Full wwPDB X-ray Structure Validation Report ⓘ

Apr 27, 2024 – 01:18 pm BST

PDB ID	:	1V0F
Title	:	Endosialidase of Bacteriophage K1F in complex with oligomeric alpha-2,8-sialic acid
Authors	:	Stummeyer, K.; Dickmanns, A.; Muehlenhoff, M.; Gerady-Schahn, R.; Ficner, R.
Deposited on	:	2004-03-28
Resolution	:	2.55 Å(reported)

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

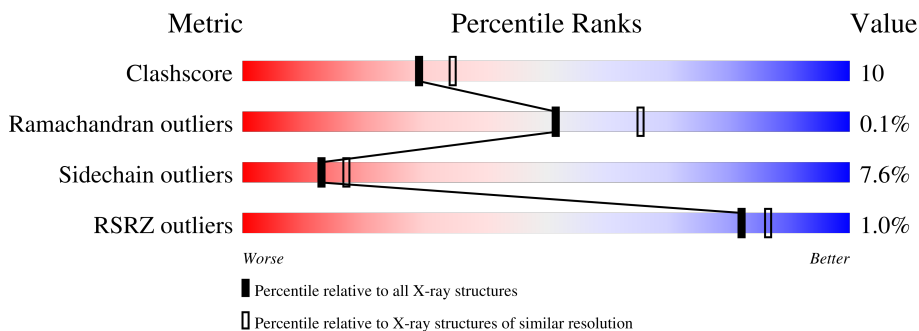|		
MolProbity	:	4.02b-467
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36.2
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36.2

1 Overall quality at a glance ⓘ

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

The reported resolution of this entry is 2.55 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.
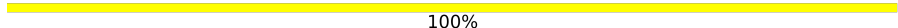
Metric	Percentile Ranks	Value
Clashscore		10
Ramachandran outliers		0.1%
Sidechain outliers		7.6%
RSRZ outliers		1.0%

Worse — *Better*

▉ Percentile relative to all X-ray structures
▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	141614	1332 (2.56-2.52)
Ramachandran outliers	138981	1315 (2.56-2.52)
Sidechain outliers	138945	1315 (2.56-2.52)
RSRZ outliers	127900	1272 (2.56-2.52)

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

Mol	Chain	Length	Quality of chain
1	A	666	.% 76% 21% •
1	B	666	.% 76% 20% •
1	C	666	.% 72% 24% ••
1	D	666	76% 20% •
1	E	666	2% 74% 21% •
1	F	666	.% 76% 21% ••

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Mol	Chain	Length	Quality of chain
2	G	2	100%
2	H	2	50% 50%
2	I	2	50% 50%

2 Entry composition ⓘ

There are 5 unique types of molecules in this entry. The entry contains 32580 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 ENDO-ALPHA-SIALIDASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	666	Total	C	N	O	S	0	0	0
			5230	3293	908	1010	19			
1	B	666	Total	C	N	O	S	0	0	0
			5230	3293	908	1010	19			
1	C	666	Total	C	N	O	S	0	0	0
			5230	3293	908	1010	19			
1	D	666	Total	C	N	O	S	0	0	0
			5230	3293	908	1010	19			
1	E	666	Total	C	N	O	S	0	0	0
			5230	3293	908	1010	19			
1	F	666	Total	C	N	O	S	0	0	0
			5230	3293	908	1010	19			

- Molecule 2 is an oligosaccharide called N-acetyl-alpha-neuraminic acid-(2-8)-N-acetyl-alpha-neuraminic acid.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
2	G	2	Total	C	N	O	0	0	0
			41	22	2	17			
2	H	2	Total	C	N	O	0	0	0
			41	22	2	17			
2	I	2	Total	C	N	O	0	0	0
			41	22	2	17			

- Molecule 3 is N-acetyl-beta-neuraminic acid (three-letter code: SLB) (formula: $C_{11}H_{19}NO_9$).

SLB

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total 21	C 11	N 1	O 9	0	0
3	B	1	Total 21	C 11	N 1	O 9	0	0
3	C	1	Total 21	C 11	N 1	O 9	0	0
3	D	1	Total 21	C 11	N 1	O 9	0	0
3	E	1	Total 21	C 11	N 1	O 9	0	0
3	F	1	Total 21	C 11	N 1	O 9	0	0

- Molecule 4 is PHOSPHATE ION (three-letter code: PO4) (formula: O_4P).

PO4

O3

O⁻

O2 O⁻ — P = O O1

P

O⁻

O4

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	A	1	Total 5	O 4	P 1	0	0
4	B	1	Total 5	O 4	P 1	0	0
4	C	1	Total 5	O 4	P 1	0	0
4	D	1	Total 5	O 4	P 1	0	0
4	F	1	Total 5	O 4	P 1	0	0
4	F	1	Total 5	O 4	P 1	0	0

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	176	Total 176	O 176	0	0
5	B	178	Total 178	O 178	0	0
5	C	130	Total 130	O 130	0	0
5	D	167	Total 167	O 167	0	0
5	E	130	Total 130	O 130	0	0
5	F	140	Total 140	O 140	0	0

3 Residue-property plots ⓘ

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: ENDO-ALPHA-SIALIDASE

- Molecule 1: ENDO-ALPHA-SIALIDASE

N771 V776 D779 T780 N781 L796 L816 M817 E818 K826 D831 G835 Q836 R837 S847 T849 L856 D863 S864 R866 I867 N870 E873 S878 K882 G893 L903 V909 T910

• Molecule 1: ENDO-ALPHA-SIALIDASE

Chain C:

72%   24%

S245 L258 T259 S260 A261 L262 N263 D264 G273 T277 T281 S287 T292 R293 F294 V295 Y305 Y306 E309 E310 F311 L316 F317 T320 D321 T322 P323 Y324 Y325 N326 A327 W328 P329 Q330 D331 I340 P343 S347 D348 L355 W359 V360 K361 D364
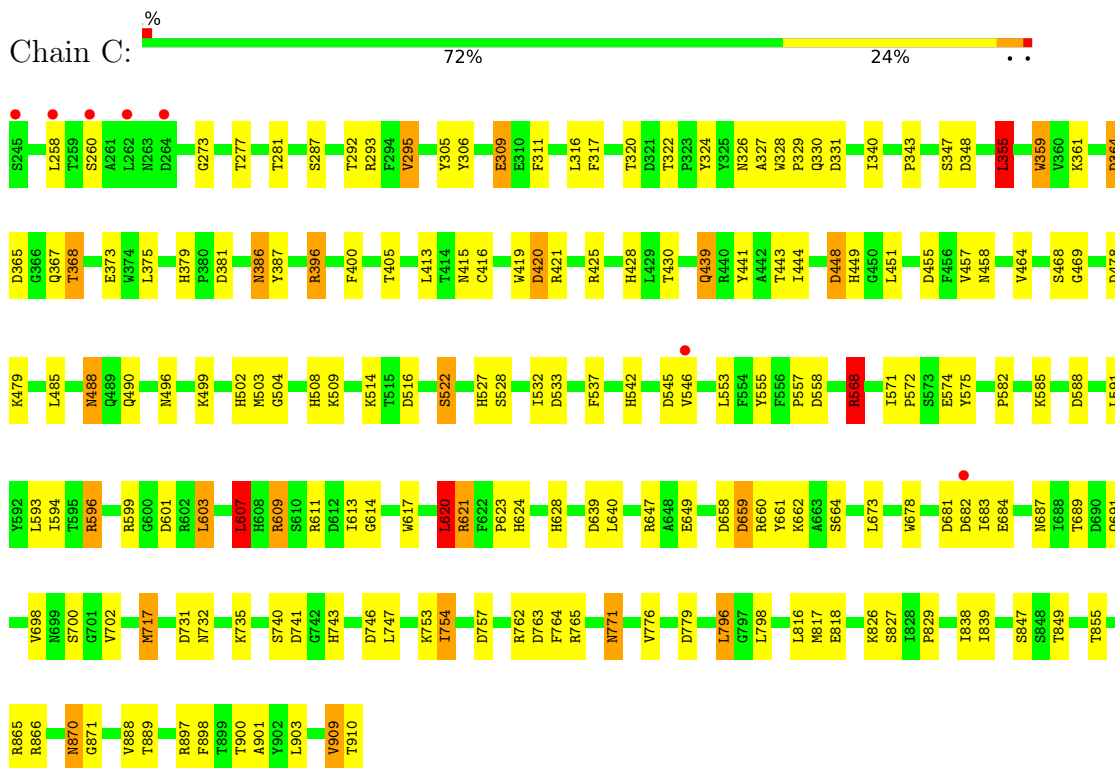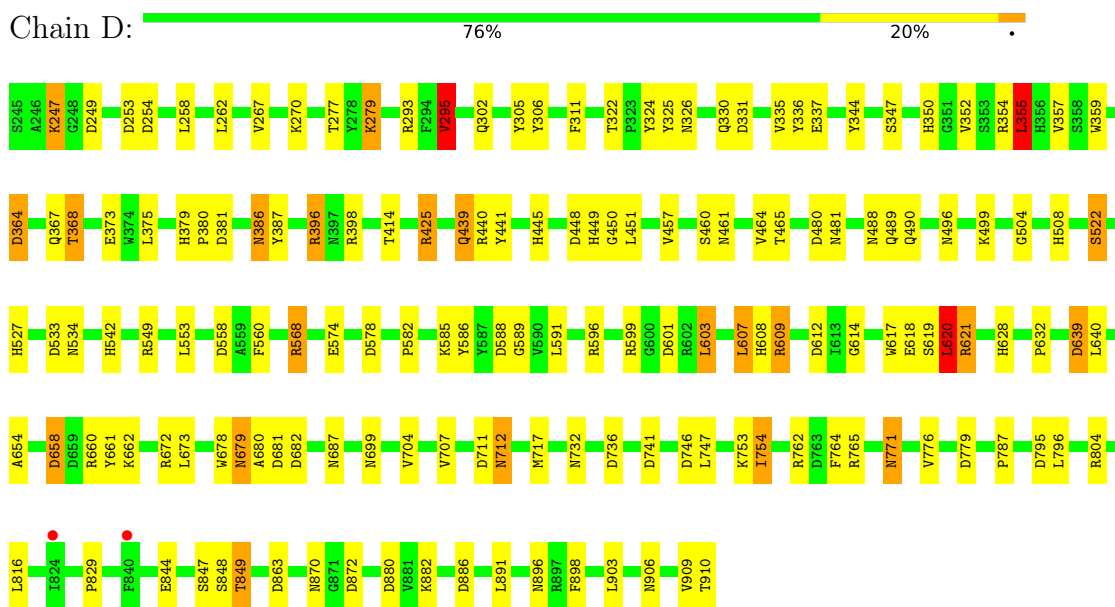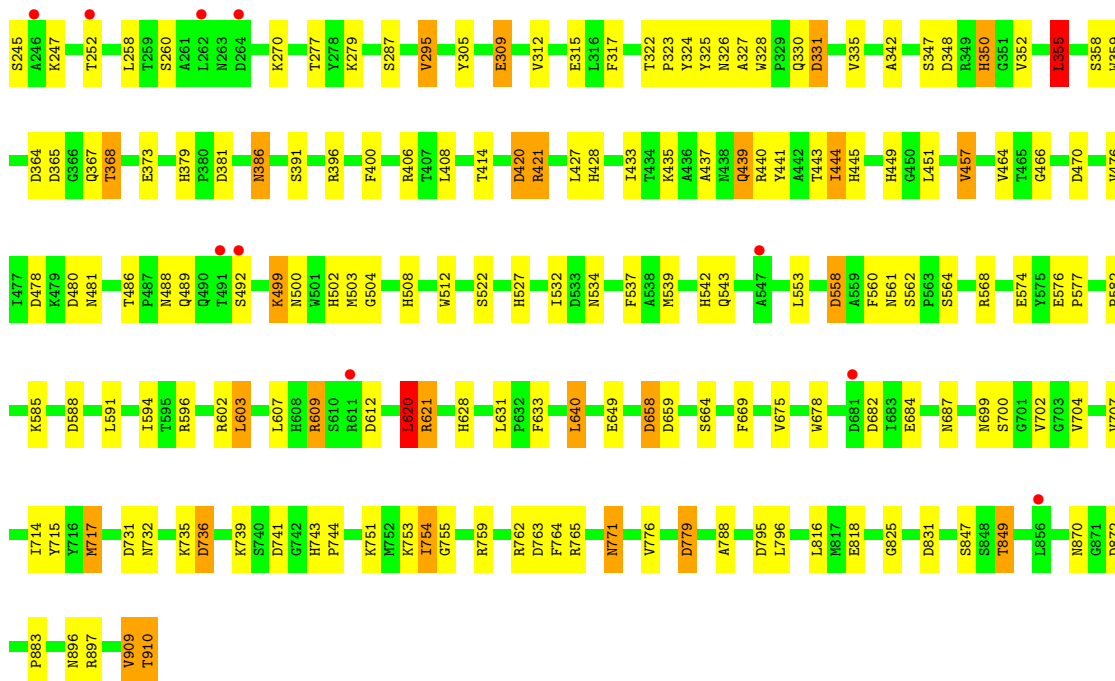
D365 G366 Q367 T368 E373 W374 L375 H379 P380 D381 N386 Y387 R396 F400 T405 L413 T414 N415 C416 W419 D420 R421 R425 H428 L429 T430 Q439 R440 Y441 A442 T443 I444 D448 H449 G450 L451 D455 F456 V457 N458 V464 S468 G469 D478

K479 L485 M488 Q489 Q490 N496 K499 H502 M503 G504 H508 K509 K514 T515 D516 S522 H527 S528 I532 D533 F537 H542 D545 V546 L553 F554 Y555 F556 P557 D558 R568 I571 P572 S573 E574 Y575 P582 K585 D588 L591

Y592 L593 I594 T595 R596 R599 G600 D601 R602 L603 L607 H608 R609 S610 R611 D612 I613 G614 W617 L620 R621 F622 P623 H624 H628 D639 L640 R647 A648 E649 D658 D659 R660 Y661 K662 A663 S664 L673 W678 D681 D682 I683 E684 N687 I688 T689 D690 Q691

V698 N699 S700 G701 V702 M717 D731 N732 K735 S740 D741 G742 H743 D746 L747 K753 I754 D757 R762 D763 F764 R765 N771 V776 D779 L796 G797 L798 L816 M817 E818 K826 S827 I828 P829 I838 I839 S847 S848 T849 T855

R865 R866 N870 G871 V888 T889 R897 F898 T899 T900 A901 Y902 L903 V909 T910

• Molecule 1: ENDO-ALPHA-SIALIDASE

Chain D:

76%   20%

S245 A246 K247 G248 D249 D253 D254 L258 L262 V267 K270 T277 Y278 K279 R293 F294 V295 Q302 Y305 Y306 F311 T322 P323 Y324 Y325 N326 Q330 D331 V335 Y336 E337 Y344 S347 H350 G351 V352 S353 R354 L355 H356 V357 S358 W359

D364 Q367 T368 E373 W374 L375 H379 P380 D381 N386 Y387 R396 N397 R398 T414 R425 Q439 R440 Y441 H445 D448 H449 G450 L451 V457 S460 N461 V464 T465 D480 N481 N488 Q489 Q490 N496 K499 G504 H508 S522

H527 D533 N534 H542 R549 L553 D558 A559 F560 R568 E574 D578 P582 K585 Y586 Y587 D588 G589 V590 L591 R596 R599 G600 D601 R602 L603 L607 H608 R609 D612 I613 G614 W617 E618 S619 R620 R621 H628 P632 D639 L640

A654 D658 D659 R660 Y661 K662 R672 L673 W678 N679 A680 D681 D682 N687 N699 V704 V707 D711 N712 M717 N732 D736 D741 D746 L747 K753 I754 R762 D763 F764 R765 N771 V776 D779 P787 D795 L796 R804

L816 I824 P829 F840 E844 S847 S848 T849 D863 N870 G871 D872 D880 V881 K882 D886 L891 N896 R897 F898 L903 N906 V909 T910

• Molecule 1: ENDO-ALPHA-SIALIDASE

Chain E:

2%   74%   21%
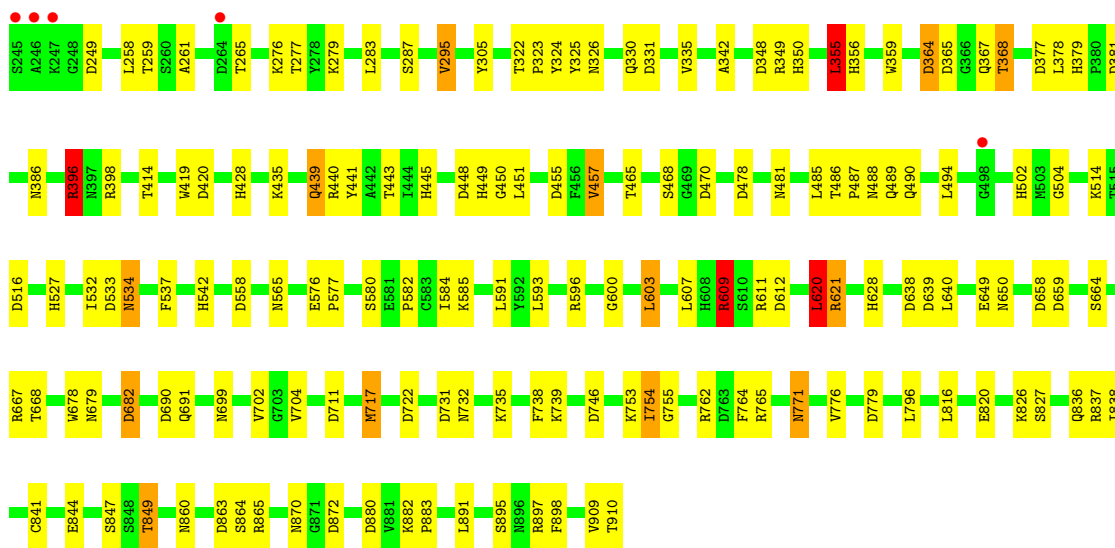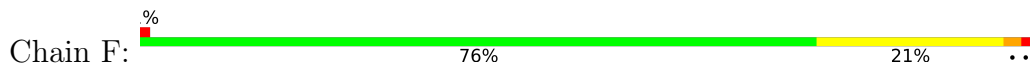
• Molecule 1: ENDO-ALPHA-SIALIDASE

Chain F:

• Molecule 2: N-acetyl-alpha-neuraminic acid-(2-8)-N-acetyl-alpha-neuraminic acid

Chain G:

• Molecule 2: N-acetyl-alpha-neuraminic acid-(2-8)-N-acetyl-alpha-neuraminic acid

Chain H:

SIA1 SIA2

• Molecule 2: N-acetyl-alpha-neuraminic acid-(2-8)-N-acetyl-alpha-neuraminic acid

Chain I:

50% 50%

SIA1 SIA2

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 2 2 21	Depositor
Cell constants a, b, c, α, β, γ	99.54Å　　131.40Å　　346.04Å 90.00°　　90.00°　　90.00°	Depositor
Resolution (Å)	30.00　–　2.55 30.00　–　2.55	Depositor EDS
% Data completeness (in resolution range)	88.4 (30.00-2.55) 88.1 (30.00-2.55)	Depositor EDS
R_{merge}	0.11	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	4.28 (at 2.54Å)	Xtriage
Refinement program	REFMAC	Depositor
R, R_{free}	0.180　,　　0.232 0.198　,　(Not available)	Depositor DCC
R_{free} test set	No test flags present.	wwPDB-VP
Wilson B-factor (Å^2)	29.6	Xtriage
Anisotropy	0.046	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.32 , 18.2	EDS
L-test for twinning[2]	$< |L| > = 0.46, < L^2 > = 0.29$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.93	EDS
Total number of atoms	32580	wwPDB-VP
Average B, all atoms (Å^2)	21.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.02% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality (i)

5.1 Standard geometry (i)

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

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	0.72	0/5376	0.94	31/7325 (0.4%)
1	B	0.72	0/5376	0.94	28/7325 (0.4%)
1	C	0.70	0/5376	0.94	29/7325 (0.4%)
1	D	0.73	0/5376	0.95	31/7325 (0.4%)
1	E	0.69	0/5376	0.92	23/7325 (0.3%)
1	F	0.71	0/5376	0.94	33/7325 (0.5%)
All	All	0.71	0/32256	0.94	175/43950 (0.4%)

There are no bond length outliers.

