WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report Ⓘ

Oct 18, 2023 – 12:08 PM EDT

PDB ID	:	1WX5
Title	:	Crystal Structure of the copper-free Streptomyces castaneoglobisporus tyrosinase complexed with a caddie protein in the monoclinic crystal
Authors	:	Matoba, Y.; Kumagai, T.; Yamamoto, A.; Yoshitsu, H.; Sugiyama, M.
Deposited on	:	2005-01-19
Resolution	:	2.02 Å(reported)

The following versions of software and data (see references Ⓘ) were used in the production of this report:

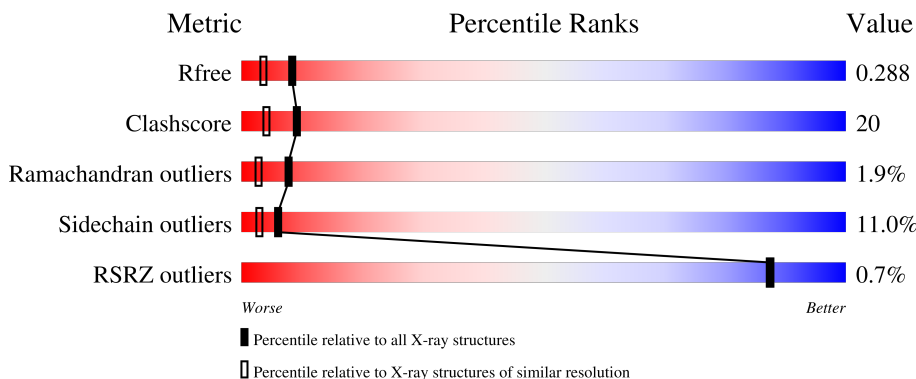|		
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation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

1   Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.02 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	Percentile Ranks	Value
Rfree		0.288
Clashscore		20
Ramachandran outliers		1.9%
Sidechain outliers		11.0%
RSRZ outliers		0.7%

Worse   *Better*

■ Percentile relative to all X-ray structures
▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R$_{free}$	130704	10434 (2.04-2.00)
Clashscore	141614	11643 (2.04-2.00)
Ramachandran outliers	138981	11493 (2.04-2.00)
Sidechain outliers	138945	11492 (2.04-2.00)
RSRZ outliers	127900	10220 (2.04-2.00)

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 <=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	281	58% 36% · ·
1	C	281	57% 34% 6% ·
2	B	134	% 29% 20% · 47%
2	D	134	2% 19% 32% · 44%

2 Entry composition ⓘ

There are 5 unique types of molecules in this entry. The entry contains 6027 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 tyrosinase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	275	Total 2212	C 1393	N 404	O 411	S 4	0	0	0
1	C	273	Total 2193	C 1382	N 400	O 407	S 4	0	0	0

- Molecule 2 is a protein called MelC.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	71	Total 546	C 345	N 99	O 101	S 1	0	0	0
2	D	75	Total 573	C 360	N 105	O 107	S 1	0	0	0

- Molecule 3 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	1	Total 1	Na 1	0	0
3	C	2	Total 2	Na 2	0	0

- Molecule 4 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	2	Total 2	Cl 2	0	0

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	221	Total 221	O 221	0	0

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	B	44	Total O 44 44		0	0
5	C	192	Total O 192 192		0	0
5	D	41	Total O 41 41		0	0

