



Full wwPDB X-ray Structure Validation Report ⓘ

Nov 6, 2023 – 09:05 am GMT

PDB ID : 7ZVE
Title : K403 acetylated glucose-6-phosphate dehydrogenase (G6PD)
Authors : Wu, F.; Muskat, N.H.; Shahar, A.; Arbely, E.
Deposited on : 2022-05-15
Resolution : 2.28 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4.02b-467
Mogul : 1.8.4, CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.36
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

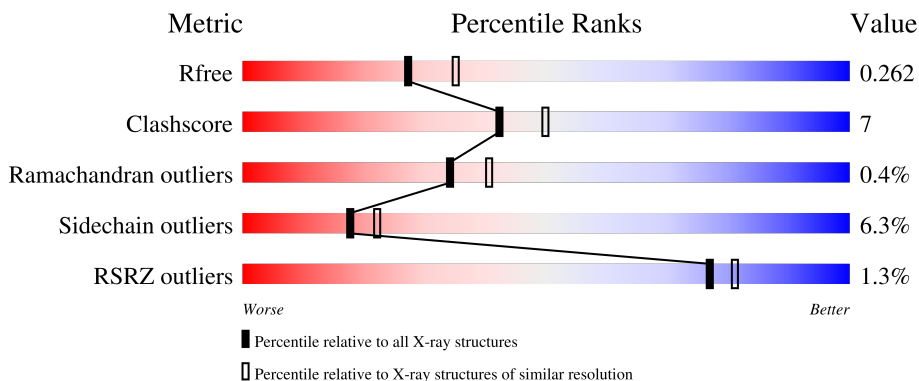
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.28 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	6980 (2.30-2.26)
Clashscore	141614	7711 (2.30-2.26)
Ramachandran outliers	138981	7597 (2.30-2.26)
Sidechain outliers	138945	7598 (2.30-2.26)
RSRZ outliers	127900	6849 (2.30-2.26)

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

Mol	Chain	Length	Quality of chain
1	A	501	<div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 79%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 16%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 3%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: red;"></div> </div> <p style="text-align: center; margin-top: 5px;">79% 16% . .</p>
2	B	498	<div style="display: flex; align-items: center;"> <div style="width: 0%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 77%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 18%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 5%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: red;"></div> </div> <p style="text-align: center; margin-top: 5px;">77% 18% 5% .</p>
3	C	497	<div style="display: flex; align-items: center;"> <div style="width: 0%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 79%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 15%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 3%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 3%; height: 10px; background-color: red;"></div> </div> <p style="text-align: center; margin-top: 5px;">79% 15% . .</p>
4	D	499	<div style="display: flex; align-items: center;"> <div style="width: 0%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 79%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 16%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 3%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: red;"></div> </div> <p style="text-align: center; margin-top: 5px;">79% 16% . .</p>
4	H	499	<div style="display: flex; align-items: center;"> <div style="width: 0%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 80%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 15%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 5%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: red;"></div> </div> <p style="text-align: center; margin-top: 5px;">80% 15% 5% .</p>

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Mol	Chain	Length	Quality of chain
5	E	500	 2% 78% 17% 5%
6	F	497	 2% 78% 16% 5%
7	G	496	 2% 77% 17% 5%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	ALY	B	403	-	-	X	-
8	GOL	B	602	-	-	X	-
8	GOL	E	601	-	-	X	-

2 Entry composition [i](#)

There are 10 unique types of molecules in this entry. The entry contains 32772 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 Glucose-6-phosphate 1-dehydrogenase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	501	4053	2582	706	744	21	0	0	0

- Molecule 2 is a protein called Glucose-6-phosphate 1-dehydrogenase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	498	4036	2572	703	740	21	0	0	0

- Molecule 3 is a protein called Glucose-6-phosphate 1-dehydrogenase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
3	C	497	4039	2574	705	739	21	0	1	0

- Molecule 4 is a protein called Glucose-6-phosphate 1-dehydrogenase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
4	D	499	4051	2582	707	741	21	0	1	0
4	H	499	4043	2577	704	741	21	0	0	0

- Molecule 5 is a protein called Glucose-6-phosphate 1-dehydrogenase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
5	E	500	4052	2582	705	744	21	0	0	0

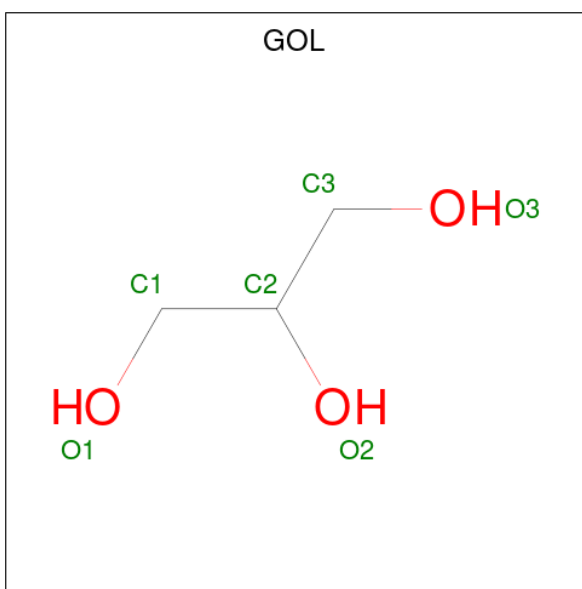
- Molecule 6 is a protein called Glucose-6-phosphate 1-dehydrogenase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
6	F	497	4028	2567	702	738	21	0	0	0

- Molecule 7 is a protein called Glucose-6-phosphate 1-dehydrogenase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
7	G	496	4023	2563	701	738	21	0	0	0

- Molecule 8 is GLYCEROL (three-letter code: GOL) (formula: C₃H₈O₃) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
			Total	C	O		
8	B	1	6	3	3	0	0
8	B	1	6	3	3	0	0
8	C	1	6	3	3	0	0
8	D	1	6	3	3	0	0
8	E	1	6	3	3	0	0
8	F	1	6	3	3	0	0
8	G	1	6	3	3	0	0

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
8	H	1	Total	C	O	0	0
			6	3	3		

- Molecule 9 is COPPER (II) ION (three-letter code: CU) (formula: Cu) (labeled as "Ligand of Interest" by depositor).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
9	J	1	Total	Cu	0	0
			1	1		

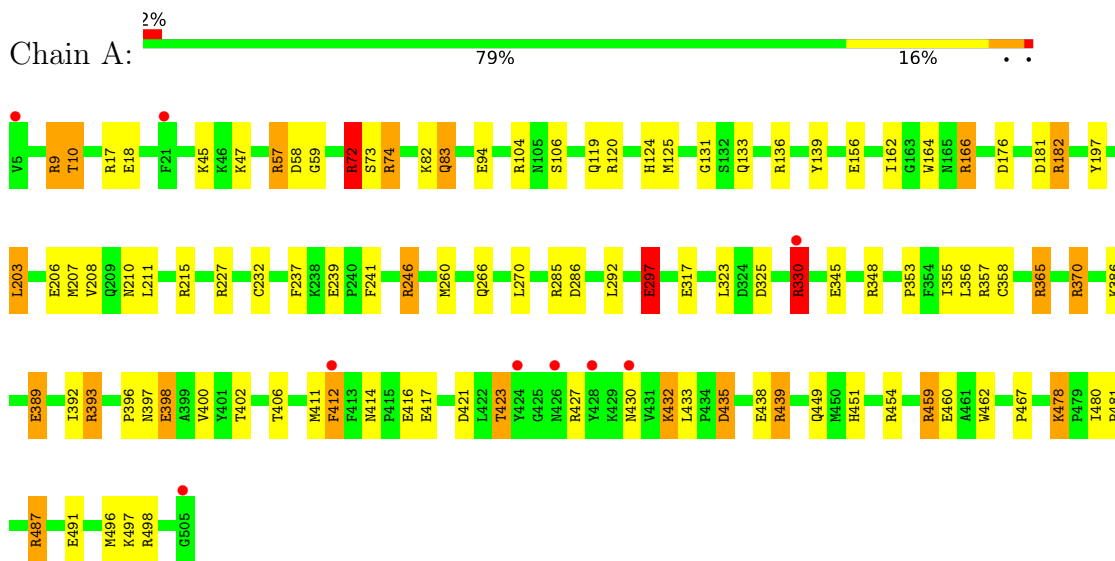
- Molecule 10 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
10	I	398	Total	O	0	0
			398	398		

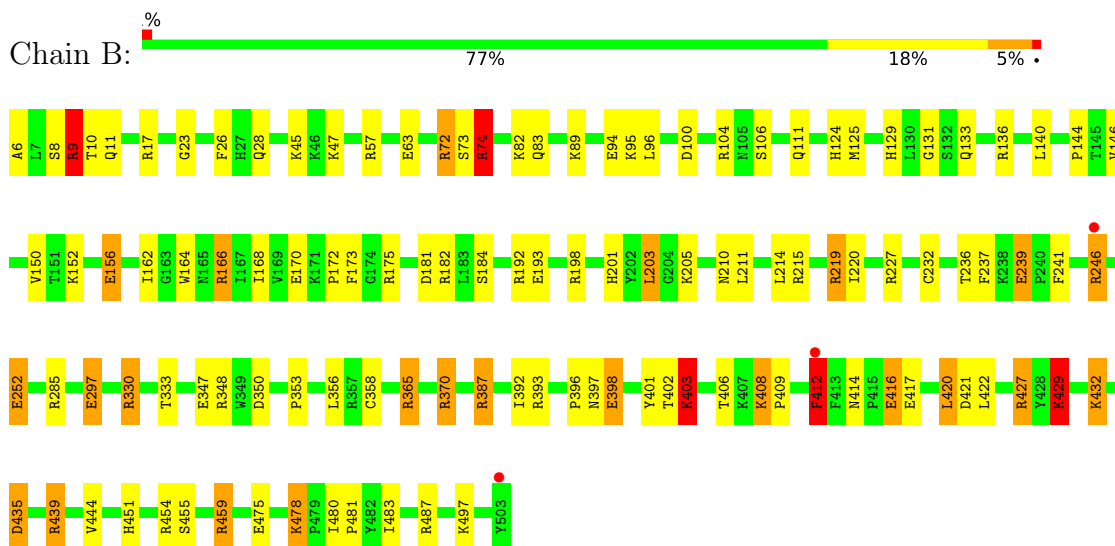
3 Residue-property plots [i](#)

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

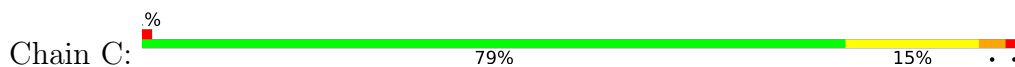
- Molecule 1: Glucose-6-phosphate 1-dehydrogenase

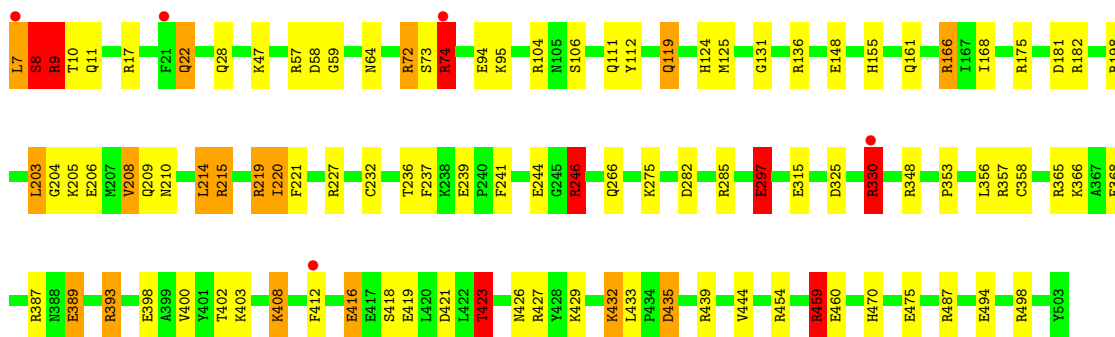


- Molecule 2: Glucose-6-phosphate 1-dehydrogenase

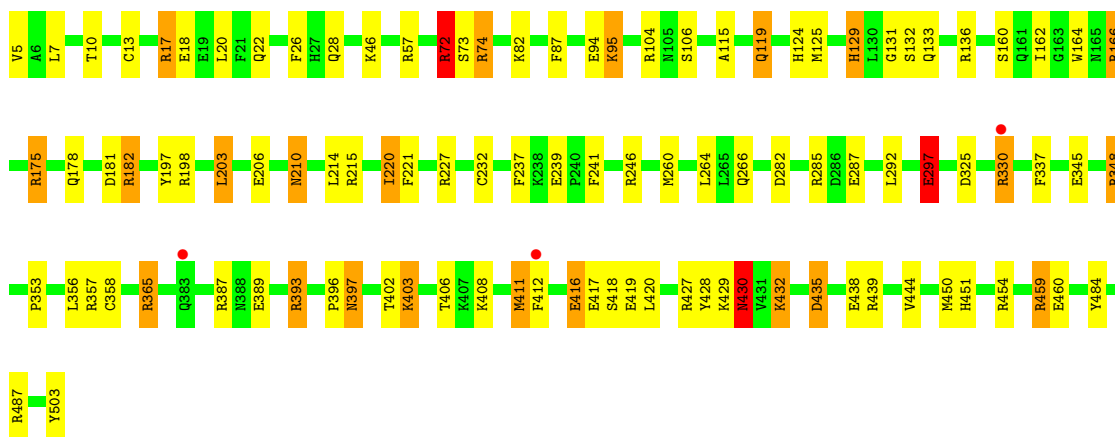
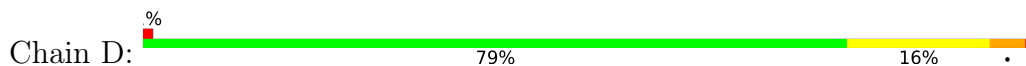


- Molecule 3: Glucose-6-phosphate 1-dehydrogenase

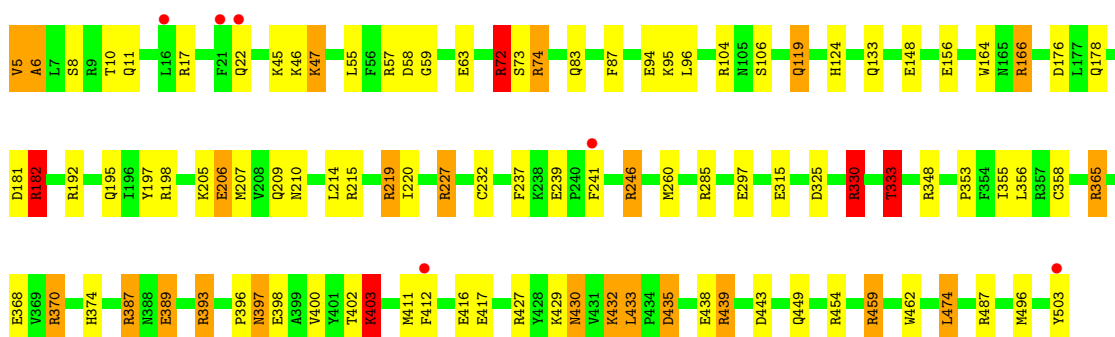
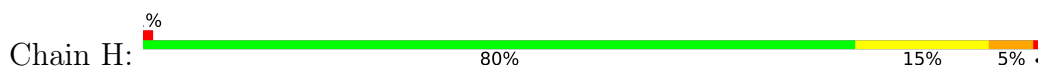




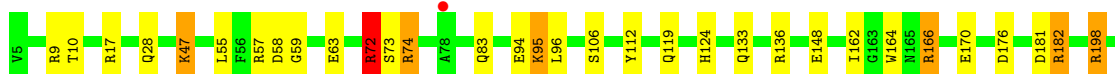
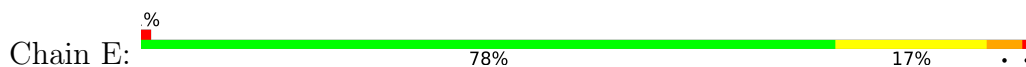
• Molecule 4: Glucose-6-phosphate 1-dehydrogenase

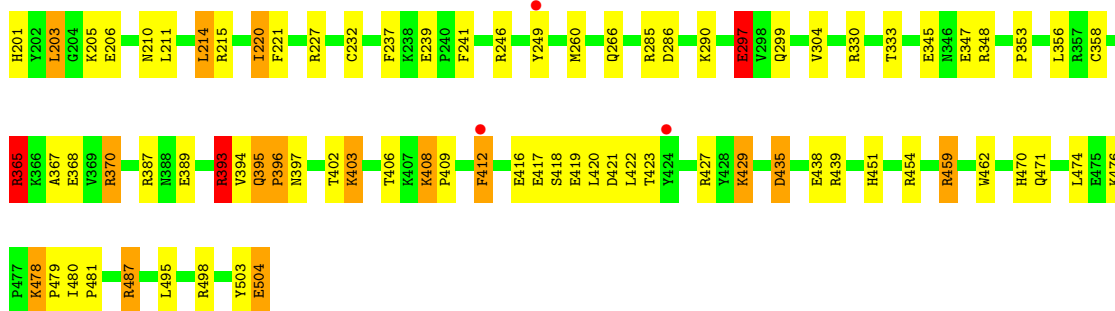


• Molecule 4: Glucose-6-phosphate 1-dehydrogenase

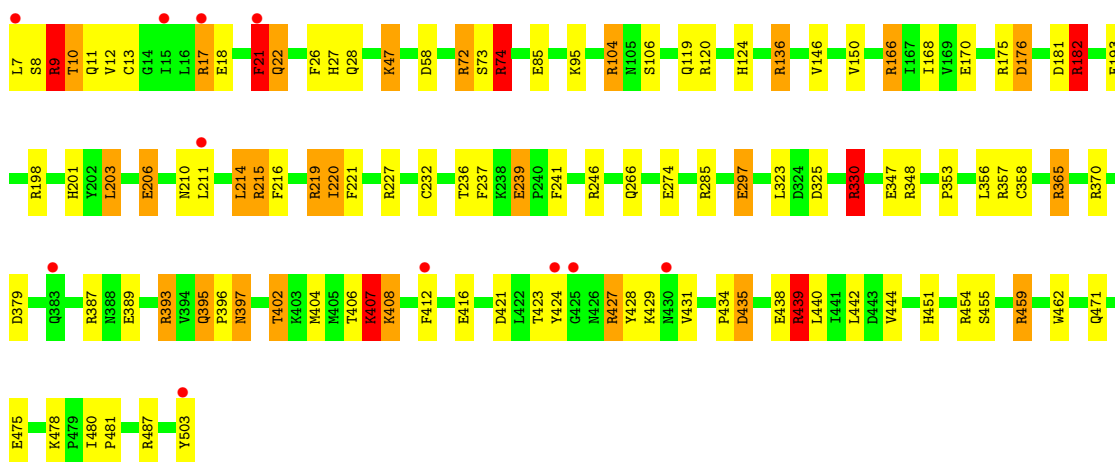
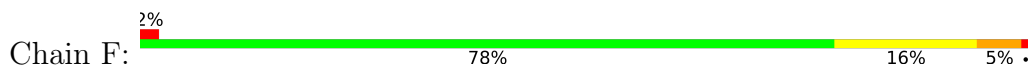


• Molecule 5: Glucose-6-phosphate 1-dehydrogenase

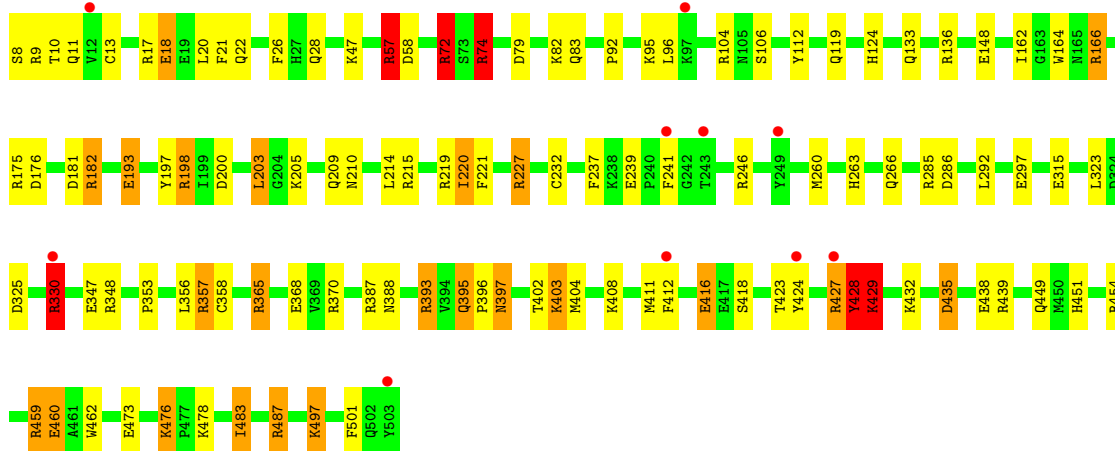
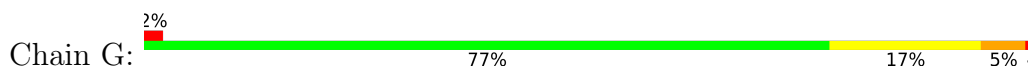




