



wwPDB X-ray Structure Validation Summary Report ⓘ

Mar 13, 2026 – 10:05 AM UTC

PDB ID : 1KNO / pdb_00001kno
Title : CRYSTAL STRUCTURE OF THE COMPLEX OF A CATALYTIC ANTIBODY FAB WITH A TRANSITION STATE ANALOG: STRUCTURAL SIMILARITIES IN ESTERASE-LIKE ABZYMES
Authors : Charbonnier, J.-B.; Gigant, B.; Knossow, M.
Deposited on : 1995-09-11
Resolution : 3.20 Å(reported)

This is a wwPDB X-ray Structure Validation Summary 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)	:	NOT EXECUTED
EDS	:	NOT EXECUTED
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

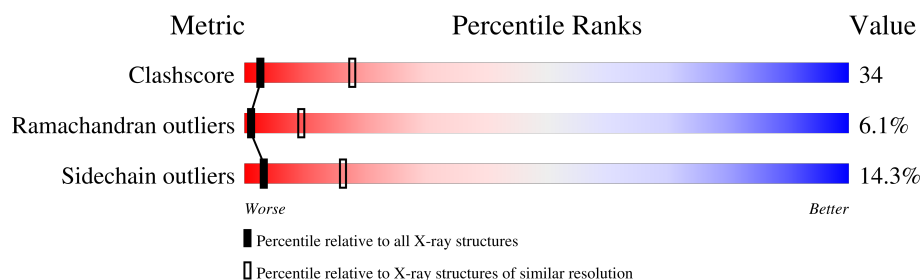
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.20 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	1573 (3.20-3.20)
Ramachandran outliers	187476	1548 (3.20-3.20)
Sidechain outliers	187428	1547 (3.20-3.20)

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 $\leq 5\%$.

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	214	43% 43% 15%
1	C	214	39% 48% 13%
1	E	214	47% 43% 10%
2	B	220	36% 50% 12% .
2	D	220	35% 54% 10% .
2	F	220	38% 50% 10% .

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 9949 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 IGG2A FAB FRAGMENT CNJ206.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	214	Total	C	N	O	S	0	0	0
			1655	1026	277	345	7			
1	C	214	Total	C	N	O	S	0	0	0
			1655	1026	277	345	7			
1	E	214	Total	C	N	O	S	0	0	0
			1655	1026	277	345	7			

There are 57 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	28	GLU	ASP	conflict	GB 12002892
A	30	SER	GLY	conflict	GB 12002892
A	31	GLY	VAL	conflict	GB 12002892
A	32	TYR	SER	conflict	GB 12002892
A	34	SER	ASN	conflict	GB 12002892
A	39	LYS	GLU	conflict	GB 12002892
A	50	ALA	GLY	conflict	GB 12002892
A	51	ALA	THR	conflict	GB 12002892
A	53	THR	ARG	conflict	GB 12002892
A	84	ALA	VAL	conflict	GB 12002892
A	96	TYR	PRO	conflict	GB 12002892
A	99	GLY	-	insertion	GB 12002892
A	102	THR	SER	conflict	GB 12002892
A	103	LYS	ALA	conflict	GB 12002892
A	104	LEU	PRO	conflict	GB 12002892
A	105	GLU	SER	conflict	GB 12002892
A	106	ILE	CYS	conflict	GB 12002892
A	107	LEU	LYS	conflict	GB 12002892
A	?	-	VAL	deletion	GB 12002892
C	28	GLU	ASP	conflict	GB 12002892
C	30	SER	GLY	conflict	GB 12002892
C	31	GLY	VAL	conflict	GB 12002892
C	32	TYR	SER	conflict	GB 12002892