All (175) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	364	ASP	CB-CG-OD2	9.56	126.91	118.30
1	E	355	LEU	CA-CB-CG	9.49	137.13	115.30
1	F	638	ASP	CB-CG-OD2	8.38	125.84	118.30
1	D	682	ASP	CB-CG-OD2	8.26	125.74	118.30
1	C	545	ASP	CB-CG-OD2	8.15	125.64	118.30
1	A	620	LEU	CA-CB-CG	8.15	134.04	115.30
1	E	558	ASP	CB-CG-OD2	8.15	125.63	118.30
1	E	612	ASP	CB-CG-OD2	8.07	125.57	118.30
1	B	355	LEU	CA-CB-CG	8.00	133.70	115.30
1	C	355	LEU	CA-CB-CG	8.00	133.69	115.30
1	C	639	ASP	CB-CG-OD2	7.99	125.49	118.30
1	B	478	ASP	CB-CG-OD2	7.96	125.46	118.30
1	B	620	LEU	CA-CB-CG	7.85	133.35	115.30
1	D	253	ASP	CB-CG-OD2	7.83	125.35	118.30
1	E	348	ASP	CB-CG-OD2	7.77	125.29	118.30
1	C	731	ASP	CB-CG-OD2	7.71	125.24	118.30
1	F	746	ASP	CB-CG-OD2	7.69	125.22	118.30
1	B	420	ASP	CB-CG-OD2	7.59	125.14	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	F	872	ASP	CB-CG-OD2	7.58	125.12	118.30
1	D	795	ASP	CB-CG-OD2	7.52	125.07	118.30
1	B	558	ASP	CB-CG-OD2	7.44	125.00	118.30
1	A	355	LEU	CA-CB-CG	7.43	132.38	115.30
1	A	558	ASP	CB-CG-OD2	7.32	124.89	118.30
1	C	620	LEU	CA-CB-CG	7.30	132.08	115.30
1	F	722	ASP	CB-CG-OD2	7.17	124.75	118.30
1	D	620	LEU	CA-CB-CG	7.15	131.74	115.30
1	D	639	ASP	CB-CG-OD2	7.12	124.71	118.30
1	F	478	ASP	CB-CG-OD2	7.09	124.69	118.30
1	F	355	LEU	CA-CB-CG	7.07	131.57	115.30
1	B	253	ASP	CB-CG-OD2	7.03	124.63	118.30
1	D	711	ASP	CB-CG-OD2	6.98	124.58	118.30
1	C	558	ASP	CB-CG-OD2	6.92	124.53	118.30
1	F	455	ASP	CB-CG-OD2	6.90	124.51	118.30
1	B	480	ASP	CB-CG-OD2	6.88	124.50	118.30
1	D	578	ASP	CB-CG-OD2	6.86	124.47	118.30
1	A	348	ASP	CB-CG-OD2	6.83	124.45	118.30
1	E	736	ASP	CB-CG-OD1	6.74	124.36	118.30
1	E	682	ASP	CB-CG-OD2	6.68	124.32	118.30
1	C	533	ASP	CB-CG-OD2	6.67	124.30	118.30
1	F	731	ASP	CB-CG-OD2	6.65	124.29	118.30
1	D	355	LEU	CA-CB-CG	6.63	130.54	115.30
1	E	620	LEU	CA-CB-CG	6.62	130.54	115.30
1	A	249	ASP	CB-CG-OD2	6.60	124.24	118.30
1	A	253	ASP	CB-CG-OD2	6.59	124.24	118.30
1	B	863	ASP	CB-CG-OD2	6.56	124.21	118.30
1	F	711	ASP	CB-CG-OD2	6.56	124.20	118.30
1	D	658	ASP	CB-CG-OD2	6.56	124.20	118.30
1	A	478	ASP	CB-CG-OD2	6.55	124.19	118.30
1	A	865	ARG	NE-CZ-NH2	-6.54	117.03	120.30
1	A	741	ASP	CB-CG-OD2	6.51	124.16	118.30
1	F	639	ASP	CB-CG-OD2	6.46	124.11	118.30
1	B	731	ASP	CB-CG-OD2	6.46	124.11	118.30
1	A	455	ASP	CB-CG-OD2	6.44	124.10	118.30
1	D	872	ASP	CB-CG-OD2	6.44	124.10	118.30
1	F	863	ASP	CB-CG-OD2	6.43	124.09	118.30
1	D	746	ASP	CB-CG-OD2	6.42	124.08	118.30
1	A	545	ASP	CB-CG-OD2	6.42	124.08	118.30
1	E	478	ASP	CB-CG-OD2	6.41	124.07	118.30
1	E	420	ASP	CB-CG-OD2	6.39	124.05	118.30
1	B	381	ASP	CB-CG-OD2	6.37	124.03	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	D	448	ASP	CB-CG-OD2	6.37	124.03	118.30
1	A	795	ASP	CB-CG-OD2	6.33	124.00	118.30
1	A	639	ASP	CB-CG-OD2	6.32	123.99	118.30
1	E	365	ASP	CB-CG-OD2	6.32	123.99	118.30
1	C	746	ASP	CB-CG-OD2	6.31	123.98	118.30
1	B	612	ASP	CB-CG-OD2	6.31	123.98	118.30
1	B	741	ASP	CB-CG-OD2	6.30	123.97	118.30
1	B	588	ASP	CB-CG-OD2	6.28	123.95	118.30
1	A	757	ASP	CB-CG-OD2	6.27	123.95	118.30
1	F	364	ASP	CB-CG-OD2	6.25	123.93	118.30
1	B	545	ASP	CB-CG-OD2	6.25	123.92	118.30
1	D	558	ASP	CB-CG-OD2	6.25	123.92	118.30
1	F	558	ASP	CB-CG-OD2	6.24	123.91	118.30
1	D	480	ASP	CB-CG-OD2	6.17	123.85	118.30
1	E	588	ASP	CB-CG-OD2	6.15	123.83	118.30
1	E	831	ASP	CB-CG-OD2	6.15	123.83	118.30
1	A	420	ASP	CB-CG-OD2	6.14	123.83	118.30
1	C	364	ASP	CB-CG-OD2	6.12	123.80	118.30
1	C	659	ASP	CB-CG-OD2	6.08	123.78	118.30
1	B	736	ASP	CB-CG-OD1	6.08	123.77	118.30
1	F	348	ASP	CB-CG-OD2	6.04	123.74	118.30
1	F	377	ASP	CB-CG-OD2	6.03	123.73	118.30
1	A	746	ASP	CB-CG-OD2	6.03	123.72	118.30
1	D	381	ASP	CB-CG-OD2	6.02	123.72	118.30
1	F	381	ASP	CB-CG-OD2	6.02	123.72	118.30
1	F	620	LEU	CA-CB-CG	6.02	129.14	115.30
1	B	607	LEU	CA-CB-CG	6.01	129.12	115.30
1	D	601	ASP	CB-CG-OD2	6.00	123.70	118.30
1	A	365	ASP	CB-CG-OD2	5.98	123.68	118.30
1	D	612	ASP	CB-CG-OD2	5.97	123.67	118.30
1	F	880	ASP	CB-CG-OD2	5.94	123.65	118.30
1	C	607	LEU	CA-CB-CG	5.94	128.95	115.30
1	F	331	ASP	CB-CG-OD2	5.90	123.61	118.30
1	C	588	ASP	CB-CG-OD2	5.87	123.58	118.30
1	D	364	ASP	CB-CG-OD2	5.83	123.55	118.30
1	B	682	ASP	CB-CG-OD2	5.83	123.54	118.30
1	B	533	ASP	CB-CG-OD2	5.83	123.54	118.30
1	C	455	ASP	CB-CG-OD2	5.82	123.54	118.30
1	A	264	ASP	CB-CG-OD2	5.81	123.53	118.30
1	D	863	ASP	CB-CG-OD2	5.79	123.52	118.30
1	C	348	ASP	CB-CG-OD2	5.76	123.49	118.30
1	B	348	ASP	CB-CG-OD2	5.75	123.47	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	448	ASP	CB-CG-OD2	5.68	123.41	118.30
1	E	331	ASP	CB-CG-OD2	5.67	123.41	118.30
1	B	746	ASP	CB-CG-OD2	5.65	123.38	118.30
1	E	470	ASP	CB-CG-OD2	5.63	123.37	118.30
1	A	321	ASP	CB-CG-OD2	5.62	123.36	118.30
1	F	396	ARG	NE-CZ-NH1	-5.62	117.49	120.30
1	C	568	ARG	NE-CZ-NH2	-5.61	117.49	120.30
1	D	331	ASP	CB-CG-OD2	5.61	123.35	118.30
1	D	588	ASP	CB-CG-OD2	5.61	123.35	118.30
1	A	831	ASP	CB-CG-OD2	5.61	123.35	118.30
1	B	364	ASP	CB-CG-OD2	5.60	123.34	118.30
1	A	638	ASP	CB-CG-OD2	5.58	123.33	118.30
1	D	804	ARG	NE-CZ-NH2	-5.58	117.51	120.30
1	E	731	ASP	CB-CG-OD2	5.55	123.29	118.30
1	B	455	ASP	CB-CG-OD2	5.54	123.29	118.30
1	B	596	ARG	NE-CZ-NH2	5.52	123.06	120.30
1	C	865	ARG	NE-CZ-NH2	-5.51	117.55	120.30
1	B	831	ASP	CB-CG-OD2	5.51	123.26	118.30
1	D	354	ARG	NE-CZ-NH2	-5.51	117.55	120.30
1	F	516	ASP	CB-CG-OD2	5.51	123.25	118.30
1	A	516	ASP	CB-CG-OD1	5.50	123.25	118.30
1	C	601	ASP	CB-CG-OD2	5.50	123.25	118.30
1	C	381	ASP	CB-CG-OD2	5.50	123.25	118.30
1	C	865	ARG	NE-CZ-NH1	5.50	123.05	120.30
1	C	420	ASP	CB-CG-OD2	5.49	123.24	118.30
1	E	381	ASP	CB-CG-OD2	5.49	123.24	118.30
1	F	609	ARG	NE-CZ-NH2	5.48	123.04	120.30
1	F	249	ASP	CB-CG-OD2	5.47	123.23	118.30
1	E	659	ASP	CB-CG-OD2	5.45	123.21	118.30
1	C	681	ASP	CB-CG-OD2	5.44	123.20	118.30
1	A	611	ARG	NE-CZ-NH2	-5.43	117.58	120.30
1	F	779	ASP	CB-CG-OD2	5.43	123.19	118.30
1	E	779	ASP	CB-CG-OD2	5.41	123.17	118.30
1	C	682	ASP	CB-CG-OD2	5.41	123.17	118.30
1	B	470	ASP	CB-CG-OD2	5.39	123.16	118.30
1	E	658	ASP	CB-CG-OD2	5.38	123.14	118.30
1	E	480	ASP	CB-CG-OD2	5.37	123.13	118.30
1	C	516	ASP	CB-CG-OD2	5.32	123.09	118.30
1	A	736	ASP	CB-CG-OD2	5.32	123.09	118.30
1	F	682	ASP	CB-CG-OD2	5.31	123.08	118.30
1	D	249	ASP	CB-CG-OD2	5.31	123.08	118.30
1	F	365	ASP	CB-CG-OD2	5.29	123.06	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	C	448	ASP	CB-CG-OD2	5.29	123.06	118.30
1	A	612	ASP	CB-CG-OD2	5.28	123.06	118.30
1	E	795	ASP	CB-CG-OD2	5.28	123.05	118.30
1	F	420	ASP	CB-CG-OD2	5.27	123.05	118.30
1	A	578	ASP	CB-CG-OD2	5.25	123.02	118.30
1	D	295	VAL	CB-CA-C	-5.23	101.47	111.40
1	F	659	ASP	CB-CG-OD2	5.23	123.00	118.30
1	F	612	ASP	CB-CG-OD2	5.22	123.00	118.30
1	B	722	ASP	CB-CG-OD2	5.21	122.99	118.30
1	D	880	ASP	CB-CG-OD2	5.20	122.98	118.30
1	C	421	ARG	NE-CZ-NH1	5.20	122.90	120.30
1	A	711	ASP	CB-CG-OD2	5.18	122.97	118.30
1	D	533	ASP	CB-CG-OD2	5.17	122.96	118.30
1	F	690	ASP	CB-CG-OD2	5.16	122.94	118.30
1	B	779	ASP	CB-CG-OD2	5.16	122.94	118.30
1	A	659	ASP	CB-CG-OD2	5.15	122.94	118.30
1	F	448	ASP	CB-CG-OD2	5.15	122.93	118.30
1	E	741	ASP	CB-CG-OD2	5.14	122.93	118.30
1	C	478	ASP	CB-CG-OD2	5.13	122.92	118.30
1	D	787	PRO	N-CD-CG	-5.11	95.53	103.20
1	C	757	ASP	CB-CG-OD2	5.10	122.89	118.30
1	C	596	ARG	NE-CZ-NH2	5.09	122.84	120.30
1	A	880	ASP	CB-CG-OD2	5.07	122.86	118.30
1	D	254	ASP	CB-CG-OD2	5.04	122.84	118.30
1	D	425	ARG	NE-CZ-NH1	-5.04	117.78	120.30
1	A	682	ASP	CB-CG-OD2	5.04	122.83	118.30
1	F	533	ASP	CB-CG-OD2	5.04	122.84	118.30
1	F	470	ASP	CB-CG-OD2	5.04	122.83	118.30
1	E	872	ASP	CB-CG-OD2	5.03	122.83	118.30
1	C	365	ASP	CB-CG-OD2	5.01	122.81	118.30
1	D	741	ASP	CB-CG-OD2	5.01	122.81	118.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

WORLDWIDE
wwPDB
PROTEIN DATA BANK

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	5230	0	4942	104	0
1	B	5230	0	4942	110	0
1	C	5230	0	4942	113	0
1	D	5230	0	4942	103	0
1	E	5230	0	4942	117	0
1	F	5230	0	4942	95	0
2	G	41	0	34	0	0
2	H	41	0	34	2	0
2	I	41	0	34	1	0
3	A	21	0	18	0	0
3	B	21	0	18	0	0
3	C	21	0	18	0	0
3	D	21	0	18	0	0
3	E	21	0	18	0	0
3	F	21	0	18	1	0
4	A	5	0	0	0	0
4	B	5	0	0	1	0
4	C	5	0	0	1	0
4	D	5	0	0	0	0
4	F	10	0	0	0	0
5	A	176	0	0	11	0
5	B	178	0	0	12	0
5	C	130	0	0	6	0
5	D	167	0	0	11	0
5	E	130	0	0	15	0
5	F	140	0	0	15	0
All	All	32580	0	29862	590	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 10.

All (590) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:490:GLN:HG3	5:B:2041:HOH:O	1.51	1.09
1:E:499:LYS:HE2	1:E:500:ASN:H	1.21	1.04
1:A:765:ARG:HH12	1:C:367:GLN:HE21	1.07	0.98
1:F:449:HIS:HD2	1:F:451:LEU:H	1.07	0.98
1:C:449:HIS:HD2	1:C:451:LEU:H	1.00	0.96
1:B:367:GLN:HE21	1:C:765:ARG:HH12	1.12	0.95
1:A:449:HIS:HD2	1:A:451:LEU:H	1.10	0.94
1:C:449:HIS:CD2	1:C:451:LEU:H	1.86	0.92

