



Full wwPDB X-ray Structure Validation Report ⓘ

Aug 19, 2023 – 05:50 PM EDT

PDB ID : 2HLD
Title : Crystal structure of yeast mitochondrial F1-ATPase
Authors : Kabaleswaran, V.; Puri, N.; Walker, J.E.; Leslie, A.G.; Mueller, D.M.
Deposited on : 2006-07-06
Resolution : 2.80 Å(reported)

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

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

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) : 1.13
EDS : 2.35
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.35

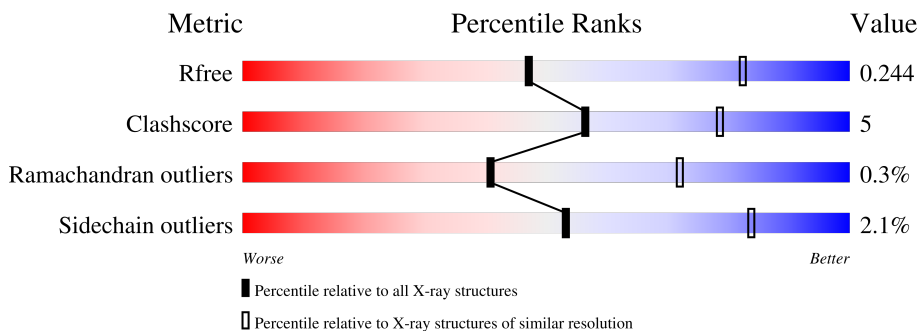
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.80 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.























Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	3140 (2.80-2.80)
Clashscore	141614	3569 (2.80-2.80)
Ramachandran outliers	138981	3498 (2.80-2.80)
Sidechain outliers	138945	3500 (2.80-2.80)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments 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 $\leq 5\%$.

Mol	Chain	Length	Quality of chain
1	A	510	83% 11% 5%
1	B	510	81% 12% 5%
1	C	510	82% 12% 5%
1	J	510	85% 9% 6%
1	K	510	80% 14% 5%
1	L	510	79% 14% 5%
1	S	510	83% 11% 6%

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Mol	Chain	Length	Quality of chain
1	T	510	 82% 12% • 6%
1	U	510	 83% 10% • 6%
2	D	478	 87% 11% ••
2	E	478	 84% 14% •
2	F	478	 84% 13% ••
2	M	478	 83% 15% ••
2	N	478	 87% 10% ••
2	O	478	 87% 10% ••
2	V	478	 85% 12% ••
2	W	478	 85% 13% •
2	X	478	 80% 17% •
3	G	278	 73% 21% • 5%
3	P	278	 65% 19% • 13%
3	Y	278	 55% 17% 28%
4	H	138	 78% 8% • 13%
4	Q	138	 56% 5% 39%
4	Z	138	 12% 88%
5	1	61	 38% 7% 56%
5	I	61	 69% 8% • 21%
5	R	61	 52% • 44%

2 Entry composition [i](#)

There are 9 unique types of molecules in this entry. The entry contains 72841 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called ATP synthase alpha chain, mitochondrial.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	482	Total 3664	C 2314	N 648	O 699	S 3	0	0	0
1	B	483	Total 3669	C 2317	N 649	O 700	S 3	0	0	0
1	C	484	Total 3674	C 2319	N 650	O 702	S 3	0	0	0
1	J	481	Total 3655	C 2309	N 646	O 697	S 3	0	0	0
1	K	486	Total 3684	C 2326	N 652	O 703	S 3	0	0	0
1	L	482	Total 3664	C 2314	N 648	O 699	S 3	0	0	0
1	S	480	Total 3651	C 2307	N 645	O 696	S 3	0	0	0
1	T	481	Total 3659	C 2311	N 647	O 698	S 3	0	0	0
1	U	481	Total 3659	C 2311	N 647	O 698	S 3	0	0	0

- Molecule 2 is a protein called ATP synthase beta chain, mitochondrial.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	D	470	Total 3549	C 2250	N 604	O 689	S 6	0	0	0
2	E	468	Total 3536	C 2243	N 602	O 685	S 6	0	0	0
2	F	469	Total 3543	C 2247	N 603	O 687	S 6	0	0	0
2	M	470	Total 3549	C 2250	N 604	O 689	S 6	0	0	0
2	N	470	Total 3549	C 2250	N 604	O 689	S 6	0	0	0

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	O	468	Total	C	N	O	S	0	0	0
			3538	2244	602	686	6			
2	V	470	Total	C	N	O	S	0	0	0
			3549	2250	604	689	6			
2	W	467	Total	C	N	O	S	0	0	0
			3531	2240	601	684	6			
2	X	469	Total	C	N	O	S	0	0	0
			3543	2247	603	687	6			

- Molecule 3 is a protein called ATP synthase gamma chain, mitochondrial.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	G	265	Total	C	N	O	S	0	0	0
			2031	1277	355	389	10			
3	P	243	Total	C	N	O	S	0	0	0
			1851	1165	322	355	9			
3	Y	200	Total	C	N	O	S	0	0	0
			1517	944	273	291	9			

- Molecule 4 is a protein called ATP synthase delta chain, mitochondrial.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	H	120	Total	C	N	O	S	0	0	0
			758	475	134	147	2			
4	Q	84	Total	C	N	O		0	0	0
			436	262	87	87				
4	Z	17	Total	C	N	O		0	0	0
			85	51	17	17				

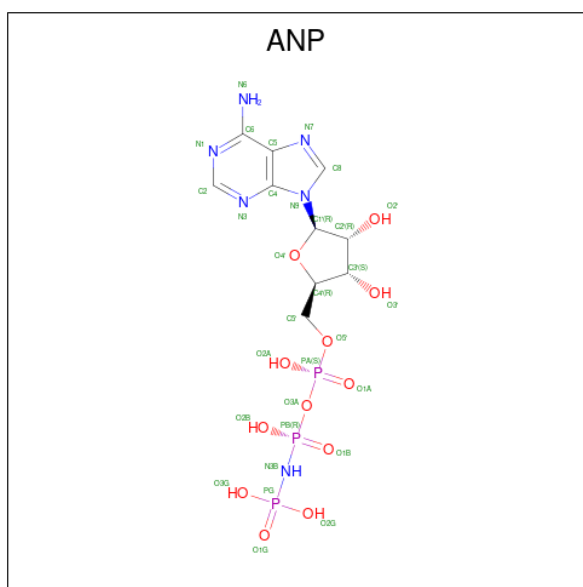
- Molecule 5 is a protein called ATP synthase epsilon chain, mitochondrial.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
5	I	48	Total	C	N	O	0	0	0
			324	201	56	67			
5	R	34	Total	C	N	O	0	0	0
			170	102	34	34			
5	1	27	Total	C	N	O	0	0	0
			135	81	27	27			

- Molecule 6 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total Mg 1 1	0	0
6	B	1	Total Mg 1 1	0	0
6	C	1	Total Mg 1 1	0	0
6	D	1	Total Mg 1 1	0	0
6	F	1	Total Mg 1 1	0	0
6	J	1	Total Mg 1 1	0	0
6	K	1	Total Mg 1 1	0	0
6	L	1	Total Mg 1 1	0	0
6	M	1	Total Mg 1 1	0	0
6	O	1	Total Mg 1 1	0	0
6	S	1	Total Mg 1 1	0	0
6	T	1	Total Mg 1 1	0	0
6	U	1	Total Mg 1 1	0	0
6	V	1	Total Mg 1 1	0	0
6	X	1	Total Mg 1 1	0	0

- Molecule 7 is PHOSPHOAMINOPHOSPHONIC ACID-ADENYLATE ESTER (three-letter code: ANP) (formula: $C_{10}H_{17}N_6O_{12}P_3$).



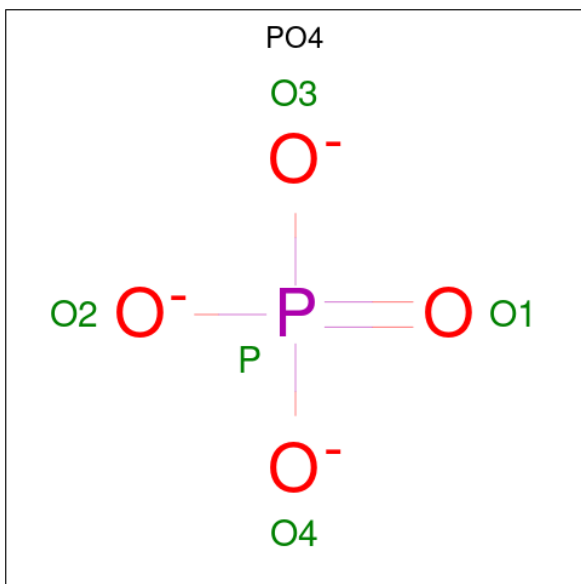
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
7	A	1	Total 31	C 10	N 6	O 12	P 3	0	0
7	B	1	Total 31	C 10	N 6	O 12	P 3	0	0
7	C	1	Total 31	C 10	N 6	O 12	P 3	0	0
7	D	1	Total 31	C 10	N 6	O 12	P 3	0	0
7	F	1	Total 31	C 10	N 6	O 12	P 3	0	0
7	J	1	Total 31	C 10	N 6	O 12	P 3	0	0
7	K	1	Total 31	C 10	N 6	O 12	P 3	0	0
7	L	1	Total 31	C 10	N 6	O 12	P 3	0	0
7	M	1	Total 31	C 10	N 6	O 12	P 3	0	0
7	O	1	Total 31	C 10	N 6	O 12	P 3	0	0
7	S	1	Total 31	C 10	N 6	O 12	P 3	0	0
7	T	1	Total 31	C 10	N 6	O 12	P 3	0	0
7	U	1	Total 31	C 10	N 6	O 12	P 3	0	0
7	V	1	Total 31	C 10	N 6	O 12	P 3	0	0

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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	
			Total	C	N	O			P
7	X	1	31	10	6	12	3	0	0

- Molecule 8 is PHOSPHATE ION (three-letter code: PO4) (formula: O₄P).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	O	P		
8	N	1	5	4	1	0	0

- Molecule 9 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
9	A	26	Total	O	0	0
			26	26		
9	B	18	Total	O	0	0
			18	18		
9	C	13	Total	O	0	0
			13	13		
9	D	20	Total	O	0	0
			20	20		
9	E	13	Total	O	0	0
			13	13		
9	F	11	Total	O	0	0
			11	11		
9	G	3	Total	O	0	0
			3	3		

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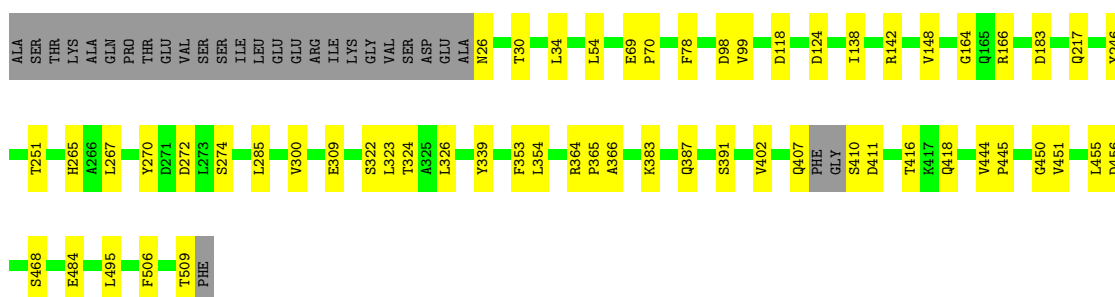
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
9	J	17	Total O 17 17	0	0
9	K	4	Total O 4 4	0	0
9	L	19	Total O 19 19	0	0
9	M	9	Total O 9 9	0	0
9	N	8	Total O 8 8	0	0
9	O	7	Total O 7 7	0	0
9	P	2	Total O 2 2	0	0
9	Q	1	Total O 1 1	0	0
9	S	6	Total O 6 6	0	0
9	T	1	Total O 1 1	0	0
9	U	3	Total O 3 3	0	0
9	X	2	Total O 2 2	0	0

3 Residue-property plots [i](#)


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

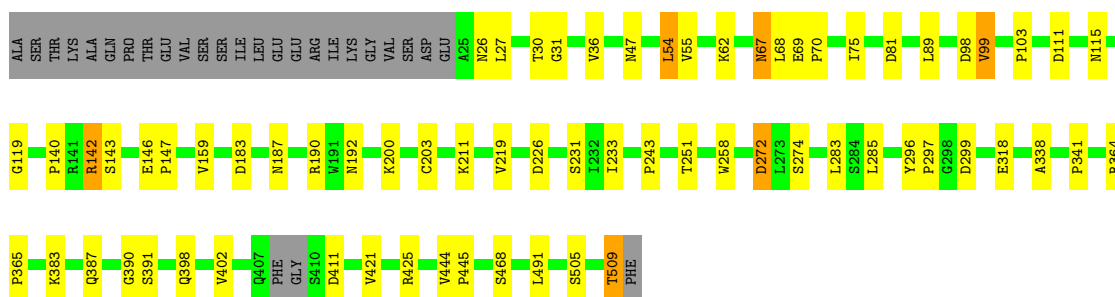
- Molecule 1: ATP synthase alpha chain, mitochondrial

Chain A: 




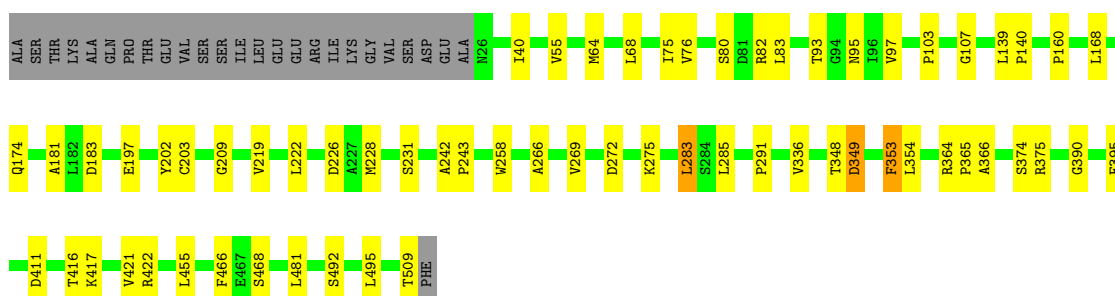
- Molecule 1: ATP synthase alpha chain, mitochondrial

Chain B: 



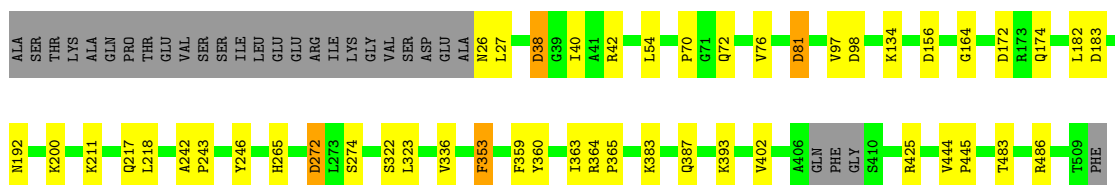
- Molecule 1: ATP synthase alpha chain, mitochondrial

Chain C: 



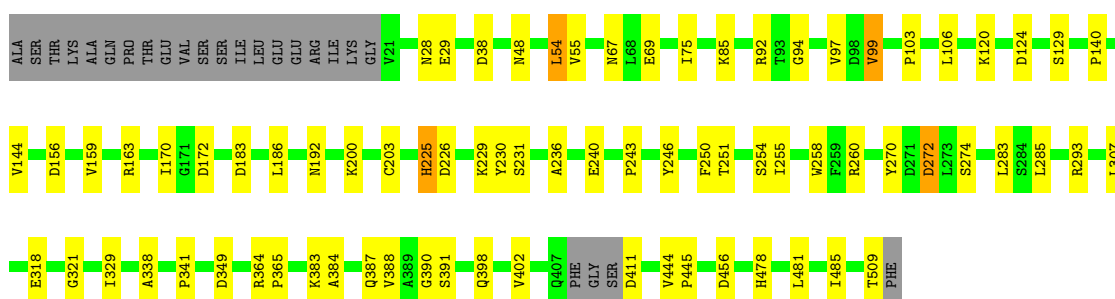
- Molecule 1: ATP synthase alpha chain, mitochondrial

Chain J: 85% 9% • 6%



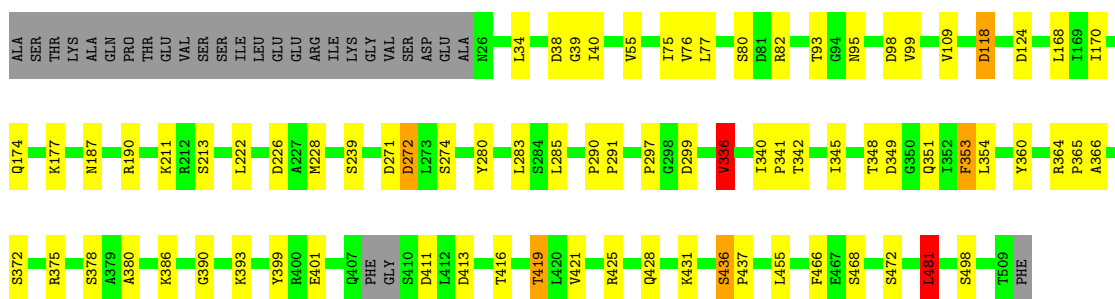
- Molecule 1: ATP synthase alpha chain, mitochondrial

Chain K: 80% 14% • 5%



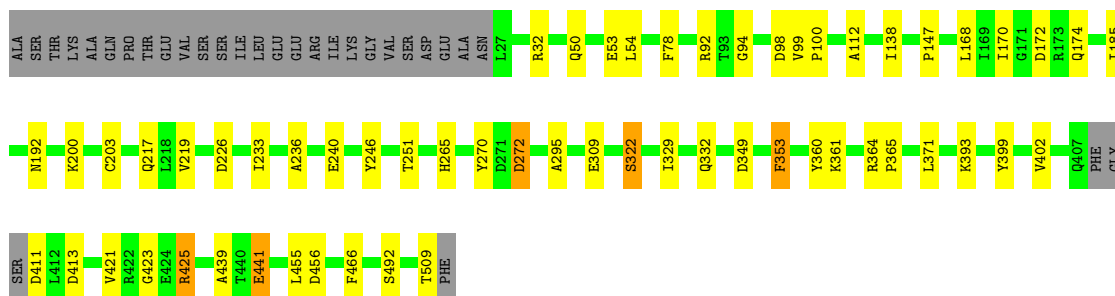
- Molecule 1: ATP synthase alpha chain, mitochondrial

Chain L: 79% 14% • 5%




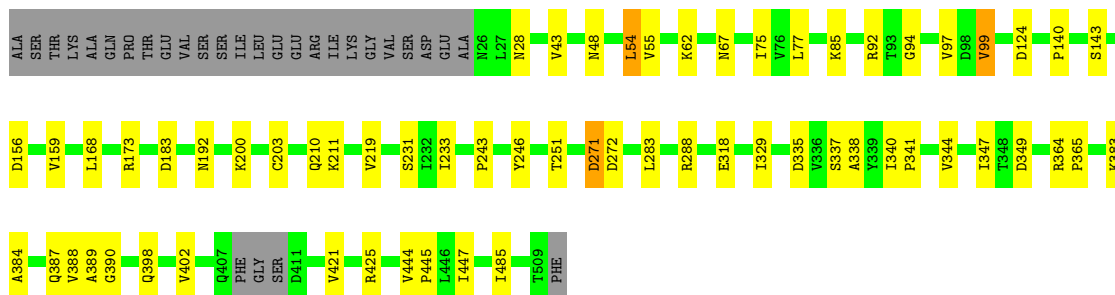
- Molecule 1: ATP synthase alpha chain, mitochondrial

Chain S: 83% 11% • 6%




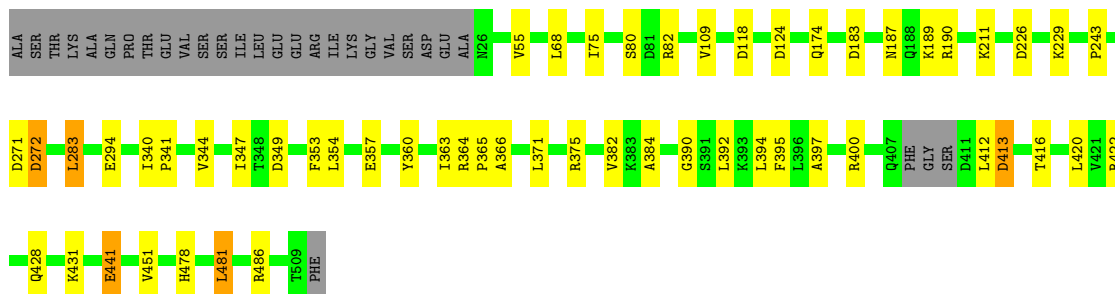
- Molecule 1: ATP synthase alpha chain, mitochondrial

Chain T:  82% 12% • 6%




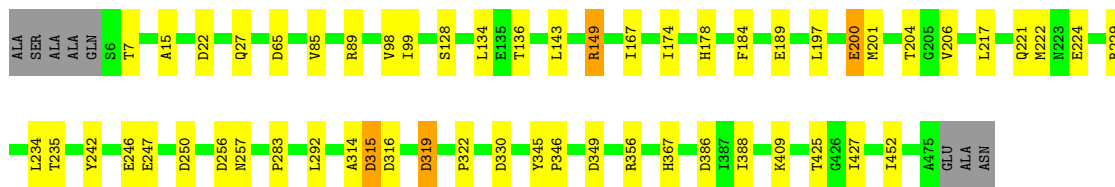
- Molecule 1: ATP synthase alpha chain, mitochondrial

Chain U:  83% 10% • 6%




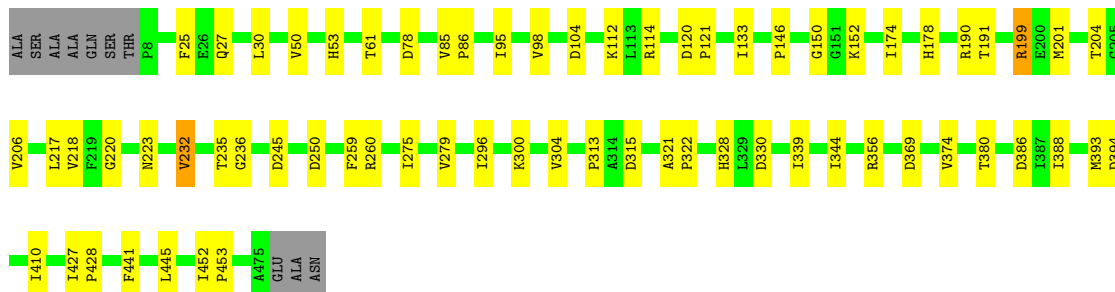
- Molecule 2: ATP synthase beta chain, mitochondrial

Chain D:  87% 11% ••

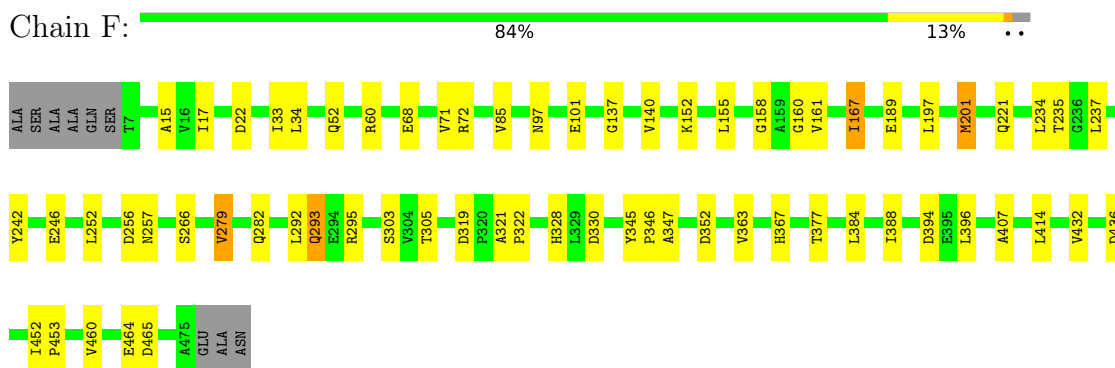


- Molecule 2: ATP synthase beta chain, mitochondrial

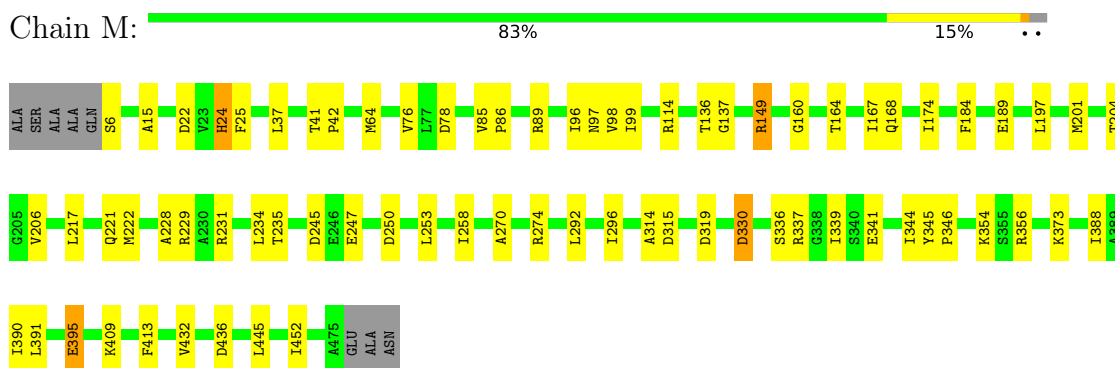
Chain E:  84% 14% •



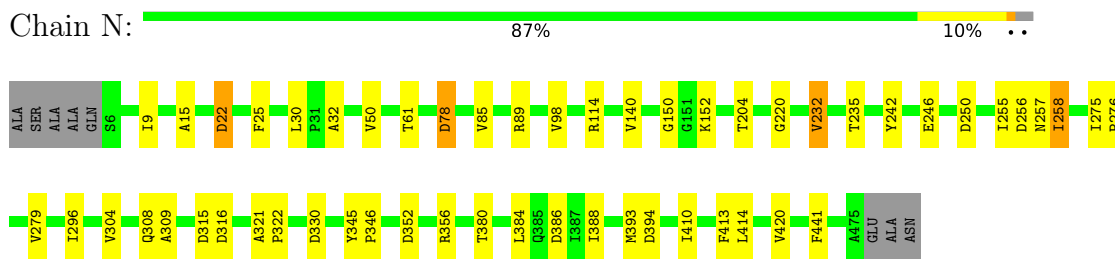
- Molecule 2: ATP synthase beta chain, mitochondrial



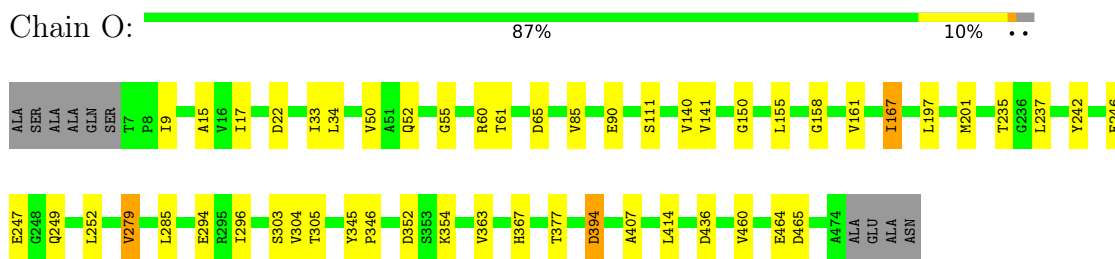
- Molecule 2: ATP synthase beta chain, mitochondrial



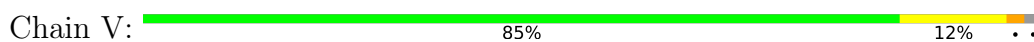
- Molecule 2: ATP synthase beta chain, mitochondrial