- Molecule 6: Glucose-6-phosphate 1-dehydrogenase



- Molecule 7: Glucose-6-phosphate 1-dehydrogenase



4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	64.36Å 122.61Å 161.31Å 77.23° 80.99° 77.40°	Depositor
Resolution (Å)	50.01 – 2.28 117.39 – 2.28	Depositor EDS
% Data completeness (in resolution range)	96.9 (50.01-2.28) 96.9 (117.39-2.28)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.59 (at 2.29Å)	Xtrriage
Refinement program	REFMAC 5.8.0352	Depositor
R, R_{free}	0.211 , 0.261 0.219 , 0.262	Depositor DCC
R_{free} test set	10333 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å ²)	43.7	Xtrriage
Anisotropy	0.042	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 34.6	EDS
L-test for twinning ²	$\langle L \rangle = 0.52$, $\langle L^2 \rangle = 0.35$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	32772	wwPDB-VP
Average B, all atoms (Å ²)	58.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.94% 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: GOL, ALY, CU

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	0.76	6/4147 (0.1%)	1.11	27/5606 (0.5%)
2	B	0.75	8/4117 (0.2%)	1.11	23/5565 (0.4%)
3	C	0.77	10/4123 (0.2%)	1.14	33/5572 (0.6%)
4	D	0.76	10/4135 (0.2%)	1.10	27/5589 (0.5%)
4	H	0.75	8/4124 (0.2%)	1.11	26/5575 (0.5%)
5	E	0.73	8/4133 (0.2%)	1.11	19/5587 (0.3%)
6	F	0.81	11/4122 (0.3%)	1.18	38/5572 (0.7%)
7	G	0.71	5/4104 (0.1%)	1.12	31/5547 (0.6%)
All	All	0.75	66/33005 (0.2%)	1.12	224/44613 (0.5%)

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	A	0	17
2	B	0	16
3	C	0	18
4	D	0	18
4	H	0	16
5	E	0	18
6	F	0	17
7	G	0	19
All	All	0	139

All (66) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	G	193	GLU	CD-OE2	13.37	1.40	1.25
6	F	206	GLU	CD-OE1	12.37	1.39	1.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	F	274	GLU	CD-OE1	11.70	1.38	1.25
3	C	416	GLU	CD-OE2	10.03	1.36	1.25
4	H	148	GLU	CD-OE1	9.99	1.36	1.25
4	D	417	GLU	CD-OE2	9.67	1.36	1.25
6	F	347	GLU	CD-OE1	9.39	1.35	1.25
4	H	416	GLU	CD-OE2	9.22	1.35	1.25
3	C	297	GLU	CD-OE1	9.02	1.35	1.25
3	C	148	GLU	CD-OE1	8.95	1.35	1.25
1	A	297	GLU	CD-OE2	8.74	1.35	1.25
6	F	85	GLU	CD-OE2	-8.66	1.16	1.25
5	E	416	GLU	CD-OE2	8.63	1.35	1.25
2	B	297	GLU	CD-OE2	8.63	1.35	1.25
1	A	491	GLU	CD-OE1	8.51	1.35	1.25
1	A	417	GLU	CD-OE2	8.36	1.34	1.25
4	D	297	GLU	CD-OE1	7.86	1.34	1.25
5	E	297	GLU	CD-OE1	7.85	1.34	1.25
7	G	416	GLU	CD-OE2	7.84	1.34	1.25
6	F	206	GLU	CD-OE2	7.64	1.34	1.25
4	D	416	GLU	CD-OE2	7.49	1.33	1.25
2	B	416	GLU	CD-OE1	7.32	1.33	1.25
4	D	438	GLU	CD-OE1	7.31	1.33	1.25
3	C	460	GLU	CD-OE2	-7.10	1.17	1.25
4	H	156	GLU	CD-OE2	7.00	1.33	1.25
5	E	417	GLU	CD-OE1	6.72	1.33	1.25
4	H	417	GLU	CD-OE2	6.69	1.33	1.25
3	C	494	GLU	CD-OE1	6.57	1.32	1.25
6	F	239	GLU	CD-OE1	6.56	1.32	1.25
2	B	156	GLU	CD-OE1	6.53	1.32	1.25
4	D	18	GLU	CD-OE2	6.52	1.32	1.25
3	C	389	GLU	CD-OE1	-6.43	1.18	1.25
1	A	345	GLU	CD-OE1	-6.41	1.18	1.25
7	G	148	GLU	CD-OE2	6.29	1.32	1.25
4	H	148	GLU	CD-OE2	6.25	1.32	1.25
3	C	475	GLU	CD-OE1	6.25	1.32	1.25
5	E	504	GLU	CD-OE1	6.18	1.32	1.25
6	F	389	GLU	CD-OE1	-6.11	1.19	1.25
5	E	417	GLU	CD-OE2	6.07	1.32	1.25
1	A	389	GLU	CD-OE2	-6.06	1.19	1.25
4	D	345	GLU	CD-OE1	-6.02	1.19	1.25
5	E	345	GLU	CD-OE1	-5.87	1.19	1.25
6	F	274	GLU	CD-OE2	5.84	1.32	1.25
6	F	85	GLU	CD-OE1	-5.82	1.19	1.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	F	402	THR	C-O	-5.77	1.12	1.23
2	B	417	GLU	CD-OE2	5.76	1.31	1.25
1	A	416	GLU	CD-OE2	5.75	1.31	1.25
6	F	297	GLU	CD-OE1	5.62	1.31	1.25
3	C	389	GLU	CD-OE2	-5.59	1.19	1.25
2	B	252	GLU	CD-OE1	5.57	1.31	1.25
5	E	347	GLU	CD-OE2	5.53	1.31	1.25
7	G	347	GLU	CD-OE1	5.49	1.31	1.25
2	B	347	GLU	CD-OE1	5.48	1.31	1.25
3	C	148	GLU	CD-OE2	5.32	1.31	1.25
4	H	368	GLU	CD-OE2	5.23	1.31	1.25
5	E	368	GLU	CD-OE1	5.19	1.31	1.25
4	D	389	GLU	CD-OE1	-5.14	1.20	1.25
4	H	389	GLU	CD-OE2	-5.13	1.20	1.25
3	C	155	HIS	CE1-NE2	5.11	1.44	1.32
4	D	287	GLU	CD-OE1	5.11	1.31	1.25
2	B	347	GLU	CD-OE2	5.09	1.31	1.25
4	D	206	GLU	CD-OE2	5.08	1.31	1.25
4	D	438	GLU	CD-OE2	5.05	1.31	1.25
7	G	460	GLU	CD-OE2	-5.04	1.20	1.25
2	B	239	GLU	CD-OE1	5.03	1.31	1.25
4	H	374	HIS	CE1-NE2	5.03	1.44	1.32

All (224) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	E	348	ARG	NE-CZ-NH1	12.78	126.69	120.30
3	C	330	ARG	NE-CZ-NH2	-12.08	114.26	120.30
3	C	387	ARG	NE-CZ-NH2	-11.88	114.36	120.30
5	E	387	ARG	NE-CZ-NH2	-11.64	114.48	120.30
2	B	215	ARG	NE-CZ-NH2	-11.19	114.71	120.30
6	F	402	THR	CA-C-O	-10.80	97.42	120.10
7	G	459	ARG	NE-CZ-NH1	10.42	125.51	120.30
6	F	330	ARG	NE-CZ-NH2	10.14	125.37	120.30
6	F	215	ARG	NE-CZ-NH2	-10.10	115.25	120.30
5	E	215	ARG	NE-CZ-NH2	-9.89	115.36	120.30
4	D	393	ARG	NE-CZ-NH2	-9.65	115.47	120.30
4	H	393	ARG	NE-CZ-NH2	-9.52	115.54	120.30
4	D	459	ARG	NE-CZ-NH1	9.50	125.05	120.30
4	H	459	ARG	NE-CZ-NH1	9.40	125.00	120.30
1	A	10	THR	CA-CB-OG1	-9.38	89.31	109.00
6	F	74	ARG	NE-CZ-NH1	9.21	124.90	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	D	215	ARG	NE-CZ-NH2	-9.06	115.77	120.30
5	E	393	ARG	NE-CZ-NH1	-9.05	115.78	120.30
6	F	393	ARG	NE-CZ-NH2	-9.00	115.80	120.30
4	H	459	ARG	NE-CZ-NH2	-8.89	115.86	120.30
7	G	393	ARG	NE-CZ-NH2	-8.82	115.89	120.30
3	C	348	ARG	NE-CZ-NH1	8.81	124.71	120.30
3	C	198	ARG	NE-CZ-NH2	-8.74	115.93	120.30
4	H	454	ARG	NE-CZ-NH1	8.74	124.67	120.30
6	F	166	ARG	NE-CZ-NH2	-8.73	115.93	120.30
2	B	350	ASP	CB-CG-OD1	8.70	126.13	118.30
6	F	198	ARG	NE-CZ-NH2	-8.61	115.99	120.30
3	C	348	ARG	NE-CZ-NH2	-8.61	115.99	120.30
1	A	393	ARG	NE-CZ-NH2	-8.61	116.00	120.30
1	A	435	ASP	CB-CA-C	-8.49	93.41	110.40
3	C	330	ARG	NE-CZ-NH1	8.48	124.54	120.30
7	G	10	THR	N-CA-CB	8.43	126.33	110.30
7	G	74	ARG	NE-CZ-NH1	8.43	124.51	120.30
4	H	198	ARG	NE-CZ-NH2	-8.42	116.09	120.30
7	G	175	ARG	NE-CZ-NH2	-8.39	116.11	120.30
7	G	198	ARG	NE-CZ-NH2	-8.18	116.21	120.30
7	G	357	ARG	NE-CZ-NH2	-8.13	116.24	120.30
1	A	10	THR	CA-CB-CG2	8.13	123.78	112.40
5	E	459	ARG	NE-CZ-NH1	8.05	124.33	120.30
4	H	348	ARG	NE-CZ-NH1	8.00	124.30	120.30
2	B	454	ARG	NE-CZ-NH2	-7.94	116.33	120.30
6	F	330	ARG	CB-CA-C	7.92	126.24	110.40
4	H	104	ARG	NE-CZ-NH2	-7.77	116.42	120.30
7	G	429	LYS	CB-CA-C	7.75	125.90	110.40
6	F	182	ARG	NE-CZ-NH1	7.69	124.14	120.30
5	E	198	ARG	NE-CZ-NH2	-7.68	116.46	120.30
7	G	18	GLU	CB-CA-C	7.67	125.74	110.40
2	B	72	ARG	NE-CZ-NH1	7.52	124.06	120.30
3	C	74	ARG	NE-CZ-NH1	7.44	124.02	120.30
3	C	166	ARG	NE-CZ-NH2	-7.41	116.60	120.30
3	C	285	ARG	NE-CZ-NH2	-7.38	116.61	120.30
6	F	357	ARG	NE-CZ-NH2	-7.36	116.62	120.30
2	B	439	ARG	NE-CZ-NH2	-7.36	116.62	120.30
4	D	438	GLU	OE1-CD-OE2	7.33	132.10	123.30
2	B	387	ARG	NE-CZ-NH2	-7.32	116.64	120.30
6	F	387	ARG	NE-CZ-NH1	7.27	123.93	120.30
2	B	348	ARG	NE-CZ-NH2	-7.20	116.70	120.30
5	E	285	ARG	NE-CZ-NH2	-7.20	116.70	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	H	215	ARG	NE-CZ-NH2	-7.16	116.72	120.30
4	D	175	ARG	NE-CZ-NH2	-7.11	116.74	120.30
6	F	402	THR	O-C-N	7.10	134.06	122.70
3	C	175	ARG	NE-CZ-NH1	7.07	123.83	120.30
5	E	74	ARG	NE-CZ-NH1	7.02	123.81	120.30
7	G	104	ARG	NE-CZ-NH1	7.01	123.81	120.30
3	C	74	ARG	CB-CG-CD	6.96	129.71	111.60
7	G	387	ARG	NE-CZ-NH2	-6.94	116.83	120.30
4	D	459	ARG	NE-CZ-NH2	-6.87	116.86	120.30
7	G	395	GLN	CB-CG-CD	6.81	129.31	111.60
6	F	175	ARG	NE-CZ-NH1	6.80	123.70	120.30
4	D	412	PHE	CB-CA-C	6.78	123.97	110.40
3	C	215	ARG	NE-CZ-NH2	-6.77	116.91	120.30
7	G	454	ARG	NE-CZ-NH2	-6.77	116.92	120.30
3	C	387	ARG	NE-CZ-NH1	6.75	123.67	120.30
4	D	348	ARG	NE-CZ-NH2	-6.73	116.94	120.30
5	E	348	ARG	NE-CZ-NH2	-6.72	116.94	120.30
6	F	357	ARG	NE-CZ-NH1	6.67	123.63	120.30
4	D	454	ARG	NE-CZ-NH1	6.66	123.63	120.30
6	F	365	ARG	NE-CZ-NH1	6.57	123.58	120.30
5	E	459	ARG	NE-CZ-NH2	-6.55	117.02	120.30
4	H	285	ARG	NE-CZ-NH2	-6.54	117.03	120.30
6	F	459	ARG	NE-CZ-NH2	-6.50	117.05	120.30
7	G	348	ARG	NE-CZ-NH1	6.48	123.54	120.30
3	C	22	GLN	CB-CG-CD	6.47	128.42	111.60
6	F	454	ARG	NE-CZ-NH2	-6.41	117.10	120.30
1	A	74	ARG	CG-CD-NE	-6.38	98.41	111.80
4	D	439	ARG	NE-CZ-NH1	6.38	123.49	120.30
6	F	9	ARG	CB-CG-CD	6.38	128.18	111.60
6	F	285	ARG	NE-CZ-NH2	-6.36	117.12	120.30
6	F	74	ARG	NE-CZ-NH2	-6.35	117.13	120.30
4	D	439	ARG	NE-CZ-NH2	-6.32	117.14	120.30
3	C	454	ARG	NE-CZ-NH1	6.31	123.46	120.30
1	A	370	ARG	NE-CZ-NH1	6.31	123.45	120.30
4	D	454	ARG	NE-CZ-NH2	-6.27	117.16	120.30
4	H	387	ARG	NE-CZ-NH1	6.27	123.44	120.30
6	F	198	ARG	NE-CZ-NH1	6.27	123.44	120.30
7	G	412	PHE	CB-CA-C	6.24	122.88	110.40
7	G	175	ARG	NE-CZ-NH1	6.24	123.42	120.30
6	F	175	ARG	NE-CZ-NH2	-6.23	117.19	120.30
4	H	348	ARG	NE-CZ-NH2	-6.16	117.22	120.30
3	C	423	THR	CB-CA-C	6.12	128.12	111.60

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	72	ARG	CB-CG-CD	6.11	127.48	111.60
4	D	387	ARG	NE-CZ-NH1	6.10	123.35	120.30
4	D	484	TYR	CB-CG-CD2	-6.09	117.34	121.00
6	F	459	ARG	NE-CZ-NH1	6.06	123.33	120.30
2	B	397	ASN	CB-CA-C	-6.02	98.36	110.40
5	E	454	ARG	NE-CZ-NH2	-6.00	117.30	120.30
4	H	227	ARG	NE-CZ-NH1	5.97	123.28	120.30
1	A	423	THR	CB-CA-C	5.95	127.67	111.60
3	C	412	PHE	CB-CA-C	5.93	122.27	110.40
1	A	246	ARG	NE-CZ-NH1	-5.93	117.33	120.30
4	H	182	ARG	NE-CZ-NH1	5.93	123.27	120.30
4	D	285	ARG	NE-CZ-NH2	-5.92	117.34	120.30
1	A	74	ARG	NE-CZ-NH1	-5.90	117.35	120.30
3	C	104	ARG	NE-CZ-NH2	-5.88	117.36	120.30
4	D	357	ARG	NE-CZ-NH2	-5.88	117.36	120.30
1	A	365	ARG	CB-CG-CD	5.86	126.84	111.60
6	F	9	ARG	NE-CZ-NH2	5.85	123.22	120.30
1	A	454	ARG	NE-CZ-NH2	-5.84	117.38	120.30
4	D	503	TYR	CA-C-O	-5.84	107.83	120.10
7	G	330	ARG	NE-CZ-NH1	5.83	123.21	120.30
7	G	215	ARG	NE-CZ-NH2	-5.82	117.39	120.30
4	H	503	TYR	CA-C-O	-5.80	107.93	120.10
4	D	104	ARG	NE-CZ-NH1	5.79	123.20	120.30
2	B	435	ASP	CB-CG-OD1	-5.77	113.11	118.30
7	G	227	ARG	NE-CZ-NH1	5.75	123.18	120.30
1	A	83	GLN	CB-CG-CD	5.72	126.47	111.60
7	G	57	ARG	NE-CZ-NH1	-5.72	117.44	120.30
3	C	8	SER	N-CA-CB	-5.71	101.94	110.50
7	G	193	GLU	CB-CG-CD	5.70	129.57	114.20
6	F	104	ARG	CG-CD-NE	-5.69	99.86	111.80
7	G	74	ARG	NE-CZ-NH2	-5.69	117.46	120.30
2	B	285	ARG	NE-CZ-NH2	-5.67	117.46	120.30
4	H	10	THR	N-CA-CB	5.67	121.07	110.30
3	C	459	ARG	NE-CZ-NH1	5.65	123.13	120.30
2	B	9	ARG	NE-CZ-NH2	-5.65	117.47	120.30
2	B	412	PHE	CB-CA-C	5.65	121.70	110.40
5	E	454	ARG	NE-CZ-NH1	5.64	123.12	120.30
6	F	136	ARG	NE-CZ-NH2	-5.64	117.48	120.30
1	A	439	ARG	NE-CZ-NH1	5.64	123.12	120.30
3	C	282	ASP	CB-CG-OD1	5.63	123.37	118.30
5	E	286	ASP	CB-CG-OD2	-5.61	113.25	118.30
6	F	503	TYR	CB-CG-CD1	-5.59	117.65	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
5	E	395	GLN	CB-CG-CD	5.59	126.13	111.60
4	H	412	PHE	CB-CA-C	5.58	121.56	110.40
1	A	286	ASP	CB-CG-OD2	-5.58	113.28	118.30
1	A	459	ARG	NE-CZ-NH1	5.57	123.08	120.30
4	D	387	ARG	NE-CZ-NH2	-5.56	117.52	120.30
1	A	487	ARG	NE-CZ-NH1	-5.55	117.53	120.30
6	F	412	PHE	CB-CA-C	5.54	121.49	110.40
5	E	435	ASP	CB-CA-C	5.54	121.48	110.40
3	C	435	ASP	CB-CA-C	5.53	121.47	110.40
4	D	72	ARG	NE-CZ-NH2	5.53	123.06	120.30
2	B	429	LYS	CA-CB-CG	5.50	125.51	113.40
5	E	83	GLN	CB-CG-CD	5.50	125.91	111.60
3	C	365	ARG	NE-CZ-NH1	5.50	123.05	120.30
4	D	450	MET	CG-SD-CE	-5.50	91.41	100.20
7	G	435	ASP	CB-CA-C	5.49	121.39	110.40
7	G	348	ARG	NE-CZ-NH2	-5.49	117.56	120.30
4	H	47	LYS	CB-CG-CD	5.48	125.86	111.60
7	G	285	ARG	NE-CZ-NH1	5.48	123.04	120.30
6	F	439	ARG	NE-CZ-NH1	5.46	123.03	120.30
7	G	57	ARG	CG-CD-NE	5.46	123.28	111.80
6	F	348	ARG	NE-CZ-NH2	-5.44	117.58	120.30
4	H	435	ASP	CB-CA-C	5.44	121.27	110.40
2	B	459	ARG	NE-CZ-NH1	5.43	123.02	120.30
7	G	459	ARG	NE-CZ-NH2	-5.42	117.59	120.30
4	H	325	ASP	CB-CA-C	5.42	121.24	110.40
1	A	412	PHE	CB-CA-C	5.42	121.24	110.40
6	F	176	ASP	CB-CG-OD2	-5.41	113.43	118.30
5	E	487	ARG	NE-CZ-NH2	-5.41	117.59	120.30
7	G	487	ARG	NE-CZ-NH1	5.41	123.01	120.30
6	F	120	ARG	NE-CZ-NH1	5.38	122.99	120.30
4	H	365	ARG	NE-CZ-NH1	5.38	122.99	120.30
6	F	330	ARG	NE-CZ-NH1	-5.38	117.61	120.30
2	B	104	ARG	NE-CZ-NH1	5.36	122.98	120.30
7	G	325	ASP	CB-CA-C	5.33	121.05	110.40
4	D	282	ASP	CB-CG-OD1	5.31	123.08	118.30
6	F	236	THR	CA-CB-OG1	-5.30	97.86	109.00
2	B	398	GLU	CA-CB-CG	5.30	125.06	113.40
3	C	357	ARG	NE-CZ-NH2	-5.30	117.65	120.30
1	A	215	ARG	NE-CZ-NH2	-5.29	117.66	120.30
4	H	454	ARG	NE-CZ-NH2	-5.28	117.66	120.30
5	E	412	PHE	CB-CA-C	5.28	120.95	110.40
6	F	325	ASP	CB-CA-C	5.28	120.95	110.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	D	129	HIS	CB-CA-C	5.26	120.93	110.40
6	F	348	ARG	NE-CZ-NH1	5.26	122.93	120.30
2	B	175	ARG	NE-CZ-NH2	-5.26	117.67	120.30
2	B	348	ARG	NE-CZ-NH1	5.26	122.93	120.30
7	G	286	ASP	CB-CG-OD2	-5.26	113.57	118.30
4	H	333	THR	CA-CB-OG1	-5.26	97.96	109.00
1	A	348	ARG	NE-CZ-NH2	-5.25	117.67	120.30
4	D	430	ASN	CB-CA-C	-5.23	99.94	110.40
4	H	72	ARG	NE-CZ-NH1	5.23	122.91	120.30
3	C	285	ARG	NE-CZ-NH1	5.22	122.91	120.30
2	B	100	ASP	CB-CA-C	5.21	120.82	110.40
1	A	357	ARG	NE-CZ-NH1	5.21	122.90	120.30
3	C	208	VAL	CG1-CB-CG2	-5.20	102.58	110.90
1	A	285	ARG	NE-CZ-NH2	-5.19	117.71	120.30
3	C	166	ARG	NE-CZ-NH1	5.16	122.88	120.30
7	G	219	ARG	NE-CZ-NH2	-5.15	117.72	120.30
4	H	5	VAL	CA-CB-CG2	5.15	118.63	110.90
3	C	236	THR	CA-CB-OG1	-5.15	98.19	109.00
4	H	5	VAL	CB-CA-C	5.15	121.18	111.40
3	C	182	ARG	NE-CZ-NH1	5.14	122.87	120.30
1	A	156	GLU	OE1-CD-OE2	-5.14	117.13	123.30
2	B	297	GLU	OE1-CD-OE2	5.13	129.46	123.30
2	B	497	LYS	CA-CB-CG	5.12	124.67	113.40
5	E	429	LYS	CB-CG-CD	5.12	124.91	111.60
1	A	9	ARG	NE-CZ-NH1	5.10	122.85	120.30
1	A	246	ARG	NE-CZ-NH2	5.10	122.85	120.30
2	B	370	ARG	CB-CA-C	5.08	120.57	110.40
3	C	74	ARG	CG-CD-NE	5.08	122.48	111.80
6	F	435	ASP	CB-CA-C	5.08	120.55	110.40
3	C	330	ARG	CD-NE-CZ	5.07	130.70	123.60
6	F	407	LYS	CB-CG-CD	5.06	124.76	111.60
4	D	22	GLN	CB-CA-C	-5.06	100.28	110.40
3	C	175	ARG	NE-CZ-NH2	-5.05	117.78	120.30
4	H	443	ASP	CB-CG-OD2	-5.02	113.78	118.30
4	D	325	ASP	CB-CA-C	5.02	120.43	110.40
4	D	285	ARG	NE-CZ-NH1	5.01	122.81	120.30
1	A	325	ASP	CB-CA-C	5.01	120.42	110.40
2	B	236	THR	CA-CB-OG1	-5.01	98.48	109.00
3	C	325	ASP	CB-CA-C	5.00	120.41	110.40
1	A	414	ASN	CB-CA-C	5.00	120.40	110.40

