:CYS:HB3	1:B:428:ASN:ND2	2.34	0.42
1:B:354:ASN:O	1:B:404:TYR:HE2	2.01	0.42
1:A:187:TYR:HB2	1:A:190:PHE:HD1	1.85	0.42
1:A:516:LEU:HD12	1:A:517:LEU:N	2.34	0.42
1:B:161:SER:HB3	1:B:163:VAL:HG23	2.01	0.42
1:B:286:ILE:HG21	1:B:308:LEU:HG	1.99	0.42
1:B:329:LYS:HZ1	1:B:398:HIS:CE1	2.37	0.42
1:A:150:ASN:HA	1:A:200:ASN:ND2	2.35	0.42
1:A:246:ASN:HB2	3:A:723:HOH:O	2.20	0.42
1:A:373:LYS:HA	1:A:489:LYS:HD3	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:167:ASP:O	1:A:171:ARG:HG3	2.20	0.42
1:A:309:ALA:O	1:A:313:GLY:N	2.51	0.42
1:B:52:GLN:HE21	1:B:53:ASP:N	2.17	0.42
1:B:190:PHE:HE2	1:B:251:VAL:HG12	1.84	0.42
1:B:354:ASN:OD1	1:B:356:ASP:HB3	2.20	0.42
1:A:150:ASN:HD22	1:A:152:ALA:H	1.66	0.42
1:A:337:VAL:HG21	1:A:380:ILE:HG22	2.02	0.42
1:B:187:TYR:OH	1:B:219:HIS:HD2	2.02	0.42
1:B:319:ASP:HB3	1:B:490:ALA:HB3	2.01	0.42
1:B:381:ILE:HG13	1:B:388:TYR:CD2	2.55	0.42
1:A:11:SER:OG	1:B:44:ARG:HG2	2.20	0.42
1:A:71:ILE:HG21	1:A:243:TRP:CZ3	2.54	0.42
1:B:353:GLY:CA	1:B:406:LYS:HA	2.49	0.42
1:B:483:PHE:HB3	1:B:510:LEU:HD21	2.01	0.42
1:A:352:LEU:N	1:A:352:LEU:CD2	2.83	0.42
1:B:109:MET:HE1	1:B:486:TYR:CZ	2.54	0.41
1:B:302:VAL:HB	1:B:303:PRO:HD2	2.02	0.41
1:A:200:ASN:H	1:A:200:ASN:ND2	2.18	0.41
1:A:426:GLY:HA3	1:B:440:LEU:HD13	2.01	0.41
1:B:254:SER:HA	1:B:255:PRO:HD3	1.96	0.41
1:B:256:GLY:H	1:B:259:ASP:CG	2.28	0.41
1:B:272:HIS:HE1	1:B:274:GLU:HG3	1.85	0.41
1:B:378:ASP:O	1:B:382:ALA:HB2	2.20	0.41
1:A:184:SER:O	1:A:202:CYS:HA	2.21	0.41
1:A:246:ASN:N	1:A:246:ASN:HD22	2.19	0.41
1:B:327:LYS:HG2	1:B:503:LEU:CD2	2.49	0.41
1:B:526:LEU:O	1:B:527:ARG:C	2.64	0.41
1:A:441:LEU:HD23	1:A:441:LEU:HA	1.92	0.41
1:B:41:ALA:C	1:B:43:GLY:H	2.29	0.41
1:B:134:LEU:HD11	1:B:517:LEU:HB3	2.03	0.41
1:B:352:LEU:HD23	1:B:352:LEU:H	1.86	0.41
1:A:452:MET:HG3	1:A:487:TRP:HH2	1.86	0.41
1:A:467:VAL:O	1:A:467:VAL:HG23	2.21	0.41
1:B:516:LEU:C	1:B:516:LEU:HD12	2.46	0.41
1:A:310:GLU:HA	1:A:479:PRO:HG2	2.01	0.41
1:B:23:ASP:O	1:B:24:ASN:HB2	2.21	0.41
1:B:40:THR:HG21	1:B:44:ARG:NH1	2.36	0.41
1:B:109:MET:HE2	1:B:507:ARG:HD2	2.02	0.41
1:B:59:ASP:O	1:B:458:ARG:HD2	2.21	0.40
1:B:147:TRP:CD2	1:B:281:PHE:HE2	2.40	0.40
1:B:189:ASP:OD1	1:B:249:ARG:NH2	2.54	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:265:LEU:HD11	1:B:308:LEU:HD13	2.03	0.40
1:A:166:TYR:O	1:A:170:GLN:HG2	2.21	0.40
1:A:480:VAL:HG13	1:A:492:LEU:HD23	2.03	0.40
1:B:201:ASN:HD22	1:B:201:ASN:HA	1.73	0.40
1:B:208:LYS:HB2	1:B:210:ASN:HD22	1.86	0.40
1:B:350:ASN:HB2	1:B:402:ILE:HD13	2.03	0.40
1:B:369:LYS:O	1:B:371:ILE:N	2.54	0.40
1:A:37:VAL:HG22	1:A:47:VAL:HG22	2.04	0.40
1:B:351:HIS:HA	1:B:403:LYS:O	2.22	0.40
2:B:660:NAI:O1N	2:B:660:NAI:N7N	2.54	0.40
1:A:327:LYS:HG2	1:A:503:LEU:HD22	2.03	0.40
1:B:194:ASN:ND2	1:B:195:GLN:HG2	2.36	0.40
1:B:515:ARG:NH2	1:B:521:PRO:O	2.52	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	523/533 (98%)	489 (94%)	27 (5%)	7 (1%)	9	6
1	B	506/533 (95%)	473 (94%)	25 (5%)	8 (2%)	7	4
All	All	1029/1066 (96%)	962 (94%)	52 (5%)	15 (2%)	8	4

