



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 8, 2026 – 03:49 PM UTC

PDB ID : 3GWX / pdb_00003gwx
Title : MOLECULAR RECOGNITION OF FATTY ACIDS BY PEROXISOME PR
OLIFERATOR-ACTIVATED RECEPTORS
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Brown, P.J.; Sternbach, D.D.; Lehmann, J.M.; Wisely, G.B.; Willson, T.M.;
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Deposited on : 1999-04-26
Resolution : 2.40 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](#) ①) were used in the production of this report:

MolProbity	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
Buster-report	:	wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4	:	9.0.010 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

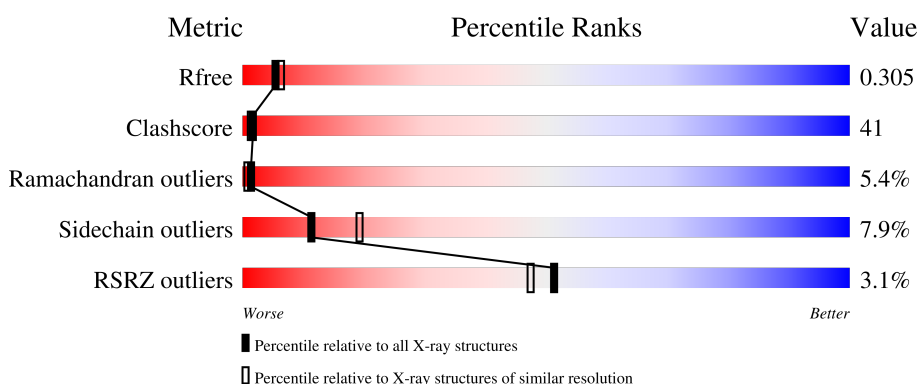
1 Overall quality at a glance

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	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	4912 (2.40-2.40)
Clashscore	190562	5391 (2.40-2.40)
Ramachandran outliers	187476	5320 (2.40-2.40)
Sidechain outliers	187428	5321 (2.40-2.40)
RSRZ outliers	180081	4916 (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 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	271	3% 47% 42% 8%
1	B	271	3% 46% 43% 10%

2 Entry composition [i](#)

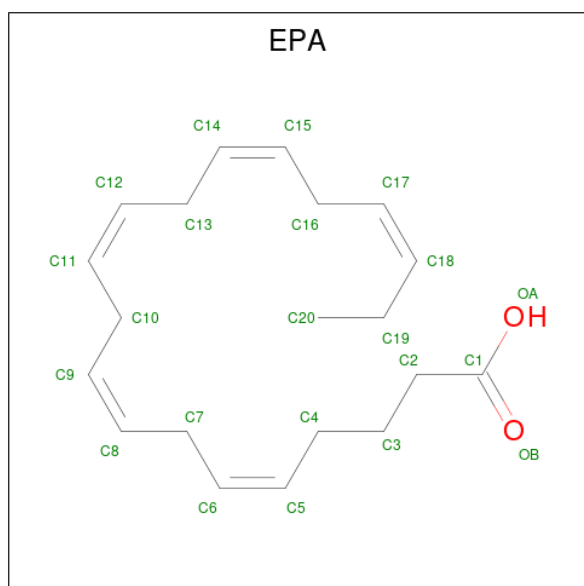
There are 3 unique types of molecules in this entry. The entry contains 4505 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 PROTEIN (PEROXISOME PROLIFERATOR ACTIVATED RECEPTOR (PPAR-DELTA)).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	271	Total	C	N	O	S	0	0	1
			2172	1405	368	389	10			
1	B	271	Total	C	N	O	S	0	0	0
			2158	1396	362	390	10			

- Molecule 2 is 5,8,11,14,17-EICOSAPENTAENOIC ACID (CCD ID: EPA) (formula: $C_{20}H_{30}O_2$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	C	O	0	1
			44	40	4		
2	B	1	Total	C	O	0	1
			44	40	4		

- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	51	Total 51	O 51	0	0
3	B	36	Total 36	O 36	0	0

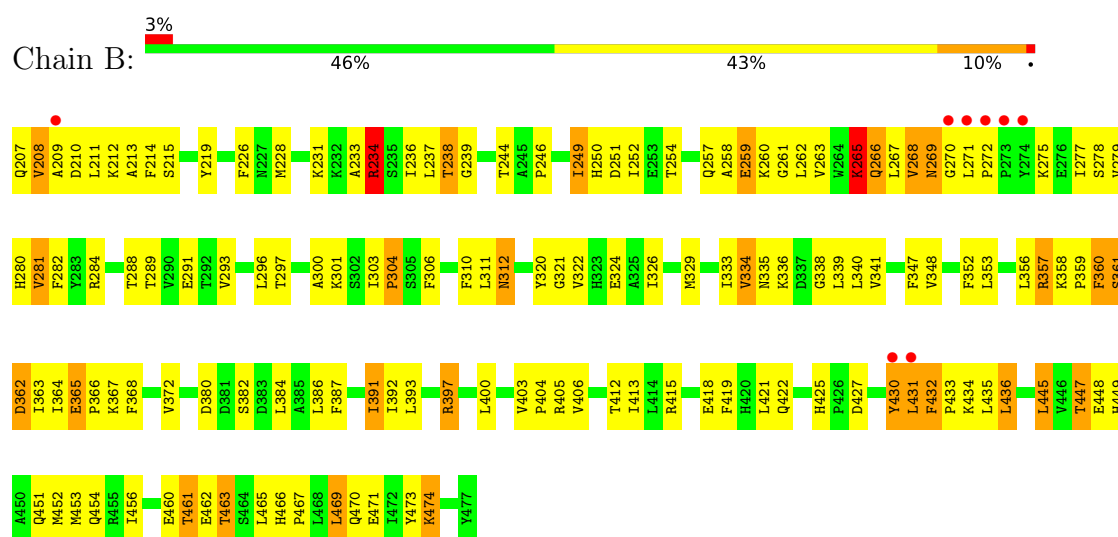
3 Residue-property plots

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: PROTEIN (PEROXISOME PROLIFERATOR ACTIVATED RECEPTOR (PPAR-DELTA))



- Molecule 1: PROTEIN (PEROXISOME PROLIFERATOR ACTIVATED RECEPTOR (PPAR-DELTA))



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	39.38Å 95.54Å 96.18Å 90.00° 97.89° 90.00°	Depositor
Resolution (Å)	6.00 – 2.40 6.00 – 2.40	Depositor EDS
% Data completeness (in resolution range)	71.3 (6.00-2.40) 66.6 (6.00-2.40)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	0.08	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.44 (at 2.19Å)	Xtriage
Refinement program	CNS 0.5	Depositor
R, R_{free}	0.242 , 0.301 0.245 , 0.305	Depositor DCC
R_{free} test set	2762 reflections (9.93%)	wwPDB-VP
Wilson B-factor (Å ²)	41.3	Xtriage
Anisotropy	0.258	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.68 , 107.3	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	4505	wwPDB-VP
Average B, all atoms (Å ²)	57.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.41% 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

5.1 Standard geometry

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

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	0.54	1/2219 (0.0%)	0.96	10/3001 (0.3%)
1	B	0.50	0/2205	0.95	8/2986 (0.3%)
All	All	0.52	1/4424 (0.0%)	0.95	18/5987 (0.3%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	476	MET	C-N	-5.58	1.25	1.33

All (18) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	281	VAL	N-CA-C	-6.29	104.61	110.53
1	A	211	LEU	N-CA-C	-6.21	106.24	113.88
1	B	234	ARG	N-CA-C	-6.05	105.16	112.54
1	B	212	LYS	N-CA-C	-6.01	105.97	113.55
1	A	403	VAL	CB-CA-C	-5.93	108.07	114.35
1	B	269	ASN	CB-CA-C	-5.70	110.02	116.63
1	A	363	ILE	N-CA-C	-5.56	104.87	113.16
1	B	430	TYR	N-CA-C	-5.51	105.37	111.71
1	A	322	VAL	N-CA-C	5.50	116.23	110.62
1	A	225	ASN	N-CA-C	5.45	121.34	114.31
1	B	397	ARG	CA-C-N	5.43	125.70	119.83
1	B	397	ARG	C-N-CA	5.43	125.70	119.83
1	B	252	ILE	N-CA-C	5.34	116.71	110.62
1	A	397	ARG	CA-C-N	5.22	126.37	119.84
1	A	397	ARG	C-N-CA	5.22	126.37	119.84
1	A	271	LEU	CA-C-N	-5.11	115.12	120.38
1	A	271	LEU	C-N-CA	-5.11	115.12	120.38
1	A	302	SER	N-CA-C	-5.02	106.99	113.02

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	2172	0	2218	188	0
1	B	2158	0	2173	185	0
2	A	44	0	58	13	0
2	B	44	0	58	14	0
3	A	51	0	0	3	0
3	B	36	0	0	1	0
All	All	4505	0	4507	368	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 41.