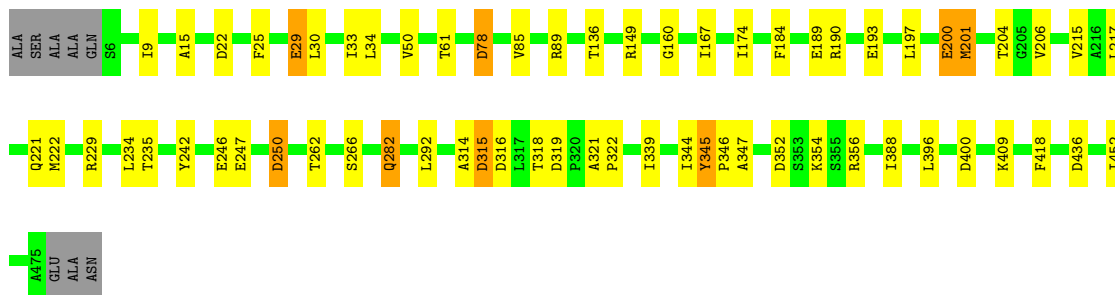


- Molecule 2: ATP synthase beta chain, mitochondrial



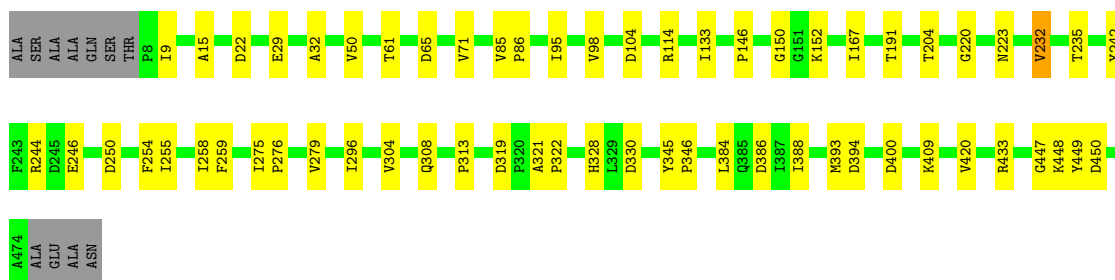
- Molecule 2: ATP synthase beta chain, mitochondrial





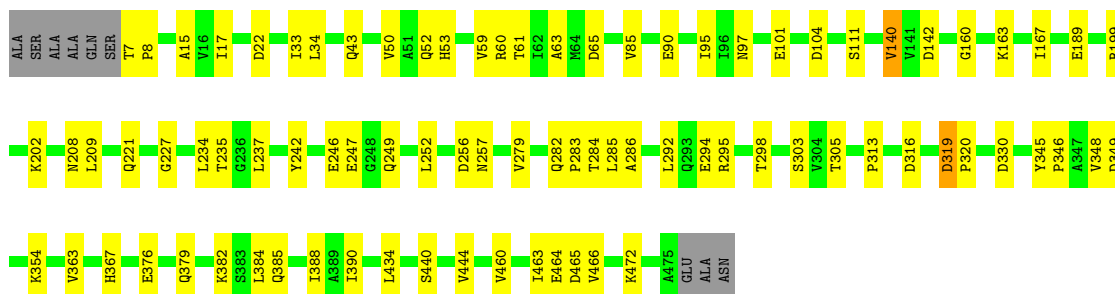
- Molecule 2: ATP synthase beta chain, mitochondrial

Chain W: 85% 13%



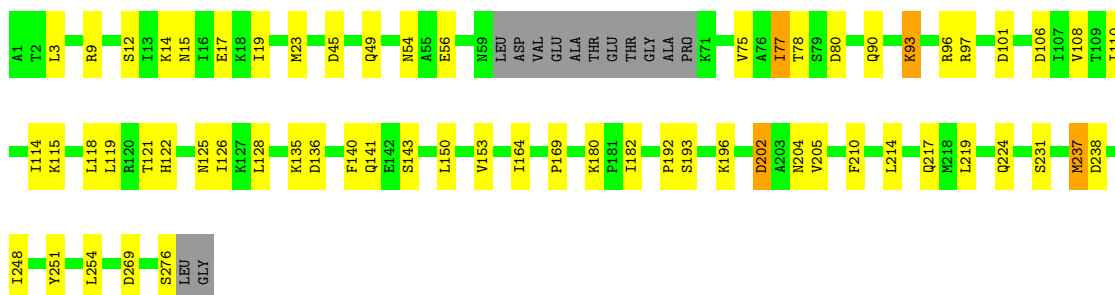
- Molecule 2: ATP synthase beta chain, mitochondrial

Chain X: 80% 17%

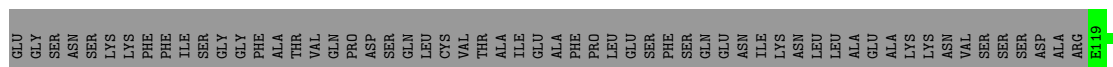


- Molecule 3: ATP synthase gamma chain, mitochondrial

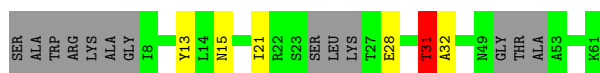
Chain G: 73% 21% 5%



- Molecule 3: ATP synthase gamma chain, mitochondrial



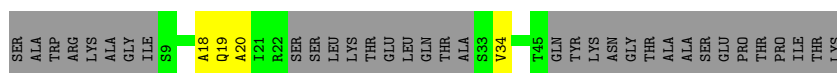
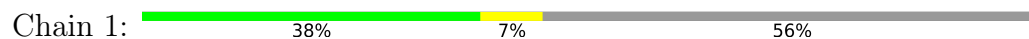
- Molecule 5: ATP synthase epsilon chain, mitochondrial



- Molecule 5: ATP synthase epsilon chain, mitochondrial



- Molecule 5: ATP synthase epsilon chain, mitochondrial



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	111.52Å 294.13Å 190.43Å 90.00° 101.67° 90.00°	Depositor
Resolution (Å)	20.00 – 2.80 19.99 – 2.80	Depositor EDS
% Data completeness (in resolution range)	99.9 (20.00-2.80) 99.9 (19.99-2.80)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.35 (at 2.79Å)	Xtrriage
Refinement program	REFMAC 5.2.0019	Depositor
R, R_{free}	0.207 , 0.244 0.211 , 0.244	Depositor DCC
R_{free} test set	5938 reflections (2.03%)	wwPDB-VP
Wilson B-factor (Å ²)	72.1	Xtrriage
Anisotropy	0.101	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.28 , 80.5	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	72841	wwPDB-VP
Average B, all atoms (Å ²)	71.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.86% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality i

5.1 Standard geometry i

Bond lengths and bond angles in the following residue types are not validated in this section: PO4, MG, ANP

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	0.64	0/3718	0.79	6/5032 (0.1%)
1	B	0.57	0/3723	0.76	6/5039 (0.1%)
1	C	0.57	0/3729	0.76	5/5048 (0.1%)
1	J	0.55	0/3709	0.74	7/5020 (0.1%)
1	K	0.46	0/3738	0.69	9/5060 (0.2%)
1	L	0.62	1/3718 (0.0%)	0.81	13/5032 (0.3%)
1	S	0.47	0/3705	0.72	8/5014 (0.2%)
1	T	0.38	0/3713	0.64	5/5025 (0.1%)
1	U	0.41	0/3713	0.68	6/5025 (0.1%)
2	D	0.57	0/3605	0.81	9/4889 (0.2%)
2	E	0.56	0/3592	0.76	10/4870 (0.2%)
2	F	0.54	0/3599	0.78	5/4881 (0.1%)
2	M	0.55	0/3605	0.80	5/4889 (0.1%)
2	N	0.48	0/3605	0.74	7/4889 (0.1%)
2	O	0.50	0/3594	0.75	4/4874 (0.1%)
2	V	0.43	0/3605	0.75	8/4889 (0.2%)
2	W	0.40	0/3587	0.69	6/4863 (0.1%)
2	X	0.42	0/3599	0.70	5/4881 (0.1%)
3	G	0.48	0/2056	0.74	6/2767 (0.2%)
3	P	0.47	0/1868	0.70	2/2508 (0.1%)
3	Y	0.37	0/1527	0.63	2/2048 (0.1%)
4	H	0.47	0/766	0.64	0/1051
4	Q	0.41	0/434	0.55	0/595
4	Z	0.42	0/84	0.51	0/116
5	1	0.38	0/133	0.44	0/183
5	I	0.55	0/326	0.69	0/445
5	R	0.45	0/168	0.51	0/232
All	All	0.51	1/73219 (0.0%)	0.74	134/99165 (0.1%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected

by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	S	0	1
2	D	0	1
2	V	0	1
2	W	0	1
All	All	0	4

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	L	353	PHE	CB-CG	-5.87	1.41	1.51

All (134) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	V	345	TYR	C-N-CD	-13.32	91.28	120.60
2	D	22	ASP	CB-CG-OD2	10.23	127.51	118.30
2	F	436	ASP	CB-CG-OD2	7.85	125.37	118.30
1	C	283	LEU	CA-CB-CG	7.74	133.09	115.30
2	M	319	ASP	CB-CG-OD2	7.57	125.11	118.30
2	D	319	ASP	CB-CG-OD2	7.38	124.94	118.30
1	L	283	LEU	CA-CB-CG	7.33	132.15	115.30
1	L	124	ASP	CB-CG-OD2	6.89	124.50	118.30
1	K	38	ASP	CB-CG-OD2	6.85	124.47	118.30
1	C	272	ASP	CB-CG-OD2	6.65	124.29	118.30
1	C	183	ASP	CB-CG-OD2	6.65	124.28	118.30
1	L	353	PHE	CB-CG-CD1	-6.64	116.15	120.80
1	L	38	ASP	CB-CG-OD2	6.57	124.22	118.30
2	E	199	ARG	NE-CZ-NH1	-6.45	117.07	120.30
1	J	38	ASP	CB-CG-OD2	6.39	124.05	118.30
1	B	81	ASP	CB-CG-OD2	6.30	123.97	118.30
2	F	330	ASP	CB-CG-OD2	6.29	123.97	118.30
2	X	319	ASP	CB-CG-OD2	6.28	123.95	118.30
1	U	183	ASP	CB-CG-OD2	6.20	123.88	118.30
2	X	349	ASP	CB-CG-OD2	6.12	123.81	118.30
2	V	319	ASP	CB-CG-OD2	6.09	123.79	118.30
1	C	226	ASP	CB-CG-OD2	6.04	123.73	118.30
2	O	65	ASP	CB-CG-OD2	6.01	123.71	118.30
3	P	148	ASP	CB-CG-OD1	5.98	123.68	118.30
1	T	272	ASP	CB-CG-OD2	5.94	123.64	118.30
1	B	272	ASP	CB-CG-OD2	5.94	123.64	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	L	118	ASP	CB-CG-OD2	5.90	123.61	118.30
1	S	349	ASP	CB-CG-OD2	5.88	123.60	118.30
2	V	352	ASP	CB-CG-OD2	5.88	123.59	118.30
1	L	336	VAL	CB-CA-C	-5.88	100.23	111.40
2	F	352	ASP	CB-CG-OD2	5.86	123.57	118.30
2	N	250	ASP	CB-CG-OD2	5.83	123.55	118.30
1	A	118	ASP	CB-CG-OD2	5.81	123.53	118.30
1	B	98	ASP	CB-CG-OD2	5.77	123.50	118.30
1	U	283	LEU	CA-CB-CG	5.77	128.57	115.30
2	F	394	ASP	CB-CG-OD2	5.77	123.49	118.30
2	O	436	ASP	CB-CG-OD2	5.75	123.48	118.30
3	G	238	ASP	CB-CG-OD2	5.75	123.47	118.30
2	M	245	ASP	CB-CG-OD2	5.72	123.45	118.30
1	L	226	ASP	CB-CG-OD2	5.68	123.41	118.30
1	J	98	ASP	CB-CG-OD2	5.66	123.40	118.30
1	B	299	ASP	CB-CG-OD2	5.66	123.39	118.30
2	N	330	ASP	CB-CG-OD2	5.64	123.38	118.30
1	S	172	ASP	CB-CG-OD2	5.64	123.38	118.30
3	G	136	ASP	CB-CG-OD2	5.64	123.37	118.30
1	L	299	ASP	CB-CG-OD2	5.63	123.37	118.30
1	S	411	ASP	CB-CG-OD2	5.62	123.36	118.30
1	S	272	ASP	CB-CG-OD2	5.61	123.35	118.30
1	T	349	ASP	CB-CG-OD2	5.60	123.34	118.30
1	J	156	ASP	CB-CG-OD2	5.60	123.34	118.30
2	M	330	ASP	CB-CG-OD2	5.60	123.34	118.30
2	E	250	ASP	CB-CG-OD2	5.59	123.33	118.30
2	D	349	ASP	CB-CG-OD2	5.59	123.33	118.30
1	U	272	ASP	CB-CG-OD2	5.59	123.33	118.30
1	L	272	ASP	CB-CG-OD2	5.58	123.32	118.30
3	G	80	ASP	CB-CG-OD2	5.58	123.32	118.30
2	O	394	ASP	CB-CG-OD2	5.53	123.28	118.30
2	E	245	ASP	CB-CG-OD2	5.53	123.28	118.30
3	P	45	ASP	CB-CG-OD2	5.52	123.27	118.30
1	K	272	ASP	CB-CG-OD2	5.51	123.26	118.30
1	S	413	ASP	CB-CG-OD2	5.51	123.26	118.30
2	D	315	ASP	CB-CG-OD2	5.50	123.25	118.30
2	N	386	ASP	CB-CG-OD2	5.50	123.25	118.30
1	T	271	ASP	CB-CG-OD2	5.50	123.25	118.30
1	L	98	ASP	CB-CG-OD2	5.50	123.25	118.30
2	D	386	ASP	CB-CG-OD2	5.49	123.25	118.30
2	E	330	ASP	CB-CG-OD2	5.49	123.24	118.30
2	W	330	ASP	CB-CG-OD2	5.49	123.24	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	349	ASP	CB-CG-OD2	5.49	123.24	118.30
3	Y	238	ASP	CB-CG-OD2	5.49	123.24	118.30
2	O	352	ASP	CB-CG-OD2	5.48	123.23	118.30
2	X	330	ASP	CB-CG-OD2	5.47	123.23	118.30
2	F	319	ASP	CB-CG-OD2	5.46	123.21	118.30
2	W	319	ASP	CB-CG-OD2	5.45	123.21	118.30
1	K	156	ASP	CB-CG-OD2	5.45	123.20	118.30
2	N	316	ASP	CB-CG-OD2	5.44	123.20	118.30
2	X	65	ASP	CB-CG-OD2	5.43	123.19	118.30
1	A	183	ASP	CB-CG-OD2	5.43	123.19	118.30
2	V	78	ASP	CB-CG-OD2	5.42	123.18	118.30
1	L	271	ASP	CB-CG-OD2	5.38	123.15	118.30
1	K	411	ASP	CB-CG-OD2	5.38	123.14	118.30
2	E	386	ASP	CB-CG-OD2	5.38	123.14	118.30
1	S	456	ASP	CB-CG-OD2	5.38	123.14	118.30
2	E	199	ARG	NE-CZ-NH2	5.37	122.99	120.30
2	E	315	ASP	CB-CG-OD2	5.37	123.13	118.30
1	S	226	ASP	CB-CG-OD2	5.36	123.13	118.30
2	D	22	ASP	CB-CG-OD1	-5.35	113.48	118.30
1	U	349	ASP	CB-CG-OD2	5.35	123.12	118.30
2	W	400	ASP	CB-CG-OD2	5.35	123.11	118.30
2	E	78	ASP	CB-CG-OD2	5.34	123.11	118.30
1	K	456	ASP	CB-CG-OD2	5.33	123.09	118.30
1	L	481	LEU	CA-CB-CG	5.31	127.52	115.30
2	W	65	ASP	CB-CG-OD2	5.29	123.06	118.30
2	E	104	ASP	CB-CG-OD2	5.29	123.06	118.30
2	D	330	ASP	CB-CG-OD2	5.28	123.05	118.30
3	G	106	ASP	CB-CG-OD2	5.28	123.05	118.30
1	J	272	ASP	CB-CG-OD2	5.27	123.04	118.30
1	A	98	ASP	CB-CG-OD2	5.26	123.03	118.30
1	A	456	ASP	CB-CG-OD2	5.25	123.02	118.30
1	U	124	ASP	CB-CG-OD2	5.24	123.02	118.30
3	G	101	ASP	CB-CG-OD2	5.22	123.00	118.30
2	W	386	ASP	CB-CG-OD2	5.21	122.99	118.30
2	M	78	ASP	CB-CG-OD2	5.21	122.98	118.30
1	L	411	ASP	CB-CG-OD2	5.20	122.98	118.30
1	B	226	ASP	CB-CG-OD2	5.19	122.97	118.30
1	K	226	ASP	CB-CG-OD2	5.18	122.96	118.30
3	Y	136	ASP	CB-CG-OD2	5.17	122.96	118.30
2	X	316	ASP	CB-CG-OD2	5.16	122.94	118.30
1	T	156	ASP	CB-CG-OD2	5.16	122.94	118.30
1	B	411	ASP	CB-CG-OD2	5.15	122.94	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	316	ASP	CB-CG-OD2	5.12	122.91	118.30
1	J	183	ASP	CB-CG-OD2	5.12	122.91	118.30
1	K	349	ASP	CB-CG-OD2	5.12	122.91	118.30
2	M	436	ASP	CB-CG-OD2	5.12	122.90	118.30
1	J	172	ASP	CB-CG-OD2	5.11	122.90	118.30
2	V	316	ASP	CB-CG-OD2	5.10	122.89	118.30
2	N	315	ASP	CB-CG-OD2	5.09	122.89	118.30
1	S	98	ASP	CB-CG-OD2	5.09	122.89	118.30
2	V	250	ASP	CB-CG-OD2	5.09	122.88	118.30
1	U	413	ASP	CB-CG-OD1	5.08	122.88	118.30
1	A	124	ASP	CB-CG-OD2	5.07	122.87	118.30
2	V	436	ASP	CB-CG-OD2	5.07	122.86	118.30
1	A	411	ASP	CB-CG-OD2	5.07	122.86	118.30
2	N	78	ASP	CB-CG-OD2	5.07	122.86	118.30
1	K	172	ASP	CB-CG-OD2	5.06	122.86	118.30
3	G	269	ASP	CB-CG-OD2	5.06	122.86	118.30
1	K	124	ASP	CB-CG-OD2	5.04	122.83	118.30
1	T	124	ASP	CB-CG-OD2	5.04	122.83	118.30
1	J	81	ASP	CB-CG-OD2	5.03	122.83	118.30
2	E	369	ASP	CB-CG-OD2	5.02	122.82	118.30
2	W	250	ASP	CB-CG-OD2	5.02	122.82	118.30
2	D	65	ASP	CB-CG-OD2	5.02	122.81	118.30
2	V	315	ASP	CB-CG-OD2	5.01	122.81	118.30
2	N	22	ASP	CB-CG-OD2	5.00	122.80	118.30

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	D	7	THR	Peptide
1	S	147	PRO	Peptide
2	V	345	TYR	Peptide
2	W	447	GLY	Peptide

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	3664	0	3748	27	0
1	B	3669	0	3752	40	0
1	C	3674	0	3756	39	0
1	J	3655	0	3739	31	0
1	K	3684	0	3758	43	0
1	L	3664	0	3747	45	0
1	S	3651	0	3740	35	0
1	T	3659	0	3745	35	0
1	U	3659	0	3745	29	0
2	D	3549	0	3620	29	0
2	E	3536	0	3610	39	0
2	F	3543	0	3615	40	0
2	M	3549	0	3620	52	0
2	N	3549	0	3621	33	0
2	O	3538	0	3610	31	0
2	V	3549	0	3620	38	0
2	W	3531	0	3605	37	0
2	X	3543	0	3615	49	0
3	G	2031	0	2084	31	0
3	P	1851	0	1893	39	0
3	Y	1517	0	1561	28	0
4	H	758	0	602	9	0
4	Q	436	0	215	3	0
4	Z	85	0	45	0	0
5	I	135	0	70	1	0
5	I	324	0	249	2	0
5	R	170	0	87	0	0
6	A	1	0	0	0	0
6	B	1	0	0	0	0
6	C	1	0	0	0	0
6	D	1	0	0	0	0
6	F	1	0	0	0	0
6	J	1	0	0	0	0
6	K	1	0	0	0	0
6	L	1	0	0	0	0
6	M	1	0	0	0	0
6	O	1	0	0	0	0
6	S	1	0	0	0	0
6	T	1	0	0	0	0
6	U	1	0	0	0	0
6	V	1	0	0	0	0
6	X	1	0	0	0	0
7	A	31	0	13	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
7	B	31	0	13	0	0
7	C	31	0	13	1	0
7	D	31	0	13	0	0
7	F	31	0	13	2	0
7	J	31	0	13	0	0
7	K	31	0	13	1	0
7	L	31	0	13	1	0
7	M	31	0	13	6	0
7	O	31	0	13	0	0
7	S	31	0	13	1	0
7	T	31	0	13	0	0
7	U	31	0	13	0	0
7	V	31	0	13	3	0
7	X	31	0	13	4	0
8	N	5	0	0	0	0
9	A	26	0	0	2	0
9	B	18	0	0	0	0
9	C	13	0	0	0	0
9	D	20	0	0	0	0
9	E	13	0	0	1	0
9	F	11	0	0	0	0
9	G	3	0	0	0	0
9	J	17	0	0	0	0
9	K	4	0	0	0	0
9	L	19	0	0	0	0
9	M	9	0	0	0	0
9	N	8	0	0	0	0
9	O	7	0	0	0	0
9	P	2	0	0	0	0
9	Q	1	0	0	2	0
9	S	6	0	0	0	0
9	T	1	0	0	0	0
9	U	3	0	0	0	0
9	X	2	0	0	0	0
All	All	72841	0	73267	728	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 5.

