



Full wwPDB X-ray Structure Validation Report ⓘ

Dec 23, 2024 – 04:22 PM JST

PDB ID : 8XOD
Title : ThDP-dependent HKA synthase
Authors : Yu, J.H.; Liu, T.
Deposited on : 2024-01-01
Resolution : 2.75 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 : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.21
EDS : 3.0
buster-report : 1.1.7 (2018)
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4 : 9.0.004 (Gargrove)
Density-Fitness : 1.0.11
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.40

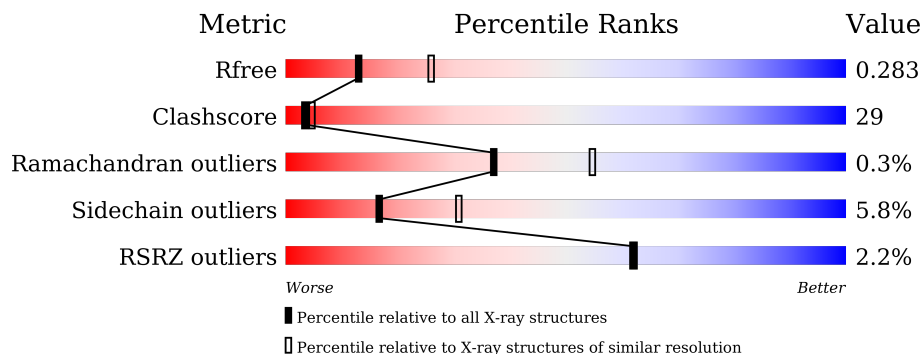
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.75 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}	164625	1606 (2.78-2.74)
Clashscore	180529	1689 (2.78-2.74)
Ramachandran outliers	177936	1665 (2.78-2.74)
Sidechain outliers	177891	1665 (2.78-2.74)
RSRZ outliers	164620	1606 (2.78-2.74)

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	584	 4% 52% 37% 9%
1	B	584	 % 53% 37% 9%
1	C	584	 % 51% 37% 9%
1	D	584	 2% 52% 36% 9%

2 Entry composition [i](#)

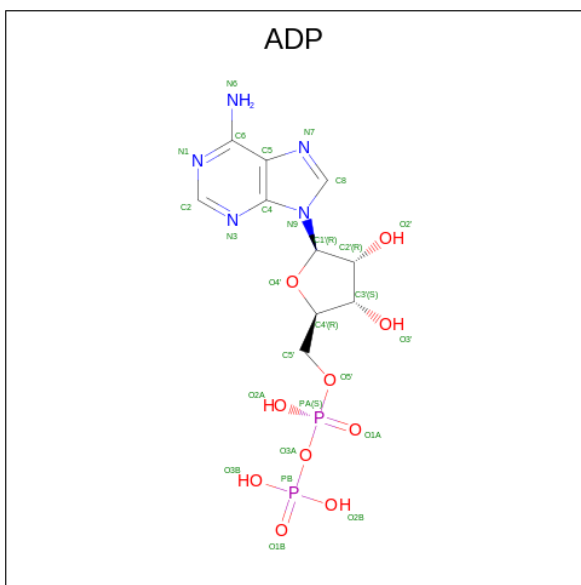
There are 6 unique types of molecules in this entry. The entry contains 16228 atoms, of which 142 are hydrogens and 0 are deuteriums.

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 BbmA-G484F complex with CBOA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	532	Total 3970	C 2536	N 673	O 735	S 26	0	0	0
1	B	531	Total 3964	C 2533	N 672	O 733	S 26	0	0	0
1	C	530	Total 3956	C 2529	N 671	O 730	S 26	0	0	0
1	D	530	Total 3956	C 2529	N 671	O 730	S 26	0	0	0

- Molecule 2 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula: C₁₀H₁₅N₅O₁₀P₂) (labeled as "Ligand of Interest" by depositor).



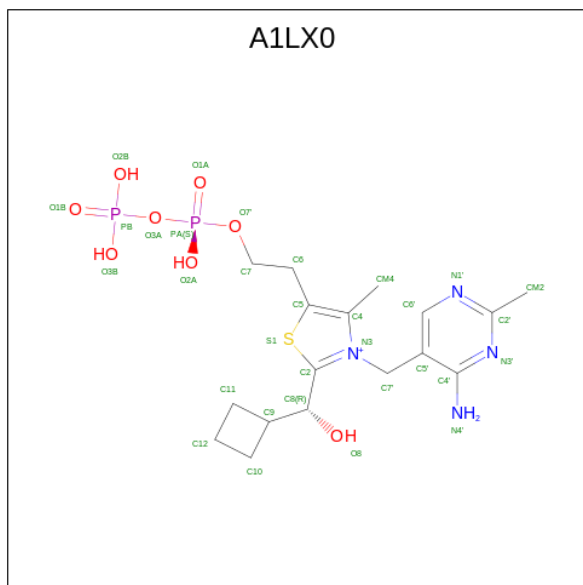
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	
			Total	C	H	N	O			P
2	A	1	Total 39	C 10	H 12	N 5	O 10	P 2	0	0
2	B	1	Total 39	C 10	H 12	N 5	O 10	P 2	0	0

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	
2	C	1	Total	C	H	N	O	P	0	0
			39	10	12	5	10	2		
2	D	1	Total	C	H	N	O	P	0	0
			39	10	12	5	10	2		

- Molecule 3 is 2-[3-[(4-azanyl-2-methyl-pyrimidin-5-yl)methyl]-2-[(R)-cyclobutyl(oxidanyl)methyl]-4-methyl-1,3-thiazol-5-yl]ethyl phosphono hydrogen phosphate (three-letter code: A1LX0) (formula: C₁₇H₂₇N₄O₈P₂S) (labeled as "Ligand of Interest" by depositor).

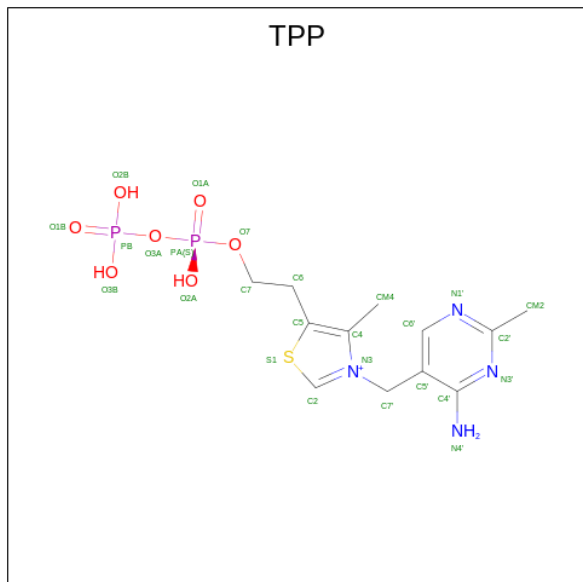


Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	
3	A	1	Total	C	H	N	O	P	S	0	0
			58	17	26	4	8	2	1		
3	C	1	Total	C	H	N	O	P	S	0	0
			58	17	26	4	8	2	1		
3	D	1	Total	C	H	N	O	P	S	0	0
			58	17	26	4	8	2	1		

- Molecule 4 is MAGNESIUM ION (three-letter code: MG) (formula: Mg) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	1	Total	Mg	0	0
			1	1		
4	C	1	Total	Mg	0	0
			1	1		
4	D	1	Total	Mg	0	0
			1	1		

- Molecule 5 is THIAMINE DIPHOSPHATE (three-letter code: TPP) (formula: C₁₂H₁₉N₄O₇P₂S) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf		
			Total	C	H	N	O			P	S
5	B	1	42	12	16	4	7	2	1	0	0

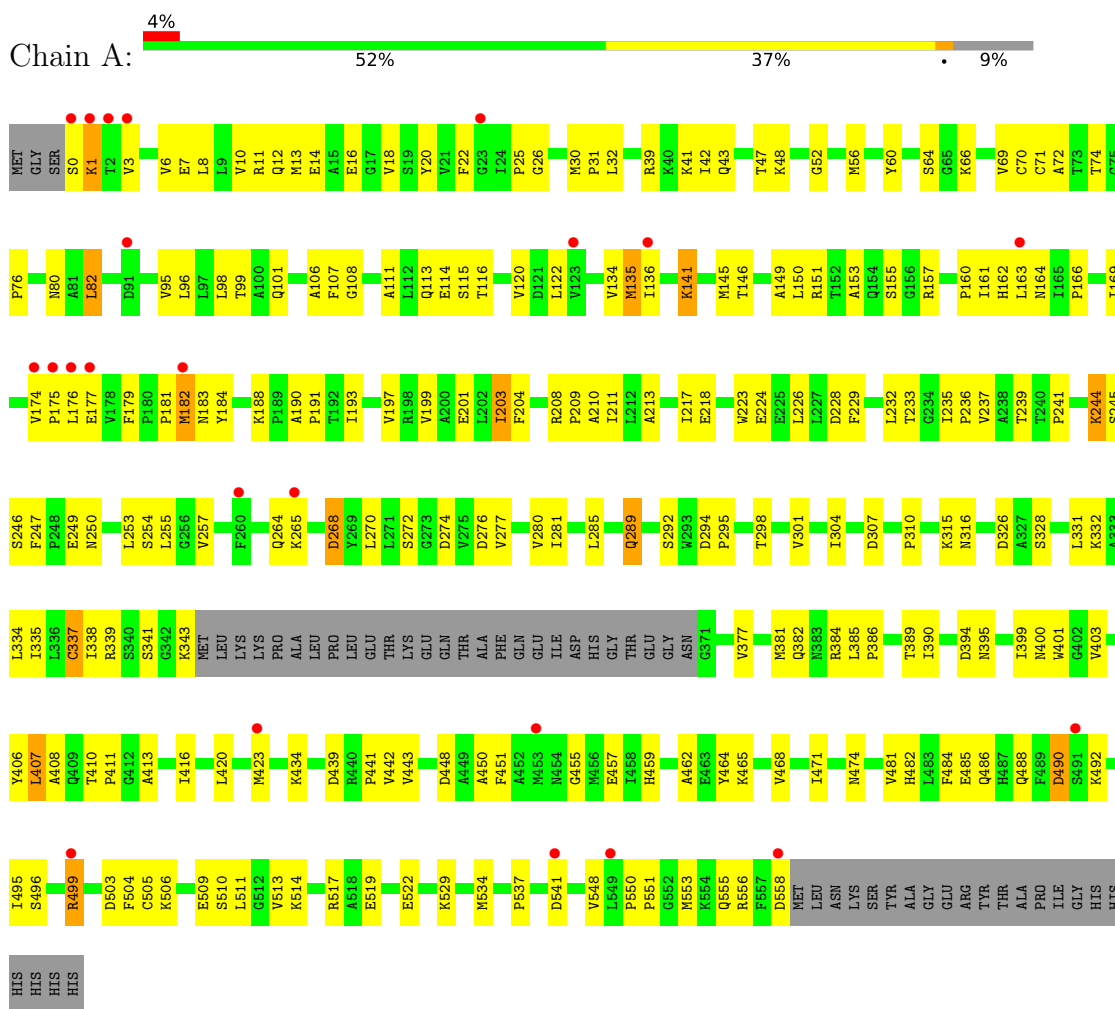
- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	3	Total	O	0	0
			3	3		
6	B	2	Total	O	0	0
			2	2		
6	C	1	Total	O	0	0
			1	1		
6	D	1	Total	O	0	0
			1	1		

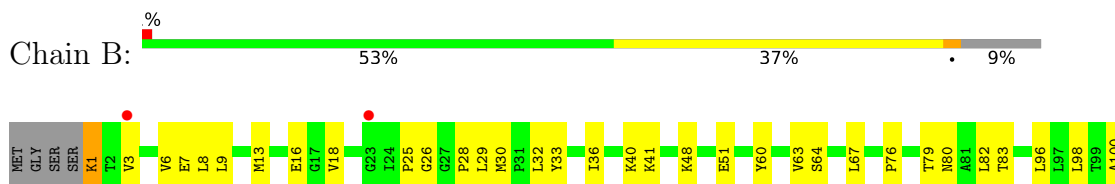
3 Residue-property plots i

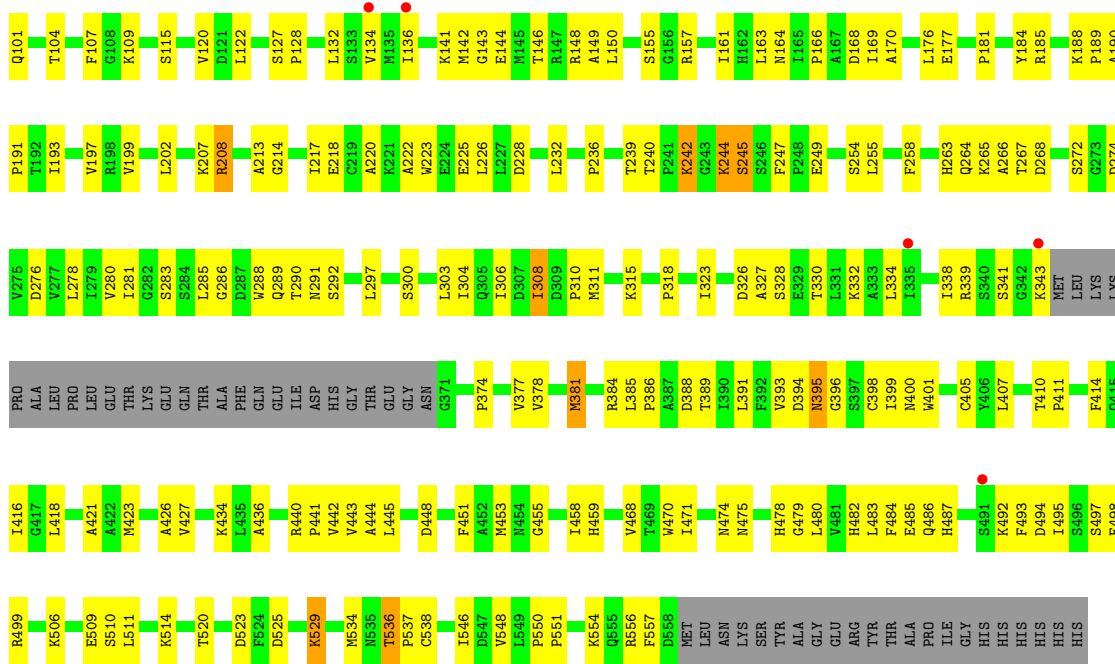
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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: BbmA-G484F complex with CBOA

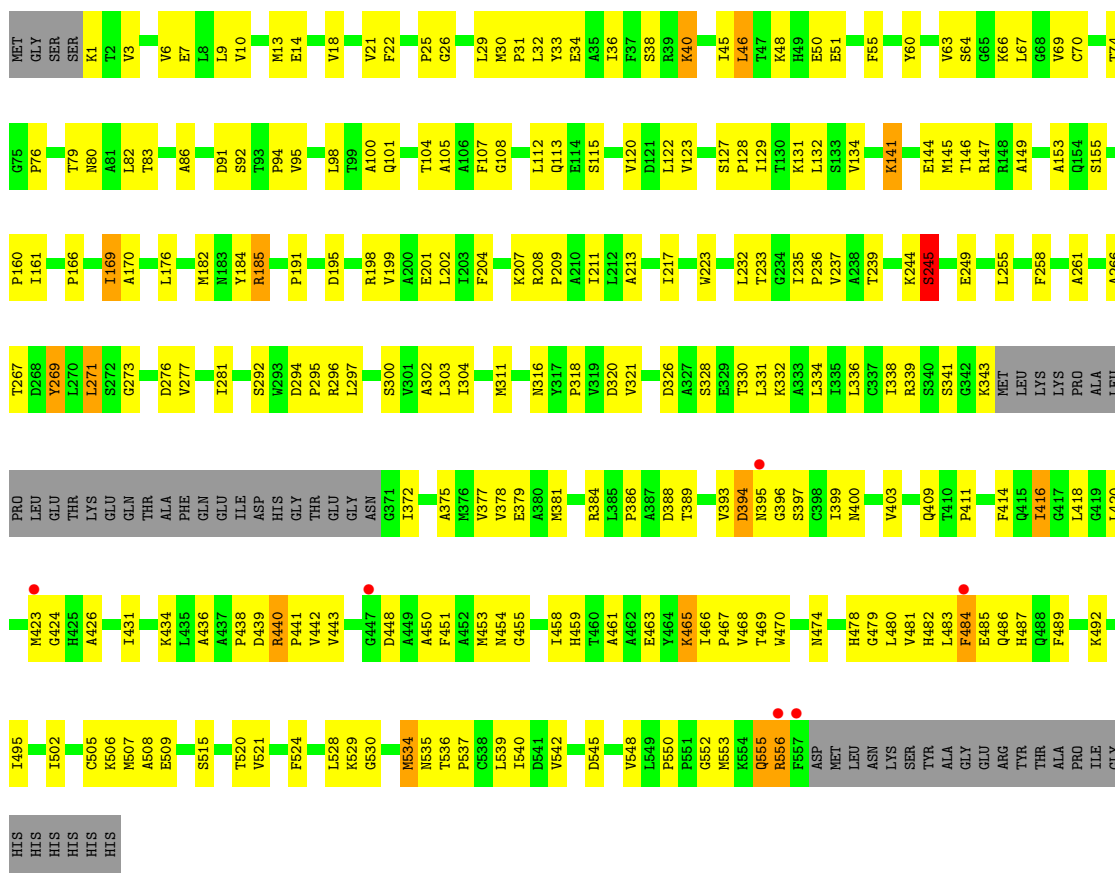


• Molecule 1: BbmA-G484F complex with CBOA





• Molecule 1: BbmA-G484F complex with CBOA



• Molecule 1: BbmA-G484F complex with CBOA

4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	95.94Å 116.69Å 201.61Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	24.94 – 2.75 24.94 – 2.75	Depositor EDS
% Data completeness (in resolution range)	99.8 (24.94-2.75) 98.9 (24.94-2.75)	Depositor EDS
R_{merge}	0.15	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	4.05 (at 2.76Å)	Xtrriage
Refinement program	PHENIX 1.1.17.3360	Depositor
R, R_{free}	0.203 , 0.286 0.221 , 0.283	Depositor DCC
R_{free} test set	57484 reflections (3.36%)	wwPDB-VP
Wilson B-factor (Å ²)	47.1	Xtrriage
Anisotropy	1.326	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 66.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	16228	wwPDB-VP
Average B, all atoms (Å ²)	71.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 37.07 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 4.5381e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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: TPP, ADP, MG, A1LX0

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	0.67	0/4058	0.76	0/5517
1	B	0.67	0/4052	0.73	2/5509 (0.0%)
1	C	0.66	0/4044	0.75	1/5498 (0.0%)
1	D	0.65	0/4044	0.74	0/5498
All	All	0.66	0/16198	0.75	3/22022 (0.0%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	245	SER	N-CA-CB	6.44	120.16	110.50
1	C	245	SER	N-CA-CB	5.50	118.75	110.50
1	B	244	LYS	C-N-CA	5.17	134.62	121.70

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	3970	0	4008	270	0
1	B	3964	0	4003	220	0
1	C	3956	0	3999	237	0
1	D	3956	0	3999	263	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	A	27	12	12	2	0
2	B	27	12	12	3	0
2	C	27	12	12	0	0
2	D	27	12	12	2	0
3	A	32	26	0	7	0
3	C	32	26	0	7	0
3	D	32	26	0	1	0
4	A	1	0	0	0	0
4	C	1	0	0	0	0
4	D	1	0	0	0	0
5	B	26	16	16	6	0
6	A	3	0	0	3	0
6	B	2	0	0	1	0
6	C	1	0	0	0	0
6	D	1	0	0	0	0
All	All	16086	142	16073	941	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 29.

