Full wwPDB X-ray Structure Validation Report (i)

Jun 18, 2024 – 12:25 AM EDT

PDB ID	:	3IBG
Title	:	Crystal structure of Aspergillus fumigatus Get3 with bound ADP
Authors	:	Suloway, C.J.M.; Chartron, J.W.; Zaslaver, M.; Clemons Jr., W.M.
Deposited on	:	2009-07-15
Resolution	:	3.20 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 (i) 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 (i)) were used in the production of this report:

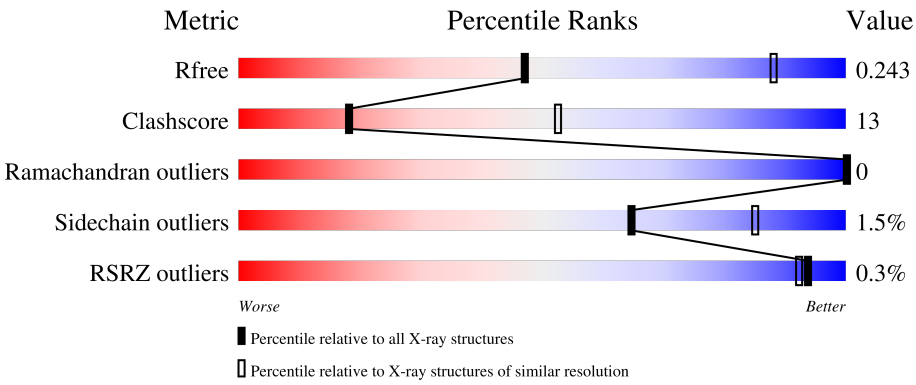
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.20.1
EDS	:	2.37.1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.37.1

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

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}	130704	1133 (3.20-3.20)
Clashscore	141614	1253 (3.20-3.20)
Ramachandran outliers	138981	1234 (3.20-3.20)
Sidechain outliers	138945	1233 (3.20-3.20)
RSRZ outliers	127900	1095 (3.20-3.20)

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 <=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	348	61% 24% 14%
1	B	348	% 67% 19% 14%
1	C	348	61% 24% • 14%
1	D	348	64% 22% • 14%
1	E	348	63% 23% 14%

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Mol	Chain	Length	Quality of chain
1	F	348	60% 26% 14%

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 14238 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 ATPase, subunit of the Get complex.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	300	2346	1495	388	449	14	0	0	0
1	B	300	2346	1495	388	449	14	0	0	0
1	C	300	2346	1495	388	449	14	0	0	0
1	D	300	2346	1495	388	449	14	0	0	0
1	E	300	2346	1495	388	449	14	0	0	0
1	F	300	2346	1495	388	449	14	0	0	0

There are 60 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	MET	-	EXPRESSION TAG	UNP Q4WY07
A	2	GLY	-	EXPRESSION TAG	UNP Q4WY07
A	341	LEU	-	EXPRESSION TAG	UNP Q4WY07
A	342	GLU	-	EXPRESSION TAG	UNP Q4WY07
A	343	HIS	-	EXPRESSION TAG	UNP Q4WY07
A	344	HIS	-	EXPRESSION TAG	UNP Q4WY07
A	345	HIS	-	EXPRESSION TAG	UNP Q4WY07
A	346	HIS	-	EXPRESSION TAG	UNP Q4WY07
A	347	HIS	-	EXPRESSION TAG	UNP Q4WY07
A	348	HIS	-	EXPRESSION TAG	UNP Q4WY07
B	1	MET	-	EXPRESSION TAG	UNP Q4WY07
B	2	GLY	-	EXPRESSION TAG	UNP Q4WY07
B	341	LEU	-	EXPRESSION TAG	UNP Q4WY07
B	342	GLU	-	EXPRESSION TAG	UNP Q4WY07
B	343	HIS	-	EXPRESSION TAG	UNP Q4WY07
B	344	HIS	-	EXPRESSION TAG	UNP Q4WY07
B	345	HIS	-	EXPRESSION TAG	UNP Q4WY07

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Chain	Residue	Modelled	Actual	Comment	Reference
B	346	HIS	-	EXPRESSION TAG	UNP Q4WY07
B	347	HIS	-	EXPRESSION TAG	UNP Q4WY07
B	348	HIS	-	EXPRESSION TAG	UNP Q4WY07
C	1	MET	-	EXPRESSION TAG	UNP Q4WY07
C	2	GLY	-	EXPRESSION TAG	UNP Q4WY07
C	341	LEU	-	EXPRESSION TAG	UNP Q4WY07
C	342	GLU	-	EXPRESSION TAG	UNP Q4WY07
C	343	HIS	-	EXPRESSION TAG	UNP Q4WY07
C	344	HIS	-	EXPRESSION TAG	UNP Q4WY07
C	345	HIS	-	EXPRESSION TAG	UNP Q4WY07
C	346	HIS	-	EXPRESSION TAG	UNP Q4WY07
C	347	HIS	-	EXPRESSION TAG	UNP Q4WY07
C	348	HIS	-	EXPRESSION TAG	UNP Q4WY07
D	1	MET	-	EXPRESSION TAG	UNP Q4WY07
D	2	GLY	-	EXPRESSION TAG	UNP Q4WY07
D	341	LEU	-	EXPRESSION TAG	UNP Q4WY07
D	342	GLU	-	EXPRESSION TAG	UNP Q4WY07
D	343	HIS	-	EXPRESSION TAG	UNP Q4WY07
D	344	HIS	-	EXPRESSION TAG	UNP Q4WY07
D	345	HIS	-	EXPRESSION TAG	UNP Q4WY07
D	346	HIS	-	EXPRESSION TAG	UNP Q4WY07
D	347	HIS	-	EXPRESSION TAG	UNP Q4WY07
D	348	HIS	-	EXPRESSION TAG	UNP Q4WY07
E	1	MET	-	EXPRESSION TAG	UNP Q4WY07
E	2	GLY	-	EXPRESSION TAG	UNP Q4WY07
E	341	LEU	-	EXPRESSION TAG	UNP Q4WY07
E	342	GLU	-	EXPRESSION TAG	UNP Q4WY07
E	343	HIS	-	EXPRESSION TAG	UNP Q4WY07
E	344	HIS	-	EXPRESSION TAG	UNP Q4WY07
E	345	HIS	-	EXPRESSION TAG	UNP Q4WY07
E	346	HIS	-	EXPRESSION TAG	UNP Q4WY07
E	347	HIS	-	EXPRESSION TAG	UNP Q4WY07
E	348	HIS	-	EXPRESSION TAG	UNP Q4WY07
F	1	MET	-	EXPRESSION TAG	UNP Q4WY07
F	2	GLY	-	EXPRESSION TAG	UNP Q4WY07
F	341	LEU	-	EXPRESSION TAG	UNP Q4WY07
F	342	GLU	-	EXPRESSION TAG	UNP Q4WY07
F	343	HIS	-	EXPRESSION TAG	UNP Q4WY07
F	344	HIS	-	EXPRESSION TAG	UNP Q4WY07
F	345	HIS	-	EXPRESSION TAG	UNP Q4WY07
F	346	HIS	-	EXPRESSION TAG	UNP Q4WY07
F	347	HIS	-	EXPRESSION TAG	UNP Q4WY07

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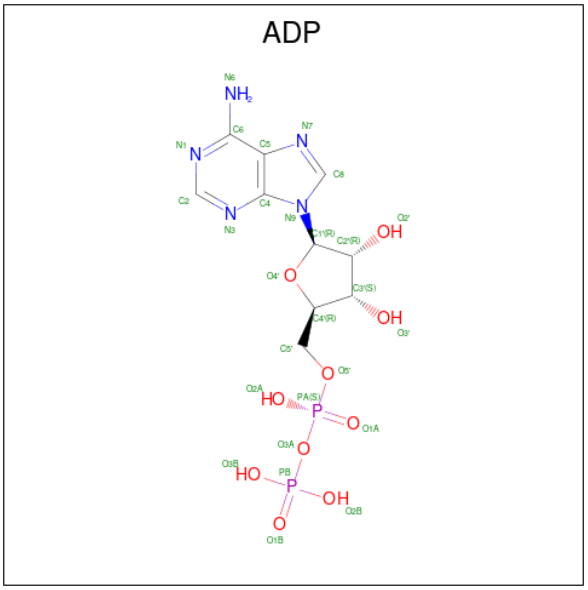
Chain	Residue	Modelled	Actual	Comment	Reference
F	348	HIS	-	EXPRESSION TAG	UNP Q4WY07

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



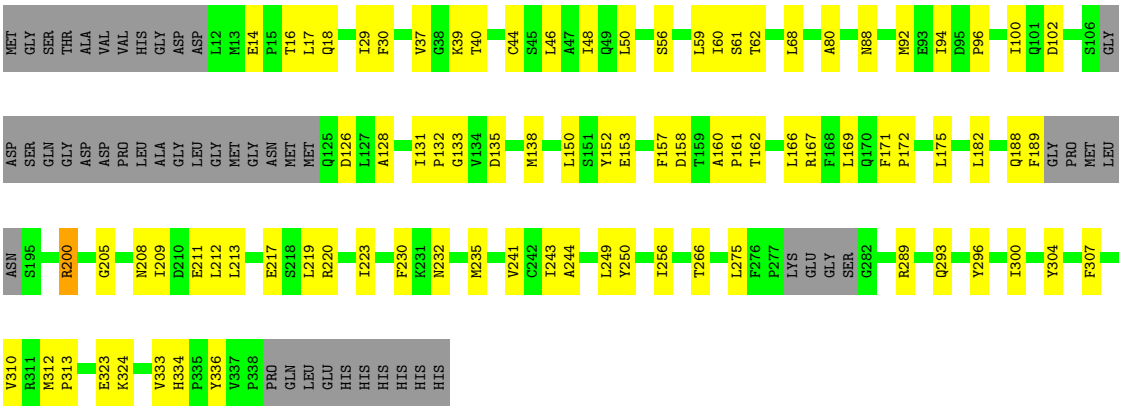
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	C	N	O	P	0	0
			27	10	5	10	2		
2	B	1	Total	C	N	O	P	0	0
			27	10	5	10	2		
2	C	1	Total	C	N	O	P	0	0
			27	10	5	10	2		
2	D	1	Total	C	N	O	P	0	0
			27	10	5	10	2		
2	E	1	Total	C	N	O	P	0	0
			27	10	5	10	2		
2	F	1	Total	C	N	O	P	0	0
			27	10	5	10	2		

3 Residue-property plots (i)

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.

