Full wwPDB X-ray Structure Validation Report ⓘ

Sep 24, 2025 – 03:20 am BST

PDB ID	:	5MQV / pdb_00005mqv
Title	:	Crystal structure of human Casein Kinase I delta in complex with 4-(2,5-Dim ethoxyphenyl)-N-(4-(5-(4-fluorphenyl)-2-(methylthio)-1H-imidazol-4-yl)-pyri din-2-yl)-1-methyl-1H-pyrrole-2-carboxamide
Authors	:	Pichlo, C.; Brunstein, E.; Baumann, U.
Deposited on	:	2016-12-20
Resolution	:	2.15 Å(reported)

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

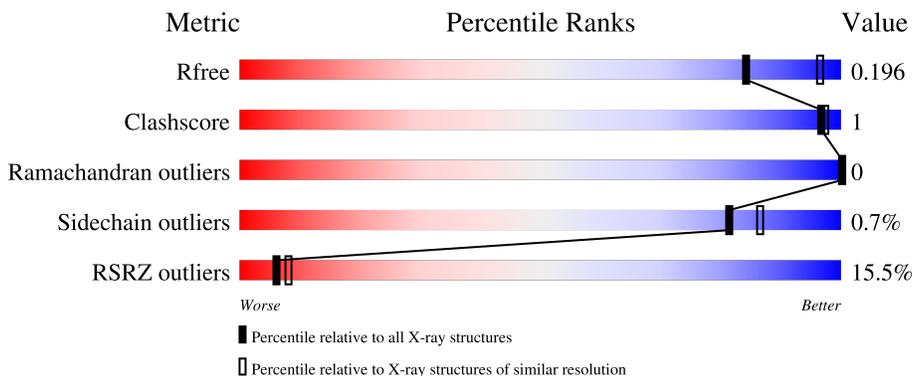|		
MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	1.8.4, CSD as541be (2020)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.46

1 Overall quality at a glance ⓘ

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

The reported resolution of this entry is 2.15 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.
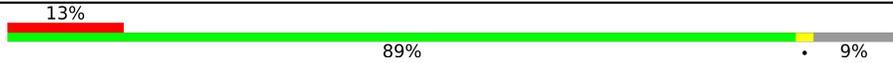
Metric	Percentile Ranks	Value
Rfree		0.196
Clashscore		1
Ramachandran outliers		0
Sidechain outliers		0.7%
RSRZ outliers		15.5%

Worse   *Better*

▌ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	164625	1881 (2.16-2.16)
Clashscore	180529	2047 (2.16-2.16)
Ramachandran outliers	177936	2027 (2.16-2.16)
Sidechain outliers	177891	2026 (2.16-2.16)
RSRZ outliers	164620	1882 (2.16-2.16)

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

Mol	Chain	Length	Quality of chain
1	A	314	13% / 89% · 9%
1	B	314	13% / 90% · 9%
1	C	314	14% / 89% · 8%
1	D	314	16% / 89% · 9%

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Mol	Chain	Length	Quality of chain
1	E	314	13% 89% • 9%
1	F	314	16% 88% • 9%

2 Entry composition (i)

There are 4 unique types of molecules in this entry. The entry contains 28576 atoms, of which 13705 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 Casein kinase I isoform delta.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	286	Total	C	H	N	O	S	0	2	0
			4554	1479	2250	395	416	14			
1	B	287	Total	C	H	N	O	S	0	0	0
			4555	1476	2256	394	415	14			
1	C	288	Total	C	H	N	O	S	0	0	0
			4568	1478	2263	396	417	14			
1	D	287	Total	C	H	N	O	S	1	2	0
			4598	1490	2278	398	418	14			
1	E	287	Total	C	H	N	O	S	0	0	0
			4593	1489	2275	399	416	14			
1	F	286	Total	C	H	N	O	S	0	2	0
			4516	1471	2227	389	415	14			

There are 120 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-19	MET	-	initiating methionine	UNP P48730
A	-18	GLY	-	expression tag	UNP P48730
A	-17	SER	-	expression tag	UNP P48730
A	-16	SER	-	expression tag	UNP P48730
A	-15	HIS	-	expression tag	UNP P48730
A	-14	HIS	-	expression tag	UNP P48730
A	-13	HIS	-	expression tag	UNP P48730
A	-12	HIS	-	expression tag	UNP P48730
A	-11	HIS	-	expression tag	UNP P48730
A	-10	HIS	-	expression tag	UNP P48730
A	-9	SER	-	expression tag	UNP P48730
A	-8	SER	-	expression tag	UNP P48730
A	-7	GLY	-	expression tag	UNP P48730
A	-6	LEU	-	expression tag	UNP P48730
A	-5	VAL	-	expression tag	UNP P48730
A	-4	PRO	-	expression tag	UNP P48730
A	-3	ARG	-	expression tag	UNP P48730

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Chain	Residue	Modelled	Actual	Comment	Reference
A	-2	GLY	-	expression tag	UNP P48730
A	-1	SER	-	expression tag	UNP P48730
A	0	HIS	-	expression tag	UNP P48730
B	-19	MET	-	initiating methionine	UNP P48730
B	-18	GLY	-	expression tag	UNP P48730
B	-17	SER	-	expression tag	UNP P48730
B	-16	SER	-	expression tag	UNP P48730
B	-15	HIS	-	expression tag	UNP P48730
B	-14	HIS	-	expression tag	UNP P48730
B	-13	HIS	-	expression tag	UNP P48730
B	-12	HIS	-	expression tag	UNP P48730
B	-11	HIS	-	expression tag	UNP P48730
B	-10	HIS	-	expression tag	UNP P48730
B	-9	SER	-	expression tag	UNP P48730
B	-8	SER	-	expression tag	UNP P48730
B	-7	GLY	-	expression tag	UNP P48730
B	-6	LEU	-	expression tag	UNP P48730
B	-5	VAL	-	expression tag	UNP P48730
B	-4	PRO	-	expression tag	UNP P48730
B	-3	ARG	-	expression tag	UNP P48730
B	-2	GLY	-	expression tag	UNP P48730
B	-1	SER	-	expression tag	UNP P48730
B	0	HIS	-	expression tag	UNP P48730
C	-19	MET	-	initiating methionine	UNP P48730
C	-18	GLY	-	expression tag	UNP P48730
C	-17	SER	-	expression tag	UNP P48730
C	-16	SER	-	expression tag	UNP P48730
C	-15	HIS	-	expression tag	UNP P48730
C	-14	HIS	-	expression tag	UNP P48730
C	-13	HIS	-	expression tag	UNP P48730
C	-12	HIS	-	expression tag	UNP P48730
C	-11	HIS	-	expression tag	UNP P48730
C	-10	HIS	-	expression tag	UNP P48730
C	-9	SER	-	expression tag	UNP P48730
C	-8	SER	-	expression tag	UNP P48730
C	-7	GLY	-	expression tag	UNP P48730
C	-6	LEU	-	expression tag	UNP P48730
C	-5	VAL	-	expression tag	UNP P48730
C	-4	PRO	-	expression tag	UNP P48730
C	-3	ARG	-	expression tag	UNP P48730
C	-2	GLY	-	expression tag	UNP P48730
C	-1	SER	-	expression tag	UNP P48730

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Chain	Residue	Modelled	Actual	Comment	Reference
C	0	HIS	-	expression tag	UNP P48730
D	-19	MET	-	initiating methionine	UNP P48730
D	-18	GLY	-	expression tag	UNP P48730
D	-17	SER	-	expression tag	UNP P48730
D	-16	SER	-	expression tag	UNP P48730
D	-15	HIS	-	expression tag	UNP P48730
D	-14	HIS	-	expression tag	UNP P48730
D	-13	HIS	-	expression tag	UNP P48730
D	-12	HIS	-	expression tag	UNP P48730
D	-11	HIS	-	expression tag	UNP P48730
D	-10	HIS	-	expression tag	UNP P48730
D	-9	SER	-	expression tag	UNP P48730
D	-8	SER	-	expression tag	UNP P48730
D	-7	GLY	-	expression tag	UNP P48730
D	-6	LEU	-	expression tag	UNP P48730
D	-5	VAL	-	expression tag	UNP P48730
D	-4	PRO	-	expression tag	UNP P48730
D	-3	ARG	-	expression tag	UNP P48730
D	-2	GLY	-	expression tag	UNP P48730
D	-1	SER	-	expression tag	UNP P48730
D	0	HIS	-	expression tag	UNP P48730
E	-19	MET	-	initiating methionine	UNP P48730
E	-18	GLY	-	expression tag	UNP P48730
E	-17	SER	-	expression tag	UNP P48730
E	-16	SER	-	expression tag	UNP P48730
E	-15	HIS	-	expression tag	UNP P48730
E	-14	HIS	-	expression tag	UNP P48730
E	-13	HIS	-	expression tag	UNP P48730
E	-12	HIS	-	expression tag	UNP P48730
E	-11	HIS	-	expression tag	UNP P48730
E	-10	HIS	-	expression tag	UNP P48730
E	-9	SER	-	expression tag	UNP P48730
E	-8	SER	-	expression tag	UNP P48730
E	-7	GLY	-	expression tag	UNP P48730
E	-6	LEU	-	expression tag	UNP P48730
E	-5	VAL	-	expression tag	UNP P48730
E	-4	PRO	-	expression tag	UNP P48730
E	-3	ARG	-	expression tag	UNP P48730
E	-2	GLY	-	expression tag	UNP P48730
E	-1	SER	-	expression tag	UNP P48730
E	0	HIS	-	expression tag	UNP P48730
F	-19	MET	-	initiating methionine	UNP P48730

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Chain	Residue	Modelled	Actual	Comment	Reference
F	-18	GLY	-	expression tag	UNP P48730
F	-17	SER	-	expression tag	UNP P48730
F	-16	SER	-	expression tag	UNP P48730
F	-15	HIS	-	expression tag	UNP P48730
F	-14	HIS	-	expression tag	UNP P48730
F	-13	HIS	-	expression tag	UNP P48730
F	-12	HIS	-	expression tag	UNP P48730
F	-11	HIS	-	expression tag	UNP P48730
F	-10	HIS	-	expression tag	UNP P48730
F	-9	SER	-	expression tag	UNP P48730
F	-8	SER	-	expression tag	UNP P48730
F	-7	GLY	-	expression tag	UNP P48730
F	-6	LEU	-	expression tag	UNP P48730
F	-5	VAL	-	expression tag	UNP P48730
F	-4	PRO	-	expression tag	UNP P48730
F	-3	ARG	-	expression tag	UNP P48730
F	-2	GLY	-	expression tag	UNP P48730
F	-1	SER	-	expression tag	UNP P48730
F	0	HIS	-	expression tag	UNP P48730

- Molecule 2 is 4-(2,5-Dimethoxyphenyl)-N-(4-(5-(4-fluorphenyl)-2-(methylthio)-1H-imidazol-4-yl)-pyridin-2-yl)-1-methyl-1H-pyrrole-2-carboxamide (CCD ID: D5Q) (formula: $C_{29}H_{26}FN_5O_3S$).


