WORLDWIDE PDB PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report ⓘ

Nov 21, 2023 – 01:03 AM JST

PDB ID	:	7E7N
Title	:	Crystal structure of RSL mutant-R17A/R108A/R199A in complex with R3F
Authors	:	Li, L.; Chen, G.S.
Deposited on	:	2021-02-26
Resolution	:	1.55 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
https://www.wwpdb.org/validation/2017/XrayValidationReportHelp
with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at
http://www.wwpdb.org/validation/2017/FAQs#types.

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

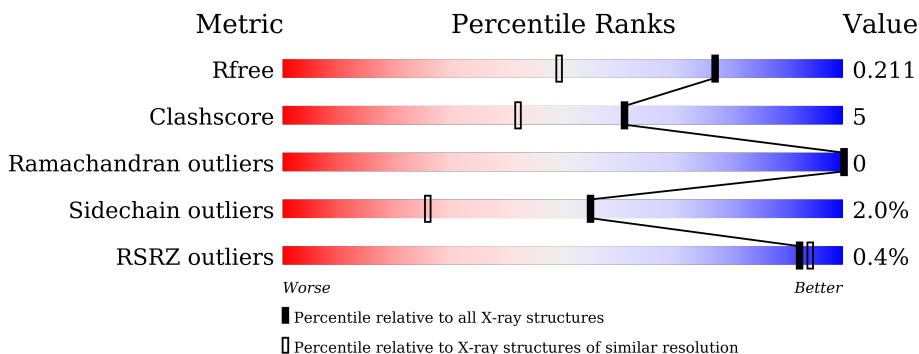|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1   Overall quality at a glance ⓘ

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

The reported resolution of this entry is 1.55 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.

Metric	Percentile Ranks	Value
Rfree		0.211
Clashscore		5
Ramachandran outliers		0
Sidechain outliers		2.0%
RSRZ outliers		0.4%

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	1483 (1.56-1.56)
Clashscore	141614	1529 (1.56-1.56)
Ramachandran outliers	138981	1498 (1.56-1.56)
Sidechain outliers	138945	1495 (1.56-1.56)
RSRZ outliers	127900	1465 (1.56-1.56)

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	272	89% 6% 5%

2 Entry composition ⓘ

There are 4 unique types of molecules in this entry. The entry contains 2311 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 Fucose-binding lectin protein,Fucose-binding lectin protein,Fucose-binding lectin protein.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	259	Total 1969	C 1241	N 331	O 391	S 6	0	0	0

There are 17 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	17	ALA	ARG	engineered mutation	UNP A0A0S4TLR1
A	88	SER	-	linker	UNP A0A0S4TLR1
A	89	SER	-	linker	UNP A0A0S4TLR1
A	90	THR	-	linker	UNP A0A0S4TLR1
A	91	VAL	-	linker	UNP A0A0S4TLR1
A	92	PRO	-	linker	UNP A0A0S4TLR1
A	93	GLY	-	linker	UNP A0A0S4TLR1
A	94	ASP	-	linker	UNP A0A0S4TLR1
A	108	ALA	ARG	engineered mutation	UNP A0A0S4TLR1
A	179	SER	-	linker	UNP A0A0S4TLR1
A	180	SER	-	linker	UNP A0A0S4TLR1
A	181	THR	-	linker	UNP A0A0S4TLR1
A	182	VAL	-	linker	UNP A0A0S4TLR1
A	183	PRO	-	linker	UNP A0A0S4TLR1
A	184	GLY	-	linker	UNP A0A0S4TLR1
A	185	ASP	-	linker	UNP A0A0S4TLR1
A	199	ALA	ARG	engineered mutation	UNP A0A0S4TLR1

- Molecule 2 is GLYCEROL (three-letter code: GOL) (formula: $C_3H_8O_3$).

GOL

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total 6	C 3	O 3	0	0
2	A	1	Total 6	C 3	O 3	0	0
2	A	1	Total 6	C 3	O 3	0	0

- Molecule 3 is 2-[2-[2-[4-[[(2R,3S,4R,5S,6S)-6-methyl-3,4,5-tris(oxidanyl)oxan-2-yl]oxymethyl]-1,2,3-triazol-1-yl]ethoxy]ethoxy]ethyl 2-[3,6-bis(diethylamino)-9H-xanthen-9-yl]benzoate (three-letter code: R3F) (formula: $C_{43}H_{57}N_5O_{10}$) (labeled as "Ligand of Interest" by depositor).