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:367:GLN:HE21	1:B:765:ARG:HH12	0.93	0.91
1:A:771:ASN:HD21	1:A:776:VAL:H	1.18	0.90
1:D:449:HIS:HD2	1:D:451:LEU:H	1.20	0.89
1:E:449:HIS:HD2	1:E:451:LEU:H	1.21	0.88
1:F:449:HIS:CD2	1:F:451:LEU:H	1.91	0.88
1:B:449:HIS:HD2	1:B:451:LEU:H	1.22	0.88
1:E:542:HIS:HD2	5:E:2038:HOH:O	1.56	0.87
1:B:682:ASP:HB2	5:B:2107:HOH:O	1.75	0.87
1:D:347:SER:HB3	1:D:355:LEU:HB2	1.57	0.87
1:B:771:ASN:HD21	1:B:776:VAL:H	1.20	0.86
1:D:765:ARG:NH1	1:E:367:GLN:HE21	1.74	0.86
1:D:765:ARG:HH12	1:E:367:GLN:HE21	0.89	0.86
1:E:765:ARG:HH12	1:F:367:GLN:HE21	1.25	0.83
1:B:440:ARG:HE	1:B:489:GLN:HE21	1.25	0.82
1:A:367:GLN:NE2	1:B:765:ARG:HH12	1.77	0.82
1:C:609:ARG:HG2	1:C:678:TRP:CH2	2.15	0.81
1:F:322:THR:HG21	5:F:2012:HOH:O	1.80	0.81
1:C:322:THR:HG22	1:C:324:TYR:H	1.46	0.81
1:E:440:ARG:HD2	5:E:2031:HOH:O	1.79	0.80
1:A:368:THR:HG22	5:A:2028:HOH:O	1.81	0.80
1:A:449:HIS:CD2	1:A:451:LEU:H	1.96	0.80
1:D:771:ASN:HD21	1:D:776:VAL:H	1.28	0.80
1:E:449:HIS:CD2	1:E:451:LEU:H	1.99	0.80
1:D:490:GLN:HG3	5:D:2042:HOH:O	1.83	0.79
1:B:611:ARG:HD3	5:B:2093:HOH:O	1.82	0.79
1:D:322:THR:HG22	1:D:324:TYR:H	1.47	0.79
1:B:449:HIS:CD2	1:B:451:LEU:H	2.01	0.78
1:C:779:ASP:HB2	5:C:2102:HOH:O	1.82	0.78
1:D:295:VAL:HG13	1:D:305:TYR:CE2	2.19	0.78
1:A:439:GLN:HE22	1:A:441:TYR:HB2	1.48	0.78
1:D:440:ARG:HE	1:D:489:GLN:HE21	1.32	0.78
1:D:882:LYS:HE3	5:D:2158:HOH:O	1.84	0.78
1:E:499:LYS:HE2	1:E:500:ASN:N	1.98	0.77
1:A:542:HIS:HD2	5:A:2063:HOH:O	1.68	0.77
1:D:765:ARG:HH12	1:E:367:GLN:NE2	1.75	0.77
1:C:295:VAL:HG13	1:C:305:TYR:CE2	2.19	0.77
1:D:542:HIS:HD2	5:D:2059:HOH:O	1.68	0.77
1:A:771:ASN:ND2	1:A:776:VAL:H	1.83	0.76
1:D:368:THR:HG21	5:E:2005:HOH:O	1.84	0.76
1:D:367:GLN:HE22	1:D:764:PHE:H	1.32	0.76
1:A:270:LYS:HE2	5:A:2002:HOH:O	1.87	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:602:ARG:HG3	1:A:602:ARG:HH11	1.51	0.75
1:E:714:ILE:HG22	1:E:754:ILE:HD13	1.68	0.75
1:F:440:ARG:HE	1:F:489:GLN:HE21	1.34	0.74
1:E:609:ARG:HG2	1:E:678:TRP:CH2	2.22	0.74
1:F:295:VAL:HG13	1:F:305:TYR:CE2	2.22	0.74
1:F:322:THR:HG22	1:F:324:TYR:H	1.53	0.74
1:E:499:LYS:CE	1:E:500:ASN:H	1.98	0.74
1:A:367:GLN:HE21	1:B:765:ARG:NH1	1.79	0.72
1:A:448:ASP:OD2	1:A:479:LYS:NZ	2.22	0.72
1:E:364:ASP:OD1	1:E:368:THR:HB	1.89	0.72
1:C:673:LEU:HD12	1:C:683:ILE:HD12	1.71	0.72
1:C:449:HIS:HD2	1:C:451:LEU:N	1.84	0.72
1:C:364:ASP:OD1	1:C:368:THR:HB	1.90	0.72
1:F:771:ASN:HD21	1:F:776:VAL:H	1.38	0.71
1:B:743:HIS:HD2	5:B:2131:HOH:O	1.74	0.71
1:C:870:ASN:C	1:C:870:ASN:HD22	1.94	0.71
1:B:609:ARG:HG2	1:B:678:TRP:CH2	2.26	0.70
1:B:771:ASN:ND2	1:B:776:VAL:H	1.89	0.70
1:B:439:GLN:HE22	1:B:441:TYR:HB2	1.56	0.70
1:E:322:THR:HG22	1:E:324:TYR:H	1.54	0.70
1:C:448:ASP:OD2	1:C:479:LYS:NZ	2.23	0.69
1:E:367:GLN:HE22	1:E:764:PHE:H	1.37	0.69
1:B:379:HIS:H	1:B:386:ASN:ND2	1.91	0.69
1:D:844:GLU:HG2	5:D:2149:HOH:O	1.91	0.69
1:F:367:GLN:HE22	1:F:764:PHE:H	1.37	0.69
5:A:2012:HOH:O	1:B:368:THR:HG21	1.93	0.69
1:C:740:SER:OG	1:C:741:ASP:N	2.26	0.69
1:A:295:VAL:HG13	1:A:305:TYR:CE2	2.27	0.68
1:D:679:ASN:ND2	1:D:681:ASP:H	1.92	0.68
1:F:753:LYS:HE2	1:F:755:GLY:O	1.93	0.68
1:E:779:ASP:HB2	5:E:2094:HOH:O	1.93	0.68
1:B:364:ASP:OD1	1:B:368:THR:HB	1.94	0.68
1:D:779:ASP:HB2	5:D:2131:HOH:O	1.94	0.68
1:A:440:ARG:HE	1:A:489:GLN:HE21	1.42	0.67
1:D:367:GLN:HE21	1:F:765:ARG:HH12	1.40	0.67
1:E:350:HIS:CE1	1:E:699:ASN:HB3	2.29	0.67
1:A:367:GLN:HE22	1:A:764:PHE:H	1.42	0.67
1:C:689:THR:HG23	1:C:691:GLN:HE22	1.59	0.67
1:E:421:ARG:HD2	1:E:512:TRP:CD2	2.29	0.67
1:A:322:THR:HG22	1:A:324:TYR:H	1.60	0.66
1:E:532:ILE:HG12	1:E:537:PHE:HA	1.76	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:628:HIS:HD2	5:F:2066:HOH:O	1.77	0.66
1:F:330:GLN:HE21	1:F:527:HIS:HE1	1.44	0.66
1:A:527:HIS:HD2	1:A:582:PRO:O	1.79	0.66
1:D:771:ASN:ND2	1:D:776:VAL:H	1.94	0.66
1:A:291:ASN:HB2	5:C:2002:HOH:O	1.95	0.66
1:E:603:LEU:HG	1:E:621:ARG:HD3	1.78	0.66
1:A:886:ASP:OD2	1:C:897:ARG:NH1	2.29	0.65
1:D:847:SER:OG	1:D:849:THR:HB	1.95	0.65
1:E:373:GLU:OE2	1:E:508:HIS:HE1	1.78	0.65
1:A:486:THR:HB	1:A:487:PRO:HD3	1.79	0.65
1:F:330:GLN:HE21	1:F:527:HIS:CE1	2.14	0.65
1:D:662:LYS:HE3	5:D:2084:HOH:O	1.97	0.65
5:D:2010:HOH:O	1:F:368:THR:HG21	1.97	0.65
1:F:449:HIS:HD2	1:F:451:LEU:N	1.89	0.65
1:B:373:GLU:OE2	1:B:508:HIS:HE1	1.80	0.64
1:D:765:ARG:HD3	5:D:2126:HOH:O	1.97	0.64
1:C:322:THR:HB	1:C:326:ASN:OD1	1.97	0.64
1:E:427:LEU:N	1:E:503:MET:O	2.23	0.64
1:D:712:ASN:HD22	1:D:712:ASN:H	1.46	0.64
1:B:322:THR:HG22	1:B:324:TYR:H	1.62	0.64
1:D:609:ARG:HG2	1:D:678:TRP:CH2	2.33	0.64
1:B:443:THR:HG22	5:B:2045:HOH:O	1.96	0.64
1:F:609:ARG:HG2	1:F:678:TRP:CH2	2.33	0.63
1:B:558:ASP:OD1	1:B:561:ASN:HB2	1.98	0.63
1:A:368:THR:HG21	5:C:2006:HOH:O	1.98	0.63
1:A:906:ASN:OD1	1:C:909:VAL:HG11	1.98	0.63
1:D:886:ASP:OD2	1:E:897:ARG:NH1	2.32	0.63
1:E:309:GLU:HA	1:E:309:GLU:OE1	1.97	0.63
1:D:449:HIS:CD2	1:D:451:LEU:H	2.09	0.62
1:A:364:ASP:OD1	1:A:368:THR:HB	1.99	0.62
1:B:322:THR:HG21	5:B:2012:HOH:O	1.98	0.62
1:C:771:ASN:HD21	1:C:776:VAL:H	1.47	0.62
1:B:527:HIS:HD2	1:B:582:PRO:O	1.82	0.62
1:A:896:ASN:HB2	1:B:882:LYS:HD2	1.81	0.62
1:B:440:ARG:HE	1:B:489:GLN:NE2	1.98	0.62
1:A:373:GLU:OE2	1:A:508:HIS:HE1	1.83	0.61
1:E:439:GLN:HE22	1:E:441:TYR:HB2	1.64	0.61
1:B:818:GLU:HB3	4:B:1686:PO4:O2	2.00	0.61
1:D:553:LEU:HD22	1:D:591:LEU:HD21	1.81	0.61
1:E:714:ILE:CG2	1:E:754:ILE:HD13	2.30	0.61
1:C:373:GLU:OE2	1:C:508:HIS:HE1	1.84	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:580:SER:HB3	5:F:2058:HOH:O	2.02	0.60
1:C:439:GLN:NE2	1:C:441:TYR:H	1.99	0.60
1:A:847:SER:OG	1:A:849:THR:HB	2.02	0.60
1:A:609:ARG:HG2	1:A:678:TRP:CH2	2.36	0.60
1:B:367:GLN:NE2	1:C:765:ARG:HH12	1.93	0.60
1:B:835:GLY:O	1:B:837:ARG:HG2	2.01	0.60
1:D:632:PRO:HB2	1:D:707:VAL:HG23	1.84	0.60
1:B:396:ARG:HB3	1:B:560:PHE:CZ	2.37	0.60
1:D:527:HIS:HD2	1:D:582:PRO:O	1.85	0.59
1:E:368:THR:HG21	5:F:2009:HOH:O	2.03	0.59
1:A:277:THR:HG22	1:A:295:VAL:HG22	1.85	0.59
1:B:396:ARG:NH2	1:B:534:ASN:O	2.32	0.59
1:D:439:GLN:HE22	1:D:441:TYR:HB2	1.67	0.59
1:C:273:GLY:HA3	1:C:292:THR:OG1	2.03	0.59
1:A:486:THR:HB	1:A:487:PRO:CD	2.33	0.59
1:E:759:ARG:HD3	5:F:2080:HOH:O	2.03	0.58
1:A:886:ASP:OD1	1:C:897:ARG:NH1	2.37	0.58
1:F:668:THR:OG1	1:F:691:GLN:NE2	2.36	0.58
1:F:628:HIS:HE1	1:F:658:ASP:OD1	1.87	0.58
1:C:488:ASN:ND2	1:C:490:GLN:HE22	2.02	0.58
1:C:439:GLN:HE22	1:C:441:TYR:HB2	1.67	0.58
1:C:700:SER:OG	1:C:702:VAL:HG13	2.04	0.58
1:E:527:HIS:HD2	1:E:582:PRO:O	1.86	0.58
1:F:295:VAL:HG13	1:F:305:TYR:CD2	2.39	0.58
1:C:330:GLN:HE21	1:C:527:HIS:CE1	2.21	0.57
1:C:607:LEU:HB3	1:C:620:LEU:HD22	1.87	0.57
1:C:735:LYS:O	1:C:743:HIS:HE1	1.86	0.57
1:A:854:ILE:HD12	1:B:856:LEU:HD21	1.85	0.57
1:B:277:THR:CG2	1:B:295:VAL:HG22	2.35	0.57
1:B:295:VAL:HG13	1:B:305:TYR:CE2	2.40	0.57
1:B:350:HIS:CE1	1:B:699:ASN:HB3	2.39	0.57
1:A:576:GLU:N	1:A:577:PRO:HD2	2.20	0.57
1:A:325:TYR:OH	1:A:350:HIS:HE1	1.87	0.57
1:B:428:HIS:ND1	1:B:502:HIS:HD2	2.03	0.57
1:E:277:THR:HG22	1:E:295:VAL:HG22	1.86	0.57
1:C:367:GLN:HE22	1:C:764:PHE:H	1.53	0.57
1:C:419:TRP:CE2	1:C:514:LYS:HD3	2.39	0.57
1:E:305:TYR:CZ	1:E:684:GLU:HG2	2.40	0.57
1:F:603:LEU:HB3	1:F:621:ARG:CZ	2.35	0.56
2:H:2:SIA:O1B	2:H:2:SIA:H6	2.05	0.56
1:B:610:SER:HB2	1:B:616:THR:O	2.06	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:396:ARG:HB3	1:D:560:PHE:CZ	2.40	0.56
1:B:488:ASN:C	1:B:488:ASN:HD22	2.08	0.56
1:D:553:LEU:CD2	1:D:591:LEU:HD21	2.36	0.56
1:A:779:ASP:HB2	5:A:2155:HOH:O	2.06	0.56
1:B:444:ILE:HG22	1:B:446:VAL:HG23	1.88	0.56
1:E:457:VAL:HA	1:E:504:GLY:O	2.05	0.56
1:F:325:TYR:OH	1:F:350:HIS:HE1	1.89	0.56
1:A:352:VAL:HB	1:A:386:ASN:HB3	1.88	0.56
1:A:428:HIS:ND1	1:A:502:HIS:HD2	2.04	0.56
1:A:736:ASP:HB3	1:A:739:LYS:HG3	1.88	0.56
1:B:445:HIS:HD2	1:B:481:ASN:ND2	2.04	0.56
1:A:440:ARG:HE	1:A:489:GLN:NE2	2.03	0.56
1:F:439:GLN:HE22	1:F:441:TYR:HB2	1.71	0.56
1:B:445:HIS:CD2	1:B:481:ASN:HD21	2.23	0.55
1:A:602:ARG:HG3	1:A:602:ARG:NH1	2.21	0.55
1:B:287:SER:OG	1:C:753:LYS:HE3	2.05	0.55
1:A:628:HIS:HE1	1:A:658:ASP:OD1	1.88	0.55
1:C:818:GLU:HB3	4:C:1687:PO4:O4	2.05	0.55
1:E:277:THR:CG2	1:E:295:VAL:HG22	2.36	0.55
1:C:888:VAL:HG12	1:C:889:THR:HG23	1.87	0.55
1:F:765:ARG:HD2	5:F:2112:HOH:O	2.05	0.55
1:C:277:THR:HG22	1:C:295:VAL:HG22	1.87	0.55
1:D:586:TYR:OH	1:D:589:GLY:HA2	2.05	0.55
1:E:327:ALA:HB3	1:E:328:TRP:CE3	2.42	0.55
1:B:732:ASN:HD21	1:B:736:ASP:H	1.53	0.55
1:D:490:GLN:CG	5:D:2042:HOH:O	2.47	0.55
1:D:373:GLU:OE2	1:D:508:HIS:HE1	1.89	0.55
1:A:379:HIS:H	1:A:386:ASN:ND2	2.05	0.54
1:A:602:ARG:NE	5:A:2082:HOH:O	2.37	0.54
1:B:847:SER:OG	1:B:849:THR:HB	2.07	0.54
1:D:330:GLN:HE21	1:D:527:HIS:CE1	2.25	0.54
1:F:457:VAL:HA	1:F:504:GLY:O	2.07	0.54
1:A:607:LEU:HB3	1:A:620:LEU:HD22	1.90	0.54
1:B:909:VAL:HA	1:C:903:LEU:O	2.08	0.54
1:E:466:GLY:HA3	1:E:486:THR:HB	1.90	0.54
1:D:460:SER:OG	2:H:2:SIA:H4	2.07	0.54
1:E:342:ALA:HB2	1:E:717:MET:HE2	1.89	0.54
1:B:445:HIS:HD2	1:B:481:ASN:HD21	1.55	0.54
1:A:613:ILE:O	1:A:613:ILE:HG22	2.08	0.54
1:E:715:TYR:CE1	1:E:751:LYS:HG3	2.42	0.54
1:F:486:THR:HB	1:F:487:PRO:HD2	1.90	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:532:ILE:HG12	1:F:537:PHE:HA	1.89	0.54
1:B:367:GLN:HE22	1:B:764:PHE:H	1.56	0.54
1:C:386:ASN:ND2	1:C:387:TYR:H	2.06	0.54
1:D:277:THR:HG22	1:D:295:VAL:HG22	1.90	0.53
1:E:440:ARG:HE	1:E:489:GLN:HE21	1.56	0.53
1:B:277:THR:HG22	1:B:295:VAL:HG22	1.89	0.53
1:C:405:THR:HB	1:C:415:ASN:HB3	1.91	0.53
1:E:433:ILE:HG12	1:E:444:ILE:HG23	1.90	0.53
5:E:2110:HOH:O	1:F:844:GLU:HG2	2.07	0.53
1:C:628:HIS:HE1	1:C:658:ASP:OD1	1.90	0.53
1:E:910:THR:HG22	1:F:897:ARG:HH11	1.74	0.53
1:A:342:ALA:HB2	1:A:717:MET:HE2	1.90	0.53
1:A:465:THR:HB	1:A:490:GLN:HE22	1.73	0.53
1:D:306:TYR:HD1	1:D:687:ASN:HD22	1.54	0.53
1:F:650:ASN:HA	1:F:667:ARG:NH2	2.24	0.53
1:D:367:GLN:HE21	1:F:765:ARG:NH1	2.07	0.53
1:E:379:HIS:H	1:E:386:ASN:ND2	2.06	0.53
1:E:352:VAL:HA	1:E:355:LEU:HD23	1.91	0.52
1:F:368:THR:HG22	5:F:2024:HOH:O	2.07	0.52
1:A:287:SER:OG	1:B:753:LYS:HE3	2.09	0.52
1:A:522:SER:HB3	1:A:568:ARG:HH22	1.74	0.52
1:C:771:ASN:ND2	1:C:776:VAL:H	2.07	0.52
1:A:464:VAL:HG23	1:A:496:ASN:HB3	1.91	0.52
1:A:771:ASN:HD21	1:A:776:VAL:N	1.96	0.52
1:D:352:VAL:HA	1:D:355:LEU:HD23	1.90	0.52
1:C:293:ARG:HD3	1:C:311:PHE:CE2	2.45	0.52
1:E:330:GLN:HB2	1:E:527:HIS:HE1	1.75	0.52
1:F:330:GLN:HB2	1:F:527:HIS:HE1	1.74	0.52
1:B:700:SER:OG	1:B:702:VAL:HG13	2.09	0.51
1:A:693:TYR:HE1	5:A:2105:HOH:O	1.91	0.51
1:B:903:LEU:HA	1:C:898:PHE:O	2.10	0.51
1:D:379:HIS:ND1	1:D:380:PRO:HD2	2.25	0.51
1:E:400:PHE:CD1	1:E:420:ASP:HB3	2.45	0.51
1:E:620:LEU:C	1:E:620:LEU:HD23	2.31	0.51
1:C:522:SER:HB3	1:C:568:ARG:NH2	2.25	0.51
1:E:322:THR:HG21	5:E:2009:HOH:O	2.09	0.51
1:A:261:ALA:O	1:A:265:THR:HG23	2.10	0.51
1:A:555:TYR:O	1:A:557:PRO:HD3	2.10	0.51
1:F:398:ARG:HD2	1:F:450:GLY:O	2.10	0.51
1:A:393:GLY:HA3	1:A:529:PHE:CD2	2.46	0.51
1:A:774:VAL:O	1:A:776:VAL:HG23	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:359:TRP:CE3	1:C:375:LEU:HD11	2.46	0.51
1:E:373:GLU:OE2	1:E:508:HIS:CE1	2.62	0.51
1:E:396:ARG:HD3	1:E:534:ASN:O	2.10	0.51
1:C:305:TYR:CZ	1:C:684:GLU:HG2	2.45	0.51
1:E:322:THR:HB	1:E:326:ASN:OD1	2.11	0.51
1:C:396:ARG:CG	1:C:396:ARG:O	2.58	0.51
1:D:330:GLN:O	1:D:330:GLN:HG3	2.10	0.51
1:F:765:ARG:CD	5:F:2112:HOH:O	2.58	0.51
1:F:379:HIS:H	1:F:386:ASN:ND2	2.09	0.51
1:C:527:HIS:HD2	1:C:582:PRO:O	1.94	0.50
1:E:433:ILE:HG22	1:E:464:VAL:HG21	1.92	0.50
1:F:439:GLN:NE2	1:F:441:TYR:H	2.09	0.50
1:E:347:SER:HB3	1:E:355:LEU:HB2	1.94	0.50
5:A:2032:HOH:O	1:B:779:ASP:HB2	2.10	0.50
1:D:732:ASN:HD21	1:D:736:ASP:H	1.60	0.50
1:A:449:HIS:HD2	1:A:451:LEU:N	1.93	0.50
1:B:743:HIS:CD2	5:B:2131:HOH:O	2.55	0.50
1:D:325:TYR:OH	1:D:350:HIS:HE1	1.94	0.50
1:C:870:ASN:HD22	1:C:871:GLY:N	2.09	0.50
1:A:277:THR:CG2	1:A:295:VAL:HG22	2.42	0.50
1:A:660:ARG:O	1:A:661:TYR:HB2	2.11	0.50
1:A:765:ARG:HH12	1:C:367:GLN:NE2	1.91	0.50
1:B:373:GLU:OE2	1:B:508:HIS:CE1	2.64	0.50
1:D:440:ARG:NE	1:D:489:GLN:HE21	2.06	0.50
1:C:628:HIS:HD2	5:C:2058:HOH:O	1.95	0.50
1:E:594:ILE:HD12	1:E:633:PHE:CD2	2.47	0.50
1:A:522:SER:HB3	1:A:568:ARG:NH2	2.26	0.50
1:D:322:THR:HB	1:D:326:ASN:OD1	2.12	0.50
1:D:386:ASN:ND2	1:D:387:TYR:H	2.10	0.50
1:D:896:ASN:HB2	1:F:882:LYS:HD2	1.94	0.50
1:E:628:HIS:HE1	1:E:658:ASP:OD1	1.95	0.50
1:F:837:ARG:NH2	3:F:1685:SLB:H111	2.26	0.50
1:E:771:ASN:HD21	1:E:776:VAL:H	1.58	0.49
1:A:888:VAL:HG12	1:A:889:THR:HG23	1.94	0.49
1:D:352:VAL:HB	1:D:386:ASN:HB3	1.94	0.49
5:A:2012:HOH:O	1:B:368:THR:CG2	2.56	0.49
1:D:465:THR:HG21	1:D:490:GLN:HE21	1.77	0.49
1:E:669:PHE:CE1	1:E:687:ASN:HB2	2.47	0.49
1:C:413:LEU:HD21	1:C:416:CYS:SG	2.53	0.49
1:A:527:HIS:CD2	1:A:582:PRO:O	2.60	0.49
1:A:700:SER:OG	1:A:702:VAL:HG13	2.11	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:347:SER:HB3	1:B:355:LEU:HD22	1.95	0.49
1:B:603:LEU:HB3	1:B:621:ARG:CZ	2.42	0.49
1:F:428:HIS:ND1	1:F:502:HIS:HD2	2.11	0.49
1:C:367:GLN:HE22	1:C:763:ASP:HA	1.77	0.49
1:A:609:ARG:HG2	1:A:678:TRP:CZ2	2.47	0.49
1:A:620:LEU:HD21	1:A:680:ALA:HB2	1.94	0.49
1:B:396:ARG:HD3	1:B:534:ASN:O	2.13	0.49
1:D:765:ARG:NH1	5:D:2126:HOH:O	2.25	0.49
1:B:568:ARG:HD2	5:B:2082:HOH:O	2.12	0.49
1:D:293:ARG:HD3	1:D:311:PHE:CE2	2.48	0.49
1:E:352:VAL:HB	1:E:386:ASN:HB3	1.94	0.49
1:E:736:ASP:HB3	1:E:739:LYS:HG2	1.94	0.49
1:A:497:ALA:HB2	5:A:2057:HOH:O	2.13	0.49
1:B:649:GLU:HB3	1:B:664:SER:HB2	1.94	0.49
1:C:295:VAL:HG13	1:C:305:TYR:CD2	2.47	0.49
1:D:753:LYS:HE3	1:E:287:SER:OG	2.12	0.49
1:E:449:HIS:HD2	1:E:451:LEU:N	2.01	0.49
1:B:661:TYR:CZ	1:B:698:VAL:HB	2.48	0.48
1:D:603:LEU:HB3	1:D:621:ARG:CZ	2.43	0.48
1:E:558:ASP:OD1	1:E:561:ASN:HB2	2.13	0.48
1:C:571:ILE:HB	1:C:572:PRO:HD2	1.95	0.48
1:D:460:SER:HB3	1:D:461:ASN:ND2	2.28	0.48
1:E:277:THR:HG22	1:E:295:VAL:CG2	2.43	0.48
1:F:603:LEU:HG	1:F:621:ARG:HD3	1.94	0.48
1:E:628:HIS:HD2	5:E:2045:HOH:O	1.96	0.48
1:F:350:HIS:CE1	1:F:699:ASN:HB3	2.48	0.48
1:C:614:GLY:HA2	1:C:617:TRP:CZ2	2.48	0.48
1:A:352:VAL:O	1:A:355:LEU:HB3	2.13	0.48
1:C:532:ILE:HG12	1:C:537:PHE:HA	1.95	0.48
1:A:753:LYS:HE3	1:C:287:SER:OG	2.14	0.48
1:D:357:VAL:HG12	1:D:375:LEU:HD12	1.96	0.48
1:D:679:ASN:HD22	1:D:680:ALA:N	2.11	0.48
1:E:700:SER:OG	1:E:702:VAL:HG13	2.13	0.48
1:F:342:ALA:HB2	1:F:717:MET:HE2	1.96	0.48
1:B:305:TYR:CE1	1:B:684:GLU:HB3	2.49	0.48
1:B:521:PRO:HA	5:B:2071:HOH:O	2.14	0.48
1:D:906:ASN:OD1	1:E:909:VAL:HG11	2.14	0.48
1:E:342:ALA:HB2	1:E:717:MET:CE	2.44	0.48
1:E:609:ARG:HG2	1:E:678:TRP:CZ2	2.48	0.48
1:E:744:PRO:HD2	5:E:2087:HOH:O	2.14	0.48
1:E:428:HIS:ND1	1:E:502:HIS:HD2	2.11	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:433:ILE:CG2	1:E:464:VAL:HG21	2.44	0.47
1:F:379:HIS:H	1:F:386:ASN:HD22	1.63	0.47
1:B:673:LEU:HD12	1:B:683:ILE:HD12	1.95	0.47
1:F:419:TRP:CD1	1:F:514:LYS:HG2	2.48	0.47
1:B:330:GLN:HB2	1:B:527:HIS:HE1	1.80	0.47
1:B:527:HIS:CD2	1:B:582:PRO:O	2.66	0.47
1:B:673:LEU:HD12	1:B:683:ILE:CD1	2.45	0.47
1:C:503:MET:HG2	1:C:504:GLY:HA3	1.96	0.47
1:E:788:ALA:HB2	1:F:738:PHE:CD1	2.50	0.47
1:B:328:TRP:N	1:B:329:PRO:HD3	2.29	0.47
1:B:689:THR:HG23	1:B:691:GLN:HE22	1.79	0.47
1:D:396:ARG:HD3	1:D:534:ASN:O	2.15	0.47
1:D:848:SER:O	1:F:865:ARG:NE	2.47	0.47
1:E:649:GLU:HB2	1:E:664:SER:HB2	1.96	0.47
1:E:735:LYS:O	1:E:743:HIS:HE1	1.97	0.47
1:F:435:LYS:HB3	1:F:494:LEU:HB2	1.96	0.47
1:A:405:THR:HB	1:A:414:THR:HG22	1.96	0.47
1:B:771:ASN:HD21	1:B:776:VAL:N	2.02	0.47
1:D:712:ASN:H	1:D:712:ASN:ND2	2.11	0.47
1:E:753:LYS:HE2	1:E:755:GLY:O	2.15	0.47
1:B:878:SER:HB2	1:C:871:GLY:O	2.15	0.47
1:D:440:ARG:HE	1:D:489:GLN:NE2	2.05	0.47
1:E:847:SER:OG	1:E:849:THR:HB	2.15	0.47
1:B:325:TYR:OH	1:B:350:HIS:HE1	1.97	0.46
1:B:457:VAL:HA	1:B:504:GLY:O	2.15	0.46
1:B:379:HIS:HB2	1:B:386:ASN:HD22	1.79	0.46
1:F:682:ASP:HB2	5:F:2082:HOH:O	2.15	0.46
1:F:847:SER:OG	1:F:849:THR:HB	2.14	0.46
1:A:852:ALA:HB1	1:B:867:ILE:HG12	1.96	0.46
1:A:870:ASN:ND2	1:B:865:ARG:HH22	2.13	0.46
1:B:549:ARG:HD3	1:B:579:ALA:O	2.16	0.46
1:C:320:THR:HG23	1:C:747:LEU:HB2	1.96	0.46
1:C:428:HIS:ND1	1:C:502:HIS:HD2	2.14	0.46
1:C:661:TYR:CZ	1:C:698:VAL:HB	2.50	0.46
1:E:445:HIS:HD2	1:E:481:ASN:HD21	1.62	0.46
1:A:886:ASP:CG	1:C:897:ARG:NH1	2.69	0.46
1:C:306:TYR:HD1	1:C:687:ASN:HD22	1.62	0.46
1:D:398:ARG:HD2	1:D:450:GLY:O	2.15	0.46
1:B:445:HIS:CD2	1:B:481:ASN:ND2	2.82	0.46
1:D:464:VAL:HG23	1:D:496:ASN:HB3	1.97	0.46
1:D:754:ILE:HD12	1:D:754:ILE:HA	1.44	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:367:GLN:NE2	1:E:763:ASP:HA	2.31	0.46
1:E:743:HIS:O	5:E:2085:HOH:O	2.20	0.46
1:A:322:THR:HB	1:A:326:ASN:OD1	2.16	0.46
1:C:340:ILE:CG2	1:C:717:MET:HE1	2.46	0.46
1:C:607:LEU:HD13	1:C:678:TRP:CH2	2.50	0.46
1:E:440:ARG:HE	1:E:489:GLN:NE2	2.14	0.46
1:C:347:SER:HB3	1:C:355:LEU:HB2	1.97	0.46
1:E:771:ASN:ND2	1:E:776:VAL:H	2.13	0.46
1:F:439:GLN:HE22	1:F:441:TYR:H	1.62	0.46
1:F:440:ARG:HG2	1:F:489:GLN:HB3	1.96	0.46
1:A:382:TYR:CG	1:A:383:PRO:HA	2.51	0.46
1:A:460:SER:HB3	1:A:461:ASN:ND2	2.31	0.46
1:D:367:GLN:NE2	1:F:765:ARG:HH12	2.12	0.46
1:C:464:VAL:HG23	1:C:496:ASN:HB3	1.98	0.46
1:C:826:LYS:HB2	1:C:838:ILE:HG13	1.97	0.46
1:F:527:HIS:HD2	1:F:582:PRO:O	1.98	0.46
1:A:852:ALA:HB1	1:B:867:ILE:CG1	2.46	0.45
1:D:620:LEU:C	1:D:620:LEU:HD23	2.36	0.45
1:E:391:SER:OG	1:E:539:MET:HG2	2.16	0.45
1:F:295:VAL:CG1	1:F:305:TYR:CE2	2.98	0.45
1:F:609:ARG:HG2	1:F:678:TRP:CZ3	2.51	0.45
1:C:441:TYR:CZ	1:C:485:LEU:HD13	2.52	0.45
1:C:827:SER:O	1:C:829:PRO:HD3	2.16	0.45
1:C:661:TYR:OH	1:C:698:VAL:HB	2.16	0.45
1:F:325:TYR:OH	1:F:350:HIS:CE1	2.69	0.45
1:F:620:LEU:C	1:F:620:LEU:HD23	2.37	0.45
1:C:322:THR:HG22	1:C:324:TYR:N	2.23	0.45
1:F:679:ASN:OD1	1:F:679:ASN:C	2.55	0.45
1:E:553:LEU:HD22	1:E:591:LEU:HD21	1.98	0.45
1:F:322:THR:HG23	1:F:323:PRO:HD2	1.99	0.45
1:C:659:ASP:OD1	1:C:662:LYS:HE3	2.17	0.45
1:D:712:ASN:HB3	5:D:2122:HOH:O	2.16	0.45
1:E:883:PRO:HD3	1:F:898:PHE:CZ	2.51	0.45
1:F:739:LYS:CD	5:F:2098:HOH:O	2.65	0.45
1:F:826:LYS:HB2	1:F:838:ILE:HG13	1.99	0.45
1:C:870:ASN:C	1:C:870:ASN:ND2	2.61	0.45
1:B:584:ILE:O	1:B:585:LYS:HD2	2.17	0.44
1:B:739:LYS:HE3	5:B:2126:HOH:O	2.15	0.44
1:C:305:TYR:CE1	1:C:684:GLU:HG2	2.52	0.44
1:C:458:ASN:HA	1:C:469:GLY:O	2.17	0.44
1:C:754:ILE:HA	1:C:754:ILE:HD12	1.59	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:796:LEU:HG	1:C:798:LEU:HD21	1.99	0.44
1:D:457:VAL:HA	1:D:504:GLY:O	2.17	0.44
1:E:553:LEU:CD2	1:E:591:LEU:HD21	2.47	0.44
1:E:910:THR:HB	5:E:2126:HOH:O	2.18	0.44
1:A:836:GLN:HG2	1:A:858:GLY:HA3	1.98	0.44
1:A:848:SER:O	1:B:865:ARG:NE	2.50	0.44
1:C:343:PRO:HA	1:C:359:TRP:HB3	1.99	0.44
1:C:430:THR:HA	1:C:499:LYS:O	2.17	0.44
1:F:322:THR:HB	1:F:326:ASN:OD1	2.18	0.44
1:B:449:HIS:HE1	1:B:478:ASP:O	2.00	0.44
1:C:613:ILE:O	1:C:613:ILE:HG22	2.18	0.44
1:E:732:ASN:HA	5:E:2081:HOH:O	2.17	0.44
1:A:428:HIS:ND1	1:A:502:HIS:CD2	2.84	0.44
1:B:826:LYS:HD2	1:C:817:MET:O	2.16	0.44
1:C:574:GLU:HG3	1:C:575:TYR:CD2	2.52	0.44
1:C:593:LEU:HD23	1:C:593:LEU:C	2.38	0.44
1:A:279:LYS:HA	1:A:295:VAL:HG23	1.99	0.44
1:C:379:HIS:H	1:C:386:ASN:ND2	2.14	0.44
1:D:247:LYS:HA	1:D:247:LYS:HD3	1.73	0.44
1:F:364:ASP:OD1	1:F:368:THR:HB	2.16	0.44
1:F:378:LEU:HA	1:F:386:ASN:HD21	1.83	0.44
1:A:603:LEU:HB3	1:A:621:ARG:CZ	2.48	0.44
1:A:902:TYR:CD1	1:B:893:GLY:HA2	2.52	0.44
1:E:322:THR:HG23	1:E:323:PRO:HD2	1.98	0.44
1:A:848:SER:HB2	1:B:865:ARG:NH2	2.33	0.44
1:B:305:TYR:CD1	1:B:305:TYR:N	2.86	0.44
1:B:306:TYR:HD1	1:B:687:ASN:HD22	1.66	0.44
1:D:898:PHE:CE1	1:F:883:PRO:HD3	2.53	0.44
1:E:247:LYS:HG3	1:E:252:THR:HG21	2.00	0.44
1:F:326:ASN:ND2	5:F:2012:HOH:O	2.51	0.44
1:F:771:ASN:ND2	1:F:776:VAL:H	2.12	0.44
1:B:379:HIS:H	1:B:386:ASN:HD22	1.65	0.44
1:C:330:GLN:HA	1:C:331:ASP:HA	1.82	0.44
1:D:330:GLN:HB2	1:D:527:HIS:HE1	1.83	0.44
1:F:277:THR:HG22	1:F:295:VAL:HG22	2.00	0.44
1:A:457:VAL:HA	1:A:504:GLY:O	2.17	0.43
1:A:735:LYS:O	1:A:743:HIS:HE1	2.00	0.43
1:C:330:GLN:HB2	1:C:527:HIS:HE1	1.83	0.43
1:D:350:HIS:CE1	1:D:699:ASN:HB3	2.53	0.43
1:D:614:GLY:HA2	1:D:617:TRP:CZ2	2.53	0.43
1:F:445:HIS:HD2	1:F:481:ASN:HD21	1.66	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:449:HIS:HD2	1:B:451:LEU:N	2.03	0.43
1:C:400:PHE:CD1	1:C:420:ASP:HB3	2.53	0.43
1:C:542:HIS:HD2	5:C:2047:HOH:O	2.00	0.43
1:C:839:ILE:HG12	1:C:855:THR:HG23	2.00	0.43
1:C:847:SER:OG	1:C:849:THR:HB	2.17	0.43
1:F:754:ILE:HD12	1:F:754:ILE:HA	1.62	0.43
1:D:445:HIS:HD2	1:D:481:ASN:HD21	1.66	0.43
1:E:367:GLN:HE22	1:E:763:ASP:HA	1.82	0.43
1:A:342:ALA:HB2	1:A:717:MET:CE	2.49	0.43
1:C:457:VAL:HA	1:C:504:GLY:O	2.19	0.43
1:D:267:VAL:HB	5:F:2007:HOH:O	2.18	0.43
1:B:277:THR:HG22	1:B:295:VAL:CG2	2.49	0.43
1:B:649:GLU:CB	1:B:664:SER:HB2	2.49	0.43
1:D:522:SER:HB3	1:D:568:ARG:NH2	2.33	0.43
1:D:609:ARG:HD2	1:D:618:GLU:OE1	2.19	0.43
1:D:903:LEU:HA	1:F:898:PHE:O	2.19	0.43
1:E:315:GLU:HB3	5:E:2004:HOH:O	2.18	0.43
1:F:283:LEU:HD23	1:F:283:LEU:HA	1.86	0.43
1:A:325:TYR:OH	1:A:350:HIS:CE1	2.70	0.43
1:A:576:GLU:N	1:A:577:PRO:CD	2.81	0.43
1:C:735:LYS:O	1:C:743:HIS:CE1	2.71	0.43
1:E:771:ASN:HD22	1:E:771:ASN:HA	1.70	0.43
1:F:396:ARG:HD3	1:F:534:ASN:O	2.19	0.43
1:F:542:HIS:HD2	5:F:2057:HOH:O	2.01	0.43
1:B:679:ASN:HD21	1:B:681:ASP:CG	2.21	0.43
1:D:364:ASP:OD1	1:D:368:THR:HB	2.19	0.43
1:D:765:ARG:O	1:E:317:PHE:HA	2.19	0.43
1:D:882:LYS:HD2	1:E:896:ASN:HB2	2.01	0.43
1:E:352:VAL:HG11	1:E:406:ARG:HB2	2.01	0.43
1:E:542:HIS:CD2	5:E:2038:HOH:O	2.44	0.43
1:E:707:VAL:HA	1:E:715:TYR:O	2.19	0.43
1:F:349:ARG:HB3	1:F:735:LYS:HD3	2.01	0.43
1:F:576:GLU:N	1:F:577:PRO:CD	2.82	0.43
1:A:715:TYR:CE1	1:A:751:LYS:HD2	2.54	0.43
1:C:367:GLN:NE2	1:C:763:ASP:HA	2.34	0.43
1:A:421:ARG:HD2	1:A:512:TRP:CD2	2.54	0.42
1:C:327:ALA:HB3	1:C:328:TRP:CE3	2.53	0.42
1:C:649:GLU:HB2	1:C:664:SER:HB2	2.01	0.42
1:D:603:LEU:HG	1:D:621:ARG:HD3	2.01	0.42
1:F:836:GLN:OE1	1:F:860:ASN:HB2	2.18	0.42
1:D:607:LEU:HB3	1:D:620:LEU:HD22	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:818:GLU:HA	1:F:827:SER:OG	2.19	0.42
1:A:754:ILE:HD12	1:A:754:ILE:HA	1.51	0.42
1:B:338:ASN:HB2	5:B:2017:HOH:O	2.18	0.42
1:B:754:ILE:HD12	1:B:754:ILE:HA	1.88	0.42
1:C:316:LEU:HD22	1:C:689:THR:OG1	2.19	0.42
1:E:330:GLN:HA	1:E:331:ASP:HA	1.82	0.42
1:E:437:ALA:HB2	1:E:492:SER:C	2.39	0.42
1:E:270:LYS:HA	1:E:270:LYS:HD3	1.92	0.42
1:E:435:LYS:HB3	5:E:2029:HOH:O	2.19	0.42
1:E:576:GLU:N	1:E:577:PRO:CD	2.83	0.42
2:I:2:SIA:O1B	2:I:2:SIA:H6	2.18	0.42
1:E:883:PRO:HD3	1:F:898:PHE:CE1	2.55	0.42
1:A:379:HIS:ND1	1:A:380:PRO:HD2	2.35	0.42
1:A:870:ASN:C	1:A:870:ASN:HD22	2.23	0.42
1:B:396:ARG:HB3	1:B:560:PHE:HZ	1.82	0.42
1:C:660:ARG:O	1:C:661:TYR:HB2	2.20	0.42
1:C:900:THR:OG1	1:C:901:ALA:N	2.52	0.42
1:F:649:GLU:HB3	1:F:664:SER:HB2	2.02	0.42
1:C:594:ILE:HG12	1:C:607:LEU:HD23	2.02	0.42
1:D:330:GLN:HE21	1:D:527:HIS:HE1	1.68	0.42
1:D:586:TYR:CZ	1:D:589:GLY:HA2	2.55	0.42
1:F:440:ARG:NE	1:F:489:GLN:HE21	2.09	0.42
1:F:600:GLY:HA3	5:F:2077:HOH:O	2.19	0.42
1:D:639:ASP:OD1	1:D:672:ARG:HD3	2.19	0.42
1:A:326:ASN:HB2	1:A:746:ASP:HA	2.01	0.42
1:A:379:HIS:CG	1:A:380:PRO:HD2	2.54	0.42
1:E:640:LEU:HD22	1:E:675:VAL:HG12	2.02	0.42
1:A:569:ARG:HD2	1:A:613:ILE:O	2.20	0.41
1:A:765:ARG:O	1:C:317:PHE:HA	2.20	0.41
1:B:336:TYR:CE2	1:B:337:GLU:HG3	2.55	0.41
1:B:628:HIS:HE1	1:B:658:ASP:OD1	2.03	0.41
1:C:647:ARG:HG3	1:C:647:ARG:HH11	1.83	0.41
1:D:608:HIS:CE1	1:D:619:SER:HG	2.30	0.41
1:D:891:LEU:HD22	1:F:891:LEU:HD21	2.02	0.41
1:B:352:VAL:HA	1:B:355:LEU:HD23	2.02	0.41
1:C:468:SER:HA	5:C:2130:HOH:O	2.19	0.41
1:D:628:HIS:HE1	1:D:658:ASP:OD1	2.03	0.41
1:E:368:THR:HG22	5:E:2019:HOH:O	2.21	0.41
1:E:445:HIS:CD2	1:E:481:ASN:HD21	2.38	0.41
1:F:277:THR:CG2	1:F:295:VAL:HG22	2.50	0.41
1:A:324:TYR:HB2	1:A:326:ASN:HD21	1.84	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:342:ALA:HB2	1:B:717:MET:CE	2.51	0.41
1:B:553:LEU:HD22	1:B:591:LEU:HD21	2.01	0.41
1:C:555:TYR:CZ	1:C:557:PRO:HA	2.55	0.41
1:C:647:ARG:HG3	1:C:647:ARG:NH1	2.35	0.41
1:E:305:TYR:N	1:E:305:TYR:CD1	2.89	0.41
1:E:631:LEU:HD23	1:E:631:LEU:HA	1.89	0.41
1:A:350:HIS:CE1	1:A:699:ASN:HB3	2.54	0.41
1:D:279:LYS:HA	1:D:295:VAL:HG23	2.02	0.41
1:D:325:TYR:OH	1:D:350:HIS:CE1	2.72	0.41
5:A:2170:HOH:O	1:B:864:SER:HB3	2.20	0.41
1:B:779:ASP:OD1	1:B:781:ASN:N	2.53	0.41
1:D:336:TYR:CE2	1:D:337:GLU:HG3	2.55	0.41
1:A:330:GLN:HA	1:A:331:ASP:HA	1.82	0.41
1:B:628:HIS:HD2	5:B:2088:HOH:O	2.04	0.41
1:E:295:VAL:HG13	1:E:305:TYR:CE2	2.55	0.41
1:E:325:TYR:OH	1:E:350:HIS:HE1	2.03	0.41
1:B:873:GLU:OE2	1:C:866:ARG:HB2	2.21	0.41
1:C:553:LEU:HD22	1:C:591:LEU:HD21	2.02	0.41
1:D:439:GLN:NE2	1:D:441:TYR:H	2.19	0.41
1:E:825:GLY:HA2	1:F:841:CYS:O	2.21	0.41
1:F:261:ALA:O	1:F:265:THR:HG23	2.20	0.41
1:B:330:GLN:HB2	1:B:527:HIS:CE1	2.56	0.41
1:B:771:ASN:HD22	1:B:771:ASN:HA	1.74	0.41
1:C:309:GLU:OE1	1:C:309:GLU:HA	2.20	0.41
1:D:262:LEU:HD23	1:D:262:LEU:HA	1.89	0.41
1:E:640:LEU:HD12	1:E:640:LEU:HA	1.95	0.41
1:C:603:LEU:HB3	1:C:621:ARG:CZ	2.51	0.41
1:C:623:PRO:HB2	1:C:624:HIS:CD2	2.56	0.41
1:E:367:GLN:HE22	1:E:764:PHE:N	2.12	0.41
1:E:765:ARG:HH12	1:F:367:GLN:NE2	2.05	0.41
1:F:593:LEU:HD23	1:F:593:LEU:C	2.41	0.40
1:D:673:LEU:HD23	1:D:673:LEU:HA	1.86	0.40
1:A:542:HIS:CD2	1:A:581:GLU:H	2.39	0.40
1:B:716:TYR:O	1:B:749:CYS:HA	2.20	0.40
1:B:735:LYS:O	1:B:743:HIS:HE1	2.04	0.40
1:C:328:TRP:N	1:C:329:PRO:HD3	2.36	0.40
1:D:553:LEU:CD2	1:D:591:LEU:CD2	2.99	0.40
1:D:660:ARG:O	1:D:661:TYR:HB2	2.20	0.40
1:D:829:PRO:HB3	1:F:820:GLU:HA	2.03	0.40
1:E:396:ARG:HB3	1:E:560:PHE:CZ	2.56	0.40
1:E:753:LYS:HE3	1:F:287:SER:OG	2.21	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:355:LEU:HD13	1:F:356:HIS:N	2.35	0.40
1:F:490:GLN:HG2	5:F:2049:HOH:O	2.21	0.40
1:D:522:SER:HB3	1:D:568:ARG:HH21	1.86	0.40
1:E:522:SER:HB2	1:E:568:ARG:NH2	2.37	0.40
1:A:499:LYS:HA	1:A:499:LYS:HD2	1.90	0.40
1:B:575:TYR:CG	1:B:608:HIS:HE1	2.39	0.40
1:D:302:GLN:HE22	1:D:654:ALA:HB3	1.87	0.40
1:D:344:TYR:CD2	1:D:747:LEU:HD11	2.56	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	664/666 (100%)	631 (95%)	31 (5%)	2 (0%)	41	51
1	B	664/666 (100%)	630 (95%)	34 (5%)	0	100	100
1	C	664/666 (100%)	629 (95%)	35 (5%)	0	100	100
1	D	664/666 (100%)	631 (95%)	32 (5%)	1 (0%)	47	60
1	E	664/666 (100%)	634 (96%)	28 (4%)	2 (0%)	41	51
1	F	664/666 (100%)	630 (95%)	34 (5%)	0	100	100
All	All	3984/3996 (100%)	3785 (95%)	194 (5%)	5 (0%)	51	65