There are no chirality outliers.

All (139) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	104	ARG	Sidechain
1	A	120	ARG	Sidechain
1	A	136	ARG	Sidechain
1	A	166	ARG	Sidechain
1	A	182	ARG	Sidechain
1	A	227	ARG	Sidechain
1	A	246	ARG	Sidechain
1	A	330	ARG	Sidechain
1	A	365	ARG	Sidechain
1	A	370	ARG	Sidechain
1	A	427	ARG	Sidechain
1	A	439	ARG	Sidechain
1	A	487	ARG	Sidechain
1	A	498	ARG	Sidechain
1	A	57	ARG	Sidechain
1	A	72	ARG	Sidechain
1	A	74	ARG	Sidechain
2	B	136	ARG	Sidechain
2	B	166	ARG	Sidechain
2	B	17	ARG	Sidechain
2	B	182	ARG	Sidechain
2	B	219	ARG	Sidechain
2	B	227	ARG	Sidechain
2	B	246	ARG	Sidechain
2	B	330	ARG	Sidechain
2	B	365	ARG	Sidechain
2	B	387	ARG	Sidechain
2	B	403	ALY	Mainchain
2	B	427	ARG	Sidechain
2	B	487	ARG	Sidechain
2	B	72	ARG	Sidechain
2	B	74	ARG	Sidechain
2	B	9	ARG	Sidechain
3	C	136	ARG	Sidechain
3	C	166	ARG	Sidechain
3	C	219	ARG	Sidechain
3	C	227	ARG	Sidechain
3	C	246	ARG	Sidechain
3	C	330	ARG	Sidechain
3	C	393	ARG	Sidechain
3	C	402	THR	Mainchain
3	C	427	ARG	Sidechain

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Mol	Chain	Res	Type	Group
3	C	439	ARG	Sidechain
3	C	459	ARG	Sidechain
3	C	487	ARG	Sidechain
3	C	498	ARG	Sidechain
3	C	72[A]	ARG	Sidechain
3	C	72[B]	ARG	Sidechain
3	C	74	ARG	Sidechain
3	C	8	SER	Peptide
3	C	9	ARG	Sidechain
4	D	136	ARG	Sidechain
4	D	166	ARG	Sidechain
4	D	17	ARG	Sidechain
4	D	175	ARG	Sidechain
4	D	182	ARG	Sidechain
4	D	198	ARG	Sidechain
4	D	227	ARG	Sidechain
4	D	246	ARG	Sidechain
4	D	330	ARG	Sidechain
4	D	365[A]	ARG	Sidechain
4	D	365[B]	ARG	Sidechain
4	D	402	THR	Mainchain
4	D	403	ALY	Mainchain
4	D	427	ARG	Sidechain
4	D	430	ASN	Mainchain
4	D	487	ARG	Sidechain
4	D	72	ARG	Sidechain
4	D	74	ARG	Sidechain
5	E	136	ARG	Sidechain
5	E	166	ARG	Sidechain
5	E	182	ARG	Sidechain
5	E	198	ARG	Sidechain
5	E	227	ARG	Sidechain
5	E	246	ARG	Sidechain
5	E	330	ARG	Sidechain
5	E	365	ARG	Sidechain
5	E	370	ARG	Sidechain
5	E	393	ARG	Sidechain
5	E	394	VAL	Peptide
5	E	402	THR	Mainchain
5	E	427	ARG	Sidechain
5	E	487	ARG	Sidechain
5	E	498	ARG	Sidechain

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Mol	Chain	Res	Type	Group
5	E	72	ARG	Sidechain
5	E	74	ARG	Sidechain
5	E	9	ARG	Sidechain
6	F	104	ARG	Sidechain
6	F	136	ARG	Sidechain
6	F	166	ARG	Sidechain
6	F	219	ARG	Sidechain
6	F	22	GLN	Peptide
6	F	227	ARG	Sidechain
6	F	246	ARG	Sidechain
6	F	330	ARG	Sidechain
6	F	365	ARG	Sidechain
6	F	370	ARG	Sidechain
6	F	402	THR	Mainchain
6	F	427	ARG	Sidechain
6	F	439	ARG	Sidechain
6	F	487	ARG	Sidechain
6	F	72	ARG	Sidechain
6	F	74	ARG	Sidechain
6	F	9	ARG	Sidechain
7	G	136	ARG	Sidechain
7	G	166	ARG	Sidechain
7	G	182	ARG	Sidechain
7	G	198	ARG	Sidechain
7	G	227	ARG	Sidechain
7	G	246	ARG	Sidechain
7	G	330	ARG	Sidechain
7	G	357	ARG	Sidechain
7	G	365	ARG	Sidechain
7	G	402	THR	Mainchain
7	G	403	ALY	Mainchain
7	G	427	ARG	Sidechain
7	G	428	TYR	Peptide
7	G	439	ARG	Sidechain
7	G	487	ARG	Sidechain
7	G	57	ARG	Sidechain
7	G	72	ARG	Sidechain
7	G	74	ARG	Sidechain
7	G	9	ARG	Sidechain
4	H	166	ARG	Sidechain
4	H	182	ARG	Sidechain
4	H	219	ARG	Sidechain

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Mol	Chain	Res	Type	Group
4	H	227	ARG	Sidechain
4	H	246	ARG	Sidechain
4	H	330	ARG	Sidechain
4	H	365	ARG	Sidechain
4	H	370	ARG	Sidechain
4	H	387	ARG	Sidechain
4	H	402	THR	Mainchain
4	H	403	ALY	Mainchain
4	H	427	ARG	Sidechain
4	H	439	ARG	Sidechain
4	H	487	ARG	Sidechain
4	H	72	ARG	Sidechain
4	H	74	ARG	Sidechain

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4053	0	3996	47	0
2	B	4036	0	3979	77	0
3	C	4039	0	3987	54	0
4	D	4051	0	4001	43	0
4	H	4043	0	3988	56	0
5	E	4052	0	3994	60	0
6	F	4028	0	3973	65	0
7	G	4023	0	3963	52	0
8	B	12	0	16	6	0
8	C	6	0	8	1	0
8	D	6	0	8	1	0
8	E	6	0	8	4	0
8	F	6	0	8	2	0
8	G	6	0	8	0	0
8	H	6	0	8	2	0
9	J	1	0	0	0	0
10	I	398	0	0	29	0
All	All	32772	0	31945	444	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including

hydrogen atoms). The all-atom clashscore for this structure is 7.

All (444) 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)
3:C:7:LEU:HD13	3:C:11:GLN:HE21	0.93	1.09
5:E:408:LYS:CE	5:E:409:PRO:O	2.01	1.08
3:C:421:ASP:OD1	3:C:423:THR:HG22	1.54	1.06
1:A:421:ASP:OD1	1:A:423:THR:HG22	1.57	1.04
3:C:7:LEU:HD13	3:C:11:GLN:NE2	1.74	1.02
4:D:72:ARG:HH21	4:D:72:ARG:HG2	1.22	1.01
3:C:7:LEU:CD1	3:C:11:GLN:HE21	1.78	0.96
7:G:193:GLU:CG	10:I:219:HOH:O	2.16	0.94
5:E:408:LYS:HE3	5:E:409:PRO:O	1.66	0.93
5:E:333:THR:OG1	5:E:476:LYS:HE3	1.69	0.92
2:B:408:LYS:HE2	2:B:409:PRO:O	1.68	0.91
5:E:206:GLU:HB2	8:E:601:GOL:H2	1.48	0.91
5:E:367:ALA:HB3	5:E:395:GLN:HB2	1.51	0.91
3:C:398:GLU:OE1	3:C:433:LEU:HD12	1.70	0.90
4:D:408:LYS:HD3	4:D:416:GLU:OE1	1.73	0.89
7:G:193:GLU:OE1	10:I:219:HOH:O	1.91	0.88
7:G:368:GLU:OE2	7:G:370:ARG:NH1	2.08	0.87
2:B:241:PHE:CE2	2:B:365:ARG:NH2	2.43	0.87
6:F:9:ARG:NH2	6:F:11:GLN:HE22	1.74	0.86
4:D:72:ARG:HG2	4:D:72:ARG:NH2	1.83	0.86
4:D:241:PHE:HE2	4:D:365[B]:ARG:HH12	1.23	0.86
2:B:408:LYS:CE	2:B:409:PRO:O	2.24	0.85
5:E:408:LYS:HE2	5:E:409:PRO:O	1.77	0.83
4:H:182:ARG:NH1	4:H:182:ARG:HB3	1.94	0.83
5:E:478:LYS:HE2	5:E:479:PRO:HD2	1.61	0.82
2:B:370:ARG:HH12	2:B:403:ALY:HZ	1.28	0.80
3:C:7:LEU:C	3:C:8:SER:OG	2.13	0.80
1:A:182:ARG:HE	4:H:119:GLN:NE2	1.80	0.79
2:B:192:ARG:HH22	8:B:602:GOL:C3	1.97	0.78
6:F:211:LEU:HD11	10:I:54:HOH:O	1.84	0.78
4:H:182:ARG:HH11	4:H:182:ARG:CB	1.96	0.78
2:B:8:SER:H	2:B:11:GLN:HE21	1.33	0.77
1:A:211:LEU:HD13	1:A:392:ILE:HG12	1.67	0.77
6:F:21:PHE:CZ	6:F:442:LEU:HD11	2.20	0.77
2:B:241:PHE:CZ	2:B:365:ARG:NH2	2.53	0.77
4:H:45:LYS:HE2	4:H:83:GLN:NE2	2.00	0.76
2:B:370:ARG:HH12	2:B:403:ALY:HH31	1.50	0.76
6:F:17:ARG:CG	6:F:17:ARG:HH21	1.98	0.76