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Chain	Residue	Modelled	Actual	Comment	Reference
C	34	SER	ASN	conflict	GB 12002892
C	39	LYS	GLU	conflict	GB 12002892
C	50	ALA	GLY	conflict	GB 12002892
C	51	ALA	THR	conflict	GB 12002892
C	53	THR	ARG	conflict	GB 12002892
C	84	ALA	VAL	conflict	GB 12002892
C	96	TYR	PRO	conflict	GB 12002892
C	99	GLY	-	insertion	GB 12002892
C	102	THR	SER	conflict	GB 12002892
C	103	LYS	ALA	conflict	GB 12002892
C	104	LEU	PRO	conflict	GB 12002892
C	105	GLU	SER	conflict	GB 12002892
C	106	ILE	CYS	conflict	GB 12002892
C	107	LEU	LYS	conflict	GB 12002892
C	?	-	VAL	deletion	GB 12002892
E	28	GLU	ASP	conflict	GB 12002892
E	30	SER	GLY	conflict	GB 12002892
E	31	GLY	VAL	conflict	GB 12002892
E	32	TYR	SER	conflict	GB 12002892
E	34	SER	ASN	conflict	GB 12002892
E	39	LYS	GLU	conflict	GB 12002892
E	50	ALA	GLY	conflict	GB 12002892
E	51	ALA	THR	conflict	GB 12002892
E	53	THR	ARG	conflict	GB 12002892
E	84	ALA	VAL	conflict	GB 12002892
E	96	TYR	PRO	conflict	GB 12002892
E	99	GLY	-	insertion	GB 12002892
E	102	THR	SER	conflict	GB 12002892
E	103	LYS	ALA	conflict	GB 12002892
E	104	LEU	PRO	conflict	GB 12002892
E	105	GLU	SER	conflict	GB 12002892
E	106	ILE	CYS	conflict	GB 12002892
E	107	LEU	LYS	conflict	GB 12002892
E	?	-	VAL	deletion	GB 12002892

- Molecule 2 is a protein called IGG2A FAB FRAGMENT CNJ206.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	220	Total	C	N	O	S	0	0	0
			1647	1039	275	325	8			
2	D	220	Total	C	N	O	S	0	0	0
			1647	1039	275	325	8			

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	F	220	Total	C	N	O	S	0	0	0
			1647	1039	275	325	8			

There are 84 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	13	GLN	LYS	conflict	GB 4091056
B	18	ARG	LEU	conflict	GB 4091056
B	30	SER	ARG	conflict	GB 4091056
B	32	PHE	HIS	conflict	GB 4091056
B	33	GLY	ALA	conflict	GB 4091056
B	35	HIS	SER	conflict	GB 4091056
B	40	ALA	SER	conflict	GB 4091056
B	44	GLY	ARG	conflict	GB 4091056
B	50	TYR	GLU	conflict	GB 4091056
B	?	-	ASN	deletion	GB 4091056
B	52	SER	THR	conflict	GB 4091056
B	55	SER	THR	conflict	GB 4091056
B	56	SER	TYR	conflict	GB 4091056
B	58	ILE	-	insertion	GB 4091056
B	59	TYR	PHE	conflict	GB 4091056
B	61	ALA	SER	conflict	GB 4091056
B	65	LYS	THR	conflict	GB 4091056
B	75	PRO	ALA	conflict	GB 4091056
B	80	PHE	TYR	conflict	GB 4091056
B	82	GLN	GLU	conflict	GB 4091056
B	84	THR	SER	conflict	GB 4091056
B	99	GLY	-	insertion	GB 4091056
B	101	TYR	GLY	conflict	GB 4091056
B	102	TYR	SER	conflict	GB 4091056
B	103	GLY	SER	conflict	GB 4091056
B	105	ARG	SER	conflict	GB 4091056
B	106	GLY	PHE	conflict	GB 4091056
B	107	ALA	VAL	conflict	GB 4091056
D	13	GLN	LYS	conflict	GB 4091056
D	18	ARG	LEU	conflict	GB 4091056
D	30	SER	ARG	conflict	GB 4091056
D	32	PHE	HIS	conflict	GB 4091056
D	33	GLY	ALA	conflict	GB 4091056
D	35	HIS	SER	conflict	GB 4091056
D	40	ALA	SER	conflict	GB 4091056
D	44	GLY	ARG	conflict	GB 4091056

