wwPDB X-ray Structure Validation Summary Report ⓘ

Aug 7, 2020 – 01:14 PM BST

PDB ID	:	6PK2
Title	:	CRYSTAL STRUCTURE OF THE CARBOXYLTRANSFERASE SUBUNIT OF ACC (ACCD6) IN COMPLEX WITH INHIBITOR QUIZALOFOP-P derivative FROM MYCOBACTERIUM TUBERCULOSIS
Authors	:	Reddy, M.C.M.; Nian, Z.; Michele, T.C.B.; Sacchettini, J.C.; TB Structural Genomics Consortium (TBSGC)
Deposited on	:	2019-06-28
Resolution	:	2.40 Å(reported)

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

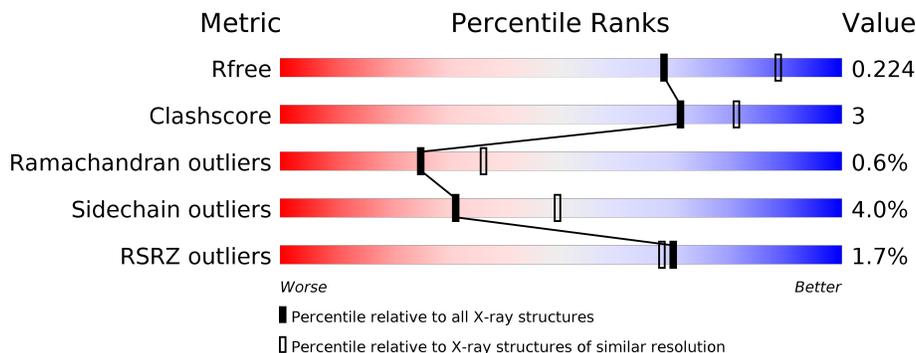|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.13.1
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.13.1

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 2.40 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		0.224
Clashscore		3
Ramachandran outliers		0.6%
Sidechain outliers		4.0%
RSRZ outliers		1.7%

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}	130704	3907 (2.40-2.40)
Clashscore	141614	4398 (2.40-2.40)
Ramachandran outliers	138981	4318 (2.40-2.40)
Sidechain outliers	138945	4319 (2.40-2.40)
RSRZ outliers	127900	3811 (2.40-2.40)

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 on 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	473	81% 8% · 10%
1	B	473	81% 8% 10%
1	C	473	2% — 74% 11% · 13%
1	D	473	4% — 82% 7% · 10%
1	E	473	% — 82% 8% · 10%
1	F	473	81% 9% 10%

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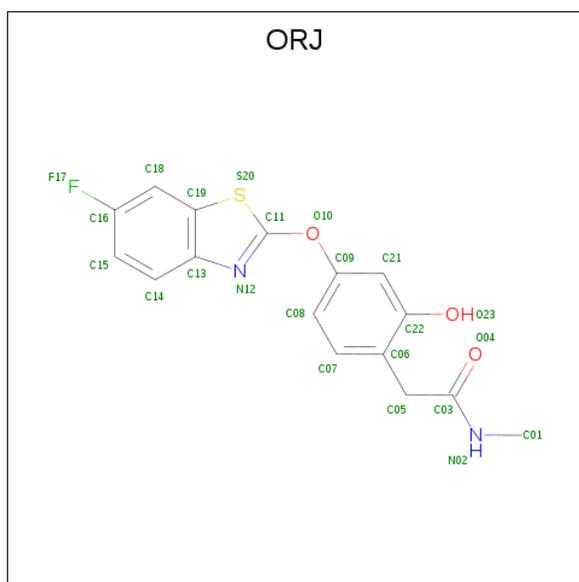| Mol	Chain	Length	Quality of chain
1	G	473	2% ... 76% ... 10% ... 13%
1	H	473	3% ... 84% ... 5% · 10%

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 25923 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 Propionyl-CoA carboxylase subunit beta.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	426	Total 3147	C 1969	N 572	O 592	S 14	0	1	0
1	B	424	Total 3115	C 1953	N 566	O 582	S 14	0	0	0
1	C	410	Total 2985	C 1871	N 539	O 561	S 14	0	2	0
1	D	428	Total 3101	C 1944	N 559	O 584	S 14	0	0	0
1	E	426	Total 3147	C 1969	N 572	O 592	S 14	0	1	0
1	F	424	Total 3123	C 1958	N 569	O 582	S 14	0	1	0
1	G	410	Total 2991	C 1874	N 542	O 561	S 14	0	2	0
1	H	428	Total 3097	C 1942	N 558	O 583	S 14	0	0	0

- Molecule 2 is 2-{4-[(6-fluoro-1,3-benzothiazol-2-yl)oxy]-2-hydroxyphenyl}-N-methylacetamide (three-letter code: ORJ) (formula: $C_{16}H_{13}FN_2O_3S$).

ORJ

Mol	Chain	Residues	Atoms							ZeroOcc	AltConf
2	A	1	Total	C	F	N	O	S		0	0
			23	16	1	2	3	1			
2	B	1	Total	C	F	N	O	S		0	0
			23	16	1	2	3	1			
2	C	1	Total	C	F	N	O	S		0	0
			23	16	1	2	3	1			
2	D	1	Total	C	F	N	O	S		0	0
			23	16	1	2	3	1			
2	E	1	Total	C	F	N	O	S		0	0
			23	16	1	2	3	1			
2	F	1	Total	C	F	N	O	S		0	0
			23	16	1	2	3	1			
2	G	1	Total	C	F	N	O	S		0	0
			23	16	1	2	3	1			
2	G	1	Total	C	F	N	O	S		0	0
			23	16	1	2	3	1			

- Molecule 3 is water.

