



# Full wwPDB X-ray Structure Validation Report ⓘ

Jun 26, 2024 – 08:08 AM EDT

PDB ID : 6SP4  
Title : KEAP1 IN COMPLEX WITH COMPOUND 23  
Authors : Ontoria, J.M.; Biancofiore, I.; Fezzardi, P.; Torrente de Haro, E.; Colarusso, S.; Bianchi, E.; Andreini, M.; Patsilidakos, A.; Summa, V.; Pacifici, R.; Munoz-Sanjuan, I.; Park, L.; Bresciani, A.; Dominguez, C.; Toledo-Sherman, L.; Harper, S.  
Deposited on : 2019-08-30  
Resolution : 2.59 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](mailto: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>.

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The following versions of software and data (see [references](#) ①) were used in the production of this report:

MolProbity : 4.02b-467  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtrriage (Phenix) : 1.13  
EDS : 2.37.1  
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) : 2.37.1

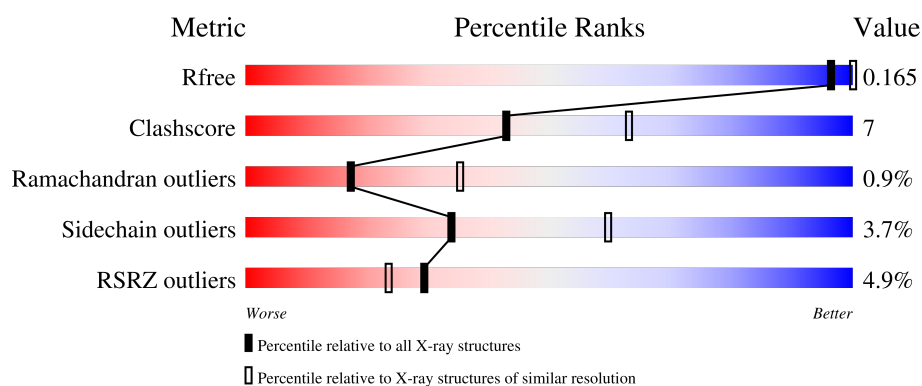
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.59 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.



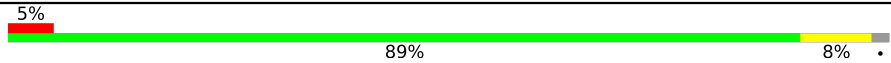
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	3163 (2.60-2.60)
Clashscore	141614	3518 (2.60-2.60)
Ramachandran outliers	138981	3455 (2.60-2.60)
Sidechain outliers	138945	3455 (2.60-2.60)
RSRZ outliers	127900	3104 (2.60-2.60)

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  $\geq 3$ , 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	293	<div style="display: flex; align-items: center;"> <div style="width: 3%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 76%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 19%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">3%      76%      19%      ••</p>
1	B	293	<div style="display: flex; align-items: center;"> <div style="width: 5%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 90%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 7%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">5%      90%      7%      •</p>
1	C	293	<div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 78%; 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: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 3%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">2%      78%      15%      ••</p>
1	D	293	<div style="display: flex; align-items: center;"> <div style="width: 5%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 81%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 14%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">5%      81%      14%      ••</p>
1	E	293	<div style="display: flex; align-items: center;"> <div style="width: 8%; 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: 17%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">8%      79%      17%      ••</p>

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Mol	Chain	Length	Quality of chain
1	F	293	 <p>A horizontal bar chart representing the quality of chain. The bar is divided into three segments: a red segment on the left labeled '5%', a large green segment in the middle labeled '89%', and a yellow segment on the right labeled '8%'. A small grey dot is visible at the far right end of the bar.</p>

## 2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 13531 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 Kelch-like ECH-associated protein 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	284	2181	1357	396	413	15	0	0	0
1	B	285	2185	1359	397	414	15	0	0	0
1	C	284	2181	1357	396	413	15	0	0	0
1	D	284	2181	1357	396	413	15	0	0	0
1	E	284	2181	1357	396	413	15	0	0	0
1	F	286	2192	1364	398	415	15	0	0	0

There are 36 discrepancies between the modelled and reference sequences:

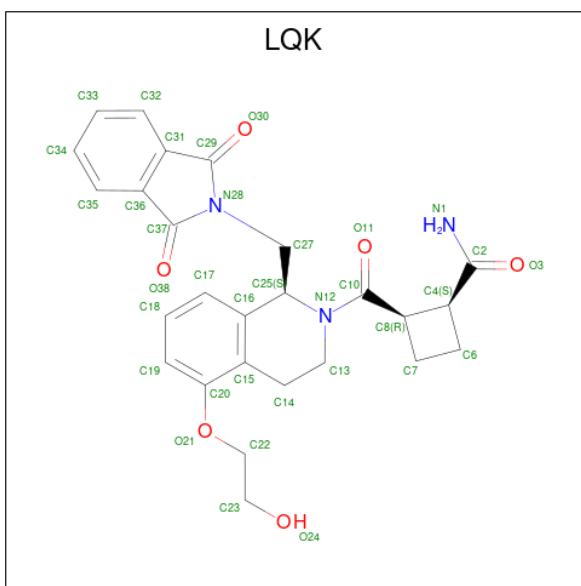
Chain	Residue	Modelled	Actual	Comment	Reference
A	317	GLY	-	expression tag	UNP Q14145
A	318	SER	-	expression tag	UNP Q14145
A	319	HIS	-	expression tag	UNP Q14145
A	320	MET	-	expression tag	UNP Q14145
A	540	ALA	GLU	conflict	UNP Q14145
A	542	ALA	GLU	conflict	UNP Q14145
B	317	GLY	-	expression tag	UNP Q14145
B	318	SER	-	expression tag	UNP Q14145
B	319	HIS	-	expression tag	UNP Q14145
B	320	MET	-	expression tag	UNP Q14145
B	540	ALA	GLU	conflict	UNP Q14145
B	542	ALA	GLU	conflict	UNP Q14145
C	317	GLY	-	expression tag	UNP Q14145
C	318	SER	-	expression tag	UNP Q14145
C	319	HIS	-	expression tag	UNP Q14145
C	320	MET	-	expression tag	UNP Q14145
C	540	ALA	GLU	conflict	UNP Q14145

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Chain	Residue	Modelled	Actual	Comment	Reference
C	542	ALA	GLU	conflict	UNP Q14145
D	317	GLY	-	expression tag	UNP Q14145
D	318	SER	-	expression tag	UNP Q14145
D	319	HIS	-	expression tag	UNP Q14145
D	320	MET	-	expression tag	UNP Q14145
D	540	ALA	GLU	conflict	UNP Q14145
D	542	ALA	GLU	conflict	UNP Q14145
E	317	GLY	-	expression tag	UNP Q14145
E	318	SER	-	expression tag	UNP Q14145
E	319	HIS	-	expression tag	UNP Q14145
E	320	MET	-	expression tag	UNP Q14145
E	540	ALA	GLU	conflict	UNP Q14145
E	542	ALA	GLU	conflict	UNP Q14145
F	317	GLY	-	expression tag	UNP Q14145
F	318	SER	-	expression tag	UNP Q14145
F	319	HIS	-	expression tag	UNP Q14145
F	320	MET	-	expression tag	UNP Q14145
F	540	ALA	GLU	conflict	UNP Q14145
F	542	ALA	GLU	conflict	UNP Q14145

- Molecule 2 is (1 {S},2 {R})-2-[[[(1 {S})-1-[[1,3-bis(oxidanylidene)isoindol-2-yl]methyl]-5-(2-hydroxyethoxy)-3,4-dihydro-1 {H}-isoquinolin-2-yl]carbonyl]cyclobutane-1-carboxamide (three-letter code: LQK) (formula: C<sub>26</sub>H<sub>27</sub>N<sub>3</sub>O<sub>6</sub>) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	C	N	O	0	0
			35	26	3	6		
2	B	1	Total	C	N	O	0	0
			35	26	3	6		
2	C	1	Total	C	N	O	0	0
			35	26	3	6		
2	D	1	Total	C	N	O	0	0
			35	26	3	6		
2	E	1	Total	C	N	O	0	0
			35	26	3	6		
2	F	1	Total	C	N	O	0	0
			35	26	3	6		

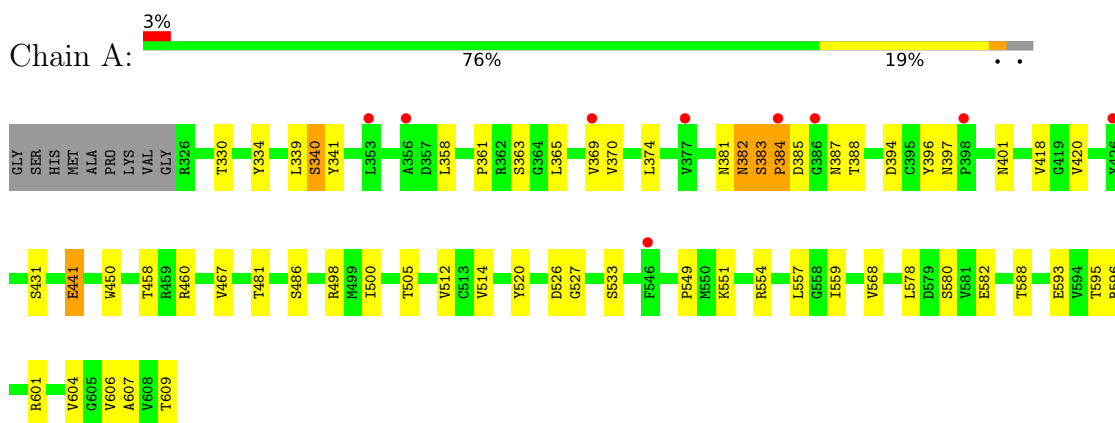
- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	42	Total	O	0	0
			42	42		
3	B	27	Total	O	0	0
			27	27		
3	C	39	Total	O	0	0
			39	39		
3	D	34	Total	O	0	0
			34	34		
3	E	41	Total	O	0	0
			41	41		
3	F	37	Total	O	0	0
			37	37		

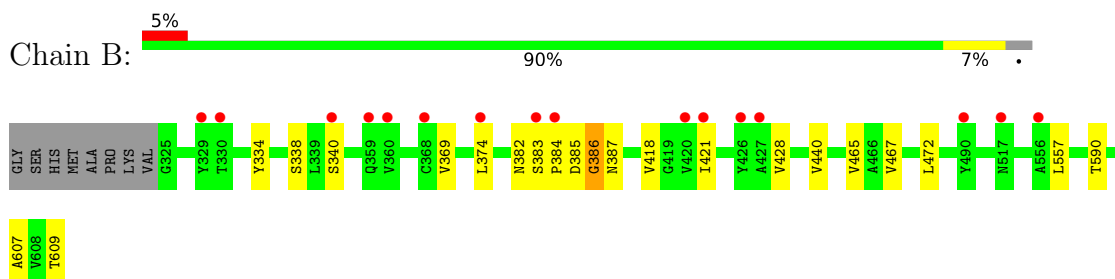
### 3 Residue-property plots

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.