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Chain	Residue	Modelled	Actual	Comment	Reference
D	50	TYR	GLU	conflict	GB 4091056
D	?	-	ASN	deletion	GB 4091056
D	52	SER	THR	conflict	GB 4091056
D	55	SER	THR	conflict	GB 4091056
D	56	SER	TYR	conflict	GB 4091056
D	58	ILE	-	insertion	GB 4091056
D	59	TYR	PHE	conflict	GB 4091056
D	61	ALA	SER	conflict	GB 4091056
D	65	LYS	THR	conflict	GB 4091056
D	75	PRO	ALA	conflict	GB 4091056
D	80	PHE	TYR	conflict	GB 4091056
D	82	GLN	GLU	conflict	GB 4091056
D	84	THR	SER	conflict	GB 4091056
D	99	GLY	-	insertion	GB 4091056
D	101	TYR	GLY	conflict	GB 4091056
D	102	TYR	SER	conflict	GB 4091056
D	103	GLY	SER	conflict	GB 4091056
D	105	ARG	SER	conflict	GB 4091056
D	106	GLY	PHE	conflict	GB 4091056
D	107	ALA	VAL	conflict	GB 4091056
F	13	GLN	LYS	conflict	GB 4091056
F	18	ARG	LEU	conflict	GB 4091056
F	30	SER	ARG	conflict	GB 4091056
F	32	PHE	HIS	conflict	GB 4091056
F	33	GLY	ALA	conflict	GB 4091056
F	35	HIS	SER	conflict	GB 4091056
F	40	ALA	SER	conflict	GB 4091056
F	44	GLY	ARG	conflict	GB 4091056
F	50	TYR	GLU	conflict	GB 4091056
F	?	-	ASN	deletion	GB 4091056
F	52	SER	THR	conflict	GB 4091056
F	55	SER	THR	conflict	GB 4091056
F	56	SER	TYR	conflict	GB 4091056
F	58	ILE	-	insertion	GB 4091056
F	59	TYR	PHE	conflict	GB 4091056
F	61	ALA	SER	conflict	GB 4091056
F	65	LYS	THR	conflict	GB 4091056
F	75	PRO	ALA	conflict	GB 4091056
F	80	PHE	TYR	conflict	GB 4091056
F	82	GLN	GLU	conflict	GB 4091056
F	84	THR	SER	conflict	GB 4091056
F	99	GLY	-	insertion	GB 4091056

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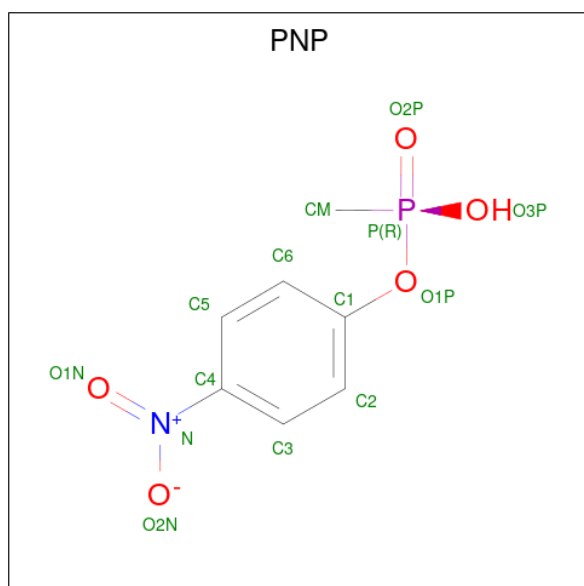
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Chain	Residue	Modelled	Actual	Comment	Reference
F	101	TYR	GLY	conflict	GB 4091056
F	102	TYR	SER	conflict	GB 4091056
F	103	GLY	SER	conflict	GB 4091056
F	105	ARG	SER	conflict	GB 4091056
F	106	GLY	PHE	conflict	GB 4091056
F	107	ALA	VAL	conflict	GB 4091056

- Molecule 3 is ZINC ION (CCD ID: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total Zn 1 1	0	0

- Molecule 4 is METHYL-PHOSPHONIC ACID MONO-(4-NITRO-PHENYL) ESTER (CCD ID: PNP) (formula: C₇H₈NO₅P).



