



Full wwPDB X-ray Structure Validation Report ⓘ

Oct 17, 2021 – 07:52 AM EDT

PDB ID : 1I8B
Title : Chalcone synthase (G256F)
Authors : Jez, J.M.; Bowman, M.E.; Noel, J.P.
Deposited on : 2001-03-12
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 following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.23.2
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) : 2.23.2

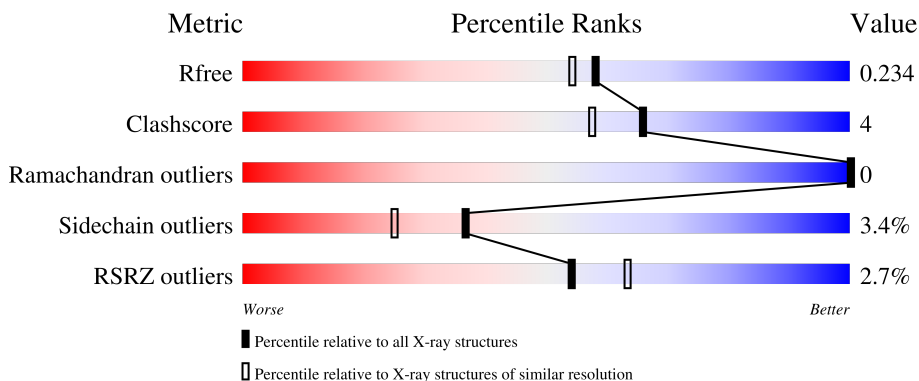
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

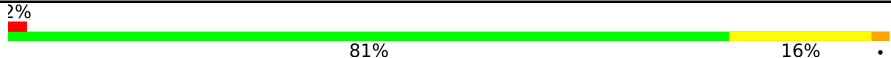
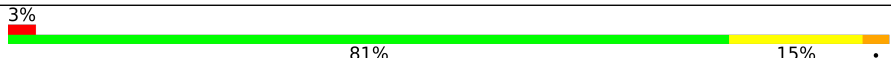
The reported resolution of this entry is 1.95 Å.

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	389	 2% 81% 16%
1	B	389	 3% 81% 15%

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 6391 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 CHALCONE SYNTHASE 2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	388	2996	1907	504	566	19	0	0	0
1	B	388	2996	1907	504	566	19	0	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	256	PHE	GLY	engineered mutation	UNP P30074
B	256	PHE	GLY	engineered mutation	UNP P30074

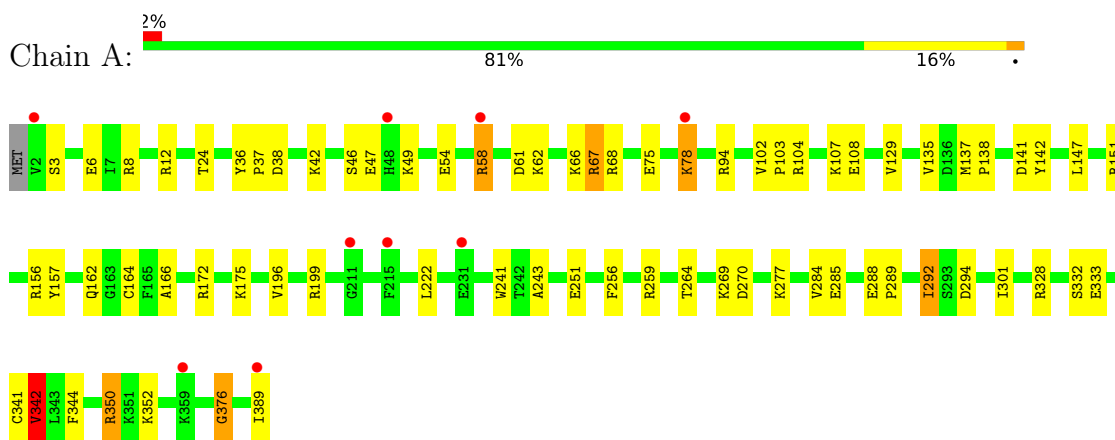
- Molecule 2 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	200	Total	O	1	0
			200	200		
2	B	199	Total	O	0	0
			199	199		

