



# Full wwPDB X-ray Structure Validation Report ⓘ

Apr 4, 2014 – 10:28 AM EDT

PDB ID : 4HND  
Title : Crystal structure of the catalytic domain of Selenomethionine substituted human PI4KIIalpha in complex with ADP  
Authors : Zhou, Q.; Zhai, Y.; Zhang, K.; Chen, C.; Sun, F.  
Deposited on : 2012-10-19  
Resolution : 3.20 Å(reported)

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

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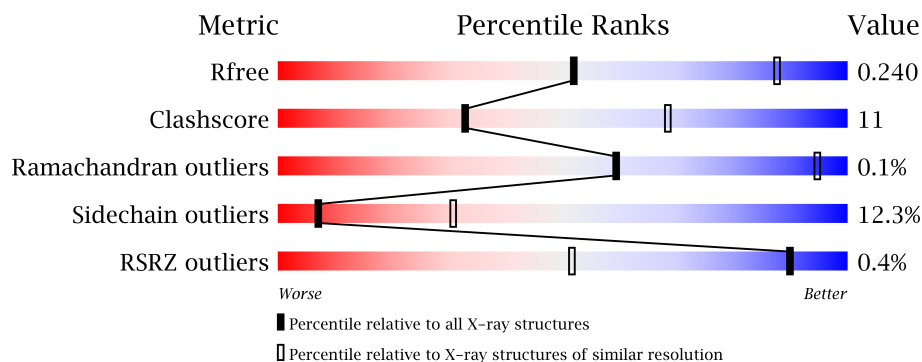
The following versions of software and data (see [references](#)) were used in the production of this report:

MolProbity : 4.02b-467  
Mogul : **FAILED**  
Xtriage (Phenix) : dev-1439  
EDS : stable22978  
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) : stable22978

# 1 Overall quality at a glance


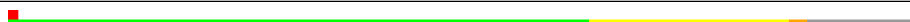
The reported resolution of this entry is 3.20 Å.

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))
$R_{free}$	66092	1824 (3.30-3.10)
Clashscore	79885	1078 (3.26-3.14)
Ramachandran outliers	78287	1059 (3.26-3.14)
Sidechain outliers	78261	1058 (3.26-3.14)
RSRZ outliers	66119	1825 (3.30-3.10)

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 on the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 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	384	
1	B	384	

## 2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 5649 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.

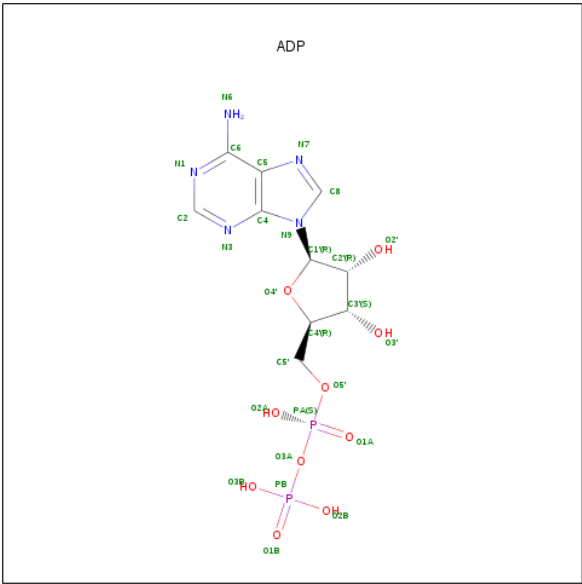
- Molecule 1 is a protein called Phosphatidylinositol 4-kinase type 2-alpha.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	353	Total	C	N	O	S	Se	4	0	0
			2867	1853	498	511	3	2			
1	B	337	Total	C	N	O	S	Se	12	0	0
			2728	1763	467	493	3	2			