All (728) 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)
2:V:85:VAL:HG11	2:V:235:THR:HG23	1.26	1.16
2:E:85:VAL:HG11	2:E:235:THR:HG23	1.27	1.12
2:N:85:VAL:HG11	2:N:235:THR:HG23	1.28	1.11
2:D:85:VAL:HG11	2:D:235:THR:HG23	1.25	1.11
3:G:96:ARG:HE	3:G:121:THR:HG21	1.10	1.09
2:M:85:VAL:HG11	2:M:235:THR:HG23	1.19	1.09
1:B:26:ASN:O	1:B:30:THR:HB	1.55	1.06
2:F:85:VAL:HG11	2:F:235:THR:HG23	1.38	1.02
2:W:85:VAL:HG11	2:W:235:THR:HG23	1.39	1.00
4:H:14:PHE:HZ	4:H:70:ILE:HD11	1.28	0.99
2:X:85:VAL:HG11	2:X:235:THR:HG23	1.45	0.98
1:C:336:VAL:HG11	1:C:353:PHE:CZ	1.99	0.97
2:O:85:VAL:HG11	2:O:235:THR:HG23	1.44	0.97
1:J:336:VAL:HG11	1:J:353:PHE:HZ	1.27	0.95
2:M:149:ARG:HG2	2:M:149:ARG:HH11	1.32	0.95
2:D:85:VAL:HG11	2:D:235:THR:CG2	1.99	0.93
2:M:160:GLY:H	7:M:600:ANP:HNB1	1.14	0.91
1:K:99:VAL:HG11	1:K:251:THR:HB	1.50	0.91
2:V:160:GLY:H	7:V:600:ANP:HNB1	1.10	0.91
3:P:88:HIS:HD2	3:P:113:LYS:HB2	1.34	0.90
3:P:88:HIS:CD2	3:P:113:LYS:HB2	2.09	0.88
1:C:336:VAL:HG11	1:C:353:PHE:CE1	2.09	0.87
1:J:336:VAL:HG11	1:J:353:PHE:CZ	2.10	0.87
2:M:85:VAL:HG11	2:M:235:THR:CG2	2.05	0.84
3:P:112:ASP:O	3:P:115:LYS:HB3	1.77	0.84
1:C:242:ALA:HB3	1:C:243:PRO:HD3	1.58	0.83
2:D:85:VAL:CG1	2:D:235:THR:HG23	2.08	0.82
1:B:67:ASN:HB2	2:F:17:ILE:HG12	1.61	0.82
2:X:160:GLY:H	7:X:600:ANP:HNB1	1.28	0.82
2:F:52:GLN:HE21	2:F:60:ARG:HD2	1.44	0.81
2:N:242:TYR:CE1	2:N:246:GLU:HG3	2.16	0.81
3:G:96:ARG:NE	3:G:121:THR:HG21	1.95	0.81
2:M:149:ARG:HH11	2:M:149:ARG:CG	1.95	0.79
1:S:265:HIS:ND1	1:S:322:SER:HB2	1.98	0.78
1:U:68:LEU:O	2:V:15:ALA:HA	1.85	0.77
4:H:14:PHE:CZ	4:H:70:ILE:HD11	2.19	0.76
3:G:45:ASP:O	3:G:49:GLN:HB2	1.86	0.75
4:Q:75:ALA:HB2	9:Q:802:HOH:O	1.87	0.74
1:S:112:ALA:O	1:S:251:THR:HG21	1.87	0.74
1:K:67:ASN:HB2	2:O:17:ILE:HG12	1.67	0.74
1:K:236:ALA:HA	1:K:240:GLU:OE1	1.87	0.74
3:P:76:ALA:O	3:P:109:THR:HA	1.88	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:M:234:LEU:HD23	2:M:292:LEU:HD13	1.69	0.73
1:L:170:ILE:HG23	1:L:353:PHE:HD1	1.53	0.73
2:V:346:PRO:HG3	2:V:418:PHE:CZ	2.24	0.73
1:S:425:ARG:HH11	1:S:425:ARG:CG	2.01	0.73
1:C:336:VAL:HG11	1:C:353:PHE:HZ	1.51	0.72
2:W:220:GLY:HA3	2:W:232:VAL:HG11	1.71	0.72
3:Y:133:ILE:HD12	3:Y:134:GLY:H	1.54	0.72
1:B:243:PRO:HG3	1:B:283:LEU:HD21	1.72	0.72
3:G:122:HIS:HB3	3:G:125:ASN:HD22	1.56	0.71
2:M:189:GLU:O	2:M:221:GLN:HB3	1.91	0.71
1:L:174:GLN:HA	7:L:600:ANP:HNB1	1.56	0.70
2:W:242:TYR:CE1	2:W:246:GLU:HG3	2.27	0.70
1:T:99:VAL:HG11	1:T:251:THR:HB	1.73	0.70
2:E:85:VAL:HG11	2:E:235:THR:CG2	2.17	0.69
2:M:85:VAL:CG1	2:M:235:THR:HG23	2.10	0.69
1:K:106:LEU:HD23	1:K:230:TYR:HA	1.73	0.69
2:D:234:LEU:HD23	2:D:292:LEU:HD13	1.75	0.68
1:A:272:ASP:OD1	1:A:274:SER:HB2	1.93	0.68
3:P:205:VAL:N	3:P:206:PRO:HD3	2.08	0.68
9:A:825:HOH:O	2:E:260:ARG:HD3	1.94	0.68
1:J:336:VAL:CG1	1:J:353:PHE:HZ	2.04	0.68
1:K:54:LEU:HD12	1:K:97:VAL:HA	1.76	0.68
3:G:96:ARG:HE	3:G:121:THR:CG2	1.99	0.67
2:V:346:PRO:O	2:V:347:ALA:HB3	1.93	0.67
4:H:14:PHE:HZ	4:H:70:ILE:CD1	2.04	0.67
1:S:425:ARG:HH11	1:S:425:ARG:HG3	1.58	0.67
1:A:506:PHE:O	1:A:509:THR:HG22	1.95	0.67
1:C:40:ILE:CD1	1:C:76:VAL:HG12	2.25	0.67
3:P:184:ASN:HA	3:P:210:PHE:CE1	2.30	0.67
3:P:88:HIS:HD2	3:P:113:LYS:CB	2.07	0.66
2:X:252:LEU:HD23	2:X:305:THR:HB	1.77	0.66
1:S:217:GLN:OE1	2:V:356:ARG:NH2	2.29	0.66
2:N:98:VAL:HB	2:N:232:VAL:HG13	1.76	0.66
1:J:265:HIS:ND1	1:J:322:SER:HB2	2.11	0.65
2:D:197:LEU:O	2:D:201:MET:HG2	1.95	0.65
1:A:265:HIS:ND1	1:A:322:SER:HB3	2.11	0.65
1:L:55:VAL:HG21	1:L:75:ILE:HD13	1.79	0.65
1:K:243:PRO:HG3	1:K:283:LEU:HD21	1.79	0.65
3:P:110:ILE:HG22	3:P:133:ILE:HD13	1.78	0.65
2:V:85:VAL:CG1	2:V:235:THR:HG23	2.17	0.65
3:Y:2:THR:HG22	3:Y:4:LYS:H	1.62	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:Y:14:LYS:HA	3:Y:248:ILE:HD11	1.79	0.64
2:M:89:ARG:NH1	2:M:247:GLU:OE2	2.30	0.64
1:B:285:LEU:HD22	2:E:275:ILE:HG22	1.80	0.64
1:T:243:PRO:HG3	1:T:283:LEU:HD21	1.79	0.64
2:N:85:VAL:CG1	2:N:235:THR:HG23	2.17	0.64
1:C:174:GLN:HA	7:C:600:ANP:HNB1	1.62	0.64
2:M:160:GLY:N	7:M:600:ANP:HNB1	1.92	0.64
2:N:85:VAL:HG11	2:N:235:THR:CG2	2.17	0.64
1:B:99:VAL:HG11	1:B:251:THR:HB	1.80	0.64
3:P:45:ASP:O	3:P:49:GLN:HB2	1.97	0.64
2:D:409:LYS:NZ	2:D:452:ILE:O	2.31	0.63
1:U:55:VAL:HG21	1:U:75:ILE:HD13	1.78	0.63
1:J:425:ARG:HG3	1:J:425:ARG:HH11	1.63	0.63
1:S:455:LEU:HD21	1:S:466:PHE:CE2	2.33	0.63
1:K:390:GLY:O	1:K:391:SER:HB2	1.98	0.63
1:K:444:VAL:HG23	1:K:445:PRO:HD3	1.81	0.63
2:N:150:GLY:HA2	2:N:304:VAL:O	1.98	0.63
2:X:463:ILE:O	2:X:466:VAL:HB	1.99	0.63
2:W:50:VAL:HA	2:W:61:THR:HG22	1.81	0.62
2:X:52:GLN:HE21	2:X:60:ARG:HD2	1.63	0.62
1:K:186:LEU:HD13	1:K:225:HIS:HD2	1.63	0.62
1:L:372:SER:O	1:L:393:LYS:NZ	2.26	0.62
2:E:85:VAL:CG1	2:E:235:THR:HG23	2.18	0.62
3:G:193:SER:HB3	3:G:196:LYS:HG3	1.81	0.62
2:W:388:ILE:HD12	2:W:393:MET:HG2	1.81	0.61
2:X:7:THR:HB	2:X:8:PRO:HD2	1.82	0.61
2:O:50:VAL:HA	2:O:61:THR:HG22	1.81	0.61
3:Y:77:ILE:N	3:Y:114:ILE:HG21	2.15	0.61
2:V:234:LEU:HD23	2:V:292:LEU:HD13	1.82	0.61
1:S:425:ARG:HG3	1:S:425:ARG:NH1	2.15	0.61
1:K:444:VAL:CG2	1:K:445:PRO:HD3	2.31	0.61
1:U:80:SER:OG	1:U:82:ARG:HG3	2.01	0.60
3:G:205:VAL:HG22	4:H:51:GLN:HE22	1.66	0.60
1:B:67:ASN:HB2	2:F:17:ILE:CG1	2.30	0.60
3:Y:121:THR:O	3:Y:123:PRO:HD3	2.01	0.60
1:K:186:LEU:HD13	1:K:225:HIS:CD2	2.37	0.60
1:S:439:ALA:HB1	1:S:441:GLU:OE2	2.02	0.60
1:B:55:VAL:HG21	1:B:75:ILE:HD13	1.84	0.60
1:B:140:PRO:HB3	1:B:318:GLU:HG3	1.83	0.60
2:N:388:ILE:HD12	2:N:393:MET:HG2	1.82	0.59
2:E:86:PRO:HD3	2:E:114:ARG:NH1	2.16	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:N:152:LYS:HE3	2:N:296:ILE:HB	1.84	0.59
3:P:205:VAL:N	3:P:206:PRO:CD	2.65	0.59
1:T:28:ASN:HD22	1:T:48:ASN:CG	2.05	0.59
1:L:80:SER:OG	1:L:82:ARG:HG3	2.02	0.59
1:L:170:ILE:HG23	1:L:353:PHE:CD1	2.37	0.59
1:A:164:GLY:HA2	1:A:323:LEU:O	2.03	0.59
2:F:252:LEU:HD23	2:F:305:THR:HB	1.84	0.59
4:H:52:LEU:HD11	4:H:85:VAL:HG13	1.84	0.58
1:U:441:GLU:HG2	1:U:486:ARG:HB2	1.83	0.58
1:K:272:ASP:OD1	1:K:274:SER:HB2	2.03	0.58
2:X:237:LEU:HD21	2:X:295:ARG:HB2	1.85	0.58
3:P:96:ARG:HA	3:P:122:HIS:HE1	1.68	0.58
2:W:86:PRO:HD3	2:W:114:ARG:NH1	2.17	0.58
1:U:397:ALA:HA	1:U:400:ARG:NH2	2.18	0.58
1:U:375:ARG:NH1	7:V:600:ANP:O3G	2.37	0.58
3:Y:133:ILE:HD12	3:Y:134:GLY:N	2.17	0.58
2:F:152:LYS:NZ	2:F:293:GLN:HG3	2.19	0.58
1:L:336:VAL:HG13	1:L:353:PHE:CZ	2.39	0.58
2:F:15:ALA:HB3	2:F:22:ASP:HB2	1.85	0.57
1:S:170:ILE:HG23	1:S:353:PHE:CD1	2.38	0.57
2:N:50:VAL:HA	2:N:61:THR:HG22	1.85	0.57
3:P:167:ASN:HB2	3:P:228:ALA:CB	2.34	0.57
3:G:75:VAL:HB	3:G:164:ILE:HD13	1.86	0.57
2:W:220:GLY:CA	2:W:232:VAL:HG11	2.34	0.57
2:N:276:PRO:HD2	3:P:271:ILE:HD11	1.87	0.57
1:L:428:GLN:NE2	1:L:431:LYS:HD2	2.18	0.57
3:G:115:LYS:O	3:G:119:LEU:HB2	2.04	0.57
1:A:383:LYS:O	1:A:387:GLN:HG3	2.04	0.57
2:D:184:PHE:HB3	2:D:217:LEU:HD23	1.87	0.57
2:F:363:VAL:HB	2:F:367:HIS:ND1	2.19	0.57
2:F:388:ILE:HD11	2:F:396:LEU:HD21	1.87	0.57
1:S:364:ARG:HA	1:S:365:PRO:C	2.25	0.57
2:E:388:ILE:HD12	2:E:393:MET:HG2	1.87	0.56
1:L:336:VAL:CG1	1:L:353:PHE:CZ	2.88	0.56
1:L:336:VAL:CG1	1:L:353:PHE:CE1	2.88	0.56
2:X:284:THR:O	2:X:285:LEU:C	2.44	0.56
1:J:192:ASN:HA	1:J:200:LYS:HG2	1.88	0.56
2:V:160:GLY:N	7:V:600:ANP:HNB1	1.91	0.56
2:M:234:LEU:CD2	2:M:292:LEU:HD13	2.35	0.56
2:M:390:ILE:HG22	2:M:391:LEU:HG	1.87	0.55
2:D:204:THR:HB	2:D:206:VAL:HG23	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:E:86:PRO:HD3	2:E:114:ARG:HH12	1.72	0.55
1:J:265:HIS:ND1	1:J:322:SER:CB	2.70	0.55
1:A:364:ARG:HA	1:A:365:PRO:C	2.27	0.55
1:K:192:ASN:HA	1:K:200:LYS:HG2	1.89	0.55
2:X:384:LEU:O	2:X:388:ILE:HG12	2.05	0.55
3:G:108:VAL:HG22	3:G:128:LEU:HB3	1.89	0.55
2:V:321:ALA:HB3	2:V:322:PRO:CD	2.37	0.55
1:T:55:VAL:HG21	1:T:75:ILE:HD13	1.88	0.55
1:B:364:ARG:HA	1:B:365:PRO:C	2.27	0.55
3:Y:23:MET:HA	3:Y:23:MET:CE	2.36	0.55
2:V:197:LEU:O	2:V:201:MET:HG3	2.07	0.55
1:A:285:LEU:HD12	2:D:283:PRO:HB3	1.89	0.54
1:B:54:LEU:HD21	1:B:62:LYS:HD3	1.89	0.54
2:O:52:GLN:NE2	2:O:60:ARG:HD2	2.22	0.54
2:V:222:MET:HA	2:V:229:ARG:HD2	1.89	0.54
3:G:9:ARG:HG2	3:G:251:TYR:CE1	2.43	0.54
2:F:293:GLN:HG2	2:F:328:HIS:CG	2.43	0.54
2:V:346:PRO:O	2:V:347:ALA:CB	2.56	0.54
3:Y:79:SER:HB3	3:Y:88:HIS:HE1	1.73	0.54
2:E:152:LYS:HE3	2:E:296:ILE:HB	1.89	0.54
1:L:285:LEU:HD21	1:L:291:PRO:HB3	1.89	0.54
2:V:409:LYS:NZ	2:V:452:ILE:O	2.28	0.54
1:C:364:ARG:HA	1:C:365:PRO:C	2.27	0.54
1:T:444:VAL:CG2	1:T:445:PRO:HD3	2.38	0.54
3:P:171:SER:HG	3:P:174:SER:N	2.06	0.54
1:T:67:ASN:HB2	2:X:17:ILE:HG12	1.90	0.54
1:J:383:LYS:O	1:J:387:GLN:HG3	2.08	0.53
1:L:109:VAL:HB	1:L:118:ASP:HB3	1.90	0.53
2:O:252:LEU:HD23	2:O:305:THR:HB	1.89	0.53
1:U:294:GLU:N	3:Y:269:ASP:OD2	2.37	0.53
2:X:234:LEU:HD23	2:X:292:LEU:HD13	1.90	0.53
2:F:97:ASN:HB2	2:F:101:GLU:H	1.73	0.53
1:K:29:GLU:HA	1:K:92:ARG:HD3	1.90	0.53
3:P:95:VAL:O	3:P:99:LEU:HB2	2.09	0.53
2:W:242:TYR:CZ	2:W:246:GLU:HG3	2.43	0.53
2:W:86:PRO:HD3	2:W:114:ARG:HH12	1.73	0.53
2:E:25:PHE:HB2	2:E:30:LEU:HD23	1.91	0.53
1:B:192:ASN:HA	1:B:200:LYS:HG2	1.91	0.52
2:E:98:VAL:HB	2:E:232:VAL:HG13	1.91	0.52
2:O:15:ALA:HB3	2:O:22:ASP:HB2	1.91	0.52
2:N:220:GLY:HA3	2:N:232:VAL:HG11	1.90	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:V:200:GLU:HA	2:V:200:GLU:OE1	2.09	0.52
1:A:54:LEU:HD11	1:A:78:PHE:HE2	1.73	0.52
1:T:288:ARG:HH12	2:W:275:ILE:HD11	1.74	0.52
2:V:204:THR:HB	2:V:206:VAL:HG23	1.92	0.52
2:E:50:VAL:HA	2:E:61:THR:HG22	1.92	0.52
1:K:364:ARG:HA	1:K:365:PRO:C	2.30	0.52
3:Y:79:SER:OG	3:Y:80:ASP:N	2.37	0.52
1:A:402:VAL:O	1:A:402:VAL:HG12	2.09	0.52
2:V:25:PHE:HB2	2:V:30:LEU:HD23	1.92	0.52
1:T:192:ASN:HA	1:T:200:LYS:HG2	1.91	0.52
1:B:111:ASP:OD2	1:B:115:ASN:HB2	2.09	0.52
3:P:106:ASP:HB3	3:P:127:LYS:HG3	1.91	0.52
1:U:441:GLU:CG	1:U:486:ARG:HB2	2.40	0.52
2:D:134:LEU:HD13	2:D:149:ARG:HH11	1.75	0.51
2:E:339:ILE:HG22	2:E:344:ILE:HB	1.92	0.51
1:J:272:ASP:OD1	1:J:274:SER:HB2	2.10	0.51
2:E:300:LYS:HG3	9:E:814:HOH:O	2.10	0.51
2:O:279:VAL:HG12	2:O:279:VAL:O	2.10	0.51
2:X:7:THR:HB	2:X:8:PRO:CD	2.39	0.51
3:G:14:LYS:HA	3:G:248:ILE:HD11	1.92	0.51
2:M:391:LEU:HD22	3:P:83:LEU:HD13	1.92	0.51
2:O:242:TYR:CE1	2:O:246:GLU:HG3	2.45	0.51
2:X:460:VAL:HB	2:X:465:ASP:HB3	1.92	0.51
1:K:398:GLN:O	1:K:402:VAL:HG23	2.11	0.51
1:T:203:CYS:HB2	1:T:231:SER:HB3	1.92	0.51
1:C:68:LEU:O	2:D:15:ALA:HA	2.11	0.51
2:F:293:GLN:HG2	2:F:328:HIS:CB	2.41	0.51
1:K:144:VAL:HG12	1:K:163:ARG:O	2.11	0.51
2:M:86:PRO:HD3	2:M:114:ARG:NH1	2.26	0.51
1:S:399:TYR:CD1	1:S:423:GLY:HA3	2.45	0.51
2:V:266:SER:HB2	2:V:282:GLN:HE21	1.75	0.51
3:Y:226:TYR:O	3:Y:230:ILE:HG12	2.10	0.51
1:C:395:PHE:CZ	1:C:422:ARG:HB3	2.45	0.51
1:B:338:ALA:HB3	1:B:341:PRO:HG2	1.92	0.51
1:C:336:VAL:HG11	1:C:353:PHE:HE1	1.72	0.51
3:G:141:GLN:HG3	5:I:15:ASN:HD21	1.75	0.51
3:P:212:TYR:O	3:P:216:ASN:HB2	2.11	0.51
1:T:444:VAL:HG23	1:T:445:PRO:HD3	1.93	0.51
1:A:217:GLN:OE1	2:D:356:ARG:NH2	2.44	0.51
4:H:75:ALA:HA	4:H:84:CYS:O	2.09	0.51
2:M:391:LEU:CD2	3:P:83:LEU:CD1	2.90	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:V:184:PHE:HB3	2:V:217:LEU:HD23	1.92	0.51
2:W:15:ALA:HB3	2:W:22:ASP:HB2	1.92	0.51
1:K:55:VAL:HG21	1:K:75:ILE:HD13	1.93	0.50
1:T:389:ALA:HB2	1:T:447:ILE:HG21	1.92	0.50
1:B:187:ASN:OD1	1:B:190:ARG:NH1	2.43	0.50
1:B:272:ASP:OD1	1:B:274:SER:HB2	2.10	0.50
3:G:118:LEU:HB3	3:G:126:ILE:HD11	1.94	0.50
1:J:360:TYR:HE1	2:M:354:LYS:HZ1	1.58	0.50
3:P:77:ILE:HG23	3:P:110:ILE:HB	1.93	0.50
1:A:444:VAL:HG22	1:A:445:PRO:HD3	1.92	0.50
3:G:15:ASN:O	3:G:19:ILE:HG12	2.10	0.50
3:P:81:LYS:HB3	3:P:233:ARG:NH2	2.26	0.50
1:S:92:ARG:HH21	1:S:94:GLY:HA2	1.76	0.50
2:X:284:THR:O	2:X:286:ALA:N	2.44	0.50
1:C:55:VAL:HG21	1:C:75:ILE:HD13	1.93	0.50
1:C:168:LEU:HB2	1:C:348:THR:HG21	1.93	0.50
1:J:364:ARG:HA	1:J:365:PRO:C	2.31	0.50
2:X:390:ILE:HD11	3:Y:247:MET:SD	2.51	0.50
2:F:345:TYR:HA	2:F:346:PRO:C	2.31	0.50
1:K:285:LEU:HD22	2:N:275:ILE:HG22	1.93	0.50
1:L:187:ASN:O	1:L:190:ARG:HG3	2.11	0.50
1:C:395:PHE:HZ	1:C:422:ARG:HB3	1.76	0.50
2:M:391:LEU:HD22	3:P:83:LEU:CD1	2.41	0.50
3:P:164:ILE:HD11	3:P:182:ILE:HG12	1.93	0.50
2:W:150:GLY:HA2	2:W:304:VAL:O	2.12	0.50
1:C:336:VAL:CG1	1:C:353:PHE:CZ	2.86	0.50
3:G:23:MET:HG3	3:G:237:MET:HG2	1.93	0.50
2:M:314:ALA:O	2:M:315:ASP:HB2	2.12	0.50
2:X:15:ALA:HB3	2:X:22:ASP:HB2	1.94	0.50
3:Y:23:MET:HB3	3:Y:237:MET:HG3	1.93	0.50
1:B:30:THR:CG2	1:B:31:GLY:N	2.75	0.49
2:M:222:MET:HA	2:M:229:ARG:HD2	1.93	0.49
7:M:600:ANP:O5'	7:M:600:ANP:H8	2.11	0.49
2:F:140:VAL:HG12	2:F:414:LEU:HB3	1.95	0.49
1:J:70:PRO:HD3	2:N:15:ALA:HB2	1.93	0.49
2:W:152:LYS:HE3	2:W:296:ILE:HB	1.93	0.49
2:X:63:ALA:O	2:X:227:GLY:HA3	2.12	0.49
3:G:182:ILE:HG21	3:G:214:LEU:HD13	1.93	0.49
2:W:255:ILE:HB	2:W:308:GLN:HG2	1.94	0.49
3:Y:115:LYS:O	3:Y:119:LEU:HB2	2.11	0.49
1:B:444:VAL:HG23	1:B:445:PRO:HD3	1.95	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:444:VAL:CG2	1:B:445:PRO:HD3	2.42	0.49
2:D:136:THR:HA	2:D:174:ILE:HD11	1.94	0.49
1:J:336:VAL:CG1	1:J:353:PHE:CZ	2.87	0.49
1:L:349:ASP:HA	1:L:375:ARG:HD2	1.94	0.49
2:O:140:VAL:HG12	2:O:414:LEU:HD22	1.94	0.49
2:X:163:LYS:HG3	7:X:600:ANP:O1B	2.12	0.49
1:C:80:SER:OG	1:C:82:ARG:HG2	2.11	0.49
1:C:349:ASP:O	1:C:375:ARG:HB2	2.11	0.49
2:O:247:GLU:O	2:O:249:GLN:HG2	2.12	0.49
3:Y:78:THR:HG23	3:Y:91:LEU:HD22	1.94	0.49
1:B:390:GLY:O	1:B:391:SER:HB2	2.11	0.49
3:G:78:THR:OG1	3:G:114:ILE:HB	2.12	0.49
2:M:336:SER:HB3	2:M:339:ILE:HG12	1.94	0.49
7:M:600:ANP:O2G	7:M:600:ANP:O2B	2.31	0.49
2:O:460:VAL:HB	2:O:465:ASP:HB3	1.93	0.49
2:W:98:VAL:HB	2:W:232:VAL:HG13	1.94	0.49
2:D:149:ARG:HH11	2:D:149:ARG:HG3	1.78	0.49
4:Q:16:LEU:CB	4:Q:17:PRO:HD2	2.43	0.49
2:D:319:ASP:O	2:D:322:PRO:HD2	2.13	0.49
1:J:164:GLY:HA2	1:J:323:LEU:O	2.13	0.49
1:J:425:ARG:HG3	1:J:425:ARG:NH1	2.28	0.49
3:P:150:LEU:O	3:P:154:MET:HB2	2.13	0.49
3:P:162:ILE:HB	3:P:182:ILE:O	2.12	0.49
2:X:345:TYR:HA	2:X:346:PRO:C	2.33	0.49
2:F:33:ILE:O	2:F:34:LEU:HB2	2.12	0.49
3:P:109:THR:O	3:P:129:SER:HA	2.12	0.49
1:T:211:LYS:HD2	2:W:328:HIS:HA	1.95	0.49
1:T:364:ARG:HA	1:T:365:PRO:C	2.33	0.49
2:V:15:ALA:HB3	2:V:22:ASP:HB2	1.94	0.49
1:B:387:GLN:OE1	1:B:491:LEU:HB2	2.12	0.49
1:C:203:CYS:O	1:C:231:SER:HA	2.13	0.49
2:F:137:GLY:HA2	2:F:432:VAL:O	2.13	0.49
1:C:336:VAL:CG1	1:C:353:PHE:HZ	2.24	0.48
1:J:174:GLN:OE1	2:M:354:LYS:HD2	2.13	0.48
2:V:9:ILE:HB	2:V:78:ASP:HB3	1.95	0.48
1:L:375:ARG:NH1	7:M:600:ANP:O2A	2.46	0.48
2:M:149:ARG:HG2	2:M:149:ARG:NH1	2.10	0.48
2:O:9:ILE:H	2:O:9:ILE:HD12	1.78	0.48
2:W:204:THR:OG1	2:W:420:VAL:HB	2.14	0.48
2:X:298:THR:HG23	2:X:303:SER:HA	1.94	0.48
2:F:279:VAL:HG12	2:F:279:VAL:O	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:J:182:LEU:HD13	1:J:218:LEU:HD11	1.94	0.48
2:V:242:TYR:CE1	2:V:246:GLU:HG3	2.47	0.48
1:K:383:LYS:O	1:K:387:GLN:HG3	2.13	0.48
3:P:115:LYS:HB2	3:P:129:SER:OG	2.14	0.48
1:A:484:GLU:HG2	1:A:495:LEU:HD11	1.94	0.48
1:B:119:GLY:O	2:N:89:ARG:NH2	2.47	0.48
2:E:133:ILE:HD12	2:E:146:PRO:HB2	1.96	0.48
2:F:377:THR:HG22	2:F:407:ALA:HB2	1.96	0.48
1:J:444:VAL:CG2	1:J:445:PRO:HD3	2.43	0.48
1:A:418:GLN:HG3	9:A:814:HOH:O	2.12	0.48
1:J:26:ASN:O	1:J:27:LEU:HB2	2.13	0.48
2:W:321:ALA:HB3	2:W:322:PRO:CD	2.44	0.48
2:D:242:TYR:CE1	2:D:246:GLU:HG3	2.48	0.48
1:J:217:GLN:OE1	2:M:356:ARG:NH2	2.47	0.48
2:V:89:ARG:NH1	2:V:247:GLU:OE2	2.46	0.48
1:J:359:PHE:CE1	1:J:364:ARG:NH2	2.82	0.48
2:O:150:GLY:HA2	2:O:304:VAL:O	2.14	0.48
1:T:54:LEU:HD21	1:T:62:LYS:HD3	1.96	0.48
1:T:219:VAL:HG22	1:T:233:ILE:HG13	1.95	0.48
1:J:54:LEU:HD13	1:J:97:VAL:HG22	1.94	0.48
1:K:28:ASN:HB3	1:K:48:ASN:ND2	2.29	0.48
2:X:363:VAL:HB	2:X:367:HIS:ND1	2.28	0.48
3:G:54:ASN:C	3:G:56:GLU:H	2.17	0.47
1:S:138:ILE:HD13	2:W:191:THR:HG23	1.95	0.47
2:X:319:ASP:OD1	2:X:320:PRO:HD2	2.14	0.47
3:Y:130:ILE:HD13	3:Y:146:ILE:HG12	1.96	0.47
3:Y:220:THR:O	3:Y:224:GLN:HG3	2.13	0.47
1:C:103:PRO:HD3	1:C:258:TRP:CH2	2.49	0.47
1:L:413:ASP:O	1:L:416:THR:HG22	2.14	0.47
2:M:409:LYS:NZ	2:M:452:ILE:O	2.46	0.47
1:T:344:VAL:HA	1:T:347:ILE:HD12	1.95	0.47
1:C:222:LEU:HB2	1:C:228:MET:HE2	1.97	0.47
3:G:93:LYS:HE2	3:G:97:ARG:HH22	1.79	0.47
1:U:395:PHE:CE2	1:U:422:ARG:HD2	2.50	0.47
1:L:39:GLY:HA2	1:L:77:LEU:HD12	1.96	0.47
1:L:345:ILE:HG12	1:L:351:GLN:HG2	1.97	0.47
2:N:321:ALA:HB3	2:N:322:PRO:CD	2.45	0.47
3:P:86:SER:O	3:P:87:ILE:C	2.51	0.47
2:X:97:ASN:HD22	2:X:101:GLU:HB2	1.79	0.47
1:C:64:MET:HG3	1:C:97:VAL:HG21	1.95	0.47
3:G:75:VAL:HB	3:G:164:ILE:CD1	2.44	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:398:GLN:O	1:B:402:VAL:HG23	2.15	0.47
1:A:354:LEU:HA	1:A:366:ALA:O	2.15	0.47
1:B:142:ARG:HG2	1:B:143:SER:N	2.30	0.47
2:D:314:ALA:O	2:D:315:ASP:HB2	2.15	0.47
2:F:293:GLN:HG2	2:F:328:HIS:HB3	1.96	0.47
3:G:169:PRO:HD3	3:G:224:GLN:O	2.14	0.47
1:K:92:ARG:HH21	1:K:94:GLY:HA2	1.78	0.47
1:L:290:PRO:HB2	2:M:270:ALA:HB1	1.97	0.47
2:N:255:ILE:HB	2:N:308:GLN:HG2	1.97	0.47
