



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 8, 2026 – 05:19 PM UTC

PDB ID : 8YN0 / pdb_00008yn0
Title : Crystal structure of NRG1C in complex with EDS1-SAG101-(ADPr-ATP)
Authors : Huang, S.; Xiao, Y.; Chai, J.
Deposited on : 2024-03-10
Resolution : 2.49 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 : 4-5-2 with Phenix2.0
Mogul : 2022.3.0, CSD as543be (2022)
Xtriage (Phenix) : 2.0
EDS : 3.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4 : 9.0.010 (Gargrove)
Density-Fitness : 1.0.12
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

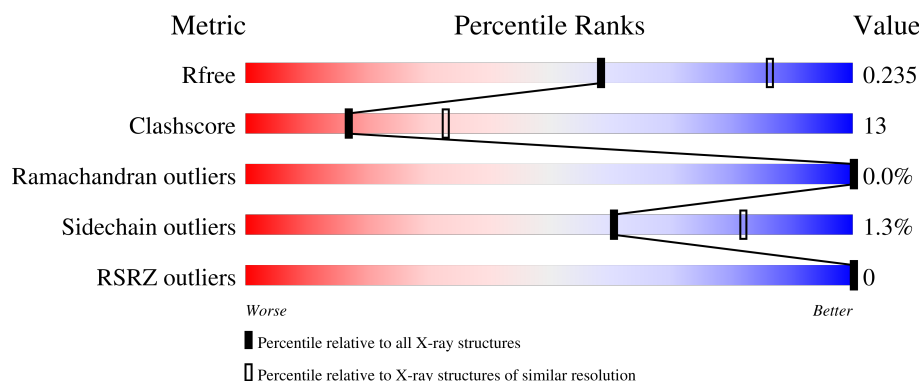
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.49 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}	180053	5829 (2.50-2.50)
Clashscore	190562	6492 (2.50-2.50)
Ramachandran outliers	187476	6378 (2.50-2.50)
Sidechain outliers	187428	6380 (2.50-2.50)
RSRZ outliers	180081	5833 (2.50-2.50)

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	617	
1	B	617	
2	C	536	
2	E	536	
3	D	415	

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Mol	Chain	Length	Quality of chain
3	H	415	72% 25% ..

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 26107 atoms, of which 62 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 Protein EDS1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	B	617	Total	C	N	O	S	0	0	0
			5008	3184	861	944	19			
1	A	617	Total	C	N	O	S	0	1	0
			5013	3188	861	944	20			

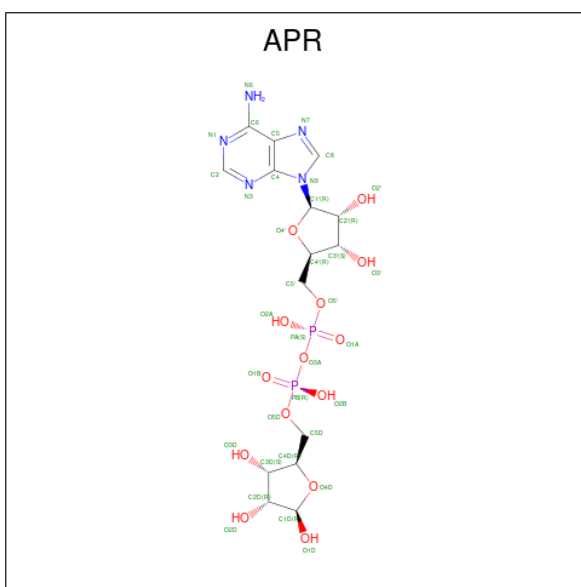
- Molecule 2 is a protein called Senescence-associated carboxylesterase 101.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	E	527	Total	C	N	O	S	0	0	0
			4287	2747	719	798	23			
2	C	527	Total	C	N	O	S	0	0	0
			4287	2747	719	798	23			

- Molecule 3 is a protein called Probable disease resistance protein At5g66890.

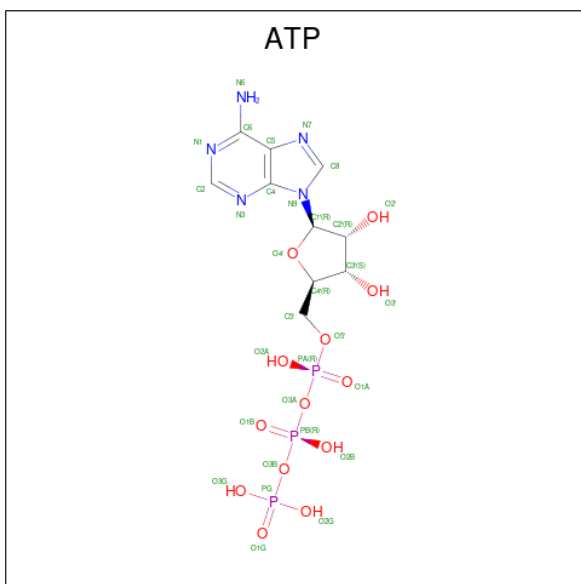
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	H	412	Total	C	N	O	S	0	0	0
			3311	2111	545	635	20			
3	D	411	Total	C	N	O	S	0	0	0
			3303	2106	544	634	19			

- Molecule 4 is ADENOSINE-5-DIPHOSPHORIBOSE (CCD ID: APR) (formula: $C_{15}H_{23}N_5O_{14}P_2$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
4	B	1	Total 55	C 15	H 20	N 5	O 13	P 2	0	0
4	A	1	Total 55	C 15	H 20	N 5	O 13	P 2	0	0

- Molecule 5 is ADENOSINE-5'-TRIPHOSPHATE (CCD ID: ATP) (formula: $\text{C}_{10}\text{H}_{16}\text{N}_5\text{O}_{13}\text{P}_3$) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
5	E	1	Total	C	H	N	O	P	0	0
			42	10	11	5	13	3		

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Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
5	C	1	Total	C	H	N	O	P	0	0
			42	10	11	5	13	3		

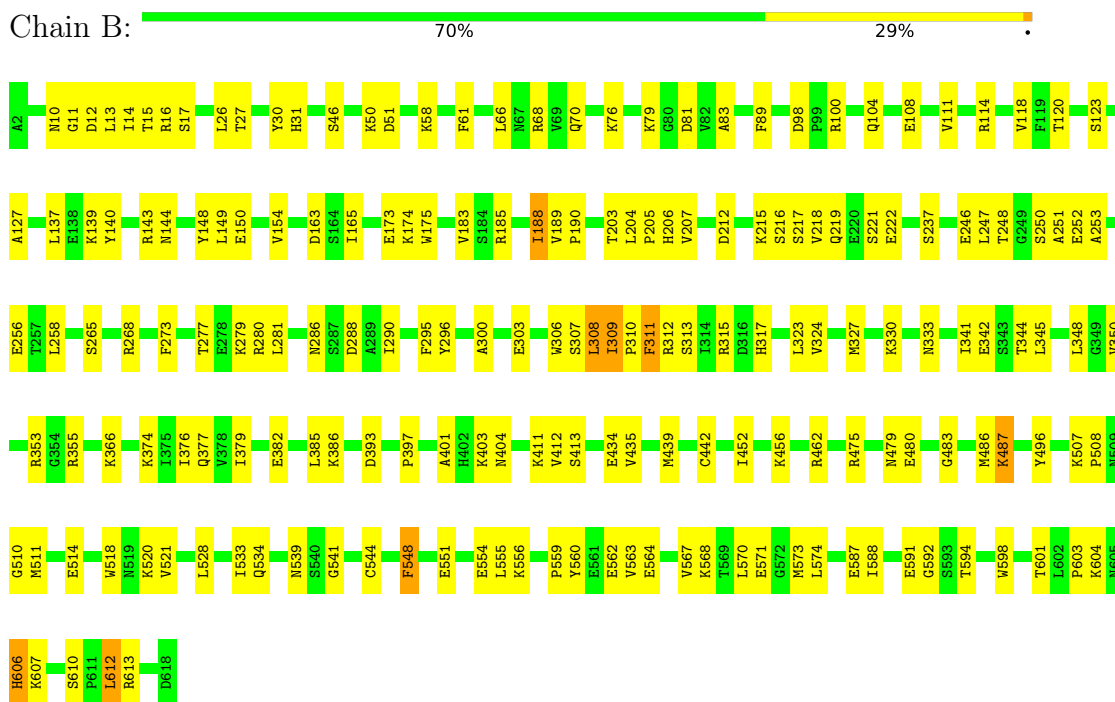
- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	B	132	Total	O	0	0
			132	132		
6	E	133	Total	O	0	0
			133	133		
6	C	127	Total	O	0	0
			127	127		
6	H	122	Total	O	0	0
			122	122		
6	A	91	Total	O	0	0
			91	91		
6	D	99	Total	O	0	0
			99	99		

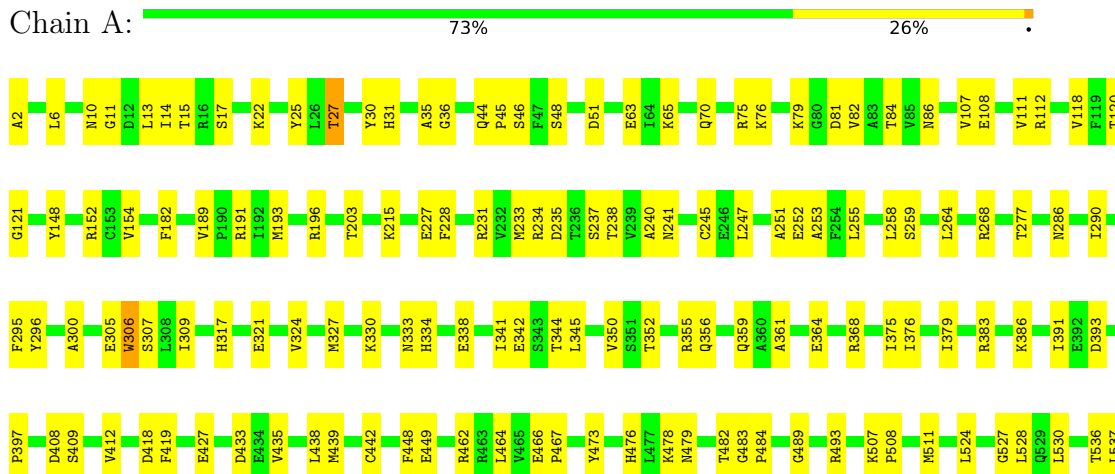
3 Residue-property plots

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: Protein EDS1



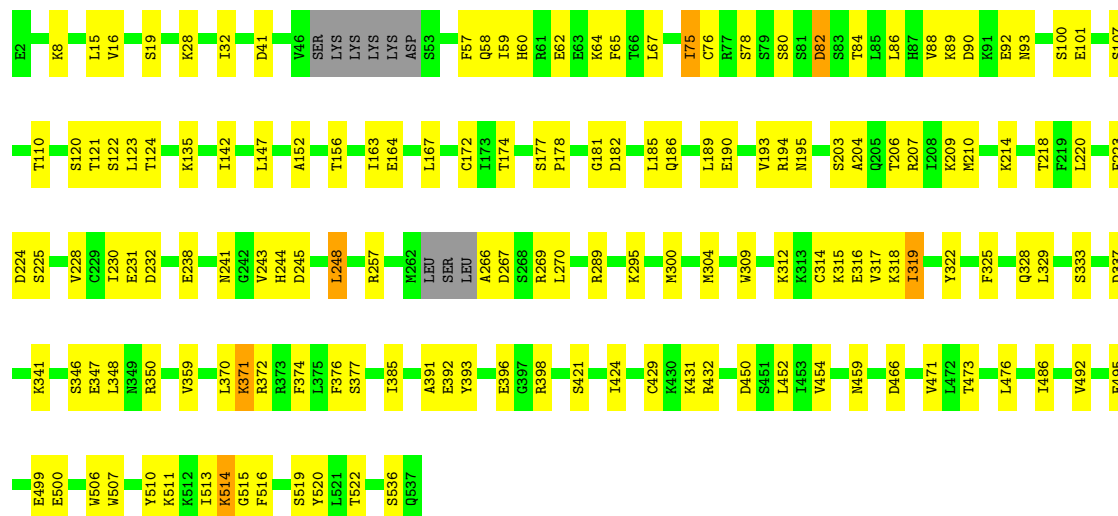
• Molecule 1: Protein EDS1





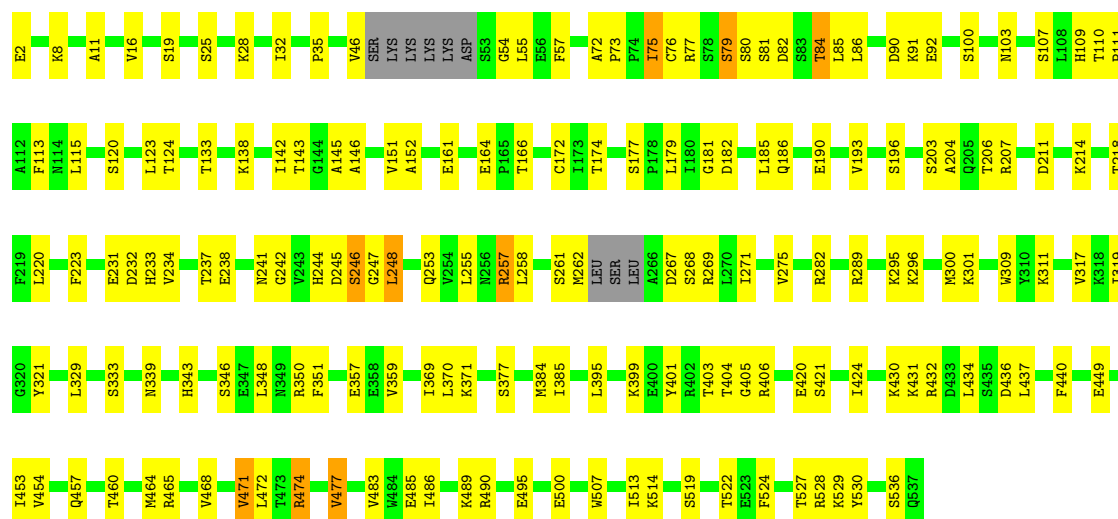
• Molecule 2: Senescence-associated carboxylesterase 101

Chain E: 70% 27% ..