All (368) 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:367:LYS:HE2	2:A:1[B]:EPA:H81	1.36	1.03
1:A:465:LEU:HD23	1:A:470:GLN:HE21	1.29	0.96
1:B:465:LEU:HD23	1:B:470:GLN:HE21	1.32	0.94
1:A:244:THR:HA	1:B:207:GLN:HB2	1.51	0.93
1:A:455:ARG:O	1:A:459:THR:HG22	1.70	0.92
1:B:453:MET:HE2	1:B:453:MET:HA	1.51	0.92
1:A:403:VAL:HG13	1:A:404:PRO:HD3	1.52	0.91
1:B:312:ASN:HD22	1:B:312:ASN:H	1.20	0.88
1:A:269:ASN:HB3	1:A:275:LYS:NZ	1.87	0.88
1:B:277:ILE:HG23	1:B:278:SER:H	1.40	0.86
1:A:228:MET:HE2	1:A:233:ALA:HB2	1.59	0.85
1:A:270:GLY:C	1:A:271:LEU:HD12	2.02	0.85
1:B:312:ASN:HD22	1:B:312:ASN:N	1.75	0.84
1:A:367:LYS:HG3	2:A:1[B]:EPA:H91	1.58	0.84
1:B:251:ASP:OD2	1:B:254:THR:HG22	1.80	0.82
1:A:465:LEU:HD23	1:A:470:GLN:HG2	1.62	0.82
1:A:270:GLY:O	1:A:271:LEU:HD12	1.82	0.80