2:O:197:LEU:O	2:O:201:MET:HG2	2.15	0.47
2:D:222:MET:HA	2:D:229:ARG:HD2	1.96	0.47
1:K:140:PRO:HB3	1:K:318:GLU:HG3	1.97	0.47
2:V:136:THR:HA	2:V:174:ILE:HD11	1.97	0.47
1:B:36:VAL:CG1	2:E:53:HIS:HB2	2.45	0.47
1:K:260:ARG:O	1:K:321:GLY:HA3	2.14	0.47
1:S:270:TYR:O	1:S:272:ASP:HA	2.14	0.47
2:D:189:GLU:O	2:D:221:GLN:HB3	2.15	0.47
2:M:136:THR:HA	2:M:174:ILE:HD11	1.97	0.47
2:M:391:LEU:CD2	3:P:83:LEU:HD13	2.45	0.47
2:N:15:ALA:HB3	2:N:22:ASP:HB2	1.97	0.47
2:N:220:GLY:CA	2:N:232:VAL:HG11	2.45	0.47
1:S:50:GLN:HG2	2:W:71:VAL:HG22	1.96	0.47
1:T:398:GLN:O	1:T:402:VAL:HG23	2.15	0.47
2:W:85:VAL:CG1	2:W:235:THR:HG23	2.28	0.47
1:K:99:VAL:CG1	1:K:251:THR:HB	2.34	0.46
1:S:192:ASN:HA	1:S:200:LYS:HG2	1.97	0.46
2:E:201:MET:SD	2:E:217:LEU:HD21	2.55	0.46
1:K:384:ALA:O	1:K:388:VAL:HG13	2.15	0.46
3:P:180:LYS:NZ	3:P:220:THR:HB	2.29	0.46
1:S:353:PHE:HD2	1:S:371:LEU:HB3	1.80	0.46
1:L:360:TYR:OH	2:O:354:LYS:NZ	2.23	0.46
2:E:321:ALA:HB3	2:E:322:PRO:CD	2.46	0.46
2:E:374:VAL:HG23	2:E:445:LEU:HD11	1.97	0.46
2:F:460:VAL:HB	2:F:465:ASP:HB3	1.97	0.46
1:L:272:ASP:OD1	1:L:274:SER:HB2	2.16	0.46
1:L:481:LEU:HD21	1:L:498:SER:HB3	1.96	0.46
2:E:112:LYS:HD2	1:K:120:LYS:HG2	1.98	0.46
1:J:211:LYS:NZ	2:M:330:ASP:OD1	2.44	0.46
2:M:197:LEU:O	2:M:201:MET:HG2	2.16	0.46
1:S:50:GLN:HB2	1:S:53:GLU:HB2	1.97	0.46
1:U:392:LEU:HD13	1:U:451:VAL:HG22	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:Y:9:ARG:HG2	3:Y:251:TYR:CE1	2.50	0.46
1:A:99:VAL:HG21	1:A:251:THR:HG23	1.98	0.46
1:C:209:GLY:HA3	1:C:275:LYS:HD3	1.97	0.46
2:E:410:ILE:HG23	2:E:441:PHE:HE2	1.81	0.46
1:K:106:LEU:HD23	1:K:229:LYS:O	2.15	0.46
3:P:14:LYS:HA	3:P:248:ILE:HD11	1.97	0.46
2:D:224:GLU:O	2:D:229:ARG:HD3	2.14	0.46
2:V:190:ARG:HD2	2:V:193:GLU:OE2	2.16	0.46
2:N:345:TYR:HA	2:N:346:PRO:C	2.36	0.46
1:A:270:TYR:O	1:A:272:ASP:HA	2.16	0.46
2:O:33:ILE:O	2:O:34:LEU:HB2	2.16	0.46
2:V:50:VAL:HA	2:V:61:THR:HG22	1.98	0.46
2:W:384:LEU:O	2:W:388:ILE:HG12	2.16	0.46
7:F:600:ANP:O5'	7:F:600:ANP:H8	2.15	0.46
1:J:444:VAL:HG22	1:J:445:PRO:HD3	1.98	0.46
3:P:227:ALA:HA	3:P:230:ILE:HG22	1.98	0.46
1:T:421:VAL:O	1:T:425:ARG:HG2	2.16	0.46
2:V:339:ILE:HG22	2:V:344:ILE:HB	1.97	0.46
1:C:202:TYR:O	1:C:266:ALA:HA	2.16	0.45
2:D:200:GLU:OE1	2:D:200:GLU:HA	2.16	0.45
2:F:197:LEU:O	2:F:201:MET:HG2	2.16	0.45
2:F:242:TYR:CE1	2:F:246:GLU:HG3	2.51	0.45
2:O:377:THR:HG22	2:O:407:ALA:HB2	1.99	0.45
1:A:407:GLN:O	1:A:410:SER:N	2.49	0.45
1:C:417:LYS:O	1:C:421:VAL:HG23	2.15	0.45
2:F:155:LEU:HD12	2:F:167:ILE:HG13	1.99	0.45
1:T:140:PRO:HB3	1:T:318:GLU:HG3	1.98	0.45
1:L:280:TYR:CD2	1:L:297:PRO:HG2	2.51	0.45
2:N:242:TYR:CZ	2:N:246:GLU:HG3	2.50	0.45
1:B:203:CYS:HB2	1:B:231:SER:HB3	1.98	0.45
2:E:220:GLY:HA3	2:E:232:VAL:HG11	1.98	0.45
1:J:402:VAL:HG12	1:J:402:VAL:O	2.14	0.45
1:T:54:LEU:HD12	1:T:97:VAL:HG22	1.98	0.45
1:B:36:VAL:HG13	2:E:53:HIS:HB2	1.98	0.45
1:B:68:LEU:HB3	2:F:72:ARG:HD3	1.98	0.45
2:D:89:ARG:NH1	2:D:247:GLU:OE2	2.49	0.45
2:E:259:PHE:CE1	2:E:313:PRO:HG3	2.51	0.45
5:I:31:THR:OG1	5:I:32:ALA:N	2.50	0.45
1:T:92:ARG:HH21	1:T:94:GLY:HA2	1.81	0.45
2:D:345:TYR:HA	2:D:346:PRO:C	2.36	0.45
3:G:77:ILE:HD13	3:G:110:ILE:HD12	1.99	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:T:77:LEU:O	1:T:243:PRO:HG2	2.16	0.45
1:T:338:ALA:HB3	1:T:341:PRO:HG2	1.99	0.45
3:Y:28:SER:OG	3:Y:234:ARG:HD2	2.17	0.45
1:A:391:SER:OG	1:A:451:VAL:HG11	2.17	0.45
1:K:444:VAL:HG21	1:K:485:ILE:HG21	1.97	0.45
2:M:339:ILE:HG22	2:M:344:ILE:HB	1.99	0.45
1:T:384:ALA:O	1:T:388:VAL:HG22	2.16	0.45
1:A:148:VAL:HG21	1:A:324:THR:HG21	1.98	0.45
1:K:203:CYS:HB2	1:K:231:SER:HB3	1.99	0.45
2:M:24:HIS:CE1	2:M:25:PHE:O	2.70	0.45
2:D:134:LEU:HD13	2:D:149:ARG:NH1	2.32	0.45
1:S:174:GLN:HA	7:S:600:ANP:HNB1	1.80	0.45
1:S:332:GLN:HB3	2:V:318:THR:HB	1.98	0.45
1:S:402:VAL:HG12	1:S:402:VAL:O	2.16	0.45
2:X:313:PRO:HG2	2:X:319:ASP:OD2	2.16	0.45
1:K:250:PHE:CE1	1:K:307:LEU:HB2	2.52	0.45
4:Q:52:LEU:CB	9:Q:802:HOH:O	2.64	0.45
1:S:99:VAL:CG2	1:S:100:PRO:HD2	2.47	0.45
2:X:95:ILE:HD12	2:X:104:ASP:HB3	1.98	0.45
3:Y:253:ILE:CG2	3:Y:257:ARG:HH22	2.30	0.45
1:L:436:SER:N	1:L:437:PRO:HD3	2.31	0.44
2:N:321:ALA:N	2:N:322:PRO:HD2	2.32	0.44
3:P:88:HIS:CD2	3:P:113:LYS:CB	2.89	0.44
3:P:205:VAL:H	3:P:206:PRO:HD3	1.83	0.44
1:T:43:VAL:HG21	1:T:75:ILE:HD12	1.99	0.44
2:M:149:ARG:CG	2:M:149:ARG:NH1	2.65	0.44
2:M:395:GLU:OE1	2:M:395:GLU:HA	2.17	0.44
1:S:309:GLU:HG3	2:W:223:ASN:HB3	1.99	0.44
2:X:189:GLU:O	2:X:221:GLN:HB3	2.17	0.44
2:F:189:GLU:O	2:F:221:GLN:HB3	2.16	0.44
1:S:219:VAL:HG22	1:S:233:ILE:HG13	1.99	0.44
1:T:85:LYS:HE2	2:W:32:ALA:HB2	1.99	0.44
1:A:69:GLU:HB3	1:A:70:PRO:HD2	1.99	0.44
1:B:30:THR:HG21	1:B:89:LEU:HD11	2.00	0.44
1:C:103:PRO:HD3	1:C:258:TRP:CZ2	2.53	0.44
2:M:231:ARG:HA	2:M:231:ARG:HD3	1.81	0.44
2:N:25:PHE:HB2	2:N:30:LEU:HD23	1.99	0.44
2:W:167:ILE:HG23	2:W:254:PHE:CE2	2.53	0.44
2:W:244:ARG:HD3	2:W:304:VAL:HG23	2.00	0.44
1:B:103:PRO:HD3	1:B:258:TRP:CZ2	2.53	0.44
1:C:455:LEU:HD21	1:C:466:PHE:CE1	2.53	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:52:GLN:HG3	2:F:60:ARG:HB3	1.99	0.44
3:G:90:GLN:HA	3:G:93:LYS:HB2	1.99	0.44
1:L:455:LEU:HD21	1:L:466:PHE:CE1	2.53	0.44
1:U:382:VAL:HG12	1:U:384:ALA:H	1.82	0.44
1:C:93:THR:HG22	1:C:95:ASN:OD1	2.17	0.44
1:J:40:ILE:CD1	1:J:76:VAL:HG12	2.46	0.44
1:L:222:LEU:HB2	1:L:228:MET:HE2	2.00	0.44
3:Y:121:THR:C	3:Y:123:PRO:HD3	2.38	0.44
3:P:94:ALA:C	3:P:96:ARG:N	2.71	0.44
2:V:189:GLU:O	2:V:221:GLN:HB3	2.18	0.44
2:V:262:THR:O	2:V:282:GLN:NE2	2.50	0.44
2:V:396:LEU:HD12	2:V:400:ASP:HB3	2.00	0.44
1:B:444:VAL:N	1:B:445:PRO:CD	2.81	0.44
2:F:33:ILE:HG22	2:F:34:LEU:HG	1.99	0.44
2:F:160:GLY:HA2	7:F:600:ANP:HNB1	1.82	0.44
1:L:378:SER:HB2	1:L:386:LYS:HG3	2.00	0.44
2:O:345:TYR:HA	2:O:346:PRO:C	2.38	0.44
2:V:29:GLU:HG3	2:V:29:GLU:O	2.18	0.44
2:W:409:LYS:NZ	2:W:450:ASP:O	2.50	0.44
2:X:160:GLY:N	7:X:600:ANP:HNB1	2.07	0.44
1:B:383:LYS:O	1:B:387:GLN:HG3	2.18	0.44
4:H:79:PRO:C	4:H:81:SER:H	2.20	0.44
2:O:158:GLY:O	2:O:161:VAL:HG22	2.17	0.44
1:C:285:LEU:HD21	1:C:291:PRO:HB3	2.00	0.43
4:H:72:GLY:O	4:H:87:ALA:HA	2.17	0.43
1:K:251:THR:O	1:K:255:ILE:HG13	2.16	0.43
7:K:600:ANP:H5'1	7:K:600:ANP:H8	2.00	0.43
1:L:239:SER:HB3	2:O:294:GLU:HG3	1.99	0.43
1:L:416:THR:O	1:L:419:THR:HG22	2.17	0.43
2:M:184:PHE:HB3	2:M:217:LEU:HD23	1.99	0.43
2:O:90:GLU:HG3	2:O:111:SER:HA	2.00	0.43
1:S:509:THR:HG22	1:S:509:THR:O	2.18	0.43
2:W:448:LYS:O	2:W:449:TYR:HB2	2.18	0.43
1:B:27:LEU:O	1:B:47:ASN:ND2	2.51	0.43
2:E:174:ILE:HD12	2:E:178:HIS:HD2	1.82	0.43
2:N:384:LEU:O	2:N:388:ILE:HG12	2.17	0.43
1:U:416:THR:O	1:U:420:LEU:HB2	2.16	0.43
2:X:90:GLU:HG3	2:X:111:SER:HA	2.00	0.43
1:T:288:ARG:NH1	2:W:275:ILE:HD11	2.33	0.43
1:U:428:GLN:NE2	1:U:431:LYS:HD2	2.34	0.43
2:N:321:ALA:HB3	2:N:322:PRO:HD3	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:O:52:GLN:HE21	2:O:60:ARG:HD2	1.83	0.43
1:S:295:ALA:HB2	3:Y:270:ILE:HD13	2.01	0.43
1:B:421:VAL:O	1:B:425:ARG:HG2	2.19	0.43
1:C:354:LEU:HA	1:C:366:ALA:O	2.18	0.43
3:G:77:ILE:CD1	3:G:110:ILE:HD12	2.49	0.43
1:L:177:LYS:HB2	1:L:177:LYS:HE2	1.84	0.43
1:U:174:GLN:HB3	2:X:354:LYS:HD3	1.99	0.43
1:U:187:ASN:OD1	1:U:190:ARG:NH1	2.51	0.43
2:V:321:ALA:HB3	2:V:322:PRO:HD3	2.00	0.43
1:B:505:SER:O	1:B:509:THR:HG22	2.19	0.43
1:C:219:VAL:HG12	1:C:228:MET:HE1	2.01	0.43
2:D:425:THR:HB	2:D:427:ILE:HD12	2.01	0.43
2:F:293:GLN:HA	2:F:293:GLN:OE1	2.19	0.43
1:K:478:HIS:HB3	1:K:481:LEU:HG	1.99	0.43
2:V:314:ALA:O	2:V:315:ASP:HB2	2.19	0.43
2:X:33:ILE:O	2:X:34:LEU:HB2	2.18	0.43
1:A:309:GLU:HG3	2:E:223:ASN:HB3	2.00	0.43
1:C:242:ALA:N	1:C:243:PRO:CD	2.81	0.43
1:K:270:TYR:O	1:K:272:ASP:HA	2.18	0.43
1:U:189:LYS:HE3	1:U:226:ASP:HB3	2.00	0.43
1:B:146:GLU:HA	1:B:147:PRO:HD3	1.88	0.43
3:G:118:LEU:HA	3:G:121:THR:HG22	2.00	0.43
1:L:211:LYS:HE3	1:L:213:SER:OG	2.18	0.43
2:N:256:ASP:HA	2:N:257:ASN:HA	1.77	0.43
2:O:363:VAL:HB	2:O:367:HIS:ND1	2.33	0.43
3:Y:133:ILE:O	3:Y:135:LYS:N	2.48	0.43
2:D:143:LEU:O	2:D:367:HIS:HE1	2.02	0.43
1:K:85:LYS:HE2	2:N:32:ALA:HB2	2.01	0.43
1:L:168:LEU:HB2	1:L:348:THR:HG21	2.01	0.43
1:T:383:LYS:O	1:T:387:GLN:HG3	2.18	0.43
1:U:353:PHE:CE2	1:U:371:LEU:O	2.72	0.43
1:U:478:HIS:O	1:U:481:LEU:HB2	2.19	0.43
2:V:33:ILE:O	2:V:34:LEU:HB2	2.18	0.43
2:X:202:LYS:HE3	2:X:209:LEU:HD11	2.01	0.43
2:X:440:SER:O	2:X:444:VAL:HG23	2.19	0.43
2:F:256:ASP:HA	2:F:257:ASN:HA	1.88	0.43
2:N:204:THR:OG1	2:N:420:VAL:HB	2.19	0.43
1:B:285:LEU:HD22	2:E:275:ILE:CG2	2.47	0.42
1:C:492:SER:H	1:C:495:LEU:HD12	1.83	0.42
1:L:378:SER:C	1:L:380:ALA:H	2.23	0.42
2:M:204:THR:HB	2:M:206:VAL:HG23	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:S:168:LEU:HD11	1:S:329:ILE:HB	2.01	0.42
1:U:243:PRO:HA	1:U:283:LEU:HD11	2.01	0.42
2:X:50:VAL:HA	2:X:61:THR:HG22	2.00	0.42
2:X:345:TYR:HB3	7:X:600:ANP:C6	2.49	0.42
1:B:69:GLU:HB3	1:B:70:PRO:HD2	2.01	0.42
2:E:190:ARG:HG3	2:E:190:ARG:HH11	1.84	0.42
2:F:237:LEU:HD21	2:F:295:ARG:HB2	2.01	0.42
1:J:483:THR:HG23	1:J:486:ARG:NH2	2.34	0.42
1:L:378:SER:C	1:L:380:ALA:N	2.73	0.42
3:Y:78:THR:HG23	3:Y:91:LEU:CD2	2.49	0.42
2:F:452:ILE:HA	2:F:453:PRO:HD3	1.90	0.42
2:M:345:TYR:HA	2:M:346:PRO:C	2.38	0.42
2:O:155:LEU:HD12	2:O:167:ILE:HG13	2.00	0.42
2:O:237:LEU:HD13	2:O:296:ILE:HG12	2.01	0.42
2:V:201:MET:SD	2:V:215:VAL:HG11	2.59	0.42
2:W:9:ILE:HG23	2:W:29:GLU:HG2	2.01	0.42
1:A:26:ASN:HB3	1:A:30:THR:OG1	2.19	0.42
1:K:129:SER:HB2	1:K:254:SER:HB3	2.01	0.42
1:L:364:ARG:HA	1:L:365:PRO:C	2.40	0.42
2:M:373:LYS:HB3	2:M:445:LEU:HD13	2.02	0.42
2:N:275:ILE:HA	2:N:276:PRO:HD3	1.81	0.42
1:S:185:ILE:HG23	1:S:203:CYS:SG	2.60	0.42
3:Y:80:ASP:OD2	3:Y:111:GLY:HA2	2.19	0.42
1:B:296:TYR:HB3	1:B:297:PRO:HD2	2.01	0.42
2:D:256:ASP:HA	2:D:257:ASN:HA	1.88	0.42
2:F:234:LEU:HD23	2:F:292:LEU:HD13	2.02	0.42
1:U:354:LEU:HA	1:U:366:ALA:O	2.19	0.42
3:G:3:LEU:C	3:G:3:LEU:HD23	2.40	0.42
1:J:38:ASP:OD1	2:M:274:ARG:NH2	2.47	0.42
1:L:34:LEU:O	2:O:55:GLY:HA2	2.20	0.42
2:E:150:GLY:HA2	2:E:304:VAL:O	2.20	0.42
2:M:64:MET:HE3	2:M:228:ALA:HA	2.01	0.42
2:N:258:ILE:HG22	2:N:309:ALA:O	2.20	0.42
1:T:340:ILE:HB	1:T:341:PRO:HD3	2.02	0.42
1:T:444:VAL:HG21	1:T:485:ILE:HG21	2.01	0.42
2:X:140:VAL:HG21	2:X:348:VAL:HB	2.01	0.42
2:X:464:GLU:O	2:X:464:GLU:HG3	2.20	0.42
5:1:18:ALA:C	5:1:20:ALA:H	2.23	0.42
1:C:242:ALA:HB3	1:C:243:PRO:CD	2.41	0.42
2:E:220:GLY:CA	2:E:232:VAL:HG11	2.49	0.42
1:L:93:THR:HG22	1:L:95:ASN:OD1	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:M:391:LEU:CD2	3:P:83:LEU:HD11	2.49	0.42
2:N:356:ARG:HB3	2:N:356:ARG:NH1	2.35	0.42
2:O:140:VAL:HG23	2:O:141:VAL:N	2.35	0.42
2:W:345:TYR:HA	2:W:346:PRO:C	2.39	0.42
1:L:375:ARG:HA	7:M:600:ANP:O3'	2.20	0.42
1:U:271:ASP:HA	1:U:272:ASP:HA	1.80	0.42
2:X:282:GLN:HA	2:X:283:PRO:HD3	1.94	0.42
2:F:321:ALA:HB3	2:F:322:PRO:CD	2.49	0.42
3:G:140:PHE:HA	3:G:219:LEU:HD12	2.01	0.42
1:J:42:ARG:HE	1:J:72:GLN:HE22	1.66	0.42
1:S:360:TYR:HE1	2:V:354:LYS:HZ1	1.66	0.42
2:W:275:ILE:HA	2:W:276:PRO:HD3	1.88	0.42
1:B:219:VAL:HG22	1:B:233:ILE:HG13	2.02	0.41
2:E:452:ILE:HA	2:E:453:PRO:HD2	1.93	0.41
2:F:71:VAL:HG12	2:F:72:ARG:O	2.20	0.41
2:O:285:LEU:HD23	2:O:285:LEU:C	2.40	0.41
1:S:99:VAL:HG21	1:S:251:THR:CG2	2.49	0.41
1:U:364:ARG:HA	1:U:365:PRO:C	2.40	0.41
2:V:282:GLN:H	2:V:282:GLN:HG3	1.50	0.41
2:N:140:VAL:HG13	2:N:414:LEU:HD22	2.02	0.41
1:U:357:GLU:HG3	2:X:379:GLN:NE2	2.35	0.41
1:C:139:LEU:N	1:C:140:PRO:HD2	2.35	0.41
2:E:95:ILE:HG12	2:E:217:LEU:HD12	2.02	0.41
1:L:211:LYS:HB2	2:O:294:GLU:OE2	2.20	0.41
2:M:64:MET:CE	2:M:228:ALA:HA	2.51	0.41
2:E:27:GLN:H	2:E:27:GLN:HG3	1.64	0.41
2:E:120:ASP:HA	2:E:121:PRO:HD3	1.90	0.41
1:S:236:ALA:HA	1:S:240:GLU:OE1	2.19	0.41
1:S:425:ARG:HD3	1:S:455:LEU:O	2.20	0.41
1:T:335:ASP:OD1	1:T:337:SER:HB2	2.19	0.41
1:A:267:LEU:HD11	1:A:326:LEU:HG	2.02	0.41
1:C:160:PRO:O	1:C:374:SER:OG	2.26	0.41
2:D:98:VAL:HG13	2:D:99:ILE:HG23	2.03	0.41
1:U:340:ILE:N	1:U:341:PRO:CD	2.83	0.41
1:C:83:LEU:HD23	1:C:83:LEU:HA	1.91	0.41
2:E:218:VAL:HG21	2:E:236:GLY:HA2	2.03	0.41
2:M:15:ALA:HB3	2:M:22:ASP:HB2	2.03	0.41
2:X:247:GLU:O	2:X:249:GLN:HG2	2.21	0.41
3:Y:86:SER:O	3:Y:90:GLN:HB2	2.20	0.41
1:L:421:VAL:HG13	1:L:425:ARG:NH1	2.35	0.41
2:M:137:GLY:HA2	2:M:432:VAL:O	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:U:344:VAL:HA	1:U:347:ILE:HD12	2.01	0.41
1:A:450:GLY:HA2	1:A:455:LEU:HD12	2.03	0.41
1:C:181:ALA:HB1	1:C:269:VAL:HG21	2.02	0.41
2:F:52:GLN:NE2	2:F:60:ARG:HD2	2.24	0.41
2:M:37:LEU:HB3	2:M:76:VAL:HG12	2.03	0.41
2:M:258:ILE:HD11	2:M:292:LEU:HD21	2.03	0.41
2:N:9:ILE:HB	2:N:78:ASP:HB3	2.03	0.41
1:S:421:VAL:HG13	1:S:425:ARG:NH2	2.36	0.41
2:W:259:PHE:CE1	2:W:313:PRO:HG3	2.56	0.41
1:A:34:LEU:HD23	1:A:34:LEU:HA	1.89	0.41
3:G:202:ASP:OD1	3:G:202:ASP:N	2.50	0.41
1:J:134:LYS:HA	1:J:134:LYS:HD3	1.83	0.41
1:K:92:ARG:HE	1:K:92:ARG:HB3	1.74	0.41
1:K:338:ALA:HB3	1:K:341:PRO:HG2	2.03	0.41
1:L:280:TYR:CE2	1:L:297:PRO:HG2	2.56	0.41
2:M:98:VAL:HG13	2:M:99:ILE:HG23	2.03	0.41
2:M:164:THR:O	2:M:168:GLN:HG3	2.21	0.41
3:P:164:ILE:HG12	3:P:180:LYS:O	2.20	0.41
1:T:168:LEU:HD11	1:T:329:ILE:HB	2.03	0.41
1:T:210:GLN:NE2	1:T:271:ASP:O	2.51	0.41
1:T:444:VAL:N	1:T:445:PRO:CD	2.84	0.41
2:W:133:ILE:HD12	2:W:146:PRO:HB2	2.03	0.41
2:X:242:TYR:CE1	2:X:246:GLU:HG3	2.55	0.41
2:X:256:ASP:HA	2:X:257:ASN:HA	1.85	0.41
1:A:138:ILE:HD13	2:E:191:THR:HG23	2.03	0.41
2:F:97:ASN:HD22	2:F:101:GLU:HB2	1.86	0.41
1:L:354:LEU:HA	1:L:366:ALA:O	2.21	0.41
1:L:378:SER:O	1:L:380:ALA:N	2.54	0.41
2:W:276:PRO:HG2	3:Y:267:LEU:HD21	2.03	0.41
2:X:97:ASN:HB2	2:X:101:GLU:H	1.86	0.41
2:X:142:ASP:HB3	2:X:434:LEU:HD12	2.02	0.41
1:C:243:PRO:HA	1:C:283:LEU:HD11	2.03	0.40
2:E:427:ILE:HA	2:E:428:PRO:HD2	1.94	0.40
3:G:180:LYS:HE3	3:G:217:GLN:HB3	2.03	0.40
1:K:444:VAL:HG23	1:K:445:PRO:CD	2.49	0.40
1:L:340:ILE:HB	1:L:341:PRO:HD3	2.03	0.40
2:M:96:ILE:HG22	2:M:97:ASN:O	2.21	0.40
1:U:211:LYS:HA	2:X:294:GLU:OE2	2.21	0.40
1:U:340:ILE:HB	1:U:341:PRO:HD3	2.03	0.40
2:X:382:LYS:O	2:X:385:GLN:HG2	2.20	0.40
2:E:204:THR:HG23	2:E:206:VAL:H	1.87	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:158:GLY:O	2:F:161:VAL:HG22	2.21	0.40
2:F:266:SER:HB3	2:F:282:GLN:OE1	2.21	0.40
1:K:103:PRO:HD3	1:K:258:TRP:CZ2	2.57	0.40
1:K:103:PRO:O	1:K:106:LEU:HD13	2.21	0.40
1:L:40:ILE:CD1	1:L:76:VAL:HG12	2.51	0.40
2:M:337:ARG:O	2:M:341:GLU:HG3	2.21	0.40
1:S:54:LEU:HD11	1:S:78:PHE:HE2	1.86	0.40
2:W:321:ALA:HB3	2:W:322:PRO:HD3	2.03	0.40
2:X:382:LYS:HA	2:X:385:GLN:HE21	1.87	0.40
1:B:211:LYS:HD2	2:E:328:HIS:HA	2.03	0.40
1:C:107:GLY:HA2	1:C:228:MET:O	2.20	0.40
2:F:384:LEU:O	2:F:388:ILE:HG12	2.20	0.40
1:J:242:ALA:N	1:J:243:PRO:CD	2.84	0.40
1:K:170:ILE:HG13	1:K:329:ILE:HG22	2.03	0.40
1:S:99:VAL:HG23	1:S:100:PRO:HD2	2.03	0.40
1:U:360:TYR:O	2:X:376:GLU:HA	2.20	0.40
1:A:300:VAL:CG1	1:A:339:TYR:HE2	2.35	0.40
2:D:178:HIS:NE2	2:D:250:ASP:HB3	2.37	0.40
3:G:205:VAL:HG22	4:H:51:GLN:NE2	2.34	0.40
2:M:41:THR:HB	2:M:42:PRO:HD2	2.03	0.40
2:M:253:LEU:HD23	2:M:296:ILE:HG23	2.03	0.40
2:N:410:ILE:HG23	2:N:441:PHE:HE2	1.85	0.40
1:T:143:SER:H	2:X:199:ARG:HH22	1.68	0.40
1:U:109:VAL:HB	1:U:118:ASP:HB3	2.03	0.40
2:W:95:ILE:HD12	2:W:104:ASP:HB3	2.04	0.40
1:K:67:ASN:HB2	2:O:17:ILE:CG1	2.44	0.40
2:O:394:ASP:CB	3:P:85:GLY:HA2	2.52	0.40
3:P:209:LEU:O	3:P:213:THR:OG1	2.39	0.40
2:X:53:HIS:CD2	2:X:59:VAL:HG12	2.57	0.40
3:Y:212:TYR:O	3:Y:216:ASN:HB2	2.21	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	478/510 (94%)	465 (97%)	13 (3%)	0	100	100
1	B	479/510 (94%)	462 (96%)	17 (4%)	0	100	100
1	C	482/510 (94%)	469 (97%)	12 (2%)	1 (0%)	47	78
1	J	477/510 (94%)	466 (98%)	11 (2%)	0	100	100
1	K	482/510 (94%)	469 (97%)	13 (3%)	0	100	100
1	L	478/510 (94%)	458 (96%)	19 (4%)	1 (0%)	47	78
1	S	476/510 (93%)	461 (97%)	15 (3%)	0	100	100
1	T	477/510 (94%)	466 (98%)	10 (2%)	1 (0%)	47	78
1	U	477/510 (94%)	462 (97%)	14 (3%)	1 (0%)	47	78
2	D	468/478 (98%)	452 (97%)	16 (3%)	0	100	100
2	E	466/478 (98%)	446 (96%)	19 (4%)	1 (0%)	47	78
2	F	467/478 (98%)	445 (95%)	19 (4%)	3 (1%)	25	56
2	M	468/478 (98%)	449 (96%)	19 (4%)	0	100	100
2	N	468/478 (98%)	454 (97%)	13 (3%)	1 (0%)	47	78
2	O	466/478 (98%)	446 (96%)	19 (4%)	1 (0%)	47	78
2	V	468/478 (98%)	448 (96%)	20 (4%)	0	100	100
2	W	465/478 (97%)	450 (97%)	14 (3%)	1 (0%)	47	78
2	X	467/478 (98%)	448 (96%)	18 (4%)	1 (0%)	47	78
3	G	261/278 (94%)	235 (90%)	23 (9%)	3 (1%)	14	41
3	P	229/278 (82%)	201 (88%)	21 (9%)	7 (3%)	4	14
3	Y	188/278 (68%)	172 (92%)	16 (8%)	0	100	100
4	H	110/138 (80%)	98 (89%)	10 (9%)	2 (2%)	8	28
4	Q	74/138 (54%)	59 (80%)	12 (16%)	3 (4%)	3	9
4	Z	15/138 (11%)	13 (87%)	2 (13%)	0	100	100
5	1	23/61 (38%)	20 (87%)	1 (4%)	2 (9%)	1	1
5	I	42/61 (69%)	35 (83%)	5 (12%)	2 (5%)	2	7
5	R	30/61 (49%)	23 (77%)	5 (17%)	2 (7%)	1	3
All	All	9481/10323 (92%)	9072 (96%)	376 (4%)	33 (0%)	41	72