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	496	ASN
1	D	704	VAL
1	E	350	HIS
1	E	704	VAL
1	A	704	VAL

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	564/564 (100%)	527 (93%)	37 (7%)	16	22
1	B	564/564 (100%)	519 (92%)	45 (8%)	12	15
1	C	564/564 (100%)	523 (93%)	41 (7%)	14	18
1	D	564/564 (100%)	523 (93%)	41 (7%)	14	18
1	E	564/564 (100%)	518 (92%)	46 (8%)	11	14
1	F	564/564 (100%)	518 (92%)	46 (8%)	11	14
All	All	3384/3384 (100%)	3128 (92%)	256 (8%)	13	17

All (256) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	251	VAL
1	A	258	LEU
1	A	260	SER
1	A	270	LYS
1	A	279	LYS
1	A	295	VAL
1	A	355	LEU
1	A	359	TRP
1	A	361	LYS
1	A	368	THR
1	A	414	THR
1	A	425	ARG
1	A	439	GLN
1	A	443	THR
1	A	460	SER
1	A	476	VAL
1	A	499	LYS
1	A	564	SER
1	A	585	LYS
1	A	596	ARG
1	A	603	LEU
1	A	607	LEU

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Mol	Chain	Res	Type
1	A	609	ARG
1	A	618	GLU
1	A	620	LEU
1	A	621	ARG
1	A	640	LEU
1	A	717	MET
1	A	754	ILE
1	A	762	ARG
1	A	771	ASN
1	A	796	LEU
1	A	816	LEU
1	A	870	ASN
1	A	888	VAL
1	A	895	SER
1	A	910	THR
1	B	258	LEU
1	B	260	SER
1	B	279	LYS
1	B	282	SER
1	B	295	VAL
1	B	312	VAL
1	B	335	VAL
1	B	355	LEU
1	B	359	TRP
1	B	368	THR
1	B	414	THR
1	B	439	GLN
1	B	443	THR
1	B	457	VAL
1	B	468	SER
1	B	476	VAL
1	B	479	LYS
1	B	488	ASN
1	B	562	SER
1	B	568	ARG
1	B	574	GLU
1	B	585	LYS
1	B	596	ARG
1	B	603	LEU
1	B	607	LEU
1	B	609	ARG
1	B	611	ARG