3 Residue-property plots ⓘ

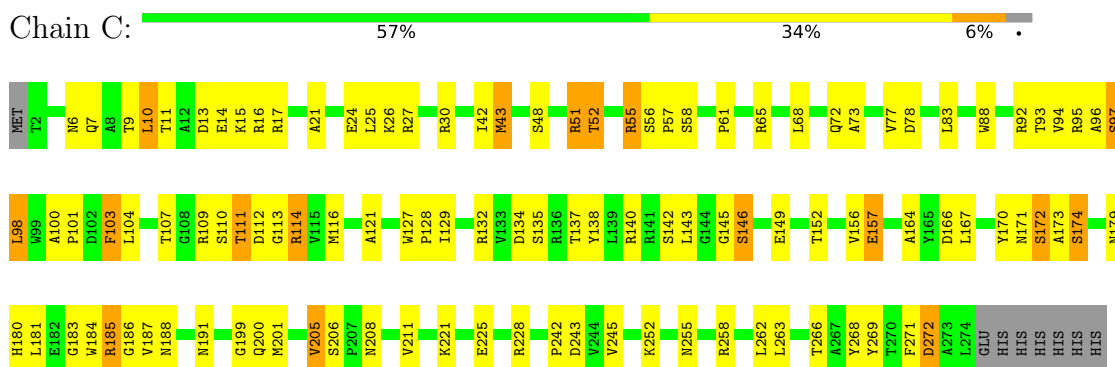These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density.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

- Molecule 1: tyrosinase

- Molecule 2: MelC

HIS GLU HIS GLY GLY G71 Y72 E73 V74 F75 V76 D77 Q80 L81 H82 R85 G89 V94 V95 S96 H97 V101 P102 T103 P104 R105 A111 E114 L115 A118 P119 L120 L121 P122 PHE PRO ALA ASN LEU GLU HIS HIS HIS HIS HIS

● Molecule 2: MelC

Chain D:

2%
19%   32%   •   44%

MET PRO GLU ILE THR ARG ARG ARG ALA LEU THR ALA ALA ALA ALA VAL ALA ALA THR ALA SER ALA ALA VAL THR LEU ALA ALA PRO ALA ALA SER ALA ALA GLY HIS HIS GLU PRO ALA A41 P42 E43 S44 F45 D46 E47 K50 G51 R52 R53 I54 Q55 G56 R57 P58 A59 ARG GLY

ALA ALA HIS HIS HIS E67 H68 G69 V74 F75 V76 D77 G78 V79 Q80 L81 H82 V83 M84 R85 N86 A87 D88 W91 I92 S93 V94 V95 S96 H97 Y98 D99 P100 V101 P102 R105 A108 R109 A110 A111 V112 D113 E114 L115 Q116 P119 L120 L121 P122 PHE PRO ALA ASN LEU GLU

HIS HIS HIS HIS HIS

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α, β, γ	58.85Å 93.20Å 65.59Å 90.00° 93.80° 90.00°	Depositor
Resolution (Å)	30.00 – 2.02 40.69 – 2.02	Depositor EDS
% Data completeness (in resolution range)	99.2 (30.00-2.02) 82.6 (40.69-2.02)	Depositor EDS
R_{merge}	0.12	Depositor
R_{sym}	0.12	Depositor
$< I/\sigma(I) >$ [1]	2.96 (at 2.01Å)	Xtriage
Refinement program	X-PLOR 3.851	Depositor
R, R_{free}	0.201 , 0.291 0.200 , 0.288	Depositor DCC
R_{free} test set	2302 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å^2)	15.1	Xtriage
Anisotropy	0.365	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 23.1	EDS
L-test for twinning[2]	$< |L| > = 0.42, < L^2 > = 0.24$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.92	EDS
Total number of atoms	6027	wwPDB-VP
Average B, all atoms (Å^2)	21.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.16% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< |L| >$, $< L^2 >$ 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: NA, CL

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	0.36	0/2280	0.60	0/3113
1	C	0.35	0/2260	0.59	0/3086
2	B	0.32	0/560	0.54	0/763
2	D	0.31	0/588	0.52	0/800
All	All	0.35	0/5688	0.58	0/7762

There are no bond length outliers.

There are no bond angle outliers.

