



Full wwPDB X-ray Structure Validation Report ⓘ

Jan 3, 2023 – 06:17 am GMT

PDB ID : 6HQU
Title : Humanised RadA mutant HumRadA22 in complex with a recombined BRC repeat 8-2
Authors : Pantelejevs, T.; Lindenburg, L.; Hyvonen, M.; Hollfelder, F.
Deposited on : 2018-09-25
Resolution : 1.97 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4.02b-467
Mogul : 1.8.4, CSD as541be (2020)
Xtrriage (Phenix) : 1.13
EDS : 2.31.3
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) : 2.31.3

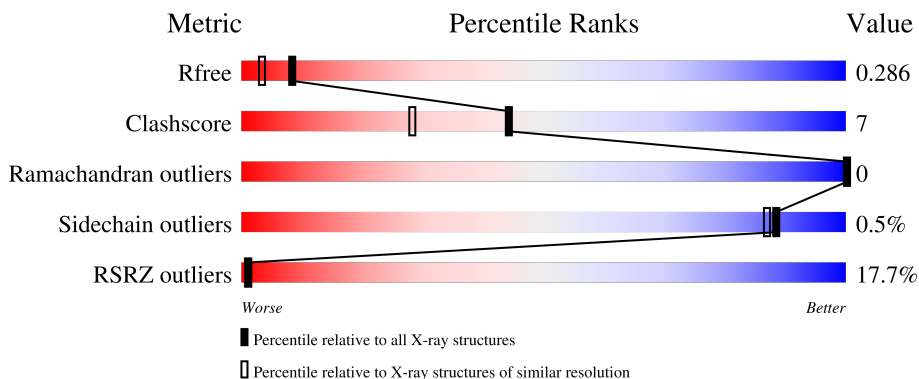
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.97 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	11647 (2.00-1.96)
Clashscore	141614	1014 (1.98-1.98)
Ramachandran outliers	138981	1006 (1.98-1.98)
Sidechain outliers	138945	1006 (1.98-1.98)
RSRZ outliers	127900	11410 (2.00-1.96)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	231	 84% 6% 10%
1	B	231	 87% 8% 5%
1	C	231	 84% 7% 9%
1	D	231	 79% 11% 10%
1	E	231	 81% 11% 8%

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Mol	Chain	Length	Quality of chain
1	F	231	
1	G	231	
1	H	231	
2	I	38	
2	J	38	
2	K	38	
2	L	38	
2	M	38	
2	N	38	
2	O	38	

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
4	MG	H	402	-	-	-	X

2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 14419 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 DNA repair and recombination protein RadA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	208	Total 1621	C 1015	N 292	O 308	S 6	0	0	0
1	B	219	Total 1704	C 1068	N 310	O 320	S 6	0	0	0
1	C	210	Total 1639	C 1027	N 298	O 308	S 6	0	0	0
1	D	208	Total 1615	C 1012	N 290	O 307	S 6	0	0	0
1	E	212	Total 1637	C 1023	N 296	O 312	S 6	0	0	0
1	F	204	Total 1578	C 987	N 285	O 300	S 6	0	0	0
1	G	194	Total 1534	C 965	N 273	O 290	S 6	0	0	0
1	H	192	Total 1440	C 901	N 257	O 276	S 6	0	0	0

- Molecule 2 is a protein called Breast cancer type 2 susceptibility.

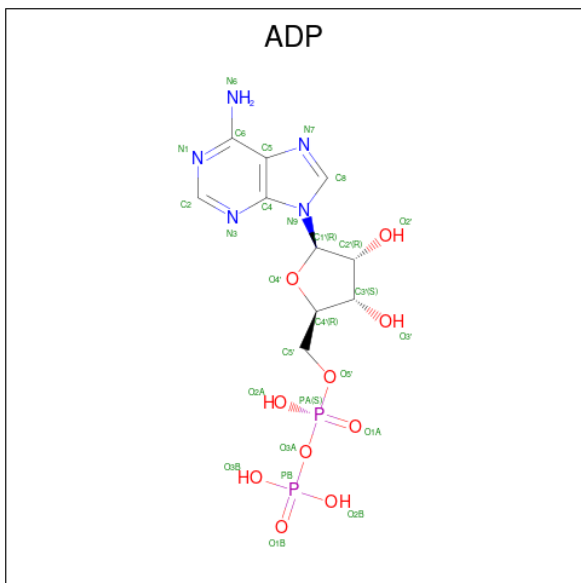
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
2	I	31	Total 225	C 142	N 37	O 46	0	0	0
2	J	31	Total 225	C 142	N 37	O 46	0	0	0
2	K	18	Total 128	C 80	N 21	O 27	0	0	0
2	L	31	Total 225	C 142	N 37	O 46	0	0	0
2	M	30	Total 219	C 139	N 36	O 44	0	0	0
2	N	12	Total 84	C 53	N 15	O 16	0	0	0

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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
2	O	15	107	68	18	21	0	0	0

- Molecule 3 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$).



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

- Molecule 4 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total Mg 1 1	0	0
4	B	1	Total Mg 1 1	0	0
4	C	1	Total Mg 1 1	0	0
4	D	1	Total Mg 1 1	0	0
4	E	1	Total Mg 1 1	0	0
4	F	1	Total Mg 1 1	0	0
4	G	1	Total Mg 1 1	0	0
4	H	1	Total Mg 1 1	0	0

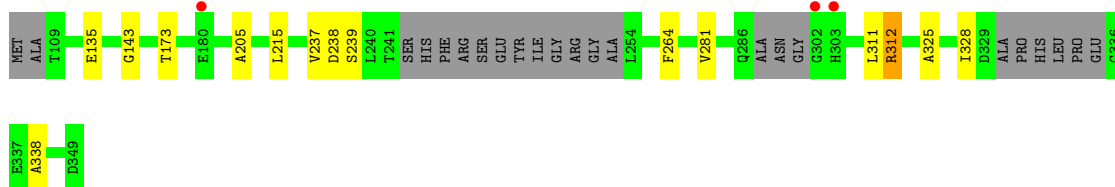
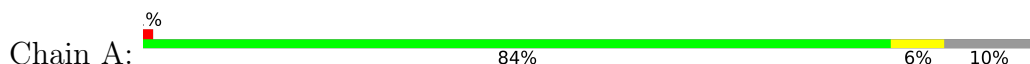
- Molecule 5 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	49	Total O 49 49	0	0
5	B	40	Total O 40 40	0	0
5	C	29	Total O 29 29	0	0
5	D	40	Total O 40 40	0	0
5	E	29	Total O 29 29	0	0
5	F	4	Total O 4 4	0	0
5	G	9	Total O 9 9	0	0
5	I	8	Total O 8 8	0	0
5	J	2	Total O 2 2	0	0
5	K	1	Total O 1 1	0	0
5	L	3	Total O 3 3	0	0

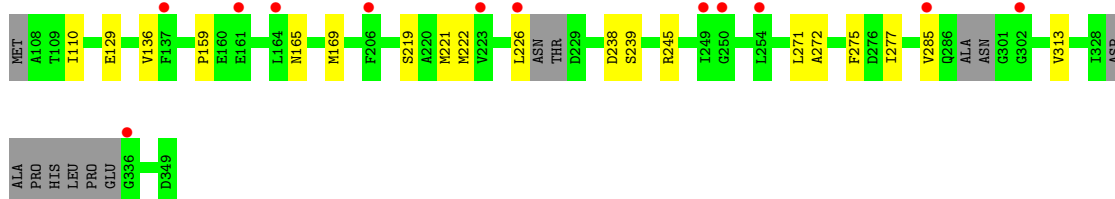
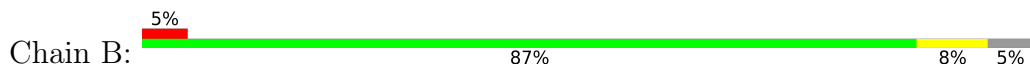
3 Residue-property plots [i](#)

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.

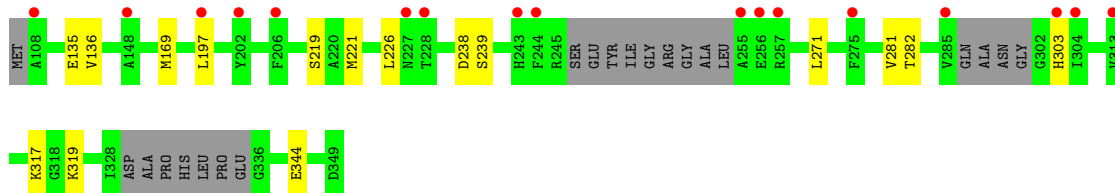
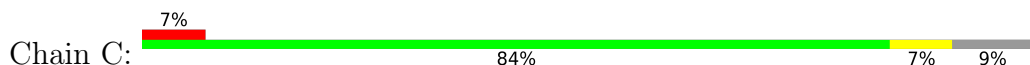
- Molecule 1: DNA repair and recombination protein RadA



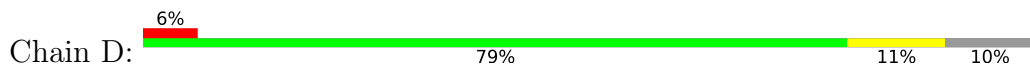
- Molecule 1: DNA repair and recombination protein RadA

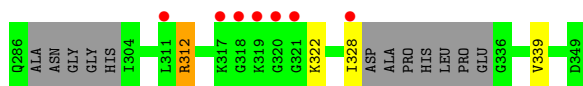


- Molecule 1: DNA repair and recombination protein RadA

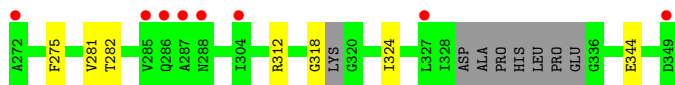
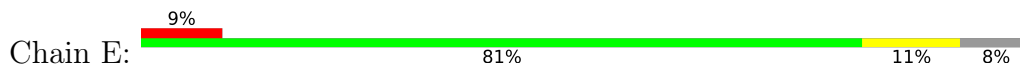


- Molecule 1: DNA repair and recombination protein RadA

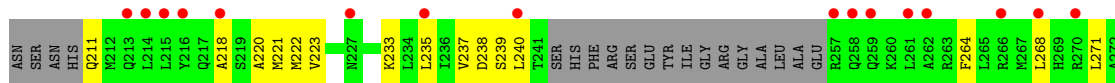
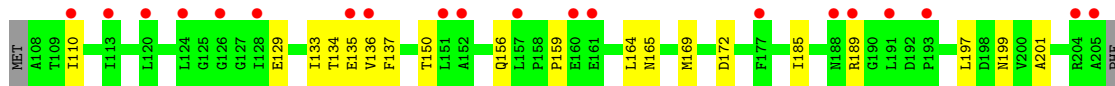




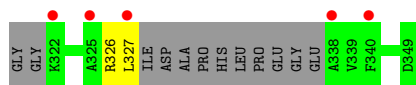
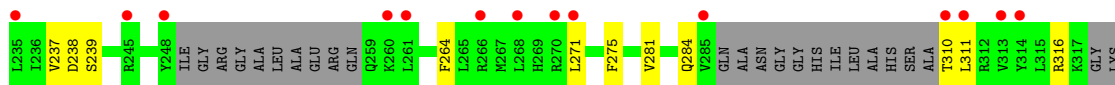
- Molecule 1: DNA repair and recombination protein RadA



- Molecule 1: DNA repair and recombination protein RadA

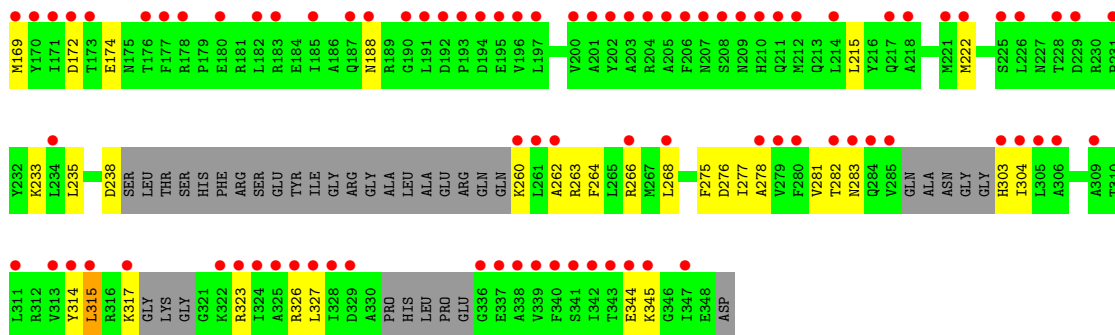


- Molecule 1: DNA repair and recombination protein RadA



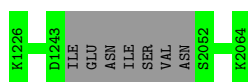
- Molecule 1: DNA repair and recombination protein RadA