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:465:LEU:HD23	1:B:470:GLN:HG2	1.63	0.79
1:B:310:PHE:HB3	1:B:312:ASN:HD21	1.48	0.79
1:A:247:PHE:HB2	1:A:262:LEU:HD21	1.64	0.79
1:B:465:LEU:CD2	1:B:470:GLN:HE21	1.95	0.79
1:B:334:VAL:HG23	1:B:339:LEU:HD13	1.65	0.78
1:A:259:GLU:CD	1:A:284:ARG:HH12	1.92	0.78
1:B:368:PHE:O	1:B:372:VAL:HG23	1.84	0.77
1:B:271:LEU:HD13	1:B:277:ILE:HA	1.64	0.76
1:A:465:LEU:CD2	1:A:470:GLN:HE21	1.99	0.76
1:A:271:LEU:O	1:A:276:GLU:HA	1.86	0.75
1:A:275:LYS:HE3	1:A:280:HIS:HA	1.69	0.73
1:A:335:ASN:ND2	1:A:337:ASP:H	1.86	0.72
1:A:324:GLU:CB	1:A:391:ILE:HD13	2.20	0.72
1:A:321:GLY:O	1:A:391:ILE:HD11	1.89	0.71
1:A:275:LYS:HE2	1:A:280:HIS:HB2	1.72	0.71
1:A:429:GLN:HE21	1:A:429:GLN:C	1.97	0.71
1:A:269:ASN:HB3	1:A:275:LYS:HZ2	1.56	0.71
1:B:324:GLU:HB2	1:B:391:ILE:HD13	1.70	0.71
1:B:303:ILE:HG23	1:B:304:PRO:HD2	1.71	0.71
1:B:367:LYS:HG3	2:B:3[B]:EPA:H91	1.73	0.71
1:B:249:ILE:HG22	1:B:250:HIS:N	2.06	0.70
1:A:324:GLU:HB2	1:A:391:ILE:HD13	1.72	0.70
1:A:269:ASN:HB3	1:A:275:LYS:HZ3	1.54	0.70
1:B:334:VAL:HG13	1:B:335:ASN:N	2.05	0.70
1:B:363:ILE:HD11	1:B:453:MET:HE3	1.74	0.69
1:B:363:ILE:CD1	1:B:453:MET:HE3	2.23	0.69
1:B:465:LEU:HD23	1:B:470:GLN:NE2	2.07	0.69
1:B:310:PHE:HB3	1:B:312:ASN:ND2	2.08	0.69
1:B:249:ILE:O	1:B:254:THR:HG21	1.93	0.68
1:A:271:LEU:HA	1:A:276:GLU:HA	1.75	0.68
1:B:258:ALA:C	1:B:260:LYS:H	2.01	0.68
1:A:465:LEU:HD23	1:A:470:GLN:NE2	2.04	0.68
1:A:264:TRP:O	1:A:265:LYS:HB2	1.94	0.68
1:A:293:VAL:HG22	1:A:322:VAL:HG21	1.75	0.68
1:B:360:PHE:O	1:B:362:ASP:N	2.26	0.67
1:B:271:LEU:HD13	1:B:277:ILE:CA	2.23	0.67
1:B:353:LEU:HB3	1:B:364:ILE:HD12	1.77	0.67
1:A:258:ALA:HA	1:A:262:LEU:HD13	1.76	0.67
1:B:249:ILE:O	1:B:250:HIS:ND1	2.27	0.67
1:B:473:TYR:O	1:B:474:LYS:HB3	1.95	0.66
1:A:271:LEU:CA	1:A:276:GLU:HA	2.26	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:282:PHE:CE1	2:B:3[B]:EPA:H32	2.31	0.66
1:B:250:HIS:HA	1:B:352:PHE:HB2	1.78	0.65
1:B:348:VAL:HG21	2:B:3[B]:EPA:H203	1.79	0.65
1:B:432:PHE:HB3	1:B:433:PRO:HD3	1.77	0.65
1:B:322:VAL:O	1:B:326:ILE:HG13	1.97	0.65
1:A:276:GLU:CD	1:A:357:ARG:HE	2.05	0.64
1:A:284:ARG:HG3	1:A:284:ARG:HH11	1.62	0.64
1:B:357:ARG:NH2	1:B:359:PRO:HG3	2.12	0.64
1:B:270:GLY:O	1:B:271:LEU:HD23	1.97	0.64
1:B:249:ILE:C	1:B:254:THR:HG21	2.23	0.64
1:B:353:LEU:HB3	1:B:364:ILE:CD1	2.27	0.64
1:A:259:GLU:OE2	1:A:284:ARG:NH1	2.31	0.63
1:B:259:GLU:HG2	1:B:269:ASN:H	1.63	0.63
1:B:219:TYR:CD2	1:B:382:SER:HA	2.33	0.63
1:B:234:ARG:HA	1:B:234:ARG:HE	1.64	0.63
1:B:367:LYS:HD3	1:B:445:LEU:HD21	1.81	0.62
1:A:265:LYS:HA	1:A:265:LYS:NZ	2.14	0.62
1:A:443:ARG:HB2	1:A:443:ARG:NH1	2.13	0.61
1:A:289:THR:HG21	2:A:1[A]:EPA:OA	2.00	0.61
1:B:297:THR:O	1:B:301:LYS:HG3	1.99	0.61
1:A:271:LEU:O	1:A:275:LYS:O	2.18	0.61
1:A:273:PRO:O	1:A:275:LYS:N	2.34	0.61
1:B:469:LEU:HD23	2:B:3[A]:EPA:OA	2.00	0.61
1:B:266:GLN:HE21	1:B:284:ARG:CZ	2.13	0.61
1:B:266:GLN:HE21	1:B:284:ARG:NH2	1.99	0.61
1:B:364:ILE:HG22	2:B:3[B]:EPA:C8	2.32	0.60
1:B:277:ILE:HG23	1:B:278:SER:N	2.14	0.60
1:B:387:PHE:O	1:B:391:ILE:HG23	2.02	0.60
1:A:262:LEU:HD12	1:A:262:LEU:H	1.67	0.59
1:A:271:LEU:C	1:A:276:GLU:HA	2.26	0.59
1:A:357:ARG:C	1:A:359:PRO:HD2	2.27	0.59
1:A:453:MET:O	1:A:456:ILE:HG22	2.03	0.59
1:A:275:LYS:HE3	1:A:280:HIS:CA	2.32	0.59
1:B:467:PRO:O	1:B:471:GLU:HG2	2.03	0.59
1:A:277:ILE:HG23	1:A:278:SER:H	1.67	0.59
1:B:451:GLN:O	1:B:454:GLN:HG2	2.03	0.59
1:A:418:GLU:HB2	1:A:432:PHE:CE1	2.38	0.59
1:A:393:LEU:O	1:A:410:GLN:HB2	2.02	0.58
1:A:448:GLU:O	1:A:452:MET:HG3	2.02	0.58
1:B:270:GLY:C	1:B:271:LEU:HD23	2.27	0.58
1:A:243:HIS:CD2	1:A:244:THR:H	2.21	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:367:LYS:HG3	2:A:1[B]:EPA:C9	2.31	0.58
1:A:266:GLN:O	1:A:268:VAL:HG23	2.04	0.58
1:A:324:GLU:HB2	1:A:391:ILE:CD1	2.34	0.58
1:A:362:ASP:O	1:A:452:MET:HE1	2.03	0.58
1:A:335:ASN:HD22	1:A:337:ASP:H	1.50	0.58
1:A:244:THR:O	1:B:208:VAL:HB	2.04	0.58
1:A:266:GLN:NE2	1:A:267:LEU:H	2.01	0.57
1:A:359:PRO:HG2	1:A:360:PHE:CD1	2.38	0.57
1:A:430:TYR:O	1:A:434:LYS:HB2	2.03	0.57
1:B:460:GLU:HB3	1:B:463:THR:CG2	2.35	0.57
1:A:362:ASP:C	1:A:452:MET:HE1	2.29	0.57
1:B:259:GLU:OE1	1:B:284:ARG:NH1	2.37	0.57
1:B:430:TYR:CB	1:B:434:LYS:HD3	2.35	0.57
1:B:237:LEU:HD21	1:B:340:LEU:HD22	1.85	0.57
1:B:300:ALA:HA	1:B:303:ILE:HD13	1.85	0.57
1:A:271:LEU:HD23	1:A:277:ILE:HB	1.87	0.57
1:A:275:LYS:CE	1:A:280:HIS:HB2	2.35	0.57
1:B:293:VAL:HG22	1:B:322:VAL:HG21	1.87	0.57
1:A:312:ASN:O	1:A:316:THR:HG23	2.04	0.57
1:B:249:ILE:HG23	1:B:254:THR:HG23	1.87	0.56
1:B:237:LEU:CD2	1:B:340:LEU:HD22	2.35	0.56
1:B:214:PHE:CE1	1:B:413:ILE:HD13	2.41	0.56
1:B:236:ILE:HG23	1:B:246:PRO:HD3	1.88	0.56
1:A:262:LEU:H	1:A:262:LEU:CD1	2.18	0.56
1:A:449:HIS:CE1	2:A:1[A]:EPA:H32	2.40	0.56
1:B:310:PHE:CB	1:B:312:ASN:HD21	2.15	0.55
1:B:400:LEU:HD21	1:B:406:VAL:HG21	1.87	0.55
1:B:421:LEU:HB3	1:B:431:LEU:HD22	1.88	0.55
1:A:473:TYR:CD1	1:A:476:MET:HE2	2.42	0.55
1:A:238:THR:HG21	3:A:498:HOH:O	2.06	0.55
1:A:237:LEU:N	1:A:237:LEU:HD12	2.22	0.55
1:B:236:ILE:HG13	1:B:244:THR:HB	1.88	0.55
1:A:271:LEU:O	1:A:276:GLU:CA	2.54	0.55
1:A:336:LYS:NZ	1:A:336:LYS:HB3	2.21	0.55
1:A:351:GLU:O	1:A:354:ARG:HG2	2.07	0.55
1:B:259:GLU:HG2	1:B:269:ASN:HA	1.88	0.55
1:B:365:GLU:N	1:B:366:PRO:HD2	2.22	0.55
1:A:322:VAL:O	1:A:326:ILE:HG13	2.07	0.54
1:B:334:VAL:CG1	1:B:335:ASN:N	2.70	0.54
1:B:431:LEU:O	1:B:433:PRO:HD3	2.08	0.54
1:A:259:GLU:O	1:A:263:VAL:HG12	2.08	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:403:VAL:HG23	1:A:407:GLU:HG3	1.90	0.54
1:B:430:TYR:HA	1:B:434:LYS:CG	2.37	0.54
1:A:262:LEU:HD12	1:A:262:LEU:N	2.23	0.54
1:A:228:MET:HE2	1:A:233:ALA:CB	2.32	0.54
1:B:237:LEU:CD2	1:B:340:LEU:HD13	2.37	0.54
1:B:403:VAL:HB	1:B:404:PRO:HD3	1.90	0.54
1:B:215:SER:HA	1:B:386:LEU:HD21	1.90	0.54
1:B:272:PRO:O	1:B:275:LYS:O	2.25	0.54
1:A:374:PHE:O	1:A:377:LEU:HD13	2.08	0.54
1:B:304:PRO:HA	3:B:509:HOH:O	2.08	0.53
1:A:273:PRO:C	1:A:275:LYS:H	2.16	0.53
1:A:419:PHE:O	1:A:422:GLN:HB2	2.09	0.53
1:B:391:ILE:HG13	1:B:392:ILE:N	2.24	0.53
1:B:449:HIS:HE2	2:B:3[A]:EPA:H31	1.72	0.53
1:A:473:TYR:HA	1:A:476:MET:HB3	1.91	0.53
1:B:391:ILE:HG13	1:B:392:ILE:HD12	1.90	0.53
1:B:431:LEU:O	1:B:433:PRO:CD	2.56	0.53
1:A:319:LYS:HZ3	1:A:475:ASP:HB3	1.74	0.53
1:A:402:ASN:C	1:A:402:ASN:HD22	2.17	0.53
1:B:228:MET:SD	1:B:233:ALA:HB2	2.49	0.53
1:B:259:GLU:HG2	1:B:269:ASN:N	2.24	0.53
1:B:405:ARG:HG2	1:B:405:ARG:HH11	1.73	0.53
1:A:364:ILE:HD13	2:A:1[A]:EPA:H61	1.91	0.52
1:B:249:ILE:N	1:B:249:ILE:HD12	2.23	0.52
1:B:335:ASN:OD1	1:B:336:LYS:N	2.43	0.52
1:A:286:GLN:OE1	1:A:465:LEU:HD12	2.09	0.52
1:A:351:GLU:HG3	1:A:352:PHE:N	2.24	0.52
1:B:453:MET:CE	1:B:456:ILE:HD12	2.39	0.52
1:A:228:MET:HE1	1:A:232:LYS:HG2	1.91	0.52
1:A:297:THR:O	1:A:301:LYS:HG3	2.09	0.52
1:B:237:LEU:HD21	1:B:340:LEU:HD13	1.90	0.52
1:B:249:ILE:HG22	1:B:250:HIS:H	1.74	0.52
1:A:377:LEU:N	1:A:377:LEU:HD12	2.24	0.52
1:B:361:SER:O	1:B:364:ILE:HG12	2.10	0.52
1:A:211:LEU:HD23	1:A:419:PHE:CD2	2.44	0.52
1:A:465:LEU:HD23	1:A:470:GLN:CG	2.38	0.52
1:A:447:THR:O	1:A:451:GLN:HG3	2.10	0.52
1:B:266:GLN:NE2	1:B:280:HIS:NE2	2.53	0.52
1:B:236:ILE:HD12	1:B:236:ILE:H	1.75	0.52
1:B:268:VAL:O	1:B:268:VAL:HG23	2.10	0.52
1:B:312:ASN:H	1:B:312:ASN:ND2	1.95	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:425:HIS:HB2	1:B:431:LEU:HD21	1.92	0.51
1:A:267:LEU:HG	1:A:284:ARG:NE	2.25	0.51
1:B:357:ARG:HH21	1:B:359:PRO:HG3	1.74	0.51
1:A:299:PHE:CE2	1:A:388:ILE:HG22	2.45	0.51
1:A:449:HIS:NE2	2:A:1[A]:EPA:OB	2.40	0.51
1:B:236:ILE:HD12	1:B:236:ILE:N	2.26	0.51
1:B:254:THR:HA	1:B:257:GLN:HG2	1.92	0.51
1:B:266:GLN:O	1:B:267:LEU:HB3	2.09	0.51
1:B:214:PHE:CZ	1:B:413:ILE:HD13	2.46	0.51
1:B:449:HIS:NE2	2:B:3[A]:EPA:H31	2.26	0.51
1:A:267:LEU:HD21	1:A:284:ARG:HE	1.76	0.50
1:A:418:GLU:O	1:A:422:GLN:HG2	2.11	0.50