All (15) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	319	ASP
1	B	319	ASP
1	A	375	SER
1	A	472	GLY
1	B	322	LYS

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Mol	Chain	Res	Type
1	B	370	GLU
1	B	478	TYR
1	A	468	LYS
1	A	207	GLU
1	B	477	PHE
1	B	479	PRO
1	A	320	ASP
1	A	470	ASP
1	B	320	ASP
1	B	502	GLY

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	464/471 (98%)	453 (98%)	11 (2%)	43	49
1	B	453/471 (96%)	435 (96%)	18 (4%)	28	29
All	All	917/942 (97%)	888 (97%)	29 (3%)	34	38

All (29) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	104	ASN
1	A	122	GLU
1	A	188	PRO
1	A	197	GLU
1	A	200	ASN
1	A	208	LYS
1	A	246	ASN
1	A	258	ASN
1	A	298	GLN
1	A	352	LEU
1	A	483	PHE
1	B	13	LYS
1	B	16	THR

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Mol	Chain	Res	Type
1	B	44	ARG
1	B	52	GLN
1	B	95	GLN
1	B	113	SER
1	B	158	MET
1	B	194	ASN
1	B	237	ASP
1	B	249	ARG
1	B	258	ASN
1	B	299	ASN
1	B	352	LEU
1	B	460	SER
1	B	479	PRO
1	B	484	LEU
1	B	498	HIS
1	B	523	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (61) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	24	ASN
1	A	76	ASN
1	A	77	ASN
1	A	88	ASN
1	A	90	HIS
1	A	104	ASN
1	A	111	GLN
1	A	150	ASN
1	A	151	ASN
1	A	169	GLN
1	A	194	ASN
1	A	195	GLN
1	A	200	ASN
1	A	201	ASN
1	A	221	GLN
1	A	228	GLN
1	A	229	ASN
1	A	258	ASN
1	A	266	GLN
1	A	270	ASN
1	A	272	HIS
1	A	294	ASN

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Mol	Chain	Res	Type
1	A	298	GLN
1	A	325	GLN
1	A	350	ASN
1	A	355	ASN
1	A	365	GLN
1	A	428	ASN
1	A	501	ASN
1	A	504	ASN
1	A	512	ASN
1	A	523	GLN
1	B	34	ASN
1	B	52	GLN
1	B	91	ASN
1	B	95	GLN
1	B	124	ASN
1	B	140	ASN
1	B	159	GLN
1	B	170	GLN
1	B	194	ASN
1	B	195	GLN
1	B	201	ASN
1	B	210	ASN
1	B	219	HIS
1	B	228	GLN
1	B	234	ASN
1	B	258	ASN
1	B	263	ASN
1	B	266	GLN
1	B	270	ASN
1	B	299	ASN
1	B	325	GLN
1	B	334	GLN
1	B	351	HIS
1	B	355	ASN
1	B	427	HIS
1	B	428	ASN
1	B	504	ASN
1	B	506	GLN
1	B	523	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

2 ligands are modelled in this entry.