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:95:LYS:HE3	4:D:95:LYS:HA	1.69	0.74
5:E:297:GLU:HG2	10:I:307:HOH:O	1.85	0.74
1:A:430:ASN:OD1	1:A:432:LYS:HE2	1.87	0.74
3:C:17:ARG:NH1	3:C:58:ASP:O	2.20	0.74
7:G:497:LYS:HE2	7:G:501:PHE:O	1.87	0.74
4:H:17:ARG:NH1	4:H:58:ASP:O	2.20	0.74
3:C:215:ARG:NH2	8:C:601:GOL:O2	2.20	0.74
5:E:17:ARG:NH1	5:E:58:ASP:O	2.20	0.74
5:E:367:ALA:CB	5:E:395:GLN:HB2	2.16	0.74
6:F:407:LYS:HD2	6:F:408:LYS:O	1.87	0.73
2:B:241:PHE:HE2	2:B:365:ARG:NH2	1.86	0.73
1:A:182:ARG:HE	4:H:119:GLN:CD	1.91	0.73
1:A:323:LEU:HB3	1:A:330:ARG:HH22	1.53	0.73
6:F:17:ARG:HH21	6:F:17:ARG:HG3	1.52	0.73
2:B:370:ARG:NH1	2:B:403:ALY:HH31	2.04	0.73
3:C:28:GLN:OE1	10:I:449:HOH:O	2.07	0.72
4:H:182:ARG:HB3	4:H:182:ARG:HH11	1.53	0.72
2:B:333:THR:HG22	2:B:478:LYS:HE2	1.72	0.71
2:B:192:ARG:HH22	8:B:602:GOL:H32	1.55	0.71
6:F:10:THR:HA	6:F:13:CYS:SG	2.31	0.71
4:D:178:GLN:HG2	4:D:182:ARG:HH11	1.56	0.71
2:B:211:LEU:HD13	2:B:392:ILE:HG12	1.73	0.70
7:G:193:GLU:CD	10:I:219:HOH:O	2.27	0.70
6:F:211:LEU:CD1	10:I:54:HOH:O	2.40	0.69
7:G:8:SER:CB	7:G:11:GLN:HE21	2.06	0.69
3:C:7:LEU:C	3:C:8:SER:HG	1.94	0.69
6:F:17:ARG:NH1	6:F:439:ARG:NH1	2.40	0.69
2:B:370:ARG:NH1	2:B:403:ALY:HZ	1.90	0.69
7:G:8:SER:HB3	7:G:11:GLN:HE21	1.58	0.69
3:C:119:GLN:NE2	6:F:182:ARG:CZ	2.56	0.69
2:B:144:PRO:HG3	2:B:172:PRO:HG2	1.75	0.68
5:E:95:LYS:HA	5:E:95:LYS:HE3	1.74	0.68
4:D:397:ASN:ND2	4:D:397:ASN:O	2.27	0.68
1:A:17:ARG:NH1	1:A:58:ASP:O	2.28	0.67
4:H:397:ASN:O	4:H:397:ASN:ND2	2.28	0.67
4:D:220:ILE:HD11	4:D:221:PHE:CE2	2.29	0.67
6:F:397:ASN:ND2	6:F:397:ASN:O	2.28	0.67
2:B:401:TYR:OH	2:B:403:ALY:HH32	1.94	0.67
6:F:13:CYS:SG	6:F:434:PRO:HD3	2.35	0.66
3:C:220:ILE:HD11	3:C:221:PHE:CE2	2.30	0.66
7:G:397:ASN:O	7:G:397:ASN:ND2	2.28	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
6:F:21:PHE:CZ	6:F:442:LEU:HD21	2.29	0.66
5:E:181:ASP:OD2	5:E:459:ARG:NH1	2.30	0.65
3:C:64:ASN:HB3	10:I:510:HOH:O	1.96	0.65
4:D:115:ALA:O	4:D:119:GLN:HG2	1.98	0.64
5:E:220:ILE:HD11	5:E:221:PHE:CE2	2.32	0.64
2:B:483:ILE:HD12	2:B:483:ILE:H	1.61	0.64
2:B:28:GLN:OE1	10:I:451:HOH:O	2.14	0.64
2:B:370:ARG:HH22	2:B:403:ALY:CH3	2.12	0.63
7:G:193:GLU:CB	10:I:219:HOH:O	2.41	0.63
7:G:220:ILE:HD11	7:G:221:PHE:CE2	2.34	0.63
6:F:220:ILE:HD11	6:F:221:PHE:CE2	2.34	0.63
7:G:181:ASP:OD2	7:G:459:ARG:NH1	2.32	0.62
4:D:181:ASP:OD1	4:D:459:ARG:HD2	1.99	0.62
6:F:395:GLN:NE2	10:I:491:HOH:O	2.32	0.62
2:B:23:GLY:O	10:I:451:HOH:O	2.16	0.61
3:C:7:LEU:HD13	3:C:11:GLN:HG2	1.82	0.60
7:G:497:LYS:CE	7:G:501:PHE:O	2.49	0.60
4:H:182:ARG:HH11	4:H:182:ARG:HB2	1.65	0.60
2:B:393:ARG:HD3	10:I:122:HOH:O	2.01	0.60
4:D:403:ALY:HH31	4:D:419:GLU:OE2	2.01	0.60
4:H:182:ARG:HB3	4:H:182:ARG:CZ	2.27	0.60
4:H:429:LYS:O	4:H:430:ASN:O	2.19	0.60
6:F:182:ARG:HH11	6:F:182:ARG:CG	2.14	0.60
2:B:192:ARG:HH22	8:B:602:GOL:H31	1.66	0.59
4:H:195:GLN:NE2	8:H:601:GOL:H31	2.18	0.59
2:B:6:ALA:HA	2:B:429:LYS:HD3	1.84	0.59
5:E:471:GLN:HE21	6:F:471:GLN:HE22	1.50	0.59
1:A:182:ARG:NE	4:H:119:GLN:NE2	2.49	0.59
6:F:21:PHE:HZ	6:F:442:LEU:CG	2.15	0.59
6:F:393:ARG:HD2	6:F:396:PRO:HD2	1.85	0.58
5:E:403:ALY:HH31	5:E:419:GLU:OE2	2.02	0.58
7:G:193:GLU:HB2	10:I:219:HOH:O	2.03	0.58
5:E:181:ASP:OD1	5:E:459:ARG:HD2	2.01	0.58
2:B:170:GLU:OE2	2:B:201:HIS:HE1	1.85	0.58
2:B:408:LYS:HE3	2:B:409:PRO:O	2.03	0.57
4:D:393:ARG:HD2	4:D:396:PRO:HD2	1.86	0.57
3:C:72[B]:ARG:NH1	3:C:112:TYR:H	2.02	0.57
4:D:348:ARG:HA	8:D:601:GOL:H31	1.85	0.57
5:E:206:GLU:H	8:E:601:GOL:H2	1.70	0.57
6:F:21:PHE:HZ	6:F:442:LEU:HD21	1.70	0.57
7:G:393:ARG:HD2	7:G:396:PRO:HD2	1.86	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:G:79:ASP:O	7:G:82:LYS:HG2	2.05	0.57
6:F:407:LYS:NZ	6:F:407:LYS:HB3	2.19	0.57
7:G:13:CYS:O	7:G:17:ARG:HG3	2.05	0.57
5:E:58:ASP:OD2	5:E:438:GLU:OE2	2.24	0.56
5:E:422:LEU:N	5:E:422:LEU:HD12	2.20	0.56
4:H:330:ARG:HA	4:H:330:ARG:HH21	1.70	0.56
4:H:474:LEU:HD22	4:H:474:LEU:O	2.05	0.56
2:B:246:ARG:HB2	2:B:246:ARG:CZ	2.36	0.56
2:B:422:LEU:N	2:B:422:LEU:CD1	2.69	0.56
7:G:181:ASP:OD1	7:G:459:ARG:HD2	2.06	0.56
2:B:26:PHE:O	10:I:451:HOH:O	2.18	0.55
4:D:13:CYS:O	4:D:17:ARG:HG3	2.06	0.55
2:B:370:ARG:NH2	2:B:403:ALY:HH31	2.22	0.55
2:B:370:ARG:HH12	2:B:403:ALY:CH3	2.17	0.55
5:E:47:LYS:HE2	5:E:201:HIS:HD2	1.72	0.55
6:F:170:GLU:OE2	6:F:201:HIS:HE1	1.89	0.55
7:G:483:ILE:HD12	7:G:483:ILE:H	1.70	0.55
4:H:192:ARG:HH22	8:H:601:GOL:H11	1.70	0.55
1:A:182:ARG:HH21	4:H:119:GLN:NE2	2.04	0.55
6:F:239:GLU:HG2	6:F:241:PHE:CE1	2.42	0.55
1:A:393:ARG:HD2	1:A:396:PRO:HD2	1.89	0.54
4:D:72:ARG:NH2	4:D:72:ARG:CG	2.65	0.54
5:E:421:ASP:OD2	5:E:423:THR:HB	2.08	0.54
5:E:170:GLU:OE2	5:E:201:HIS:HE1	1.91	0.54
7:G:323:LEU:HB3	7:G:330:ARG:HH22	1.71	0.54
2:B:422:LEU:N	2:B:422:LEU:HD12	2.23	0.54
6:F:203:LEU:HD22	6:F:451:HIS:HB3	1.90	0.54
5:E:422:LEU:N	5:E:422:LEU:CD1	2.70	0.54
6:F:9:ARG:HH22	6:F:11:GLN:HE22	1.50	0.54
2:B:241:PHE:HE2	2:B:365:ARG:CZ	2.20	0.54
2:B:241:PHE:HE2	2:B:365:ARG:HH22	1.47	0.54
4:H:393:ARG:HD2	4:H:396:PRO:HD2	1.90	0.54
3:C:206:GLU:HG2	3:C:433:LEU:HD11	1.91	0.53
7:G:497:LYS:HE2	7:G:497:LYS:HA	1.89	0.53
3:C:9:ARG:HB2	3:C:432:LYS:HB2	1.90	0.53
3:C:72[A]:ARG:CZ	10:I:530:HOH:O	2.56	0.53
2:B:241:PHE:CE2	2:B:365:ARG:CZ	2.91	0.53
6:F:26:PHE:O	6:F:28:GLN:NE2	2.41	0.53
6:F:424:TYR:HB3	6:F:428:TYR:HD2	1.73	0.53
2:B:192:ARG:NH2	8:B:602:GOL:H32	2.23	0.53
6:F:21:PHE:CE2	6:F:442:LEU:HD11	2.43	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:H:46:LYS:HD3	4:H:87:PHE:CE1	2.44	0.53
5:E:203:LEU:HD22	5:E:451:HIS:HB3	1.90	0.52
4:H:6:ALA:HB2	4:H:429:LYS:HG2	1.91	0.52
4:H:181:ASP:OD1	4:H:459:ARG:HD2	2.10	0.52
2:B:370:ARG:HH22	2:B:403:ALY:HH31	1.73	0.52
4:D:241:PHE:HE2	4:D:365[B]:ARG:NH1	2.02	0.52
7:G:408:LYS:HE3	7:G:416:GLU:OE1	2.09	0.52
2:B:239:GLU:HG2	2:B:241:PHE:CE1	2.44	0.52
5:E:333:THR:OG1	5:E:476:LYS:CE	2.52	0.52
7:G:239:GLU:HG2	7:G:241:PHE:CE1	2.45	0.52
3:C:239:GLU:HG2	3:C:241:PHE:CE1	2.45	0.52
4:H:330:ARG:HA	4:H:330:ARG:NH2	2.24	0.52
1:A:411:MET:CE	1:A:411:MET:HA	2.39	0.52
4:D:181:ASP:OD2	4:D:459:ARG:NH1	2.42	0.52
5:E:370:ARG:HH12	5:E:403:ALY:HE3	1.75	0.52
1:A:400:VAL:H	1:A:423:THR:HB	1.75	0.51
2:B:393:ARG:HD2	2:B:396:PRO:HD2	1.91	0.51
3:C:181:ASP:OD2	3:C:459:ARG:NH1	2.43	0.51
3:C:400:VAL:H	3:C:423:THR:HB	1.75	0.51
2:B:412:PHE:CD1	2:B:414:ASN:OD1	2.63	0.51
3:C:119:GLN:NE2	6:F:182:ARG:NH2	2.58	0.51
7:G:200:ASP:OD2	7:G:263:HIS:HD2	1.93	0.51
4:H:207:MET:SD	4:H:398:GLU:HB3	2.51	0.51
1:A:181:ASP:OD2	1:A:459:ARG:NH1	2.43	0.51
2:B:241:PHE:HZ	2:B:365:ARG:NH2	2.07	0.51
3:C:74:ARG:HD2	3:C:74:ARG:O	2.11	0.51
6:F:106:SER:OG	6:F:124:HIS:HE1	1.94	0.51
2:B:237:PHE:O	2:B:358:CYS:HA	2.11	0.50
2:B:370:ARG:CZ	2:B:403:ALY:HH31	2.41	0.50
3:C:408:LYS:HG3	3:C:416:GLU:OE1	2.12	0.50
6:F:176:ASP:HA	6:F:462:TRP:CE3	2.46	0.50
3:C:206:GLU:HG2	3:C:433:LEU:CD1	2.41	0.50
4:D:432:LYS:HE3	4:D:432:LYS:HA	1.94	0.50
6:F:18:GLU:O	6:F:21:PHE:HB2	2.11	0.50
1:A:207:MET:CE	1:A:398:GLU:HG3	2.41	0.50
1:A:239:GLU:HG2	1:A:241:PHE:CE1	2.47	0.50
4:D:160:SER:OG	10:I:436:HOH:O	2.20	0.50
4:D:239:GLU:HG2	4:D:241:PHE:CE1	2.47	0.50
4:D:237:PHE:O	4:D:358:CYS:HA	2.12	0.50
7:G:205:LYS:HE2	7:G:209:GLN:NE2	2.26	0.50
4:D:26:PHE:O	4:D:28:GLN:NE2	2.42	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:D:197:TYR:CD2	4:D:444:VAL:HG22	2.47	0.50
7:G:26:PHE:O	7:G:28:GLN:NE2	2.42	0.50
7:G:58:ASP:OD2	7:G:438:GLU:OE2	2.29	0.50
2:B:475:GLU:OE2	3:C:470:HIS:ND1	2.41	0.50
5:E:478:LYS:HE2	5:E:479:PRO:CD	2.35	0.50
6:F:237:PHE:O	6:F:358:CYS:HA	2.11	0.50
2:B:370:ARG:HH22	2:B:403:ALY:HH33	1.77	0.49
4:H:205:LYS:HE2	4:H:209:GLN:NE2	2.27	0.49
3:C:106:SER:OG	3:C:124:HIS:HE1	1.95	0.49
4:H:206:GLU:HG2	4:H:439:ARG:HH12	1.76	0.49
7:G:237:PHE:O	7:G:358:CYS:HA	2.13	0.49
1:A:58:ASP:OD2	1:A:438:GLU:OE2	2.31	0.49
1:A:237:PHE:O	1:A:358:CYS:HA	2.12	0.49
4:H:205:LYS:HE2	4:H:209:GLN:HE22	1.78	0.49
7:G:176:ASP:HA	7:G:462:TRP:CE3	2.47	0.49
7:G:388:ASN:ND2	7:G:404:MET:HA	2.27	0.49
4:H:176:ASP:HA	4:H:462:TRP:CE3	2.48	0.49
2:B:74:ARG:HB2	2:B:74:ARG:CZ	2.43	0.49
3:C:168:ILE:HD11	3:C:444:VAL:HG21	1.95	0.49
4:D:203:LEU:HD22	4:D:451:HIS:HB3	1.95	0.49
5:E:17:ARG:HD3	5:E:59:GLY:O	2.13	0.49
2:B:181:ASP:OD1	2:B:459:ARG:HD2	2.13	0.48
2:B:401:TYR:CE2	2:B:403:ALY:HH32	2.48	0.48
7:G:197:TYR:CE2	7:G:449:GLN:HG2	2.48	0.48
5:E:237:PHE:O	5:E:358:CYS:HA	2.13	0.48
5:E:239:GLU:HG2	5:E:241:PHE:CE1	2.48	0.48
7:G:330:ARG:HA	7:G:330:ARG:NH2	2.27	0.48
4:H:239:GLU:HG2	4:H:241:PHE:CE1	2.47	0.48
4:D:160:SER:CB	10:I:436:HOH:O	2.62	0.48
5:E:393:ARG:HD3	5:E:396:PRO:HG2	1.94	0.48
6:F:21:PHE:HZ	6:F:442:LEU:CD2	2.25	0.48
4:H:74:ARG:HH11	4:H:74:ARG:HB3	1.78	0.48
3:C:72[B]:ARG:CD	3:C:111:GLN:OE1	2.61	0.48
1:A:297:GLU:HG2	1:A:467:PRO:HG2	1.96	0.48
7:G:424:TYR:HB2	7:G:428:TYR:CB	2.44	0.48
1:A:330:ARG:NH2	1:A:330:ARG:HA	2.28	0.48
6:F:421:ASP:OD1	6:F:423:THR:OG1	2.30	0.48
4:H:181:ASP:OD2	4:H:459:ARG:NH1	2.44	0.48
3:C:356:LEU:HD12	3:C:356:LEU:N	2.29	0.48
5:E:232:CYS:HB3	5:E:353:PRO:HG2	1.96	0.48
4:H:333:THR:HG23	4:H:333:THR:O	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:C:72[A]:ARG:NH2	10:I:530:HOH:O	2.47	0.48
3:C:366:LYS:HD3	3:C:368:GLU:OE2	2.14	0.48
3:C:205:LYS:HE2	3:C:209:GLN:NE2	2.28	0.47
6:F:181:ASP:OD2	6:F:459:ARG:NH1	2.47	0.47
6:F:216:PHE:HE1	8:F:601:GOL:H12	1.79	0.47
3:C:237:PHE:O	3:C:358:CYS:HA	2.14	0.47
4:D:5:VAL:O	4:D:428:TYR:HA	2.14	0.47
4:H:237:PHE:O	4:H:358:CYS:HA	2.13	0.47
4:H:106:SER:OG	4:H:124:HIS:HE1	1.98	0.47
5:E:421:ASP:C	5:E:422:LEU:HD12	2.35	0.47
5:E:370:ARG:NH1	5:E:403:ALY:HE3	2.28	0.47
4:D:232:CYS:HB3	4:D:353:PRO:HG2	1.96	0.47
5:E:206:GLU:HG2	5:E:439:ARG:HH12	1.80	0.47
6:F:58:ASP:OD2	6:F:438:GLU:OE2	2.33	0.47
4:H:182:ARG:NH1	4:H:182:ARG:CB	2.62	0.47
7:G:106:SER:OG	7:G:124:HIS:HE1	1.98	0.47
7:G:330:ARG:HA	7:G:330:ARG:HH21	1.79	0.47
1:A:57:ARG:HD2	1:A:94:GLU:OE2	2.16	0.46
1:A:72:ARG:NH2	10:I:381:HOH:O	2.44	0.46
5:E:164:TRP:CE3	5:E:166:ARG:HD2	2.50	0.46
3:C:7:LEU:HD13	3:C:11:GLN:CG	2.46	0.46
4:D:46:LYS:HD3	4:D:87:PHE:CE1	2.51	0.46
6:F:356:LEU:N	6:F:356:LEU:HD12	2.30	0.46
4:H:356:LEU:HD12	4:H:356:LEU:N	2.31	0.46
5:E:176:ASP:HA	5:E:462:TRP:CE3	2.50	0.46
5:E:211:LEU:HD11	10:I:32:HOH:O	2.16	0.46
4:H:430:ASN:HD21	4:H:432:LYS:CD	2.29	0.46
7:G:21:PHE:CD1	7:G:28:GLN:HG2	2.50	0.46
3:C:9:ARG:NH2	3:C:10:THR:HG22	2.31	0.46
5:E:106:SER:OG	5:E:124:HIS:HE1	1.98	0.46
5:E:133:GLN:HA	5:E:162:ILE:HB	1.98	0.46
5:E:176:ASP:OD2	5:E:470:HIS:NE2	2.41	0.46
6:F:47:LYS:NZ	10:I:392:HOH:O	2.49	0.46
2:B:181:ASP:OD2	2:B:459:ARG:NH1	2.49	0.46
5:E:57:ARG:HD2	5:E:94:GLU:OE2	2.16	0.46
6:F:21:PHE:CZ	6:F:442:LEU:CD1	2.97	0.46
7:G:473:GLU:O	7:G:476:LYS:CD	2.64	0.46
2:B:106:SER:OG	2:B:124:HIS:HE1	1.99	0.46
3:C:57:ARG:HD2	3:C:94:GLU:OE2	2.16	0.46
4:D:356:LEU:N	4:D:356:LEU:HD12	2.30	0.46
5:E:72:ARG:NH1	5:E:112:TYR:OH	2.48	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:412:PHE:CE1	2:B:414:ASN:OD1	2.69	0.45
1:A:176:ASP:HA	1:A:462:TRP:CE3	2.51	0.45
6:F:9:ARG:NH2	6:F:11:GLN:NE2	2.54	0.45
4:H:17:ARG:HD3	4:H:59:GLY:O	2.16	0.45
5:E:260:MET:HG3	5:E:356:LEU:HD23	1.99	0.45
6:F:239:GLU:HG2	6:F:241:PHE:CZ	2.51	0.45
7:G:323:LEU:HB3	7:G:330:ARG:NH2	2.31	0.45
4:H:355:ILE:HD13	4:H:496:MET:HG2	1.97	0.45
1:A:203:LEU:CD1	1:A:203:LEU:C	2.85	0.45
2:B:401:TYR:OH	2:B:403:ALY:CH3	2.62	0.45
5:E:148:GLU:OE2	5:E:182:ARG:NH1	2.49	0.45
7:G:82:LYS:HG3	7:G:83:GLN:N	2.32	0.45
1:A:106:SER:OG	1:A:124:HIS:HE1	2.00	0.45
2:B:211:LEU:HD12	2:B:211:LEU:HA	1.72	0.45
4:D:239:GLU:HG2	4:D:241:PHE:CZ	2.52	0.45
5:E:206:GLU:H	8:E:601:GOL:C2	2.29	0.45
1:A:208:VAL:HG11	1:A:451:HIS:CE1	2.52	0.45
2:B:45:LYS:HD2	2:B:83:GLN:HB2	1.98	0.45
3:C:232:CYS:HB3	3:C:353:PRO:HG2	1.99	0.45
4:D:210:ASN:ND2	10:I:422:HOH:O	2.49	0.45
1:A:45:LYS:HD2	1:A:83:GLN:HB2	1.99	0.44
2:B:239:GLU:HG2	2:B:241:PHE:CZ	2.53	0.44
3:C:205:LYS:HE2	3:C:209:GLN:HE22	1.82	0.44
5:E:420:LEU:O	5:E:422:LEU:CD1	2.65	0.44
1:A:17:ARG:HD3	1:A:59:GLY:O	2.16	0.44
1:A:432:LYS:HE3	1:A:432:LYS:N	2.33	0.44
3:C:17:ARG:HD3	3:C:59:GLY:O	2.17	0.44
4:H:430:ASN:HD21	4:H:432:LYS:HE3	1.82	0.44
6:F:323:LEU:O	10:I:476:HOH:O	2.21	0.44
4:D:164:TRP:CE3	4:D:166:ARG:HD2	2.52	0.44
6:F:8:SER:HB3	6:F:431:VAL:HG13	2.00	0.44
6:F:182:ARG:CG	6:F:182:ARG:NH1	2.77	0.44
1:A:239:GLU:HG2	1:A:241:PHE:CZ	2.52	0.44
1:A:356:LEU:N	1:A:356:LEU:HD12	2.33	0.44
2:B:401:TYR:CZ	2:B:403:ALY:HH32	2.53	0.44
1:A:260:MET:HG3	1:A:356:LEU:HD23	2.00	0.44
4:H:55:LEU:HG	4:H:438:GLU:HG3	1.99	0.44
5:E:389:GLU:O	5:E:403:ALY:N	2.51	0.44
6:F:206:GLU:CD	6:F:206:GLU:H	2.22	0.44
5:E:470:HIS:ND1	6:F:475:GLU:OE2	2.51	0.43
7:G:203:LEU:HD22	7:G:451:HIS:HB3	1.98	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:173:PHE:HB3	8:B:601:GOL:H2	1.99	0.43
1:A:197:TYR:CZ	1:A:449:GLN:HG2	2.53	0.43
2:B:193:GLU:OE1	2:B:455:SER:OG	2.19	0.43
3:C:214:LEU:HD23	3:C:214:LEU:HA	1.90	0.43
3:C:421:ASP:OD1	3:C:423:THR:CG2	2.45	0.43
6:F:17:ARG:CG	6:F:17:ARG:NH2	2.66	0.43
1:A:232:CYS:HB3	1:A:353:PRO:HG2	2.00	0.43
2:B:9:ARG:HA	2:B:432:LYS:O	2.18	0.43
6:F:232:CYS:HB3	6:F:353:PRO:HG2	2.00	0.43
7:G:92:PRO:HA	10:I:288:HOH:O	2.18	0.43
3:C:393:ARG:HD3	10:I:171:HOH:O	2.18	0.43
1:A:206:GLU:HG2	1:A:433:LEU:CD1	2.48	0.43
1:A:389:GLU:O	1:A:402:THR:HA	2.19	0.43
5:E:239:GLU:HG2	5:E:241:PHE:CZ	2.54	0.43
7:G:356:LEU:N	7:G:356:LEU:HD12	2.34	0.43
7:G:473:GLU:O	7:G:476:LYS:HD2	2.19	0.43
2:B:356:LEU:N	2:B:356:LEU:HD12	2.34	0.43
3:C:9:ARG:HH22	3:C:10:THR:HG22	1.84	0.43
5:E:356:LEU:HD12	5:E:356:LEU:N	2.34	0.43
2:B:133:GLN:HA	2:B:162:ILE:HB	2.00	0.43
2:B:420:LEU:O	2:B:422:LEU:CD1	2.67	0.43
5:E:55:LEU:HG	5:E:438:GLU:HG3	2.01	0.43
4:H:246:ARG:CZ	4:H:246:ARG:HB2	2.49	0.43
3:C:239:GLU:HG2	3:C:241:PHE:CZ	2.54	0.42
4:H:197:TYR:CZ	4:H:449:GLN:HG2	2.53	0.42
7:G:133:GLN:HA	7:G:162:ILE:HB	2.01	0.42
2:B:8:SER:OG	2:B:11:GLN:HG3	2.19	0.42
2:B:57:ARG:HD2	2:B:94:GLU:OE2	2.19	0.42
3:C:244:GLU:O	3:C:246:ARG:HD3	2.19	0.42
4:D:106:SER:OG	4:D:124:HIS:HE1	2.01	0.42
5:E:47:LYS:HE2	5:E:201:HIS:CD2	2.51	0.42
6:F:182:ARG:HH11	6:F:182:ARG:HG2	1.83	0.42
4:H:57:ARG:HD2	4:H:94:GLU:OE2	2.20	0.42
3:C:297:GLU:H	3:C:297:GLU:HG2	1.62	0.42
6:F:9:ARG:HB2	6:F:12:VAL:HG23	2.02	0.42
6:F:215:ARG:HH21	8:F:601:GOL:H11	1.83	0.42
7:G:164:TRP:CE3	7:G:166:ARG:HD2	2.55	0.42
7:G:365:ARG:HH21	7:G:395:GLN:HB2	1.83	0.42
4:D:411:MET:HE3	4:D:411:MET:HB2	1.92	0.42
5:E:205:LYS:N	8:E:601:GOL:O2	2.53	0.42
6:F:478:LYS:HD2	6:F:478:LYS:HA	1.91	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
7:G:205:LYS:HE2	7:G:209:GLN:HE22	1.83	0.42
1:A:182:ARG:NE	4:H:119:GLN:CD	2.68	0.42
2:B:370:ARG:HH12	2:B:403:ALY:CH	2.32	0.42
3:C:203:LEU:HD21	3:C:208:VAL:HG11	2.01	0.42
4:D:57:ARG:HD2	4:D:94:GLU:OE2	2.20	0.42
5:E:480:ILE:HA	5:E:481:PRO:HD3	1.91	0.42
4:H:239:GLU:HG2	4:H:241:PHE:CZ	2.55	0.42
1:A:478:LYS:HD3	1:A:478:LYS:C	2.40	0.42
4:D:125:MET:O	4:D:131:GLY:HA3	2.20	0.42
2:B:203:LEU:HD22	2:B:451:HIS:HB3	2.02	0.42
4:D:297:GLU:H	4:D:297:GLU:HG2	1.61	0.42
1:A:197:TYR:CE2	1:A:449:GLN:HG2	2.54	0.42
2:B:89:LYS:HB2	2:B:89:LYS:HE3	1.80	0.42
2:B:164:TRP:CE3	2:B:166:ARG:HD2	2.55	0.42
2:B:168:ILE:HD11	2:B:444:VAL:HG21	2.02	0.42
2:B:246:ARG:CZ	2:B:246:ARG:CB	2.97	0.42
2:B:421:ASP:C	2:B:422:LEU:HD12	2.40	0.42
6:F:182:ARG:HH11	6:F:182:ARG:HG3	1.85	0.42
6:F:379:ASP:O	10:I:183:HOH:O	2.22	0.42
7:G:260:MET:HG3	7:G:356:LEU:HD23	2.00	0.42
2:B:146:VAL:O	2:B:150:VAL:HG23	2.20	0.42
3:C:64:ASN:CB	10:I:510:HOH:O	2.62	0.42
5:E:214:LEU:HD23	5:E:214:LEU:HA	1.94	0.42
6:F:480:ILE:HA	6:F:481:PRO:HD3	1.93	0.42
4:D:292:LEU:HB3	4:D:460:GLU:HB3	2.02	0.41
5:E:297:GLU:HG2	5:E:297:GLU:H	1.65	0.41
1:A:181:ASP:OD1	1:A:459:ARG:HD2	2.20	0.41
1:A:480:ILE:HA	1:A:481:PRO:HD3	1.92	0.41
3:C:204:GLY:O	3:C:208:VAL:HG12	2.20	0.41
2:B:198:ARG:NE	8:B:601:GOL:O2	2.47	0.41
4:D:330:ARG:HH21	4:D:330:ARG:HA	1.85	0.41
7:G:292:LEU:HB3	7:G:460:GLU:HB3	2.03	0.41
4:H:370:ARG:HH12	4:H:403:ALY:HE3	1.85	0.41
4:H:389:GLU:O	4:H:403:ALY:N	2.54	0.41
4:H:232:CYS:HB3	4:H:353:PRO:HG2	2.01	0.41
2:B:232:CYS:HB3	2:B:353:PRO:HG2	2.02	0.41
3:C:125:MET:O	3:C:131:GLY:HA3	2.21	0.41
1:A:133:GLN:HA	1:A:162:ILE:HB	2.02	0.41
2:B:241:PHE:HE2	2:B:365:ARG:NH1	2.19	0.41
3:C:7:LEU:CD1	3:C:11:GLN:HG2	2.49	0.41
3:C:389:GLU:O	3:C:403:ALY:N	2.54	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
5:E:420:LEU:O	5:E:422:LEU:HD13	2.20	0.41
1:A:164:TRP:CE3	1:A:166:ARG:HD2	2.56	0.41
1:A:355:ILE:HD13	1:A:496:MET:HG2	2.03	0.41
2:B:480:ILE:HA	2:B:481:PRO:HD3	1.95	0.41
4:D:133:GLN:HA	4:D:162:ILE:HB	2.03	0.41
4:D:260:MET:HG3	4:D:356:LEU:HD23	2.02	0.41
6:F:214:LEU:HD23	6:F:214:LEU:HA	1.96	0.41
7:G:239:GLU:HG2	7:G:241:PHE:CZ	2.55	0.41
1:A:330:ARG:HA	1:A:330:ARG:HH21	1.85	0.41
4:D:264:LEU:HD23	4:D:264:LEU:HA	1.89	0.41
4:D:337:PHE:CD1	4:D:337:PHE:C	2.95	0.41
6:F:21:PHE:HD1	6:F:21:PHE:HA	1.37	0.41
6:F:193:GLU:OE1	6:F:455:SER:OG	2.30	0.41
4:H:207:MET:HE1	4:H:400:VAL:HG23	2.01	0.41
2:B:125:MET:O	2:B:131:GLY:HA3	2.21	0.41
2:B:205:LYS:HE3	2:B:439:ARG:HH21	1.86	0.41
5:E:365:ARG:CZ	5:E:365:ARG:HB3	2.51	0.41
4:H:164:TRP:CE3	4:H:166:ARG:HD2	2.56	0.41
4:H:260:MET:HG3	4:H:356:LEU:HD23	2.03	0.41
1:A:292:LEU:HB3	1:A:460:GLU:HB3	2.04	0.40
1:A:317:GLU:HA	1:A:317:GLU:OE1	2.21	0.40
3:C:9:ARG:HH22	3:C:10:THR:CG2	2.34	0.40
4:H:8:SER:H	4:H:11:GLN:NE2	2.19	0.40
4:H:398:GLU:OE1	4:H:433:LEU:HD23	2.22	0.40
4:H:429:LYS:O	4:H:430:ASN:C	2.58	0.40
6:F:168:ILE:HD11	6:F:444:VAL:HG21	2.04	0.40
7:G:428:TYR:N	7:G:428:TYR:CD1	2.89	0.40
6:F:27:HIS:HD2	10:I:448:HOH:O	2.05	0.40
4:H:246:ARG:CZ	4:H:246:ARG:CB	2.99	0.40
1:A:125:MET:O	1:A:131:GLY:HA3	2.21	0.40
5:E:304:VAL:HG23	5:E:495:LEU:HD22	2.04	0.40
6:F:9:ARG:HB2	6:F:12:VAL:H	1.85	0.40
6:F:22:GLN:NE2	6:F:22:GLN:N	2.68	0.40
6:F:146:VAL:O	6:F:150:VAL:HG23	2.22	0.40
7:G:72:ARG:NH1	7:G:112:TYR:OH	2.55	0.40
7:G:232:CYS:HB3	7:G:353:PRO:HG2	2.02	0.40
4:H:197:TYR:CE2	4:H:449:GLN:HG2	2.56	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	499/501 (100%)	484 (97%)	14 (3%)	1 (0%)	47	57
2	B	495/498 (99%)	483 (98%)	10 (2%)	2 (0%)	34	40
3	C	495/497 (100%)	483 (98%)	10 (2%)	2 (0%)	34	40
4	D	497/499 (100%)	486 (98%)	9 (2%)	2 (0%)	34	40
4	H	496/499 (99%)	482 (97%)	11 (2%)	3 (1%)	25	29
5	E	497/500 (99%)	485 (98%)	10 (2%)	2 (0%)	34	40
6	F	495/497 (100%)	477 (96%)	16 (3%)	2 (0%)	34	40
7	G	493/496 (99%)	481 (98%)	10 (2%)	2 (0%)	34	40
All	All	3967/3987 (100%)	3861 (97%)	90 (2%)	16 (0%)	34	40

