



# Full wwPDB X-ray Structure Validation Report ⓘ

Sep 27, 2017 – 02:28 AM EDT

PDB ID : 1EH4  
Title : BINARY COMPLEX OF CASEIN KINASE-1 FROM S. POMBE WITH AN  
ATP COMPETITIVE INHIBITOR, IC261  
Authors : Mashhoon, N.; Demaggio, A.J.; Tereshko, V.; Bergmeier, S.C.; Egli, M.; Hoek-  
stra, M.F.; Kuret, J.  
Deposited on : unknown  
Resolution : 2.80 Å(reported)

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

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<http://wwpdb.org/validation/2016/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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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 : 1.7.2 (RC1), CSD as538be (2017)  
Xtriage (Phenix) : 1.9-1692  
EDS : rb-20030345  
Percentile statistics : 20161228.v01 (using entries in the PDB archive December 28th 2016)  
Refmac : 5.8.0135  
CCP4 : 6.5.0  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : rb-20030345

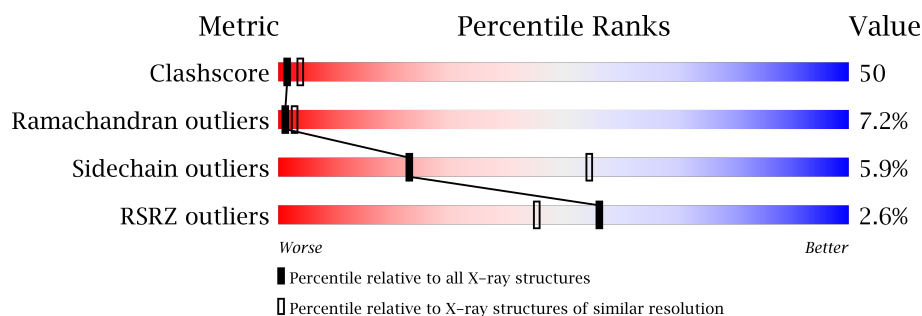
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

## *X-RAY DIFFRACTION*

The reported resolution of this entry is 2.80 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	112137	3033 (2.80-2.80)
Ramachandran outliers	110173	2983 (2.80-2.80)
Sidechain outliers	110143	2985 (2.80-2.80)
RSRZ outliers	101464	2610 (2.80-2.80)

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. 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	298	<div> <div>3%</div> <div>34%</div> <div>54%</div> <div>9%</div> <div>..</div> </div>
1	B	298	<div> <div>2%</div> <div>36%</div> <div>54%</div> <div>7%</div> <div>..</div> </div>

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	IC1	A	300	-	-	-	X
3	IC1	B	400	-	-	-	X

## 2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 4918 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 CASEIN KINASE-1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	293	Total	C	N	O	S	0	0	0
			2385	1522	421	432	10			
1	B	293	Total	C	N	O	S	0	0	0
			2385	1522	421	432	10			

- Molecule 2 is SULFATE ION (three-letter code: SO4) (formula: O<sub>4</sub>S).



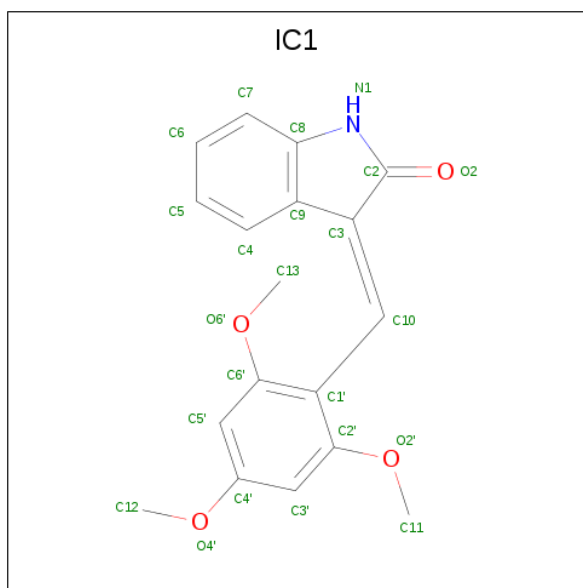
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	O	S	0	0
			5	4	1		
2	A	1	Total	O	S	0	0
			5	4	1		
2	A	1	Total	O	S	0	0
			5	4	1		
2	A	1	Total	O	S	0	0
			5	4	1		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	O	S	0	0
			5	4	1		
2	A	1	Total	O	S	0	0
			5	4	1		
2	B	1	Total	O	S	0	0
			5	4	1		
2	B	1	Total	O	S	0	0
			5	4	1		
2	B	1	Total	O	S	0	0
			5	4	1		
2	B	1	Total	O	S	0	0
			5	4	1		

- Molecule 3 is 3-[(2,4,6-TRIMETHOXY-PHENYL)-METHYLENE]-INDOLIN-2-ONE (three-letter code: IC1) (formula: C<sub>18</sub>H<sub>17</sub>NO<sub>4</sub>).



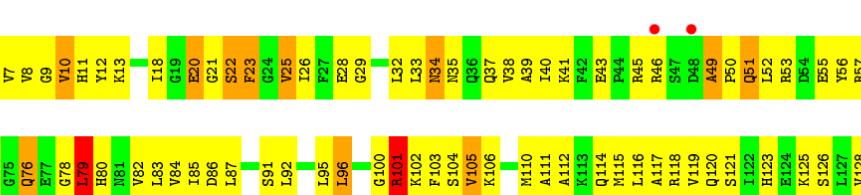
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total 23	C 18	N 1	O 4	0	0
3	B	1	Total 23	C 18	N 1	O 4	0	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	30	Total 30	O 30	0	0
4	B	17	Total 17	O 17	0	0

These plots are drawn for all protein, RNA and DNA 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 ( $\text{RSRZ} > 2$ ). 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.

Chain A:  34%  9% 54%



Chain B:

2% 36% 54% 7%

MET SER GLY GLN ASN H6 H7 H8 H9 H10 H11 H12 K13 K14 G15 R16 R17 H18 G19 E20 G21 S22 G23 G24 V25 I26 F27 E28 G29 N31 L32 L33 N34 N35 Q36 Q37 V38 A39 T40 K41 F42 E43 P44 R45 S47 D48 A49 P50 Q51 L52 R53 D54 E55 Y56 R57 T58 Y59 V60

## 4 Data and refinement statistics

Property	Value	Source
Space group	P 61	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	113.50Å 113.50Å 110.40Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	20.00 – 2.80 98.29 – 2.82	Depositor EDS
% Data completeness (in resolution range)	95.5 (20.00-2.80) 95.5 (98.29-2.82)	Depositor EDS
$R_{merge}$	0.11	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.11 (at 2.82Å)	Xtriage
Refinement program	CNS 0.5	Depositor
R, $R_{free}$	0.224 , 0.304 0.241 , (Not available)	Depositor DCC
$R_{free}$ test set	No test flags present.	DCC
Wilson B-factor (Å <sup>2</sup> )	31.0	Xtriage
Anisotropy	0.062	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.37 , 38.9	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.39$ , $\langle L^2 \rangle = 0.22$	Xtriage
Estimated twinning fraction	0.103 for h,-h-k,-l	Xtriage
$F_o, F_c$ correlation	0.90	EDS
Total number of atoms	4918	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	27.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 62.48 % of the origin peak, indicating pseudo translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo translational symmetry is equal to 1.1197e-05. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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

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

## 5 Model quality [i](#)

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

Bond lengths and bond angles in the following residue types are not validated in this section: IC1, SO4

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	0.41	0/2439	0.69	1/3289 (0.0%)
1	B	0.40	0/2439	0.68	0/3289
All	All	0.40	0/4878	0.68	1/6578 (0.0%)

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	B	0	1

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed( $^{\circ}$ )	Ideal( $^{\circ}$ )
1	A	79	LEU	CA-CB-CG	5.28	127.44	115.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	130	ARG	Sidechain

### 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	2385	0	2371	229	0
1	B	2385	0	2371	257	0
2	A	30	0	0	1	0
2	B	25	0	0	1	0
3	A	23	0	17	5	0
3	B	23	0	17	8	0
4	A	30	0	0	3	0
4	B	17	0	0	2	0
All	All	4918	0	4776	479	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 50.