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	NAI	B	660	-	47,48,48	1.56	8 (17%)	64,73,73	1.06	4 (6%)
2	NAI	A	650	-	47,48,48	1.48	7 (14%)	64,73,73	0.98	4 (6%)

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	NAI	B	660	-	-	2/29/72/72	0/5/5/5
2	NAI	A	650	-	-	2/29/72/72	0/5/5/5

All (15) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	660	NAI	PA-O3	-4.72	1.54	1.59

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	660	NAI	C2A-N1A	4.31	1.41	1.33
2	A	650	NAI	C6N-N1N	4.24	1.47	1.37
2	A	650	NAI	C2A-N1A	4.21	1.41	1.33
2	B	660	NAI	C6N-N1N	3.93	1.46	1.37
2	A	650	NAI	PN-O3	2.90	1.62	1.59
2	A	650	NAI	C6N-C5N	2.73	1.41	1.33
2	A	650	NAI	C8A-N7A	2.60	1.36	1.31
2	B	660	NAI	C1D-N1N	2.48	1.53	1.46
2	B	660	NAI	C7N-C3N	2.36	1.53	1.48
2	B	660	NAI	C5A-C4A	2.35	1.43	1.39
2	B	660	NAI	C6N-C5N	2.33	1.40	1.33
2	A	650	NAI	C7N-C3N	2.21	1.53	1.48
2	B	660	NAI	C4A-N3A	2.19	1.38	1.34
2	A	650	NAI	C5A-C6A	2.12	1.46	1.41

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	660	NAI	O4D-C1D-N1N	3.36	114.49	108.08
2	A	650	NAI	C1D-N1N-C2N	-2.56	116.91	121.14
2	A	650	NAI	O4D-C4D-C3D	2.38	109.87	105.15
2	B	660	NAI	O2A-PA-O3	2.36	113.66	107.27
2	A	650	NAI	C3N-C7N-N7N	2.32	121.79	117.67
2	B	660	NAI	O4B-C1B-C2B	-2.25	101.79	106.62
2	A	650	NAI	O2A-PA-O3	2.08	112.90	107.27
2	B	660	NAI	O5D-PN-O2N	2.02	116.93	108.94

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	660	NAI	O4D-C1D-N1N-C6N
2	A	650	NAI	O4D-C1D-N1N-C6N
2	B	660	NAI	PN-O3-PA-O5B
2	A	650	NAI	C2N-C3N-C7N-N7N

There are no ring outliers.

2 monomers are involved in 5 short contacts:

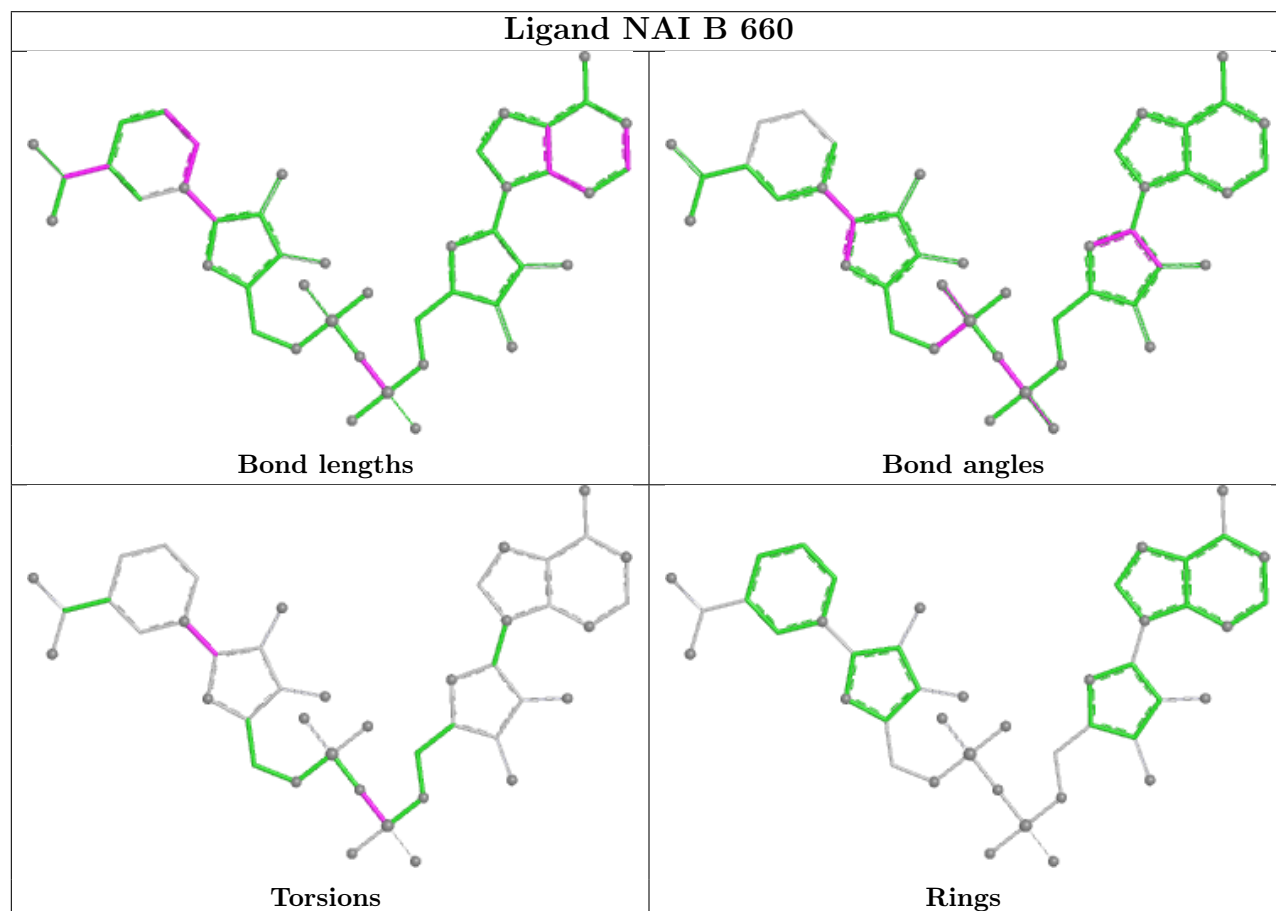
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	660	NAI	4	0