1:B:306:PHE:HD2	1:B:393:LEU:HD21	1.76	0.50
1:A:233:ALA:O	1:A:237:LEU:HD13	2.10	0.50
1:A:360:PHE:O	1:A:363:ILE:HG12	2.12	0.50
1:A:367:LYS:CE	2:A:1[B]:EPA:H81	2.25	0.50
1:B:258:ALA:C	1:B:260:LYS:N	2.69	0.50
1:A:324:GLU:OE1	1:A:391:ILE:HD13	2.12	0.50
1:B:207:GLN:CD	1:B:210:ASP:HB3	2.36	0.50
1:B:233:ALA:O	1:B:237:LEU:HD23	2.12	0.50
1:B:341:VAL:HG11	2:B:3[B]:EPA:H171	1.93	0.49
1:A:386:LEU:CB	1:A:417:LEU:HD23	2.43	0.49
1:A:326:ILE:HG23	2:A:1[A]:EPA:H141	1.94	0.49
1:A:272:PRO:N	1:A:273:PRO:HD2	2.28	0.49
1:B:387:PHE:CE2	1:B:435:LEU:HG	2.48	0.49
1:B:460:GLU:O	1:B:462:GLU:N	2.44	0.49
1:A:261:GLY:O	1:A:263:VAL:HG13	2.13	0.49
1:A:324:GLU:HB3	1:A:391:ILE:HD13	1.92	0.49
1:B:289:THR:HG21	2:B:3[A]:EPA:OB	2.13	0.49
1:A:289:THR:O	1:A:293:VAL:HG23	2.12	0.49
1:B:320:TYR:HB3	1:B:397:ARG:HD2	1.94	0.49
1:A:270:GLY:O	1:A:275:LYS:HD2	2.13	0.48
1:B:238:THR:HG22	1:B:239:GLY:N	2.26	0.48
1:B:333:ILE:CD1	1:B:339:LEU:HD11	2.42	0.48
1:B:258:ALA:HA	1:B:262:LEU:HD13	1.95	0.48
1:B:431:LEU:O	1:B:432:PHE:CB	2.61	0.48
1:A:253:GLU:HG3	1:A:257:GLN:HE21	1.79	0.48
1:A:267:LEU:N	1:A:267:LEU:HD23	2.27	0.48
1:B:269:ASN:CG	1:B:270:GLY:H	2.20	0.48
1:B:259:GLU:HG2	1:B:269:ASN:CA	2.44	0.48
1:A:293:VAL:HG22	1:A:322:VAL:CG2	2.42	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:425:HIS:N	1:A:426:PRO:HD3	2.28	0.48
1:A:334:VAL:HG13	1:A:335:ASN:N	2.29	0.48
1:A:424:ASN:C	1:A:426:PRO:HD3	2.38	0.48
1:A:445:LEU:HD23	1:A:448:GLU:OE2	2.14	0.48
1:A:273:PRO:C	1:A:275:LYS:N	2.72	0.47
1:B:469:LEU:CD2	2:B:3[A]:EPA:OA	2.61	0.47
1:B:425:HIS:O	1:B:431:LEU:HD11	2.14	0.47
1:A:274:TYR:CD1	1:A:274:TYR:N	2.82	0.47
1:A:467:PRO:O	1:A:471:GLU:HG2	2.15	0.47
1:B:303:ILE:HG21	1:B:393:LEU:HD11	1.97	0.47
1:B:338:GLY:HA3	1:B:347:PHE:CZ	2.48	0.47
1:B:447:THR:O	1:B:451:GLN:HG3	2.14	0.47
1:B:277:ILE:CG2	1:B:278:SER:H	2.21	0.47
1:B:271:LEU:C	1:B:275:LYS:O	2.58	0.47
1:B:358:LYS:N	1:B:359:PRO:HD2	2.29	0.47
1:A:272:PRO:N	1:A:273:PRO:CD	2.78	0.47
1:A:363:ILE:O	1:A:367:LYS:NZ	2.36	0.46
1:A:269:ASN:O	1:A:270:GLY:O	2.33	0.46
1:A:391:ILE:HD12	1:A:391:ILE:O	2.16	0.46
1:B:265:LYS:HE2	1:B:265:LYS:C	2.41	0.46
1:A:349:THR:OG1	1:A:351:GLU:HG2	2.14	0.46
1:B:465:LEU:HD23	1:B:470:GLN:CG	2.40	0.46
1:B:246:PRO:HB2	1:B:347:PHE:HB2	1.96	0.46
1:A:211:LEU:HD23	1:A:419:PHE:HD2	1.79	0.46
1:A:334:VAL:CG1	1:A:335:ASN:N	2.78	0.46
1:B:430:TYR:CD1	1:B:430:TYR:C	2.93	0.46
1:A:215:SER:OG	1:A:386:LEU:HD11	2.16	0.46
1:A:243:HIS:HB3	1:B:207:GLN:NE2	2.31	0.46
1:B:419:PHE:O	1:B:422:GLN:HB2	2.16	0.46
1:A:240:LYS:O	1:A:243:HIS:HB2	2.15	0.46
1:A:264:TRP:HB2	1:A:284:ARG:NH2	2.31	0.46
1:B:430:TYR:HA	1:B:434:LYS:HG3	1.98	0.46
1:B:226:PHE:CG	1:B:329:MET:HE1	2.51	0.45
1:B:231:LYS:HA	1:B:231:LYS:HD3	1.72	0.45
1:B:334:VAL:HG22	1:B:368:PHE:CE1	2.51	0.45
1:B:405:ARG:HG2	1:B:405:ARG:NH1	2.31	0.45
1:A:363:ILE:HD12	2:A:1[B]:EPA:H51	1.98	0.45
1:B:357:ARG:HB3	1:B:359:PRO:HD2	1.97	0.45
1:A:285:CYS:SG	2:A:1[B]:EPA:H131	2.56	0.45
1:A:243:HIS:O	1:B:207:GLN:HB3	2.15	0.45
1:B:266:GLN:HG2	1:B:284:ARG:HH22	1.81	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:279:VAL:HG22	1:B:360:PHE:CZ	2.52	0.45
1:A:456:ILE:HA	1:A:459:THR:HG22	1.98	0.45
1:B:431:LEU:O	1:B:432:PHE:HB2	2.15	0.45
1:A:214:PHE:O	1:A:218:ILE:HG13	2.17	0.45
1:B:214:PHE:CE2	1:B:304:PRO:HG2	2.52	0.45
1:B:334:VAL:HG23	1:B:339:LEU:CD1	2.43	0.45
1:A:266:GLN:NE2	1:A:267:LEU:N	2.64	0.45
1:A:284:ARG:HH11	1:A:284:ARG:CG	2.28	0.45
1:A:432:PHE:HB3	1:A:433:PRO:CD	2.46	0.45
1:B:321:GLY:O	1:B:391:ILE:HD11	2.17	0.45
1:B:415:ARG:O	1:B:418:GLU:HB3	2.17	0.45
1:A:226:PHE:CE2	1:A:329:MET:HE1	2.52	0.44
1:A:266:GLN:HE21	1:A:266:GLN:HB3	1.57	0.44
1:A:377:LEU:HD12	1:A:377:LEU:H	1.82	0.44
1:B:465:LEU:CD2	1:B:470:GLN:HG2	2.39	0.44
1:A:240:LYS:HD3	1:A:240:LYS:N	2.31	0.44
1:A:296:LEU:HD22	1:A:392:ILE:HD11	2.00	0.44
1:A:300:ALA:HA	1:A:303:ILE:HD12	2.00	0.44
1:B:353:LEU:O	1:B:356:LEU:HG	2.17	0.44
1:A:271:LEU:C	1:A:275:LYS:O	2.59	0.44
1:A:402:ASN:C	1:A:402:ASN:ND2	2.76	0.44
1:B:453:MET:HE2	1:B:456:ILE:HD12	2.00	0.44
1:B:460:GLU:O	1:B:461:THR:C	2.61	0.44
1:A:228:MET:HE2	1:A:233:ALA:CA	2.48	0.43
1:A:249:ILE:HD12	1:A:348:VAL:HG22	1.99	0.43
1:A:267:LEU:HG	1:A:284:ARG:CZ	2.48	0.43
1:A:277:ILE:HG23	1:A:278:SER:N	2.33	0.43
1:B:226:PHE:HZ	1:B:296:LEU:HD23	1.83	0.43
1:B:380:ASP:OD1	1:B:380:ASP:C	2.61	0.43
1:B:432:PHE:HB3	1:B:433:PRO:CD	2.47	0.43
1:B:237:LEU:N	1:B:237:LEU:HD22	2.33	0.43
1:B:261:GLY:C	1:B:262:LEU:HD12	2.44	0.43
1:B:320:TYR:CB	1:B:397:ARG:HD2	2.49	0.43
1:B:430:TYR:CG	1:B:431:LEU:N	2.87	0.43
1:A:429:GLN:HE21	1:A:429:GLN:CA	2.32	0.43
1:B:353:LEU:CD1	2:B:3[B]:EPA:H141	2.49	0.43
1:B:312:ASN:N	1:B:312:ASN:ND2	2.47	0.43
1:B:448:GLU:HG2	1:B:452:MET:HE3	1.99	0.43
1:A:255:LEU:O	1:A:259:GLU:HG2	2.18	0.43
1:A:271:LEU:HB2	1:A:272:PRO:HD3	2.00	0.43
1:A:429:GLN:HB2	1:A:430:TYR:H	1.59	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:237:LEU:CD2	1:B:237:LEU:H	2.32	0.42
1:B:430:TYR:CA	1:B:434:LYS:HB2	2.49	0.42
1:A:232:LYS:HG3	3:A:507:HOH:O	2.19	0.42
1:A:268:VAL:HG12	1:A:268:VAL:O	2.20	0.42
1:A:319:LYS:NZ	1:A:475:ASP:HB3	2.34	0.42
1:A:275:LYS:C	1:A:275:LYS:HD3	2.44	0.42
1:A:255:LEU:HD12	1:A:352:PHE:CZ	2.54	0.42
1:A:267:LEU:O	1:A:284:ARG:NH2	2.53	0.42
1:A:370:PHE:CD1	1:A:370:PHE:C	2.97	0.42
1:B:258:ALA:O	1:B:260:LYS:N	2.53	0.42
1:B:311:LEU:HA	1:B:311:LEU:HD23	1.71	0.42
1:B:363:ILE:HG12	1:B:363:ILE:O	2.19	0.42
1:A:393:LEU:HD13	1:A:409:ILE:CG2	2.48	0.42
1:B:236:ILE:H	1:B:236:ILE:CD1	2.32	0.42
1:A:265:LYS:HA	1:A:265:LYS:CE	2.50	0.42
1:B:208:VAL:HG12	1:B:209:ALA:N	2.35	0.42
1:B:271:LEU:CD1	1:B:277:ILE:HA	2.42	0.42
1:B:449:HIS:CE1	2:B:3[A]:EPA:H31	2.55	0.42
1:A:267:LEU:HD11	1:A:284:ARG:HA	2.02	0.42
1:B:432:PHE:O	1:B:436:LEU:HB2	2.20	0.42
1:A:279:VAL:HG22	1:A:360:PHE:CZ	2.55	0.41
1:A:476:MET:HG2	1:A:477:TYR:N	2.34	0.41
1:A:228:MET:CE	1:A:233:ALA:N	2.84	0.41
1:A:271:LEU:HA	1:A:275:LYS:O	2.20	0.41
1:A:310:PHE:HB3	1:A:312:ASN:OD1	2.19	0.41
1:A:358:LYS:N	1:A:359:PRO:HD2	2.35	0.41
1:A:386:LEU:HB2	1:A:417:LEU:HD23	2.01	0.41
1:A:448:GLU:HB3	3:A:482:HOH:O	2.20	0.41
1:B:207:GLN:N	1:B:211:LEU:HD22	2.35	0.41
1:A:226:PHE:CD2	1:A:329:MET:HE1	2.55	0.41
1:A:393:LEU:HD13	1:A:409:ILE:HG21	2.02	0.41
1:A:456:ILE:HG13	1:A:460:GLU:HB2	2.02	0.41
1:A:376:ALA:O	1:A:378:GLU:HG3	2.20	0.41
1:A:386:LEU:HB3	1:A:417:LEU:HD23	2.01	0.41
1:B:226:PHE:CD2	1:B:329:MET:HE1	2.55	0.41
1:B:269:ASN:ND2	1:B:270:GLY:N	2.68	0.41
1:A:363:ILE:HG22	1:A:452:MET:HB3	2.01	0.41
1:A:219:TYR:CE1	1:A:223:LEU:HD11	2.56	0.41
1:A:225:ASN:OD1	1:A:298:GLU:HB3	2.20	0.41
1:A:436:LEU:HA	1:A:436:LEU:HD23	1.85	0.41
1:B:288:THR:HG21	2:B:3[A]:EPA:H132	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:466:HIS:HA	1:B:467:PRO:HD3	1.96	0.41
1:A:243:HIS:HB3	1:B:207:GLN:HE22	1.86	0.41
1:B:219:TYR:CE2	1:B:382:SER:HA	2.55	0.41
1:B:453:MET:HA	1:B:453:MET:CE	2.35	0.41
1:B:460:GLU:C	1:B:462:GLU:N	2.79	0.41
1:A:243:HIS:CG	1:A:244:THR:H	2.39	0.41
1:A:247:PHE:HD2	1:A:262:LEU:HG	1.85	0.41
1:A:281:VAL:HG13	2:A:1[B]:EPA:H192	2.03	0.41
1:A:443:ARG:HB2	1:A:443:ARG:HH11	1.84	0.41
1:B:281:VAL:O	1:B:284:ARG:HB3	2.21	0.41
1:B:430:TYR:CD1	1:B:431:LEU:N	2.89	0.40
1:A:264:TRP:O	1:A:265:LYS:HE2	2.21	0.40
1:B:209:ALA:O	1:B:213:ALA:N	2.42	0.40
1:A:282:PHE:CE1	2:A:1[B]:EPA:H32	2.56	0.40
1:A:435:LEU:HD23	1:A:435:LEU:HA	1.80	0.40
1:B:214:PHE:HE1	1:B:413:ILE:HD13	1.86	0.40
1:A:243:HIS:HB3	1:B:207:GLN:OE1	2.22	0.40
1:B:293:VAL:HG22	1:B:322:VAL:CG2	2.52	0.40
1:B:430:TYR:HA	1:B:434:LYS:HD3	2.04	0.40
1:A:228:MET:HE3	1:A:232:LYS:HB3	2.03	0.40
1:A:457:LYS:HD2	1:A:470:GLN:HE22	1.86	0.40
1:B:384:LEU:HD12	1:B:384:LEU:HA	1.98	0.40
2:B:3[A]:EPA:H42	2:B:3[A]:EPA:H71	1.83	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	269/271 (99%)	233 (87%)	23 (9%)	13 (5%)	2	1
1	B	269/271 (99%)	227 (84%)	26 (10%)	16 (6%)	1	0

