



Full wwPDB X-ray Structure Validation Report ⓘ

Dec 10, 2023 – 08:56 am GMT

PDB ID : 2UUU
Title : alkylidihydroxyacetonephosphate synthase in P212121
Authors : Razeto, A.; Mattioli, F.; Carpanelli, E.; Aliverti, A.; Pandini, V.; Coda, A.;
Mattevi, A.
Deposited on : 2007-03-07
Resolution : 1.95 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

MolProbity : 4.02b-467
Mogul : 1.8.4, CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.36
buster-report : 1.1.7 (2018)
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

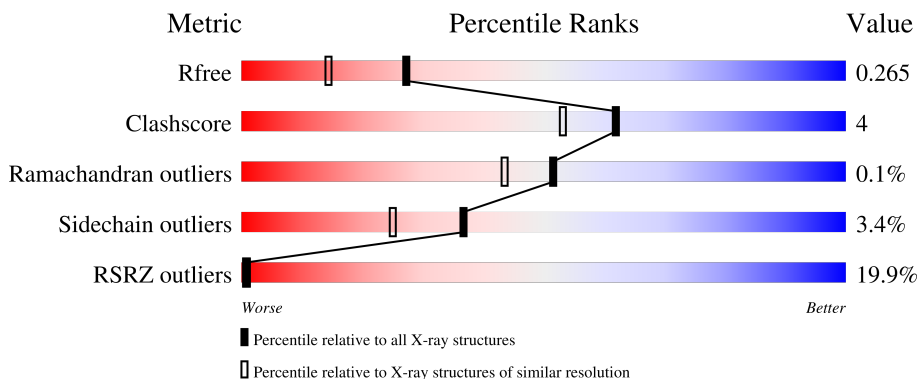
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.95 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	2580 (1.96-1.96)
Clashscore	141614	2705 (1.96-1.96)
Ramachandran outliers	138981	2678 (1.96-1.96)
Sidechain outliers	138945	2678 (1.96-1.96)
RSRZ outliers	127900	2539 (1.96-1.96)

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

Mol	Chain	Length	Quality of chain
1	A	584	 14% 85% 8% • 6%
1	B	584	 19% 82% 9% • 8%
1	C	584	 19% 83% 8% • 7%
1	D	584	 22% 82% 8% • 8%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard

residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	PL3	C	1587	-	-	-	X

2 Entry composition i

There are 4 unique types of molecules in this entry. The entry contains 19178 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.

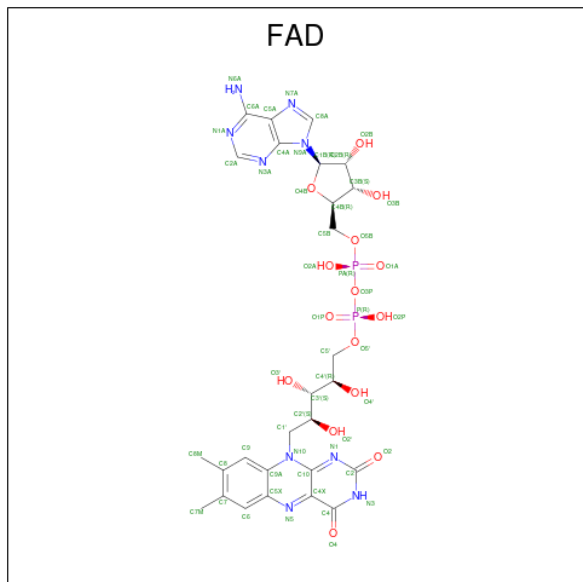
- Molecule 1 is a protein called ALKYLDIHYDROXYACETONEPHOSPHATE SYNTHASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	550	4408	2839	751	798	20	0	3	0
1	B	540	4329	2788	739	783	19	0	1	0
1	C	541	4323	2784	735	786	18	0	0	0
1	D	537	4288	2763	730	776	19	0	0	0

There are 20 discrepancies between the modelled and reference sequences:

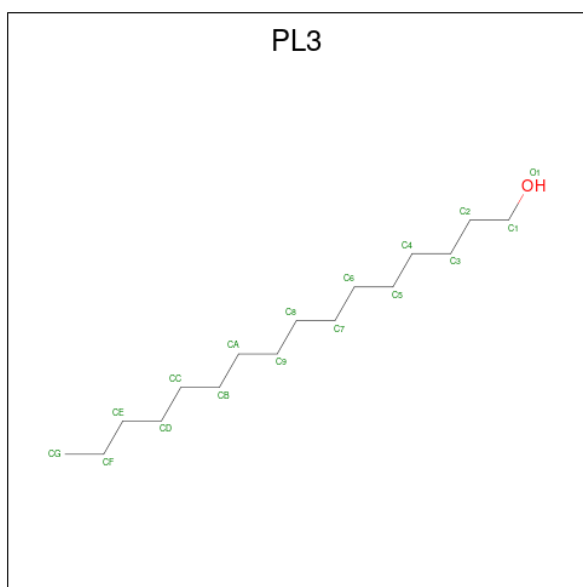
Chain	Residue	Modelled	Actual	Comment	Reference
A	-5	GLY	-	expression tag	UNP O96759
A	-4	ALA	-	expression tag	UNP O96759
A	-3	MET	-	expression tag	UNP O96759
A	-2	GLY	-	expression tag	UNP O96759
A	-1	SER	-	expression tag	UNP O96759
B	-5	GLY	-	expression tag	UNP O96759
B	-4	ALA	-	expression tag	UNP O96759
B	-3	MET	-	expression tag	UNP O96759
B	-2	GLY	-	expression tag	UNP O96759
B	-1	SER	-	expression tag	UNP O96759
C	-5	GLY	-	expression tag	UNP O96759
C	-4	ALA	-	expression tag	UNP O96759
C	-3	MET	-	expression tag	UNP O96759
C	-2	GLY	-	expression tag	UNP O96759
C	-1	SER	-	expression tag	UNP O96759
D	-5	GLY	-	expression tag	UNP O96759
D	-4	ALA	-	expression tag	UNP O96759
D	-3	MET	-	expression tag	UNP O96759
D	-2	GLY	-	expression tag	UNP O96759
D	-1	SER	-	expression tag	UNP O96759

- Molecule 2 is FLAVIN-ADENINE DINUCLEOTIDE (three-letter code: FAD) (formula: $C_{27}H_{33}N_9O_{15}P_2$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
2	A	1	53	27	9	15	2	0	0
2	B	1	53	27	9	15	2	0	0
2	C	1	53	27	9	15	2	0	0
2	D	1	53	27	9	15	2	0	0

- Molecule 3 is HEXADECAN-1-OL (three-letter code: PL3) (formula: $C_{16}H_{34}O$).



Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	1	Total	C O	0	0
			17	16 1		
3	B	1	Total	C O	0	0
			17	16 1		
3	C	1	Total	C O	0	0
			17	16 1		
3	D	1	Total	C O	0	0
			17	16 1		

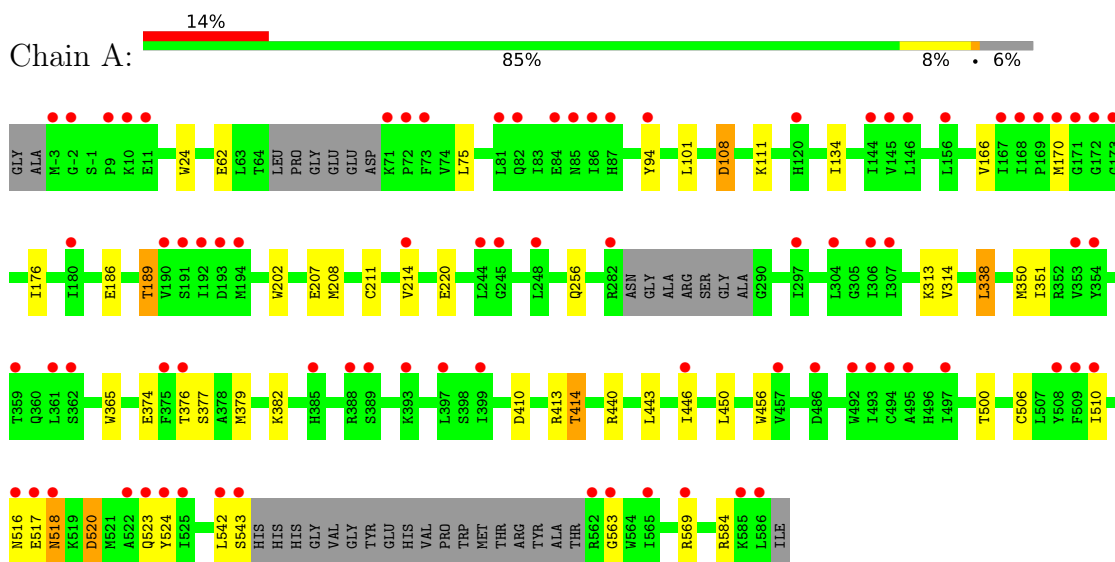
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	484	Total	O	0	0
			484	484		
4	B	385	Total	O	0	0
			385	385		
4	C	333	Total	O	0	0
			333	333		
4	D	348	Total	O	0	0
			348	348		

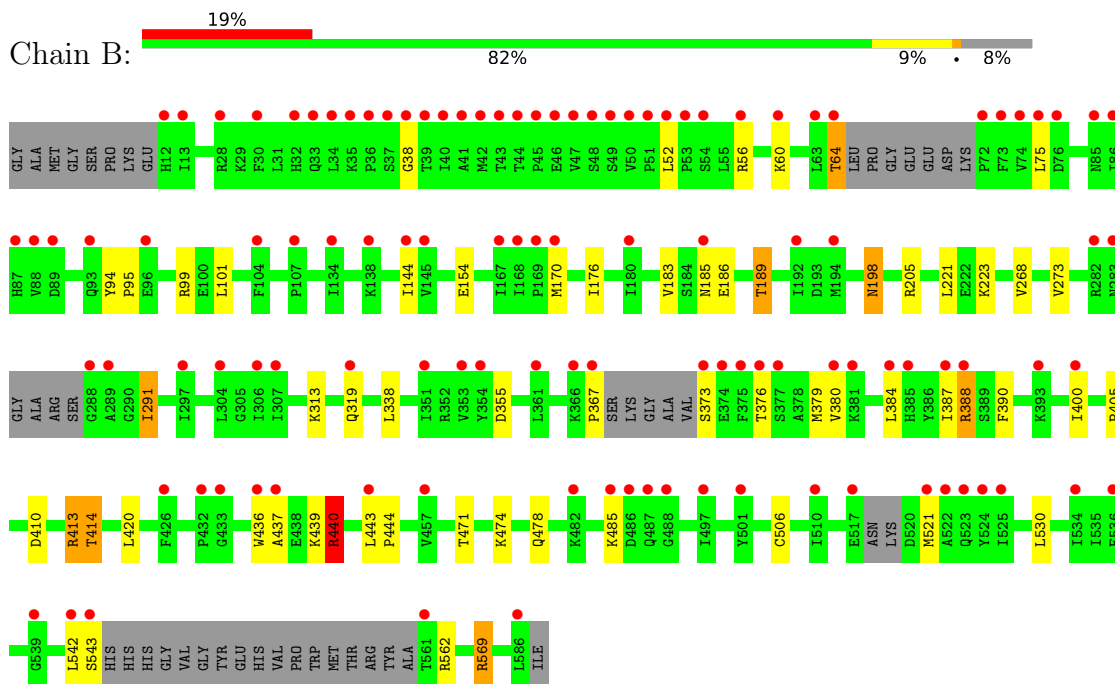
3 Residue-property plots [i](#)