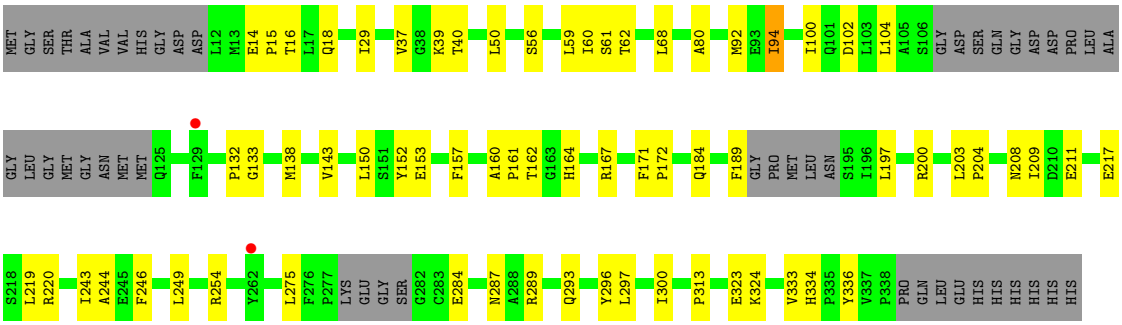
• Molecule 1: ATPase, subunit of the Get complex

Chain A:



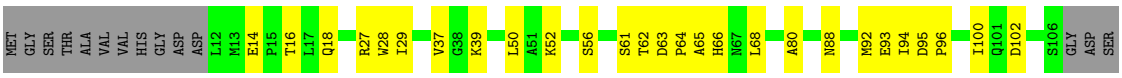
• Molecule 1: ATPase, subunit of the Get complex

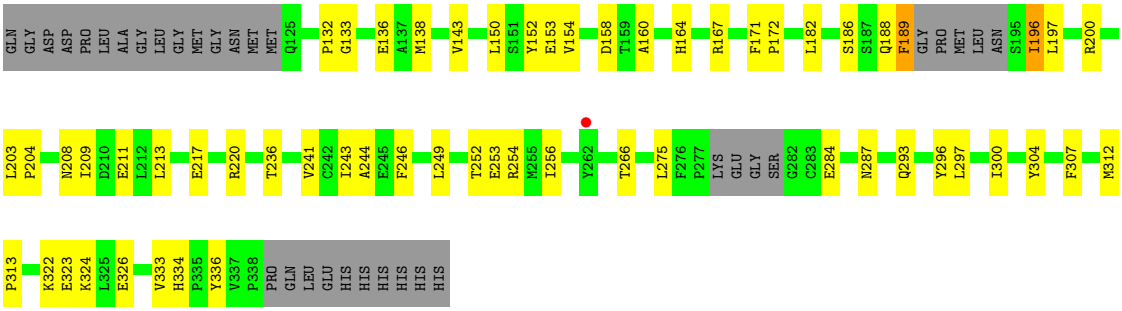
Chain B:



• Molecule 1: ATPase, subunit of the Get complex

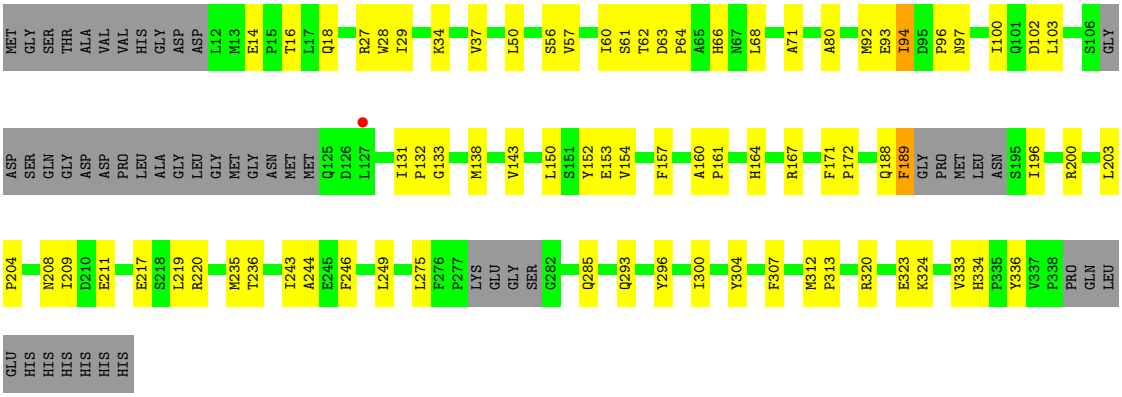
Chain C:





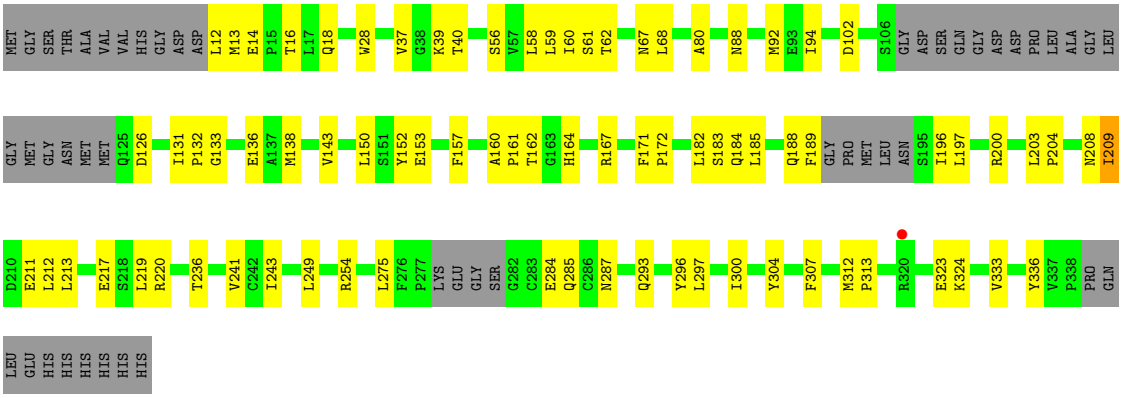
- Molecule 1: ATPase, subunit of the Get complex

Chain D:



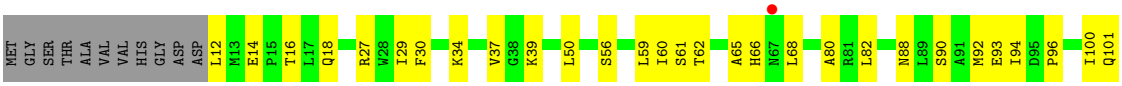
- Molecule 1: ATPase, subunit of the Get complex

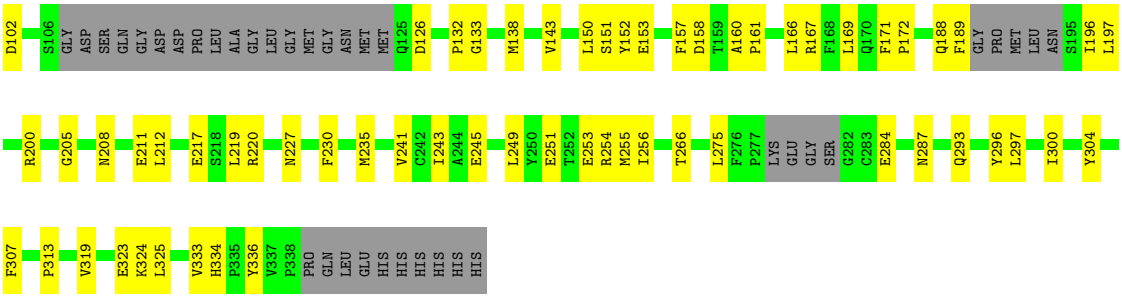
Chain E:



- Molecule 1: ATPase, subunit of the Get complex

Chain F:




D102
S106
GLY
ASP
SER
GLN
GLY
ASP
ASP
PRO
LEU
ALA
GLY
LEU
GLY
MET
GLY
ASN
MET
MET
Q125
D126
P132
G133
M138
V143
L150
S151
Y152
E153
F157
D158
T159
A160
P161
L166
R167
F168
L169
Q170
F171
P172
Q188
F189
GLY
PRO
MET
LEU
ASN
S195
I196
L197
R200
G205
N208
E211
L212
E217
S218
L219
R220
N227
F230
M235
V241
C242
I243
A244
E245
L249
Y250
E251
T252
E253
R254
M255
I256
T266
L275
F276
P277
LYS
GLU
GLY
SER
G282
C283
E284
N287
Q293
Y296
L297
I300
Y304
F307
P313
V319
E323
K324
L325
V333
H334
P335
Y336
V337
P338
PRO
GLN
LEU
GLU
HIS
HIS
HIS
HIS
HIS
HIS

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	67.76Å 154.78Å 242.88Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	65.26 – 3.20 65.27 – 3.00	Depositor EDS
% Data completeness (in resolution range)	99.9 (65.26-3.20) 100.0 (65.27-3.00)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	0.12	Depositor
$< I/\sigma(I) >$ [1]	1.68 (at 3.01Å)	Xtriage
Refinement program	PHENIX 1.4_62	Depositor
R, R_{free}	0.212 , 0.251 0.205 , 0.243	Depositor DCC
R_{free} test set	2660 reflections (5.10%)	wwPDB-VP
Wilson B-factor (Å^2)	77.3	Xtriage
Anisotropy	0.278	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 53.7	EDS
L-test for twinning[2]	$< \|L\| > = 0.47$, $< L^2 > = 0.30$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	14238	wwPDB-VP
Average B, all atoms (Å^2)	86.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.56% of the height of the origin peak. No significant pseudotranslation is detected.*

[1]Intensities estimated from amplitudes.

[2]Theoretical values of $< |L| >$, $< L^2 >$ 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: 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	0.28	0/2382	0.45	0/3211
1	B	0.26	0/2382	0.43	0/3211
1	C	0.26	0/2382	0.43	0/3211
1	D	0.26	0/2382	0.44	0/3211
1	E	0.28	0/2382	0.45	0/3211
1	F	0.31	0/2382	0.48	0/3211
All	All	0.28	0/14292	0.45	0/19266

There are no bond length outliers.

There are no bond angle outliers.

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	2346	0	2379	68	0
1	B	2346	0	2379	61	0
1	C	2346	0	2379	70	0
1	D	2346	0	2379	64	0
1	E	2346	0	2379	77	0
1	F	2346	0	2379	76	0
2	A	27	0	12	4	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	B	27	0	12	4	0
2	C	27	0	12	2	0
2	D	27	0	12	1	0
2	E	27	0	12	5	0
2	F	27	0	12	6	0
All	All	14238	0	14346	383	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 13.