All (479) 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:A:181:THR:HG22	4:A:404:HOH:O	1.45	1.13
1:A:138:LEU:HD21	3:A:300:IC1:H131	1.29	1.09
1:B:49:ALA:HB1	1:B:51:GLN:CD	1.77	1.05
1:B:44:PRO:HA	1:B:80:HIS:HA	1.37	1.02
1:B:49:ALA:HB1	1:B:51:GLN:CG	1.94	0.97
1:B:280:LYS:HE3	1:B:284:ARG:NH1	1.79	0.97
1:A:170:ILE:HB	1:A:171:PRO:HD2	1.44	0.97
1:B:138:LEU:HD21	3:B:400:IC1:H131	1.46	0.97
1:A:49:ALA:C	1:A:51:GLN:H	1.64	0.95
1:B:274:LEU:HA	1:B:277:LEU:HD12	1.52	0.92
1:A:181:THR:HA	4:A:410:HOH:O	1.71	0.91
1:A:173:ARG:HD2	1:A:176:LYS:HD3	1.54	0.90
1:A:191:LEU:HD11	1:B:32:LEU:HD13	1.53	0.90
1:B:45:ARG:HD3	4:B:409:HOH:O	1.70	0.89
1:B:222:LYS:HD3	1:B:229:LYS:HD2	1.54	0.89
1:B:49:ALA:HB1	1:B:51:GLN:HG2	1.54	0.88
1:B:48:ASP:O	1:B:49:ALA:HB2	1.72	0.87
1:B:49:ALA:C	1:B:51:GLN:H	1.78	0.86
1:B:134:PRO:HG3	1:B:207:VAL:HG13	1.57	0.86
1:B:221:LEU:HD12	1:B:233:ILE:HA	1.57	0.85
1:A:216:LEU:HD13	1:A:218:TRP:CZ2	2.11	0.85
1:A:145:LYS:NZ	1:A:146:ASN:HD21	1.77	0.83
1:B:264:ALA:HB3	1:B:267:ALA:HB2	1.60	0.83
1:B:173:ARG:HD2	1:B:174:GLU:H	1.45	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:53:ARG:HE	1:A:74:PHE:HE2	1.27	0.82
1:B:76:GLN:HG2	1:B:81:ASN:OD1	1.81	0.81
1:A:96:LEU:HD21	1:A:102:LYS:HA	1.62	0.81
1:B:31:ASN:HD21	1:B:33:LEU:HB2	1.45	0.81
1:A:170:ILE:CB	1:A:171:PRO:HD2	2.11	0.81
1:A:49:ALA:C	1:A:51:GLN:N	2.35	0.80
1:A:234:GLY:O	1:A:238:GLN:HG3	1.81	0.79
1:B:31:ASN:ND2	1:B:34:ASN:H	1.80	0.79
1:A:148:ASN:HB3	1:A:291:GLU:HG3	1.65	0.78
1:B:84:VAL:C	1:B:85:ILE:HD12	2.04	0.78
1:A:10:VAL:HG23	1:A:11:HIS:ND1	2.00	0.76
1:A:76:GLN:HB2	4:A:414:HOH:O	1.85	0.76
1:B:161:TYR:HA	1:B:170:ILE:HD13	1.68	0.76
1:B:53:ARG:O	1:B:56:TYR:HB3	1.86	0.76
1:A:37:GLN:CD	1:A:37:GLN:H	1.89	0.76
1:B:21:GLY:HA2	3:B:400:IC1:O4'	1.86	0.75
1:B:43:GLU:HG2	1:B:46:ARG:HH12	1.48	0.75
1:B:173:ARG:HE	1:B:175:LYS:HG2	1.52	0.74
1:A:56:TYR:CD1	1:A:71:VAL:HG21	2.22	0.74
1:A:221:LEU:HD12	1:A:233:ILE:HG13	1.69	0.74
1:A:41:LYS:HG2	1:A:52:LEU:HD21	1.70	0.73
1:B:44:PRO:HA	1:B:80:HIS:CA	2.16	0.73
1:B:114:GLN:O	1:B:118:ARG:HG2	1.88	0.73
1:A:177:ASN:O	1:A:178:LEU:HB3	1.88	0.73
1:B:53:ARG:HH21	1:B:57:ARG:CZ	2.01	0.73
1:B:59:TYR:CE2	1:B:69:PRO:HG2	2.24	0.73
1:A:145:LYS:HZ1	1:A:146:ASN:HD21	1.37	0.73
1:A:213:ARG:HH11	1:A:213:ARG:HB3	1.53	0.73
1:B:67:GLY:HA3	1:B:118:ARG:NE	2.03	0.73
1:B:106:LYS:O	1:B:110:MET:HG3	1.89	0.72
1:B:43:GLU:OE2	1:B:51:GLN:HA	1.89	0.72
1:B:222:LYS:HB3	1:B:229:LYS:HG3	1.71	0.72
1:B:241:PRO:HG2	1:B:244:GLU:CB	2.20	0.72
1:A:21:GLY:O	1:A:23:PHE:N	2.23	0.71
1:B:51:GLN:HA	1:B:51:GLN:OE1	1.89	0.71
1:A:187:ILE:HG21	1:B:32:LEU:HD22	1.70	0.71
1:A:238:GLN:HB3	1:B:13:LYS:HE3	1.72	0.71
1:A:130:ARG:HG2	1:A:195:GLN:HE21	1.55	0.71
1:A:11:HIS:CD2	1:A:33:LEU:HD12	2.26	0.71
1:B:222:LYS:HZ2	1:B:229:LYS:HE3	1.56	0.70
1:B:43:GLU:HG3	1:B:46:ARG:HH22	1.55	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:28:GLU:O	1:A:28:GLU:HG3	1.91	0.70
1:B:241:PRO:HG2	1:B:244:GLU:HB3	1.73	0.70
1:B:120:GLN:NE2	4:B:439:HOH:O	2.25	0.69
1:A:213:ARG:NH2	1:A:217:PRO:HG3	2.06	0.69
1:A:213:ARG:HH11	1:A:213:ARG:CB	2.05	0.69
1:B:26:ILE:N	1:B:26:ILE:HD12	2.06	0.69
1:B:183:ARG:HD2	1:B:184:TYR:CE1	2.28	0.69
1:B:173:ARG:CD	1:B:174:GLU:H	2.06	0.69
1:A:18:ILE:HD13	1:A:28:GLU:HB3	1.73	0.69
1:A:21:GLY:HA3	3:A:300:IC1:O4'	1.93	0.69
1:B:13:LYS:HZ2	1:B:32:LEU:CD2	2.06	0.69
1:B:34:ASN:OD1	1:B:36:GLN:HB3	1.93	0.69
1:B:100:GLY:O	1:B:101:ARG:HG2	1.93	0.68
1:A:61:LEU:HD22	1:A:125:LYS:HD2	1.76	0.68
1:A:259:TYR:CE1	1:A:263:LEU:HD11	2.28	0.67
1:A:49:ALA:N	1:A:50:PRO:CD	2.56	0.67
1:B:48:ASP:O	1:B:49:ALA:CB	2.43	0.67
1:A:53:ARG:HB2	1:A:74:PHE:CZ	2.29	0.67
1:A:287:THR:HG23	1:A:288:THR:N	2.10	0.67
1:B:229:LYS:HG2	1:B:233:ILE:CD1	2.24	0.67
1:A:202:GLU:OE2	1:A:261:ARG:HD3	1.94	0.66
1:B:9:GLY:HA2	1:B:73:TYR:CZ	2.31	0.66
1:B:31:ASN:HD22	1:B:34:ASN:H	1.40	0.66
1:A:259:TYR:CD1	1:A:263:LEU:HD11	2.32	0.65
1:A:120:GLN:HG3	1:A:271:TYR:CE2	2.31	0.65
1:B:128:VAL:HG23	1:B:130:ARG:HG3	1.78	0.65
1:B:222:LYS:HG3	1:B:223:ALA:H	1.61	0.65
1:B:106:LYS:CD	1:B:287:THR:HG21	2.26	0.65
1:B:169:HIS:ND1	1:B:266:ASP:HB3	2.12	0.64
1:A:13:LYS:HB3	1:A:32:LEU:HD21	1.78	0.64