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Mol	Chain	Res	Type
1	B	620	LEU
1	B	621	ARG
1	B	640	LEU
1	B	662	LYS
1	B	670	TYR
1	B	679	ASN
1	B	683	ILE
1	B	717	MET
1	B	718	PHE
1	B	732	ASN
1	B	754	ILE
1	B	762	ARG
1	B	796	LEU
1	B	816	LEU
1	B	849	THR
1	B	870	ASN
1	B	909	VAL
1	B	910	THR
1	C	258	LEU
1	C	260	SER
1	C	281	THR
1	C	295	VAL
1	C	309	GLU
1	C	355	LEU
1	C	359	TRP
1	C	361	LYS
1	C	368	THR
1	C	386	ASN
1	C	396	ARG
1	C	425	ARG
1	C	439	GLN
1	C	443	THR
1	C	444	ILE
1	C	488	ASN
1	C	509	LYS
1	C	522	SER
1	C	528	SER
1	C	546	VAL
1	C	568	ARG
1	C	585	LYS
1	C	596	ARG
1	C	599	ARG

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Mol	Chain	Res	Type
1	C	603	LEU
1	C	607	LEU
1	C	609	ARG
1	C	611	ARG
1	C	620	LEU
1	C	621	ARG
1	C	640	LEU
1	C	717	MET
1	C	732	ASN
1	C	754	ILE
1	C	762	ARG
1	C	771	ASN
1	C	796	LEU
1	C	816	LEU
1	C	870	ASN
1	C	909	VAL
1	C	910	THR
1	D	247	LYS
1	D	258	LEU
1	D	270	LYS
1	D	279	LYS
1	D	295	VAL
1	D	335	VAL
1	D	355	LEU
1	D	359	TRP
1	D	368	THR
1	D	386	ASN
1	D	396	ARG
1	D	414	THR
1	D	425	ARG
1	D	439	GLN
1	D	488	ASN
1	D	499	LYS
1	D	522	SER
1	D	549	ARG
1	D	568	ARG
1	D	574	GLU
1	D	585	LYS
1	D	596	ARG
1	D	599	ARG
1	D	603	LEU
1	D	607	LEU

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Mol	Chain	Res	Type
1	D	609	ARG
1	D	620	LEU
1	D	621	ARG
1	D	640	LEU
1	D	679	ASN
1	D	712	ASN
1	D	717	MET
1	D	754	ILE
1	D	762	ARG
1	D	771	ASN
1	D	796	LEU
1	D	816	LEU
1	D	849	THR
1	D	870	ASN
1	D	909	VAL
1	D	910	THR
1	E	245	SER
1	E	258	LEU
1	E	260	SER
1	E	279	LYS
1	E	295	VAL
1	E	309	GLU
1	E	312	VAL
1	E	335	VAL
1	E	355	LEU
1	E	358	SER
1	E	359	TRP
1	E	368	THR
1	E	386	ASN
1	E	408	LEU
1	E	414	THR
1	E	421	ARG
1	E	439	GLN
1	E	443	THR
1	E	444	ILE
1	E	457	VAL
1	E	476	VAL
1	E	488	ASN
1	E	499	LYS
1	E	543	GLN
1	E	562	SER
1	E	564	SER

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Mol	Chain	Res	Type
1	E	574	GLU
1	E	585	LYS
1	E	596	ARG
1	E	602	ARG
1	E	603	LEU
1	E	607	LEU
1	E	609	ARG
1	E	620	LEU
1	E	621	ARG
1	E	640	LEU
1	E	717	MET
1	E	754	ILE
1	E	762	ARG
1	E	771	ASN
1	E	796	LEU
1	E	816	LEU
1	E	849	THR
1	E	870	ASN
1	E	909	VAL
1	E	910	THR
1	F	258	LEU
1	F	259	THR
1	F	276	LYS
1	F	279	LYS
1	F	295	VAL
1	F	335	VAL
1	F	355	LEU
1	F	359	TRP
1	F	368	THR
1	F	396	ARG
1	F	414	THR
1	F	439	GLN
1	F	443	THR
1	F	457	VAL
1	F	465	THR
1	F	468	SER
1	F	485	LEU
1	F	488	ASN
1	F	534	ASN
1	F	565	ASN
1	F	584	ILE
1	F	585	LYS

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Mol	Chain	Res	Type
1	F	591	LEU
1	F	596	ARG
1	F	603	LEU
1	F	607	LEU
1	F	609	ARG
1	F	611	ARG
1	F	620	LEU
1	F	621	ARG
1	F	640	LEU
1	F	702	VAL
1	F	704	VAL
1	F	717	MET
1	F	732	ASN
1	F	754	ILE
1	F	762	ARG
1	F	771	ASN
1	F	796	LEU
1	F	816	LEU
1	F	849	THR
1	F	864	SER
1	F	870	ASN
1	F	895	SER
1	F	909	VAL
1	F	910	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (163) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	263	ASN
1	A	338	ASN
1	A	350	HIS
1	A	367	GLN
1	A	386	ASN
1	A	439	GLN
1	A	445	HIS
1	A	449	HIS
1	A	461	ASN
1	A	481	ASN
1	A	489	GLN
1	A	490	GLN
1	A	502	HIS
1	A	508	HIS

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Mol	Chain	Res	Type
1	A	527	HIS
1	A	542	HIS
1	A	561	ASN
1	A	625	ASN
1	A	628	HIS
1	A	650	ASN
1	A	691	GLN
1	A	732	ASN
1	A	743	HIS
1	A	771	ASN
1	A	832	ASN
1	A	853	GLN
1	A	860	ASN
1	A	870	ASN
1	B	263	ASN
1	B	350	HIS
1	B	367	GLN
1	B	386	ASN
1	B	397	ASN
1	B	439	GLN
1	B	445	HIS
1	B	449	HIS
1	B	461	ASN
1	B	481	ASN
1	B	488	ASN
1	B	489	GLN
1	B	502	HIS
1	B	508	HIS
1	B	527	HIS
1	B	625	ASN
1	B	628	HIS
1	B	677	ASN
1	B	679	ASN
1	B	691	GLN
1	B	732	ASN
1	B	743	HIS
1	B	771	ASN
1	B	832	ASN
1	B	853	GLN
1	B	870	ASN
1	C	263	ASN
1	C	350	HIS

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Mol	Chain	Res	Type
1	C	367	GLN
1	C	386	ASN
1	C	397	ASN
1	C	439	GLN
1	C	445	HIS
1	C	449	HIS
1	C	461	ASN
1	C	481	ASN
1	C	488	ASN
1	C	489	GLN
1	C	502	HIS
1	C	508	HIS
1	C	527	HIS
1	C	542	HIS
1	C	624	HIS
1	C	625	ASN
1	C	628	HIS
1	C	650	ASN
1	C	676	ASN
1	C	691	GLN
1	C	732	ASN
1	C	743	HIS
1	C	771	ASN
1	C	832	ASN
1	C	853	GLN
1	C	870	ASN
1	D	263	ASN
1	D	338	ASN
1	D	350	HIS
1	D	367	GLN
1	D	386	ASN
1	D	397	ASN
1	D	439	GLN
1	D	445	HIS
1	D	449	HIS
1	D	461	ASN
1	D	481	ASN
1	D	488	ASN
1	D	489	GLN
1	D	490	GLN
1	D	502	HIS
1	D	508	HIS

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Mol	Chain	Res	Type
1	D	527	HIS
1	D	542	HIS
1	D	625	ASN
1	D	628	HIS
1	D	650	ASN
1	D	679	ASN
1	D	691	GLN
1	D	712	ASN
1	D	732	ASN
1	D	743	HIS
1	D	771	ASN
1	D	832	ASN
1	D	853	GLN
1	D	870	ASN
1	E	263	ASN
1	E	350	HIS
1	E	367	GLN
1	E	386	ASN
1	E	439	GLN
1	E	449	HIS
1	E	461	ASN
1	E	481	ASN
1	E	488	ASN
1	E	489	GLN
1	E	502	HIS
1	E	508	HIS
1	E	527	HIS
1	E	561	ASN
1	E	625	ASN
1	E	628	HIS
1	E	650	ASN
1	E	676	ASN
1	E	691	GLN
1	E	732	ASN
1	E	743	HIS
1	E	771	ASN
1	E	832	ASN
1	E	853	GLN
1	E	860	ASN
1	E	870	ASN
1	F	263	ASN
1	F	350	HIS

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Mol	Chain	Res	Type
1	F	367	GLN
1	F	386	ASN
1	F	397	ASN
1	F	439	GLN
1	F	445	HIS
1	F	449	HIS
1	F	461	ASN
1	F	481	ASN
1	F	489	GLN
1	F	502	HIS
1	F	508	HIS
1	F	527	HIS
1	F	542	HIS
1	F	625	ASN
1	F	628	HIS
1	F	650	ASN
1	F	691	GLN
1	F	732	ASN
1	F	743	HIS
1	F	771	ASN
1	F	832	ASN
1	F	853	GLN
1	F	870	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates ⓘ

6 monosaccharides are modelled in this entry.

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

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#$|Z| > 2$	Counts	RMSZ	#$|Z| > 2$
2	SIA	G	1	2	21,21,21	2.48	7 (33%)	25,31,31	1.58	2 (8%)
2	SIA	G	2	2	20,20,21	2.07	5 (25%)	24,28,31	1.36	4 (16%)
2	SIA	H	1	2	21,21,21	2.87	6 (28%)	25,31,31	1.79	5 (20%)
2	SIA	H	2	2	20,20,21	2.00	5 (25%)	24,28,31	1.34	4 (16%)
2	SIA	I	1	2	21,21,21	3.33	6 (28%)	25,31,31	1.32	2 (8%)
2	SIA	I	2	2	20,20,21	1.83	4 (20%)	24,28,31	1.49	5 (20%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	SIA	G	1	2	-	6/20/38/38	0/1/1/1
2	SIA	G	2	2	-	1/18/34/38	0/1/1/1
2	SIA	H	1	2	-	7/20/38/38	0/1/1/1
2	SIA	H	2	2	-	3/18/34/38	0/1/1/1
2	SIA	I	1	2	-	3/20/38/38	0/1/1/1
2	SIA	I	2	2	-	2/18/34/38	0/1/1/1

All (33) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	I	1	SIA	O6-C2	10.52	1.53	1.43
2	H	1	SIA	C4-C5	6.99	1.59	1.53
2	H	1	SIA	C3-C2	6.14	1.59	1.51
2	H	2	SIA	O6-C2	6.05	1.51	1.43
2	I	1	SIA	O2-C2	6.03	1.47	1.39
2	H	1	SIA	O2-C2	5.95	1.47	1.39
2	G	1	SIA	O6-C2	5.59	1.48	1.43
2	G	2	SIA	O6-C2	5.30	1.50	1.43
2	I	1	SIA	O6-C6	5.17	1.52	1.44
2	I	1	SIA	C3-C2	4.78	1.57	1.51
2	I	2	SIA	O6-C2	4.60	1.49	1.43
2	G	1	SIA	O2-C2	4.57	1.45	1.39
2	G	1	SIA	C3-C2	4.52	1.57	1.51
2	H	1	SIA	C3-C4	4.29	1.59	1.53

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	G	2	SIA	C4-C5	4.09	1.56	1.53
2	I	2	SIA	C4-C5	4.04	1.56	1.53
2	G	1	SIA	C4-C5	3.55	1.56	1.53
2	G	1	SIA	O6-C6	3.48	1.49	1.44
2	G	1	SIA	C3-C4	3.42	1.58	1.53
2	G	2	SIA	O6-C6	3.42	1.49	1.44
2	H	2	SIA	C4-C5	2.97	1.55	1.53
2	I	1	SIA	C3-C4	2.93	1.57	1.53
2	H	1	SIA	O6-C6	2.80	1.48	1.44
2	H	2	SIA	C7-C6	2.80	1.56	1.53
2	G	2	SIA	C2-C1	2.67	1.54	1.52
2	H	2	SIA	O1B-C1	-2.64	1.21	1.30
2	H	1	SIA	C5-N5	2.56	1.49	1.45
2	G	2	SIA	C7-C6	2.51	1.56	1.53
2	I	2	SIA	O1B-C1	-2.50	1.22	1.30
2	I	2	SIA	C7-C6	2.48	1.56	1.53
2	G	1	SIA	C5-N5	2.27	1.49	1.45
2	I	1	SIA	C5-N5	2.24	1.49	1.45
2	H	2	SIA	C9-C8	2.02	1.57	1.52

All (22) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	H	1	SIA	O6-C6-C5	-4.95	104.94	109.78
2	G	1	SIA	O6-C6-C7	4.50	114.24	107.29
2	H	1	SIA	O2-C2-C3	3.51	114.48	109.40
2	H	1	SIA	C3-C4-C5	3.44	115.27	109.98
2	I	2	SIA	C4-C5-C6	3.07	116.86	109.10
2	H	2	SIA	O1B-C1-C2	2.92	121.36	113.03
2	G	2	SIA	C6-O6-C2	2.73	117.18	111.34
2	I	2	SIA	C5-N5-C10	-2.68	116.67	123.18
2	I	2	SIA	O6-C2-C1	2.66	112.93	107.70
2	H	1	SIA	O2-C2-C1	-2.60	105.47	110.76
2	H	1	SIA	C4-C5-N5	2.35	115.03	110.38
2	I	2	SIA	C3-C4-C5	2.33	114.28	111.46
2	G	2	SIA	O6-C2-C3	2.29	113.61	110.46
2	G	2	SIA	O1B-C1-C2	2.28	119.54	113.03
2	H	2	SIA	C11-C10-N5	-2.27	112.26	116.10
2	H	2	SIA	O1B-C1-O1A	-2.23	119.02	124.09
2	I	2	SIA	O1B-C1-C2	2.17	119.22	113.03
2	I	1	SIA	O1A-C1-C2	-2.16	120.31	123.59
2	G	1	SIA	O2-C2-C1	-2.11	106.46	110.76

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	G	2	SIA	C6-C5-N5	-2.11	107.40	110.91
2	H	2	SIA	C8-C7-C6	2.06	116.94	113.03
2	I	1	SIA	C3-C2-C1	-2.01	109.25	113.00

There are no chirality outliers.

All (22) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	G	1	SIA	O1A-C1-C2-O2
2	G	1	SIA	O1A-C1-C2-O6
2	G	1	SIA	O1B-C1-C2-O6
2	H	1	SIA	O1B-C1-C2-O2
2	H	1	SIA	O1B-C1-C2-O6
2	H	1	SIA	O6-C6-C7-O7
2	H	1	SIA	C7-C8-C9-O9
2	H	1	SIA	O8-C8-C9-O9
2	I	2	SIA	C7-C8-C9-O9
2	I	1	SIA	C7-C8-C9-O9
2	I	2	SIA	O8-C8-C9-O9
2	G	1	SIA	C7-C8-C9-O9
2	G	1	SIA	O8-C8-C9-O9
2	I	1	SIA	O8-C8-C9-O9
2	H	1	SIA	C6-C7-C8-C9
2	H	2	SIA	C5-C6-C7-O7
2	H	2	SIA	C6-C7-C8-O8
2	H	1	SIA	O1A-C1-C2-C3
2	G	1	SIA	C6-C7-C8-C9
2	G	2	SIA	O1A-C1-C2-C3
2	I	1	SIA	O1B-C1-C2-O6
2	H	2	SIA	O7-C7-C8-O8

There are no ring outliers.

2 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	H	2	SIA	2	0
2	I	2	SIA	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 oligosaccharide.

Oligosaccharide Chain G

Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain H

Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain I

Bond lengths

Bond angles

Torsions

Rings
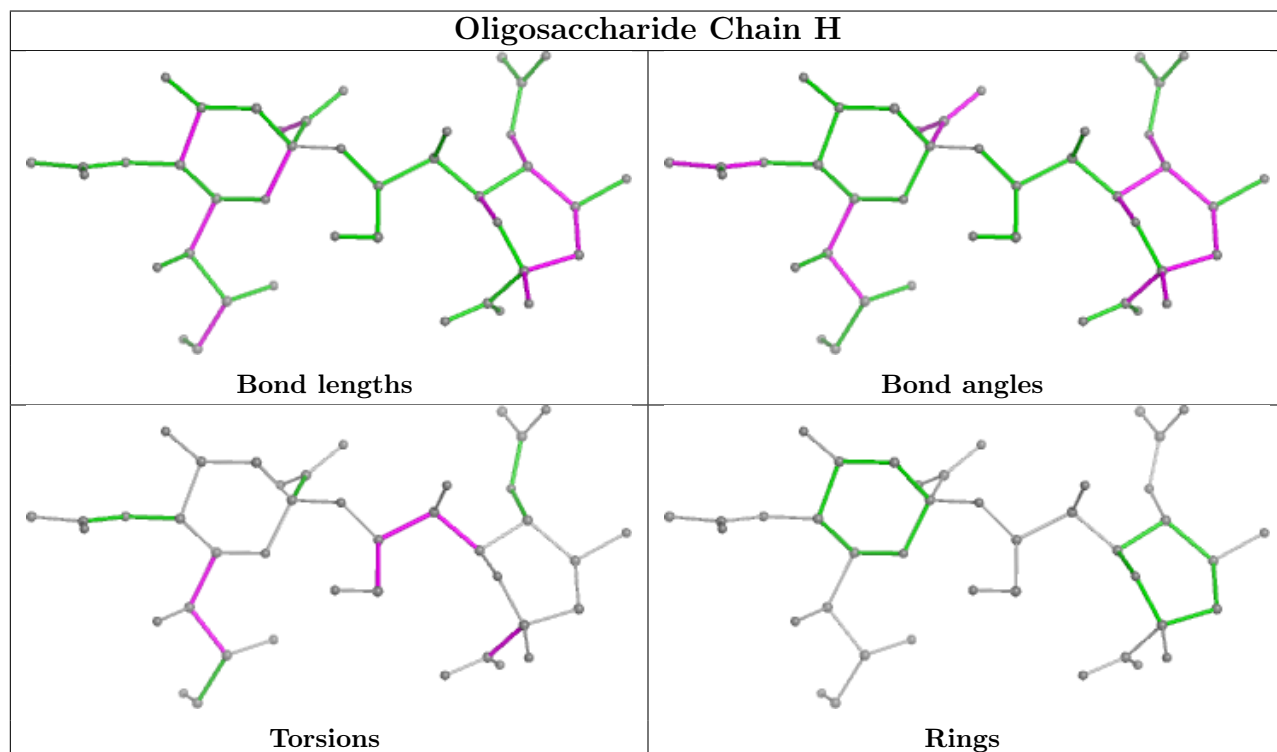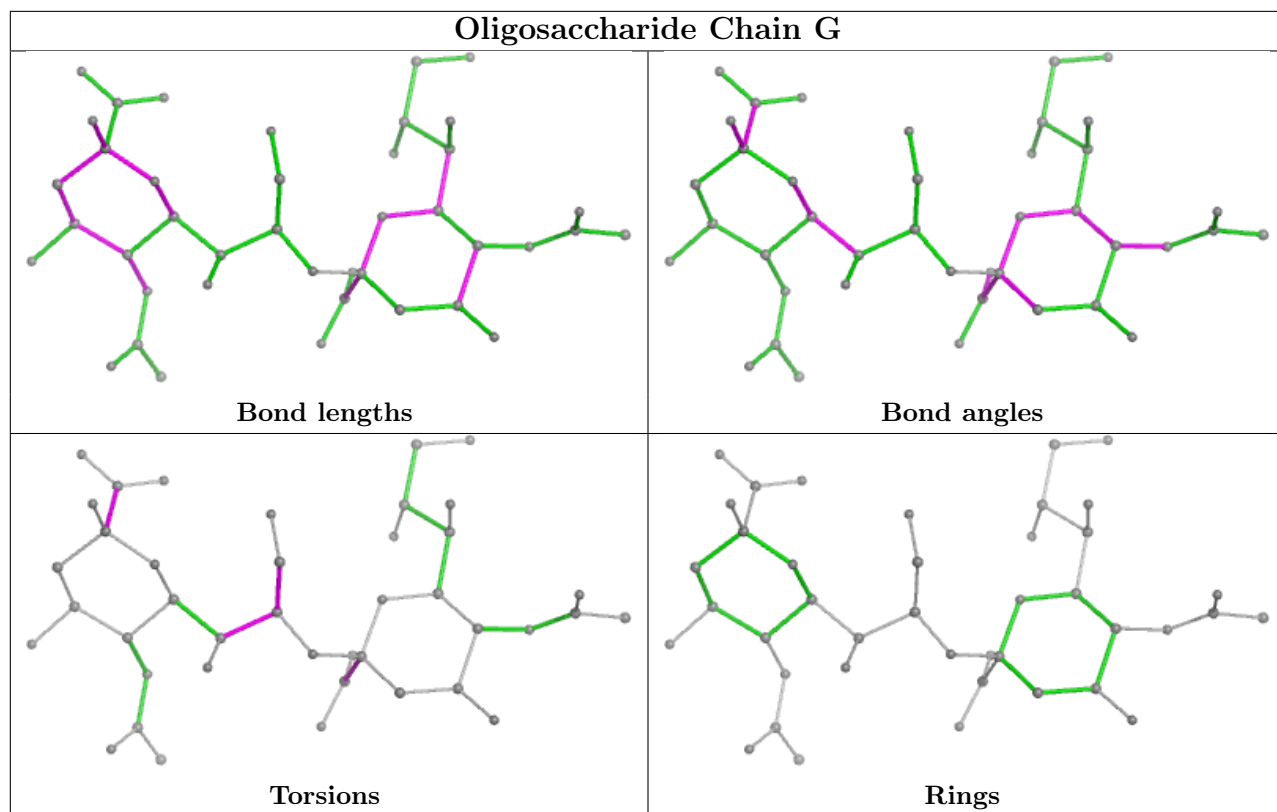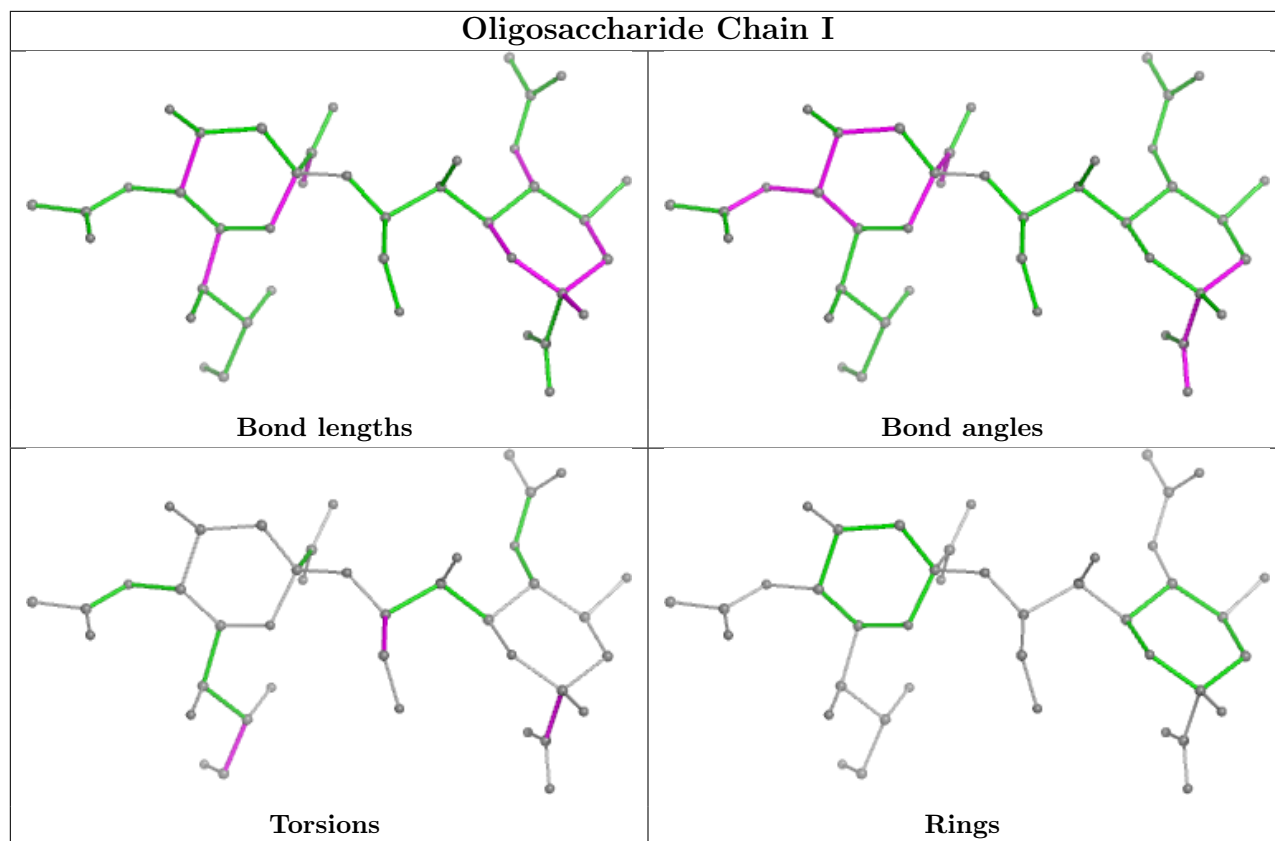
5.6 Ligand geometry ⓘ