There are 24 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	70	GLY	-	EXPRESSION TAG	UNP Q9BTU6
A	71	PRO	-	EXPRESSION TAG	UNP Q9BTU6
A	72	LEU	-	EXPRESSION TAG	UNP Q9BTU6
A	73	GLY	-	EXPRESSION TAG	UNP Q9BTU6
A	74	SER	-	EXPRESSION TAG	UNP Q9BTU6
A	75	PRO	-	EXPRESSION TAG	UNP Q9BTU6
A	76	GLU	-	EXPRESSION TAG	UNP Q9BTU6
A	77	PHE	-	EXPRESSION TAG	UNP Q9BTU6
A	174	SER	CYS	ENGINEERED MUTATION	UNP Q9BTU6
A	175	SER	CYS	ENGINEERED MUTATION	UNP Q9BTU6
A	177	SER	CYS	ENGINEERED MUTATION	UNP Q9BTU6
A	178	SER	CYS	ENGINEERED MUTATION	UNP Q9BTU6
B	70	GLY	-	EXPRESSION TAG	UNP Q9BTU6
B	71	PRO	-	EXPRESSION TAG	UNP Q9BTU6
B	72	LEU	-	EXPRESSION TAG	UNP Q9BTU6
B	73	GLY	-	EXPRESSION TAG	UNP Q9BTU6
B	74	SER	-	EXPRESSION TAG	UNP Q9BTU6
B	75	PRO	-	EXPRESSION TAG	UNP Q9BTU6
B	76	GLU	-	EXPRESSION TAG	UNP Q9BTU6
B	77	PHE	-	EXPRESSION TAG	UNP Q9BTU6
B	174	SER	CYS	ENGINEERED MUTATION	UNP Q9BTU6
B	175	SER	CYS	ENGINEERED MUTATION	UNP Q9BTU6
B	177	SER	CYS	ENGINEERED MUTATION	UNP Q9BTU6
B	178	SER	CYS	ENGINEERED MUTATION	UNP Q9BTU6

- Molecule 2 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula:  $C_{10}H_{15}N_5O_{10}P_2$ ).



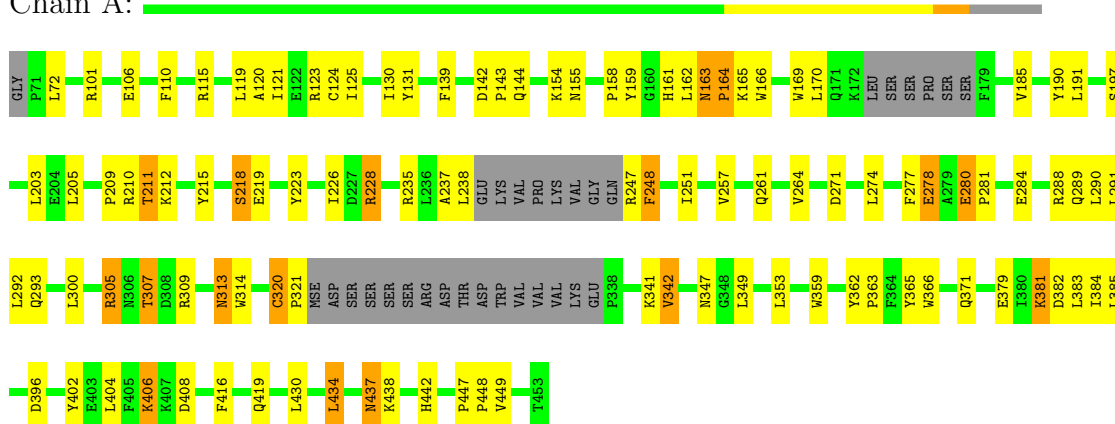
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			27	10	5	10	2		
2	B	1	Total	C	N	O	P	0	0
			27	10	5	10	2		

### 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.

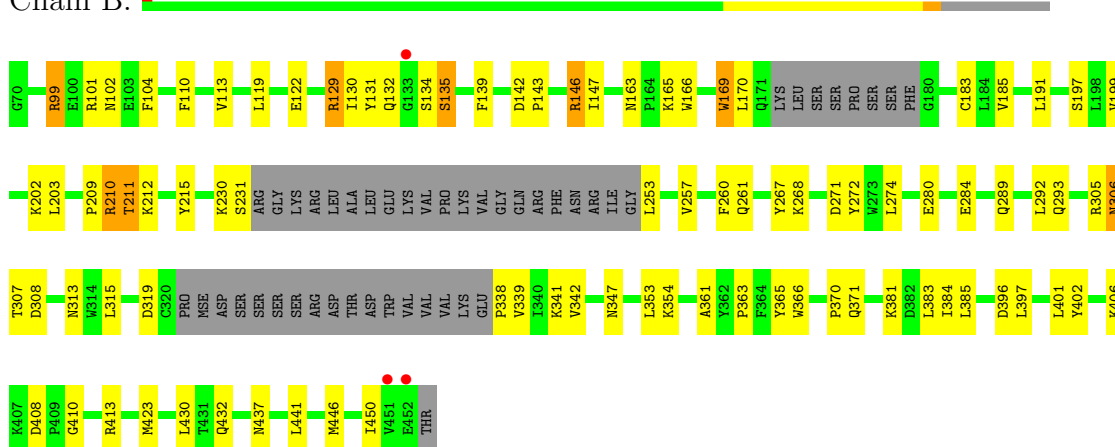
- Molecule 1: Phosphatidylinositol 4-kinase type 2-alpha