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

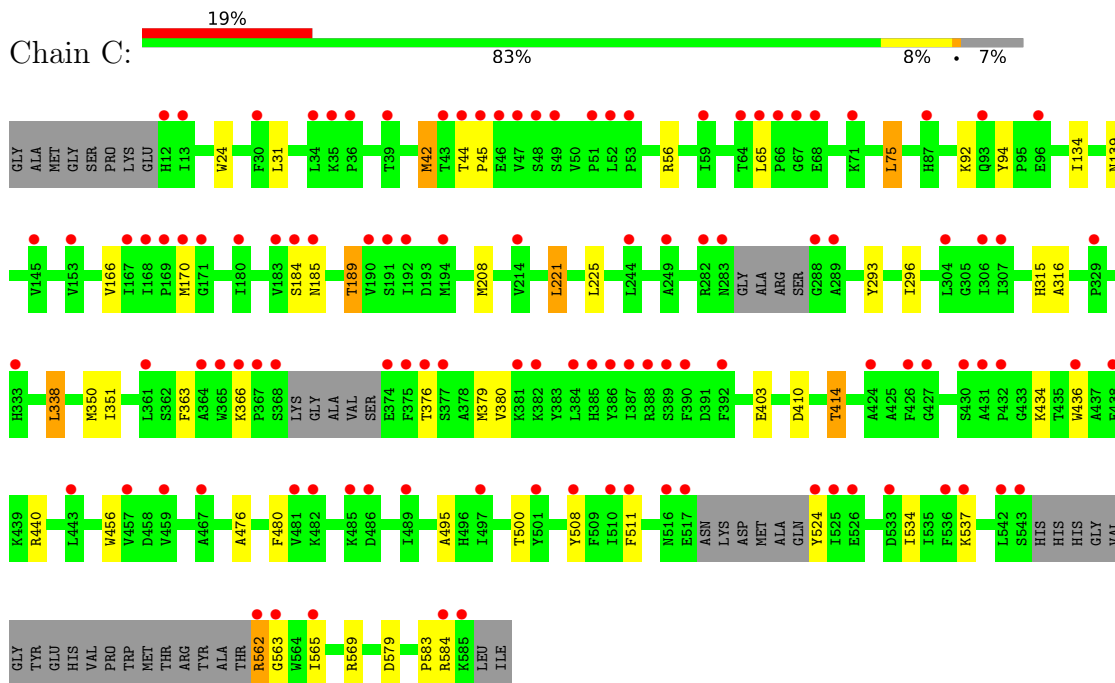
• Molecule 1: ALKYLDIHYDROXYACETONEPHOSPHATE SYNTHASE



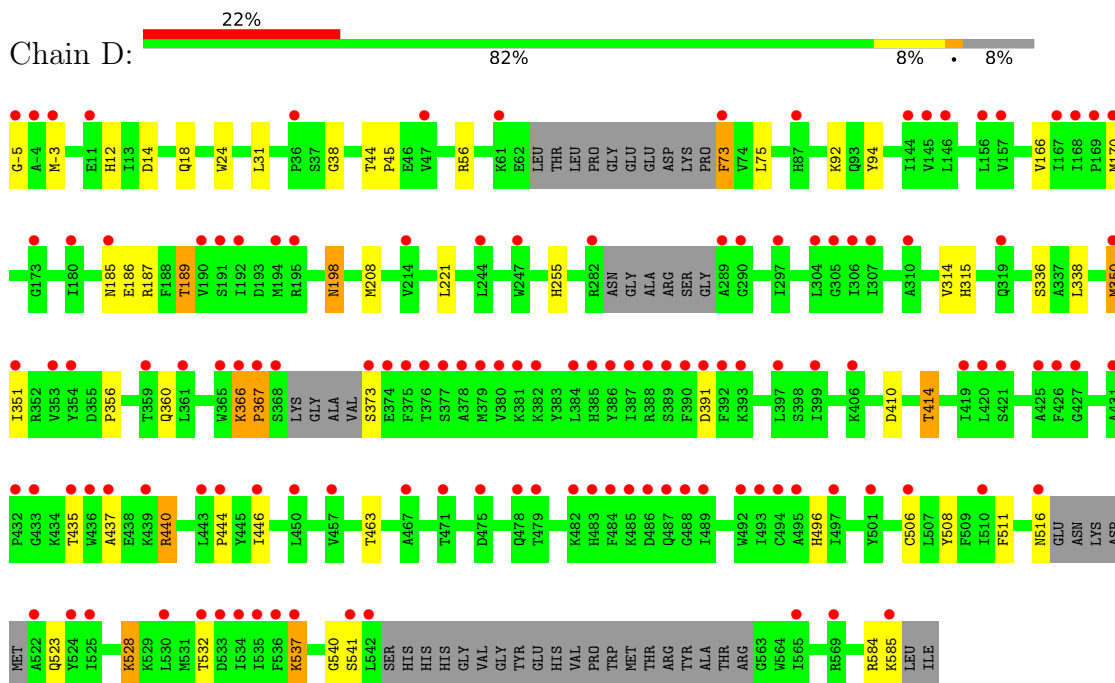
• Molecule 1: ALKYLDIHYDROXYACETONEPHOSPHATE SYNTHASE



● Molecule 1: ALKYLDIHYDROXYACETONEPHOSPHATE SYNTHASE



● Molecule 1: ALKYLDIHYDROXYACETONEPHOSPHATE SYNTHASE



4 Data and refinement statistics i

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	103.50Å 108.91Å 216.49Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	29.93 – 1.95 29.93 – 1.95	Depositor EDS
% Data completeness (in resolution range)	99.8 (29.93-1.95) 99.8 (29.93-1.95)	Depositor EDS
R_{merge}	0.01	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.56 (at 1.95Å)	Xtrriage
Refinement program	REFMAC 5.2.0019	Depositor
R, R_{free}	0.193 , 0.244 0.223 , 0.265	Depositor DCC
R_{free} test set	8930 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å ²)	26.6	Xtrriage
Anisotropy	0.573	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.37 , 59.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	0.013 for k,h,-l	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	19178	wwPDB-VP
Average B, all atoms (Å ²)	26.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 10.20% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: PL3, FAD

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	0.80	1/4527 (0.0%)	0.71	2/6127 (0.0%)
1	B	0.72	0/4439	0.71	4/6008 (0.1%)
1	C	0.65	0/4431	0.65	0/6000
1	D	0.69	0/4395	0.67	0/5948
All	All	0.72	1/17792 (0.0%)	0.68	6/24083 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	214	VAL	CB-CG1	5.50	1.64	1.52

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	440	ARG	NE-CZ-NH2	-6.76	116.92	120.30
1	B	413	ARG	NE-CZ-NH2	-6.61	117.00	120.30
1	A	413	ARG	NE-CZ-NH2	-6.18	117.21	120.30
1	A	413	ARG	NE-CZ-NH1	6.07	123.33	120.30
1	B	413	ARG	NE-CZ-NH1	6.06	123.33	120.30
1	B	355	ASP	CB-CG-OD1	5.11	122.89	118.30

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4408	0	4422	40	0
1	B	4329	0	4327	41	0
1	C	4323	0	4311	33	0
1	D	4288	0	4283	40	0
2	A	53	0	31	1	0
2	B	53	0	31	0	0
2	C	53	0	31	1	0
2	D	53	0	31	2	0
3	A	17	0	33	4	0
3	B	17	0	33	2	0
3	C	17	0	33	0	0
3	D	17	0	33	0	0
4	A	484	0	0	9	0
4	B	385	0	0	9	0
4	C	333	0	0	5	0
4	D	348	0	0	11	0
All	All	19178	0	17599	156	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 4.

All (156) 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:A:220:GLU:HG2	4:A:2203:HOH:O	1.49	1.13
1:C:92:LYS:HE3	1:C:185:ASN:O	1.48	1.11
1:A:208:MET:CE	1:A:314:VAL:HG23	1.88	1.03
1:B:373:SER:HA	1:B:376:THR:HG22	1.49	0.94
1:B:410:ASP:O	1:B:414:THR:HG23	1.69	0.92
1:C:139:ASN:HB2	4:C:2128:HOH:O	1.72	0.86
1:D:92:LYS:HE2	1:D:185:ASN:O	1.80	0.81
1:B:373:SER:HA	1:B:376:THR:CG2	2.13	0.79
1:B:379:MET:SD	1:B:436:TRP:CZ2	2.77	0.78
1:A:256:GLN:HE21	1:A:350:MET:HE3	1.47	0.78
1:A:410:ASP:O	1:A:414:THR:HG23	1.84	0.78
1:D:437:ALA:O	1:D:440:ARG:HD3	1.82	0.77
1:A:208:MET:HE2	1:A:314:VAL:HG23	1.67	0.75
1:C:338:LEU:HG	1:C:500:THR:HG21	1.68	0.75
1:B:379:MET:SD	1:B:436:TRP:CH2	2.78	0.75
1:B:388:ARG:HD3	4:B:2280:HOH:O	1.86	0.74

