



Full wwPDB X-ray Structure Validation Report ⓘ

Feb 18, 2018 – 03:37 am GMT

PDB ID : 1BO1
Title : PHOSPHATIDYLINOSITOL PHOSPHATE KINASE TYPE II BETA
Authors : Rao, V.D.; Misra, S.; Boronenkov, I.V.; Anderson, R.A.; Hurley, J.H.
Deposited on : 1998-08-02
Resolution : 3.00 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 following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Xtrriage (Phenix) : **NOT EXECUTED**
EDS : **NOT EXECUTED**
Percentile statistics : 20171227.v01 (using entries in the PDB archive December 27th 2017)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : trunk30686

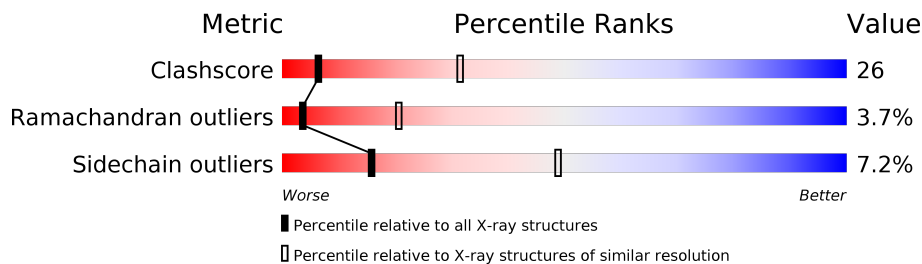
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.00 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	122078	2167 (3.00-3.00)
Ramachandran outliers	120005	2101 (3.00-3.00)
Sidechain outliers	119972	2104 (3.00-3.00)

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. 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.

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	416	
1	B	416	

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 5301 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 PROTEIN (PHOSPHATIDYLINOSITOL PHOSPHATE KINASE IIBETA).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	326	Total	C	N	O	S	0	0	0
			2674	1695	454	511	14			
1	B	318	Total	C	N	O	S	0	0	0
			2608	1651	448	494	15			

- Molecule 2 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	13	Total	O	0	0
			13	13		
2	B	6	Total	O	0	0
			6	6		

GLU	GLU
CYS	CYS
GLU	GLU
ASN	ASN
ASP	ASP
GLY	GLY
VAL	VAL
GLY	GLY
GLY	GLY
ASN	ASN
LEU	LEU
LEU	LEU
CYS	CYS
SER	SER
TYR	TYR
THR	THR
PRO	PRO
THR	THR
PRO	PRO
ASP	ASP
SER	SER
PRO	PRO
GLY	GLY
GLY	GLY
ASN	ASN
LEU	LEU
LEU	LEU
SER	SER
PHE	PHE
ILE	ILE
PRO	PRO
GLY	GLY
GLY	GLY
GLU	GLU
PHE	PHE
D343	D343
F344	F344
S345	S345
Y346	Y346
D347	D347
V348	V348
Y349	Y349
A350	A350
K351	K351
K352	K352
S353	S353
H354	H354
S357	S357
P358	P358
K359	K359
K360	K360
Y363	Y363
F364	F364
K365	K365
A366	A366
I367	I367
I368	I368
D369	D369
I370	I370
L371	L371
T372	T372
PRO	PRO
TYR	TYR
ASP	ASP
THR	THR
LYS	LYS
LYS	LYS
LYS	LYS
ALA	ALA
ALA	ALA
HIS	HIS
ALA	ALA
ALA	ALA
LYS	LYS
THR	THR
VAL	VAL
LYS	LYS
HIS	HIS
GLY	GLY
ALA	ALA
GLY	GLY
ALA	ALA
LEU	LEU
LEU	LEU
SER	SER
ILE	ILE
PRO	PRO
SER	SER
T397	T397
V398	V398
N399	N399
P400	P400
Y403	Y403
S404	S404
K405	K405
R406	R406
F407	F407
N408	N408
E409	E409
F410	F410
M411	M411
S412	S412
M413	M413
I414	I414
L415	L415
T416	T416