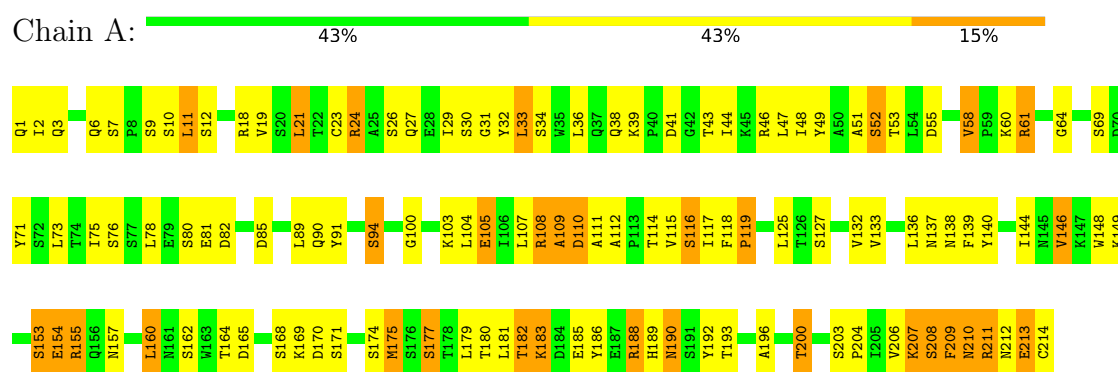
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	B	1	Total	C	N	O	P	0	0
			14	7	1	5	1		
4	D	1	Total	C	N	O	P	0	0
			14	7	1	5	1		
4	F	1	Total	C	N	O	P	0	0
			14	7	1	5	1		

3 Residue-property plots

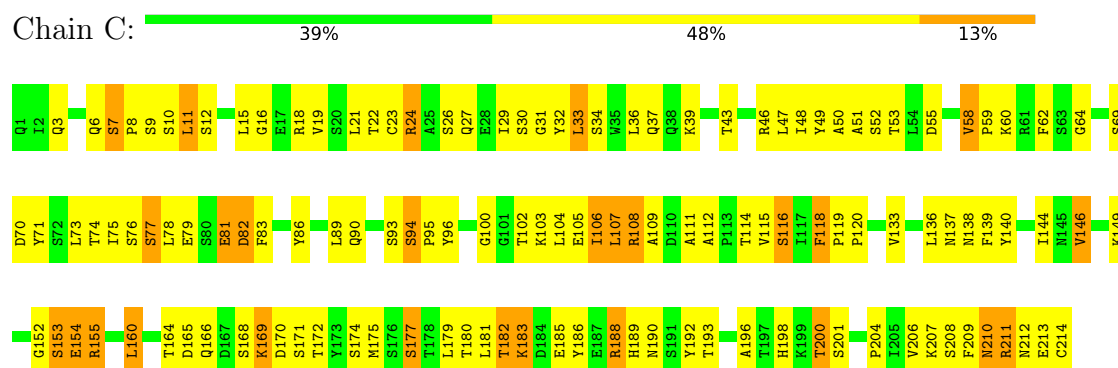
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded 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. 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.

Note EDS was not executed.