Chain A:



- Molecule 1: Phosphatidylinositol 4-kinase type 2-alpha

Chain B:



## 4 Data and refinement statistics

Property	Value	Source
Space group	I 4 2 2	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	192.95Å 192.95Å 157.87Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	136.44 – 3.20 45.48 – 3.20	Depositor EDS
% Data completeness (in resolution range)	100.0 (136.44-3.20) 99.8 (45.48-3.20)	Depositor EDS
$R_{merge}$	0.17	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.78 (at 3.19Å)	Xtriage
Refinement program	REFMAC 5.6.0117	Depositor
R, $R_{free}$	0.193 , 0.238 0.196 , 0.240	Depositor DCC
$R_{free}$ test set	1256 reflections (5.35%)	DCC
Wilson B-factor (Å <sup>2</sup> )	74.6	Xtriage
Anisotropy	0.224	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.29 , 32.8	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtriage
Outliers	0 of 24739 reflections	Xtriage
$F_o, F_c$ correlation	0.93	EDS
Total number of atoms	5649	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	81.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.20% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities 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: ADP

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	0.59	5/2941 (0.2%)	0.64	0/3983
1	B	0.53	3/2799 (0.1%)	0.62	0/3796
All	All	0.56	8/5740 (0.1%)	0.63	0/7779

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	366	TRP	CD2-CE2	5.72	1.48	1.41
1	A	359	TRP	CD2-CE2	5.65	1.48	1.41
1	A	314	TRP	CD2-CE2	5.31	1.47	1.41
1	A	366	TRP	CD2-CE2	5.27	1.47	1.41
1	A	169	TRP	CD2-CE2	5.14	1.47	1.41
1	B	166	TRP	CD2-CE2	5.14	1.47	1.41
1	A	166	TRP	CD2-CE2	5.13	1.47	1.41
1	B	169	TRP	CD2-CE2	5.02	1.47	1.41

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

### 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	2867	0	2856	61	0
1	B	2728	0	2698	65	1
2	A	27	0	12	0	0
2	B	27	0	12	0	0
All	All	5649	0	5578	125	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 11.

All (125) close contacts within the same asymmetric unit are listed below.

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:129:ARG:HD2	1:B:134:SER:O	1.42	1.19
1:A:280:GLU:HG2	1:A:280:GLU:O	1.48	1.08
1:B:130:ILE:CD1	1:B:139:PHE:CE2	2.42	1.02
1:A:402:TYR:O	1:A:406:LYS:HG2	1.64	0.95
1:B:130:ILE:CD1	1:B:139:PHE:CZ	2.51	0.93
1:A:278:GLU:OE1	1:A:278:GLU:HA	1.69	0.90
1:A:307:THR:HB	1:A:349:LEU:O	1.73	0.89
1:B:130:ILE:HD13	1:B:139:PHE:CD2	2.09	0.88
1:B:130:ILE:HD11	1:B:139:PHE:CE1	2.10	0.86
1:A:320:CYS:HB2	1:A:321:PRO:HD3	1.57	0.85
1:B:130:ILE:HD12	1:B:139:PHE:CZ	2.13	0.83
1:A:402:TYR:O	1:A:406:LYS:CG	2.28	0.81
1:B:129:ARG:HG2	1:B:131:TYR:O	1.80	0.81
1:A:278:GLU:OE1	1:A:278:GLU:CA	2.29	0.81
1:A:438:LYS:NZ	1:A:442:HIS:HB3	1.97	0.80
1:B:129:ARG:CD	1:B:134:SER:O	2.30	0.79
1:B:130:ILE:CD1	1:B:139:PHE:CD2	2.66	0.78
1:B:130:ILE:HD11	1:B:139:PHE:CD1	2.18	0.77
1:B:130:ILE:HD13	1:B:139:PHE:CE2	2.15	0.77
1:B:185:VAL:HG23	1:B:353:LEU:HD23	1.67	0.77
1:B:129:ARG:HH21	1:B:135:SER:CB	1.97	0.76
1:B:102:ASN:HD21	1:B:215:TYR:H	1.31	0.76
1:A:305:ARG:HG3	1:A:305:ARG:O	1.86	0.75
1:A:197:SER:HB2	1:A:211:THR:HG23	1.70	0.73
1:B:110:PHE:CE2	1:B:212:LYS:HB2	2.25	0.71
1:B:306:ASN:HD22	1:B:307:THR:N	1.89	0.71
1:B:130:ILE:HD12	1:B:139:PHE:CE2	2.24	0.70
1:B:306:ASN:ND2	1:B:308:ASP:H	1.90	0.69
1:A:293:GLN:HB3	1:A:342:VAL:HG13	1.74	0.69
1:B:130:ILE:HD11	1:B:139:PHE:CZ	2.26	0.68
1:A:438:LYS:HZ3	1:A:442:HIS:HB3	1.59	0.68
1:B:211:THR:HG22	1:B:261:GLN:HG3	1.76	0.68