4 Data and refinement statistics

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

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α , β , γ	109.92Å 182.40Å 106.47Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	6.00 – 3.00	Depositor
% Data completeness (in resolution range)	94.9 (6.00-3.00)	Depositor
R_{merge}	(Not available)	Depositor
R_{sym}	0.05	Depositor
Refinement program	X-PLOR 3.8	Depositor
R, R_{free}	0.229 , 0.299	Depositor
Estimated twinning fraction	No twinning to report.	Xtrriage
Total number of atoms	5301	wwPDB-VP
Average B, all atoms (Å ²)	48.0	wwPDB-VP

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	0.44	0/2726	0.68	1/3668 (0.0%)
1	B	0.43	0/2660	0.70	1/3580 (0.0%)
All	All	0.44	0/5386	0.69	2/7248 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	368	ILE	N-CA-C	6.23	127.81	111.00
1	A	368	ILE	N-CA-C	5.41	125.62	111.00

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	2674	0	2631	126	0
1	B	2608	0	2572	144	0
2	A	13	0	0	0	0
2	B	6	0	0	1	0
All	All	5301	0	5203	268	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 26.

All (268) 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:212:HIS:HD2	1:B:287:ASP:H	1.20	0.90
1:B:157:VAL:HG21	1:B:197:TYR:CD2	2.07	0.90
1:A:223:ALA:H	1:A:225:GLU:HG2	1.39	0.87
1:A:215:TYR:HB2	1:A:283:VAL:HB	1.60	0.83
1:B:215:TYR:HB2	1:B:283:VAL:HB	1.63	0.80
1:A:157:VAL:HG21	1:A:197:TYR:CD2	2.17	0.80
1:B:249:LYS:HB3	1:B:251:HIS:CE1	2.16	0.80
1:A:249:LYS:HB3	1:A:251:HIS:CE1	2.18	0.79
1:A:157:VAL:HA	1:A:186:MET:HE1	1.63	0.78
1:B:98:TYR:HD1	1:B:186:MET:HG2	1.49	0.78
1:A:98:TYR:HD1	1:A:186:MET:HG2	1.50	0.77
1:B:157:VAL:HA	1:B:186:MET:HE1	1.67	0.77
1:A:183:PHE:HA	1:A:201:THR:HG22	1.67	0.77
1:B:109:ARG:HH11	1:B:172:VAL:HA	1.48	0.76
1:B:183:PHE:HA	1:B:201:THR:HG22	1.68	0.76
1:A:343:ASP:HB2	1:A:344:PRO:HD3	1.68	0.76
1:A:66:LEU:HD13	1:A:102:VAL:HG22	1.66	0.75
1:B:243:PHE:HZ	1:B:414:ILE:HG23	1.49	0.74
1:A:109:ARG:NH1	1:A:172:VAL:HG22	2.02	0.74
1:B:131:SER:HB3	1:B:138:ARG:HA	1.68	0.74
1:A:352:LYS:HD3	1:A:366:ALA:HB2	1.70	0.72
1:B:252:VAL:HG12	1:B:256:SER:HB3	1.71	0.72
1:B:66:LEU:HD13	1:B:102:VAL:HG22	1.71	0.72