All (941) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:237:VAL:HB	1:A:247:PHE:CE2	1.87	1.10
1:A:236:PRO:HB2	1:A:255:LEU:HD11	1.19	1.09
1:D:208:ARG:HD2	1:D:274:ASP:HB3	1.30	1.08
1:C:384:ARG:HH11	1:C:529:LYS:HB2	1.14	1.08
1:A:255:LEU:HA	1:A:265:LYS:CE	1.83	1.07
1:A:213:ALA:HB1	1:A:217:ILE:CD1	1.84	1.07
1:A:236:PRO:CB	1:A:255:LEU:HD11	1.83	1.06
1:C:232:LEU:HD22	1:C:338:ILE:HD13	1.38	1.04
1:D:255:LEU:HD21	1:D:269:TYR:HD2	1.18	1.04
1:A:182:MET:HE2	6:A:702:HOH:O	1.56	1.03
1:A:400:ASN:HD21	1:A:553:MET:CE	1.70	1.03
1:A:204:PHE:CE1	1:A:338:ILE:HD13	1.93	1.03
1:C:267:THR:O	1:C:271:LEU:HB2	1.59	1.02
1:A:255:LEU:CA	1:A:265:LYS:HE2	1.88	1.02
1:B:217:ILE:HD13	1:B:226:LEU:HD22	1.44	1.00
1:B:13:MET:HB3	1:B:18:VAL:HG21	1.42	1.00
1:B:166:PRO:HD2	1:B:169:ILE:HD11	1.42	1.00
1:D:4:THR:CG2	1:D:7:GLU:HB2	1.93	0.98

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:400:ASN:HD21	1:C:553:MET:CE	1.78	0.97
1:C:400:ASN:ND2	1:C:553:MET:HE2	1.78	0.97
1:C:384:ARG:NH1	1:C:529:LYS:HB2	1.77	0.97
1:C:479:GLY:O	1:C:483:LEU:HD12	1.65	0.95
1:B:378:VAL:HA	1:B:381:MET:HG3	1.47	0.95
1:A:484:PHE:CZ	1:A:556:ARG:NH2	2.34	0.95
1:C:400:ASN:ND2	1:C:553:MET:CE	2.29	0.94
1:D:208:ARG:HD2	1:D:274:ASP:CB	1.95	0.94
1:D:208:ARG:CD	1:D:274:ASP:HB3	1.97	0.93
1:D:332:LYS:O	1:D:336:LEU:HD23	1.67	0.93
1:C:530:GLY:O	1:C:534:MET:HG2	1.67	0.92
1:B:207:LYS:HG2	1:B:276:ASP:OD2	1.70	0.91
1:B:3:VAL:HG21	1:B:7:GLU:HG2	1.50	0.91
1:A:236:PRO:HB2	1:A:255:LEU:CD1	2.00	0.91
1:A:115:SER:HB3	1:A:122:LEU:HG	1.53	0.90
1:D:142:MET:O	1:D:146:THR:HG23	1.71	0.90
1:D:236:PRO:HB2	1:D:255:LEU:HD11	1.53	0.90
1:D:4:THR:HG23	1:D:7:GLU:CB	2.02	0.90
1:D:384:ARG:HD2	1:D:528:LEU:HD22	1.52	0.90
1:B:213:ALA:HB1	1:B:217:ILE:HD12	1.55	0.88
1:D:245:SER:HB2	1:D:414:PHE:HB3	1.52	0.88
1:C:236:PRO:HG2	1:C:269:TYR:HE2	1.36	0.88
1:B:381:MET:O	1:B:385:LEU:HD12	1.74	0.88
1:B:48:LYS:HE3	1:B:459:HIS:ND1	1.88	0.88
1:C:13:MET:HB3	1:C:18:VAL:HG11	1.56	0.88
1:D:554:LYS:O	1:D:554:LYS:NZ	2.07	0.88
1:D:145:MET:HE2	1:D:148:ARG:HD2	1.54	0.87
1:D:4:THR:CG2	1:D:7:GLU:CB	2.53	0.86
1:D:145:MET:HA	1:D:145:MET:CE	2.04	0.86
1:A:204:PHE:CZ	1:A:338:ILE:HD13	2.11	0.85
1:A:82:LEU:HD23	1:D:79:THR:HB	1.58	0.84
1:B:149:ALA:HB1	1:B:161:ILE:HG21	1.59	0.84
1:D:255:LEU:HD21	1:D:269:TYR:CD2	2.10	0.84
1:A:237:VAL:HB	1:A:247:PHE:CD2	2.12	0.84
1:A:209:PRO:HG2	1:A:235:ILE:HG12	1.58	0.83
1:D:315:LYS:HD2	1:D:316:ASN:ND2	1.91	0.83
1:D:426:ALA:HA	1:D:429:ALA:HB3	1.60	0.83
1:B:236:PRO:HB2	1:B:255:LEU:HD21	1.61	0.83
1:C:304:ILE:HG12	1:C:321:VAL:CG1	2.08	0.83
1:C:395:ASN:HA	1:C:399:ILE:HD11	1.61	0.83
1:D:321:VAL:HG12	1:D:323:ILE:HD11	1.59	0.82