R3F
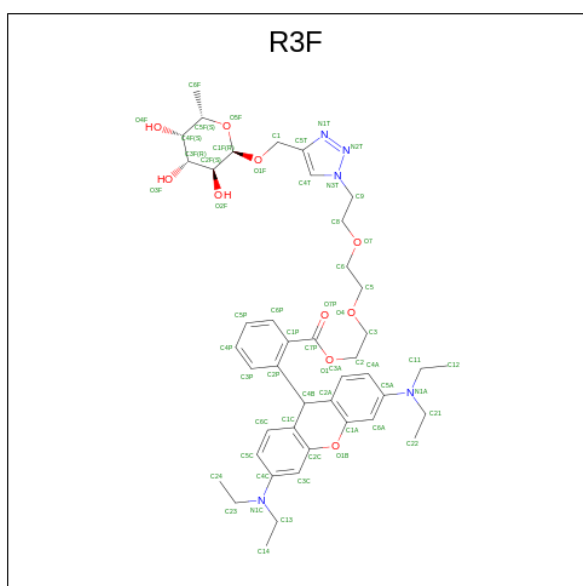
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	A	1	Total 58	C 43	N 5	O 10	0	0
3	A	1	Total 58	C 43	N 5	O 10	0	0
3	A	1	Total 58	C 43	N 5	O 10	0	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	150	Total 150	O 150	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: Fucose-binding lectin protein,Fucose-binding lectin protein,Fucose-binding lectin protein
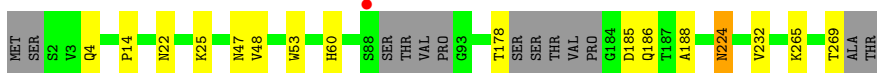
4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	44.30Å 45.63Å 46.84Å 94.12° 117.04° 117.20°	Depositor
Resolution (Å)	39.04 – 1.55 39.04 – 1.26	Depositor EDS
% Data completeness (in resolution range)	91.1 (39.04-1.55) 64.3 (39.04-1.26)	Depositor EDS
R_{merge}	0.04	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.21 (at 1.26Å)	Xtriage
Refinement program	REFMAC 5.8.0238	Depositor
R, R_{free}	0.172 , 0.200 0.185 , 0.211	Depositor DCC
R_{free} test set	2556 reflections (5.47%)	wwPDB-VP
Wilson B-factor (Å^2)	13.9	Xtriage
Anisotropy	0.003	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.43 , 58.6	EDS
L-test for twinning[2]	$< |L| > = 0.50, < L^2 > = 0.34$	Xtriage
Estimated twinning fraction	0.010 for -h,-l,-k	Xtriage
F_o,F_c correlation	0.96	EDS
Total number of atoms	2311	wwPDB-VP
Average B, all atoms (Å^2)	21.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 9.41% 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: GOL, R3F

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	0.91	2/2032 (0.1%)	1.04	1/2794 (0.0%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	269	THR	C-O	6.99	1.36	1.23
1	A	178	THR	C-O	6.04	1.34	1.23

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	178	THR	CA-C-O	-8.52	102.22	120.10

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	1969	0	1797	9	0
2	A	18	0	24	4	0
3	A	174	0	0	5	0
4	A	150	0	0	5	0
All	All	2311	0	1821	18	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 5.

All (18) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:405:R3F:N2T	3:A:405:R3F:O7	2.04	0.88
2:A:403:GOL:H12	4:A:532:HOH:O	1.77	0.84
1:A:4:GLN:HE22	1:A:48:VAL:H	1.23	0.83
2:A:403:GOL:C1	4:A:532:HOH:O	2.38	0.69
2:A:401:GOL:H12	4:A:552:HOH:O	1.91	0.69
1:A:186:GLN:HB2	4:A:642:HOH:O	1.93	0.67
3:A:405:R3F:C3A	3:A:405:R3F:C3P	2.76	0.62
1:A:4:GLN:HE22	1:A:48:VAL:N	1.96	0.62
3:A:406:R3F:C5	3:A:406:R3F:O1	2.53	0.57
2:A:401:GOL:C1	4:A:552:HOH:O	2.53	0.50
3:A:405:R3F:C4A	3:A:405:R3F:C22	2.94	0.45
1:A:4:GLN:NE2	1:A:47:ASN:HA	2.33	0.44
1:A:185:ASP:OD1	1:A:185:ASP:N	2.49	0.44
3:A:406:R3F:O1	3:A:406:R3F:C6	2.66	0.43
1:A:53:TRP:CE2	1:A:60:HIS:HB2	2.54	0.42
1:A:265:LYS:HB2	1:A:265:LYS:HE2	1.76	0.41
1:A:188:ALA:HB1	1:A:232:VAL:HG12	2.02	0.41
1:A:224:ASN:C	1:A:224:ASN:HD22	2.25	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	253/272 (93%)	251 (99%)	2 (1%)	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	200/212 (94%)	196 (98%)	4 (2%)	55	26