D5Q
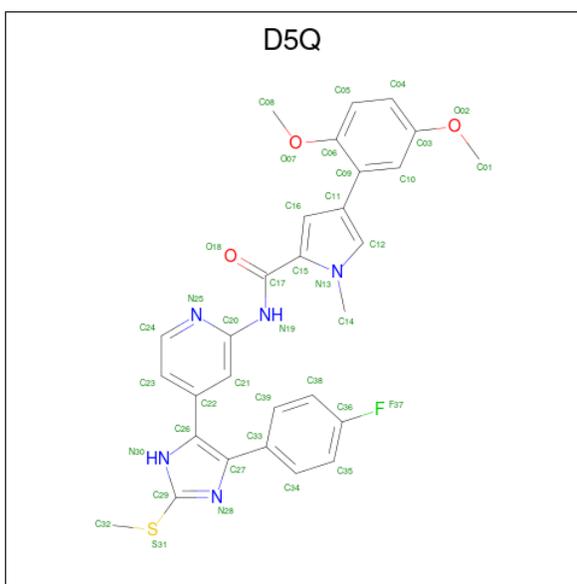
Mol	Chain	Residues	Atoms							ZeroOcc	AltConf
			Total	C	F	H	N	O	S		
2	A	1	65	29	1	26	5	3	1	0	0

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Mol	Chain	Residues	Atoms								ZeroOcc	AltConf
2	B	1	Total	C	F	H	N	O	S		0	0
			65	29	1	26	5	3	1			
2	C	1	Total	C	F	H	N	O	S		0	0
			65	29	1	26	5	3	1			
2	D	1	Total	C	F	H	N	O	S		0	0
			65	29	1	26	5	3	1			
2	E	1	Total	C	F	H	N	O	S		0	0
			65	29	1	26	5	3	1			
2	F	1	Total	C	F	H	N	O	S		0	0
			65	29	1	26	5	3	1			

- Molecule 3 is PHOSPHATE ION (CCD ID: PO4) (formula: O_4P).
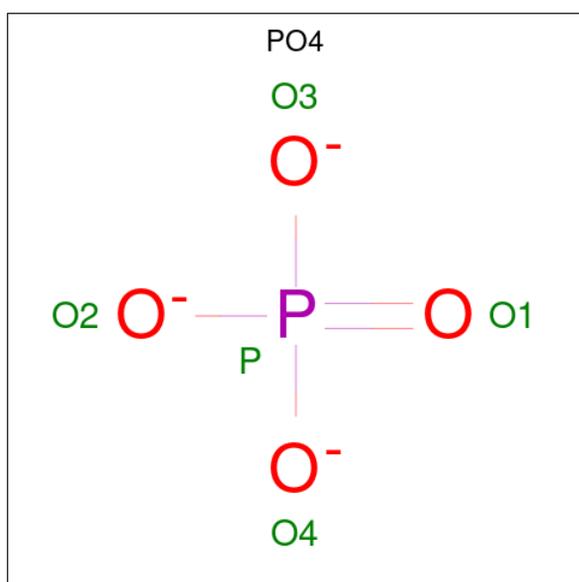
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	O	P	0	0
			5	4	1		
3	A	1	Total	O	P	0	0
			5	4	1		
3	A	1	Total	O	P	0	0
			5	4	1		
3	B	1	Total	O	P	0	0
			5	4	1		
3	B	1	Total	O	P	0	0
			5	4	1		
3	B	1	Total	O	P	0	0
			5	4	1		

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

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	130	Total 130	O 130	0	0
4	B	123	Total 123	O 123	0	0
4	C	129	Total 129	O 129	0	0
4	D	111	Total 111	O 111	0	0

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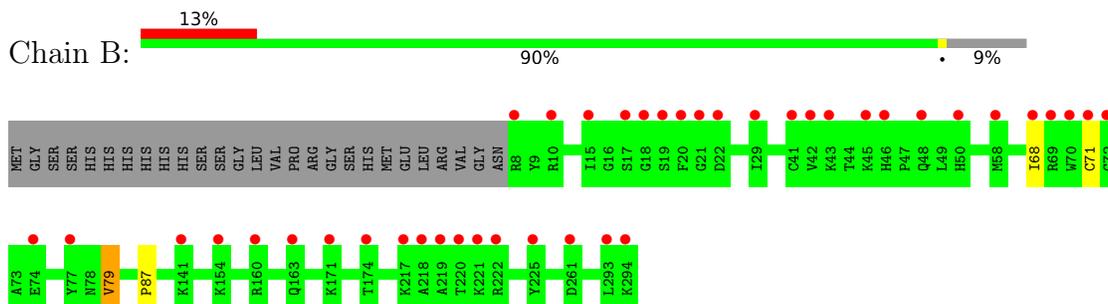| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	E	100	Total O 100 100		0	0
4	F	104	Total O 104 104		0	0

3 Residue-property plots ⓘ

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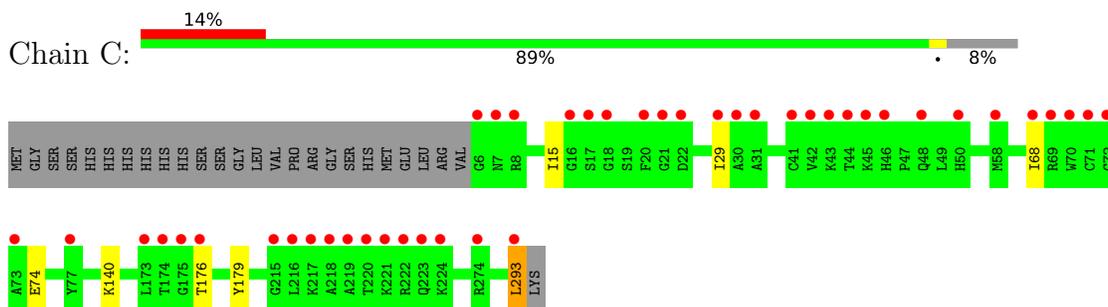
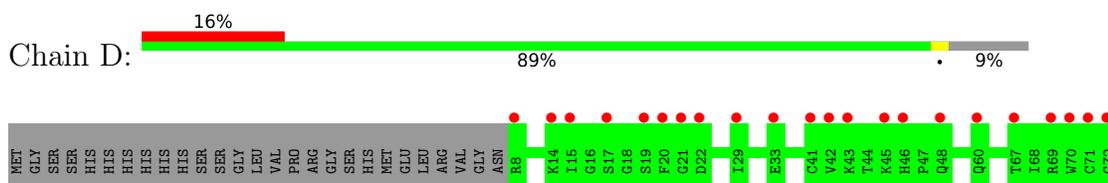- Molecule 1: Casein kinase I isoform delta

Chain A:

- Molecule 1: Casein kinase I isoform delta

Chain B:

- Molecule 1: Casein kinase I isoform delta

Chain C:

- Molecule 1: Casein kinase I isoform delta

Chain D:

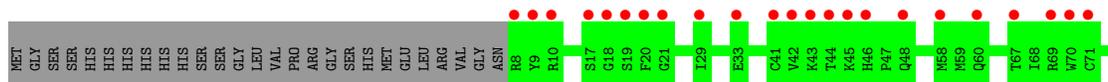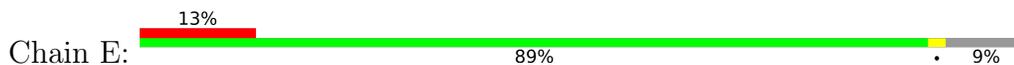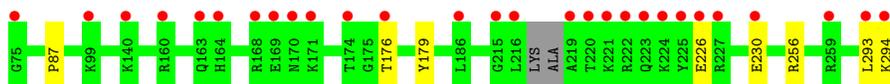G75 D76 G139 K140 R160 H164 I165 P166 Y167 R168 E169 N170 K171 N172 L173 T174 G175 T176 H185 I188 K217 A218 A219 T220 K221 R222 Q223 K224 Y225 E226 R227 M233 R259 F260 D261 K294

• Molecule 1: Casein kinase I isoform delta

Chain E:

13%

89%   • 9%

MET GLY SER SER HIS HIS HIS HIS HIS SER SER GLY LEU VAL PRO ARG GLY SER HIS MET GLU LEU ARG VAL GLY ASN R8 Y9 R10 S17 G18 S19 F20 G21 I29 E33 C41 V42 K43 T44 K45 H46 P47 Q48 M58 M59 Q60 T67 I68 R69 W70 C71

Y77 N78 V79 P87 K99 Q163 E169 T174 I182 L216 K217 A218 A219 T220 K221 K224 M233 R256 R274 L293 K294

• Molecule 1: Casein kinase I isoform delta

Chain F:

16%

88%   • 9%

MET GLY SER SER HIS HIS HIS HIS HIS SER SER GLY LEU VAL PRO ARG GLY SER HIS MET GLU LEU ARG VAL GLY N7 R8 S17 F20 G21 I29 E33 K38 C41 V42 K43 T44 K45 H46 P47 Q48 I51 M58 I68 R69 W70 C71 G72 A73 E74

G75 P87 K99 K140 R160 Q163 H164 R168 E169 N170 K171 T174 G175 T176 Y179 L186 C215 L216 LYS ALA A219 T220 K221 R222 Q223 K224 Y225 E226 R227 E230 R256 R259 L293 K294

4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α, β, γ	197.93Å 127.28Å 154.78Å 90.00° 113.63° 90.00°	Depositor
Resolution (Å)	49.29 – 2.15 49.29 – 2.15	Depositor EDS
% Data completeness (in resolution range)	97.1 (49.29-2.15) 91.8 (49.29-2.15)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.42 (at 2.16Å)	Xtriage
Refinement program	PHENIX 1.10.1_2155	Depositor
R, R_{free}	0.173 , 0.192 0.178 , 0.196	Depositor DCC
R_{free} test set	2000 reflections (1.06%)	wwPDB-VP
Wilson B-factor (Å^2)	35.5	Xtriage
Anisotropy	0.188	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.43 , 59.6	EDS
L-test for twinning[2]	$< |L| > = 0.48, < L^2 > = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	28576	wwPDB-VP
Average B, all atoms (Å^2)	56.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.51% of the height of the origin peak. No significant pseudotranslation is detected.*

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

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: D5Q, PO4

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	#$|Z|$>5	RMSZ	#$|Z|$>5
1	A	0.16	0/2367	0.37	0/3192
1	B	0.19	0/2352	0.39	0/3169
1	C	0.16	0/2358	0.37	0/3177
1	D	0.16	0/2383	0.38	0/3212
1	E	0.21	0/2372	0.41	0/3193
1	F	0.15	0/2350	0.36	0/3169
All	All	0.17	0/14182	0.38	0/19112

There are no bond length outliers.

