



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 09:17 AM UTC

PDB ID : 3F9C / pdb_00003f9c
Title : Crystal structure of human plasma platelet activating factor acetylhydrolase covalently inhibited by diisopropylfluorophosphate
Authors : Samanta, U.; Bahnson, B.J.
Deposited on : 2008-11-13
Resolution : 2.30 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	:	4-5-2 with Phenix2.0
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0
EDS	:	3.0
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

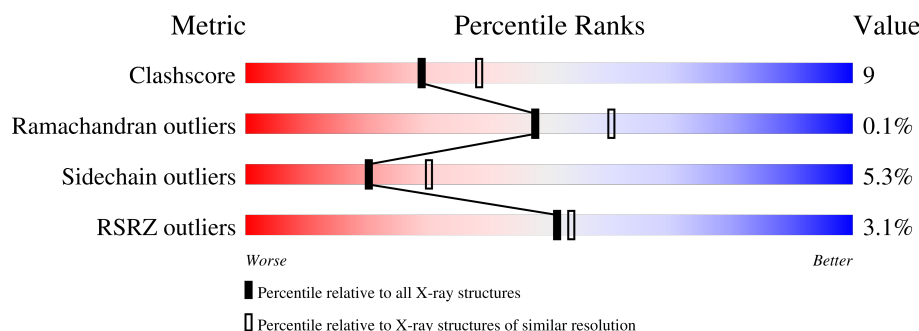
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.30 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))
Clashscore	190562	6919 (2.30-2.30)
Ramachandran outliers	187476	6854 (2.30-2.30)
Sidechain outliers	187428	6854 (2.30-2.30)
RSRZ outliers	180081	6325 (2.30-2.30)

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	383	 2% 83% 14% . .
1	B	383	 4% 70% 23% . . .

2 Entry composition [i](#)

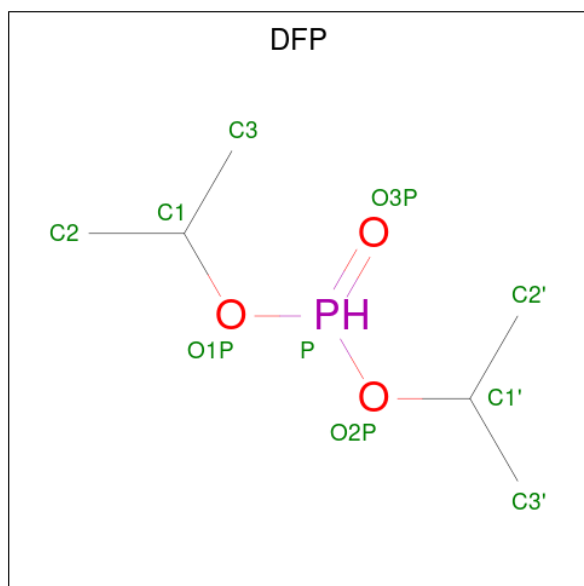
There are 3 unique types of molecules in this entry. The entry contains 6168 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Platelet-activating factor acetylhydrolase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	372	Total	C	N	O	S	0	0	0
			2985	1909	513	550	13			
1	B	373	Total	C	N	O	S	0	0	0
			2993	1913	515	552	13			

- Molecule 2 is DIISOPROPYL PHOSPHONATE (CCD ID: DFP) (formula: $C_6H_{15}O_3P$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	C	O	P	0	0
			10	6	3	1		
2	B	1	Total	C	O	P	0	0
			10	6	3	1		