1:B:220:SER:HA	1:B:406:ARG:CZ	2.20	0.71
1:B:51:ASN:HB2	1:B:122:THR:HG21	1.72	0.71
1:B:260:PHE:CD2	1:B:415:LEU:HD11	2.26	0.71
1:A:51:ASN:HB2	1:A:122:THR:HG21	1.73	0.71
1:A:34:LYS:HA	1:B:59:ASN:HA	1.73	0.70
1:A:261:LEU:HD21	1:A:412:SER:HA	1.73	0.70
1:A:183:PHE:HZ	1:A:370:ILE:HG21	1.57	0.70
1:A:407:PHE:O	1:A:411:MET:HG2	1.91	0.70
1:B:212:HIS:CD2	1:B:287:ASP:H	2.06	0.70
1:B:268:VAL:HG13	1:B:279:TYR:OH	1.91	0.70
1:A:128:ASN:HA	1:A:140:LEU:HD23	1.72	0.69
1:A:54:ILE:HG21	1:A:118:GLN:HB2	1.74	0.69
1:A:37:ARG:HB2	1:A:88:ASN:HB3	1.75	0.69
1:A:415:LEU:HD23	1:A:415:LEU:H	1.57	0.69
1:A:123:ARG:HD3	1:A:143:TYR:OH	1.92	0.68
1:B:400:PRO:HA	1:B:403:TYR:HB2	1.76	0.67
1:B:407:PHE:O	1:B:411:MET:HG2	1.94	0.67
1:B:243:PHE:CD1	1:B:248:GLN:HG3	2.29	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:157:VAL:HG21	1:B:197:TYR:HD2	1.60	0.66
1:B:222:VAL:HA	1:B:225:GLU:OE1	1.95	0.66
1:B:98:TYR:CD1	1:B:186:MET:HG2	2.31	0.65
1:B:37:ARG:HB2	1:B:88:ASN:HB3	1.77	0.65
1:A:98:TYR:CD1	1:A:186:MET:HG2	2.32	0.65
1:B:46:LEU:HD21	1:B:149:ILE:HD13	1.78	0.65
1:B:54:ILE:HG21	1:B:118:GLN:HB2	1.78	0.65
1:A:212:HIS:HD2	1:A:287:ASP:H	1.44	0.64
1:A:46:LEU:HD21	1:A:149:ILE:HD13	1.81	0.62
1:A:275:LYS:HG2	1:A:275:LYS:O	1.96	0.62
1:B:139:PHE:CE2	1:B:150:LYS:HD2	2.35	0.62
1:B:128:ASN:HA	1:B:140:LEU:HD23	1.82	0.62
1:A:168:HIS:O	1:A:172:VAL:HG23	2.00	0.61
1:A:243:PHE:HZ	1:A:414:ILE:HG23	1.63	0.61
1:B:221:THR:H	1:B:406:ARG:NH1	1.99	0.61
1:A:40:GLU:HB3	1:A:42:ILE:HD12	1.80	0.61
1:A:160:MET:HE1	1:A:164:LEU:HD13	1.82	0.61
1:A:160:MET:O	1:A:164:LEU:HB2	2.01	0.61
1:B:233:LYS:HG2	1:B:234:ASP:H	1.64	0.61
1:A:234:ASP:O	1:A:236:PRO:HD3	2.01	0.60
1:B:278:ASP:HA	1:B:403:TYR:CE2	2.36	0.60
1:A:243:PHE:CZ	1:A:414:ILE:HG23	2.36	0.60
1:B:212:HIS:HD2	1:B:287:ASP:N	1.94	0.60
1:B:139:PHE:CZ	1:B:150:LYS:HD2	2.36	0.60
1:A:272:ALA:HB2	1:A:404:SER:OG	2.02	0.59
1:A:301:ARG:HH11	1:A:301:ARG:HG2	1.67	0.59
1:B:168:HIS:O	1:B:172:VAL:HG23	2.02	0.59
1:B:236:PRO:HB2	1:B:238:PHE:CZ	2.37	0.59
1:B:123:ARG:HD3	1:B:143:TYR:OH	2.02	0.59
1:A:144:ASP:O	1:A:207:HIS:HB2	2.02	0.59
1:A:249:LYS:HE3	1:A:249:LYS:H	1.67	0.59
1:A:347:ASP:O	1:A:351:MET:HB3	2.02	0.59