1:A:9:GLY:O	1:A:11:HIS:N	2.27	0.64
1:B:173:ARG:NH2	1:B:175:LYS:HB3	2.12	0.64
1:A:52:LEU:HB2	1:A:74:PHE:HE1	1.62	0.64
1:B:176:LYS:HB3	1:B:192:GLY:HA2	1.79	0.64
1:B:229:LYS:HG2	1:B:233:ILE:HD11	1.80	0.64
1:B:130:ARG:HH21	1:B:176:LYS:NZ	1.97	0.63
1:A:74:PHE:HA	1:A:82:VAL:O	1.99	0.63
1:B:118:ARG:HB3	1:B:152:VAL:CG2	2.28	0.63
1:B:173:ARG:HH21	1:B:175:LYS:HB3	1.63	0.63
1:B:90:PRO:HG2	1:B:139:ILE:HD11	1.80	0.63
1:B:133:LYS:HE2	1:B:135:ASP:HB2	1.81	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:49:ALA:C	1:B:51:GLN:N	2.51	0.63
1:A:120:GLN:HG3	1:A:271:TYR:CD2	2.34	0.63
1:A:7:VAL:HG22	1:A:13:LYS:HG3	1.80	0.62
1:A:59:TYR:HE1	1:A:69:PRO:HG2	1.63	0.62
1:B:106:LYS:HD2	1:B:287:THR:HG21	1.81	0.62
1:B:161:TYR:HA	1:B:170:ILE:CD1	2.28	0.62
1:B:277:LEU:O	1:B:281:VAL:HG23	1.98	0.62
1:A:56:TYR:HD1	1:A:71:VAL:HG21	1.64	0.62
1:B:233:ILE:O	1:B:236:LYS:HB3	1.99	0.62
1:A:206:HIS:HE1	1:A:261:ARG:HH12	1.47	0.62
1:B:117:ALA:O	1:B:120:GLN:HB3	1.98	0.62
1:B:116:LEU:HD11	1:B:201:LEU:HD21	1.82	0.62
1:B:165:VAL:O	1:B:165:VAL:HG12	2.00	0.62
1:B:14:VAL:HG12	1:B:15:GLY:N	2.15	0.61
1:B:128:VAL:HG13	1:B:161:TYR:HB3	1.82	0.61
1:A:251:GLU:OE1	1:A:255:LYS:HE3	2.00	0.61
1:B:40:ILE:HD12	1:B:40:ILE:N	2.15	0.61
1:A:135:ASP:OD1	1:A:135:ASP:N	2.33	0.61
1:B:40:ILE:HG13	1:B:84:VAL:HG22	1.82	0.61
1:A:195:GLN:HA	1:A:199:ASP:OD2	2.00	0.61
1:B:13:LYS:NZ	1:B:32:LEU:HD23	2.15	0.61
1:A:51:GLN:C	1:A:53:ARG:N	2.53	0.60
1:A:185:MET:HE1	1:A:189:THR:HG22	1.83	0.60
1:B:48:ASP:CG	1:B:49:ALA:N	2.54	0.60
1:A:182:ALA:O	1:A:184:TYR:N	2.33	0.60
1:A:49:ALA:H	1:A:50:PRO:CD	2.14	0.60
1:B:161:TYR:CZ	1:B:197:ARG:HD3	2.37	0.60
1:B:43:GLU:HG2	1:B:46:ARG:NH1	2.16	0.60
1:B:84:VAL:O	1:B:85:ILE:HD12	2.02	0.60
1:A:183:ARG:HD2	1:A:184:TYR:CE1	2.37	0.60
1:A:220:GLY:O	1:A:221:LEU:HD23	2.03	0.59
1:B:222:LYS:HZ2	1:B:229:LYS:CE	2.15	0.59
1:A:130:ARG:HG2	1:A:195:GLN:NE2	2.18	0.59
1:B:195:GLN:HA	1:B:199:ASP:OD2	2.03	0.59
1:B:222:LYS:O	1:B:223:ALA:HB3	2.02	0.59
1:B:148:ASN:HB3	1:B:291:GLU:HG3	1.84	0.59
1:B:138:LEU:CD2	3:B:400:IC1:H131	2.29	0.59
1:B:52:LEU:HD21	1:B:83:LEU:CB	2.32	0.59
1:A:161:TYR:O	1:A:170:ILE:HD12	2.01	0.59
1:B:104:SER:O	1:B:108:VAL:HG23	2.03	0.59
1:B:222:LYS:HB3	1:B:229:LYS:CG	2.33	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:193:ARG:NH2	1:B:10:VAL:HA	2.17	0.58
1:B:49:ALA:CB	1:B:51:GLN:HG2	2.30	0.58
1:B:59:TYR:HE2	1:B:69:PRO:HG2	1.64	0.58
1:B:187:ILE:HD11	1:B:261:ARG:CZ	2.33	0.58
1:A:126:SER:HB3	1:A:162:ARG:HG3	1.85	0.58
1:A:57:ARG:HA	1:A:60:LYS:HD3	1.85	0.58
1:B:36:GLN:NE2	1:B:72:TYR:HE2	2.01	0.58
1:A:39:ALA:N	1:A:85:ILE:O	2.36	0.58
1:B:216:LEU:H	1:B:219:GLN:HE21	1.51	0.58
1:A:50:PRO:O	1:A:51:GLN:O	2.21	0.57
1:B:216:LEU:H	1:B:219:GLN:NE2	2.02	0.57
1:B:173:ARG:HE	1:B:175:LYS:CG	2.17	0.57
1:B:53:ARG:HH21	1:B:57:ARG:NH2	2.01	0.57
1:A:52:LEU:O	1:A:56:TYR:N	2.30	0.57
1:B:159:LYS:NZ	1:B:194:GLU:OE2	2.37	0.57
1:A:193:ARG:HH21	1:B:10:VAL:HA	1.70	0.57
1:B:128:VAL:HG22	1:B:159:LYS:O	2.04	0.57
1:B:17:ARG:HG3	1:B:27:PHE:CE2	2.39	0.57
1:A:60:LYS:O	1:A:63:ALA:HB3	2.05	0.57
1:B:201:LEU:HD11	1:B:269:PRO:HB3	1.86	0.57
1:A:269:PRO:O	1:A:271:TYR:CD1	2.57	0.56
1:A:110:MET:SD	1:A:290:ASP:O	2.63	0.56
1:B:106:LYS:HE3	1:B:287:THR:OG1	2.04	0.56
1:A:116:LEU:HD21	1:A:274:LEU:HB3	1.86	0.56
1:B:43:GLU:CG	1:B:46:ARG:HH12	2.19	0.56
1:A:118:ARG:HB3	1:A:152:VAL:CG2	2.36	0.56
1:A:221:LEU:HD12	1:A:233:ILE:CG1	2.35	0.56
1:B:43:GLU:HG3	1:B:46:ARG:NH2	2.19	0.56
1:A:49:ALA:O	1:A:51:GLN:N	2.37	0.56
1:B:241:PRO:HG2	1:B:244:GLU:HB2	1.87	0.56
1:A:161:TYR:CE1	1:A:162:ARG:HD3	2.41	0.55
1:B:51:GLN:OE1	1:B:51:GLN:CA	2.53	0.55
1:B:297:LEU:HD12	1:B:298:LEU:N	2.22	0.55
1:B:49:ALA:CB	1:B:51:GLN:CD	2.65	0.55
1:B:8:VAL:HG22	1:B:12:TYR:O	2.06	0.55
1:A:146:ASN:O	1:A:149:MET:N	2.39	0.55
1:B:9:GLY:C	1:B:10:VAL:HG23	2.27	0.55
1:B:69:PRO:HB2	1:B:85:ILE:HG23	1.87	0.55
1:A:126:SER:HB3	1:A:162:ARG:CG	2.36	0.55
1:A:174:GLU:O	1:A:174:GLU:HG2	2.06	0.55
1:A:298:LEU:HD12	1:A:298:LEU:N	2.22	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:212:LEU:HD11	1:B:253:PHE:CE2	2.42	0.55
1:A:227:LYS:HG2	1:A:227:LYS:O	2.07	0.55