All (16) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	C	9	ARG
4	D	430	ASN
7	G	429	LYS
4	H	430	ASN
5	E	396	PRO
2	B	435	ASP
3	C	435	ASP
4	D	435	ASP
6	F	21	PHE
6	F	435	ASP
7	G	435	ASP
4	H	6	ALA
4	H	435	ASP
1	A	435	ASP
5	E	435	ASP
2	B	129	HIS

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	437/437 (100%)	415 (95%)	22 (5%)	24	32
2	B	434/434 (100%)	402 (93%)	32 (7%)	13	16
3	C	435/434 (100%)	408 (94%)	27 (6%)	18	23
4	D	436/435 (100%)	411 (94%)	25 (6%)	20	26
4	H	435/435 (100%)	410 (94%)	25 (6%)	20	26
5	E	436/436 (100%)	407 (93%)	29 (7%)	16	19
6	F	435/435 (100%)	405 (93%)	30 (7%)	15	18
7	G	433/433 (100%)	403 (93%)	30 (7%)	15	18
All	All	3481/3479 (100%)	3261 (94%)	220 (6%)	18	22

All (220) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	9	ARG
1	A	10	THR
1	A	18	GLU
1	A	47	LYS
1	A	73	SER
1	A	82	LYS
1	A	119	GLN
1	A	139	TYR
1	A	203	LEU
1	A	210	ASN
1	A	266	GLN
1	A	270	LEU
1	A	297	GLU
1	A	330	ARG
1	A	386	LYS
1	A	397	ASN
1	A	398	GLU
1	A	406	THR
1	A	412	PHE

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Mol	Chain	Res	Type
1	A	432	LYS
1	A	478	LYS
1	A	497	LYS
2	B	10	THR
2	B	47	LYS
2	B	63	GLU
2	B	73	SER
2	B	74	ARG
2	B	82	LYS
2	B	95	LYS
2	B	96	LEU
2	B	111	GLN
2	B	140	LEU
2	B	152	LYS
2	B	156	GLU
2	B	184	SER
2	B	203	LEU
2	B	210	ASN
2	B	214	LEU
2	B	219	ARG
2	B	220	ILE
2	B	252	GLU
2	B	297	GLU
2	B	330	ARG
2	B	398	GLU
2	B	402	THR
2	B	406	THR
2	B	408	LYS
2	B	412	PHE
2	B	416	GLU
2	B	420	LEU
2	B	427	ARG
2	B	429	LYS
2	B	432	LYS
2	B	478	LYS
3	C	7	LEU
3	C	8	SER
3	C	22	GLN
3	C	47	LYS
3	C	73	SER
3	C	74	ARG
3	C	95	LYS

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Mol	Chain	Res	Type
3	C	119	GLN
3	C	161	GLN
3	C	203	LEU
3	C	210	ASN
3	C	214	LEU
3	C	219	ARG
3	C	220	ILE
3	C	246	ARG
3	C	266	GLN
3	C	275	LYS
3	C	297	GLU
3	C	315	GLU
3	C	330	ARG
3	C	408	LYS
3	C	418	SER
3	C	419	GLU
3	C	423	THR
3	C	426	ASN
3	C	429	LYS
3	C	432	LYS
4	D	7	LEU
4	D	10	THR
4	D	20	LEU
4	D	72	ARG
4	D	73	SER
4	D	74	ARG
4	D	82	LYS
4	D	95	LYS
4	D	119	GLN
4	D	129	HIS
4	D	132	SER
4	D	203	LEU
4	D	210	ASN
4	D	214	LEU
4	D	220	ILE
4	D	266	GLN
4	D	297	GLU
4	D	397	ASN
4	D	406	THR
4	D	411	MET
4	D	418	SER
4	D	420	LEU

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Mol	Chain	Res	Type
4	D	429	LYS
4	D	432	LYS
4	D	435	ASP
5	E	10	THR
5	E	28	GLN
5	E	47	LYS
5	E	63	GLU
5	E	72	ARG
5	E	73	SER
5	E	95	LYS
5	E	96	LEU
5	E	119	GLN
5	E	203	LEU
5	E	210	ASN
5	E	214	LEU
5	E	220	ILE
5	E	249	TYR
5	E	266	GLN
5	E	290	LYS
5	E	297	GLU
5	E	299	GLN
5	E	365	ARG
5	E	397	ASN
5	E	406	THR
5	E	408	LYS
5	E	412	PHE
5	E	418	SER
5	E	429	LYS
5	E	474	LEU
5	E	478	LYS
5	E	503	TYR
5	E	504	GLU
6	F	7	LEU
6	F	9	ARG
6	F	10	THR
6	F	17	ARG
6	F	21	PHE
6	F	47	LYS
6	F	72	ARG
6	F	73	SER
6	F	74	ARG
6	F	95	LYS

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Mol	Chain	Res	Type
6	F	119	GLN
6	F	182	ARG
6	F	203	LEU
6	F	210	ASN
6	F	214	LEU
6	F	219	ARG
6	F	220	ILE
6	F	266	GLN
6	F	297	GLU
6	F	330	ARG
6	F	395	GLN
6	F	397	ASN
6	F	404	MET
6	F	406	THR
6	F	407	LYS
6	F	408	LYS
6	F	416	GLU
6	F	427	ARG
6	F	429	LYS
6	F	440	LEU
7	G	18	GLU
7	G	20	LEU
7	G	22	GLN
7	G	47	LYS
7	G	57	ARG
7	G	72	ARG
7	G	74	ARG
7	G	95	LYS
7	G	96	LEU
7	G	119	GLN
7	G	182	ARG
7	G	203	LEU
7	G	210	ASN
7	G	214	LEU
7	G	220	ILE
7	G	266	GLN
7	G	297	GLU
7	G	315	GLU
7	G	397	ASN
7	G	411	MET
7	G	418	SER
7	G	423	THR

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Mol	Chain	Res	Type
7	G	427	ARG
7	G	428	TYR
7	G	429	LYS
7	G	432	LYS
7	G	476	LYS
7	G	478	LYS
7	G	483	ILE
7	G	497	LYS
4	H	5	VAL
4	H	22	GLN
4	H	47	LYS
4	H	63	GLU
4	H	72	ARG
4	H	73	SER
4	H	95	LYS
4	H	96	LEU
4	H	119	GLN
4	H	133	GLN
4	H	178	GLN
4	H	206	GLU
4	H	210	ASN
4	H	214	LEU
4	H	219	ARG
4	H	220	ILE
4	H	297	GLU
4	H	315	GLU
4	H	330	ARG
4	H	333	THR
4	H	397	ASN
4	H	411	MET
4	H	432	LYS
4	H	433	LEU
4	H	474	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (70) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	27	HIS
1	A	124	HIS
1	A	178	GLN
1	A	261	GLN
1	A	384	GLN

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Mol	Chain	Res	Type
1	A	388	ASN
1	A	414	ASN
1	A	502	GLN
2	B	11	GLN
2	B	27	HIS
2	B	124	HIS
2	B	178	GLN
2	B	201	HIS
2	B	266	GLN
2	B	299	GLN
2	B	301	ASN
2	B	384	GLN
2	B	388	ASN
2	B	414	ASN
2	B	430	ASN
3	C	11	GLN
3	C	27	HIS
3	C	119	GLN
3	C	124	HIS
3	C	161	GLN
3	C	209	GLN
3	C	301	ASN
3	C	384	GLN
3	C	388	ASN
3	C	395	GLN
3	C	426	ASN
4	D	27	HIS
4	D	124	HIS
4	D	301	ASN
4	D	384	GLN
4	D	388	ASN
5	E	124	HIS
5	E	161	GLN
5	E	178	GLN
5	E	201	HIS
5	E	301	ASN
5	E	384	GLN
5	E	502	GLN
6	F	11	GLN
6	F	124	HIS
6	F	201	HIS
6	F	266	GLN

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Mol	Chain	Res	Type
6	F	299	GLN
6	F	301	ASN
6	F	388	ASN
6	F	471	GLN
6	F	502	GLN
7	G	11	GLN
7	G	124	HIS
7	G	161	GLN
7	G	209	GLN
7	G	263	HIS
7	G	388	ASN
7	G	471	GLN
4	H	11	GLN
4	H	27	HIS
4	H	83	GLN
4	H	119	GLN
4	H	124	HIS
4	H	209	GLN
4	H	266	GLN
4	H	388	ASN
4	H	430	ASN
4	H	471	GLN
4	H	502	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](#)

6 non-standard protein/DNA/RNA residues 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	$\# Z > 2$
3	ALY	C	403	3	10,11,12	0.89	0	7,12,14	1.06	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
7	ALY	G	403	7	10,11,12	1.15	1 (10%)	7,12,14	1.40	0
5	ALY	E	403	5	10,11,12	0.73	0	7,12,14	1.14	1 (14%)
4	ALY	D	403	4	10,11,12	0.45	0	7,12,14	0.89	0
2	ALY	B	403	2	10,11,12	0.87	1 (10%)	7,12,14	1.73	2 (28%)
4	ALY	H	403	4	10,11,12	0.98	1 (10%)	7,12,14	1.20	1 (14%)

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	ALY	C	403	3	-	3/9/10/12	-
7	ALY	G	403	7	-	5/9/10/12	-
5	ALY	E	403	5	-	3/9/10/12	-
4	ALY	D	403	4	-	3/9/10/12	-
2	ALY	B	403	2	-	4/9/10/12	-
4	ALY	H	403	4	-	2/9/10/12	-

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
7	G	403	ALY	O-C	2.04	1.28	1.19
4	H	403	ALY	O-C	2.04	1.28	1.19
2	B	403	ALY	O-C	2.03	1.28	1.19

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	403	ALY	CE-NZ-CH	2.76	126.81	122.56
5	E	403	ALY	CE-NZ-CH	2.69	126.69	122.56
2	B	403	ALY	OH-CH-CH3	-2.52	117.38	122.06
4	H	403	ALY	CE-NZ-CH	2.48	126.37	122.56

There are no chirality outliers.

All (20) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	C	403	ALY	C-CA-CB-CG

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Mol	Chain	Res	Type	Atoms
4	D	403	ALY	O-C-CA-CB
7	G	403	ALY	C-CA-CB-CG
2	B	403	ALY	CD-CE-NZ-CH
7	G	403	ALY	CH3-CH-NZ-CE
2	B	403	ALY	CA-CB-CG-CD
4	H	403	ALY	CG-CD-CE-NZ
2	B	403	ALY	CE-CD-CG-CB
4	D	403	ALY	CA-CB-CG-CD
2	B	403	ALY	CH3-CH-NZ-CE
3	C	403	ALY	CH3-CH-NZ-CE
7	G	403	ALY	CE-CD-CG-CB
4	D	403	ALY	CE-CD-CG-CB
3	C	403	ALY	CA-CB-CG-CD
5	E	403	ALY	CE-CD-CG-CB
7	G	403	ALY	CG-CD-CE-NZ
5	E	403	ALY	CG-CD-CE-NZ
5	E	403	ALY	C-CA-CB-CG
4	H	403	ALY	C-CA-CB-CG
7	G	403	ALY	OH-CH-NZ-CE

There are no ring outliers.