All (4) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	14	PRO
1	A	22	ASN
1	A	25	LYS
1	A	224	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (4) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	4	GLN
1	A	22	ASN
1	A	114	ASN
1	A	224	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

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	GOL	A	403	-	5,5,5	0.26	0	5,5,5	0.32	0
3	R3F	A	405	-	63,63,63	1.61	9 (14%)	80,87,87	2.24	25 (31%)
3	R3F	A	404	-	63,63,63	1.66	8 (12%)	80,87,87	2.19	20 (25%)
3	R3F	A	406	-	63,63,63	1.55	8 (12%)	80,87,87	2.31	20 (25%)
2	GOL	A	401	-	5,5,5	0.14	0	5,5,5	0.37	0
2	GOL	A	402	-	5,5,5	0.36	0	5,5,5	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	GOL	A	403	-	-	0/4/4/4	-
3	R3F	A	405	-	-	20/43/73/73	0/6/6/6
3	R3F	A	404	-	-	24/43/73/73	0/6/6/6
3	R3F	A	406	-	-	25/43/73/73	0/6/6/6
2	GOL	A	401	-	-	0/4/4/4	-
2	GOL	A	402	-	-	0/4/4/4	-

All (25) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	405	R3F	C2A-C4B	-6.81	1.40	1.52
3	A	404	R3F	O1-C7P	5.95	1.48	1.33
3	A	404	R3F	C2A-C4B	-5.77	1.42	1.52
3	A	406	R3F	C2A-C4B	-5.48	1.43	1.52
3	A	406	R3F	O1-C7P	5.38	1.47	1.33
3	A	404	R3F	C1C-C4B	-5.06	1.43	1.52
3	A	406	R3F	C1C-C4B	-4.68	1.44	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	405	R3F	O1-C7P	4.58	1.45	1.33
3	A	405	R3F	C1C-C4B	-4.51	1.44	1.52
3	A	405	R3F	C4T-N3T	-2.68	1.32	1.35
3	A	406	R3F	O3F-C3F	-2.68	1.36	1.43
3	A	406	R3F	N1T-N2T	2.56	1.39	1.34
3	A	404	R3F	C4F-C5F	-2.53	1.47	1.52
3	A	405	R3F	O4F-C4F	2.52	1.48	1.43
3	A	404	R3F	C1P-C2P	2.47	1.43	1.40
3	A	405	R3F	C4C-N1C	2.47	1.45	1.38
3	A	404	R3F	C5T-N1T	2.44	1.37	1.34
3	A	404	R3F	O4F-C4F	2.35	1.48	1.43
3	A	405	R3F	C4F-C5F	-2.32	1.47	1.52
3	A	405	R3F	N1T-N2T	2.32	1.38	1.34
3	A	404	R3F	C1F-C2F	-2.28	1.45	1.52
3	A	406	R3F	C4C-N1C	2.11	1.44	1.38
3	A	406	R3F	C5C-C6C	2.03	1.42	1.38
3	A	405	R3F	C5C-C6C	2.01	1.42	1.38
3	A	406	R3F	C9-C8	2.01	1.58	1.51

All (65) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	406	R3F	C2A-C4B-C1C	9.08	119.38	105.83
3	A	404	R3F	C2A-C4B-C1C	8.39	118.34	105.83
3	A	405	R3F	C2A-C4B-C1C	7.64	117.22	105.83
3	A	404	R3F	C9-N3T-C4T	7.32	147.02	129.82
3	A	405	R3F	C2P-C4B-C1C	6.87	136.17	113.32
3	A	406	R3F	C2-O1-C7P	6.62	130.39	116.43
3	A	406	R3F	C6F-C5F-C4F	6.33	124.78	113.07
3	A	404	R3F	O1-C7P-C1P	6.00	124.09	112.21
3	A	406	R3F	C9-N3T-C4T	5.73	143.29	129.82
3	A	405	R3F	C11-N1A-C5A	-5.38	113.44	121.39
3	A	405	R3F	C3A-C2A-C4B	-4.95	118.29	126.14
3	A	406	R3F	O1-C7P-C1P	4.86	121.83	112.21
3	A	406	R3F	O4F-C4F-C5F	-4.85	98.92	109.67
3	A	404	R3F	O1F-C1F-C2F	4.53	115.38	108.30
3	A	405	R3F	C2P-C1P-C7P	-4.32	115.67	121.71
3	A	404	R3F	C2-O1-C7P	4.10	125.07	116.43
3	A	404	R3F	N1T-N2T-N3T	4.09	110.39	107.31
3	A	406	R3F	C2C-C1C-C4B	-4.05	117.26	121.53
3	A	406	R3F	C2P-C4B-C1C	3.85	126.14	113.32
3	A	406	R3F	O1-C7P-O7P	-3.77	116.02	123.67