There are no bond angle outliers.

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	2304	2250	2239	4	0
1	B	2299	2256	2258	2	0
1	C	2305	2263	2259	4	0
1	D	2320	2278	2267	5	0
1	E	2318	2275	2288	3	0
1	F	2289	2227	2220	11	0
2	A	39	26	0	2	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	B	39	26	0	1	0
2	C	39	26	0	0	0
2	D	39	26	0	0	0
2	E	39	26	0	2	0
2	F	39	26	0	1	0
3	A	15	0	0	0	0
3	B	20	0	0	0	0
3	C	25	0	0	0	0
3	D	25	0	0	0	0
3	E	10	0	0	0	0
3	F	10	0	0	0	0
4	A	130	0	0	0	0
4	B	123	0	0	0	0
4	C	129	0	0	0	0
4	D	111	0	0	0	0
4	E	100	0	0	0	0
4	F	104	0	0	0	0
All	All	14871	13705	13531	24	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 1.

All (24) 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:D:140:LYS:HE2	1:F:294:LYS:HE3	1.79	0.64
1:A:140:LYS:HE3	1:E:294:LYS:HD3	1.81	0.61
1:C:140:LYS:NZ	1:F:294:LYS:HE2	2.16	0.61
1:A:176:THR:HG21	1:A:179:TYR:HD2	1.73	0.53
1:F:293:LEU:O	1:F:294:LYS:HB2	2.09	0.53
1:C:176:THR:HG21	1:C:179:TYR:HD2	1.77	0.50
1:F:176:THR:HG21	1:F:179:TYR:HD2	1.76	0.48
1:D:139:GLY:HA3	1:F:294:LYS:HD2	1.96	0.47
1:B:71:CYS:HB2	1:B:79:VAL:HG22	1.98	0.45
1:F:20:PHE:O	1:F:38:LYS:HE2	2.17	0.44
1:E:182:ILE:HG23	1:E:233:MET:HE2	2.00	0.44
1:C:293:LEU:HD12	1:C:293:LEU:N	2.33	0.43
1:C:140:LYS:HZ1	1:F:294:LYS:HE2	1.84	0.43
1:A:87:PRO:HG3	2:A:301:D5Q:C05	2.49	0.43
1:E:87:PRO:HG3	2:E:301:D5Q:C05	2.48	0.43
1:B:87:PRO:HG3	2:B:301:D5Q:C05	2.49	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:139:GLY:CA	1:F:294:LYS:HD2	2.49	0.42
1:F:226:GLU:O	1:F:230:GLU:HG3	2.20	0.42
2:A:301:D5Q:C05	2:E:301:D5Q:C05	2.99	0.41
1:D:164[B]:HIS:ND1	1:D:261:ASP:HB2	2.36	0.41
1:D:185:HIS:HB2	1:D:233:MET:CE	2.51	0.41
1:F:87:PRO:HG3	2:F:301:D5Q:C05	2.52	0.40
1:A:70:TRP:CZ2	1:A:72:GLY:HA2	2.56	0.40
1:F:293:LEU:O	1:F:294:LYS:CB	2.70	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	286/314 (91%)	279 (98%)	7 (2%)	0	100	100
1	B	285/314 (91%)	278 (98%)	7 (2%)	0	100	100
1	C	286/314 (91%)	278 (97%)	8 (3%)	0	100	100
1	D	287/314 (91%)	278 (97%)	9 (3%)	0	100	100
1	E	285/314 (91%)	276 (97%)	9 (3%)	0	100	100
1	F	284/314 (90%)	278 (98%)	6 (2%)	0	100	100
All	All	1713/1884 (91%)	1667 (97%)	46 (3%)	0	100	100

There are no Ramachandran outliers to report.

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	243/275 (88%)	243 (100%)	0	100	100
1	B	242/275 (88%)	240 (99%)	2 (1%)	79	84
1	C	242/275 (88%)	237 (98%)	5 (2%)	48	53
1	D	246/275 (90%)	246 (100%)	0	100	100
1	E	245/275 (89%)	243 (99%)	2 (1%)	79	84
1	F	241/275 (88%)	240 (100%)	1 (0%)	89	92
All	All	1459/1650 (88%)	1449 (99%)	10 (1%)	81	86

All (10) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	68	ILE
1	B	79	VAL
1	C	15	ILE
1	C	29	ILE
1	C	68	ILE
1	C	74	GLU
1	C	293	LEU
1	E	256	ARG
1	E	293	LEU
1	F	256	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (8) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	190	GLN
1	B	48	GLN
1	C	48	GLN
1	D	48	GLN
1	D	190	GLN
1	E	190	GLN
1	E	223	GLN
1	F	190	GLN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

27 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	#$|Z| > 2$
3	PO4	D	304	-	4,4,4	0.89	0	6,6,6	0.46	0
2	D5Q	B	301	-	39,43,43	2.00	11 (28%)	46,61,61	1.93	6 (13%)
3	PO4	D	303	-	4,4,4	0.91	0	6,6,6	0.42	0
3	PO4	A	303	-	4,4,4	0.91	0	6,6,6	0.43	0
3	PO4	B	302	-	4,4,4	0.89	0	6,6,6	0.45	0
2	D5Q	C	301	-	39,43,43	1.97	11 (28%)	46,61,61	1.67	6 (13%)
3	PO4	A	302	-	4,4,4	0.89	0	6,6,6	0.45	0
3	PO4	C	306	-	4,4,4	0.92	0	6,6,6	0.44	0
3	PO4	E	303	-	4,4,4	0.89	0	6,6,6	0.41	0
3	PO4	D	306	-	4,4,4	0.90	0	6,6,6	0.43	0
3	PO4	C	304	-	4,4,4	0.94	0	6,6,6	0.40	0
2	D5Q	F	301	-	39,43,43	2.01	11 (28%)	46,61,61	1.86	6 (13%)
3	PO4	E	302	-	4,4,4	0.92	0	6,6,6	0.44	0
3	PO4	B	303	-	4,4,4	0.90	0	6,6,6	0.43	0
2	D5Q	D	301	-	39,43,43	2.01	11 (28%)	46,61,61	2.08	7 (15%)
3	PO4	A	304	-	4,4,4	0.91	0	6,6,6	0.44	0
2	D5Q	A	301	-	39,43,43	2.02	11 (28%)	46,61,61	1.84	7 (15%)
3	PO4	C	303	-	4,4,4	0.91	0	6,6,6	0.43	0
3	PO4	B	305	-	4,4,4	0.91	0	6,6,6	0.45	0
2	D5Q	E	301	-	39,43,43	1.97	11 (28%)	46,61,61	1.56	8 (17%)
3	PO4	F	302	-	4,4,4	0.91	0	6,6,6	0.42	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	#|Z| > 2	Counts	RMSZ	#|Z| > 2
3	PO4	D	302	-	4,4,4	0.89	0	6,6,6	0.43	0
3	PO4	C	305	-	4,4,4	0.89	0	6,6,6	0.45	0
3	PO4	D	305	-	4,4,4	0.90	0	6,6,6	0.46	0
3	PO4	C	302	-	4,4,4	0.92	0	6,6,6	0.43	0
3	PO4	B	304	-	4,4,4	0.91	0	6,6,6	0.45	0
3	PO4	F	303	-	4,4,4	0.91	0	6,6,6	0.43	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
2	D5Q	E	301	-	-	5/21/26/26	0/5/5/5
2	D5Q	B	301	-	-	6/21/26/26	0/5/5/5
2	D5Q	D	301	-	-	6/21/26/26	0/5/5/5
2	D5Q	A	301	-	-	5/21/26/26	0/5/5/5
2	D5Q	C	301	-	-	6/21/26/26	0/5/5/5
2	D5Q	F	301	-	-	6/21/26/26	0/5/5/5