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	2212	0	2092	77	0
1	C	2193	0	2079	74	0
2	B	546	0	527	31	0
2	D	573	0	546	45	0
3	A	1	0	0	0	0
3	C	2	0	0	0	0
4	A	2	0	0	0	0
5	A	221	0	0	10	0
5	B	44	0	0	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	C	192	0	0	10	0
5	D	41	0	0	5	0
All	All	6027	0	5244	215	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 20.

All (215) 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:185:ARG:HH22	2:D:88:ASP:HB3	1.20	1.01
1:C:185:ARG:NH2	2:D:88:ASP:HB3	1.85	0.90
1:A:94:VAL:HG13	1:A:143:LEU:HD12	1.52	0.89
2:B:95:VAL:HG13	2:B:114:GLU:HG2	1.57	0.87
1:A:65:ARG:O	1:A:65:ARG:HD3	1.79	0.82
2:B:105:ARG:HG2	2:B:105:ARG:HH21	1.45	0.80
1:A:107:THR:HB	1:A:143:LEU:HG	1.62	0.80
1:A:27:ARG:HD2	5:A:482:HOH:O	1.83	0.78
1:A:30:ARG:NH2	1:A:76:SER:OG	2.23	0.71
1:C:157:GLU:HG2	5:C:305:HOH:O	1.89	0.71
2:B:95:VAL:CG1	2:B:114:GLU:HG2	2.21	0.71
1:C:109:ARG:HD3	1:C:116:MET:SD	2.31	0.70
2:D:81:LEU:HD11	2:D:93:SER:OG	1.91	0.70
1:A:245:VAL:HG11	1:A:251:MET:HG2	1.75	0.69
2:D:110:ALA:O	2:D:113:ASP:HB2	1.93	0.68
1:C:7:GLN:OE1	1:C:98:LEU:HB3	1.94	0.68
1:A:140:ARG:O	1:A:199:GLY:HA3	1.94	0.67
1:A:169:PRO:HG2	1:A:171:ASN:OD1	1.94	0.67
1:A:162:ILE:HG21	1:A:177:PHE:N	2.11	0.66
1:C:180:HIS:CD2	1:C:186:GLY:HA3	2.30	0.66
2:D:105:ARG:HD2	2:D:109:ARG:HH21	1.61	0.66
1:A:242:PRO:O	1:A:243:ASP:HB2	1.96	0.65
1:A:228:ARG:HE	1:A:274:LEU:HD13	1.62	0.65
1:A:157:GLU:HB3	5:A:344:HOH:O	1.97	0.65
2:D:74:VAL:HG11	2:D:81:LEU:HD23	1.80	0.64
1:C:107:THR:HB	1:C:143:LEU:HD12	1.78	0.64
2:B:105:ARG:HG2	2:B:105:ARG:NH2	2.12	0.64
1:A:132:ARG:HD2	1:A:136:ARG:O	1.99	0.63
1:C:129:ILE:HG12	1:C:137:THR:O	1.98	0.62
1:C:200:GLN:O	1:C:206:SER:HA	2.00	0.62
1:A:26:LYS:HE2	1:A:128:PRO:HD2	1.79	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:25:LEU:HD21	1:C:73:ALA:O	1.99	0.61
1:C:95:ARG:HB3	5:C:465:HOH:O	1.99	0.61
2:D:95:VAL:HG13	2:D:95:VAL:O	1.99	0.61
2:B:46:ASP:HA	2:B:55:GLN:HB3	1.83	0.61
1:C:26:LYS:NZ	1:C:128:PRO:HD2	2.16	0.60