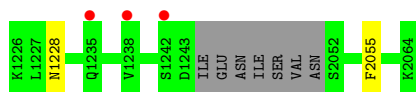
- Molecule 2: Breast cancer type 2 susceptibility

Chain I: 82% 18%



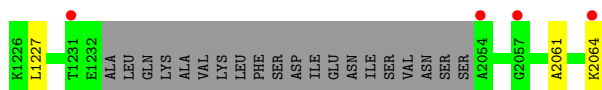
- Molecule 2: Breast cancer type 2 susceptibility

Chain J: 8% 76% 5% 18%



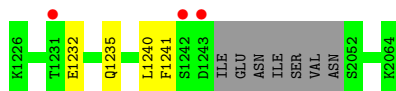
- Molecule 2: Breast cancer type 2 susceptibility

Chain K: 11% 39% 8% 53%



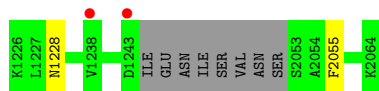
- Molecule 2: Breast cancer type 2 susceptibility

Chain L: 8% 71% 11% 18%

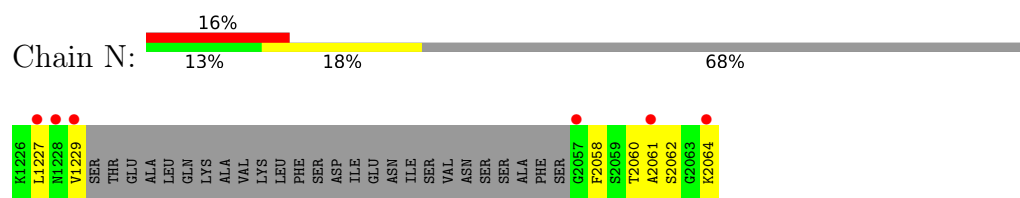


- Molecule 2: Breast cancer type 2 susceptibility

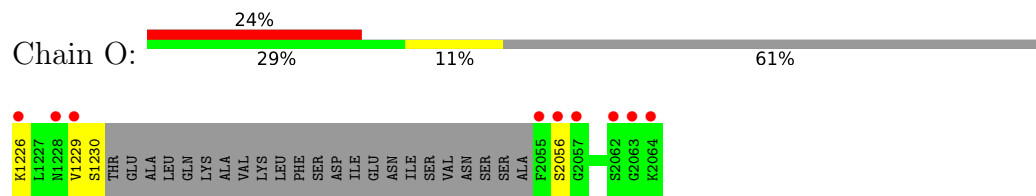
Chain M: 5% 74% 5% 21%



- Molecule 2: Breast cancer type 2 susceptibility



- Molecule 2: Breast cancer type 2 susceptibility



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	114.40Å 75.47Å 114.79Å 90.00° 97.06° 90.00°	Depositor
Resolution (Å)	85.87 – 1.97 85.87 – 1.97	Depositor EDS
% Data completeness (in resolution range)	99.7 (85.87-1.97) 99.7 (85.87-1.97)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.11 (at 1.97Å)	Xtrriage
Refinement program	BUSTER	Depositor
R, R_{free}	0.263 , 0.271 0.277 , 0.286	Depositor DCC
R_{free} test set	6853 reflections (4.97%)	wwPDB-VP
Wilson B-factor (Å ²)	44.7	Xtrriage
Anisotropy	0.128	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.30 , 52.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	0.017 for l,-k,h	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	14419	wwPDB-VP
Average B, all atoms (Å ²)	68.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 10.54% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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	0.42	0/1640	0.59	0/2203
1	B	0.44	0/1726	0.59	0/2316
1	C	0.42	0/1660	0.58	0/2229
1	D	0.40	0/1633	0.57	0/2194
1	E	0.39	0/1656	0.57	0/2226
1	F	0.40	0/1595	0.59	0/2142
1	G	0.50	0/1553	0.58	0/2086
1	H	0.37	0/1455	0.58	0/1959
2	I	0.39	0/226	0.57	0/299
2	J	0.36	0/226	0.52	0/299
2	K	0.34	0/128	0.64	0/168
2	L	0.32	0/226	0.55	0/299
2	M	0.32	0/220	0.50	0/291
2	N	0.36	0/83	0.53	0/107
2	O	0.39	0/107	0.59	0/139
All	All	0.42	0/14134	0.58	0/18957

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	1621	0	1636	11	0
1	B	1704	0	1716	12	0
1	C	1639	0	1652	19	0
1	D	1615	0	1637	17	0
1	E	1637	0	1648	16	0
1	F	1578	0	1600	37	0
1	G	1534	0	1543	27	0
1	H	1440	0	1393	40	0
2	I	225	0	227	0	0
2	J	225	0	227	1	0
2	K	128	0	124	5	0
2	L	225	0	227	3	0
2	M	219	0	222	1	0
2	N	84	0	87	8	0
2	O	107	0	106	3	0
3	A	27	0	12	1	0
3	B	27	0	12	0	0
3	C	27	0	12	0	0
3	D	27	0	12	0	0
3	E	27	0	12	0	0
3	F	27	0	12	0	0
3	G	27	0	12	1	0
3	H	27	0	12	1	0
4	A	1	0	0	0	0
4	B	1	0	0	0	0
4	C	1	0	0	0	0
4	D	1	0	0	0	0
4	E	1	0	0	0	0
4	F	1	0	0	0	0
4	G	1	0	0	0	0
4	H	1	0	0	0	0
5	A	49	0	0	0	0
5	B	40	0	0	0	0
5	C	29	0	0	0	0
5	D	40	0	0	0	0
5	E	29	0	0	0	0
5	F	4	0	0	0	0
5	G	9	0	0	0	0
5	I	8	0	0	0	0
5	J	2	0	0	0	0
5	K	1	0	0	0	0
5	L	3	0	0	0	0
All	All	14419	0	14141	188	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 7.