All (66) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	301	D5Q	C29-S31	7.61	1.82	1.75
2	D	301	D5Q	C29-S31	7.59	1.82	1.75
2	B	301	D5Q	C29-S31	7.50	1.82	1.75
2	F	301	D5Q	C29-S31	7.44	1.82	1.75
2	C	301	D5Q	C29-S31	7.29	1.81	1.75
2	E	301	D5Q	C29-S31	7.14	1.81	1.75
2	B	301	D5Q	C22-C26	4.36	1.54	1.49
2	D	301	D5Q	C22-C26	4.28	1.54	1.49
2	A	301	D5Q	C22-C26	4.28	1.54	1.49
2	F	301	D5Q	C22-C26	4.23	1.53	1.49
2	A	301	D5Q	C17-N19	4.17	1.46	1.35
2	C	301	D5Q	C17-N19	4.16	1.46	1.35
2	E	301	D5Q	C22-C26	4.16	1.53	1.49
2	D	301	D5Q	C17-N19	4.16	1.46	1.35
2	B	301	D5Q	C17-N19	4.10	1.46	1.35
2	C	301	D5Q	C22-C26	4.10	1.53	1.49
2	E	301	D5Q	C17-N19	4.09	1.46	1.35
2	F	301	D5Q	C17-N19	4.09	1.46	1.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	F	301	D5Q	C33-C27	3.69	1.53	1.49
2	E	301	D5Q	C33-C27	3.67	1.53	1.49
2	A	301	D5Q	C33-C27	3.52	1.53	1.49
2	D	301	D5Q	C33-C27	3.49	1.53	1.49
2	C	301	D5Q	C33-C27	3.40	1.53	1.49
2	B	301	D5Q	C33-C27	3.31	1.52	1.49
2	F	301	D5Q	C20-N19	3.04	1.47	1.40
2	A	301	D5Q	C20-N19	2.96	1.47	1.40
2	C	301	D5Q	C20-N19	2.90	1.46	1.40
2	B	301	D5Q	C20-N19	2.90	1.46	1.40
2	E	301	D5Q	C20-N19	2.88	1.46	1.40
2	D	301	D5Q	C20-N19	2.82	1.46	1.40
2	C	301	D5Q	C27-C26	-2.75	1.37	1.44
2	D	301	D5Q	C27-C26	-2.73	1.37	1.44
2	E	301	D5Q	C27-C26	-2.69	1.37	1.44
2	B	301	D5Q	C27-C26	-2.68	1.37	1.44
2	F	301	D5Q	C27-C26	-2.65	1.37	1.44
2	A	301	D5Q	C27-C26	-2.62	1.37	1.44
2	E	301	D5Q	O07-C06	2.49	1.41	1.37
2	C	301	D5Q	O07-C06	2.49	1.41	1.37
2	F	301	D5Q	C09-C11	2.48	1.53	1.49
2	F	301	D5Q	O07-C06	2.47	1.41	1.37
2	A	301	D5Q	O07-C06	2.45	1.41	1.37
2	B	301	D5Q	O07-C06	2.41	1.41	1.37
2	B	301	D5Q	C27-N28	-2.35	1.31	1.37
2	D	301	D5Q	O07-C06	2.32	1.40	1.37
2	D	301	D5Q	C27-N28	-2.29	1.31	1.37
2	B	301	D5Q	O18-C17	-2.27	1.18	1.23
2	F	301	D5Q	C27-N28	-2.27	1.31	1.37
2	E	301	D5Q	O18-C17	-2.26	1.18	1.23
2	E	301	D5Q	C27-N28	-2.25	1.31	1.37
2	A	301	D5Q	O18-C17	-2.24	1.18	1.23
2	C	301	D5Q	C26-N30	-2.24	1.31	1.37
2	E	301	D5Q	C26-N30	-2.23	1.31	1.37
2	A	301	D5Q	C26-N30	-2.23	1.31	1.37
2	F	301	D5Q	O18-C17	-2.21	1.18	1.23
2	A	301	D5Q	C09-C11	2.20	1.53	1.49
2	C	301	D5Q	C27-N28	-2.20	1.31	1.37
2	C	301	D5Q	C09-C11	2.19	1.53	1.49
2	F	301	D5Q	C26-N30	-2.18	1.32	1.37
2	D	301	D5Q	O18-C17	-2.18	1.18	1.23
2	A	301	D5Q	C27-N28	-2.18	1.32	1.37

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	301	D5Q	O18-C17	-2.16	1.18	1.23
2	D	301	D5Q	C26-N30	-2.16	1.32	1.37
2	B	301	D5Q	C26-N30	-2.11	1.32	1.37
2	D	301	D5Q	C09-C11	2.11	1.53	1.49
2	B	301	D5Q	C09-C11	2.08	1.53	1.49
2	E	301	D5Q	C09-C11	2.06	1.53	1.49

All (40) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	D	301	D5Q	C32-S31-C29	10.91	110.42	102.27
2	B	301	D5Q	C32-S31-C29	9.57	109.41	102.27
2	F	301	D5Q	C32-S31-C29	9.07	109.04	102.27
2	A	301	D5Q	C32-S31-C29	8.15	108.36	102.27
2	C	301	D5Q	C32-S31-C29	7.07	107.54	102.27
2	E	301	D5Q	C32-S31-C29	5.46	106.34	102.27
2	F	301	D5Q	C24-N25-C20	3.62	122.35	117.22
2	A	301	D5Q	C24-N25-C20	3.52	122.22	117.22
2	C	301	D5Q	C24-N25-C20	3.52	122.22	117.22
2	B	301	D5Q	C24-N25-C20	3.52	122.21	117.22
2	D	301	D5Q	C24-N25-C20	3.52	122.21	117.22
2	E	301	D5Q	C24-N25-C20	3.44	122.10	117.22
2	D	301	D5Q	C23-C24-N25	-3.43	119.70	123.96
2	F	301	D5Q	C23-C24-N25	-3.35	119.80	123.96
2	C	301	D5Q	C23-C24-N25	-3.33	119.82	123.96
2	B	301	D5Q	C23-C24-N25	-3.33	119.82	123.96
2	A	301	D5Q	C23-C24-N25	-3.30	119.86	123.96
2	E	301	D5Q	C23-C24-N25	-3.28	119.89	123.96
2	A	301	D5Q	C16-C11-C09	-2.98	123.57	126.32
2	D	301	D5Q	C16-C11-C09	-2.80	123.74	126.32
2	E	301	D5Q	C26-C27-N28	-2.34	107.45	113.76
2	B	301	D5Q	C27-C26-N30	-2.28	107.59	113.76
2	D	301	D5Q	C26-C27-N28	-2.28	107.59	113.76
2	A	301	D5Q	C27-C26-N30	-2.28	107.60	113.76
2	F	301	D5Q	C26-C27-N28	-2.26	107.67	113.76
2	A	301	D5Q	C26-C27-N28	-2.25	107.69	113.76
2	E	301	D5Q	C16-C11-C09	-2.25	124.25	126.32
2	F	301	D5Q	C27-C26-N30	-2.21	107.78	113.76
2	C	301	D5Q	C27-C26-N30	-2.21	107.80	113.76
2	B	301	D5Q	C26-C27-N28	-2.20	107.81	113.76
2	D	301	D5Q	C27-C26-N30	-2.20	107.81	113.76
2	F	301	D5Q	C38-C36-C35	-2.20	119.90	122.83

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	C	301	D5Q	C26-C27-N28	-2.20	107.83	113.76
2	C	301	D5Q	C38-C36-C35	-2.14	119.98	122.83
2	E	301	D5Q	C27-C26-N30	-2.14	107.98	113.76
2	A	301	D5Q	C38-C36-C35	-2.12	120.02	122.83
2	B	301	D5Q	C38-C36-C35	-2.10	120.04	122.83
2	D	301	D5Q	C38-C36-C35	-2.08	120.06	122.83
2	E	301	D5Q	C20-N19-C17	-2.03	122.45	128.07
2	E	301	D5Q	C38-C36-C35	-2.01	120.16	122.83

There are no chirality outliers.

All (34) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	301	D5Q	C04-C03-O02-C01
2	B	301	D5Q	C10-C03-O02-C01
2	E	301	D5Q	C04-C03-O02-C01
2	A	301	D5Q	C04-C03-O02-C01
2	F	301	D5Q	C10-C03-O02-C01
2	A	301	D5Q	C10-C03-O02-C01
2	E	301	D5Q	C10-C03-O02-C01
2	F	301	D5Q	C04-C03-O02-C01
2	C	301	D5Q	C04-C03-O02-C01
2	C	301	D5Q	C10-C03-O02-C01
2	D	301	D5Q	C04-C03-O02-C01
2	D	301	D5Q	C10-C03-O02-C01
2	A	301	D5Q	N28-C27-C33-C39
2	C	301	D5Q	N28-C27-C33-C34
2	C	301	D5Q	N28-C27-C33-C39
2	B	301	D5Q	C10-C09-C11-C12
2	C	301	D5Q	C10-C09-C11-C12
2	D	301	D5Q	C10-C09-C11-C12
2	F	301	D5Q	C10-C09-C11-C12
2	B	301	D5Q	N28-C27-C33-C34
2	F	301	D5Q	N28-C27-C33-C39
2	A	301	D5Q	C10-C09-C11-C12
2	E	301	D5Q	C10-C09-C11-C12
2	A	301	D5Q	N28-C27-C33-C34
2	E	301	D5Q	N28-C27-C33-C39
2	F	301	D5Q	N28-C27-C33-C34
2	B	301	D5Q	C10-C09-C11-C16
2	C	301	D5Q	C10-C09-C11-C16
2	D	301	D5Q	C10-C09-C11-C16

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Mol	Chain	Res	Type	Atoms
2	F	301	D5Q	C10-C09-C11-C16
2	D	301	D5Q	N28-C27-C33-C39
2	B	301	D5Q	N28-C27-C33-C39
2	E	301	D5Q	N28-C27-C33-C34
2	D	301	D5Q	N28-C27-C33-C34

There are no ring outliers.

4 monomers are involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	301	D5Q	1	0
2	F	301	D5Q	1	0
2	A	301	D5Q	2	0
2	E	301	D5Q	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 then 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.