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:410:ASP:O	1:D:414:THR:HG22	1.87	0.74
1:D:-5:GLY:N	4:D:2004:HOH:O	2.20	0.73
1:B:542:LEU:O	1:B:543:SER:HB2	1.89	0.72
1:A:256:GLN:HE21	1:A:350:MET:CE	2.02	0.72
1:B:223:LYS:HE2	4:B:2169:HOH:O	1.91	0.70
1:A:542:LEU:HD23	4:A:2406:HOH:O	1.90	0.70
1:B:569:ARG:NH2	4:B:2368:HOH:O	2.23	0.70
1:B:319:GLN:HG2	1:B:405:PRO:HA	1.74	0.69
1:C:92:LYS:CE	1:C:185:ASN:O	2.36	0.68
1:A:176:ILE:HG21	3:A:1588:PL3:H1C1	1.77	0.67
1:A:189:THR:HG21	4:A:2195:HOH:O	1.95	0.67
1:B:373:SER:CA	1:B:376:THR:HG22	2.25	0.66
1:D:496:HIS:CE1	1:D:508:TYR:CD1	2.85	0.64
1:C:562:ARG:HD2	1:C:565:ILE:HG13	1.79	0.64
1:D:166:VAL:HB	1:D:189:THR:HB	1.79	0.64
1:A:256:GLN:NE2	1:A:350:MET:CE	2.60	0.63
1:B:474:LYS:HE2	1:B:478:GLN:HE22	1.63	0.63
1:D:185:ASN:HB3	4:D:2119:HOH:O	1.98	0.62
1:D:516:ASN:H	1:D:523:GLN:HE22	1.46	0.62
1:C:410:ASP:O	1:C:414:THR:HG23	2.00	0.62
1:A:208:MET:HE3	1:A:314:VAL:HG23	1.78	0.61
1:B:189:THR:HG21	4:B:2142:HOH:O	1.99	0.61
1:C:166:VAL:HB	1:C:189:THR:HB	1.81	0.61
1:A:256:GLN:NE2	1:A:350:MET:HE3	2.16	0.60
1:C:208:MET:HE2	1:C:316:ALA:N	2.17	0.60
1:D:221:LEU:HD22	4:D:2185:HOH:O	2.02	0.60
1:D:463:THR:O	1:D:540:GLY:HA2	2.03	0.59
1:B:291:ILE:HD13	1:B:291:ILE:N	2.19	0.58
1:C:569:ARG:HD2	4:C:2320:HOH:O	2.03	0.58
1:D:73:PHE:HA	4:D:2050:HOH:O	2.04	0.57
1:D:208:MET:HE3	1:D:314:VAL:HG23	1.86	0.57
1:A:443:LEU:O	1:A:446:ILE:HG22	2.05	0.57
1:D:-3:MET:HE2	4:D:2005:HOH:O	2.04	0.57
1:A:510:ILE:HG21	3:A:1588:PL3:HAC1	1.87	0.57
1:C:379:MET:SD	1:C:436:TRP:CZ2	2.98	0.57
1:A:108:ASP:O	1:A:111:LYS:HE2	2.05	0.56
1:D:44:THR:HB	1:D:45:PRO:HD2	1.87	0.56
1:B:38:GLY:O	1:B:56:ARG:HD2	2.06	0.55
1:B:198:ASN:H	1:B:198:ASN:HD22	1.54	0.55
1:D:189:THR:HG21	4:D:2154:HOH:O	2.06	0.54
1:C:24:TRP:CZ3	2:C:1586:FAD:HM83	2.42	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:221:LEU:C	1:D:221:LEU:HD23	2.28	0.54
1:B:380:VAL:O	1:B:384:LEU:HG	2.08	0.53
1:A:256:GLN:NE2	1:A:350:MET:HE1	2.24	0.52
1:A:365:TRP:HD1	1:A:365:TRP:O	1.92	0.52
1:B:60:LYS:O	1:B:64:THR:HB	2.09	0.52
1:C:579:ASP:O	1:C:583:PRO:HG3	2.10	0.52
3:A:1588:PL3:O1	4:A:2484:HOH:O	2.19	0.51
1:C:221:LEU:HD22	1:C:225:LEU:CD1	2.41	0.51
1:D:373:SER:HA	4:D:2276:HOH:O	2.11	0.51
1:C:366:LYS:HD3	1:C:380:VAL:HG21	1.93	0.51
1:D:186:GLU:HG2	4:D:2153:HOH:O	2.10	0.51
1:A:518:ASN:N	1:A:518:ASN:OD1	2.43	0.51
1:B:471:THR:HG23	4:B:2332:HOH:O	2.12	0.50
1:D:198:ASN:HD22	1:D:198:ASN:H	1.60	0.50
1:B:474:LYS:HE2	1:B:478:GLN:NE2	2.25	0.50
1:B:183:VAL:HG13	4:B:2141:HOH:O	2.11	0.50
1:D:511:PHE:HZ	1:D:528:LYS:HE2	1.76	0.50
1:C:476:ALA:CB	1:C:534:ILE:HD12	2.42	0.49
1:A:414:THR:HG21	4:A:2168:HOH:O	2.13	0.49
1:A:376:THR:HA	1:A:379:MET:HE2	1.94	0.49
1:B:95:PRO:HB2	1:B:99[B]:ARG:HH12	1.78	0.49
1:B:176:ILE:HG21	3:B:1588:PL3:H2C1	1.94	0.49
1:B:439:LYS:HD2	4:B:2274:HOH:O	2.11	0.49
1:B:387:ILE:HA	1:B:390:PHE:O	2.12	0.49
1:A:24:TRP:CZ3	2:A:1587:FAD:HM83	2.47	0.49
1:C:403:GLU:OE2	1:C:434:LYS:HE3	2.12	0.49
1:C:184:SER:HB3	4:C:2132:HOH:O	2.11	0.49
1:C:456:TRP:CG	1:C:524:TYR:HE2	2.30	0.49
1:A:207:GLU:O	1:A:313:LYS:NZ	2.43	0.48
1:C:44:THR:HB	1:C:45:PRO:HD2	1.96	0.48
1:A:365:TRP:O	1:A:365:TRP:CD1	2.67	0.48
1:A:456:TRP:CD1	1:A:524:TYR:HE2	2.31	0.48
1:B:443:LEU:N	1:B:444:PRO:HD2	2.28	0.48
1:C:208:MET:HE2	1:C:315:HIS:C	2.34	0.48
1:D:187:ARG:O	1:D:189:THR:HG22	2.14	0.47
1:D:356:PRO:O	1:D:360:GLN:HG3	2.13	0.47
1:A:506:CYS:HB2	4:A:2441:HOH:O	2.13	0.47
1:D:12:HIS:HE1	1:D:14:ASP:OD1	1.96	0.47
1:C:563:GLY:HA2	4:C:2317:HOH:O	2.14	0.47
1:A:166:VAL:HB	1:A:189:THR:HB	1.96	0.47
1:B:410:ASP:OD1	1:B:413:ARG:NH2	2.41	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:495:ALA:HA	1:C:508:TYR:O	2.15	0.47
1:D:92:LYS:CE	1:D:185:ASN:O	2.56	0.46
1:D:366:LYS:O	1:D:366:LYS:HG2	2.14	0.46
1:A:62:GLU:HA	1:A:62:GLU:OE1	2.16	0.45
1:B:410:ASP:O	1:B:414:THR:CG2	2.54	0.45
1:D:537:LYS:O	1:D:537:LYS:HG2	2.17	0.45
1:C:476:ALA:HA	1:C:534:ILE:HD12	1.99	0.45
1:B:205:ARG:HD2	4:B:2154:HOH:O	2.15	0.45
1:D:255:HIS:HB3	1:D:350:MET:CE	2.46	0.45
1:B:52:LEU:HD23	1:B:367:PRO:HA	1.98	0.45
3:B:1588:PL3:H4C2	3:B:1588:PL3:H1C1	1.57	0.45
1:B:198:ASN:HD22	1:B:198:ASN:N	2.12	0.44
1:C:134:ILE:HG23	4:C:2096:HOH:O	2.17	0.44
1:A:374:GLU:HB3	4:A:2343:HOH:O	2.17	0.44
1:C:350:MET:HG2	1:C:351:ILE:N	2.33	0.44
1:C:363:PHE:HD1	1:C:380:VAL:HG22	1.83	0.44
1:A:517:GLU:O	1:A:517:GLU:HG3	2.18	0.44
1:B:439:LYS:C	1:B:439:LYS:HD3	2.39	0.43
1:D:208:MET:HE1	1:D:315:HIS:C	2.38	0.43
1:D:366:LYS:HA	1:D:367:PRO:HD3	1.74	0.43
1:D:444:PRO:HG3	2:D:1586:FAD:HM73	2.00	0.43
1:C:410:ASP:O	1:C:414:THR:CG2	2.66	0.43
1:D:506:CYS:HB2	4:D:2320:HOH:O	2.18	0.43
1:A:520:ASP:O	1:A:523:GLN:HG2	2.19	0.43
1:D:350:MET:HG3	1:D:351:ILE:N	2.34	0.43
1:A:563:GLY:HA2	4:A:2466:HOH:O	2.18	0.43
1:A:134:ILE:HG23	4:A:2141:HOH:O	2.17	0.43
1:A:450:LEU:HD11	3:A:1588:PL3:HDC2	2.01	0.43
1:B:183:VAL:O	1:B:183:VAL:CG1	2.68	0.42
1:B:268:VAL:CG2	1:B:313:LYS:HG3	2.49	0.42
1:C:31:LEU:CD2	1:C:42:MET:HE3	2.49	0.42
1:A:338:LEU:HD12	1:A:351:ILE:HD13	2.01	0.42
1:B:154:GLU:HA	1:B:273:VAL:HG11	2.01	0.42
1:B:221:LEU:C	1:B:221:LEU:HD23	2.39	0.42
1:C:456:TRP:CD1	1:C:524:TYR:HE2	2.38	0.42
1:D:24:TRP:CG	1:D:444:PRO:HB2	2.54	0.42
1:D:31:LEU:HD12	1:D:446:ILE:HA	2.02	0.42
1:A:338:LEU:HG	1:A:500:THR:HG21	2.01	0.42
1:B:291:ILE:N	1:B:291:ILE:CD1	2.83	0.42
1:D:463:THR:OG1	1:D:541:SER:HB3	2.20	0.42
1:A:542:LEU:O	1:A:543:SER:HB3	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:293:TYR:HD2	1:C:296:ILE:HD12	1.84	0.41
1:D:511:PHE:HZ	1:D:528:LYS:CE	2.32	0.41
1:A:516:ASN:ND2	1:A:518:ASN:OD1	2.54	0.41
1:B:437:ALA:O	1:B:440:ARG:HD3	2.20	0.41
1:D:24:TRP:CZ3	2:D:1586:FAD:HM83	2.56	0.41
1:C:480:PHE:CZ	1:C:511:PHE:HB2	2.55	0.41
1:A:108:ASP:OD1	1:A:108:ASP:C	2.58	0.41
1:A:202:TRP:CE2	1:A:211:CYS:HB2	2.56	0.41
1:C:56:ARG:NH1	1:C:75:LEU:HD22	2.36	0.41
1:D:38:GLY:O	1:D:56:ARG:NH1	2.53	0.41
1:A:376:THR:HA	1:A:379:MET:CE	2.51	0.41
1:B:400:ILE:HD12	1:B:420:LEU:HD11	2.03	0.41
1:D:18:GLN:HG2	4:D:2022:HOH:O	2.21	0.41
1:D:391:ASP:HB2	4:D:2278:HOH:O	2.21	0.41
1:C:534:ILE:O	1:C:537:LYS:HB3	2.22	0.40
1:B:144:ILE:N	1:B:144:ILE:HD12	2.37	0.40
1:B:506:CYS:CB	4:B:2325:HOH:O	2.70	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	545/584 (93%)	538 (99%)	7 (1%)	0	100	100
1	B	529/584 (91%)	518 (98%)	10 (2%)	1 (0%)	47	38
1	C	531/584 (91%)	525 (99%)	6 (1%)	0	100	100
1	D	525/584 (90%)	513 (98%)	10 (2%)	2 (0%)	34	22
All	All	2130/2336 (91%)	2094 (98%)	33 (2%)	3 (0%)	51	43