All (188) 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:H:131:GLN:HG2	1:H:276:ASP:HA	1.66	0.76
1:F:237:VAL:HB	1:F:281:VAL:HG12	1.68	0.74
1:H:315:LEU:HD12	1:H:315:LEU:N	2.03	0.73
1:B:219:SER:HB2	1:B:271:LEU:HD21	1.71	0.71
1:C:169:MET:HE1	1:C:221:MET:CE	2.21	0.70
1:A:237:VAL:HB	1:A:281:VAL:HG12	1.73	0.70
1:C:169:MET:CE	1:C:221:MET:HE2	2.24	0.68
1:C:169:MET:CE	1:C:221:MET:CE	2.72	0.67
1:H:304:ILE:HD12	1:H:304:ILE:N	2.12	0.65
1:C:169:MET:HE1	1:C:221:MET:HE2	1.79	0.64
1:H:136:VAL:CG2	1:H:315:LEU:HD11	2.28	0.63
1:F:135:GLU:HB3	1:F:281:VAL:HG23	1.82	0.62
1:E:237:VAL:HB	1:E:281:VAL:HG12	1.81	0.62
1:A:311:LEU:N	1:A:311:LEU:HD22	2.14	0.62
1:F:328:ILE:O	1:F:328:ILE:HG22	2.00	0.61
1:H:314:TYR:CD2	1:H:326:ARG:NH1	2.69	0.60
1:D:166:GLY:HA3	1:D:233:LYS:HG3	1.86	0.58
1:H:120:LEU:O	1:H:124:LEU:HG	2.03	0.58
1:G:134:THR:HG23	1:G:311:LEU:HD23	1.85	0.57
1:G:169:MET:CE	1:G:221:MET:CE	2.83	0.57
1:F:197:LEU:HB3	2:N:2062:SER:HB3	1.87	0.57
1:B:272:ALA:HA	1:B:277:ILE:HG12	1.87	0.57
1:E:136:VAL:CG2	1:E:282:THR:HG22	2.34	0.56
2:K:2064:LYS:O	2:K:2064:LYS:HG3	2.03	0.56
1:D:254:LEU:HD23	1:D:257:ARG:HH21	1.69	0.56
1:G:183:ARG:HG2	1:G:193:PRO:HB2	1.87	0.56
1:B:245:ARG:HH12	1:B:285:VAL:HB	1.71	0.56
1:H:174:GLU:HA	1:H:174:GLU:OE1	2.06	0.55
2:O:1229:VAL:HG12	2:O:2056:SER:HB3	1.87	0.55
1:F:221:MET:HE1	2:N:1227:LEU:HD13	1.87	0.55
1:G:316:ARG:HH22	1:G:326:ARG:HD2	1.71	0.55
1:D:212:MET:HG2	1:D:263:ARG:HH21	1.72	0.55
1:B:219:SER:HA	1:B:222:MET:HE3	1.89	0.55
1:G:141:GLY:HA2	3:G:401:ADP:H5'1	1.88	0.55
1:D:173:THR:HG22	1:D:205:ALA:HB3	1.90	0.54
1:G:140:PHE:HD2	1:G:284:GLN:HE22	1.54	0.54
1:A:312:ARG:HB2	1:A:328:ILE:HB	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:223:VAL:HG22	1:F:275:PHE:HE1	1.72	0.54
1:H:123:LEU:HD12	1:H:123:LEU:O	2.08	0.54
1:G:169:MET:HE3	1:G:221:MET:CE	2.37	0.54
1:B:169:MET:HE1	1:B:221:MET:SD	2.47	0.54
1:G:169:MET:CE	1:G:221:MET:HE1	2.38	0.54
1:D:110:ILE:H	1:D:110:ILE:HD12	1.73	0.53
1:H:123:LEU:HD11	1:H:327:LEU:HD12	1.90	0.53
1:H:277:ILE:HG13	1:H:277:ILE:O	2.08	0.53
1:H:169:MET:HB3	1:H:235:LEU:HD13	1.89	0.53
1:G:316:ARG:NH2	1:G:326:ARG:HD2	2.23	0.53
1:F:223:VAL:HG22	1:F:275:PHE:CE1	2.44	0.52
1:G:183:ARG:HG2	1:G:193:PRO:CB	2.39	0.52
2:O:1229:VAL:HG22	2:O:1230:SER:N	2.23	0.52
1:G:237:VAL:HB	1:G:281:VAL:HG12	1.91	0.52
1:H:128:ILE:HG13	1:H:128:ILE:O	2.09	0.52
1:H:315:LEU:N	1:H:315:LEU:CD1	2.72	0.52
1:E:229:ASP:OD1	1:E:229:ASP:N	2.40	0.51
1:H:123:LEU:HD11	1:H:327:LEU:CD1	2.41	0.51
1:H:215:LEU:HD22	1:H:264:PHE:CE1	2.45	0.51
1:D:312:ARG:HB2	1:D:328:ILE:HB	1.93	0.51
1:A:173:THR:HG22	1:A:205:ALA:HB3	1.92	0.51
1:G:133:ILE:HB	1:G:310:THR:HG22	1.91	0.51
1:C:169:MET:HE3	1:C:221:MET:HE1	1.93	0.51
1:F:221:MET:CE	2:N:1227:LEU:HD22	2.41	0.51
1:E:223:VAL:HG22	1:E:275:PHE:CZ	2.46	0.50
1:H:113:ILE:HD13	1:H:155:VAL:HB	1.94	0.50
1:C:169:MET:HE3	1:C:221:MET:CE	2.42	0.50
1:F:110:ILE:CG2	1:F:129:GLU:HB2	2.41	0.50
1:G:275:PHE:N	1:G:275:PHE:CD2	2.80	0.50
1:C:226:LEU:HD12	1:C:226:LEU:O	2.12	0.49
1:F:169:MET:HB2	1:F:235:LEU:HD13	1.93	0.49
2:L:1232:GLU:HA	2:L:1235:GLN:HE21	1.77	0.49
1:H:136:VAL:HG23	1:H:315:LEU:HD11	1.93	0.49
1:H:138:GLY:HA2	1:H:314:TYR:CE1	2.47	0.49
1:D:135:GLU:HG2	1:D:281:VAL:CG2	2.43	0.49
1:G:123:LEU:HG	1:G:327:LEU:HD21	1.95	0.49
1:A:143:GLY:HA2	3:A:401:ADP:H5'1	1.95	0.48
1:G:219:SER:HB2	1:G:271:LEU:HD21	1.95	0.48
1:D:131:GLN:HA	1:D:272:ALA:O	2.13	0.48
1:B:226:LEU:HD13	1:B:275:PHE:HD1	1.78	0.48
1:G:169:MET:CE	1:G:221:MET:HE2	2.43	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:166:GLY:HA3	1:E:233:LYS:HG3	1.95	0.48
1:E:173:THR:HG22	1:E:205:ALA:HB3	1.96	0.48
1:F:220:ALA:HB3	2:N:1229:VAL:HG21	1.95	0.48
1:F:344:GLU:H	1:F:344:GLU:CD	2.17	0.48
1:B:110:ILE:HG22	1:B:110:ILE:O	2.13	0.48
1:H:137:PHE:CE1	1:H:283:ASN:HB2	2.49	0.48
1:D:158:PRO:HD2	1:D:161:GLU:HB2	1.96	0.47
1:F:211:GLN:HG2	1:F:264:PHE:CE2	2.49	0.47
1:B:136:VAL:HG12	1:B:313:VAL:HB	1.97	0.47
1:H:136:VAL:O	1:H:136:VAL:HG13	2.15	0.47
1:B:245:ARG:NH1	1:B:285:VAL:HB	2.28	0.47
1:C:219:SER:HB2	1:C:271:LEU:HD21	1.96	0.47
1:D:267:MET:HE2	2:L:1241:PHE:CE2	2.49	0.47
1:G:212:MET:HE2	1:G:264:PHE:HD1	1.80	0.47
2:J:1228:ASN:HD22	2:J:2055:PHE:HA	1.80	0.47
1:H:262:ALA:O	1:H:266:ARG:HG3	2.15	0.47
1:D:237:VAL:HB	1:D:281:VAL:HG12	1.98	0.46
1:H:345:LYS:O	1:H:345:LYS:HG2	2.16	0.46
1:C:344:GLU:H	1:C:344:GLU:CD	2.19	0.46
1:F:137:PHE:CD1	1:F:283:ASN:HB2	2.51	0.46
1:F:218:ALA:O	1:F:222:MET:HG3	2.16	0.46
1:H:130:THR:HA	1:H:278:ALA:HB2	1.98	0.46
1:H:215:LEU:HD12	1:H:215:LEU:HA	1.71	0.46
1:E:318:GLY:HA3	1:E:324:ILE:HD11	1.97	0.46
1:F:134:THR:O	1:F:134:THR:HG23	2.15	0.45
1:G:183:ARG:HG3	1:G:197:LEU:HD11	1.97	0.45
1:H:215:LEU:HD11	1:H:268:LEU:HD21	1.98	0.45
1:C:238:ASP:HA	1:C:239:SER:HA	1.60	0.45
1:D:274:GLU:HG2	2:L:1240:LEU:HD11	1.99	0.45
1:A:238:ASP:HA	1:A:239:SER:HA	1.65	0.45
1:C:135:GLU:HG2	1:C:281:VAL:CG2	2.46	0.45
2:O:1226:LYS:HE3	2:O:1226:LYS:HB2	1.70	0.45
1:E:173:THR:HG21	1:E:211:GLN:HE21	1.81	0.45
1:H:188:ASN:ND2	1:H:344:GLU:HB2	2.32	0.45
1:G:219:SER:CB	1:G:271:LEU:HD21	2.46	0.44
1:C:197:LEU:HA	2:K:2061:ALA:HB3	1.98	0.44
1:F:136:VAL:CG2	1:F:282:THR:HG22	2.48	0.44
1:B:238:ASP:HA	1:B:239:SER:HA	1.81	0.44
1:F:159:PRO:HD3	1:F:165:ASN:HB2	1.98	0.44
1:E:344:GLU:H	1:E:344:GLU:CD	2.21	0.44
1:B:245:ARG:HH12	1:B:285:VAL:CA	2.31	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:169:MET:HA	1:F:201:ALA:HB3	1.99	0.44
1:F:314:TYR:HB2	1:F:328:ILE:CD1	2.48	0.44
1:F:172:ASP:HA	1:F:238:ASP:O	2.18	0.44
1:F:150:THR:OG1	1:F:347:ILE:HG12	2.18	0.44
1:F:164:LEU:CB	1:F:233:LYS:HG2	2.47	0.44
1:G:238:ASP:HA	1:G:239:SER:HA	1.65	0.44
1:A:311:LEU:N	1:A:311:LEU:CD2	2.80	0.43
1:F:185:ILE:HG23	1:F:345:LYS:O	2.18	0.43
1:F:197:LEU:HA	2:N:2061:ALA:HB3	2.00	0.43
1:G:169:MET:HE3	1:G:221:MET:HE2	2.00	0.43
2:K:1227:LEU:HD21	2:K:2064:LYS:HE3	2.00	0.43
1:H:131:GLN:CG	1:H:276:ASP:HA	2.44	0.43
1:F:133:ILE:HD11	1:F:268:LEU:HB3	2.00	0.43
1:G:157:LEU:HD21	1:G:191:LEU:HD11	2.00	0.43
1:H:141:GLY:O	1:H:317:LYS:HE3	2.19	0.43
1:A:325:ALA:HB3	1:A:338:ALA:HB3	1.99	0.42
1:C:197:LEU:HD22	2:K:2061:ALA:HB1	2.00	0.42
1:D:255:ALA:O	1:D:259:GLN:HG2	2.20	0.42
1:E:215:LEU:HD22	1:E:264:PHE:CE1	2.54	0.42
1:E:223:VAL:HG22	1:E:275:PHE:HZ	1.84	0.42
1:E:238:ASP:HA	1:E:239:SER:HA	1.65	0.42
1:F:185:ILE:O	1:F:189:ARG:HG3	2.18	0.42
1:G:169:MET:HE1	1:G:221:MET:CE	2.48	0.42
1:A:135:GLU:HG2	1:A:281:VAL:CG2	2.50	0.42
1:C:197:LEU:CA	2:K:2061:ALA:HB3	2.50	0.42
1:F:314:TYR:HB2	1:F:328:ILE:HG13	2.01	0.42
1:D:110:ILE:HD12	1:D:110:ILE:N	2.34	0.42
1:A:215:LEU:HD22	1:A:264:PHE:CE1	2.54	0.42
1:C:319:LYS:H	1:C:319:LYS:HG3	1.64	0.42
1:F:238:ASP:HA	1:F:239:SER:HA	1.56	0.42
1:G:147:LEU:HD12	1:G:147:LEU:O	2.20	0.42
1:H:344:GLU:H	1:H:344:GLU:CD	2.23	0.42
1:F:304:ILE:HD12	1:F:304:ILE:HA	1.88	0.41
1:G:271:LEU:HD23	1:G:271:LEU:HA	1.87	0.41
1:B:159:PRO:HD3	1:B:165:ASN:ND2	2.35	0.41
1:C:317:LYS:HE2	1:C:317:LYS:HB2	1.78	0.41
1:H:144:LYS:HG3	1:H:282:THR:HB	2.02	0.41
1:F:271:LEU:N	1:F:271:LEU:CD1	2.82	0.41
1:C:169:MET:CE	1:C:221:MET:HE1	2.46	0.41
1:E:240:LEU:HG	1:E:261:LEU:HD11	2.03	0.41
1:F:156:GLN:CD	1:F:199:ASN:HB2	2.41	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:345:LYS:HE2	1:F:345:LYS:HB3	1.92	0.41
2:M:1228:ASN:HD22	2:M:2055:PHE:HA	1.85	0.41
1:C:303:HIS:CD2	1:C:303:HIS:N	2.85	0.41
1:E:173:THR:HG21	1:E:211:GLN:NE2	2.36	0.41
1:C:136:VAL:CG2	1:C:282:THR:HG22	2.50	0.41
1:H:115:THR:HB	1:H:120:LEU:HD23	2.01	0.41
1:F:164:LEU:HB3	1:F:233:LYS:HG2	2.02	0.41
1:D:254:LEU:HD23	1:D:257:ARG:NH2	2.34	0.41
1:H:222:MET:HE2	1:H:275:PHE:CG	2.56	0.41
1:H:233:LYS:HA	1:H:233:LYS:HD3	1.63	0.41
1:F:201:ALA:HB1	2:N:2058:PHE:CD2	2.56	0.41
1:G:230:ARG:O	1:G:230:ARG:HG3	2.20	0.41
1:F:220:ALA:CB	2:N:1229:VAL:HG21	2.51	0.40
1:H:136:VAL:HG12	1:H:282:THR:HA	2.03	0.40
1:H:172:ASP:HA	1:H:238:ASP:O	2.22	0.40
1:H:222:MET:CE	1:H:277:ILE:HD13	2.51	0.40
1:H:260:LYS:HD3	1:H:260:LYS:HA	1.79	0.40
1:H:303:HIS:N	1:H:304:ILE:HD12	2.36	0.40
2:N:2060:THR:CG2	2:N:2064:LYS:HB2	2.51	0.40
1:D:322:LYS:HD3	1:D:339:VAL:HG11	2.02	0.40
1:E:178:ARG:HD3	1:E:178:ARG:HA	1.87	0.40
1:E:234:LEU:HD21	1:E:236:ILE:HD11	2.03	0.40
1:F:240:LEU:HD12	1:F:240:LEU:HA	1.89	0.40
1:G:181:ARG:CZ	1:G:185:ILE:HD11	2.51	0.40
1:A:135:GLU:HG2	1:A:281:VAL:HG23	2.04	0.40
1:D:215:LEU:HD22	1:D:264:PHE:CE1	2.56	0.40
1:H:263:ARG:HA	1:H:266:ARG:CZ	2.51	0.40
1:H:323:ARG:NH2	3:H:401:ADP:H4'	2.36	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	200/231 (87%)	200 (100%)	0	0	100	100
1	B	211/231 (91%)	208 (99%)	3 (1%)	0	100	100
1	C	202/231 (87%)	201 (100%)	1 (0%)	0	100	100
1	D	200/231 (87%)	198 (99%)	2 (1%)	0	100	100
1	E	204/231 (88%)	201 (98%)	3 (2%)	0	100	100
1	F	196/231 (85%)	190 (97%)	6 (3%)	0	100	100
1	G	184/231 (80%)	182 (99%)	2 (1%)	0	100	100
1	H	180/231 (78%)	178 (99%)	2 (1%)	0	100	100
2	I	27/38 (71%)	27 (100%)	0	0	100	100
2	J	27/38 (71%)	27 (100%)	0	0	100	100
2	K	14/38 (37%)	14 (100%)	0	0	100	100
2	L	27/38 (71%)	27 (100%)	0	0	100	100
2	M	26/38 (68%)	26 (100%)	0	0	100	100
2	N	8/38 (21%)	8 (100%)	0	0	100	100
2	O	11/38 (29%)	11 (100%)	0	0	100	100
All	All	1717/2114 (81%)	1698 (99%)	19 (1%)	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	172/188 (92%)	171 (99%)	1 (1%)	86	85
1	B	178/188 (95%)	177 (99%)	1 (1%)	86	85
1	C	173/188 (92%)	173 (100%)	0	100	100
1	D	171/188 (91%)	170 (99%)	1 (1%)	86	85
1	E	172/188 (92%)	171 (99%)	1 (1%)	86	85
1	F	166/188 (88%)	165 (99%)	1 (1%)	86	85

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	G	165/188 (88%)	165 (100%)	0	100	100
1	H	143/188 (76%)	140 (98%)	3 (2%)	53	47
2	I	25/32 (78%)	25 (100%)	0	100	100
2	J	25/32 (78%)	25 (100%)	0	100	100
2	K	14/32 (44%)	14 (100%)	0	100	100
2	L	25/32 (78%)	25 (100%)	0	100	100
2	M	24/32 (75%)	24 (100%)	0	100	100
2	N	9/32 (28%)	9 (100%)	0	100	100
2	O	12/32 (38%)	12 (100%)	0	100	100
All	All	1474/1728 (85%)	1466 (100%)	8 (0%)	88	87

All (8) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	312	ARG
1	B	129	GLU
1	D	312	ARG
1	E	312	ARG
1	F	312	ARG
1	H	144	LYS
1	H	281	VAL
1	H	315	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (16) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	165	ASN
1	A	211	GLN
1	B	165	ASN
1	C	303	HIS
1	D	187	GLN
1	E	211	GLN
1	E	258	GLN
1	G	217	GLN
1	G	273	ASN
1	G	283	ASN
1	H	188	ASN
1	H	307	HIS

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Mol	Chain	Res	Type
2	J	1228	ASN
2	L	1228	ASN
2	L	1235	GLN
2	M	1228	ASN

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](#)

Of 16 ligands modelled in this entry, 8 are monoatomic - leaving 8 for Mogul analysis.