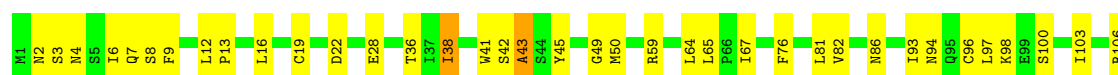
• Molecule 2: Senescence-associated carboxylesterase 101

Chain C: 67% 30% ..



• Molecule 3: Probable disease resistance protein At5g66890

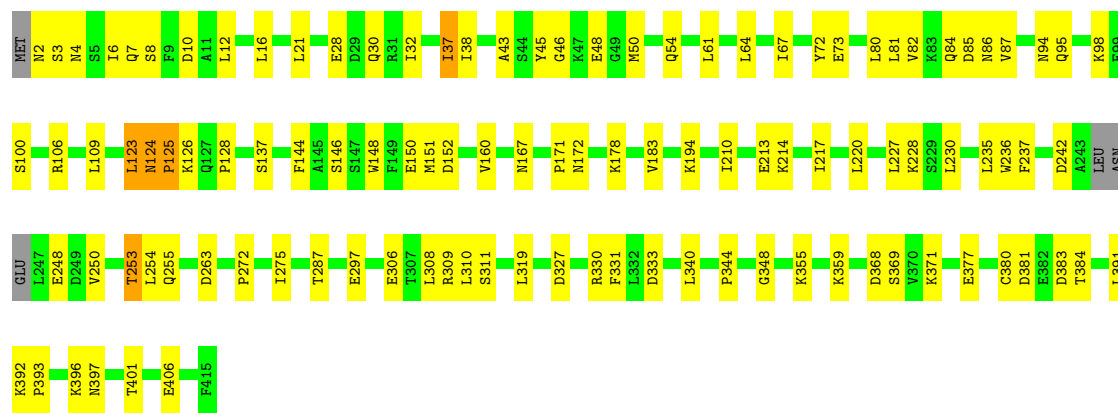
Chain H: 72% 25% ..





- Molecule 3: Probable disease resistance protein At5g66890

Chain D: 73% 25% ..



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	91.52Å 154.91Å 171.11Å 90.00° 89.69° 90.00°	Depositor
Resolution (Å)	39.77 – 2.49 39.77 – 2.49	Depositor EDS
% Data completeness (in resolution range)	95.5 (39.77-2.49) 94.5 (39.77-2.49)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.43 (at 2.48Å)	Xtriage
Refinement program	PHENIX (1.18.2_3874: ???)	Depositor
R, R_{free}	0.199 , 0.238 0.206 , 0.235	Depositor DCC
R_{free} test set	1996 reflections (1.20%)	wwPDB-VP
Wilson B-factor (Å ²)	45.6	Xtriage
Anisotropy	0.379	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 26.2	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	0.388 for h,-k,-l	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	26107	wwPDB-VP
Average B, all atoms (Å ²)	55.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.06% 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

5.1 Standard geometry

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

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	0.78	3/5129 (0.1%)	0.92	20/6922 (0.3%)
1	B	0.74	5/5121 (0.1%)	0.83	18/6912 (0.3%)
2	C	0.91	1/4383 (0.0%)	0.96	25/5906 (0.4%)
2	E	0.80	1/4383 (0.0%)	0.93	17/5906 (0.3%)
3	D	0.80	0/3357	0.91	14/4538 (0.3%)
3	H	0.79	1/3365 (0.0%)	0.88	19/4548 (0.4%)
All	All	0.80	11/25738 (0.0%)	0.91	113/34732 (0.3%)

All (11) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	484	PRO	C-O	-7.92	1.14	1.23
1	B	144	ASN	C-O	7.62	1.27	1.23
1	B	606	HIS	CA-C	-6.20	1.44	1.52
1	A	35	ALA	CA-C	-6.04	1.45	1.52
1	B	309	ILE	CA-CB	6.00	1.57	1.53
1	A	306	TRP	CA-C	-5.48	1.45	1.52
1	B	591	GLU	CA-C	-5.38	1.45	1.52
2	C	436	ASP	C-O	-5.36	1.16	1.24
3	H	65	LEU	C-O	-5.33	1.20	1.25
2	E	41	ASP	CA-C	-5.23	1.47	1.53
1	B	189	VAL	C-O	-5.21	1.19	1.24

All (113) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	527	GLY	N-CA-C	14.40	130.01	112.73
1	A	35	ALA	N-CA-C	-12.80	89.62	109.85
1	B	253	ALA	N-CA-C	11.68	123.56	111.07
2	C	81	SER	N-CA-C	-11.55	97.98	112.88

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	542	SER	N-CA-C	-11.03	99.82	113.28
1	A	524	LEU	N-CA-C	-11.01	94.26	110.23
2	E	515	GLY	N-CA-C	11.00	130.95	111.14
1	A	30	TYR	N-CA-C	10.60	124.87	110.55
3	D	123	LEU	N-CA-C	10.41	125.71	108.73
2	E	75	ILE	N-CA-C	10.36	122.94	109.58
1	A	608	SER	CA-C-N	-10.10	109.27	123.20
1	A	608	SER	C-N-CA	-10.10	109.27	123.20
3	H	148	TRP	N-CA-C	9.68	124.15	110.50
1	B	588	ILE	N-CA-C	9.32	120.12	110.62
1	A	489	GLY	N-CA-C	9.29	124.67	112.77
2	E	513	ILE	N-CA-C	9.29	120.11	110.72
2	C	247	GLY	N-CA-C	8.79	124.35	110.90
2	C	261	SER	N-CA-C	8.64	123.30	111.54
1	A	36	GLY	N-CA-C	8.61	122.49	112.50
2	E	120	SER	N-CA-C	-8.43	102.09	111.28
1	A	528	LEU	N-CA-C	8.20	122.42	109.39
3	D	327	ASP	N-CA-C	8.04	120.04	111.28
2	E	520	TYR	N-CA-C	-8.02	102.13	112.23
3	H	303	ARG	N-CA-C	7.83	119.81	111.28
2	C	248	LEU	N-CA-C	7.81	122.45	111.52
3	H	242	ASP	N-CA-C	7.25	119.18	111.28
2	E	78	SER	N-CA-C	7.23	118.81	111.07
1	B	308	LEU	N-CA-C	7.23	119.24	111.36
2	C	246	SER	N-CA-C	7.10	120.54	109.96
3	D	248	GLU	N-CA-C	7.04	121.05	110.14
3	D	46	GLY	N-CA-C	6.98	119.53	111.36
2	C	514	LYS	N-CA-C	6.92	119.67	110.53
1	A	524	LEU	CA-C-N	-6.89	113.00	122.30
1	A	524	LEU	C-N-CA	-6.89	113.00	122.30
2	C	75	ILE	N-CA-C	6.76	117.52	110.62
1	A	35	ALA	CA-C-N	-6.76	112.44	119.94
1	A	35	ALA	C-N-CA	-6.76	112.44	119.94
1	B	185	ARG	N-CA-C	6.74	118.62	111.28
3	D	124	ASN	CA-C-N	-6.73	113.03	119.76
3	D	124	ASN	C-N-CA	-6.73	113.03	119.76
3	D	124	ASN	N-CA-C	6.63	124.46	109.81
3	H	124	ASN	N-CA-C	6.59	118.01	109.64
2	E	318	LYS	N-CA-C	6.56	120.64	112.24
3	D	125	PRO	N-CA-C	-6.50	100.99	111.19
3	H	43	ALA	N-CA-C	6.34	117.85	111.07
1	B	587	GLU	N-CA-C	6.32	121.09	112.68

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	404	THR	N-CA-C	6.30	122.44	114.31
2	C	79	SER	N-CA-C	-6.25	104.47	111.28
3	D	48	GLU	N-CA-C	-6.25	103.19	113.50
1	B	247	LEU	N-CA-C	6.18	118.02	111.28
1	B	188	ILE	N-CA-C	6.16	116.94	110.72
2	C	80	SER	N-CA-C	6.14	118.40	108.34
2	E	124	THR	N-CA-C	-6.08	104.65	111.28
1	A	448	PHE	N-CA-C	6.03	117.86	111.28
1	A	240	ALA	CA-C-N	-6.01	112.62	122.54
1	A	240	ALA	C-N-CA	-6.01	112.62	122.54
3	D	43	ALA	N-CA-C	5.98	117.80	111.28
1	B	548	PHE	N-CA-C	5.95	117.77	111.28
2	E	459	ASN	N-CA-C	5.94	117.75	111.28
2	C	161	GLU	CB-CA-C	-5.93	100.95	110.79
2	C	403	THR	N-CA-C	5.87	117.76	111.36
2	E	516	PHE	N-CA-C	5.87	119.52	111.54
2	E	269	ARG	N-CA-C	5.83	119.61	111.74
2	E	123	LEU	N-CA-C	-5.76	106.11	114.12
2	C	405	GLY	N-CA-C	5.74	126.78	113.18
2	C	164	GLU	N-CA-C	-5.72	101.34	110.10
3	D	73	GLU	N-CA-C	5.72	117.51	111.28
2	E	514	LYS	N-CA-C	5.70	118.54	110.50
3	H	317	LEU	CA-C-N	-5.70	113.24	122.36
3	H	317	LEU	C-N-CA	-5.70	113.24	122.36
2	C	166	THR	N-CA-C	5.68	117.47	111.28
1	B	30	TYR	N-CA-C	5.66	117.88	108.99
1	B	309	ILE	CA-C-N	-5.64	112.78	119.05
1	B	309	ILE	C-N-CA	-5.64	112.78	119.05
1	A	44	GLN	N-CA-C	5.64	117.61	109.48
2	C	460	THR	CA-C-N	-5.61	115.20	123.05
2	C	460	THR	C-N-CA	-5.61	115.20	123.05
2	E	319	ILE	N-CA-C	-5.57	107.39	111.90
2	C	35	PRO	N-CA-C	5.55	117.47	110.70
2	C	120	SER	N-CA-C	-5.47	105.31	111.28
3	H	392	LYS	CA-C-N	-5.43	113.30	119.28
3	H	392	LYS	C-N-CA	-5.43	113.30	119.28
2	C	161	GLU	CA-C-N	-5.40	115.55	123.00
2	C	161	GLU	C-N-CA	-5.40	115.55	123.00
1	B	251	ALA	N-CA-C	-5.38	102.42	110.23
3	H	42	SER	CA-C-N	-5.38	113.45	120.44
3	H	42	SER	C-N-CA	-5.38	113.45	120.44
3	H	49	GLY	N-CA-C	5.37	119.18	112.73

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	460	THR	N-CA-C	5.36	119.93	113.17
1	B	311	PHE	N-CA-C	5.36	117.12	111.28
1	B	312	ARG	N-CA-C	-5.34	105.53	111.36
1	B	612	LEU	N-CA-C	5.33	119.66	113.20
2	E	473	THR	CA-C-N	-5.32	111.74	121.52
2	E	473	THR	C-N-CA	-5.32	111.74	121.52
3	D	253	THR	N-CA-C	5.31	118.14	110.28
1	B	487	LYS	N-CA-C	5.29	119.72	112.68
3	H	165	SER	N-CA-C	5.26	118.64	110.17
3	H	45	TYR	N-CA-C	5.26	119.66	112.88
3	D	126	LYS	N-CA-C	-5.26	105.55	111.28
2	C	82	ASP	N-CA-C	5.24	117.82	110.23
1	A	548	PHE	N-CA-C	5.23	116.98	111.28
1	B	604	LYS	N-CA-C	5.20	117.03	111.36
3	H	242	ASP	CB-CA-C	-5.18	102.19	110.79
3	H	410	ASN	N-CA-C	5.17	116.91	111.28
1	A	449	GLU	N-CA-C	-5.14	105.67	111.28
3	H	127	GLN	N-CA-C	-5.14	103.30	109.83
3	H	163	ILE	N-CA-C	5.12	115.85	108.48
3	H	189	GLY	N-CA-C	5.07	119.03	112.54
3	D	406	GLU	CA-CB-CG	5.05	124.20	114.10
2	E	82	ASP	N-CA-C	-5.03	101.09	108.99
2	C	124	THR	N-CA-C	-5.02	105.80	111.28
1	B	248	THR	N-CA-C	5.02	119.38	113.16
2	C	399	LYS	N-CA-C	5.02	117.30	109.52

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of 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	5013	0	4925	119	0
1	B	5008	0	4916	144	0
2	C	4287	0	4283	122	0
2	E	4287	0	4283	112	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	D	3303	0	3353	77	0
3	H	3311	0	3365	77	0
4	A	35	20	19	1	0
4	B	35	20	19	2	0
5	C	31	11	11	1	0
5	E	31	11	11	3	0
6	A	91	0	0	16	0
6	B	132	0	0	17	1
6	C	127	0	0	13	1
6	D	99	0	0	8	1
6	E	133	0	0	15	1
6	H	122	0	0	7	2
All	All	26045	62	25185	639	3

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 13.