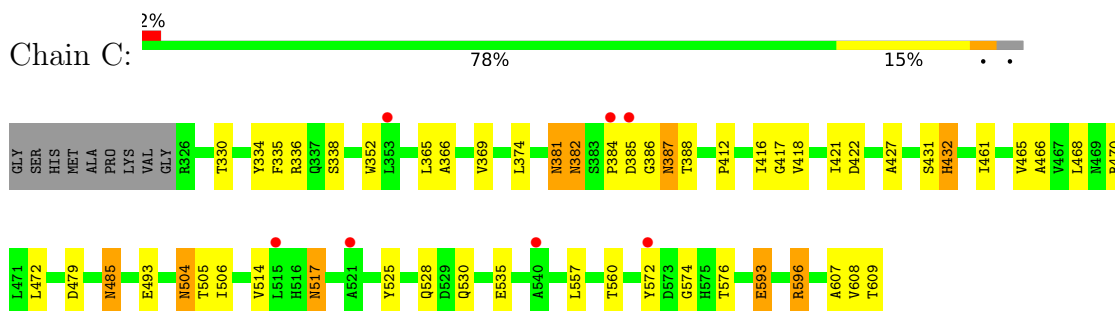
- Molecule 1: Kelch-like ECH-associated protein 1



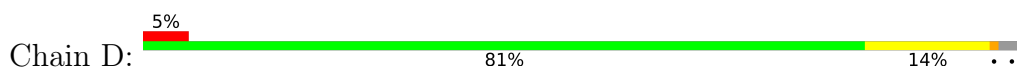
- Molecule 1: Kelch-like ECH-associated protein 1



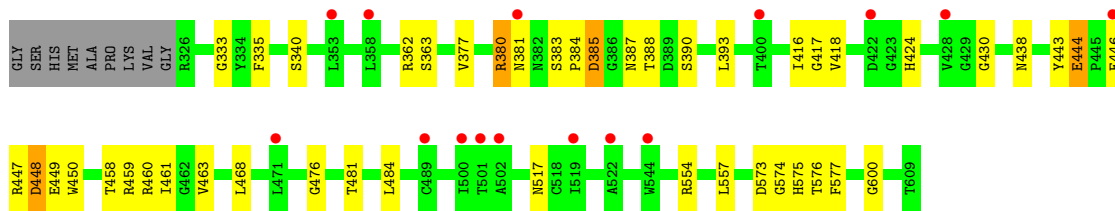
- Molecule 1: Kelch-like ECH-associated protein 1



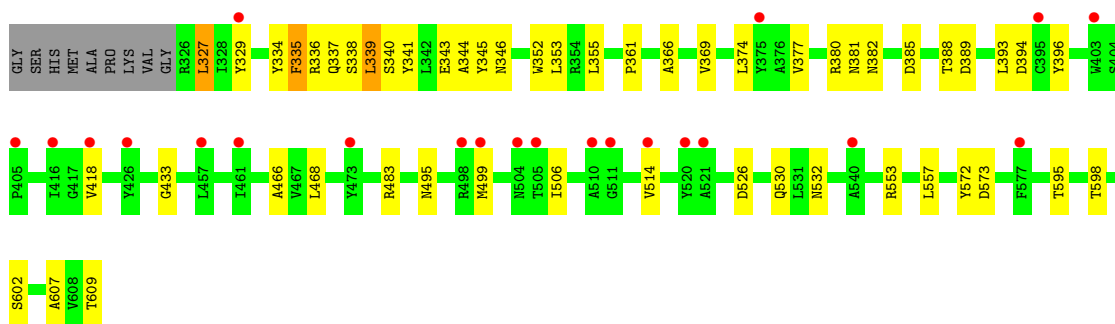
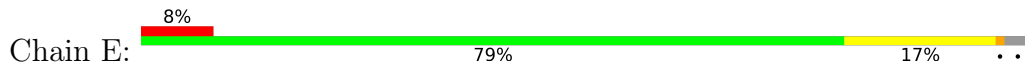
- Molecule 1: Kelch-like ECH-associated protein 1



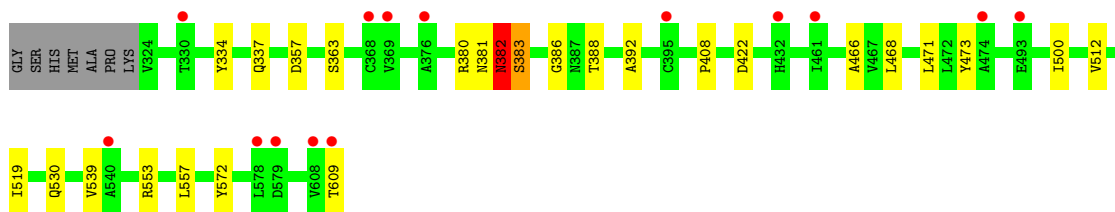
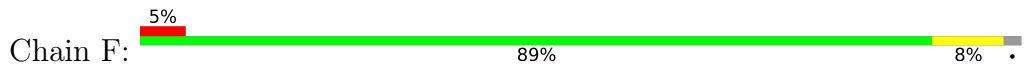




● Molecule 1: Kelch-like ECH-associated protein 1



● Molecule 1: Kelch-like ECH-associated protein 1



## 4 Data and refinement statistics i

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	112.45Å 91.88Å 112.31Å 90.00° 119.89° 90.00°	Depositor
Resolution (Å)	47.99 – 2.59 47.99 – 2.60	Depositor EDS
% Data completeness (in resolution range)	96.6 (47.99-2.59) 96.6 (47.99-2.60)	Depositor EDS
$R_{merge}$	0.08	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	1.93 (at 2.61Å)	Xtrriage
Refinement program	REFMAC 5.8.0049	Depositor
R, $R_{free}$	0.175 , 0.225 0.177 , 0.165	Depositor DCC
$R_{free}$ test set	898 reflections (1.51%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	46.6	Xtrriage
Anisotropy	0.875	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.29 , 19.3	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.37$ , $\langle L^2 \rangle = 0.19$	Xtrriage
Estimated twinning fraction	0.260 for l,k,-h-l 0.260 for -h-l,k,h 0.296 for -h-l,-k,l 0.238 for h,-k,-h-l 0.358 for l,-k,h	Xtrriage
Reported twinning fraction	0.381 for H, K, L 0.152 for H+L, -K, -L 0.231 for L, -K, H 0.110 for L, K, -H-L 0.036 for -H-L, K, H 0.090 for -H, -K, H+L	Depositor
Outliers	4 of 59516 reflections (0.007%)	Xtrriage
$F_o, F_c$ correlation	0.95	EDS
Total number of atoms	13531	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	64.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 15.19% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

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

## 5 Model quality

### 5.1 Standard geometry

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

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	0.41	0/2234	0.68	0/3043
1	B	0.41	0/2238	0.66	0/3048
1	C	0.42	0/2234	0.71	0/3043
1	D	0.40	0/2234	0.66	1/3043 (0.0%)
1	E	0.39	0/2234	0.65	0/3043
1	F	0.40	0/2245	0.67	0/3058
All	All	0.40	0/13419	0.67	1/18278 (0.0%)

There are no bond length outliers.

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	380	ARG	NE-CZ-NH2	-7.34	116.63	120.30