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	ADP	C	401	4	24,29,29	0.95	1 (4%)	29,45,45	1.28	4 (13%)
3	ADP	B	401	4	24,29,29	0.92	1 (4%)	29,45,45	1.33	3 (10%)
3	ADP	H	401	4	24,29,29	0.99	1 (4%)	29,45,45	1.43	5 (17%)
3	ADP	G	401	4	24,29,29	0.91	1 (4%)	29,45,45	1.36	3 (10%)
3	ADP	D	401	4	24,29,29	0.95	1 (4%)	29,45,45	1.35	5 (17%)
3	ADP	E	401	4	24,29,29	0.98	1 (4%)	29,45,45	1.42	5 (17%)
3	ADP	A	401	4	24,29,29	1.00	1 (4%)	29,45,45	1.25	3 (10%)
3	ADP	F	401	4	24,29,29	0.91	1 (4%)	29,45,45	1.34	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
3	ADP	C	401	4	-	4/12/32/32	0/3/3/3
3	ADP	B	401	4	-	5/12/32/32	0/3/3/3
3	ADP	H	401	4	-	2/12/32/32	0/3/3/3
3	ADP	G	401	4	-	6/12/32/32	0/3/3/3
3	ADP	D	401	4	-	4/12/32/32	0/3/3/3
3	ADP	E	401	4	-	2/12/32/32	0/3/3/3
3	ADP	A	401	4	-	0/12/32/32	0/3/3/3
3	ADP	F	401	4	-	3/12/32/32	0/3/3/3

All (8) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	H	401	ADP	C5-C4	2.47	1.47	1.40
3	F	401	ADP	C5-C4	2.32	1.47	1.40
3	E	401	ADP	C5-C4	2.26	1.46	1.40
3	G	401	ADP	C5-C4	2.23	1.46	1.40
3	B	401	ADP	C5-C4	2.20	1.46	1.40
3	D	401	ADP	C5-C4	2.16	1.46	1.40
3	A	401	ADP	C5-C4	2.10	1.46	1.40
3	C	401	ADP	C5-C4	2.09	1.46	1.40

All (32) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	401	ADP	N3-C2-N1	-3.72	122.86	128.68
3	E	401	ADP	N3-C2-N1	-3.67	122.94	128.68
3	A	401	ADP	N3-C2-N1	-3.31	123.51	128.68
3	B	401	ADP	N3-C2-N1	-3.29	123.53	128.68
3	H	401	ADP	N3-C2-N1	-3.29	123.54	128.68
3	H	401	ADP	PA-O3A-PB	-3.28	121.58	132.83
3	F	401	ADP	N3-C2-N1	-3.21	123.66	128.68
3	G	401	ADP	N3-C2-N1	-3.18	123.70	128.68
3	C	401	ADP	N3-C2-N1	-3.12	123.81	128.68
3	G	401	ADP	PA-O3A-PB	-3.05	122.36	132.83
3	H	401	ADP	C3'-C2'-C1'	2.87	105.30	100.98
3	E	401	ADP	C4-C5-N7	-2.80	106.48	109.40
3	G	401	ADP	C4-C5-N7	-2.75	106.54	109.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	E	401	ADP	PA-O3A-PB	-2.68	123.61	132.83
3	D	401	ADP	C4-C5-N7	-2.61	106.67	109.40
3	F	401	ADP	C3'-C2'-C1'	2.59	104.88	100.98
3	B	401	ADP	PA-O3A-PB	-2.56	124.03	132.83
3	A	401	ADP	C4-C5-N7	-2.49	106.80	109.40
3	H	401	ADP	C4-C5-N7	-2.44	106.86	109.40
3	F	401	ADP	C4-C5-N7	-2.40	106.89	109.40
3	B	401	ADP	C4-C5-N7	-2.39	106.91	109.40
3	E	401	ADP	C3'-C2'-C1'	2.38	104.56	100.98
3	C	401	ADP	C3'-C2'-C1'	2.31	104.45	100.98
3	C	401	ADP	C4-C5-N7	-2.28	107.02	109.40
3	C	401	ADP	PA-O3A-PB	-2.24	125.13	132.83
3	D	401	ADP	C3'-C2'-C1'	2.17	104.25	100.98
3	D	401	ADP	C2-N1-C6	2.12	122.38	118.75
3	E	401	ADP	C2-N1-C6	2.09	122.33	118.75
3	D	401	ADP	PA-O3A-PB	-2.05	125.79	132.83
3	A	401	ADP	O3B-PB-O2B	2.03	115.39	107.64
3	F	401	ADP	PA-O3A-PB	-2.01	125.94	132.83
3	H	401	ADP	C2-N1-C6	2.01	122.19	118.75

There are no chirality outliers.

All (26) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	B	401	ADP	PA-O3A-PB-O2B
3	B	401	ADP	C5'-O5'-PA-O2A
3	C	401	ADP	C5'-O5'-PA-O1A
3	D	401	ADP	C5'-O5'-PA-O2A
3	E	401	ADP	PA-O3A-PB-O3B
3	F	401	ADP	C5'-O5'-PA-O2A
3	G	401	ADP	PA-O3A-PB-O2B
3	G	401	ADP	PA-O3A-PB-O3B
3	G	401	ADP	C3'-C4'-C5'-O5'
3	G	401	ADP	O4'-C4'-C5'-O5'
3	H	401	ADP	O4'-C4'-C5'-O5'
3	H	401	ADP	C3'-C4'-C5'-O5'
3	B	401	ADP	C5'-O5'-PA-O3A
3	C	401	ADP	C5'-O5'-PA-O3A
3	D	401	ADP	C5'-O5'-PA-O3A
3	F	401	ADP	C5'-O5'-PA-O3A
3	F	401	ADP	C5'-O5'-PA-O1A
3	D	401	ADP	PA-O3A-PB-O1B

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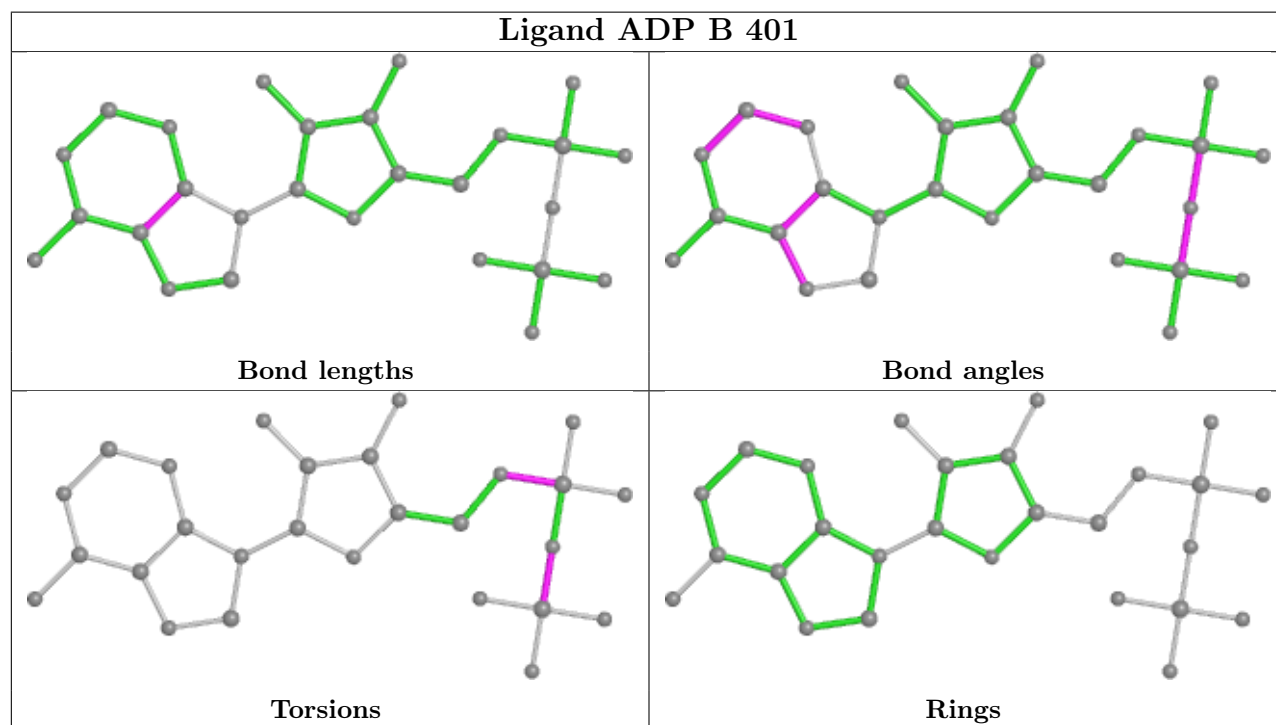
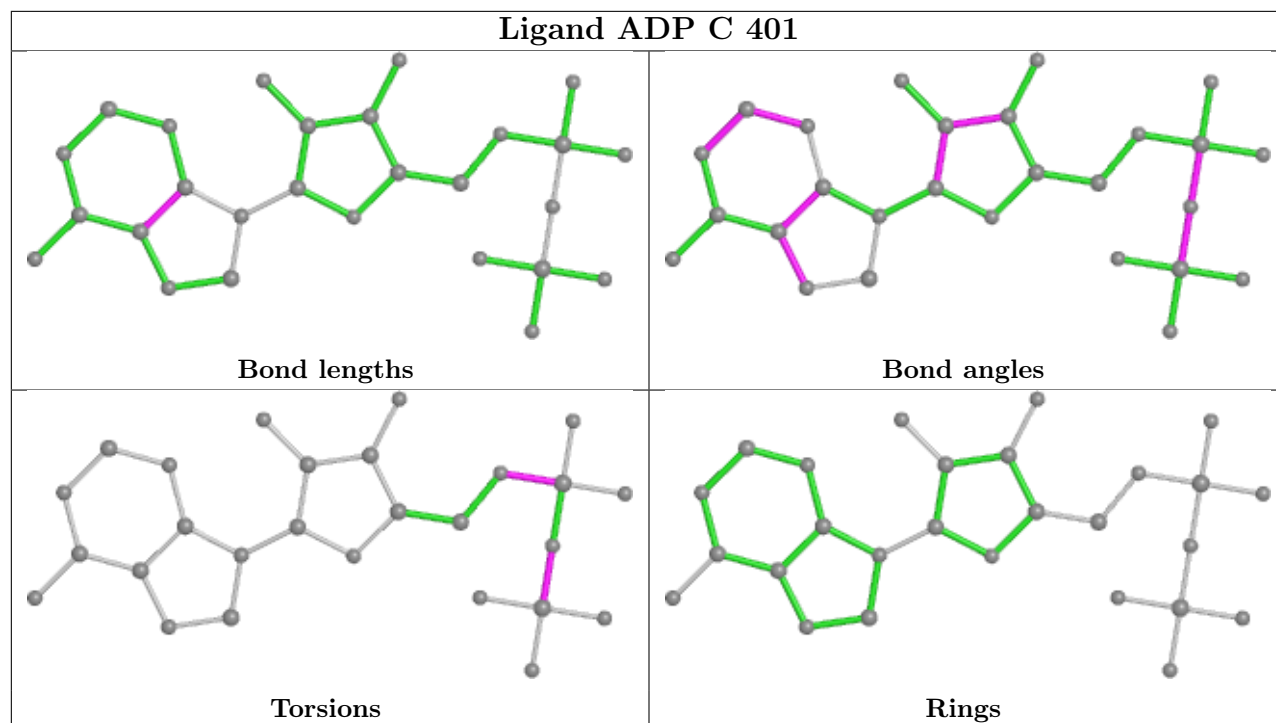
Mol	Chain	Res	Type	Atoms
3	E	401	ADP	PA-O3A-PB-O1B
3	C	401	ADP	PA-O3A-PB-O3B
3	B	401	ADP	C5'-O5'-PA-O1A
3	C	401	ADP	C5'-O5'-PA-O2A
3	D	401	ADP	C5'-O5'-PA-O1A
3	G	401	ADP	C5'-O5'-PA-O1A
3	B	401	ADP	PA-O3A-PB-O1B
3	G	401	ADP	PA-O3A-PB-O1B