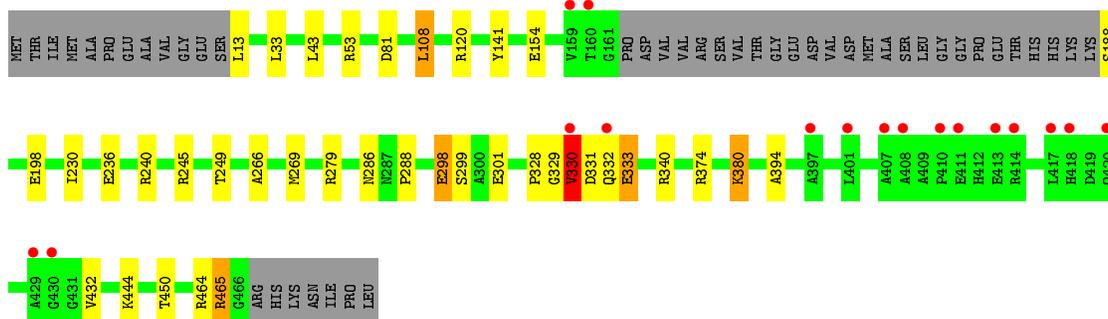| Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	143	Total	O	0	0
			143	143		
3	B	131	Total	O	0	0
			131	131		
3	C	130	Total	O	0	0
			130	130		
3	D	132	Total	O	0	0
			132	132		

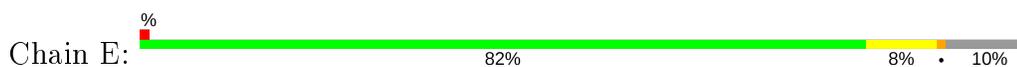*Continued on next page...*

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	E	141	Total 141	O 141	0	0
3	F	124	Total 124	O 124	0	0
3	G	121	Total 121	O 121	0	0
3	H	111	Total 111	O 111	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.
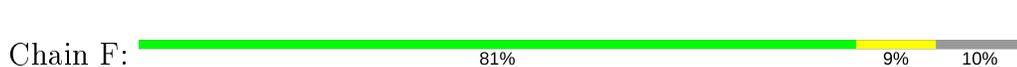
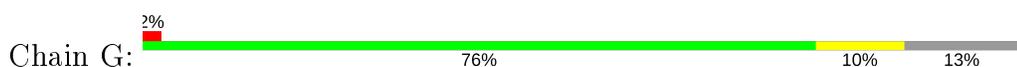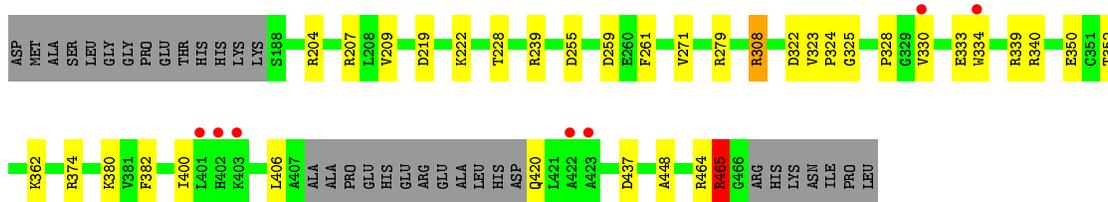- Molecule 1: Propionyl-CoA carboxylase subunit beta

- Molecule 1: Propionyl-CoA carboxylase subunit beta

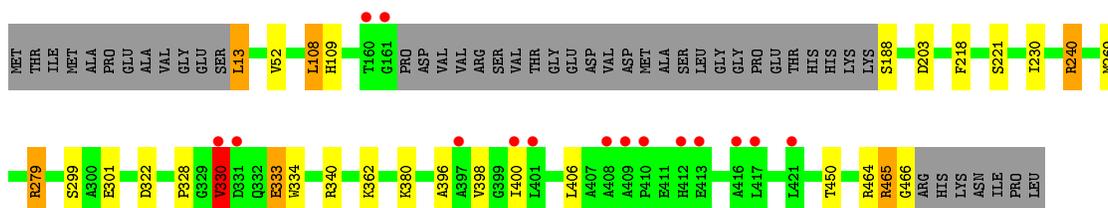- Molecule 1: Propionyl-CoA carboxylase subunit beta

R374 V398 G399 I400 L401 H402 K403 K404 K405 L406 A407 ALA ALA PRO GLU HIS GLU ARG GLU ALA LEU HIS ASP Q420 L421 A422 A423 E424 H425 E426 R427 I428 A429 G430 D437 K444 A448 R451 E456 R464 R465 G466 ARG HIS LYS ASN ILE PRO LEU

• Molecule 1: Propionyl-CoA carboxylase subunit beta

Chain D:

4%

82%   7%   •   10%

MET THR ILE MET ALA PRO GLU ALA VAL GLY GLU SER L13 L33 L43 R53 D81 L108 R120 Y141 E154 V159 T160 G161 ASP VAL VAL ARG SER VAL THR GLY GLU ASP VAL ASP MET ALA SER LEU GLY GLY PRO GLU THR HIS HIS LYS LYS S188

E198 I230 E236 R240 R245 T249 A266 M269 R279 N286 M287 P288 E298 S299 A300 E301 P328 G329 V330 D331 Q332 E333 R340 R374 K380 A394 A397 L401 A407 A408 A409 P410 E411 H412 E413 R414 L417 H418 D419 Q420

A429 G430 G431 V432 K444 T450 R464 R465 G466 ARG HIS LYS ASN ILE PRO LEU

• Molecule 1: Propionyl-CoA carboxylase subunit beta

Chain E:

%

82%   8%   •   10%

MET THR ILE MET ALA PRO GLU ALA VAL GLY GLU SER L13 D14 P15 R16 G98 L108 F134 A135 A136 G137 A140 P153 R156 V157 F158 V159 THR GLY PRO ASP VAL VAL ARG SER VAL THR GLY GLU ASP VAL ASP MET ALA SER LEU GLY GLY PRO GLU THR HIS HIS

LYS LYS S188 A195 D196 D197 R207 R245 D259 N264 W265 A266 P267 R279 R290 E298 E301 G325 V330 D331 G335 R339 R340 K362 K395 V398 L406 L421 L436 V441 R465 G466 ARG HIS LYS ASN ILE PRO LEU

• Molecule 1: Propionyl-CoA carboxylase subunit beta

Chain F:

81%   9%   10%

MET THR ILE MET ALA PRO GLU ALA VAL GLY GLU SER L13 D17 L33 R37 L43 V52 R53 G98 A102 L108 F115 I119 M151 S155 ARG VAL PHE VAL THR GLY PRO ASP VAL VAL ARG SER VAL THR GLY GLU ASP VAL ASP MET ALA SER

LEU GLY GLY PRO GLU THR HIS HIS K186 C191 I230 E236 R245 P267 S268 M269 V270 V271 R279 V283 R290 S299 I315 P316 G325 V330 W334 R339 R340 T352 R374 E388 K395 H402 K405 D419 Q420 D433

T450 R451 S452 R465 G466 ARG HIS LYS ASN ILE PRO LEU

• Molecule 1: Propionyl-CoA carboxylase subunit beta

Chain G:

2%

76%   10%   13%

MET THR ILE MET ALA PRO GLU ALA VAL GLY GLU SER L13 D14 P15 R16 D17 P18 L19 R37 V42 R53 G69 E85 R100 E103 A107 L108 V131 M151 S155 ARG VAL PHE VAL THR GLY PRO ASP VAL VAL ARG SER VAL THR GLY GLU ASP VAL

ASP MET ALA SER LEU GLY GLY PRO GLU THR HIS HIS LYS LYS S188 R204 R207 L208 V209 D219 K222 T228 R239 D255 D259 E260 F261 V271 R279 R308 D322 V323 P324 G325 P328 G329 V330 E333 W334 R339 R340 E350 C351 T352

K362 R374 K380 V381 F382 I400 L401 H402 K403 L406 A407 ALA ALA PRO GLU HIS GLU ARG GLU ALA LEU HIS ASP Q420 L421 A422 A423 D437 A448 R464 R465 G466 ARG HIS LYS ASN ILE PRO LEU

● Molecule 1: Propionyl-CoA carboxylase subunit beta

Chain H:

MET THR ILE MET ALA PRO GLU ALA VAL GLY GLU SER L13 V52 L108 H109 T160 G161 PRO ASP VAL VAL ARG SER VAL THR GLY GLU ASP VAL ASP MET ALA SER LEU GLY PRO GLU THR HIS HIS LYS LYS S188 D203 F218 S221 I230 R240 M269

R279 S299 A300 E301 D322 P328 G329 R330 D331 Q332 E333 W334 R340 K362 K380 A396 A397 V398 G399 I400 L401 L406 A407 A408 A409 P410 E411 H412 E413 A416 L417 L421 T450 R464 R465 G466 ARG HIS LYS ASN ILE PRO LEU

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	102.12Å　149.80Å　152.96Å 90.00°　　90.04°　　90.00°	Depositor
Resolution (Å)	48.44　–　2.40 48.44　–　2.40	Depositor EDS
% Data completeness (in resolution range)	98.7 (48.44-2.40) 98.6 (48.44-2.40)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.60 (at 2.39Å)	Xtriage
Refinement program	PHENIX 1.8.2_1309	Depositor
R, R_{free}	0.173　,　0.222 0.175　,　0.224	Depositor DCC
R_{free} test set	2017 reflections (1.14%)	wwPDB-VP
Wilson B-factor (Å^2)	40.8	Xtriage
Anisotropy	0.277	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 26.3	EDS
L-test for twinning[2]	$< |L| > = 0.50, < L^2 > = 0.33$	Xtriage
Estimated twinning fraction	0.006 for -h,l,k 0.008 for -h,-l,-k 0.477 for h,-k,-l	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	25923	wwPDB-VP
Average B, all atoms (Å^2)	43.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 7.35% 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: ORJ