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.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	2181	0	2078	41	0
1	B	2185	0	2081	14	0
1	C	2181	0	2078	36	0
1	D	2181	0	2078	31	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	E	2181	0	2078	44	0
1	F	2192	0	2090	22	0
2	A	35	0	0	1	0
2	B	35	0	0	0	0
2	C	35	0	0	0	0
2	D	35	0	0	1	0
2	E	35	0	0	0	0
2	F	35	0	0	0	0
3	A	42	0	0	0	0
3	B	27	0	0	0	0
3	C	39	0	0	3	0
3	D	34	0	0	1	0
3	E	41	0	0	1	0
3	F	37	0	0	1	0
All	All	13531	0	12483	176	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 (176) 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:E:329:TYR:CE1	1:E:344:ALA:HB2	1.86	1.11
1:E:329:TYR:HE1	1:E:344:ALA:HB2	1.42	0.81
1:E:355:LEU:HD23	1:E:396:TYR:OH	1.80	0.81
1:C:422:ASP:OD2	1:C:470:ARG:NH2	2.13	0.80
1:C:385:ASP:HB2	1:D:380:ARG:CZ	2.13	0.78
1:F:337:GLN:NE2	1:F:382:ASN:OD1	2.19	0.74
1:F:572:TYR:OH	3:F:801:HOH:O	2.05	0.74
1:E:329:TYR:CE1	1:E:344:ALA:CB	2.70	0.73
1:E:377:VAL:HG22	1:E:393:LEU:HD13	1.70	0.73
1:C:366:ALA:HB3	1:C:418:VAL:HG23	1.70	0.71
1:C:593:GLU:OE2	1:C:596:ARG:NH2	2.24	0.69
1:E:506:ILE:HB	1:E:526:ASP:HB2	1.74	0.69
1:C:385:ASP:HB2	1:D:380:ARG:NH2	2.09	0.67
1:A:385:ASP:HA	1:B:382:ASN:ND2	2.10	0.67
1:C:385:ASP:N	1:D:380:ARG:HH22	1.94	0.66
1:F:530:GLN:O	1:F:553:ARG:NH1	2.29	0.66
1:A:460:ARG:NH1	1:A:486:SER:OG	2.27	0.66
1:D:468:LEU:HD11	1:D:517:ASN:HA	1.78	0.66
1:C:485:ASN:HB3	1:C:506:ILE:HG12	1.79	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:369:VAL:HG23	1:E:607:ALA:HB1	1.79	0.64
1:B:369:VAL:HG23	1:B:607:ALA:HB1	1.81	0.63
1:C:366:ALA:HB3	1:C:418:VAL:CG2	2.29	0.63
1:E:355:LEU:HD23	1:E:396:TYR:CZ	2.34	0.63
1:E:385:ASP:HA	1:F:380:ARG:HH21	1.63	0.62
1:A:383:SER:HB3	1:A:385:ASP:H	1.65	0.62
1:C:366:ALA:CB	1:C:418:VAL:HG23	2.29	0.62
1:C:525:TYR:OH	3:C:802:HOH:O	2.12	0.62
1:C:505:THR:HG21	3:C:831:HOH:O	2.00	0.62
1:A:383:SER:HB3	1:A:385:ASP:N	2.15	0.61
1:C:468:LEU:HD11	1:C:517:ASN:HA	1.82	0.61
1:D:424:HIS:CD2	1:D:444:GLU:HB3	2.36	0.61
1:B:428:VAL:HG22	1:B:440:VAL:HG13	1.84	0.60
1:D:380:ARG:NE	1:D:388:THR:OG1	2.34	0.60
1:E:352:TRP:C	1:E:353:LEU:HD12	2.22	0.60
1:E:385:ASP:HA	1:F:380:ARG:NH2	2.17	0.60
1:C:334:TYR:OH	3:C:801:HOH:O	2.11	0.59
1:A:339:LEU:HD12	1:A:601:ARG:HD3	1.84	0.59
1:A:385:ASP:HB3	1:B:334:TYR:OH	2.04	0.58
1:E:374:LEU:HD13	1:E:607:ALA:HB3	1.85	0.58
1:D:576:THR:HG22	1:D:577:PHE:H	1.69	0.58
1:F:468:LEU:CD1	1:F:539:VAL:HG21	2.35	0.57
1:C:431:SER:HB3	1:C:461:ILE:HG21	1.85	0.57
1:C:505:THR:OG1	1:C:535:GLU:OE2	2.22	0.57
1:C:466:ALA:HB1	1:C:514:VAL:HG23	1.85	0.57
1:A:582:GLU:HG2	1:A:593:GLU:HG2	1.87	0.56
1:E:382:ASN:O	1:E:382:ASN:ND2	2.38	0.56
1:F:382:ASN:HD22	1:F:383:SER:H	1.54	0.56
1:A:330:THR:HG23	1:A:604:VAL:HB	1.88	0.56
1:A:441:GLU:HG3	1:A:450:TRP:CE3	2.41	0.55
1:B:374:LEU:HD13	1:B:607:ALA:HB3	1.89	0.55
1:F:382:ASN:ND2	1:F:383:SER:H	2.04	0.55
1:E:530:GLN:HG2	1:E:573:ASP:HA	1.89	0.55
1:D:333:GLY:O	1:D:363:SER:HB3	2.06	0.55
1:A:512:VAL:HG13	1:A:520:TYR:O	2.07	0.55
1:F:337:GLN:HE21	1:F:382:ASN:CB	2.20	0.55
1:A:383:SER:CB	1:A:384:PRO:HA	2.37	0.55
1:C:572:TYR:CE2	1:C:574:GLY:HA2	2.43	0.54
1:E:335:PHE:CD2	1:E:336:ARG:HG2	2.42	0.54
1:E:377:VAL:CG2	1:E:393:LEU:HD13	2.38	0.54
1:A:361:PRO:HG2	1:A:382:ASN:HB2	1.89	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:530:GLN:N	1:E:530:GLN:OE1	2.40	0.54
1:A:384:PRO:O	1:B:382:ASN:ND2	2.40	0.54
1:C:493:GLU:N	1:C:493:GLU:OE2	2.40	0.53
1:A:588:THR:HG21	1:D:387:ASN:ND2	2.23	0.53
1:C:412:PRO:O	1:C:432:HIS:HB2	2.09	0.53
1:C:384:PRO:C	1:D:380:ARG:HH12	2.12	0.53
1:C:387:ASN:N	1:C:387:ASN:OD1	2.42	0.52
1:A:385:ASP:HA	1:B:382:ASN:HD21	1.71	0.52
1:C:416:ILE:HG12	1:C:417:GLY:N	2.24	0.52
1:A:551:LYS:NZ	1:C:576:THR:OG1	2.43	0.52
1:E:343:GLU:OE2	1:E:598:THR:HG21	2.10	0.52
1:E:380:ARG:HG2	1:E:388:THR:HB	1.92	0.51
1:D:460:ARG:NH1	1:D:484:LEU:HD13	2.25	0.51
1:D:381:ASN:N	1:D:388:THR:O	2.44	0.51
1:A:369:VAL:HG23	1:A:607:ALA:HB1	1.92	0.51
1:F:468:LEU:HD23	1:F:468:LEU:O	2.10	0.50
1:C:335:PHE:O	1:C:336:ARG:HB3	2.11	0.50
1:E:483:ARG:NH2	3:E:801:HOH:O	2.44	0.50
1:B:385:ASP:OD1	1:B:386:GLY:N	2.45	0.50
1:E:329:TYR:CD1	1:E:344:ALA:HB2	2.40	0.49
1:D:430:GLY:O	1:D:461:ILE:HG22	2.12	0.49
1:A:397:ASN:O	1:A:401:ASN:N	2.43	0.49
1:E:327:LEU:HD23	1:E:345:TYR:O	2.12	0.49
1:D:575:HIS:N	1:D:575:HIS:CD2	2.81	0.49
1:D:438:ASN:HB3	1:D:459:ARG:HG2	1.95	0.49
1:A:604:VAL:HG23	1:A:606:VAL:HG23	1.95	0.49
1:C:421:ILE:HD11	1:C:472:LEU:HB2	1.95	0.49
1:D:377:VAL:HG22	1:D:393:LEU:HD12	1.95	0.49
1:E:334:TYR:N	1:E:602:SER:O	2.45	0.48
1:B:428:VAL:HG21	1:B:472:LEU:HD21	1.95	0.48
1:E:369:VAL:HG23	1:E:607:ALA:CB	2.43	0.48
1:A:554:ARG:NH2	1:A:582:GLU:OE2	2.47	0.48
1:A:334:TYR:HB2	1:A:363:SER:CB	2.42	0.48
1:D:443:TYR:OH	1:D:448:ASP:OD1	2.22	0.48
1:A:578:LEU:HD22	1:A:580:SER:HB3	1.93	0.48
1:D:443:TYR:HA	1:D:449:GLU:O	2.13	0.48
1:E:466:ALA:HB1	1:E:514:VAL:HG23	1.95	0.48
1:A:369:VAL:HG11	1:A:609:THR:CG2	2.44	0.48
1:A:595:THR:OG1	1:A:596:ARG:N	2.47	0.48
1:F:380:ARG:CZ	1:F:388:THR:HG21	2.43	0.48
1:D:446:GLU:O	1:D:447:ARG:HB2	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:530:GLN:HG2	1:E:572:TYR:O	2.13	0.47
1:C:369:VAL:HG21	1:C:609:THR:HB	1.96	0.47
1:E:389:ASP:OD2	1:E:433:GLY:N	2.47	0.47
1:E:327:LEU:HD21	1:E:346:ASN:HB2	1.96	0.47
1:E:369:VAL:HG11	1:E:609:THR:HB	1.96	0.47
1:D:600:GLY:HA3	3:D:830:HOH:O	2.14	0.47
1:E:380:ARG:HG2	1:E:388:THR:CB	2.44	0.47
1:F:468:LEU:HD21	1:F:473:TYR:CE1	2.48	0.47
1:B:421:ILE:HD11	1:B:472:LEU:HB2	1.96	0.47
1:D:380:ARG:CZ	1:D:388:THR:OG1	2.62	0.47
1:A:339:LEU:HB3	1:A:341:TYR:CD2	2.50	0.47
1:F:468:LEU:HD13	1:F:519:ILE:HD11	1.96	0.47
1:E:506:ILE:O	1:E:526:ASP:HB3	2.15	0.47
1:A:365:LEU:O	2:A:701:LQK:O24	2.32	0.46
1:A:369:VAL:HG11	1:A:609:THR:HG21	1.97	0.46
1:C:338:SER:HB2	1:C:382:ASN:HD22	1.79	0.46
1:C:352:TRP:NE1	1:C:596:ARG:O	2.48	0.46
1:E:532:ASN:OD1	1:E:553:ARG:NH1	2.49	0.46
1:C:381:ASN:N	1:C:388:THR:O	2.43	0.46
1:D:554:ARG:HA	1:D:573:ASP:HA	1.97	0.45
1:A:559:ILE:HG13	1:A:568:VAL:HG12	1.99	0.45
1:C:374:LEU:CD1	1:C:607:ALA:HB3	2.47	0.45
1:A:339:LEU:HB3	1:A:341:TYR:CE2	2.52	0.45
1:F:468:LEU:HD11	1:F:539:VAL:HG21	1.98	0.45
1:C:560:THR:HG21	1:C:608:VAL:HG23	1.99	0.45
1:E:353:LEU:HD12	1:E:353:LEU:N	2.32	0.45
1:D:383:SER:N	1:D:384:PRO:HA	2.32	0.45
1:F:468:LEU:HD22	1:F:473:TYR:CD1	2.52	0.45
1:F:468:LEU:HD21	1:F:473:TYR:HE1	1.81	0.44
1:A:396:TYR:OH	1:A:401:ASN:ND2	2.50	0.44
1:E:335:PHE:CE2	1:E:336:ARG:HG2	2.53	0.44
1:B:467:VAL:CG2	1:B:472:LEU:HD12	2.48	0.44
1:C:465:VAL:HG11	1:C:472:LEU:HD11	1.99	0.44
1:D:362:ARG:NH1	1:D:390:SER:OG	2.50	0.44
1:E:381:ASN:OD1	1:E:382:ASN:N	2.48	0.43
1:F:468:LEU:HD23	1:F:468:LEU:H	1.83	0.43
2:D:701:LQK:C10	2:D:701:LQK:C29	2.96	0.43
1:F:473:TYR:HE2	1:F:500:ILE:HD13	1.84	0.43
1:E:338:SER:HB2	1:E:382:ASN:HB2	2.01	0.43
1:A:340:SER:O	1:A:358:LEU:N	2.46	0.43
1:A:580:SER:OG	1:A:593:GLU:OE2	2.29	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:576:THR:HG22	1:D:577:PHE:N	2.33	0.43
1:E:340:SER:OG	1:E:361:PRO:HG3	2.19	0.43
1:A:334:TYR:HB2	1:A:363:SER:HB3	2.01	0.42
1:E:366:ALA:HB1	1:E:418:VAL:CG1	2.49	0.42
1:A:370:VAL:HG22	1:A:420:VAL:HG11	2.01	0.42
1:A:467:VAL:O	1:A:514:VAL:HG21	2.19	0.42
1:C:504:ASN:N	1:C:504:ASN:OD1	2.53	0.42
1:E:385:ASP:CB	1:F:334:TYR:HE2	2.31	0.42
1:A:374:LEU:CD1	1:A:607:ALA:HB3	2.50	0.42
1:F:334:TYR:HB2	1:F:363:SER:CB	2.49	0.42
1:B:465:VAL:CG1	1:B:472:LEU:HD11	2.50	0.42
1:B:338:SER:OG	1:B:382:ASN:HB2	2.19	0.42
1:F:392:ALA:HA	1:F:408:PRO:HB3	2.01	0.41
1:D:416:ILE:HG12	1:D:417:GLY:N	2.35	0.41
1:E:345:TYR:CE1	1:E:595:THR:HG21	2.56	0.41
1:F:466:ALA:HB2	1:F:512:VAL:HG12	2.03	0.41
1:D:383:SER:HB3	1:D:385:ASP:O	2.19	0.41
1:A:557:LEU:HD12	1:A:568:VAL:HB	2.01	0.41
1:A:381:ASN:HB2	1:A:388:THR:CG2	2.50	0.41
1:C:385:ASP:C	1:C:387:ASN:N	2.73	0.41
1:D:443:TYR:HB2	1:D:450:TRP:CE3	2.55	0.41
1:A:383:SER:HB3	1:A:384:PRO:CA	2.51	0.41
1:D:335:PHE:HA	1:D:577:PHE:CE1	2.55	0.41
1:B:338:SER:CB	1:B:382:ASN:HB2	2.51	0.41
1:D:384:PRO:O	1:D:385:ASP:CB	2.69	0.41
1:D:463:VAL:HG23	1:D:476:GLY:O	2.21	0.41
1:E:466:ALA:CB	1:E:514:VAL:HG23	2.51	0.41
1:E:468:LEU:HB2	1:E:514:VAL:HG21	2.03	0.41
1:E:530:GLN:O	1:E:553:ARG:HD3	2.21	0.41
1:A:330:THR:HG23	1:A:604:VAL:CB	2.50	0.40
1:A:533:SER:HA	1:A:549:PRO:HB3	2.03	0.40
1:C:385:ASP:HB3	1:C:386:GLY:H	1.76	0.40
1:E:337:GLN:O	1:E:339:LEU:HD13	2.21	0.40
1:C:416:ILE:HD11	1:C:427:ALA:HB1	2.04	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	282/293 (96%)	262 (93%)	16 (6%)	4 (1%)	11	22
1	B	283/293 (97%)	265 (94%)	15 (5%)	3 (1%)	14	30
1	C	282/293 (96%)	263 (93%)	18 (6%)	1 (0%)	34	57
1	D	282/293 (96%)	258 (92%)	21 (7%)	3 (1%)	14	30
1	E	282/293 (96%)	258 (92%)	22 (8%)	2 (1%)	22	43
1	F	284/293 (97%)	265 (93%)	16 (6%)	3 (1%)	14	30
All	All	1695/1758 (96%)	1571 (93%)	108 (6%)	16 (1%)	17	35