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	A	404	R3F	O1-C7P-O7P	-3.74	116.09	123.67
3	A	404	R3F	O4F-C4F-C5F	-3.68	101.50	109.67
3	A	405	R3F	O1F-C1F-C2F	3.66	114.03	108.30
3	A	405	R3F	C2C-C1C-C4B	-3.55	117.78	121.53
3	A	405	R3F	C9-N3T-C4T	3.55	138.16	129.82
3	A	405	R3F	C21-N1A-C11	3.54	123.13	116.34
3	A	405	R3F	O1B-C1A-C6A	3.47	120.34	115.20
3	A	405	R3F	O4F-C4F-C5F	-3.33	102.27	109.67
3	A	405	R3F	C6F-C5F-C4F	3.32	119.21	113.07
3	A	406	R3F	O5F-C5F-C4F	3.30	115.44	109.52
3	A	406	R3F	C3C-C4C-N1C	-3.25	117.83	121.33
3	A	405	R3F	C5C-C4C-N1C	3.23	125.83	121.38
3	A	405	R3F	O5F-C1F-O1F	3.21	117.58	109.97
3	A	405	R3F	C1-C5T-C4T	-3.20	122.40	128.45
3	A	406	R3F	C5C-C4C-N1C	3.19	125.77	121.38
3	A	405	R3F	C6P-C1P-C2P	3.12	123.15	119.60
3	A	404	R3F	O5F-C5F-C4F	3.09	115.06	109.52
3	A	406	R3F	N1T-N2T-N3T	3.07	109.63	107.31
3	A	406	R3F	O3F-C3F-C2F	3.00	117.28	110.35
3	A	404	R3F	C3C-C4C-N1C	-2.97	118.14	121.33
3	A	404	R3F	C1-O1F-C1F	2.94	118.54	113.31
3	A	404	R3F	C6F-C5F-C4F	2.90	118.42	113.07
3	A	404	R3F	C2P-C4B-C1C	2.87	122.88	113.32
3	A	406	R3F	O5F-C1F-O1F	2.80	116.60	109.97
3	A	406	R3F	O1B-C1A-C6A	2.70	119.20	115.20
3	A	404	R3F	O5F-C5F-C6F	2.62	112.35	106.70
3	A	404	R3F	O3F-C3F-C4F	2.55	116.25	110.35
3	A	405	R3F	C3F-C4F-C5F	2.48	113.63	109.77
3	A	405	R3F	C4A-C5A-N1A	-2.42	118.04	121.38
3	A	404	R3F	C4A-C5A-N1A	2.39	124.67	121.38
3	A	406	R3F	O1F-C1F-C2F	2.38	112.02	108.30
3	A	406	R3F	C3A-C2A-C4B	-2.27	122.55	126.14
3	A	405	R3F	O5F-C5F-C4F	2.26	113.57	109.52
3	A	404	R3F	C1A-C2A-C4B	-2.22	119.19	121.53
3	A	405	R3F	C6C-C1C-C2C	-2.18	115.28	117.75
3	A	404	R3F	C3P-C2P-C4B	-2.18	116.64	121.49
3	A	406	R3F	O7-C6-C5	2.17	120.16	110.39
3	A	405	R3F	C1F-O5F-C5F	-2.13	110.01	113.67
3	A	405	R3F	C3C-C4C-N1C	-2.12	119.05	121.33
3	A	404	R3F	O4F-C4F-C3F	-2.07	105.57	110.35
3	A	406	R3F	O1B-C1A-C2A	-2.06	119.55	122.38
3	A	405	R3F	C2P-C4B-C2A	-2.05	106.50	113.32

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	A	404	R3F	C5C-C4C-N1C	2.04	124.20	121.38
3	A	405	R3F	O5F-C5F-C6F	2.01	111.04	106.70
3	A	405	R3F	O3F-C3F-C2F	2.00	114.98	110.35

There are no chirality outliers.