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:204:PHE:HB3	1:C:343:LYS:HE3	1.59	0.82
1:D:48:LYS:NZ	1:D:460:THR:HG22	1.93	0.82
1:B:199:VAL:CG2	1:B:334:LEU:HD21	2.10	0.82
1:B:482:HIS:O	1:B:486:GLN:HG3	1.79	0.82
1:A:255:LEU:HA	1:A:265:LYS:HE2	0.92	0.81
1:B:377:VAL:O	1:B:381:MET:HG2	1.78	0.81
1:B:3:VAL:HG21	1:B:7:GLU:CG	2.10	0.81
1:D:321:VAL:CG1	1:D:323:ILE:HD11	2.11	0.81
1:B:16:GLU:HG3	1:B:150:LEU:HD13	1.62	0.81
1:D:177:GLU:O	1:D:177:GLU:HG3	1.81	0.80
1:C:13:MET:O	1:C:18:VAL:HG12	1.82	0.80
1:D:145:MET:CE	1:D:148:ARG:HD2	2.10	0.80
1:A:400:ASN:ND2	1:A:553:MET:CE	2.43	0.80
1:A:484:PHE:HZ	1:A:556:ARG:NH2	1.75	0.80
1:D:47:THR:HB	1:D:457:GLU:OE2	1.83	0.79
1:D:236:PRO:HG2	1:D:269:TYR:HE2	1.45	0.79
1:A:400:ASN:HD21	1:A:553:MET:HE1	1.45	0.79
1:A:423:MET:HE1	3:A:602:A1LX0:C5	2.12	0.79
1:C:185:ARG:HG3	1:C:185:ARG:HH11	1.47	0.79
1:A:47:THR:HB	1:A:457:GLU:OE2	1.82	0.79
1:C:388:ASP:O	1:C:440:ARG:CD	2.30	0.79
1:D:255:LEU:CD2	1:D:269:TYR:HD2	1.96	0.79
1:A:204:PHE:HE1	1:A:338:ILE:HD13	1.44	0.79
1:B:6:VAL:HG12	1:B:170:ALA:O	1.83	0.79
1:A:188:LYS:HE2	1:A:326:ASP:OD2	1.83	0.79
1:B:217:ILE:CD1	1:B:226:LEU:HD22	2.12	0.78
1:D:267:THR:O	1:D:271:LEU:HB2	1.84	0.78
1:C:451:PHE:HZ	1:C:458:ILE:HD13	1.47	0.78
1:A:1:LYS:HG2	1:A:176:LEU:HD22	1.64	0.78
1:B:459:HIS:HB2	1:B:511:LEU:HD13	1.65	0.78
1:B:132:LEU:HB3	1:B:161:ILE:HD12	1.66	0.78
1:D:4:THR:HG23	1:D:7:GLU:HB2	1.65	0.77
1:D:236:PRO:CG	1:D:269:TYR:HE2	1.96	0.77
1:A:3:VAL:CG2	1:A:7:GLU:CD	2.52	0.77
1:B:166:PRO:HD2	1:B:169:ILE:CD1	2.14	0.77
1:D:552:GLY:C	1:D:555:GLN:OE1	2.23	0.77
1:A:244:LYS:HE3	1:A:403:VAL:HA	1.66	0.77
1:C:388:ASP:O	1:C:440:ARG:HD2	1.86	0.76
1:D:145:MET:HE2	1:D:145:MET:HA	1.67	0.76
1:B:242:LYS:HD2	1:B:418:LEU:HB2	1.67	0.76
1:C:400:ASN:HD21	1:C:553:MET:HE1	1.48	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:548:VAL:O	1:C:550:PRO:HD3	1.86	0.75
1:D:60:TYR:O	1:D:64:SER:HB3	1.85	0.75
1:A:18:VAL:O	1:A:42:ILE:HD13	1.86	0.75
1:C:199:VAL:HG13	1:C:304:ILE:HD13	1.68	0.75
1:A:442:VAL:HG23	1:A:468:VAL:HG22	1.69	0.75
1:A:522:GLU:N	1:A:522:GLU:OE1	2.16	0.75
1:C:60:TYR:O	1:C:64:SER:HB3	1.87	0.75
1:D:209:PRO:HG2	1:D:235:ILE:HG12	1.69	0.75
1:D:514:LYS:HG2	1:D:534:MET:CE	2.17	0.75
1:B:386:PRO:O	1:B:389:THR:HG23	1.87	0.74
1:A:169:ILE:HD12	1:A:169:ILE:O	1.87	0.74
1:B:109:LYS:HE3	1:C:316:ASN:OD1	1.87	0.74
1:A:255:LEU:HG	1:A:265:LYS:HE3	1.69	0.74
1:B:82:LEU:HD13	1:C:82:LEU:HD22	1.70	0.74
1:D:195:ASP:OD1	1:D:198:ARG:NH2	2.20	0.74
1:D:328:SER:O	1:D:332:LYS:HG2	1.87	0.74
1:A:382:GLN:OE1	1:A:407:LEU:HB3	1.88	0.74
1:B:83:THR:HG21	1:C:80:ASN:OD1	1.88	0.74
1:A:295:PRO:O	1:A:298:THR:HG23	1.88	0.73
1:C:400:ASN:HD21	1:C:553:MET:HE2	1.43	0.73
1:C:166:PRO:HB2	1:C:169:ILE:CG2	2.19	0.73
1:B:13:MET:O	1:B:18:VAL:HG22	1.88	0.73
1:C:149:ALA:HB1	1:C:161:ILE:HG21	1.70	0.73
1:D:193:ILE:HD12	1:D:193:ILE:N	2.04	0.73
1:A:3:VAL:HG21	1:A:7:GLU:CD	2.09	0.73
1:B:434:LYS:HB2	1:B:442:VAL:HG21	1.71	0.72
1:B:308:ILE:O	1:B:308:ILE:HD12	1.89	0.72
1:C:395:ASN:HD22	1:C:399:ILE:HD11	1.53	0.72
1:C:479:GLY:O	1:C:483:LEU:CD1	2.37	0.72
1:D:377:VAL:O	1:D:381:MET:HG3	1.90	0.72
1:A:188:LYS:CE	1:A:326:ASP:OD2	2.36	0.72
1:C:48:LYS:HE2	1:C:459:HIS:ND1	2.05	0.72
1:A:281:ILE:N	1:A:281:ILE:HD12	2.05	0.72
1:D:26:GLY:O	1:D:30:MET:HG2	1.88	0.72
1:D:514:LYS:HG2	1:D:534:MET:HE2	1.72	0.72
1:C:388:ASP:HB2	1:C:440:ARG:HD3	1.70	0.72
1:B:199:VAL:HG23	1:B:334:LEU:HD21	1.72	0.72
1:D:406:TYR:C	1:D:407:LEU:HD23	2.11	0.72
1:D:143:GLY:HA3	1:D:177:GLU:OE2	1.89	0.72
1:A:434:LYS:HB2	1:A:442:VAL:HG21	1.71	0.71
1:B:9:LEU:HD12	1:B:142:MET:HE3	1.71	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:395:ASN:HA	1:B:399:ILE:HD11	1.70	0.71
1:C:443:VAL:HG22	1:C:469:THR:HB	1.72	0.71
1:B:13:MET:HB3	1:B:18:VAL:CG2	2.20	0.71
1:C:394:ASP:OD1	1:C:426:ALA:N	2.24	0.71
1:A:386:PRO:O	1:A:389:THR:HG23	1.90	0.71
1:C:434:LYS:NZ	1:C:438:PRO:O	2.23	0.71
1:B:556:ARG:O	1:B:556:ARG:HG3	1.91	0.70
1:D:115:SER:HB3	1:D:122:LEU:HG	1.72	0.70
1:C:132:LEU:HB3	1:C:161:ILE:HD12	1.72	0.70
1:C:334:LEU:O	1:C:338:ILE:HG13	1.91	0.70
1:C:400:ASN:ND2	1:C:553:MET:HE1	2.07	0.69
1:A:82:LEU:CD2	1:D:79:THR:HB	2.22	0.69
1:A:106:ALA:HB1	1:A:111:ALA:HB2	1.73	0.69
1:A:289:GLN:HE21	1:A:289:GLN:N	1.90	0.69
1:B:381:MET:CB	1:B:385:LEU:HD12	2.22	0.69
1:C:236:PRO:HG2	1:C:269:TYR:CE2	2.26	0.69
1:D:6:VAL:HG12	1:D:170:ALA:O	1.92	0.69
1:A:14:GLU:OE1	1:A:39:ARG:NH2	2.26	0.69
1:B:381:MET:CB	1:B:385:LEU:CD1	2.71	0.69
1:B:213:ALA:HB1	1:B:217:ILE:CD1	2.23	0.69
1:A:13:MET:HB3	1:A:18:VAL:HG11	1.75	0.68
1:A:401:TRP:CZ3	1:A:551:PRO:HD3	2.28	0.68
1:A:423:MET:HE3	3:A:602:A1LX0:C4	2.23	0.68
1:A:141:LYS:HZ1	1:C:105:ALA:HA	1.57	0.68
1:C:481:VAL:O	1:C:485:GLU:HG3	1.93	0.68
1:D:406:TYR:O	1:D:407:LEU:HD23	1.92	0.68
1:C:399:ILE:HG12	1:C:416:ILE:HD11	1.75	0.68
1:C:244:LYS:HD3	1:C:414:PHE:CD2	2.29	0.68
1:C:386:PRO:O	1:C:389:THR:HG22	1.93	0.68
1:C:185:ARG:HH11	1:C:185:ARG:CG	2.06	0.68
1:D:271:LEU:HB3	1:D:296:ARG:HH12	1.58	0.68
1:A:280:VAL:HG11	1:A:285:LEU:HD21	1.76	0.67
1:C:26:GLY:O	1:C:30:MET:HG2	1.93	0.67
1:C:233:THR:OG1	1:C:235:ILE:HG13	1.94	0.67
1:D:193:ILE:HD12	1:D:193:ILE:H	1.59	0.67
1:B:236:PRO:CB	1:B:255:LEU:HD21	2.24	0.67
1:B:381:MET:HB3	1:B:385:LEU:HD11	1.76	0.67
1:C:483:LEU:O	1:C:487:HIS:HD2	1.76	0.67
1:D:536:THR:HB	1:D:537:PRO:HD2	1.76	0.67
1:D:37:PHE:CE1	1:D:44:PRO:HG3	2.29	0.67
1:D:384:ARG:CD	1:D:528:LEU:HD22	2.24	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:400:ASN:HB3	1:B:551:PRO:HD2	1.77	0.67
1:C:29:LEU:HG	1:C:29:LEU:O	1.95	0.67
1:D:198:ARG:NH1	1:D:321:VAL:HG22	2.10	0.67
1:B:389:THR:HG22	1:B:441:PRO:HG2	1.78	0.66
1:C:10:VAL:O	1:C:14:GLU:HG3	1.95	0.66
1:A:529:LYS:O	1:A:529:LYS:HG2	1.94	0.66
1:B:82:LEU:HD23	1:C:79:THR:HB	1.76	0.66
1:A:18:VAL:HG13	1:A:42:ILE:CD1	2.26	0.66
1:A:423:MET:CE	3:A:602:A1LX0:C4	2.74	0.66
1:A:149:ALA:HB1	1:A:161:ILE:HG21	1.78	0.66
1:A:484:PHE:CE1	1:A:556:ARG:NH2	2.63	0.66
1:B:334:LEU:O	1:B:338:ILE:HG13	1.95	0.66
1:A:232:LEU:HD13	1:A:232:LEU:O	1.95	0.66
1:B:485:GLU:OE2	1:B:495:ILE:HG22	1.96	0.66
1:C:115:SER:HB3	1:C:122:LEU:HG	1.76	0.66
1:B:381:MET:C	1:B:385:LEU:HD12	2.15	0.66
1:B:289:GLN:N	1:B:289:GLN:OE1	2.25	0.66
1:D:332:LYS:O	1:D:336:LEU:CD2	2.43	0.66
1:A:6:VAL:HG21	1:A:32:LEU:HA	1.78	0.65
1:B:378:VAL:HA	1:B:381:MET:CG	2.24	0.65
1:B:423:MET:HE2	5:B:602:TPP:C2'	2.26	0.65
1:C:479:GLY:CA	3:C:602:A1LX0:O3B	2.44	0.65
1:B:9:LEU:HD12	1:B:142:MET:CE	2.26	0.65
1:C:7:GLU:O	1:C:10:VAL:HG22	1.96	0.65
1:D:4:THR:HG23	1:D:7:GLU:HB3	1.77	0.65
1:A:250:ASN:OD1	1:A:250:ASN:N	2.26	0.65
1:B:378:VAL:CA	1:B:381:MET:HG3	2.25	0.65
1:C:489:PHE:O	1:C:492:LYS:HG2	1.95	0.65
1:D:236:PRO:HG2	1:D:269:TYR:CE2	2.30	0.65
1:B:115:SER:HB3	1:B:122:LEU:HG	1.79	0.65
1:C:482:HIS:O	1:C:486:GLN:HG3	1.97	0.65
1:A:48:LYS:HE2	1:A:459:HIS:ND1	2.11	0.65
1:A:60:TYR:O	1:A:64:SER:HB2	1.96	0.65
1:A:213:ALA:HB1	1:A:217:ILE:HD11	1.74	0.65
1:A:213:ALA:HB1	1:A:217:ILE:HD13	1.76	0.65
1:C:185:ARG:HG3	1:C:185:ARG:NH1	2.12	0.65
1:C:479:GLY:HA3	3:C:602:A1LX0:O3B	1.96	0.64
1:D:29:LEU:O	1:D:29:LEU:HG	1.97	0.64
1:D:232:LEU:O	1:D:232:LEU:HD13	1.96	0.64
1:B:3:VAL:HG23	1:B:7:GLU:HB3	1.77	0.64
1:A:174:VAL:HB	1:A:175:PRO:HD2	1.78	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:141:LYS:NZ	1:D:105:ALA:HA	2.12	0.64
1:A:448:ASP:HB3	1:A:474:ASN:HA	1.80	0.64
1:C:232:LEU:O	1:C:232:LEU:HD23	1.97	0.64
1:C:394:ASP:OD1	1:C:426:ALA:HB3	1.97	0.64
1:A:395:ASN:HA	1:A:399:ILE:HD11	1.80	0.64
1:B:244:LYS:HD3	1:B:414:PHE:CG	2.32	0.64
1:A:237:VAL:HG11	1:A:247:PHE:CG	2.33	0.64
1:A:310:PRO:HB2	1:B:155:SER:HB3	1.80	0.64
1:C:384:ARG:NH1	1:C:529:LYS:CB	2.57	0.64
1:C:395:ASN:HA	1:C:399:ILE:CD1	2.27	0.64
1:D:4:THR:HG23	1:D:7:GLU:H	1.63	0.64
1:D:271:LEU:O	1:D:296:ARG:NH1	2.30	0.64
1:C:276:ASP:HA	1:C:300:SER:H	1.63	0.63
1:D:376:MET:HA	1:D:379:GLU:HB2	1.78	0.63
1:A:289:GLN:HE21	1:A:289:GLN:H	1.47	0.63
1:B:80:ASN:ND2	1:C:453:MET:HE1	2.13	0.63
1:C:529:LYS:O	1:C:529:LYS:HD3	1.98	0.63
1:D:74:THR:O	1:D:76:PRO:HD2	1.98	0.63
1:C:76:PRO:HG3	1:C:113:GLN:HE21	1.63	0.63
1:B:423:MET:HE1	5:B:602:TPP:HM42	1.81	0.63
1:B:374:PRO:HB2	1:B:401:TRP:CE2	2.33	0.63
1:D:146:THR:O	1:D:150:LEU:HG	1.99	0.63
1:C:423:MET:HB2	1:C:453:MET:SD	2.38	0.63
1:D:552:GLY:CA	1:D:555:GLN:OE1	2.46	0.63
1:A:26:GLY:O	1:A:30:MET:HG2	1.99	0.62
1:A:193:ILE:HD12	1:A:193:ILE:H	1.64	0.62
1:C:198:ARG:O	1:C:202:LEU:HD13	1.97	0.62
1:C:388:ASP:O	1:C:440:ARG:HD3	1.99	0.62
1:D:16:GLU:HG3	1:D:150:LEU:HD13	1.79	0.62
1:B:218:GLU:HG3	1:B:223:TRP:HZ2	1.63	0.62
1:D:294:ASP:OD1	1:D:295:PRO:HD2	1.98	0.62
1:B:416:ILE:HG23	1:B:418:LEU:HG	1.82	0.62
1:A:423:MET:HE1	3:A:602:A1LX0:C6	2.30	0.62
1:C:311:MET:SD	1:D:152:THR:HA	2.39	0.62
1:D:531:ALA:O	1:D:534:MET:HB2	1.99	0.62
1:A:0:SER:O	1:A:0:SER:OG	2.18	0.62
1:C:236:PRO:CG	1:C:269:TYR:HE2	2.12	0.62
1:D:321:VAL:HG12	1:D:323:ILE:CD1	2.30	0.62
1:C:244:LYS:NZ	1:C:403:VAL:O	2.33	0.62
1:A:197:VAL:O	1:A:201:GLU:HG2	1.99	0.62
1:B:485:GLU:OE1	1:B:494:ASP:HA	2.00	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:377:VAL:O	1:A:381:MET:HG3	2.00	0.61
1:A:141:LYS:NZ	1:C:105:ALA:HA	2.16	0.61
1:C:552:GLY:HA2	1:C:555:GLN:HE21	1.65	0.61
1:A:218:GLU:HG3	1:A:223:TRP:HZ2	1.65	0.61
1:B:388:ASP:HB2	1:B:440:ARG:HD2	1.82	0.61
1:C:209:PRO:HG2	1:C:235:ILE:HG23	1.82	0.61
1:D:401:TRP:CZ3	1:D:551:PRO:HD3	2.36	0.61
1:B:381:MET:HB3	1:B:385:LEU:CD1	2.30	0.61
1:C:204:PHE:HB3	1:C:343:LYS:CE	2.28	0.61
1:B:134:VAL:HG12	1:D:117:VAL:HG11	1.81	0.61
1:B:32:LEU:O	1:B:36:ILE:HG13	2.00	0.61
1:B:79:THR:HB	1:C:83:THR:OG1	2.00	0.61
1:D:384:ARG:HD2	1:D:528:LEU:CD2	2.29	0.61
1:A:155:SER:HB3	1:B:310:PRO:HB2	1.81	0.60
1:D:11:ARG:HH21	1:D:39:ARG:NH1	1.97	0.60
1:D:4:THR:HG22	1:D:7:GLU:OE2	2.01	0.60
1:B:207:LYS:HE3	1:B:276:ASP:HB3	1.83	0.60
1:D:211:ILE:HG23	1:D:281:ILE:CD1	2.32	0.60
1:B:395:ASN:HA	1:B:399:ILE:CD1	2.31	0.60
1:D:101:GLN:HB3	1:D:166:PRO:HA	1.83	0.60
1:A:213:ALA:HB1	1:A:217:ILE:HD12	1.81	0.60
1:B:82:LEU:CD2	1:C:79:THR:HB	2.32	0.60
1:C:82:LEU:HD12	1:C:129:ILE:HD11	1.83	0.60
1:A:255:LEU:HG	1:A:265:LYS:CE	2.32	0.60
1:A:385:LEU:HB3	1:A:389:THR:HG21	1.83	0.60
1:C:423:MET:HE2	1:C:453:MET:SD	2.42	0.60
1:B:3:VAL:CG2	1:B:7:GLU:HG2	2.29	0.60
1:C:338:ILE:HD12	1:C:339:ARG:N	2.17	0.60
1:D:298:THR:HG23	1:D:317:TYR:HD2	1.67	0.60
1:D:244:LYS:O	1:D:245:SER:CB	2.49	0.59
1:D:30:MET:N	1:D:31:PRO:CD	2.65	0.59
1:A:8:LEU:HD11	1:A:177:GLU:H	1.66	0.59
1:D:534:MET:O	1:D:535:ASN:HB3	2.01	0.59
1:A:484:PHE:CE2	1:A:488:GLN:OE1	2.55	0.59
1:D:323:ILE:HD13	1:D:323:ILE:N	2.18	0.59
1:A:442:VAL:CG2	1:A:468:VAL:HG22	2.31	0.59
1:B:217:ILE:HD13	1:B:226:LEU:CD2	2.27	0.59
1:B:283:SER:HA	2:B:601:ADP:O2B	2.03	0.59
1:D:48:LYS:HZ2	1:D:460:THR:HG22	1.66	0.59
1:A:13:MET:O	1:A:18:VAL:HG12	2.03	0.59
1:A:382:GLN:HE22	1:A:407:LEU:H	1.49	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:136:ILE:HD13	1:D:142:MET:CE	2.33	0.59
1:A:3:VAL:CG2	1:A:7:GLU:OE2	2.51	0.58
1:A:80:ASN:ND2	1:D:453:MET:HE1	2.18	0.58
1:C:204:PHE:CZ	1:C:338:ILE:HG22	2.38	0.58
1:D:233:THR:HG22	1:D:235:ILE:HG13	1.85	0.58
1:A:16:GLU:HG3	1:A:150:LEU:HD13	1.85	0.58
1:A:182:MET:CE	6:A:702:HOH:O	2.29	0.58
1:A:490:ASP:OD1	1:A:490:ASP:N	2.34	0.58
1:A:245:SER:O	1:A:411:PRO:HA	2.04	0.58
1:A:556:ARG:O	1:A:556:ARG:HG2	2.03	0.58
1:B:247:PHE:CD2	1:B:254:SER:HB2	2.38	0.58
1:A:169:ILE:HD12	1:A:169:ILE:C	2.23	0.58
1:C:384:ARG:HH12	1:C:529:LYS:HG3	1.67	0.58
1:D:536:THR:HB	1:D:537:PRO:CD	2.32	0.58
1:C:508:ALA:HB3	1:C:515:SER:HB3	1.86	0.58
1:B:442:VAL:CG2	1:B:468:VAL:HG22	2.34	0.58
1:D:48:LYS:HZ3	1:D:460:THR:HG22	1.66	0.58
1:D:278:LEU:HD23	1:D:299:PRO:HD3	1.86	0.58
1:D:296:ARG:HH11	1:D:296:ARG:HB3	1.67	0.58
1:A:64:SER:OG	1:A:66:LYS:HB2	2.04	0.57
1:B:41:LYS:O	1:B:41:LYS:HG3	2.03	0.57
1:B:377:VAL:O	1:B:381:MET:CG	2.50	0.57
1:D:471:ILE:HG22	1:D:473:LEU:CD1	2.34	0.57
1:C:303:LEU:HD23	1:C:318:PRO:O	2.04	0.57
1:D:34:GLU:O	1:D:34:GLU:HG2	2.04	0.57
1:B:63:VAL:HG13	1:B:436:ALA:HB3	1.86	0.57
1:A:481:VAL:O	1:A:485:GLU:HG3	2.05	0.57
1:C:141:LYS:HE3	1:C:144:GLU:OE1	2.05	0.57
1:C:424:GLY:HA3	1:C:454:ASN:OD1	2.03	0.57
1:D:212:LEU:HD21	1:D:240:THR:HG23	1.85	0.57
1:D:530:GLY:O	1:D:534:MET:HG3	2.04	0.57
1:A:276:ASP:O	1:A:301:VAL:HB	2.04	0.57
1:C:423:MET:HG3	3:C:602:A1LX0:N3'	2.19	0.57
1:D:4:THR:OG1	1:D:171:LYS:HA	2.04	0.57
1:A:209:PRO:CG	1:A:235:ILE:HG12	2.30	0.57
1:A:434:LYS:HG3	1:A:442:VAL:HG22	1.87	0.57
1:C:372:ILE:HD12	1:C:542:VAL:HG13	1.86	0.57
1:D:4:THR:CG2	1:D:7:GLU:HB3	2.30	0.57
1:D:9:LEU:CD1	1:D:146:THR:HG21	2.35	0.57
1:A:153:ALA:HB2	1:A:161:ILE:HG12	1.87	0.56
1:A:209:PRO:HB2	1:A:235:ILE:HD13	1.86	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:201:GLU:HA	1:C:201:GLU:OE1	2.04	0.56
1:C:530:GLY:O	1:C:534:MET:CG	2.47	0.56
1:C:169:ILE:HD13	1:C:169:ILE:C	2.25	0.56
1:D:145:MET:HA	1:D:145:MET:HE3	1.86	0.56
1:C:33:TYR:HA	1:C:36:ILE:HD12	1.86	0.56
1:C:169:ILE:HG12	1:C:169:ILE:O	2.04	0.56
1:D:43:GLN:HG2	1:D:44:PRO:HD2	1.86	0.56
1:D:191:PRO:HB3	1:D:323:ILE:CG2	2.35	0.56
1:D:244:LYS:HD3	1:D:414:PHE:CE2	2.39	0.56
1:A:289:GLN:H	1:A:289:GLN:NE2	2.02	0.56
1:B:63:VAL:CG1	1:B:436:ALA:HB3	2.35	0.56
1:B:223:TRP:CG	1:B:411:PRO:HB3	2.41	0.56
1:C:423:MET:CE	1:C:450:ALA:HA	2.35	0.56
1:B:51:GLU:HG3	1:B:83:THR:HG23	1.86	0.56
1:C:416:ILE:HG23	1:C:418:LEU:HG	1.87	0.56
1:D:392:PHE:HB3	1:D:426:ALA:HB1	1.88	0.56
1:B:479:GLY:O	1:B:483:LEU:HD13	2.04	0.56
1:C:244:LYS:HE3	1:C:249:GLU:OE1	2.05	0.56
1:D:23:GLY:O	1:D:24:ILE:HD13	2.05	0.56
1:A:423:MET:HG2	1:A:450:ALA:HA	1.86	0.56
1:C:29:LEU:HB2	1:C:100:ALA:HB2	1.86	0.56
1:C:74:THR:HG22	1:C:100:ALA:O	2.05	0.56
1:C:149:ALA:CB	1:C:161:ILE:HG21	2.35	0.56
1:B:199:VAL:HG23	1:B:334:LEU:CD2	2.35	0.56
1:B:268:ASP:O	1:B:272:SER:HB3	2.06	0.56
1:D:552:GLY:HA2	1:D:555:GLN:CD	2.26	0.56
1:B:107:PHE:O	1:D:141:LYS:NZ	2.31	0.55
1:C:484:PHE:HZ	1:C:556:ARG:HH22	1.52	0.55
1:D:298:THR:HG23	1:D:317:TYR:CD2	2.40	0.55
1:C:267:THR:O	1:C:271:LEU:CB	2.45	0.55
1:D:50:GLU:HB2	1:D:80:ASN:HB3	1.88	0.55
1:A:237:VAL:N	1:A:255:LEU:CD1	2.70	0.55
1:B:197:VAL:HG23	1:B:197:VAL:O	2.04	0.55
1:B:115:SER:HA	1:B:120:VAL:O	2.06	0.55
1:C:3:VAL:HG11	1:C:176:LEU:HD12	1.88	0.55
1:C:13:MET:HB3	1:C:18:VAL:CG1	2.33	0.55
1:A:18:VAL:HG13	1:A:42:ILE:HD12	1.88	0.55
1:A:482:HIS:HB2	1:A:496:SER:HB2	1.88	0.55
1:D:23:GLY:C	1:D:24:ILE:HD13	2.26	0.55
1:D:485:GLU:OE2	1:D:494:ASP:HA	2.07	0.55
1:C:22:PHE:O	1:C:70:CYS:HA	2.07	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:326:ASP:OD2	1:D:329:GLU:N	2.39	0.55
1:A:193:ILE:O	1:A:197:VAL:HG22	2.07	0.55
1:B:381:MET:HB2	1:B:385:LEU:HD12	1.89	0.54
1:C:395:ASN:ND2	1:C:399:ILE:HD11	2.21	0.54
1:C:76:PRO:CG	1:C:113:GLN:NE2	2.70	0.54
1:C:115:SER:HA	1:C:120:VAL:O	2.06	0.54
1:D:482:HIS:O	1:D:486:GLN:HG3	2.07	0.54
1:A:423:MET:CE	3:A:602:A1LX0:C5	2.85	0.54
1:A:505:CYS:SG	1:A:517:ARG:NH2	2.79	0.54
1:B:109:LYS:CE	1:C:316:ASN:OD1	2.56	0.54
1:B:141:LYS:HZ3	1:D:105:ALA:HA	1.72	0.54
1:A:18:VAL:HG21	1:A:69:VAL:CG2	2.38	0.54
1:C:483:LEU:O	1:C:487:HIS:CD2	2.59	0.54
1:D:177:GLU:O	1:D:177:GLU:CG	2.51	0.54
1:B:247:PHE:HD2	1:B:254:SER:HB2	1.73	0.54
1:C:9:LEU:HD21	1:C:98:LEU:HD13	1.88	0.54
1:C:233:THR:CB	1:C:235:ILE:HG13	2.38	0.54
1:A:237:VAL:CB	1:A:247:PHE:CD2	2.88	0.54
1:C:236:PRO:HB2	1:C:255:LEU:HD21	1.87	0.54
1:D:199:VAL:HG11	1:D:304:ILE:HG21	1.88	0.54
1:D:280:VAL:HG11	1:D:285:LEU:HD21	1.90	0.54
1:D:193:ILE:H	1:D:193:ILE:CD1	2.21	0.54
1:C:505:CYS:HB3	1:C:515:SER:OG	2.07	0.54
1:C:63:VAL:CG2	1:C:436:ALA:HB3	2.38	0.54
1:C:211:ILE:HG22	1:C:237:VAL:HG23	1.90	0.54
1:A:459:HIS:HB2	1:A:511:LEU:HD22	1.88	0.53
1:A:3:VAL:HG22	1:A:7:GLU:HB3	1.91	0.53
1:A:513:VAL:HG22	1:A:537:PRO:HB2	1.91	0.53
1:B:225:GLU:HG2	1:B:332:LYS:HG3	1.89	0.53
1:B:281:ILE:HG12	1:B:306:ILE:HD12	1.89	0.53
1:C:302:ALA:HA	1:C:320:ASP:OD2	2.08	0.53
1:B:141:LYS:HD3	1:B:144:GLU:OE1	2.07	0.53
1:B:193:ILE:O	1:B:197:VAL:HG13	2.08	0.53
1:D:372:ILE:HD12	1:D:542:VAL:HG13	1.90	0.53
1:B:214:GLY:HA2	1:B:240:THR:OG1	2.09	0.53
1:D:384:ARG:CD	1:D:528:LEU:CD2	2.86	0.53
1:A:334:LEU:O	1:A:338:ILE:HG22	2.08	0.53
1:A:382:GLN:NE2	1:A:407:LEU:H	2.06	0.53
1:D:303:LEU:HD23	1:D:318:PRO:O	2.09	0.53
1:A:52:GLY:O	1:A:56:MET:HG3	2.08	0.53
1:A:199:VAL:HG22	1:A:304:ILE:HG12	1.90	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:9:LEU:HG	1:D:9:LEU:O	2.08	0.53
1:D:18:VAL:HG12	1:D:42:ILE:HD12	1.90	0.53
1:D:296:ARG:NH1	1:D:296:ARG:CB	2.72	0.53
1:A:213:ALA:CB	1:A:217:ILE:CD1	2.74	0.52
1:A:389:THR:HG22	1:A:441:PRO:HG2	1.90	0.52
1:A:264:GLN:O	1:A:268:ASP:OD1	2.27	0.52
1:A:400:ASN:HD21	1:A:553:MET:HE2	1.68	0.52
1:A:481:VAL:HG13	1:D:30:MET:CE	2.40	0.52
1:B:26:GLY:O	1:B:30:MET:HG2	2.09	0.52
1:B:96:LEU:HD21	1:B:98:LEU:HD21	1.92	0.52
1:C:455:GLY:O	1:C:458:ILE:HG12	2.09	0.52
1:C:74:THR:O	1:C:76:PRO:HD2	2.09	0.52
1:A:226:LEU:HD12	1:A:226:LEU:O	2.10	0.52
1:A:381:MET:HB3	1:A:385:LEU:HD12	1.91	0.52
1:A:389:THR:HG22	1:A:441:PRO:HB2	1.92	0.52
1:C:232:LEU:CD2	1:C:338:ILE:HD13	2.25	0.52
1:B:303:LEU:HD23	1:B:318:PRO:O	2.09	0.52
1:D:504:PHE:HD1	1:D:507:MET:CE	2.23	0.52
1:A:1:LYS:CB	1:A:1:LYS:NZ	2.73	0.52
1:A:7:GLU:O	1:A:10:VAL:HG22	2.09	0.52
1:A:71:CYS:HA	1:A:98:LEU:O	2.09	0.52
1:C:258:PHE:HB2	1:C:266:ALA:HB1	1.92	0.52
1:C:338:ILE:HA	1:C:341:SER:HB3	1.91	0.52
1:A:264:GLN:HG2	1:A:268:ASP:OD1	2.10	0.52
1:A:115:SER:HA	1:A:120:VAL:O	2.10	0.52
1:B:13:MET:C	1:B:18:VAL:HG22	2.29	0.52
1:B:399:ILE:HG12	1:B:416:ILE:HD11	1.92	0.52
1:A:328:SER:O	1:A:332:LYS:CG	2.58	0.52
1:C:76:PRO:CG	1:C:113:GLN:HE21	2.23	0.52
1:C:539:LEU:HD23	1:C:540:ILE:N	2.25	0.52
1:A:244:LYS:CE	1:A:403:VAL:O	2.57	0.51
1:D:481:VAL:O	1:D:485:GLU:HG3	2.09	0.51
1:A:232:LEU:CD2	1:A:339:ARG:HD3	2.40	0.51
1:B:3:VAL:CG2	1:B:7:GLU:CG	2.84	0.51
1:B:480:LEU:O	1:B:484:PHE:HD1	1.93	0.51
1:A:268:ASP:O	1:A:272:SER:CB	2.58	0.51
1:B:1:LYS:N	1:B:1:LYS:CD	2.73	0.51
1:B:148:ARG:NH2	1:D:108:GLY:O	2.43	0.51
1:B:458:ILE:CG1	1:B:511:LEU:HD12	2.41	0.51
1:D:138:THR:HG23	1:D:141:LYS:H	1.75	0.51
1:D:423:MET:SD	3:D:602:A1LX0:CM4	2.98	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:199:VAL:O	1:A:203:ILE:HG23	2.11	0.51
1:A:247:PHE:HE2	1:A:254:SER:HA	1.76	0.51
1:C:375:ALA:O	1:C:378:VAL:HG12	2.10	0.51
1:A:241:PRO:HA	1:A:257:VAL:HG11	1.93	0.51
1:A:481:VAL:HG13	1:D:30:MET:HE2	1.92	0.51
1:B:191:PRO:HB3	1:B:323:ILE:CG2	2.40	0.51
1:B:381:MET:HB2	1:B:385:LEU:CD1	2.40	0.51
1:C:127:SER:N	1:C:128:PRO:CD	2.72	0.51
1:C:123:VAL:O	1:C:127:SER:HB2	2.11	0.51
1:D:390:ILE:HB	1:D:442:VAL:HG22	1.93	0.51
1:C:434:LYS:HG3	1:C:442:VAL:CG2	2.41	0.51
1:B:218:GLU:HG3	1:B:223:TRP:CZ2	2.43	0.51
1:D:16:GLU:OE1	1:D:185:ARG:NH1	2.43	0.51
1:D:95:VAL:O	1:D:160:PRO:HA	2.10	0.51
1:D:519:GLU:HB2	1:D:543:GLN:OE1	2.10	0.51
1:A:315:LYS:HE2	1:A:316:ASN:HD21	1.76	0.51
1:B:217:ILE:HG23	1:B:222:ALA:HB3	1.93	0.51
1:B:395:ASN:N	1:B:395:ASN:ND2	2.59	0.51
1:D:212:LEU:HD21	1:D:240:THR:CG2	2.41	0.51
1:A:395:ASN:HA	1:A:399:ILE:CD1	2.40	0.51
1:A:505:CYS:H	1:A:517:ARG:NH2	2.09	0.51
1:B:398:CYS:HB2	1:B:445:LEU:HD23	1.92	0.51
1:D:21:VAL:HG13	1:D:69:VAL:HG12	1.93	0.51
1:D:281:ILE:HG12	1:D:306:ILE:HD12	1.92	0.50
1:D:451:PHE:CE1	1:D:455:GLY:HA3	2.46	0.50
1:B:427:VAL:HA	1:B:470:TRP:HE1	1.76	0.50
1:D:283:SER:OG	1:D:285:LEU:HD23	2.12	0.50
1:B:479:GLY:N	5:B:602:TPP:O3B	2.43	0.50
1:D:209:PRO:CG	1:D:235:ILE:HG12	2.40	0.50
1:D:484:PHE:O	1:D:488:GLN:HB2	2.11	0.50
1:A:190:ALA:HB1	1:A:191:PRO:HD2	1.93	0.50
1:B:3:VAL:HG21	1:B:7:GLU:CD	2.31	0.50
1:B:146:THR:O	1:B:150:LEU:HG	2.11	0.50