Ligand D5Q B 301

Bond lengths

Bond angles

Torsions

Rings

Ligand D5Q C 301

Bond lengths

Bond angles

Torsions

Rings

Ligand D5Q F 301

Bond lengths

Bond angles

Torsions

Rings

Ligand D5Q D 301

Bond lengths

Bond angles

Torsions

Rings

Ligand D5Q A 301

Bond lengths

Bond angles

Torsions

Rings

Ligand D5Q E 301

Bond lengths

Bond angles

Torsions

Rings
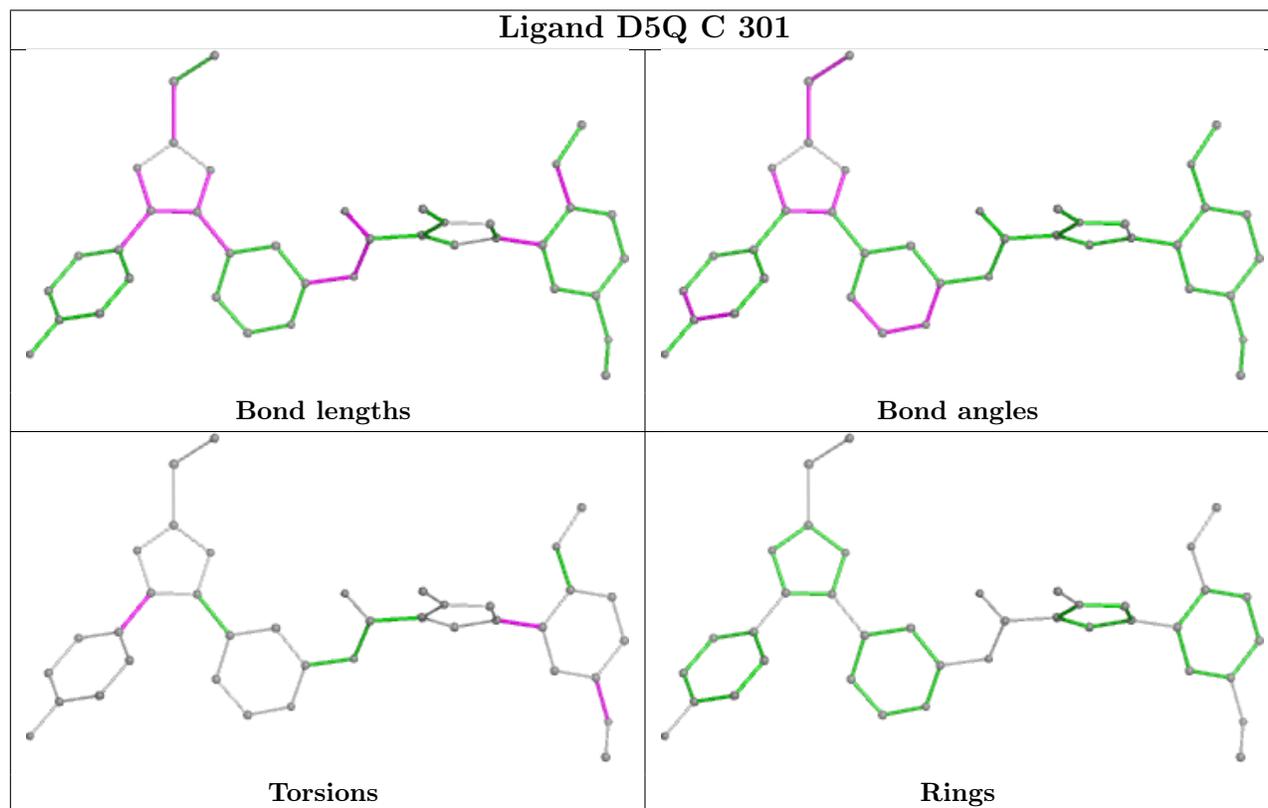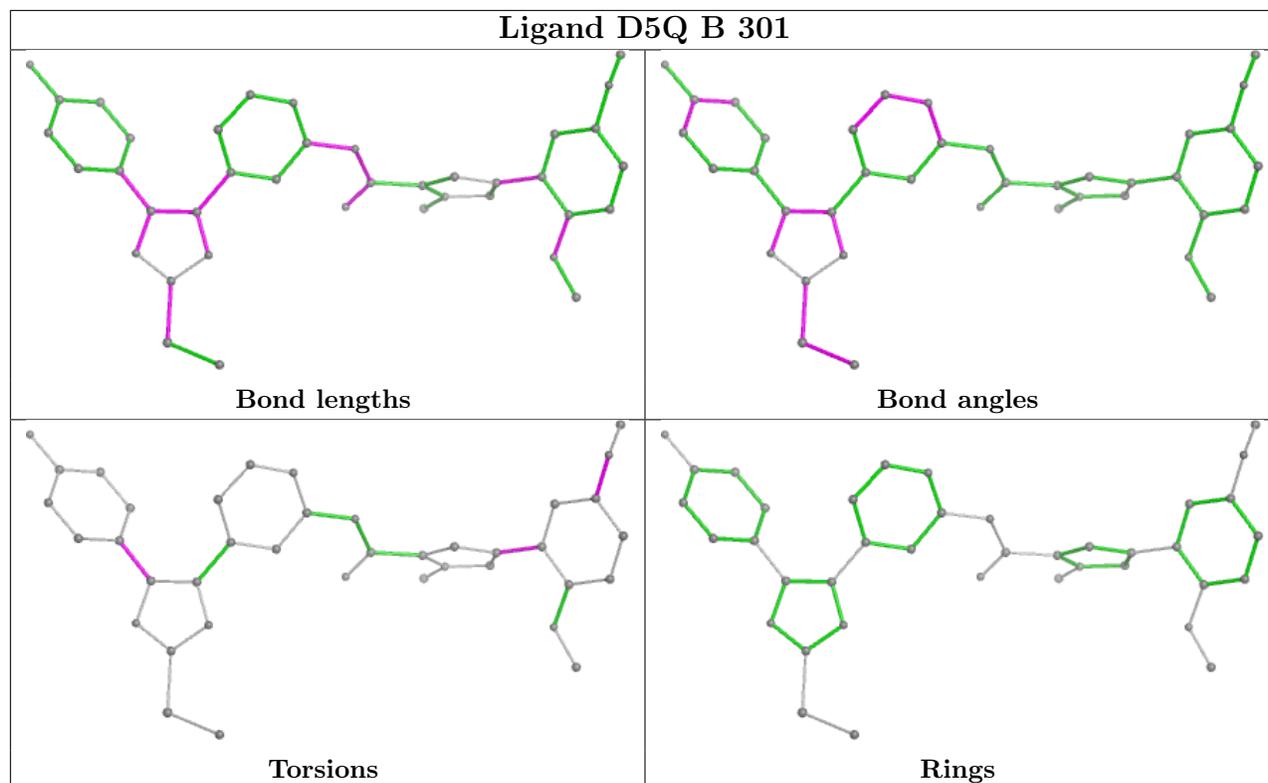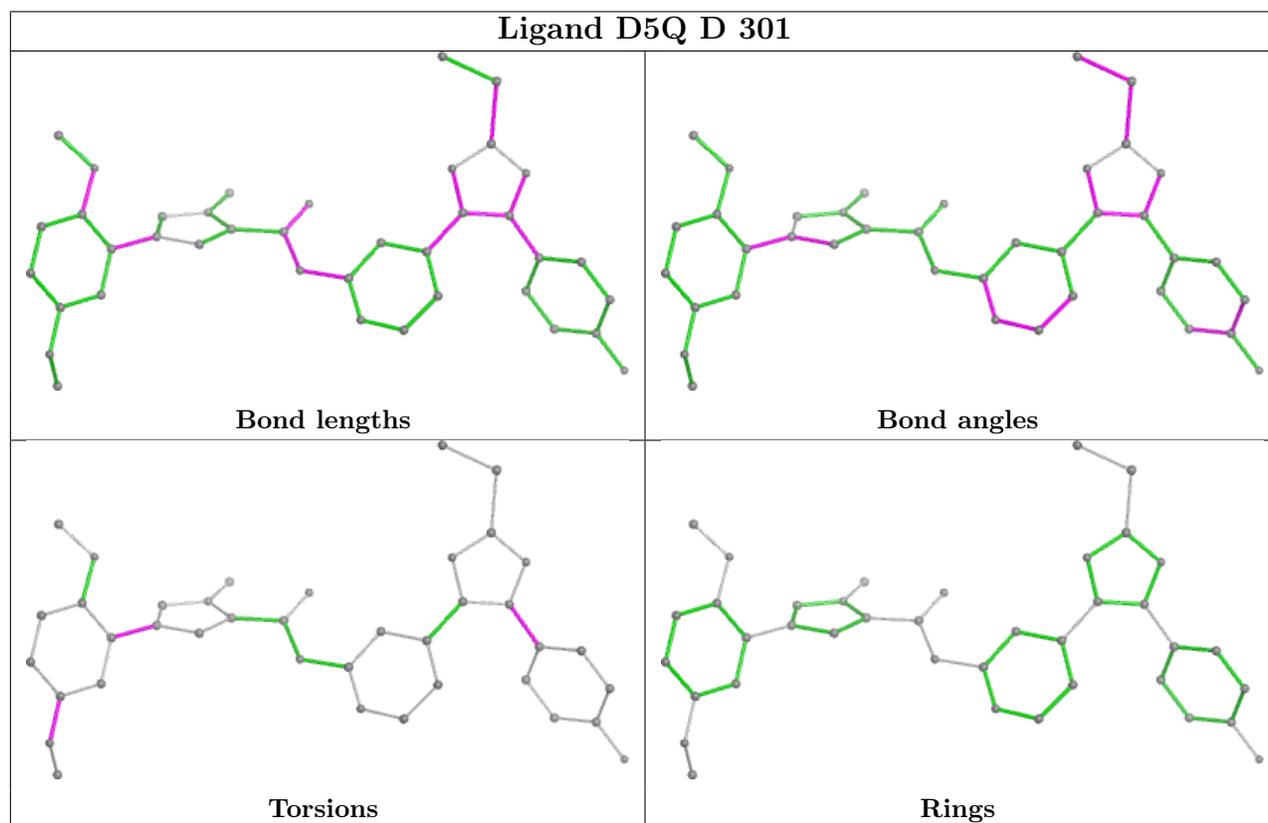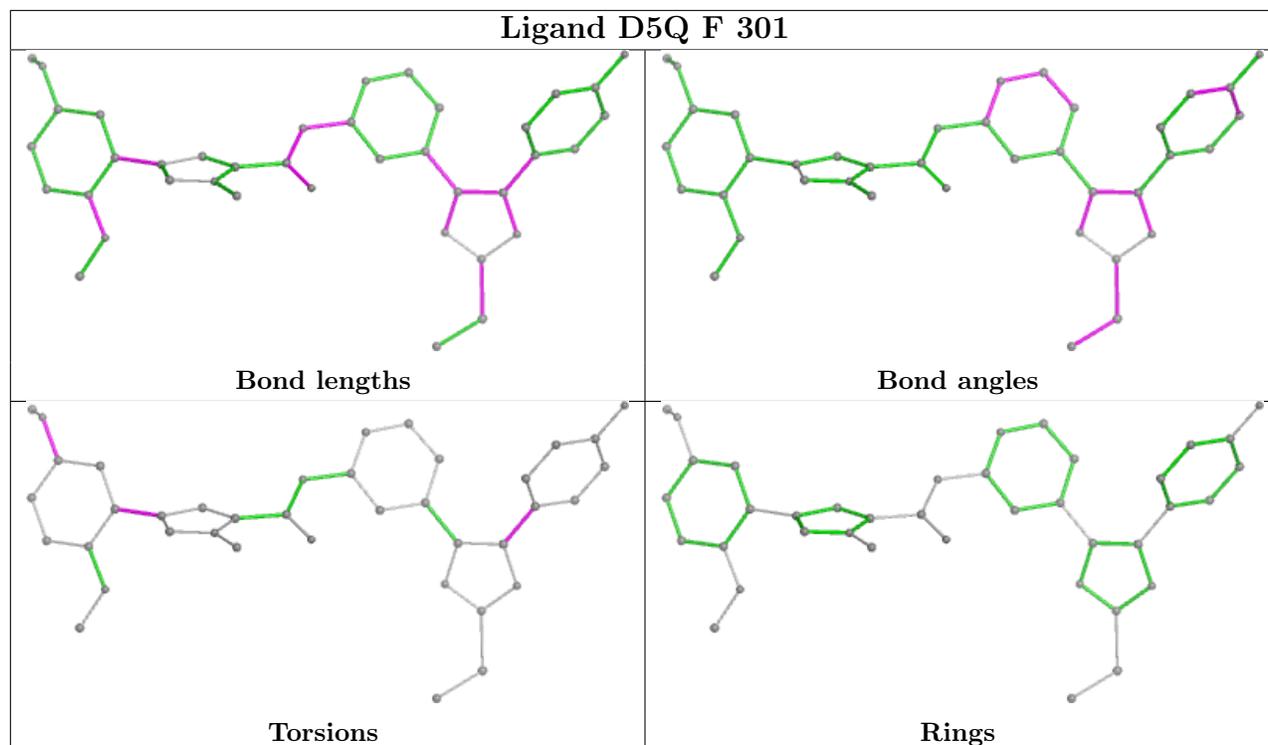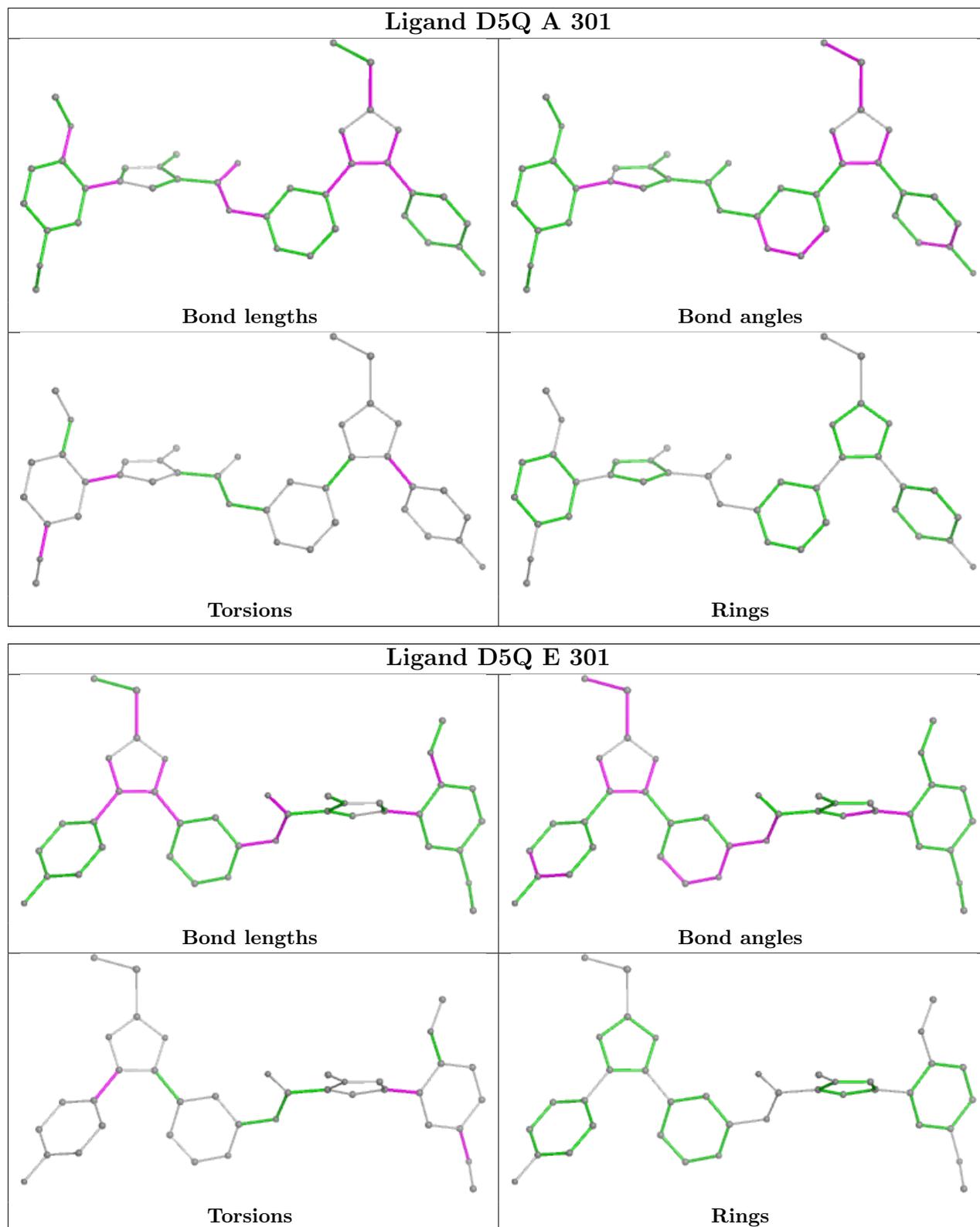
5.7 Other polymers ⓘ