1:A:250:LEU:HG	1:A:414:ILE:HG22	1.85	0.58
1:B:192:ASP:O	1:B:194:VAL:HG23	2.04	0.58
1:B:204:VAL:HA	1:B:352:LYS:HD2	1.83	0.58
1:B:109:ARG:NH1	1:B:172:VAL:HA	2.19	0.58
1:A:251:HIS:O	1:A:356:SER:HA	2.04	0.58
1:B:213:ARG:HD3	1:B:215:TYR:OH	2.04	0.58
1:B:109:ARG:NH1	1:B:172:VAL:HG22	2.18	0.58
1:B:351:MET:O	1:B:352:LYS:HB2	2.02	0.58
1:A:243:PHE:CD1	1:A:248:GLN:HG3	2.39	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:160:MET:CE	1:B:164:LEU:HD13	2.34	0.57
1:A:225:GLU:O	1:A:241:ASN:HB2	2.04	0.57
1:B:243:PHE:CZ	1:B:414:ILE:HG23	2.37	0.57
1:B:110:PHE:CE1	1:B:182:GLN:HB3	2.40	0.57
1:A:78:LYS:HB3	1:B:78:LYS:HB3	1.85	0.57
1:B:131:SER:CB	1:B:138:ARG:HA	2.33	0.57
1:A:213:ARG:HD3	1:A:215:TYR:OH	2.05	0.56
1:B:249:LYS:H	1:B:249:LYS:HE3	1.70	0.56
1:A:109:ARG:HH11	1:A:172:VAL:HA	1.71	0.56
1:A:160:MET:CE	1:A:164:LEU:HD13	2.36	0.56
1:B:112:ILE:HD12	1:B:184:LEU:HD22	1.87	0.56
1:B:357:SER:HB3	1:B:358:PRO:HD3	1.88	0.55
1:B:353:SER:HG	1:B:364:PHE:HE2	1.54	0.55
1:B:189:LEU:HD12	1:B:189:LEU:H	1.71	0.55
1:B:210:THR:O	1:B:286:HIS:HD2	1.89	0.55
1:A:222:VAL:HA	1:A:225:GLU:HG3	1.87	0.55
1:B:251:HIS:HB3	2:B:417:HOH:O	2.07	0.55
1:B:268:VAL:CG1	1:B:404:SER:HA	2.37	0.55
1:B:233:LYS:HG2	1:B:234:ASP:N	2.21	0.54
1:A:123:ARG:HB3	1:A:143:TYR:CE2	2.43	0.54
1:A:208:ARG:NH1	1:A:209:LEU:HD21	2.23	0.54
1:B:160:MET:O	1:B:164:LEU:HB2	2.08	0.54
1:B:242:ASP:O	1:B:246:GLU:HG3	2.08	0.53
1:B:166:LYS:HD3	1:B:273:GLN:HE22	1.73	0.53
1:B:278:ASP:HA	1:B:403:TYR:HE2	1.71	0.53
1:B:301:ARG:HG2	1:B:301:ARG:HH11	1.74	0.53
1:A:205:PHE:CG	1:A:211:VAL:HG21	2.44	0.53
1:A:192:ASP:O	1:A:194:VAL:HG23	2.08	0.53
1:A:189:LEU:HD12	1:A:189:LEU:H	1.73	0.53
1:A:60:VAL:O	1:A:104:ARG:NH2	2.42	0.53
1:B:110:PHE:CD1	1:B:182:GLN:HB3	2.42	0.53
1:A:210:THR:O	1:A:286:HIS:HD2	1.91	0.53
1:A:252:VAL:HG12	1:A:256:SER:HB3	1.90	0.53
1:A:112:ILE:HD12	1:A:184:LEU:HD22	1.89	0.53
1:B:281:LEU:HB2	1:B:407:PHE:CZ	2.42	0.53
1:B:79:VAL:O	1:B:92:ARG:HA	2.09	0.53
1:B:408:ASN:O	1:B:412:SER:HB2	2.09	0.52
1:B:123:ARG:HB3	1:B:143:TYR:CE2	2.44	0.52
1:B:276:ILE:HD12	1:B:370:ILE:O	2.10	0.52
1:B:207:HIS:CE1	1:B:350:ALA:HB2	2.44	0.52