1:A:211:ILE:HG23	1:A:281:ILE:CD1	2.40	0.50
1:A:213:ALA:CB	1:A:217:ILE:HD11	2.40	0.50
1:B:98:LEU:HD23	1:B:163:LEU:HB2	1.93	0.50
1:D:59:GLY:O	1:D:63:VAL:HG13	2.12	0.50
1:A:13:MET:HB3	1:A:18:VAL:CG1	2.41	0.50
1:A:162:HIS:C	1:A:163:LEU:HD23	2.32	0.50
1:A:211:ILE:HG23	1:A:281:ILE:HD13	1.92	0.50
1:A:328:SER:O	1:A:332:LYS:HG3	2.11	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:189:PRO:CG	1:B:308:ILE:HD11	2.42	0.50
1:D:281:ILE:CG1	1:D:306:ILE:HD12	2.42	0.50
1:A:255:LEU:HD12	1:A:255:LEU:N	2.27	0.50
1:A:499:ARG:N	1:D:463:GLU:OE1	2.34	0.50
1:B:520:THR:HG23	1:B:523:ASP:H	1.77	0.50
1:D:315:LYS:HD2	1:D:316:ASN:HD21	1.75	0.50
1:A:223:TRP:CD1	1:A:246:SER:HA	2.47	0.50
1:A:244:LYS:NZ	1:A:406:TYR:O	2.44	0.50
1:A:294:ASP:OD1	1:A:295:PRO:HD2	2.12	0.50
1:B:79:THR:HG23	1:C:82:LEU:CD2	2.42	0.50
1:B:448:ASP:OD1	1:B:448:ASP:N	2.44	0.50
1:C:332:LYS:O	1:C:336:LEU:HD13	2.12	0.50
1:D:9:LEU:HD12	1:D:146:THR:HG21	1.94	0.50
1:D:18:VAL:HG12	1:D:42:ILE:CD1	2.42	0.50
1:D:286:GLY:H	1:D:289:GLN:NE2	2.09	0.50
1:A:384:ARG:HD3	1:A:529:LYS:HB2	1.92	0.49
1:C:431:ILE:HD13	1:C:461:ALA:HB2	1.94	0.49
1:D:115:SER:HA	1:D:120:VAL:O	2.10	0.49
1:D:272:SER:O	1:D:274:ASP:N	2.45	0.49
1:A:504:PHE:HB2	1:A:541:ASP:OD2	2.12	0.49
1:C:76:PRO:HG3	1:C:113:GLN:NE2	2.27	0.49
1:C:204:PHE:CE1	1:C:338:ILE:HG22	2.47	0.49
1:C:311:MET:SD	1:D:152:THR:HG23	2.53	0.49
1:D:384:ARG:NH1	1:D:529:LYS:HB3	2.26	0.49
1:A:101:GLN:HB3	1:A:166:PRO:HA	1.93	0.49
1:B:492:LYS:HG3	1:B:493:PHE:HD1	1.76	0.49
1:D:244:LYS:HD3	1:D:414:PHE:CZ	2.47	0.49
1:A:237:VAL:CG1	1:A:247:PHE:CD2	2.95	0.49
1:C:134:VAL:HG21	1:C:145:MET:CE	2.42	0.49
1:C:520:THR:HG22	1:C:521:VAL:H	1.78	0.49
1:A:74:THR:O	1:A:76:PRO:HD2	2.13	0.49
1:C:104:THR:HA	1:C:107:PHE:CE1	2.47	0.49
1:D:199:VAL:HG23	1:D:334:LEU:HD21	1.95	0.49
1:A:237:VAL:N	1:A:255:LEU:HD13	2.28	0.49
1:A:276:ASP:HB2	1:A:301:VAL:CG2	2.43	0.49
1:B:381:MET:CA	1:B:385:LEU:HD12	2.43	0.49
1:C:202:LEU:N	1:C:202:LEU:HD12	2.27	0.49
1:D:489:PHE:CD1	1:D:489:PHE:N	2.80	0.49
1:D:514:LYS:HG2	1:D:534:MET:HE1	1.95	0.49
1:A:3:VAL:HG21	1:A:7:GLU:OE1	2.12	0.49
1:D:30:MET:N	1:D:31:PRO:HD2	2.28	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:208:ARG:HD2	1:D:274:ASP:HB2	1.88	0.49
1:B:244:LYS:HD3	1:B:414:PHE:CD1	2.47	0.49
1:C:199:VAL:HG13	1:C:304:ILE:CD1	2.40	0.49
1:D:384:ARG:HD3	1:D:529:LYS:HB3	1.95	0.49
1:A:484:PHE:O	1:A:488:GLN:N	2.44	0.48
1:D:9:LEU:HD12	1:D:146:THR:CB	2.43	0.48
1:D:236:PRO:HG3	1:D:269:TYR:HE2	1.74	0.48
1:A:506:LYS:HB2	1:D:510:SER:HB3	1.95	0.48
1:B:188:LYS:NZ	1:B:326:ASP:CG	2.67	0.48
1:B:393:VAL:O	1:B:426:ALA:HB2	2.12	0.48
1:C:101:GLN:HB3	1:C:166:PRO:HA	1.95	0.48
1:D:458:ILE:HD11	1:D:511:LEU:HD12	1.94	0.48
1:A:151:ARG:HD3	1:A:184:TYR:O	2.13	0.48
1:B:391:LEU:HD12	1:B:443:VAL:O	2.13	0.48
1:D:504:PHE:CD1	1:D:507:MET:CE	2.97	0.48
1:B:157:ARG:HG3	2:B:601:ADP:H2'	1.95	0.48
1:A:8:LEU:CD1	1:A:177:GLU:H	2.26	0.48
1:B:249:GLU:HB2	1:B:407:LEU:HG	1.95	0.48
1:C:6:VAL:O	1:C:10:VAL:HG13	2.13	0.48
1:D:232:LEU:HD13	1:D:232:LEU:C	2.33	0.48
1:A:390:ILE:HB	1:A:442:VAL:HG12	1.96	0.48
1:D:296:ARG:HH11	1:D:296:ARG:CB	2.26	0.48
1:D:504:PHE:CD1	1:D:507:MET:HE2	2.49	0.48
1:A:1:LYS:HE3	1:A:1:LYS:HB2	1.64	0.48
1:A:20:TYR:HA	1:A:43:GLN:O	2.13	0.48
1:A:307:ASP:OD1	2:A:601:ADP:O2'	2.23	0.48
1:A:338:ILE:O	1:A:338:ILE:HD12	2.13	0.48
1:D:4:THR:HG22	1:D:7:GLU:CB	2.42	0.48
1:D:332:LYS:HA	1:D:335:ILE:HG12	1.94	0.48
1:B:60:TYR:O	1:B:64:SER:CB	2.62	0.48
1:B:79:THR:HG21	1:C:83:THR:HA	1.95	0.48
1:C:223:TRP:CG	1:C:411:PRO:HB3	2.48	0.48
1:A:11:ARG:HG2	1:A:39:ARG:HH21	1.78	0.48
1:A:510:SER:CB	1:D:506:LYS:HB3	2.44	0.48
1:B:228:ASP:O	1:B:232:LEU:HB2	2.13	0.48
1:C:153:ALA:HB2	1:C:161:ILE:HG12	1.96	0.48
1:C:478:HIS:HB2	1:C:481:VAL:CG2	2.43	0.48
1:D:76:PRO:HA	1:D:79:THR:OG1	2.13	0.48
1:A:76:PRO:HD3	1:A:113:GLN:HG2	1.94	0.48
1:B:242:LYS:CD	1:B:418:LEU:HB2	2.39	0.48
1:D:145:MET:HE1	1:D:148:ARG:HD2	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:338:ILE:O	1:A:341:SER:HB3	2.14	0.47
1:B:258:PHE:HB2	1:B:266:ALA:HB1	1.96	0.47
1:A:553:MET:HB2	1:A:553:MET:HE3	1.48	0.47
1:B:459:HIS:HB2	1:B:511:LEU:HB3	1.96	0.47
1:C:51:GLU:HG2	1:C:55:PHE:CE2	2.49	0.47
1:D:298:THR:CG2	1:D:317:TYR:HD2	2.28	0.47
1:A:107:PHE:CD1	1:A:116:THR:HG21	2.49	0.47
1:D:184:TYR:O	1:D:184:TYR:HD1	1.96	0.47
1:D:372:ILE:HG23	1:D:521:VAL:HG22	1.96	0.47
1:B:8:LEU:HD21	1:B:143:GLY:CA	2.44	0.47
1:B:28:PRO:HB2	1:B:100:ALA:HB1	1.95	0.47
1:D:286:GLY:C	1:D:289:GLN:OE1	2.52	0.47
1:B:326:ASP:OD1	1:B:327:ALA:N	2.48	0.47
1:C:207:LYS:O	1:C:208:ARG:HD3	2.14	0.47
1:A:12:GLN:NE2	1:A:179:PHE:O	2.48	0.47
1:B:207:LYS:HE3	1:B:276:ASP:CB	2.42	0.47
1:B:213:ALA:O	1:B:239:THR:HA	2.14	0.47
1:C:397:SER:N	1:C:480:LEU:HD11	2.29	0.47
1:D:385:LEU:HD22	1:D:443:VAL:HG21	1.97	0.47
1:A:244:LYS:HE3	1:A:403:VAL:CA	2.40	0.47
1:A:385:LEU:CD2	1:A:443:VAL:HG21	2.45	0.47
1:A:499:ARG:H	1:D:463:GLU:CD	2.14	0.47
1:A:510:SER:HB3	1:D:506:LYS:HB3	1.97	0.47
1:B:25:PRO:HB3	1:B:33:TYR:CE2	2.50	0.47
1:B:208:ARG:HA	1:B:208:ARG:NE	2.29	0.47
1:B:310:PRO:HG2	1:B:311:MET:CE	2.44	0.47
1:C:479:GLY:N	3:C:602:A1LX0:O3B	2.47	0.47
1:D:9:LEU:CD1	1:D:146:THR:CG2	2.93	0.47
1:D:212:LEU:C	1:D:212:LEU:HD23	2.35	0.47
1:A:423:MET:HE3	3:A:602:A1LX0:CM4	2.43	0.47
1:B:127:SER:N	1:B:128:PRO:CD	2.78	0.47
1:B:498:PHE:HB3	1:C:463:GLU:OE2	2.15	0.47
1:C:22:PHE:HD1	1:C:45:ILE:HB	1.78	0.47
1:C:378:VAL:HG13	1:C:379:GLU:N	2.29	0.47
1:D:56:MET:CE	1:D:457:GLU:OE2	2.63	0.47
1:D:245:SER:HB2	1:D:414:PHE:CB	2.35	0.47
1:D:420:LEU:HD12	1:D:420:LEU:HA	1.72	0.47
1:D:552:GLY:HA2	1:D:555:GLN:OE1	2.13	0.47
1:A:264:GLN:NE2	1:A:268:ASP:OD2	2.48	0.47
1:A:464:TYR:O	1:A:465:LYS:CB	2.63	0.47
1:C:40:LYS:HB2	1:C:40:LYS:HE2	1.38	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:451:PHE:CD1	1:D:455:GLY:HA3	2.49	0.47
1:B:149:ALA:CB	1:B:161:ILE:HG21	2.38	0.46
1:C:304:ILE:HG12	1:C:321:VAL:HG11	1.92	0.46
1:D:191:PRO:HB3	1:D:323:ILE:HG21	1.97	0.46
1:D:322:GLY:C	1:D:323:ILE:HD13	2.36	0.46
1:C:394:ASP:OD1	1:C:426:ALA:CB	2.62	0.46
1:D:127:SER:HB2	1:D:128:PRO:HD3	1.96	0.46
1:D:48:LYS:HB2	1:D:457:GLU:OE1	2.15	0.46
1:B:181:PRO:HA	1:B:184:TYR:CZ	2.51	0.46
1:B:202:LEU:HD13	1:B:304:ILE:HD11	1.98	0.46
1:D:209:PRO:HB2	1:D:235:ILE:HD13	1.98	0.46
1:B:29:LEU:HD13	1:B:100:ALA:HB2	1.97	0.46
1:C:195:ASP:O	1:C:199:VAL:HG23	2.16	0.46
1:D:407:LEU:HD23	1:D:407:LEU:N	2.29	0.46
1:A:60:TYR:O	1:A:64:SER:CB	2.62	0.46
1:A:400:ASN:ND2	1:A:553:MET:HE1	2.17	0.46
1:B:191:PRO:HG3	1:B:330:THR:HG23	1.98	0.46
1:B:443:VAL:HG13	1:B:471:ILE:HD12	1.97	0.46
1:B:548:VAL:O	1:B:550:PRO:HD3	2.15	0.46
1:C:423:MET:HE3	1:C:450:ALA:HA	1.98	0.46
1:C:536:THR:HB	1:C:537:PRO:HD2	1.98	0.46
1:A:229:PHE:O	1:A:233:THR:HG23	2.16	0.46
1:B:101:GLN:NE2	1:B:164:ASN:OD1	2.43	0.46
1:B:378:VAL:HG21	1:B:405:CYS:HB3	1.97	0.46
1:C:134:VAL:HG21	1:C:145:MET:HE1	1.97	0.46
1:C:386:PRO:HB2	1:C:441:PRO:HG2	1.98	0.46
1:D:242:LYS:HD3	1:D:418:LEU:HB2	1.97	0.46
1:A:135:MET:HA	1:A:164:ASN:HB3	1.98	0.46
1:A:482:HIS:O	1:A:486:GLN:HG3	2.16	0.46
1:C:25:PRO:HD3	1:C:46:LEU:HD12	1.97	0.46
1:C:318:PRO:HA	1:D:183:ASN:O	2.16	0.46
1:D:184:TYR:O	1:D:184:TYR:CD1	2.69	0.46
1:A:141:LYS:HZ1	1:C:105:ALA:CA	2.27	0.46
1:D:208:ARG:NE	1:D:274:ASP:HB3	2.30	0.46
1:A:423:MET:CE	3:A:602:A1LX0:CM4	2.93	0.46
1:B:16:GLU:O	6:B:701:HOH:O	2.21	0.46
1:B:141:LYS:HZ1	1:D:105:ALA:HA	1.81	0.46
1:C:22:PHE:CD1	1:C:45:ILE:HB	2.51	0.46
1:A:439:ASP:OD1	1:A:439:ASP:O	2.34	0.45
1:B:536:THR:HG22	1:B:537:PRO:HD2	1.97	0.45
1:C:202:LEU:HD23	1:C:302:ALA:CB	2.46	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:17:GLY:O	1:D:66:LYS:HD3	2.16	0.45
1:A:3:VAL:HG23	1:A:7:GLU:OE2	2.16	0.45
1:A:209:PRO:HG2	1:A:235:ILE:CG1	2.38	0.45
1:A:420:LEU:O	1:D:113:GLN:HG2	2.16	0.45
1:B:76:PRO:HD3	1:C:420:LEU:CD1	2.47	0.45
1:A:72:ALA:O	1:A:99:THR:HA	2.16	0.45
1:C:30:MET:N	1:C:31:PRO:CD	2.80	0.45
1:D:381:MET:CE	1:D:471:ILE:HD12	2.46	0.45
1:A:265:LYS:O	1:A:265:LYS:HG3	2.15	0.45
1:A:503:ASP:OD1	1:A:517:ARG:NH2	2.49	0.45
1:C:384:ARG:NH1	1:C:529:LYS:HG3	2.31	0.45
1:A:48:LYS:HA	1:A:48:LYS:HD3	1.77	0.45
1:A:289:GLN:N	1:A:289:GLN:NE2	2.59	0.45
1:A:385:LEU:HD21	1:A:443:VAL:HG21	1.99	0.45
1:B:190:ALA:HB1	1:B:191:PRO:HD2	1.99	0.45
1:D:9:LEU:HD13	1:D:146:THR:HG21	1.98	0.45
1:D:399:ILE:HG22	1:D:416:ILE:HD11	1.98	0.45
1:B:255:LEU:HA	1:B:265:LYS:HD2	1.99	0.45
1:B:315:LYS:HD2	1:C:108:GLY:O	2.16	0.45
1:D:106:ALA:HB1	1:D:111:ALA:HB2	1.98	0.45
1:B:444:ALA:HB3	1:B:470:TRP:CD1	2.52	0.45
1:B:483:LEU:HD21	1:B:550:PRO:HD3	1.99	0.45
1:C:448:ASP:HB3	1:C:474:ASN:HA	1.98	0.45
1:D:513:VAL:HG13	1:D:537:PRO:HB2	1.99	0.45
1:B:395:ASN:OD1	1:B:421:ALA:HA	2.16	0.45
1:B:506:LYS:HD2	1:C:509:GLU:HG2	1.99	0.45
1:D:151:ARG:HA	1:D:185:ARG:HD2	1.99	0.45
1:D:381:MET:HE3	1:D:471:ILE:HD12	1.98	0.45
1:A:208:ARG:NE	1:A:274:ASP:O	2.32	0.45
1:B:101:GLN:HB3	1:B:166:PRO:HA	1.99	0.45
1:B:478:HIS:HE2	1:C:46:LEU:HD21	1.82	0.45
1:C:478:HIS:CB	1:C:481:VAL:CG2	2.95	0.45
1:A:22:PHE:O	1:A:70:CYS:HA	2.17	0.44
1:B:67:LEU:HD22	1:B:150:LEU:HD22	1.99	0.44
1:C:459:HIS:O	1:C:463:GLU:N	2.45	0.44
1:A:482:HIS:HB2	1:A:496:SER:CB	2.46	0.44
1:B:410:THR:HG23	1:B:411:PRO:HD2	2.00	0.44
1:C:98:LEU:N	1:C:98:LEU:HD23	2.32	0.44
1:C:326:ASP:OD1	1:C:328:SER:N	2.42	0.44
1:D:8:LEU:HD13	1:D:176:LEU:HA	1.99	0.44
1:D:9:LEU:HD12	1:D:146:THR:HB	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:278:LEU:CB	1:D:299:PRO:HG3	2.47	0.44
1:D:451:PHE:O	1:D:455:GLY:N	2.46	0.44
1:A:18:VAL:O	1:A:42:ILE:CD1	2.62	0.44
1:A:157:ARG:NH2	2:A:601:ADP:H3'	2.33	0.44
1:A:285:LEU:N	1:A:285:LEU:HD23	2.31	0.44
1:B:79:THR:CG2	1:C:82:LEU:HD23	2.46	0.44
1:B:416:ILE:CG2	1:B:418:LEU:HG	2.48	0.44
1:D:232:LEU:C	1:D:232:LEU:CD1	2.85	0.44
1:D:278:LEU:CD2	1:D:299:PRO:HD3	2.46	0.44
1:D:455:GLY:O	1:D:458:ILE:HG12	2.17	0.44
1:A:381:MET:O	1:A:385:LEU:HD12	2.18	0.44
1:B:181:PRO:HB3	1:B:185:ARG:NH2	2.33	0.44
5:B:602:TPP:C2	5:B:602:TPP:HN42	2.31	0.44
1:C:377:VAL:HG13	1:C:524:PHE:CE2	2.53	0.44
1:D:136:ILE:CD1	1:D:165:ILE:HG12	2.47	0.44
1:D:190:ALA:HB1	1:D:191:PRO:HD2	1.99	0.44
1:D:279:ILE:HG12	1:D:304:ILE:HD12	1.98	0.44
1:D:335:ILE:HG13	1:D:336:LEU:N	2.33	0.44
1:B:378:VAL:HG21	1:B:405:CYS:CB	2.48	0.44
1:A:25:PRO:HG3	1:D:495:ILE:HG23	2.00	0.44
1:B:475:ASN:HB2	1:B:546:ILE:HB	2.00	0.44
1:C:82:LEU:CD1	1:C:129:ILE:HD11	2.47	0.44
1:C:294:ASP:HA	1:C:295:PRO:HD2	1.68	0.44
1:D:18:VAL:HG12	1:D:18:VAL:O	2.16	0.44
1:A:6:VAL:O	1:A:10:VAL:HG13	2.18	0.44
1:B:400:ASN:CB	1:B:551:PRO:HD2	2.46	0.44
1:B:451:PHE:O	1:B:455:GLY:N	2.46	0.44
1:C:86:ALA:HB2	1:C:129:ILE:HD13	1.99	0.44
1:C:261:ALA:HB3	1:C:403:VAL:CG2	2.48	0.44
1:A:47:THR:HG22	1:A:56:MET:HE1	1.99	0.44
1:A:434:LYS:HG3	1:A:442:VAL:CG2	2.47	0.44
1:C:147:ARG:HD2	1:C:184:TYR:CD2	2.52	0.44
1:D:198:ARG:HH11	1:D:321:VAL:HG22	1.80	0.44
1:A:416:ILE:HG21	1:A:416:ILE:HD13	1.69	0.44
1:B:423:MET:HE2	5:B:602:TPP:N1'	2.33	0.44
1:C:545:ASP:HB3	1:C:548:VAL:HG13	1.99	0.44
1:D:388:ASP:C	1:D:440:ARG:HH21	2.21	0.44
1:A:30:MET:N	1:A:31:PRO:CD	2.81	0.43
1:A:517:ARG:HE	1:A:517:ARG:HB2	1.74	0.43
1:C:381:MET:HB3	1:C:528:LEU:HD11	1.99	0.43
1:C:548:VAL:O	1:C:548:VAL:HG23	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:199:VAL:CG1	1:D:304:ILE:HD13	2.49	0.43
1:D:292:SER:O	1:D:292:SER:OG	2.30	0.43
1:D:555:GLN:CD	1:D:555:GLN:N	2.72	0.43
1:B:115:SER:CA	1:B:120:VAL:O	2.66	0.43
1:B:423:MET:HE2	5:B:602:TPP:C6'	2.49	0.43
1:D:236:PRO:HB2	1:D:255:LEU:CD1	2.36	0.43
1:D:267:THR:HG23	1:D:271:LEU:HD12	1.99	0.43
1:D:400:ASN:ND2	1:D:553:MET:HG2	2.33	0.43
1:A:400:ASN:ND2	1:A:553:MET:HE3	2.27	0.43
1:A:548:VAL:O	1:A:550:PRO:HD3	2.17	0.43
1:B:76:PRO:HD3	1:C:420:LEU:HG	2.00	0.43
1:B:339:ARG:NH1	1:B:339:ARG:HG2	2.33	0.43
1:C:294:ASP:OD1	1:C:295:PRO:HD2	2.18	0.43
1:D:40:LYS:HD2	1:D:40:LYS:HA	1.59	0.43
1:B:79:THR:HG23	1:C:82:LEU:HD23	2.01	0.43
1:B:442:VAL:HG23	1:B:468:VAL:HG22	1.99	0.43
1:B:483:LEU:O	1:B:487:HIS:HB2	2.17	0.43
1:B:546:ILE:HG12	1:B:546:ILE:O	2.18	0.43
1:A:451:PHE:O	1:A:455:GLY:N	2.51	0.43
1:B:339:ARG:HG2	1:B:339:ARG:HH11	1.84	0.43
1:C:166:PRO:HB2	1:C:169:ILE:HG22	1.98	0.43
1:C:271:LEU:HD22	1:C:271:LEU:HA	1.43	0.43
1:A:176:LEU:HD12	1:A:176:LEU:HA	1.85	0.43
1:A:183:ASN:O	1:B:318:PRO:HA	2.18	0.43
1:A:245:SER:OG	1:A:410:THR:O	2.37	0.43
1:D:255:LEU:CD2	1:D:269:TYR:CD2	2.86	0.43
1:A:213:ALA:O	1:A:239:THR:HA	2.18	0.43
1:A:381:MET:HB3	1:A:385:LEU:CD1	2.49	0.43
1:A:462:ALA:HB2	1:A:513:VAL:HG23	2.01	0.43
1:D:48:LYS:HE2	1:D:459:HIS:ND1	2.33	0.43
1:D:184:TYR:CD1	1:D:184:TYR:C	2.92	0.43
1:D:233:THR:HG22	1:D:233:THR:O	2.18	0.43
1:A:80:ASN:HD22	1:D:453:MET:HE1	1.82	0.43
1:B:396:GLY:C	1:B:480:LEU:HD11	2.39	0.43
1:B:434:LYS:HB2	1:B:442:VAL:CG2	2.45	0.43
1:D:425:HIS:O	1:D:429:ALA:HB2	2.18	0.43
1:A:95:VAL:O	1:A:160:PRO:HA	2.19	0.43
1:A:253:LEU:HD23	1:A:253:LEU:HA	1.81	0.43
1:C:458:ILE:HG22	1:C:470:TRP:CH2	2.54	0.43
1:A:237:VAL:CB	1:A:247:PHE:CE2	2.79	0.42
1:A:331:LEU:O	1:A:335:ILE:HG13	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:21:VAL:HG13	1:C:69:VAL:HG12	2.01	0.42
1:C:466:ILE:HG22	1:C:468:VAL:HG23	1.99	0.42
1:A:151:ARG:O	1:A:155:SER:HB2	2.19	0.42
1:A:276:ASP:HB2	1:A:301:VAL:HG23	2.01	0.42
1:C:91:ASP:O	1:C:92:SER:HB2	2.19	0.42
1:C:418:LEU:HD23	1:C:418:LEU:HA	1.77	0.42
1:C:423:MET:HG3	3:C:602:A1LX0:C4'	2.48	0.42
1:D:9:LEU:HD12	1:D:146:THR:CG2	2.49	0.42
1:D:283:SER:HA	2:D:601:ADP:O2B	2.19	0.42
1:B:328:SER:O	1:B:332:LYS:HD3	2.18	0.42
1:C:32:LEU:HG	1:C:36:ILE:HD11	2.00	0.42
1:C:233:THR:HB	1:C:235:ILE:HG13	2.00	0.42
1:C:393:VAL:HB	1:C:416:ILE:HG13	2.01	0.42
1:C:396:GLY:C	1:C:480:LEU:HD11	2.40	0.42
1:D:78:ALA:HB3	1:D:122:LEU:CD2	2.48	0.42
1:D:181:PRO:HA	1:D:184:TYR:CZ	2.54	0.42
1:D:284:SER:HB3	2:D:601:ADP:O2A	2.19	0.42
1:B:483:LEU:HD21	1:B:550:PRO:CD	2.50	0.42
1:C:50:GLU:HB2	1:C:80:ASN:HB3	2.01	0.42
1:C:217:ILE:HD11	1:C:281:ILE:HG21	2.01	0.42
1:A:134:VAL:HG11	1:A:145:MET:CE	2.50	0.42
1:A:420:LEU:HA	1:A:420:LEU:HD12	1.75	0.42
1:D:4:THR:HG23	1:D:7:GLU:N	2.31	0.42
1:A:69:VAL:HA	1:A:96:LEU:O	2.19	0.42
1:A:177:GLU:O	1:A:177:GLU:HG3	2.20	0.42
1:B:263:HIS:O	1:B:267:THR:HG23	2.20	0.42
1:D:244:LYS:HD3	1:D:414:PHE:CD2	2.55	0.42
1:A:153:ALA:HB2	1:A:161:ILE:CG1	2.49	0.42
1:C:423:MET:HE3	1:C:450:ALA:CA	2.49	0.42
1:C:486:GLN:HB2	1:C:487:HIS:CD2	2.55	0.42
1:D:296:ARG:NH1	1:D:296:ARG:HB2	2.35	0.42
1:D:451:PHE:CD1	1:D:507:MET:HE1	2.55	0.42
1:A:1:LYS:NZ	1:A:1:LYS:HB2	2.24	0.42
1:A:47:THR:HG22	1:A:56:MET:CE	2.49	0.42
1:A:141:LYS:O	1:A:145:MET:HG2	2.20	0.42
1:A:155:SER:HB3	1:B:310:PRO:CB	2.49	0.42
1:B:168:ASP:OD1	1:B:168:ASP:N	2.52	0.42
1:B:492:LYS:HE2	1:C:34:GLU:HG3	2.00	0.42
1:C:244:LYS:HD3	1:C:414:PHE:CG	2.54	0.42
1:C:377:VAL:O	1:C:381:MET:HG2	2.20	0.42
1:D:265:LYS:HE3	1:D:265:LYS:HB2	1.90	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:181:PRO:HA	1:A:184:TYR:CZ	2.54	0.42
1:B:48:LYS:CE	1:B:459:HIS:ND1	2.73	0.42
1:B:136:ILE:HD11	1:B:163:LEU:HD22	2.02	0.42
1:B:286:GLY:O	1:B:290:THR:OG1	2.35	0.42
1:B:199:VAL:CG1	1:B:304:ILE:HD13	2.50	0.41
1:B:514:LYS:O	1:B:538:CYS:HA	2.20	0.41
1:C:295:PRO:C	1:C:297:LEU:H	2.23	0.41
1:C:384:ARG:NH1	1:C:529:LYS:CG	2.83	0.41
1:C:399:ILE:HG23	1:C:416:ILE:HD11	2.02	0.41
1:C:480:LEU:O	1:C:484:PHE:N	2.53	0.41
1:B:188:LYS:HB3	1:B:189:PRO:HD2	2.01	0.41
1:D:147:ARG:HD2	1:D:184:TYR:CD2	2.55	0.41
1:D:192:THR:O	1:D:196:VAL:HG23	2.20	0.41
1:A:509:GLU:OE2	1:D:506:LYS:NZ	2.46	0.41
1:B:509:GLU:OE1	1:C:506:LYS:HE3	2.20	0.41
1:C:495:ILE:O	1:C:495:ILE:HG13	2.21	0.41
1:A:328:SER:O	1:A:332:LYS:HG2	2.21	0.41
1:B:16:GLU:OE1	1:B:185:ARG:NH2	2.52	0.41
1:C:67:LEU:HD12	1:C:94:PRO:O	2.21	0.41
1:D:96:LEU:HD11	1:D:163:LEU:HD12	2.02	0.41
1:A:182:MET:HG2	6:A:702:HOH:O	2.19	0.41
1:B:514:LYS:HB2	1:B:514:LYS:HE3	1.88	0.41
1:A:48:LYS:CE	1:A:459:HIS:ND1	2.82	0.41
1:A:108:GLY:N	1:A:114:GLU:OE1	2.48	0.41
1:A:141:LYS:HZ2	1:A:141:LYS:HG2	1.62	0.41
1:A:197:VAL:HG12	1:A:337:CYS:SG	2.61	0.41
1:C:276:ASP:HA	1:C:300:SER:N	2.34	0.41
1:D:11:ARG:HG2	1:D:178:VAL:HG21	2.02	0.41
1:A:210:ALA:HB1	1:A:270:LEU:HD21	2.02	0.41
1:A:249:GLU:HG3	1:A:408:ALA:O	2.20	0.41
1:A:505:CYS:H	1:A:517:ARG:HH21	1.69	0.41
1:B:220:ALA:HB2	2:B:601:ADP:C6	2.55	0.41
1:C:295:PRO:C	1:C:297:LEU:N	2.72	0.41
1:D:270:LEU:HA	1:D:270:LEU:HD23	1.79	0.41
1:A:6:VAL:CG2	1:A:32:LEU:HA	2.48	0.41
1:A:64:SER:HB3	1:A:66:LYS:H	1.86	0.41
1:A:277:VAL:O	1:A:277:VAL:HG12	2.21	0.41
1:A:443:VAL:CG1	1:A:471:ILE:HD12	2.50	0.41
1:B:1:LYS:O	1:B:1:LYS:HG2	2.21	0.41
1:B:166:PRO:O	1:B:169:ILE:HG12	2.20	0.41
1:B:188:LYS:HZ2	1:B:326:ASP:CG	2.24	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:264:GLN:O	1:B:268:ASP:OD1	2.39	0.41
1:B:297:LEU:O	1:B:297:LEU:HG	2.21	0.41
1:C:9:LEU:HD12	1:C:146:THR:CG2	2.50	0.41
1:C:416:ILE:CG2	1:C:418:LEU:HG	2.49	0.41
1:D:22:PHE:O	1:D:70:CYS:HA	2.21	0.41
1:A:247:PHE:CE2	1:A:254:SER:HA	2.56	0.41
1:A:268:ASP:O	1:A:272:SER:HB2	2.20	0.41
1:A:495:ILE:O	1:A:495:ILE:HG13	2.21	0.41
1:B:101:GLN:HB2	1:B:164:ASN:OD1	2.21	0.41
1:B:244:LYS:HD3	1:B:414:PHE:CD2	2.56	0.41
1:B:278:LEU:HD13	1:B:280:VAL:HG23	2.03	0.41
1:B:280:VAL:HG11	1:B:285:LEU:HD11	2.02	0.41
1:C:191:PRO:HG3	1:C:330:THR:HA	2.02	0.41
1:C:213:ALA:O	1:C:239:THR:HA	2.21	0.41
1:C:458:ILE:HD13	1:C:458:ILE:HG21	1.82	0.41
1:C:480:LEU:O	1:C:483:LEU:N	2.54	0.41
1:C:502:ILE:HG21	1:C:507:MET:CE	2.51	0.41
1:D:18:VAL:O	1:D:42:ILE:HD13	2.21	0.41
1:D:136:ILE:HD12	1:D:165:ILE:HG12	2.02	0.41
1:D:554:LYS:O	1:D:554:LYS:CG	2.69	0.41
1:A:245:SER:OG	1:A:413:ALA:N	2.52	0.41
1:A:268:ASP:O	1:A:272:SER:OG	2.28	0.41
1:A:281:ILE:N	1:A:281:ILE:CD1	2.76	0.41
1:B:18:VAL:HG12	1:B:67:LEU:O	2.21	0.41
1:B:458:ILE:HG12	1:B:511:LEU:HD12	2.01	0.41
1:C:331:LEU:HD23	1:C:331:LEU:HA	1.83	0.41
1:C:397:SER:H	3:C:602:A1LX0:PB	2.44	0.41
1:D:145:MET:CE	1:D:145:MET:CA	2.88	0.41
1:A:22:PHE:O	1:A:70:CYS:CB	2.70	0.40
1:C:95:VAL:O	1:C:160:PRO:HA	2.21	0.40
1:C:131:LYS:NZ	1:C:155:SER:O	2.53	0.40
1:D:78:ALA:HB3	1:D:122:LEU:HD21	2.03	0.40
1:D:135:MET:HG3	1:D:164:ASN:OD1	2.22	0.40
1:D:278:LEU:HB2	1:D:299:PRO:HG3	2.02	0.40
1:A:224:GLU:O	1:A:228:ASP:OD1	2.39	0.40
1:A:382:GLN:OE1	1:A:407:LEU:O	2.40	0.40
1:B:104:THR:HA	1:B:107:PHE:CE1	2.56	0.40
1:B:448:ASP:HB3	1:B:474:ASN:HA	2.04	0.40
1:C:232:LEU:CD1	1:C:339:ARG:HG3	2.52	0.40
1:C:244:LYS:NZ	1:C:403:VAL:HA	2.37	0.40
1:D:26:GLY:HA3	1:D:73:THR:OG1	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:245:SER:OG	1:D:413:ALA:N	2.53	0.40
1:D:426:ALA:HA	1:D:429:ALA:CB	2.41	0.40
1:D:504:PHE:HD1	1:D:507:MET:HE2	1.85	0.40
1:A:292:SER:O	1:A:292:SER:OG	2.31	0.40
1:C:277:VAL:O	1:C:277:VAL:HG12	2.22	0.40
1:D:267:THR:CG2	1:D:271:LEU:HD12	2.52	0.40
1:A:18:VAL:HG21	1:A:69:VAL:HG21	2.03	0.40
1:A:107:PHE:HA	1:A:114:GLU:OE1	2.21	0.40
1:A:146:THR:O	1:A:150:LEU:HG	2.21	0.40
1:A:434:LYS:CB	1:A:442:VAL:HG21	2.47	0.40
1:B:288:TRP:HZ3	1:B:418:LEU:HD22	1.87	0.40
1:B:384:ARG:HG3	1:B:529:LYS:HZ2	1.86	0.40
1:C:169:ILE:HD13	1:C:170:ALA:N	2.37	0.40
1:C:397:SER:N	3:C:602:A1LX0:O2B	2.45	0.40
1:D:48:LYS:HA	1:D:48:LYS:HD3	1.81	0.40
1:A:136:ILE:HG12	1:A:164:ASN:O	2.22	0.40
1:A:162:HIS:O	1:A:163:LEU:HD23	2.21	0.40
1:A:204:PHE:CE1	1:A:338:ILE:CD1	2.84	0.40
1:C:60:TYR:CD1	1:C:436:ALA:HB2	2.57	0.40
1:C:399:ILE:HG23	1:C:416:ILE:CD1	2.52	0.40
1:C:465:LYS:O	1:C:467:PRO:HD3	2.20	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	528/584 (90%)	507 (96%)	21 (4%)	0	100	100
1	B	527/584 (90%)	507 (96%)	18 (3%)	2 (0%)	30	47
1	C	526/584 (90%)	506 (96%)	18 (3%)	2 (0%)	30	47
1	D	526/584 (90%)	504 (96%)	19 (4%)	3 (1%)	22	36