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
All	All	538/542 (99%)	460 (86%)	49 (9%)	29 (5%)	1 1

All (29) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	243	HIS
1	A	263	VAL
1	A	265	LYS
1	A	267	LEU
1	A	274	TYR
1	A	429	GLN
1	B	238	THR
1	B	263	VAL
1	B	304	PRO
1	B	360	PHE
1	B	361	SER
1	B	432	PHE
1	B	474	LYS
1	A	266	GLN
1	A	270	GLY
1	B	265	LYS
1	B	357	ARG
1	B	427	ASP
1	B	431	LEU
1	B	461	THR
1	B	259	GLU
1	A	271	LEU
1	A	241	ALA
1	A	245	ALA
1	A	426	PRO
1	B	208	VAL
1	B	268	VAL
1	B	249	ILE
1	A	359	PRO

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	238/239 (100%)	216 (91%)	22 (9%)	8	14
1	B	233/239 (98%)	218 (94%)	15 (6%)	16	28
All	All	471/478 (98%)	434 (92%)	37 (8%)	11	19

All (37) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	214	PHE
1	A	223	LEU
1	A	240	LYS
1	A	265	LYS
1	A	266	GLN
1	A	274	TYR
1	A	287	CYS
1	A	289	THR
1	A	298	GLU
1	A	334	VAL
1	A	336	LYS
1	A	356	LEU
1	A	365	GLU
1	A	391	ILE
1	A	403	VAL
1	A	429	GLN
1	A	445	LEU
1	A	447	THR
1	A	448	GLU
1	A	460	GLU
1	A	463	THR
1	A	469	LEU
1	B	234	ARG
1	B	265	LYS
1	B	266	GLN
1	B	291	GLU
1	B	312	ASN
1	B	334	VAL
1	B	362	ASP
1	B	365	GLU
1	B	391	ILE
1	B	412	THR
1	B	436	LEU
1	B	445	LEU

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Mol	Chain	Res	Type
1	B	447	THR
1	B	463	THR
1	B	469	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (25) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	220	ASN
1	A	227	ASN
1	A	243	HIS
1	A	257	GLN
1	A	266	GLN
1	A	314	GLN
1	A	335	ASN
1	A	343	ASN
1	A	402	ASN
1	A	420	HIS
1	A	424	ASN
1	A	429	GLN
1	A	444	GLN
1	A	470	GLN
1	B	227	ASN
1	B	266	GLN
1	B	269	ASN
1	B	312	ASN
1	B	314	GLN
1	B	422	GLN
1	B	425	HIS
1	B	429	GLN
1	B	444	GLN
1	B	451	GLN
1	B	470	GLN

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 [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

4 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	EPA	B	3[B]	-	21,21,21	0.80	1 (4%)	21,21,21	0.98	0
2	EPA	A	1[B]	-	21,21,21	0.72	0	21,21,21	1.14	1 (4%)
2	EPA	A	1[A]	-	21,21,21	0.81	0	21,21,21	1.09	1 (4%)
2	EPA	B	3[A]	-	21,21,21	0.57	0	21,21,21	1.44	2 (9%)

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	EPA	B	3[B]	-	-	6/19/19/19	-
2	EPA	A	1[B]	-	-	6/19/19/19	-
2	EPA	A	1[A]	-	-	1/19/19/19	-
2	EPA	B	3[A]	-	-	5/19/19/19	-

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	3[B]	EPA	C2-C1	2.32	1.55	1.50

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	3[A]	EPA	C2-C3-C4	-5.39	101.58	113.35

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	1[A]	EPA	C2-C3-C4	-3.82	105.02	113.35
2	A	1[B]	EPA	C3-C2-C1	-2.71	107.44	114.51
2	B	3[A]	EPA	C20-C19-C18	-2.10	103.02	112.96

There are no chirality outliers.