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(Å²)	Q<0.9
1	A	286/314 (91%)	0.39	42 (14%)	7	8	24, 45, 97, 115	1 (0%)
1	B	287/314 (91%)	0.49	41 (14%)	7	9	24, 48, 99, 116	0
1	C	288/314 (91%)	0.53	44 (15%)	6	8	30, 46, 103, 136	0
1	D	287/314 (91%)	0.59	49 (17%)	5	7	29, 48, 109, 166	1 (0%)
1	E	287/314 (91%)	0.44	41 (14%)	7	9	30, 50, 99, 116	0
1	F	286/314 (91%)	0.62	50 (17%)	5	7	31, 52, 109, 137	1 (0%)
All	All	1721/1884 (91%)	0.51	267 (15%)	6	8	24, 48, 104, 166	3 (0%)

All (267) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	219	ALA	10.9
1	F	7	ASN	9.1
1	C	174	THR	8.5
1	F	20	PHE	7.9
1	B	219	ALA	7.9
1	B	294	LYS	7.9
1	F	221	LYS	7.0
1	A	219	ALA	6.9
1	D	29	ILE	6.7
1	E	8	ARG	6.7
1	C	6	GLY	6.6
1	C	20	PHE	6.6
1	D	71	CYS	6.6
1	B	20	PHE	6.6
1	B	71	CYS	6.5
1	A	220	THR	6.4
1	A	8	ARG	6.3
1	A	174	THR	6.2
1	E	174	THR	6.1

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Mol	Chain	Res	Type	RSRZ
1	D	69	ARG	6.1
1	D	218	ALA	6.0
1	D	8	ARG	6.0
1	F	46	HIS	5.7
1	F	219	ALA	5.6
1	D	174	THR	5.5
1	F	174	THR	5.5
1	C	222	ARG	5.5
1	A	29	ILE	5.5
1	B	42	VAL	5.4
1	F	222	ARG	5.3
1	F	140	LYS	5.3
1	A	221	LYS	5.2
1	F	294	LYS	5.2
1	B	174	THR	5.2
1	B	46	HIS	5.2
1	C	217	LYS	5.2
1	B	220	THR	5.1
1	B	222	ARG	5.1
1	F	220	THR	5.1
1	A	20	PHE	5.0
1	A	41	CYS	5.0
1	C	46	HIS	5.0
1	B	48	GLN	5.0
1	B	221	LYS	5.0
1	E	20	PHE	4.9
1	B	8	ARG	4.7
1	C	70	TRP	4.7
1	D	20	PHE	4.6
1	E	219	ALA	4.6
1	F	8	ARG	4.6
1	D	173	LEU	4.5
1	E	70	TRP	4.5
1	E	293	LEU	4.5
1	D	217	LYS	4.4
1	F	43	LYS	4.4
1	D	220	THR	4.4
1	E	46	HIS	4.4
1	C	41	CYS	4.3
1	A	217	LYS	4.3
1	C	221	LYS	4.3
1	C	223	GLN	4.3

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Mol	Chain	Res	Type	RSRZ
1	D	221	LYS	4.2
1	E	294	LYS	4.2
1	D	233	MET	4.2
1	F	41	CYS	4.2
1	C	42	VAL	4.1
1	B	17	SER	4.1
1	D	167	TYR	4.1
1	F	225	TYR	4.1
1	C	71	CYS	4.1
1	C	218	ALA	4.1
1	F	70	TRP	4.0
1	A	71	CYS	4.0
1	B	70	TRP	3.9
1	D	294	LYS	3.9
1	D	17	SER	3.9
1	C	219	ALA	3.9
1	A	42	VAL	3.8
1	E	71	CYS	3.8
1	D	160	ARG	3.8
1	C	29	ILE	3.8
1	D	70	TRP	3.8
1	C	68	ILE	3.7
1	D	46	HIS	3.7
1	C	293	LEU	3.7
1	F	216	LEU	3.7
1	A	218	ALA	3.7
1	C	220	THR	3.7
1	F	71	CYS	3.7
1	A	48	GLN	3.7
1	D	43	LYS	3.7
1	C	173	LEU	3.7
1	E	67	THR	3.7
1	E	45	LYS	3.6
1	C	176	THR	3.6
1	B	19	SER	3.6
1	E	19	SER	3.6
1	E	42	VAL	3.6
1	D	42	VAL	3.6
1	A	74	GLU	3.5
1	F	170	ASN	3.5
1	C	8	ARG	3.5
1	B	41	CYS	3.5