1:A:79:VAL:O	1:A:92:ARG:HA	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:160:MET:HE1	1:B:164:LEU:HD13	1.90	0.52
1:B:236:PRO:HB2	1:B:238:PHE:CE2	2.45	0.52
1:A:301:ARG:NH1	1:A:301:ARG:HG2	2.25	0.52
1:B:43:LEU:HD21	1:B:140:LEU:HD11	1.92	0.52
1:B:179:LEU:HB3	1:B:366:ALA:HA	1.91	0.51
1:A:279:TYR:HA	1:A:369:ASP:HB2	1.92	0.51
1:B:264:LEU:HD11	1:B:407:PHE:HE2	1.75	0.51
1:A:148:VAL:HG23	1:A:203:ASN:HB3	1.92	0.51
1:A:260:PHE:CE2	1:A:415:LEU:HD21	2.45	0.51
1:A:245:ASN:OD1	1:A:246:GLU:N	2.44	0.51
1:A:277:MET:HG2	1:A:403:TYR:HD2	1.74	0.51
1:B:217:LEU:HD23	1:B:240:ASP:HA	1.92	0.51
1:B:231:LYS:HG2	1:B:238:PHE:CE2	2.46	0.51
1:B:343:ASP:OD1	1:B:344:PRO:HD3	2.10	0.51
1:B:231:LYS:HG2	1:B:238:PHE:HE2	1.75	0.51
1:A:110:PHE:CE1	1:A:182:GLN:HB3	2.45	0.51
1:B:112:ILE:HD12	1:B:184:LEU:CD2	2.41	0.51
1:B:215:TYR:CD2	1:B:243:PHE:HB2	2.46	0.51
1:B:347:ASP:O	1:B:351:MET:HB3	2.11	0.50
1:A:408:ASN:O	1:A:412:SER:HB2	2.11	0.50
1:B:204:VAL:HA	1:B:352:LYS:CD	2.40	0.50
1:B:281:LEU:HB2	1:B:407:PHE:HZ	1.76	0.50
1:B:55:ASN:ND2	1:B:118:GLN:HE22	2.10	0.50
1:A:352:LYS:HD3	1:A:366:ALA:CB	2.38	0.49
1:B:48:TRP:CD1	1:B:89:LEU:HD11	2.46	0.49
1:A:204:VAL:HA	1:A:352:LYS:HD2	1.93	0.49
1:A:227:SER:HB3	1:A:230:GLU:HB2	1.93	0.49
1:A:157:VAL:HG21	1:A:197:TYR:HD2	1.74	0.49
1:A:167:TYR:O	1:A:171:ILE:HG12	2.13	0.49
1:A:346:VAL:HG12	1:A:348:VAL:CG1	2.42	0.49
1:B:265:LYS:O	1:B:269:GLU:HB2	2.12	0.49
1:B:221:THR:HG23	1:B:406:ARG:HH11	1.77	0.49
1:B:252:VAL:CG1	1:B:256:SER:HB3	2.42	0.49
1:A:222:VAL:HG13	1:A:241:ASN:HD21	1.78	0.49
1:A:265:LYS:O	1:A:269:GLU:HB2	2.12	0.49
1:B:51:ASN:HA	1:B:118:GLN:HE21	1.77	0.48
1:A:51:ASN:HA	1:A:118:GLN:HE21	1.78	0.48
1:B:188:ARG:HD2	1:B:195:GLU:OE2	2.14	0.48
1:A:179:LEU:HG	1:A:263:LYS:HG2	1.96	0.48
1:B:264:LEU:HD11	1:B:407:PHE:CE2	2.49	0.48
1:B:159:GLU:HB3	1:B:371:LEU:HD22	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:110:PHE:CE2	1:B:182:GLN:HG2	2.48	0.48
1:B:220:SER:HA	1:B:406:ARG:NE	2.27	0.48
1:B:167:TYR:O	1:B:171:ILE:HG12	2.13	0.48
1:A:282:LEU:O	1:A:365:MET:HA	2.14	0.48
1:A:60:VAL:O	1:A:60:VAL:HG22	2.13	0.48
1:B:74:TYR:CD1	1:B:96:LYS:HE3	2.49	0.48
1:A:218:LYS:CE	1:A:239:LYS:HD3	2.44	0.47
1:A:74:TYR:CD1	1:A:96:LYS:HE3	2.50	0.47