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
All	All	2107/2336 (90%)	2024 (96%)	76 (4%)	7 (0%)	37	55

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	245	SER
1	D	273	GLY
1	D	490	ASP
1	B	40	LYS
1	C	245	SER
1	D	245	SER
1	C	273	GLY

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	420/463 (91%)	398 (95%)	22 (5%)	19	35
1	B	419/463 (90%)	394 (94%)	25 (6%)	16	29
1	C	418/463 (90%)	392 (94%)	26 (6%)	15	28
1	D	418/463 (90%)	394 (94%)	24 (6%)	17	32
All	All	1675/1852 (90%)	1578 (94%)	97 (6%)	17	31

All (97) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	1	LYS
1	A	41	LYS
1	A	82	LEU
1	A	135	MET
1	A	141	LYS
1	A	182	MET
1	A	203	ILE
1	A	244	LYS

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Mol	Chain	Res	Type
1	A	268	ASP
1	A	289	GLN
1	A	337	CYS
1	A	343	LYS
1	A	394	ASP
1	A	407	LEU
1	A	490	ASP
1	A	492	LYS
1	A	499	ARG
1	A	514	LYS
1	A	519	GLU
1	A	534	MET
1	A	555	GLN
1	A	558	ASP
1	B	1	LYS
1	B	176	LEU
1	B	177	GLU
1	B	208	ARG
1	B	242	LYS
1	B	274	ASP
1	B	291	ASN
1	B	292	SER
1	B	300	SER
1	B	308	ILE
1	B	341	SER
1	B	343	LYS
1	B	381	MET
1	B	394	ASP
1	B	395	ASN
1	B	453	MET
1	B	497	SER
1	B	499	ARG
1	B	510	SER
1	B	525	ASP
1	B	529	LYS
1	B	534	MET
1	B	536	THR
1	B	554	LYS
1	B	557	PHE
1	C	1	LYS
1	C	38	SER
1	C	40	LYS

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Mol	Chain	Res	Type
1	C	46	LEU
1	C	66	LYS
1	C	112	LEU
1	C	141	LYS
1	C	169	ILE
1	C	182	MET
1	C	185	ARG
1	C	245	SER
1	C	269	TYR
1	C	271	LEU
1	C	292	SER
1	C	296	ARG
1	C	394	ASP
1	C	409	GLN
1	C	416	ILE
1	C	439	ASP
1	C	440	ARG
1	C	465	LYS
1	C	484	PHE
1	C	534	MET
1	C	535	ASN
1	C	555	GLN
1	C	556	ARG
1	D	1	LYS
1	D	4	THR
1	D	10	VAL
1	D	18	VAL
1	D	19	SER
1	D	41	LYS
1	D	63	VAL
1	D	144	GLU
1	D	194	MET
1	D	207	LYS
1	D	208	ARG
1	D	232	LEU
1	D	265	LYS
1	D	269	TYR
1	D	272	SER
1	D	311	MET
1	D	328	SER
1	D	332	LYS
1	D	337	CYS

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Mol	Chain	Res	Type
1	D	394	ASP
1	D	418	LEU
1	D	492	LYS
1	D	555	GLN
1	D	556	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (13) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	12	GLN
1	A	289	GLN
1	A	400	ASN
1	B	80	ASN
1	B	264	GLN
1	B	291	ASN
1	B	395	ASN
1	B	486	GLN
1	C	113	GLN
1	C	395	ASN
1	C	400	ASN
1	C	487	HIS
1	C	555	GLN

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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 11 ligands modelled in this entry, 3 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	A1LX0	A	602	4	29,34,34	3.32	13 (44%)	32,51,51	2.24	14 (43%)
2	ADP	D	601	-	24,29,29	0.90	1 (4%)	29,45,45	1.64	8 (27%)
3	A1LX0	C	602	4	29,34,34	3.34	13 (44%)	32,51,51	2.23	14 (43%)
5	TPP	B	602	-	22,27,27	0.43	0	29,40,40	0.78	1 (3%)
3	A1LX0	D	602	4	29,34,34	3.41	15 (51%)	32,51,51	2.04	10 (31%)
2	ADP	B	601	-	24,29,29	1.40	3 (12%)	29,45,45	1.55	5 (17%)
2	ADP	A	601	-	24,29,29	0.99	2 (8%)	29,45,45	1.79	7 (24%)
2	ADP	C	601	-	24,29,29	0.95	1 (4%)	29,45,45	1.59	7 (24%)

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	A1LX0	A	602	4	-	2/16/31/31	0/3/3/3
2	ADP	D	601	-	-	2/12/32/32	0/3/3/3
3	A1LX0	C	602	4	-	2/16/31/31	0/3/3/3
5	TPP	B	602	-	-	8/16/17/17	0/2/2/2
3	A1LX0	D	602	4	-	1/16/31/31	0/3/3/3
2	ADP	B	601	-	-	3/12/32/32	0/3/3/3
2	ADP	A	601	-	-	2/12/32/32	0/3/3/3
2	ADP	C	601	-	-	2/12/32/32	0/3/3/3

All (48) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	C	602	A1LX0	C6-C5	12.07	1.56	1.50
3	A	602	A1LX0	C6-C5	11.93	1.56	1.50
3	D	602	A1LX0	C6-C5	11.34	1.55	1.50
3	D	602	A1LX0	C5-S1	-5.90	1.63	1.74