1:A:252:GLU:HG2	1:A:277:LEU:O	2.05	0.55
1:A:23:PHE:CE2	1:A:50:PRO:HG2	2.42	0.55
1:A:252:GLU:N	1:A:252:GLU:OE1	2.35	0.55
1:B:85:ILE:CG2	1:B:86:ASP:N	2.69	0.55
1:B:47:SER:OG	1:B:48:ASP:N	2.39	0.55
1:B:85:ILE:HG22	1:B:86:ASP:N	2.21	0.54
1:A:55:GLU:OE2	1:A:59:TYR:HE2	1.90	0.54
1:B:130:ARG:NH2	1:B:176:LYS:NZ	2.55	0.54
1:B:229:LYS:HE2	1:B:233:ILE:HD11	1.88	0.54
1:A:205:GLY:HA2	1:A:208:PHE:CD2	2.43	0.54
1:B:11:HIS:HB2	1:B:32:LEU:HB2	1.87	0.54
1:B:56:TYR:CE2	1:B:60:LYS:HE2	2.42	0.54
1:A:49:ALA:H	1:A:50:PRO:HD3	1.72	0.54
1:A:100:GLY:C	1:A:101:ARG:HG3	2.26	0.54
1:A:22:SER:O	1:A:23:PHE:HB2	2.06	0.54
1:A:52:LEU:HB3	1:A:83:LEU:HB2	1.88	0.54
1:B:216:LEU:HD13	1:B:218:TRP:CZ2	2.43	0.54
1:B:113:LYS:NZ	1:B:275:GLN:HG3	2.23	0.53
1:B:218:TRP:HA	1:B:236:LYS:HG2	1.88	0.53
1:A:242:LEU:HD13	1:A:257:MET:HB3	1.91	0.53
1:A:92:LEU:HD23	1:A:95:LEU:HD12	1.89	0.53
1:A:269:PRO:HB2	1:A:271:TYR:CE1	2.43	0.53
1:A:11:HIS:O	1:A:32:LEU:HG	2.08	0.53
1:B:20:GLU:N	1:B:20:GLU:OE1	2.41	0.53
1:B:31:ASN:O	1:B:34:ASN:O	2.26	0.53
1:A:21:GLY:CA	3:A:300:IC1:O4'	2.56	0.53
1:B:55:GLU:OE2	1:B:59:TYR:HE1	1.92	0.53
1:B:94:ASP:O	1:B:98:LEU:HG	2.09	0.53
1:A:183:ARG:HD2	1:A:184:TYR:CZ	2.43	0.53
1:A:59:TYR:CE1	1:A:69:PRO:HG2	2.43	0.53
1:B:101:ARG:HH11	1:B:101:ARG:HG2	1.74	0.53
1:A:175:LYS:O	1:A:175:LYS:HG2	2.09	0.53
1:A:52:LEU:HB2	1:A:74:PHE:CE1	2.43	0.53
1:A:29:GLY:HA3	1:A:40:ILE:HD12	1.92	0.52
1:A:8:VAL:O	1:A:12:TYR:O	2.26	0.52
1:A:206:HIS:HE1	1:A:261:ARG:NH1	2.07	0.52
1:A:45:ARG:NH1	1:A:76:GLN:OE1	2.41	0.52
1:B:222:LYS:NZ	1:B:229:LYS:NZ	2.57	0.52
1:A:284:ARG:HG3	1:A:284:ARG:HH11	1.75	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:118:ARG:HB3	1:B:152:VAL:HG21	1.90	0.52
1:B:31:ASN:ND2	1:B:33:LEU:HB2	2.20	0.52
1:A:138:LEU:HD11	1:A:153:VAL:HG21	1.92	0.52
1:A:18:ILE:HG21	1:A:28:GLU:HB3	1.91	0.52
1:B:109:ALA:O	1:B:112:ALA:HB3	2.10	0.52
1:B:161:TYR:O	1:B:170:ILE:HG12	2.10	0.52
1:B:173:ARG:HH21	1:B:175:LYS:HD3	1.75	0.52
1:B:176:LYS:CB	1:B:192:GLY:HA2	2.40	0.52
1:B:43:GLU:CD	1:B:52:LEU:H	2.13	0.52
1:B:13:LYS:HZ2	1:B:32:LEU:HD23	1.70	0.52
1:B:36:GLN:NE2	1:B:72:TYR:CE2	2.78	0.52
1:B:153:VAL:HG21	3:B:400:IC1:O6'	2.10	0.52
1:A:162:ARG:NH2	1:A:167:LYS:NZ	2.58	0.51
1:A:62:LEU:HD23	1:A:125:LYS:HG3	1.92	0.51
1:B:138:LEU:HD11	3:B:400:IC1:O6'	2.10	0.51
1:B:123:HIS:CG	1:B:197:ARG:HG2	2.45	0.51
1:B:38:VAL:O	1:B:87:LEU:HD13	2.10	0.51
1:B:13:LYS:NZ	1:B:32:LEU:CD2	2.72	0.51
1:A:267:ALA:O	1:A:269:PRO:HD3	2.10	0.51
1:B:249:PHE:HB3	1:B:250:PRO:HD2	1.92	0.51
1:A:23:PHE:HD1	1:A:41:LYS:HZ1	1.57	0.51
1:A:259:TYR:O	1:A:263:LEU:HD12	2.10	0.51
1:A:96:LEU:HA	1:A:103:PHE:CE1	2.46	0.51
1:A:29:GLY:HA3	1:A:40:ILE:CD1	2.41	0.51
1:B:206:HIS:HE1	1:B:261:ARG:HH22	1.57	0.51
1:B:23:PHE:HB2	1:B:50:PRO:HG3	1.92	0.50
1:A:173:ARG:CD	1:A:176:LYS:HD3	2.32	0.50
1:A:250:PRO:HB2	1:A:253:PHE:CD2	2.46	0.50
1:A:291:GLU:O	1:A:293:PHE:N	2.42	0.50
1:A:70:ASN:HB2	1:A:86:ASP:OD2	2.12	0.50
1:A:231:GLU:O	1:A:235:GLU:HG2	2.12	0.50
1:A:38:VAL:O	1:A:87:LEU:HD13	2.12	0.50
1:B:107:THR:HG23	1:B:293:PHE:HD1	1.76	0.50
1:A:120:GLN:OE1	1:A:271:TYR:HB3	2.12	0.50
1:A:148:ASN:HB3	1:A:291:GLU:CG	2.39	0.50
1:A:91:SER:HA	1:A:138:LEU:HD23	1.94	0.50
1:B:110:MET:SD	1:B:290:ASP:O	2.68	0.50
1:B:14:VAL:HG12	1:B:15:GLY:H	1.75	0.50
1:B:198:ARG:NH1	1:B:265:PHE:N	2.59	0.50
1:A:173:ARG:HH11	1:A:173:ARG:HG3	1.77	0.50
1:A:100:GLY:O	1:A:102:LYS:N	2.45	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:111:ALA:O	1:A:115:MET:HG3	2.12	0.50
1:B:127:LEU:HB3	1:B:160:PHE:HA	1.94	0.50
1:B:138:LEU:HD11	3:B:400:IC1:H131	1.94	0.50
1:B:173:ARG:HD2	1:B:174:GLU:N	2.21	0.50
1:B:263:LEU:HD22	1:B:267:ALA:HB1	1.93	0.50
1:A:38:VAL:HG23	1:A:39:ALA:N	2.27	0.49
1:A:7:VAL:HG22	1:A:13:LYS:CG	2.41	0.49
1:A:213:ARG:NH1	1:A:213:ARG:HB3	2.24	0.49
1:A:216:LEU:H	1:A:219:GLN:HE21	1.59	0.49
1:B:55:GLU:O	1:B:59:TYR:HD1	1.94	0.49
1:A:238:GLN:HE21	1:B:13:LYS:HD3	1.78	0.49
1:A:201:LEU:HD11	1:A:269:PRO:HB3	1.95	0.49
1:A:120:GLN:OE1	1:A:271:TYR:CB	2.60	0.49
1:A:213:ARG:HH22	1:A:217:PRO:HG3	1.76	0.49
1:B:172:TYR:HD1	1:B:265:PHE:CE2	2.30	0.49
1:B:138:LEU:HD11	3:B:400:IC1:C13	2.42	0.49