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Mol	Chain	Res	Type	RSRZ
1	D	225	TYR	3.5
1	B	21	GLY	3.5
1	D	75	GLY	3.5
1	E	99	LYS	3.5
1	B	293	LEU	3.5
1	F	224	LYS	3.4
1	E	44	THR	3.4
1	D	261	ASP	3.4
1	C	44	THR	3.4
1	A	46	HIS	3.4
1	D	223	GLN	3.3
1	A	169	GLU	3.3
1	B	22	ASP	3.3
1	F	171	LYS	3.3
1	F	45	LYS	3.3
1	C	69	ARG	3.3
1	F	17	SER	3.3
1	C	7	ASN	3.3
1	B	217	LYS	3.3
1	C	224	LYS	3.3
1	B	163	GLN	3.2
1	D	48	GLN	3.2
1	A	69	ARG	3.2
1	D	19	SER	3.2
1	F	215	GLY	3.2
1	F	69	ARG	3.2
1	F	223	GLN	3.2
1	B	68	ILE	3.2
1	D	41	CYS	3.2
1	A	45	LYS	3.2
1	D	60	GLN	3.2
1	E	41	CYS	3.2
1	A	176	THR	3.1
1	C	21	GLY	3.1
1	E	220	THR	3.1
1	F	48	GLN	3.1
1	C	45	LYS	3.1
1	D	176	THR	3.1
1	B	58	MET	3.1
1	C	58	MET	3.1
1	F	21	GLY	3.0
1	E	29	ILE	3.0

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Mol	Chain	Res	Type	RSRZ
1	C	17	SER	3.0
1	A	173	LEU	3.0
1	A	216	LEU	2.9
1	F	176	THR	2.9
1	B	69	ARG	2.9
1	F	58	MET	2.9
1	B	18	GLY	2.9
1	C	43	LYS	2.9
1	D	22	ASP	2.9
1	A	73	ALA	2.9
1	E	217	LYS	2.9
1	C	50	HIS	2.8
1	B	29	ILE	2.8
1	D	14	LYS	2.8
1	F	72	GLY	2.8
1	C	30	ALA	2.8
1	A	141	LYS	2.8
1	B	261	ASP	2.8
1	F	226	GLU	2.8
1	C	22	ASP	2.8
1	D	76	ASP	2.8
1	A	222	ARG	2.8
1	D	222	ARG	2.8
1	B	45	LYS	2.7
1	A	21	GLY	2.7
1	E	69	ARG	2.7
1	B	225	TYR	2.7
1	A	293	LEU	2.7
1	C	48	GLN	2.7
1	F	51	ILE	2.7
1	D	170	ASN	2.7
1	E	58	MET	2.7
1	E	216	LEU	2.7
1	C	18	GLY	2.7
1	E	10	ARG	2.7
1	D	45	LYS	2.6
1	F	227	ARG	2.6
1	E	221	LYS	2.6
1	F	99	LYS	2.6
1	A	68	ILE	2.6
1	A	259	ARG	2.6
1	B	160	ARG	2.6

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Mol	Chain	Res	Type	RSRZ
1	E	17	SER	2.6
1	F	163	GLN	2.6
1	C	73	ALA	2.6
1	B	77	TYR	2.6
1	E	77	TYR	2.6
1	B	43	LYS	2.6
1	B	141	LYS	2.6
1	E	48	GLN	2.6
1	F	293	LEU	2.6
1	D	21	GLY	2.5
1	B	171	LYS	2.5
1	A	33	GLU	2.5
1	D	169	GLU	2.5
1	C	72	GLY	2.5
1	F	164[A]	HIS	2.5
1	E	43	LYS	2.5
1	A	30	ALA	2.5
1	B	15	ILE	2.5
1	F	42	VAL	2.5
1	D	72	GLY	2.4
1	F	73	ALA	2.4
1	F	68	ILE	2.4
1	F	160	ARG	2.4
1	C	216	LEU	2.4
1	A	24	TYR	2.4
1	F	168	ARG	2.4
1	D	15	ILE	2.4
1	F	230	GLU	2.4
1	D	168	ARG	2.4
1	D	188	ILE	2.4
1	E	218	ALA	2.3
1	C	274	ARG	2.3
1	E	163	GLN	2.3
1	A	22	ASP	2.3
1	D	171	LYS	2.3
1	E	60	GLN	2.3
1	F	75	GLY	2.3
1	D	227	ARG	2.3
1	B	72	GLY	2.2
1	B	154	LYS	2.2
1	F	29	ILE	2.2
1	C	31	ALA	2.2

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Mol	Chain	Res	Type	RSRZ
1	B	10	ARG	2.2
1	E	274	ARG	2.2
1	B	218	ALA	2.2
1	A	32	GLY	2.2
1	D	172	ASN	2.2
1	E	33	GLU	2.2
1	A	9	TYR	2.2
1	D	67	THR	2.2
1	A	19	SER	2.2
1	A	261	ASP	2.2
1	C	16	GLY	2.2
1	E	9	TYR	2.1
1	A	172	ASN	2.1
1	F	186	LEU	2.1
1	A	47	PRO	2.1
1	C	175	GLY	2.1
1	E	233	MET	2.1
1	F	169	GLU	2.1
1	A	43	LYS	2.1
1	D	259	ARG	2.1
1	E	21	GLY	2.1
1	F	74	GLU	2.1
1	C	215	GLY	2.0
1	E	18	GLY	2.0
1	B	74	GLU	2.0
1	D	33	GLU	2.0
1	E	169	GLU	2.0
1	A	77	TYR	2.0
1	A	160	ARG	2.0
1	E	224	LYS	2.0
1	E	256	ARG	2.0
1	A	17	SER	2.0
1	B	50	HIS	2.0
1	D	165[A]	ILE	2.0
1	F	33	GLU	2.0
1	C	77	TYR	2.0
1	F	259	ARG	2.0
1	E	79	VAL	2.0

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

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

6.3 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

6.4 Ligands ⓘ

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	PO4	D	305	5/5	0.68	0.27	96,116,126,130	0
3	PO4	C	304	5/5	0.71	0.21	112,114,118,130	0
3	PO4	B	305	5/5	0.78	0.22	107,121,123,130	0
3	PO4	D	304	5/5	0.84	0.16	77,84,93,98	0
3	PO4	A	302	5/5	0.85	0.16	65,80,95,114	0
3	PO4	B	304	5/5	0.88	0.14	81,82,91,99	0
3	PO4	D	306	5/5	0.91	0.12	78,78,86,95	0
3	PO4	E	302	5/5	0.91	0.12	74,75,104,108	0
3	PO4	B	303	5/5	0.92	0.12	50,53,77,93	0
3	PO4	A	304	5/5	0.92	0.15	66,70,85,93	0
3	PO4	F	303	5/5	0.92	0.12	63,75,84,103	0
2	D5Q	B	301	39/39	0.93	0.14	30,60,102,106	0
3	PO4	C	306	5/5	0.93	0.11	65,77,102,116	0
2	D5Q	C	301	39/39	0.93	0.14	27,60,98,102	0
3	PO4	B	302	5/5	0.93	0.12	63,63,71,74	0
2	D5Q	D	301	39/39	0.93	0.15	24,63,116,123	0
2	D5Q	E	301	39/39	0.93	0.15	26,67,100,120	0
2	D5Q	F	301	39/39	0.93	0.15	30,68,100,112	0
3	PO4	D	303	5/5	0.94	0.13	46,53,57,68	0
3	PO4	A	303	5/5	0.94	0.12	49,53,65,70	0
3	PO4	F	302	5/5	0.94	0.11	52,57,65,88	0
2	D5Q	A	301	39/39	0.94	0.13	30,54,96,118	0
3	PO4	C	305	5/5	0.95	0.08	53,54,86,89	0
3	PO4	E	303	5/5	0.95	0.09	49,57,67,81	0
3	PO4	C	303	5/5	0.95	0.12	42,48,57,58	0
3	PO4	C	302	5/5	0.95	0.10	72,74,79,88	0
3	PO4	D	302	5/5	0.97	0.09	43,47,58,70	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.