All (383) 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:E:16:THR:HG23	1:E:333:VAL:HA	1.57	0.85
1:A:275:LEU:H	1:A:293:GLN:HE22	1.33	0.77
1:B:16:THR:HG22	1:B:18:GLN:H	1.51	0.76
1:E:94:ILE:HD12	1:E:143:VAL:HG11	1.68	0.76
1:B:16:THR:HG23	1:B:333:VAL:HA	1.67	0.76
1:E:16:THR:HG22	1:E:18:GLN:H	1.53	0.74
1:D:16:THR:HG23	1:D:333:VAL:HA	1.68	0.73
1:D:164:HIS:CD2	1:E:204:PRO:HG3	2.23	0.73
1:A:200:ARG:CD	1:F:65:ALA:HB2	2.20	0.71
1:D:37:VAL:HG12	1:D:243:ILE:HG13	1.71	0.71
1:B:249:LEU:HD11	1:B:300:ILE:HD11	1.72	0.71
2:F:349:ADP:C5'	2:F:349:ADP:H8	2.04	0.71
1:E:61:SER:HB2	1:E:68:LEU:HD22	1.73	0.70
2:F:349:ADP:H8	2:F:349:ADP:H5'1	1.54	0.70
1:A:205:GLY:HA2	1:F:96:PRO:HB2	1.73	0.70
1:A:61:SER:HB2	1:A:68:LEU:HD22	1.72	0.70
1:A:249:LEU:HD11	1:A:300:ILE:HD11	1.74	0.70
1:F:37:VAL:HG23	1:F:241:VAL:HG12	1.74	0.69
1:F:296:TYR:O	1:F:300:ILE:HG13	1.91	0.69
1:A:200:ARG:HD2	1:F:65:ALA:HB2	1.74	0.69
1:F:275:LEU:H	1:F:293:GLN:HE22	1.39	0.69
1:B:197:LEU:HD23	1:D:246:PHE:HZ	1.56	0.69
1:E:16:THR:HG22	1:E:18:GLN:N	2.08	0.69
1:C:16:THR:HG23	1:C:333:VAL:HA	1.73	0.68
1:A:205:GLY:CA	1:F:96:PRO:HB2	2.22	0.68
1:C:249:LEU:HD11	1:C:300:ILE:HD11	1.76	0.68
1:A:16:THR:HG23	1:A:333:VAL:HA	1.75	0.68
1:C:253:GLU:OE1	1:E:196:ILE:HG13	1.95	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:254:ARG:NH2	1:F:126:ASP:OD2	2.27	0.67
1:A:296:TYR:O	1:A:300:ILE:HG13	1.95	0.67
1:B:203:LEU:HD11	1:B:209:ILE:HG13	1.77	0.67
1:E:249:LEU:HD11	1:E:300:ILE:HD11	1.77	0.67
1:E:203:LEU:HD11	1:E:209:ILE:HG13	1.77	0.67
1:A:333:VAL:HG13	1:A:334:HIS:HD2	1.61	0.66
1:B:150:LEU:HD13	1:B:152:TYR:HE2	1.60	0.66
1:D:61:SER:HB2	1:D:68:LEU:HD22	1.78	0.66
2:F:349:ADP:C5'	2:F:349:ADP:C8	2.79	0.66
1:D:196:ILE:HG13	1:F:253:GLU:OE1	1.96	0.65
1:D:200:ARG:HB3	1:E:162:THR:HG22	1.78	0.65
1:B:16:THR:HG22	1:B:18:GLN:N	2.11	0.65
1:C:16:THR:HG22	1:C:18:GLN:H	1.61	0.65
1:C:275:LEU:H	1:C:293:GLN:HE22	1.44	0.65
1:D:249:LEU:HD11	1:D:300:ILE:HD11	1.77	0.64
1:D:275:LEU:H	1:D:293:GLN:HE22	1.45	0.64
1:E:185:LEU:HD23	1:E:209:ILE:HD11	1.79	0.64
1:B:275:LEU:H	1:B:293:GLN:HE22	1.45	0.64
1:B:61:SER:HB2	1:B:68:LEU:HD22	1.80	0.63
1:A:80:ALA:HB2	1:A:92:MET:HE3	1.81	0.62
1:D:94:ILE:HD12	1:D:143:VAL:HG11	1.79	0.62
1:C:61:SER:HB2	1:C:68:LEU:HD22	1.82	0.62
1:D:150:LEU:HD13	1:D:152:TYR:HE2	1.65	0.61
1:F:243:ILE:HG22	1:F:245:GLU:HG2	1.82	0.61
1:D:16:THR:HG22	1:D:18:GLN:H	1.65	0.61
1:B:204:PRO:HG3	1:C:164:HIS:CD2	2.36	0.61
1:F:16:THR:HG23	1:F:333:VAL:HA	1.83	0.61
2:F:349:ADP:H5'1	2:F:349:ADP:C8	2.34	0.61
1:A:250:TYR:HE1	1:C:197:LEU:HD11	1.65	0.60
1:A:40:THR:HB	2:A:349:ADP:O1A	2.01	0.60
1:F:188:GLN:O	1:F:189:PHE:HB2	2.00	0.60
1:D:167:ARG:CZ	1:E:204:PRO:HB2	2.31	0.60
1:C:150:LEU:HD13	1:C:152:TYR:HE2	1.66	0.60
1:F:249:LEU:HD11	1:F:300:ILE:HD11	1.83	0.60
1:F:62:THR:HG22	1:F:160:ALA:HB2	1.84	0.59
2:B:349:ADP:H5'1	2:B:349:ADP:H8	1.68	0.59
2:E:349:ADP:H5'1	2:E:349:ADP:H8	1.68	0.59
1:D:16:THR:CG2	1:D:333:VAL:HA	2.32	0.58
1:B:243:ILE:HG22	1:B:244:ALA:N	2.19	0.58
1:A:96:PRO:HB2	1:F:205:GLY:CA	2.33	0.57
1:A:243:ILE:HG22	1:A:244:ALA:N	2.19	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:94:ILE:HD12	1:B:143:VAL:HG11	1.86	0.57
1:A:16:THR:CG2	1:A:333:VAL:HA	2.35	0.57
1:C:196:ILE:HG12	1:C:196:ILE:O	2.03	0.57
1:E:37:VAL:HG12	1:E:243:ILE:HG13	1.85	0.57
2:A:349:ADP:H5'1	2:A:349:ADP:H8	1.68	0.57
1:A:96:PRO:HB2	1:F:205:GLY:HA2	1.87	0.57
1:A:250:TYR:CE1	1:C:197:LEU:HD11	2.40	0.57
1:D:333:VAL:HG13	1:D:334:HIS:HD2	1.70	0.57
1:D:296:TYR:O	1:D:300:ILE:HG13	2.05	0.57
1:E:80:ALA:HB2	1:E:92:MET:HE3	1.86	0.57
1:A:208:ASN:ND2	1:A:211:GLU:HB2	2.20	0.56
1:B:293:GLN:O	1:B:297:LEU:HB2	2.05	0.56
1:C:16:THR:HG22	1:C:18:GLN:N	2.20	0.56
1:C:37:VAL:HG23	1:C:241:VAL:HG12	1.87	0.56
1:F:150:LEU:HD13	1:F:152:TYR:HE2	1.70	0.56
1:B:249:LEU:HB3	1:F:196:ILE:HD13	1.87	0.56
1:C:313:PRO:HG3	1:C:336:TYR:CG	2.40	0.56
1:E:37:VAL:HG23	1:E:241:VAL:HG12	1.87	0.56
1:B:313:PRO:HG3	1:B:336:TYR:CG	2.41	0.56
1:B:197:LEU:HD23	1:D:246:PHE:CZ	2.39	0.56
1:B:37:VAL:HG12	1:B:243:ILE:HG13	1.88	0.55
1:B:80:ALA:HB2	1:B:92:MET:HE3	1.87	0.55
1:C:208:ASN:ND2	1:C:211:GLU:HB2	2.22	0.55
1:A:37:VAL:HG12	1:A:243:ILE:HG13	1.89	0.55
1:A:80:ALA:HB2	1:A:92:MET:CE	2.36	0.55
1:B:16:THR:CG2	1:B:333:VAL:HA	2.34	0.55
1:D:34:LYS:HG3	1:D:161:PRO:O	2.06	0.55
1:E:313:PRO:HG3	1:E:336:TYR:CG	2.42	0.55
1:A:16:THR:HG22	1:A:18:GLN:H	1.71	0.55
1:D:80:ALA:HB2	1:D:92:MET:HE3	1.88	0.54
1:F:80:ALA:HB2	1:F:92:MET:CE	2.37	0.54
1:D:164:HIS:NE2	1:E:204:PRO:HG3	2.21	0.54
1:D:243:ILE:HG22	1:D:244:ALA:N	2.23	0.54
1:E:208:ASN:ND2	1:E:211:GLU:HB2	2.23	0.54
1:F:16:THR:CG2	1:F:333:VAL:HA	2.38	0.54
1:D:313:PRO:HG3	1:D:336:TYR:CG	2.42	0.54
1:C:252:THR:O	1:C:256:ILE:HG13	2.08	0.53
1:E:59:LEU:HG	1:E:68:LEU:HD21	1.90	0.53
1:D:167:ARG:NE	1:E:204:PRO:HB2	2.22	0.53
1:E:80:ALA:HB2	1:E:92:MET:CE	2.38	0.53
1:F:132:PRO:HG3	1:F:167:ARG:HG3	1.89	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:323:GLU:HG3	1:D:324:LYS:N	2.21	0.53
1:C:313:PRO:HG3	1:C:336:TYR:CD2	2.44	0.53
1:E:56:SER:O	1:E:153:GLU:HB3	2.09	0.53
1:F:16:THR:HG22	1:F:18:GLN:H	1.74	0.52
1:C:94:ILE:HD12	1:C:143:VAL:HG11	1.90	0.52
1:B:246:PHE:HZ	1:F:197:LEU:HD23	1.75	0.52
1:C:243:ILE:HG22	1:C:244:ALA:N	2.24	0.52
1:D:60:ILE:HD11	1:D:157:PHE:CE1	2.44	0.52
1:D:62:THR:HG22	1:D:160:ALA:HB2	1.92	0.52
1:A:138:MET:HG2	1:A:219:LEU:HD12	1.90	0.52
1:C:132:PRO:HG3	1:C:167:ARG:HG3	1.92	0.52
1:E:323:GLU:HG3	1:E:324:LYS:N	2.24	0.52
1:B:164:HIS:CD2	1:C:204:PRO:HG3	2.44	0.52
1:B:296:TYR:O	1:B:300:ILE:HG13	2.10	0.52
1:C:293:GLN:O	1:C:297:LEU:HB2	2.10	0.52
1:C:29:ILE:HD12	1:C:50:LEU:HD11	1.92	0.51
2:E:349:ADP:H5'1	2:E:349:ADP:C8	2.45	0.51
1:F:80:ALA:HB2	1:F:92:MET:HE3	1.90	0.51
1:A:313:PRO:HG3	1:A:336:TYR:CG	2.45	0.51
1:B:80:ALA:HB2	1:B:92:MET:CE	2.41	0.51
1:D:16:THR:HG22	1:D:18:GLN:N	2.26	0.51
1:C:284:GLU:O	1:C:287:ASN:HB2	2.09	0.51
1:B:56:SER:O	1:B:153:GLU:HB3	2.11	0.51
1:E:60:ILE:HD11	1:E:157:PHE:CE1	2.46	0.51
1:F:313:PRO:HG3	1:F:336:TYR:CG	2.45	0.51
2:B:349:ADP:H5'1	2:B:349:ADP:C8	2.46	0.50
1:F:243:ILE:CG2	1:F:245:GLU:HG2	2.40	0.50
1:E:136:GLU:OE1	1:E:167:ARG:NH1	2.45	0.50
1:C:323:GLU:HG3	1:C:324:LYS:N	2.27	0.50
1:E:28:TRP:HB2	1:E:236:THR:OG1	2.11	0.50
2:A:349:ADP:O1A	2:A:349:ADP:O3B	2.30	0.50
1:E:16:THR:CG2	1:E:333:VAL:HA	2.33	0.50
1:E:304:TYR:HB3	1:E:307:PHE:HB2	1.93	0.50
1:F:275:LEU:H	1:F:293:GLN:NE2	2.08	0.50
1:A:29:ILE:HD12	1:A:50:LEU:HD11	1.93	0.50
2:A:349:ADP:H5'1	2:A:349:ADP:C8	2.45	0.50
1:E:40:THR:HB	2:E:349:ADP:O1A	2.11	0.50
1:F:16:THR:HG22	1:F:18:GLN:N	2.27	0.50
1:A:150:LEU:HD13	1:A:152:TYR:HE2	1.75	0.50
1:C:56:SER:HA	1:C:88:ASN:HB2	1.93	0.50
1:A:102:ASP:CG	1:A:133:GLY:HA3	2.31	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:275:LEU:H	1:A:293:GLN:NE2	2.05	0.50
1:A:126:ASP:OD2	1:B:254:ARG:NH2	2.46	0.49
1:E:275:LEU:H	1:E:293:GLN:HE22	1.60	0.49
1:C:80:ALA:HB2	1:C:92:MET:HE3	1.92	0.49
1:B:60:ILE:HD11	1:B:157:PHE:CE1	2.46	0.49
1:C:203:LEU:HD11	1:C:209:ILE:HG13	1.94	0.49
1:D:66:HIS:HB3	1:D:93:GLU:OE2	2.13	0.49
1:F:61:SER:HB2	1:F:68:LEU:HD22	1.94	0.49
2:B:349:ADP:O3B	2:B:349:ADP:O1A	2.30	0.49
1:C:136:GLU:OE1	1:C:167:ARG:NH1	2.45	0.49
1:D:132:PRO:HG3	1:D:167:ARG:HG3	1.93	0.49
1:E:39:LYS:HD3	1:E:161:PRO:HG3	1.94	0.49
2:E:349:ADP:O1A	2:E:349:ADP:O3B	2.30	0.49
1:E:132:PRO:HG3	1:E:167:ARG:HG3	1.94	0.49
1:F:56:SER:O	1:F:153:GLU:HB3	2.13	0.49
1:B:104:LEU:HD21	1:C:182:LEU:HD13	1.94	0.48
1:A:212:LEU:HD22	1:F:100:ILE:HD11	1.95	0.48
1:D:203:LEU:HD11	1:D:209:ILE:HG13	1.95	0.48
1:F:56:SER:HA	1:F:88:ASN:HB2	1.94	0.48
1:F:319:VAL:HG12	1:F:325:LEU:HD23	1.96	0.48
1:A:39:LYS:HE3	1:A:158:ASP:OD1	2.13	0.48
1:B:132:PRO:HG3	1:B:167:ARG:HG3	1.95	0.48
1:D:204:PRO:HG3	1:E:164:HIS:CD2	2.48	0.48
1:A:16:THR:HG22	1:A:18:GLN:N	2.28	0.48
1:A:37:VAL:HG23	1:A:241:VAL:HG12	1.96	0.48
1:B:313:PRO:HG3	1:B:336:TYR:CD2	2.47	0.48
1:C:102:ASP:CG	1:C:133:GLY:HA3	2.34	0.48
2:F:349:ADP:C8	2:F:349:ADP:H5'2	2.48	0.48
1:F:275:LEU:N	1:F:293:GLN:HE22	2.10	0.48
1:C:182:LEU:HD23	1:C:213:LEU:HD12	1.96	0.48
1:E:126:ASP:OD2	1:F:254:ARG:NH2	2.46	0.48
1:F:323:GLU:HG3	1:F:324:LYS:N	2.28	0.48
1:D:188:GLN:O	1:D:189:PHE:HB2	2.13	0.48
1:C:37:VAL:HG12	1:C:243:ILE:HG13	1.96	0.47
1:D:80:ALA:HB2	1:D:92:MET:CE	2.43	0.47
1:E:14:GLU:N	1:E:14:GLU:OE1	2.47	0.47
1:E:16:THR:CG2	1:E:18:GLN:HB2	2.44	0.47
1:A:132:PRO:HG3	1:A:167:ARG:HG3	1.97	0.47
1:B:323:GLU:HG3	1:B:324:LYS:N	2.29	0.47
1:F:284:GLU:O	1:F:287:ASN:HB2	2.14	0.47
1:D:56:SER:O	1:D:153:GLU:HB3	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:40:THR:HB	2:E:349:ADP:O3B	2.14	0.47
1:A:44:CYS:O	1:A:48:ILE:HG13	2.14	0.47