1:B:222:LYS:HB3	1:B:229:LYS:CB	2.42	0.49
1:B:242:LEU:HD21	1:B:261:ARG:HE	1.77	0.49
1:B:52:LEU:HG	1:B:83:LEU:HB2	1.94	0.49
1:A:114:GLN:O	1:A:118:ARG:HG2	2.12	0.49
1:B:243:ARG:HH11	1:B:243:ARG:HG2	1.77	0.49
1:B:125:LYS:O	1:B:126:SER:HB2	2.13	0.49
1:B:6:ASN:O	1:B:14:VAL:HG23	2.12	0.49
1:B:203:ALA:O	1:B:206:HIS:N	2.45	0.49
1:A:115:MET:O	1:A:118:ARG:N	2.46	0.48
1:A:161:TYR:CZ	1:A:197:ARG:HD3	2.48	0.48
1:A:25:VAL:HG12	1:A:26:ILE:N	2.28	0.48
1:A:51:GLN:O	1:A:52:LEU:C	2.50	0.48
1:B:52:LEU:CD2	1:B:83:LEU:HB2	2.43	0.48
1:A:206:HIS:CE1	1:A:261:ARG:NH1	2.82	0.48
1:A:116:LEU:HB3	1:A:275:GLN:NE2	2.28	0.48
1:A:34:ASN:O	1:A:35:ASN:HB2	2.13	0.48
1:B:137:PHE:HA	1:B:151:TYR:O	2.14	0.48
1:B:140:GLY:HA3	1:B:146:ASN:O	2.13	0.48
1:A:209:MET:CE	1:A:246:CYS:HA	2.43	0.48
1:B:116:LEU:CD1	1:B:201:LEU:HD21	2.42	0.48
1:A:161:TYR:C	1:A:170:ILE:HD12	2.33	0.48
1:A:57:ARG:NH1	1:A:57:ARG:HG3	2.29	0.48
1:A:260:ALA:HA	1:A:263:LEU:HD13	1.94	0.48
1:B:236:LYS:NZ	1:B:240:THR:OG1	2.45	0.48
1:A:61:LEU:CD2	1:A:125:LYS:HD2	2.44	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:133:LYS:NZ	1:A:181:THR:OG1	2.38	0.47
1:A:177:ASN:O	1:A:178:LEU:CB	2.62	0.47
1:A:290:ASP:OD1	1:A:290:ASP:C	2.52	0.47
1:A:291:GLU:HB3	1:A:293:PHE:CE2	2.49	0.47
1:A:120:GLN:CG	1:A:271:TYR:CD2	2.96	0.47
1:A:9:GLY:HA3	1:A:12:TYR:HD2	1.77	0.47
1:B:242:LEU:HD21	1:B:261:ARG:NE	2.30	0.47
1:A:230:TYR:N	1:A:230:TYR:CD1	2.82	0.47
1:A:72:TYR:O	1:A:73:TYR:HB2	2.14	0.47
1:B:193:ARG:HG2	1:B:193:ARG:HH11	1.80	0.47
1:B:222:LYS:CG	1:B:223:ALA:H	2.22	0.47
1:A:73:TYR:CG	1:A:74:PHE:N	2.82	0.47
1:B:221:LEU:O	1:B:222:LYS:C	2.53	0.47
1:A:104:SER:O	1:A:105:VAL:C	2.51	0.46
1:A:297:LEU:O	1:A:298:LEU:HB2	2.16	0.46
1:B:47:SER:O	1:B:48:ASP:O	2.34	0.46
1:B:31:ASN:HB3	1:B:34:ASN:O	2.16	0.46
1:B:52:LEU:HD21	1:B:83:LEU:HB2	1.97	0.46
1:A:155:PHE:O	1:A:158:VAL:HG22	2.15	0.46
1:A:145:LYS:HZ2	1:A:146:ASN:HD21	1.57	0.46
1:B:18:ILE:HD12	3:B:400:IC1:C6	2.46	0.46
1:B:188:ASN:CG	1:B:193:ARG:HD2	2.36	0.46
1:B:222:LYS:HZ1	1:B:229:LYS:NZ	2.14	0.46
1:B:41:LYS:NZ	1:B:55:GLU:OE1	2.45	0.46
1:B:187:ILE:HG13	1:B:261:ARG:NH1	2.31	0.46
1:A:221:LEU:HB2	1:A:229:LYS:HZ1	1.80	0.45
1:B:236:LYS:HA	1:B:239:SER:OG	2.16	0.45
1:B:243:ARG:NH1	1:B:243:ARG:HG2	2.31	0.45
1:A:139:ILE:HA	1:A:149:MET:O	2.16	0.45
1:A:25:VAL:C	1:A:26:ILE:HD12	2.37	0.45
1:B:222:LYS:O	1:B:223:ALA:CB	2.64	0.45
1:B:50:PRO:O	1:B:51:GLN:C	2.54	0.45
1:A:56:TYR:CE1	1:A:71:VAL:HG21	2.52	0.45
1:B:83:LEU:HG	1:B:85:ILE:CD1	2.46	0.45
1:A:96:LEU:CD2	1:A:102:LYS:HA	2.42	0.45
1:A:120:GLN:O	1:A:121:SER:C	2.55	0.45
1:A:241:PRO:HG2	1:A:244:GLU:HB2	1.99	0.45
1:B:264:ALA:O	1:B:267:ALA:HB3	2.15	0.45
1:B:72:TYR:CE1	1:B:86:ASP:OD1	2.70	0.45
1:A:203:ALA:O	1:A:207:VAL:HG23	2.16	0.45
1:A:172:TYR:HB2	1:A:265:PHE:CE2	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:197:ARG:NH2	1:A:268:THR:HA	2.32	0.45
1:A:201:LEU:HD13	1:A:274:LEU:HD11	1.99	0.45
1:B:187:ILE:HD12	1:B:261:ARG:HD3	1.99	0.45
1:B:23:PHE:CZ	1:B:41:LYS:HE2	2.52	0.45
1:A:112:ALA:HA	1:A:208:PHE:CE1	2.52	0.45
1:A:280:LYS:HD2	1:A:284:ARG:NE	2.32	0.45
1:B:44:PRO:HA	1:B:80:HIS:CB	2.46	0.45
1:A:114:GLN:O	1:A:117:ALA:HB3	2.17	0.45
1:B:176:LYS:HB2	1:B:192:GLY:O	2.15	0.45
1:B:43:GLU:N	1:B:81:ASN:O	2.50	0.45
1:B:140:GLY:HA2	1:B:151:TYR:HE1	1.82	0.45
1:B:13:LYS:HZ2	1:B:32:LEU:CG	2.30	0.44
1:B:43:GLU:O	1:B:81:ASN:N	2.40	0.44
1:A:153:VAL:O	1:A:154:ASP:HB3	2.17	0.44
1:A:116:LEU:HD11	1:A:201:LEU:HD22	2.00	0.44
1:B:7:VAL:HA	1:B:13:LYS:HA	1.98	0.44
1:A:230:TYR:HD1	1:A:230:TYR:H	1.65	0.44
1:B:182:ALA:O	1:B:184:TYR:N	2.51	0.44
1:A:6:ASN:O	1:A:7:VAL:HG23	2.18	0.44
1:B:16:ARG:HG3	1:B:16:ARG:O	2.17	0.44
1:B:173:ARG:CD	1:B:174:GLU:N	2.79	0.44
1:B:263:LEU:HD22	1:B:267:ALA:CB	2.48	0.44
1:A:146:ASN:O	1:A:147:ALA:C	2.55	0.44
1:B:91:SER:HA	1:B:138:LEU:HD23	1.99	0.44
1:A:13:LYS:HB2	1:A:32:LEU:HD11	2.00	0.44
1:A:138:LEU:CD2	3:A:300:IC1:H131	2.21	0.44
1:B:261:ARG:HG2	1:B:261:ARG:HH11	1.83	0.44
1:A:218:TRP:CD2	1:A:237:LYS:HG2	2.53	0.44
1:B:225:THR:H	1:B:228:GLN:HB2	1.82	0.44
1:B:252:GLU:OE1	1:B:252:GLU:N	2.45	0.44
1:B:42:PHE:CD2	1:B:82:VAL:HG12	2.53	0.44