1:B:42:ILE:HD11	1:B:196:THR:HG21	1.96	0.47
1:A:346:VAL:HG12	1:A:348:VAL:HG12	1.96	0.47
1:A:221:THR:HG23	1:A:406:ARG:HH11	1.79	0.47
1:B:50:VAL:O	1:B:54:ILE:HB	2.14	0.47
1:B:230:GLU:O	1:B:236:PRO:HG3	2.15	0.47
1:B:275:LYS:HG2	1:B:275:LYS:O	2.14	0.47
1:B:250:LEU:HD22	1:B:363:TYR:CE2	2.50	0.47
1:B:57:LEU:HA	1:B:60:VAL:HG13	1.97	0.47
1:B:274:LEU:O	1:B:276:ILE:HG12	2.15	0.46
1:B:84:PHE:CE2	1:B:85:ASN:HB2	2.50	0.46
1:B:346:VAL:O	1:B:348:VAL:N	2.48	0.46
1:A:57:LEU:HA	1:A:60:VAL:HG13	1.97	0.46
1:B:130:ASP:O	1:B:132:GLN:NE2	2.48	0.46
1:A:34:LYS:O	1:A:35:LEU:HD23	2.16	0.46
1:A:50:VAL:O	1:A:54:ILE:HB	2.15	0.46
1:B:207:HIS:ND1	1:B:350:ALA:HB2	2.30	0.46
1:A:110:PHE:CD1	1:A:182:GLN:HB3	2.51	0.46
1:B:205:PHE:CG	1:B:211:VAL:HG21	2.51	0.46
1:A:103:PHE:HZ	1:A:160:MET:HE2	1.81	0.46
1:A:370:ILE:O	1:A:370:ILE:HG12	2.16	0.46
1:B:301:ARG:HG2	1:B:301:ARG:NH1	2.30	0.45
1:A:190:THR:HG22	1:A:195:GLU:HA	1.97	0.45
1:B:246:GLU:HB2	1:B:248:GLN:HG2	1.97	0.45
1:A:131:SER:HA	1:A:139:PHE:HB2	1.99	0.45
1:A:223:ALA:N	1:A:225:GLU:HG2	2.19	0.45
1:A:277:MET:HG2	1:A:403:TYR:CD2	2.51	0.45
1:B:144:ASP:O	1:B:207:HIS:HB2	2.16	0.45
1:B:276:ILE:HA	1:B:276:ILE:HD13	1.86	0.45
1:B:276:ILE:HG22	1:B:279:TYR:HD2	1.81	0.45
1:B:181:PRO:HG2	1:B:370:ILE:HG22	1.98	0.45
1:B:67:MET:HA	1:B:67:MET:CE	2.46	0.45
1:A:165:LYS:HA	1:A:165:LYS:HD2	1.73	0.44
1:A:55:ASN:ND2	1:A:118:GLN:HE22	2.14	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:38:ALA:HB2	1:A:125:ALA:CB	2.47	0.44
1:B:67:MET:SD	1:B:68:PRO:HD2	2.57	0.44
1:A:220:SER:HA	1:A:406:ARG:CZ	2.47	0.44
1:B:270:PHE:O	1:B:273:GLN:HB3	2.17	0.44
1:A:148:VAL:CG2	1:A:203:ASN:HB3	2.48	0.44
1:A:94:LYS:HB2	1:A:190:THR:OG1	2.17	0.44
1:A:360:LYS:HG2	1:A:360:LYS:O	2.17	0.44
1:A:354:HIS:ND1	1:A:365:MET:CE	2.81	0.44
1:B:260:PHE:CE2	1:B:415:LEU:HD11	2.52	0.44
1:A:84:PHE:CE2	1:A:85:ASN:HB2	2.53	0.44
1:B:177:ASN:HD21	1:B:263:LYS:HE2	1.83	0.44
1:A:103:PHE:HZ	1:A:160:MET:CE	2.30	0.43
1:A:245:ASN:OD1	1:A:246:GLU:HG3	2.18	0.43
1:A:112:ILE:HD12	1:A:184:LEU:CD2	2.47	0.43
1:A:399:ASN:ND2	1:A:402:GLN:H	2.16	0.43
1:B:160:MET:HG3	1:B:186:MET:HE3	2.00	0.43
1:B:288:VAL:O	1:B:291:ALA:HB3	2.19	0.43