5 monomers are involved in 23 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	C	403	ALY	1	0
5	E	403	ALY	4	0
4	D	403	ALY	1	0
2	B	403	ALY	15	0
4	H	403	ALY	2	0

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 9 ligands modelled in this entry, 1 is monoatomic - leaving 8 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The

Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
8	GOL	B	602	-	5,5,5	0.21	0	5,5,5	0.42	0
8	GOL	D	601	-	5,5,5	0.62	0	5,5,5	1.21	0
8	GOL	B	601	-	5,5,5	0.42	0	5,5,5	1.04	0
8	GOL	H	601	-	5,5,5	0.29	0	5,5,5	0.68	0
8	GOL	C	601	-	5,5,5	0.94	0	5,5,5	1.28	1 (20%)
8	GOL	E	601	-	5,5,5	0.30	0	5,5,5	0.74	0
8	GOL	F	601	-	5,5,5	0.39	0	5,5,5	1.60	1 (20%)
8	GOL	G	601	-	5,5,5	0.66	0	5,5,5	1.36	0

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
8	GOL	B	602	-	-	2/4/4/4	-
8	GOL	D	601	-	-	4/4/4/4	-
8	GOL	B	601	-	-	2/4/4/4	-
8	GOL	H	601	-	-	2/4/4/4	-
8	GOL	C	601	-	-	2/4/4/4	-
8	GOL	E	601	-	-	1/4/4/4	-
8	GOL	F	601	-	-	4/4/4/4	-
8	GOL	G	601	-	-	4/4/4/4	-

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	F	601	GOL	O2-C2-C3	-2.35	98.78	109.12
8	C	601	GOL	O1-C1-C2	2.02	119.89	110.20

There are no chirality outliers.

All (21) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
8	B	602	GOL	O1-C1-C2-C3
8	D	601	GOL	O1-C1-C2-C3
8	D	601	GOL	C1-C2-C3-O3
8	F	601	GOL	O1-C1-C2-C3
8	G	601	GOL	C1-C2-C3-O3
8	F	601	GOL	O1-C1-C2-O2
8	B	601	GOL	O1-C1-C2-C3
8	F	601	GOL	C1-C2-C3-O3
8	G	601	GOL	O1-C1-C2-C3
8	H	601	GOL	O1-C1-C2-C3
8	B	601	GOL	O1-C1-C2-O2
8	B	602	GOL	O1-C1-C2-O2
8	D	601	GOL	O1-C1-C2-O2
8	D	601	GOL	O2-C2-C3-O3
8	G	601	GOL	O2-C2-C3-O3
8	C	601	GOL	O2-C2-C3-O3
8	E	601	GOL	O1-C1-C2-O2
8	F	601	GOL	O2-C2-C3-O3
8	G	601	GOL	O1-C1-C2-O2
8	H	601	GOL	O1-C1-C2-O2
8	C	601	GOL	C1-C2-C3-O3

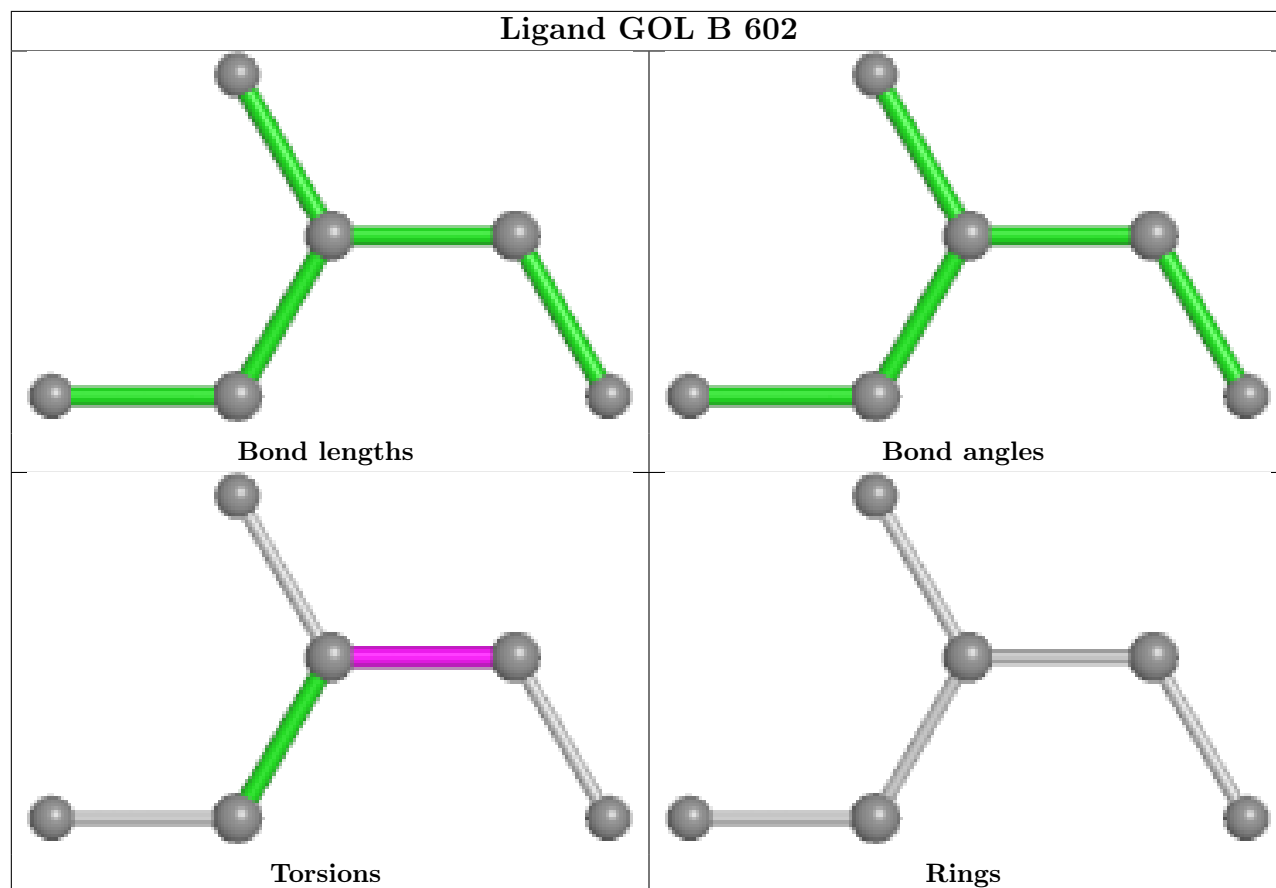
There are no ring outliers.

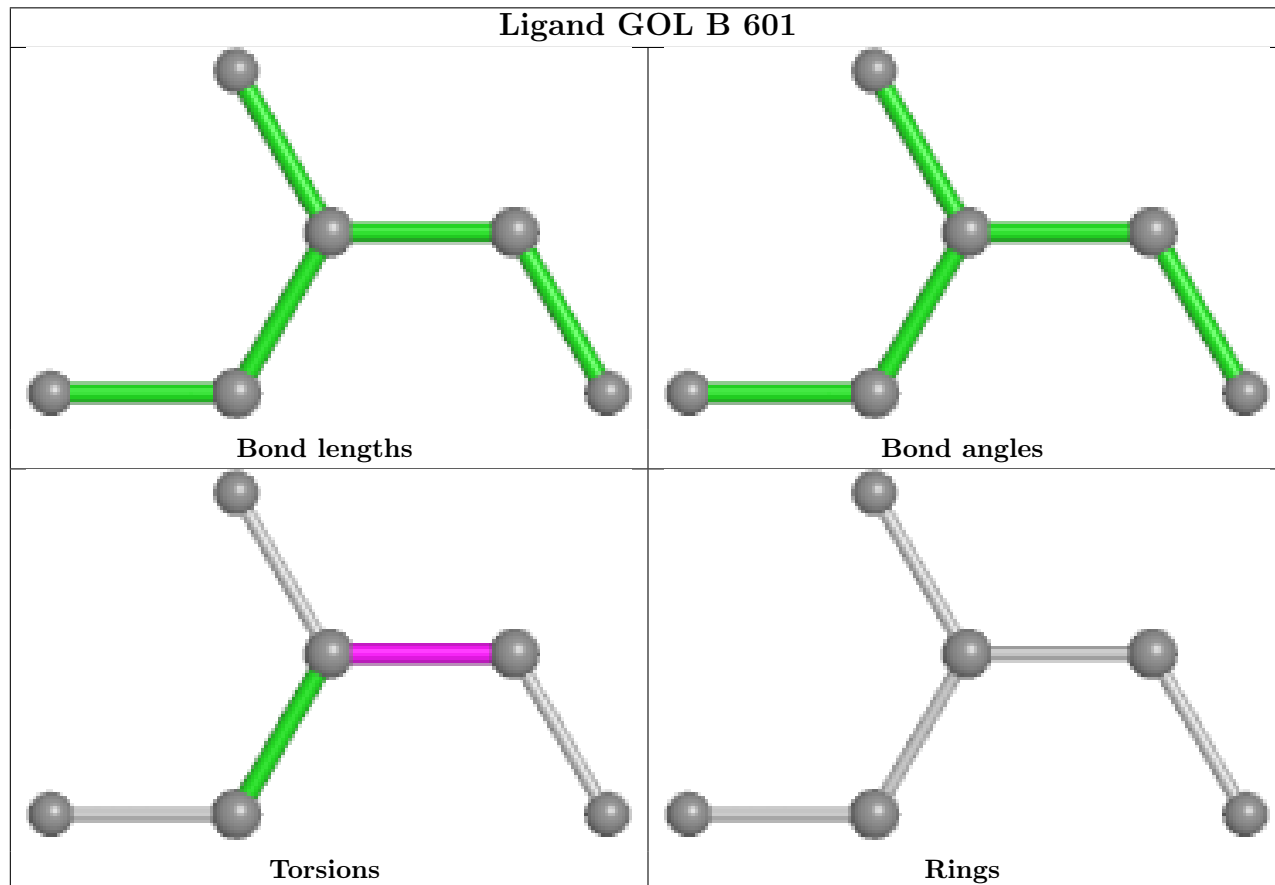
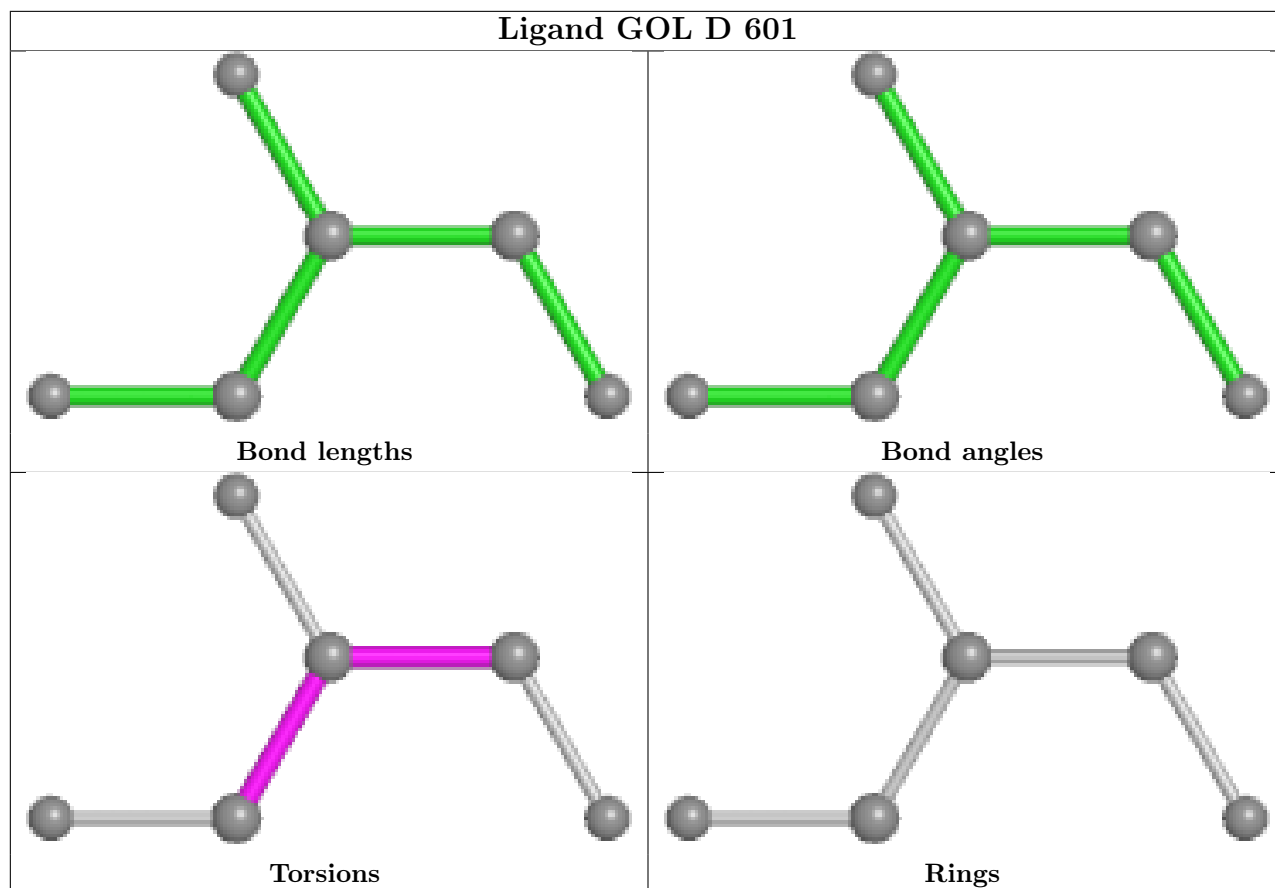
7 monomers are involved in 16 short contacts:

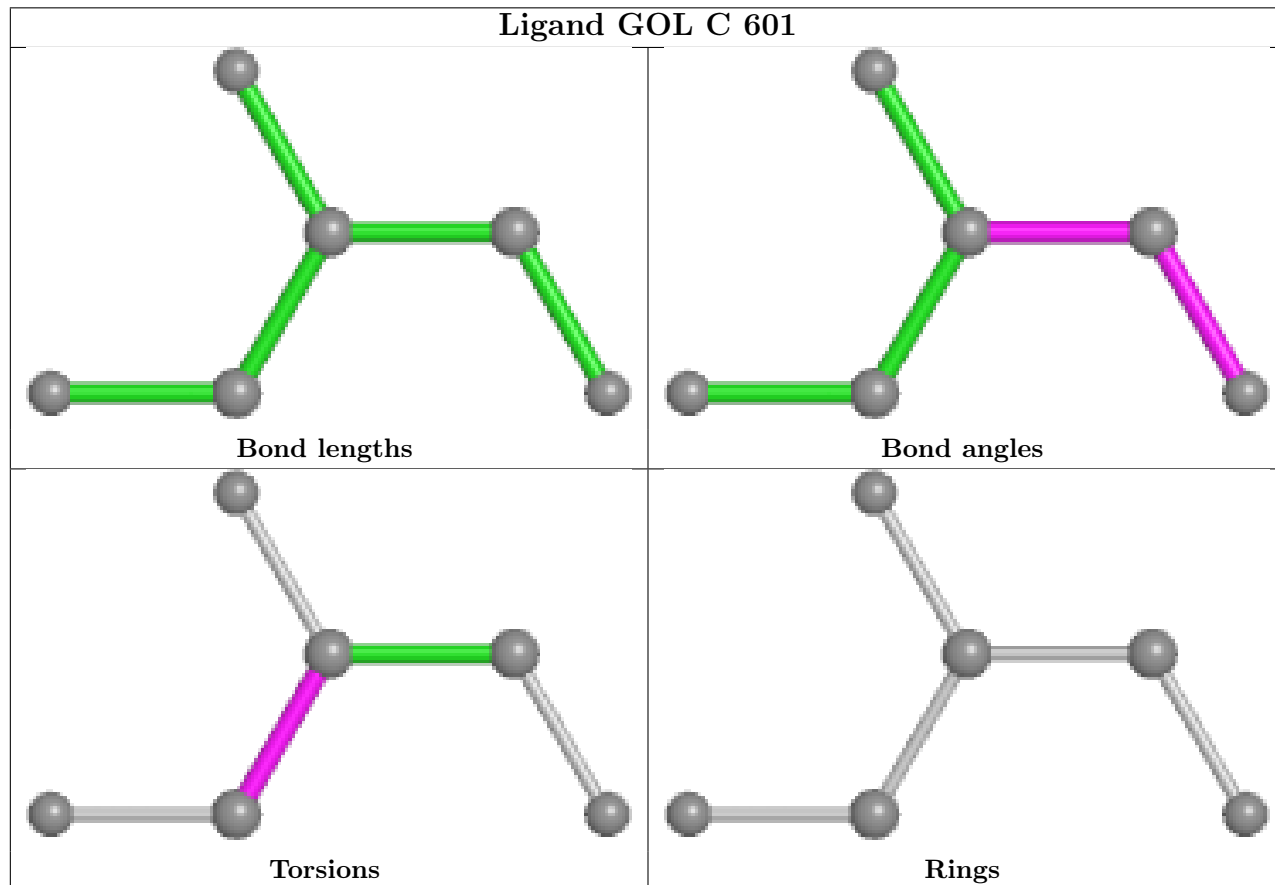
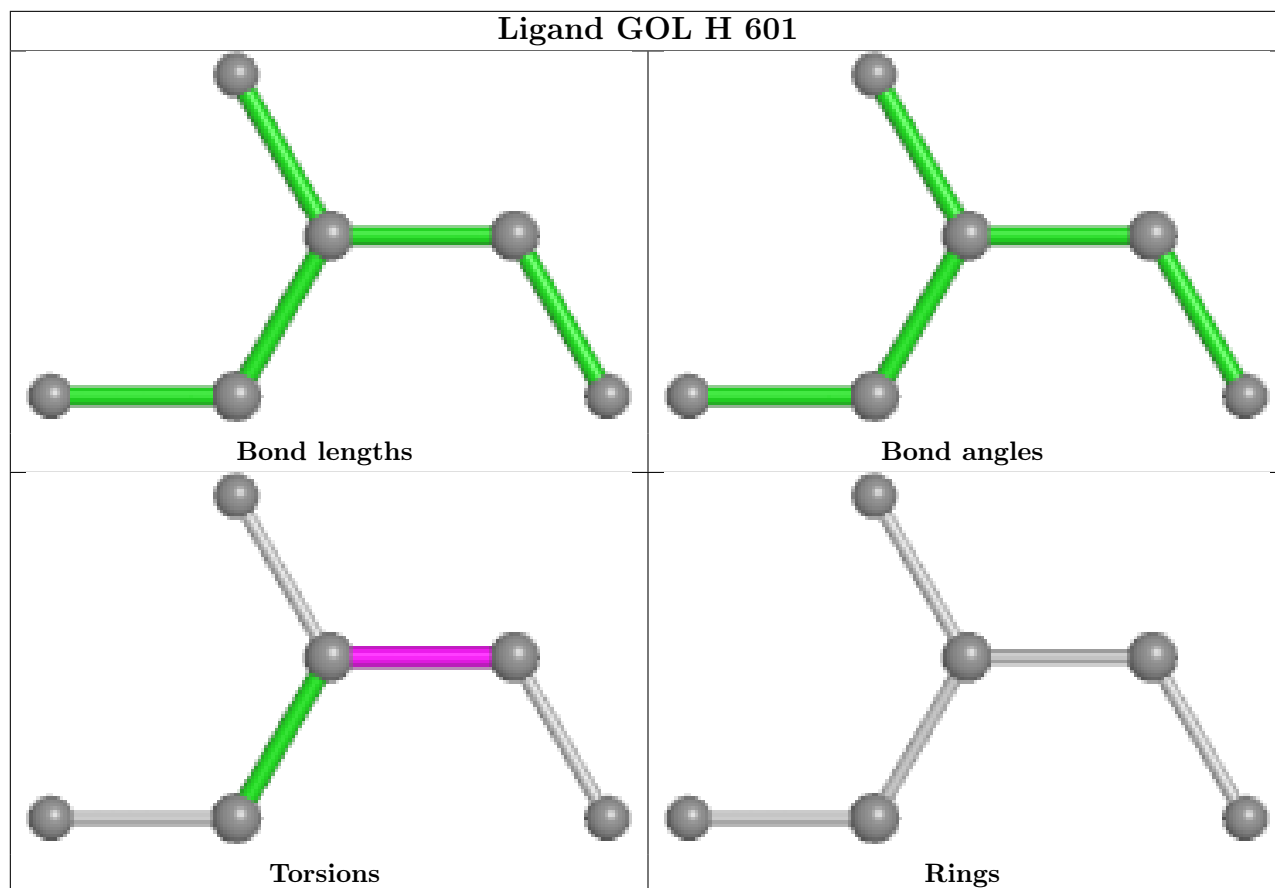
Mol	Chain	Res	Type	Clashes	Symm-Clashes
8	B	602	GOL	4	0
8	D	601	GOL	1	0
8	B	601	GOL	2	0
8	H	601	GOL	2	0
8	C	601	GOL	1	0
8	E	601	GOL	4	0
8	F	601	GOL	2	0