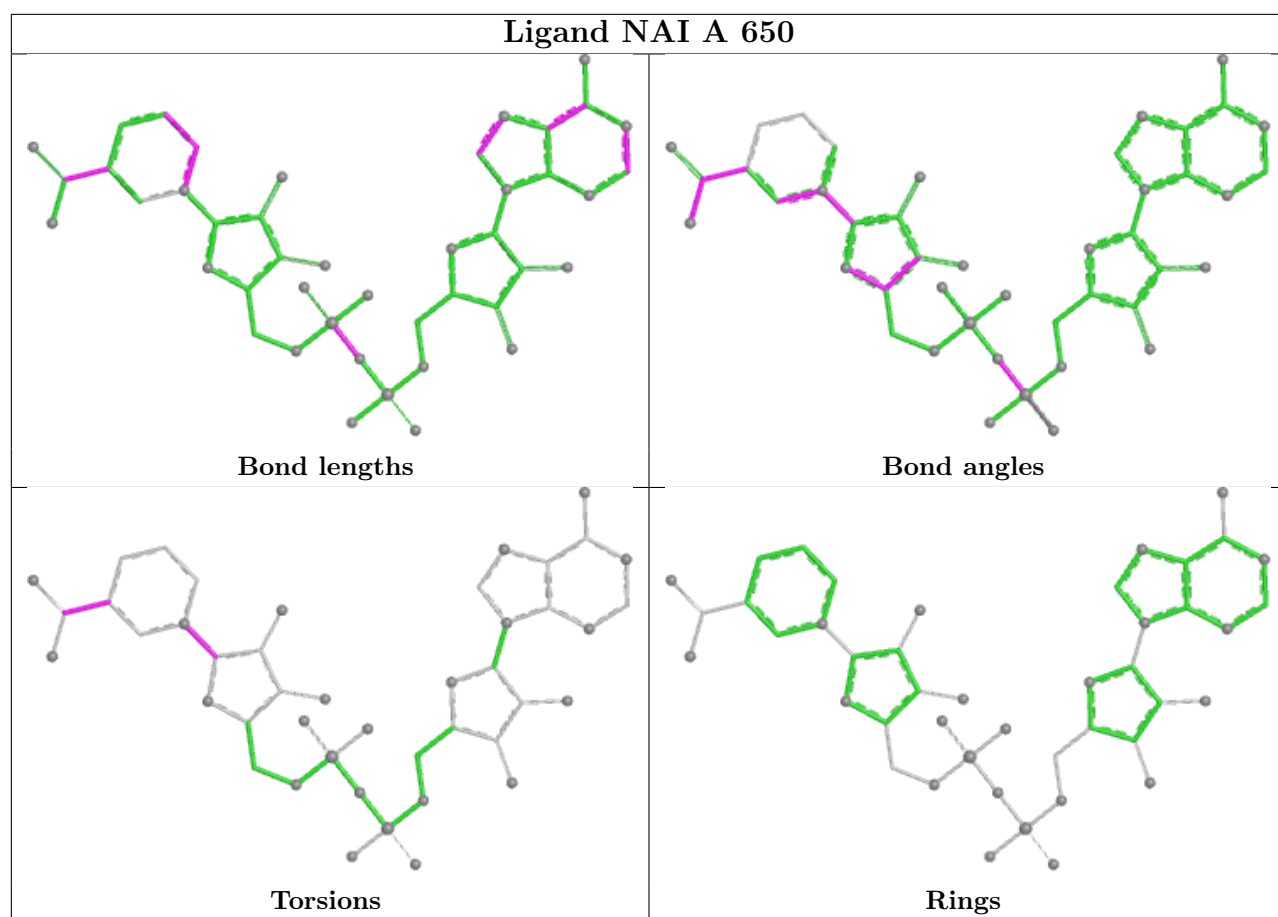
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Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	650	NAI	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.





5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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	525/533 (98%)	0.13	18 (3%)	48 50	20, 39, 68, 70	0
1	B	512/533 (96%)	0.36	40 (7%)	19 20	20, 40, 70, 70	0
All	All	1037/1066 (97%)	0.24	58 (5%)	30 32	20, 40, 70, 70	0

All (58) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	497	PHE	5.5
1	B	479	PRO	4.8
1	B	207	GLU	3.7
1	B	478	TYR	3.6
1	B	398	HIS	3.6
1	B	371	ILE	3.6
1	B	481	LEU	3.5
1	B	319	ASP	3.3
1	B	495	PRO	3.1
1	B	393	GLY	3.0
1	B	315	PHE	3.0
1	B	318	GLY	2.9
1	B	496	GLY	2.9
1	B	491	PRO	2.8
1	A	330	SER	2.7
1	B	324	GLY	2.7
1	A	208	LYS	2.6
1	B	500	VAL	2.6
1	A	411	SER	2.6
1	A	318	GLY	2.6
1	B	22	LYS	2.6
1	A	207	GLU	2.5
1	B	320	ASP	2.5
1	B	488	LEU	2.5

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Mol	Chain	Res	Type	RSRZ
1	B	209	GLY	2.5
1	B	43	GLY	2.5
1	B	41	ALA	2.4
1	B	492	LEU	2.4
1	B	366	PHE	2.4
1	A	41	ALA	2.4
1	A	371	ILE	2.4
1	B	208	LYS	2.4
1	B	192	ALA	2.4
1	A	533	LEU	2.4
1	B	477	PHE	2.3
1	B	490	ALA	2.3
1	B	323	SER	2.3
1	A	24	ASN	2.3
1	A	209	GLY	2.3
1	B	40	THR	2.2
1	B	482	THR	2.2
1	A	500	VAL	2.2
1	B	486	TYR	2.2
1	B	498	HIS	2.2
1	B	358	TYR	2.1
1	B	499	PRO	2.1
1	B	409	GLY	2.1
1	B	487	TRP	2.1
1	A	350	ASN	2.1
1	B	349	TYR	2.1
1	A	472	GLY	2.1
1	B	485	SER	2.1
1	A	194	ASN	2.0
1	A	40	THR	2.0
1	B	402	ILE	2.0
1	A	375	SER	2.0
1	A	121	ALA	2.0
1	A	324	GLY	2.0