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	0/3209	0.54	0/4365
1	B	0.40	0/3174	0.55	0/4316
1	C	0.44	0/3045	0.57	0/4144
1	D	0.45	1/3159 (0.0%)	0.55	0/4304
1	E	0.42	0/3209	0.54	0/4365
1	F	0.40	0/3185	0.54	0/4330
1	G	0.41	0/3051	0.56	0/4151
1	H	0.41	0/3155	0.54	0/4299
All	All	0.42	1/25187 (0.0%)	0.55	0/34274

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	D	329	GLY	N-CA	-5.78	1.37	1.46

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	3147	0	3090	26	0
1	B	3115	0	3062	22	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	C	2985	0	2908	28	0
1	D	3101	0	3010	26	0
1	E	3147	0	3090	20	0
1	F	3123	0	3075	22	0
1	G	2991	0	2919	24	0
1	H	3097	0	3004	18	0
2	A	23	0	0	0	0
2	B	23	0	0	0	0
2	C	23	0	0	0	0
2	D	23	0	0	0	0
2	E	23	0	0	1	0
2	F	23	0	0	1	0
2	G	46	0	0	0	0
3	A	143	0	0	4	0
3	B	131	0	0	2	0
3	C	130	0	0	5	0
3	D	132	0	0	6	0
3	E	141	0	0	2	0
3	F	124	0	0	2	0
3	G	121	0	0	2	0
3	H	111	0	0	2	0
All	All	25923	0	24158	170	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 3.

The worst 5 of 170 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:330:VAL:CG1	1:D:331:ASP:H	1.21	1.33
1:D:330:VAL:HG13	1:D:331:ASP:H	0.98	1.11
1:D:330:VAL:HG12	1:D:331:ASP:H	1.12	1.10
1:D:330:VAL:CG1	1:D:331:ASP:N	1.98	1.08
1:D:330:VAL:HG13	1:D:331:ASP:N	1.68	1.03

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	423/473 (89%)	409 (97%)	12 (3%)	2 (0%)	29	41
1	B	420/473 (89%)	409 (97%)	9 (2%)	2 (0%)	29	41
1	C	406/473 (86%)	384 (95%)	16 (4%)	6 (2%)	10	14
1	D	424/473 (90%)	403 (95%)	17 (4%)	4 (1%)	17	25
1	E	423/473 (89%)	411 (97%)	12 (3%)	0	100	100
1	F	421/473 (89%)	411 (98%)	9 (2%)	1 (0%)	47	62
1	G	406/473 (86%)	385 (95%)	18 (4%)	3 (1%)	22	32
1	H	424/473 (90%)	410 (97%)	12 (3%)	2 (0%)	29	41
All	All	3347/3784 (88%)	3222 (96%)	105 (3%)	20 (1%)	25	36

5 of 20 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	465	ARG
1	B	332	GLN
1	C	330	VAL
1	C	465	ARG
1	D	330	VAL

5.3.2 Protein sidechains (i)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	316/362 (87%)	305 (96%)	11 (4%)	36	55

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	B	310/362 (86%)	296 (96%)	14 (4%)	27	44
1	C	294/362 (81%)	279 (95%)	15 (5%)	24	39
1	D	304/362 (84%)	294 (97%)	10 (3%)	38	57
1	E	316/362 (87%)	304 (96%)	12 (4%)	33	51
1	F	311/362 (86%)	300 (96%)	11 (4%)	36	55
1	G	295/362 (82%)	278 (94%)	17 (6%)	20	32
1	H	303/362 (84%)	294 (97%)	9 (3%)	41	61
All	All	2449/2896 (85%)	2350 (96%)	99 (4%)	31	49

5 of 99 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	D	298	GLU
1	E	279	ARG
1	H	52	VAL
1	D	332	GLN
1	E	14	ASP

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

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)

8 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	ORJ	G	502	-	22,25,25	2.03	6 (27%)	29,35,35	1.78	6 (20%)
2	ORJ	A	501	-	22,25,25	2.06	6 (27%)	29,35,35	1.75	6 (20%)
2	ORJ	G	501	-	22,25,25	1.99	6 (27%)	29,35,35	1.75	6 (20%)
2	ORJ	C	501	-	22,25,25	1.95	6 (27%)	29,35,35	1.68	6 (20%)
2	ORJ	E	501	-	22,25,25	2.03	6 (27%)	29,35,35	2.16	9 (31%)
2	ORJ	F	501	-	22,25,25	2.02	5 (22%)	29,35,35	2.11	10 (34%)
2	ORJ	D	501	-	22,25,25	1.98	5 (22%)	29,35,35	1.81	6 (20%)
2	ORJ	B	501	-	22,25,25	2.05	5 (22%)	29,35,35	1.82	6 (20%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	ORJ	G	502	-	-	0/8/10/10	0/3/3/3
2	ORJ	A	501	-	-	0/8/10/10	0/3/3/3
2	ORJ	G	501	-	-	0/8/10/10	0/3/3/3
2	ORJ	C	501	-	-	0/8/10/10	0/3/3/3
2	ORJ	E	501	-	-	3/8/10/10	0/3/3/3
2	ORJ	F	501	-	-	3/8/10/10	0/3/3/3
2	ORJ	D	501	-	-	0/8/10/10	0/3/3/3
2	ORJ	B	501	-	-	0/8/10/10	0/3/3/3

The worst 5 of 45 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	G	502	ORJ	O10-C11	4.93	1.42	1.36
2	A	501	ORJ	O10-C11	4.90	1.42	1.36
2	E	501	ORJ	O10-C11	4.85	1.42	1.36
2	B	501	ORJ	O10-C11	4.69	1.42	1.36
2	C	501	ORJ	O10-C11	4.66	1.42	1.36

The worst 5 of 55 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	E	501	ORJ	C05-C03-N02	5.36	123.11	115.45
2	D	501	ORJ	C18-C19-S20	4.84	134.78	125.10
2	F	501	ORJ	C13-C19-S20	-4.67	105.66	111.85
2	B	501	ORJ	C18-C19-S20	4.62	134.35	125.10
2	G	501	ORJ	C18-C19-S20	4.61	134.32	125.10

There are no chirality outliers.