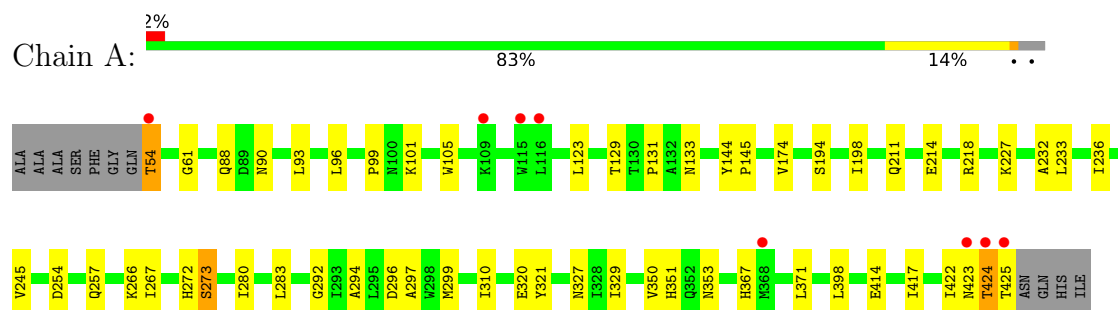
- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	96	Total 96	O 96	0	0
3	B	74	Total 74	O 74	0	0

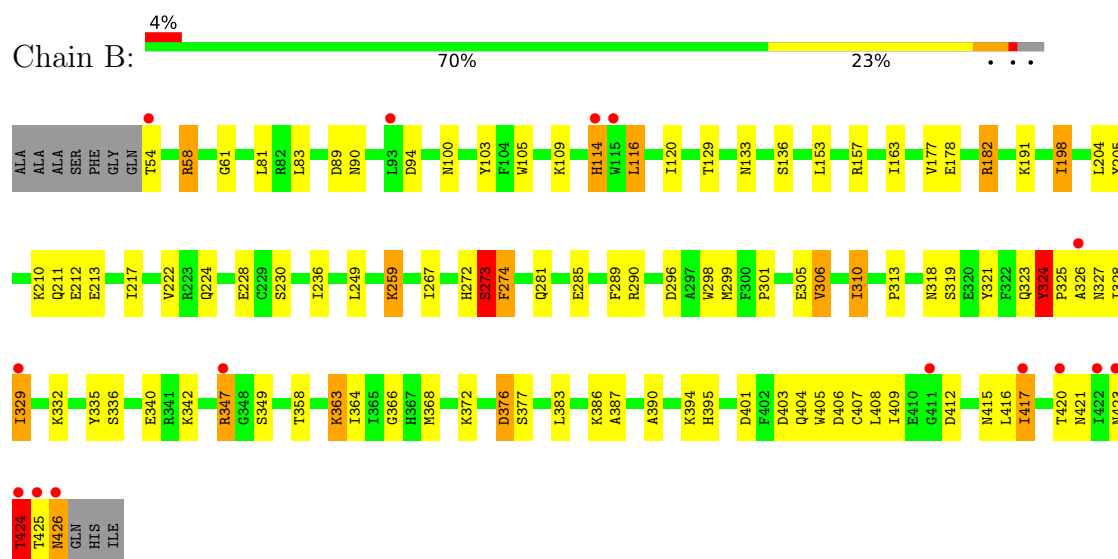
3 Residue-property plots

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: Platelet-activating factor acetylhydrolase



- Molecule 1: Platelet-activating factor acetylhydrolase



4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	116.38Å 82.40Å 96.51Å 90.00° 115.64° 90.00°	Depositor
Resolution (Å)	50.00 – 2.30 50.00 – 2.30	Depositor EDS
% Data completeness (in resolution range)	99.9 (50.00-2.30) 99.9 (50.00-2.30)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.66 (at 2.29Å)	Xtriage
Refinement program	REFMAC OF CCP4I FOR FINAL REFINEMENT	Depositor
R, R_{free}	0.196 , 0.261 0.200 , (Not available)	Depositor DCC
R_{free} test set	No test flags present.	wwPDB-VP
Wilson B-factor (Å ²)	36.0	Xtriage
Anisotropy	0.396	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 38.6	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	0.94	EDS
Total number of atoms	6168	wwPDB-VP
Average B, all atoms (Å ²)	34.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.05% 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: DFP