1:E:62:THR:HG22	1:E:160:ALA:HB2	1.97	0.47
1:C:256:ILE:HG23	1:C:266:THR:HG21	1.97	0.47
1:D:333:VAL:HG13	1:D:334:HIS:CD2	2.49	0.47
1:F:94:ILE:HD12	1:F:143:VAL:HG11	1.95	0.47
1:B:275:LEU:H	1:B:293:GLN:NE2	2.11	0.47
1:A:56:SER:O	1:A:153:GLU:HB3	2.15	0.47
1:C:27:ARG:HA	1:C:154:VAL:HG23	1.96	0.47
1:B:162:THR:HG22	1:C:200:ARG:HB3	1.97	0.47
1:F:102:ASP:CG	1:F:133:GLY:HA3	2.36	0.47
1:A:14:GLU:OE1	1:A:14:GLU:N	2.48	0.46
1:C:66:HIS:HB3	1:C:93:GLU:OE2	2.15	0.46
1:C:333:VAL:HG13	1:C:334:HIS:HD2	1.80	0.46
1:D:208:ASN:ND2	1:D:211:GLU:HB2	2.30	0.46
1:E:296:TYR:O	1:E:300:ILE:HG13	2.15	0.46
1:D:100:ILE:HG12	1:E:212:LEU:HD22	1.98	0.46
1:C:275:LEU:H	1:C:293:GLN:NE2	2.11	0.46
1:B:184:GLN:O	1:B:184:GLN:HG2	2.16	0.46
1:F:304:TYR:HB3	1:F:307:PHE:HB2	1.98	0.46
1:F:333:VAL:HG13	1:F:334:HIS:CD2	2.50	0.46
1:E:184:GLN:O	1:E:184:GLN:HG2	2.16	0.46
1:E:16:THR:HG21	1:E:18:GLN:HB2	1.96	0.46
1:E:182:LEU:HD23	1:E:213:LEU:HD12	1.98	0.46
1:E:285:GLN:OE1	1:F:275:LEU:HA	2.16	0.46
1:C:171:PHE:N	1:C:172:PRO:CD	2.79	0.46
1:A:289:ARG:HE	1:B:289:ARG:HE	1.64	0.46
1:B:284:GLU:O	1:B:287:ASN:HB2	2.16	0.45
1:E:284:GLU:O	1:E:287:ASN:HB2	2.17	0.45
1:A:200:ARG:NH2	1:F:161:PRO:HG2	2.30	0.45
1:B:297:LEU:HD12	1:B:297:LEU:HA	1.80	0.45
1:D:60:ILE:HD11	1:D:157:PHE:CD1	2.51	0.45
1:B:62:THR:HG22	1:B:160:ALA:HB2	1.98	0.45
1:B:333:VAL:HG13	1:B:334:HIS:CD2	2.51	0.45
1:E:40:THR:HG21	1:E:67:ASN:HB3	1.97	0.45
1:E:171:PHE:N	1:E:172:PRO:CD	2.79	0.45
1:A:304:TYR:HB3	1:A:307:PHE:HB2	1.97	0.45
1:C:16:THR:CG2	1:C:333:VAL:HA	2.42	0.45
1:D:96:PRO:O	1:D:97:ASN:HB2	2.16	0.45
1:F:14:GLU:OE1	1:F:14:GLU:N	2.50	0.45
1:F:297:LEU:HD12	1:F:297:LEU:HA	1.84	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:160:ALA:HA	1:A:161:PRO:HD3	1.75	0.45
1:B:333:VAL:HG13	1:B:334:HIS:HD2	1.82	0.45
1:C:95:ASP:HA	1:C:96:PRO:HD3	1.81	0.45
1:D:27:ARG:HD2	1:D:235:MET:HE3	1.99	0.45
1:F:82:LEU:HD12	1:F:90:SER:OG	2.17	0.45
1:A:323:GLU:HG3	1:A:324:LYS:N	2.32	0.45
1:C:275:LEU:HD22	1:D:285:GLN:HG2	1.99	0.45
1:A:17:LEU:HG	1:A:310:VAL:HG21	1.97	0.45
1:B:29:ILE:HD12	1:B:50:LEU:HD11	1.98	0.45
1:D:64:PRO:HG2	1:E:200:ARG:HG2	1.99	0.45
1:F:171:PHE:N	1:F:172:PRO:CD	2.80	0.45
1:C:296:TYR:O	1:C:300:ILE:HG13	2.17	0.44
1:D:94:ILE:CD1	1:D:143:VAL:HG11	2.45	0.44
1:F:160:ALA:HA	1:F:161:PRO:HD3	1.81	0.44
1:A:175:LEU:HD12	1:A:223:ILE:HG13	1.99	0.44
1:B:200:ARG:HG2	1:C:64:PRO:HG2	2.00	0.44
1:C:304:TYR:HB3	1:C:307:PHE:HB2	1.99	0.44
1:C:62:THR:HG22	1:C:160:ALA:HB2	1.99	0.44
1:F:313:PRO:HG3	1:F:336:TYR:CD2	2.53	0.44
2:D:349:ADP:H2'	2:D:349:ADP:H5'1	1.81	0.44
1:E:56:SER:HA	1:E:88:ASN:HB2	1.98	0.44
1:E:150:LEU:HD13	1:E:152:TYR:HE2	1.81	0.44
1:F:59:LEU:HG	1:F:68:LEU:HD21	1.99	0.44
1:D:138:MET:HG2	1:D:219:LEU:HD12	1.99	0.44
1:D:171:PHE:N	1:D:172:PRO:CD	2.81	0.44
1:A:56:SER:HA	1:A:88:ASN:HB2	1.99	0.44
1:A:275:LEU:N	1:A:293:GLN:HE22	2.09	0.44
1:D:164:HIS:CE1	1:E:204:PRO:HG3	2.53	0.44
1:A:46:LEU:HD12	1:A:46:LEU:O	2.18	0.44
1:A:162:THR:CG2	1:F:200:ARG:HB3	2.47	0.44
1:D:14:GLU:N	1:D:14:GLU:OE1	2.50	0.44
1:B:40:THR:HB	2:B:349:ADP:O1A	2.18	0.44
1:C:14:GLU:N	1:C:14:GLU:OE1	2.51	0.44
1:A:68:LEU:HA	1:A:68:LEU:HD12	1.75	0.43
1:B:138:MET:HG2	1:B:219:LEU:HD12	2.00	0.43
1:B:249:LEU:HB3	1:F:196:ILE:CD1	2.47	0.43
1:D:57:VAL:HG22	1:D:154:VAL:HG12	2.00	0.43
1:D:63:ASP:HA	1:D:64:PRO:HD2	1.83	0.43
1:F:29:ILE:HD12	1:F:50:LEU:HD11	1.99	0.43
1:F:34:LYS:HD3	1:F:251:GLU:HG2	1.99	0.43
2:C:349:ADP:H5'1	2:C:349:ADP:C8	2.52	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:37:VAL:CG1	1:E:243:ILE:HG13	2.48	0.43
1:A:126:ASP:C	1:A:128:ALA:H	2.22	0.43
1:C:80:ALA:HB2	1:C:92:MET:CE	2.48	0.43
1:F:37:VAL:HG23	1:F:241:VAL:CG1	2.45	0.43
1:A:59:LEU:HG	1:A:68:LEU:HD21	2.00	0.43
1:B:171:PHE:N	1:B:172:PRO:CD	2.81	0.43
1:C:188:GLN:O	1:C:189:PHE:HB2	2.17	0.43
1:C:246:PHE:HZ	1:E:197:LEU:HD23	1.83	0.43
1:D:100:ILE:HD12	1:E:138:MET:HE1	2.00	0.43
1:D:160:ALA:HA	1:D:161:PRO:HD3	1.78	0.43
1:F:293:GLN:O	1:F:297:LEU:HB2	2.18	0.43
1:A:182:LEU:HD23	1:A:213:LEU:HD12	2.01	0.43
1:D:29:ILE:HD12	1:D:50:LEU:HD11	2.00	0.43
1:D:313:PRO:HG3	1:D:336:TYR:CD2	2.54	0.43
1:E:68:LEU:HD12	1:E:68:LEU:HA	1.75	0.43
1:E:131:ILE:HA	1:E:132:PRO:HD3	1.83	0.43
1:F:27:ARG:HD2	1:F:235:MET:HE3	2.01	0.43
1:F:60:ILE:HD11	1:F:157:PHE:CD1	2.53	0.43
1:F:68:LEU:HD12	1:F:68:LEU:HA	1.82	0.43
1:F:94:ILE:H	1:F:94:ILE:HG12	1.72	0.43
1:A:60:ILE:HD11	1:A:157:PHE:CD1	2.53	0.43
1:A:232:ASN:ND2	1:A:235:MET:HG3	2.33	0.43
1:B:102:ASP:CG	1:B:133:GLY:HA3	2.39	0.43
1:C:39:LYS:HE3	1:C:158:ASP:OD1	2.19	0.43
1:D:312:MET:HA	1:D:313:PRO:HD3	1.81	0.43
1:F:266:THR:HG23	1:F:266:THR:O	2.18	0.43
1:B:160:ALA:HA	1:B:161:PRO:HD3	1.83	0.43
1:C:297:LEU:HD12	1:C:297:LEU:HA	1.91	0.42
1:D:103:LEU:HD21	1:E:209:ILE:HG12	2.00	0.42
1:A:16:THR:CG2	1:A:18:GLN:HB2	2.49	0.42
1:A:16:THR:HG21	1:A:18:GLN:HB2	2.00	0.42
1:A:256:ILE:HG23	1:A:266:THR:HG21	2.00	0.42
1:B:14:GLU:HA	1:B:15:PRO:HD3	1.82	0.42
1:B:138:MET:HE1	1:C:100:ILE:HD12	2.01	0.42
1:D:28:TRP:HB2	1:D:236:THR:OG1	2.19	0.42
1:D:131:ILE:HA	1:D:132:PRO:HD3	1.85	0.42
1:F:138:MET:HG2	1:F:219:LEU:CD1	2.49	0.42
1:F:227:ASN:O	1:F:230:PHE:HB2	2.19	0.42
1:E:37:VAL:HG23	1:E:241:VAL:CG1	2.49	0.42
1:E:138:MET:HG2	1:E:219:LEU:HD12	2.02	0.42
1:E:312:MET:HA	1:E:313:PRO:HD3	1.82	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:208:ASN:ND2	1:F:211:GLU:HB2	2.34	0.42
1:A:100:ILE:CD1	1:F:212:LEU:HD22	2.49	0.42
1:A:313:PRO:HG3	1:A:336:TYR:CD2	2.53	0.42
1:C:312:MET:HA	1:C:313:PRO:HD3	1.79	0.42
2:C:349:ADP:H5'1	2:C:349:ADP:H8	1.85	0.42
1:C:56:SER:O	1:C:153:GLU:HB3	2.20	0.42
1:D:275:LEU:H	1:D:293:GLN:NE2	2.14	0.42
1:E:132:PRO:HB3	1:E:171:PHE:HE1	1.85	0.42
1:F:30:PHE:CD1	1:F:157:PHE:HB3	2.55	0.42
1:F:255:MET:O	1:F:255:MET:HG2	2.19	0.42
1:C:253:GLU:HG3	1:C:254:ARG:N	2.34	0.42
1:F:150:LEU:O	1:F:151:SER:HB2	2.18	0.42
1:B:16:THR:HG21	1:B:18:GLN:HB2	2.01	0.42
1:F:256:ILE:HG23	1:F:266:THR:HG21	2.01	0.42
1:B:59:LEU:HG	1:B:68:LEU:HD21	2.02	0.42
1:B:60:ILE:HD11	1:B:157:PHE:CD1	2.55	0.42
1:B:39:LYS:HE2	1:B:39:LYS:HB3	1.91	0.41
1:B:275:LEU:N	1:B:293:GLN:HE22	2.13	0.41
1:E:28:TRP:O	1:E:236:THR:HA	2.19	0.41
1:A:219:LEU:HD23	1:A:219:LEU:HA	1.82	0.41
1:E:313:PRO:HG3	1:E:336:TYR:CD2	2.56	0.41
1:F:66:HIS:HB3	1:F:93:GLU:OE2	2.20	0.41
1:B:132:PRO:HB3	1:B:171:PHE:HE1	1.85	0.41
1:B:208:ASN:ND2	1:B:211:GLU:HB2	2.34	0.41
1:D:204:PRO:HG3	1:E:164:HIS:NE2	2.36	0.41
1:B:200:ARG:HG3	1:C:65:ALA:HB2	2.01	0.41
1:F:333:VAL:HG13	1:F:334:HIS:HD2	1.84	0.41
1:A:188:GLN:O	1:A:189:PHE:HB2	2.20	0.41
1:C:275:LEU:N	1:C:293:GLN:HE22	2.12	0.41
1:F:166:LEU:HB3	1:F:169:LEU:HD12	2.03	0.41
1:A:131:ILE:HA	1:A:132:PRO:HD3	1.87	0.41
1:C:63:ASP:HA	1:C:64:PRO:HD2	1.82	0.41
1:C:246:PHE:CE1	1:E:196:ILE:HG22	2.56	0.41
1:E:94:ILE:H	1:E:94:ILE:HG12	1.70	0.41
1:E:160:ALA:C	1:E:162:THR:H	2.23	0.41
1:E:183:SER:C	1:E:185:LEU:H	2.24	0.41
1:F:39:LYS:HE2	1:F:39:LYS:HB3	1.93	0.41
2:F:349:ADP:H8	2:F:349:ADP:H5'2	1.80	0.41
1:A:166:LEU:HB3	1:A:169:LEU:HD12	2.02	0.41
1:B:197:LEU:HD23	1:B:197:LEU:HA	1.85	0.41
1:C:189:PHE:CD2	1:C:189:PHE:C	2.94	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:30:PHE:HZ	1:A:230:PHE:CE2	2.38	0.41
1:A:312:MET:HA	1:A:313:PRO:HD3	1.84	0.41
1:C:28:TRP:O	1:C:236:THR:HA	2.20	0.41
1:C:186:SER:HB2	1:C:209:ILE:HG21	2.02	0.41
1:D:71:ALA:O	1:D:320:ARG:O	2.37	0.41
1:E:188:GLN:N	1:E:188:GLN:OE1	2.53	0.41
1:B:164:HIS:NE2	1:C:204:PRO:HG3	2.36	0.41
1:C:52:LYS:NZ	1:C:326:GLU:OE2	2.50	0.41
1:A:171:PHE:N	1:A:172:PRO:CD	2.84	0.40
1:C:275:LEU:HA	1:D:285:GLN:OE1	2.21	0.40
1:D:102:ASP:CG	1:D:133:GLY:HA3	2.41	0.40
1:E:58:LEU:HD12	1:E:59:LEU:H	1.86	0.40
1:E:185:LEU:HD23	1:E:209:ILE:CD1	2.48	0.40
1:A:135:ASP:OD2	1:F:101:GLN:HG3	2.21	0.40
1:B:94:ILE:H	1:B:94:ILE:HG12	1.71	0.40
1:C:322:LYS:O	1:C:322:LYS:HG2	2.20	0.40
1:F:39:LYS:HE3	1:F:158:ASP:OD1	2.20	0.40
1:A:62:THR:HG22	1:A:160:ALA:HB2	2.02	0.40
1:C:213:LEU:HD12	1:C:213:LEU:HA	1.97	0.40
1:E:12:LEU:HB3	1:E:13:MET:H	1.63	0.40
1:B:100:ILE:HD12	1:C:138:MET:HE1	2.04	0.40
1:D:164:HIS:CG	1:E:204:PRO:HG3	2.55	0.40
1:E:102:ASP:CG	1:E:133:GLY:HA3	2.42	0.40
1:D:304:TYR:HB3	1:D:307:PHE:HB2	2.03	0.40
1:E:160:ALA:HA	1:E:161:PRO:HD3	1.87	0.40
1:E:293:GLN:O	1:E:297:LEU:HB2	2.21	0.40
1:F:219:LEU:HD23	1:F:219:LEU:HA	1.94	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	292/348 (84%)	278 (95%)	14 (5%)	0	100	100
1	B	292/348 (84%)	279 (96%)	13 (4%)	0	100	100
1	C	292/348 (84%)	278 (95%)	14 (5%)	0	100	100
1	D	292/348 (84%)	279 (96%)	13 (4%)	0	100	100
1	E	292/348 (84%)	279 (96%)	13 (4%)	0	100	100
1	F	292/348 (84%)	277 (95%)	15 (5%)	0	100	100
All	All	1752/2088 (84%)	1670 (95%)	82 (5%)	0	100	100