All (33) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	G	135	LYS
5	I	31	THR
5	R	31	THR
5	R	32	ALA
3	G	204	ASN
4	H	93	LEU
1	L	390	GLY
3	P	204	ASN
3	P	211	GLU
4	Q	88	ILE
1	T	390	GLY
5	1	34	VAL
1	C	390	GLY
5	I	21	ILE
3	P	201	THR
3	P	206	PRO
2	F	68	GLU
3	P	144	ALA
3	P	169	PRO
5	1	19	GLN
2	F	279	VAL
4	Q	50	GLU
2	F	347	ALA
3	G	192	PRO
4	Q	81	SER
1	U	390	GLY
2	E	279	VAL
2	N	279	VAL
4	H	47	PRO
2	O	279	VAL
3	P	87	ILE
2	W	279	VAL
2	X	279	VAL

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	388/412 (94%)	382 (98%)	6 (2%)	65	89
1	B	388/412 (94%)	380 (98%)	8 (2%)	53	84
1	C	389/412 (94%)	382 (98%)	7 (2%)	59	86
1	J	387/412 (94%)	382 (99%)	5 (1%)	69	91
1	K	388/412 (94%)	379 (98%)	9 (2%)	50	82
1	L	388/412 (94%)	378 (97%)	10 (3%)	46	79
1	S	387/412 (94%)	378 (98%)	9 (2%)	50	82
1	T	388/412 (94%)	382 (98%)	6 (2%)	65	89
1	U	388/412 (94%)	381 (98%)	7 (2%)	59	86
2	D	380/384 (99%)	374 (98%)	6 (2%)	62	88
2	E	378/384 (98%)	373 (99%)	5 (1%)	69	91
2	F	379/384 (99%)	374 (99%)	5 (1%)	69	91
2	M	380/384 (99%)	372 (98%)	8 (2%)	53	84
2	N	380/384 (99%)	373 (98%)	7 (2%)	59	86
2	O	379/384 (99%)	376 (99%)	3 (1%)	81	94
2	V	380/384 (99%)	372 (98%)	8 (2%)	53	84
2	W	378/384 (98%)	374 (99%)	4 (1%)	73	92
2	X	379/384 (99%)	374 (99%)	5 (1%)	69	91
3	G	219/236 (93%)	206 (94%)	13 (6%)	19	49
3	P	198/236 (84%)	183 (92%)	15 (8%)	13	36
3	Y	163/236 (69%)	157 (96%)	6 (4%)	34	68
4	H	54/112 (48%)	52 (96%)	2 (4%)	34	68
4	Q	5/112 (4%)	5 (100%)	0	100	100
5	I	23/48 (48%)	20 (87%)	3 (13%)	4	13
All	All	7566/8144 (93%)	7409 (98%)	157 (2%)	53	84

All (157) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	142	ARG
1	A	166	ARG
1	A	246	TYR
1	A	353	PHE
1	A	416	THR
1	A	468	SER

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Mol	Chain	Res	Type
1	B	54	LEU
1	B	67	ASN
1	B	99	VAL
1	B	142	ARG
1	B	159	VAL
1	B	183	ASP
1	B	468	SER
1	B	509	THR
1	C	197	GLU
1	C	353	PHE
1	C	411	ASP
1	C	416	THR
1	C	468	SER
1	C	481	LEU
1	C	509	THR
2	D	27	GLN
2	D	128	SER
2	D	149	ARG
2	D	167	ILE
2	D	200	GLU
2	D	388	ILE
2	E	199	ARG
2	E	232	VAL
2	E	356	ARG
2	E	380	THR
2	E	394	ASP
2	F	167	ILE
2	F	201	MET
2	F	293	GLN
2	F	303	SER
2	F	464	GLU
3	G	12	SER
3	G	17	GLU
3	G	77	ILE
3	G	93	LYS
3	G	143	SER
3	G	150	LEU
3	G	153	VAL
3	G	202	ASP
3	G	210	PHE
3	G	231	SER
3	G	237	MET

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Mol	Chain	Res	Type
3	G	254	LEU
3	G	276	SER
4	H	14	PHE
4	H	70	ILE
5	I	13	TYR
5	I	28	GLU
5	I	31	THR
1	J	81	ASP
1	J	246	TYR
1	J	353	PHE
1	J	363	ILE
1	J	393	LYS
1	K	54	LEU
1	K	69	GLU
1	K	99	VAL
1	K	159	VAL
1	K	183	ASP
1	K	225	HIS
1	K	246	TYR
1	K	293	ARG
1	K	509	THR
1	L	99	VAL
1	L	336	VAL
1	L	342	THR
1	L	399	TYR
1	L	401	GLU
1	L	419	THR
1	L	436	SER
1	L	468	SER
1	L	472	SER
1	L	481	LEU
2	M	6	SER
2	M	24	HIS
2	M	149	ARG
2	M	167	ILE
2	M	250	ASP
2	M	388	ILE
2	M	395	GLU
2	M	413	PHE
2	N	114	ARG
2	N	232	VAL
2	N	258	ILE

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Mol	Chain	Res	Type
2	N	352	ASP
2	N	380	THR
2	N	394	ASP
2	N	413	PHE
2	O	167	ILE
2	O	303	SER
2	O	464	GLU
3	P	29	THR
3	P	44	MET
3	P	78	THR
3	P	80	ASP
3	P	84	CYS
3	P	86	SER
3	P	107	ILE
3	P	112	ASP
3	P	129	SER
3	P	130	ILE
3	P	133	ILE
3	P	150	LEU
3	P	213	THR
3	P	216	ASN
3	P	276	SER
1	S	32	ARG
1	S	246	TYR
1	S	322	SER
1	S	353	PHE
1	S	361	LYS
1	S	393	LYS
1	S	425	ARG
1	S	441	GLU
1	S	492	SER
1	T	54	LEU
1	T	99	VAL
1	T	159	VAL
1	T	173	ARG
1	T	183	ASP
1	T	246	TYR
1	U	229	LYS
1	U	363	ILE
1	U	394	LEU
1	U	412	LEU
1	U	413	ASP

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Mol	Chain	Res	Type
1	U	441	GLU
1	U	481	LEU
2	V	29	GLU
2	V	149	ARG
2	V	167	ILE
2	V	200	GLU
2	V	201	MET
2	V	250	ASP
2	V	282	GLN
2	V	388	ILE
2	W	232	VAL
2	W	258	ILE
2	W	394	ASP
2	W	433	ARG
2	X	43	GLN
2	X	140	VAL
2	X	167	ILE
2	X	208	ASN
2	X	472	LYS
3	Y	15	ASN
3	Y	78	THR
3	Y	99	LEU
3	Y	112	ASP
3	Y	162	ILE
3	Y	219	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (33) such sidechains are listed below:

Mol	Chain	Res	Type
1	C	174	GLN
2	D	52	GLN
2	D	195	ASN
2	D	367	HIS
2	F	52	GLN
3	G	125	ASN
3	G	190	GLN
4	H	18	HIS
4	H	45	HIS
5	I	15	ASN
1	K	26	ASN
1	L	174	GLN
1	L	220	GLN

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Mol	Chain	Res	Type
1	L	351	GLN
1	L	398	GLN
2	O	52	GLN
2	O	328	HIS
3	P	88	HIS
3	P	122	HIS
3	P	216	ASN
1	S	351	GLN
1	S	407	GLN
1	T	28	ASN
1	U	224	GLN
1	U	452	ASN
2	V	195	ASN
2	V	282	GLN
2	X	43	GLN
2	X	52	GLN
2	X	379	GLN
2	X	385	GLN
3	Y	117	GLN
3	Y	141	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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 31 ligands modelled in this entry, 15 are monoatomic - leaving 16 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
7	ANP	D	600	6	29,33,33	1.62	8 (27%)	31,52,52	1.93	8 (25%)
7	ANP	J	600	6	29,33,33	1.76	8 (27%)	31,52,52	2.24	7 (22%)
7	ANP	S	600	6	29,33,33	1.91	6 (20%)	31,52,52	2.08	12 (38%)
7	ANP	V	600	6	29,33,33	1.84	7 (24%)	31,52,52	1.91	6 (19%)
7	ANP	L	600	6	29,33,33	1.79	7 (24%)	31,52,52	2.16	8 (25%)
7	ANP	M	600	6	29,33,33	1.71	7 (24%)	31,52,52	2.08	7 (22%)
8	PO4	N	800	-	4,4,4	0.88	0	6,6,6	0.76	0
7	ANP	X	600	6	29,33,33	1.68	5 (17%)	31,52,52	2.34	8 (25%)
7	ANP	O	600	6	29,33,33	1.84	8 (27%)	31,52,52	1.82	8 (25%)
7	ANP	C	600	6	29,33,33	1.68	8 (27%)	31,52,52	2.15	7 (22%)
7	ANP	U	600	6	29,33,33	1.82	7 (24%)	31,52,52	1.84	8 (25%)
7	ANP	A	600	6	29,33,33	1.99	9 (31%)	31,52,52	1.96	8 (25%)
7	ANP	F	600	6	29,33,33	1.67	7 (24%)	31,52,52	1.99	6 (19%)
7	ANP	K	600	6	29,33,33	1.73	7 (24%)	31,52,52	2.07	9 (29%)
7	ANP	B	600	6	29,33,33	1.69	7 (24%)	31,52,52	2.06	6 (19%)
7	ANP	T	600	6	29,33,33	1.94	9 (31%)	31,52,52	1.81	5 (16%)

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
7	ANP	D	600	6	-	4/14/38/38	0/3/3/3
7	ANP	J	600	6	-	2/14/38/38	0/3/3/3
7	ANP	S	600	6	-	3/14/38/38	0/3/3/3
7	ANP	V	600	6	-	3/14/38/38	0/3/3/3
7	ANP	L	600	6	-	2/14/38/38	0/3/3/3
7	ANP	M	600	6	-	4/14/38/38	0/3/3/3
7	ANP	X	600	6	-	9/14/38/38	0/3/3/3
7	ANP	O	600	6	-	8/14/38/38	0/3/3/3
7	ANP	C	600	6	-	2/14/38/38	0/3/3/3
7	ANP	U	600	6	-	3/14/38/38	0/3/3/3

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
7	ANP	A	600	6	-	2/14/38/38	0/3/3/3
7	ANP	F	600	6	-	3/14/38/38	0/3/3/3
7	ANP	K	600	6	-	4/14/38/38	0/3/3/3
7	ANP	B	600	6	-	3/14/38/38	0/3/3/3
7	ANP	T	600	6	-	3/14/38/38	0/3/3/3

All (110) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	S	600	ANP	PG-O1G	4.98	1.54	1.46
7	S	600	ANP	PG-N3B	4.72	1.75	1.63
7	T	600	ANP	PB-N3B	4.49	1.75	1.63
7	O	600	ANP	PG-N3B	4.48	1.75	1.63
7	S	600	ANP	PB-N3B	4.42	1.74	1.63
7	U	600	ANP	PB-N3B	4.42	1.74	1.63
7	T	600	ANP	PG-N3B	4.41	1.74	1.63
7	V	600	ANP	PB-N3B	4.40	1.74	1.63
7	A	600	ANP	PB-N3B	4.29	1.74	1.63
7	O	600	ANP	PB-N3B	4.28	1.74	1.63
7	K	600	ANP	PB-N3B	4.23	1.74	1.63
7	X	600	ANP	PB-N3B	4.22	1.74	1.63
7	K	600	ANP	PG-N3B	4.17	1.74	1.63
7	B	600	ANP	PB-O1B	4.12	1.52	1.46
7	D	600	ANP	PB-N3B	4.09	1.74	1.63
7	F	600	ANP	PB-N3B	4.07	1.74	1.63
7	A	600	ANP	PG-N3B	4.02	1.73	1.63
7	T	600	ANP	PG-O1G	3.95	1.52	1.46
7	D	600	ANP	PG-N3B	3.94	1.73	1.63
7	X	600	ANP	PG-N3B	3.87	1.73	1.63
7	A	600	ANP	PG-O1G	3.81	1.52	1.46
7	L	600	ANP	PB-O1B	3.81	1.52	1.46
7	J	600	ANP	PG-N3B	3.79	1.73	1.63
7	F	600	ANP	PG-N3B	3.77	1.73	1.63
7	L	600	ANP	PG-N3B	3.76	1.73	1.63
7	V	600	ANP	PG-O1G	3.75	1.52	1.46
7	V	600	ANP	PG-N3B	3.74	1.73	1.63
7	M	600	ANP	PB-N3B	3.72	1.73	1.63
7	O	600	ANP	PG-O1G	3.66	1.52	1.46
7	A	600	ANP	PB-O1B	3.65	1.51	1.46
7	U	600	ANP	PG-N3B	3.64	1.72	1.63
7	C	600	ANP	PG-N3B	3.60	1.72	1.63

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	T	600	ANP	PB-O1B	3.57	1.51	1.46
7	L	600	ANP	PB-N3B	3.52	1.72	1.63
7	B	600	ANP	PG-N3B	3.51	1.72	1.63
7	M	600	ANP	PG-O1G	3.43	1.51	1.46
7	C	600	ANP	PG-O1G	3.35	1.51	1.46
7	J	600	ANP	PB-N3B	3.35	1.72	1.63
7	J	600	ANP	PB-O3A	3.34	1.63	1.59
7	V	600	ANP	PB-O1B	3.29	1.51	1.46
7	B	600	ANP	PB-N3B	3.22	1.71	1.63
7	J	600	ANP	PG-O1G	3.22	1.51	1.46
7	M	600	ANP	PB-O1B	3.15	1.51	1.46
7	A	600	ANP	PB-O2B	-3.05	1.48	1.56
7	X	600	ANP	PB-O1B	3.03	1.51	1.46
7	F	600	ANP	PG-O1G	3.03	1.51	1.46
7	U	600	ANP	PB-O3A	3.00	1.62	1.59
7	L	600	ANP	C5-C4	2.99	1.48	1.40
7	C	600	ANP	PB-N3B	2.97	1.71	1.63
7	M	600	ANP	PG-N3B	2.95	1.71	1.63
7	C	600	ANP	PG-O2G	-2.95	1.48	1.56
7	U	600	ANP	PB-O1B	2.94	1.50	1.46
7	U	600	ANP	C2-N3	2.93	1.36	1.32
7	J	600	ANP	PB-O1B	2.88	1.50	1.46
7	K	600	ANP	PG-O1G	2.87	1.50	1.46
7	U	600	ANP	C5-C4	2.87	1.48	1.40
7	X	600	ANP	PG-O1G	2.82	1.50	1.46
7	A	600	ANP	PG-O2G	-2.79	1.49	1.56
7	B	600	ANP	PG-O1G	2.79	1.50	1.46
7	K	600	ANP	PB-O1B	2.74	1.50	1.46
7	X	600	ANP	C5-C4	2.72	1.48	1.40
7	J	600	ANP	PG-O2G	-2.71	1.49	1.56
7	T	600	ANP	C5-C4	2.70	1.48	1.40
7	S	600	ANP	C5-C4	2.68	1.48	1.40
7	K	600	ANP	C5-C4	2.66	1.48	1.40
7	V	600	ANP	C2-N3	2.61	1.36	1.32
7	L	600	ANP	PB-O2B	-2.61	1.49	1.56
7	L	600	ANP	PG-O2G	-2.60	1.49	1.56
7	V	600	ANP	C5-C4	2.59	1.47	1.40
7	O	600	ANP	C5-C4	2.59	1.47	1.40
7	U	600	ANP	PG-O1G	2.58	1.50	1.46
7	L	600	ANP	PG-O1G	2.57	1.50	1.46
7	C	600	ANP	PB-O1B	2.57	1.50	1.46
7	A	600	ANP	C5-C4	2.57	1.47	1.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	O	600	ANP	PB-O2B	-2.54	1.49	1.56
7	M	600	ANP	PB-O3A	2.54	1.62	1.59
7	F	600	ANP	PB-O1B	2.50	1.50	1.46
7	D	600	ANP	PG-O3G	-2.49	1.50	1.56
7	C	600	ANP	C5-C4	2.46	1.47	1.40
7	B	600	ANP	C5-C4	2.45	1.47	1.40
7	A	600	ANP	PB-O3A	2.43	1.62	1.59
7	C	600	ANP	O4'-C1'	2.43	1.44	1.41
7	M	600	ANP	C5-C4	2.35	1.47	1.40
7	F	600	ANP	PB-O2B	-2.35	1.50	1.56
7	T	600	ANP	PG-O3G	-2.33	1.50	1.56
7	D	600	ANP	PG-O1G	2.33	1.49	1.46
7	F	600	ANP	C5-C4	2.30	1.47	1.40
7	A	600	ANP	O4'-C1'	2.30	1.44	1.41
7	M	600	ANP	PG-O3G	-2.28	1.50	1.56
7	V	600	ANP	PG-O3G	-2.26	1.50	1.56
7	D	600	ANP	PB-O2B	-2.24	1.50	1.56
7	D	600	ANP	C5-C4	2.22	1.46	1.40
7	T	600	ANP	O4'-C1'	2.22	1.44	1.41
7	O	600	ANP	PG-O2G	-2.22	1.50	1.56
7	D	600	ANP	PG-O2G	-2.15	1.51	1.56
7	C	600	ANP	PB-O3A	2.15	1.61	1.59
7	F	600	ANP	PG-O3G	-2.13	1.51	1.56
7	D	600	ANP	PB-O1B	2.12	1.49	1.46
7	B	600	ANP	PB-O3A	2.10	1.61	1.59
7	B	600	ANP	PG-O2G	-2.09	1.51	1.56
7	O	600	ANP	C2'-C1'	-2.08	1.50	1.53
7	J	600	ANP	C5-C4	2.08	1.46	1.40
7	T	600	ANP	C2-N3	2.08	1.35	1.32
7	S	600	ANP	PG-O2G	-2.07	1.51	1.56
7	S	600	ANP	PB-O2B	-2.07	1.51	1.56
7	T	600	ANP	PG-O2G	-2.07	1.51	1.56
7	O	600	ANP	PB-O1B	2.04	1.49	1.46
7	K	600	ANP	PG-O2G	-2.03	1.51	1.56
7	K	600	ANP	PB-O3A	2.03	1.61	1.59
7	J	600	ANP	O4'-C1'	2.00	1.43	1.41

All (113) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	J	600	ANP	O1G-PG-N3B	-8.93	98.62	111.77
7	B	600	ANP	O1G-PG-N3B	-7.20	101.17	111.77

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	C	600	ANP	O1G-PG-N3B	-7.10	101.31	111.77
7	L	600	ANP	O1G-PG-N3B	-6.95	101.54	111.77
7	M	600	ANP	O1G-PG-N3B	-6.43	102.30	111.77
7	X	600	ANP	O1G-PG-N3B	-6.25	102.56	111.77
7	A	600	ANP	O1G-PG-N3B	-6.00	102.94	111.77
7	K	600	ANP	O1G-PG-N3B	-5.98	102.96	111.77
7	F	600	ANP	O1G-PG-N3B	-5.90	103.09	111.77
7	C	600	ANP	O2B-PB-O1B	5.25	120.92	109.92
7	M	600	ANP	O2B-PB-O1B	5.14	120.70	109.92
7	X	600	ANP	O1B-PB-N3B	-5.06	104.32	111.77
7	D	600	ANP	O1B-PB-N3B	-5.04	104.35	111.77
7	T	600	ANP	O2B-PB-O1B	4.87	120.13	109.92
7	U	600	ANP	O1G-PG-N3B	-4.75	104.78	111.77
7	F	600	ANP	N3-C2-N1	-4.59	121.50	128.68
7	V	600	ANP	O2B-PB-O1B	4.55	119.46	109.92
7	T	600	ANP	O1G-PG-N3B	-4.52	105.11	111.77
7	B	600	ANP	O2B-PB-O1B	4.46	119.28	109.92
7	V	600	ANP	O1B-PB-N3B	-4.36	105.35	111.77
7	L	600	ANP	O2B-PB-O1B	4.26	118.86	109.92
7	X	600	ANP	N3-C2-N1	-4.24	122.05	128.68
7	F	600	ANP	O2B-PB-O1B	4.23	118.78	109.92
7	T	600	ANP	PB-O3A-PA	-4.20	117.84	132.62
7	O	600	ANP	O1G-PG-N3B	-4.18	105.62	111.77
7	S	600	ANP	O1G-PG-N3B	-4.17	105.63	111.77
7	S	600	ANP	N3-C2-N1	-4.16	122.18	128.68
7	V	600	ANP	PB-O3A-PA	-4.14	118.03	132.62
7	U	600	ANP	O2B-PB-O1B	4.05	118.41	109.92
7	X	600	ANP	O2B-PB-O1B	3.99	118.28	109.92
7	D	600	ANP	O2G-PG-O3G	3.93	118.10	107.64
7	O	600	ANP	O2B-PB-O1B	3.92	118.15	109.92
7	M	600	ANP	N3-C2-N1	-3.91	122.56	128.68
7	K	600	ANP	O2B-PB-O1B	3.90	118.10	109.92
7	K	600	ANP	N3-C2-N1	-3.86	122.65	128.68
7	J	600	ANP	O2B-PB-O1B	3.85	118.00	109.92
7	V	600	ANP	C3'-C2'-C1'	3.84	106.76	100.98
7	X	600	ANP	PB-O3A-PA	-3.72	119.52	132.62
7	M	600	ANP	O1B-PB-N3B	-3.72	106.30	111.77
7	C	600	ANP	N3-C2-N1	-3.70	122.89	128.68
7	O	600	ANP	N3-C2-N1	-3.66	122.96	128.68
7	K	600	ANP	O2G-PG-O3G	3.65	117.36	107.64
7	J	600	ANP	N3-C2-N1	-3.59	123.07	128.68
7	A	600	ANP	O2G-PG-O3G	3.56	117.13	107.64

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	D	600	ANP	N3-C2-N1	-3.55	123.12	128.68
7	L	600	ANP	N3-C2-N1	-3.51	123.19	128.68
7	O	600	ANP	O1B-PB-N3B	-3.36	106.82	111.77
7	S	600	ANP	O3G-PG-O1G	3.35	121.87	113.45
7	C	600	ANP	O2B-PB-O3A	3.30	115.67	104.64
7	L	600	ANP	O1B-PB-N3B	-3.27	106.96	111.77
7	X	600	ANP	C2-N1-C6	3.23	124.27	118.75
7	A	600	ANP	O2B-PB-O3A	3.21	115.36	104.64
7	A	600	ANP	N3-C2-N1	-3.21	123.67	128.68
7	T	600	ANP	N3-C2-N1	-3.21	123.67	128.68
7	F	600	ANP	C2-N1-C6	3.20	124.23	118.75
7	D	600	ANP	O1G-PG-N3B	-3.19	107.07	111.77
7	U	600	ANP	O2G-PG-O3G	3.16	116.06	107.64
7	L	600	ANP	C2-N1-C6	3.13	124.10	118.75
7	D	600	ANP	PB-O3A-PA	-3.11	121.67	132.62
7	K	600	ANP	PB-O3A-PA	-3.10	121.71	132.62
7	U	600	ANP	O1B-PB-N3B	-3.09	107.22	111.77
7	S	600	ANP	PB-O3A-PA	-3.08	121.76	132.62
7	S	600	ANP	O2G-PG-O3G	3.05	115.75	107.64
7	S	600	ANP	O2B-PB-O1B	3.04	116.30	109.92
7	D	600	ANP	O2B-PB-O1B	3.03	116.27	109.92
7	B	600	ANP	C4-C5-N7	-3.03	106.24	109.40
7	X	600	ANP	O2G-PG-O3G	3.02	115.67	107.64
7	V	600	ANP	N3-C2-N1	-3.01	123.98	128.68
7	J	600	ANP	O3G-PG-O1G	3.00	120.99	113.45
7	V	600	ANP	C4-C5-N7	-2.98	106.29	109.40
7	U	600	ANP	C4-C5-N7	-2.96	106.31	109.40
7	S	600	ANP	O2G-PG-O1G	-2.91	106.13	113.45
7	B	600	ANP	N3-C2-N1	-2.87	124.19	128.68
7	T	600	ANP	C4-C5-N7	-2.86	106.42	109.40
7	K	600	ANP	O2B-PB-O3A	2.84	114.14	104.64
7	S	600	ANP	C1'-N9-C4	-2.84	121.65	126.64
7	X	600	ANP	C3'-C2'-C1'	2.83	105.24	100.98
7	M	600	ANP	C4-C5-N7	-2.77	106.51	109.40
7	U	600	ANP	N3-C2-N1	-2.74	124.39	128.68
7	A	600	ANP	O3G-PG-O1G	2.67	120.16	113.45
7	S	600	ANP	C2-N1-C6	2.65	123.28	118.75
7	B	600	ANP	O3A-PB-N3B	-2.63	99.30	106.59
7	O	600	ANP	PB-O3A-PA	-2.61	123.41	132.62
7	O	600	ANP	O2G-PG-O3G	2.58	114.50	107.64
7	J	600	ANP	C4-C5-N7	-2.56	106.73	109.40
7	A	600	ANP	O4'-C1'-C2'	-2.56	103.19	106.93

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
7	O	600	ANP	C2-N1-C6	2.55	123.11	118.75
7	U	600	ANP	C3'-C2'-C1'	2.54	104.81	100.98
7	A	600	ANP	O3A-PB-N3B	-2.54	99.55	106.59
7	C	600	ANP	C2-N1-C6	2.51	123.05	118.75
7	S	600	ANP	C4-C5-N7	-2.49	106.81	109.40
7	D	600	ANP	O2B-PB-O3A	2.47	112.88	104.64
7	J	600	ANP	O2B-PB-O3A	2.46	112.84	104.64
7	K	600	ANP	C4-C5-N7	-2.45	106.84	109.40
7	L	600	ANP	O2G-PG-O3G	2.38	113.96	107.64
7	F	600	ANP	O2G-PG-O3G	2.35	113.89	107.64
7	S	600	ANP	C3'-C2'-C1'	2.33	104.49	100.98
7	C	600	ANP	O2G-PG-O3G	2.32	113.83	107.64
7	L	600	ANP	O2G-PG-O1G	2.32	119.28	113.45
7	K	600	ANP	C2-N1-C6	2.26	122.63	118.75
7	D	600	ANP	C2-N1-C6	2.26	122.61	118.75
7	M	600	ANP	C3'-C2'-C1'	2.25	104.37	100.98
7	C	600	ANP	C4-C5-N7	-2.24	107.07	109.40
7	S	600	ANP	O2B-PB-O3A	2.20	112.00	104.64
7	F	600	ANP	PB-O3A-PA	-2.16	125.00	132.62
7	L	600	ANP	O2A-PA-O1A	2.12	122.74	112.24
7	B	600	ANP	O2G-PG-O3G	2.06	113.12	107.64
7	A	600	ANP	C2-N1-C6	2.05	122.26	118.75
7	U	600	ANP	O2A-PA-O1A	2.04	122.33	112.24
7	O	600	ANP	C3'-C2'-C1'	2.02	104.02	100.98
7	M	600	ANP	PB-O3A-PA	-2.02	125.50	132.62
7	J	600	ANP	C3'-C2'-C1'	2.01	104.01	100.98
7	K	600	ANP	O2A-PA-O1A	2.00	122.14	112.24

There are no chirality outliers.