All (69) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	404	R3F	C6C-C1C-C4B-C2P
3	A	404	R3F	C6C-C1C-C4B-C2A
3	A	404	R3F	C3A-C2A-C4B-C2P
3	A	404	R3F	C3A-C2A-C4B-C1C
3	A	404	R3F	C8-C9-N3T-C4T
3	A	405	R3F	C6C-C1C-C4B-C2P
3	A	405	R3F	C6C-C1C-C4B-C2A
3	A	405	R3F	C3A-C2A-C4B-C2P
3	A	405	R3F	C3A-C2A-C4B-C1C
3	A	405	R3F	O7-C8-C9-N3T
3	A	405	R3F	C8-C9-N3T-C4T
3	A	405	R3F	C8-C9-N3T-N2T
3	A	406	R3F	O7P-C7P-O1-C2
3	A	406	R3F	C6C-C1C-C4B-C2P
3	A	406	R3F	C6C-C1C-C4B-C2A
3	A	406	R3F	C3A-C2A-C4B-C2P
3	A	406	R3F	C3A-C2A-C4B-C1C
3	A	405	R3F	O7P-C7P-O1-C2
3	A	405	R3F	C1P-C7P-O1-C2
3	A	406	R3F	C1P-C7P-O1-C2
3	A	404	R3F	C3C-C4C-N1C-C23
3	A	406	R3F	C22-C21-N1A-C5A
3	A	404	R3F	O7P-C7P-O1-C2
3	A	404	R3F	C5C-C4C-N1C-C13
3	A	404	R3F	C5C-C4C-N1C-C23
3	A	404	R3F	C3C-C4C-N1C-C13
3	A	404	R3F	C1P-C7P-O1-C2
3	A	405	R3F	C12-C11-N1A-C5A
3	A	406	R3F	C12-C11-N1A-C5A
3	A	404	R3F	C2-C3-O4-C5
3	A	405	R3F	C4A-C5A-N1A-C11
3	A	406	R3F	C4A-C5A-N1A-C11
3	A	406	R3F	C2-C3-O4-C5
3	A	406	R3F	C6A-C5A-N1A-C21

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Mol	Chain	Res	Type	Atoms
3	A	406	R3F	C22-C21-N1A-C11
3	A	404	R3F	O4-C5-C6-O7
3	A	406	R3F	C6A-C5A-N1A-C11
3	A	406	R3F	C4A-C5A-N1A-C21
3	A	404	R3F	C24-C23-N1C-C4C
3	A	405	R3F	C4A-C5A-N1A-C21
3	A	405	R3F	C14-C13-N1C-C23
3	A	406	R3F	C12-C11-N1A-C21
3	A	405	R3F	C12-C11-N1A-C21
3	A	406	R3F	C24-C23-N1C-C13
3	A	405	R3F	C6A-C5A-N1A-C11
3	A	405	R3F	C6A-C5A-N1A-C21
3	A	404	R3F	C6-C5-O4-C3
3	A	406	R3F	O4-C5-C6-O7
3	A	404	R3F	C24-C23-N1C-C13
3	A	406	R3F	C5C-C4C-N1C-C13
3	A	405	R3F	C14-C13-N1C-C4C
3	A	406	R3F	C24-C23-N1C-C4C
3	A	406	R3F	C3C-C4C-N1C-C13
3	A	404	R3F	O1-C2-C3-O4
3	A	405	R3F	C22-C21-N1A-C5A
3	A	406	R3F	C5C-C4C-N1C-C23
3	A	404	R3F	O5F-C1F-O1F-C1
3	A	406	R3F	C3C-C4C-N1C-C23
3	A	405	R3F	O1-C2-C3-O4
3	A	406	R3F	C5-C6-O7-C8
3	A	404	R3F	C1P-C2P-C4B-C2A
3	A	404	R3F	C14-C13-N1C-C4C
3	A	406	R3F	C9-C8-O7-C6
3	A	404	R3F	C8-C9-N3T-N2T
3	A	405	R3F	C22-C21-N1A-C11
3	A	406	R3F	C6-C5-O4-C3
3	A	404	R3F	C14-C13-N1C-C23
3	A	404	R3F	C22-C21-N1A-C5A
3	A	404	R3F	C5-C6-O7-C8

There are no ring outliers.