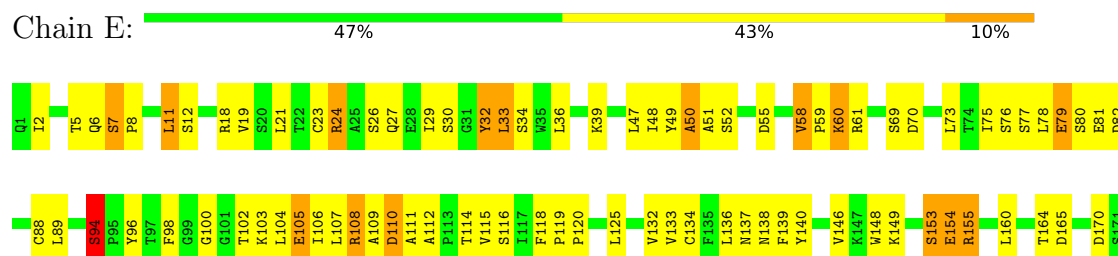
• Molecule 1: IGG2A FAB FRAGMENT CNJ206



• Molecule 1: IGG2A FAB FRAGMENT CNJ206



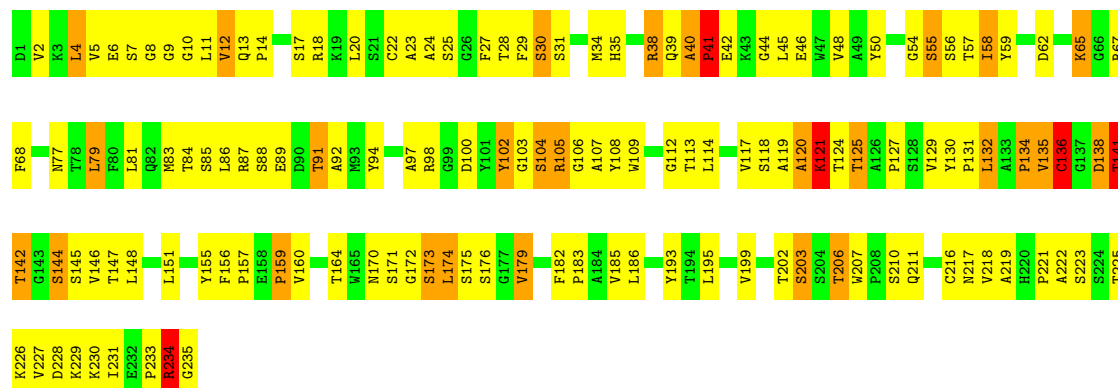
• Molecule 1: IGG2A FAB FRAGMENT CNJ206





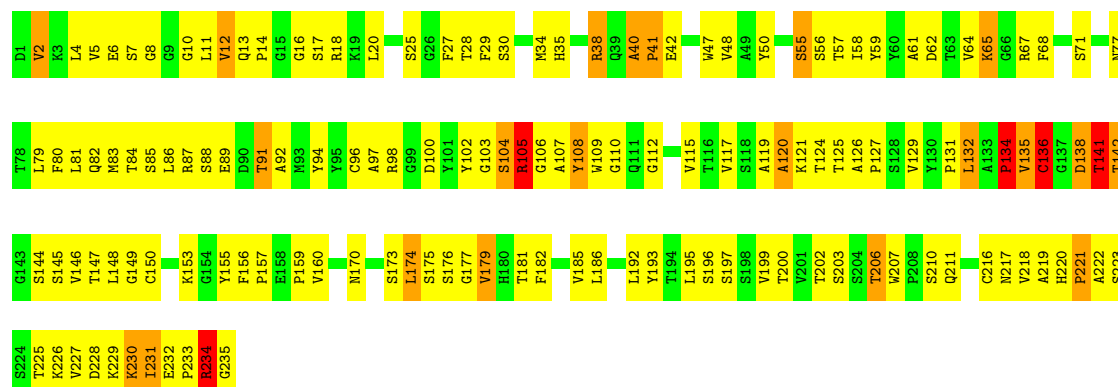
• Molecule 2: IGG2A FAB FRAGMENT CNJ206

Chain B: 36% 50% 12% .