All (18) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	B	3[A]	EPA	C6-C7-C8-C9
2	B	3[B]	EPA	C11-C12-C13-C14
2	B	3[B]	EPA	C1-C2-C3-C4
2	A	1[B]	EPA	C1-C2-C3-C4
2	B	3[A]	EPA	C17-C18-C19-C20
2	B	3[B]	EPA	C17-C18-C19-C20
2	A	1[A]	EPA	C6-C7-C8-C9
2	A	1[B]	EPA	C5-C6-C7-C8
2	A	1[B]	EPA	C11-C12-C13-C14
2	A	1[B]	EPA	C12-C13-C14-C15
2	A	1[B]	EPA	C14-C15-C16-C17
2	B	3[A]	EPA	C12-C13-C14-C15
2	B	3[B]	EPA	C12-C13-C14-C15
2	B	3[A]	EPA	OA-C1-C2-C3
2	B	3[A]	EPA	OB-C1-C2-C3
2	B	3[B]	EPA	OA-C1-C2-C3
2	A	1[B]	EPA	C17-C18-C19-C20
2	B	3[B]	EPA	OB-C1-C2-C3

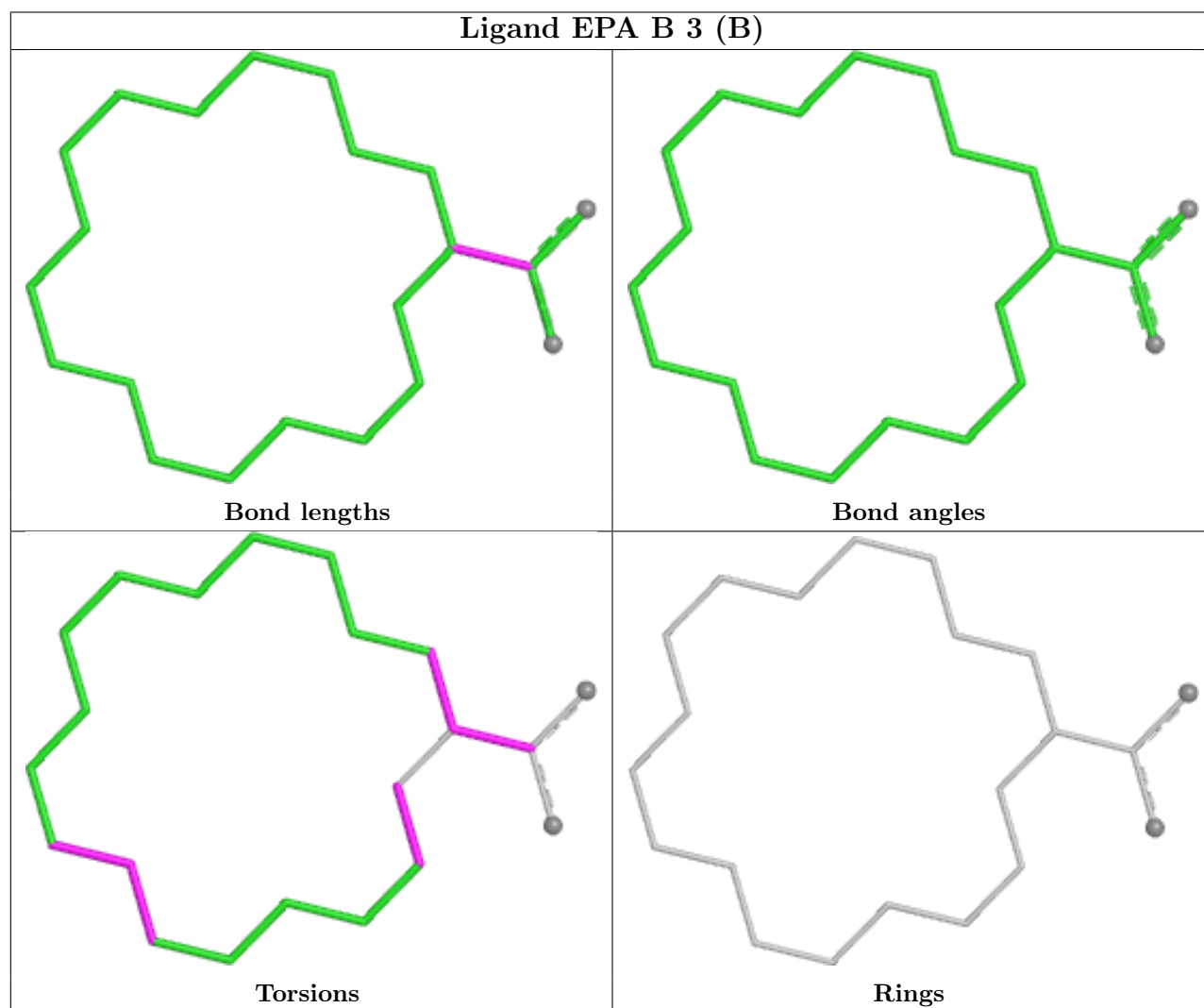
There are no ring outliers.

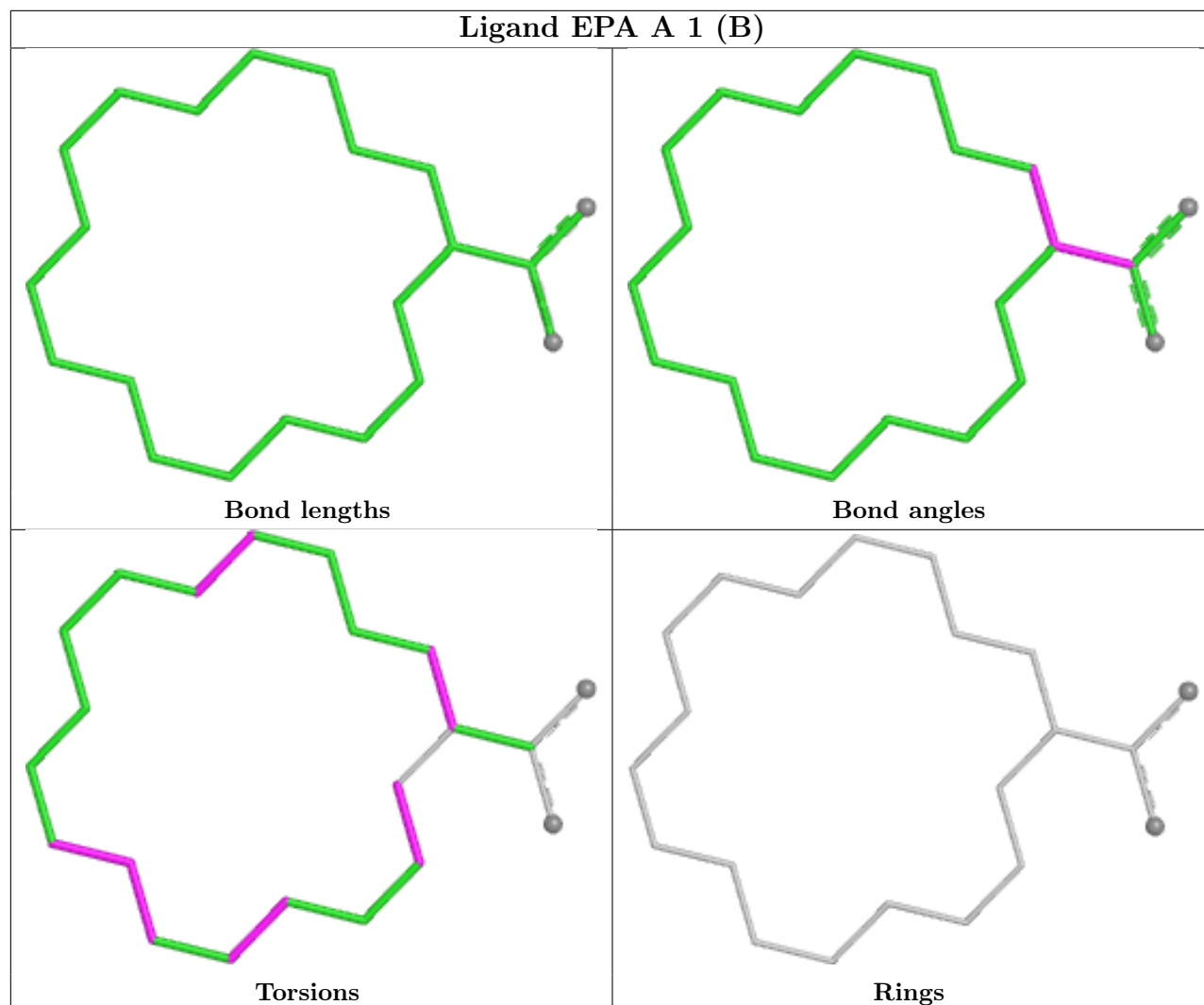
4 monomers are involved in 27 short contacts:

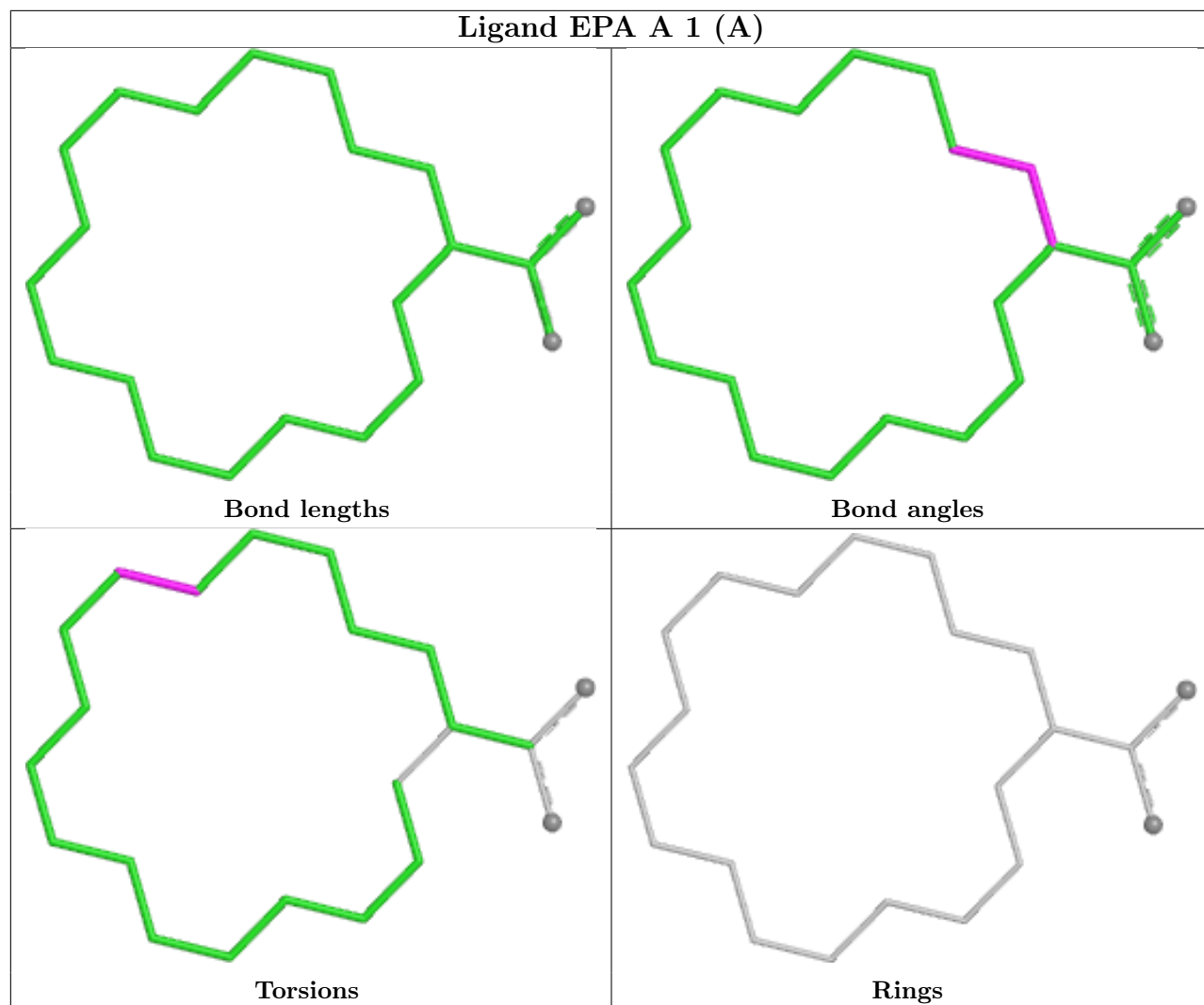
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	3[B]	EPA	6	0
2	A	1[B]	EPA	8	0
2	A	1[A]	EPA	5	0
2	B	3[A]	EPA	8	0

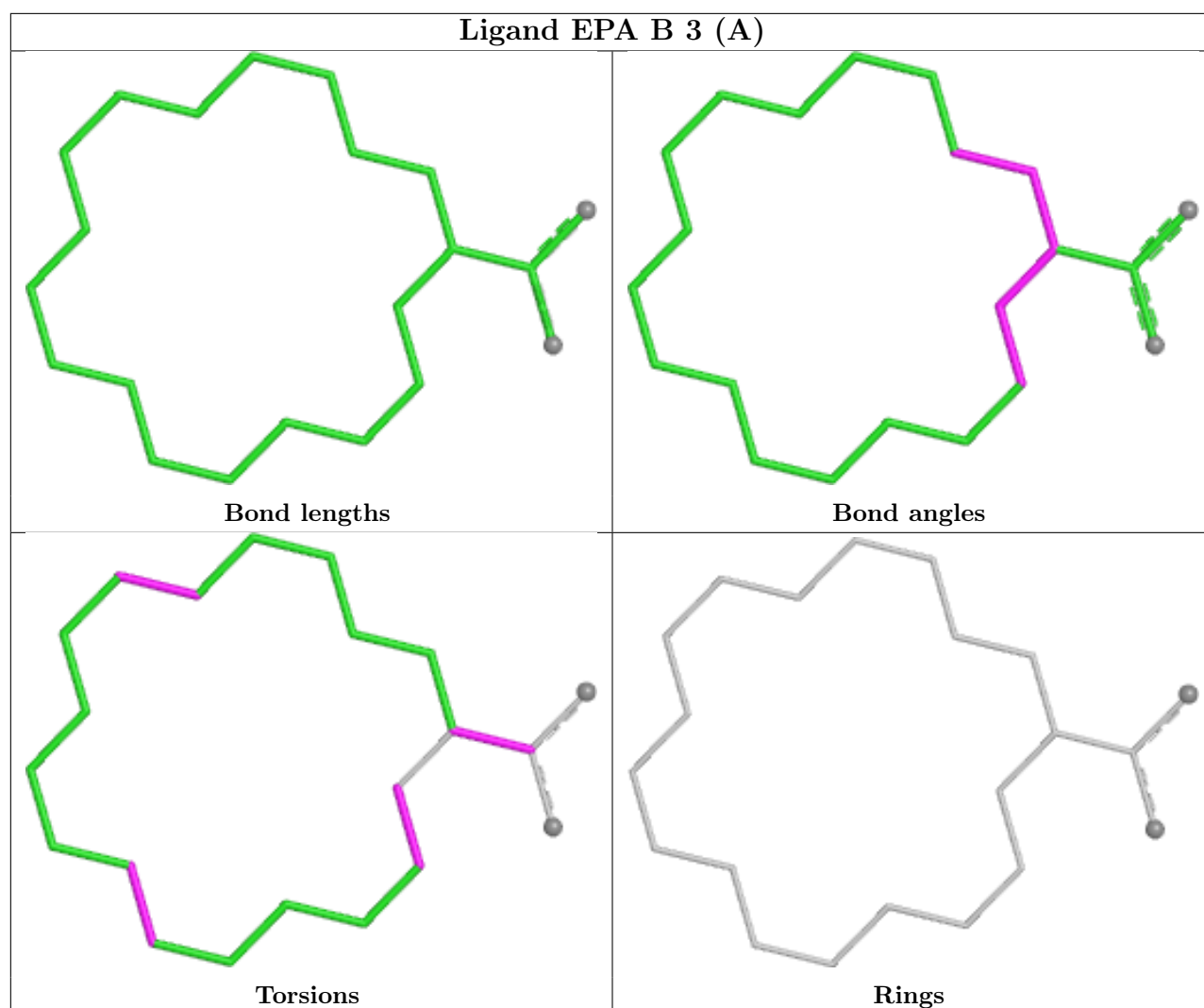
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. 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 [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	271/271 (100%)	-0.31	9 (3%)	49	45	29, 49, 97, 115	0
1	B	271/271 (100%)	-0.23	8 (2%)	52	48	32, 56, 105, 117	0
All	All	542/542 (100%)	-0.27	17 (3%)	51	47	29, 53, 101, 117	0

All (17) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	209	ALA	3.8
1	A	267	LEU	3.7
1	B	430	TYR	3.3
1	B	431	LEU	3.3
1	A	271	LEU	3.2
1	A	272	PRO	3.0
1	A	242	SER	2.9
1	B	274	TYR	2.8
1	A	270	GLY	2.7
1	A	266	GLN	2.7
1	A	247	PHE	2.6
1	A	244	THR	2.6
1	A	245	ALA	2.6
1	B	273	PRO	2.6
1	B	271	LEU	2.6
1	B	272	PRO	2.5
1	B	270	GLY	2.3

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](#)