12 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#$|Z| > 2$	Counts	RMSZ	#$|Z| > 2$
4	PO4	F	1687	-	4,4,4	0.91	0	6,6,6	0.90	0
3	SLB	D	1685	-	21,21,21	2.49	7 (33%)	25,31,31	1.93	5 (20%)
4	PO4	C	1687	-	4,4,4	0.85	0	6,6,6	0.68	0
4	PO4	B	1686	-	4,4,4	1.39	0	6,6,6	0.97	0
4	PO4	D	1687	-	4,4,4	1.28	0	6,6,6	0.67	0
4	PO4	F	1686	-	4,4,4	0.87	0	6,6,6	0.65	0
3	SLB	E	1685	-	21,21,21	2.57	8 (38%)	25,31,31	1.70	5 (20%)
3	SLB	C	1685	-	21,21,21	2.49	9 (42%)	25,31,31	1.67	6 (24%)
4	PO4	A	1686	-	4,4,4	0.96	0	6,6,6	0.97	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
3	SLB	A	1685	-	21,21,21	2.49	8 (38%)	25,31,31	1.83	3 (12%)
3	SLB	B	1685	-	21,21,21	2.81	7 (33%)	25,31,31	1.92	7 (28%)
3	SLB	F	1685	-	21,21,21	2.14	5 (23%)	25,31,31	1.60	5 (20%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	SLB	D	1685	-	-	6/20/38/38	0/1/1/1
3	SLB	E	1685	-	-	3/20/38/38	0/1/1/1
3	SLB	C	1685	-	-	7/20/38/38	0/1/1/1
3	SLB	A	1685	-	-	3/20/38/38	0/1/1/1
3	SLB	B	1685	-	-	8/20/38/38	0/1/1/1
3	SLB	F	1685	-	-	6/20/38/38	0/1/1/1

All (44) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	1685	SLB	O6-C2	7.07	1.50	1.43
3	C	1685	SLB	O2-C2	6.84	1.48	1.39
3	F	1685	SLB	O6-C2	5.78	1.49	1.43
3	A	1685	SLB	O6-C6	5.55	1.52	1.44
3	E	1685	SLB	O2-C2	5.48	1.46	1.39
3	D	1685	SLB	O6-C2	5.38	1.48	1.43
3	A	1685	SLB	O6-C2	5.22	1.48	1.43
3	B	1685	SLB	C2-C1	5.16	1.61	1.53
3	B	1685	SLB	O6-C6	5.01	1.51	1.44
3	B	1685	SLB	O2-C2	4.61	1.45	1.39
3	A	1685	SLB	O2-C2	4.58	1.45	1.39
3	D	1685	SLB	O2-C2	4.56	1.45	1.39
3	E	1685	SLB	C3-C2	4.42	1.57	1.51
3	E	1685	SLB	O6-C2	4.35	1.47	1.43
3	D	1685	SLB	C8-C7	4.17	1.61	1.53
3	E	1685	SLB	C4-C5	3.97	1.56	1.53
3	C	1685	SLB	O6-C6	3.91	1.50	1.44
3	D	1685	SLB	C4-C5	3.72	1.56	1.53
3	E	1685	SLB	C2-C1	3.72	1.59	1.53
3	F	1685	SLB	O2-C2	3.69	1.44	1.39

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	1685	SLB	C3-C2	3.69	1.56	1.51
3	C	1685	SLB	O6-C2	3.35	1.46	1.43
3	B	1685	SLB	C3-C2	3.26	1.55	1.51
3	D	1685	SLB	O6-C6	3.25	1.49	1.44
3	F	1685	SLB	C7-C6	3.21	1.57	1.53
3	D	1685	SLB	C3-C2	3.21	1.55	1.51
3	C	1685	SLB	C3-C2	3.12	1.55	1.51
3	D	1685	SLB	C7-C6	3.10	1.56	1.53
3	F	1685	SLB	C8-C7	3.01	1.59	1.53
3	A	1685	SLB	C2-C1	3.01	1.58	1.53
3	E	1685	SLB	C3-C4	2.93	1.57	1.53
3	E	1685	SLB	O6-C6	-2.90	1.39	1.44
3	F	1685	SLB	C6-C5	2.86	1.57	1.53
3	B	1685	SLB	C3-C4	2.79	1.57	1.53
3	C	1685	SLB	C7-C6	2.56	1.56	1.53
3	A	1685	SLB	C3-C4	2.52	1.56	1.53
3	C	1685	SLB	C6-C5	2.42	1.57	1.53
3	C	1685	SLB	C2-C1	2.41	1.57	1.53
3	C	1685	SLB	C11-C10	2.37	1.55	1.50
3	C	1685	SLB	C4-C5	2.37	1.55	1.53
3	A	1685	SLB	C4-C5	2.24	1.55	1.53
3	B	1685	SLB	C6-C5	2.15	1.56	1.53
3	E	1685	SLB	C11-C10	2.14	1.55	1.50
3	A	1685	SLB	C11-C10	2.04	1.54	1.50

All (31) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	1685	SLB	O6-C6-C5	6.61	116.23	109.78
3	D	1685	SLB	O6-C6-C5	6.53	116.14	109.78
3	B	1685	SLB	O2-C2-C3	-4.79	102.48	109.40
3	B	1685	SLB	O6-C6-C7	4.59	114.38	107.29
3	C	1685	SLB	O6-C6-C5	4.31	113.98	109.78
3	F	1685	SLB	C3-C2-C1	-4.15	105.26	113.00
3	E	1685	SLB	C6-C5-N5	-3.97	104.32	110.91
3	D	1685	SLB	C3-C2-C1	-3.53	106.42	113.00
3	E	1685	SLB	O6-C6-C5	3.42	113.11	109.78
3	E	1685	SLB	C4-C5-N5	3.29	116.88	110.38
3	C	1685	SLB	O1A-C1-C2	-3.03	119.00	123.59
3	E	1685	SLB	O1A-C1-C2	-3.01	119.03	123.59
3	B	1685	SLB	O2-C2-C1	2.96	116.78	110.76
3	A	1685	SLB	C8-C7-C6	-2.96	107.42	113.03

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	B	1685	SLB	O1B-C1-O1A	-2.94	114.47	123.82
3	C	1685	SLB	C3-C2-C1	-2.92	107.57	113.00
3	F	1685	SLB	O1A-C1-C2	-2.88	119.23	123.59
3	D	1685	SLB	C9-C8-C7	2.77	118.42	112.41
3	F	1685	SLB	C8-C7-C6	2.65	118.05	113.03
3	D	1685	SLB	O7-C7-C8	2.47	114.78	108.81
3	F	1685	SLB	C4-C5-N5	2.46	115.25	110.38
3	B	1685	SLB	C8-C7-C6	2.42	117.62	113.03
3	B	1685	SLB	O1A-C1-C2	-2.39	119.97	123.59
3	C	1685	SLB	O2-C2-C3	2.28	112.69	109.40
3	F	1685	SLB	C9-C8-C7	2.27	117.32	112.41
3	E	1685	SLB	O1B-C1-O1A	-2.25	116.67	123.82
3	D	1685	SLB	C3-C4-C5	2.24	113.42	109.98
3	C	1685	SLB	O4-C4-C3	-2.19	104.81	109.91
3	B	1685	SLB	O6-C6-C5	2.17	111.89	109.78
3	C	1685	SLB	C4-C5-N5	2.15	114.63	110.38
3	A	1685	SLB	O10-C10-N5	2.10	125.81	121.95

There are no chirality outliers.

All (33) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	B	1685	SLB	O1B-C1-C2-O6
3	B	1685	SLB	C6-C7-C8-O8
3	B	1685	SLB	O7-C7-C8-O8
3	B	1685	SLB	O8-C8-C9-O9
3	C	1685	SLB	C6-C7-C8-O8
3	C	1685	SLB	O7-C7-C8-O8
3	C	1685	SLB	C7-C8-C9-O9
3	C	1685	SLB	O8-C8-C9-O9
3	D	1685	SLB	O1B-C1-C2-O2
3	F	1685	SLB	O1B-C1-C2-O2
3	F	1685	SLB	O8-C8-C9-O9
3	B	1685	SLB	C7-C8-C9-O9
3	F	1685	SLB	C7-C8-C9-O9
3	F	1685	SLB	C6-C7-C8-O8
3	B	1685	SLB	O7-C7-C8-C9
3	C	1685	SLB	O7-C7-C8-C9
3	B	1685	SLB	C6-C7-C8-C9
3	C	1685	SLB	C6-C7-C8-C9
3	D	1685	SLB	C6-C7-C8-C9
3	F	1685	SLB	C6-C7-C8-C9

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Mol	Chain	Res	Type	Atoms
3	D	1685	SLB	O7-C7-C8-C9
3	D	1685	SLB	O7-C7-C8-O8
3	E	1685	SLB	O8-C8-C9-O9
3	D	1685	SLB	C7-C8-C9-O9
3	E	1685	SLB	C7-C8-C9-O9
3	A	1685	SLB	O7-C7-C8-C9
3	A	1685	SLB	O8-C8-C9-O9
3	D	1685	SLB	O8-C8-C9-O9
3	E	1685	SLB	O1A-C1-C2-O6
3	C	1685	SLB	O1B-C1-C2-C3
3	A	1685	SLB	C6-C7-C8-C9
3	F	1685	SLB	O7-C7-C8-O8
3	B	1685	SLB	O1A-C1-C2-O6

There are no ring outliers.

3 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	C	1687	PO4	1	0
4	B	1686	PO4	1	0
3	F	1685	SLB	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 then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.
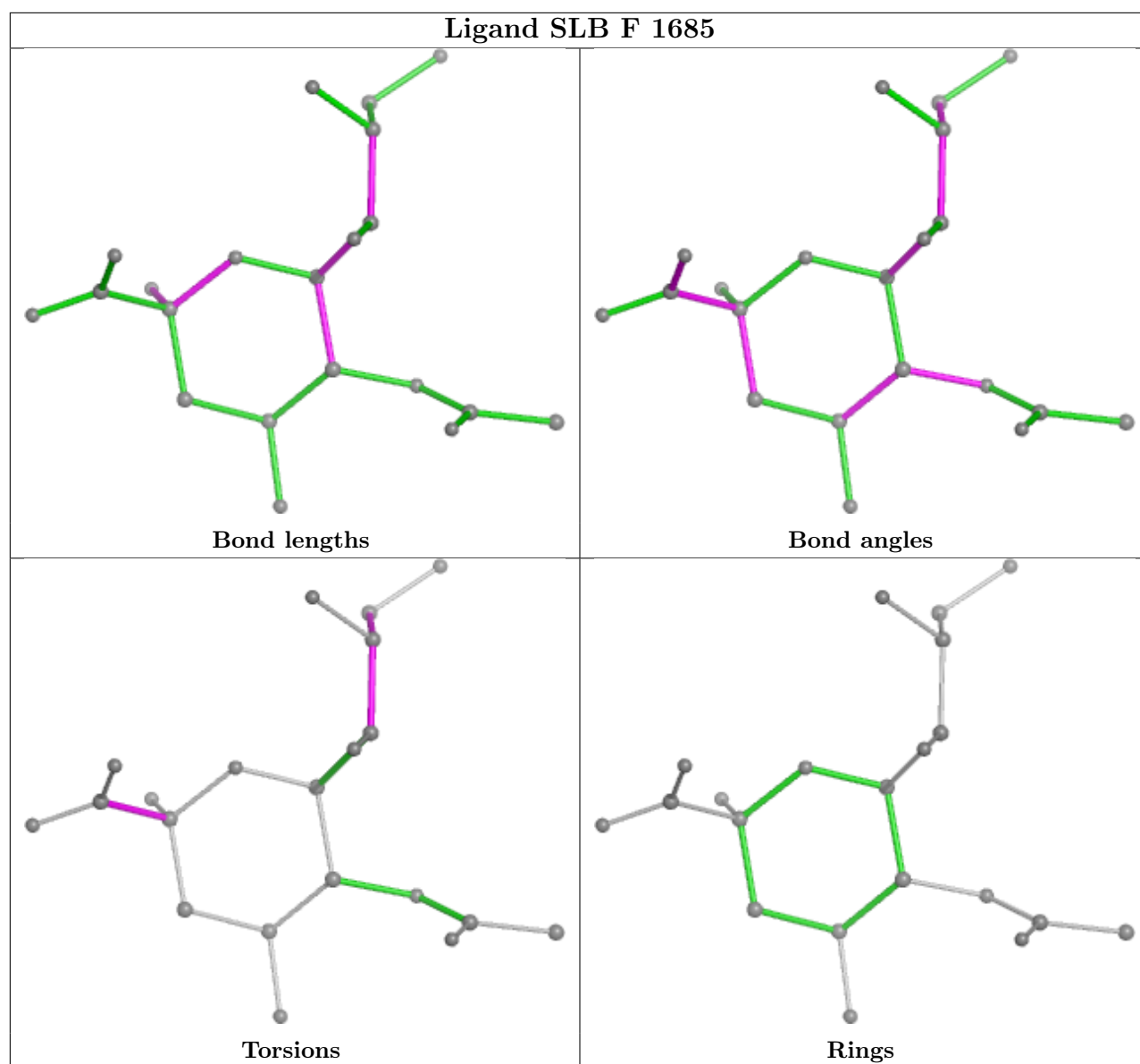
Ligand SLB D 1685