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:402:TYR:CE2	1:A:406:LYS:HD2	2.32	0.65
1:A:381:LYS:O	1:A:385:LEU:HB2	1.97	0.65
1:B:129:ARG:NH2	1:B:135:SER:OG	2.30	0.65
1:B:271:ASP:HA	1:B:274:LEU:HB2	1.80	0.64
1:B:146:ARG:HD3	1:B:146:ARG:H	1.63	0.63
1:A:211:THR:HB	1:A:261:GLN:HA	1.81	0.62
1:B:110:PHE:HE2	1:B:212:LYS:HB2	1.64	0.62
1:A:280:GLU:CG	1:A:280:GLU:O	2.30	0.61
1:A:185:VAL:HG12	1:A:353:LEU:HD23	1.83	0.60
1:A:209:PRO:O	1:A:211:THR:HG22	2.02	0.59
1:B:305:ARG:HG3	1:B:305:ARG:O	2.02	0.59
1:B:401:LEU:HD11	1:B:423:MSE:HE1	1.84	0.59
1:A:164:PRO:O	1:A:165:LYS:C	2.39	0.59
1:B:129:ARG:HH21	1:B:135:SER:HB3	1.66	0.59
1:A:284:GLU:OE2	1:B:284:GLU:OE1	2.21	0.59
1:B:432:GLN:HB3	1:B:446:MSE:HE1	1.86	0.56
1:A:211:THR:HG21	1:A:261:GLN:HE21	1.69	0.56
1:A:438:LYS:HZ2	1:A:442:HIS:HB3	1.70	0.56
1:B:129:ARG:NH2	1:B:135:SER:CB	2.67	0.56
1:A:309:ARG:HH12	1:A:347:ASN:ND2	2.04	0.56
1:A:381:LYS:NZ	1:A:437:ASN:HD22	2.05	0.55
1:B:130:ILE:HD11	1:B:139:PHE:CG	2.41	0.55
1:A:416:PHE:HA	1:A:419:GLN:HE21	1.71	0.55
1:B:268:LYS:HD2	1:B:272:TYR:CE2	2.42	0.54
1:A:219:GLU:O	1:A:228:ARG:NH2	2.41	0.54
1:B:130:ILE:HG22	1:B:131:TYR:CD1	2.43	0.54
1:B:402:TYR:CE2	1:B:406:LYS:HD3	2.43	0.53
1:A:72:LEU:H	1:A:72:LEU:HD12	1.75	0.52
1:B:199:VAL:HG22	1:B:397:LEU:HD11	1.91	0.52
1:A:191:LEU:HD11	1:A:408:ASP:HB2	1.90	0.52
1:B:110:PHE:CD2	1:B:212:LYS:HD2	2.45	0.52
1:B:129:ARG:NH2	1:B:135:SER:HB3	2.24	0.51
1:A:158:PRO:HB2	1:A:159:TYR:CD2	2.45	0.51
1:A:363:PRO:HG2	1:A:365:TYR:CE1	2.45	0.51
1:A:278:GLU:O	1:A:278:GLU:OE1	2.29	0.51
1:B:129:ARG:HD3	1:B:135:SER:HA	1.93	0.50
1:A:320:CYS:HB2	1:A:321:PRO:CD	2.36	0.50
1:A:305:ARG:NH2	1:A:362:TYR:O	2.44	0.50
1:B:210:ARG:NH1	1:B:210:ARG:HB2	2.27	0.50
1:B:210:ARG:HH11	1:B:210:ARG:HB2	1.77	0.49
1:B:381:LYS:HD2	1:B:437:ASN:OD1	2.13	0.48
1:B:130:ILE:CD1	1:B:139:PHE:CG	2.96	0.48