5 of 6 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	F	501	ORJ	O04-C03-C05-C06
2	E	501	ORJ	O04-C03-C05-C06
2	E	501	ORJ	N02-C03-C05-C06
2	F	501	ORJ	N02-C03-C05-C06
2	F	501	ORJ	C03-C05-C06-C07

There are no ring outliers.

2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	E	501	ORJ	1	0
2	F	501	ORJ	1	0

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

Ligand ORJ G 502

Bond lengths

Bond angles

Torsions

Rings

Ligand ORJ A 501

Bond lengths

Bond angles

Torsions

Rings

Ligand ORJ G 501

Bond lengths

Bond angles

Torsions

Rings

Ligand ORJ C 501

Bond lengths

Bond angles

Torsions

Rings

Ligand ORJ E 501

Bond lengths

Bond angles

Torsions

Rings

Ligand ORJ F 501

Bond lengths

Bond angles

Torsions

Rings

Ligand ORJ D 501

Bond lengths

Bond angles

Torsions

Rings

Ligand ORJ B 501

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 (i)

6.1 Protein, DNA and RNA chains (i)

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	426/473 (90%)	-0.29	2 (0%)	91	89	26, 40, 62, 78	0
1	B	424/473 (89%)	-0.30	1 (0%)	95	94	26, 40, 66, 92	0
1	C	410/473 (86%)	-0.22	10 (2%)	59	57	27, 39, 86, 116	0
1	D	428/473 (90%)	-0.13	17 (3%)	38	37	28, 41, 85, 99	0
1	E	426/473 (90%)	-0.27	4 (0%)	84	82	26, 40, 62, 80	0
1	F	424/473 (89%)	-0.29	1 (0%)	95	94	26, 41, 66, 92	0
1	G	410/473 (86%)	-0.22	8 (1%)	65	63	27, 39, 83, 114	0
1	H	428/473 (90%)	-0.18	15 (3%)	44	43	28, 40, 84, 101	0
All	All	3376/3784 (89%)	-0.24	58 (1%)	70	68	26, 40, 72, 116	0

The worst 5 of 58 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	330	VAL	5.4
1	E	13	LEU	5.4
1	D	408	ALA	5.2
1	D	407	ALA	5.0
1	H	409	ALA	4.9