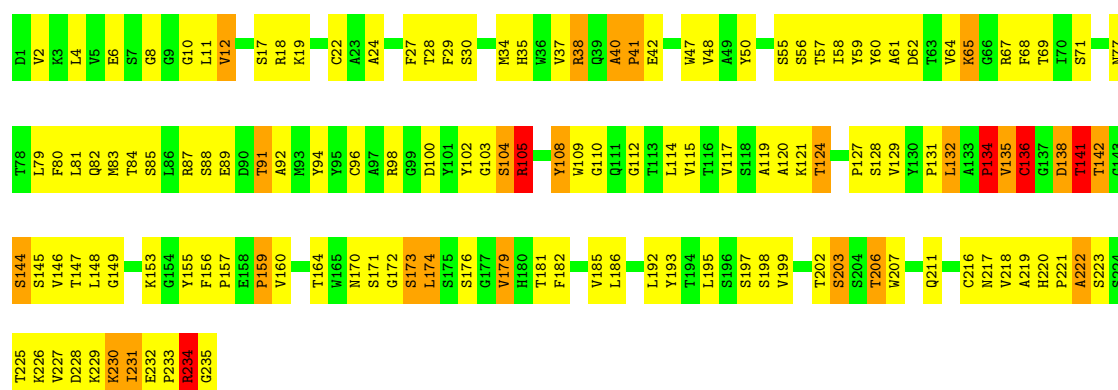
• Molecule 2: IGG2A FAB FRAGMENT CNJ206

Chain D: 35% 54% 10% .



• Molecule 2: IGG2A FAB FRAGMENT CNJ206

Chain F: 38% 50% 10% .



4 Data and refinement statistics

Xtriage (Phenix) and EDS were not executed - this section is therefore incomplete.

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	74.10 Å 76.90 Å 88.30 Å 93.80° 93.90° 115.60°	Depositor
Resolution (Å)	7.00 – 3.20	Depositor
% Data completeness (in resolution range)	96.0 (7.00-3.20)	Depositor
R_{merge}	0.11	Depositor
R_{sym}	(Not available)	Depositor
Refinement program	X-PLOR 3.1	Depositor
R, R_{free}	0.200 , 0.272	Depositor
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	9949	wwPDB-VP
Average B, all atoms (Å ²)	41.0	wwPDB-VP

5 Model quality

5.1 Standard geometry

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

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	0.85	0/1689	1.29	19/2288 (0.8%)
1	C	0.82	0/1689	1.25	16/2288 (0.7%)
1	E	0.83	1/1689 (0.1%)	1.26	18/2288 (0.8%)
2	B	0.85	1/1689 (0.1%)	1.16	9/2301 (0.4%)
2	D	0.77	0/1689	1.11	8/2301 (0.3%)
2	F	0.81	0/1689	1.12	9/2301 (0.4%)
All	All	0.82	2/10134 (0.0%)	1.20	79/13767 (0.6%)

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	E	110	ASP	C-N	6.04	1.42	1.33
2	B	58	ILE	CA-CB	-5.15	1.47	1.55

The worst 5 of 79 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	58	VAL	CA-C-N	9.19	129.27	119.90
1	A	58	VAL	C-N-CA	9.19	129.27	119.90
1	E	137	ASN	N-CA-C	9.04	124.72	110.17
1	C	58	VAL	CA-C-N	8.52	128.59	119.90
1	C	58	VAL	C-N-CA	8.52	128.59	119.90

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	1655	0	1586	103	1
1	C	1655	0	1586	112	1
1	E	1655	0	1586	94	0
2	B	1647	0	1605	135	0
2	D	1647	0	1605	147	0
2	F	1647	0	1605	112	0
3	A	1	0	0	0	0
4	B	14	0	7	2	0
4	D	14	0	7	4	0
4	F	14	0	7	3	0
All	All	9949	0	9594	663	1

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 34.