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	537	LYS
1	B	562	ARG
1	D	367	PRO

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	484/507 (96%)	467 (96%)	17 (4%)	36	24
1	B	474/507 (94%)	456 (96%)	18 (4%)	33	21
1	C	472/507 (93%)	459 (97%)	13 (3%)	43	33
1	D	468/507 (92%)	451 (96%)	17 (4%)	35	23
All	All	1898/2028 (94%)	1833 (97%)	65 (3%)	37	25

All (65) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	75	LEU
1	A	94	TYR
1	A	101	LEU
1	A	108	ASP
1	A	170	MET
1	A	186	GLU
1	A	189	THR
1	A	338	LEU
1	A	377	SER
1	A	382[A]	LYS
1	A	382[B]	LYS
1	A	414	THR
1	A	440	ARG
1	A	518	ASN
1	A	520	ASP
1	A	569	ARG
1	A	584	ARG
1	B	64	THR
1	B	75	LEU

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Mol	Chain	Res	Type
1	B	94	TYR
1	B	101	LEU
1	B	170	MET
1	B	185	ASN
1	B	186	GLU
1	B	189	THR
1	B	198	ASN
1	B	291	ILE
1	B	338	LEU
1	B	388	ARG
1	B	414	THR
1	B	440	ARG
1	B	485	LYS
1	B	521	MET
1	B	530	LEU
1	B	569	ARG
1	C	42	MET
1	C	65	LEU
1	C	75	LEU
1	C	94	TYR
1	C	170	MET
1	C	189	THR
1	C	221	LEU
1	C	338	LEU
1	C	376	THR
1	C	414	THR
1	C	440	ARG
1	C	562	ARG
1	C	584	ARG
1	D	73	PHE
1	D	75	LEU
1	D	94	TYR
1	D	170	MET
1	D	189	THR
1	D	198	ASN
1	D	336	SER
1	D	338	LEU
1	D	350	MET
1	D	366	LYS
1	D	414	THR
1	D	435	THR
1	D	440	ARG

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Mol	Chain	Res	Type
1	D	528	LYS
1	D	532	THR
1	D	584	ARG
1	D	585	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (28) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	12	HIS
1	A	93	GLN
1	A	228	GLN
1	A	256	GLN
1	A	315	HIS
1	A	499	HIS
1	B	12	HIS
1	B	33	GLN
1	B	198	ASN
1	B	256	GLN
1	B	283	ASN
1	B	315	HIS
1	B	394	ASN
1	B	478	GLN
1	B	499	HIS
1	C	12	HIS
1	C	82	GLN
1	C	87	HIS
1	C	224	GLN
1	C	283	ASN
1	C	487	GLN
1	D	12	HIS
1	D	85	ASN
1	D	198	ASN
1	D	315	HIS
1	D	394	ASN
1	D	487	GLN
1	D	523	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 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
3	PL3	B	1588	-	16,16,16	0.98	1 (6%)	15,15,15	0.73	0
3	PL3	C	1587	-	16,16,16	0.94	1 (6%)	15,15,15	0.86	0
2	FAD	B	1587	-	53,58,58	1.47	5 (9%)	68,89,89	1.78	15 (22%)
3	PL3	A	1588	-	16,16,16	0.91	1 (6%)	15,15,15	0.83	0
3	PL3	D	1587	-	16,16,16	0.93	1 (6%)	15,15,15	0.73	0
2	FAD	D	1586	-	53,58,58	1.32	6 (11%)	68,89,89	1.50	8 (11%)
2	FAD	C	1586	-	53,58,58	1.31	6 (11%)	68,89,89	1.43	9 (13%)
2	FAD	A	1587	-	53,58,58	1.49	6 (11%)	68,89,89	1.53	12 (17%)

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	PL3	B	1588	-	-	8/14/14/14	-
3	PL3	C	1587	-	-	5/14/14/14	-
2	FAD	B	1587	-	-	2/30/50/50	0/6/6/6
3	PL3	A	1588	-	-	8/14/14/14	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	PL3	D	1587	-	-	8/14/14/14	-
2	FAD	D	1586	-	-	4/30/50/50	0/6/6/6
2	FAD	C	1586	-	-	3/30/50/50	0/6/6/6
2	FAD	A	1587	-	-	2/30/50/50	0/6/6/6

All (27) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	1587	FAD	C2A-N3A	5.70	1.41	1.32
2	A	1587	FAD	C4X-N5	5.04	1.40	1.30
2	C	1586	FAD	C4X-N5	4.69	1.39	1.30
2	A	1587	FAD	C2A-N3A	4.61	1.39	1.32
2	B	1587	FAD	C4X-N5	4.38	1.39	1.30
2	D	1586	FAD	C4X-N5	4.30	1.39	1.30
2	A	1587	FAD	C10-N1	3.80	1.41	1.33
3	B	1588	PL3	O1-C1	-3.79	1.22	1.42
3	C	1587	PL3	O1-C1	-3.64	1.23	1.42
3	D	1587	PL3	O1-C1	-3.63	1.23	1.42
3	A	1588	PL3	O1-C1	-3.60	1.23	1.42
2	A	1587	FAD	C1'-C2'	3.54	1.57	1.52
2	B	1587	FAD	C1'-C2'	3.52	1.57	1.52
2	C	1586	FAD	C2A-N3A	3.36	1.37	1.32
2	D	1586	FAD	C2A-N1A	3.34	1.40	1.33
2	D	1586	FAD	C2A-N3A	2.98	1.36	1.32
2	D	1586	FAD	C5'-C4'	2.84	1.55	1.51
2	C	1586	FAD	C10-N1	2.62	1.38	1.33
2	B	1587	FAD	C2A-N1A	2.61	1.38	1.33
2	A	1587	FAD	C9-C8	2.55	1.43	1.39
2	B	1587	FAD	C6-C5X	2.49	1.43	1.40
2	C	1586	FAD	C1'-N10	2.47	1.54	1.48
2	C	1586	FAD	C5'-C4'	2.15	1.54	1.51
2	D	1586	FAD	C1'-N10	2.14	1.53	1.48
2	D	1586	FAD	O4B-C1B	2.11	1.44	1.41
2	C	1586	FAD	C5X-N5	-2.08	1.35	1.39
2	A	1587	FAD	C6-C5X	2.01	1.43	1.40

All (44) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	1587	FAD	N3A-C2A-N1A	-6.58	118.39	128.68
2	D	1586	FAD	N3A-C2A-N1A	-6.55	118.45	128.68

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	C	1586	FAD	N3A-C2A-N1A	-5.92	119.43	128.68
2	A	1587	FAD	N3A-C2A-N1A	-5.69	119.78	128.68
2	B	1587	FAD	C4X-C10-N10	4.21	122.64	116.48
2	B	1587	FAD	O4'-C4'-C5'	-3.38	102.33	109.92
2	A	1587	FAD	C4X-C10-N10	3.35	121.38	116.48
2	C	1586	FAD	C4-N3-C2	-3.21	119.72	125.64
2	D	1586	FAD	O2P-P-O5'	3.11	122.18	107.75
2	D	1586	FAD	C4X-C10-N10	3.06	120.96	116.48
2	B	1587	FAD	C5X-C9A-N10	3.06	121.11	117.95
2	B	1587	FAD	C10-C4X-N5	-2.97	118.56	124.86
2	D	1586	FAD	C10-C4X-N5	-2.90	118.71	124.86
2	C	1586	FAD	C4X-C4-N3	2.88	120.50	113.19
2	B	1587	FAD	C2A-N1A-C6A	2.85	123.64	118.75
2	C	1586	FAD	C10-C4X-N5	-2.82	118.87	124.86
2	B	1587	FAD	C8M-C8-C9	-2.72	114.46	119.49
2	A	1587	FAD	C9-C9A-N10	-2.71	118.17	121.84
2	A	1587	FAD	C4X-C4-N3	2.70	120.05	113.19
2	C	1586	FAD	C4-C4X-N5	2.67	122.04	118.23
2	D	1586	FAD	C2A-N1A-C6A	2.67	123.32	118.75
2	D	1586	FAD	C9A-C5X-N5	-2.61	119.59	122.43
2	B	1587	FAD	C4-N3-C2	-2.57	120.89	125.64
2	C	1586	FAD	C4X-C10-N10	2.54	120.20	116.48
2	B	1587	FAD	C9A-N10-C10	-2.54	116.81	120.77
2	B	1587	FAD	O2-C2-N1	-2.53	117.63	121.83
2	A	1587	FAD	C4-N3-C2	-2.51	121.00	125.64
2	A	1587	FAD	C2A-N1A-C6A	2.50	123.03	118.75
2	A	1587	FAD	O4B-C1B-C2B	-2.48	103.30	106.93
2	B	1587	FAD	C5'-C4'-C3'	2.38	116.81	112.20
2	B	1587	FAD	C4-C4X-N5	2.36	121.59	118.23
2	D	1586	FAD	C5X-C9A-N10	2.34	120.37	117.95
2	B	1587	FAD	C1B-N9A-C4A	-2.33	122.55	126.64
2	D	1586	FAD	C4-C4X-N5	2.30	121.50	118.23
2	A	1587	FAD	O2-C2-N1	-2.23	118.13	121.83
2	B	1587	FAD	C9A-C5X-N5	-2.22	120.02	122.43
2	A	1587	FAD	C1B-N9A-C4A	-2.21	122.76	126.64
2	A	1587	FAD	C8M-C8-C9	-2.21	115.41	119.49
2	B	1587	FAD	C4X-C10-N1	-2.18	119.67	124.73
2	A	1587	FAD	C4A-C5A-N7A	-2.15	107.16	109.40
2	C	1586	FAD	C4X-C10-N1	-2.11	119.83	124.73
2	C	1586	FAD	P-O3P-PA	-2.10	125.62	132.83
2	A	1587	FAD	C5X-C9A-N10	2.08	120.10	117.95
2	C	1586	FAD	C9A-C5X-N5	-2.05	120.20	122.43

There are no chirality outliers.