Bond lengths

Bond angles

Torsions

Rings

Ligand SLB E 1685

Bond lengths

Bond angles

Torsions

Rings

Full wwPDB X-ray Structure Validation Report

Ligand SLB C 1685

Bond lengths

Bond angles

Torsions

Rings

Ligand SLB A 1685

Bond lengths

Bond angles

Torsions

Rings

Ligand SLB B 1685

Bond lengths

Bond angles

Torsions

Rings

Ligand SLB F 1685
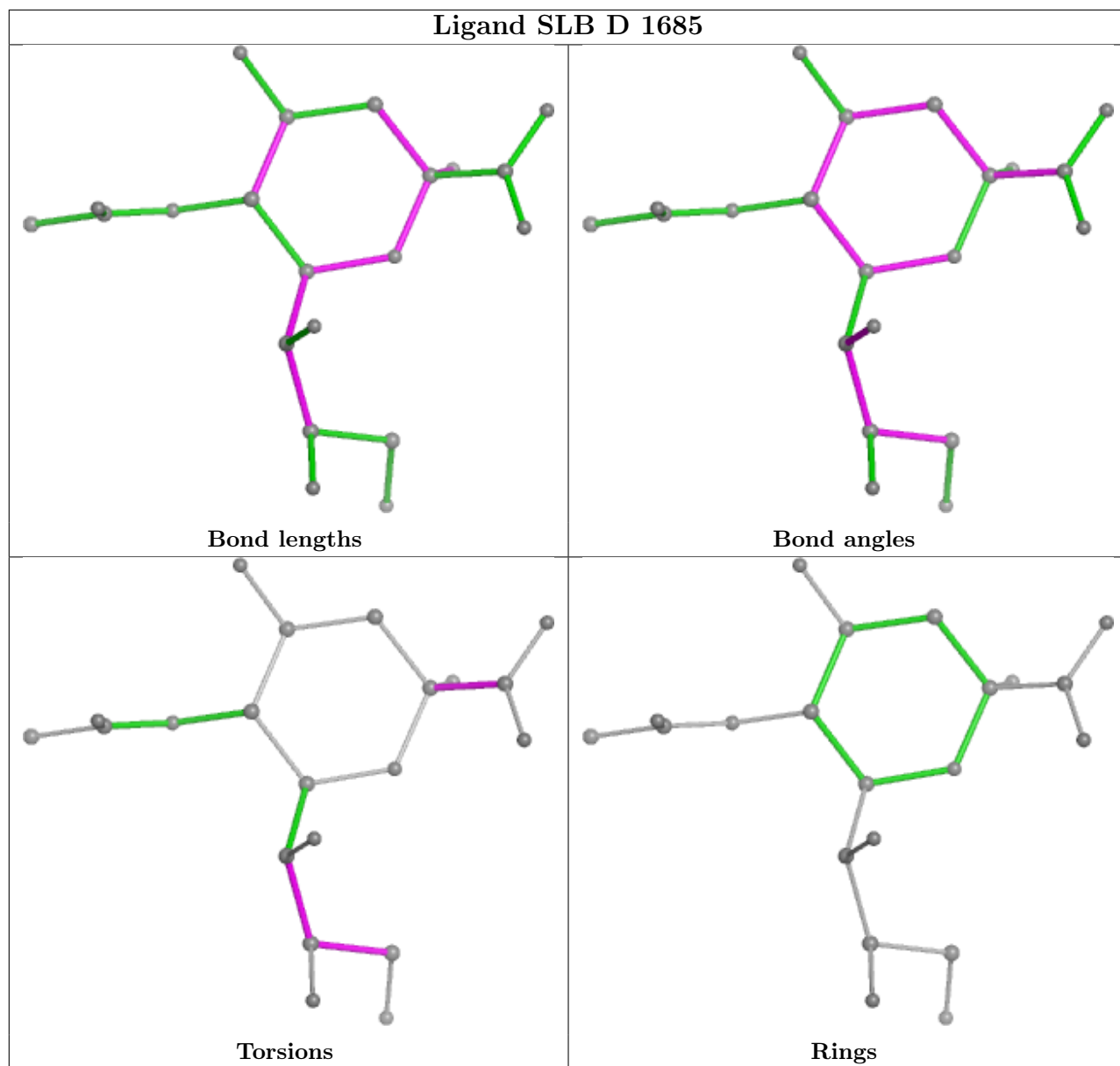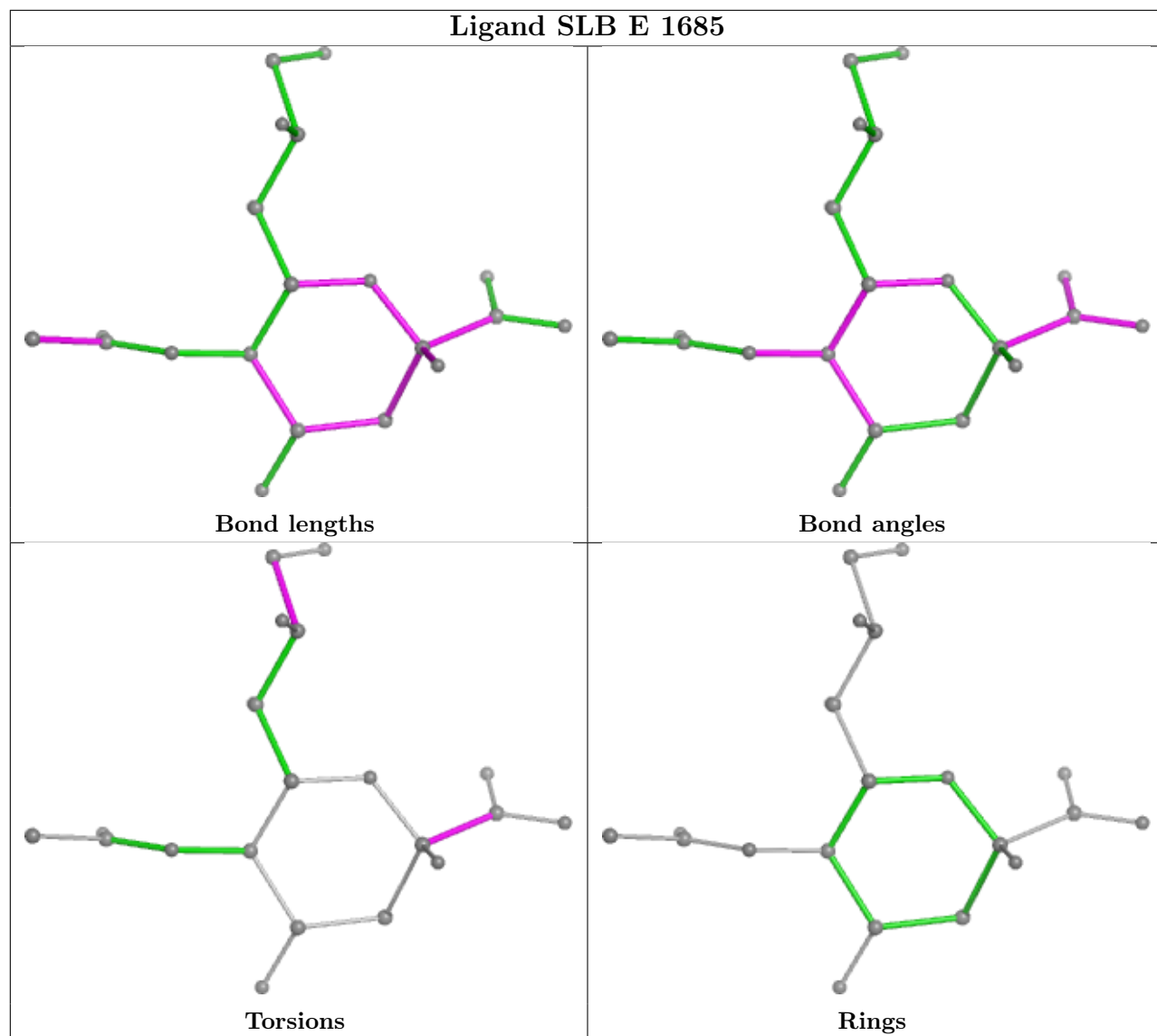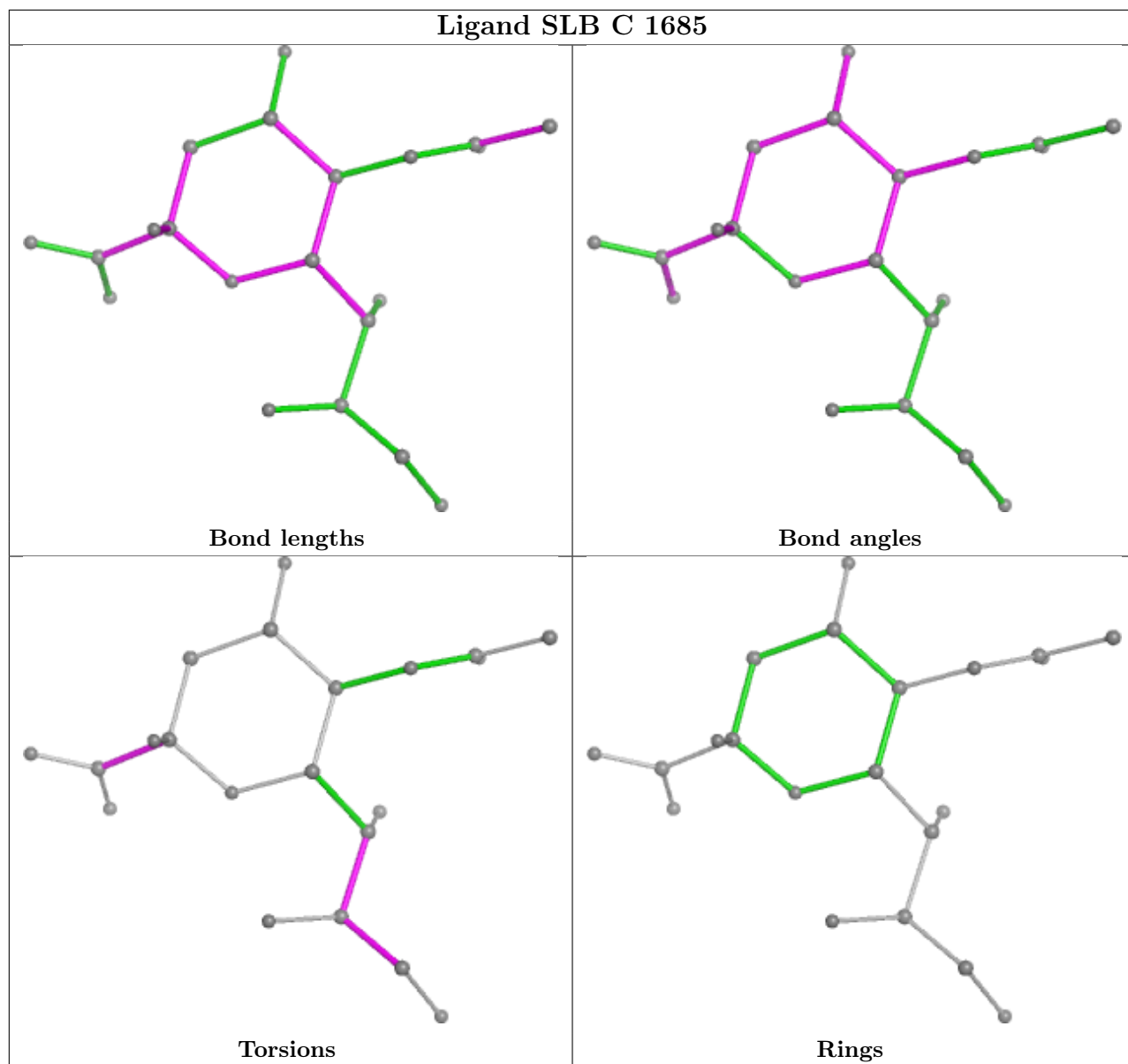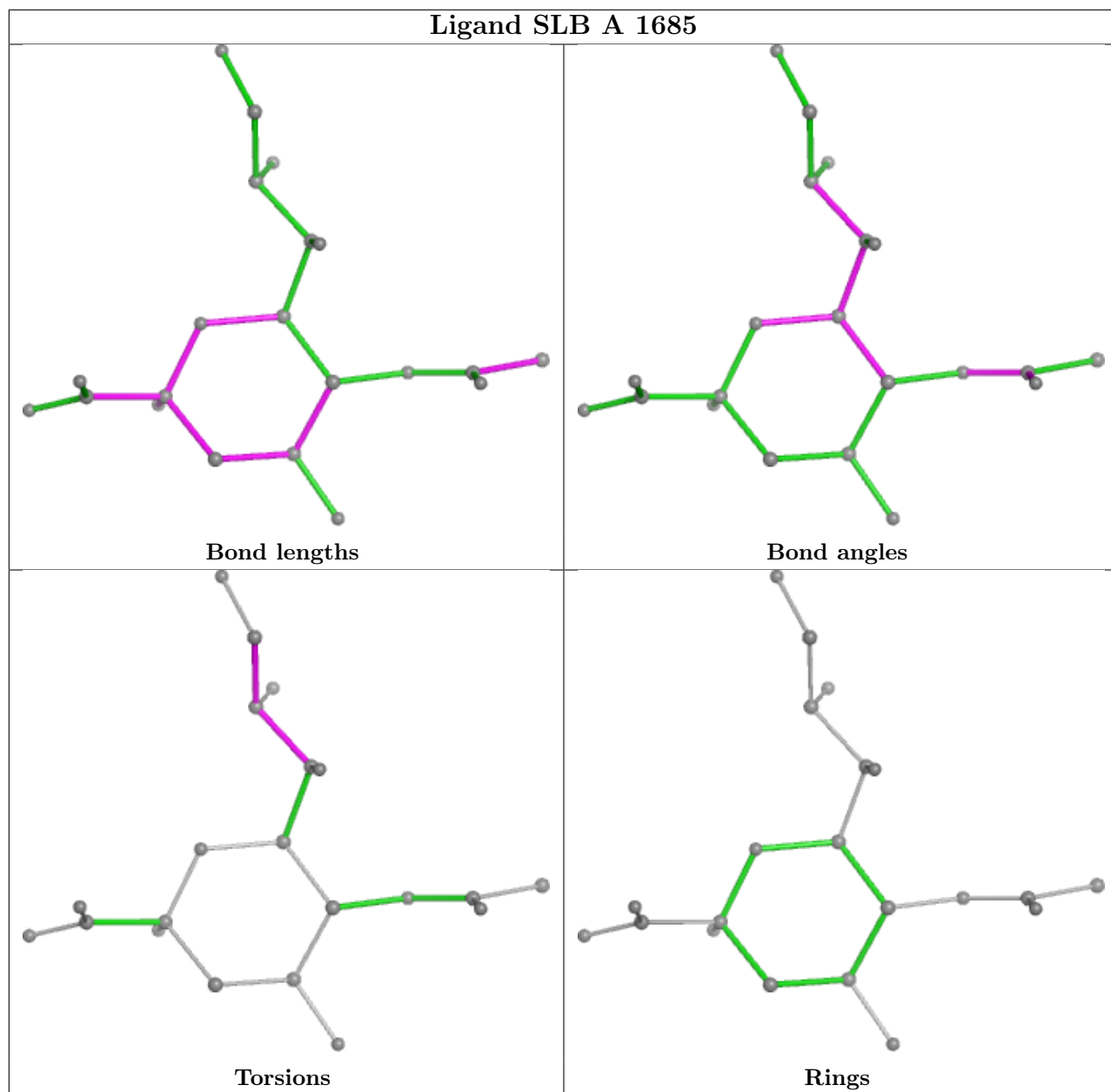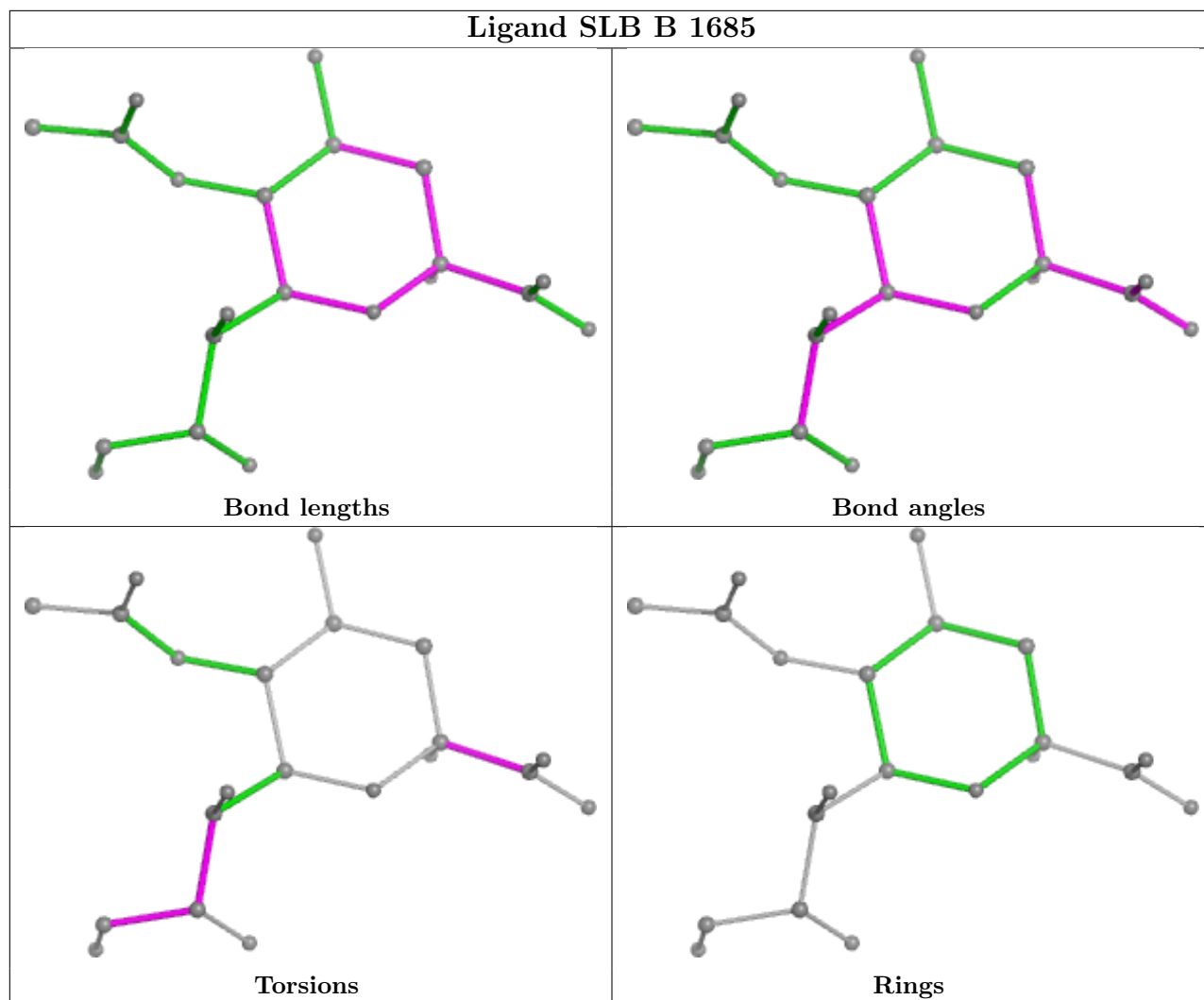
5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6   Fit of model and data ⓘ

6.1   Protein, DNA and RNA chains ⓘ

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å²)	Q<0.9
1	A	666/666 (100%)	-0.22	6 (0%)	84	88	17, 21, 24, 30	0
1	B	666/666 (100%)	-0.17	9 (1%)	75	81	17, 21, 23, 30	0
1	C	666/666 (100%)	-0.13	7 (1%)	80	85	17, 21, 23, 29	0
1	D	666/666 (100%)	-0.28	2 (0%)	94	96	18, 21, 23, 31	0
1	E	666/666 (100%)	-0.17	10 (1%)	73	79	18, 21, 23, 30	0
1	F	666/666 (100%)	-0.24	5 (0%)	86	89	18, 21, 23, 29	0
All	All	3996/3996 (100%)	-0.20	39 (0%)	82	86	17, 21, 23, 31	0

All (39) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	245	SER	4.9
1	F	245	SER	4.9
1	E	246	ALA	4.5
1	F	246	ALA	4.3
1	C	245	SER	3.5
1	C	682	ASP	3.2
1	B	246	ALA	3.1
1	E	262	LEU	3.1
1	F	247	LYS	2.9
1	A	491	THR	2.9
1	E	491	THR	2.9
1	B	262	LEU	2.8
1	B	466	GLY	2.7
1	B	251	VAL	2.7
1	C	262	LEU	2.6
1	B	264	ASP	2.6
1	E	492	SER	2.6
1	A	263	ASN	2.5
1	B	257	ALA	2.5

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Mol	Chain	Res	Type	RSRZ
1	F	498	GLY	2.4
1	A	824	ILE	2.4
1	E	681	ASP	2.4
1	D	840	PHE	2.3
1	C	260	SER	2.3
1	E	252	THR	2.2
1	E	547	ALA	2.2
1	A	644	GLY	2.2
1	A	704	VAL	2.2
1	A	264	ASP	2.1
1	E	264	ASP	2.1
1	B	256	ALA	2.1
1	C	546	VAL	2.1
1	C	258	LEU	2.1
1	E	611	ARG	2.1
1	F	264	ASP	2.1
1	E	856	LEU	2.1
1	B	247	LYS	2.1
1	C	264	ASP	2.0
1	D	824	ILE	2.0

6.2 Non-standard residues in protein, DNA, RNA chains ⓘ

There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates ⓘ

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	SIA	H	1	21/21	0.82	0.33	43,45,49,51	0
2	SIA	G	1	21/21	0.85	0.28	36,40,43,44	0
2	SIA	I	1	21/21	0.85	0.27	38,41,47,49	0
2	SIA	H	2	20/21	0.93	0.20	35,40,42,44	0
2	SIA	G	2	20/21	0.94	0.18	35,38,43,45	0
2	SIA	I	2	20/21	0.94	0.16	31,38,44,46	0

The following is a graphical depiction of the model fit to experimental electron density for oligosac-