The worst 5 of 663 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:C:108:ARG:HD3	1:C:171:SER:HB2	1.25	1.19
2:D:62:ASP:HA	2:D:65:LYS:HD3	1.38	1.03
2:F:127:PRO:HB3	2:F:155:TYR:HB3	1.44	1.00
2:B:127:PRO:HB3	2:B:155:TYR:HB3	1.44	0.99
1:A:108:ARG:HD2	1:A:171:SER:HB2	1.46	0.98

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1:GLN:N	1:C:185:GLU:OE2[1_544]	2.15	0.05

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	212/214 (99%)	182 (86%)	24 (11%)	6 (3%)	4	25
1	C	212/214 (99%)	176 (83%)	28 (13%)	8 (4%)	2	18
1	E	212/214 (99%)	183 (86%)	23 (11%)	6 (3%)	4	25
2	B	218/220 (99%)	175 (80%)	23 (11%)	20 (9%)	0	3
2	D	218/220 (99%)	175 (80%)	23 (11%)	20 (9%)	0	3
2	F	218/220 (99%)	175 (80%)	24 (11%)	19 (9%)	0	3
All	All	1290/1302 (99%)	1066 (83%)	145 (11%)	79 (6%)	1	9

5 of 79 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	B	41	PRO
2	B	57	THR
2	B	104	SER
2	B	120	ALA
2	B	121	LYS

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	190/190 (100%)	166 (87%)	24 (13%)	4	21
1	C	190/190 (100%)	166 (87%)	24 (13%)	4	21
1	E	190/190 (100%)	171 (90%)	19 (10%)	7	30

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	B	183/183 (100%)	152 (83%)	31 (17%)	2	11
2	D	183/183 (100%)	153 (84%)	30 (16%)	2	12
2	F	183/183 (100%)	151 (82%)	32 (18%)	2	10
All	All	1119/1119 (100%)	959 (86%)	160 (14%)	3	16

5 of 160 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	E	55	ASP
2	F	121	LYS
1	E	116	SER
2	F	22	CYS
2	F	174	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 23 such sidechains are listed below:

Mol	Chain	Res	Type
2	D	170	ASN
1	E	27	GLN
1	E	3	GLN
1	E	137	ASN
1	A	212	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

Of 4 ligands modelled in this entry, 1 is monoatomic - leaving 3 for Mogul analysis.

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
4	PNP	D	552	-	14,14,14	2.42	6 (42%)	15,20,20	1.76	1 (6%)
4	PNP	F	553	-	14,14,14	4.20	6 (42%)	15,20,20	1.71	1 (6%)
4	PNP	B	551	-	14,14,14	3.07	6 (42%)	15,20,20	1.63	1 (6%)

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
4	PNP	D	552	-	-	0/6/9/9	0/1/1/1
4	PNP	F	553	-	-	0/6/9/9	0/1/1/1
4	PNP	B	551	-	-	0/6/9/9	0/1/1/1

The worst 5 of 18 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	F	553	PNP	P-O2P	-13.47	1.28	1.50
4	B	551	PNP	P-O2P	-8.34	1.36	1.50
4	D	552	PNP	P-O2P	-6.05	1.40	1.50
4	F	553	PNP	O2N-N	-3.89	1.09	1.35
4	F	553	PNP	C3-C4	-3.89	1.31	1.38

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	D	552	PNP	O1P-P-O2P	-6.25	98.18	112.79
4	F	553	PNP	O1P-P-O2P	-5.96	98.85	112.79
4	B	551	PNP	O1P-P-O2P	-5.70	99.46	112.79

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

3 monomers are involved in 9 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	D	552	PNP	4	0
4	F	553	PNP	3	0
4	B	551	PNP	2	0

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](#)

EDS was not executed - this section is therefore empty.

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

EDS was not executed - this section is therefore empty.

6.3 Carbohydrates [i](#)

EDS was not executed - this section is therefore empty.

6.4 Ligands [i](#)

EDS was not executed - this section is therefore empty.

6.5 Other polymers [i](#)

EDS was not executed - this section is therefore empty.