All (40) torsion outliers are listed below:

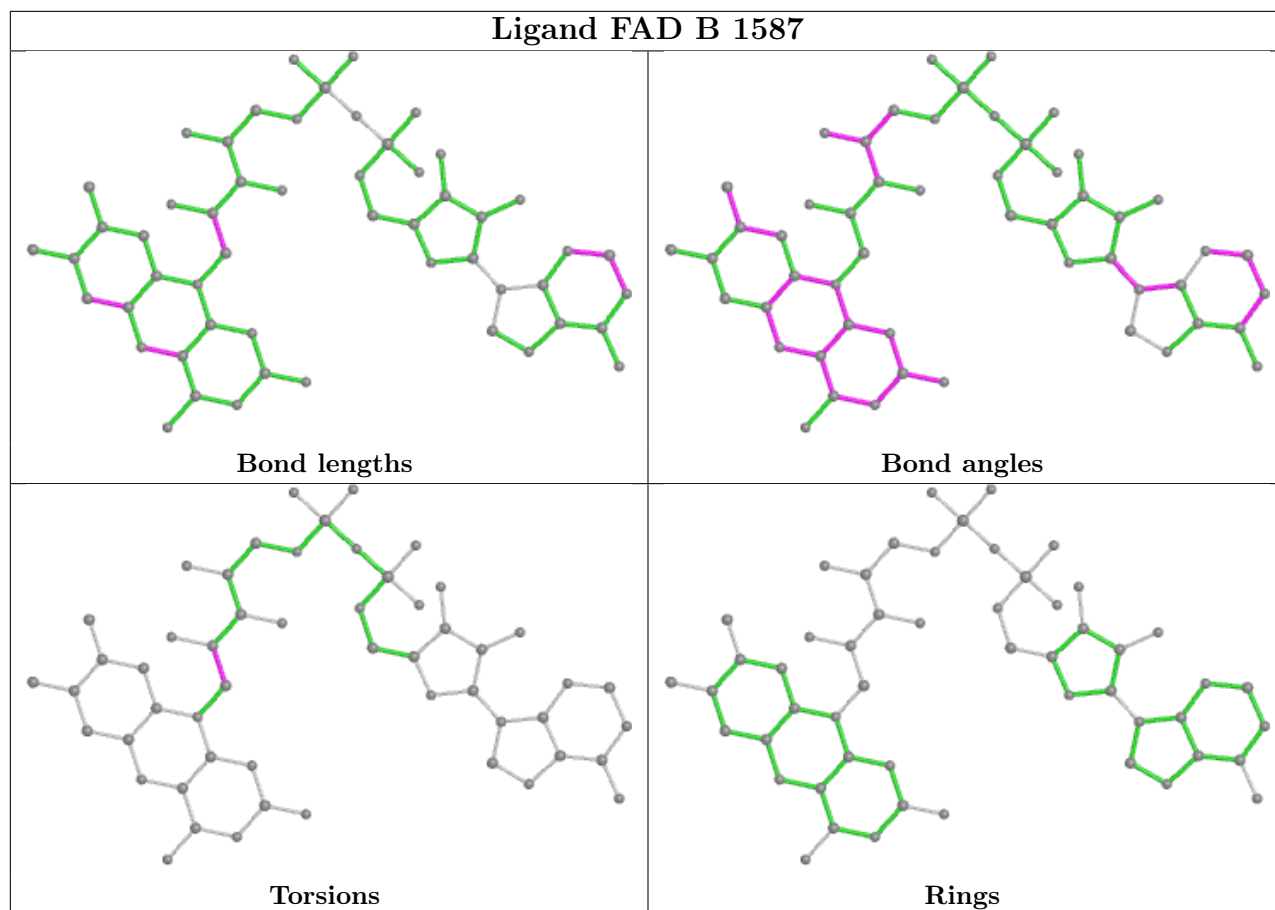
Mol	Chain	Res	Type	Atoms
2	A	1587	FAD	N10-C1'-C2'-O2'
2	A	1587	FAD	N10-C1'-C2'-C3'
2	B	1587	FAD	N10-C1'-C2'-O2'
2	B	1587	FAD	N10-C1'-C2'-C3'
2	C	1586	FAD	N10-C1'-C2'-O2'
2	C	1586	FAD	N10-C1'-C2'-C3'
2	D	1586	FAD	N10-C1'-C2'-O2'
2	D	1586	FAD	N10-C1'-C2'-C3'
3	B	1588	PL3	C1-C2-C3-C4
3	A	1588	PL3	CB-CC-CD-CE
3	B	1588	PL3	CC-CD-CE-CF
3	B	1588	PL3	C3-C4-C5-C6
3	B	1588	PL3	C4-C5-C6-C7
3	D	1587	PL3	C9-CA-CB-CC
3	A	1588	PL3	CC-CD-CE-CF
3	C	1587	PL3	C4-C5-C6-C7
3	A	1588	PL3	C1-C2-C3-C4
3	A	1588	PL3	C8-C9-CA-CB
3	D	1587	PL3	CB-CC-CD-CE
3	D	1587	PL3	C2-C3-C4-C5
3	D	1587	PL3	C4-C5-C6-C7
3	A	1588	PL3	C4-C5-C6-C7
3	C	1587	PL3	C9-CA-CB-CC
3	D	1587	PL3	O1-C1-C2-C3
3	D	1587	PL3	C7-C8-C9-CA
3	B	1588	PL3	C5-C6-C7-C8
3	D	1587	PL3	C5-C6-C7-C8
3	A	1588	PL3	C5-C6-C7-C8
3	B	1588	PL3	C6-C7-C8-C9
3	D	1587	PL3	CC-CD-CE-CF
3	C	1587	PL3	C2-C3-C4-C5
3	B	1588	PL3	CA-CB-CC-CD
3	A	1588	PL3	C9-CA-CB-CC
3	B	1588	PL3	O1-C1-C2-C3
2	C	1586	FAD	PA-O3P-P-O2P
3	C	1587	PL3	C3-C4-C5-C6
3	A	1588	PL3	O1-C1-C2-C3
3	C	1587	PL3	CB-CC-CD-CE
2	D	1586	FAD	PA-O3P-P-O1P
2	D	1586	FAD	PA-O3P-P-O2P

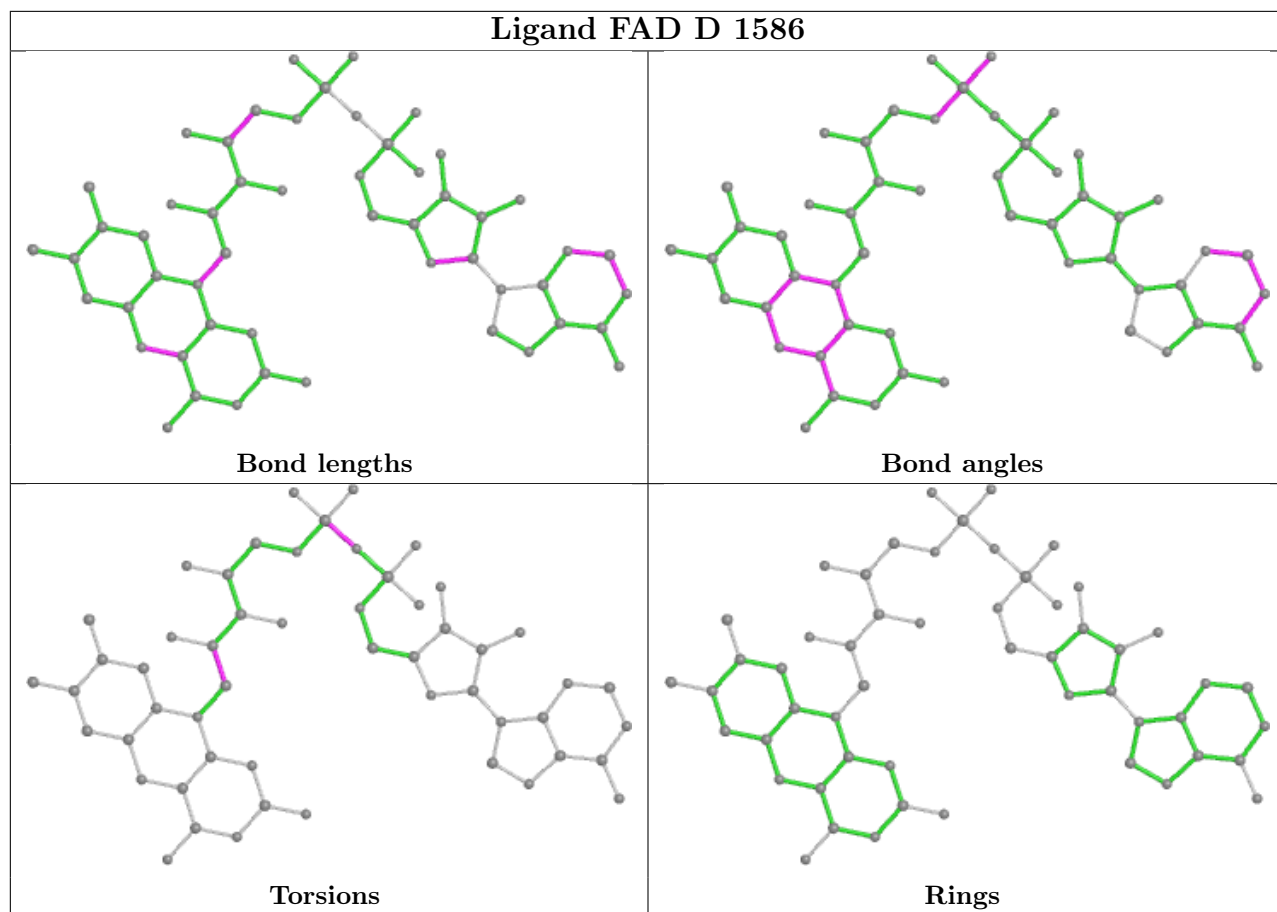
There are no ring outliers.

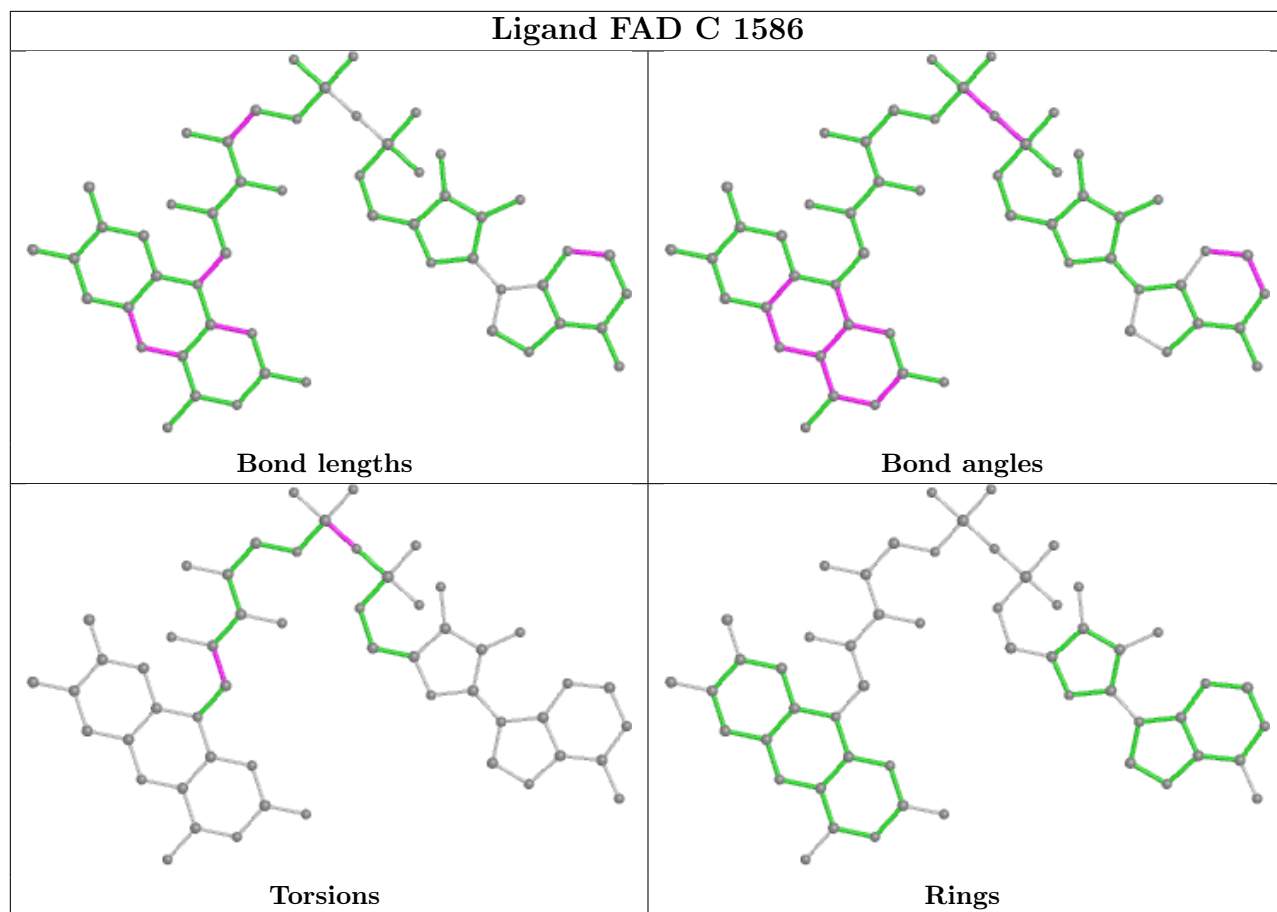
5 monomers are involved in 10 short contacts:

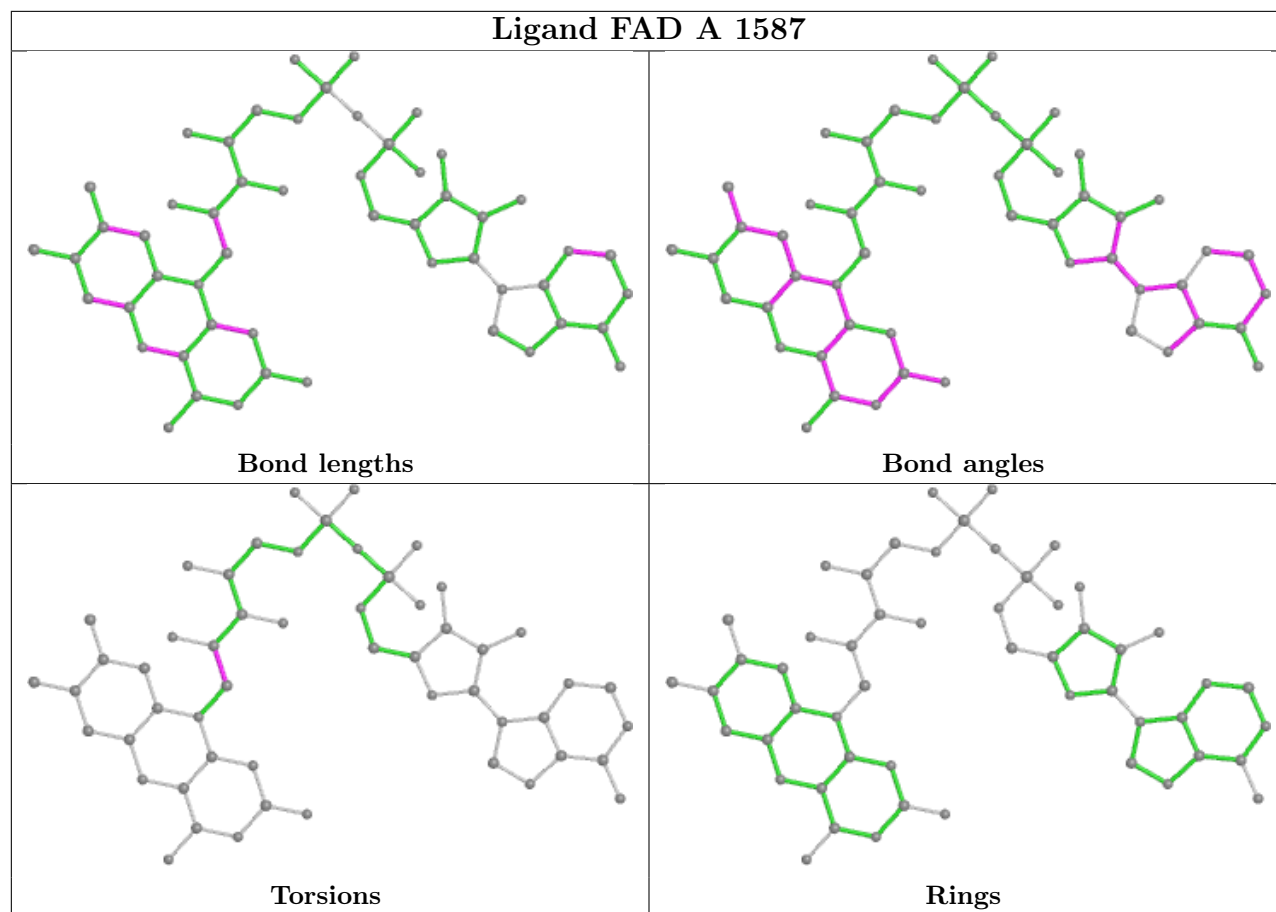
Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	1588	PL3	2	0
3	A	1588	PL3	4	0
2	D	1586	FAD	2	0
2	C	1586	FAD	1	0
2	A	1587	FAD	1	0

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









5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	550/584 (94%)	0.83	81 (14%) 2 3	8, 20, 36, 58	0
1	B	540/584 (92%)	1.09	113 (20%) 1 1	8, 21, 43, 66	0
1	C	541/584 (92%)	1.16	111 (20%) 1 1	13, 27, 46, 56	0
1	D	537/584 (91%)	1.25	127 (23%) 0 0	12, 26, 59, 81	0
All	All	2168/2336 (92%)	1.08	432 (19%) 1 1	8, 22, 47, 81	0

All (432) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	375	PHE	11.6
1	D	377	SER	9.9
1	D	376	THR	9.9
1	B	522	ALA	9.1
1	D	432	PRO	9.1
1	A	586	LEU	7.9
1	C	375	PHE	7.8
1	B	437	ALA	7.7
1	A	525	ILE	7.7
1	D	436	TRP	7.5
1	C	368	SER	7.4
1	C	436	TRP	7.1
1	D	373	SER	7.0
1	A	-3	MET	6.7
1	C	65	LEU	6.6
1	C	388	ARG	6.5
1	C	384	LEU	6.5
1	D	374	GLU	6.4
1	D	379	MET	6.3
1	B	38	GLY	6.3
1	C	282	ARG	6.3

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Mol	Chain	Res	Type	RSRZ
1	D	289	ALA	6.2
1	C	185	ASN	6.2
1	D	388	ARG	6.2
1	B	436	TRP	6.1
1	C	367	PRO	6.1
1	A	9	PRO	6.0
1	D	484	PHE	6.0
1	C	525	ILE	5.8
1	D	73	PHE	5.8
1	D	536	PHE	5.8
1	B	47	VAL	5.7
1	A	11	GLU	5.7
1	B	73	PHE	5.7
1	C	431	ALA	5.7
1	C	542	LEU	5.6
1	D	368	SER	5.6
1	B	50	VAL	5.6
1	C	390	PHE	5.6
1	C	66	PRO	5.6
1	D	525	ILE	5.5
1	A	192	ILE	5.5
1	B	34	LEU	5.4
1	B	37	SER	5.4
1	B	543	SER	5.4
1	D	381	LYS	5.4
1	C	289	ALA	5.4
1	B	288	GLY	5.4
1	B	561	THR	5.3
1	B	542	LEU	5.2
1	B	367	PRO	5.2
1	B	72	PRO	5.1
1	C	387	ILE	5.1
1	A	562	ARG	5.1
1	D	367	PRO	5.1
1	C	192	ILE	5.0
1	D	431	ALA	5.0
1	B	388	ARG	4.9
1	B	432	PRO	4.9
1	C	365	TRP	4.9
1	C	385	HIS	4.8
1	C	288	GLY	4.8
1	B	306	ILE	4.8

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Mol	Chain	Res	Type	RSRZ
1	C	283	ASN	4.7
1	C	392	PHE	4.7
1	D	387	ILE	4.7
1	D	366	LYS	4.7
1	A	306	ILE	4.7
1	A	71	LYS	4.6
1	B	36	PRO	4.6
1	A	510	ILE	4.6
1	D	192	ILE	4.6
1	A	72	PRO	4.6
1	D	437	ALA	4.6
1	D	145	VAL	4.6
1	C	432	PRO	4.6
1	A	10	LYS	4.6
1	D	384	LEU	4.5
1	C	307	ILE	4.5
1	C	562	ARG	4.5
1	B	192	ILE	4.5
1	C	68	GLU	4.4
1	B	384	LEU	4.4
1	A	168	ILE	4.3
1	A	307	ILE	4.3
1	B	63	LEU	4.3
1	A	543	SER	4.3
1	C	510	ILE	4.3
1	D	306	ILE	4.2
1	B	185	ASN	4.2
1	D	282	ARG	4.2
1	D	535	ILE	4.2
1	A	457	VAL	4.2
1	D	386	TYR	4.1
1	C	48	SER	4.1
1	D	483	HIS	4.1
1	A	194	MET	4.1
1	C	386	TYR	4.1
1	B	488	GLY	4.1
1	B	87	HIS	4.0
1	D	488	GLY	4.0
1	D	537	LYS	4.0
1	B	373	SER	4.0
1	D	475	ASP	4.0
1	A	146	LEU	4.0

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Mol	Chain	Res	Type	RSRZ
1	C	43	THR	4.0
1	C	565	ILE	4.0
1	D	501	TYR	3.9
1	B	380	VAL	3.9
1	A	169	PRO	3.9
1	D	426	PHE	3.9
1	C	382	LYS	3.9
1	A	375	PHE	3.9
1	C	67	GLY	3.9
1	C	485	LYS	3.9
1	B	45	PRO	3.9
1	B	385	HIS	3.8
1	C	482	LYS	3.8
1	D	-5	GLY	3.8
1	A	145	VAL	3.8
1	B	289	ALA	3.8
1	B	46	GLU	3.8
1	C	374	GLU	3.7
1	B	64	THR	3.7
1	D	478	GLN	3.7
1	C	381	LYS	3.7
1	C	376	THR	3.7
1	D	457	VAL	3.7
1	B	376	THR	3.7
1	C	34	LEU	3.7
1	C	12	HIS	3.7
1	B	366	LYS	3.7
1	C	59	ILE	3.7
1	B	75	LEU	3.6
1	A	144	ILE	3.6
1	B	39	THR	3.6
1	C	306	ILE	3.6
1	C	169	PRO	3.6
1	D	-4	ALA	3.6
1	C	516	ASN	3.6
1	A	388	ARG	3.6
1	C	537	LYS	3.6
1	D	492	TRP	3.6
1	A	522	ALA	3.6
1	B	381	LYS	3.6
1	D	486	ASP	3.6
1	D	169	PRO	3.6