There are no Ramachandran outliers to report.

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	264/301 (88%)	259 (98%)	5 (2%)	57	81
1	B	264/301 (88%)	260 (98%)	4 (2%)	65	85
1	C	264/301 (88%)	260 (98%)	4 (2%)	65	85
1	D	264/301 (88%)	260 (98%)	4 (2%)	65	85
1	E	264/301 (88%)	260 (98%)	4 (2%)	65	85
1	F	264/301 (88%)	261 (99%)	3 (1%)	73	88
All	All	1584/1806 (88%)	1560 (98%)	24 (2%)	65	85

All (24) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	94	ILE
1	A	200	ARG
1	A	209	ILE
1	A	217	GLU
1	A	220	ARG
1	B	94	ILE
1	B	189	PHE

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Mol	Chain	Res	Type
1	B	217	GLU
1	B	220	ARG
1	C	189	PHE
1	C	196	ILE
1	C	217	GLU
1	C	220	ARG
1	D	94	ILE
1	D	189	PHE
1	D	217	GLU
1	D	220	ARG
1	E	189	PHE
1	E	209	ILE
1	E	217	GLU
1	E	220	ARG
1	F	12	LEU
1	F	217	GLU
1	F	220	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (20) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	164	HIS
1	A	293	GLN
1	A	334	HIS
1	B	97	ASN
1	B	214	GLN
1	B	293	GLN
1	B	334	HIS
1	C	66	HIS
1	C	164	HIS
1	C	293	GLN
1	C	334	HIS
1	D	214	GLN
1	D	293	GLN
1	D	334	HIS
1	E	293	GLN
1	E	334	HIS
1	F	97	ASN
1	F	164	HIS
1	F	293	GLN
1	F	334	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 monosaccharides in this entry.