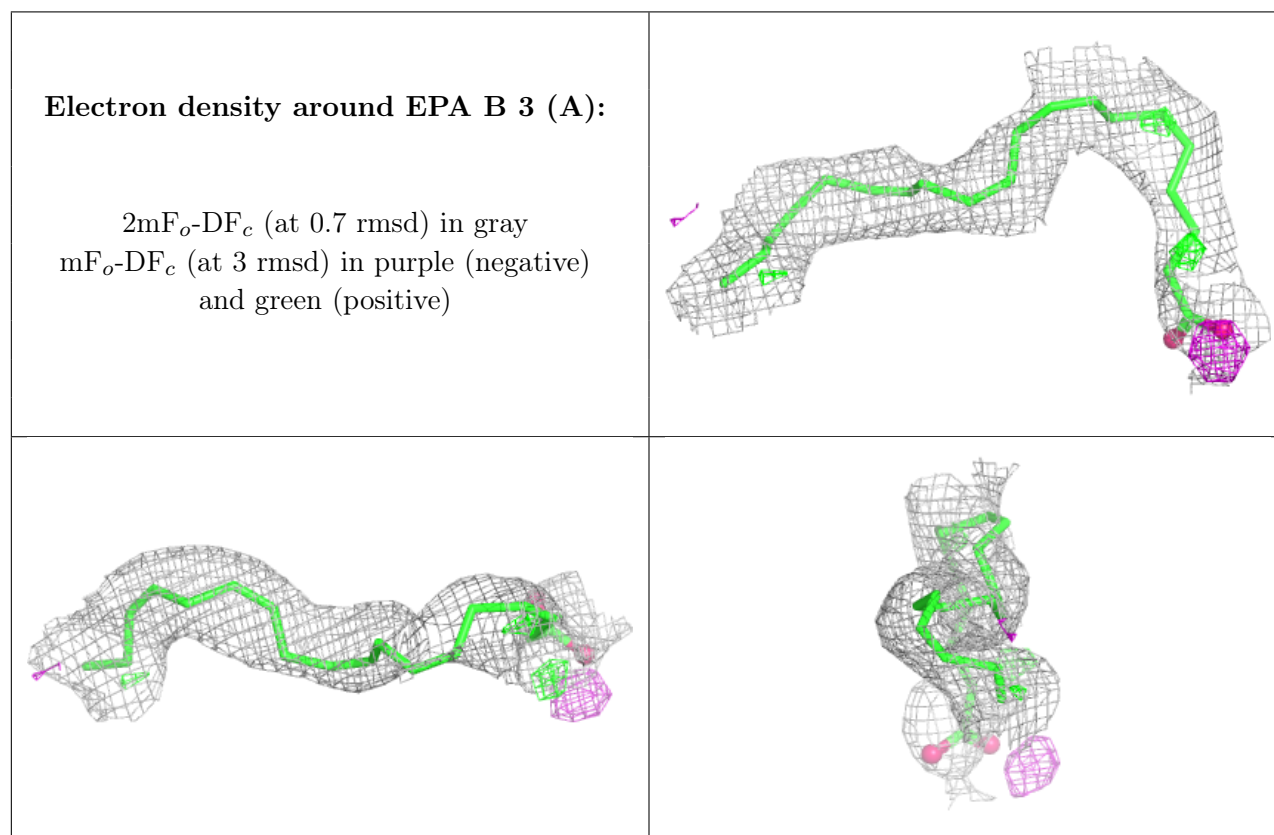
There are no oligosaccharides in this entry.

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.

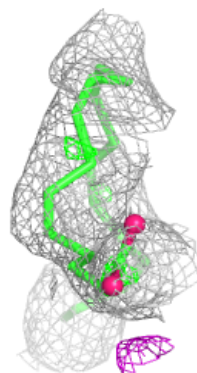
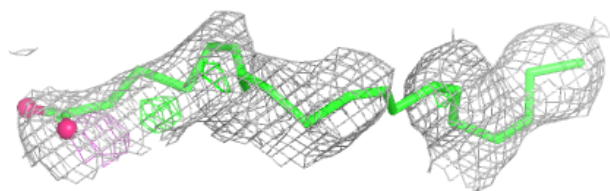
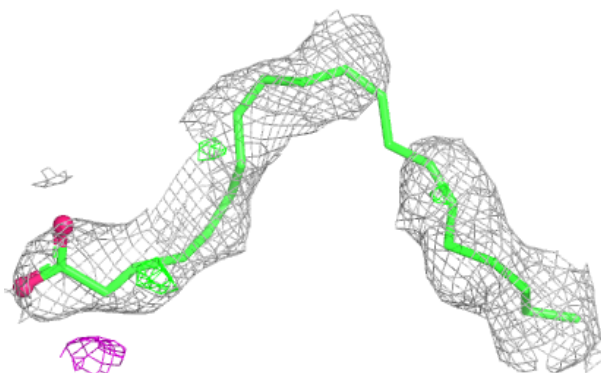
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
2	EPA	B	3[A]	22/22	0.84	0.12	59,65,87,91	22
2	EPA	B	3[B]	22/22	0.84	0.12	60,72,73,74	22
2	EPA	A	1[A]	22/22	0.87	0.11	53,60,68,70	22
2	EPA	A	1[B]	22/22	0.87	0.11	53,62,65,66	22

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.

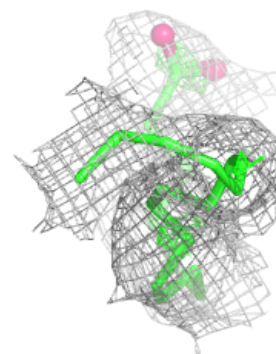
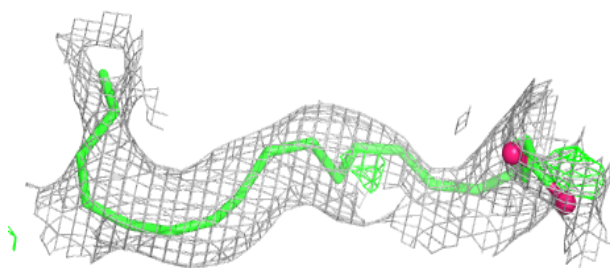
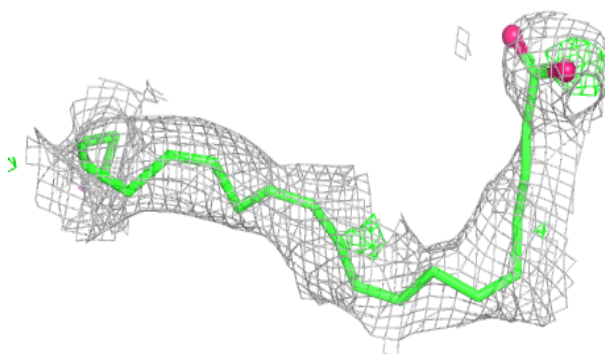


Electron density around EPA B 3 (B):

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

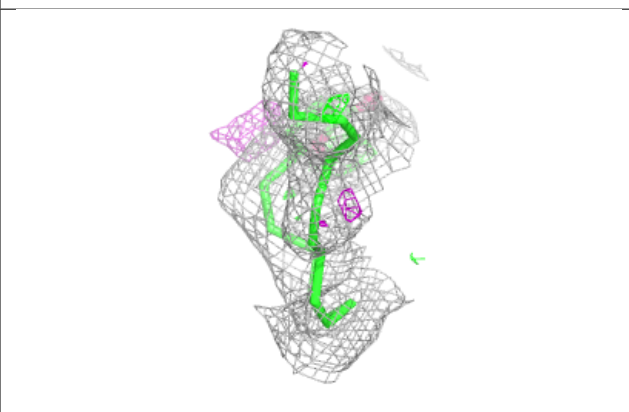
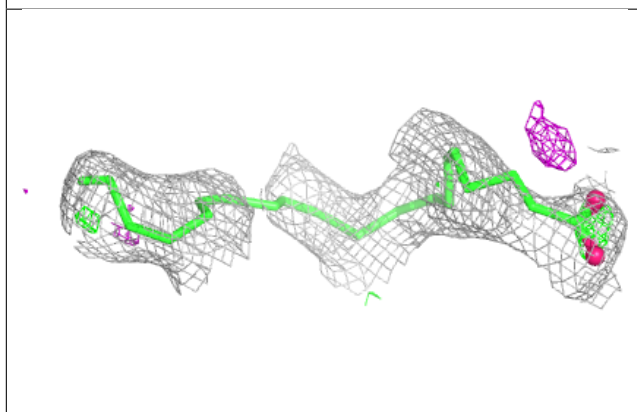
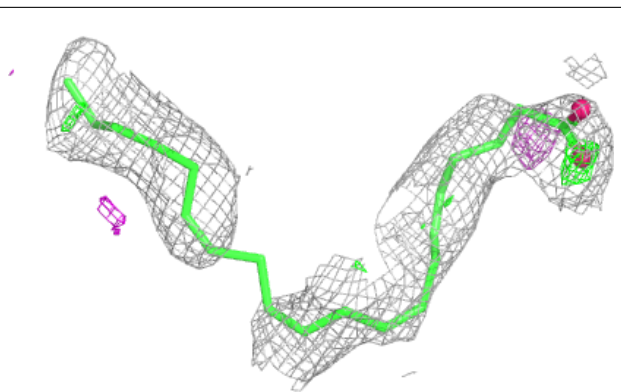
**Electron density around EPA A 1 (A):**

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



Electron density around EPA A 1 (B):

$2mF_o-DF_c$ (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.