1:C:72:GLN:HG2	5:C:356:HOH:O	2.01	0.60
1:C:183:GLY:HA2	1:C:188:ASN:HA	1.83	0.60
2:D:108:ALA:O	2:D:112:VAL:HG23	2.02	0.59
2:B:82:HIS:HB2	5:B:152:HOH:O	2.01	0.59
1:A:13:ASP:OD1	1:A:16:ARG:NH1	2.33	0.59
2:D:85:ARG:HB2	2:D:91:TRP:CH2	2.37	0.59
1:C:57:PRO:HD3	1:C:170:TYR:HB3	1.84	0.58
1:C:181:LEU:HD12	1:C:181:LEU:O	2.03	0.58
2:D:42:PRO:HG3	5:D:175:HOH:O	2.02	0.58
1:A:246:ASP:HB2	1:A:249:GLU:HG3	1.84	0.58
2:D:76:VAL:O	2:D:78:GLY:N	2.36	0.58
1:C:94:VAL:HG12	1:C:94:VAL:O	2.04	0.58
1:A:226:TRP:CD1	1:A:230:HIS:HD2	2.22	0.57
1:C:78:ASP:HA	5:C:410:HOH:O	2.04	0.57
1:C:152:THR:O	1:C:156:VAL:HG23	2.05	0.57
2:B:57:ARG:NH2	2:B:73:GLU:OE1	2.38	0.57
2:D:45:PHE:CE2	2:D:56:GLY:HA3	2.40	0.57
1:C:134:ASP:HA	2:D:121:LEU:HG	1.87	0.57
1:A:65:ARG:HD3	1:A:65:ARG:C	2.22	0.56
1:A:228:ARG:HG3	1:A:228:ARG:NH1	2.18	0.56
2:B:41:ALA:HB3	2:B:42:PRO:HD3	1.88	0.56
1:A:114:ARG:HB2	1:A:138:TYR:CD1	2.40	0.56
1:C:26:LYS:HZ2	1:C:128:PRO:HD2	1.68	0.56
1:A:129:ILE:O	1:A:132:ARG:HD3	2.06	0.56
2:B:59:ALA:HB2	2:B:73:GLU:CG	2.36	0.56
1:C:266:THR:HA	1:C:269:TYR:O	2.06	0.55
2:B:85:ARG:CZ	2:B:89:GLY:HA2	2.37	0.55
1:C:272:ASP:OD2	1:C:272:ASP:N	2.39	0.55
1:A:101:PRO:O	1:A:118:GLY:HA2	2.05	0.55
1:A:234:ALA:HB3	5:A:403:HOH:O	2.07	0.55
2:D:114:GLU:HG3	2:D:115:LEU:N	2.21	0.55
2:D:76:VAL:C	2:D:78:GLY:H	2.10	0.54
1:A:256:THR:HG22	1:A:256:THR:O	2.08	0.54
2:B:115:LEU:HD22	2:B:118:ALA:O	2.08	0.53
1:A:230:HIS:HB3	1:A:233:SER:HB2	1.91	0.53
2:D:53:ARG:HD2	2:D:55:GLN:OE1	2.07	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:216:HIS:ND1	5:A:297:HOH:O	2.30	0.53
1:C:114:ARG:HB2	1:C:138:TYR:CD1	2.43	0.53
2:B:52:ARG:HB3	2:B:77:ASP:OD2	2.09	0.52
1:C:17:ARG:HD3	5:C:327:HOH:O	2.08	0.52
1:A:266:THR:HA	1:A:269:TYR:O	2.09	0.52
2:D:53:ARG:O	2:D:53:ARG:HG3	2.09	0.52
2:D:45:PHE:HB3	2:D:105:ARG:NH2	2.25	0.52
2:B:52:ARG:HH22	2:B:119:PRO:HA	1.74	0.52
1:A:159:VAL:HA	1:A:162:ILE:HD12	1.92	0.52
1:A:228:ARG:HG3	1:A:228:ARG:HH11	1.73	0.52