All (16) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	383	SER
1	B	383	SER
1	C	381	ASN
1	B	386	GLY
1	D	481	THR
1	E	335	PHE
1	F	382	ASN
1	D	385	ASP
1	E	341	TYR
1	F	381	ASN
1	D	574	GLY
1	A	527	GLY
1	B	384	PRO
1	F	386	GLY
1	A	500	ILE
1	A	384	PRO

### 5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	229/235 (97%)	217 (95%)	12 (5%)	23	46
1	B	229/235 (97%)	223 (97%)	6 (3%)	46	72
1	C	229/235 (97%)	215 (94%)	14 (6%)	18	38
1	D	229/235 (97%)	223 (97%)	6 (3%)	46	72
1	E	229/235 (97%)	223 (97%)	6 (3%)	46	72
1	F	230/235 (98%)	223 (97%)	7 (3%)	41	67
All	All	1375/1410 (98%)	1324 (96%)	51 (4%)	34	60

All (51) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	340	SER
1	A	382	ASN
1	A	387	ASN
1	A	394	ASP
1	A	418	VAL
1	A	431	SER
1	A	441	GLU
1	A	458	THR
1	A	481	THR
1	A	498	ARG
1	A	505	THR
1	A	526	ASP
1	B	340	SER
1	B	387	ASN
1	B	418	VAL
1	B	557	LEU
1	B	590	THR
1	B	609	THR
1	C	330	THR
1	C	365	LEU
1	C	382	ASN
1	C	387	ASN

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	C	432	HIS
1	C	479	ASP
1	C	485	ASN
1	C	504	ASN
1	C	517	ASN
1	C	528	GLN
1	C	530	GLN
1	C	557	LEU
1	C	593	GLU
1	C	596	ARG
1	D	340	SER
1	D	418	VAL
1	D	444	GLU
1	D	448	ASP
1	D	458	THR
1	D	557	LEU
1	E	327	LEU
1	E	339	LEU
1	E	394	ASP
1	E	495	ASN
1	E	499	MET
1	E	557	LEU
1	F	357	ASP
1	F	382	ASN
1	F	383	SER
1	F	422	ASP
1	F	471	LEU
1	F	557	LEU
1	F	609	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (16) such sidechains are listed below:

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	A	387	ASN
1	A	401	ASN
1	A	517	ASN
1	B	381	ASN
1	B	382	ASN
1	B	387	ASN
1	C	382	ASN
1	C	485	ASN
1	D	382	ASN

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Mol	Chain	Res	Type
1	D	424	HIS
1	D	517	ASN
1	D	575	HIS
1	E	382	ASN
1	E	387	ASN
1	F	337	GLN
1	F	382	ASN

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

### 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

### 5.6 Ligand geometry [i](#)

6 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
2	LQK	D	701	-	38,39,39	1.07	2 (5%)	51,57,57	1.60	14 (27%)
2	LQK	A	701	-	38,39,39	1.03	2 (5%)	51,57,57	1.76	12 (23%)
2	LQK	F	701	-	38,39,39	1.01	2 (5%)	51,57,57	1.55	12 (23%)
2	LQK	C	701	-	38,39,39	1.10	2 (5%)	51,57,57	1.56	12 (23%)
2	LQK	B	701	-	38,39,39	1.15	2 (5%)	51,57,57	1.60	14 (27%)
2	LQK	E	701	-	38,39,39	1.06	2 (5%)	51,57,57	1.51	13 (25%)

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	LQK	D	701	-	-	5/19/58/58	0/5/5/5
2	LQK	A	701	-	-	4/19/58/58	0/5/5/5
2	LQK	F	701	-	-	4/19/58/58	0/5/5/5
2	LQK	C	701	-	-	5/19/58/58	0/5/5/5
2	LQK	B	701	-	-	2/19/58/58	0/5/5/5
2	LQK	E	701	-	-	3/19/58/58	0/5/5/5

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	701	LQK	C37-N28	-4.37	1.34	1.39
2	E	701	LQK	C37-N28	-4.32	1.34	1.39
2	C	701	LQK	C37-N28	-4.24	1.34	1.39
2	F	701	LQK	C37-N28	-3.77	1.35	1.39
2	C	701	LQK	C29-N28	-3.70	1.35	1.39
2	D	701	LQK	C37-N28	-3.67	1.35	1.39
2	A	701	LQK	C37-N28	-3.65	1.35	1.39
2	A	701	LQK	C29-N28	-3.52	1.35	1.39
2	B	701	LQK	C29-N28	-3.46	1.35	1.39
2	D	701	LQK	C29-N28	-3.37	1.35	1.39
2	F	701	LQK	C29-N28	-3.36	1.35	1.39
2	E	701	LQK	C29-N28	-3.08	1.36	1.39

All (77) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	701	LQK	C31-C29-N28	4.24	108.89	105.88
2	C	701	LQK	O21-C20-C15	3.77	121.15	115.71
2	F	701	LQK	C31-C29-N28	3.76	108.55	105.88
2	A	701	LQK	C36-C37-N28	3.75	108.54	105.88
2	A	701	LQK	C7-C6-C4	-3.61	85.35	88.98
2	C	701	LQK	C36-C37-N28	3.47	108.35	105.88
2	D	701	LQK	C36-C37-N28	3.46	108.34	105.88
2	D	701	LQK	C4-C2-N1	3.40	121.15	116.38
2	D	701	LQK	C31-C29-N28	3.37	108.27	105.88
2	A	701	LQK	C35-C36-C37	3.32	135.04	129.63
2	C	701	LQK	C31-C29-N28	3.24	108.18	105.88

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	701	LQK	C36-C37-N28	3.23	108.17	105.88
2	D	701	LQK	O30-C29-N28	3.18	127.91	124.81
2	F	701	LQK	C35-C36-C37	3.17	134.80	129.63
2	B	701	LQK	C32-C31-C29	3.10	134.69	129.63
2	E	701	LQK	O21-C20-C15	3.07	120.14	115.71
2	A	701	LQK	O30-C29-N28	3.00	127.73	124.81
2	C	701	LQK	C32-C31-C29	3.00	134.52	129.63
2	E	701	LQK	C36-C37-N28	3.00	108.01	105.88
2	B	701	LQK	C36-C37-N28	2.94	107.97	105.88
2	D	701	LQK	O21-C20-C15	2.87	119.86	115.71
2	C	701	LQK	C35-C36-C37	2.85	134.29	129.63
2	A	701	LQK	C22-O21-C20	2.83	124.61	117.69
2	A	701	LQK	C31-C36-C37	-2.81	105.83	108.26
2	E	701	LQK	O30-C29-N28	2.79	127.53	124.81
2	D	701	LQK	C35-C36-C37	2.78	134.16	129.63
2	C	701	LQK	C4-C2-N1	2.77	120.26	116.38
2	E	701	LQK	C31-C29-N28	2.75	107.84	105.88
2	A	701	LQK	O30-C29-C31	-2.73	123.37	128.68
2	D	701	LQK	O3-C2-N1	-2.69	118.33	123.00
2	E	701	LQK	C32-C31-C29	2.68	134.01	129.63
2	C	701	LQK	O3-C2-N1	-2.68	118.34	123.00
2	C	701	LQK	C31-C36-C37	-2.64	105.97	108.26
2	B	701	LQK	C22-O21-C20	2.63	124.12	117.69
2	F	701	LQK	C31-C36-C37	-2.62	105.99	108.26
2	E	701	LQK	C35-C36-C37	2.61	133.88	129.63
2	D	701	LQK	C31-C36-C37	-2.60	106.01	108.26
2	E	701	LQK	C36-C31-C29	-2.56	106.04	108.26
2	B	701	LQK	O30-C29-N28	2.55	127.30	124.81
2	B	701	LQK	C36-C31-C29	-2.52	106.08	108.26
2	D	701	LQK	O30-C29-C31	-2.51	123.79	128.68
2	B	701	LQK	C7-C6-C4	-2.49	86.48	88.98
2	C	701	LQK	C36-C31-C29	-2.49	106.11	108.26
2	A	701	LQK	C8-C10-N12	2.45	123.55	118.88
2	E	701	LQK	C7-C6-C4	-2.44	86.53	88.98
2	B	701	LQK	C4-C2-N1	2.43	119.78	116.38
2	F	701	LQK	C32-C31-C29	2.42	133.57	129.63
2	F	701	LQK	C36-C31-C29	-2.39	106.19	108.26
2	D	701	LQK	C32-C31-C29	2.37	133.50	129.63
2	E	701	LQK	O3-C2-N1	-2.36	118.89	123.00
2	A	701	LQK	C32-C31-C29	2.34	133.45	129.63
2	F	701	LQK	O3-C2-N1	-2.34	118.93	123.00
2	C	701	LQK	O21-C20-C19	-2.31	118.97	123.97

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	701	LQK	C14-C13-N12	-2.30	106.18	109.48
2	A	701	LQK	C36-C31-C29	-2.28	106.28	108.26
2	D	701	LQK	O11-C10-C8	-2.27	117.88	121.88
2	D	701	LQK	C36-C31-C29	-2.27	106.29	108.26
2	F	701	LQK	O30-C29-N28	2.27	127.02	124.81
2	C	701	LQK	O11-C10-C8	-2.26	117.90	121.88
2	B	701	LQK	C17-C16-C15	2.24	122.04	119.24
2	E	701	LQK	C14-C13-N12	-2.23	106.28	109.48
2	F	701	LQK	C7-C8-C10	-2.21	112.38	118.02
2	B	701	LQK	C31-C36-C37	-2.20	106.35	108.26
2	F	701	LQK	O30-C29-C31	-2.19	124.42	128.68
2	E	701	LQK	C31-C36-C37	-2.17	106.38	108.26
2	E	701	LQK	O11-C10-C8	-2.16	118.08	121.88
2	F	701	LQK	O11-C10-C8	-2.14	118.10	121.88
2	B	701	LQK	O38-C37-N28	2.14	126.89	124.81
2	C	701	LQK	C7-C8-C10	-2.13	112.57	118.02
2	A	701	LQK	O11-C10-C8	-2.09	118.19	121.88
2	E	701	LQK	O30-C29-C31	-2.08	124.63	128.68
2	B	701	LQK	O3-C2-N1	-2.08	119.38	123.00
2	D	701	LQK	C6-C7-C8	-2.08	86.90	88.98
2	B	701	LQK	C7-C8-C10	-2.07	112.73	118.02
2	B	701	LQK	C35-C36-C37	2.06	132.99	129.63
2	D	701	LQK	O38-C37-N28	2.06	126.82	124.81
2	B	701	LQK	C6-C7-C8	-2.04	86.94	88.98

There are no chirality outliers.