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

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

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

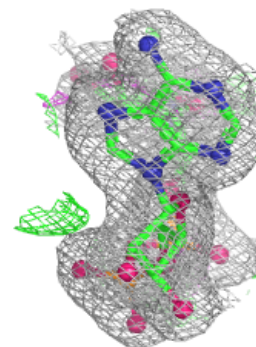
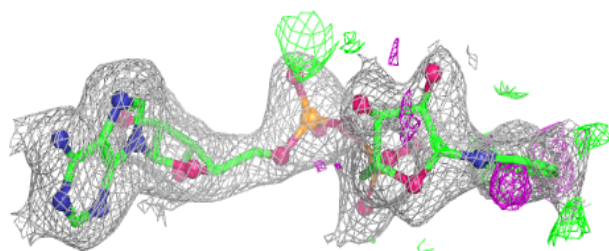
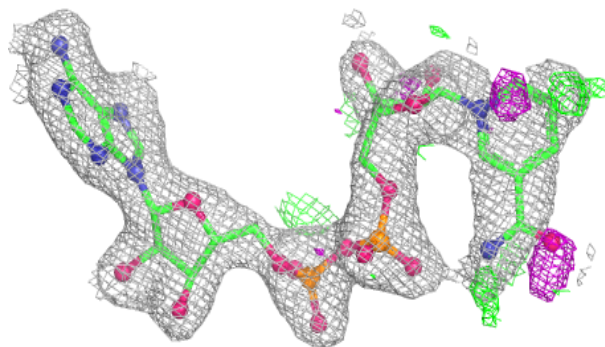
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
2	NAI	A	650	44/44	0.94	0.10	25,35,68,73	0
2	NAI	B	660	44/44	0.94	0.11	25,34,75,77	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

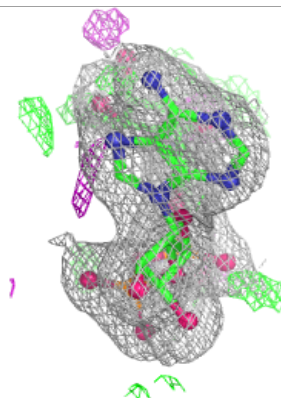
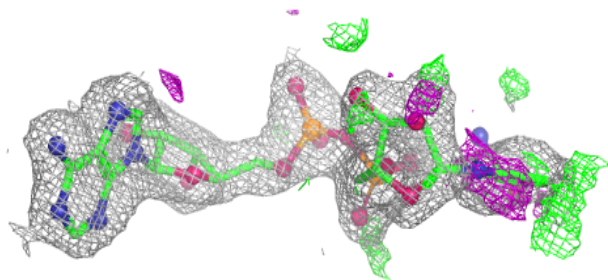
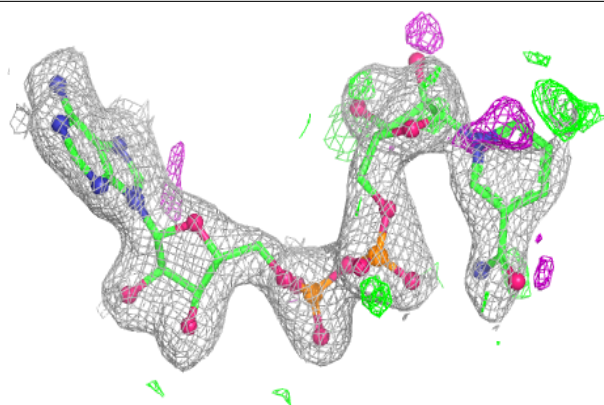
Electron density around NAI A 650:

2mF_o-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



Electron density around NAI B 660:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



6.5 Other polymers [i](#)

There are no such residues in this entry.