1:C:134:ASP:HB2	2:D:119:PRO:O	2.10	0.51
1:A:226:TRP:NE1	1:A:230:HIS:HD2	2.08	0.51
1:C:68:LEU:HD21	1:C:268:TYR:HB3	1.91	0.51
2:D:75:PHE:CE1	2:D:80:GLN:HG3	2.45	0.51
1:C:184:TRP:HZ3	2:D:100:PRO:HG3	1.75	0.51
1:A:155:GLU:O	1:A:158:SER:HB3	2.11	0.51
1:A:203:THR:HG22	2:B:95:VAL:O	2.12	0.50
1:C:58:SER:HB3	1:C:245:VAL:HB	1.92	0.50
2:D:67:GLU:HG3	2:D:82:HIS:HD2	1.77	0.50
1:C:135:SER:HB3	2:D:119:PRO:HD2	1.93	0.50
1:C:42:ILE:HD11	2:D:97:HIS:CD2	2.47	0.50
2:D:81:LEU:HD11	2:D:93:SER:HG	1.76	0.50
1:A:228:ARG:NE	1:A:274:LEU:HD13	2.25	0.50
1:C:242:PRO:O	1:C:243:ASP:HB2	2.12	0.49
1:A:109:ARG:HG3	1:A:111:THR:HG22	1.93	0.49
1:A:65:ARG:HG3	1:A:254:TRP:CE2	2.47	0.49
2:B:101:VAL:HB	2:B:102:PRO:HD2	1.93	0.49
1:C:132:ARG:HG3	1:C:134:ASP:O	2.11	0.49
1:A:111:THR:HG23	1:A:112:ASP:N	2.27	0.49
1:C:100:ALA:HB1	1:C:101:PRO:HD2	1.95	0.49
1:C:140:ARG:O	1:C:199:GLY:HA3	2.13	0.49
1:A:275:GLU:HG2	1:A:276:HIS:H	1.77	0.49
1:C:171:ASN:C	1:C:173:ALA:H	2.16	0.49
5:A:369:HOH:O	1:C:30:ARG:HG2	2.13	0.48
1:C:57:PRO:CD	1:C:170:TYR:HB3	2.42	0.48
1:A:71:GLU:O	1:A:75:GLN:HG3	2.11	0.48
2:B:103:THR:HB	2:B:104:PRO:CD	2.43	0.48
1:A:51:ARG:HD2	1:A:56:SER:HB3	1.95	0.48
1:C:55:ARG:HH22	2:D:92:ILE:CD1	2.27	0.48
2:D:102:PRO:HG2	5:D:170:HOH:O	2.14	0.48
1:A:228:ARG:HH11	1:A:228:ARG:CG	2.26	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:205:VAL:HG23	1:C:208:ASN:HD22	1.79	0.48
1:A:221:LYS:NZ	1:A:273:ALA:O	2.47	0.48
1:A:101:PRO:HG3	1:A:117:ASP:OD2	2.14	0.48
1:A:150:LEU:HD21	1:A:196:TRP:CE3	2.49	0.47
1:A:83:LEU:HD21	1:A:213:TRP:HB3	1.95	0.47
1:A:114:ARG:HB2	1:A:138:TYR:CE1	2.48	0.47
1:A:39:ASN:HA	1:A:42:ILE:HG22	1.97	0.47
1:C:21:ALA:HA	1:C:77:VAL:HG11	1.95	0.47
1:C:6:ASN:HB3	1:C:9:THR:HG23	1.96	0.47
2:D:88:ASP:C	2:D:88:ASP:OD1	2.53	0.47
1:A:64:ARG:NH2	5:A:292:HOH:O	2.32	0.46
2:B:57:ARG:HB2	2:B:58:PRO:HD2	1.96	0.46
2:B:114:GLU:HG3	2:B:115:LEU:N	2.29	0.46
1:A:58:SER:HB3	1:A:245:VAL:HB	1.97	0.46
1:A:206:SER:N	1:A:207:PRO:CD	2.78	0.46