1:A:250:LEU:HG	1:A:414:ILE:CG2	2.47	0.43
1:A:48:TRP:CD1	1:A:89:LEU:HD11	2.54	0.43
1:B:249:LYS:HB3	1:B:251:HIS:HE1	1.75	0.43
1:B:60:VAL:O	1:B:104:ARG:NH2	2.50	0.43
1:B:60:VAL:O	1:B:60:VAL:HG22	2.17	0.43
1:B:288:VAL:HB	1:B:360:LYS:HB3	1.99	0.43
1:A:215:TYR:O	1:A:282:LEU:HD23	2.18	0.43
1:A:415:LEU:HD23	1:A:415:LEU:N	2.29	0.43
1:A:188:ARG:HD2	1:A:195:GLU:OE2	2.19	0.42
1:B:160:MET:HE3	1:B:164:LEU:HD13	2.00	0.42
1:A:109:ARG:HH12	1:A:172:VAL:HG13	1.85	0.42
1:A:277:MET:HG3	1:A:400:PRO:HA	2.00	0.42
1:A:49:GLY:HA3	1:A:95:PHE:CZ	2.55	0.42
1:A:60:VAL:HA	1:A:61:PRO:HD2	1.82	0.42
1:B:271:LEU:HB3	1:B:276:ILE:HB	2.01	0.42
1:B:94:LYS:HB2	1:B:190:THR:OG1	2.20	0.42
1:B:205:PHE:CD1	1:B:211:VAL:HG21	2.54	0.42
1:B:169:GLN:O	1:B:172:VAL:HB	2.20	0.42
1:B:190:THR:HG22	1:B:195:GLU:HA	2.02	0.42
1:B:217:LEU:CD2	1:B:240:ASP:HA	2.50	0.42
1:A:234:ASP:HB3	1:A:235:LEU:H	1.77	0.42
1:A:169:GLN:O	1:A:172:VAL:HB	2.19	0.41
1:A:182:GLN:NE2	1:A:352:LYS:NZ	2.68	0.41
1:A:250:LEU:O	1:A:415:LEU:HA	2.19	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:245:ASN:OD1	1:B:246:GLU:N	2.53	0.41
1:B:257:LYS:HE3	1:B:415:LEU:HB2	2.01	0.41
1:A:278:ASP:N	1:A:403:TYR:HE2	2.17	0.41
1:B:215:TYR:CE2	1:B:243:PHE:HB2	2.55	0.41
1:A:157:VAL:HA	1:A:186:MET:CE	2.42	0.41
1:A:398:VAL:HG21	1:A:406:ARG:NH1	2.36	0.41
1:B:42:ILE:CD1	1:B:196:THR:HG21	2.50	0.41
1:A:353:SER:HA	1:A:363:TYR:O	2.21	0.41
1:A:278:ASP:N	1:A:403:TYR:CE2	2.89	0.41
1:A:208:ARG:HH22	1:A:345:SER:HA	1.85	0.41
1:A:399:ASN:HB2	1:A:400:PRO:HD2	2.02	0.41
1:B:47:MET:HG2	1:B:121:VAL:O	2.21	0.41
1:B:41:PRO:HB3	1:B:90:PRO:HG3	2.02	0.41
1:A:222:VAL:HA	1:A:225:GLU:CG	2.51	0.41
1:A:288:VAL:O	1:A:291:ALA:HB3	2.21	0.41
1:B:210:THR:O	1:B:286:HIS:CD2	2.71	0.41
1:B:152:VAL:HB	1:B:156:ASP:HB2	2.02	0.41
1:B:226:ALA:HA	1:B:242:ASP:OD2	2.21	0.40
1:B:215:TYR:HA	1:B:238:PHE:O	2.21	0.40
1:A:188:ARG:HA	1:A:196:THR:O	2.21	0.40
1:B:353:SER:OG	1:B:364:PHE:HE2	2.03	0.40
1:B:49:GLY:HA3	1:B:95:PHE:CZ	2.56	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	318/416 (76%)	268 (84%)	39 (12%)	11 (4%)	4	22
1	B	312/416 (75%)	266 (85%)	34 (11%)	12 (4%)	3	20
All	All	630/832 (76%)	534 (85%)	73 (12%)	23 (4%)	4	21