4 monomers are involved in 9 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	403	GOL	2	0
3	A	405	R3F	3	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	406	R3F	2	0
2	A	401	GOL	2	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less 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 R3F A 405

Bond lengths   Bond angles

Torsions   Rings

Ligand R3F A 404

Bond lengths

Bond angles

Torsions

Rings

Ligand R3F A 406

Bond lengths

Bond angles

Torsions

Rings
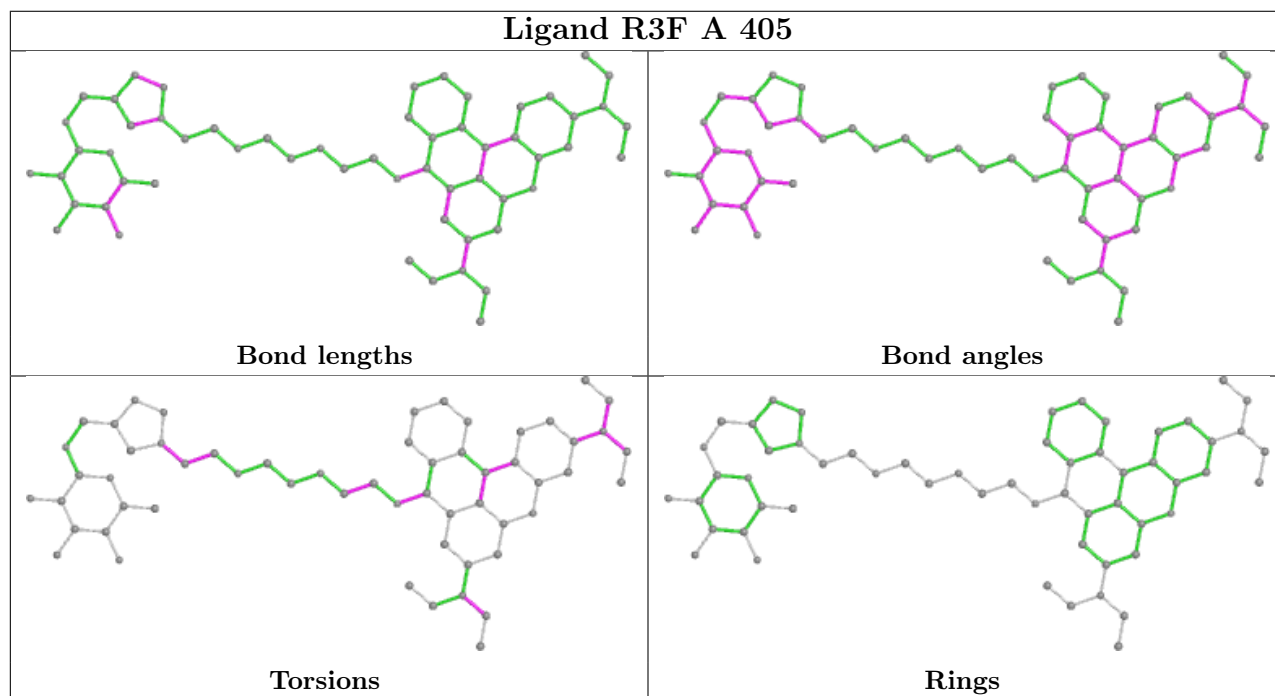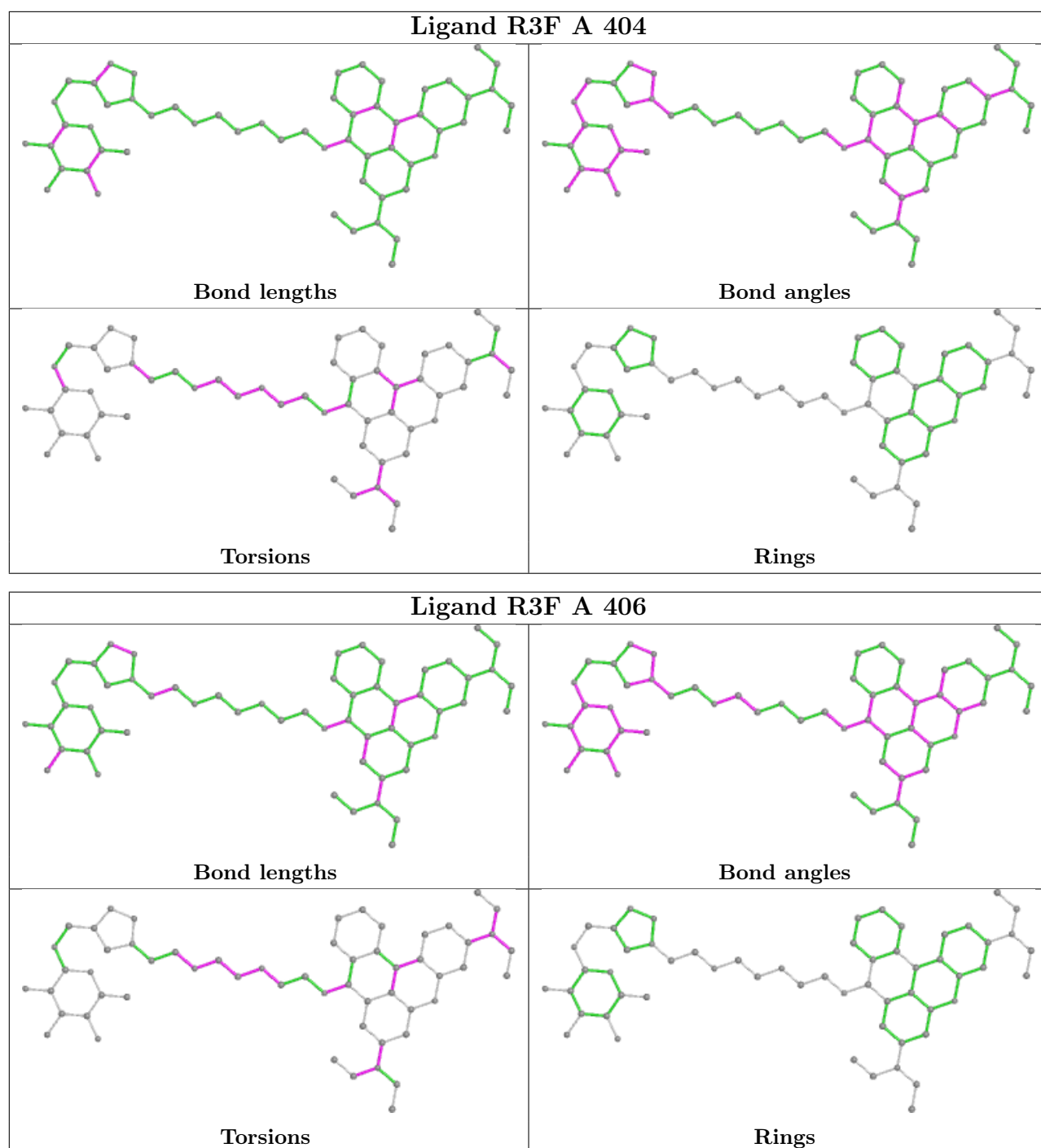
5.7   Other polymers ⓘ