1:A:216:LEU:HD13	1:A:218:TRP:CE2	2.50	0.43
1:A:57:ARG:HG3	1:A:57:ARG:HH11	1.83	0.43
1:B:13:LYS:O	1:B:29:GLY:HA3	2.18	0.43
1:B:42:PHE:HA	1:B:81:ASN:O	2.18	0.43
1:A:280:LYS:O	1:A:283:GLU:N	2.48	0.43
1:B:222:LYS:HG3	1:B:223:ALA:N	2.31	0.43
1:B:48:ASP:CG	1:B:49:ALA:H	2.21	0.43
1:A:206:HIS:CE1	1:A:261:ARG:HH12	2.33	0.43
1:B:11:HIS:CE1	1:B:33:LEU:HG	2.53	0.43
1:B:40:ILE:HD12	1:B:40:ILE:H	1.82	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:116:LEU:HD21	1:A:274:LEU:CB	2.48	0.43
1:A:296:ASN:O	1:A:297:LEU:HD23	2.17	0.43
1:B:122:ILE:C	1:B:124:GLU:N	2.71	0.43
1:B:52:LEU:HD21	1:B:83:LEU:HB3	1.99	0.43
1:B:71:VAL:C	1:B:72:TYR:HD1	2.20	0.43
1:B:11:HIS:ND1	1:B:33:LEU:HG	2.33	0.43
1:B:39:ALA:HB2	1:B:87:LEU:HD12	2.00	0.43
1:A:123:HIS:CG	1:A:197:ARG:HG2	2.53	0.43
1:A:138:LEU:HD12	1:A:153:VAL:HG11	2.00	0.43
1:A:118:ARG:HB3	1:A:152:VAL:HG21	2.01	0.43
1:A:238:GLN:HB3	1:B:13:LYS:CE	2.43	0.43
1:B:85:ILE:HD12	1:B:85:ILE:N	2.33	0.43
1:A:76:GLN:HB2	1:A:76:GLN:HE21	1.55	0.43
1:B:47:SER:C	1:B:48:ASP:O	2.57	0.43
1:B:201:LEU:HD22	1:B:274:LEU:CD1	2.49	0.43
1:A:202:GLU:HG3	1:A:261:ARG:HG2	2.00	0.42
1:B:112:ALA:HA	1:B:208:PHE:CE1	2.54	0.42
1:B:46:ARG:HH11	1:B:46:ARG:HG2	1.83	0.42
1:B:111:ALA:O	1:B:115:MET:HG3	2.19	0.42
1:B:216:LEU:O	1:B:219:GLN:HB2	2.19	0.42
1:B:259:TYR:CD1	1:B:274:LEU:HD21	2.54	0.42
1:A:221:LEU:HD13	1:A:232:ARG:CB	2.49	0.42
1:A:73:TYR:CD2	1:A:74:PHE:N	2.88	0.42
1:A:153:VAL:HG21	3:A:300:IC1:O6'	2.20	0.42
1:A:170:ILE:CB	1:A:171:PRO:CD	2.89	0.42
1:B:145:LYS:O	1:B:146:ASN:CG	2.57	0.42
1:B:177:ASN:C	1:B:178:LEU:HD12	2.40	0.42
1:B:242:LEU:HB2	2:B:311:SO4:O3	2.19	0.42
1:A:284:ARG:CG	1:A:284:ARG:HH11	2.32	0.42
1:B:16:ARG:O	1:B:18:ILE:HG23	2.19	0.42
1:B:170:ILE:HD12	1:B:194:GLU:OE2	2.20	0.42
1:B:23:PHE:CD1	1:B:24:GLY:N	2.88	0.42
1:B:259:TYR:CD1	1:B:259:TYR:C	2.92	0.42
1:B:297:LEU:CD1	1:B:298:LEU:HD23	2.50	0.42
1:B:52:LEU:HG	1:B:83:LEU:HD22	2.02	0.42
1:A:53:ARG:O	1:A:56:TYR:HB3	2.19	0.42
1:A:60:LYS:O	1:A:63:ALA:CB	2.68	0.42
1:B:44:PRO:CD	1:B:46:ARG:NH1	2.83	0.42
1:A:163:ASP:OD1	1:A:165:VAL:HB	2.20	0.42
1:A:249:PHE:O	1:A:250:PRO:C	2.58	0.42
1:A:13:LYS:CB	1:A:32:LEU:HD21	2.46	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:130:ARG:HD3	1:B:157:MET:O	2.19	0.42
1:A:95:LEU:HD11	1:A:139:ILE:HD13	2.02	0.41
1:A:161:TYR:OH	1:A:197:ARG:HD3	2.20	0.41
1:A:228:GLN:O	1:A:231:GLU:HB3	2.20	0.41
1:B:90:PRO:CG	1:B:139:ILE:HD11	2.50	0.41
1:B:116:LEU:HD21	1:B:274:LEU:HB2	2.02	0.41
1:B:31:ASN:HD22	1:B:34:ASN:N	2.12	0.41
1:B:14:VAL:CG1	1:B:15:GLY:N	2.82	0.41
1:A:37:GLN:NE2	1:A:37:GLN:H	2.16	0.41
1:A:43:GLU:OE2	1:A:51:GLN:HA	2.20	0.41
1:B:44:PRO:CA	1:B:80:HIS:HB3	2.50	0.41
1:B:265:PHE:CD1	1:B:265:PHE:C	2.94	0.41
1:A:205:GLY:O	1:A:209:MET:HG2	2.20	0.41
1:A:221:LEU:HB3	1:A:232:ARG:HE	1.84	0.41
1:A:197:ARG:NH2	2:A:303:SO4:O3	2.54	0.41
1:A:78:GLY:C	1:A:80:HIS:H	2.23	0.41
1:B:130:ARG:HD2	1:B:159:LYS:HB3	2.02	0.41
1:B:13:LYS:HZ2	1:B:32:LEU:HG	1.84	0.41
1:A:119:VAL:O	1:A:119:VAL:HG12	2.20	0.41
1:A:234:GLY:O	1:A:237:LYS:HB2	2.21	0.41
1:B:182:ALA:HB1	1:B:233:ILE:CD1	2.51	0.41
1:B:44:PRO:HB3	1:B:80:HIS:HB3	2.03	0.41
1:B:67:GLY:O	1:B:68:ILE:HD13	2.21	0.41
1:A:53:ARG:N	1:A:74:PHE:CE1	2.88	0.41
1:B:173:ARG:CG	1:B:174:GLU:N	2.83	0.41
1:B:21:GLY:C	1:B:23:PHE:N	2.75	0.41
1:A:138:LEU:CD1	1:A:153:VAL:HG21	2.50	0.41
1:A:209:MET:HE2	1:A:246:CYS:HA	2.02	0.41
1:A:194:GLU:HG2	1:A:195:GLN:N	2.36	0.41
1:A:201:LEU:HD11	1:A:269:PRO:CB	2.51	0.41
1:A:79:LEU:CD2	1:A:79:LEU:O	2.69	0.40
1:B:62:LEU:HD12	1:B:155:PHE:CZ	2.56	0.40
1:A:51:GLN:C	1:A:53:ARG:H	2.22	0.40
1:B:128:VAL:HG11	1:B:196:SER:HA	2.03	0.40
1:B:206:HIS:CE1	1:B:261:ARG:HH22	2.37	0.40
1:B:83:LEU:HG	1:B:85:ILE:HD11	2.03	0.40
1:A:186:SER:HB2	1:A:202:GLU:OE1	2.20	0.40
1:A:41:LYS:HG2	1:A:52:LEU:CD2	2.46	0.40
1:A:85:ILE:HG22	1:A:86:ASP:N	2.36	0.40
1:B:12:TYR:CE1	1:B:31:ASN:OD1	2.74	0.40
1:A:73:TYR:HB3	1:A:84:VAL:CG2	2.51	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:133:LYS:NZ	1:A:181:THR:HG21	2.36	0.40
1:A:20:GLU:HG2	1:A:21:GLY:N	2.33	0.40
1:A:285:LEU:O	1:A:286:ASN:HB2	2.22	0.40
1:B:96:LEU:HD22	1:B:101:ARG:C	2.42	0.40