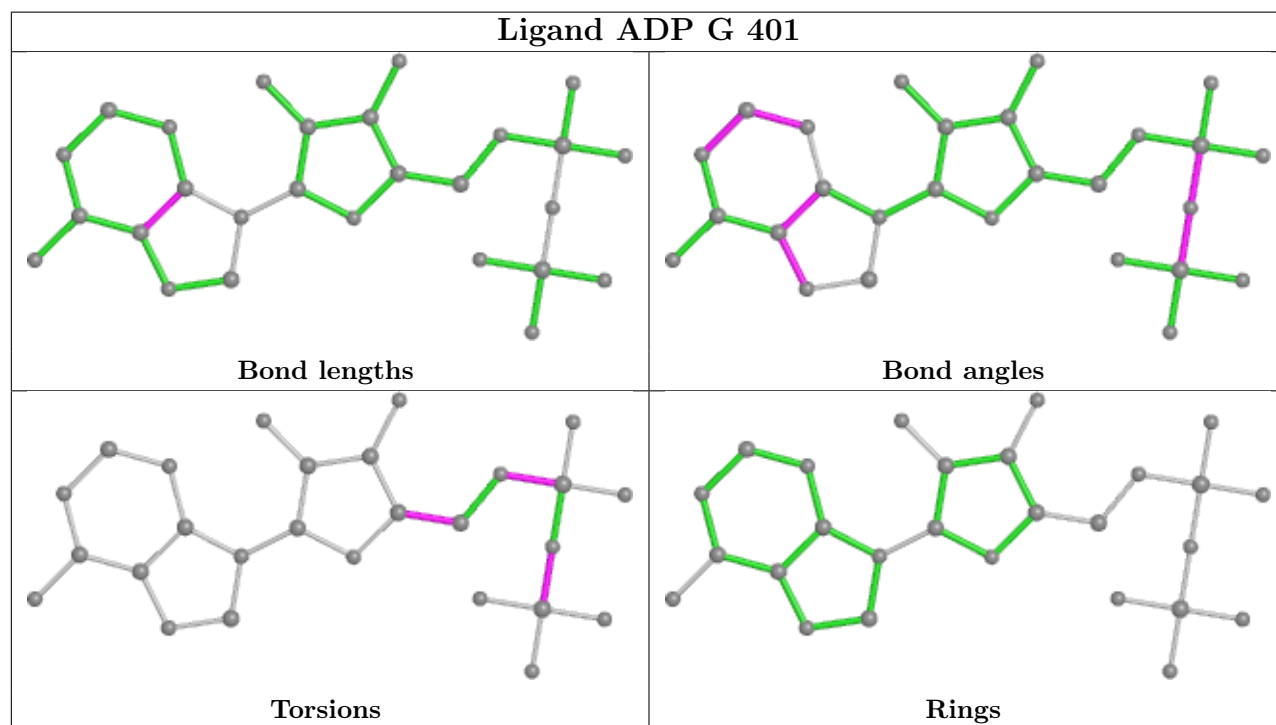
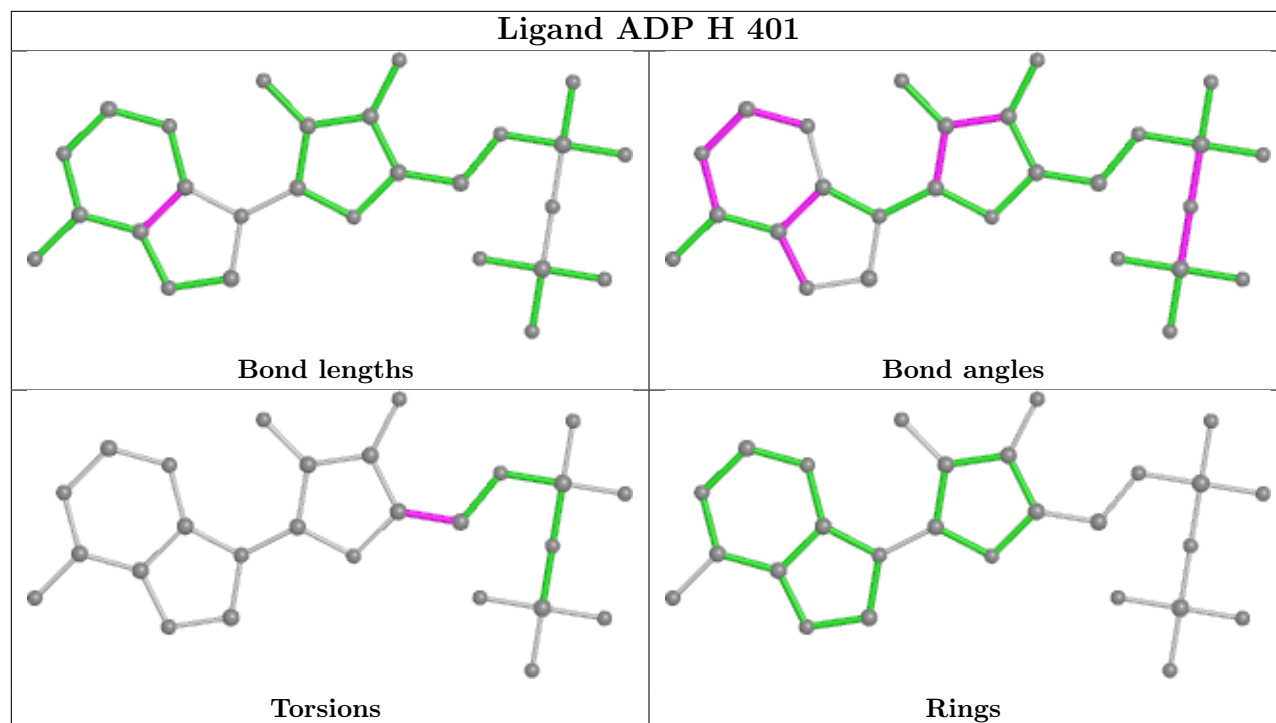
There are no ring outliers.

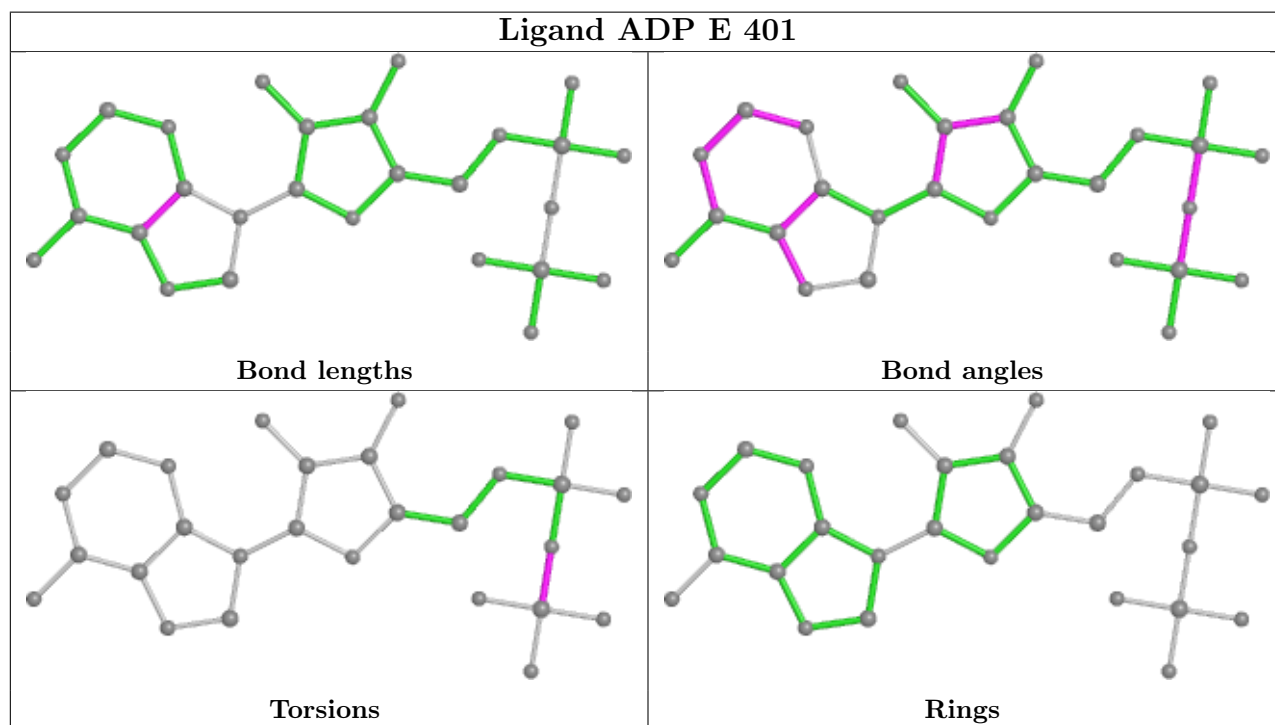
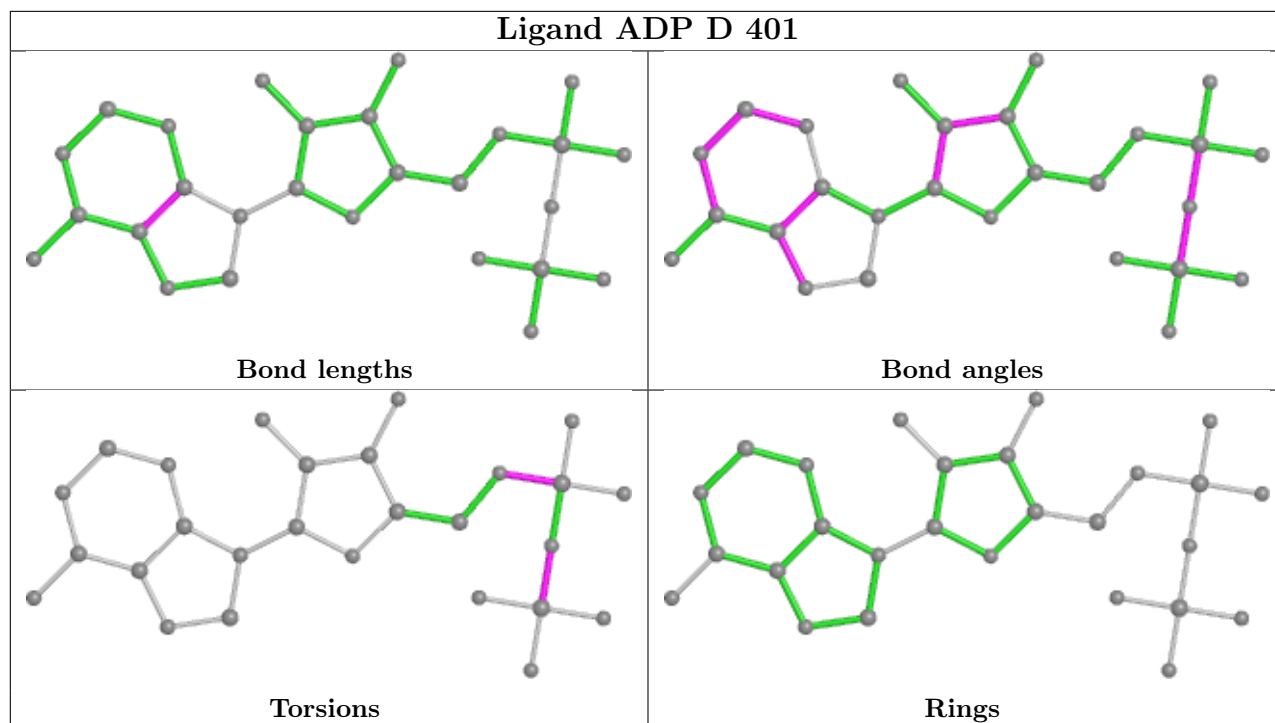
3 monomers are involved in 3 short contacts:

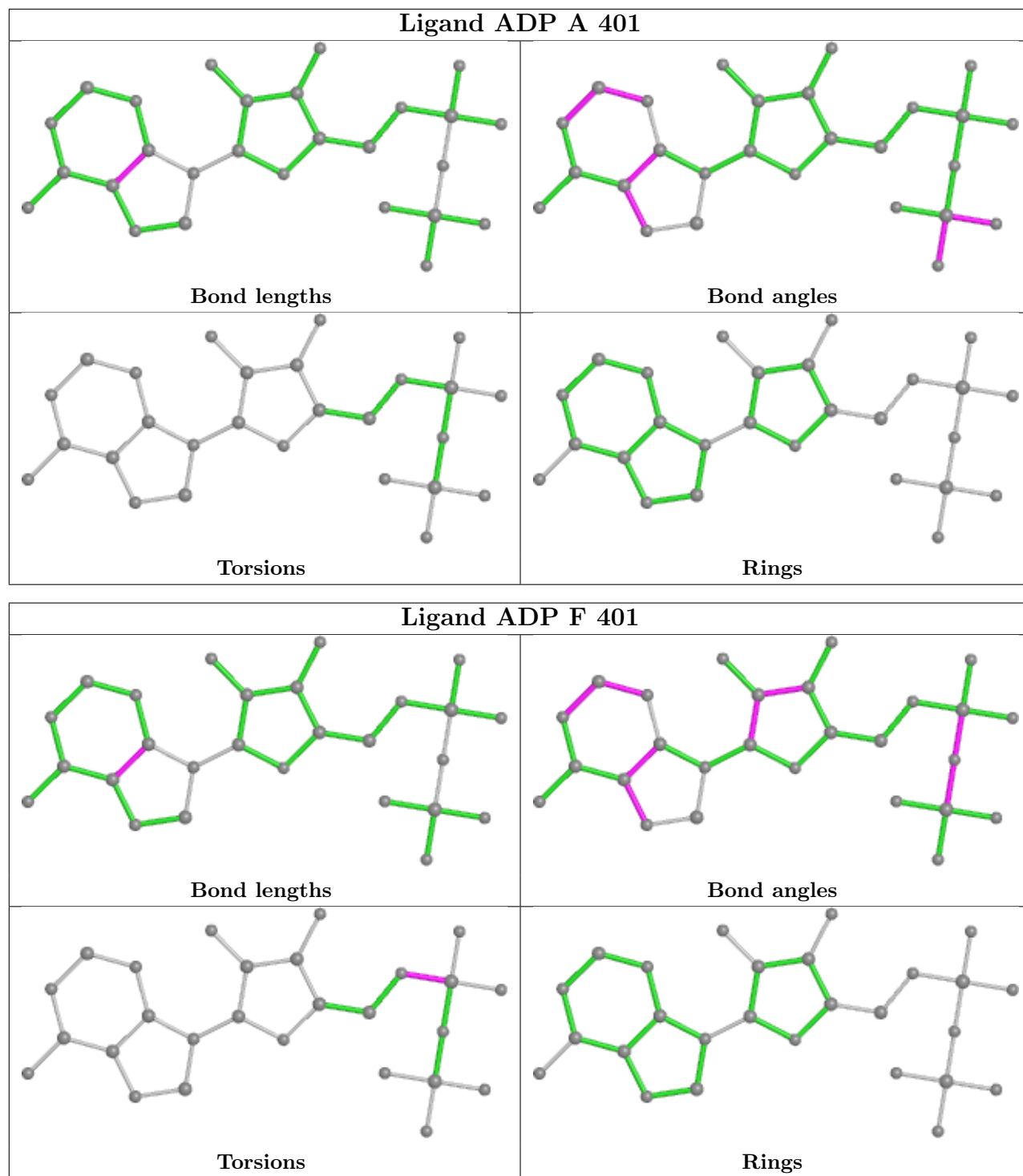
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	H	401	ADP	1	0
3	G	401	ADP	1	0
3	A	401	ADP	1	0

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









5.7 Other polymers [\(i\)](#)

There are no such residues in this entry.

5.8 Polymer linkage issues

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	208/231 (90%)	0.56	3 (1%) 75 77	33, 47, 69, 96	0
1	B	219/231 (94%)	0.66	12 (5%) 25 27	37, 53, 76, 104	0
1	C	210/231 (90%)	0.66	17 (8%) 12 13	36, 58, 86, 101	0
1	D	208/231 (90%)	0.56	13 (6%) 20 22	38, 53, 75, 99	0
1	E	212/231 (91%)	0.81	20 (9%) 8 9	43, 61, 85, 98	0
1	F	204/231 (88%)	1.53	59 (28%) 0 0	54, 78, 101, 117	0
1	G	194/231 (83%)	1.19	39 (20%) 1 0	54, 75, 97, 111	0
1	H	192/231 (83%)	3.29	131 (68%) 0 0	107, 107, 107, 107	0
2	I	31/38 (81%)	0.54	0 100 100	41, 60, 76, 89	0
2	J	31/38 (81%)	0.80	3 (9%) 7 8	43, 64, 80, 98	0
2	K	18/38 (47%)	1.19	4 (22%) 0 0	53, 72, 88, 120	0
2	L	31/38 (81%)	0.81	3 (9%) 7 8	57, 67, 81, 109	0
2	M	30/38 (78%)	1.02	2 (6%) 17 19	66, 90, 104, 124	0
2	N	12/38 (31%)	2.30	6 (50%) 0 0	98, 101, 113, 124	0
2	O	15/38 (39%)	2.74	9 (60%) 0 0	73, 81, 97, 116	0
All	All	1815/2114 (85%)	1.13	321 (17%) 1 1	33, 64, 107, 124	0

All (321) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	H	196	VAL	12.8
1	H	143	GLY	10.7
1	H	339	VAL	10.7
1	H	118	LYS	8.8
1	H	147	LEU	8.7
1	H	205	ALA	8.6
1	H	201	ALA	8.6

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Mol	Chain	Res	Type	RSRZ
1	H	337	GLU	8.4
1	H	324	ILE	7.9
1	H	226	LEU	7.5
1	H	229	ASP	7.5
1	H	171	ILE	7.5
1	F	309	ALA	7.3
1	H	197	LEU	7.3
1	H	200	VAL	7.3
1	H	108	ALA	7.3
1	H	231	PRO	7.2
1	E	286	GLN	6.9
1	G	248	TYR	6.8
1	H	177	PHE	6.7
1	H	218	ALA	6.6
1	G	123	LEU	6.6
1	H	207	ASN	6.5
1	H	151	LEU	6.5
1	H	190	GLY	6.4
1	G	261	LEU	6.3
1	H	203	ALA	6.3
1	H	144	LYS	6.2
1	H	159	PRO	6.2
1	H	168	ALA	5.8
2	O	2057	GLY	5.7
1	H	311	LEU	5.7
1	H	146	GLN	5.7
1	H	178	ARG	5.6
1	G	214	LEU	5.6
1	F	268	LEU	5.6
1	G	120	LEU	5.6
1	H	210	HIS	5.5
1	G	205	ALA	5.5
1	H	195	GLU	5.5
1	H	202	TYR	5.4
1	H	342	ILE	5.4
1	H	153	VAL	5.3
1	H	169	MET	5.3
1	H	193	PRO	5.2
1	F	261	LEU	5.1
1	B	302	GLY	5.1
2	O	1228	ASN	5.1
1	H	285	VAL	5.0

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Mol	Chain	Res	Type	RSRZ
1	H	182	LEU	5.0
1	H	191	LEU	5.0
1	H	119	SER	4.9
1	G	202	TYR	4.9
1	H	314	TYR	4.9
1	H	266	ARG	4.8
1	H	225	SER	4.8
2	O	2055	PHE	4.8
1	C	108	ALA	4.8
1	H	212	MET	4.7
1	H	322	LYS	4.7
1	H	283	ASN	4.7
1	F	205	ALA	4.7
1	H	123	LEU	4.7
1	H	262	ALA	4.5
1	G	128	ILE	4.5
1	G	327	LEU	4.4
1	H	188	ASN	4.4
2	O	2062	SER	4.4
1	G	206	PHE	4.4
1	H	328	ILE	4.4
1	C	206	PHE	4.4
1	F	311	LEU	4.3
2	M	1238	VAL	4.3
1	F	157	LEU	4.3
2	M	1243	ASP	4.3
2	O	1226	LYS	4.3
2	N	1229	VAL	4.3
1	B	249	ILE	4.2
2	N	1227	LEU	4.2
1	H	315	LEU	4.2
1	H	344	GLU	4.2
1	F	285	VAL	4.2
1	F	204	ARG	4.2
2	N	2057	GLY	4.1
1	H	142	SER	4.1
1	C	244	PHE	4.1
1	H	222	MET	4.1
1	D	319	LYS	4.0
1	H	234	LEU	4.0
1	H	325	ALA	4.0
1	D	321	GLY	3.9

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Mol	Chain	Res	Type	RSRZ
1	G	133	ILE	3.9
1	C	255	ALA	3.9
2	N	2061	ALA	3.9
1	B	336	GLY	3.9
1	H	125	GLY	3.9
1	H	136	VAL	3.8
1	E	253	ALA	3.7
1	H	141	GLY	3.7
1	H	163	GLY	3.7
1	F	188	ASN	3.7
1	H	228	THR	3.7
2	O	2056	SER	3.7
1	H	165	ASN	3.7
1	H	305	LEU	3.7
1	H	340	PHE	3.7
1	F	304	ILE	3.7
1	G	216	TYR	3.7
1	E	285	VAL	3.7
1	G	285	VAL	3.7
1	H	329	ASP	3.6
1	H	261	LEU	3.6
1	F	124	LEU	3.6
2	O	2063	GLY	3.6
1	H	338	ALA	3.6
1	H	157	LEU	3.5
1	G	340	PHE	3.5
1	H	343	THR	3.5
1	D	255	ALA	3.4
1	H	204	ARG	3.4
1	G	137	PHE	3.4
1	H	336	GLY	3.4
1	D	259	GLN	3.4
1	H	180	GLU	3.4
1	F	315	LEU	3.4
1	H	209	ASN	3.4
1	H	140	PHE	3.3
1	H	347	ILE	3.3
1	H	282	THR	3.3
1	H	172	ASP	3.3
1	F	259	GLN	3.3
1	H	145	THR	3.3
1	H	158	PRO	3.3

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Mol	Chain	Res	Type	RSRZ
1	C	304	ILE	3.2
1	H	268	LEU	3.2
1	E	271	LEU	3.2
1	H	309	ALA	3.2
1	H	327	LEU	3.2
1	E	190	GLY	3.2
1	F	126	GLY	3.2
1	G	322	LYS	3.2
1	H	126	GLY	3.2
1	H	279	VAL	3.2
1	H	150	THR	3.1
1	F	161	GLU	3.1
1	F	337	GLU	3.1
1	G	213	GLN	3.1
1	G	217	GLN	3.1
2	J	1242	SER	3.1
1	H	155	VAL	3.1
1	E	257	ARG	3.1
1	E	242	SER	3.0
1	F	319	LYS	3.0
1	H	206	PHE	3.0
1	H	217	GLN	3.0
1	C	285	VAL	3.0
1	H	313	VAL	3.0
2	L	1243	ASP	3.0
1	G	204	ARG	3.0
1	H	170	TYR	3.0
2	J	1238	VAL	3.0
1	D	311	LEU	2.9
1	H	183	ARG	2.9
1	H	211	GLN	2.9
2	N	2064	LYS	2.9
1	E	202	TYR	2.9
1	F	313	VAL	2.9
1	H	192	ASP	2.9
1	F	227	ASN	2.9
1	D	202	TYR	2.9
1	B	285	VAL	2.9
1	H	139	GLU	2.9
1	F	306	ALA	2.9
1	H	132	ALA	2.9
1	G	311	LEU	2.9