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	602	A1LX0	C9-C8	-5.49	1.45	1.53
3	C	602	A1LX0	C5-S1	-5.27	1.64	1.74
3	A	602	A1LX0	C5-S1	-5.25	1.64	1.74
3	D	602	A1LX0	C5'-C4'	-5.09	1.34	1.42
2	B	601	ADP	C4-N3	4.78	1.42	1.35
3	C	602	A1LX0	C9-C8	-4.65	1.46	1.53
3	A	602	A1LX0	C9-C8	-4.59	1.47	1.53
3	A	602	A1LX0	C5'-C4'	-4.17	1.35	1.42
3	C	602	A1LX0	C5'-C4'	-4.14	1.35	1.42
3	A	602	A1LX0	PB-O1B	-4.06	1.37	1.50
3	C	602	A1LX0	PB-O1B	-4.03	1.37	1.50
3	C	602	A1LX0	C4'-N4'	-3.94	1.24	1.34
3	A	602	A1LX0	C4'-N4'	-3.93	1.24	1.34
3	D	602	A1LX0	C2'-N3'	-3.80	1.27	1.34
3	D	602	A1LX0	C4'-N4'	-3.56	1.25	1.34
3	D	602	A1LX0	PB-O1B	-3.50	1.39	1.50
3	C	602	A1LX0	C2'-N3'	-3.39	1.28	1.34
3	A	602	A1LX0	C2'-N3'	-3.38	1.28	1.34
3	D	602	A1LX0	PB-O2B	-3.07	1.43	1.54
3	A	602	A1LX0	PB-O2B	-3.02	1.43	1.54
3	C	602	A1LX0	PB-O2B	-3.02	1.43	1.54
3	D	602	A1LX0	C4-N3	-2.86	1.33	1.39
3	D	602	A1LX0	PA-O2A	-2.83	1.42	1.55
3	A	602	A1LX0	PA-O2A	-2.82	1.42	1.55
3	C	602	A1LX0	PA-O2A	-2.81	1.42	1.55
3	C	602	A1LX0	C4-N3	-2.78	1.33	1.39
3	A	602	A1LX0	C4-N3	-2.76	1.33	1.39
3	D	602	A1LX0	PA-O1A	-2.68	1.41	1.50
3	C	602	A1LX0	PA-O1A	-2.65	1.41	1.50
3	A	602	A1LX0	PA-O1A	-2.65	1.41	1.50
3	A	602	A1LX0	C4'-N3'	-2.52	1.31	1.35
3	C	602	A1LX0	C4'-N3'	-2.51	1.31	1.35
2	B	601	ADP	O4'-C1'	2.47	1.44	1.41
2	A	601	ADP	C2-N3	2.42	1.36	1.32
3	D	602	A1LX0	C2'-N1'	-2.38	1.30	1.34
2	A	601	ADP	C5-C4	2.37	1.47	1.40
3	D	602	A1LX0	C10-C9	-2.36	1.48	1.54
2	D	601	ADP	C2-N3	2.35	1.35	1.32
3	D	602	A1LX0	C6'-N1'	-2.33	1.29	1.34
3	A	602	A1LX0	C6'-N1'	-2.28	1.29	1.34
2	B	601	ADP	C8-N7	2.27	1.38	1.34
3	C	602	A1LX0	C6'-N1'	-2.26	1.29	1.34

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	602	A1LX0	CM4-C4	2.25	1.54	1.49
2	C	601	ADP	C5-C4	2.13	1.46	1.40

All (66) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	602	A1LX0	PA-O3A-PB	-4.68	116.78	132.83
3	C	602	A1LX0	CM4-C4-C5	-4.62	117.49	127.60
3	A	602	A1LX0	CM4-C4-C5	-4.61	117.53	127.60
3	C	602	A1LX0	C5-C4-N3	4.47	117.01	107.66
3	A	602	A1LX0	C5-C4-N3	4.44	116.95	107.66
3	D	602	A1LX0	C5-C4-N3	4.17	116.39	107.66
2	D	601	ADP	N3-C2-N1	-4.05	122.35	128.68
3	C	602	A1LX0	O3B-PB-O3A	3.99	118.02	104.64
2	B	601	ADP	PA-O3A-PB	-3.99	119.14	132.83
3	A	602	A1LX0	O3B-PB-O3A	3.97	117.95	104.64
2	A	601	ADP	N6-C6-N1	3.91	126.68	118.57
2	A	601	ADP	N3-C2-N1	-3.86	122.64	128.68
3	A	602	A1LX0	PA-O3A-PB	-3.84	119.64	132.83
3	C	602	A1LX0	PA-O3A-PB	-3.84	119.65	132.83
3	A	602	A1LX0	CM2-C2'-N1'	3.70	121.21	117.14
2	C	601	ADP	N3-C2-N1	-3.69	122.91	128.68
3	C	602	A1LX0	CM2-C2'-N1'	3.68	121.19	117.14
3	D	602	A1LX0	C6-C5-C4	3.65	130.36	127.43
3	D	602	A1LX0	O3B-PB-O3A	3.61	116.73	104.64
2	B	601	ADP	N3-C2-N1	-3.55	123.13	128.68
2	A	601	ADP	C5-C6-N6	-3.24	115.43	120.35
3	A	602	A1LX0	C5'-C6'-N1'	-3.23	118.44	123.82
3	C	602	A1LX0	C5'-C6'-N1'	-3.21	118.47	123.82
3	D	602	A1LX0	N4'-C4'-N3'	3.18	121.52	117.03
3	A	602	A1LX0	C6'-N1'-C2'	3.13	121.29	115.96
3	C	602	A1LX0	C6'-N1'-C2'	3.11	121.25	115.96
2	D	601	ADP	O3'-C3'-C4'	-2.98	102.44	111.05
2	A	601	ADP	PA-O3A-PB	-2.90	122.86	132.83
2	D	601	ADP	PA-O3A-PB	-2.86	123.02	132.83
3	A	602	A1LX0	C12-C10-C9	2.86	90.61	88.34
3	C	602	A1LX0	C12-C10-C9	2.81	90.57	88.34
3	A	602	A1LX0	O8-C8-C9	-2.81	101.61	109.61
3	C	602	A1LX0	O8-C8-C9	-2.80	101.65	109.61
3	A	602	A1LX0	C6-C5-C4	-2.78	125.20	127.43
3	D	602	A1LX0	C5'-C4'-N4'	-2.77	118.25	122.19
3	C	602	A1LX0	C6-C5-C4	-2.71	125.26	127.43

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	601	ADP	O2'-C2'-C1'	2.69	120.78	110.85
3	D	602	A1LX0	C6'-N1'-C2'	2.68	120.53	115.96
2	C	601	ADP	N6-C6-N1	2.63	124.03	118.57
3	D	602	A1LX0	C5'-C6'-N1'	-2.61	119.47	123.82
2	D	601	ADP	C5-C6-N6	-2.56	116.46	120.35
2	C	601	ADP	C1'-N9-C4	-2.55	122.16	126.64
3	D	602	A1LX0	CM4-C4-C5	-2.47	122.21	127.60
2	D	601	ADP	C2'-C3'-C4'	2.44	107.38	102.64
2	D	601	ADP	C1'-N9-C4	-2.43	122.38	126.64
2	B	601	ADP	O3'-C3'-C4'	-2.42	104.04	111.05
2	B	601	ADP	O2'-C2'-C1'	2.39	119.69	110.85
3	A	602	A1LX0	O2B-PB-O1B	-2.31	101.63	110.68
3	C	602	A1LX0	O2B-PB-O1B	-2.31	101.63	110.68
2	C	601	ADP	C2-N1-C6	2.29	122.66	118.75
2	D	601	ADP	N6-C6-N1	2.25	123.25	118.57
3	A	602	A1LX0	CM4-C4-N3	2.25	125.52	122.69
3	C	602	A1LX0	CM4-C4-N3	2.23	125.49	122.69
3	A	602	A1LX0	N1'-C2'-N3'	-2.22	121.72	125.54
2	C	601	ADP	C2'-C3'-C4'	2.21	106.94	102.64
3	C	602	A1LX0	N1'-C2'-N3'	-2.19	121.77	125.54
3	A	602	A1LX0	C12-C11-C9	2.16	90.06	88.34
5	B	602	TPP	C5-C4-N3	2.15	111.88	107.57
3	D	602	A1LX0	O8-C8-C9	-2.14	103.52	109.61
3	C	602	A1LX0	C12-C11-C9	2.13	90.03	88.34
2	A	601	ADP	C1'-N9-C4	-2.10	122.95	126.64
2	C	601	ADP	O2A-PA-O1A	2.09	122.55	112.24
2	D	601	ADP	O3B-PB-O2B	2.08	115.59	107.64
2	A	601	ADP	O3B-PB-O2B	2.05	115.45	107.64
2	B	601	ADP	N6-C6-N1	2.03	122.78	118.57
2	A	601	ADP	C2-N1-C6	2.01	122.19	118.75

There are no chirality outliers.

All (22) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	602	A1LX0	C4-C5-C6-C7
3	A	602	A1LX0	C7-O7'-PA-O1A
3	C	602	A1LX0	C4-C5-C6-C7
3	C	602	A1LX0	C7-O7'-PA-O1A
5	B	602	TPP	C4-C5-C6-C7
5	B	602	TPP	C5-C6-C7-O7
5	B	602	TPP	C7-O7'-PA-O1A

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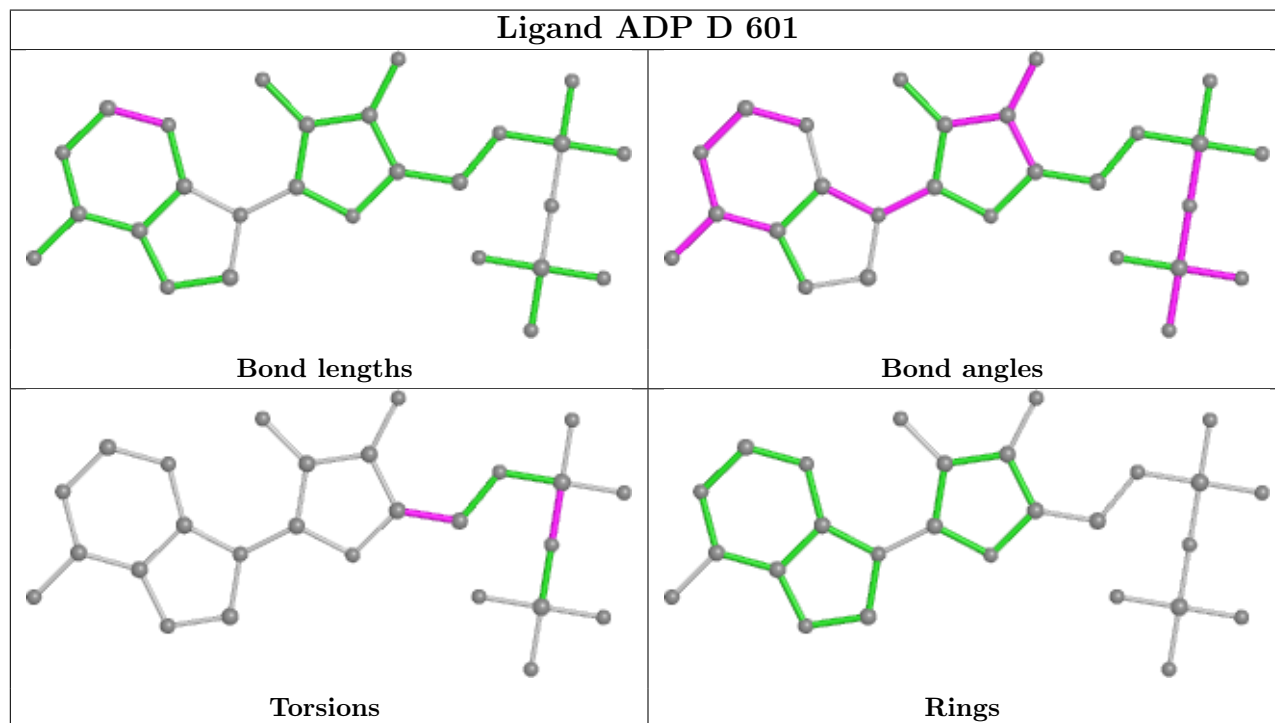
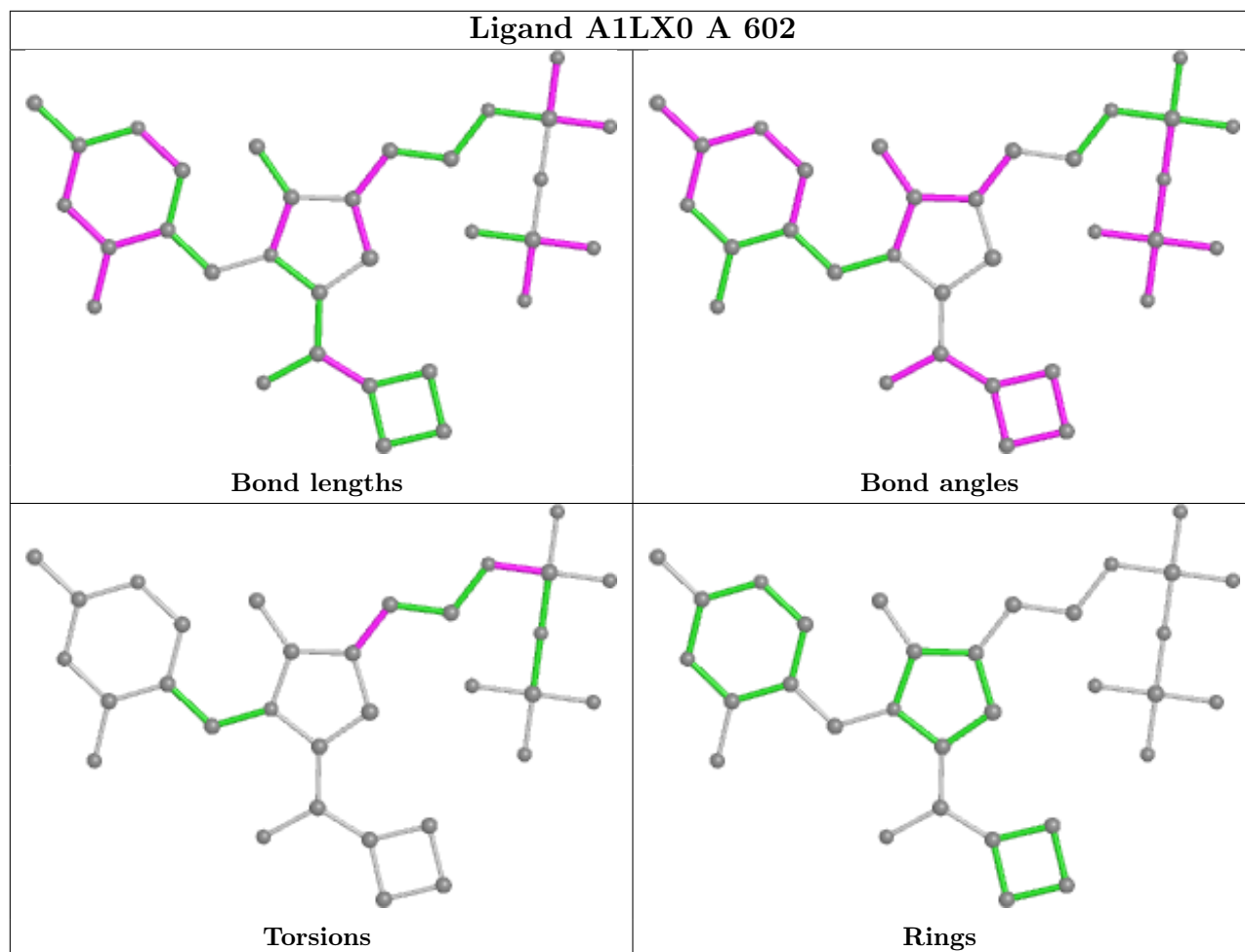
Mol	Chain	Res	Type	Atoms
5	B	602	TPP	C7-O7-PA-O3A
5	B	602	TPP	PA-O3A-PB-O3B
2	A	601	ADP	O4'-C4'-C5'-O5'
2	B	601	ADP	O4'-C4'-C5'-O5'
2	C	601	ADP	O4'-C4'-C5'-O5'
3	D	602	A1LX0	PA-O3A-PB-O2B
5	B	602	TPP	C7-O7-PA-O2A
2	D	601	ADP	O4'-C4'-C5'-O5'
5	B	602	TPP	C4'-C5'-C7'-N3
5	B	602	TPP	PA-O3A-PB-O1B
2	A	601	ADP	PB-O3A-PA-O2A
2	B	601	ADP	PB-O3A-PA-O2A
2	C	601	ADP	PB-O3A-PA-O2A
2	D	601	ADP	PB-O3A-PA-O2A
2	B	601	ADP	C3'-C4'-C5'-O5'

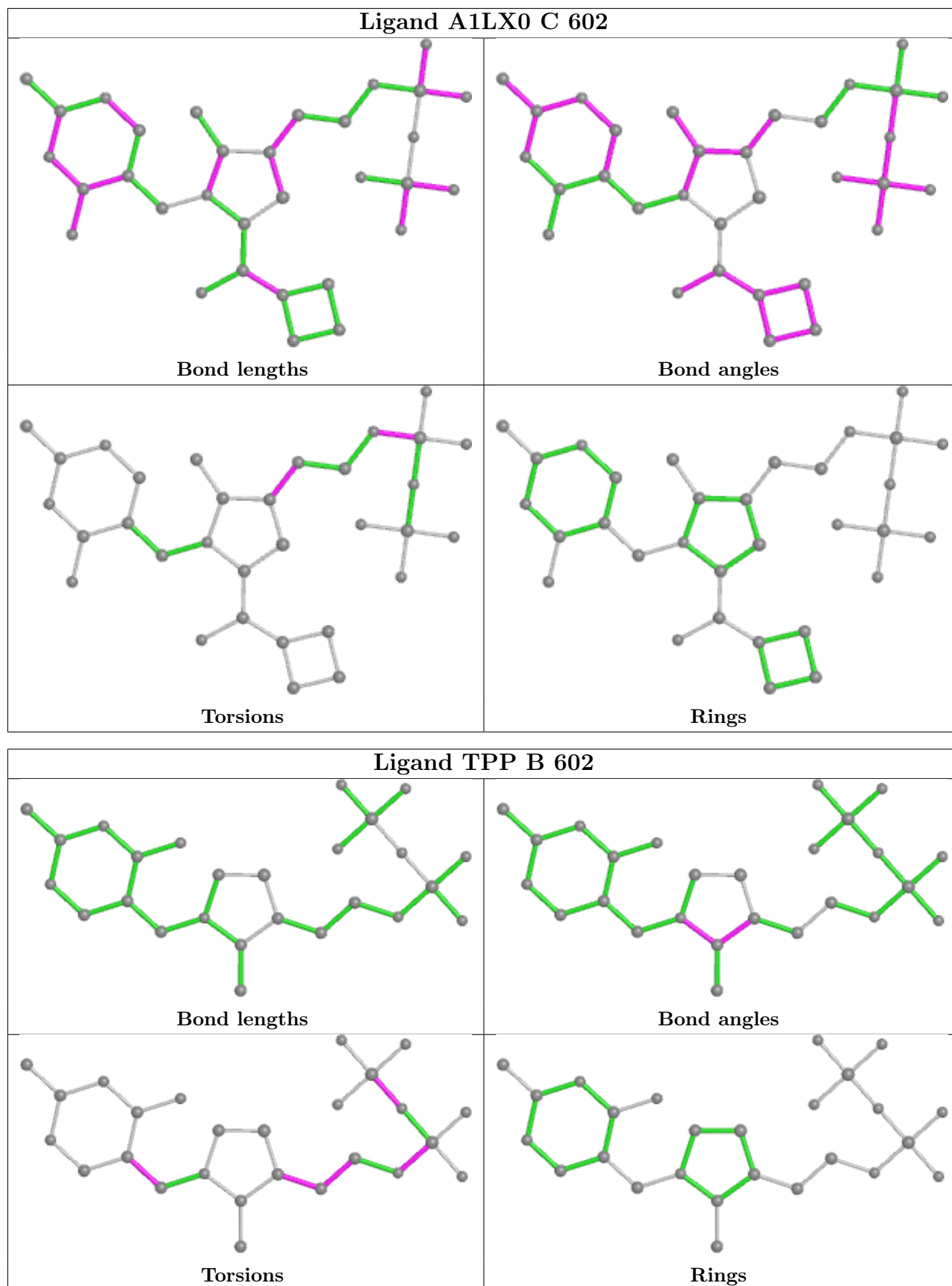
There are no ring outliers.