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:237:ALA:HB2	1:A:251:ILE:HD11	1.96	0.48
1:B:191:LEU:HD11	1:B:408:ASP:HB2	1.96	0.48
1:B:99:ARG:HG3	1:B:101:ARG:HG3	1.96	0.48
1:B:306:ASN:HD22	1:B:306:ASN:C	2.16	0.47
1:A:163:ASN:HB3	1:A:164:PRO:HD3	1.96	0.47
1:A:309:ARG:HH12	1:A:347:ASN:HD21	1.61	0.47
1:B:183:CYS:HB2	1:B:354:LYS:HG3	1.96	0.47
1:B:408:ASP:C	1:B:410:GLY:H	2.18	0.47
1:A:215:TYR:CE2	1:A:257:VAL:HB	2.50	0.46
1:B:211:THR:HG21	1:B:261:GLN:HE21	1.81	0.46
1:B:197:SER:HB2	1:B:211:THR:HG23	1.97	0.46
1:B:402:TYR:CZ	1:B:406:LYS:HD3	2.50	0.46
1:A:142:ASP:HB2	1:A:143:PRO:CD	2.46	0.46
1:A:120:ALA:HB1	1:A:125:ILE:HB	1.98	0.46
1:B:230:LYS:O	1:B:230:LYS:HG2	2.16	0.46
1:A:406:LYS:HE2	1:A:406:LYS:HB2	1.53	0.45
1:A:123:ARG:O	1:A:124:CYS:HB2	2.17	0.45
1:B:209:PRO:O	1:B:211:THR:HG22	2.17	0.45
1:B:202:LYS:NZ	1:B:396:ASP:HB3	2.32	0.45
1:A:154:LYS:HD2	1:A:190:TYR:CE1	2.53	0.44
1:A:277:PHE:O	1:A:280:GLU:O	2.35	0.44
1:A:320:CYS:CB	1:A:321:PRO:HD3	2.39	0.44
1:A:434:LEU:HD12	1:A:434:LEU:HA	1.80	0.44
1:B:363:PRO:HG2	1:B:365:TYR:CE1	2.53	0.44
1:A:161:HIS:CD2	1:A:162:LEU:HG	2.53	0.44
1:B:202:LYS:HZ3	1:B:396:ASP:HB3	1.82	0.43
1:B:163:ASN:HD22	1:B:165:LYS:HB2	1.83	0.43
1:A:271:ASP:HA	1:A:274:LEU:HB2	2.00	0.43
1:A:110:PHE:CD2	1:A:212:LYS:HD2	2.54	0.42
1:A:218:SER:O	1:A:223:TYR:HE2	2.01	0.42
1:A:291:LEU:HD21	1:A:371:GLN:HG3	2.01	0.42
1:B:147:ILE:H	1:B:147:ILE:HD12	1.84	0.42
1:B:211:THR:HA	1:B:260:PHE:O	2.19	0.42
1:A:248:PHE:HD1	1:A:248:PHE:HA	1.69	0.42
1:A:130:ILE:HG12	1:A:139:PHE:CD2	2.55	0.42
1:A:385:LEU:HA	1:A:385:LEU:HD23	1.85	0.41
1:A:205:LEU:HD21	1:A:384:ILE:HD11	2.02	0.41
1:A:130:ILE:HG12	1:A:139:PHE:CE2	2.56	0.41
1:A:291:LEU:HD23	1:A:291:LEU:HA	1.83	0.41
1:B:142:ASP:OD1	1:B:143:PRO:HD2	2.20	0.41
1:A:313:ASN:HA	1:A:313:ASN:HD22	1.46	0.41
1:A:447:PRO:HA	1:A:448:PRO:HD3	1.80	0.41

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:101:ARG:O	1:A:115:ARG:NH1	2.53	0.41
1:B:370:PRO:HG2	1:B:371:GLN:OE1	2.21	0.41
1:A:288:ARG:NH2	1:A:379:GLU:OE2	2.54	0.41
1:B:284:GLU:HA	1:B:284:GLU:OE2	2.21	0.40
1:A:238:LEU:HD13	1:A:248:PHE:CE1	2.56	0.40
1:B:293:GLN:HB3	1:B:342:VAL:HG13	2.04	0.40
1:B:215:TYR:CE2	1:B:257:VAL:HB	2.56	0.40
1:B:267:TYR:HB3	1:B:315:LEU:HB3	2.03	0.40
1:B:385:LEU:HD23	1:B:385:LEU:HA	1.81	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:B:361:ALA:O	1:B:361:ALA:O[8_555]	1.86	0.34