There are no such residues in this entry.

5.8   Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å²)	Q<0.9
1	A	259/272 (95%)	-0.26	1 (0%)	92	94	9, 16, 28, 39	1 (0%)

All (1) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	88	SER	3.4

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 monosaccharides 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(Å²)	Q<0.9
3	R3F	A	406	58/58	0.91	0.27	13,108,126,128	0
3	R3F	A	405	58/58	0.93	0.23	11,85,102,103	0
2	GOL	A	402	6/6	0.95	0.07	16,18,20,22	0
3	R3F	A	404	58/58	0.95	0.21	11,93,113,115	0
2	GOL	A	403	6/6	0.96	0.06	15,17,19,21	0
2	GOL	A	401	6/6	0.98	0.05	16,18,19,20	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.
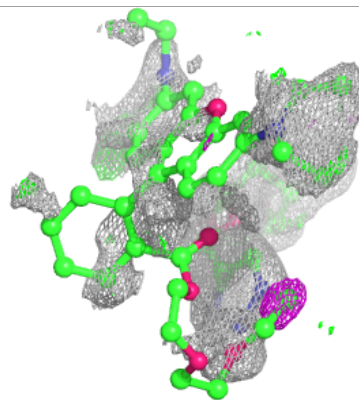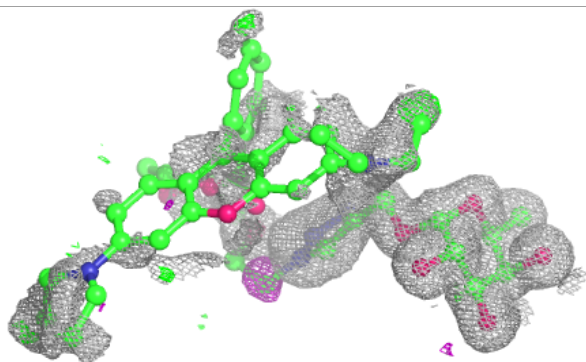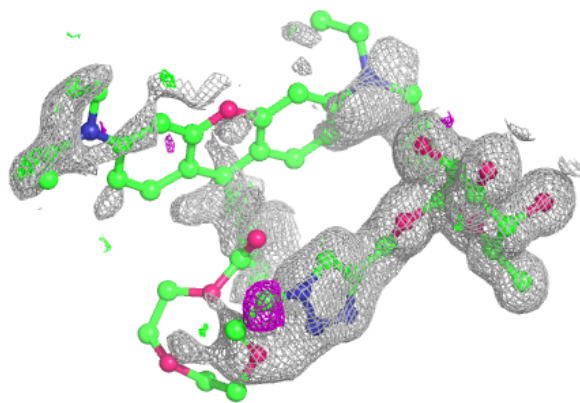
Electron density around R3F A 406:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
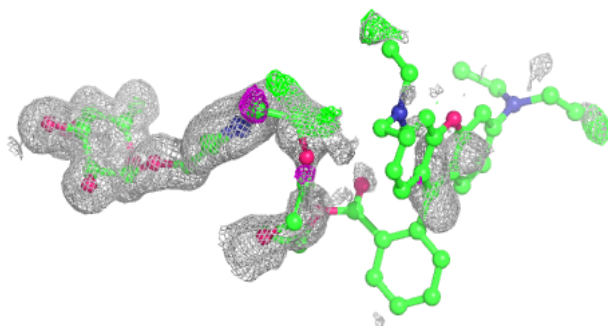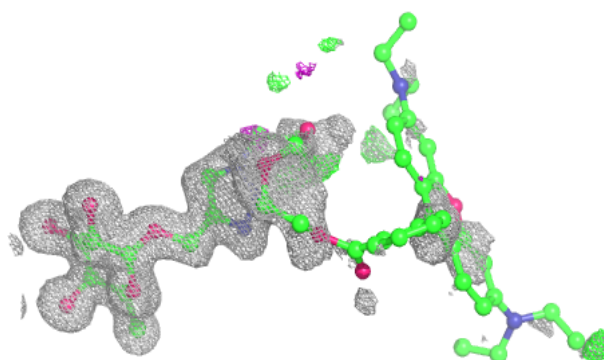and green (positive)
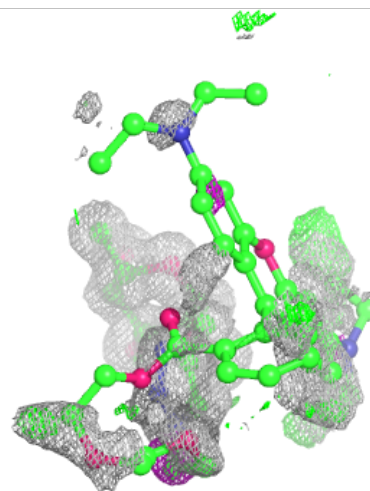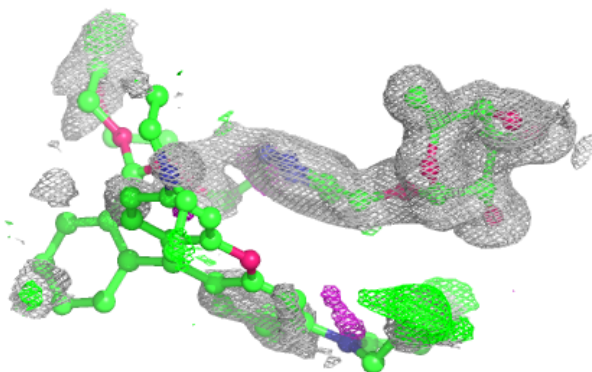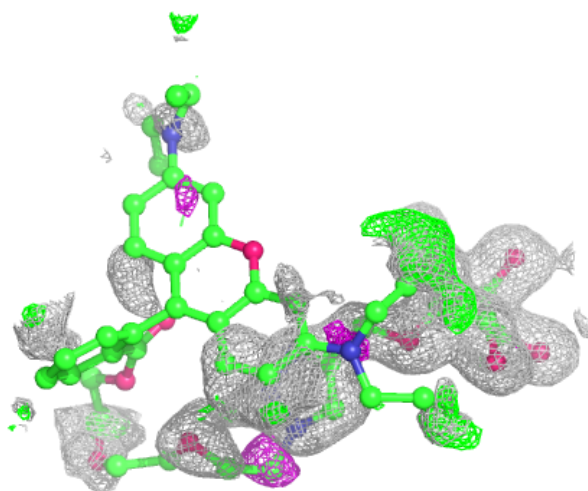
Electron density around R3F A 405:

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 R3F A 404:

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.