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	1.23	5/3059 (0.2%)	1.18	8/4136 (0.2%)
1	B	1.24	7/3067 (0.2%)	1.22	17/4147 (0.4%)
All	All	1.23	12/6126 (0.2%)	1.20	25/8283 (0.3%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	B	0	1

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	272	HIS	C-N	21.76	1.64	1.33
1	B	273	SER	C-N	21.70	1.64	1.34
1	A	272	HIS	C-N	20.51	1.62	1.33
1	A	273	SER	C-N	20.50	1.62	1.33
1	B	417	ILE	CA-C	7.57	1.58	1.52
1	A	198	ILE	CA-CB	7.30	1.63	1.54
1	A	174	VAL	CA-CB	6.00	1.61	1.54
1	B	306	VAL	CA-CB	5.97	1.62	1.54
1	B	177	VAL	CA-CB	5.73	1.61	1.54
1	A	417	ILE	CA-C	5.63	1.57	1.52
1	B	198	ILE	CA-CB	5.54	1.62	1.54
1	B	313	PRO	CA-C	5.04	1.58	1.52

All (25) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	273	SER	O-C-N	-20.54	95.27	122.59
1	B	273	SER	O-C-N	-15.22	102.34	122.59
1	B	274	PHE	N-CA-C	-8.83	101.58	111.82
1	A	61	GLY	CA-C-N	7.32	126.95	119.19
1	A	61	GLY	C-N-CA	7.32	126.95	119.19
1	B	377	SER	N-CA-C	7.29	118.91	110.97
1	B	61	GLY	CA-C-N	6.80	127.39	120.04
1	B	61	GLY	C-N-CA	6.80	127.39	120.04
1	B	273	SER	CA-C-N	6.62	130.37	120.31
1	B	273	SER	C-N-CA	6.62	130.37	120.31
1	A	423	ASN	N-CA-C	6.41	120.81	113.19
1	A	273	SER	CA-C-N	6.38	133.74	121.54
1	A	273	SER	C-N-CA	6.38	133.74	121.54
1	B	318	ASN	N-CA-C	5.93	119.62	110.42
1	B	310	ILE	CA-C-N	5.88	125.58	119.05
1	B	310	ILE	C-N-CA	5.88	125.58	119.05
1	B	321	TYR	N-CA-C	5.71	120.52	113.50
1	B	230	SER	N-CA-C	5.65	117.11	111.07
1	A	88	GLN	N-CA-C	-5.39	105.30	111.07
1	B	323	GLN	N-CA-C	5.23	118.02	110.28
1	A	371	LEU	N-CA-C	-5.16	107.16	113.50
1	B	324	TYR	CA-C-N	5.04	126.14	119.84
1	B	324	TYR	C-N-CA	5.04	126.14	119.84
1	B	249	LEU	CA-C-N	-5.02	115.71	123.14
1	B	249	LEU	C-N-CA	-5.02	115.71	123.14

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	424	THR	Peptide

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	2985	0	2937	30	0
1	B	2993	0	2943	68	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	A	10	0	14	3	0
2	B	10	0	14	5	0
3	A	96	0	0	1	0
3	B	74	0	0	4	0
All	All	6168	0	5908	104	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 9.