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Mol	Chain	Res	Type	RSRZ
1	B	74	VAL	3.6
1	B	487	GLN	3.5
1	B	56	ARG	3.5
1	C	366	LYS	3.5
1	B	486	ASP	3.5
1	A	565	ILE	3.5
1	D	494	CYS	3.5
1	B	167	ILE	3.5
1	C	214	VAL	3.5
1	A	73	PHE	3.5
1	A	180	ILE	3.5
1	D	61	LYS	3.5
1	C	36	PRO	3.5
1	C	426	PHE	3.5
1	B	510	ILE	3.4
1	D	354	TYR	3.4
1	B	523	GLN	3.4
1	B	48	SER	3.4
1	B	525	ILE	3.4
1	D	378	ALA	3.4
1	B	12	HIS	3.4
1	B	521	MET	3.4
1	B	51	PRO	3.4
1	C	329	PRO	3.4
1	D	144	ILE	3.4
1	D	489	ILE	3.4
1	C	190	VAL	3.4
1	D	350	MET	3.3
1	B	457	VAL	3.3
1	B	33	GLN	3.3
1	B	375	PHE	3.3
1	C	45	PRO	3.3
1	D	244	LEU	3.3
1	D	542	LEU	3.3
1	B	377	SER	3.3
1	C	53	PRO	3.3
1	A	-2	GLY	3.2
1	D	482	LYS	3.2
1	A	167	ILE	3.2
1	A	86	ILE	3.2
1	B	297	ILE	3.2
1	D	446	ILE	3.2

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Mol	Chain	Res	Type	RSRZ
1	A	170	MET	3.2
1	C	536	PHE	3.2
1	C	443	LEU	3.2
1	B	86	ILE	3.2
1	A	85	ASN	3.2
1	D	524	TYR	3.2
1	D	393	LYS	3.1
1	B	194	MET	3.1
1	B	586	LEU	3.1
1	B	517	GLU	3.1
1	D	487	GLN	3.1
1	D	380	VAL	3.1
1	A	494	CYS	3.1
1	D	565	ILE	3.1
1	C	526	GLU	3.1
1	D	433	GLY	3.1
1	D	450	LEU	3.1
1	A	569	ARG	3.0
1	B	145	VAL	3.0
1	D	497	ILE	3.0
1	C	424	ALA	3.0
1	C	71	LYS	3.0
1	C	64	THR	3.0
1	A	397	LEU	3.0
1	A	563	GLY	3.0
1	D	443	LEU	3.0
1	C	501	TYR	3.0
1	A	385	HIS	3.0
1	B	169	PRO	3.0
1	B	307	ILE	3.0
1	B	49	SER	3.0
1	C	457	VAL	3.0
1	B	13	ILE	3.0
1	B	485	LYS	3.0
1	D	351	ILE	3.0
1	A	282	ARG	3.0
1	C	333	HIS	3.0
1	D	157	VAL	3.0
1	D	214	VAL	3.0
1	D	194	MET	2.9
1	A	82	GLN	2.9
1	A	244	LEU	2.9

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Mol	Chain	Res	Type	RSRZ
1	D	156	LEU	2.9
1	B	42	MET	2.9
1	D	365	TRP	2.9
1	B	353	VAL	2.9
1	B	539	GLY	2.9
1	B	44	THR	2.9
1	C	481	VAL	2.9
1	D	353	VAL	2.9
1	B	40	ILE	2.9
1	B	144	ILE	2.9
1	C	168	ILE	2.9
1	B	536	PHE	2.9
1	A	354	TYR	2.9
1	A	376	THR	2.9
1	A	523	GLN	2.9
1	A	156	LEU	2.9
1	B	52	LEU	2.9
1	C	194	MET	2.9
1	C	167	ILE	2.9
1	C	497	ILE	2.9
1	A	492	TRP	2.8
1	D	36	PRO	2.8
1	B	497	ILE	2.8
1	A	84	GLU	2.8
1	B	35	LYS	2.8
1	D	467	ALA	2.8
1	D	297	ILE	2.8
1	B	32	HIS	2.8
1	D	87	HIS	2.8
1	D	506	CYS	2.8
1	C	183	VAL	2.8
1	D	406	LYS	2.7
1	D	522	ALA	2.7
1	B	28	ARG	2.7
1	A	353	VAL	2.7
1	B	76	ASP	2.7
1	B	88	VAL	2.7
1	B	361	LEU	2.7
1	D	11	GLU	2.7
1	D	-3	MET	2.7
1	D	585	LYS	2.7
1	D	361	LEU	2.7

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Mol	Chain	Res	Type	RSRZ
1	A	486	ASP	2.7
1	B	426	PHE	2.7
1	A	248	LEU	2.7
1	C	170	MET	2.7
1	D	530	LEU	2.7
1	D	479	THR	2.7
1	A	191	SER	2.7
1	C	377	SER	2.7
1	B	374	GLU	2.7
1	B	60	LYS	2.7
1	B	354	TYR	2.7
1	B	393	LYS	2.7
1	C	47	VAL	2.7
1	C	153	VAL	2.7
1	C	508	TYR	2.7
1	C	361	LEU	2.7
1	D	397	LEU	2.7
1	D	390	PHE	2.6
1	B	433	GLY	2.6
1	A	361	LEU	2.6
1	C	389	SER	2.6
1	B	134	ILE	2.6
1	D	307	ILE	2.6
1	B	107	PRO	2.6
1	C	585	LYS	2.6
1	A	193	ASP	2.6
1	A	585	LYS	2.6
1	B	170	MET	2.6
1	A	94	TYR	2.6
1	A	171	GLY	2.6
1	C	430	SER	2.6
1	D	510	ILE	2.6
1	C	489	ILE	2.5
1	D	439	LYS	2.5
1	C	145	VAL	2.5
1	B	30	PHE	2.5
1	A	524	TYR	2.5
1	C	364	ALA	2.5
1	D	304	LEU	2.5
1	A	172	GLY	2.5
1	B	168	ILE	2.5
1	C	180	ILE	2.5

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Mol	Chain	Res	Type	RSRZ
1	D	180	ILE	2.5
1	C	543	SER	2.5
1	B	54	SER	2.5
1	A	359	THR	2.5
1	C	486	ASP	2.5
1	C	51	PRO	2.5
1	A	173	GLY	2.5
1	D	391	ASP	2.5
1	A	518	ASN	2.5
1	C	96	GLU	2.5
1	C	13	ILE	2.4
1	D	167	ILE	2.4
1	D	534	ILE	2.4
1	A	389	SER	2.4
1	D	382	LYS	2.4
1	D	359	THR	2.4
1	A	542	LEU	2.4
1	C	244	LEU	2.4
1	D	168	ILE	2.4
1	D	185	ASN	2.4
1	A	508	TYR	2.4
1	B	41	ALA	2.4
1	D	310	ALA	2.4
1	A	362	SER	2.4
1	D	541	SER	2.4
1	D	533	ASP	2.4
1	A	297	ILE	2.4
1	A	190	VAL	2.4
1	D	305	GLY	2.4
1	C	459	VAL	2.4
1	B	89	ASP	2.3
1	C	184	SER	2.3
1	D	485	LYS	2.3
1	A	120	HIS	2.3
1	C	44	THR	2.3
1	D	471	THR	2.3
1	C	533	ASP	2.3
1	B	482	LYS	2.3
1	B	319	GLN	2.3
1	B	43	THR	2.3
1	C	171	GLY	2.3
1	B	104	PHE	2.3

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Mol	Chain	Res	Type	RSRZ
1	C	30	PHE	2.3
1	C	511	PHE	2.3
1	D	421	SER	2.3
1	B	93	GLN	2.3
1	B	304	LEU	2.3
1	D	420	LEU	2.3
1	C	191	SER	2.3
1	A	493	ILE	2.3
1	C	563	GLY	2.3
1	D	389	SER	2.3
1	B	501	TYR	2.3
1	D	170	MET	2.3
1	B	534	ILE	2.3
1	C	249	ALA	2.3
1	D	399	ILE	2.3
1	B	283	ASN	2.3
1	C	49	SER	2.3
1	C	524	TYR	2.2
1	D	392	PHE	2.2
1	A	495	ALA	2.2
1	D	495	ALA	2.2
1	C	584	ARG	2.2
1	D	190	VAL	2.2
1	A	497	ILE	2.2
1	C	427	GLY	2.2
1	C	517	GLU	2.2
1	D	173	GLY	2.2
1	B	443	LEU	2.2
1	B	524	TYR	2.2
1	D	290	GLY	2.2
1	B	180	ILE	2.2
1	B	387	ILE	2.2
1	B	282	ARG	2.2
1	A	517	GLU	2.2
1	D	191	SER	2.2
1	C	93	GLN	2.2
1	A	214	VAL	2.2
1	D	516	ASN	2.2
1	B	96	GLU	2.1
1	B	85	ASN	2.1
1	A	393	LYS	2.1
1	D	47	VAL	2.1

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Mol	Chain	Res	Type	RSRZ
1	B	400	ILE	2.1
1	D	419	ILE	2.1
1	D	427	GLY	2.1
1	C	467	ALA	2.1
1	D	247	TRP	2.1
1	D	532	THR	2.1
1	D	493	ILE	2.1
1	A	304	LEU	2.1
1	C	52	LEU	2.1
1	C	304	LEU	2.1
1	B	138	LYS	2.1
1	C	35	LYS	2.1
1	B	53	PRO	2.1
1	C	39	THR	2.1
1	D	435	THR	2.1
1	A	81	LEU	2.1
1	A	516	ASN	2.1
1	D	385	HIS	2.1
1	D	319	GLN	2.1
1	A	245	GLY	2.1
1	D	444	PRO	2.1
1	D	569	ARG	2.0
1	C	438	GLU	2.0
1	A	509	PHE	2.0
1	C	87	HIS	2.0
1	A	446	ILE	2.0
1	B	351	ILE	2.0
1	D	146	LEU	2.0
1	A	87	HIS	2.0
1	C	46	GLU	2.0
1	D	425	ALA	2.0
1	A	399	ILE	2.0
1	D	195	ARG	2.0