All (639) 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:B:17:SER:HB3	1:B:120:THR:HG21	1.16	1.08
1:B:215:LYS:HE2	1:B:217:SER:HB2	1.39	1.02
1:A:599:TRP:HB3	1:A:616:MET:HE1	1.41	1.02
1:B:76:LYS:NZ	1:B:442:CYS:SG	2.36	0.98
2:C:11:ALA:HB1	1:A:241:ASN:HB2	1.46	0.96
1:B:559:PRO:HG2	1:B:562:GLU:HG2	1.49	0.94
2:E:295:LYS:HE2	2:E:295:LYS:HA	1.48	0.94
1:B:559:PRO:HG2	1:B:562:GLU:CG	1.98	0.93
2:C:300:MET:HE3	2:C:348:LEU:HD23	1.51	0.92
1:B:76:LYS:NZ	6:B:801:HOH:O	2.01	0.91
3:H:395:MET:CE	3:H:398:LEU:HD22	1.99	0.90
1:B:17:SER:CB	1:B:120:THR:HG21	2.01	0.90
1:A:442:CYS:SG	6:A:803:HOH:O	2.29	0.90
2:E:248:LEU:O	2:E:248:LEU:HD13	1.69	0.90
1:B:216:SER:HB2	1:B:218:VAL:HG13	1.51	0.90
3:D:309:ARG:HG2	3:D:333:ASP:HB3	1.52	0.90
1:A:76:LYS:NZ	6:A:803:HOH:O	1.99	0.90
1:B:355:ARG:NH1	6:B:802:HOH:O	2.04	0.89
1:A:148:TYR:O	6:A:801:HOH:O	1.89	0.89
1:A:76:LYS:NZ	1:A:442:CYS:SG	2.45	0.89
2:E:16:VAL:O	2:E:19:SER:HB3	1.75	0.87