All (104) 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:B:347:ARG:HH11	1:B:347:ARG:HB3	1.04	1.13
1:B:182:ARG:CG	1:B:182:ARG:HH11	1.63	1.08
1:B:182:ARG:HH11	1:B:182:ARG:HG2	1.01	1.08
2:B:473:DFP:H2'1	2:B:473:DFP:C2	1.85	1.04
2:B:473:DFP:H21	2:B:473:DFP:C2'	1.86	1.03
2:A:473:DFP:H2'1	2:A:473:DFP:H21	1.40	1.02
2:B:473:DFP:H2'1	2:B:473:DFP:H21	0.98	0.97
1:B:347:ARG:HH11	1:B:347:ARG:CB	1.77	0.95
1:B:364:ILE:O	1:B:368:MET:HG3	1.67	0.95
1:B:347:ARG:HB3	1:B:347:ARG:NH1	1.82	0.93
1:B:299:MET:H	1:B:327:ASN:HD21	1.14	0.92
1:B:182:ARG:HG2	1:B:182:ARG:NH1	1.76	0.89
1:B:133:ASN:HB3	1:B:136:SER:HB2	1.55	0.86
1:A:299:MET:H	1:A:327:ASN:HD21	1.21	0.83
1:B:89:ASP:HB2	1:B:136:SER:OG	1.79	0.81
1:B:366:GLY:HA3	1:B:372:LYS:HD2	1.62	0.80
1:A:90:ASN:HD22	1:A:133:ASN:HD21	1.29	0.79
1:A:422:ILE:HG22	1:A:424:THR:HG22	1.69	0.73
1:B:407:CYS:HB2	1:B:412:ASP:HB3	1.71	0.73
1:A:280:ILE:HG23	1:A:310:ILE:CD1	2.21	0.71
1:B:401:ASP:O	1:B:404:GLN:HG2	1.90	0.71
1:B:182:ARG:NH1	1:B:205:TYR:O	2.20	0.68
1:B:406:ASP:HA	1:B:409:ILE:HD12	1.75	0.67
1:B:425:THR:HG23	1:B:426:ASN:CG	2.21	0.65
1:A:280:ILE:HG23	1:A:310:ILE:HD11	1.78	0.65
1:A:90:ASN:ND2	1:A:133:ASN:HD21	1.95	0.64
1:B:299:MET:H	1:B:327:ASN:ND2	1.92	0.64
1:A:367:HIS:HD2	3:A:443:HOH:O	1.82	0.63
1:B:213:GLU:O	1:B:217:ILE:HG12	2.00	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:281:GLN:O	1:B:285:GLU:HG3	2.01	0.61
1:B:376:ASP:C	1:B:376:ASP:OD2	2.44	0.61
1:B:100:ASN:HD22	1:B:103:TYR:HE2	1.49	0.60
2:A:473:DFP:H2'1	2:A:473:DFP:C2	2.26	0.60
1:B:328:ILE:HD12	1:B:420:THR:HG21	1.83	0.60
1:A:273:SER:HB2	1:A:351:HIS:CE1	2.38	0.59
2:A:473:DFP:H21	2:A:473:DFP:C2'	2.27	0.58
1:A:96:LEU:HD23	1:A:99:PRO:HA	1.85	0.58
1:B:210:LYS:O	1:B:213:GLU:HG2	2.05	0.57
1:B:408:LEU:HD22	1:B:416:LEU:HD11	1.85	0.57
1:B:153:LEU:O	2:B:473:DFP:H1'	2.04	0.57
1:A:266:LYS:HD3	1:A:398:LEU:HD23	1.86	0.57
1:A:232:ALA:O	1:A:236:ILE:HD12	2.05	0.57
1:B:267:ILE:HG22	1:B:289:PHE:CD1	2.39	0.57
1:A:233:LEU:HD11	1:A:267:ILE:HD13	1.86	0.57
1:A:280:ILE:HG23	1:A:310:ILE:HD13	1.87	0.56
1:B:425:THR:HG23	1:B:426:ASN:OD1	2.05	0.56
1:A:320:GLU:HG2	1:A:321:TYR:CD1	2.42	0.55
1:A:54:THR:HG21	1:A:129:THR:H	1.71	0.55
1:B:329:ILE:HD13	3:B:442:HOH:O	2.06	0.55
1:B:133:ASN:HB3	1:B:136:SER:CB	2.33	0.54
1:B:340:GLU:HG2	1:B:395:HIS:CE1	2.43	0.54
1:B:273:SER:HA	1:B:296:ASP:O	2.08	0.54
1:B:405:TRP:HB3	1:B:408:LEU:HD12	1.91	0.52