W O R L D W I D E
wwPDB
PROTEIN DATA BANK

Electron density around D5Q B 301:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
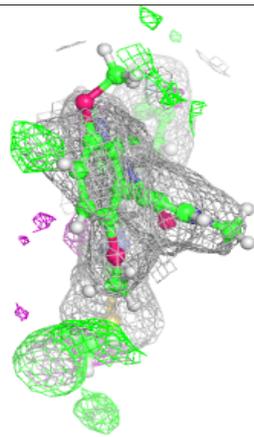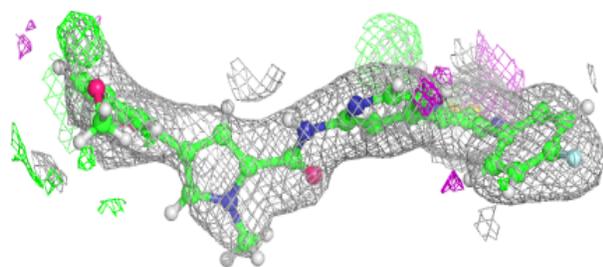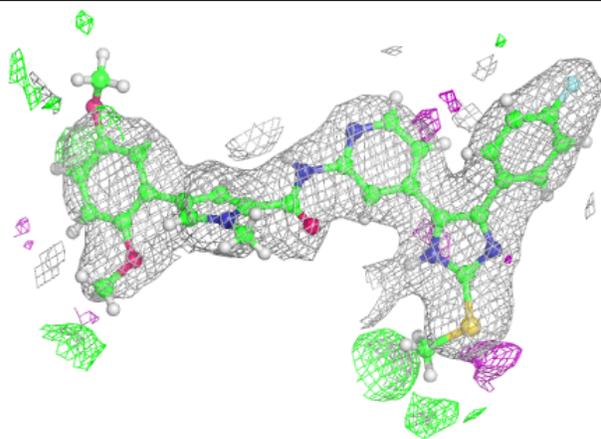mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
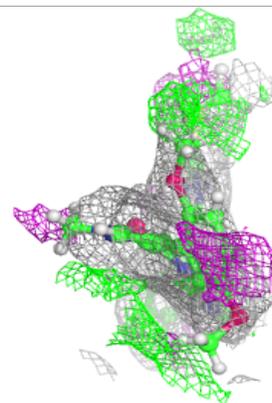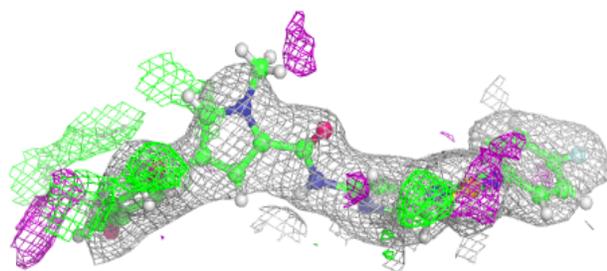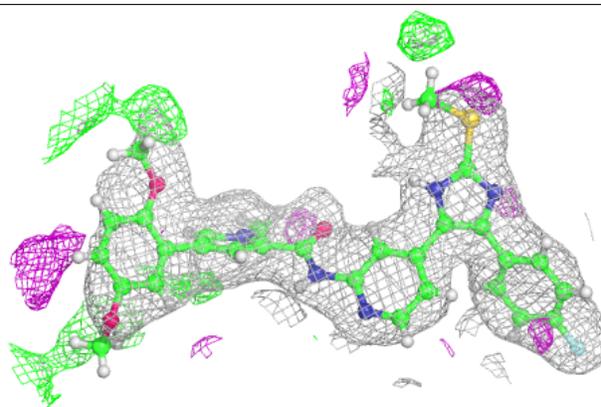
Electron density around D5Q C 301:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
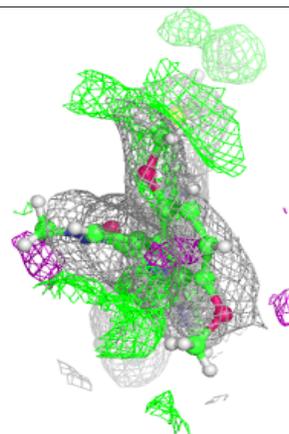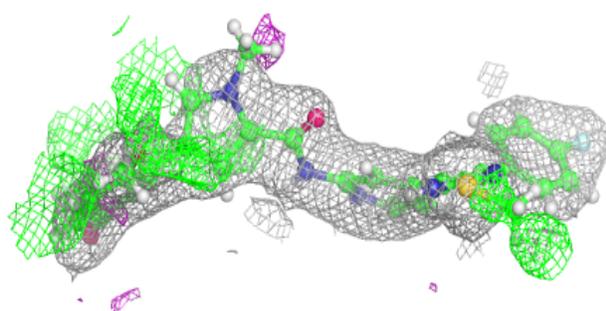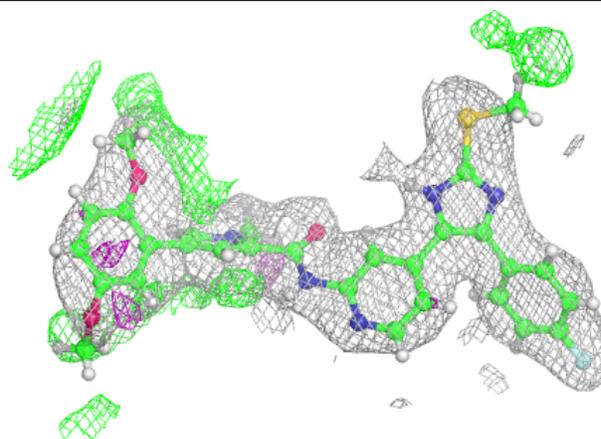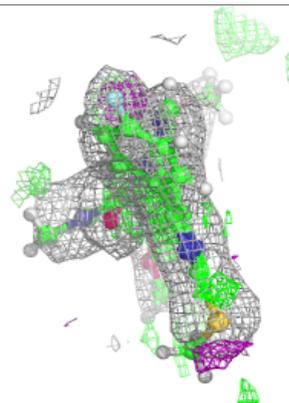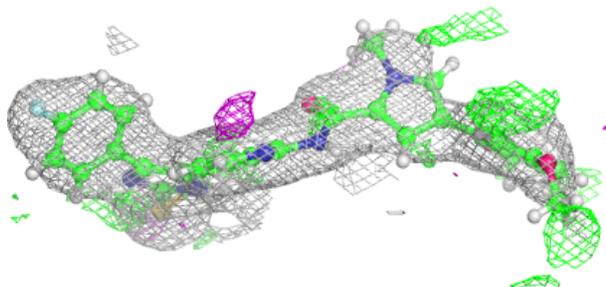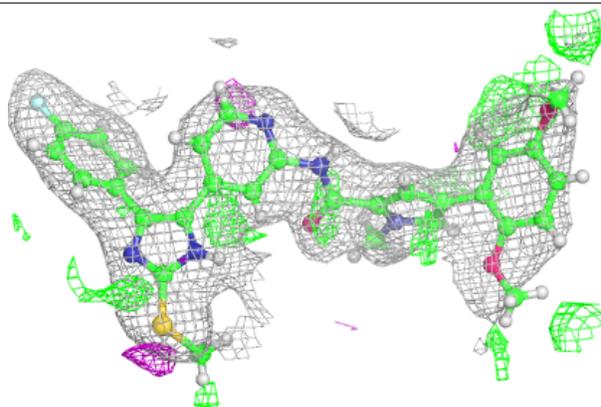mF_o-DF_c (at 3 rmsd) in purple (negative)
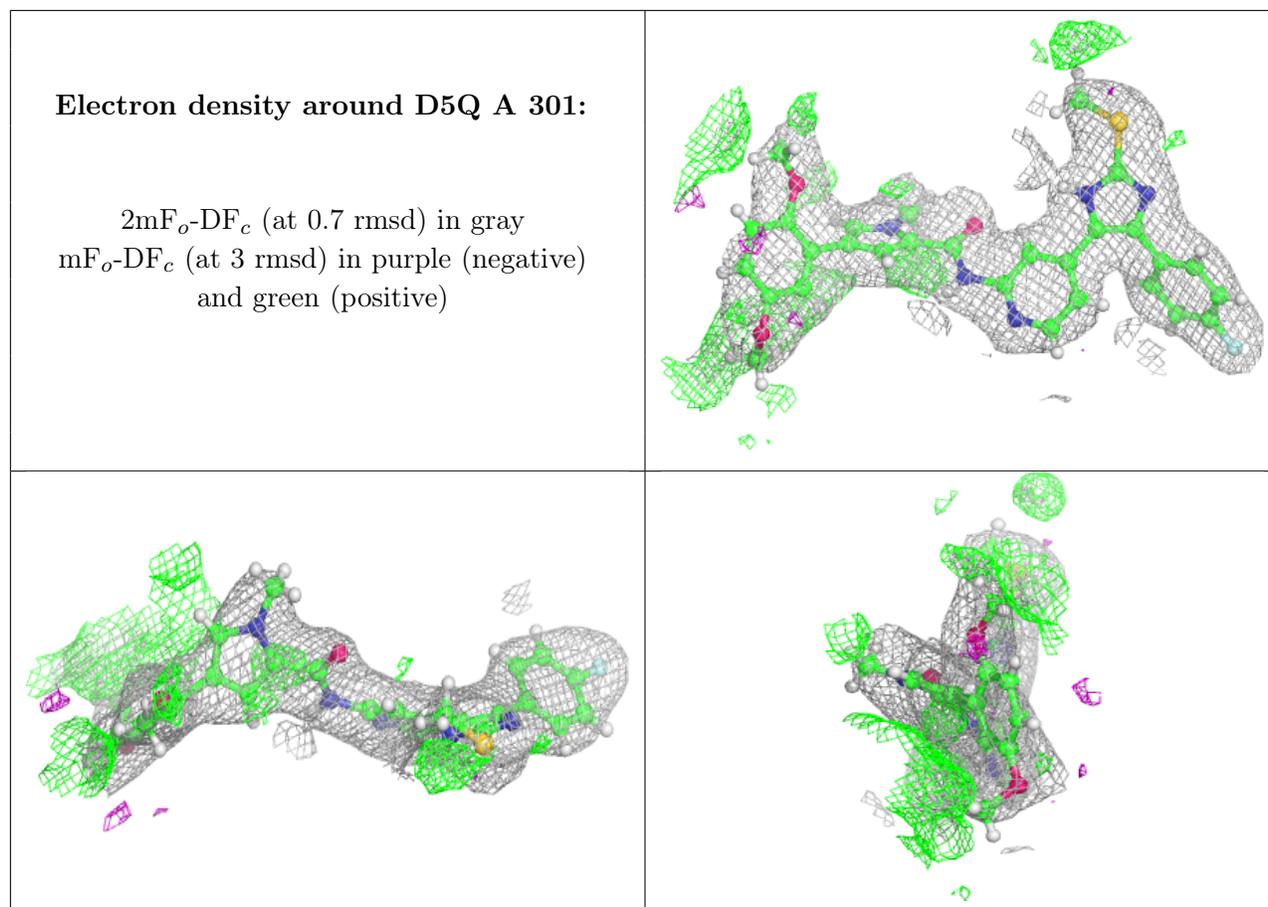and green (positive)
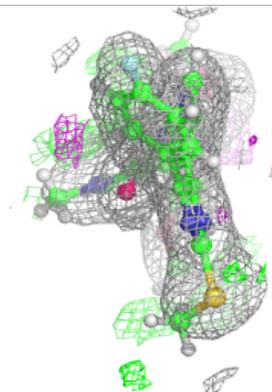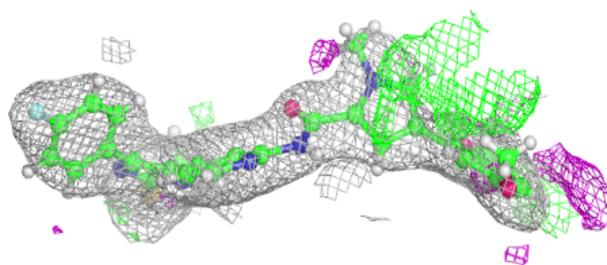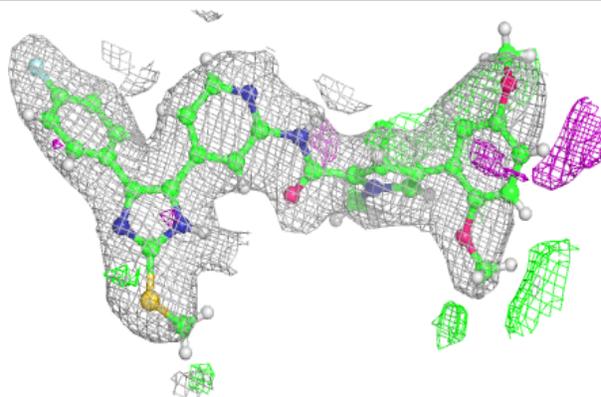
Electron density around D5Q D 301:

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

Electron density around D5Q E 301:

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 D5Q F 301:

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 D5Q A 301:

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

6.5 Other polymers ⓘ

There are no such residues in this entry.