2:D:45:PHE:N	2:D:45:PHE:CD2	2.83	0.46
2:D:52:ARG:HH12	2:D:115:LEU:HB3	1.81	0.46
1:A:65:ARG:HG3	1:A:254:TRP:CZ2	2.51	0.45
2:B:57:ARG:HD3	2:B:57:ARG:N	2.31	0.45
2:D:59:ALA:HA	5:D:155:HOH:O	2.15	0.45
1:A:182:GLU:O	1:A:190:HIS:HB3	2.16	0.45
1:C:13:ASP:OD1	1:C:16:ARG:NH1	2.43	0.45
1:C:72:GLN:HE21	1:C:72:GLN:HB2	1.58	0.45
1:A:14:GLU:HG2	5:A:461:HOH:O	2.17	0.45
1:C:11:THR:O	1:C:15:LYS:HG3	2.17	0.45
2:D:42:PRO:HG2	2:D:91:TRP:HZ2	1.82	0.45
1:C:10:LEU:HD13	1:C:14:GLU:HB3	1.99	0.45
2:D:53:ARG:HD2	2:D:55:GLN:CG	2.47	0.45
1:A:147:VAL:HG12	1:A:196:TRP:HA	1.99	0.45
1:C:166:ASP:OD1	1:C:167:LEU:N	2.47	0.45
1:C:121:ALA:HB1	5:C:339:HOH:O	2.15	0.45
2:D:43:GLU:HB3	2:D:44:SER:H	1.66	0.45
2:D:45:PHE:CZ	2:D:105:ARG:HA	2.51	0.45
1:C:142:SER:OG	1:C:145:GLY:HA3	2.17	0.44
1:A:51:ARG:HD2	1:A:55:ARG:O	2.18	0.44
1:A:168:PRO:HA	1:A:170:TYR:N	2.33	0.44
2:D:91:TRP:O	2:D:100:PRO:HA	2.18	0.44
2:B:105:ARG:NH2	2:B:105:ARG:CG	2.80	0.43
1:A:232:ASP:OD1	1:A:232:ASP:N	2.51	0.43
1:C:65:ARG:HB2	1:C:262:LEU:HD21	2.00	0.43
1:C:179:ASN:HB2	5:C:293:HOH:O	2.18	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:109:ARG:O	1:C:113:GLY:HA2	2.18	0.43
2:D:42:PRO:O	2:D:43:GLU:O	2.37	0.43
2:D:98:TYR:HB2	5:D:136:HOH:O	2.19	0.43
1:C:188:ASN:OD1	1:C:191:ASN:HB2	2.17	0.43
1:A:133:VAL:HG11	2:B:94:VAL:HG22	2.00	0.43
2:B:81:LEU:HB2	2:B:120:LEU:HD11	2.01	0.43
1:C:24:GLU:CD	1:C:27:ARG:HE	2.22	0.43
5:A:355:HOH:O	1:C:255:ASN:HB3	2.18	0.43
1:C:51:ARG:HB2	1:C:56:SER:HB3	2.01	0.43
2:B:59:ALA:HB2	2:B:73:GLU:HG2	2.01	0.43
2:B:97:HIS:O	2:B:97:HIS:CD2	2.72	0.43
2:D:122:PRO:HA	5:D:137:HOH:O	2.19	0.43
1:A:13:ASP:O	1:A:17:ARG:HG3	2.18	0.42
1:C:55:ARG:NH1	2:D:86:ASN:OD1	2.49	0.42
1:C:96:ALA:HB3	1:C:98:LEU:HD23	2.00	0.42
1:C:201:MET:HE2	1:C:211:VAL:HG13	2.01	0.42
1:A:162:ILE:HG21	1:A:176:GLY:C	2.39	0.42
2:B:75:PHE:CE2	2:B:80:GLN:HB2	2.54	0.42
1:C:52:THR:HG23	1:C:245:VAL:CG2	2.50	0.42
2:B:103:THR:HB	2:B:104:PRO:HD2	2.02	0.42
1:C:171:ASN:O	1:C:173:ALA:N	2.52	0.42