There are no symmetry-related clashes.

## 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	291/298 (98%)	217 (75%)	54 (19%)	20 (7%)		
1	B	291/298 (98%)	216 (74%)	53 (18%)	22 (8%)		
All	All	582/596 (98%)	433 (74%)	107 (18%)	42 (7%)		

All (42) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	10	VAL
1	A	22	SER
1	A	23	PHE
1	A	25	VAL
1	A	51	GLN
1	A	101	ARG
1	A	171	PRO
1	A	174	GLU
1	A	177	ASN
1	A	182	ALA
1	A	183	ARG
1	B	47	SER
1	B	48	ASP
1	B	175	LYS

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Mol	Chain	Res	Type
1	B	178	LEU
1	B	182	ALA
1	B	183	ARG
1	B	222	LYS
1	A	175	LYS
1	A	178	LEU
1	A	220	GLY
1	B	51	GLN
1	B	142	PRO
1	B	144	SER
1	B	146	ASN
1	B	233	ILE
1	B	297	LEU
1	A	34	ASN
1	A	49	ALA
1	B	35	ASN
1	B	49	ALA
1	B	130	ARG
1	A	106	LYS
1	B	193	ARG
1	B	197	ARG
1	B	218	TRP
1	A	46	ARG
1	B	11	HIS
1	B	10	VAL
1	A	105	VAL
1	B	250	PRO
1	A	250	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	255/259 (98%)	238 (93%)	17 (7%)	19	48
1	B	255/259 (98%)	242 (95%)	13 (5%)	28	61
All	All	510/518 (98%)	480 (94%)	30 (6%)	23	54