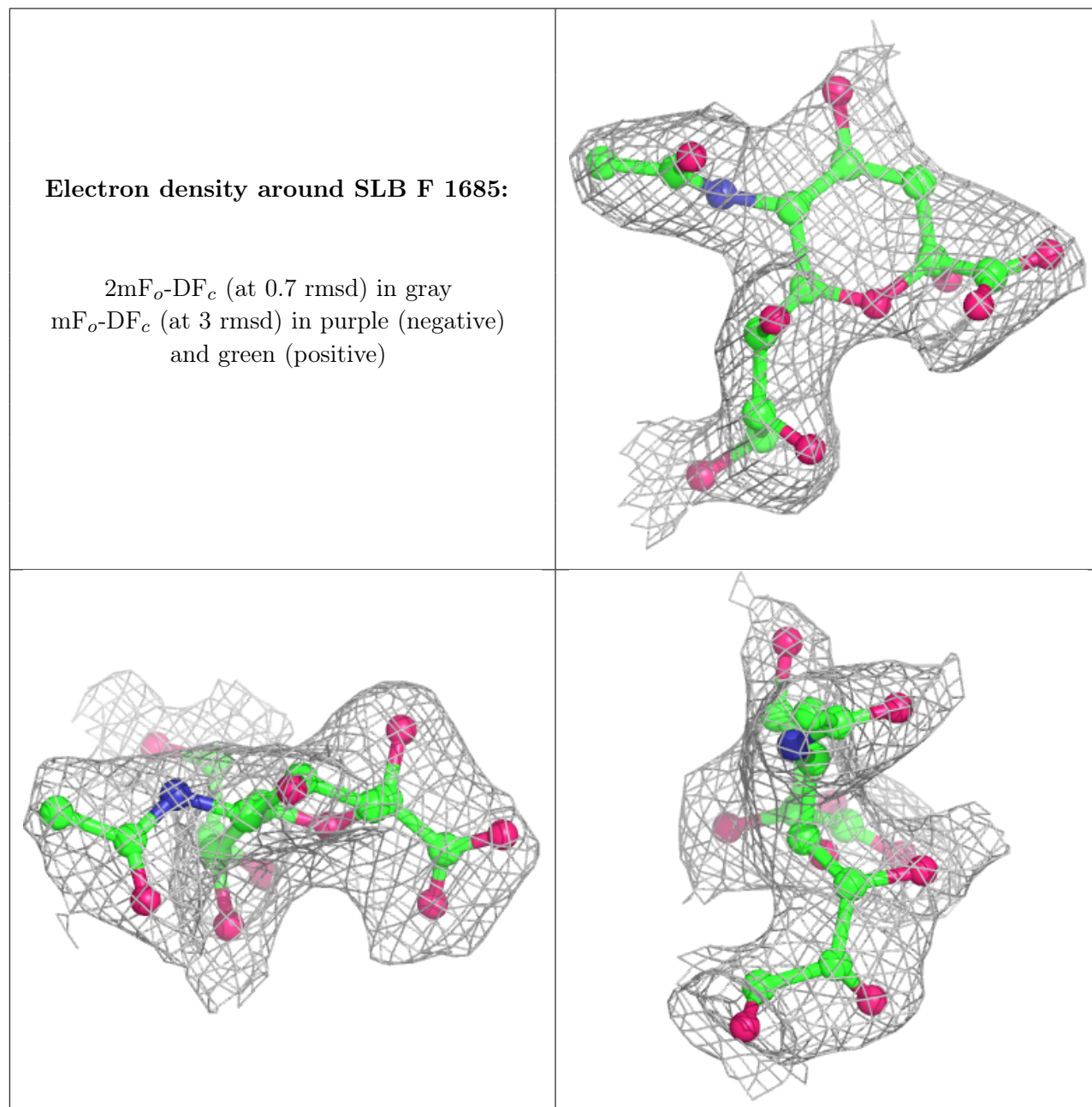charide. Each fit is shown from different orientation to approximate a three-dimensional view.
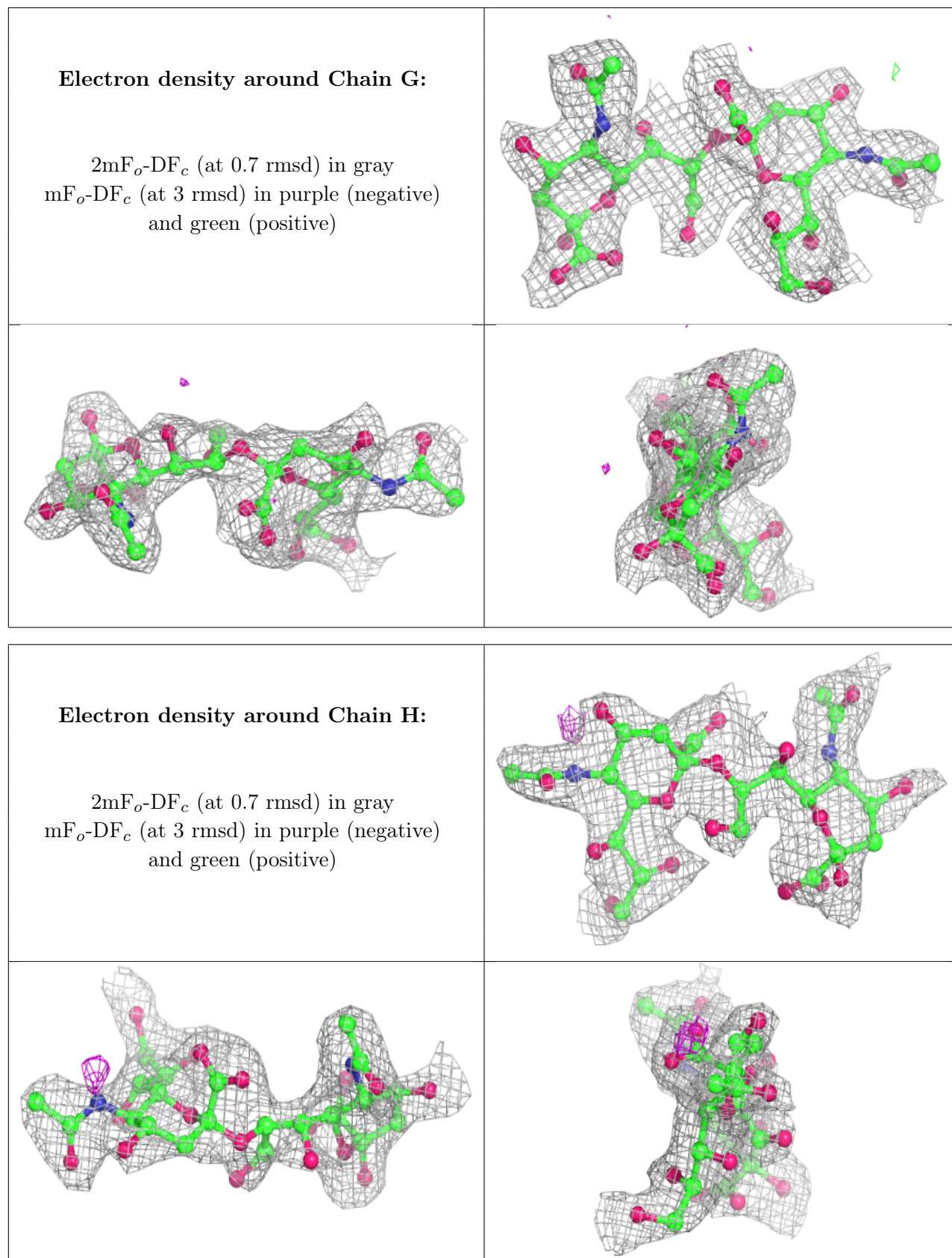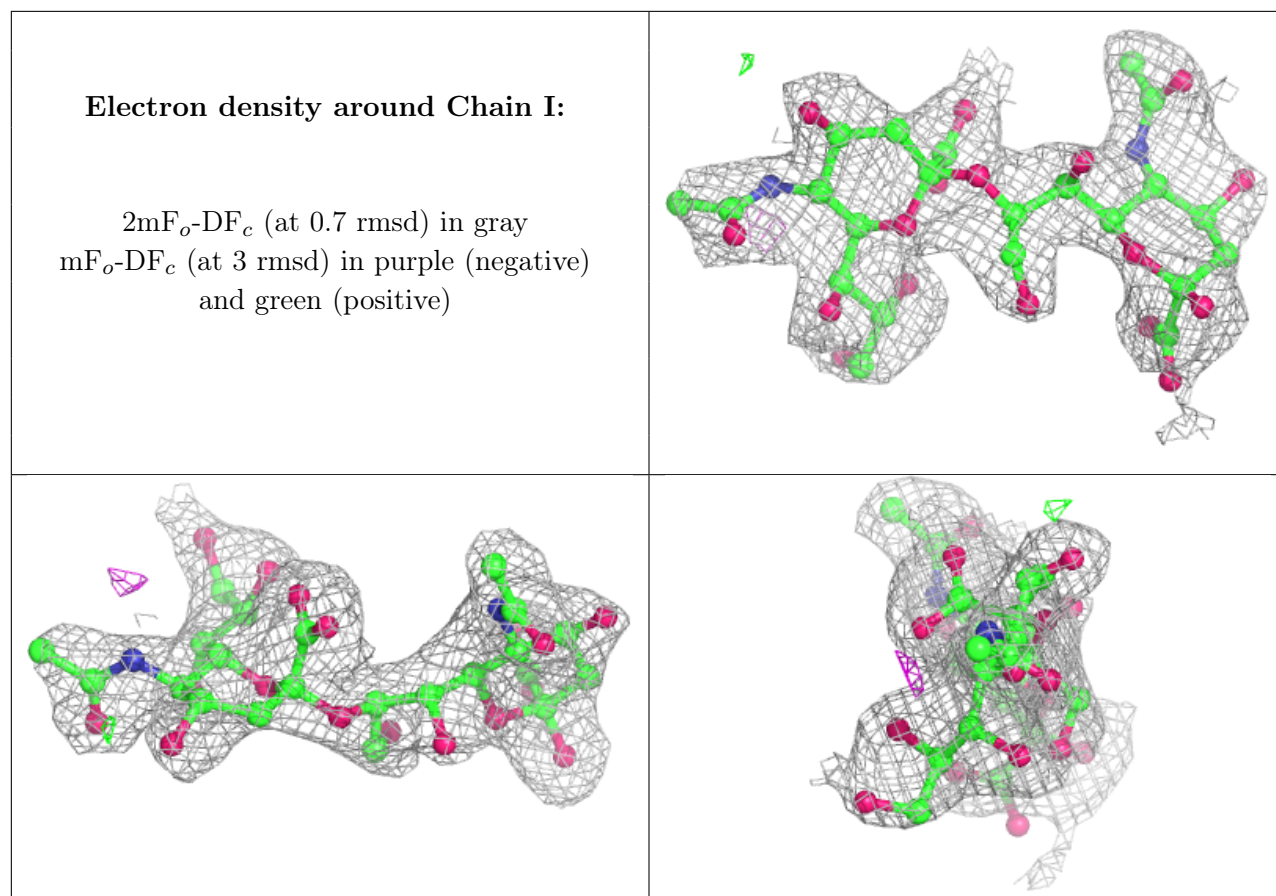
Electron density around Chain G:

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

Electron density around Chain H:

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

Electron density around Chain I:

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

6.4 Ligands ⓘ

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	SLB	F	1685	21/21	0.89	0.21	33,40,46,49	0
3	SLB	D	1685	21/21	0.91	0.15	33,39,42,46	0
3	SLB	A	1685	21/21	0.91	0.21	37,42,47,48	0
3	SLB	B	1685	21/21	0.92	0.19	30,37,43,44	0
3	SLB	C	1685	21/21	0.92	0.16	37,39,43,44	0
3	SLB	E	1685	21/21	0.93	0.21	32,37,44,50	0
4	PO4	A	1686	5/5	0.97	0.11	33,36,38,39	0
4	PO4	F	1687	5/5	0.97	0.13	34,36,37,39	0
4	PO4	C	1687	5/5	0.98	0.10	36,37,38,40	0
4	PO4	D	1687	5/5	0.98	0.13	35,35,37,37	0
4	PO4	F	1686	5/5	0.98	0.08	38,39,39,40	0
4	PO4	B	1686	5/5	0.98	0.12	30,33,34,34	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.
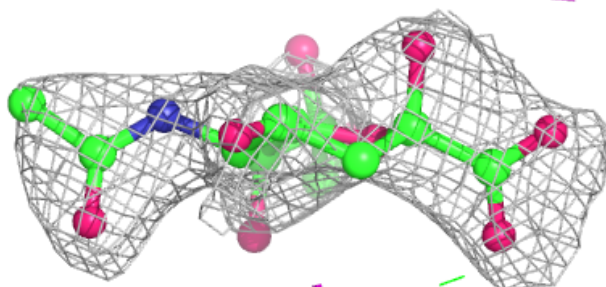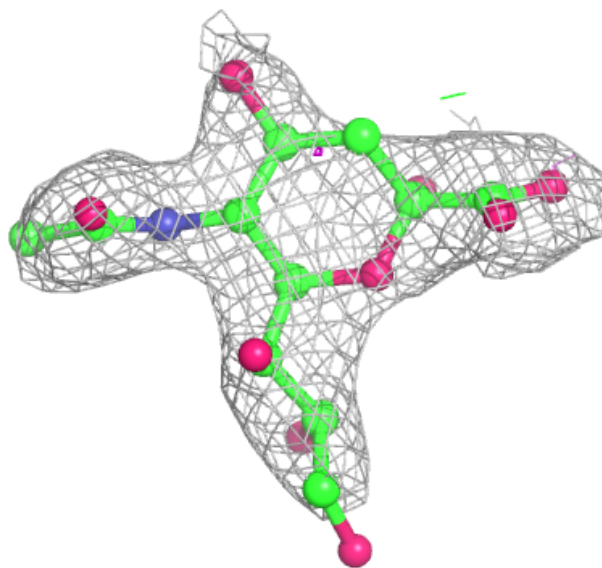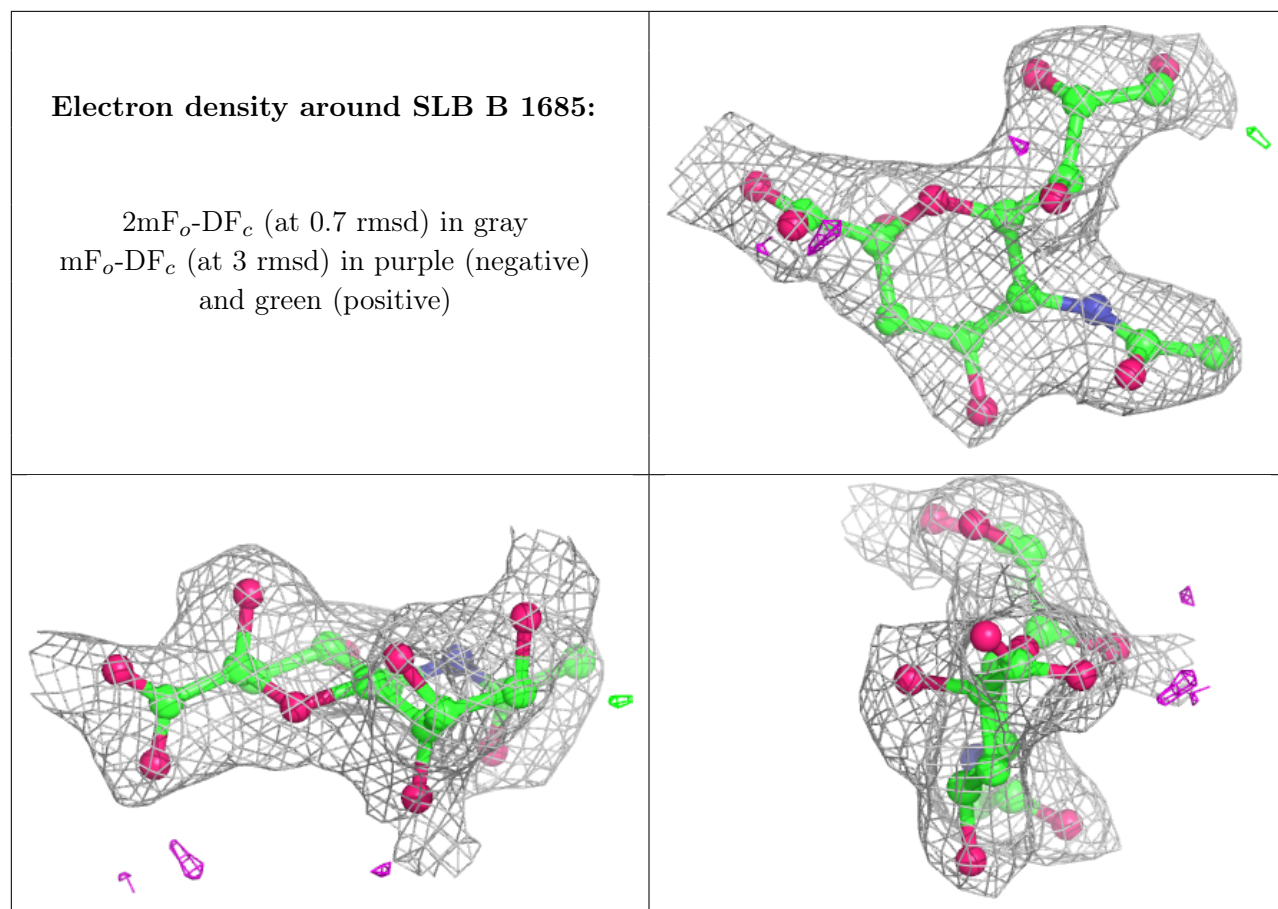
Electron density around SLB F 1685:

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

Electron density around SLB D 1685:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)
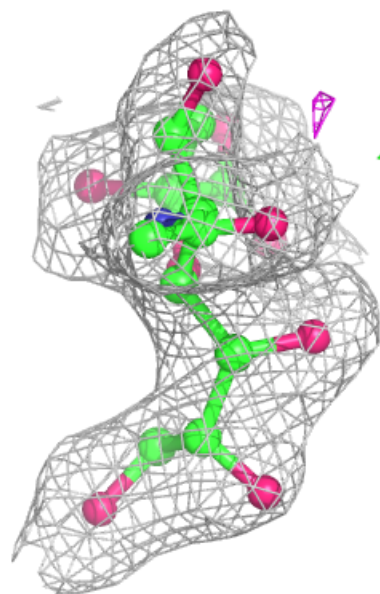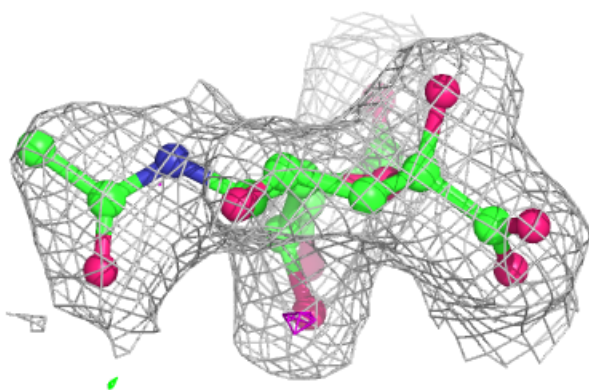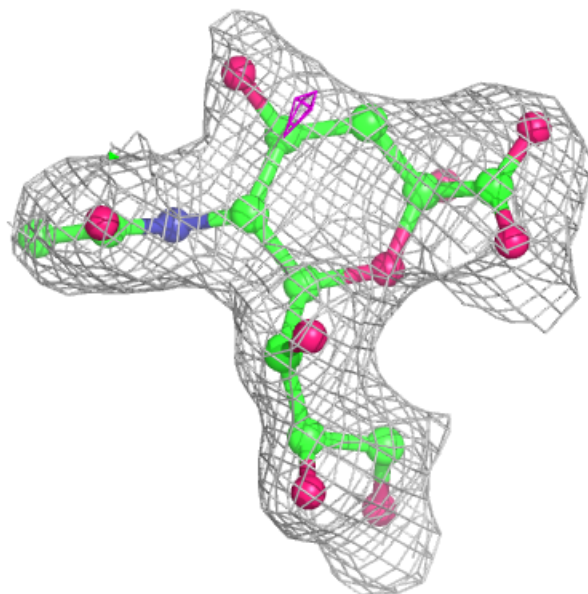
Electron density around SLB A 1685:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)
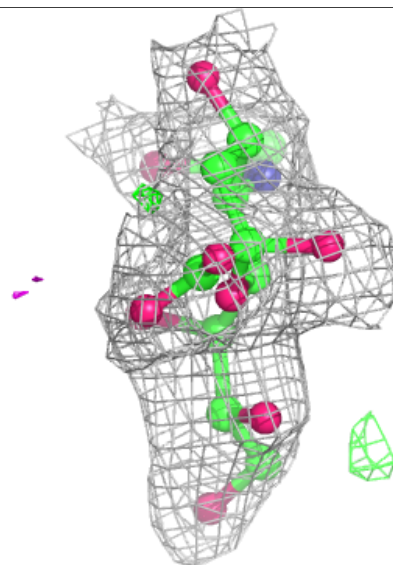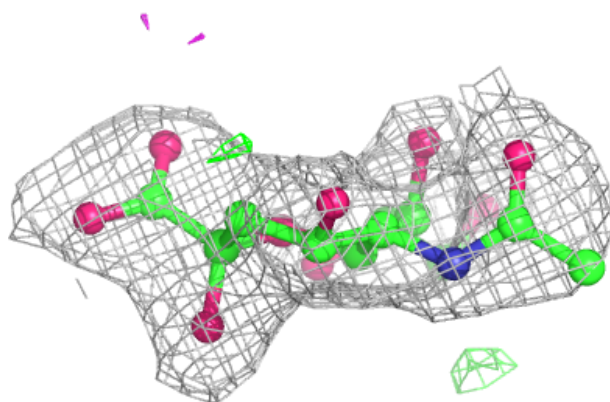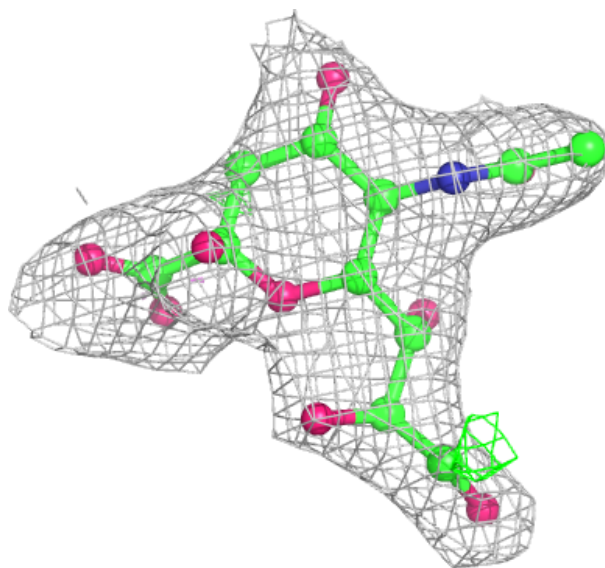
Electron density around SLB B 1685:

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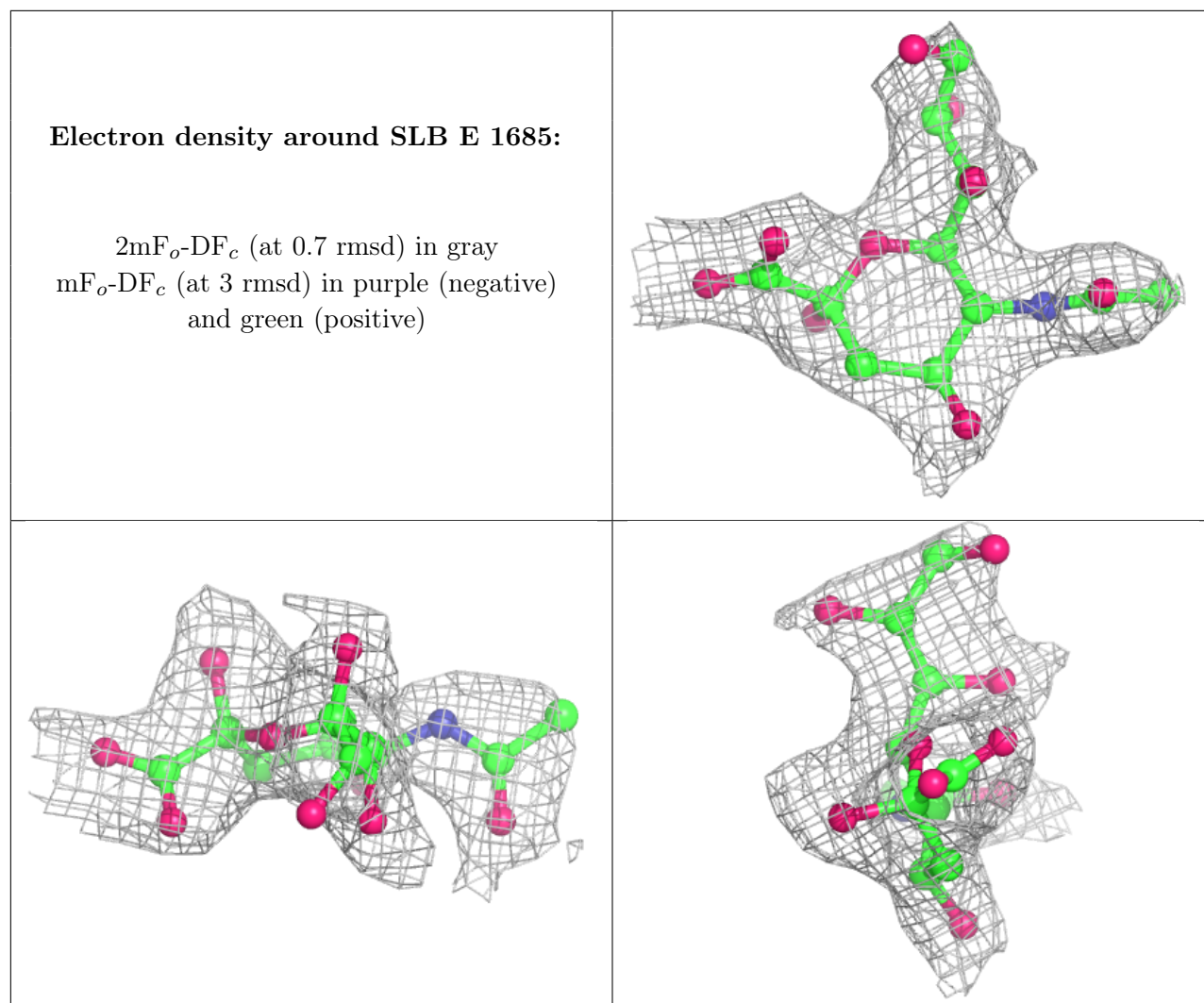mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

Electron density around SLB C 1685:

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

Electron density around SLB E 1685:

$2mF_o$-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 ⓘ

There are no such residues in this entry.