1:A:280:ILE:HD13	1:A:299:MET:HE1	1.91	0.52
1:B:116:LEU:O	1:B:120:ILE:HG13	2.10	0.52
1:B:182:ARG:CG	1:B:182:ARG:NH1	2.41	0.51
1:B:383:LEU:HD11	1:B:415:ASN:HB2	1.92	0.51
1:B:157:ARG:HB3	1:B:178:GLU:HB2	1.91	0.51
1:A:280:ILE:CG2	1:A:310:ILE:HD11	2.41	0.51
1:B:425:THR:HG22	1:B:426:ASN:O	2.11	0.50
1:B:403:ASP:HB2	1:B:406:ASP:OD2	2.11	0.50
1:B:386:LYS:O	1:B:387:ALA:C	2.55	0.50
1:A:320:GLU:HG2	1:A:321:TYR:CE1	2.47	0.49
1:A:211:GLN:HA	1:A:211:GLN:OE1	2.13	0.49
1:B:105:TRP:O	1:B:109:LYS:HG3	2.13	0.49
1:B:319:SER:HA	1:B:349:SER:OG	2.13	0.49
1:B:54:THR:HG21	1:B:129:THR:H	1.78	0.49
1:B:390:ALA:CB	1:B:409:ILE:HD11	2.43	0.48
1:B:363:LYS:HB3	1:B:363:LYS:HE2	1.58	0.47
1:B:324:TYR:HB2	1:B:325:PRO:HD2	1.97	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:342:LYS:HG3	1:B:409:ILE:CG2	2.45	0.47
1:A:266:LYS:HD3	1:A:398:LEU:CD2	2.46	0.46
1:B:224:GLN:O	1:B:228:GLU:HG3	2.15	0.46
1:B:81:LEU:C	1:B:81:LEU:HD12	2.41	0.45
1:B:329:ILE:HD12	1:B:329:ILE:HA	1.82	0.45
1:B:423:ASN:O	1:B:425:THR:OG1	2.29	0.45
1:B:332:LYS:O	1:B:335:TYR:HB2	2.17	0.45
1:B:390:ALA:HB1	1:B:409:ILE:HD11	1.98	0.45
1:A:283:LEU:HD11	1:A:292:GLY:HA3	2.00	0.44
1:B:298:TRP:O	1:B:301:PRO:HD2	2.17	0.44
1:B:347:ARG:HG3	1:B:417:ILE:HD11	2.00	0.44
1:B:114:HIS:ND1	1:B:116:LEU:HB3	2.32	0.44
1:B:305:GLU:HG2	1:B:306:VAL:N	2.33	0.43
1:B:408:LEU:CD2	1:B:416:LEU:HD11	2.47	0.43
1:A:101:LYS:HE2	1:A:105:TRP:CH2	2.53	0.43
1:B:324:TYR:HB2	1:B:325:PRO:CD	2.48	0.42
1:A:214:GLU:O	1:A:218:ARG:HG2	2.20	0.42
1:B:90:ASN:N	3:B:480:HOH:O	2.51	0.42
1:B:58:ARG:H	1:B:58:ARG:NE	2.17	0.42
1:A:254:ASP:O	1:A:257:GLN:HG3	2.20	0.42
1:B:163:ILE:HG13	3:B:433:HOH:O	2.20	0.42
1:A:144:TYR:HA	1:A:145:PRO:HD2	1.82	0.41
1:B:326:ALA:O	1:B:329:ILE:HG22	2.20	0.41
1:B:259:LYS:HB2	1:B:259:LYS:HE2	1.73	0.41
1:A:294:ALA:HB1	1:A:297:ALA:HB2	2.03	0.41
1:B:274:PHE:HB2	2:B:473:DFP:O3P	2.20	0.41
1:A:93:LEU:HB3	1:A:131:PRO:HA	2.03	0.41
1:B:383:LEU:HD22	1:B:416:LEU:HD21	2.03	0.41
1:B:182:ARG:HH11	1:B:182:ARG:CB	2.32	0.41
1:A:329:ILE:HA	1:A:329:ILE:HD12	1.88	0.40
1:B:424:THR:O	3:B:442:HOH:O	2.22	0.40
1:A:350:VAL:O	1:A:353:ASN:HB2	2.21	0.40
1:B:94:ASP:OD1	1:B:94:ASP:N	2.52	0.40
1:A:273:SER:HA	1:A:296:ASP:O	2.21	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	370/383 (97%)	352 (95%)	18 (5%)	0	100	100
1	B	371/383 (97%)	355 (96%)	15 (4%)	1 (0%)	36	46
All	All	741/766 (97%)	707 (95%)	33 (4%)	1 (0%)	48	60