1:C:172:SER:HB2	1:C:184:TRP:CG	2.54	0.42
2:B:81:LEU:HB2	2:B:120:LEU:CD1	2.50	0.42
2:D:115:LEU:HD11	2:D:120:LEU:HD21	2.02	0.42
1:A:11:THR:O	1:A:15:LYS:HG3	2.19	0.42
1:A:187:VAL:O	1:A:188:ASN:HB3	2.20	0.42
1:C:164:ALA:HB1	1:C:167:LEU:HD21	2.01	0.42
2:D:114:GLU:O	2:D:116:GLN:HG3	2.20	0.42
2:B:47:GLU:CD	2:B:105:ARG:HE	2.24	0.41
1:C:187:VAL:O	1:C:188:ASN:HB3	2.19	0.41
2:D:67:GLU:HG3	2:D:82:HIS:CD2	2.54	0.41
1:A:25:LEU:CD1	1:A:74:LEU:HD23	2.50	0.41
1:A:94:VAL:CG1	1:A:143:LEU:HD12	2.37	0.41
1:A:111:THR:CG2	1:A:112:ASP:N	2.83	0.41
1:C:97:SER:HB2	5:C:318:HOH:O	2.21	0.41
1:C:26:LYS:HB2	1:C:127:TRP:CZ3	2.55	0.41
1:A:136:ARG:HG2	1:A:138:TYR:CE2	2.56	0.41
1:C:221:LYS:HB2	1:C:271:PHE:CE2	2.55	0.41
1:A:193:VAL:O	1:A:197:VAL:HG23	2.20	0.41
2:D:50:LYS:C	2:D:52:ARG:H	2.23	0.41
1:A:201:MET:CE	1:A:211:VAL:HG13	2.50	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:58:SER:C	1:C:61:PRO:HD2	2.41	0.41
1:C:103:PHE:HB3	1:C:104:LEU:H	1.63	0.41
1:A:36:ARG:HE	1:A:36:ARG:HB2	1.71	0.41
1:A:98:LEU:HD11	1:A:211:VAL:HG23	2.02	0.41
1:A:225:GLU:HG2	5:A:358:HOH:O	2.21	0.41
1:A:228:ARG:NH1	1:A:228:ARG:CG	2.82	0.41
1:A:256:THR:HG21	5:A:412:HOH:O	2.20	0.41
1:C:42:ILE:CG2	1:C:43:MET:N	2.84	0.41
1:C:134:ASP:CA	2:D:121:LEU:HG	2.51	0.41
1:A:114:ARG:HG2	1:A:116:MET:SD	2.61	0.41
1:A:182:GLU:O	1:A:191:ASN:OD1	2.40	0.40
1:C:93:THR:C	1:C:95:ARG:H	2.24	0.40
1:C:187:VAL:HG12	5:C:369:HOH:O	2.22	0.40
1:C:174:SER:HA	5:C:295:HOH:O	2.21	0.40
1:A:49:GLY:O	1:A:51:ARG:HG2	2.21	0.40
1:A:109:ARG:O	1:A:113:GLY:N	2.51	0.40
2:B:95:VAL:CG1	2:B:95:VAL:O	2.69	0.40
2:B:95:VAL:HG11	2:B:111:ALA:HA	2.02	0.40
1:A:83:LEU:HD21	1:A:213:TRP:CB	2.51	0.40
2:B:45:PHE:CE1	2:B:55:GLN:HA	2.57	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	273/281 (97%)	250 (92%)	20 (7%)	3 (1%)	14	7
1	C	271/281 (96%)	244 (90%)	22 (8%)	5 (2%)	8	3
2	B	67/134 (50%)	64 (96%)	3 (4%)	0	100	100
2	D	71/134 (53%)	59 (83%)	7 (10%)	5 (7%)	1	0
All	All	682/830 (82%)	617 (90%)	52 (8%)	13 (2%)	8	3