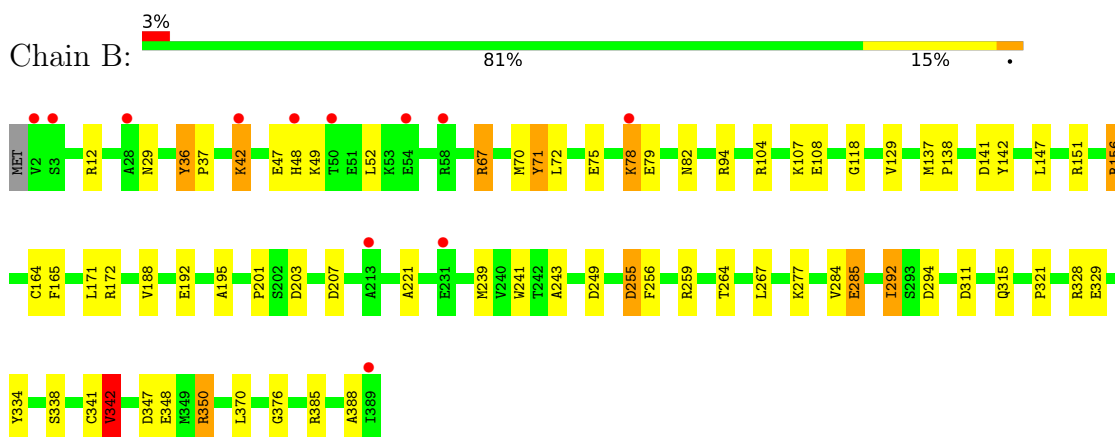
3 Residue-property plots [i](#)

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: CHALCONE SYNTHASE 2



• Molecule 1: CHALCONE SYNTHASE 2



4 Data and refinement statistics i

Property	Value	Source
Space group	P 31 2 1	Depositor
Cell constants a, b, c, α , β , γ	97.96Å 97.96Å 130.31Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	23.70 – 1.95 23.70 – 1.95	Depositor EDS
% Data completeness (in resolution range)	97.5 (23.70-1.95) 97.4 (23.70-1.95)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.82 (at 1.95Å)	Xtrriage
Refinement program	REFMAC	Depositor
R, R_{free}	0.201 , 0.251 0.187 , 0.234	Depositor DCC
R_{free} test set	2616 reflections (5.08%)	wwPDB-VP
Wilson B-factor (Å ²)	23.6	Xtrriage
Anisotropy	0.050	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.37 , 52.4	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	0.030 for -h,-k,l	Xtrriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	6391	wwPDB-VP
Average B, all atoms (Å ²)	26.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 87.50 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 6.7241e-08. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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: CSD

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	0.77	1/3046 (0.0%)	1.51	42/4123 (1.0%)
1	B	0.73	0/3046	1.50	37/4123 (0.9%)
All	All	0.75	1/6092 (0.0%)	1.50	79/8246 (1.0%)

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	A	0	2
1	B	0	2
All	All	0	4

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	164	CSD	C-N	-12.32	1.05	1.34