All (23) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	C	701	LQK	O21-C22-C23-O24
2	F	701	LQK	O21-C22-C23-O24
2	D	701	LQK	O21-C22-C23-O24
2	B	701	LQK	C23-C22-O21-C20
2	C	701	LQK	N12-C10-C8-C4
2	F	701	LQK	C19-C20-O21-C22
2	D	701	LQK	C19-C20-O21-C22
2	A	701	LQK	O11-C10-C8-C4
2	C	701	LQK	O11-C10-C8-C4
2	D	701	LQK	O11-C10-C8-C4
2	C	701	LQK	C19-C20-O21-C22
2	A	701	LQK	O21-C22-C23-O24
2	E	701	LQK	C19-C20-O21-C22

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Mol	Chain	Res	Type	Atoms
2	A	701	LQK	C23-C22-O21-C20
2	F	701	LQK	C15-C20-O21-C22
2	D	701	LQK	C15-C20-O21-C22
2	C	701	LQK	C15-C20-O21-C22
2	E	701	LQK	C15-C20-O21-C22
2	A	701	LQK	N12-C10-C8-C4
2	B	701	LQK	N12-C10-C8-C4
2	D	701	LQK	N12-C10-C8-C4
2	E	701	LQK	N12-C10-C8-C4
2	F	701	LQK	N12-C10-C8-C4

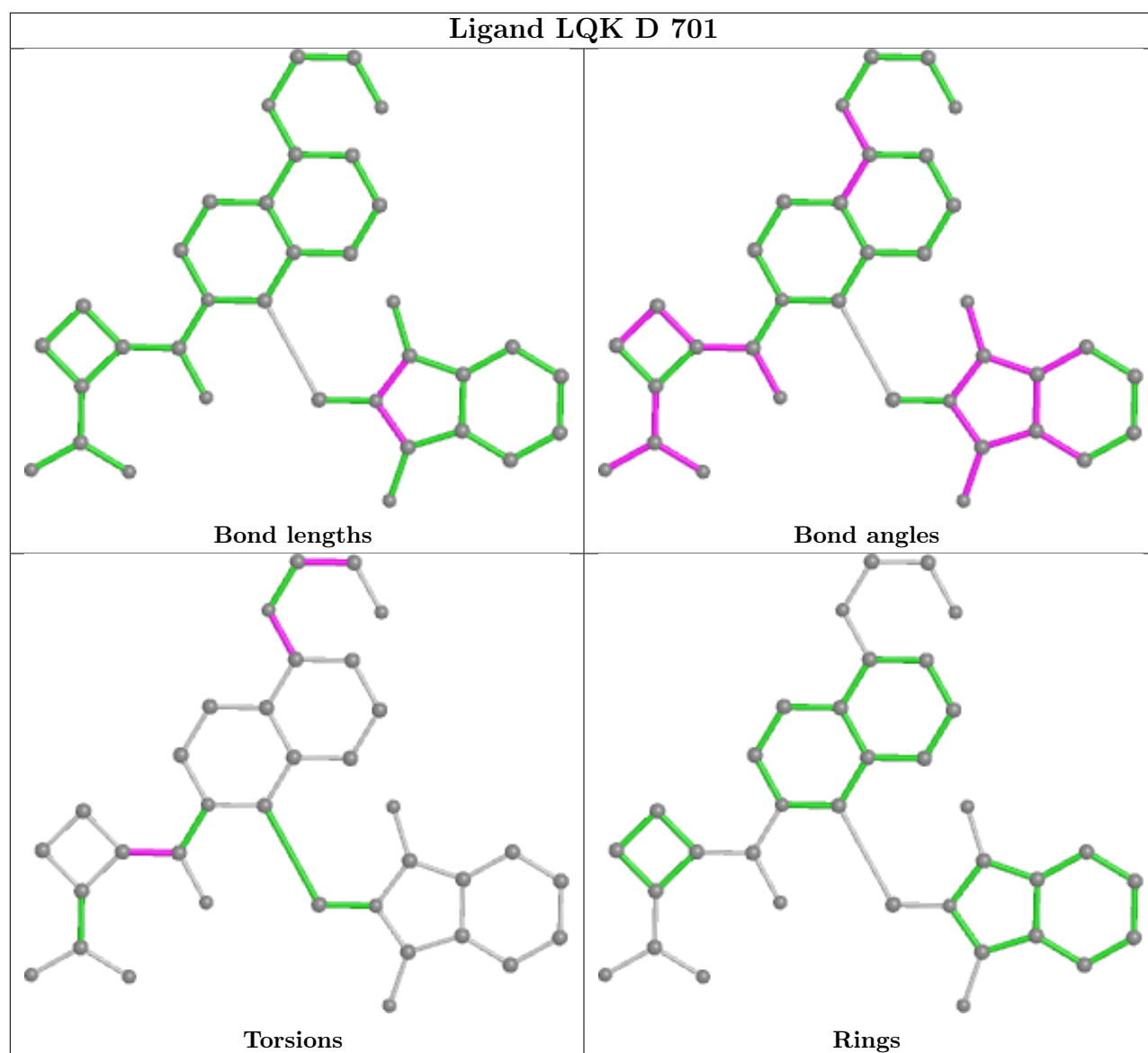
There are no ring outliers.

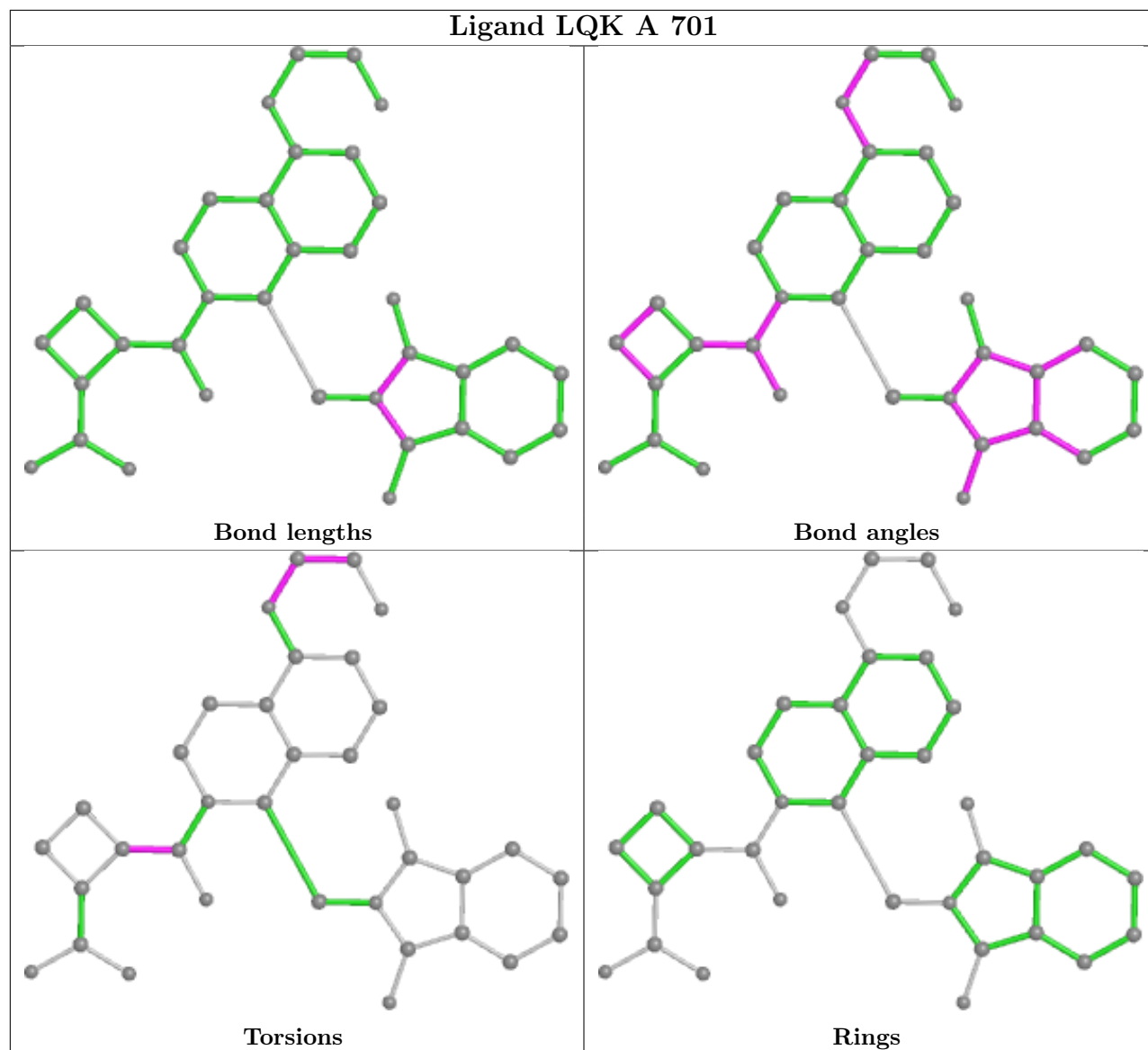
2 monomers are involved in 2 short contacts:

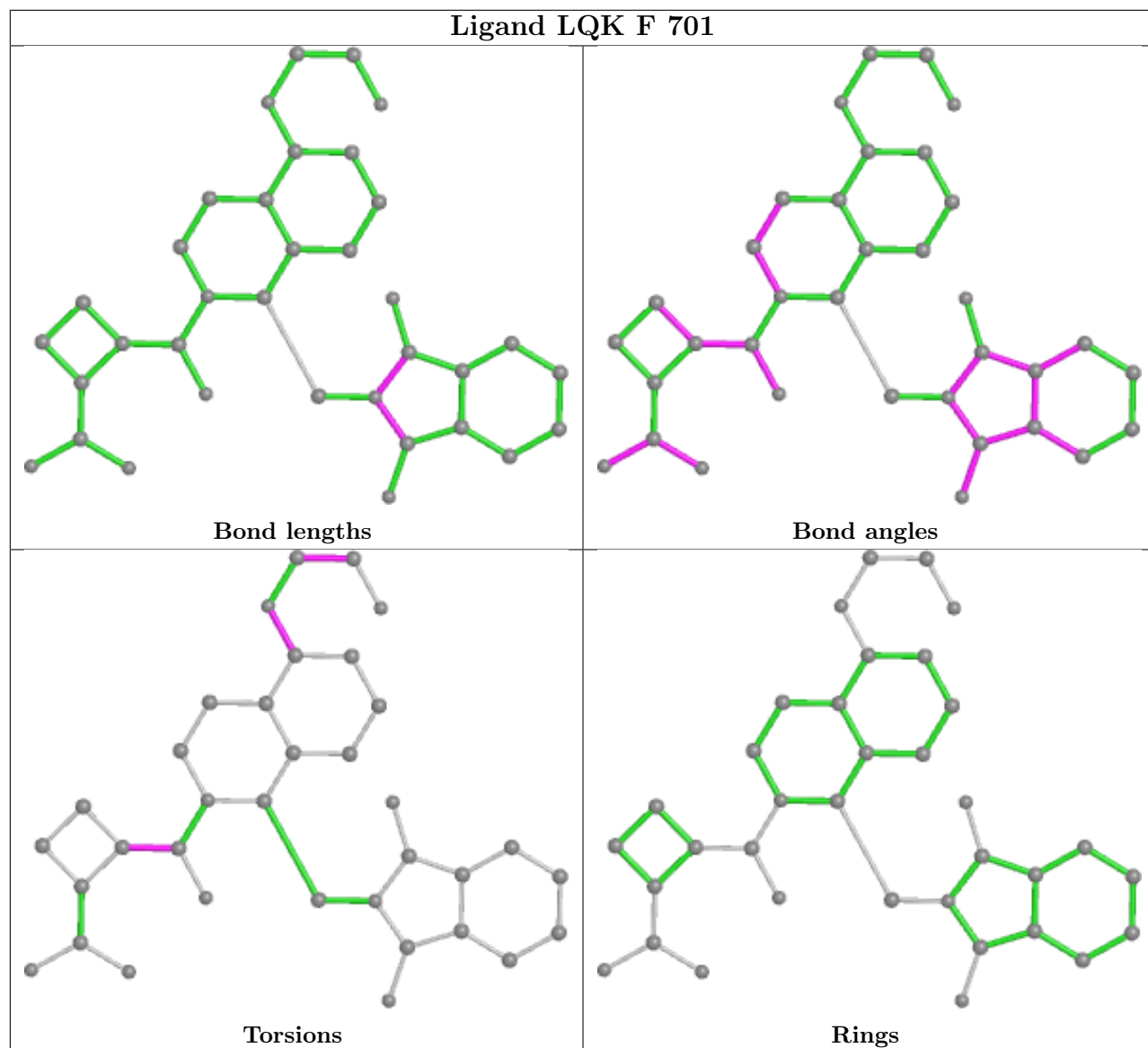
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	701	LQK	1	0
2	A	701	LQK	1	0

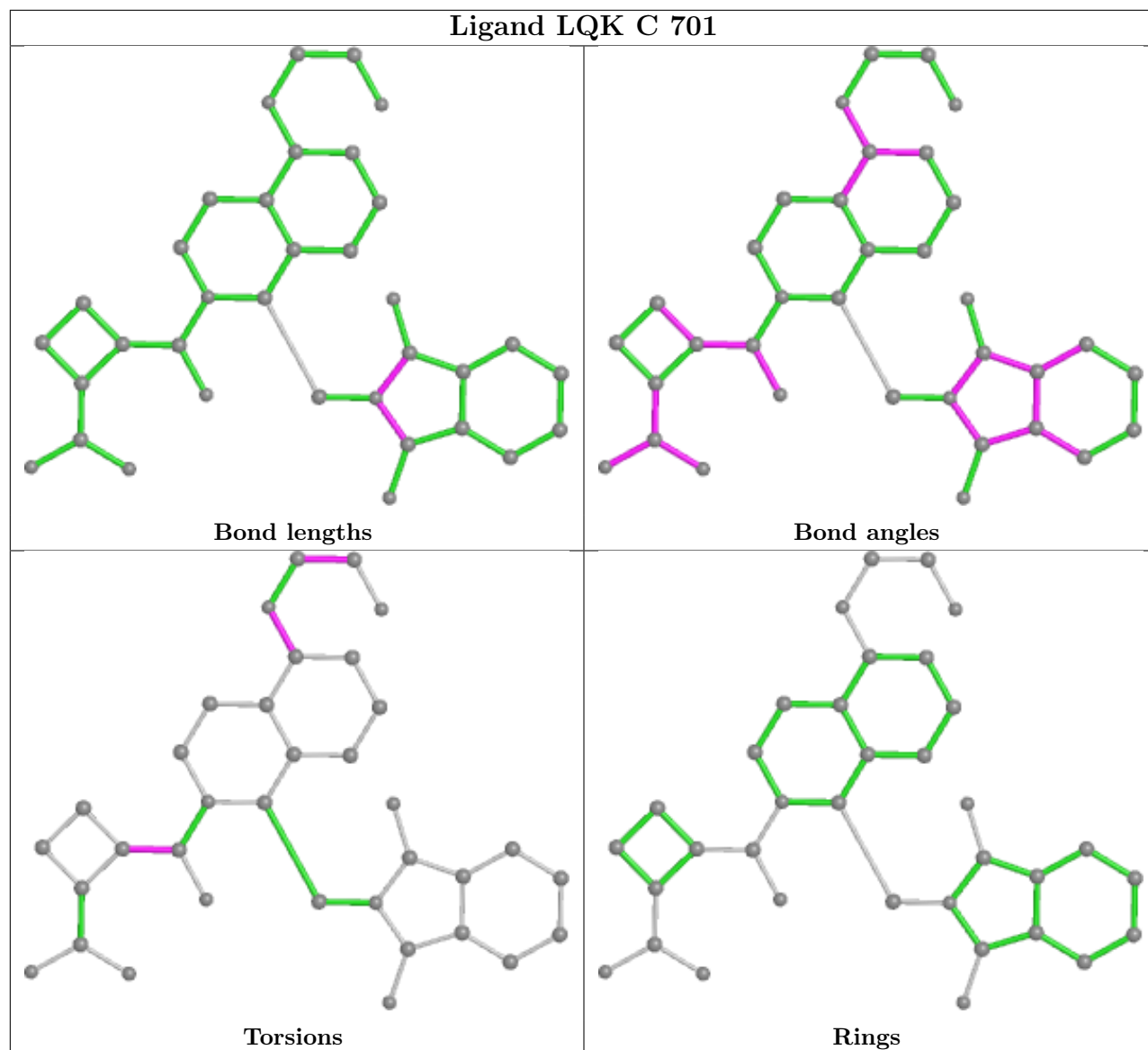
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