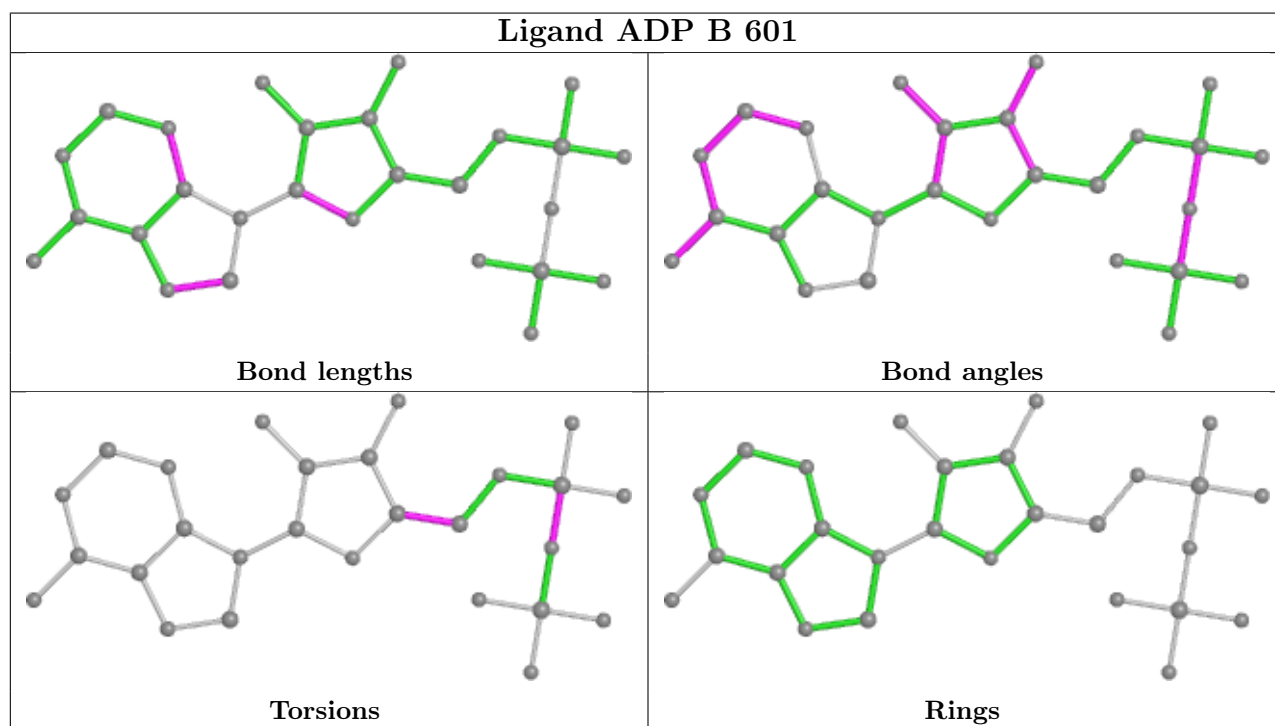
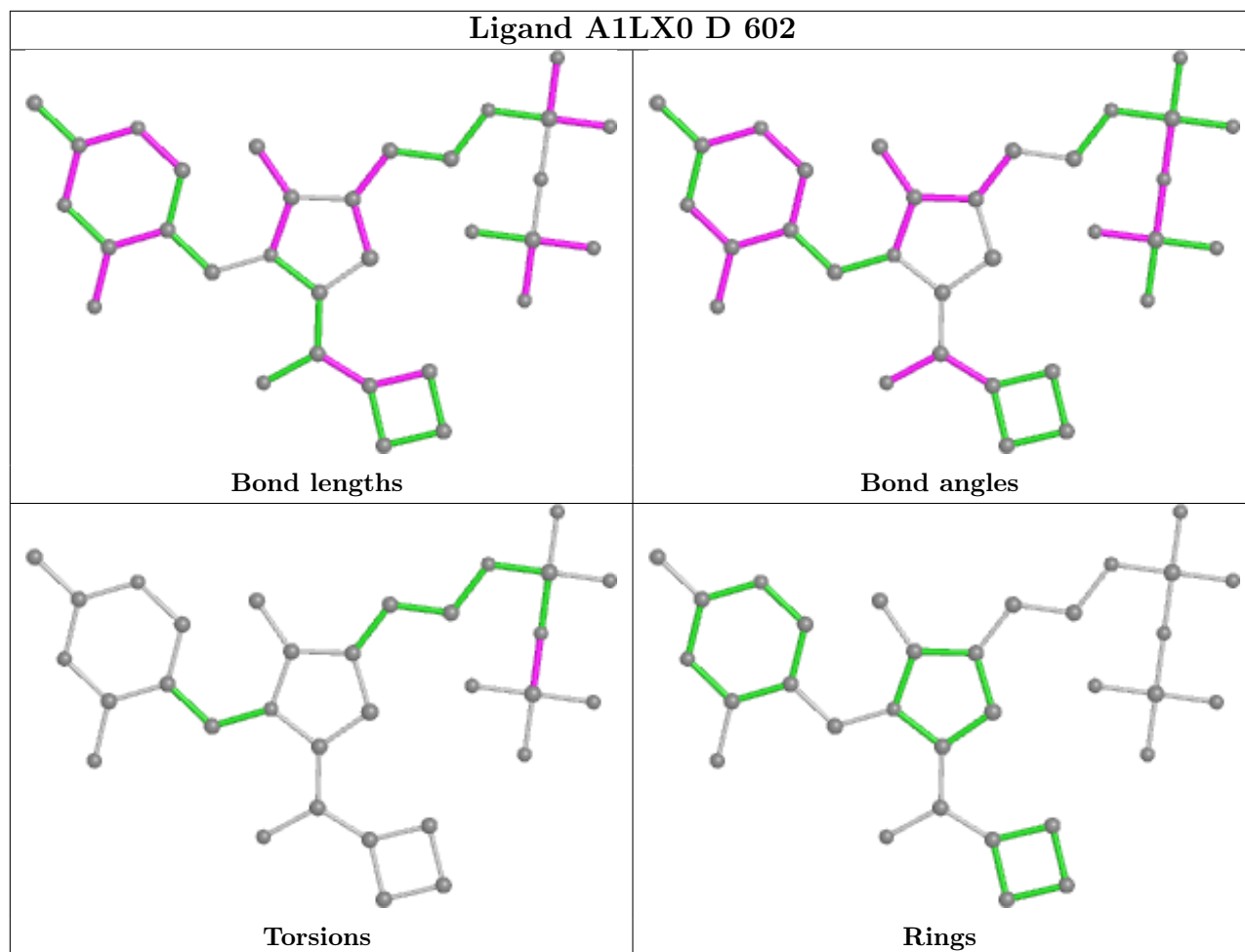
7 monomers are involved in 28 short contacts:

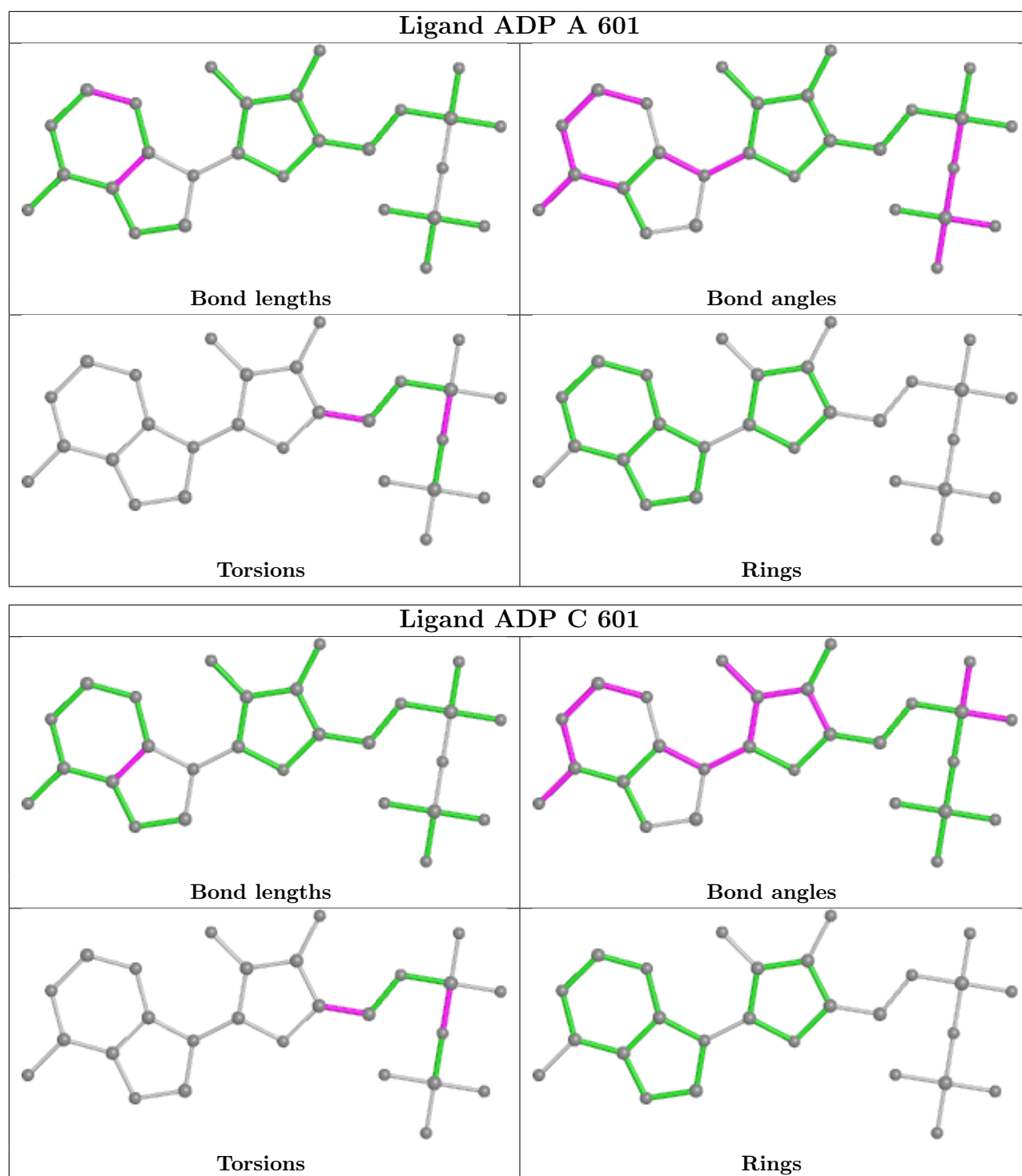
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	602	A1LX0	7	0
2	D	601	ADP	2	0
3	C	602	A1LX0	7	0
5	B	602	TPP	6	0
3	D	602	A1LX0	1	0
2	B	601	ADP	3	0
2	A	601	ADP	2	0

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

6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	532/584 (91%)	0.57	23 (4%) 40 42	30, 67, 101, 138	0
1	B	531/584 (90%)	0.46	7 (1%) 74 77	40, 71, 103, 141	0
1	C	530/584 (90%)	0.40	6 (1%) 77 80	43, 71, 106, 126	0
1	D	530/584 (90%)	0.46	10 (1%) 66 67	38, 67, 100, 141	0
All	All	2123/2336 (90%)	0.47	46 (2%) 62 62	30, 69, 103, 141	0

All (46) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	71	CYS	4.1
1	D	177	GLU	3.9
1	A	23	GLY	3.9
1	A	175	PRO	3.8
1	A	0	SER	3.4
1	A	1	LYS	3.3
1	D	557	PHE	3.2
1	A	558	ASP	3.2
1	A	136	ILE	3.2
1	A	423	MET	3.1
1	C	557	PHE	3.0
1	D	484	PHE	2.9
1	D	423	MET	2.8
1	D	169	ILE	2.7
1	D	182	MET	2.6
1	B	136	ILE	2.5
1	A	176	LEU	2.4
1	A	163	LEU	2.4
1	A	123	VAL	2.4
1	B	491	SER	2.3
1	C	423	MET	2.3

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Mol	Chain	Res	Type	RSRZ
1	B	134	VAL	2.3
1	A	491	SER	2.3
1	B	23	GLY	2.3
1	A	453	MET	2.2
1	D	420	LEU	2.3
1	A	177	GLU	2.2
1	A	91	ASP	2.2
1	D	111	ALA	2.2
1	A	265	LYS	2.2
1	C	556	ARG	2.2
1	A	2	THR	2.1
1	A	541	ASP	2.1
1	B	343	LYS	2.1
1	A	260	PHE	2.1
1	C	447	GLY	2.1
1	C	484	PHE	2.1
1	A	549	LEU	2.1
1	A	499	ARG	2.1
1	D	2	THR	2.1
1	A	3	VAL	2.1
1	A	182	MET	2.0
1	B	335	ILE	2.0
1	A	174	VAL	2.0
1	C	395	ASN	2.0
1	B	3	VAL	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](#)

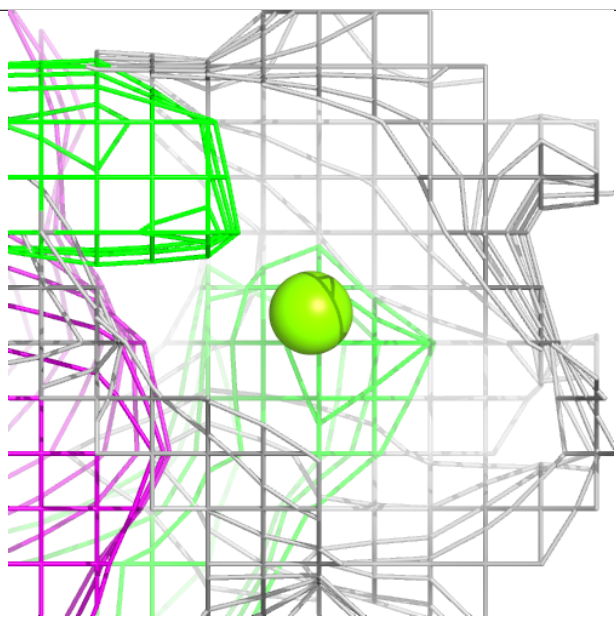
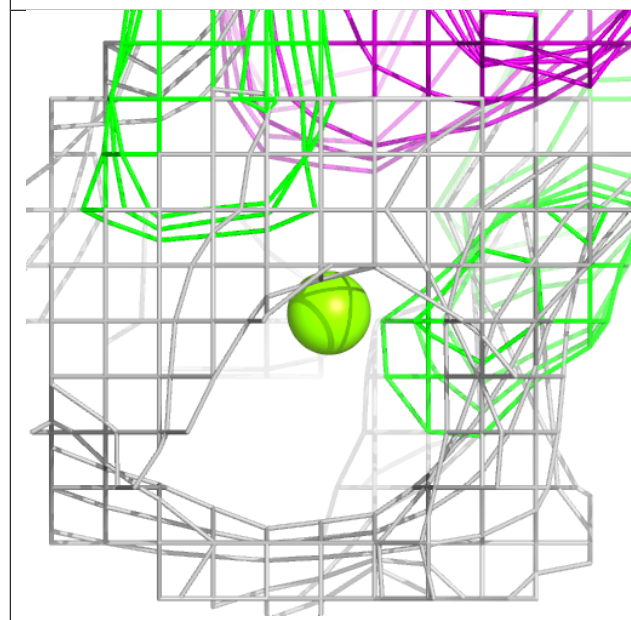
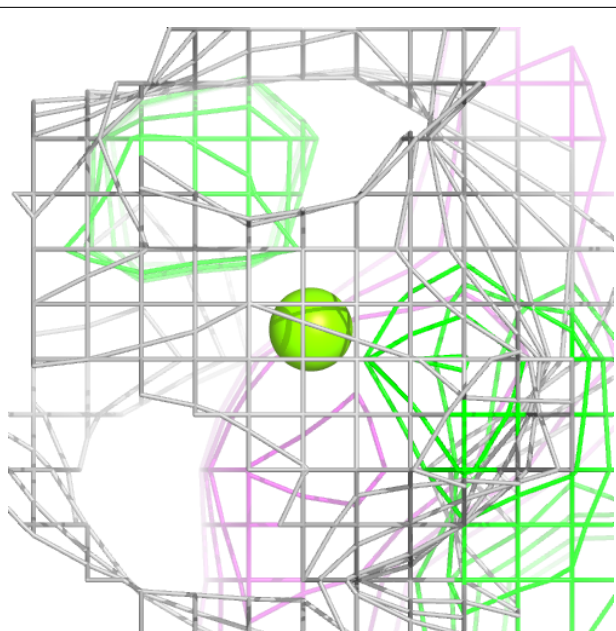
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
4	MG	A	603	1/1	0.77	0.16	60,60,60,60	0
4	MG	D	603	1/1	0.81	0.11	69,69,69,69	0
4	MG	C	603	1/1	0.82	0.09	75,75,75,75	0
3	A1LX0	A	602	32/32	0.82	0.13	20,20,20,20	0
3	A1LX0	C	602	32/32	0.84	0.12	20,20,20,20	0
3	A1LX0	D	602	32/32	0.87	0.12	20,20,20,20	0
5	TPP	B	602	26/26	0.89	0.11	42,67,94,108	0
2	ADP	B	601	27/27	0.91	0.10	42,67,87,101	0
2	ADP	C	601	27/27	0.91	0.09	52,65,81,82	0
2	ADP	A	601	27/27	0.91	0.09	44,64,80,87	0
2	ADP	D	601	27/27	0.94	0.07	39,57,79,95	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.

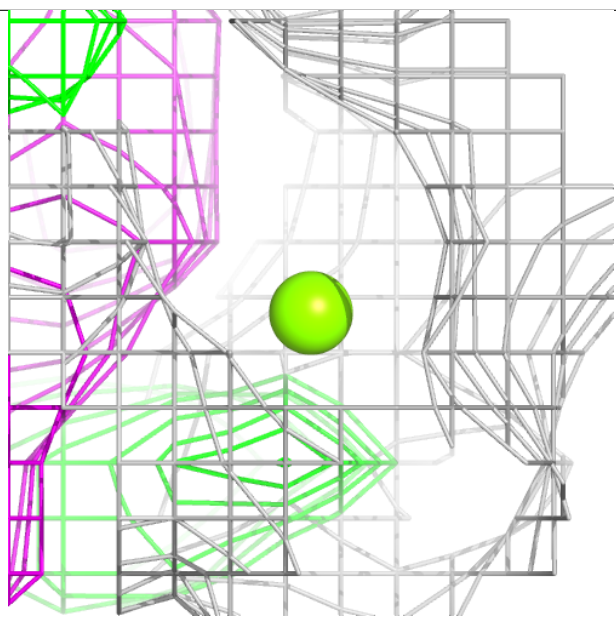
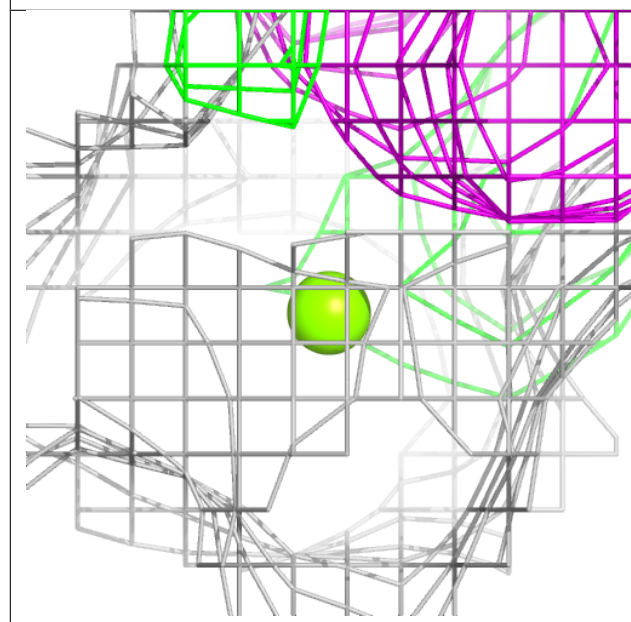
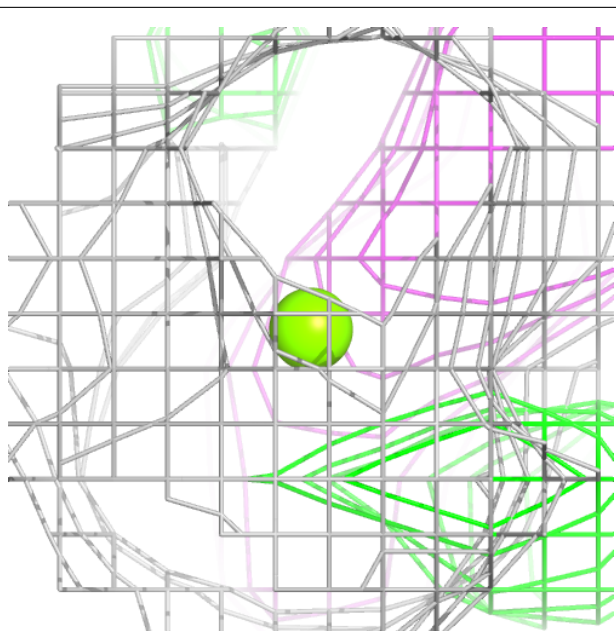
Electron density around MG A 603:

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



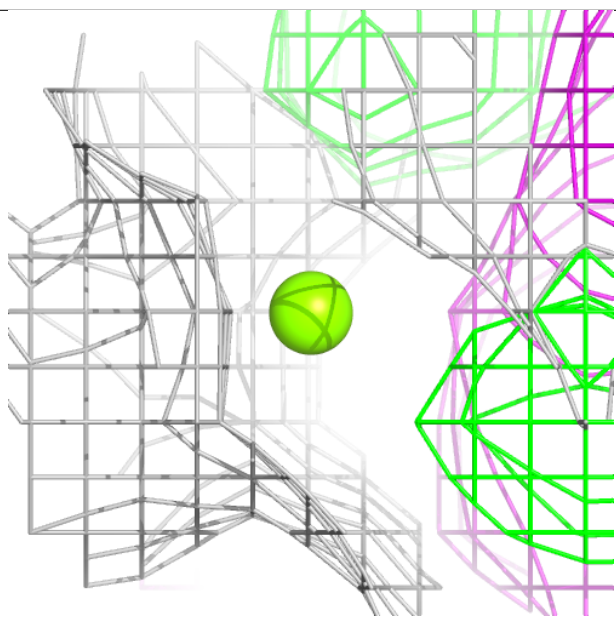
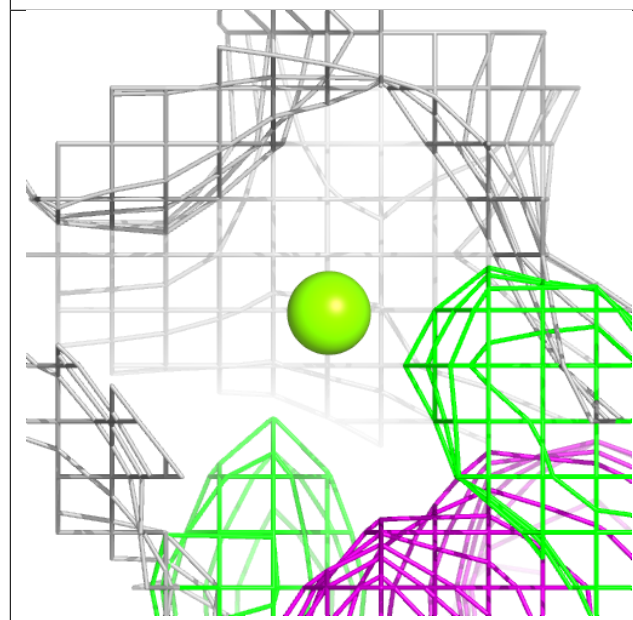
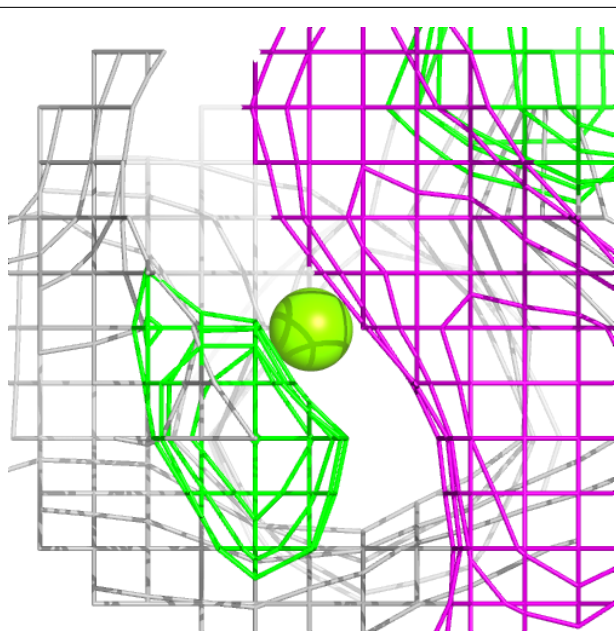
Electron density around MG D 603:

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



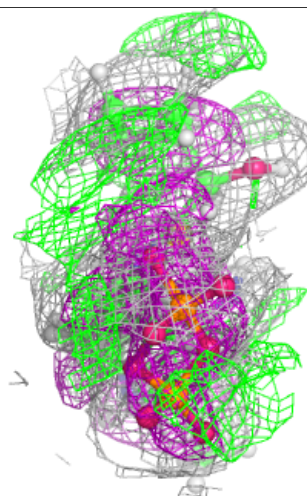
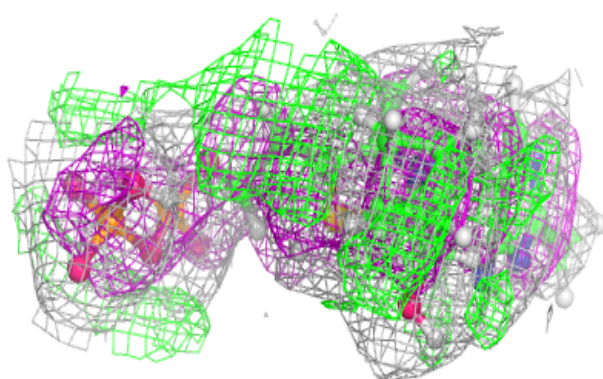
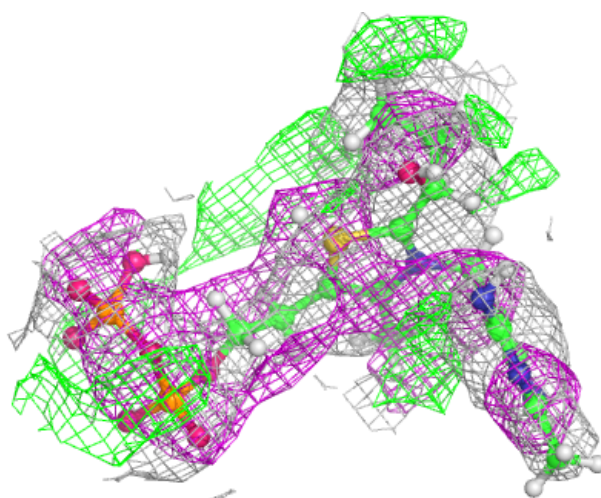
Electron density around MG C 603:

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



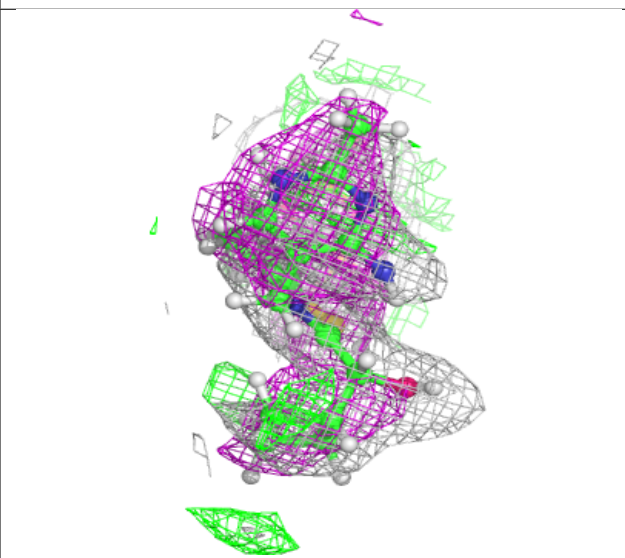
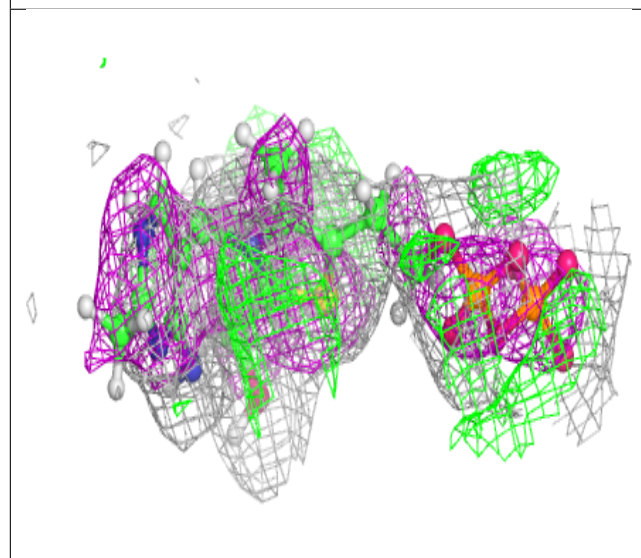
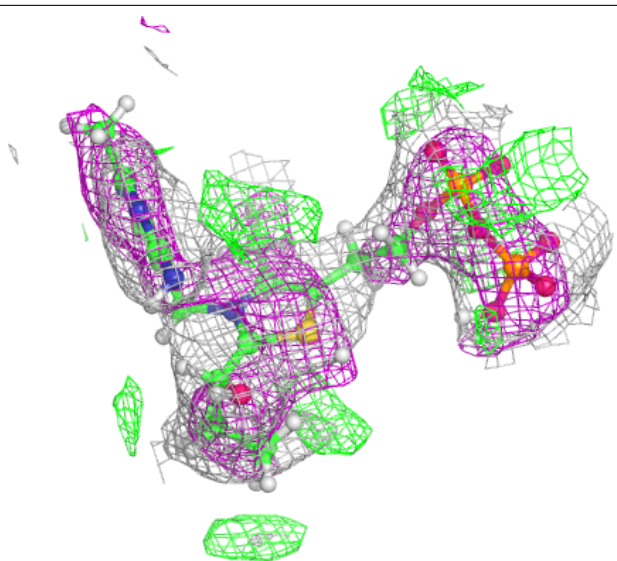
Electron density around A1LX0 A 602:

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



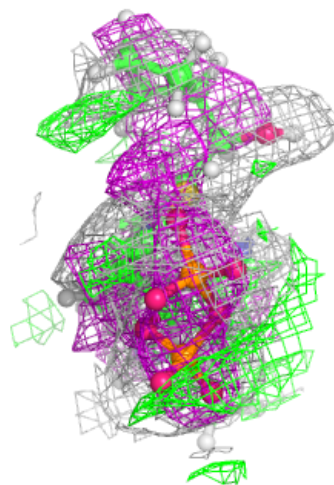
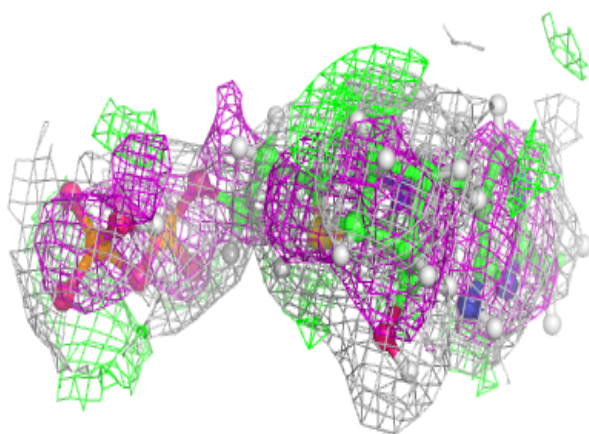
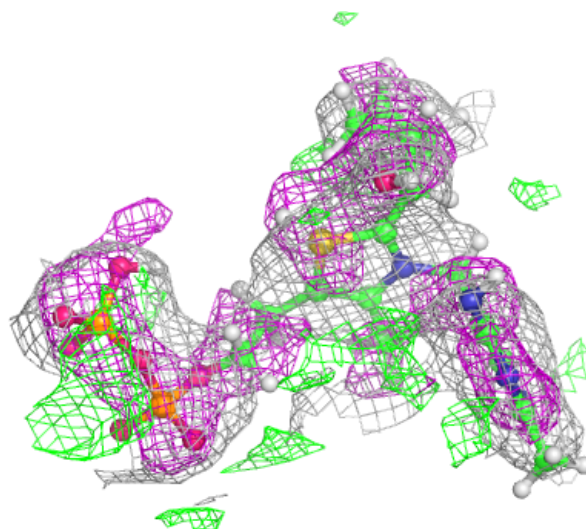
Electron density around A1LX0 C 602:

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



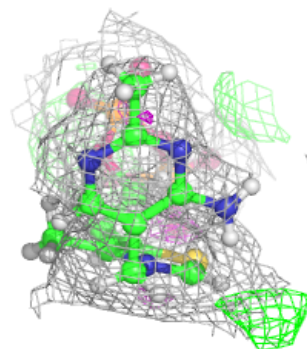
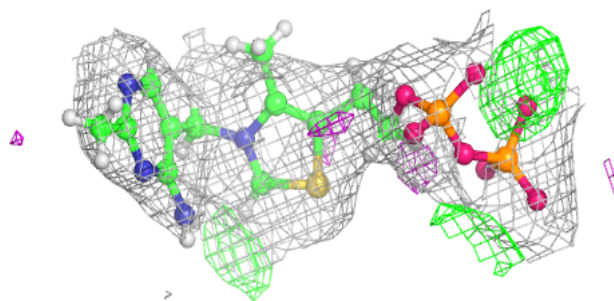
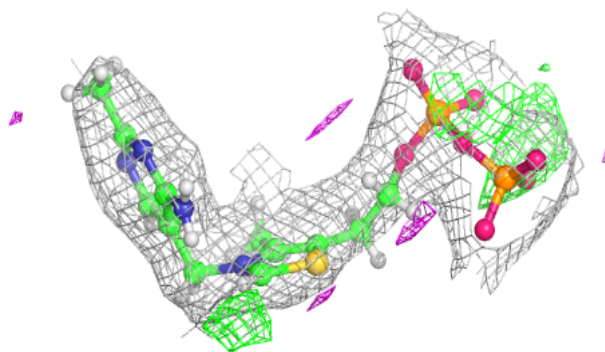
Electron density around A1LX0 D 602:

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

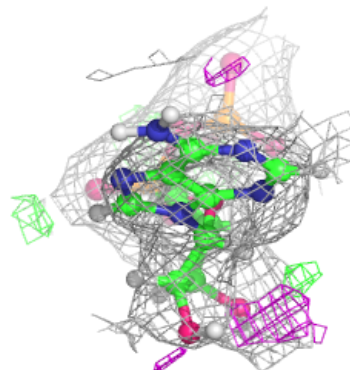
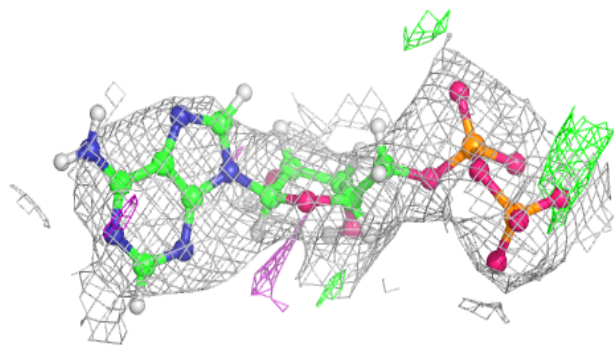
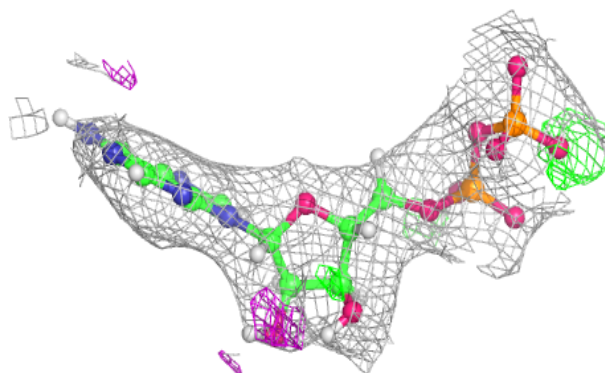


Electron density around TPP B 602:

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

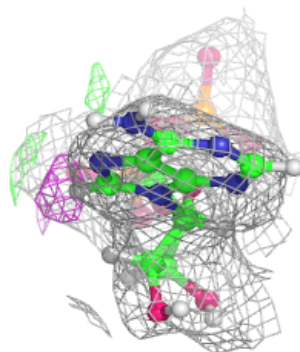
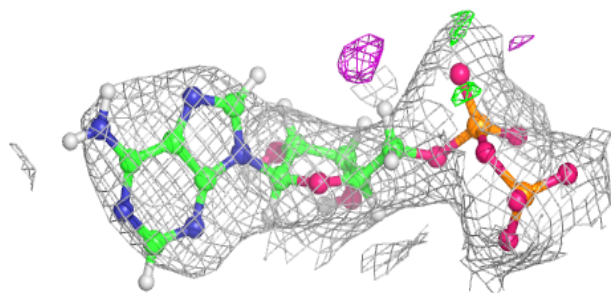
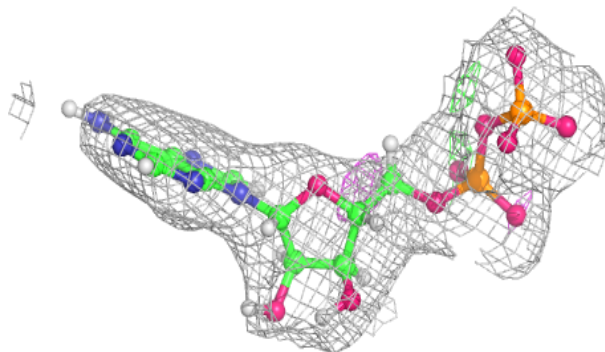
**Electron density around ADP B 601:**

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 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

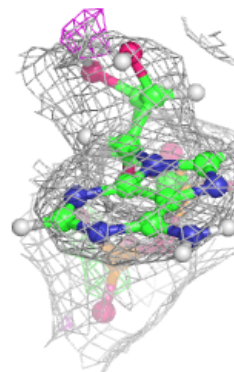
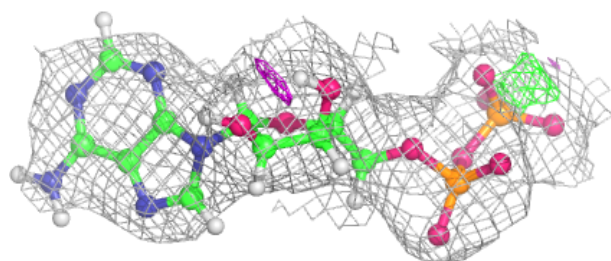
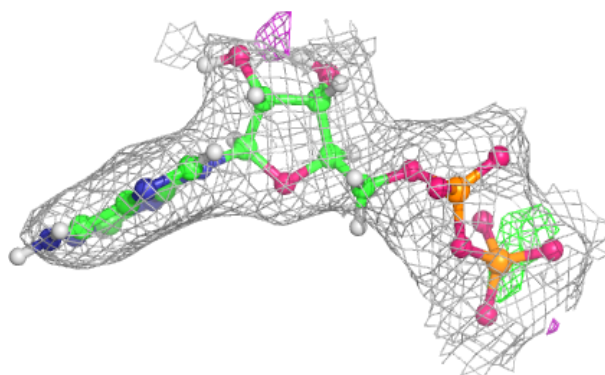


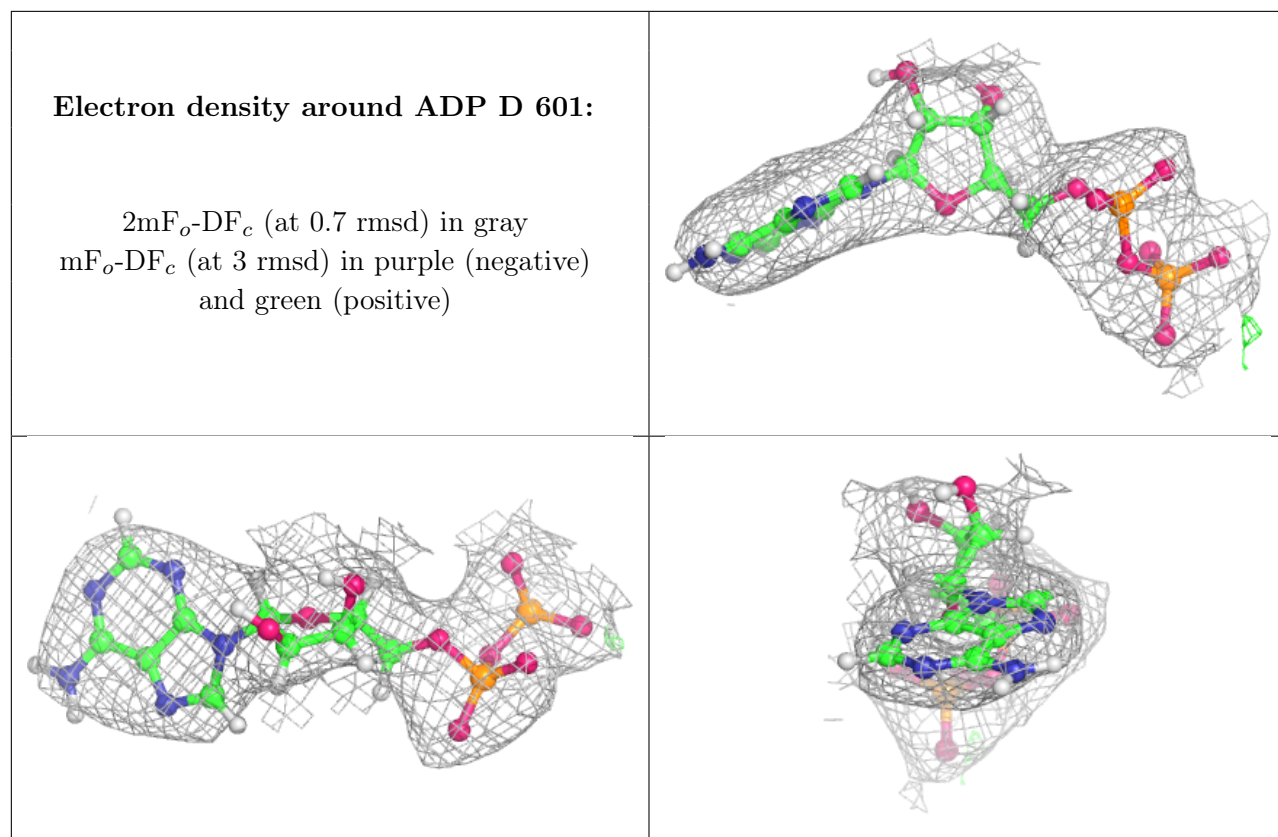
Electron density around ADP C 601:

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

**Electron density around ADP A 601:**

$2mF_o-DF_c$ (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.