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Mol	Chain	Res	Type	RSRZ
1	G	190	GLY	2.9
1	G	135	GLU	2.8
1	G	221	MET	2.8
1	F	329	ASP	2.8
1	G	260	LYS	2.8
1	H	260	LYS	2.8
1	F	346	GLY	2.8
1	G	270	ARG	2.8
1	F	213	GLN	2.8
1	F	240	LEU	2.8
1	G	310	THR	2.8
1	H	110	ILE	2.8
1	E	288	ASN	2.8
1	D	318	GLY	2.8
1	H	323	ARG	2.7
1	H	173	THR	2.7
1	H	214	LEU	2.7
1	B	137	PHE	2.7
1	F	273	ASN	2.7
1	H	128	ILE	2.7
2	K	1231	THR	2.7
1	H	306	ALA	2.6
1	H	120	LEU	2.6
1	H	280	PHE	2.6
2	L	1242	SER	2.6
1	H	124	LEU	2.6
1	E	262	ALA	2.6
1	F	262	ALA	2.6
1	G	201	ALA	2.6
2	O	2064	LYS	2.6
1	D	320	GLY	2.6
1	E	349	ASP	2.6
1	F	328	ILE	2.6
1	E	255	ALA	2.6
1	G	229	ASP	2.6
1	F	120	LEU	2.5
1	H	303	HIS	2.5
1	B	250	GLY	2.5
1	C	243	HIS	2.5
1	H	167	SER	2.5
1	C	313	VAL	2.5
1	A	302	GLY	2.5

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Mol	Chain	Res	Type	RSRZ
1	H	109	THR	2.5
2	L	1231	THR	2.5
1	H	135	GLU	2.5
1	E	287	ALA	2.5
1	F	152	ALA	2.5
1	D	206	PHE	2.5
1	F	128	ILE	2.4
1	H	221	MET	2.4
1	C	228	THR	2.4
1	F	308	SER	2.4
1	B	164	LEU	2.4
1	B	226	LEU	2.4
1	F	191	LEU	2.4
1	F	322	LYS	2.4
1	B	206	PHE	2.4
1	H	194	ASP	2.4
2	O	1229	VAL	2.4
1	F	216	TYR	2.4
1	G	314	TYR	2.4
1	F	312	ARG	2.4
1	F	151	LEU	2.4
1	A	180	GLU	2.4
1	H	154	MET	2.3
2	K	2054	ALA	2.3
1	F	110	ILE	2.3
1	H	345	LYS	2.3
1	F	347	ILE	2.3
1	H	284	GLN	2.3
1	A	303	HIS	2.3
1	H	156	GLN	2.3
1	D	317	LYS	2.3
1	G	338	ALA	2.3
1	E	254	LEU	2.3
1	G	235	LEU	2.3
1	C	303	HIS	2.3
1	H	138	GLY	2.3
1	G	313	VAL	2.3
1	H	208	SER	2.3
1	B	254	LEU	2.3
1	F	327	LEU	2.3
2	K	2057	GLY	2.2
1	F	287	ALA	2.2

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Mol	Chain	Res	Type	RSRZ
1	H	304	ILE	2.2
1	E	191	LEU	2.2
1	E	327	LEU	2.2
1	H	187	GLN	2.2
1	C	202	TYR	2.2
1	F	314	TYR	2.2
1	C	275	PHE	2.2
2	N	1228	ASN	2.2
1	G	126	GLY	2.2
1	G	268	LEU	2.2
1	F	266	ARG	2.2
1	D	257	ARG	2.2
1	F	215	LEU	2.2
1	F	235	LEU	2.2
1	E	160	GLU	2.2
1	F	218	ALA	2.2
1	H	137	PHE	2.2
1	C	227	ASN	2.2
1	F	257	ARG	2.2
1	F	160	GLU	2.2
1	F	324	ILE	2.2
1	F	214	LEU	2.2
1	H	134	THR	2.2
1	H	176	THR	2.2
1	H	326	ARG	2.2
1	B	223	VAL	2.2
1	F	193	PRO	2.1
1	F	113	ILE	2.1
1	F	189	ARG	2.1
1	F	274	GLU	2.1
1	D	108	ALA	2.1
1	H	278	ALA	2.1
1	H	133	ILE	2.1
1	H	317	LYS	2.1
1	G	271	LEU	2.1
1	F	258	GLN	2.1
1	C	256	GLU	2.1
1	B	161	GLU	2.1
1	E	272	ALA	2.1
1	G	215	LEU	2.1
1	F	177	PHE	2.1
1	E	136	VAL	2.1

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Mol	Chain	Res	Type	RSRZ
1	C	257	ARG	2.1
1	F	270	ARG	2.1
1	H	122	LYS	2.1
1	E	304	ILE	2.1
1	H	113	ILE	2.1
1	H	117	SER	2.1
1	H	341	SER	2.1
2	J	1235	GLN	2.1
1	F	136	VAL	2.1
1	F	135	GLU	2.1
1	H	185	ILE	2.1
1	F	275	PHE	2.0
1	H	152	ALA	2.0
1	C	197	LEU	2.0
1	D	328	ILE	2.0
1	G	245	ARG	2.0
1	G	266	ARG	2.0
1	C	148	ALA	2.0
1	G	325	ALA	2.0
2	K	2064	LYS	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.

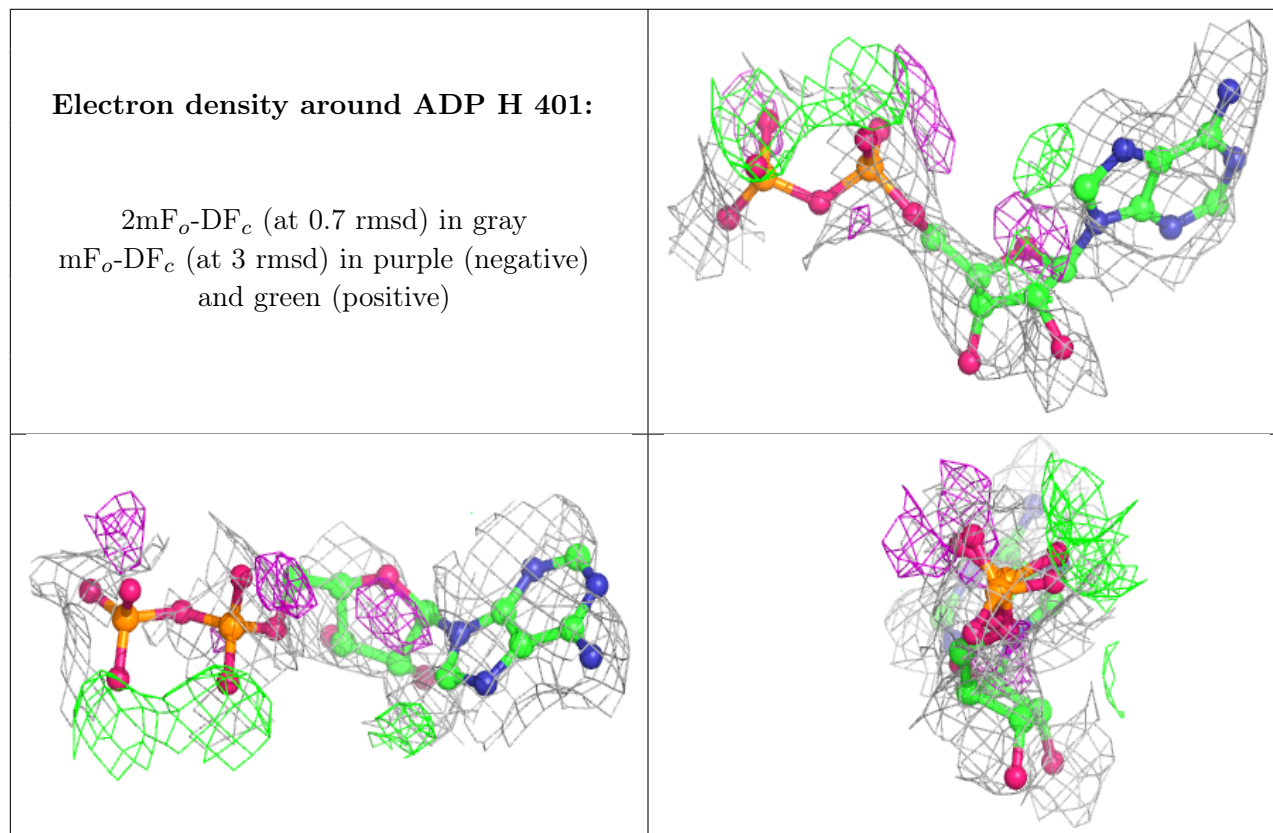
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
4	MG	B	402	1/1	0.63	0.12	53,53,53,53	0
4	MG	G	402	1/1	0.64	0.36	97,97,97,97	0
3	ADP	H	401	27/27	0.65	0.25	100,102,103,104	0

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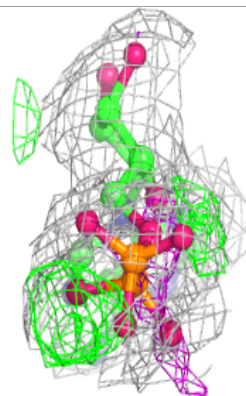
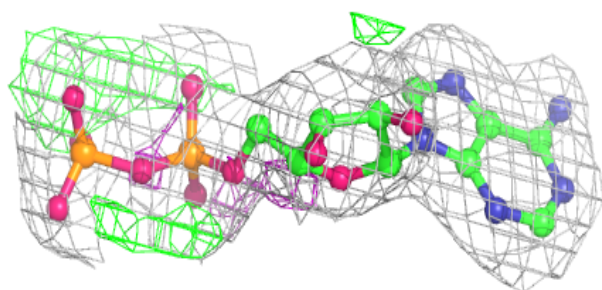
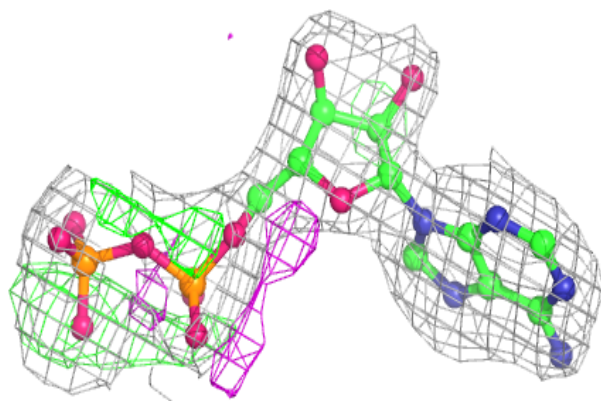
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
4	MG	H	402	1/1	0.75	0.41	66,66,66,66	0
4	MG	F	402	1/1	0.77	0.25	59,59,59,59	0
3	ADP	F	401	27/27	0.86	0.16	50,56,57,57	0
3	ADP	G	401	27/27	0.90	0.14	66,78,84,84	0
4	MG	E	402	1/1	0.91	0.14	45,45,45,45	0
4	MG	D	402	1/1	0.91	0.09	44,44,44,44	0
4	MG	C	402	1/1	0.92	0.18	41,41,41,41	0
4	MG	A	402	1/1	0.93	0.18	40,40,40,40	0
3	ADP	D	401	27/27	0.94	0.13	39,49,54,56	0
3	ADP	E	401	27/27	0.95	0.14	49,54,57,60	0
3	ADP	B	401	27/27	0.96	0.14	43,50,55,60	0
3	ADP	A	401	27/27	0.96	0.13	38,43,51,53	0
3	ADP	C	401	27/27	0.97	0.12	41,44,47,49	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.