5.6 Ligand geometry (i)

6 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	ADP	E	349	-	24,29,29	1.19	1 (4%)	29,45,45	1.45	4 (13%)
2	ADP	D	349	-	24,29,29	1.27	2 (8%)	29,45,45	1.59	7 (24%)
2	ADP	A	349	-	24,29,29	1.19	1 (4%)	29,45,45	1.44	4 (13%)
2	ADP	F	349	-	24,29,29	1.32	2 (8%)	29,45,45	1.48	4 (13%)
2	ADP	C	349	-	24,29,29	1.57	3 (12%)	29,45,45	1.60	7 (24%)
2	ADP	B	349	-	24,29,29	1.19	1 (4%)	29,45,45	1.45	4 (13%)

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	ADP	E	349	-	-	2/12/32/32	0/3/3/3
2	ADP	D	349	-	-	1/12/32/32	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	ADP	A	349	-	-	2/12/32/32	0/3/3/3
2	ADP	F	349	-	-	5/12/32/32	0/3/3/3
2	ADP	C	349	-	-	5/12/32/32	0/3/3/3
2	ADP	B	349	-	-	2/12/32/32	0/3/3/3

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	349	ADP	C8-N7	4.95	1.43	1.34
2	C	349	ADP	PB-O3B	-3.50	1.41	1.54
2	D	349	ADP	PB-O3B	-2.92	1.43	1.54
2	C	349	ADP	C5-N7	-2.47	1.31	1.39
2	D	349	ADP	O4'-C1'	2.44	1.44	1.40
2	F	349	ADP	O4'-C4'	-2.28	1.39	1.45
2	F	349	ADP	PB-O3B	-2.20	1.46	1.54
2	E	349	ADP	O4'-C4'	-2.07	1.40	1.45
2	B	349	ADP	O4'-C4'	-2.06	1.40	1.45
2	A	349	ADP	O4'-C4'	-2.05	1.40	1.45

All (30) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	B	349	ADP	N3-C2-N1	-3.86	123.43	128.67
2	E	349	ADP	N3-C2-N1	-3.86	123.43	128.67
2	A	349	ADP	N3-C2-N1	-3.85	123.45	128.67
2	F	349	ADP	N3-C2-N1	-3.74	123.60	128.67
2	C	349	ADP	O3B-PB-O3A	-3.38	93.30	104.64
2	D	349	ADP	C4-C5-N7	-3.34	105.80	109.34
2	D	349	ADP	N3-C2-N1	-3.32	124.17	128.67
2	F	349	ADP	C4-C5-N7	-3.05	106.11	109.34
2	C	349	ADP	O3'-C3'-C2'	-2.99	102.23	111.82
2	B	349	ADP	O3'-C3'-C2'	-2.74	103.02	111.82
2	E	349	ADP	O3'-C3'-C2'	-2.74	103.03	111.82
2	A	349	ADP	O3'-C3'-C2'	-2.74	103.05	111.82
2	D	349	ADP	O4'-C1'-N9	2.56	112.14	108.75
2	E	349	ADP	C4-C5-N7	-2.55	106.64	109.34
2	B	349	ADP	C4-C5-N7	-2.54	106.65	109.34
2	A	349	ADP	C4-C5-N7	-2.52	106.67	109.34
2	C	349	ADP	O4'-C1'-N9	2.52	112.09	108.75
2	C	349	ADP	C4'-O4'-C1'	-2.49	107.64	109.92
2	E	349	ADP	C5'-C4'-C3'	-2.48	106.27	115.21

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	349	ADP	C5'-C4'-C3'	-2.47	106.31	115.21
2	B	349	ADP	C5'-C4'-C3'	-2.47	106.32	115.21
2	D	349	ADP	O4'-C4'-C3'	-2.33	100.52	105.15
2	D	349	ADP	O4'-C4'-C5'	-2.29	102.00	109.33
2	F	349	ADP	O3'-C3'-C2'	-2.25	104.61	111.82
2	D	349	ADP	O2'-C2'-C3'	-2.18	104.82	111.82
2	C	349	ADP	O4'-C4'-C5'	-2.16	102.41	109.33
2	C	349	ADP	O3'-C3'-C4'	-2.13	104.96	111.08
2	C	349	ADP	O4'-C4'-C3'	-2.07	101.05	105.15
2	F	349	ADP	C1'-N9-C4	-2.01	123.11	126.64
2	D	349	ADP	O5'-PA-O1A	-2.00	101.00	108.94

There are no chirality outliers.

All (17) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	C	349	ADP	C5'-O5'-PA-O2A
2	C	349	ADP	C5'-O5'-PA-O3A
2	F	349	ADP	C5'-O5'-PA-O1A
2	F	349	ADP	C5'-O5'-PA-O2A
2	F	349	ADP	C5'-O5'-PA-O3A
2	F	349	ADP	C3'-C4'-C5'-O5'
2	F	349	ADP	O4'-C4'-C5'-O5'
2	C	349	ADP	C5'-O5'-PA-O1A
2	D	349	ADP	C5'-O5'-PA-O3A
2	A	349	ADP	PB-O3A-PA-O1A
2	B	349	ADP	PB-O3A-PA-O1A
2	E	349	ADP	PB-O3A-PA-O1A
2	C	349	ADP	C3'-C4'-C5'-O5'
2	A	349	ADP	PB-O3A-PA-O2A
2	B	349	ADP	PB-O3A-PA-O2A
2	C	349	ADP	PB-O3A-PA-O2A
2	E	349	ADP	PB-O3A-PA-O2A

There are no ring outliers.

6 monomers are involved in 22 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	E	349	ADP	5	0
2	D	349	ADP	1	0
2	A	349	ADP	4	0

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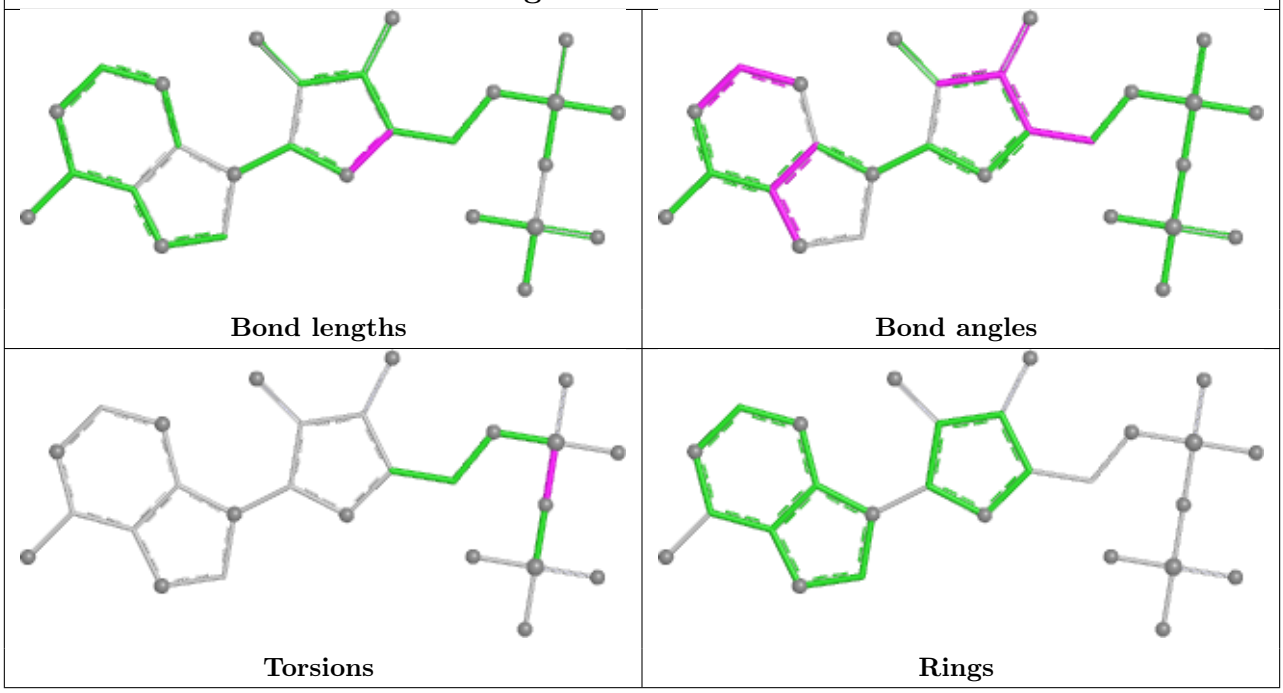
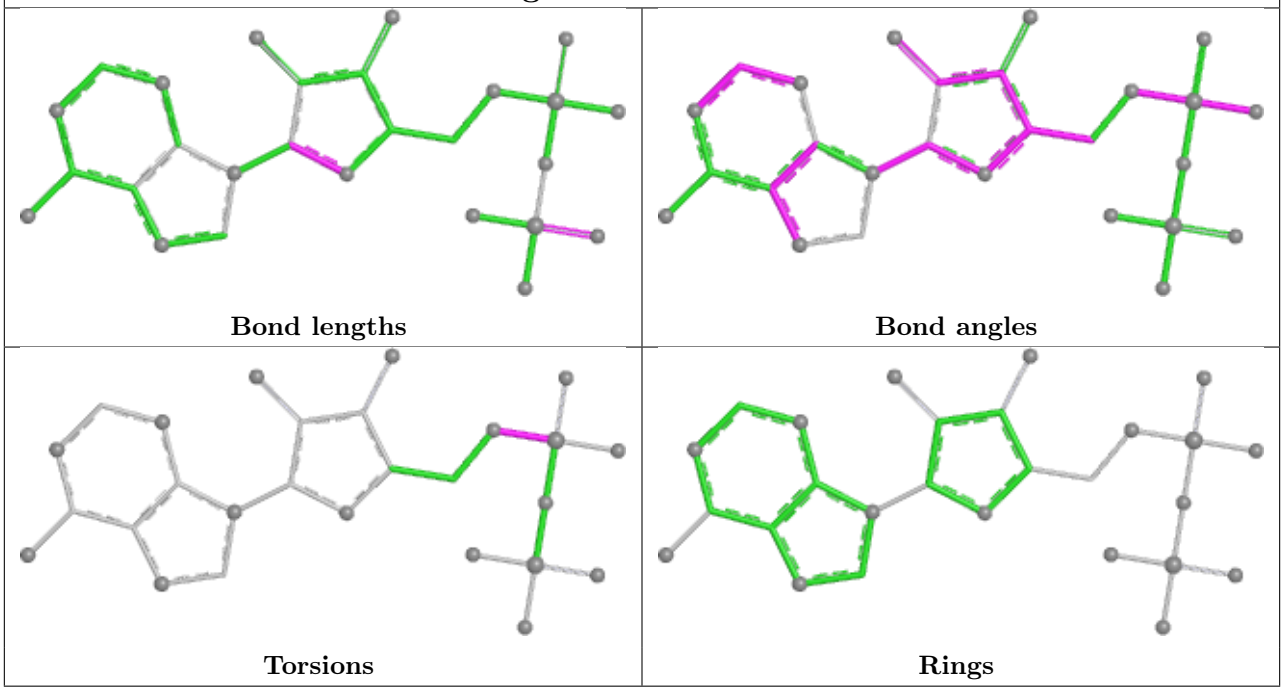
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	F	349	ADP	6	0
2	C	349	ADP	2	0
2	B	349	ADP	4	0

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 then 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.