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

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

6.3 Carbohydrates [i](#)

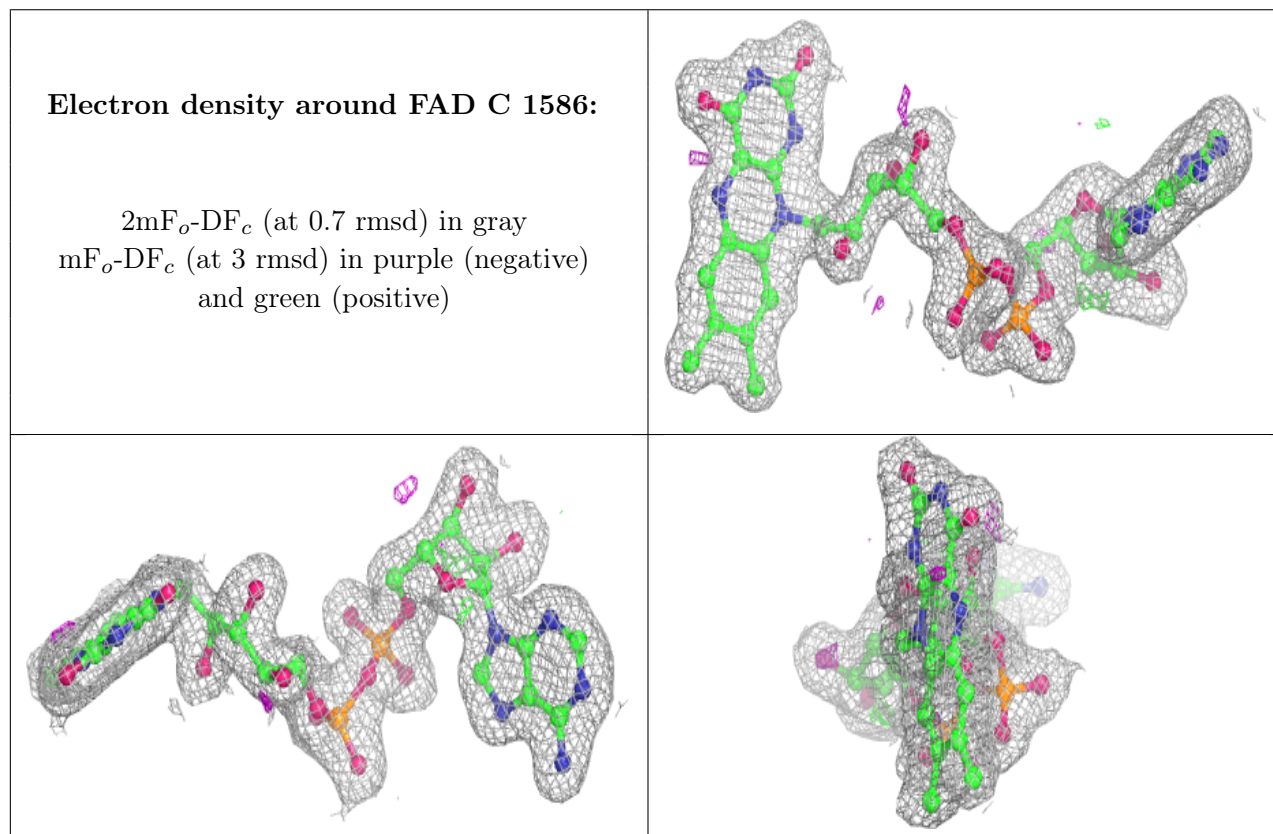
There are no monosaccharides in this entry.

6.4 Ligands [i](#)

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

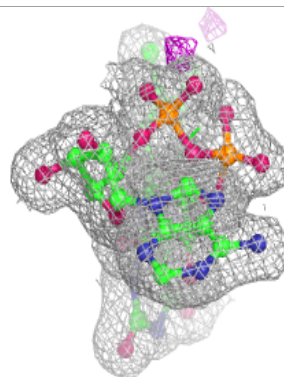
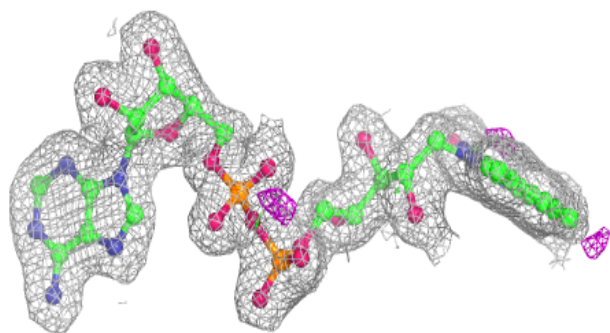
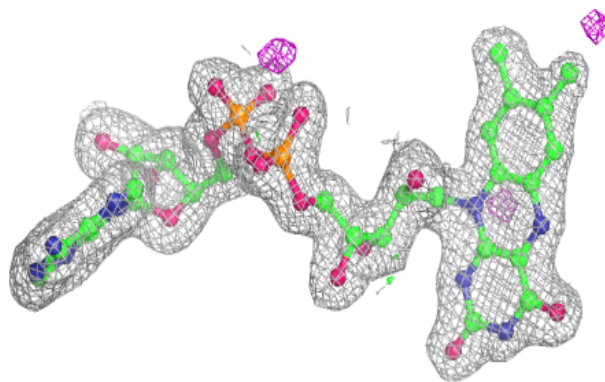
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
3	PL3	A	1588	17/17	0.78	0.36	31,33,37,39	0
3	PL3	C	1587	17/17	0.79	0.41	34,36,42,43	0
3	PL3	D	1587	17/17	0.80	0.48	45,47,49,49	0
3	PL3	B	1588	17/17	0.83	0.38	34,39,42,43	0
2	FAD	C	1586	53/53	0.96	0.14	6,11,15,16	0
2	FAD	D	1586	53/53	0.96	0.13	7,11,15,16	0
2	FAD	A	1587	53/53	0.97	0.12	3,8,10,11	0
2	FAD	B	1587	53/53	0.97	0.12	6,12,13,15	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.

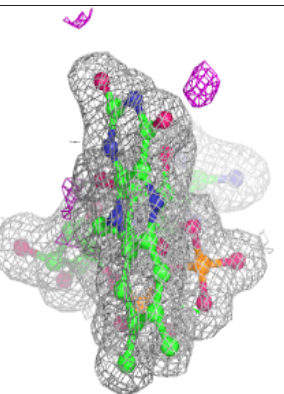
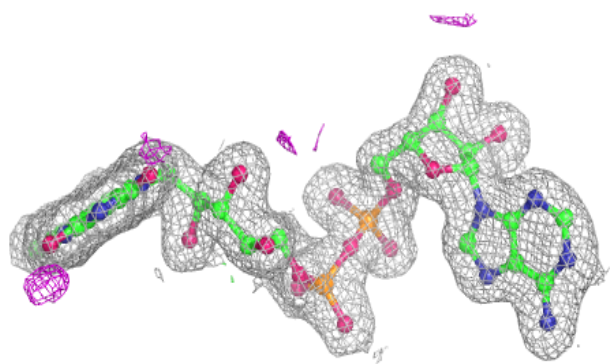
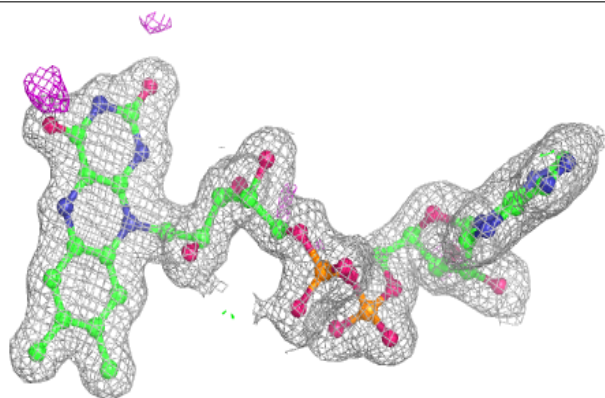


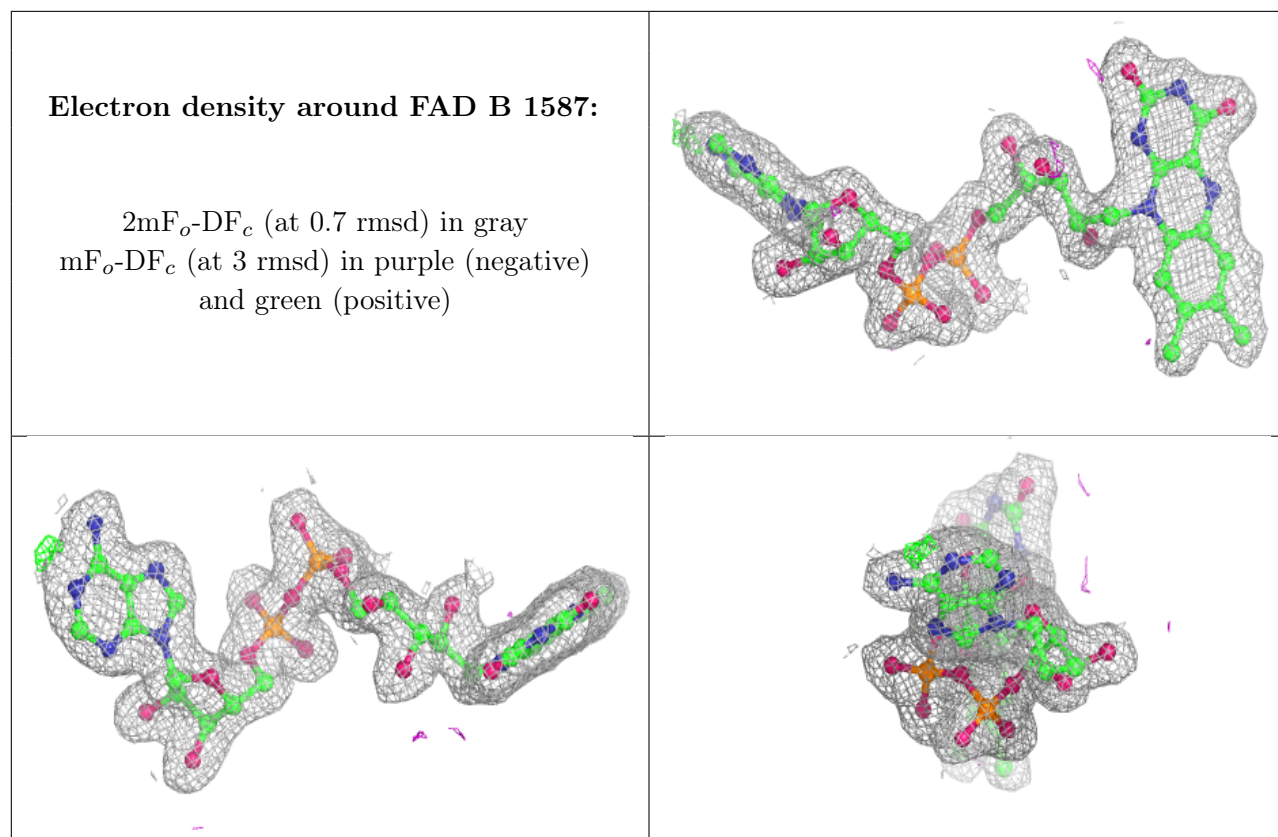
Electron density around FAD D 1586:

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

**Electron density around FAD A 1587:**

$2mF_o-DF_c$ (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.