All (55) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
7	A	600	ANP	PB-N3B-PG-O1G
7	A	600	ANP	PG-N3B-PB-O1B
7	B	600	ANP	PB-N3B-PG-O1G
7	B	600	ANP	PG-N3B-PB-O1B
7	C	600	ANP	PB-N3B-PG-O1G
7	C	600	ANP	PG-N3B-PB-O1B
7	D	600	ANP	PB-N3B-PG-O1G
7	D	600	ANP	PG-N3B-PB-O1B
7	D	600	ANP	PA-O3A-PB-O1B
7	D	600	ANP	PA-O3A-PB-O2B

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Mol	Chain	Res	Type	Atoms
7	F	600	ANP	PB-N3B-PG-O1G
7	F	600	ANP	PG-N3B-PB-O1B
7	F	600	ANP	PG-N3B-PB-O3A
7	J	600	ANP	PB-N3B-PG-O1G
7	J	600	ANP	PG-N3B-PB-O1B
7	K	600	ANP	PB-N3B-PG-O1G
7	K	600	ANP	PG-N3B-PB-O1B
7	L	600	ANP	PB-N3B-PG-O1G
7	L	600	ANP	PG-N3B-PB-O1B
7	M	600	ANP	PB-N3B-PG-O1G
7	M	600	ANP	PG-N3B-PB-O1B
7	M	600	ANP	PA-O3A-PB-O1B
7	M	600	ANP	PA-O3A-PB-O2B
7	O	600	ANP	PB-N3B-PG-O1G
7	O	600	ANP	PG-N3B-PB-O1B
7	O	600	ANP	PG-N3B-PB-O3A
7	O	600	ANP	C5'-O5'-PA-O2A
7	S	600	ANP	PB-N3B-PG-O1G
7	S	600	ANP	PG-N3B-PB-O1B
7	S	600	ANP	PG-N3B-PB-O3A
7	T	600	ANP	PB-N3B-PG-O1G
7	T	600	ANP	PG-N3B-PB-O1B
7	U	600	ANP	PB-N3B-PG-O1G
7	U	600	ANP	PG-N3B-PB-O1B
7	U	600	ANP	PG-N3B-PB-O3A
7	V	600	ANP	PG-N3B-PB-O1B
7	V	600	ANP	C5'-O5'-PA-O3A
7	X	600	ANP	PB-N3B-PG-O1G
7	X	600	ANP	PG-N3B-PB-O1B
7	X	600	ANP	PA-O3A-PB-O1B
7	X	600	ANP	PA-O3A-PB-O2B
7	X	600	ANP	C5'-O5'-PA-O2A
7	X	600	ANP	O4'-C4'-C5'-O5'
7	K	600	ANP	O4'-C4'-C5'-O5'
7	X	600	ANP	C3'-C4'-C5'-O5'
7	O	600	ANP	O4'-C4'-C5'-O5'
7	O	600	ANP	C5'-O5'-PA-O3A
7	O	600	ANP	C5'-O5'-PA-O1A
7	O	600	ANP	C3'-C4'-C5'-O5'
7	K	600	ANP	PB-O3A-PA-O2A
7	X	600	ANP	C5'-O5'-PA-O3A
7	T	600	ANP	O4'-C4'-C5'-O5'

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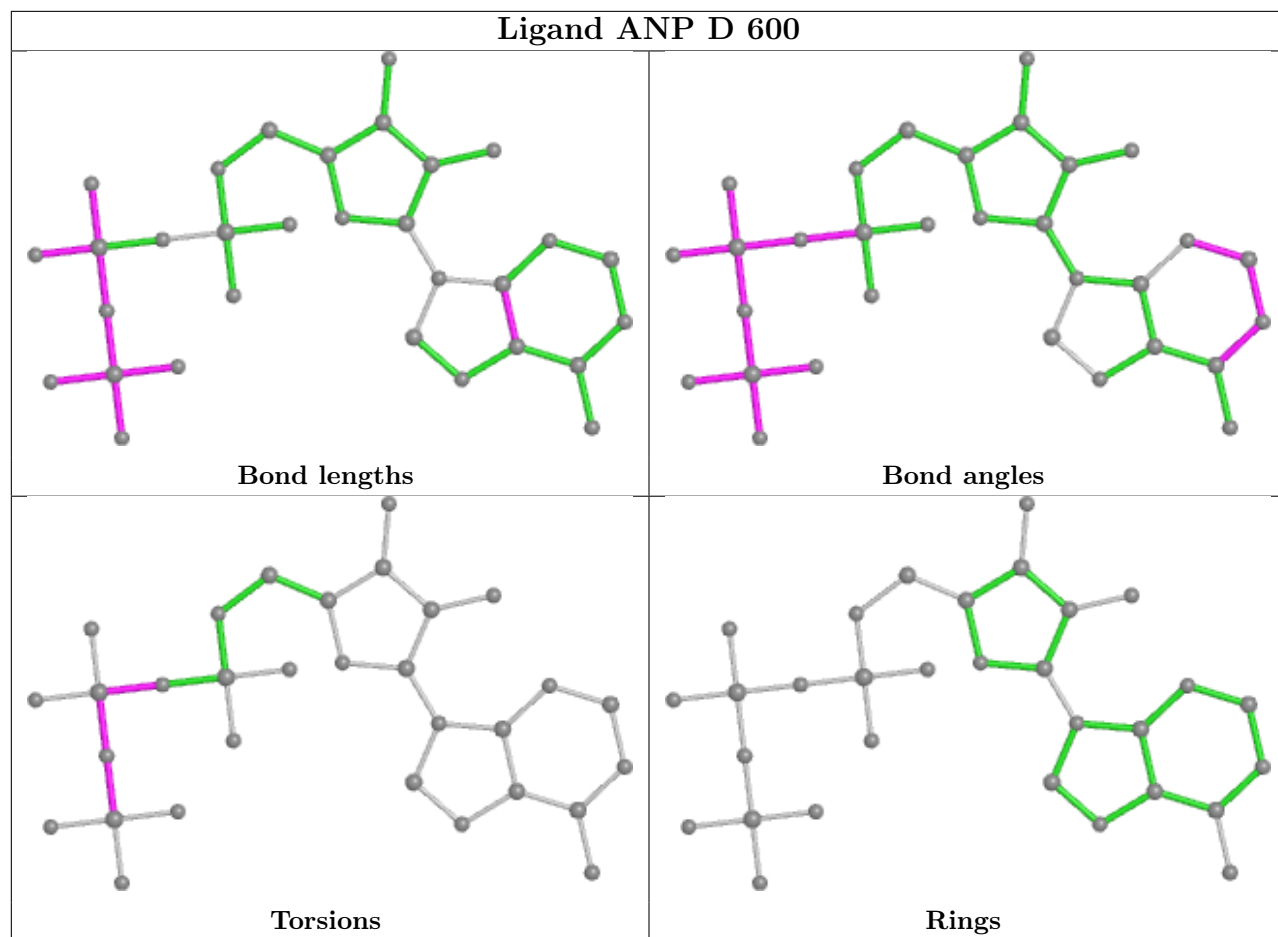
Mol	Chain	Res	Type	Atoms
7	V	600	ANP	C5'-O5'-PA-O1A
7	X	600	ANP	C5'-O5'-PA-O1A
7	B	600	ANP	PG-N3B-PB-O3A

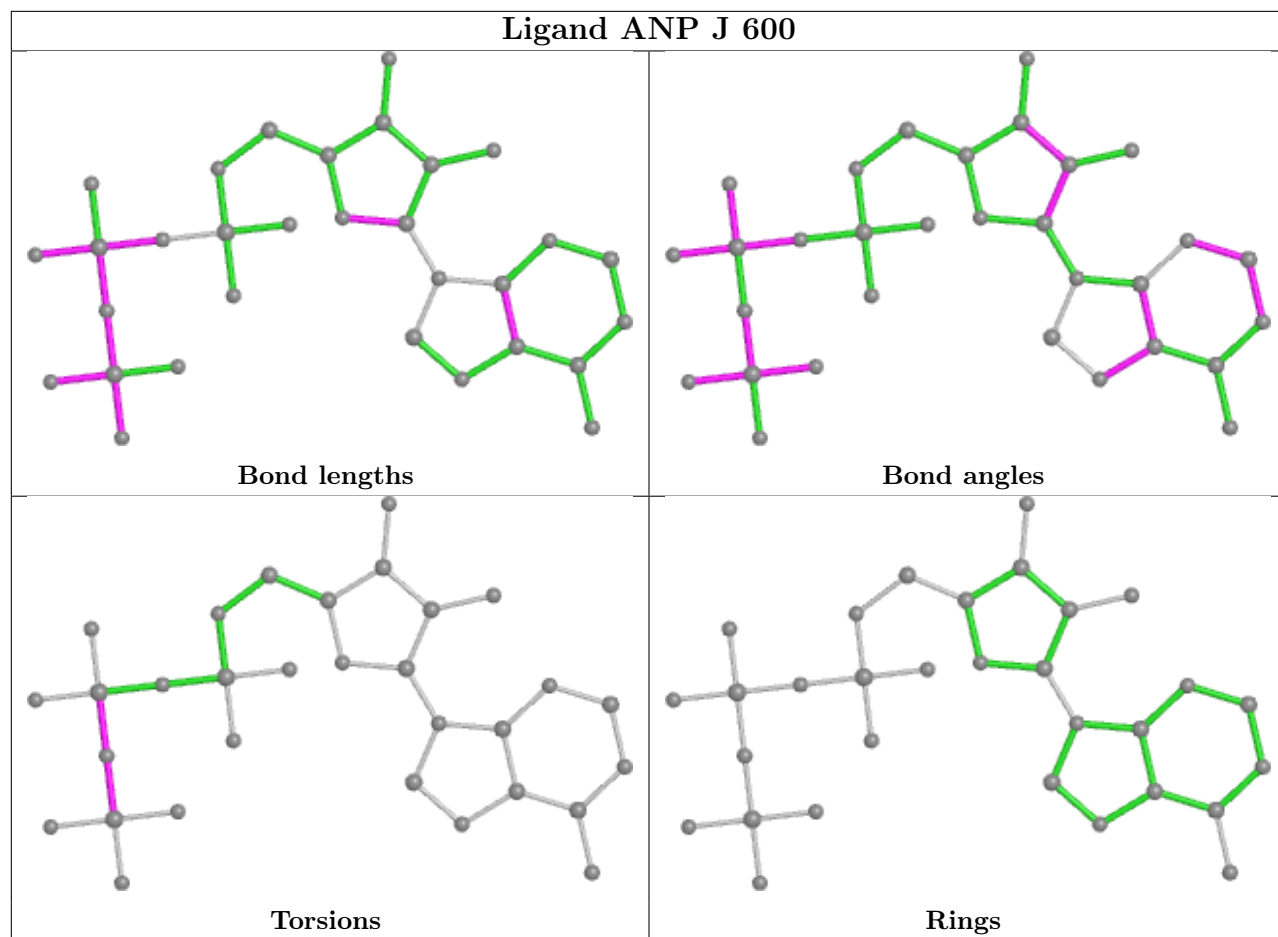
There are no ring outliers.

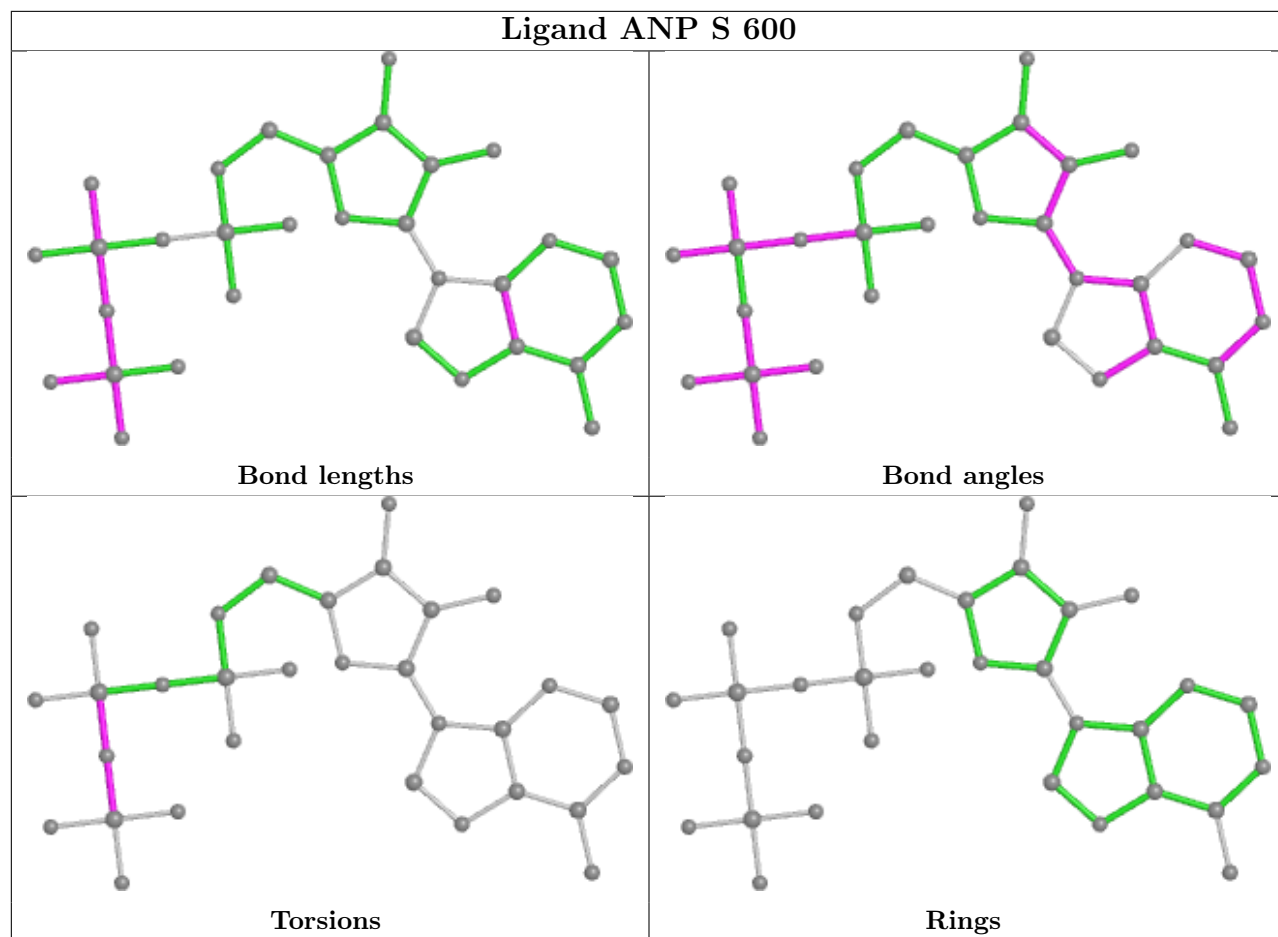
8 monomers are involved in 19 short contacts:

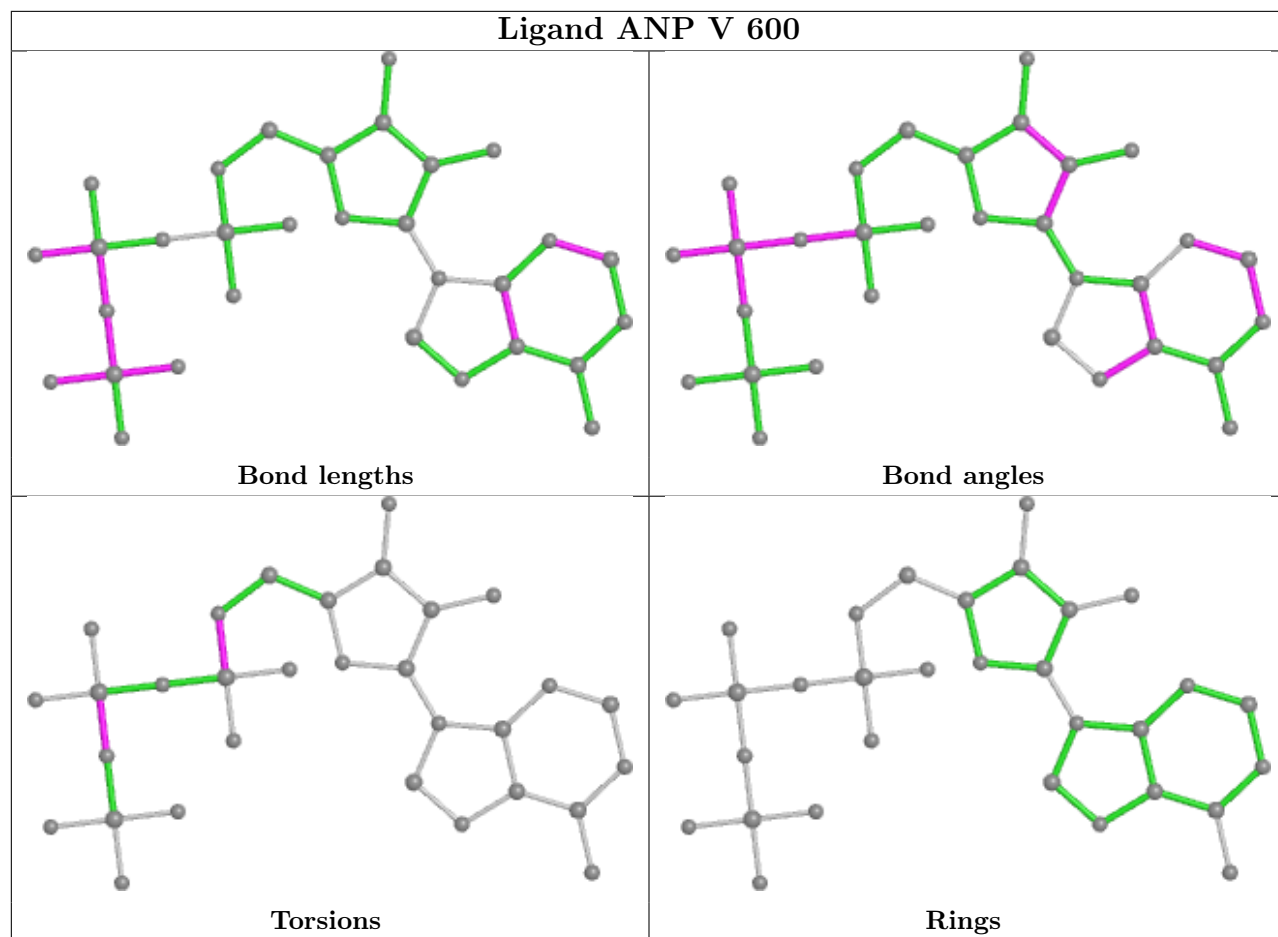
Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	S	600	ANP	1	0
7	V	600	ANP	3	0
7	L	600	ANP	1	0
7	M	600	ANP	6	0
7	X	600	ANP	4	0
7	C	600	ANP	1	0
7	F	600	ANP	2	0
7	K	600	ANP	1	0

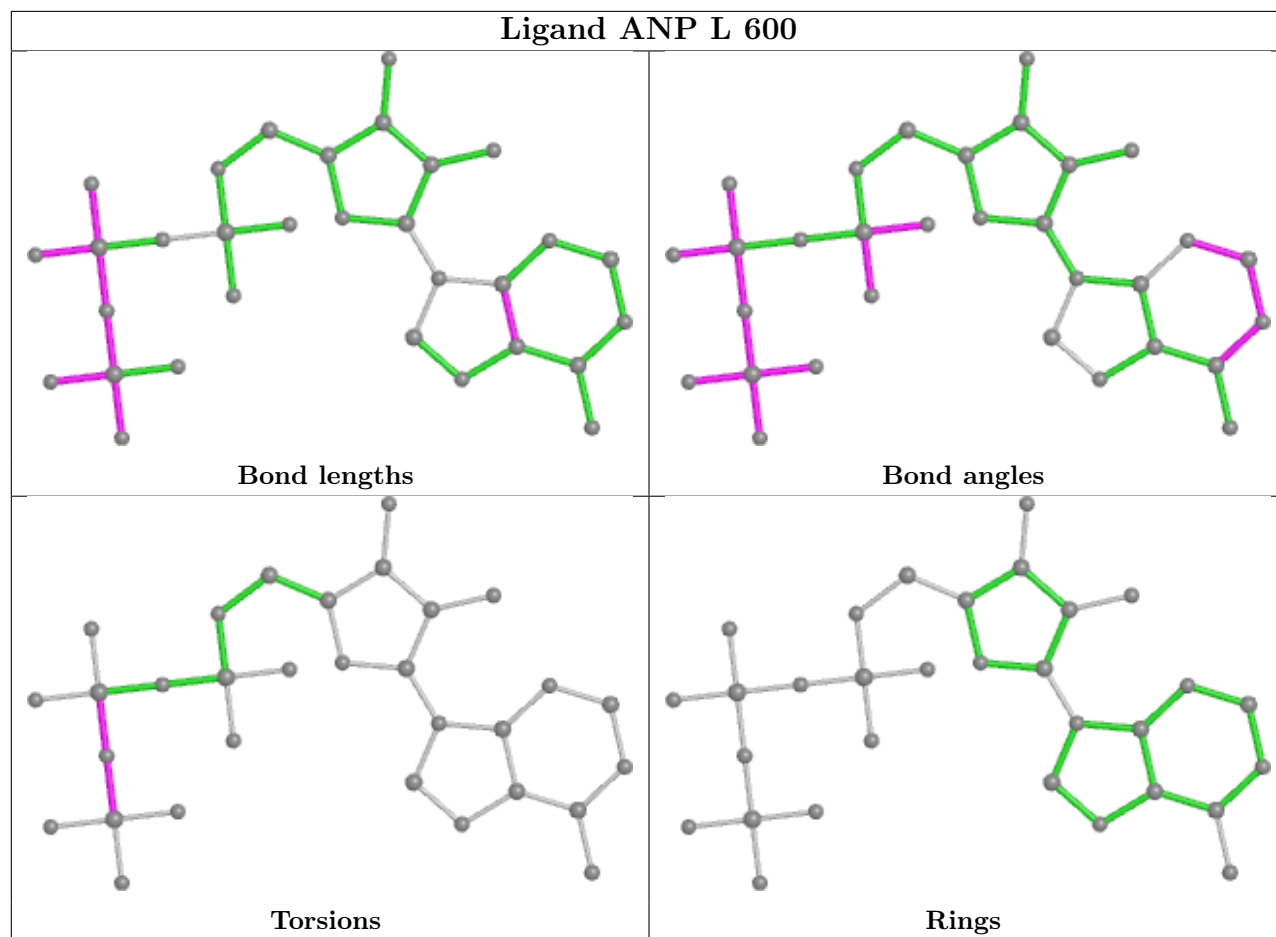
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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.