All (23) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	222	VAL
1	A	232	ALA
1	A	396	SER
1	B	222	VAL
1	B	275	LYS
1	B	347	ASP
1	B	350	ALA
1	B	358	PRO
1	B	360	LYS
1	A	223	ALA
1	A	228	ASP
1	A	234	ASP
1	A	275	LYS
1	B	130	ASP
1	B	278	ASP
1	A	343	ASP
1	B	225	GLU
1	B	344	PRO
1	B	400	PRO
1	A	233	LYS
1	A	274	LEU
1	A	352	LYS
1	B	248	GLN

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	302/374 (81%)	283 (94%)	19 (6%)	20 55
1	B	295/374 (79%)	271 (92%)	24 (8%)	13 43
All	All	597/748 (80%)	554 (93%)	43 (7%)	16 49

All (43) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	34	LYS
1	A	54	ILE
1	A	60	VAL
1	A	85	ASN
1	A	86	LYS
1	A	109	ARG
1	A	165	LYS
1	A	189	LEU
1	A	210	THR
1	A	227	SER
1	A	249	LYS
1	A	250	LEU
1	A	251	HIS
1	A	266	ARG
1	A	282	LEU
1	A	304	ASP
1	A	351	MET
1	A	354	HIS
1	A	415	LEU
1	B	54	ILE
1	B	60	VAL
1	B	85	ASN
1	B	86	LYS
1	B	109	ARG
1	B	134	ARG
1	B	189	LEU
1	B	210	THR
1	B	234	ASP
1	B	249	LYS
1	B	250	LEU
1	B	251	HIS
1	B	266	ARG
1	B	274	LEU
1	B	282	LEU
1	B	343	ASP
1	B	344	PRO
1	B	354	HIS
1	B	368	ILE
1	B	369	ASP
1	B	370	ILE
1	B	399	ASN
1	B	400	PRO
1	B	409	GLU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (23) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	51	ASN
1	A	55	ASN
1	A	81	ASN
1	A	85	ASN
1	A	118	GLN
1	A	119	ASN
1	A	169	GLN
1	A	212	HIS
1	A	241	ASN
1	A	259	ASN
1	A	286	HIS
1	A	399	ASN
1	B	51	ASN
1	B	55	ASN
1	B	81	ASN
1	B	85	ASN
1	B	118	GLN
1	B	119	ASN
1	B	132	GLN
1	B	212	HIS
1	B	251	HIS
1	B	273	GLN
1	B	286	HIS

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 carbohydrates 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](#)

EDS was not executed - this section is therefore empty.

6.2 Non-standard residues in protein, DNA, RNA chains [i](#)

EDS was not executed - this section is therefore empty.

6.3 Carbohydrates [i](#)

EDS was not executed - this section is therefore empty.

6.4 Ligands [i](#)

EDS was not executed - this section is therefore empty.

6.5 Other polymers [i](#)

EDS was not executed - this section is therefore empty.