All (30) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	20	GLU
1	A	61	LEU
1	A	76	GLN
1	A	79	LEU
1	A	96	LEU
1	A	101	ARG
1	A	128	VAL
1	A	135	ASP
1	A	170	ILE
1	A	176	LYS
1	A	213	ARG
1	A	222	LYS
1	A	251	GLU
1	A	266	ASP
1	A	272	ASP
1	A	284	ARG
1	A	287	THR
1	B	11	HIS
1	B	30	THR
1	B	51	GLN
1	B	61	LEU
1	B	86	ASP
1	B	96	LEU
1	B	127	LEU
1	B	143	ASN
1	B	177	ASN
1	B	178	LEU
1	B	213	ARG
1	B	261	ARG
1	B	290	ASP

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (12) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	143	ASN
1	A	146	ASN
1	A	168	GLN
1	A	195	GLN
1	A	206	HIS
1	A	219	GLN
1	A	238	GLN

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Mol	Chain	Res	Type
1	A	292	ASN
1	B	31	ASN
1	B	120	GLN
1	B	168	GLN
1	B	219	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 carbohydrates in this entry.

## 5.6 Ligand geometry ⓘ

13 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	$\# Z  > 2$
3	IC1	A	300	-	25,25,25	2.38	1 (4%)	34,35,35	2.71	10 (29%)
2	SO4	A	301	-	4,4,4	0.42	0	6,6,6	0.14	0
2	SO4	A	302	-	4,4,4	0.36	0	6,6,6	0.12	0
2	SO4	A	303	-	4,4,4	0.34	0	6,6,6	0.10	0
2	SO4	A	304	-	4,4,4	0.50	0	6,6,6	0.12	0
2	SO4	A	305	-	4,4,4	0.31	0	6,6,6	0.18	0
2	SO4	A	306	-	4,4,4	0.40	0	6,6,6	0.29	0
2	SO4	B	307	-	4,4,4	0.48	0	6,6,6	0.13	0
2	SO4	B	308	-	4,4,4	0.41	0	6,6,6	0.21	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	SO4	B	309	-	4,4,4	0.40	0	6,6,6	0.12	0
2	SO4	B	310	-	4,4,4	0.42	0	6,6,6	0.12	0
2	SO4	B	311	-	4,4,4	0.52	0	6,6,6	0.14	0
3	IC1	B	400	-	25,25,25	2.44	1 (4%)	34,35,35	2.68	10 (29%)

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
3	IC1	A	300	-	-	0/10/22/22	0/3/3/3
2	SO4	A	301	-	-	0/0/0/0	0/0/0/0
2	SO4	A	302	-	-	0/0/0/0	0/0/0/0
2	SO4	A	303	-	-	0/0/0/0	0/0/0/0
2	SO4	A	304	-	-	0/0/0/0	0/0/0/0
2	SO4	A	305	-	-	0/0/0/0	0/0/0/0
2	SO4	A	306	-	-	0/0/0/0	0/0/0/0
2	SO4	B	307	-	-	0/0/0/0	0/0/0/0
2	SO4	B	308	-	-	0/0/0/0	0/0/0/0
2	SO4	B	309	-	-	0/0/0/0	0/0/0/0
2	SO4	B	310	-	-	0/0/0/0	0/0/0/0
2	SO4	B	311	-	-	0/0/0/0	0/0/0/0
3	IC1	B	400	-	-	0/10/22/22	0/3/3/3

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	400	IC1	C3-C2	-11.51	1.35	1.50
3	A	300	IC1	C3-C2	-11.17	1.35	1.50

All (20) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	400	IC1	C8-N1-C2	-6.24	107.66	111.38
3	A	300	IC1	C8-N1-C2	-6.12	107.73	111.38
3	A	300	IC1	O2'-C2'-C3'	-5.22	115.37	124.17
3	B	400	IC1	O2'-C2'-C3'	-5.17	115.46	124.17
3	A	300	IC1	O2-C2-C3	-3.11	123.85	127.77
3	B	400	IC1	O2-C2-C3	-2.94	124.06	127.77
3	A	300	IC1	O6'-C6'-C5'	-2.37	120.18	124.17
3	B	400	IC1	O6'-C6'-C5'	-2.18	120.50	124.17

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	400	IC1	C6'-C5'-C4'	2.16	122.92	119.01
3	A	300	IC1	C6'-C5'-C4'	2.21	123.02	119.01
3	A	300	IC1	C13-O6'-C6'	2.56	121.22	117.54
3	B	400	IC1	C13-O6'-C6'	2.56	121.22	117.54
3	B	400	IC1	C11-O2'-C2'	2.57	121.23	117.54
3	A	300	IC1	C11-O2'-C2'	2.66	121.37	117.54
3	B	400	IC1	O6'-C6'-C1'	3.16	120.50	115.19
3	A	300	IC1	O6'-C6'-C1'	3.39	120.88	115.19
3	A	300	IC1	O2'-C2'-C1'	4.67	123.04	115.19
3	B	400	IC1	O2'-C2'-C1'	4.73	123.13	115.19
3	B	400	IC1	C3-C2-N1	9.80	112.58	106.91
3	A	300	IC1	C3-C2-N1	9.93	112.66	106.91

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

4 monomers are involved in 15 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	300	IC1	5	0
2	A	303	SO4	1	0
2	B	311	SO4	1	0
3	B	400	IC1	8	0

## 5.7 Other polymers [i](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

## 6 Fit of model and data [i](#)

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

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95<sup>th</sup> percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å <sup>2</sup> )	Q<0.9
1	A	293/298 (98%)	-0.15	8 (2%) 55 44	6, 19, 78, 99	0
1	B	293/298 (98%)	-0.18	7 (2%) 59 49	5, 21, 75, 91	0
All	All	586/596 (98%)	-0.16	15 (2%) 56 45	5, 20, 77, 99	0

All (15) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	223	ALA	5.9
1	B	223	ALA	4.2
1	B	176	LYS	3.8
1	A	174	GLU	3.3
1	A	48	ASP	3.3
1	A	46	ARG	2.9
1	B	175	LYS	2.9
1	A	180	GLY	2.7
1	B	222	LYS	2.6
1	B	48	ASP	2.6
1	B	180	GLY	2.4
1	A	173	ARG	2.4
1	A	171	PRO	2.3
1	B	50	PRO	2.2
1	A	298	LEU	2.1

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

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

### 6.3 Carbohydrates [i](#)

There are no carbohydrates 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. 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	RSCC	RSR	LLDF	B-factors(Å <sup>2</sup> )	Q<0.9
3	IC1	B	400	23/23	0.93	0.46	9.38	36,48,80,87	0
3	IC1	A	300	23/23	0.90	0.38	4.41	16,31,42,60	0
2	SO4	A	306	5/5	0.92	0.23	0.03	41,51,58,66	0
2	SO4	A	303	5/5	0.97	0.15	0.03	27,37,42,44	0
2	SO4	B	308	5/5	0.98	0.13	-0.95	20,23,36,43	0
2	SO4	A	302	5/5	0.98	0.14	-1.30	24,26,38,41	0
2	SO4	B	309	5/5	0.96	0.12	-1.88	28,35,39,42	0
2	SO4	A	305	5/5	0.99	0.11	-2.83	18,20,28,34	0
2	SO4	A	304	5/5	0.96	0.14	-	28,32,47,54	0
2	SO4	B	311	5/5	0.95	0.15	-	22,47,50,54	0
2	SO4	B	310	5/5	0.95	0.17	-	35,43,50,54	0
2	SO4	A	301	5/5	0.94	0.10	-	44,54,55,65	0
2	SO4	B	307	5/5	0.91	0.14	-	53,57,67,75	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.