All (79) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	67	ARG	NE-CZ-NH1	15.96	128.28	120.30
1	B	67	ARG	NE-CZ-NH2	-14.94	112.83	120.30
1	A	67	ARG	NE-CZ-NH1	14.21	127.40	120.30
1	A	67	ARG	CD-NE-CZ	14.07	143.29	123.60
1	B	12	ARG	NE-CZ-NH2	-12.07	114.27	120.30
1	A	259	ARG	NE-CZ-NH1	11.86	126.23	120.30
1	A	328	ARG	CD-NE-CZ	10.76	138.67	123.60
1	A	157	TYR	CB-CG-CD2	10.20	127.12	121.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	259	ARG	NE-CZ-NH1	10.20	125.40	120.30
1	B	376	GLY	O-C-N	-10.05	106.61	122.70
1	A	58	ARG	NE-CZ-NH2	-9.61	115.50	120.30
1	B	294	ASP	CB-CG-OD1	9.47	126.83	118.30
1	A	333	GLU	OE1-CD-OE2	-8.99	112.51	123.30
1	A	376	GLY	CA-C-N	8.27	135.40	117.20
1	B	67	ARG	CD-NE-CZ	8.21	135.10	123.60
1	A	376	GLY	O-C-N	-7.93	110.01	122.70
1	B	376	GLY	CA-C-N	7.92	134.61	117.20
1	A	8	ARG	NE-CZ-NH2	7.91	124.25	120.30
1	B	94	ARG	NE-CZ-NH1	-7.83	116.38	120.30
1	B	138	PRO	N-CA-CB	7.68	112.51	103.30
1	B	385	ARG	NE-CZ-NH2	7.52	124.06	120.30
1	A	94	ARG	NE-CZ-NH1	-7.49	116.56	120.30
1	B	342	VAL	N-CA-CB	-7.44	95.13	111.50
1	A	172	ARG	NE-CZ-NH2	7.41	124.01	120.30
1	A	342	VAL	N-CA-CB	-7.37	95.28	111.50
1	B	328	ARG	CD-NE-CZ	7.27	133.77	123.60
1	B	350	ARG	NE-CZ-NH1	7.26	123.93	120.30
1	A	157	TYR	CB-CG-CD1	-7.02	116.79	121.00
1	A	61	ASP	CB-CG-OD1	6.95	124.55	118.30
1	A	38	ASP	CB-CG-OD1	6.94	124.54	118.30
1	A	67	ARG	NE-CZ-NH2	-6.90	116.85	120.30
1	A	156	ARG	NE-CZ-NH1	6.86	123.73	120.30
1	A	342	VAL	CA-CB-CG1	6.74	121.01	110.90
1	A	137	MET	CA-C-O	-6.63	106.17	120.10
1	B	137	MET	CA-C-O	-6.59	106.26	120.10
1	A	199	ARG	NE-CZ-NH2	6.45	123.53	120.30
1	B	348	GLU	OE1-CD-OE2	-6.43	115.58	123.30
1	B	329	GLU	OE1-CD-OE2	-6.38	115.64	123.30
1	B	342	VAL	CB-CA-C	6.37	123.51	111.40
1	A	135	VAL	CA-CB-CG1	6.25	120.27	110.90
1	A	151	ARG	NE-CZ-NH2	-6.14	117.23	120.30
1	A	292	ILE	CA-CB-CG2	6.11	123.13	110.90
1	B	328	ARG	NE-CZ-NH1	-6.05	117.27	120.30
1	A	137	MET	O-C-N	5.98	132.46	121.10
1	B	347	ASP	CB-CG-OD2	-5.95	112.95	118.30
1	A	270	ASP	CB-CG-OD2	-5.93	112.97	118.30
1	B	172	ARG	NE-CZ-NH1	-5.90	117.35	120.30
1	B	71	TYR	CB-CG-CD1	-5.86	117.48	121.00
1	B	259	ARG	NH1-CZ-NH2	-5.85	112.96	119.40
1	A	328	ARG	NE-CZ-NH1	-5.78	117.41	120.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	138	PRO	N-CA-CB	5.78	110.24	103.30
1	A	142	TYR	CB-CG-CD1	-5.71	117.58	121.00
1	A	342	VAL	CB-CA-C	5.71	122.24	111.40
1	A	350	ARG	NE-CZ-NH2	-5.64	117.48	120.30
1	A	222	LEU	CB-CA-C	-5.59	99.58	110.20
1	A	259	ARG	NE-CZ-NH2	-5.51	117.54	120.30
1	A	199	ARG	NE-CZ-NH1	-5.46	117.57	120.30
1	B	292	ILE	CA-CB-CG2	5.45	121.79	110.90
1	B	142	TYR	CB-CG-CD1	-5.44	117.74	121.00
1	B	334	TYR	CB-CG-CD1	-5.43	117.74	121.00
1	A	284	VAL	N-CA-CB	5.36	123.29	111.50
1	A	12	ARG	CD-NE-CZ	5.34	131.08	123.60
1	A	61	ASP	CB-CG-OD2	-5.31	113.52	118.30
1	A	68	ARG	NE-CZ-NH1	5.31	122.95	120.30
1	B	12	ARG	NH1-CZ-NH2	5.29	125.21	119.40
1	B	342	VAL	CA-CB-CG1	5.22	118.73	110.90
1	A	94	ARG	NH1-CZ-NH2	5.21	125.14	119.40
1	B	388	ALA	C-N-CA	5.21	134.71	121.70
1	B	156	ARG	NE-CZ-NH1	-5.20	117.70	120.30
1	B	12	ARG	CD-NE-CZ	5.19	130.87	123.60
1	B	249	ASP	CB-CG-OD2	5.09	122.88	118.30
1	B	342	VAL	CG1-CB-CG2	5.09	119.05	110.90
1	B	36	TYR	CB-CG-CD2	5.08	124.05	121.00
1	A	54	GLU	OE1-CD-OE2	5.07	129.39	123.30
1	B	255	ASP	CB-CG-OD1	-5.07	113.74	118.30
1	B	294	ASP	CB-CG-OD2	-5.07	113.74	118.30
1	A	389	ILE	CB-CA-C	5.05	121.71	111.60
1	A	294	ASP	CB-CG-OD1	5.05	122.84	118.30
1	B	285	GLU	OE1-CD-OE2	5.04	129.35	123.30