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:393:ASP:OD1	6:A:802:HOH:O	1.91	0.87
2:E:194:ARG:NH1	6:E:701:HOH:O	2.07	0.86
2:C:300:MET:CE	2:C:348:LEU:HA	2.05	0.85
2:E:209:LYS:HE3	2:E:244:HIS:HB2	1.60	0.83
2:E:319:ILE:HA	2:E:500:GLU:HB2	1.60	0.83
2:E:300:MET:HA	2:E:300:MET:HE2	1.61	0.82
1:B:563:VAL:O	1:B:567:VAL:HG23	1.79	0.81
1:A:15:THR:HG22	1:A:324:VAL:HG13	1.63	0.81
2:C:207:ARG:HB3	2:C:242:GLY:HA3	1.63	0.80
3:H:395:MET:HE1	3:H:398:LEU:HD22	1.63	0.79
3:D:340:LEU:O	6:D:501:HOH:O	2.01	0.79
1:B:15:THR:HG22	1:B:324:VAL:HG13	1.63	0.78
2:C:91:LYS:HA	2:C:91:LYS:HE2	1.64	0.78
1:B:70:GLN:HE21	1:B:139:LYS:CE	1.96	0.78
5:C:601:ATP:O1G	6:C:703:HOH:O	2.01	0.77
2:C:238:GLU:OE1	2:C:275:VAL:HG12	1.84	0.77
1:A:333:ASN:HB2	1:A:338:GLU:OE2	1.85	0.77
1:B:562:GLU:HB2	1:B:563:VAL:HG13	1.65	0.76
3:H:327:ASP:OD1	6:H:501:HOH:O	2.03	0.76
1:B:216:SER:CB	1:B:218:VAL:HG13	2.16	0.76
3:H:94:ASN:HB3	3:H:98:LYS:NZ	2.00	0.76
1:A:571:GLU:OE2	1:A:612:LEU:HD12	1.86	0.76
3:D:172:ASN:OD1	6:D:502:HOH:O	2.03	0.76
1:A:476:HIS:O	6:A:805:HOH:O	2.03	0.75
1:B:114:ARG:HD2	1:B:148:TYR:HD2	1.50	0.75
3:H:36:THR:OG1	6:H:502:HOH:O	2.04	0.75
2:E:289:ARG:HD2	6:E:715:HOH:O	1.87	0.75
1:A:511:MET:N	6:A:804:HOH:O	2.00	0.73
1:B:366:LYS:NZ	6:B:806:HOH:O	2.14	0.73
1:B:50:LYS:NZ	6:B:810:HOH:O	2.19	0.73
1:B:324:VAL:O	1:B:327:MET:HE2	1.88	0.72
3:D:309:ARG:CG	3:D:333:ASP:HB3	2.19	0.72
1:A:238:THR:HG22	1:A:264:LEU:HD22	1.72	0.72
1:B:496:TYR:OH	6:B:803:HOH:O	2.05	0.72
1:A:412:VAL:O	6:A:806:HOH:O	2.07	0.72
2:E:421:SER:HA	2:E:424:ILE:HD12	1.70	0.71
2:E:536:SER:O	6:E:702:HOH:O	2.07	0.71
1:A:511:MET:HB2	6:A:804:HOH:O	1.90	0.71
1:A:589:PHE:O	1:A:596:ARG:HG3	1.89	0.71
1:B:442:CYS:SG	6:B:801:HOH:O	2.49	0.71
3:D:308:LEU:HD22	3:D:310:LEU:HG	1.73	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:427:GLU:O	6:A:807:HOH:O	2.09	0.71
3:D:228:LYS:HB3	3:D:255:GLN:HE21	1.56	0.71
1:B:554:GLU:OE1	6:B:804:HOH:O	2.09	0.70
4:B:701:APR:O1A	2:E:377:SER:HB2	1.91	0.70
1:B:393:ASP:O	1:B:397:PRO:HG2	1.91	0.70
1:B:17:SER:HB3	1:B:120:THR:CG2	2.09	0.69
2:E:232:ASP:OD2	6:E:704:HOH:O	2.09	0.69
2:C:8:LYS:NZ	1:A:251:ALA:O	2.25	0.69
2:E:238:GLU:OE2	6:E:703:HOH:O	2.08	0.69
2:C:142:ILE:HG22	2:C:152:ALA:HB1	1.73	0.69
1:B:342:GLU:HA	1:B:355:ARG:HD3	1.74	0.69
2:C:100:SER:HB2	2:C:103:ASN:H	1.57	0.69
1:B:413:SER:OG	6:B:805:HOH:O	2.09	0.68
3:H:395:MET:HE3	3:H:398:LEU:HD22	1.74	0.68
1:A:27:THR:HG21	1:A:31:HIS:HB2	1.73	0.68
1:A:203:THR:HG23	1:A:228:PHE:HD1	1.57	0.68
2:C:449:GLU:OE1	6:C:704:HOH:O	2.11	0.68
1:B:341:ILE:HD12	1:B:345:LEU:HD12	1.75	0.68
1:A:393:ASP:OD2	6:A:808:HOH:O	2.11	0.68
2:E:88:VAL:HG13	2:E:89:LYS:HD2	1.76	0.68
1:B:15:THR:HG22	1:B:324:VAL:CG1	2.24	0.68
1:B:120:THR:HG22	1:B:154:VAL:HB	1.75	0.67
2:C:244:HIS:CG	2:C:244:HIS:O	2.45	0.67
1:B:218:VAL:HG23	1:B:219:GLN:H	1.59	0.67
3:D:392:LYS:NZ	6:D:506:HOH:O	2.27	0.67
2:C:357:GLU:HG2	6:C:732:HOH:O	1.94	0.67
3:H:76:PHE:CB	3:H:309:ARG:HH12	2.08	0.67
1:A:599:TRP:CB	1:A:616:MET:HE1	2.21	0.67
2:E:499:GLU:HG3	6:E:799:HOH:O	1.95	0.66
2:E:75:ILE:HG22	2:E:76:CYS:O	1.95	0.66
2:C:77:ARG:HD2	2:C:244:HIS:NE2	2.11	0.66
2:C:495:GLU:OE2	6:C:706:HOH:O	2.11	0.66
2:E:62:GLU:O	6:E:705:HOH:O	2.13	0.66
1:A:393:ASP:O	1:A:397:PRO:HG2	1.95	0.66
3:D:213:GLU:HG2	3:D:236:TRP:HB3	1.78	0.66
2:C:359:VAL:CG1	2:C:369:ILE:HG22	2.25	0.66
2:C:519:SER:HB3	2:C:522:THR:HG23	1.77	0.66
1:B:11:GLY:O	1:B:15:THR:HG23	1.95	0.66
1:A:193:MET:HG3	6:A:833:HOH:O	1.96	0.66
1:B:250:SER:O	1:B:252:GLU:HG3	1.96	0.66
2:E:86:LEU:HD22	2:E:93:ASN:HA	1.77	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:528:ARG:NE	6:C:705:HOH:O	2.11	0.65
3:D:8:SER:O	3:D:12:LEU:HG	1.96	0.65
3:D:397:ASN:OD1	3:D:397:ASN:O	2.13	0.65
2:E:309:TRP:CE3	2:E:312:LYS:HD2	2.31	0.65
3:D:297:GLU:OE2	6:D:503:HOH:O	2.13	0.65
2:C:255:LEU:HA	2:C:258:LEU:HG	1.78	0.65
1:A:596:ARG:HA	1:A:616:MET:HE3	1.79	0.64
2:E:486:ILE:HD12	2:E:492:VAL:CG1	2.27	0.64
1:A:86:ASN:ND2	1:A:193:MET:HE2	2.12	0.64
2:C:90:ASP:OD2	2:C:92:GLU:HG2	1.97	0.64
2:C:519:SER:CB	2:C:522:THR:HG23	2.28	0.64
1:B:215:LYS:CE	1:B:217:SER:HB2	2.23	0.64
2:C:16:VAL:O	2:C:19:SER:HB3	1.98	0.63
2:C:339:ASN:ND2	6:C:701:HOH:O	1.95	0.63
1:A:2:ALA:N	6:A:812:HOH:O	2.31	0.63
1:B:559:PRO:CG	1:B:562:GLU:HG2	2.25	0.63
2:C:218:THR:HG23	2:C:231:GLU:HG2	1.80	0.63
3:H:100:SER:O	3:H:106:ARG:NH1	2.31	0.63
1:A:14:ILE:HD12	1:A:182:PHE:CZ	2.33	0.63
2:E:210:MET:HB2	2:E:241:ASN:OD1	1.97	0.63
2:C:449:GLU:O	2:C:453:ILE:HG12	1.97	0.63
2:C:348:LEU:HD13	2:C:385:ILE:CD1	2.28	0.63
3:H:359:LYS:O	3:H:359:LYS:HG2	1.98	0.63
1:A:391:ILE:HG22	1:A:464:LEU:HD11	1.80	0.62
1:B:382:GLU:O	1:B:386:LYS:HG3	1.99	0.62
2:C:500:GLU:OE1	6:C:707:HOH:O	2.16	0.62
2:E:225:SER:HB3	2:E:267:ASP:H	1.64	0.62
3:H:180:LEU:HD21	3:H:183:VAL:HG22	1.81	0.62
2:E:189:LEU:O	2:E:195:ASN:HB2	2.00	0.61
3:D:28:GLU:HG3	3:D:86:ASN:CG	2.25	0.61
1:B:452:ILE:HD11	1:B:456:LYS:HE2	1.82	0.61
4:B:701:APR:O4'	2:E:304:MET:HB3	2.01	0.61
2:E:519:SER:OG	2:E:522:THR:HG23	2.01	0.61
1:B:252:GLU:O	1:B:256:GLU:HG3	1.99	0.61
2:E:486:ILE:HD12	2:E:492:VAL:HG11	1.83	0.61
1:B:376:ILE:HD13	1:B:379:ILE:HD11	1.83	0.61
3:D:359:LYS:HA	3:D:380:CYS:HA	1.83	0.61
2:E:346:SER:OG	2:E:350:ARG:NH2	2.34	0.60
2:C:232:ASP:OD1	2:C:234:VAL:HG12	2.01	0.60
1:B:13:LEU:HD11	1:B:118:VAL:HG21	1.82	0.60
2:C:233:HIS:O	2:C:237:THR:HG23	2.01	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:564:GLU:OE2	1:B:568:LYS:NZ	2.34	0.60
1:A:11:GLY:O	1:A:15:THR:HG23	2.02	0.60
1:A:462:ARG:NH1	1:A:544:CYS:SG	2.75	0.60
2:C:507:TRP:HH2	2:C:522:THR:HG22	1.66	0.60
1:B:27:THR:HG21	1:B:31:HIS:HB2	1.83	0.60
1:B:222:GLU:HG3	1:B:311:PHE:HZ	1.67	0.60
3:H:359:LYS:HA	3:H:380:CYS:HA	1.83	0.60
2:E:511:LYS:HA	2:E:514:LYS:HE3	1.84	0.60
2:C:54:GLY:O	2:C:73:PRO:HD3	2.02	0.59
1:A:341:ILE:HD12	1:A:345:LEU:HD12	1.82	0.59
1:A:408:ASP:OD2	1:A:594:THR:N	2.35	0.59
1:B:366:LYS:NZ	6:B:818:HOH:O	2.34	0.59
3:H:263:ASP:OD2	6:H:503:HOH:O	2.17	0.59
1:B:104:GLN:O	1:B:108:GLU:HG3	2.01	0.59
2:C:8:LYS:NZ	6:C:702:HOH:O	2.00	0.59
1:A:17:SER:HB3	1:A:120:THR:HG21	1.84	0.59
1:A:79:LYS:HE2	1:A:81:ASP:OD2	2.02	0.59
2:C:317:VAL:HG23	2:C:319:ILE:HG22	1.83	0.59
3:D:381:ASP:OD1	3:D:383:ASP:HB2	2.03	0.59
2:E:372:ARG:HD3	5:E:601:ATP:O2G	2.03	0.59
1:B:204:LEU:HB3	1:B:205:PRO:HD3	1.84	0.59
3:D:309:ARG:CD	3:D:333:ASP:HB3	2.32	0.59
1:B:70:GLN:NE2	1:B:139:LYS:CE	2.65	0.59
2:E:181:GLY:HA3	2:E:185:LEU:HD23	1.84	0.59
2:E:174:THR:HG23	2:E:177:SER:OG	2.01	0.59
3:H:94:ASN:HB3	3:H:98:LYS:HZ2	1.66	0.59
3:H:201:LEU:HA	3:H:204:LEU:HD23	1.85	0.59
1:B:16:ARG:HG2	1:B:16:ARG:HH11	1.68	0.58
2:C:431:LYS:O	2:C:536:SER:HB3	2.03	0.58
3:H:8:SER:O	3:H:12:LEU:HG	2.03	0.58
3:H:220:LEU:HD23	3:H:272:PRO:HB3	1.85	0.58
1:B:246:GLU:HA	1:B:252:GLU:OE2	2.03	0.58
3:H:319:LEU:HD12	3:H:344:PRO:HD3	1.85	0.58
1:A:352:THR:O	1:A:356:GLN:HG3	2.03	0.58
3:H:177:MET:O	3:H:204:LEU:HD12	2.03	0.58
1:A:6:LEU:HD21	1:A:334:HIS:CD2	2.38	0.58
1:A:13:LEU:HD11	1:A:118:VAL:HG21	1.85	0.58
3:H:108:ARG:HD3	3:H:135:LEU:HD23	1.86	0.58
3:D:214:LYS:HA	3:D:237:PHE:O	2.04	0.58
2:E:348:LEU:HD13	2:E:385:ILE:CD1	2.33	0.58
3:D:144:PHE:CE2	3:D:146:SER:HA	2.39	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:148:TRP:CD2	3:D:171:PRO:HB3	2.38	0.58
1:B:111:VAL:HG13	1:B:149:LEU:HD11	1.86	0.58
1:B:434:GLU:OE1	2:E:295:LYS:HD2	2.02	0.57
1:B:560:TYR:CZ	1:B:564:GLU:HG3	2.39	0.57
2:E:164:GLU:H	2:E:167:LEU:HD12	1.69	0.57
1:A:277:THR:O	1:A:330:LYS:HE2	2.04	0.57
3:H:67:ILE:HD13	3:H:81:LEU:CD1	2.34	0.57
1:B:330:LYS:NZ	6:B:821:HOH:O	2.37	0.57
2:C:296:LYS:O	2:C:300:MET:HG2	2.04	0.57
2:E:392:GLU:O	6:E:706:HOH:O	2.17	0.57
2:C:464:MET:HE1	2:C:472:LEU:HD12	1.87	0.57
2:E:135:LYS:NZ	6:E:716:HOH:O	2.36	0.57
2:C:421:SER:HA	2:C:424:ILE:HD12	1.87	0.57
1:B:150:GLU:OE2	6:B:808:HOH:O	2.18	0.57
2:E:295:LYS:HG2	6:E:757:HOH:O	2.04	0.57
3:D:308:LEU:CD2	3:D:310:LEU:HG	2.34	0.57
2:E:65:PHE:HE2	2:E:67:LEU:HB2	1.70	0.56
2:E:507:TRP:HH2	2:E:522:THR:HG22	1.70	0.56
2:C:133:THR:HG22	2:C:138:LYS:HB3	1.85	0.56
2:C:179:LEU:HD13	2:C:214:LYS:C	2.30	0.56
3:D:220:LEU:HD23	3:D:272:PRO:HB3	1.87	0.56
2:E:75:ILE:HD11	2:E:147:LEU:HD13	1.86	0.56
3:H:148:TRP:CD2	3:H:171:PRO:HB3	2.41	0.56
1:B:70:GLN:O	1:B:70:GLN:HG2	2.06	0.56
2:E:333:SER:O	3:H:214:LYS:HE3	2.05	0.56
2:C:174:THR:HG23	2:C:177:SER:OG	2.06	0.56
1:B:300:ALA:HB3	1:B:306:TRP:CD2	2.40	0.56
2:E:432:ARG:HH21	2:E:432:ARG:HG3	1.71	0.56
2:C:300:MET:HE2	2:C:351:PHE:HB3	1.87	0.56
2:C:359:VAL:CG1	2:C:369:ILE:CG2	2.83	0.56
2:E:328:GLN:HG3	6:E:777:HOH:O	2.04	0.56
2:E:396:GLU:HG3	6:E:706:HOH:O	2.05	0.56
1:A:418:ASP:OD2	6:A:806:HOH:O	2.17	0.56
1:B:98:ASP:OD2	1:B:100:ARG:HB2	2.06	0.56
3:H:94:ASN:HB3	3:H:98:LYS:HZ1	1.70	0.56
1:B:120:THR:HG22	1:B:154:VAL:O	2.04	0.56
3:D:32:ILE:HG21	3:D:37:ILE:HD11	1.88	0.56
2:E:519:SER:CB	2:E:522:THR:HG23	2.36	0.55
1:B:507:LYS:HG2	1:B:508:PRO:HD3	1.88	0.55
1:B:46:SER:HB3	1:B:51:ASP:OD2	2.07	0.55
2:C:454:VAL:HA	2:C:457:GLN:HE21	1.71	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:370:LEU:HD22	2:E:374:PHE:HB3	1.89	0.55
2:E:203:SER:HB3	2:E:206:THR:OG1	2.06	0.55
3:D:50:MET:HE2	3:D:54:GLN:HG2	1.87	0.55
3:H:12:LEU:HD21	3:H:59:ARG:HD2	1.87	0.55
3:H:28:GLU:HG3	3:H:86:ASN:ND2	2.22	0.55
1:B:163:ASP:OD2	6:B:807:HOH:O	2.18	0.54
1:B:258:LEU:HD11	2:E:16:VAL:HG22	1.90	0.54
2:E:142:ILE:HG22	2:E:152:ALA:HB1	1.89	0.54
3:H:67:ILE:HG21	3:H:81:LEU:HD13	1.88	0.54
1:A:108:GLU:O	1:A:112:ARG:HG3	2.07	0.54
2:E:82:ASP:HB3	2:E:110:THR:HB	1.89	0.54
3:D:94:ASN:O	3:D:98:LYS:HG3	2.07	0.54
3:D:381:ASP:OD1	3:D:384:THR:N	2.28	0.54
1:B:268:ARG:O	6:B:809:HOH:O	2.18	0.54
2:C:55:LEU:HD11	2:C:151:VAL:HG11	1.90	0.54
3:H:204:LEU:HB3	6:H:561:HOH:O	2.07	0.54
1:A:536:THR:HG21	1:A:565:VAL:HG21	1.90	0.54
2:E:76:CYS:HB3	2:E:80:SER:HB2	1.88	0.54
2:C:300:MET:HE3	2:C:348:LEU:CD2	2.34	0.54
2:C:359:VAL:HG12	2:C:369:ILE:CG2	2.37	0.54
1:A:608:SER:O	1:A:613:ARG:HD3	2.08	0.54
1:B:603:PRO:O	1:B:607:LYS:HG3	2.08	0.54
3:H:294:ARG:HH11	3:H:294:ARG:HG2	1.71	0.54
3:D:309:ARG:HD3	3:D:333:ASP:OD2	2.08	0.54
2:C:453:ILE:O	2:C:457:GLN:HG2	2.08	0.53
1:A:10:ASN:O	1:A:14:ILE:HG12	2.08	0.53
1:A:376:ILE:HD13	1:A:379:ILE:HD11	1.88	0.53
3:D:359:LYS:O	3:D:381:ASP:OD2	2.27	0.53
1:B:120:THR:CG2	1:B:154:VAL:HB	2.38	0.53
1:B:333:ASN:HD21	1:B:344:THR:HG21	1.72	0.53
2:C:262:MET:HE1	1:A:306:TRP:HE1	1.74	0.53
1:A:567:VAL:O	1:A:571:GLU:HG3	2.09	0.53
2:E:8:LYS:C	2:E:8:LYS:HD2	2.33	0.53
2:C:55:LEU:HB2	2:C:115:LEU:HD22	1.90	0.53
1:B:528:LEU:HB2	1:B:533:ILE:HG13	1.90	0.53
2:C:174:THR:HG21	2:C:177:SER:HB2	1.91	0.53
1:A:435:VAL:HG12	1:A:439:MET:HE2	1.89	0.53
1:B:252:GLU:HA	6:B:908:HOH:O	2.08	0.53
3:H:127:GLN:HG3	3:H:128:PRO:HA	1.90	0.53
1:B:487:LYS:HE2	1:B:539:ASN:OD1	2.09	0.52
6:C:702:HOH:O	1:A:251:ALA:O	2.19	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:319:LEU:HD12	3:D:344:PRO:HD3	1.91	0.52
2:E:243:VAL:HG12	2:E:243:VAL:O	2.08	0.52
3:H:93:ILE:O	6:H:504:HOH:O	2.19	0.52
3:H:214:LYS:HA	3:H:237:PHE:O	2.09	0.52
1:B:567:VAL:O	1:B:571:GLU:HG3	2.09	0.52
2:E:317:VAL:HG23	2:E:319:ILE:HG22	1.92	0.52
2:E:210:MET:O	2:E:214:LYS:NZ	2.42	0.52
2:C:234:VAL:CG1	2:C:282:ARG:CZ	2.88	0.52
1:B:123:SER:HB2	1:B:317:HIS:NE2	2.24	0.52
2:C:204:ALA:HB1	2:C:223:PHE:CE1	2.44	0.52
3:H:97:LEU:O	3:H:106:ARG:NH1	2.43	0.52
1:A:341:ILE:HD12	1:A:345:LEU:CD1	2.39	0.52
1:B:556:LYS:HA	1:B:598:TRP:CD1	2.45	0.52
3:H:153:CYS:HB2	3:H:177:MET:HG2	1.91	0.52
1:A:560:TYR:OH	1:A:606:HIS:ND1	2.27	0.52
2:C:72:ALA:HB1	2:C:73:PRO:HD2	1.91	0.51
1:A:252:GLU:O	1:A:252:GLU:HG2	2.09	0.51
3:D:263:ASP:OD1	3:D:287:THR:OG1	2.26	0.51
2:E:218:THR:HG23	2:E:231:GLU:HG3	1.91	0.51
1:B:412:VAL:HG12	1:B:412:VAL:O	2.11	0.51
3:H:2:ASN:OD1	3:H:3:SER:N	2.43	0.51
1:A:433:ASP:OD1	1:A:493:ARG:HD3	2.11	0.51
2:C:234:VAL:HG11	2:C:282:ARG:CZ	2.40	0.51
1:A:191:ARG:HG2	1:A:233:MET:HE1	1.92	0.51
2:C:109:HIS:CE1	2:C:111:PRO:HD2	2.45	0.51
1:A:375:ILE:HD11	1:A:438:LEU:HD12	1.93	0.51
3:D:32:ILE:O	3:D:81:LEU:HD23	2.11	0.51
1:B:279:LYS:HG2	1:B:280:ARG:HG3	1.91	0.51
1:B:479:ASN:HA	1:B:483:GLY:O	2.11	0.51
1:B:216:SER:HB2	1:B:218:VAL:CG1	2.34	0.51
2:E:90:ASP:OD1	2:E:92:GLU:HG2	2.11	0.51
3:H:348:GLY:H	3:H:369:SER:HB3	1.76	0.51
1:A:507:LYS:HG2	1:A:508:PRO:HD3	1.92	0.51
1:A:296:TYR:HB3	1:A:350:VAL:HG13	1.93	0.51
2:C:300:MET:HE1	2:C:348:LEU:HA	1.91	0.50
3:H:217:ILE:HD11	3:H:235:LEU:HD21	1.93	0.50
1:A:63:GLU:HB2	1:A:84:THR:CG2	2.41	0.50
3:H:96:CYS:O	3:H:106:ARG:HD3	2.12	0.50
3:D:254:LEU:HA	6:D:543:HOH:O	2.11	0.50
3:H:127:GLN:CG	3:H:128:PRO:HA	2.40	0.50
1:B:188:ILE:HB	1:B:313:SER:OG	2.12	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:296:TYR:HB3	1:B:350:VAL:HG13	1.93	0.50
2:C:204:ALA:CB	2:C:223:PHE:CE1	2.95	0.50
3:D:287:THR:HG22	3:D:311:SER:HB3	1.93	0.50
2:E:57:PHE:HE2	2:E:59:ILE:HD11	1.75	0.50
3:H:6:ILE:HG23	3:H:7:GLN:HG3	1.93	0.50
3:H:9:PHE:HA	3:H:12:LEU:HD12	1.94	0.50
3:D:123:LEU:C	3:D:125:PRO:HD3	2.37	0.50
1:B:518:TRP:CZ2	1:B:534:GLN:HG3	2.46	0.50
3:H:359:LYS:O	3:H:381:ASP:OD2	2.29	0.50
1:B:120:THR:HA	1:B:154:VAL:O	2.12	0.50
2:E:248:LEU:HD13	2:E:248:LEU:C	2.37	0.50
1:B:11:GLY:HA2	1:B:14:ILE:HB	1.92	0.50
1:A:466:GLU:N	1:A:467:PRO:CD	2.75	0.50
1:B:520:LYS:HD3	1:B:573:MET:HG2	1.93	0.50
2:C:55:LEU:HD12	2:C:115:LEU:HB3	1.92	0.50
2:C:90:ASP:OD1	2:C:91:LYS:N	2.45	0.50
2:C:474:ARG:O	2:C:477:VAL:HG22	2.12	0.50
1:A:569:THR:O	1:A:573:MET:HG2	2.12	0.50
3:D:183:VAL:CG1	3:D:210:ILE:HG12	2.42	0.50
2:E:90:ASP:CG	2:E:92:GLU:HG2	2.36	0.49
1:B:114:ARG:CD	1:B:148:TYR:HD2	2.19	0.49
2:E:28:LYS:HD2	2:E:60:HIS:CE1	2.47	0.49