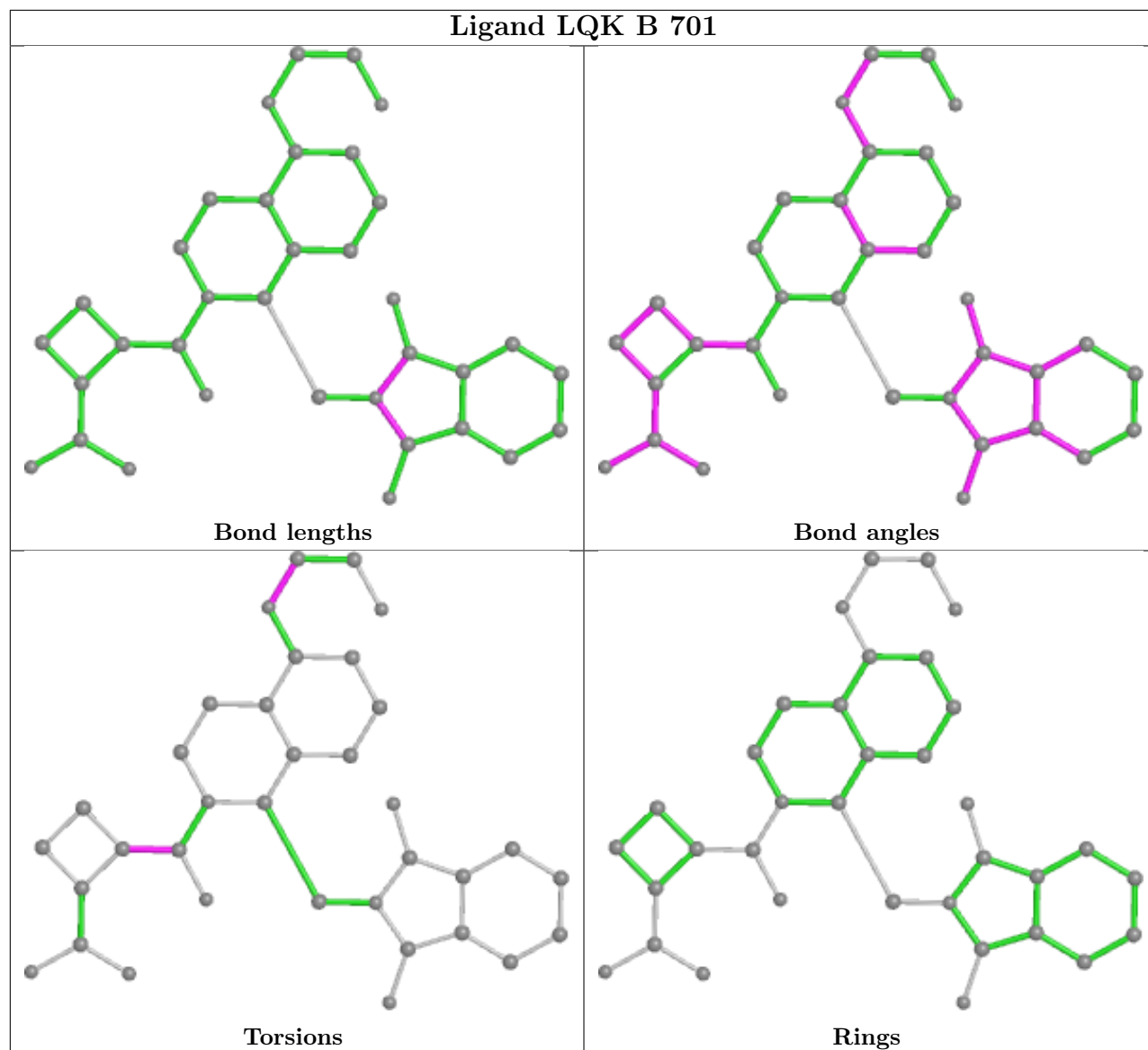


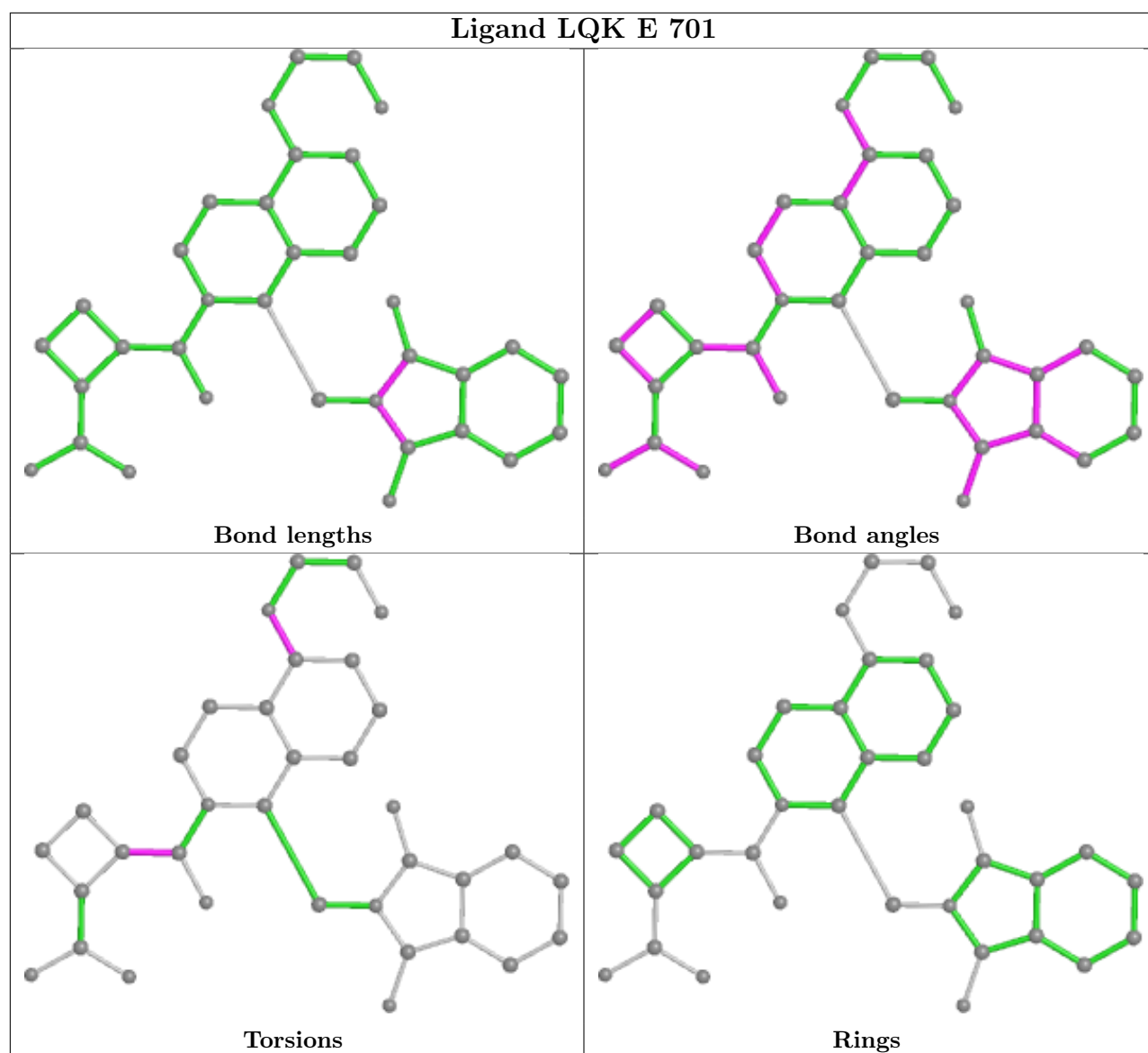












## 5.7 Other polymers [\(i\)](#)

There are no such residues in this entry.

## 5.8 Polymer linkage issues [\(i\)](#)

There are no chain breaks in this entry.

## 6 Fit of model and data

### 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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	284/293 (96%)	0.31	9 (3%) 47 40	8, 53, 88, 121	0
1	B	285/293 (97%)	0.45	16 (5%) 24 19	15, 65, 98, 129	0
1	C	284/293 (96%)	0.17	7 (2%) 57 51	12, 54, 82, 109	0
1	D	284/293 (96%)	0.39	15 (5%) 26 20	24, 66, 96, 112	0
1	E	284/293 (96%)	0.58	22 (7%) 13 10	36, 75, 106, 130	0
1	F	286/293 (97%)	0.46	14 (4%) 29 23	31, 68, 95, 137	0
All	All	1707/1758 (97%)	0.39	83 (4%) 29 23	8, 63, 98, 137	0

All (83) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	F	395	CYS	7.5
1	E	505	THR	7.5
1	E	395	CYS	6.9
1	E	514	VAL	5.5
1	A	384	PRO	4.9
1	E	504	ASN	4.7
1	A	398	PRO	4.3
1	B	420	VAL	4.3
1	D	519	ILE	4.2
1	B	383	SER	4.2
1	F	330	THR	3.9
1	B	384	PRO	3.9
1	E	418	VAL	3.8
1	E	405	PRO	3.8
1	F	368	CYS	3.6
1	F	609	THR	3.6
1	B	490	TYR	3.5
1	F	493	GLU	3.5
1	A	369	VAL	3.5

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>	<b>RSRZ</b>
1	B	421	ILE	3.4
1	A	353	LEU	3.2
1	D	471	LEU	3.1
1	F	432	HIS	3.1
1	C	385	ASP	3.1
1	E	403	TRP	3.1
1	B	359	GLN	3.0
1	E	498	ARG	3.0
1	E	329	TYR	2.9
1	E	540	ALA	2.9
1	E	375	TYR	2.9
1	D	428	VAL	2.8
1	B	517	ASN	2.8
1	B	426	TYR	2.8
1	D	502	ALA	2.7
1	F	376	ALA	2.7
1	E	520	TYR	2.7
1	D	544	TRP	2.7
1	C	521	ALA	2.7
1	E	461	ILE	2.6
1	E	511	GLY	2.6
1	B	368	CYS	2.6
1	E	577	PHE	2.6
1	D	446	GLU	2.6
1	D	381	ASN	2.6
1	C	515	LEU	2.5
1	B	374	LEU	2.5
1	E	499	MET	2.5
1	E	521	ALA	2.5
1	D	489	CYS	2.5
1	A	356	ALA	2.5
1	D	522	ALA	2.5
1	E	473	TYR	2.4
1	B	427	ALA	2.4
1	E	510	ALA	2.4
1	A	386	GLY	2.4
1	E	426	TYR	2.4
1	F	608	VAL	2.4
1	B	329	TYR	2.4
1	A	377	VAL	2.3
1	B	360	VAL	2.3
1	F	540	ALA	2.3

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Mol	Chain	Res	Type	RSRZ
1	F	474	ALA	2.2
1	B	330	THR	2.2
1	F	579	ASP	2.2
1	E	416	ILE	2.2
1	D	353	LEU	2.2
1	B	556	ALA	2.2
1	F	578	LEU	2.2
1	C	384	PRO	2.2
1	A	426	TYR	2.1
1	A	546	PHE	2.1
1	D	501	THR	2.1
1	D	358	LEU	2.1
1	F	369	VAL	2.1
1	C	540	ALA	2.1
1	C	572	TYR	2.1
1	F	461	ILE	2.1
1	E	457	LEU	2.1
1	B	340	SER	2.1
1	D	422	ASP	2.0
1	D	500	ILE	2.0
1	D	400	THR	2.0
1	C	353	LEU	2.0

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

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

## 6.3 Carbohydrates [\(i\)](#)

There are no monosaccharides in this entry.

## 6.4 Ligands [\(i\)](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> 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.

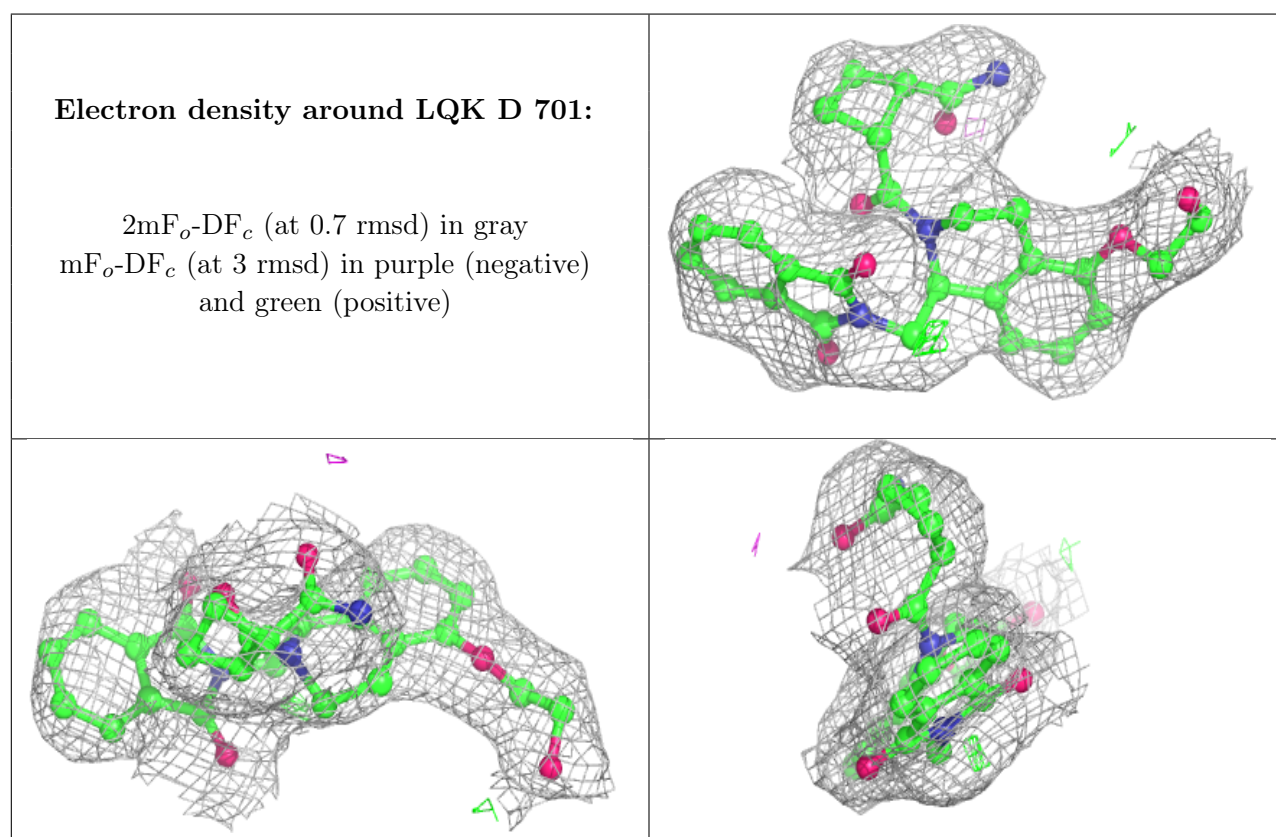
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
2	LQK	D	701	35/35	0.91	0.17	41,57,75,81	0