All (13) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	148	ALA
2	D	43	GLU
2	D	46	ASP
1	C	55	ARG
1	C	172	SER
2	D	77	ASP
2	D	96	SER
1	A	142	SER
1	A	55	ARG
1	C	111	THR
1	C	146	SER
1	C	205	VAL
2	D	51	GLY

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	234/240 (98%)	209 (89%)	25 (11%)	6	3
1	C	232/240 (97%)	206 (89%)	26 (11%)	6	3
2	B	56/95 (59%)	51 (91%)	5 (9%)	9	5
2	D	58/95 (61%)	50 (86%)	8 (14%)	3	1
All	All	580/670 (87%)	516 (89%)	64 (11%)	6	3

All (64) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	2	THR
1	A	10	LEU
1	A	36	ARG
1	A	40	GLU
1	A	48	SER
1	A	65	ARG
1	A	67	LEU

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Mol	Chain	Res	Type
1	A	76	SER
1	A	83	LEU
1	A	88	TRP
1	A	92	ARG
1	A	95	ARG
1	A	97	SER
1	A	98	LEU
1	A	103	PHE
1	A	110	SER
1	A	132	ARG
1	A	133	VAL
1	A	146	SER
1	A	149	GLU
1	A	158	SER
1	A	163	SER
1	A	215	HIS
1	A	228	ARG
1	A	233	SER
2	B	47	GLU
2	B	55	GLN
2	B	57	ARG
2	B	105	ARG
2	B	114	GLU
1	C	10	LEU
1	C	43	MET
1	C	48	SER
1	C	51	ARG
1	C	52	THR
1	C	83	LEU
1	C	88	TRP
1	C	92	ARG
1	C	97	SER
1	C	98	LEU
1	C	103	PHE
1	C	110	SER
1	C	111	THR
1	C	112	ASP
1	C	114	ARG
1	C	146	SER
1	C	149	GLU
1	C	157	GLU
1	C	174	SER

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Mol	Chain	Res	Type
1	C	185	ARG
1	C	225	GLU
1	C	228	ARG
1	C	252	LYS
1	C	258	ARG
1	C	263	LEU
1	C	272	ASP
2	D	44	SER
2	D	47	GLU
2	D	50	LYS
2	D	53	ARG
2	D	57	ARG
2	D	84	MET
2	D	95	VAL
2	D	114	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (13) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	54	HIS
1	A	230	HIS
2	B	55	GLN
1	C	54	HIS
1	C	72	GLN
1	C	126	ASN
1	C	180	HIS
1	C	208	ASN
1	C	216	HIS
1	C	248	ASN
1	C	255	ASN
2	D	82	HIS
2	D	97	HIS

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 monosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 5 ligands modelled in this entry, 5 are monoatomic - leaving 0 for Mogul analysis.

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.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å²)	Q<0.9
1	A	275/281 (97%)	-0.66	1 (0%)	92	92	5, 14, 28, 68	0
1	C	273/281 (97%)	-0.54	0	100	100	5, 18, 31, 40	0
2	B	71/134 (52%)	-0.17	1 (1%)	75	74	12, 25, 47, 66	0
2	D	75/134 (55%)	0.36	3 (4%)	38	38	17, 38, 54, 66	0
All	All	694/830 (83%)	-0.45	5 (0%)	87	87	5, 19, 41, 68	0

All (5) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	B	41	ALA	6.5
2	D	68	HIS	3.9
2	D	69	GLY	2.5
1	A	276	HIS	2.5
2	D	67	GLU	2.2

6.2 Non-standard residues in protein, DNA, RNA chains ⓘ

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

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

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

median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
3	NA	C	282	1/1	0.98	0.14	11,11,11,11	0
3	NA	C	283	1/1	0.98	0.04	14,14,14,14	0
4	CL	A	284	1/1	0.98	0.05	29,29,29,29	0
4	CL	A	283	1/1	0.99	0.06	19,19,19,19	0
3	NA	A	282	1/1	0.99	0.09	2,2,2,2	0

6.5   Other polymers (i)

There are no such residues in this entry.