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	273	SER

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	322/329 (98%)	314 (98%)	8 (2%)	42	60
1	B	323/329 (98%)	297 (92%)	26 (8%)	11	15
All	All	645/658 (98%)	611 (95%)	34 (5%)	20	30

All (34) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	54	THR
1	A	123	LEU
1	A	194	SER
1	A	227	LYS
1	A	245	VAL

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Mol	Chain	Res	Type
1	A	414	GLU
1	A	424	THR
1	A	425	THR
1	B	58	ARG
1	B	83	LEU
1	B	114	HIS
1	B	116	LEU
1	B	182	ARG
1	B	191	LYS
1	B	198	ILE
1	B	204	LEU
1	B	211	GLN
1	B	212	GLU
1	B	222	VAL
1	B	236	ILE
1	B	259	LYS
1	B	290	ARG
1	B	310	ILE
1	B	324	TYR
1	B	329	ILE
1	B	336	SER
1	B	347	ARG
1	B	358	THR
1	B	363	LYS
1	B	376	ASP
1	B	394	LYS
1	B	421	ASN
1	B	424	THR
1	B	426	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (12) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	90	ASN
1	A	100	ASN
1	A	135	ASN
1	A	216	HIS
1	A	231	GLN
1	A	327	ASN
1	B	60	ASN
1	B	90	ASN
1	B	100	ASN

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Mol	Chain	Res	Type
1	B	135	ASN
1	B	287	GLN
1	B	327	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 oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

2 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	DFP	B	473	1	6,9,9	0.77	0	6,11,11	0.89	0
2	DFP	A	473	1	6,9,9	0.81	0	6,11,11	0.69	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	DFP	B	473	1	-	0/4/8/8	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	DFP	A	473	1	-	0/4/8/8	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

2 monomers are involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	473	DFP	5	0
2	A	473	DFP	3	0

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	B	2
1	A	2

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	B	272:HIS	C	273:SER	N	1.64
1	B	273:SER	C	274:PHE	N	1.63
1	A	272:HIS	C	273:SER	N	1.62
1	A	273:SER	C	274:PHE	N	1.62

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	372/383 (97%)	-0.13	8 (2%) 62 64	17, 30, 49, 64	0
1	B	373/383 (97%)	0.18	15 (4%) 42 44	17, 35, 55, 70	0
All	All	745/766 (97%)	0.02	23 (3%) 51 53	17, 32, 53, 70	0

All (23) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	54	THR	5.0
1	A	425	THR	4.6
1	B	424	THR	4.1
1	B	422	ILE	3.8
1	A	424	THR	3.7
1	B	417	ILE	3.6
1	B	115	TRP	3.4
1	B	425	THR	3.3
1	B	329	ILE	3.2
1	B	326	ALA	3.1
1	A	115	TRP	3.0
1	B	426	ASN	3.0
1	B	423	ASN	2.6
1	B	93	LEU	2.5
1	B	420	THR	2.3
1	A	109	LYS	2.3
1	B	411	GLY	2.2
1	B	114	HIS	2.2
1	B	347	ARG	2.1
1	A	54	THR	2.1
1	A	368	MET	2.1
1	A	116	LEU	2.1
1	A	423	ASN	2.1

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	DFP	B	473	10/10	0.27	0.32	45,52,56,56	0
2	DFP	A	473	10/10	0.53	0.28	49,54,57,57	0

6.5 Other polymers [i](#)

There are no such residues in this entry.