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	175	LYS	Mainchain
1	A	376	GLY	Mainchain
1	B	118	GLY	Mainchain
1	B	164	CSD	Mainchain

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	2996	0	3035	21	0
1	B	2996	0	3036	27	0
2	A	200	0	0	2	0
2	B	199	0	0	1	0
All	All	6391	0	6071	48	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 (48) 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:196:VAL:HB	2:A:481:HOH:O	1.73	0.88
1:A:102:VAL:HB	1:A:103:PRO:HD3	1.78	0.65
1:B:107:LYS:HD2	1:B:147:LEU:HB3	1.81	0.63
1:B:192:GLU:HG3	1:B:338:SER:HB3	1.83	0.60
1:B:78:LYS:HD3	1:B:79:GLU:N	2.17	0.59
1:B:151:ARG:HE	1:B:151:ARG:HA	1.69	0.58
1:B:104:ARG:NH1	1:B:108:GLU:OE2	2.36	0.56
1:A:66:LYS:HD2	1:A:332:SER:OG	2.06	0.55
1:A:107:LYS:HD2	1:A:147:LEU:HB3	1.89	0.55
1:A:342:VAL:HB	2:A:414:HOH:O	2.08	0.54
1:B:52:LEU:HD21	1:B:201:PRO:HB2	1.90	0.53
1:A:241:TRP:CH2	1:A:285:GLU:HG2	2.43	0.53
1:B:52:LEU:HD13	1:B:203:ASP:HA	1.91	0.52
1:B:207:ASP:HB2	1:B:267:LEU:HB2	1.93	0.51
1:B:42:LYS:HG3	1:B:47:GLU:HG2	1.94	0.49
1:B:78:LYS:HD3	1:B:78:LYS:C	2.32	0.49
1:B:342:VAL:HG13	1:B:370:LEU:HD11	1.93	0.49
1:B:241:TRP:CH2	1:B:285:GLU:HG2	2.50	0.47
1:B:311:ASP:O	1:B:315:GLN:HG3	2.15	0.47
1:B:241:TRP:CH2	1:B:243:ALA:HB2	2.50	0.47
1:A:75:GLU:O	1:A:78:LYS:HD3	2.15	0.46
1:B:188:VAL:O	1:B:221:ALA:HA	2.16	0.46
1:B:29:ASN:HB3	1:B:70:MET:O	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:241:TRP:CH2	1:A:243:ALA:HB2	2.51	0.45
1:A:288:GLU:N	1:A:289:PRO:CD	2.81	0.45
1:A:104:ARG:NH1	1:A:108:GLU:OE2	2.49	0.44
1:A:24:THR:HB	1:A:344:PHE:CZ	2.52	0.44
1:A:129:VAL:HG21	1:A:141:ASP:HA	1.98	0.44
1:A:301:ILE:HG22	1:A:342:VAL:HG22	2.00	0.43
1:A:251:GLU:O	1:A:269:LYS:NZ	2.43	0.43
1:B:48:HIS:CD2	1:B:49:LYS:HG2	2.53	0.43
1:A:46:SER:HB3	1:A:49:LYS:HD2	2.00	0.43
1:B:256:PHE:HA	1:B:264:THR:O	2.18	0.43
1:A:36:TYR:N	1:A:37:PRO:CD	2.82	0.43
1:A:42:LYS:HG3	1:A:47:GLU:CD	2.39	0.43
1:A:256:PHE:HA	1:A:264:THR:O	2.19	0.42
1:B:165:PHE:C	1:B:165:PHE:CD1	2.92	0.42
1:B:36:TYR:N	1:B:37:PRO:CD	2.82	0.42
1:A:277:LYS:HE3	1:A:277:LYS:HB3	1.89	0.42
1:B:129:VAL:HG21	1:B:141:ASP:HA	2.02	0.42
1:A:3:SER:OG	1:A:6:GLU:HG3	2.19	0.41
1:B:156:ARG:HH11	1:B:156:ARG:HD2	1.70	0.41
1:A:162:GLN:HB3	1:A:166:ALA:HB2	2.02	0.41
1:B:75:GLU:O	1:B:79:GLU:HG3	2.21	0.41
1:B:342:VAL:HB	2:B:390:HOH:O	2.21	0.41
1:B:72:LEU:HD11	1:B:195:ALA:HA	2.03	0.40
1:B:47:GLU:OE1	1:B:47:GLU:HA	2.21	0.40
1:B:171:LEU:HB3	1:B:239:MET:SD	2.61	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	385/389 (99%)	378 (98%)	7 (2%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	B	385/389 (99%)	374 (97%)	11 (3%)	0	100	100
All	All	770/778 (99%)	752 (98%)	18 (2%)	0	100	100