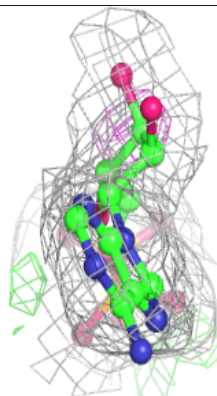
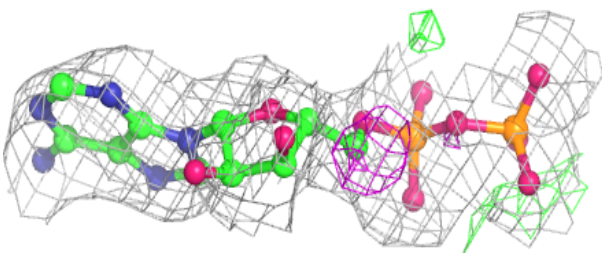
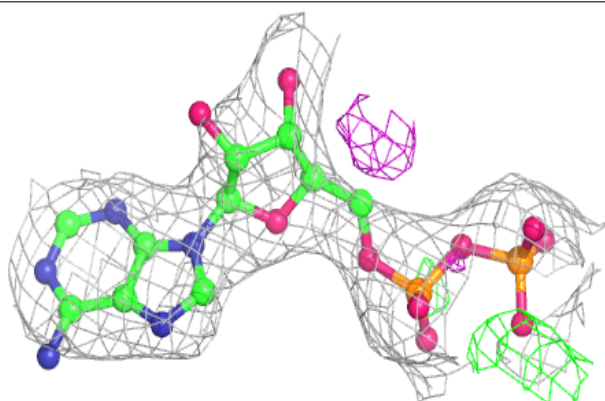


Electron density around ADP F 401:

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

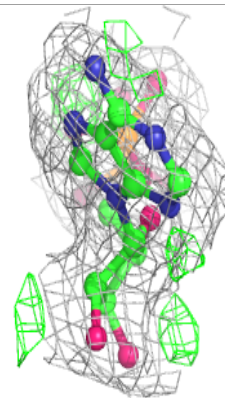
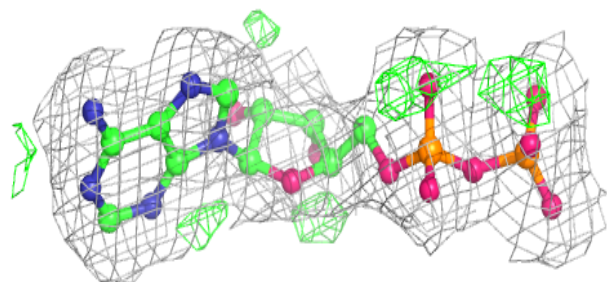
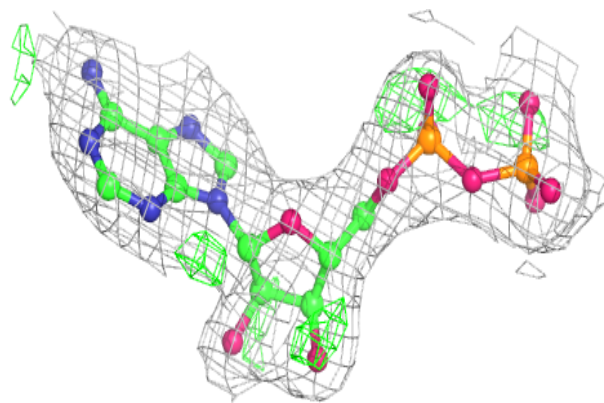
**Electron density around ADP G 401:**

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

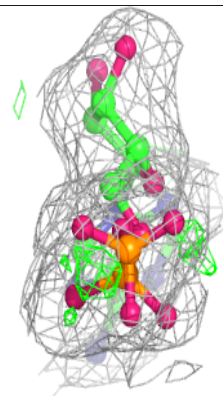
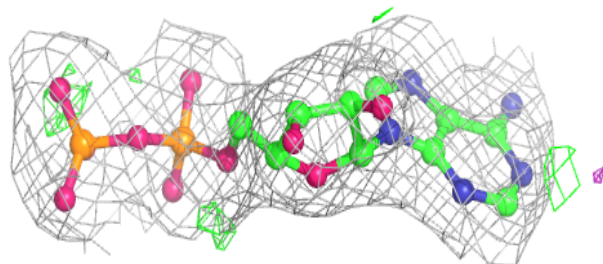
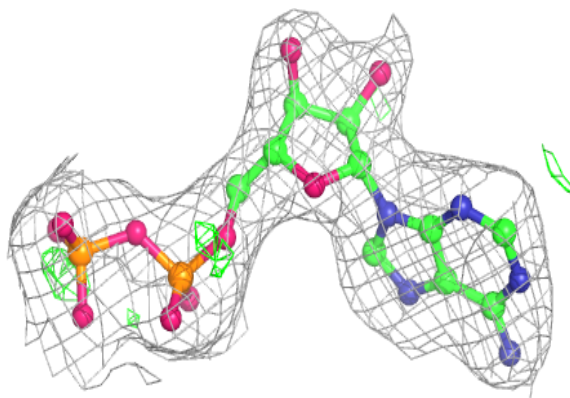


Electron density around ADP D 401:

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

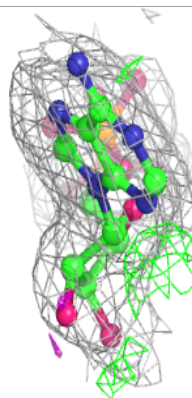
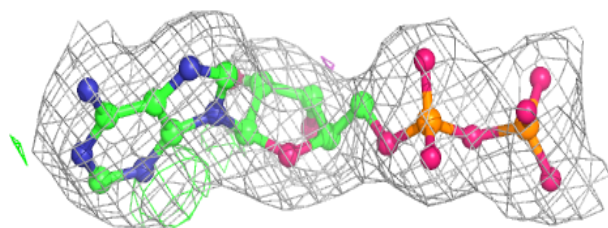
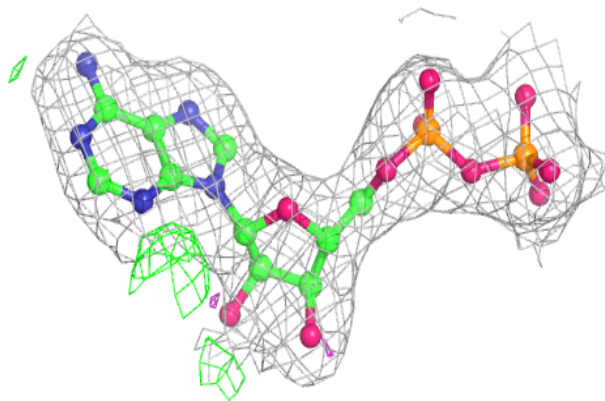
**Electron density around ADP E 401:**

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

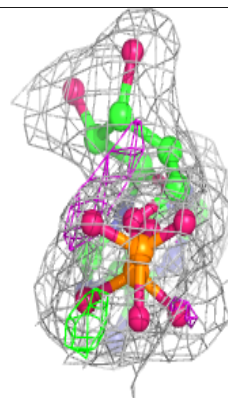
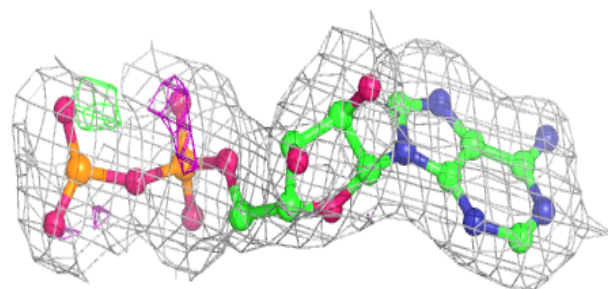
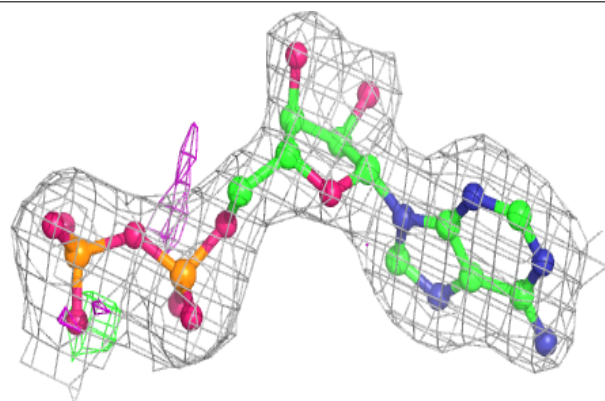


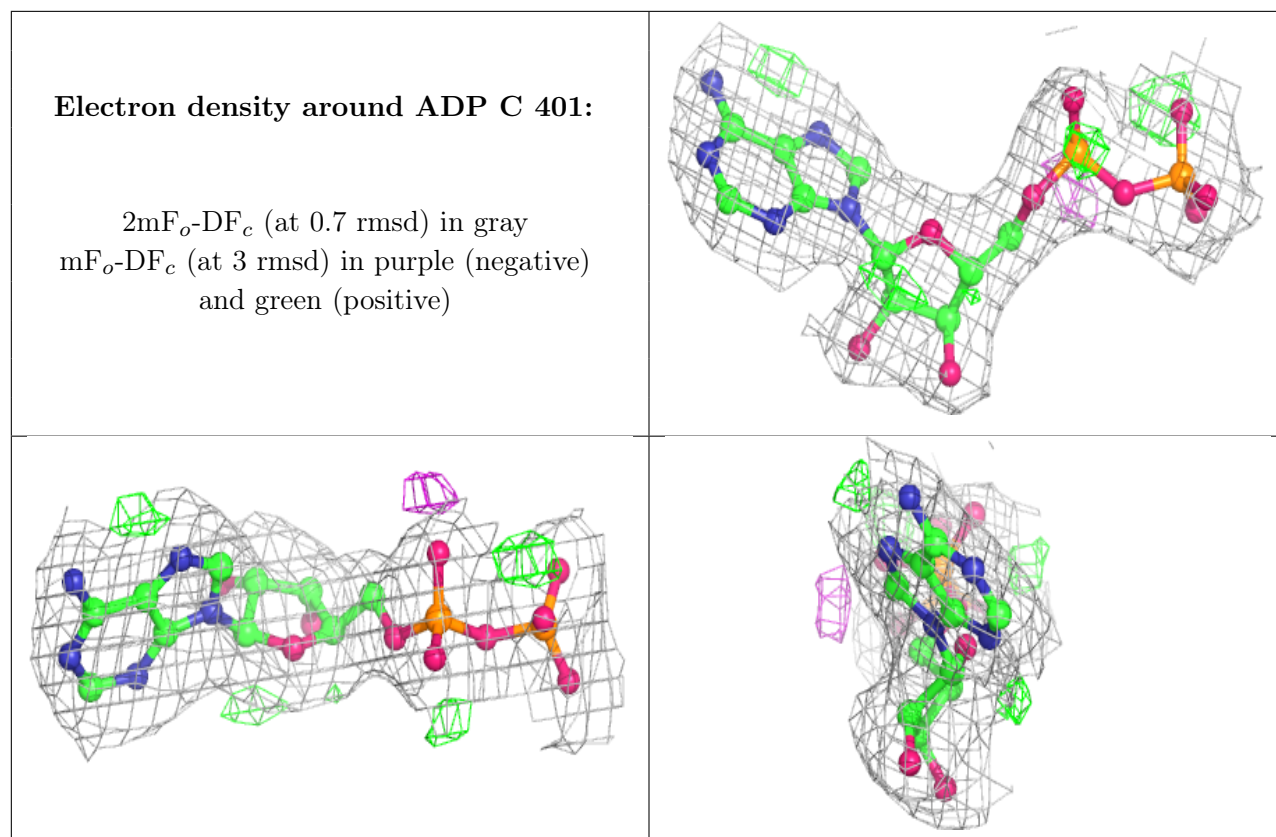
Electron density around ADP B 401:

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

**Electron density around ADP A 401:**

$2mF_o-DF_c$ (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.