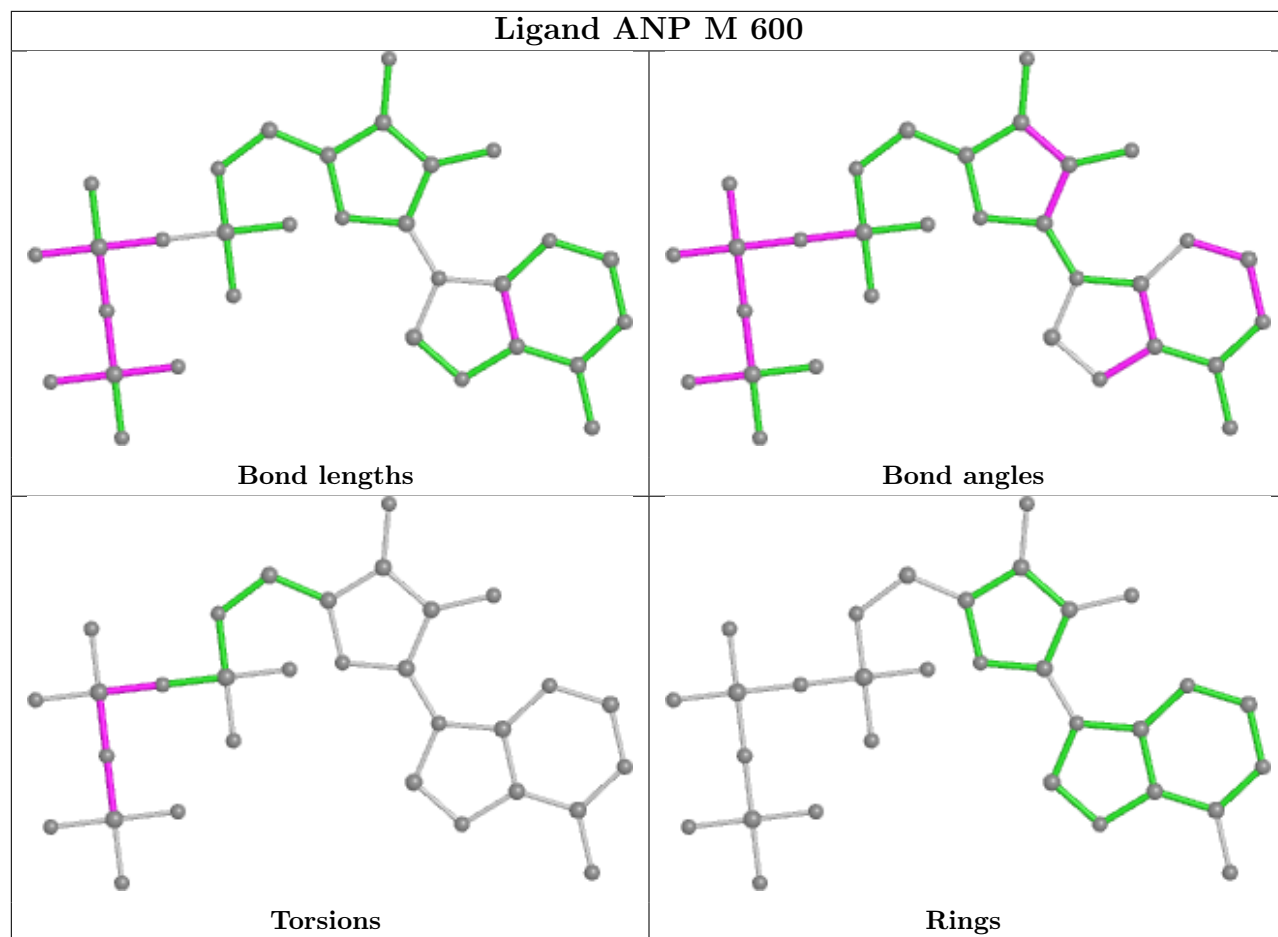


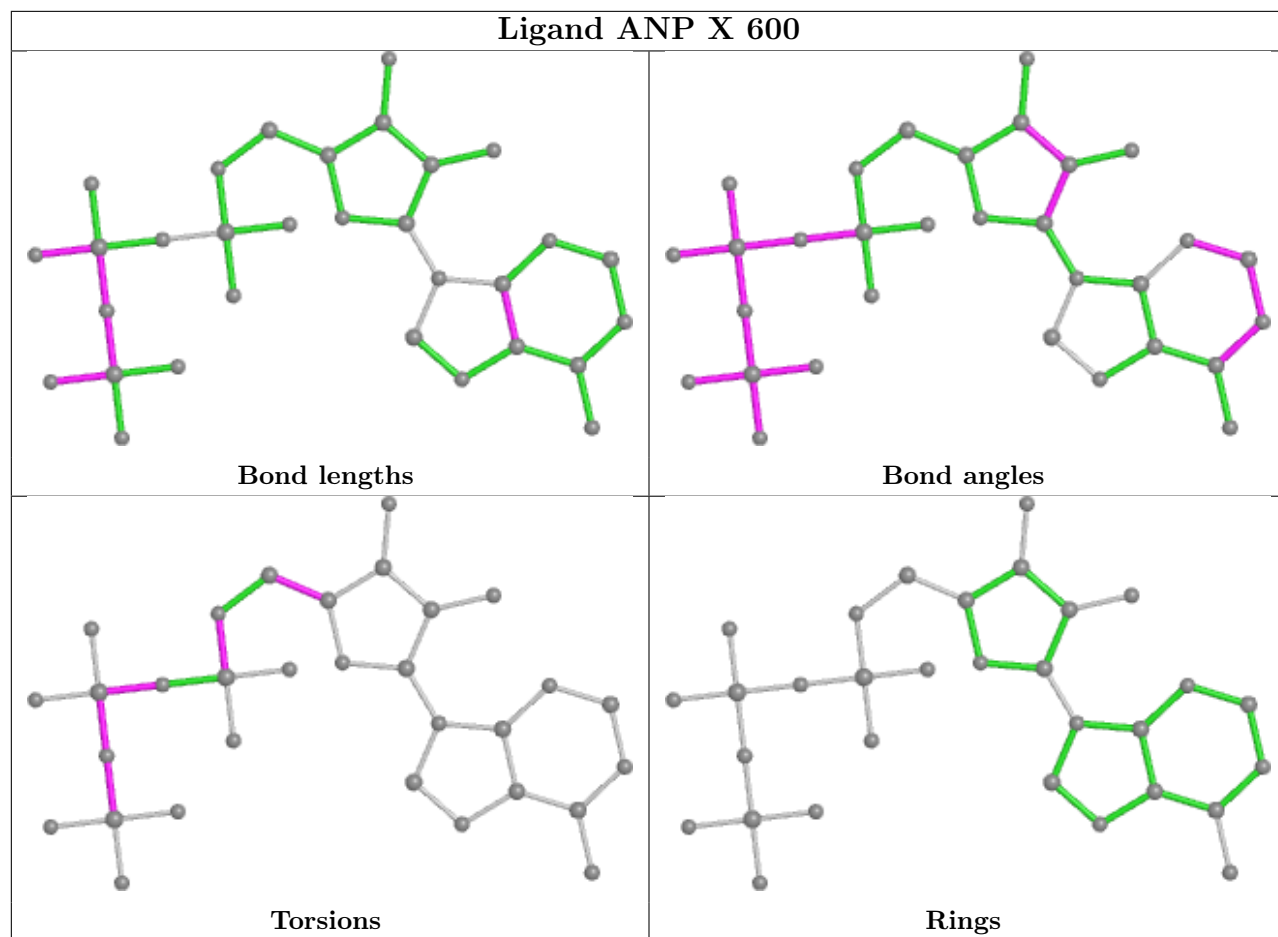


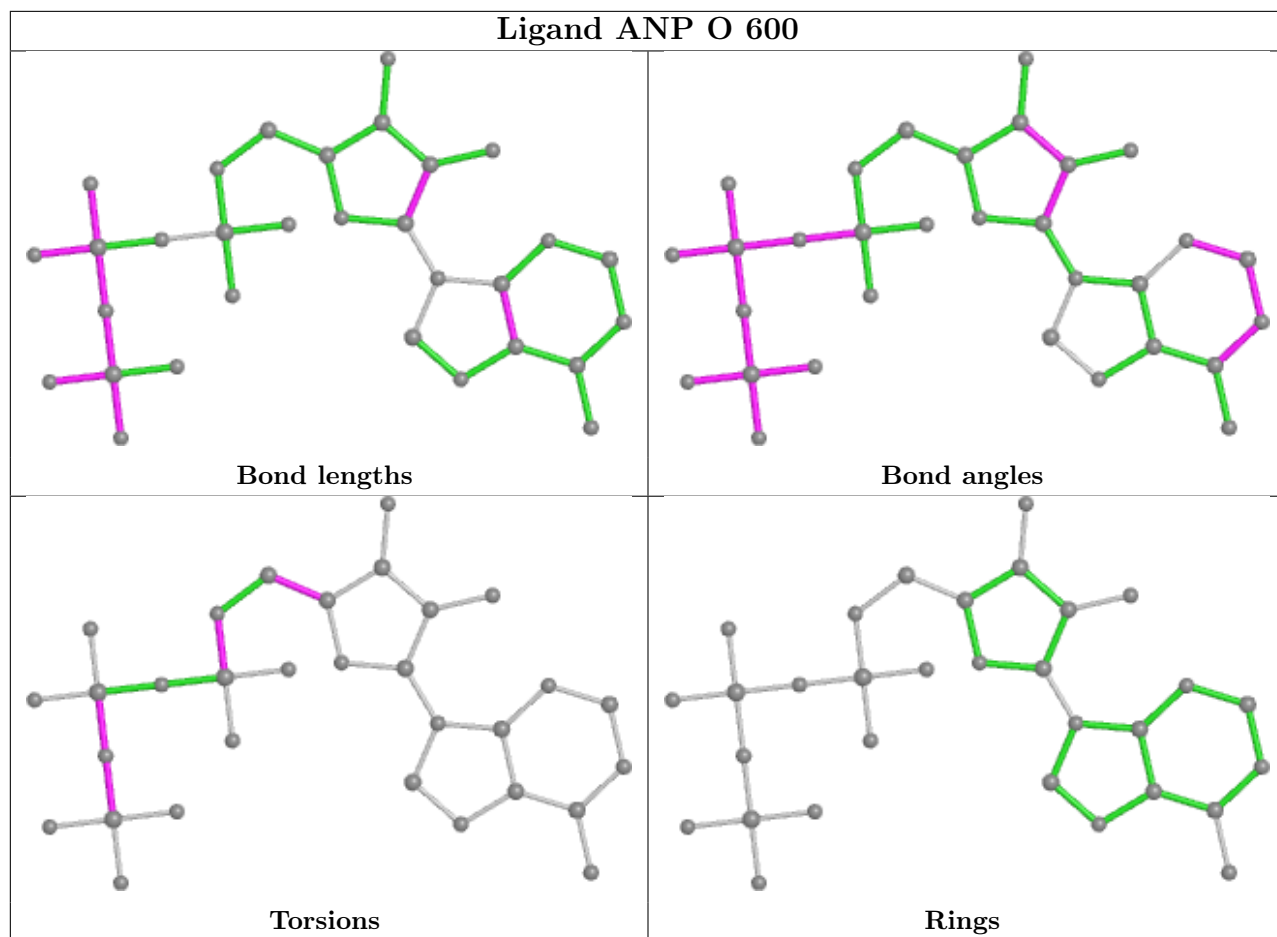


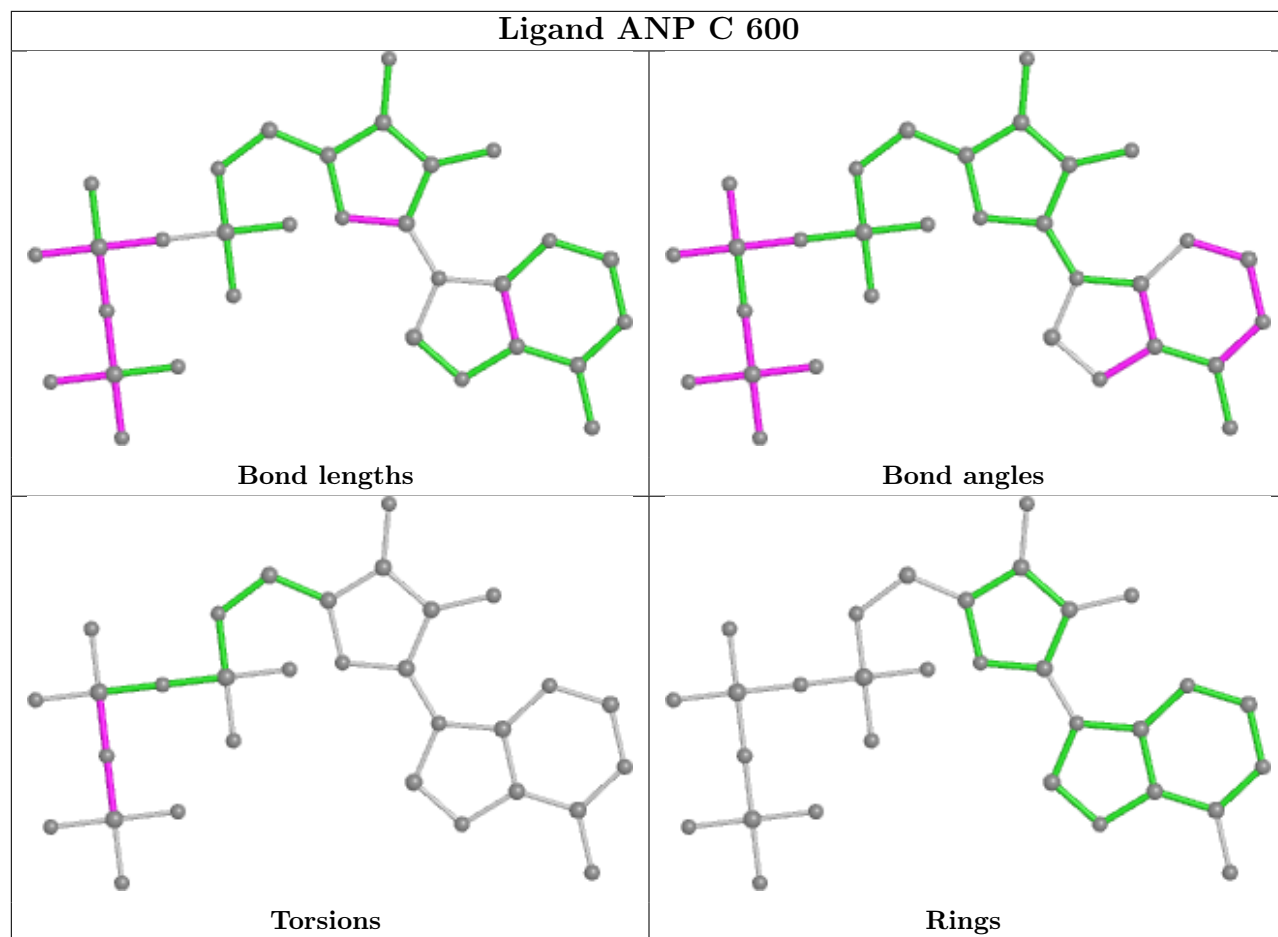


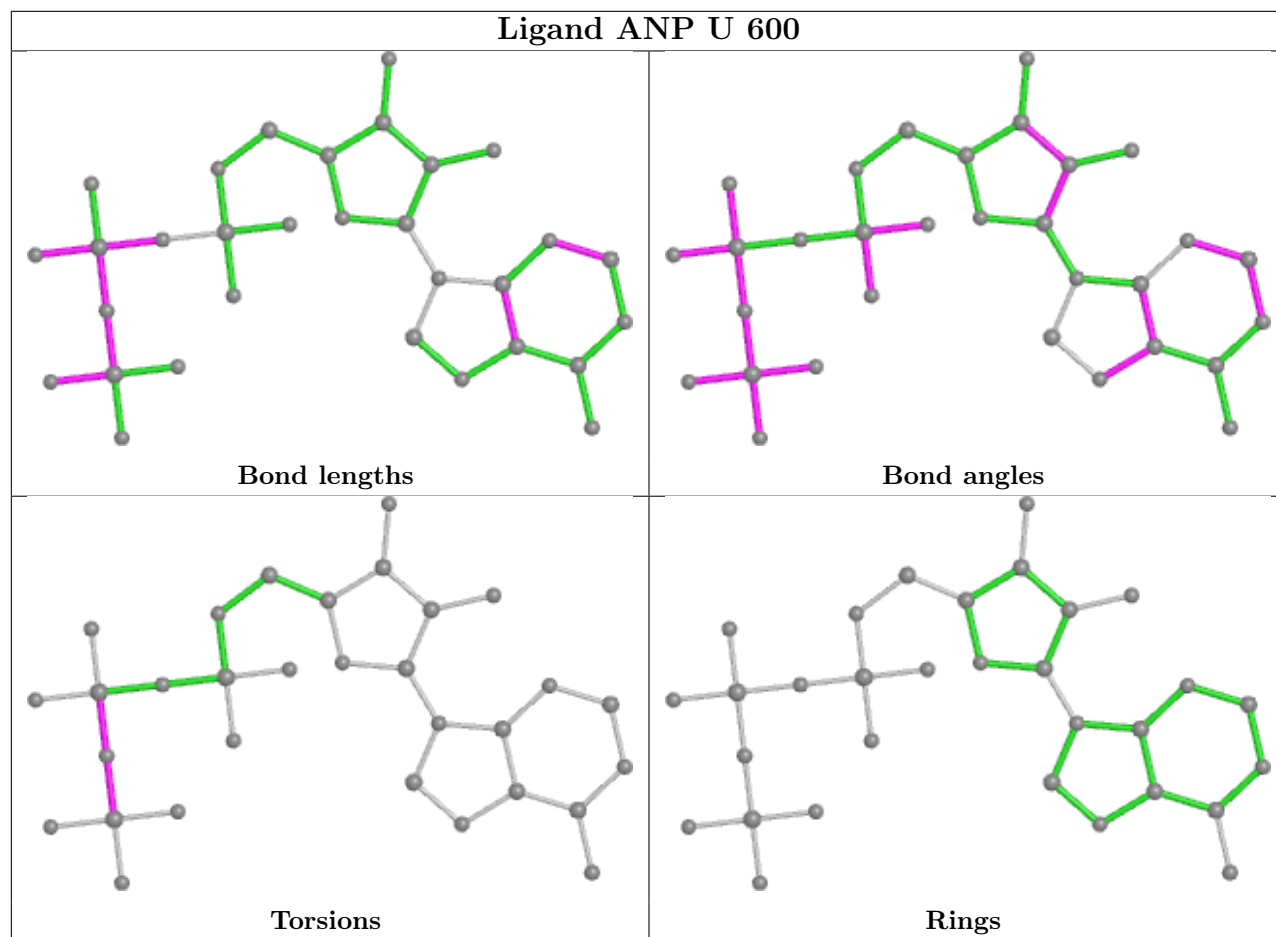


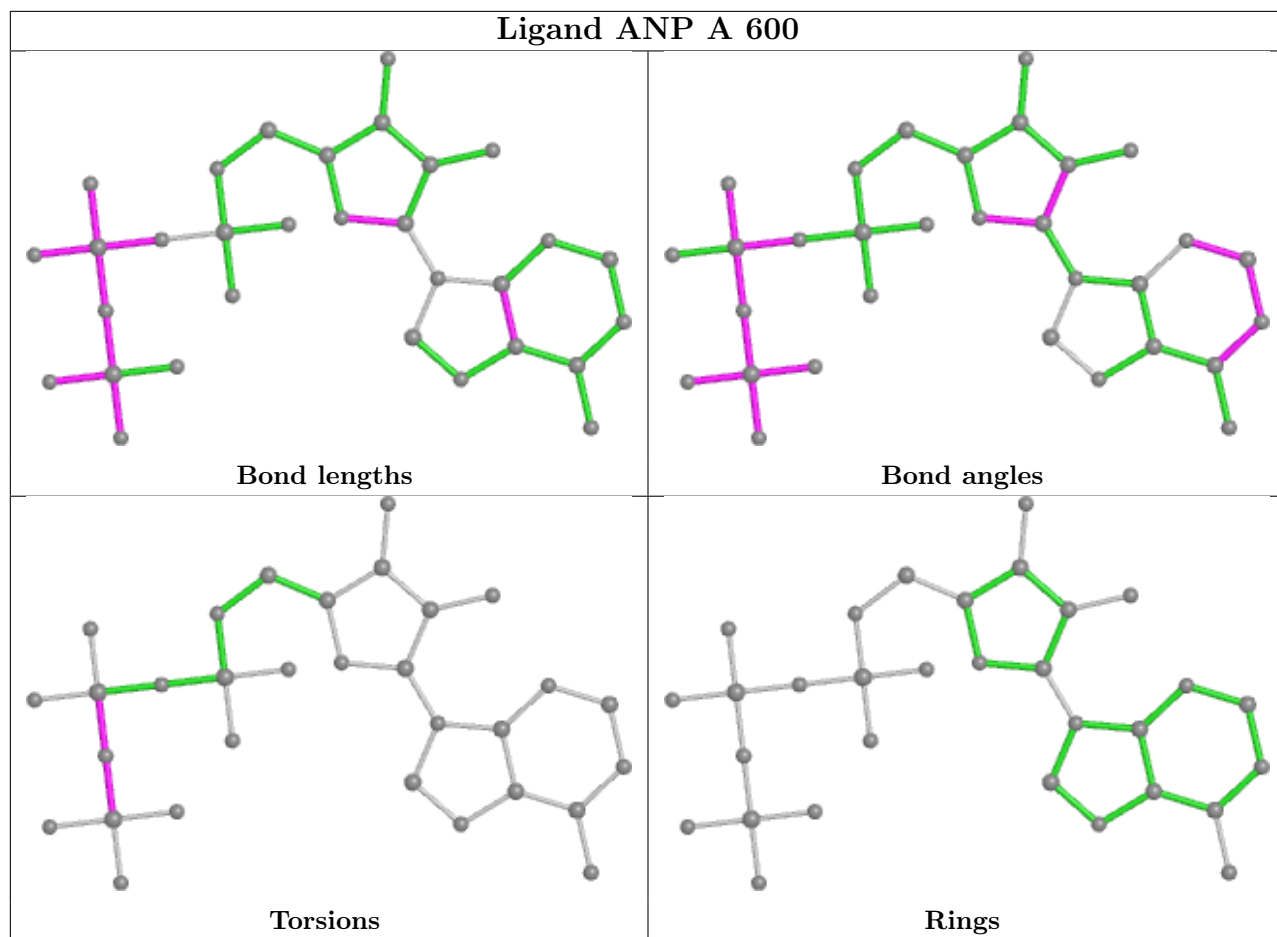


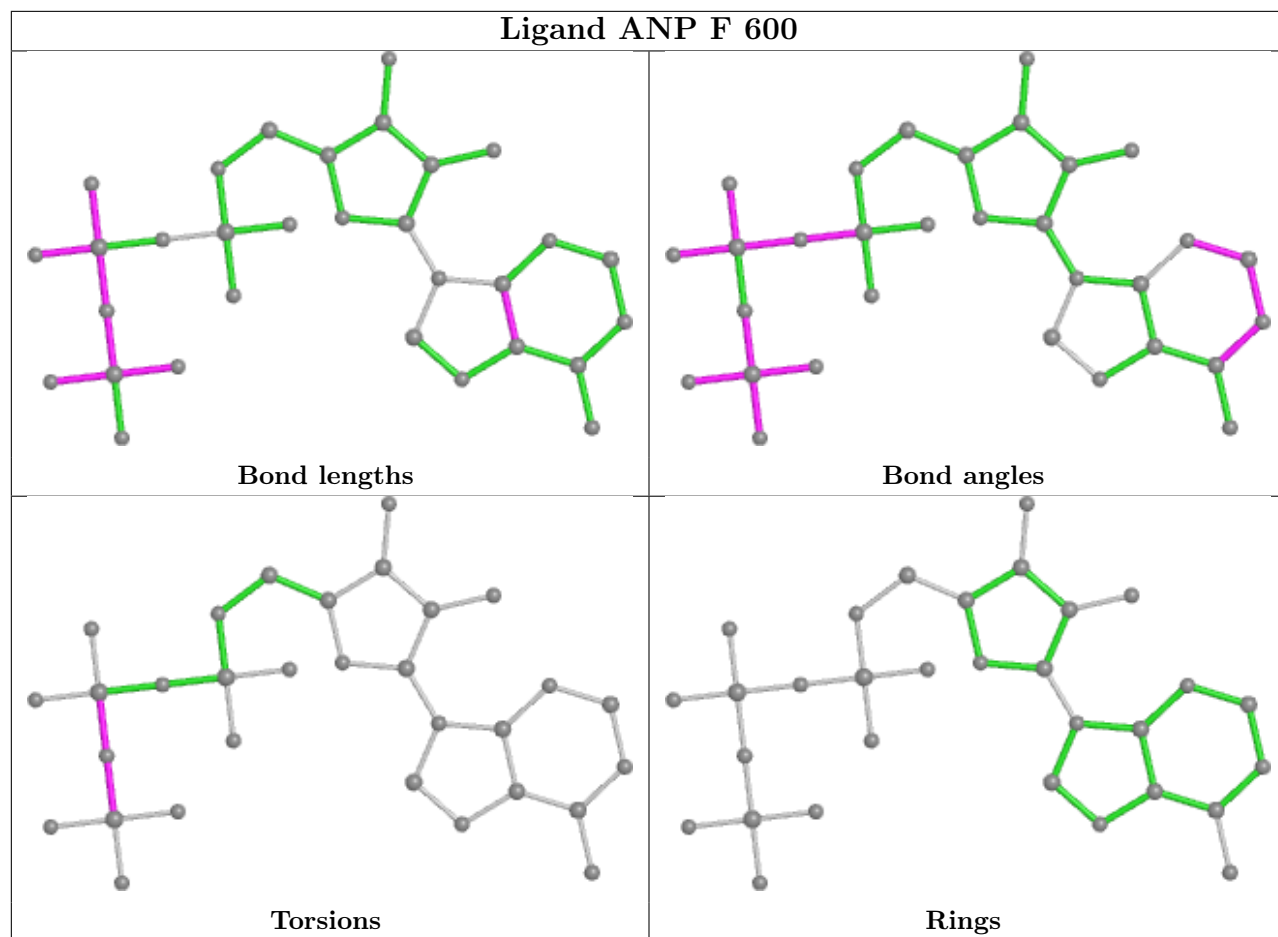


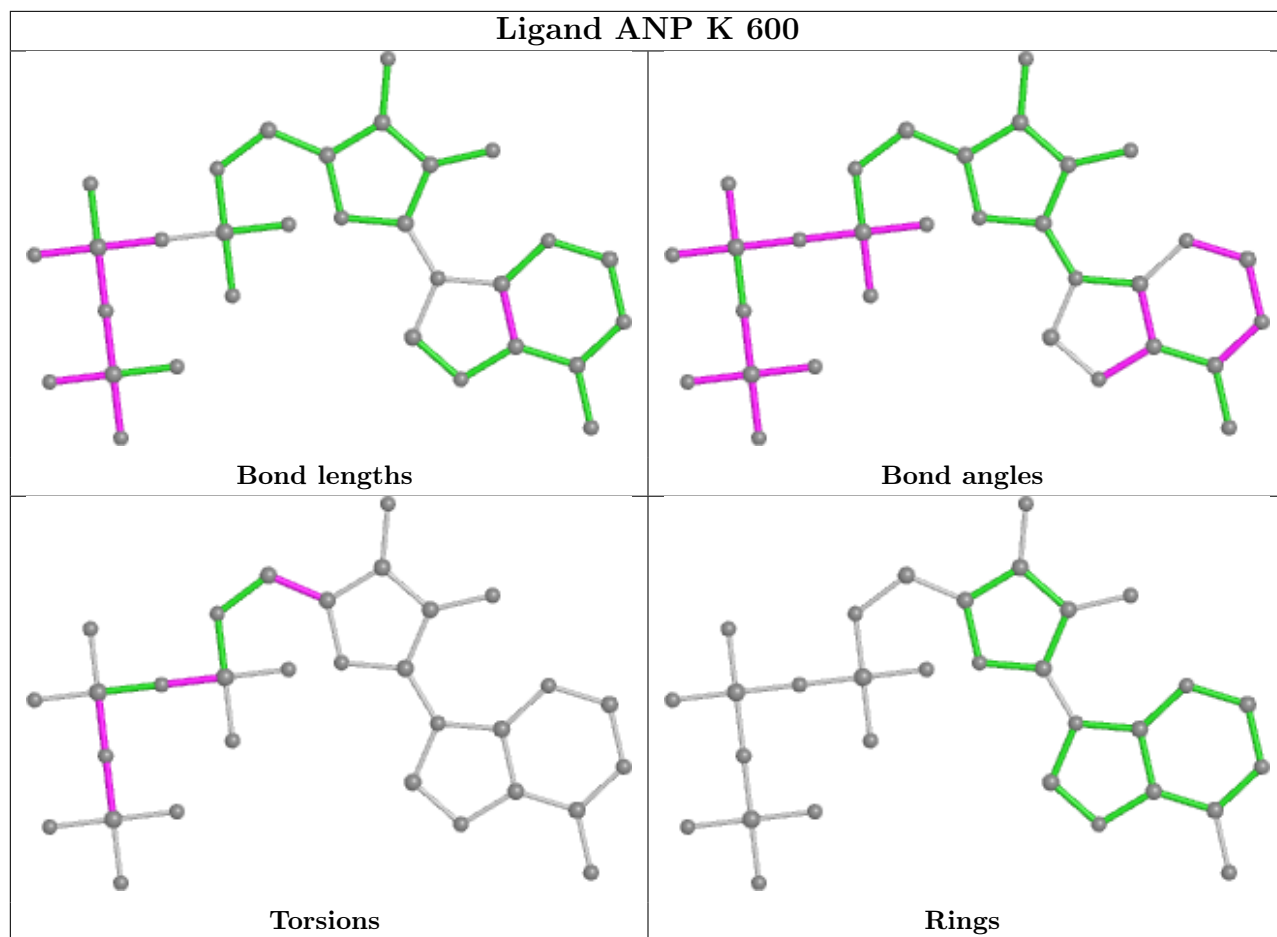


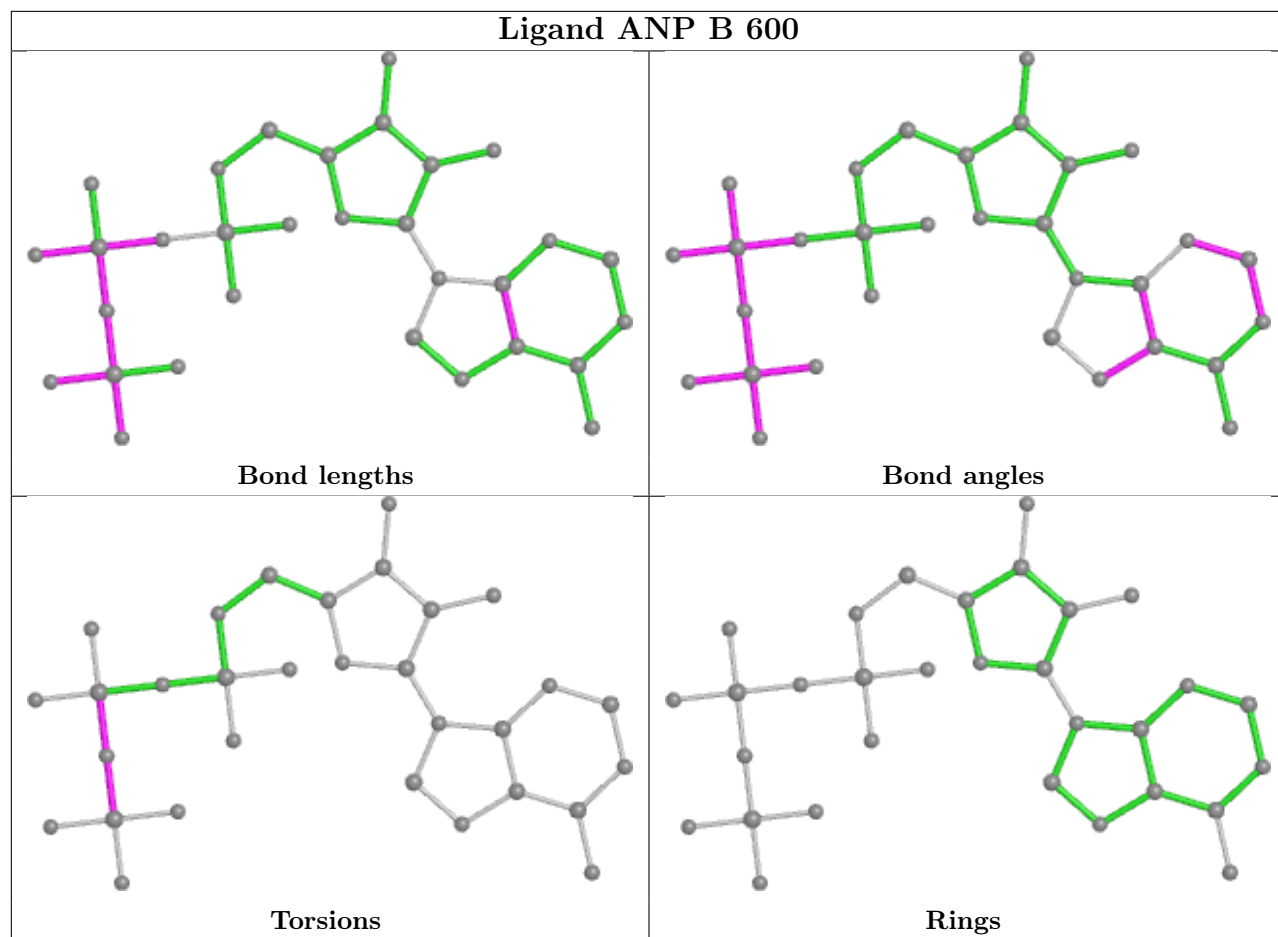


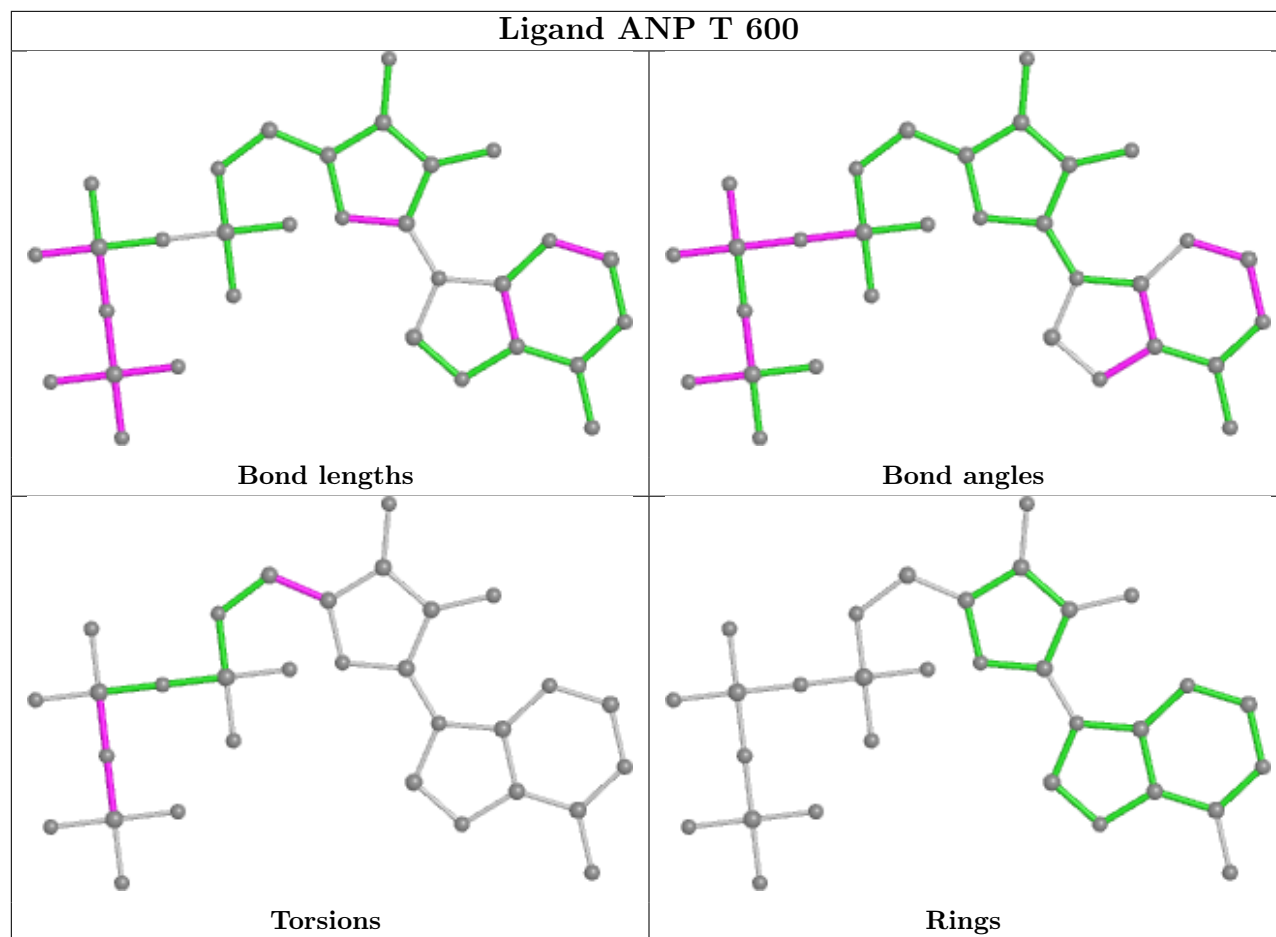












5.7 Other polymers [i](#)

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](#)

Unable to reproduce the depositors R factor - this section is therefore empty.