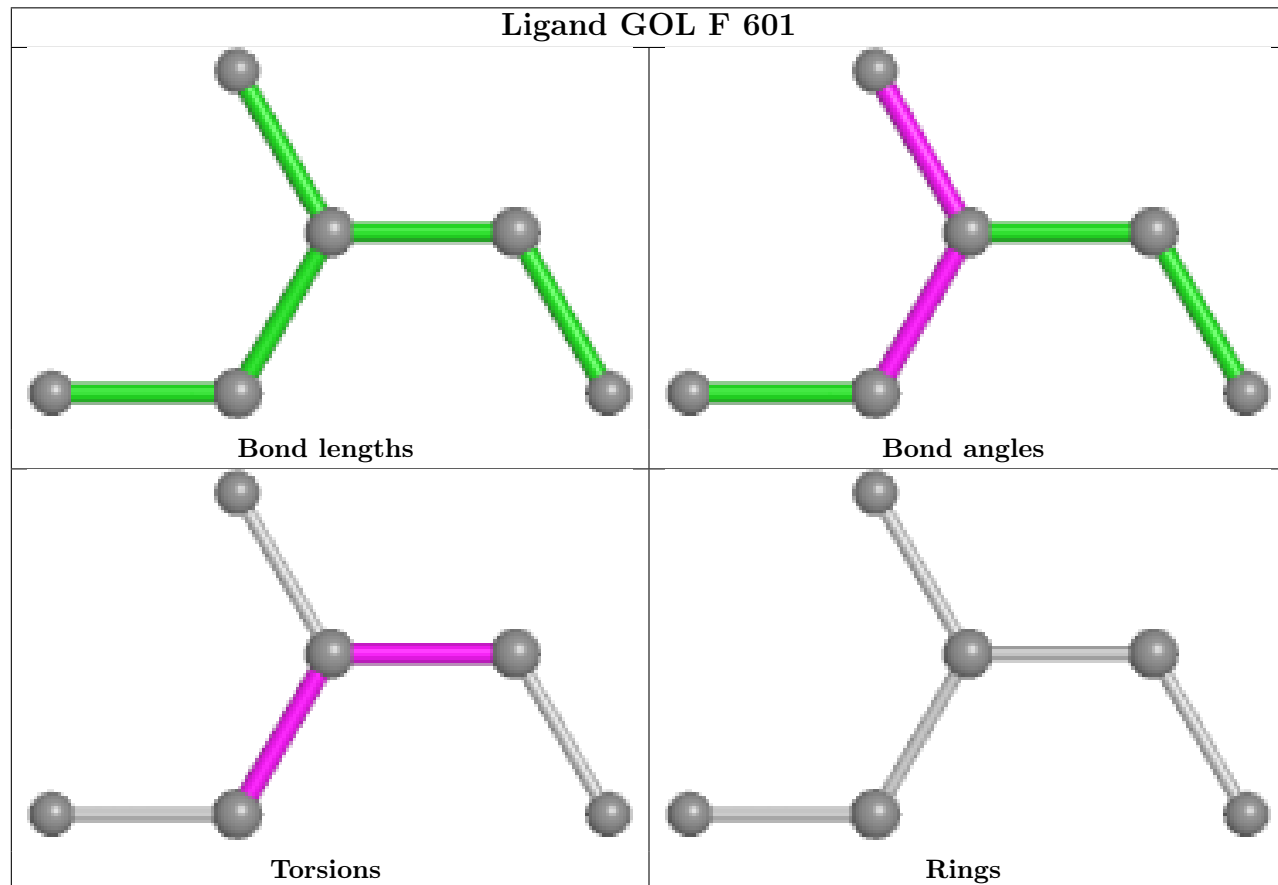
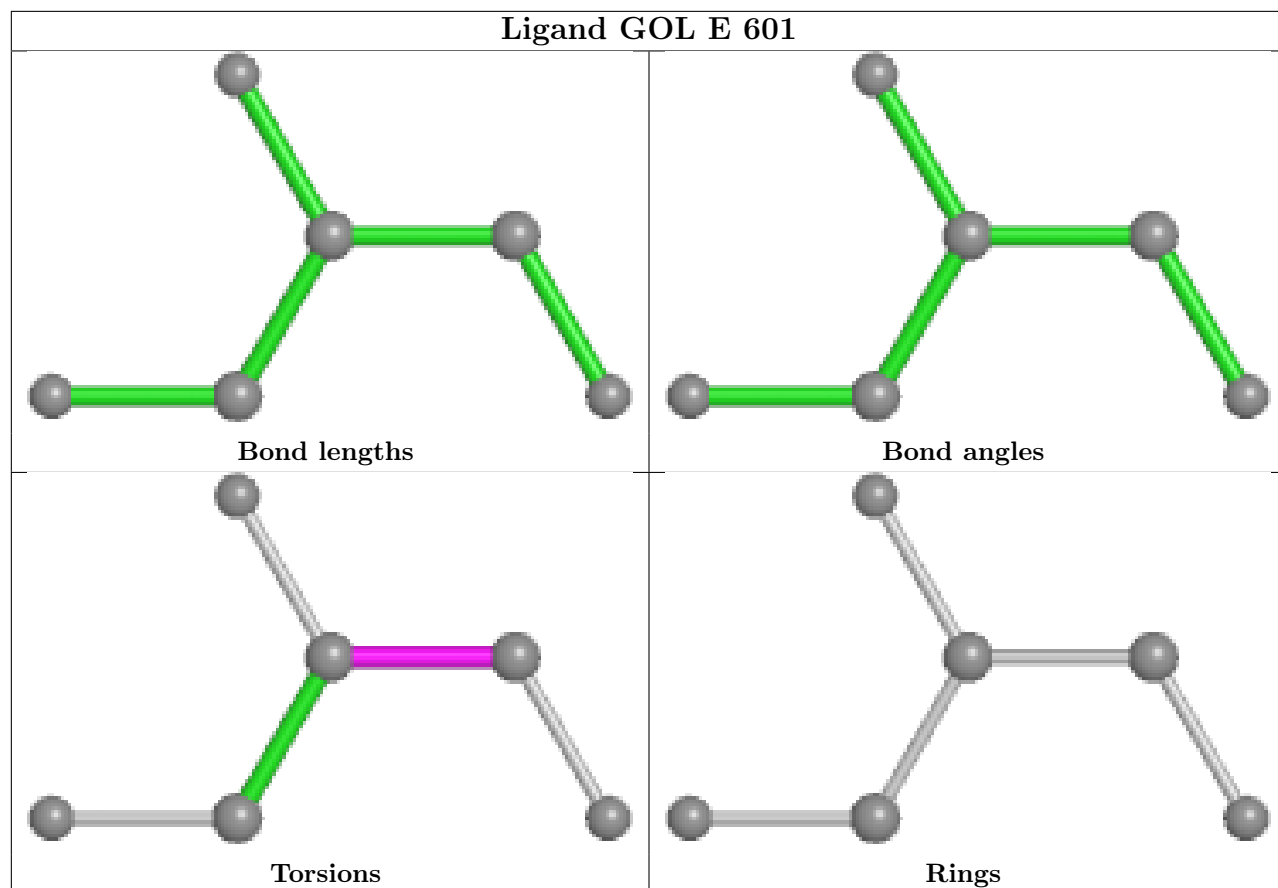
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and

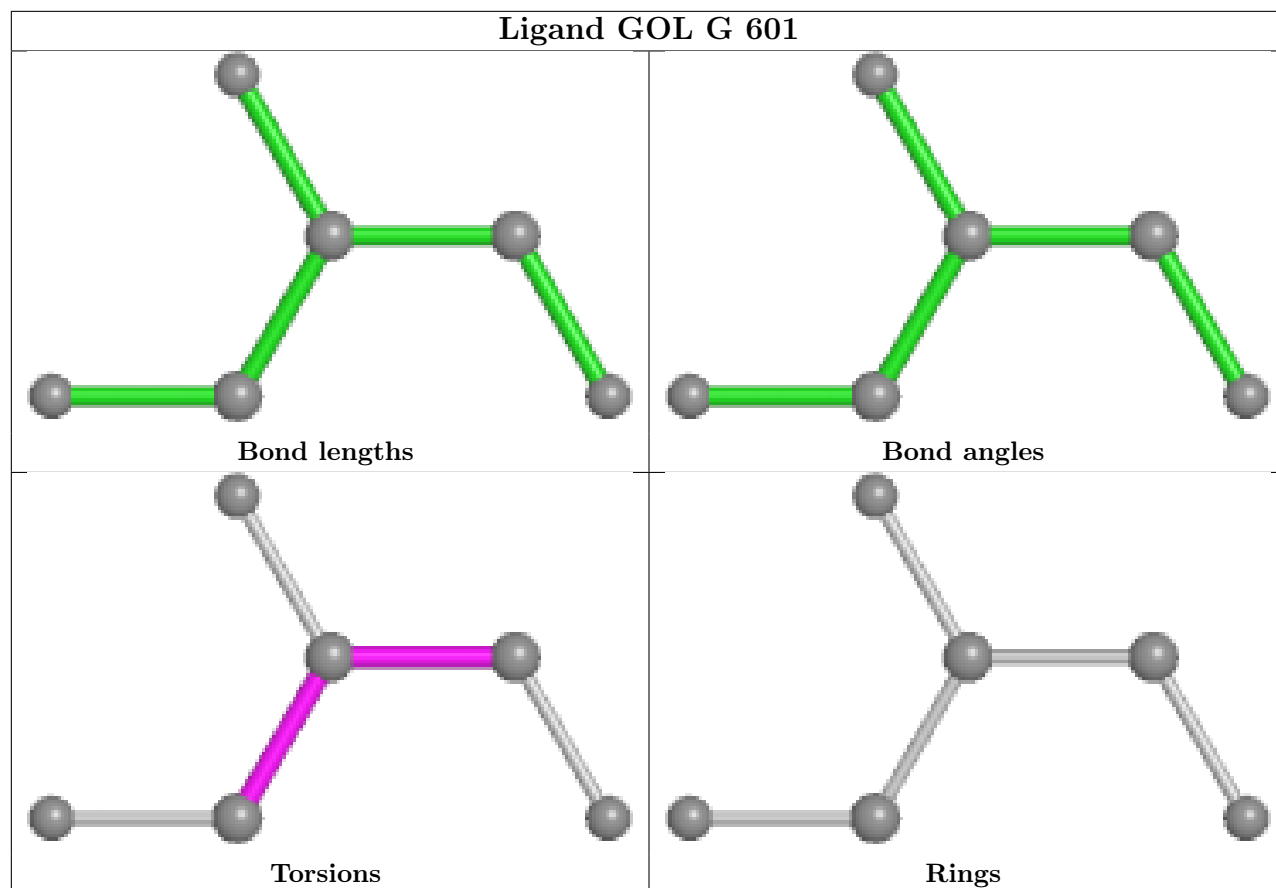
any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.











5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	501/501 (100%)	0.19	9 (1%) 68 74	35, 51, 87, 129	0
2	B	497/498 (99%)	0.19	3 (0%) 89 91	35, 50, 79, 127	0
3	C	496/497 (99%)	0.20	5 (1%) 82 86	34, 51, 85, 112	0
4	D	498/499 (99%)	0.15	3 (0%) 89 91	33, 52, 79, 104	0
4	H	498/499 (99%)	0.24	6 (1%) 79 82	36, 56, 91, 114	0
5	E	499/500 (99%)	0.22	4 (0%) 86 89	34, 58, 93, 126	0
6	F	497/497 (100%)	0.26	11 (2%) 62 68	36, 52, 92, 157	0
7	G	495/496 (99%)	0.34	10 (2%) 65 70	38, 65, 100, 128	0
All	All	3981/3987 (99%)	0.22	51 (1%) 77 81	33, 54, 90, 157	0

All (51) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
5	E	412	PHE	6.9
5	E	249	TYR	5.3
4	H	412	PHE	5.0
4	D	412	PHE	5.0
3	C	7	LEU	4.4
6	F	7	LEU	4.1
6	F	425	GLY	4.1
5	E	78	ALA	3.7
3	C	412	PHE	3.6
6	F	21	PHE	3.6
1	A	412	PHE	3.6
6	F	424	TYR	3.6
7	G	12	VAL	3.4
6	F	17	ARG	3.4
7	G	412	PHE	3.4
4	H	241	PHE	3.1

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Mol	Chain	Res	Type	RSRZ
1	A	430	ASN	3.0
7	G	249	TYR	2.9
1	A	5	VAL	2.9
4	D	383	GLN	2.9
3	C	330	ARG	2.9
1	A	426	ASN	2.8
7	G	424	TYR	2.8
4	H	21	PHE	2.7
1	A	424	TYR	2.7
7	G	427	ARG	2.7
2	B	412	PHE	2.7
7	G	503	TYR	2.6
3	C	74	ARG	2.6
6	F	412	PHE	2.6
6	F	383	GLN	2.6
4	H	22	GLN	2.5
6	F	15	ILE	2.4
2	B	246	ARG	2.4
2	B	503	TYR	2.4
1	A	505	GLY	2.4
1	A	428	TYR	2.4
6	F	503	TYR	2.3
7	G	241	PHE	2.3
4	H	503	TYR	2.3
5	E	424	TYR	2.3
4	H	16	LEU	2.3
4	D	330	ARG	2.2
7	G	243	THR	2.2
6	F	211	LEU	2.2
1	A	330	ARG	2.2
7	G	97	LYS	2.2
3	C	21	PHE	2.1
1	A	21	PHE	2.1
7	G	330	ARG	2.1
6	F	430	ASN	2.1

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

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
7	ALY	G	403	12/13	0.95	0.16	41,63,82,82	0
4	ALY	H	403	12/13	0.95	0.16	34,60,73,77	0
2	ALY	B	403	12/13	0.96	0.20	44,68,86,86	0
5	ALY	E	403	12/13	0.96	0.18	45,61,74,76	0
4	ALY	D	403	12/13	0.97	0.19	40,60,73,76	0
3	ALY	C	403	12/13	0.97	0.17	35,58,73,76	0

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

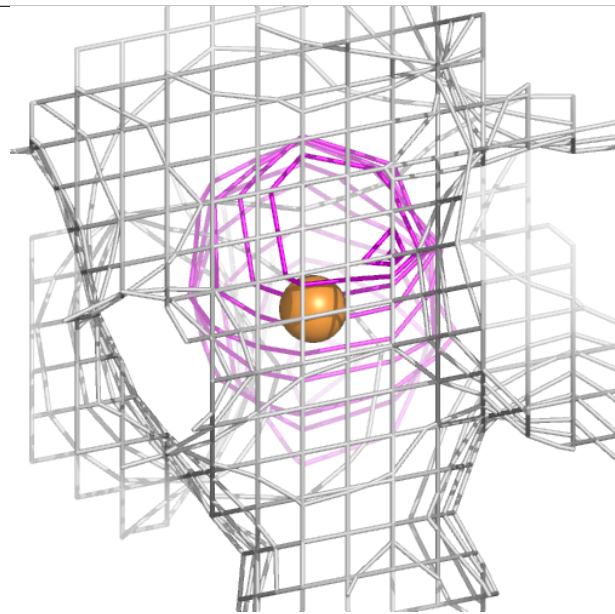
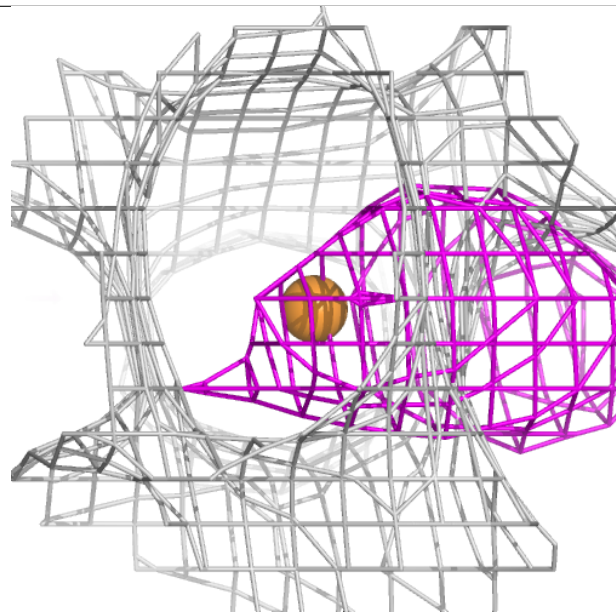
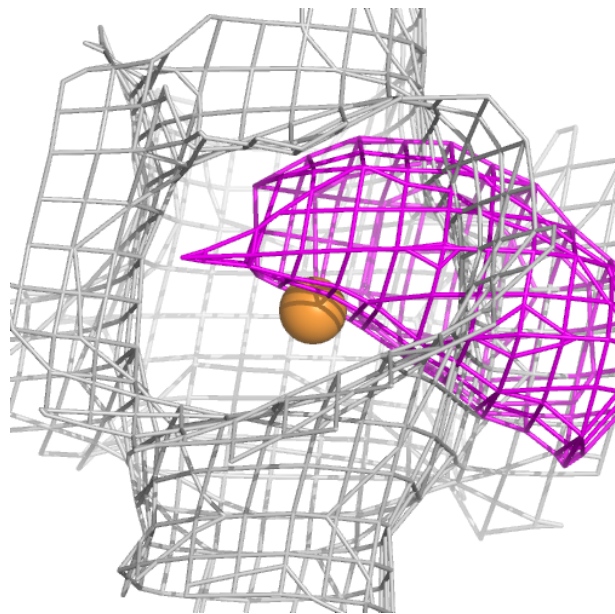
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

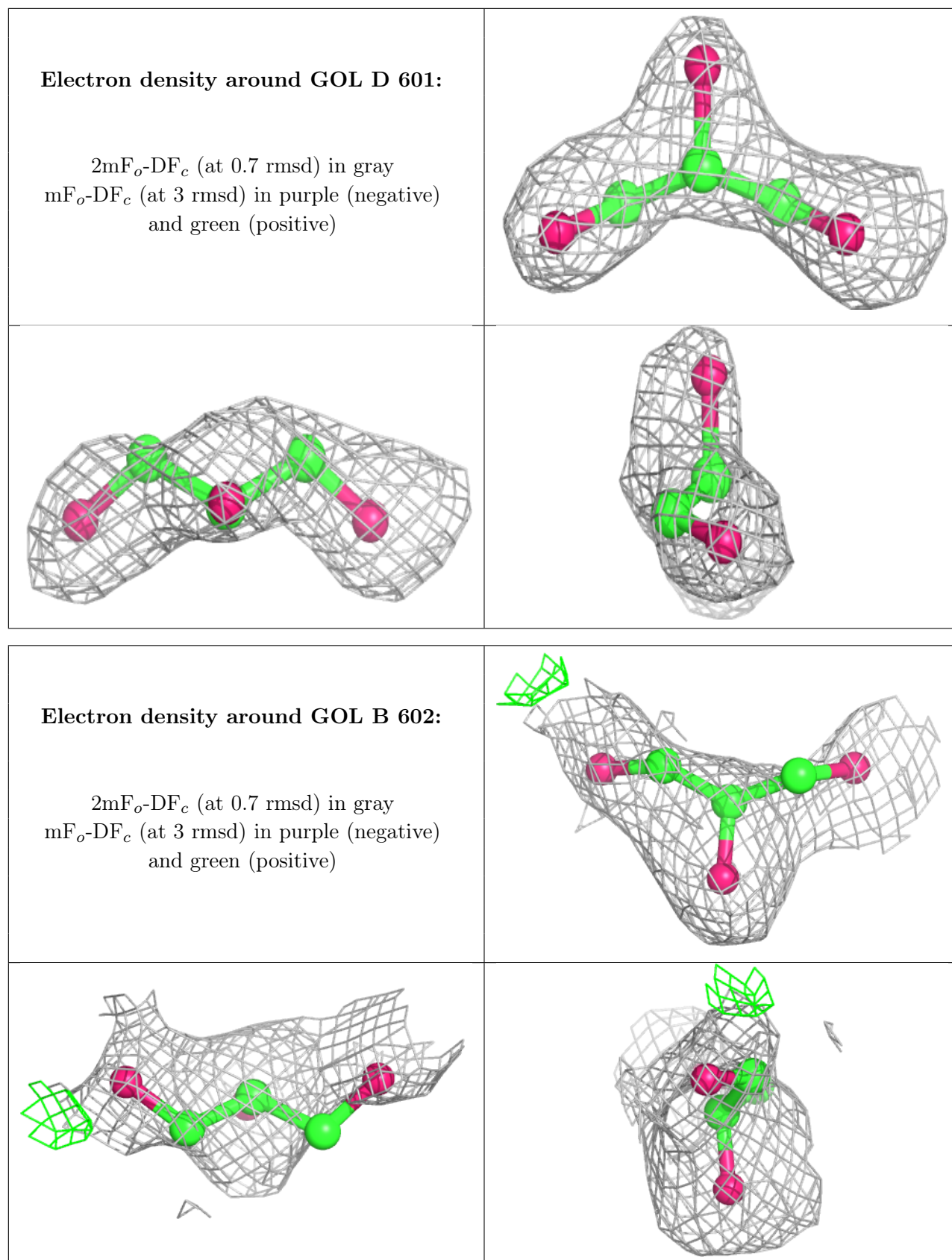
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
9	CU	J	1	1/1	0.64	0.16	124,124,124,124	0
8	GOL	D	601	6/6	0.77	0.25	52,68,71,80	0
8	GOL	B	602	6/6	0.78	0.23	52,76,81,84	0
8	GOL	C	601	6/6	0.90	0.31	41,45,66,70	0
8	GOL	H	601	6/6	0.92	0.19	56,68,71,72	0
8	GOL	B	601	6/6	0.93	0.26	45,59,72,76	0
8	GOL	E	601	6/6	0.94	0.24	61,74,88,94	0
8	GOL	F	601	6/6	0.94	0.26	56,62,68,75	0
8	GOL	G	601	6/6	0.96	0.29	44,48,53,60	0