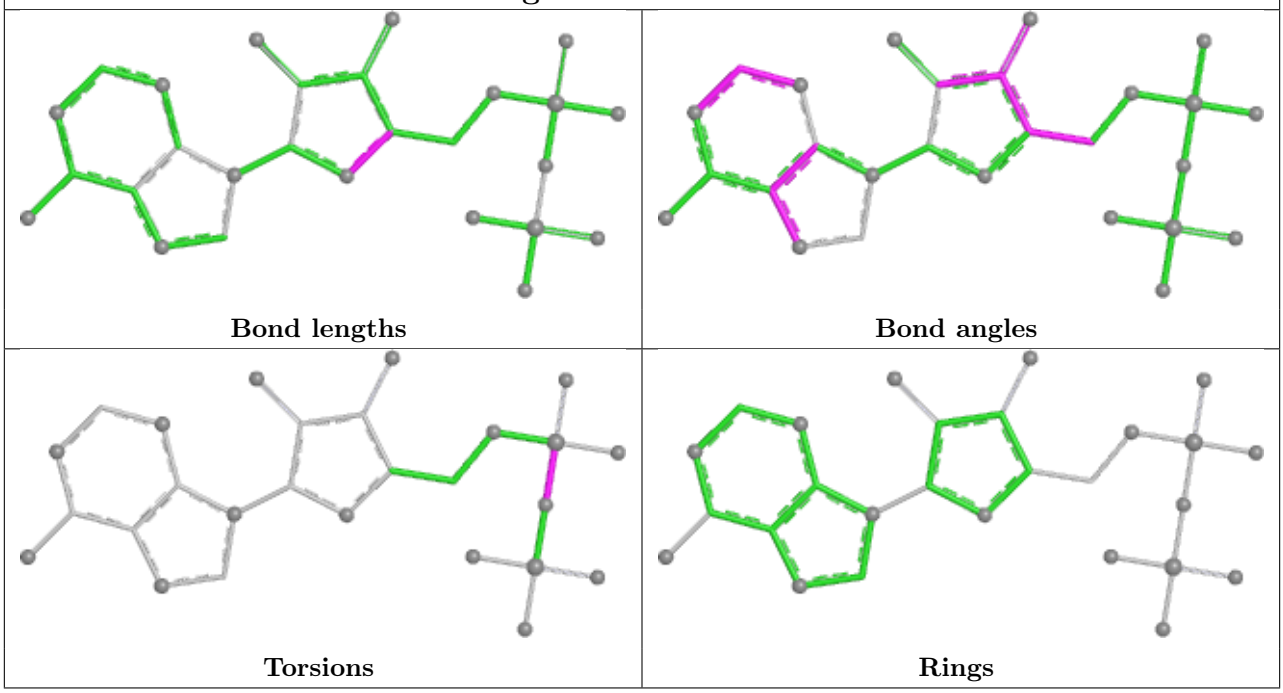
Ligand ADP E 349



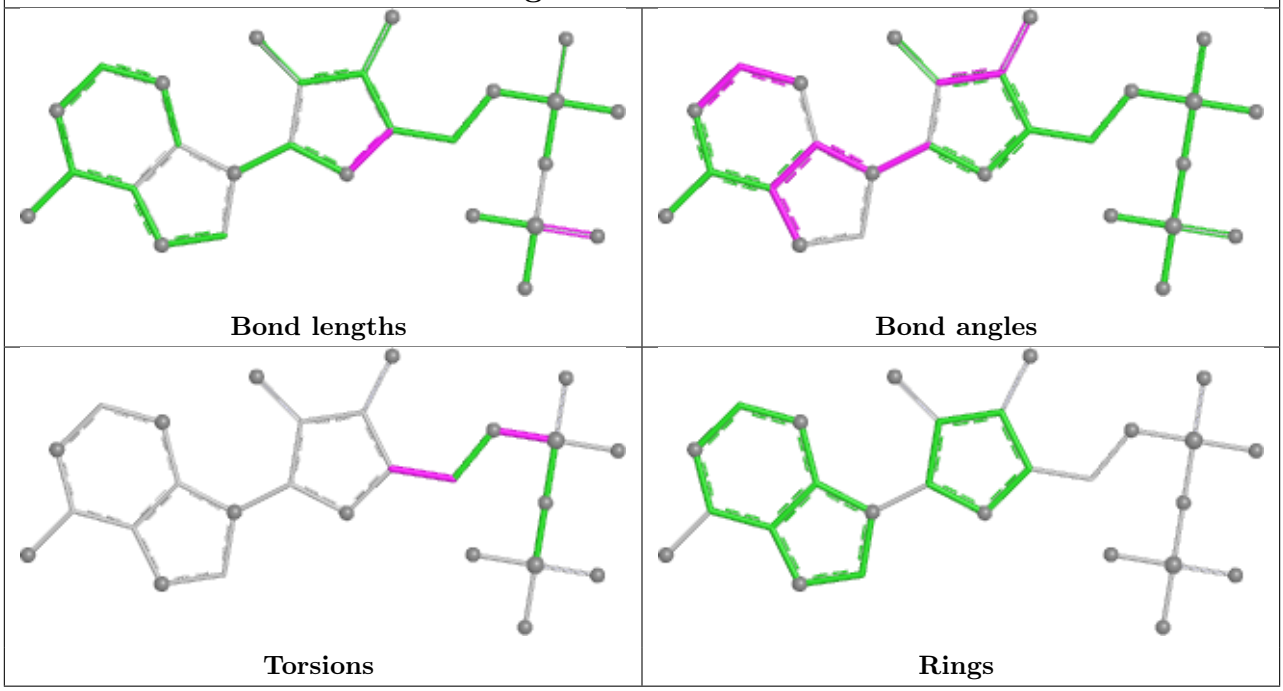
Ligand ADP D 349



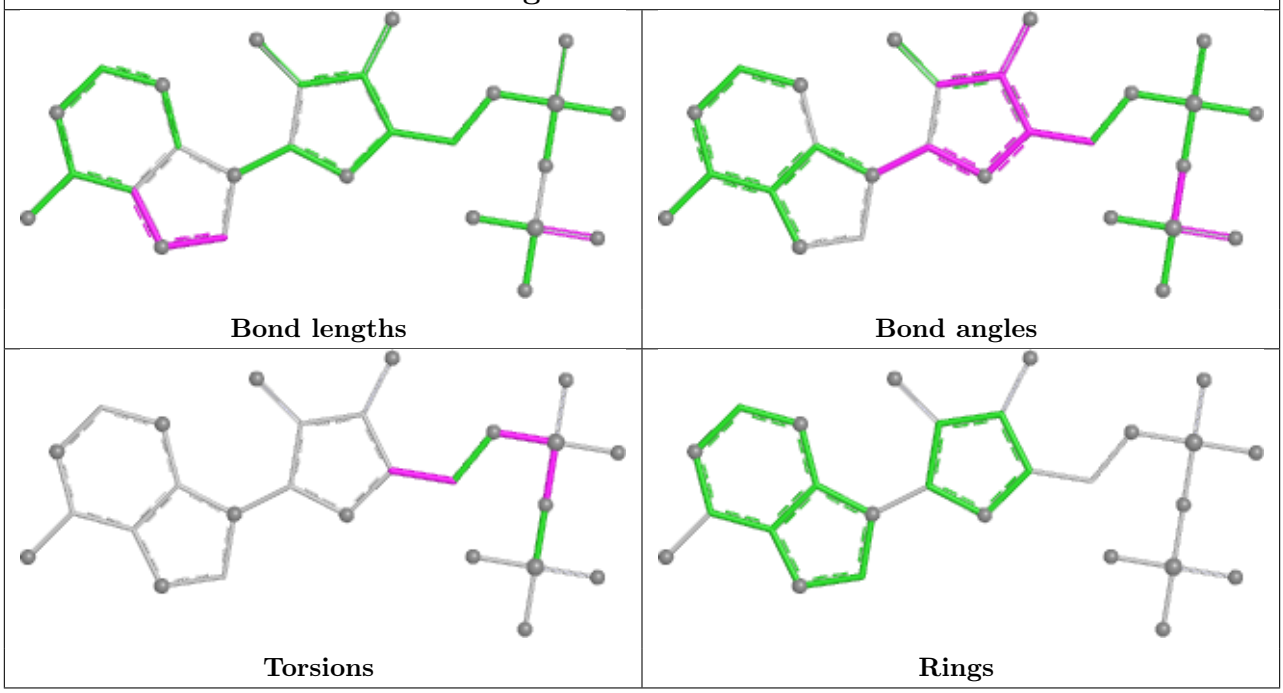
Ligand ADP A 349



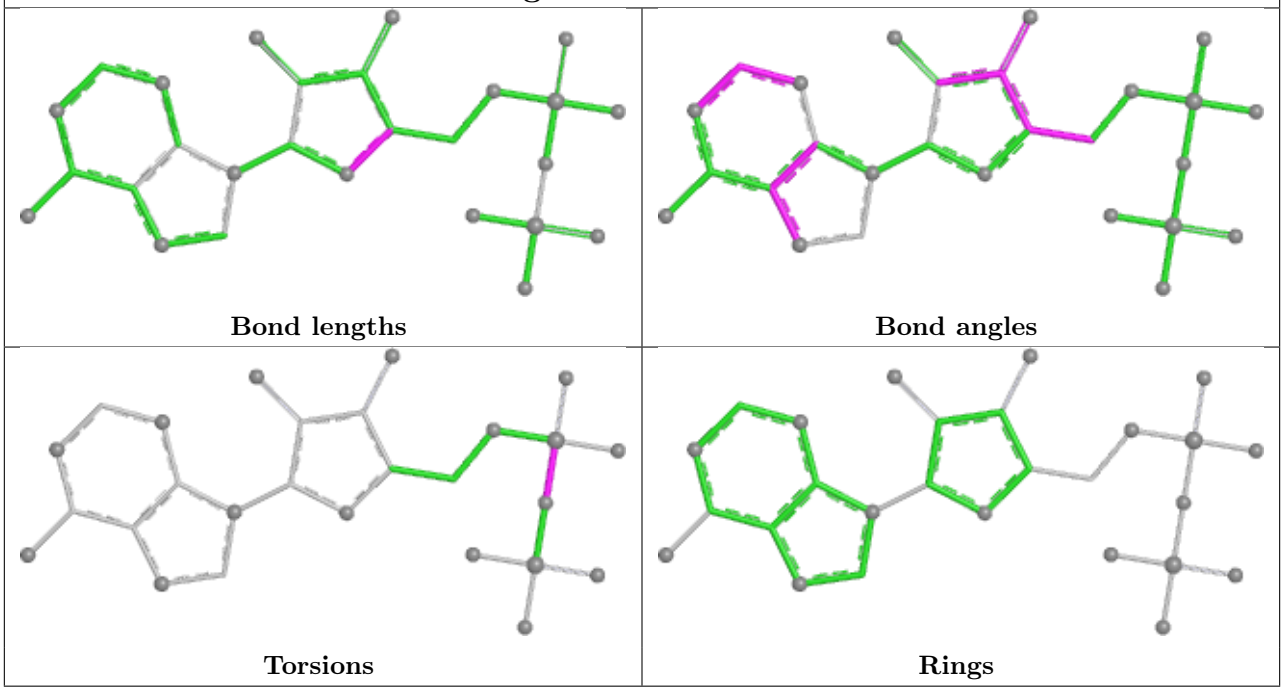
Ligand ADP F 349



Ligand ADP C 349



Ligand ADP B 349



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, 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	300/348 (86%)	-0.13	0	100	100	33, 71, 121, 156	0
1	B	300/348 (86%)	-0.04	2 (0%)	87	81	51, 94, 138, 177	0
1	C	300/348 (86%)	-0.03	1 (0%)	94	92	51, 88, 134, 175	0
1	D	300/348 (86%)	-0.08	1 (0%)	94	92	52, 91, 141, 176	0
1	E	300/348 (86%)	-0.07	1 (0%)	94	92	38, 74, 124, 165	0
1	F	300/348 (86%)	-0.08	1 (0%)	94	92	34, 64, 114, 155	0
All	All	1800/2088 (86%)	-0.07	6 (0%)	94	92	33, 82, 131, 177	0

All (6) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	129	PHE	3.3
1	B	262	TYR	2.9
1	D	127	LEU	2.9
1	F	67	ASN	2.6
1	E	320	ARG	2.2
1	C	262	TYR	2.0

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 monosaccharides in this entry.