## 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	345/384 (90%)	331 (96%)	13 (4%)	1 (0%)	50	91
1	B	329/384 (86%)	312 (95%)	17 (5%)	0	100	100
All	All	674/768 (88%)	643 (95%)	30 (4%)	1 (0%)	59	95

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	164	PRO

### 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	303/329 (92%)	262 (86%)	41 (14%)	6	26
1	B	289/329 (88%)	257 (89%)	32 (11%)	9	36
All	All	592/658 (90%)	519 (88%)	73 (12%)	7	31

All (73) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	106	GLU
1	A	119	LEU
1	A	121	ILE
1	A	131	TYR
1	A	144	GLN
1	A	155	ASN
1	A	163	ASN
1	A	170	LEU
1	A	203	LEU
1	A	210	ARG
1	A	211	THR
1	A	218	SER
1	A	226	ILE
1	A	228	ARG
1	A	235	ARG
1	A	247	ARG
1	A	248	PHE
1	A	264	VAL
1	A	278	GLU
1	A	280	GLU
1	A	281	PRO
1	A	289	GLN
1	A	290	LEU
1	A	292	LEU
1	A	300	LEU
1	A	305	ARG
1	A	307	THR
1	A	313	ASN
1	A	320	CYS
1	A	341	LYS
1	A	342	VAL
1	A	381	LYS
1	A	382	ASP
1	A	383	LEU

*Continued on next page...*

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Mol	Chain	Res	Type
1	A	396	ASP
1	A	404	LEU
1	A	406	LYS
1	A	430	LEU
1	A	434	LEU
1	A	437	ASN
1	A	449	VAL
1	B	99	ARG
1	B	104	PHE
1	B	113	VAL
1	B	119	LEU
1	B	122	GLU
1	B	129	ARG
1	B	132	GLN
1	B	135	SER
1	B	146	ARG
1	B	169	TRP
1	B	170	LEU
1	B	203	LEU
1	B	210	ARG
1	B	211	THR
1	B	231	SER
1	B	253	LEU
1	B	280	GLU
1	B	289	GLN
1	B	292	LEU
1	B	306	ASN
1	B	313	ASN
1	B	319	ASP
1	B	338	PRO
1	B	339	VAL
1	B	341	LYS
1	B	347	ASN
1	B	383	LEU
1	B	384	ILE
1	B	413	ARG
1	B	430	LEU
1	B	441	LEU
1	B	450	ILE

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

Mol	Chain	Res	Type
1	A	155	ASN
1	A	163	ASN
1	A	261	GLN
1	A	313	ASN
1	A	347	ASN
1	A	419	GLN
1	A	426	GLN
1	A	437	ASN
1	A	445	GLN
1	B	96	GLN
1	B	102	ASN
1	B	163	ASN
1	B	206	ASN
1	B	261	GLN
1	B	306	ASN
1	B	347	ASN
1	B	419	GLN
1	B	429	ASN
1	B	445	GLN

### 5.3.3 RNA ⓘ

There are no RNA chains in this entry.

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

Mogul failed to run properly - this section will therefore be empty.

## 5.5 Carbohydrates ⓘ

Mogul failed to run properly - this section will therefore be empty.

## 5.6 Ligand geometry ⓘ

Mogul failed to run properly - this section will therefore be empty.

## 5.7 Other polymers ⓘ

Mogul failed to run properly - this section will therefore be empty.

## 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, 95<sup>th</sup> percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2		OWAB(Å <sup>2</sup> )	Q<0.9
1	A	353/384 (91%)	-0.18	0	100 100	41, 68, 138, 202	1 (0%)
1	B	337/384 (87%)	-0.07	3 (0%)	81 32	41, 76, 151, 226	3 (0%)
All	All	690/768 (89%)	-0.12	3 (0%)	90 51	41, 72, 150, 226	4 (0%)

All (3) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	452	GLU	4.1
1	B	451	VAL	2.8
1	B	133	GLY	2.7

### 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, 95<sup>th</sup> 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( $\text{\AA}^2$ )	Q<0.9
2	ADP	A	500	27/27	0.28	0.99	72,79,140,146	0
2	ADP	B	500	27/27	0.28	0.72	104,109,138,149	0

## 6.5 Other polymers ⓘ

There are no such residues in this entry.