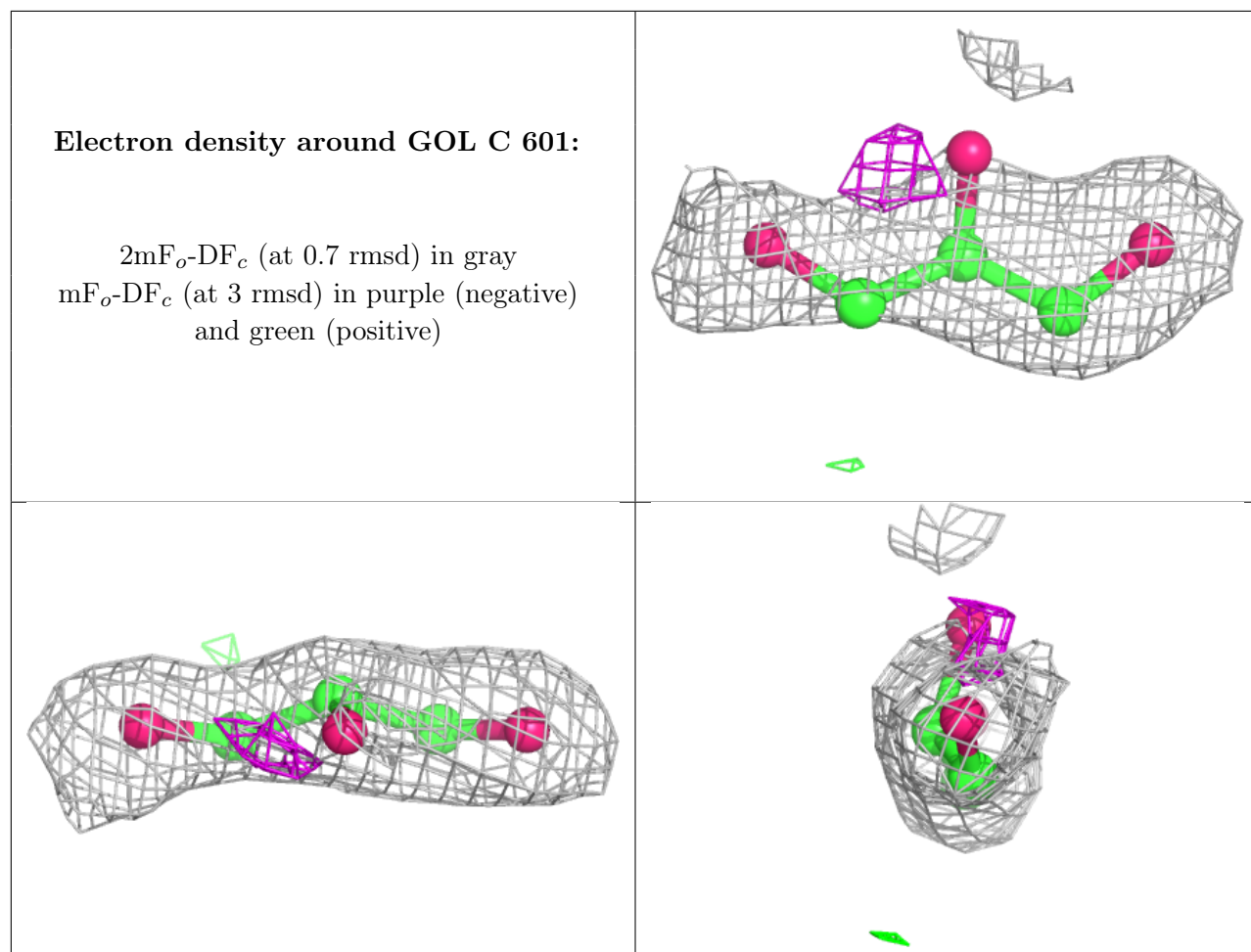
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

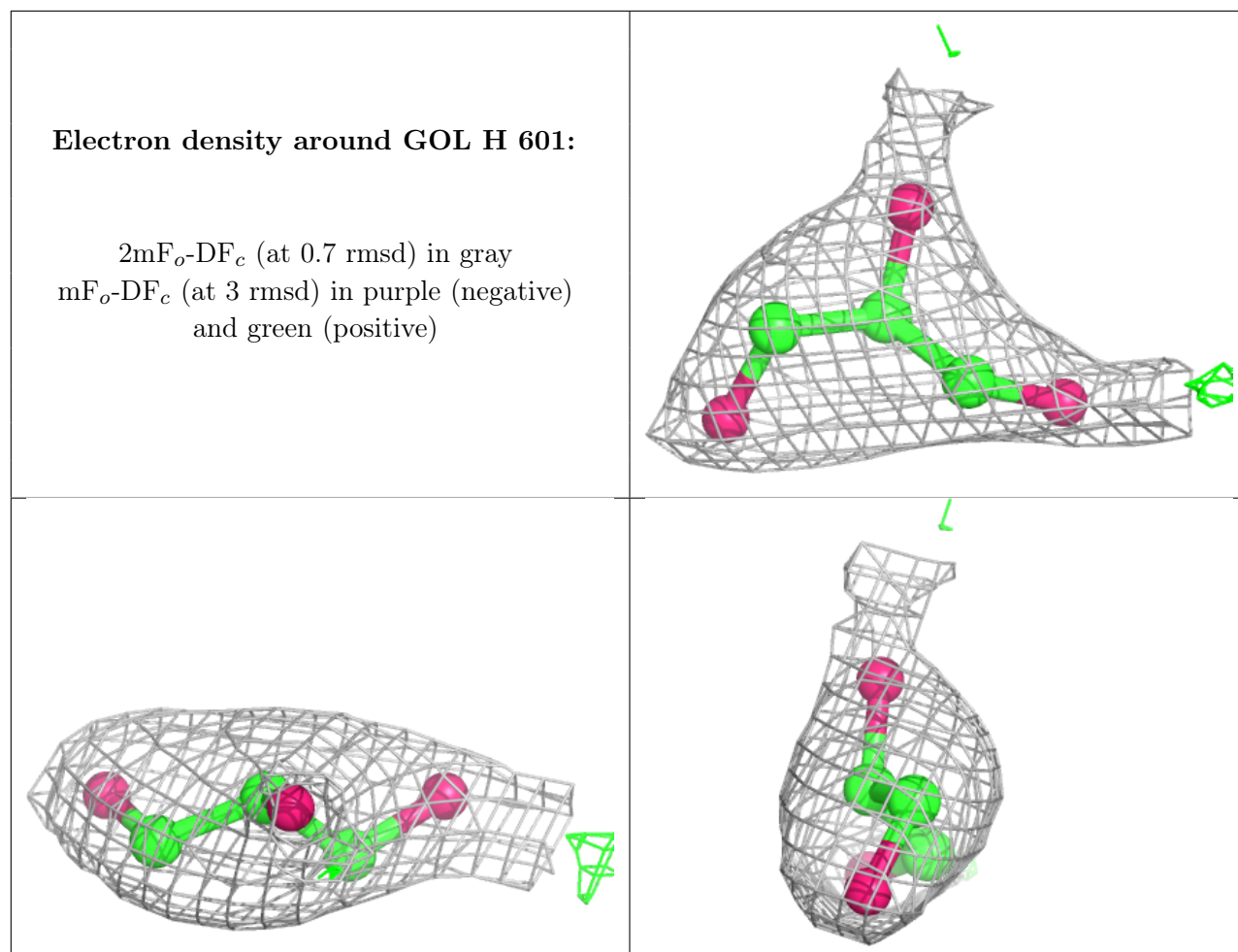
Electron density around CU J 1:

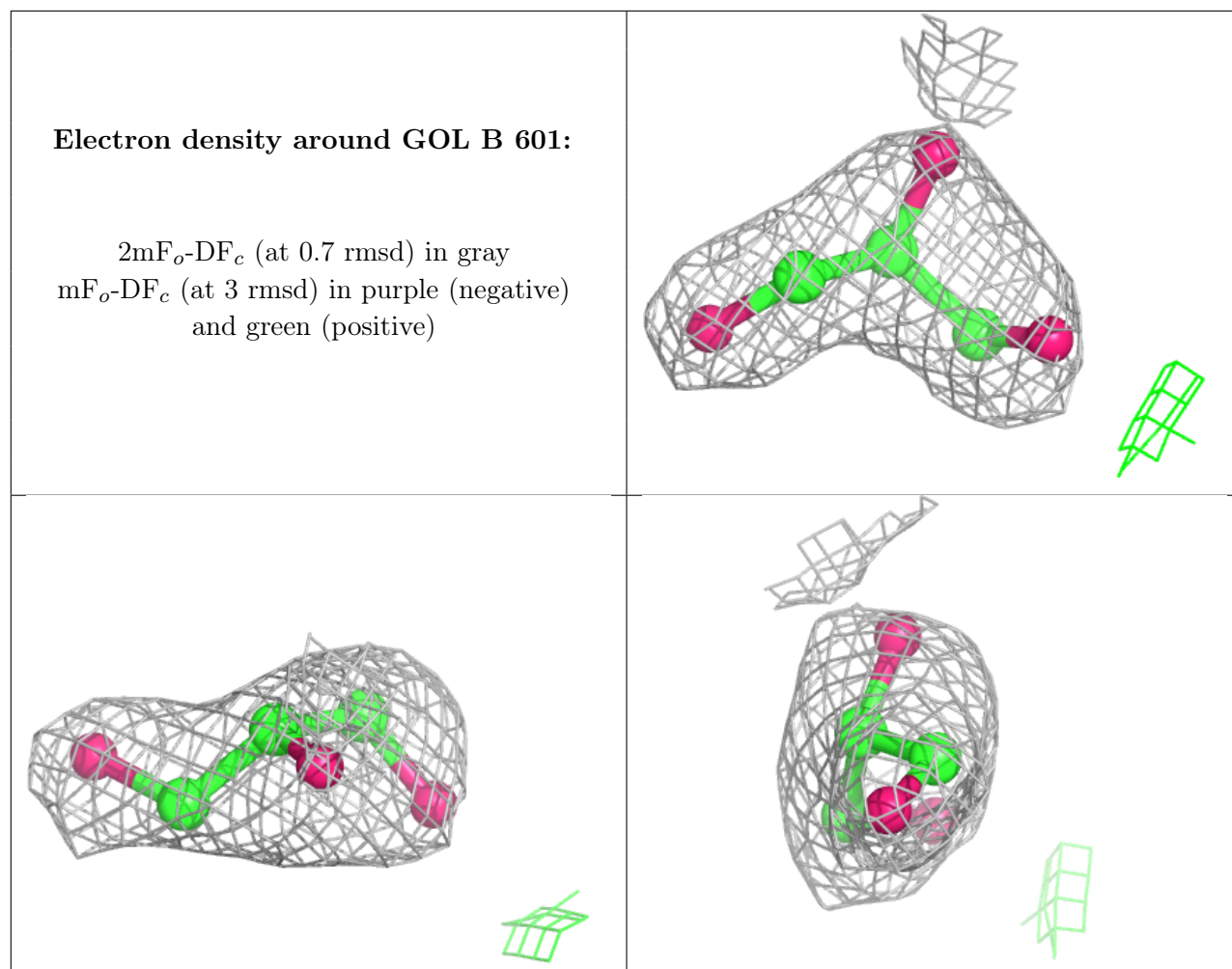
$2mF_o-DF_c$ (at 0.7 rmsd) in gray
 mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)





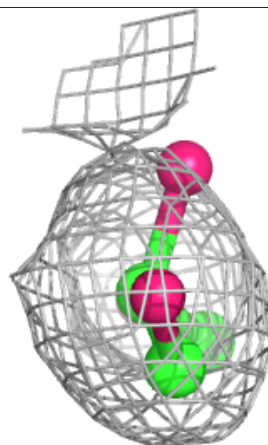
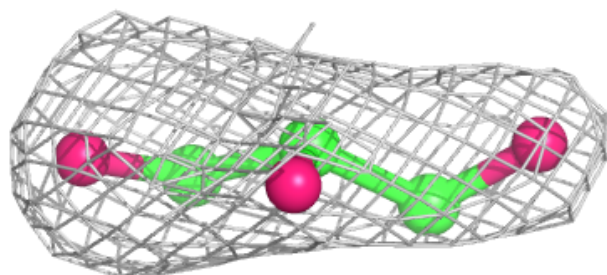
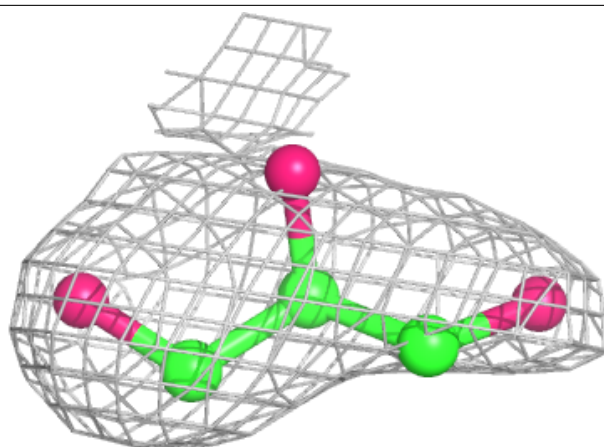




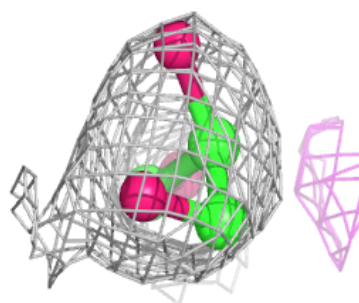
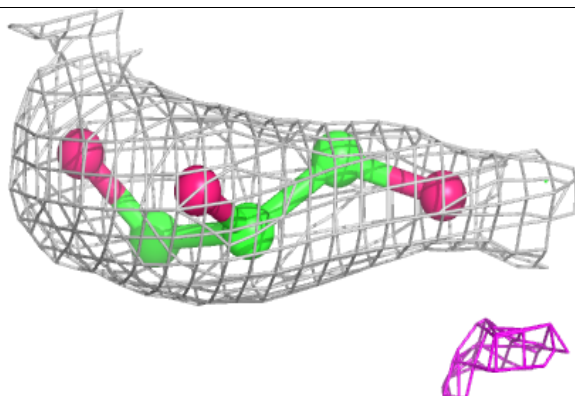
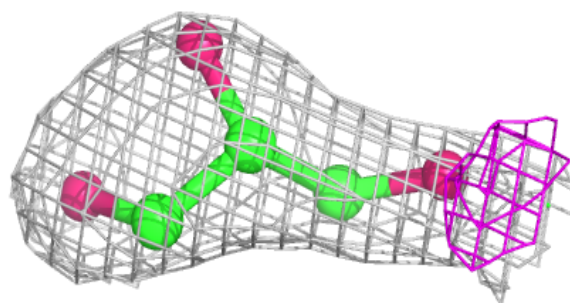


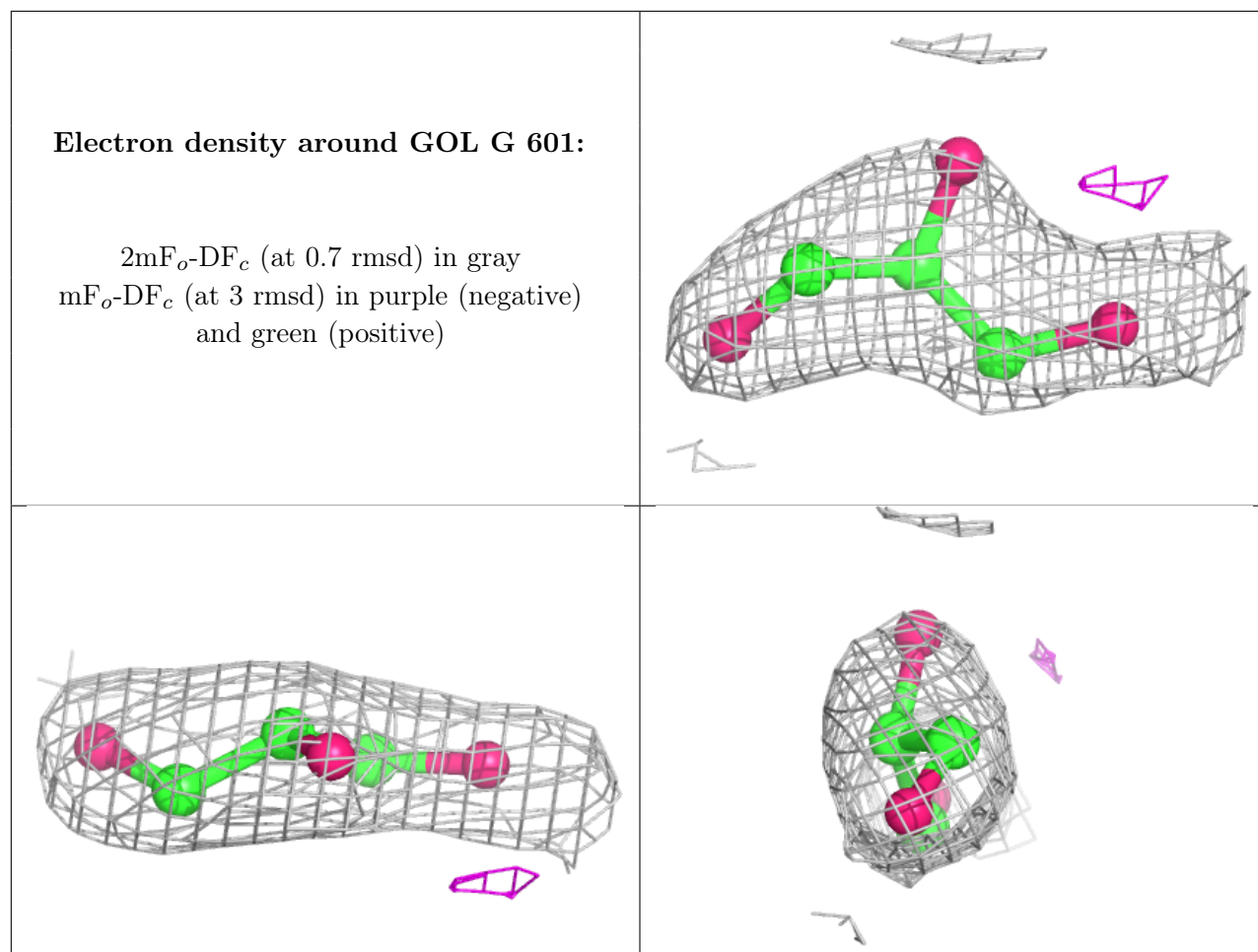
Electron density around GOL E 601:

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

**Electron density around GOL F 601:**

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





6.5 Other polymers [i](#)

There are no such residues in this entry.