6.4 Ligands (i)

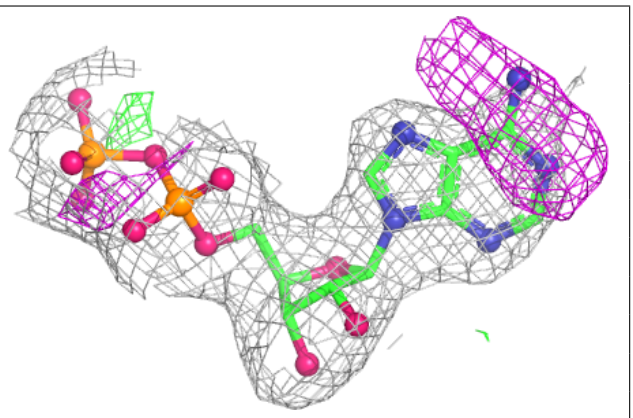
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

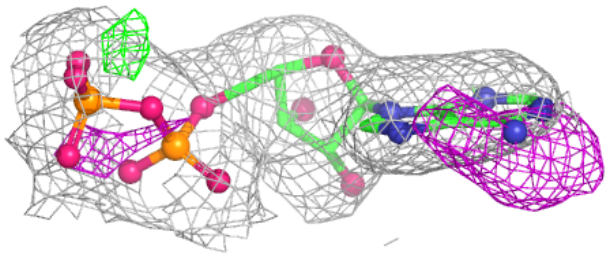
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	ADP	E	349	27/27	0.92	0.23	58,58,58,58	0
2	ADP	B	349	27/27	0.93	0.22	75,75,75,75	0
2	ADP	F	349	27/27	0.95	0.21	64,64,64,64	0
2	ADP	D	349	27/27	0.96	0.20	74,74,74,74	0
2	ADP	A	349	27/27	0.96	0.19	71,71,71,71	0
2	ADP	C	349	27/27	0.96	0.19	75,75,75,75	0

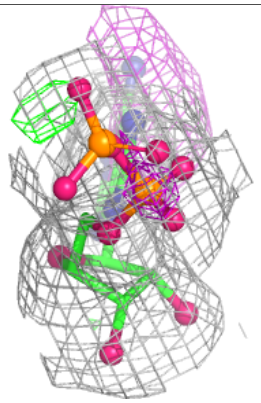
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around ADP E 349:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative) and green (positive)

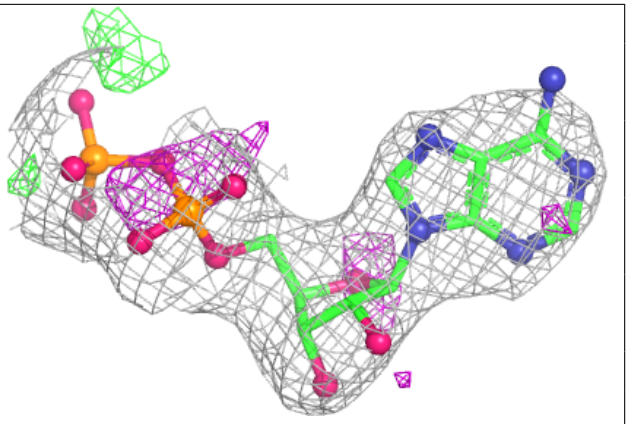


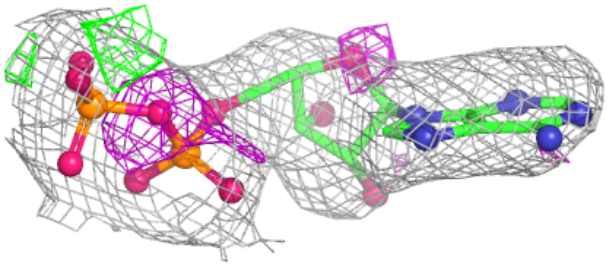


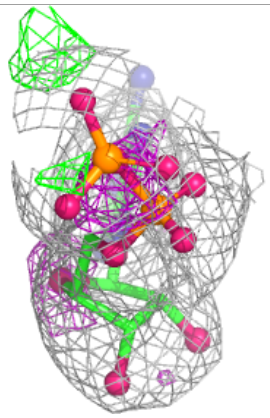


Electron density around ADP B 349:

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

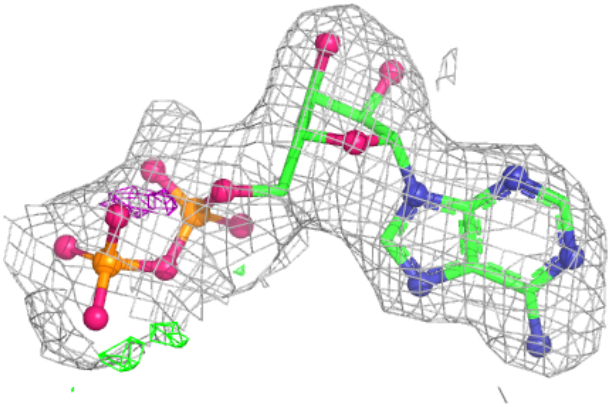


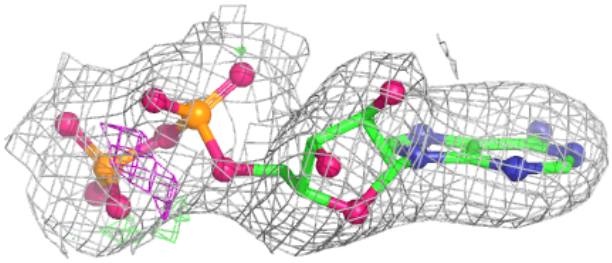




Electron density around ADP F 349:

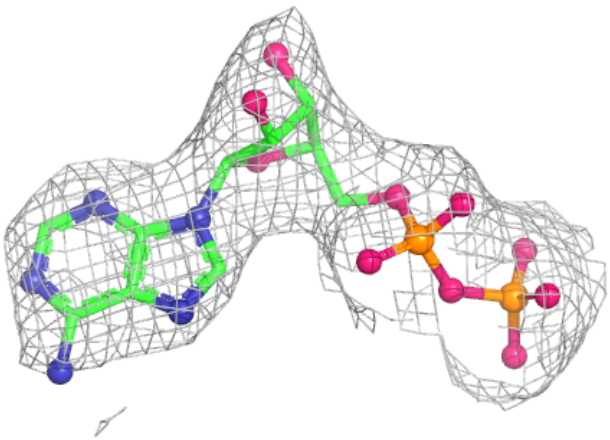
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

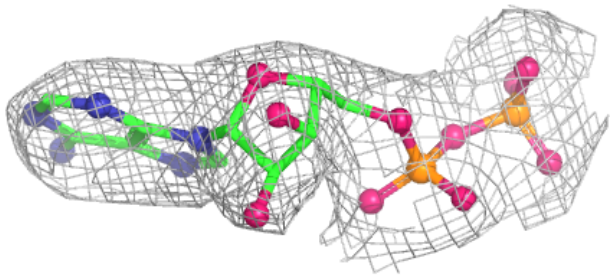


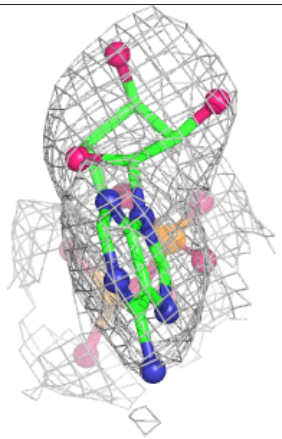


Electron density around ADP D 349:

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

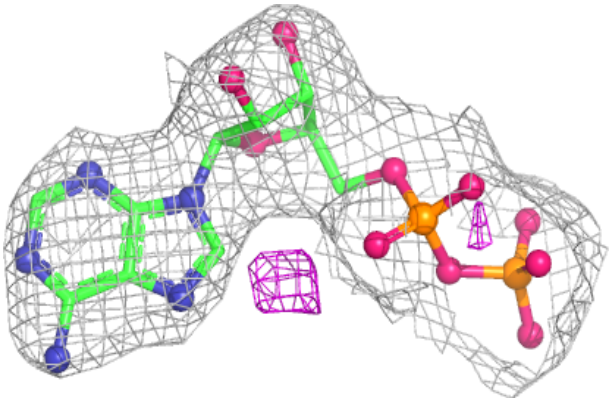


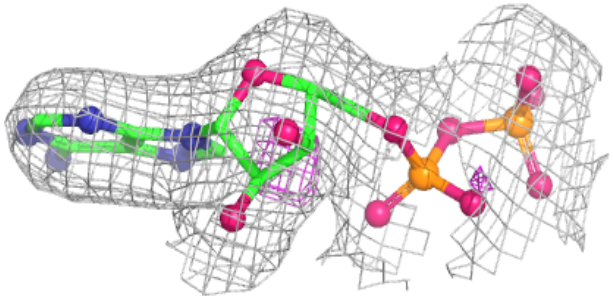


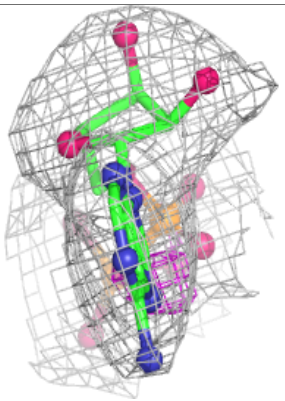


Electron density around ADP A 349:

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

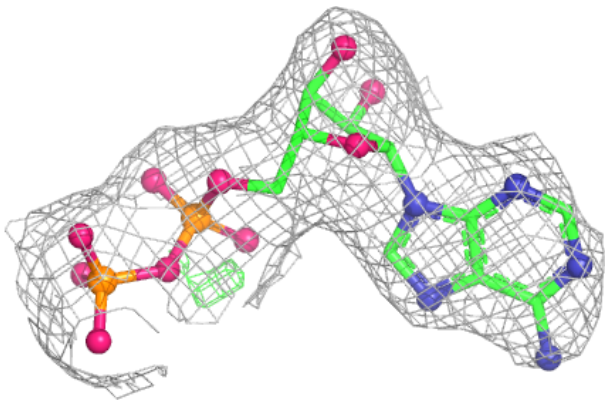


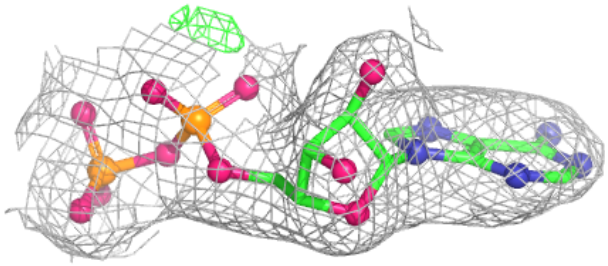


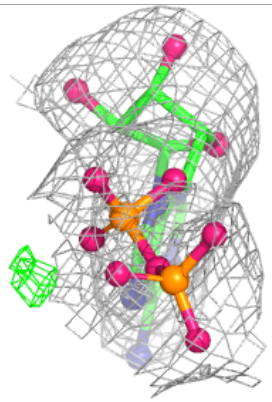


Electron density around ADP C 349:

$2mF_o$-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.