2:C:401:TYR:CE2	2:C:406:ARG:HG2	2.47	0.49
3:H:19:CYS:HB3	3:H:41:TRP:CZ2	2.47	0.49
1:A:196:ARG:HG2	1:A:235:ASP:OD2	2.12	0.49
1:B:404:ASN:HA	1:B:592:GLY:HA3	1.94	0.49
3:H:103:ILE:HD13	3:H:121:TRP:CD1	2.47	0.49
1:A:227:GLU:OE2	1:A:231:ARG:HD2	2.11	0.49
3:D:4:ASN:CG	3:D:8:SER:HB2	2.37	0.49
1:B:66:LEU:HD12	1:B:83:ALA:HB3	1.94	0.49
1:B:79:LYS:HE3	1:B:81:ASP:OD2	2.12	0.49
1:A:238:THR:HG22	1:A:264:LEU:CD2	2.39	0.49
1:A:247:LEU:HD21	1:A:361:ALA:HA	1.95	0.49
1:B:183:VAL:HG13	1:B:190:PRO:HG2	1.95	0.49
3:H:263:ASP:OD1	3:H:287:THR:OG1	2.26	0.49
1:B:70:GLN:NE2	1:B:139:LYS:HE2	2.27	0.49
2:C:142:ILE:O	2:C:172:CYS:HA	2.12	0.49
1:A:14:ILE:HD12	1:A:182:PHE:HZ	1.74	0.49
3:D:32:ILE:HB	3:D:82:VAL:HB	1.94	0.49
3:D:152:ASP:OD1	6:D:504:HOH:O	2.20	0.49
3:D:242:ASP:OD1	3:D:242:ASP:O	2.30	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:288:ASP:OD1	6:B:812:HOH:O	2.20	0.49
3:H:266:TYR:HA	6:H:553:HOH:O	2.13	0.49
1:A:17:SER:HB3	1:A:120:THR:CG2	2.41	0.49
1:B:218:VAL:HG23	1:B:219:GLN:N	2.27	0.48
2:C:203:SER:HB3	2:C:206:THR:OG1	2.13	0.48
2:C:237:THR:O	2:C:241:ASN:HB2	2.14	0.48
1:B:559:PRO:HG2	1:B:562:GLU:CD	2.38	0.48
1:B:286:ASN:O	1:B:290:ILE:HG13	2.12	0.48
1:B:462:ARG:NH1	1:B:544:CYS:SG	2.87	0.48
2:E:476:LEU:HG	2:E:510:TYR:CE1	2.48	0.48
1:A:383:ARG:HA	1:A:386:LYS:HE2	1.95	0.48
2:E:429:CYS:SG	2:E:431:LYS:HG2	2.53	0.48
2:C:267:ASP:O	2:C:268:SER:HB2	2.13	0.48
3:D:21:LEU:HD21	3:D:95:GLN:HB2	1.96	0.48
1:B:281:LEU:HD21	1:B:323:LEU:CD1	2.43	0.48
2:E:228:VAL:HG12	2:E:230:ILE:HG12	1.96	0.48
3:H:237:PHE:HA	3:H:264:TYR:O	2.14	0.48
1:A:107:VAL:O	1:A:111:VAL:HG23	2.13	0.48
1:A:598:TRP:O	1:A:601:THR:HB	2.14	0.48
3:D:6:ILE:HG13	3:D:10:ASP:OD2	2.13	0.48
2:E:65:PHE:CE2	2:E:67:LEU:HB2	2.49	0.47
3:H:4:ASN:OD1	3:H:8:SER:HB2	2.14	0.47
1:A:565:VAL:HG23	1:A:566:ARG:HG3	1.96	0.47
2:E:186:GLN:O	2:E:190:GLU:HG3	2.14	0.47
1:A:234:ARG:O	1:A:237:SER:HB3	2.15	0.47
2:C:90:ASP:CG	2:C:92:GLU:HG2	2.39	0.47
1:B:203:THR:O	1:B:207:VAL:HG13	2.14	0.47
2:C:174:THR:CG2	2:C:177:SER:HB2	2.43	0.47
2:C:271:ILE:HG22	2:C:275:VAL:HG23	1.94	0.47
1:A:479:ASN:HA	1:A:483:GLY:O	2.14	0.47
1:A:511:MET:CB	6:A:804:HOH:O	2.57	0.47
2:E:156:THR:OG1	2:E:172:CYS:HB2	2.13	0.47
3:D:150:GLU:HA	3:D:150:GLU:OE1	2.13	0.47
1:B:10:ASN:O	1:B:12:ASP:N	2.44	0.47
2:E:347:GLU:OE2	2:E:350:ARG:NH1	2.47	0.47
2:C:329:LEU:HD23	2:C:395:LEU:HD12	1.97	0.47
1:A:286:ASN:O	1:A:290:ILE:HG13	2.14	0.47
1:B:281:LEU:HD21	1:B:323:LEU:HD11	1.95	0.47
1:B:563:VAL:HG23	1:B:567:VAL:CG2	2.45	0.47
2:E:295:LYS:HE2	2:E:295:LYS:CA	2.34	0.47
2:C:269:ARG:N	6:C:714:HOH:O	2.48	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:300:ALA:HB3	1:A:306:TRP:CD2	2.50	0.47
1:A:300:ALA:HB3	1:A:306:TRP:CE2	2.49	0.47
3:D:85:ASP:OD2	3:D:87:VAL:HG22	2.14	0.47
1:B:610:SER:O	1:B:613:ARG:HG2	2.14	0.47
2:C:420:GLU:O	2:C:424:ILE:HG13	2.15	0.47
1:A:565:VAL:HG23	1:A:566:ARG:N	2.30	0.47
3:D:2:ASN:OD1	3:D:3:SER:N	2.48	0.47
1:A:560:TYR:CE1	1:A:606:HIS:ND1	2.82	0.47
1:A:238:THR:CG2	1:A:264:LEU:HD22	2.42	0.47
1:B:273:PHE:HB2	1:B:290:ILE:HD13	1.97	0.46
2:E:57:PHE:C	2:E:58:GLN:HG3	2.40	0.46
2:C:300:MET:HE2	2:C:348:LEU:HA	1.94	0.46
1:A:409:SER:O	1:A:412:VAL:O	2.33	0.46
3:D:12:LEU:HD22	3:D:16:LEU:HB3	1.97	0.46
3:D:331:PHE:CZ	3:D:333:ASP:HB2	2.51	0.46
1:B:70:GLN:HE21	1:B:139:LYS:NZ	2.12	0.46
1:B:480:GLU:OE2	2:E:432:ARG:NH2	2.48	0.46
2:E:207:ARG:HB2	2:E:245:ASP:HB2	1.97	0.46
2:C:86:LEU:HD11	2:C:113:PHE:CE1	2.50	0.46
3:H:214:LYS:HG3	3:H:237:PHE:HB3	1.97	0.46
1:B:89:PHE:CD2	1:B:127:ALA:HB1	2.51	0.46
2:E:371:LYS:HA	2:E:371:LYS:HD2	1.33	0.46
2:E:536:SER:HB3	6:E:702:HOH:O	2.15	0.46
2:C:301:LYS:HE2	2:C:377:SER:OG	2.16	0.46
3:H:13:PRO:HD2	3:H:16:LEU:HD12	1.98	0.46
1:B:16:ARG:HG2	1:B:16:ARG:NH1	2.30	0.46
2:C:2:GLU:OE1	1:A:359:GLN:HG2	2.16	0.46
3:D:64:LEU:HB3	3:D:80:LEU:HD11	1.97	0.46
2:E:163:ILE:O	2:E:163:ILE:HG13	2.14	0.46
1:B:376:ILE:HA	1:B:379:ILE:HG12	1.98	0.46
3:H:254:LEU:HB3	3:H:257:LEU:HB2	1.98	0.46
1:A:511:MET:CA	6:A:804:HOH:O	2.56	0.46
2:E:64:LYS:HD2	2:E:64:LYS:HA	1.78	0.46
3:H:290:ASN:HB2	6:H:606:HOH:O	2.14	0.46
1:A:15:THR:HG22	1:A:324:VAL:CG1	2.41	0.46
1:A:48:SER:HB2	1:A:51:ASP:OD2	2.16	0.46
1:A:478:LYS:NZ	4:A:701:APR:O2A	2.48	0.46
1:A:238:THR:CG2	1:A:264:LEU:CD2	2.93	0.46
2:E:450:ASP:O	2:E:454:VAL:HG13	2.16	0.46
3:H:124:ASN:HA	3:H:125:PRO:HD3	1.83	0.46
3:D:30:GLN:HG2	3:D:32:ILE:HD13	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:273:PHE:CD1	1:B:290:ILE:HD13	2.51	0.46
2:E:223:PHE:CG	2:E:270:LEU:HD22	2.50	0.46
2:C:311:LYS:HZ3	2:C:495:GLU:CD	2.23	0.46
3:D:371:LYS:HG2	3:D:391:LEU:HD22	1.98	0.46
1:B:206:HIS:CE1	1:B:221:SER:HB3	2.51	0.45
2:C:289:ARG:NH1	6:C:718:HOH:O	2.49	0.45
2:C:424:ILE:HG21	1:A:482:THR:HA	1.97	0.45
1:B:510:GLY:HA2	6:B:883:HOH:O	2.15	0.45
2:E:174:THR:HG21	2:E:177:SER:HB2	1.98	0.45
3:H:359:LYS:HE2	3:H:360:ASP:OD2	2.16	0.45
1:B:401:ALA:O	1:B:403:LYS:HG3	2.16	0.45
3:D:128:PRO:HA	6:D:556:HOH:O	2.16	0.45
1:B:310:PRO:O	1:B:313:SER:HB3	2.16	0.45
1:B:574:LEU:HD23	1:B:612:LEU:HD11	1.99	0.45
3:H:64:LEU:CD2	3:H:82:VAL:HG22	2.47	0.45
1:A:247:LEU:HG	1:A:364:GLU:HG2	1.98	0.45
1:A:556:LYS:HE3	1:A:594:THR:HG23	1.99	0.45
3:D:217:ILE:HD11	3:D:235:LEU:HD21	1.98	0.45
1:B:277:THR:HG21	1:B:348:LEU:HD12	1.99	0.45
2:E:314:CYS:HA	2:E:317:VAL:HG22	1.98	0.45
2:E:376:PHE:HB3	5:E:601:ATP:C6	2.51	0.45
2:E:300:MET:HA	2:E:300:MET:CE	2.40	0.45
2:E:519:SER:HB3	2:E:522:THR:HG23	1.97	0.45
1:A:75:ARG:HB3	1:A:82:VAL:HA	1.98	0.45
3:D:377:GLU:OE1	3:D:401:THR:OG1	2.27	0.45
2:E:393:TYR:CE1	2:E:398:ARG:HB2	2.52	0.45
2:C:465:ARG:HB2	2:C:468:VAL:HG12	1.99	0.45
1:B:374:LYS:O	1:B:377:GLN:HG2	2.16	0.45
2:C:346:SER:OG	2:C:350:ARG:NH2	2.50	0.45
2:C:196:SER:OG	1:A:253:ALA:HB1	2.17	0.45
2:C:371:LYS:HB2	2:C:371:LYS:HE2	1.52	0.45
2:C:485:GLU:CG	2:C:489:LYS:HE2	2.47	0.45
1:B:486:MET:HE2	1:B:541:GLY:CA	2.47	0.45
3:H:250:VAL:O	3:H:253:THR:HG23	2.17	0.45
2:C:437:LEU:HD11	2:C:440:PHE:CZ	2.52	0.44
3:H:38:ILE:HD11	3:H:50:MET:HE2	1.99	0.44
3:D:151:MET:CG	3:D:152:ASP:N	2.80	0.44
1:B:333:ASN:HD21	1:B:344:THR:CG2	2.29	0.44
2:E:495:GLU:OE2	6:E:707:HOH:O	2.21	0.44
3:H:43:ALA:HB1	3:H:181:LYS:CD	2.48	0.44
3:H:43:ALA:HB1	3:H:181:LYS:HD2	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:268:ARG:O	6:A:809:HOH:O	2.20	0.44
2:C:300:MET:HE2	2:C:351:PHE:CB	2.46	0.44
3:H:287:THR:HA	3:H:311:SER:O	2.17	0.44
2:C:84:THR:OG1	2:C:110:THR:HG23	2.18	0.44
1:A:22:LYS:NZ	1:A:321:GLU:OE1	2.46	0.44
1:A:46:SER:HB3	1:A:51:ASP:OD2	2.16	0.44
3:D:67:ILE:HG21	3:D:81:LEU:HD12	1.98	0.44
1:B:520:LYS:HB3	1:B:573:MET:HE2	1.99	0.44
2:E:8:LYS:HD2	2:E:8:LYS:O	2.18	0.44
2:E:329:LEU:HD21	2:E:392:GLU:HG3	1.99	0.44
2:C:75:ILE:O	2:C:76:CYS:HB2	2.17	0.44
2:C:186:GLN:O	2:C:190:GLU:HG3	2.17	0.44
3:H:22:ASP:OD1	3:H:108:ARG:NH2	2.50	0.44
2:E:16:VAL:O	2:E:19:SER:CB	2.56	0.44
1:B:68:ARG:HH22	1:B:514:GLU:CD	2.26	0.44
1:B:140:TYR:O	1:B:143:ARG:O	2.36	0.44
2:E:142:ILE:O	2:E:172:CYS:HA	2.18	0.44
2:C:333:SER:O	3:D:214:LYS:HE3	2.17	0.44
2:E:28:LYS:HD3	2:E:28:LYS:HA	1.72	0.44
2:C:107:SER:N	2:C:182:ASP:OD1	2.46	0.44
2:C:296:LYS:HD2	2:C:296:LYS:HA	1.81	0.44
3:D:306:GLU:HG2	3:D:330:ARG:HH11	1.83	0.44
2:E:75:ILE:CD1	2:E:178:PRO:HG3	2.48	0.44
2:E:178:PRO:HG2	6:E:718:HOH:O	2.18	0.44
2:E:220:LEU:HD12	2:E:220:LEU:HA	1.80	0.44
2:C:528:ARG:NH2	6:C:720:HOH:O	2.50	0.44
3:H:240:VAL:HG22	3:H:267:ASN:OD1	2.18	0.44
2:E:371:LYS:HG3	5:E:601:ATP:O2G	2.16	0.43
2:C:343:HIS:CD2	2:C:343:HIS:C	2.96	0.43
2:C:430:LYS:HA	2:C:490:ARG:NH1	2.33	0.43
3:H:219:LEU:HA	3:H:219:LEU:HD12	1.79	0.43
1:A:237:SER:HB2	1:A:295:PHE:CE1	2.53	0.43
3:D:84:GLN:HA	6:D:505:HOH:O	2.16	0.43
3:D:178:LYS:HD3	3:D:178:LYS:HA	1.75	0.43
3:D:272:PRO:HD2	3:D:275:ILE:HD12	2.01	0.43
1:B:165:ILE:HG13	6:B:807:HOH:O	2.18	0.43
1:B:61:PHE:CE1	1:B:265:SER:HA	2.54	0.43
1:B:300:ALA:HB3	1:B:306:TRP:CE2	2.54	0.43
1:B:303:GLU:HA	1:B:306:TRP:HD1	1.84	0.43
2:C:179:LEU:HD23	2:C:179:LEU:HA	1.68	0.43
3:D:72:TYR:HE1	3:D:80:LEU:HD22	1.84	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:100:SER:O	3:D:106:ARG:NH1	2.52	0.43
3:D:309:ARG:O	3:D:310:LEU:HD23	2.17	0.43
3:H:144:PHE:CE2	3:H:146:SER:HA	2.53	0.43
1:B:521:VAL:HG23	1:B:573:MET:HE1	2.01	0.43
2:E:100:SER:OG	2:E:101:GLU:N	2.51	0.43
2:C:85:LEU:C	2:C:85:LEU:HD23	2.43	0.43
2:C:234:VAL:CG1	2:C:282:ARG:NH2	2.82	0.43
1:B:435:VAL:HG12	1:B:439:MET:HE2	2.00	0.43
2:E:300:MET:HE2	2:E:300:MET:CA	2.40	0.43
2:E:452:LEU:HD21	2:E:506:TRP:HA	2.00	0.43
2:C:207:ARG:H	2:C:246:SER:HB2	1.84	0.43
2:C:309:TRP:CE2	1:A:419:PHE:HB2	2.52	0.43
1:B:216:SER:OG	1:B:218:VAL:HG13	2.19	0.43
3:H:382:GLU:O	3:H:385:ALA:HB3	2.19	0.43
1:A:473:TYR:HA	1:A:478:LYS:HD2	2.00	0.43
1:B:571:GLU:OE2	1:B:606:HIS:NE2	2.37	0.43
2:C:77:ARG:C	2:C:79:SER:H	2.26	0.43
2:C:507:TRP:CH2	2:C:522:THR:HG22	2.49	0.43
1:B:70:GLN:HE21	1:B:139:LYS:HE3	1.79	0.43
1:B:353:ARG:HH22	2:E:266:ALA:N	2.17	0.43
2:E:107:SER:N	2:E:182:ASP:OD1	2.44	0.43
2:E:348:LEU:HD13	2:E:385:ILE:HD13	2.00	0.43
2:C:181:GLY:HA3	2:C:185:LEU:HD23	2.01	0.43
2:C:253:GLN:O	2:C:257:ARG:HG2	2.19	0.43
3:D:6:ILE:HG23	3:D:7:GLN:N	2.34	0.43
1:B:452:ILE:O	1:B:456:LYS:HG3	2.19	0.42
1:B:507:LYS:N	1:B:508:PRO:CD	2.81	0.42
2:E:328:GLN:HG2	2:E:337:ASP:CB	2.49	0.42
2:C:432:ARG:O	2:C:434:LEU:HD13	2.19	0.42
3:H:224:LYS:HD2	3:H:247:LEU:HD23	2.01	0.42
1:A:120:THR:HA	1:A:154:VAL:O	2.19	0.42
1:A:507:LYS:N	1:A:508:PRO:CD	2.81	0.42
3:D:309:ARG:CD	3:D:333:ASP:OD2	2.67	0.42
1:B:511:MET:HB3	1:B:511:MET:HE2	1.53	0.42
1:A:548:PHE:HD1	1:A:570:LEU:HD11	1.84	0.42
1:A:300:ALA:HB1	1:A:305:GLU:HB3	2.01	0.42
1:A:327:MET:HE3	1:A:327:MET:HB2	1.76	0.42
1:B:58:LYS:HE2	1:B:58:LYS:HA	2.01	0.42
1:A:258:LEU:O	1:A:259:SER:C	2.62	0.42
3:D:137:SER:HA	3:D:160:VAL:O	2.19	0.42
3:D:151:MET:HG2	3:D:152:ASP:N	2.34	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:167:ASN:OD1	3:D:194:LYS:HE2	2.19	0.42
1:B:173:GLU:O	1:B:174:LYS:HB2	2.20	0.42
2:C:57:PHE:CE1	2:C:123:LEU:HD11	2.55	0.42
2:C:528:ARG:NH2	6:C:705:HOH:O	2.50	0.42
3:H:28:GLU:HG3	3:H:86:ASN:CG	2.45	0.42
3:D:308:LEU:HD23	3:D:309:ARG:N	2.34	0.42
3:D:392:LYS:N	3:D:393:PRO:CD	2.82	0.42
2:E:204:ALA:CB	2:E:223:PHE:CE2	3.03	0.42
3:D:359:LYS:O	3:D:359:LYS:HG3	2.18	0.42
3:D:397:ASN:OD1	3:D:397:ASN:C	2.63	0.42
1:B:137:LEU:HD13	1:B:175:TRP:CD2	2.54	0.42
2:E:322:TYR:CE1	2:E:391:ALA:HB2	2.54	0.42
3:H:163:ILE:O	3:H:187:ASN:HA	2.20	0.42
1:A:364:GLU:HG3	1:A:368:ARG:NH1	2.35	0.42
3:D:348:GLY:H	3:D:369:SER:HB3	1.84	0.42
1:B:366:LYS:HD3	1:B:366:LYS:HA	1.62	0.42
2:C:211:ASP:OD1	2:C:211:ASP:C	2.63	0.42
2:C:359:VAL:HG21	2:C:370:LEU:HD21	2.00	0.42
2:C:370:LEU:HA	2:C:370:LEU:HD23	1.79	0.42
2:C:527:THR:OG1	2:C:529:LYS:HE2	2.19	0.42
3:H:391:LEU:HD12	3:H:391:LEU:HA	1.83	0.42
1:A:545:GLY:HA3	1:A:582:GLU:HB3	2.02	0.42
3:D:355:LYS:HA	3:D:377:GLU:O	2.20	0.42
1:B:411:LYS:HG2	1:B:475:ARG:HB3	2.01	0.42
1:A:342:GLU:HA	1:A:355:ARG:HD2	2.01	0.42
1:A:560:TYR:CZ	1:A:606:HIS:ND1	2.87	0.42
3:H:298:ALA:O	3:H:301:ASP:HB2	2.20	0.42
1:A:333:ASN:ND2	1:A:344:THR:HG21	2.34	0.42
1:B:598:TRP:O	1:B:601:THR:HB	2.20	0.41
1:B:26:LEU:H	1:B:26:LEU:HD12	1.85	0.41
1:B:309:ILE:O	1:B:310:PRO:C	2.62	0.41
3:H:279:VAL:HB	3:H:303:ARG:HE	1.85	0.41
1:A:203:THR:HG23	1:A:228:PHE:CD1	2.47	0.41
1:A:245:CYS:HB3	1:A:255:LEU:HD22	2.02	0.41
1:B:528:LEU:HB2	1:B:533:ILE:CG1	2.50	0.41
2:C:524:PHE:CZ	2:C:530:TYR:HA	2.55	0.41
3:H:67:ILE:CG2	3:H:81:LEU:HD13	2.48	0.41
3:D:12:LEU:HD11	3:D:61:LEU:HD13	2.02	0.41
2:C:468:VAL:O	2:C:471:VAL:HG22	2.20	0.41
1:A:559:PRO:O	1:A:560:TYR:C	2.63	0.41
1:B:212:ASP:O	1:B:215:LYS:HB3	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:454:VAL:CG2	2:E:476:LEU:HD13	2.51	0.41
2:C:245:ASP:OD1	2:C:245:ASP:N	2.51	0.41
1:A:25:TYR:CZ	1:A:45:PRO:HG3	2.55	0.41
1:B:385:LEU:HD23	1:B:385:LEU:HA	1.89	0.41
3:H:148:TRP:CG	3:H:171:PRO:HB3	2.56	0.41
1:A:152:ARG:HG2	1:A:152:ARG:HH11	1.86	0.41
1:A:189:VAL:HG21	1:A:317:HIS:CE1	2.56	0.41
2:C:28:LYS:HD3	2:C:28:LYS:HA	1.71	0.41
3:H:258:GLN:C	3:H:281:LEU:HD12	2.45	0.41
3:D:250:VAL:O	3:D:253:THR:HG23	2.20	0.41
3:D:287:THR:HA	3:D:311:SER:O	2.20	0.41
1:B:237:SER:HB3	1:B:295:PHE:CE1	2.56	0.41
1:B:551:GLU:O	1:B:555:LEU:HG	2.20	0.41
2:E:15:LEU:HD23	2:E:15:LEU:HA	1.91	0.41
2:E:84:THR:O	2:E:107:SER:HA	2.21	0.41
1:B:452:ILE:CD1	1:B:456:LYS:HE2	2.49	0.41
1:B:548:PHE:HD1	1:B:570:LEU:HD11	1.86	0.41
2:C:55:LEU:C	2:C:55:LEU:HD23	2.47	0.41
2:C:207:ARG:H	2:C:246:SER:CB	2.34	0.41
1:A:65:LYS:HD3	1:A:82:VAL:HG22	2.02	0.41
3:D:227:LEU:HD13	3:D:230:LEU:HD22	2.02	0.41
2:E:75:ILE:CD1	2:E:147:LEU:HD13	2.51	0.40
2:E:325:PHE:CZ	2:E:341:LYS:HG3	2.56	0.40
2:C:110:THR:N	2:C:111:PRO:CD	2.84	0.40
2:C:220:LEU:HD12	2:C:220:LEU:HA	1.85	0.40
3:H:390:ILE:O	3:H:393:PRO:HD2	2.21	0.40
1:A:120:THR:HG22	1:A:121:GLY:N	2.36	0.40
2:E:121:THR:O	2:E:122:SER:HB3	2.21	0.40
2:E:224:ASP:OD2	2:E:257:ARG:HD3	2.22	0.40
2:E:359:VAL:HG11	2:E:370:LEU:CD2	2.51	0.40
2:C:145:ALA:O	2:C:146:ALA:C	2.65	0.40
2:C:321:TYR:OH	2:C:384:MET:O	2.26	0.40
1:A:556:LYS:HA	1:A:598:TRP:NE1	2.37	0.40
2:C:271:ILE:HG22	2:C:275:VAL:CG2	2.50	0.40
1:A:537:LEU:HD23	1:A:566:ARG:HG2	2.03	0.40
3:H:331:PHE:CD1	3:H:355:LYS:HD2	2.57	0.40
3:H:409:LEU:O	3:H:412:LEU:HB2	2.21	0.40
1:A:215:LYS:O	1:A:215:LYS:CG	2.69	0.40
3:D:214:LYS:HG3	3:D:237:PHE:HB3	2.03	0.40
2:E:429:CYS:HB3	2:E:432:ARG:HG2	2.03	0.40
2:C:25:SER:HB2	2:C:143:THR:HG21	2.04	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:C:483:VAL:O	2:C:486:ILE:HG22	2.22	0.40
3:H:97:LEU:HD23	3:H:97:LEU:HA	1.94	0.40
3:D:12:LEU:HD22	3:D:16:LEU:CB	2.52	0.40