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, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	ORJ	G	501	23/23	0.95	0.14	31,39,45,49	0
2	ORJ	G	502	23/23	0.96	0.14	31,37,44,46	0
2	ORJ	A	501	23/23	0.97	0.13	32,40,47,49	0
2	ORJ	D	501	23/23	0.97	0.13	31,36,46,49	0
2	ORJ	B	501	23/23	0.97	0.13	28,32,38,46	0
2	ORJ	F	501	23/23	0.98	0.13	28,31,44,49	0
2	ORJ	C	501	23/23	0.98	0.12	31,35,44,46	0
2	ORJ	E	501	23/23	0.98	0.12	35,38,46,57	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 ORJ G 501:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative) and green (positive)
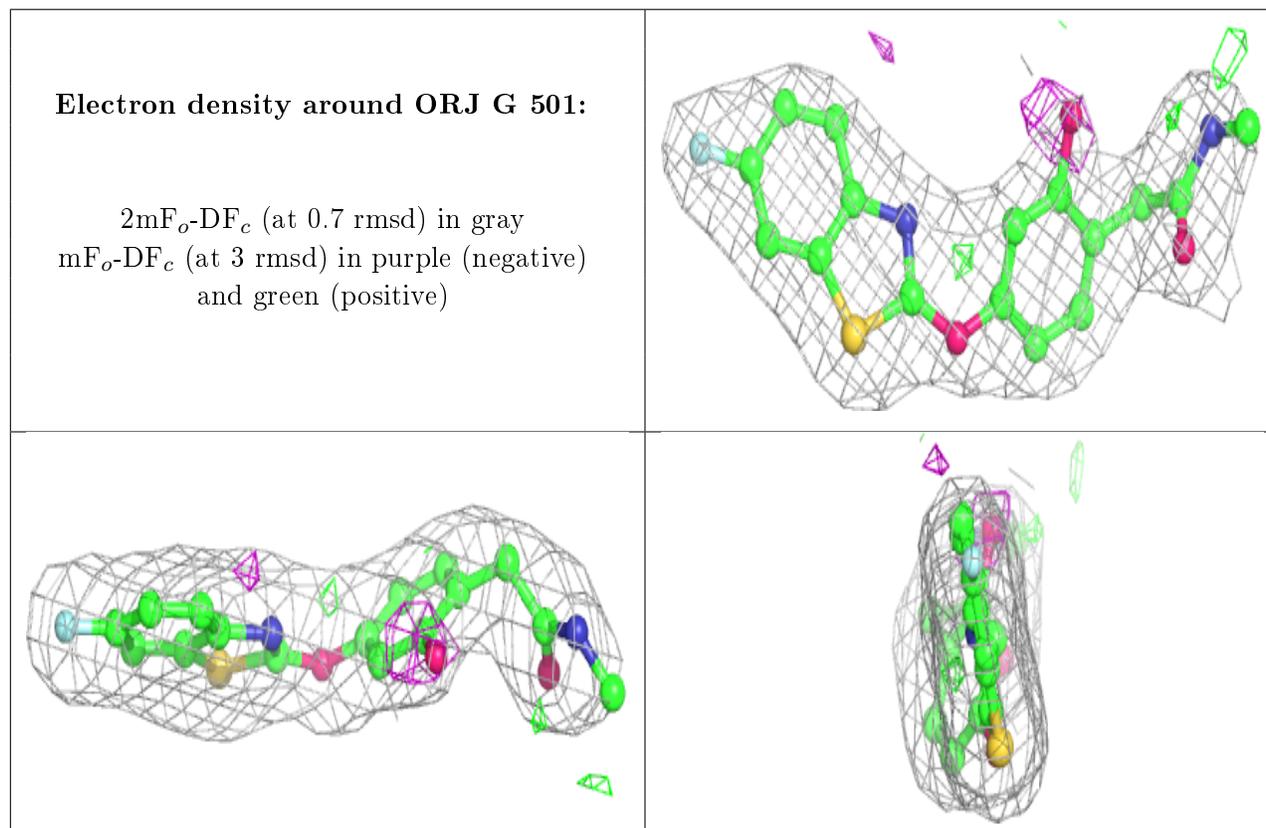
Electron density around ORJ G 502:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
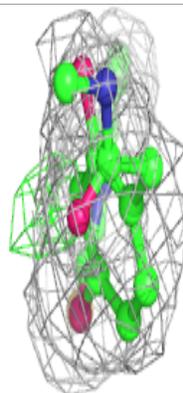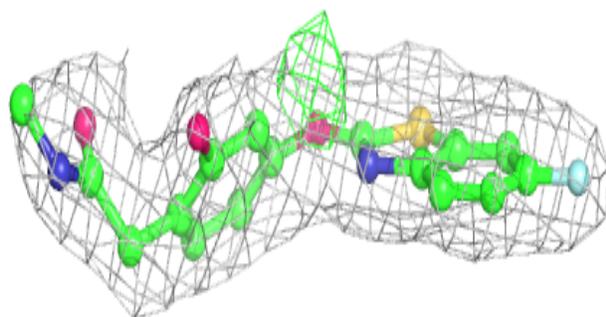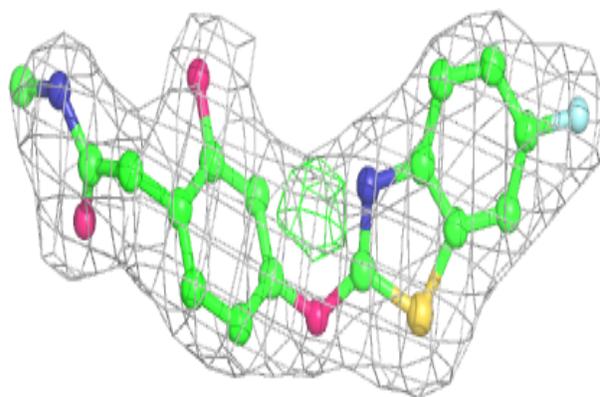
Electron density around ORJ A 501:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
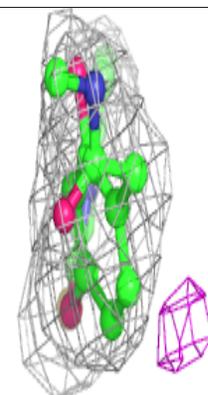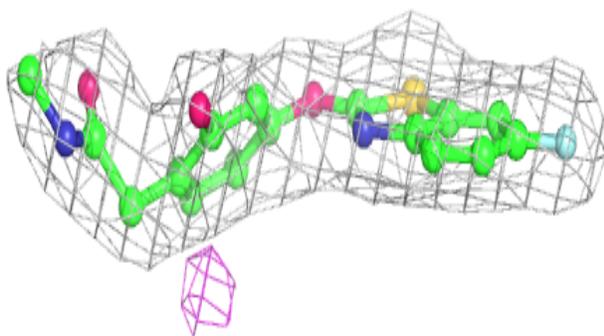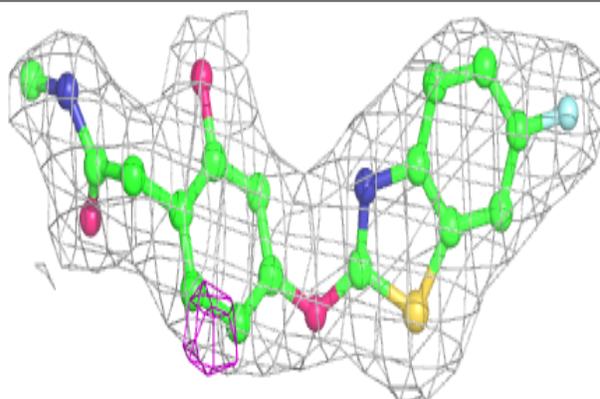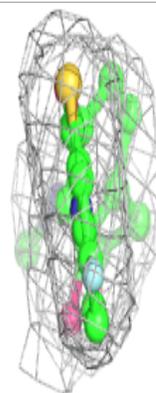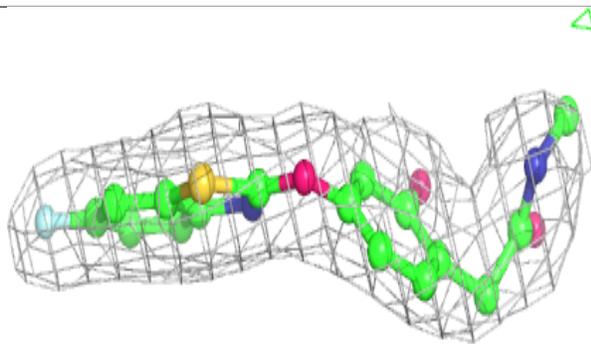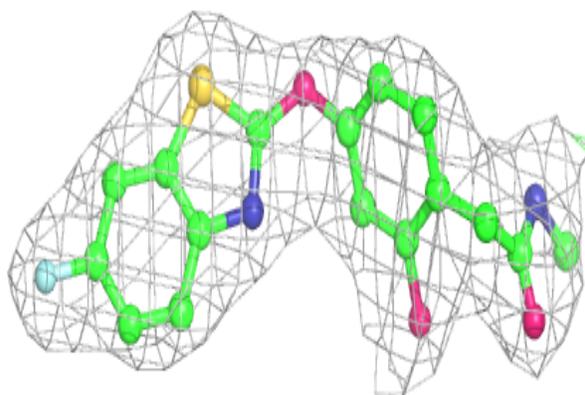mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
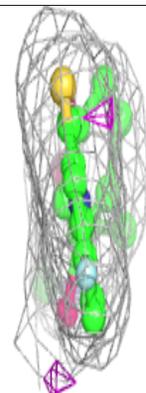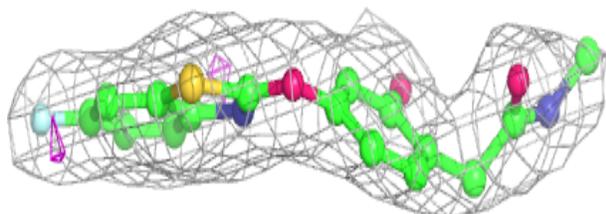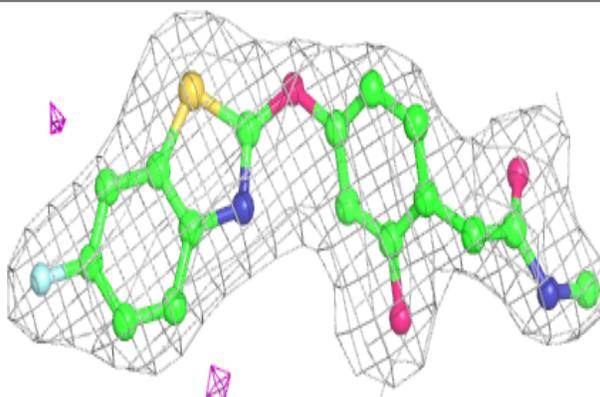
Electron density around ORJ D 501:

$2mF_o-DF_c$ (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)
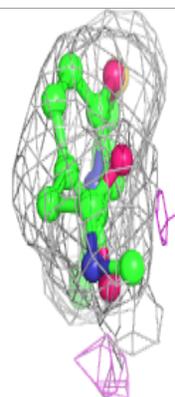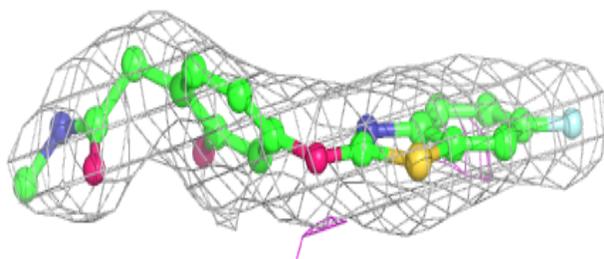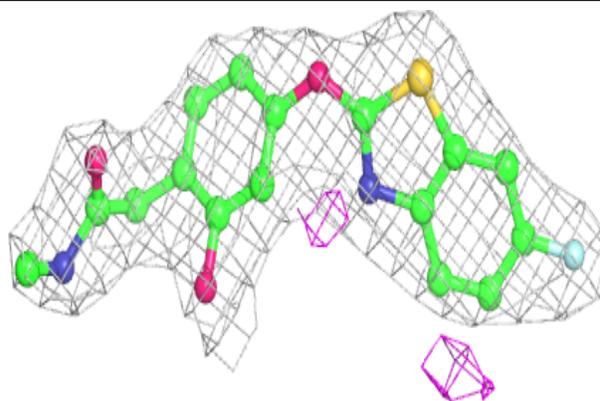
Electron density around ORJ B 501:

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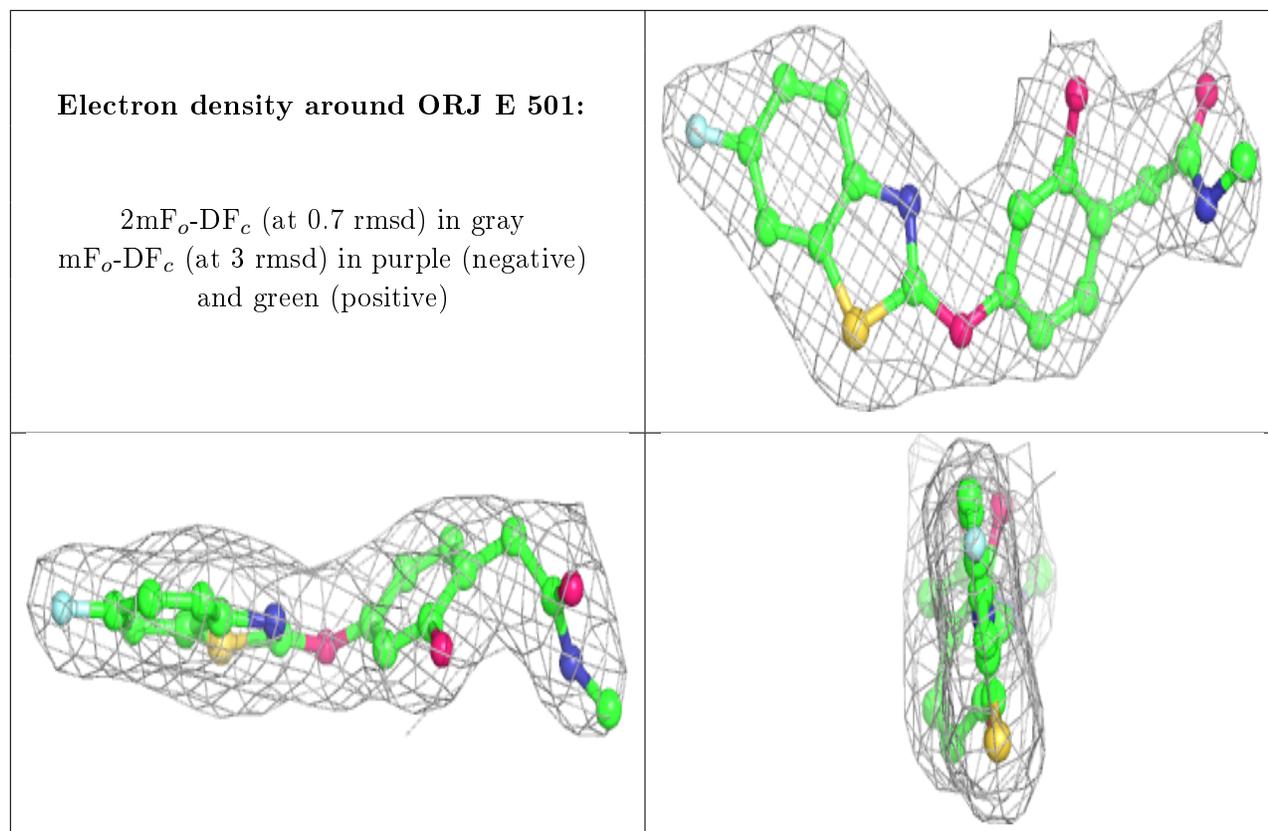and green (positive)

Electron density around ORJ F 501:

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

Electron density around ORJ C 501:

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

Electron density around ORJ E 501:

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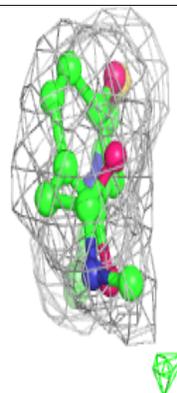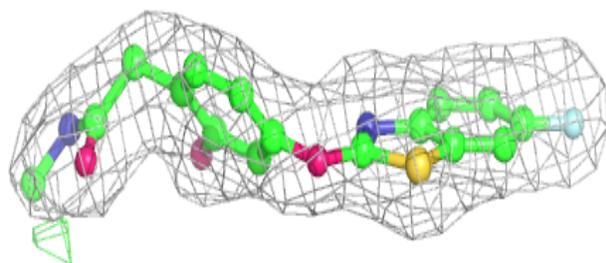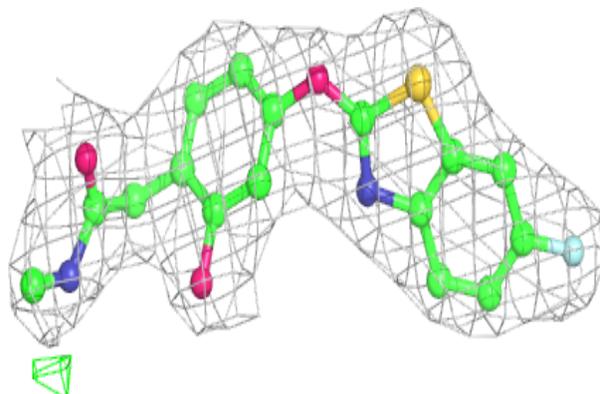
6.5 Other polymers (i)

There are no such residues in this entry.