There are no Ramachandran outliers to report.

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	324/325 (100%)	315 (97%)	9 (3%)	43	33
1	B	324/325 (100%)	311 (96%)	13 (4%)	31	19
All	All	648/650 (100%)	626 (97%)	22 (3%)	37	25

All (22) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	58	ARG
1	A	62	LYS
1	A	67	ARG
1	A	78	LYS
1	A	292	ILE
1	A	341	CYS
1	A	342	VAL
1	A	350	ARG
1	A	352	LYS
1	B	42	LYS
1	B	67	ARG
1	B	71	TYR
1	B	78	LYS
1	B	82	ASN
1	B	255	ASP
1	B	277	LYS
1	B	284	VAL
1	B	292	ILE

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Mol	Chain	Res	Type
1	B	321	PRO
1	B	341	CYS
1	B	342	VAL
1	B	350	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	82	ASN
1	A	312	GLN
1	A	356	ASN
1	B	82	ASN
1	B	257	HIS
1	B	312	GLN
1	B	356	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

2 non-standard protein/DNA/RNA residues 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	$\# Z > 2$
1	CSD	B	164	1	3,7,8	0.81	0	1,8,10	1.54	0
1	CSD	A	164	1	3,7,8	0.80	0	1,8,10	1.52	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
1	CSD	B	164	1	-	0/2/6/8	-
1	CSD	A	164	1	-	0/2/6/8	-

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.

No monomer is involved in short contacts.

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

There are no ligands in this entry.

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	A	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	164:CSD	C	165:PHE	N	1.05

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	387/389 (99%)	0.04	9 (2%) 60 69	15, 24, 36, 46	0
1	B	387/389 (99%)	0.08	12 (3%) 49 58	16, 24, 41, 69	0
All	All	774/778 (99%)	0.06	21 (2%) 54 63	15, 24, 38, 69	0

All (21) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	48	HIS	3.9
1	A	2	VAL	3.6
1	B	3	SER	3.2
1	B	389	ILE	3.2
1	A	389	ILE	3.1
1	A	48	HIS	3.0
1	B	78	LYS	3.0
1	A	58	ARG	2.9
1	B	231	GLU	2.8
1	B	50	THR	2.8
1	B	2	VAL	2.8
1	A	78	LYS	2.7
1	A	215	PHE	2.5
1	A	231	GLU	2.5
1	B	213	ALA	2.5
1	A	359	LYS	2.3
1	B	54	GLU	2.3
1	B	28	ALA	2.3
1	B	42	LYS	2.1
1	A	211	GLY	2.1
1	B	58	ARG	2.0

6.2 Non-standard residues in protein, DNA, RNA chains [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
1	CSD	B	164	8/9	0.74	0.25	19,25,29,30	0
1	CSD	A	164	8/9	0.90	0.16	19,24,27,34	0

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

There are no ligands in this entry.

6.5 Other polymers [i](#)

There are no such residues in this entry.