All (3) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:C:720:HOH:O	6:H:556:HOH:O[1_556]	1.97	0.23
6:B:920:HOH:O	6:H:520:HOH:O[2_645]	2.05	0.15
6:E:827:HOH:O	6:D:598:HOH:O[1_654]	2.17	0.03

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	616/617 (100%)	599 (97%)	17 (3%)	0	100	100
1	B	615/617 (100%)	603 (98%)	12 (2%)	0	100	100
2	C	521/536 (97%)	504 (97%)	17 (3%)	0	100	100
2	E	521/536 (97%)	510 (98%)	11 (2%)	0	100	100
3	D	407/415 (98%)	396 (97%)	10 (2%)	1 (0%)	43	63
3	H	408/415 (98%)	399 (98%)	9 (2%)	0	100	100
All	All	3088/3136 (98%)	3011 (98%)	76 (2%)	1 (0%)	100	100

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	D	124	ASN

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	543/542 (100%)	538 (99%)	5 (1%)	70	87
1	B	542/542 (100%)	538 (99%)	4 (1%)	76	89
2	C	486/495 (98%)	475 (98%)	11 (2%)	44	72
2	E	486/495 (98%)	478 (98%)	8 (2%)	55	79
3	D	385/389 (99%)	379 (98%)	6 (2%)	55	79
3	H	386/389 (99%)	382 (99%)	4 (1%)	68	86
All	All	2828/2852 (99%)	2790 (99%)	38 (1%)	61	82

All (38) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	307	SER
1	B	308	LEU
1	B	315	ARG
1	B	594	THR
2	E	32	ILE
2	E	193	VAL
2	E	248	LEU
2	E	315	LYS
2	E	316	GLU
2	E	371	LYS
2	E	466	ASP
2	E	471	VAL
2	C	32	ILE
2	C	46	VAL
2	C	84	THR
2	C	193	VAL
2	C	248	LEU
2	C	257	ARG
2	C	295	LYS
2	C	471	VAL
2	C	474	ARG
2	C	477	VAL

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Mol	Chain	Res	Type
2	C	513	ILE
3	H	38	ILE
3	H	242	ASP
3	H	368	ASP
3	H	391	LEU
1	A	27	THR
1	A	70	GLN
1	A	307	SER
1	A	309	ILE
1	A	530	LEU
3	D	37	ILE
3	D	38	ILE
3	D	45	TYR
3	D	109	LEU
3	D	368	ASP
3	D	396	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (42) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	67	ASN
1	B	70	GLN
1	B	144	ASN
1	B	146	ASN
1	B	292	GLN
1	B	299	GLN
1	B	325	GLN
1	B	356	GLN
1	B	400	GLN
1	B	529	GLN
2	E	253	GLN
2	E	256	ASN
2	E	456	ASN
2	E	517	ASN
2	C	33	HIS
2	C	60	HIS
2	C	132	GLN
2	C	191	ASN
2	C	256	ASN
2	C	343	HIS
2	C	457	GLN
3	H	51	ASN

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Mol	Chain	Res	Type
3	H	86	ASN
3	H	95	GLN
3	H	132	ASN
3	H	155	ASN
3	H	258	GLN
3	H	277	GLN
1	A	206	HIS
1	A	219	GLN
1	A	292	GLN
1	A	299	GLN
1	A	356	GLN
1	A	476	HIS
1	A	539	ASN
3	D	54	GLN
3	D	95	GLN
3	D	155	ASN
3	D	239	HIS
3	D	255	GLN
3	D	342	ASN
3	D	372	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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

4 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond

length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
4	APR	B	701	5	38,38,39	1.31	6 (15%)	53,58,60	2.11	17 (32%)
5	ATP	E	601	4	32,33,33	1.22	5 (15%)	48,52,52	2.17	19 (39%)
5	ATP	C	601	4	32,33,33	1.22	4 (12%)	48,52,52	2.08	20 (41%)
4	APR	A	701	5	38,38,39	1.24	6 (15%)	53,58,60	2.06	17 (32%)