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

Unable to reproduce the depositors R factor - this section is therefore empty.

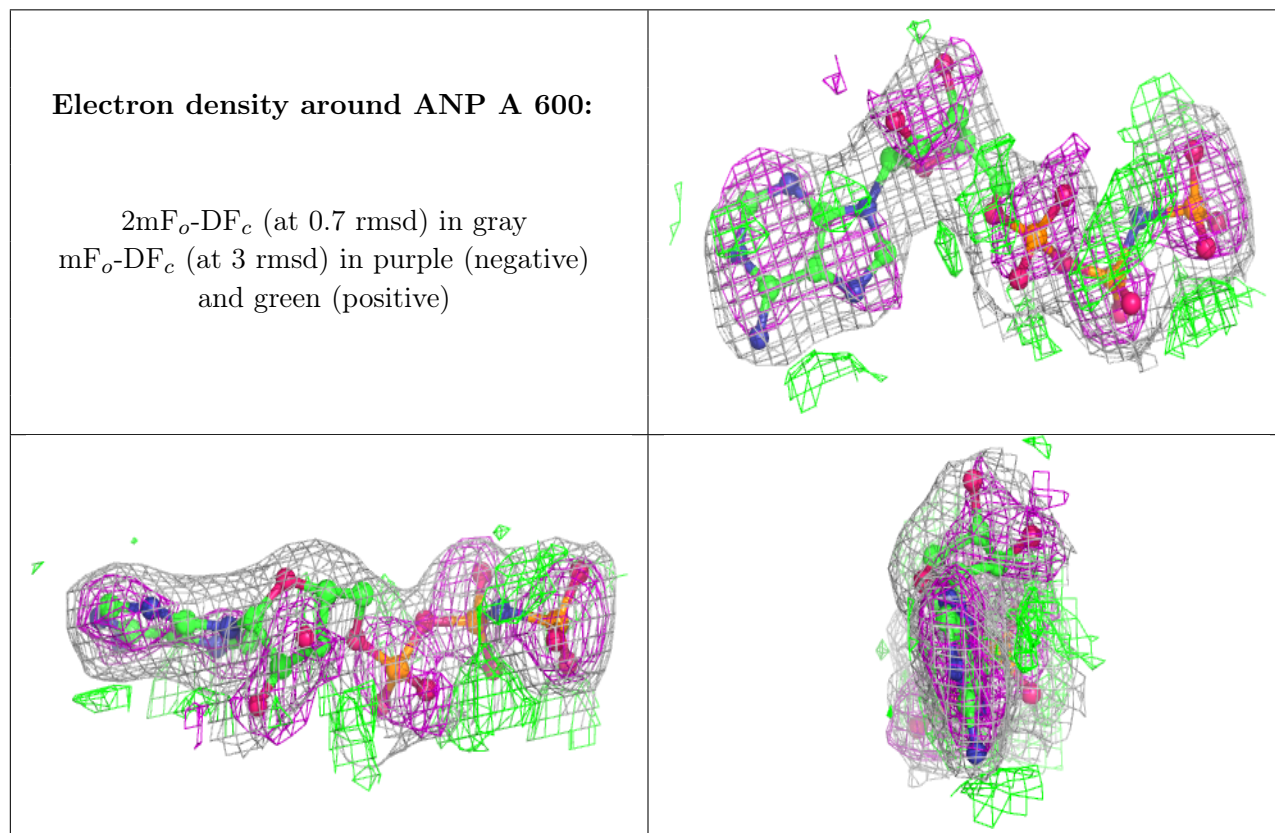
6.3 Carbohydrates [i](#)

Unable to reproduce the depositors R factor - this section is therefore empty.

6.4 Ligands [i](#)

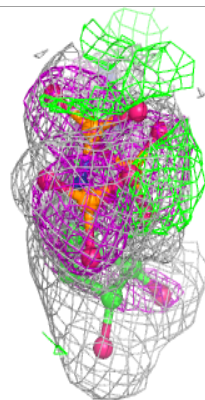
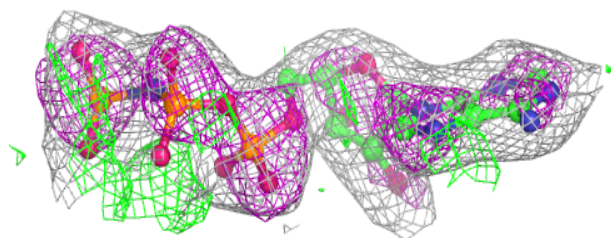
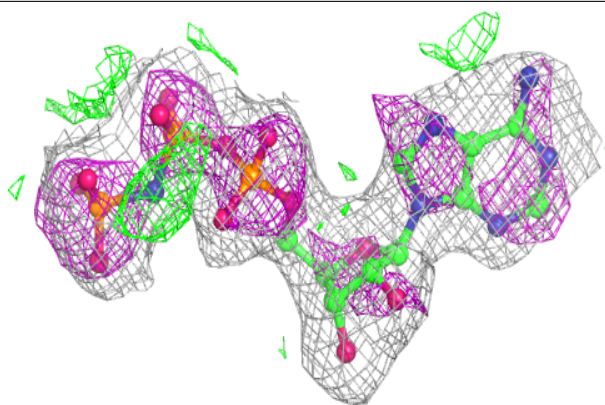
Unable to reproduce the depositors R factor - this section is therefore empty.

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.

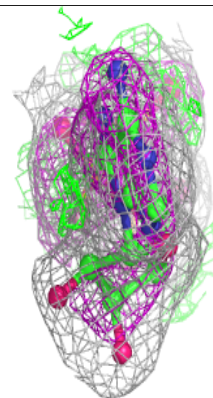
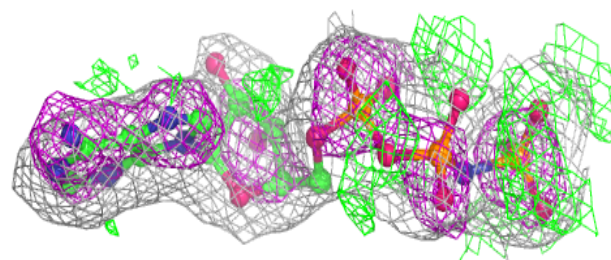
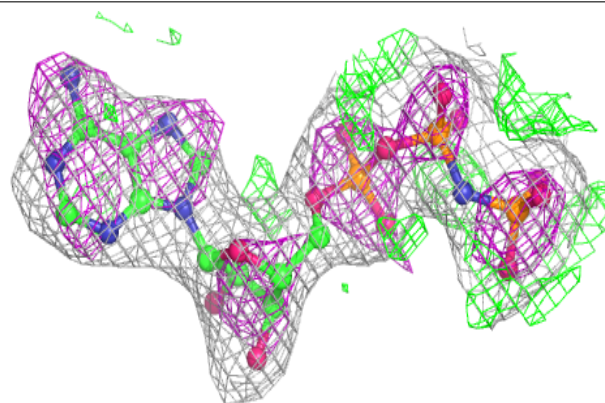


Electron density around ANP B 600:

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

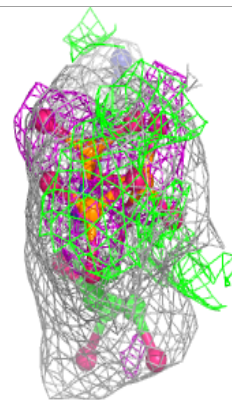
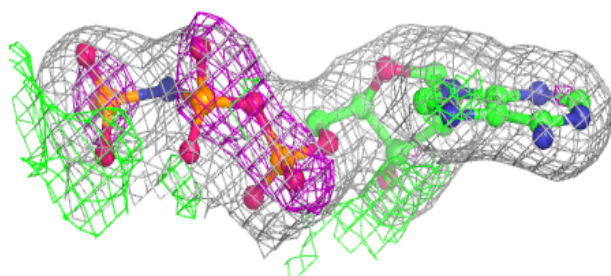
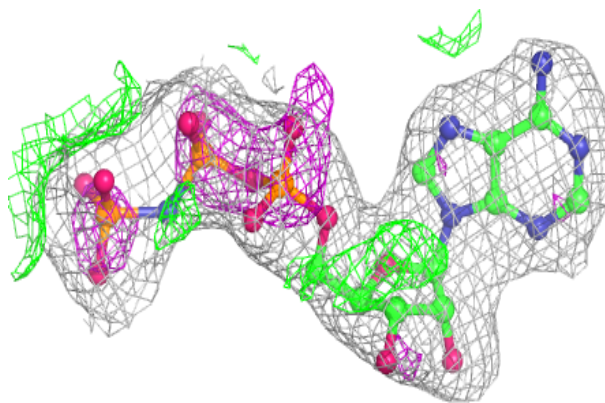
**Electron density around ANP C 600:**

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

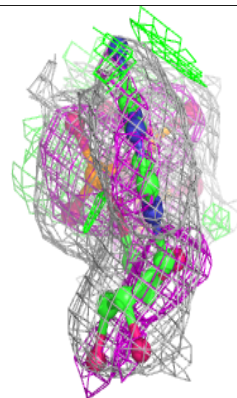
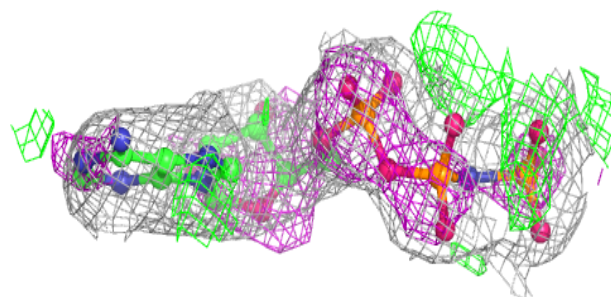
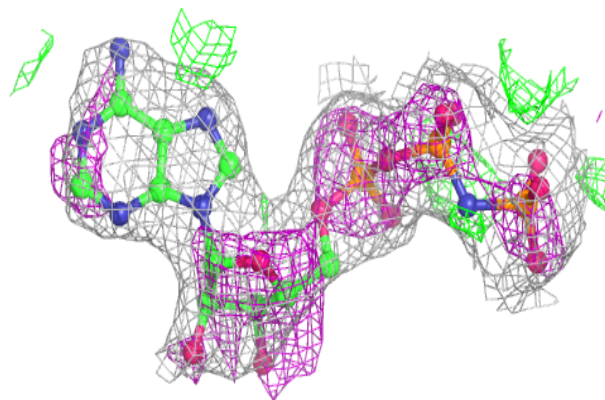


Electron density around ANP D 600:

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

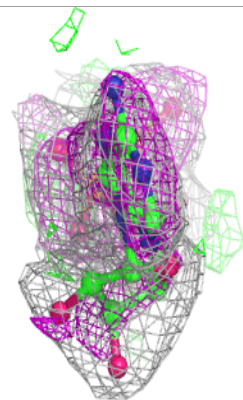
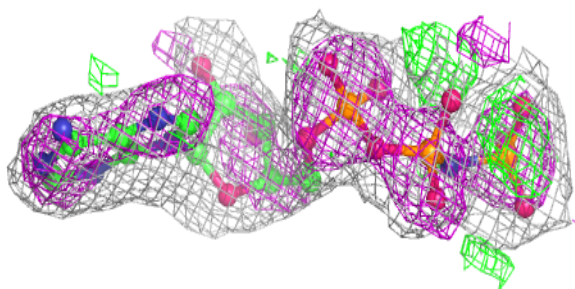
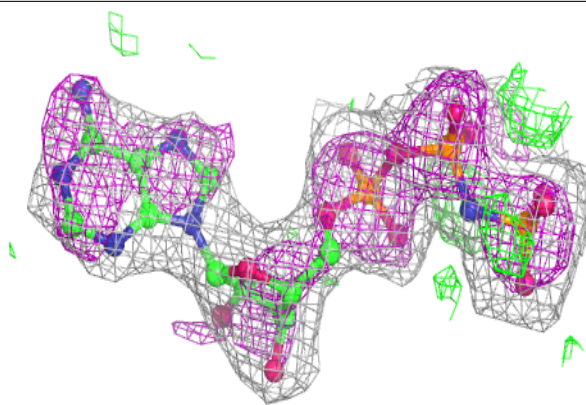
**Electron density around ANP F 600:**

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

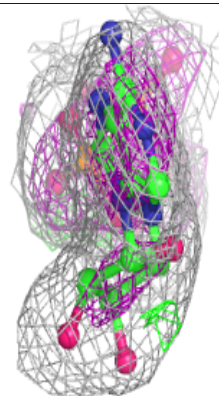
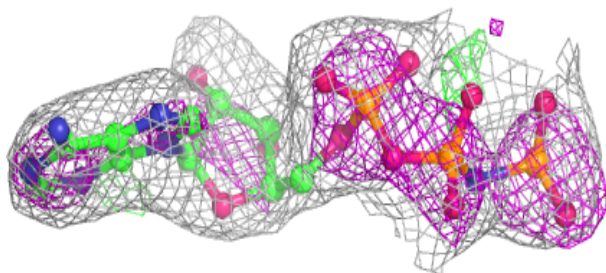
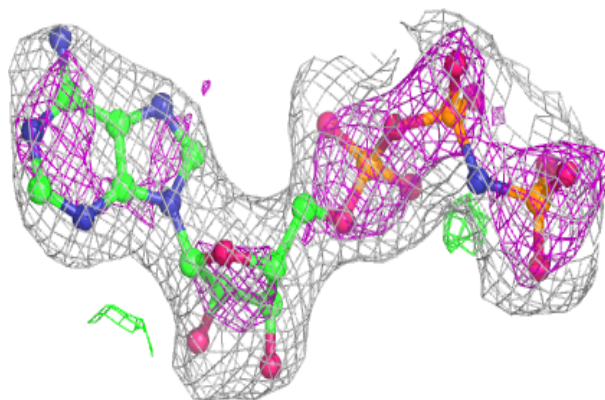


Electron density around ANP J 600:

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

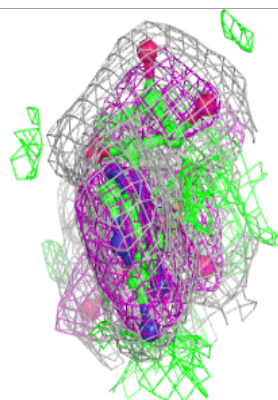
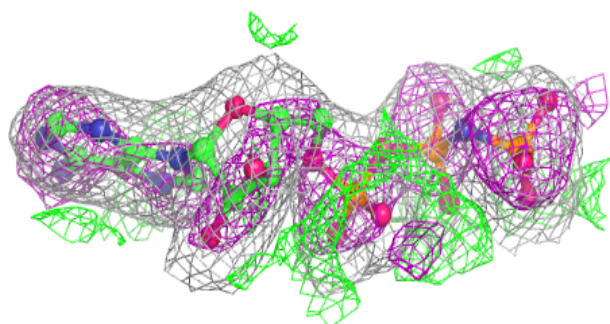
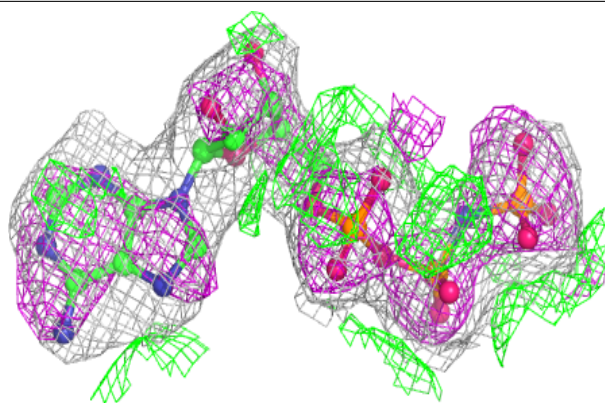
**Electron density around ANP K 600:**

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

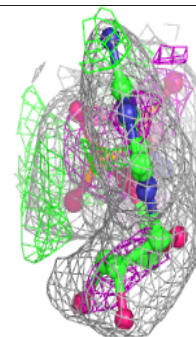
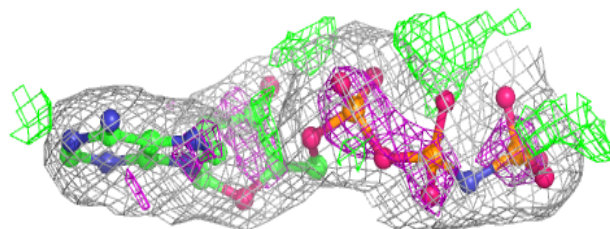
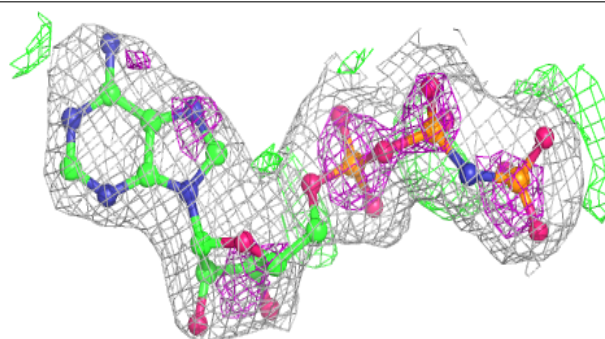


Electron density around ANP L 600:

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

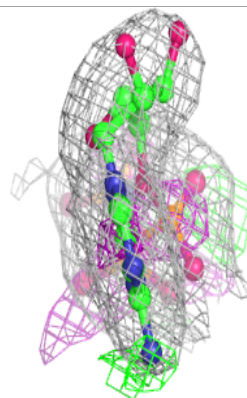
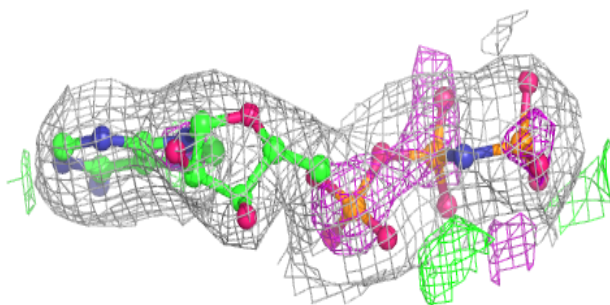
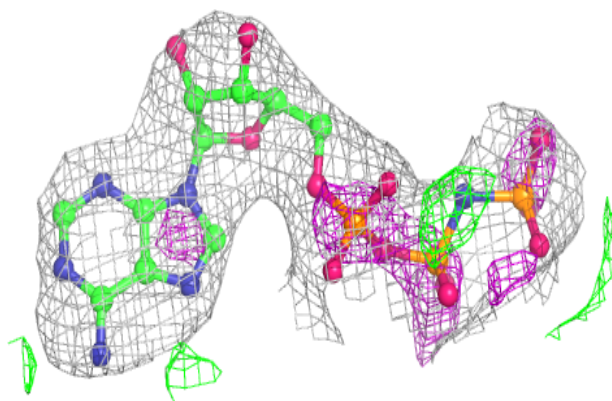
**Electron density around ANP M 600:**

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

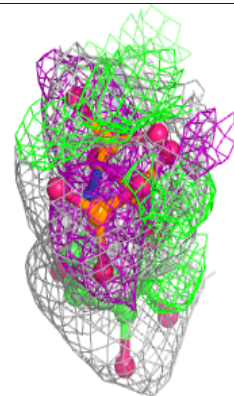
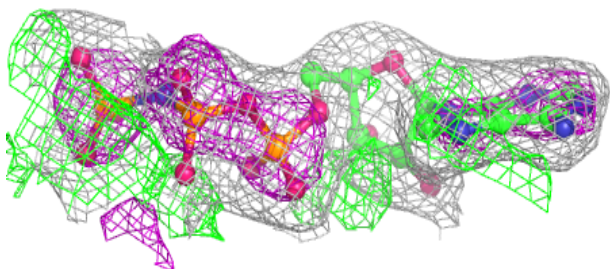
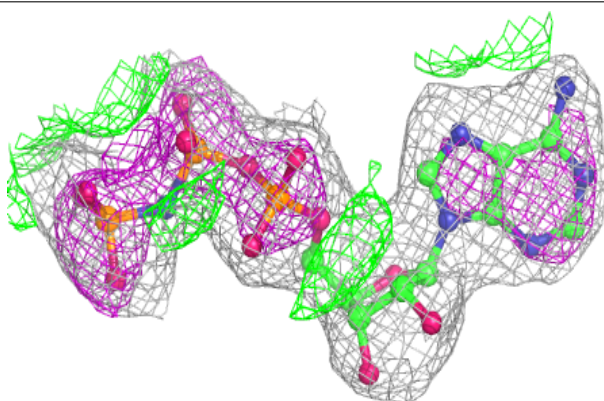


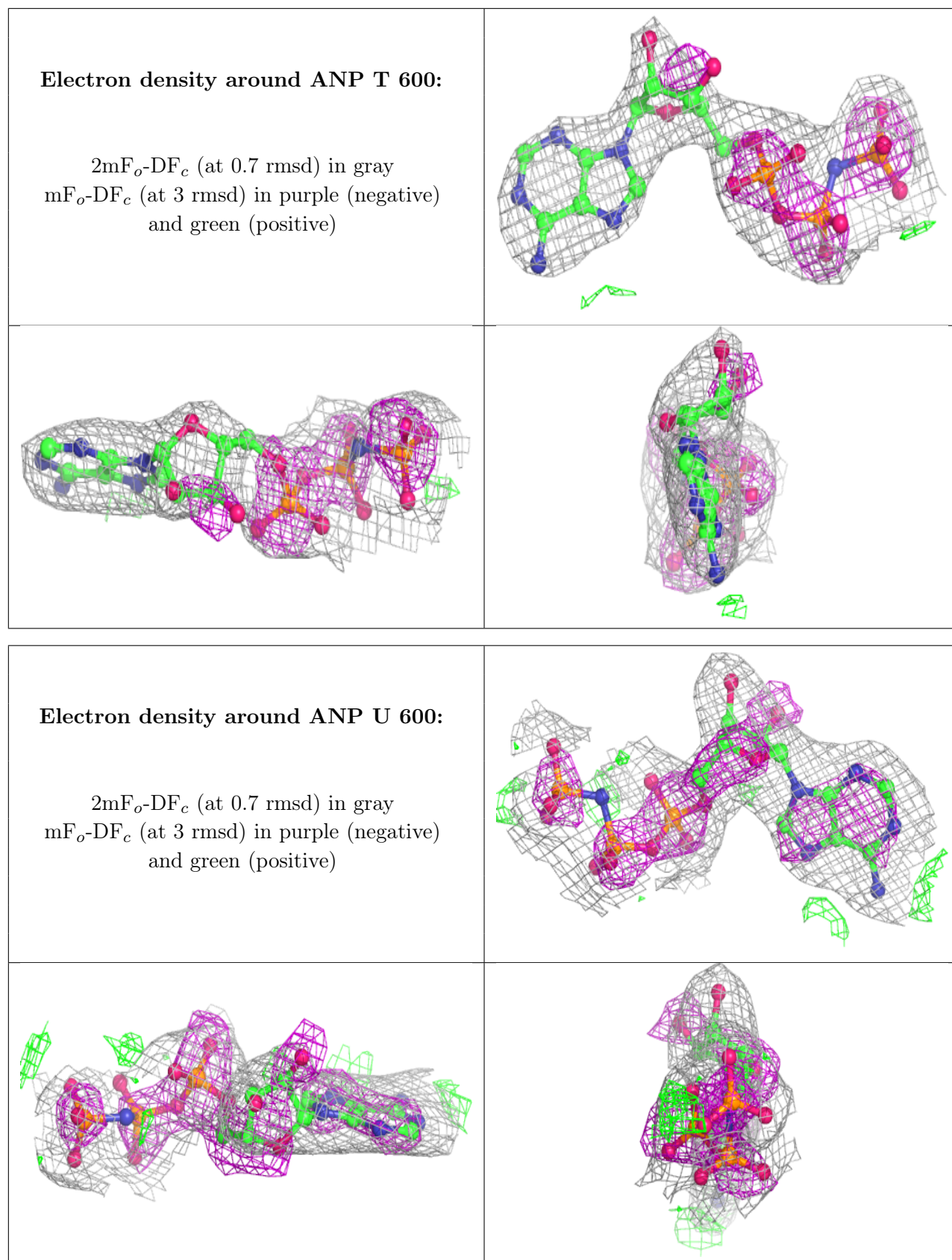
Electron density around ANP O 600:

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

**Electron density around ANP S 600:**

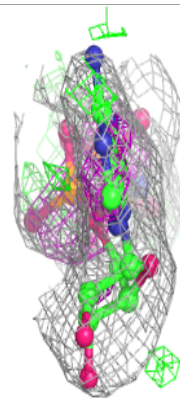
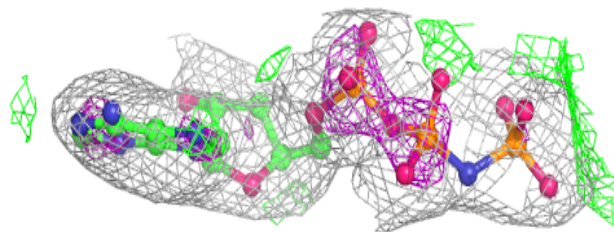
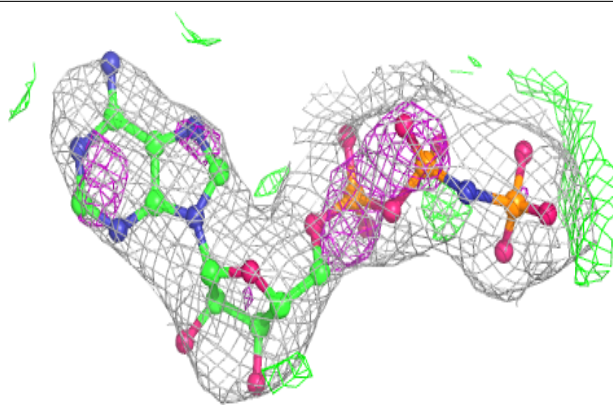
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)



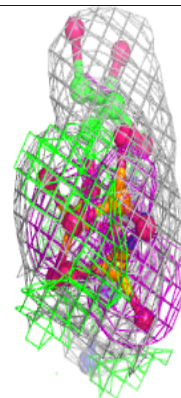
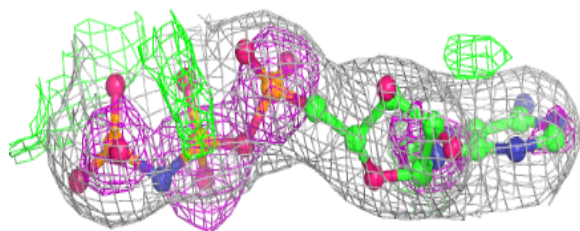
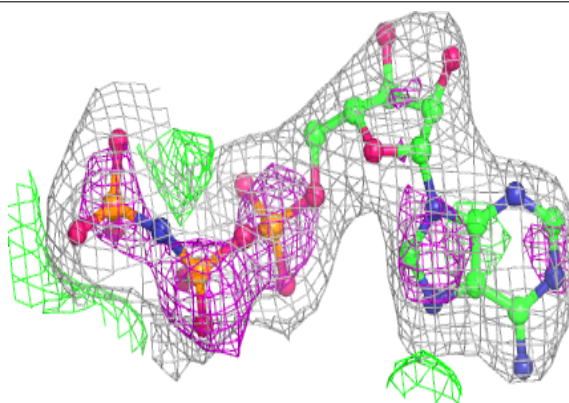


Electron density around ANP V 600:

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

**Electron density around ANP X 600:**

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



6.5 Other polymers [i](#)

Unable to reproduce the depositors R factor - this section is therefore empty.