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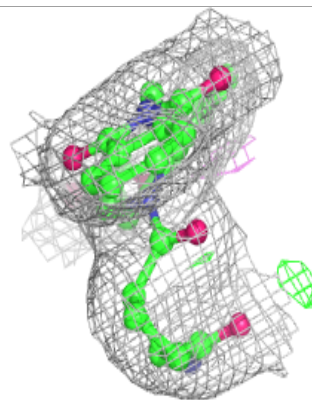
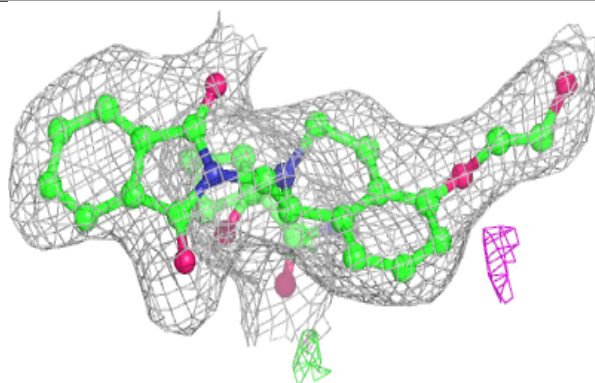
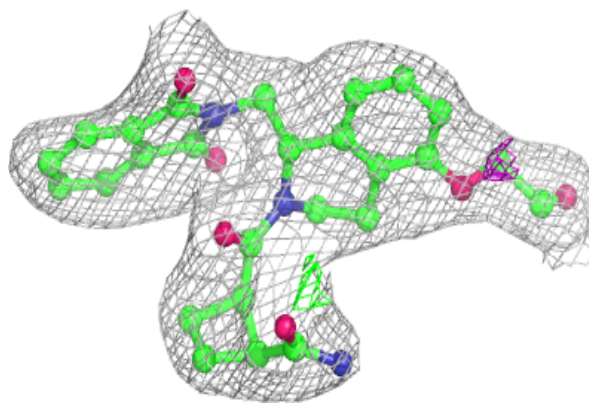
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
2	LQK	F	701	35/35	0.91	0.15	39,47,62,72	0
2	LQK	E	701	35/35	0.92	0.15	33,56,71,77	0
2	LQK	B	701	35/35	0.93	0.15	40,57,83,87	0
2	LQK	A	701	35/35	0.93	0.18	49,65,87,93	0
2	LQK	C	701	35/35	0.94	0.15	32,51,74,78	0

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.

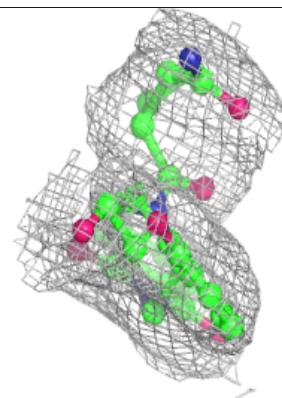
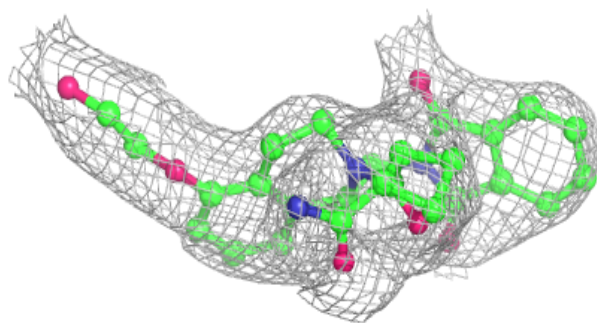
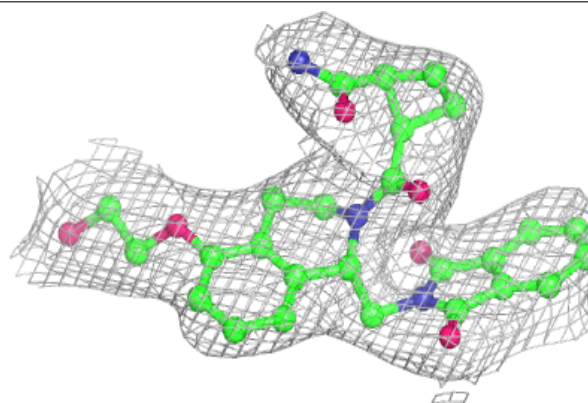


**Electron density around LQK F 701:**

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

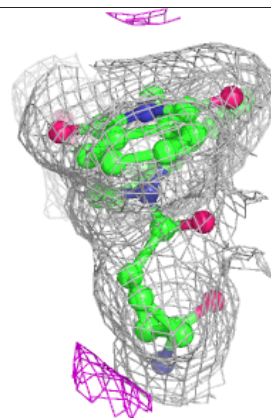
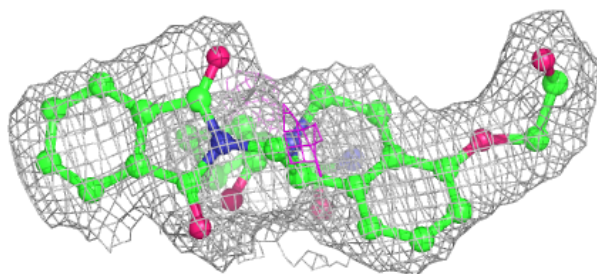
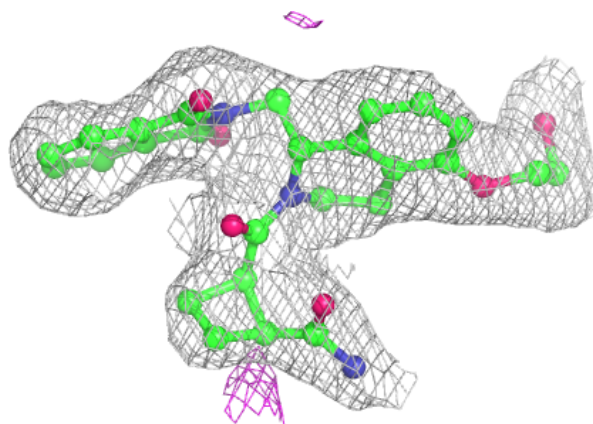
**Electron density around LQK E 701:**

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

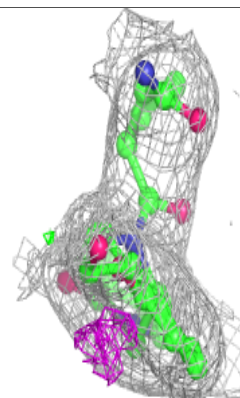
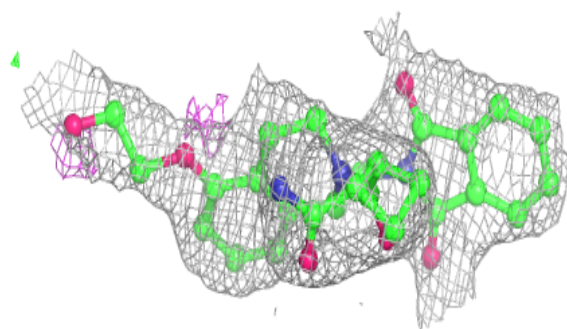
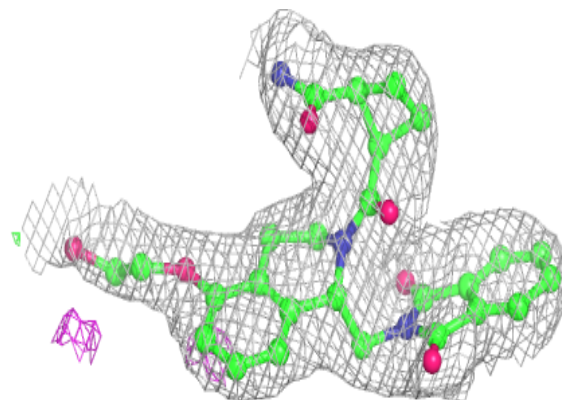


**Electron density around LQK B 701:**

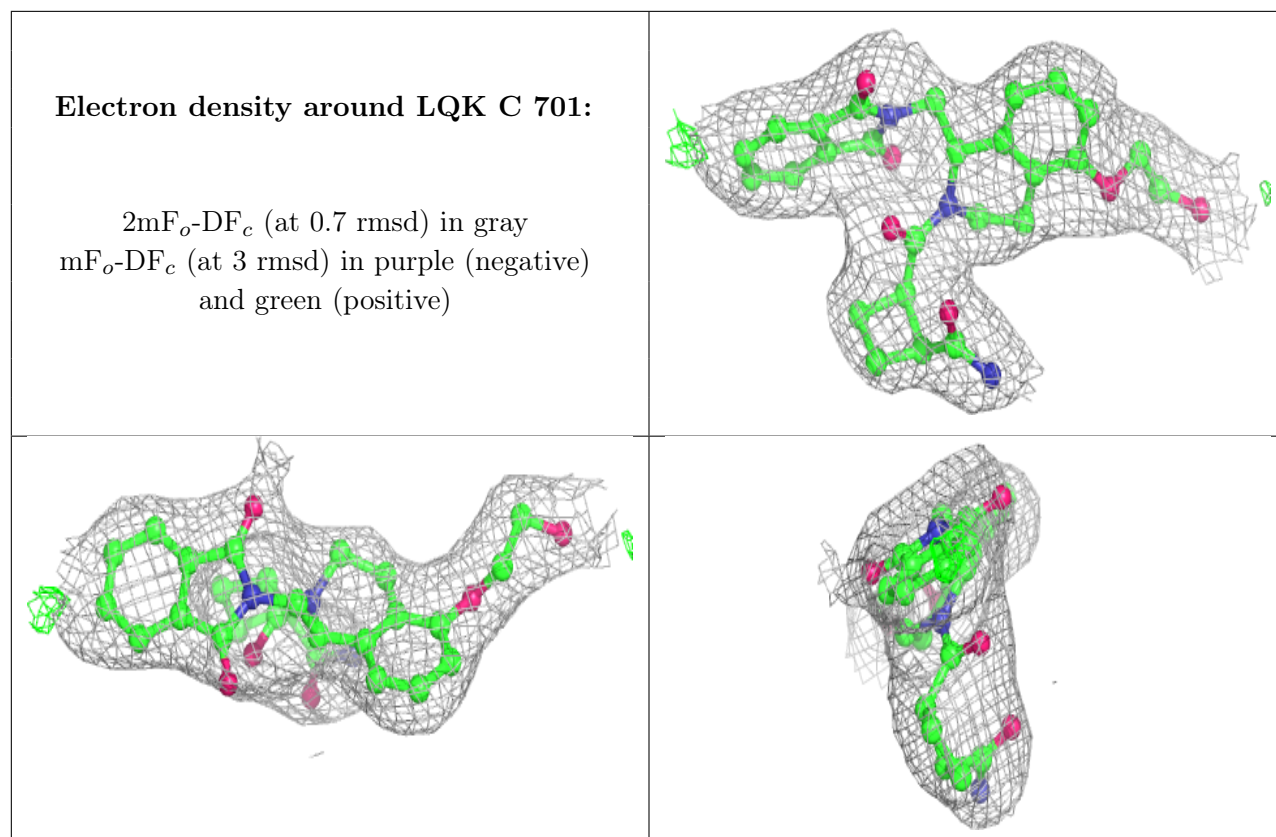
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

**Electron density around LQK A 701:**

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







## 6.5 Other polymers [i](#)

There are no such residues in this entry.