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
4	APR	B	701	5	-	1/22/51/54	0/4/4/4
5	ATP	E	601	4	-	6/22/38/38	0/3/3/3
5	ATP	C	601	4	-	2/22/38/38	0/3/3/3
4	APR	A	701	5	-	2/22/51/54	0/4/4/4

All (21) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	701	APR	C5-C4	4.32	1.46	1.39
5	C	601	ATP	C5-C4	3.63	1.45	1.39
4	A	701	APR	C5-C4	3.59	1.45	1.39
5	E	601	ATP	C5-C4	3.49	1.45	1.39
4	A	701	APR	PA-O3A	3.11	1.62	1.59
4	A	701	APR	C5-N7	-3.00	1.33	1.39
4	B	701	APR	PA-O3A	2.97	1.62	1.59
4	B	701	APR	C5-N7	-2.81	1.34	1.39
5	C	601	ATP	C5-N7	-2.79	1.34	1.39
5	C	601	ATP	C8-N7	2.74	1.37	1.31
4	B	701	APR	PB-O3A	2.60	1.62	1.59
5	C	601	ATP	C4-N9	-2.35	1.32	1.37
5	E	601	ATP	C8-N7	2.32	1.36	1.31
4	B	701	APR	C5-C6	2.30	1.47	1.41
4	B	701	APR	C8-N7	2.26	1.36	1.31
5	E	601	ATP	C5-C6	2.23	1.47	1.41
4	A	701	APR	C4-N9	-2.22	1.33	1.37
5	E	601	ATP	PA-O3A	-2.15	1.57	1.59

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	E	601	ATP	C4-N9	-2.09	1.33	1.37
4	A	701	APR	C5-C6	2.07	1.46	1.41
4	A	701	APR	PB-O3A	2.06	1.61	1.59

All (73) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	701	APR	C5-C4-N3	-5.85	118.66	126.72
4	A	701	APR	C5-C4-N3	-5.30	119.42	126.72
4	B	701	APR	N3-C4-N9	5.10	135.83	127.17
4	B	701	APR	O4D-C4D-C3D	5.01	109.26	104.63
5	E	601	ATP	C5-C4-N3	-4.94	119.92	126.72
4	A	701	APR	N3-C4-N9	4.79	135.32	127.17
5	C	601	ATP	C5-C4-N3	-4.71	120.23	126.72
5	E	601	ATP	N3-C4-N9	4.44	134.71	127.17
5	E	601	ATP	C4-N9-C8	4.36	110.31	105.74
5	C	601	ATP	N3-C4-N9	4.20	134.31	127.17
4	A	701	APR	C2'-C1'-N9	-3.97	103.45	113.30
4	B	701	APR	C2-N3-C4	3.95	121.48	111.83
5	E	601	ATP	O3B-PG-O1G	-3.93	90.38	111.04
4	A	701	APR	O4'-C1'-N9	3.86	115.51	108.09
4	A	701	APR	N3-C2-N1	-3.84	122.78	128.58
4	B	701	APR	O4'-C1'-N9	3.83	115.44	108.09
5	C	601	ATP	C4-N9-C8	3.73	109.65	105.74
4	B	701	APR	N3-C2-N1	-3.71	122.96	128.58
4	A	701	APR	C2-N3-C4	3.71	120.88	111.83
5	E	601	ATP	N3-C2-N1	-3.68	123.02	128.58
5	C	601	ATP	N3-C2-N1	-3.67	123.02	128.58
5	E	601	ATP	C2-N3-C4	3.66	120.78	111.83
5	C	601	ATP	O4'-C1'-N9	3.65	115.09	108.09
4	B	701	APR	C2'-C1'-N9	-3.53	104.52	113.30
4	A	701	APR	C4-N9-C8	3.47	109.38	105.74
4	A	701	APR	O4D-C4D-C3D	3.30	107.68	104.63
5	E	601	ATP	O2B-PB-O3B	3.30	116.18	107.27
5	C	601	ATP	C2-N3-C4	3.27	119.82	111.83
5	E	601	ATP	N9-C8-N7	-3.26	109.30	113.94
4	B	701	APR	O3D-C3D-C4D	3.07	119.91	111.08
4	B	701	APR	C4-N9-C8	2.90	108.78	105.74
5	C	601	ATP	C2'-C1'-N9	-2.89	106.12	113.30
5	C	601	ATP	C4-N9-C1'	-2.81	120.06	126.63
5	E	601	ATP	C4-N9-C1'	-2.73	120.26	126.63
5	E	601	ATP	C4-C5-N7	-2.70	107.49	110.58

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	C	601	ATP	N9-C8-N7	-2.66	110.16	113.94
5	E	601	ATP	O4'-C1'-N9	2.64	113.16	108.09
5	C	601	ATP	N6-C6-N1	2.63	124.24	118.38
5	C	601	ATP	C5-C6-N6	-2.60	116.84	123.29
5	E	601	ATP	C5-N7-C8	2.60	107.54	103.45
5	C	601	ATP	O2A-PA-O3A	2.57	114.22	107.27
4	A	701	APR	C4-C5-N7	-2.55	107.66	110.58
4	A	701	APR	N9-C8-N7	-2.53	110.34	113.94
5	E	601	ATP	C5-C6-N6	-2.49	117.12	123.29
4	A	701	APR	C5-N7-C8	2.48	107.34	103.45
4	A	701	APR	O2A-PA-O1A	2.43	123.75	112.44
5	E	601	ATP	O3G-PG-O1G	2.43	120.29	110.83
4	A	701	APR	O3A-PA-O1A	-2.39	103.52	110.70
4	A	701	APR	O3D-C3D-C2D	-2.39	106.31	111.97
4	A	701	APR	C3'-C2'-C1'	2.39	105.98	101.46
4	B	701	APR	C4-C5-N7	-2.39	107.85	110.58
4	B	701	APR	O3A-PA-O1A	-2.37	103.59	110.70
5	E	601	ATP	C6-C5-N7	2.32	136.56	132.09
4	A	701	APR	O3D-C3D-C4D	2.31	117.72	111.08
4	B	701	APR	O2A-PA-O3A	2.31	113.52	107.27
5	C	601	ATP	O2G-PG-O3B	-2.27	97.02	104.64
5	E	601	ATP	N6-C6-N1	2.21	123.29	118.38
5	C	601	ATP	O3B-PG-O1G	-2.20	99.48	111.04
4	B	701	APR	C5-N7-C8	2.17	106.86	103.45
5	C	601	ATP	C4-C5-N7	-2.14	108.13	110.58
4	B	701	APR	C3'-C2'-C1'	2.12	105.46	101.46
5	C	601	ATP	O3G-PG-O2G	2.11	115.72	107.80
5	C	601	ATP	C2'-C3'-C4'	2.09	106.65	102.61
5	C	601	ATP	O3'-C3'-C2'	-2.09	105.12	111.82
4	B	701	APR	O3D-C3D-C2D	-2.09	107.03	111.97
5	C	601	ATP	O3'-C3'-C4'	-2.08	105.10	111.08
5	E	601	ATP	O2'-C2'-C1'	2.08	117.28	110.10
4	B	701	APR	N9-C8-N7	-2.08	110.99	113.94
4	B	701	APR	O2B-PB-O1B	2.05	121.97	112.44
5	E	601	ATP	O2A-PA-O1A	2.03	121.90	112.44
5	E	601	ATP	C2'-C1'-N9	-2.03	108.27	113.30
5	C	601	ATP	C5-N7-C8	2.01	106.61	103.45
4	A	701	APR	O4D-C1D-C2D	-2.00	102.31	105.76

There are no chirality outliers.

All (11) torsion outliers are listed below:

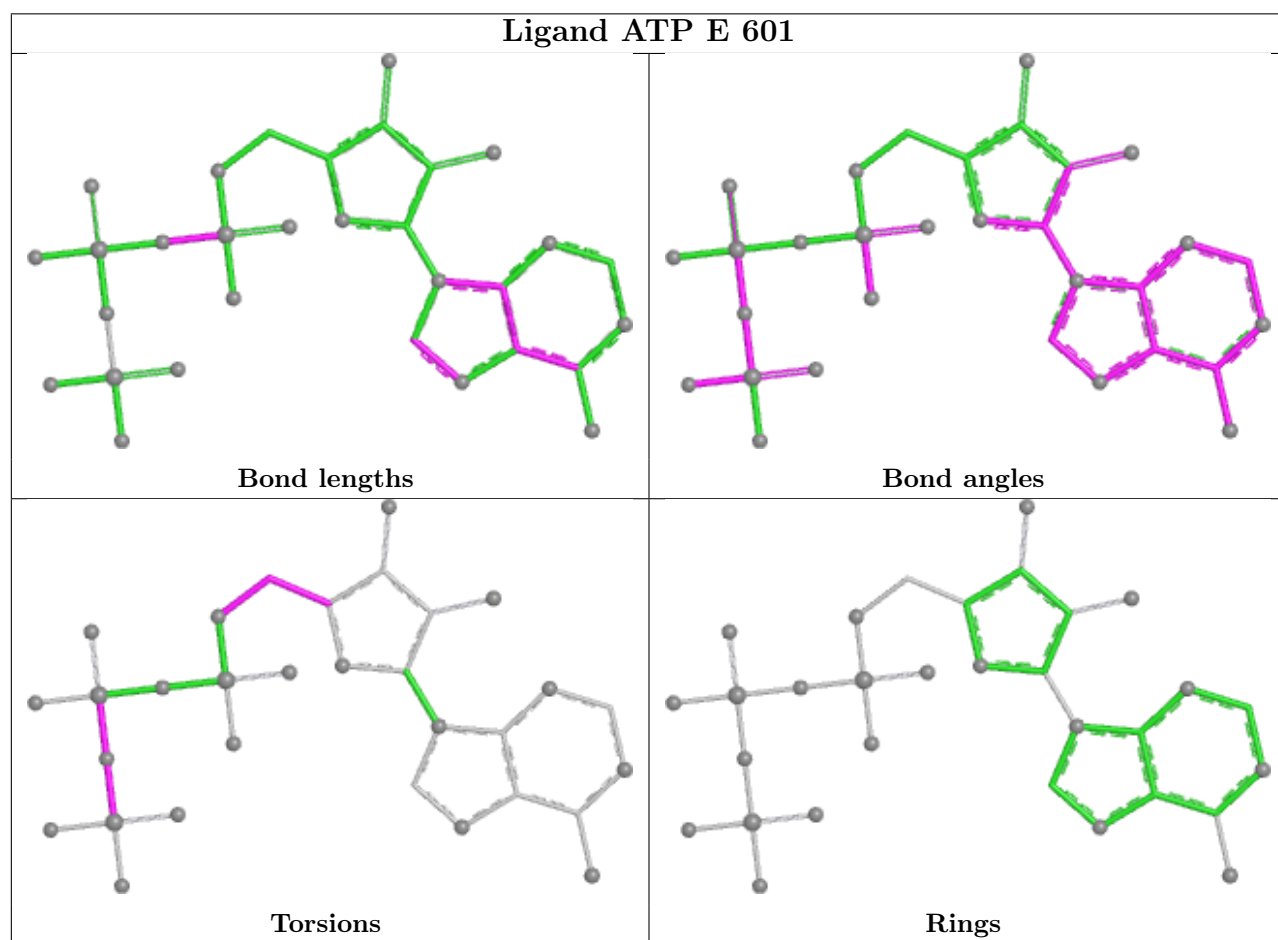
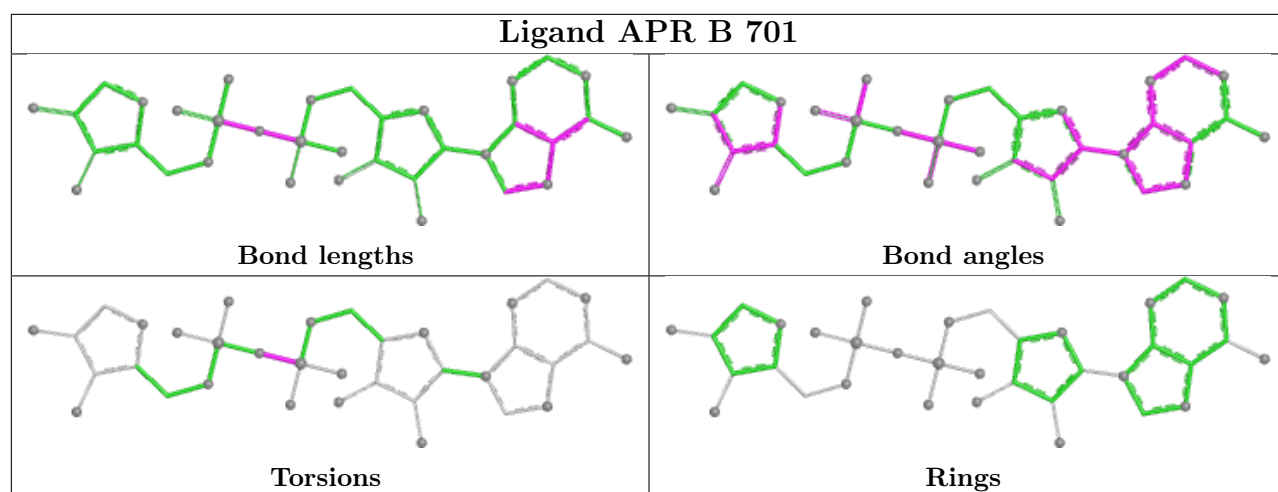
Mol	Chain	Res	Type	Atoms
4	B	701	APR	PB-O3A-PA-O5'
4	A	701	APR	PB-O3A-PA-O5'
5	E	601	ATP	PB-O3B-PG-O2G
5	E	601	ATP	C4'-C5'-O5'-PA
5	C	601	ATP	C4'-C5'-O5'-PA
4	A	701	APR	PA-O3A-PB-O5D
5	E	601	ATP	PG-O3B-PB-O1B
5	E	601	ATP	PG-O3B-PB-O2B
5	E	601	ATP	PB-O3B-PG-O1G
5	E	601	ATP	O4'-C4'-C5'-O5'
5	C	601	ATP	O4'-C4'-C5'-O5'

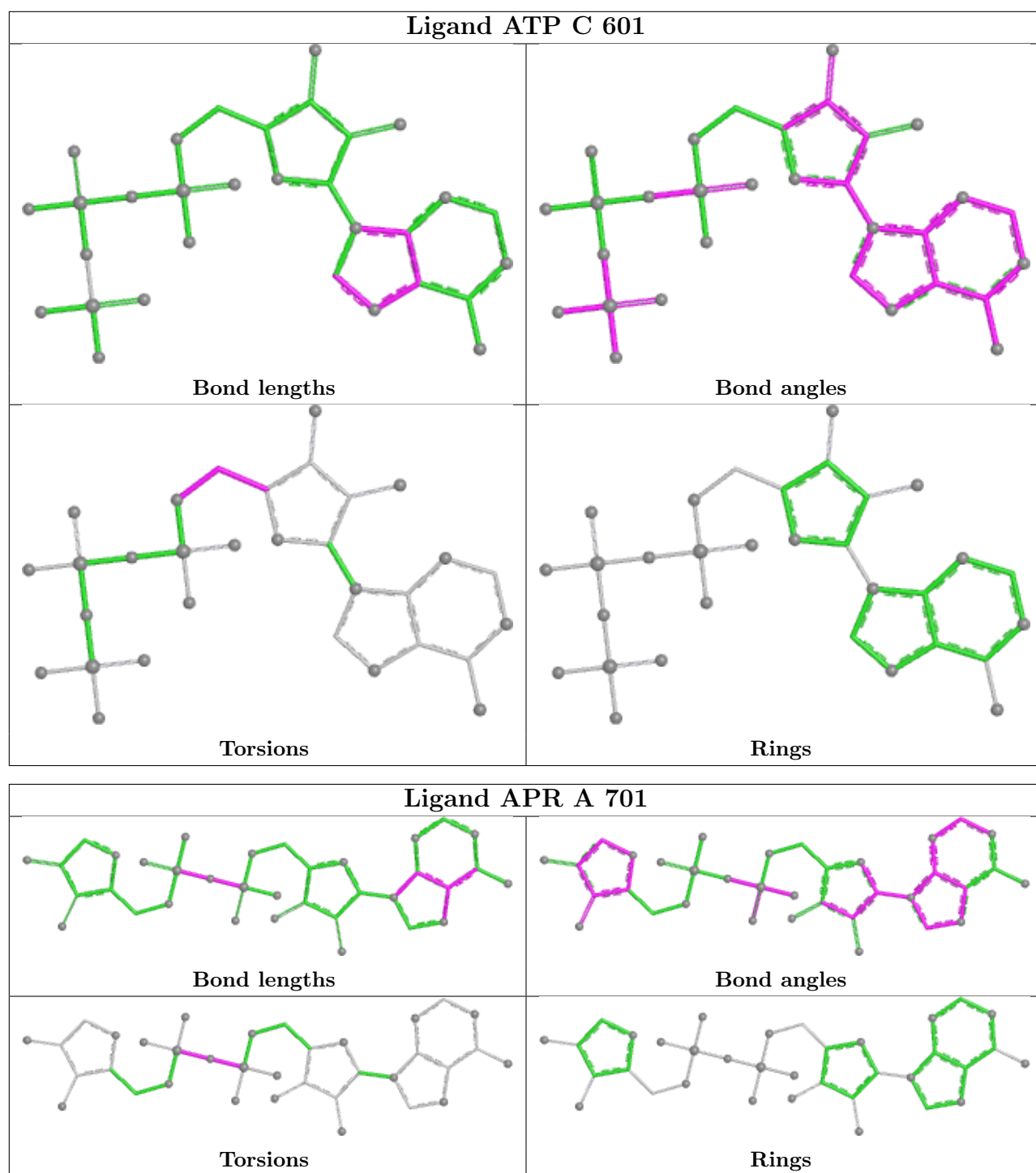
There are no ring outliers.

4 monomers are involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	701	APR	2	0
5	E	601	ATP	3	0
5	C	601	ATP	1	0
4	A	701	APR	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 [i](#)

There are no chain breaks in this entry.

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

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

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	617/617 (100%)	-1.27	0 100 100	37, 54, 86, 106	1 (0%)
1	B	617/617 (100%)	-1.32	0 100 100	35, 54, 81, 103	0
2	C	527/536 (98%)	-1.23	0 100 100	35, 57, 88, 114	0
2	E	527/536 (98%)	-1.26	0 100 100	32, 55, 88, 114	0
3	D	411/415 (99%)	-1.31	0 100 100	32, 47, 83, 115	0
3	H	412/415 (99%)	-1.28	0 100 100	34, 47, 81, 113	0
All	All	3111/3136 (99%)	-1.28	0 100 100	32, 53, 86, 115	1 (0%)

There are no RSRZ outliers to report.

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 oligosaccharides 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
5	ATP	E	601	31/31	0.99	0.04	31,38,54,62	0

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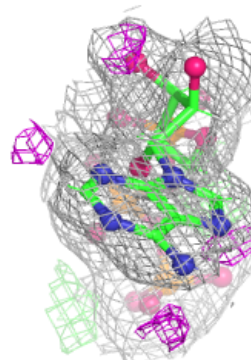
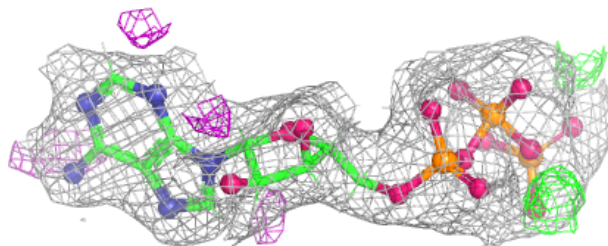
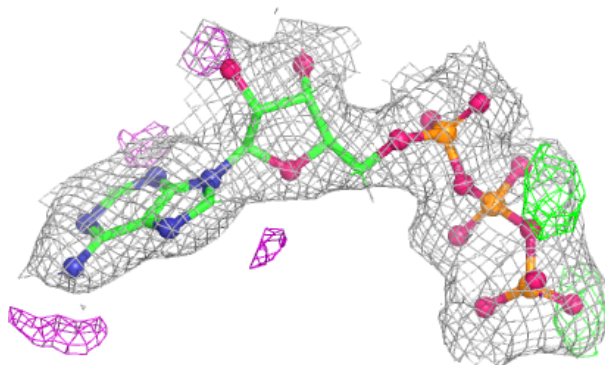
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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
5	ATP	C	601	31/31	0.99	0.04	34,42,57,60	0
4	APR	B	701	35/36	1.00	0.03	28,38,45,47	0
4	APR	A	701	35/36	1.00	0.03	33,40,49,53	0

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.

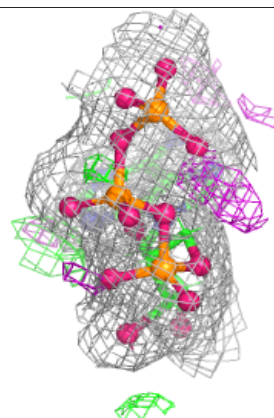
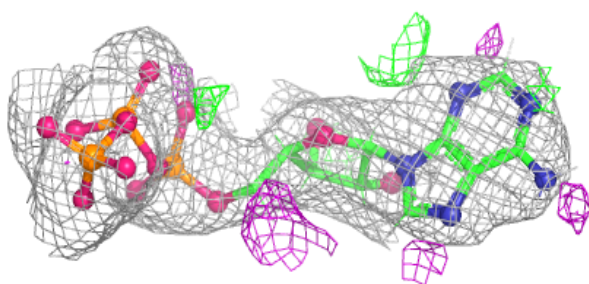
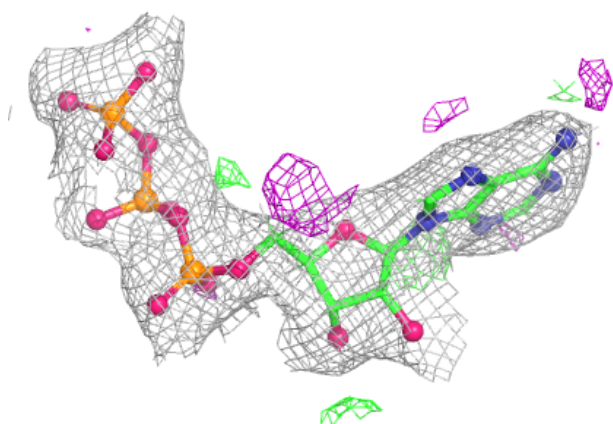
Electron density around ATP E 601:

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

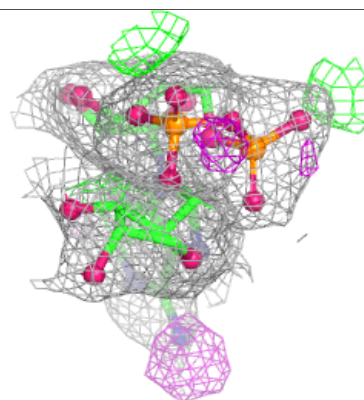
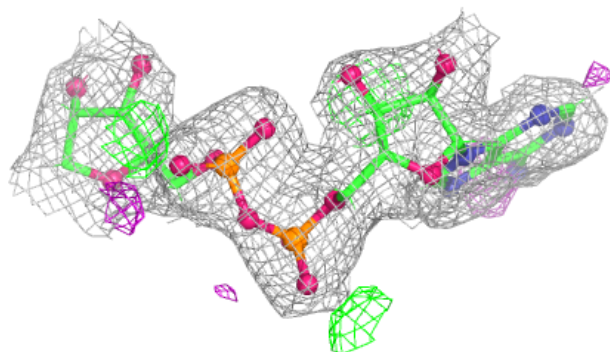
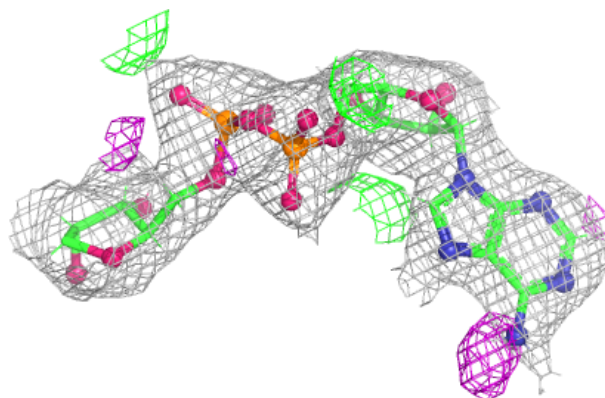


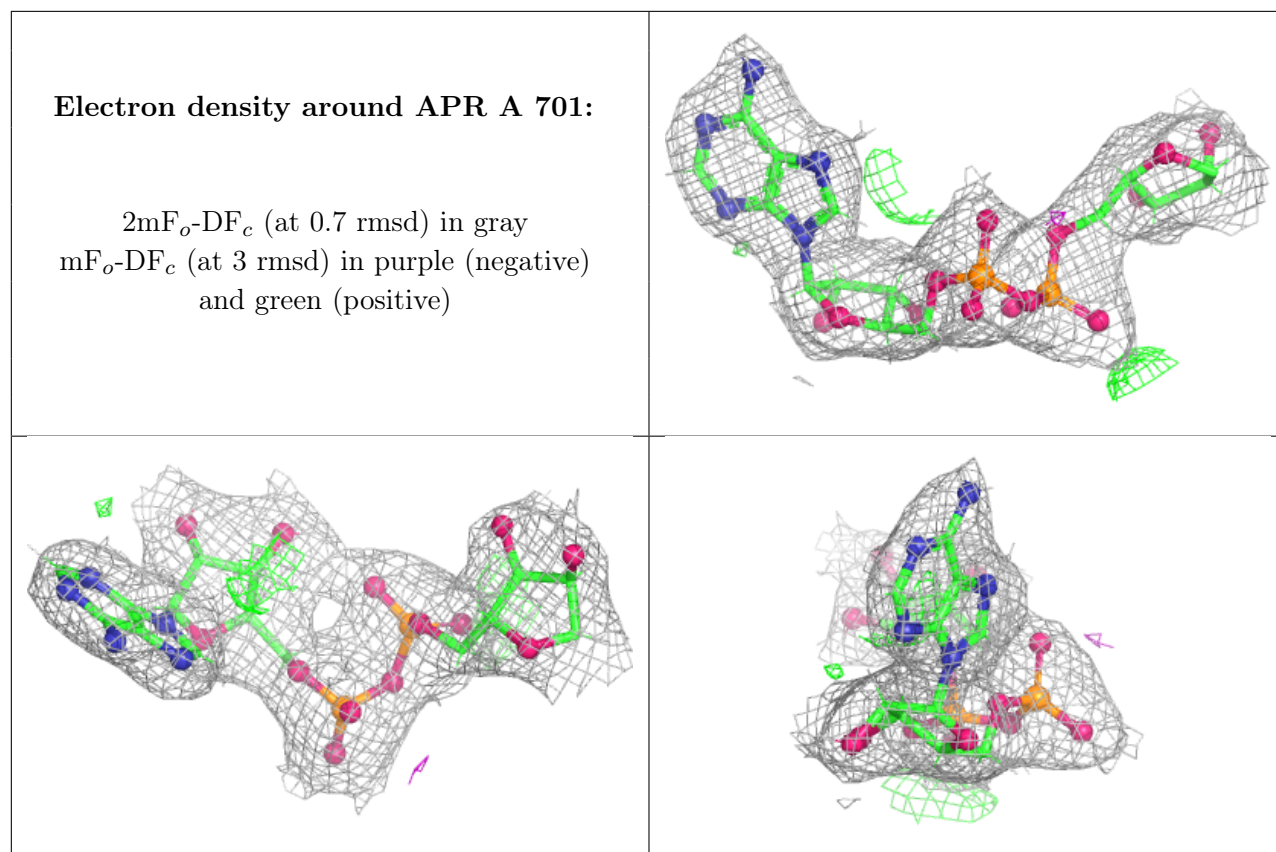
Electron density around ATP C 601:

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

**Electron density around APR B 701:**

$2mF_o-DF_c$ (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.