



Full wwPDB X-ray Structure Validation Report ⓘ

Feb 1, 2016 – 04:45 PM GMT

PDB ID : 4G04
Title : High-resolution Crystal Structural Variance Analysis between Recombinant and Wild-type Human Serum Albumin
Authors : Cao, H.L.; Yin, D.C.
Deposited on : 2012-07-09
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
<http://wwpdb.org/validation/2016/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 : 1.7 (RC4), CSD as536be (2015)
Xtriage (Phenix) : 1.9-1692
EDS : rb-20026688
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)
Refmac : 5.8.0135
CCP4 : 6.5.0
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : trunk26865

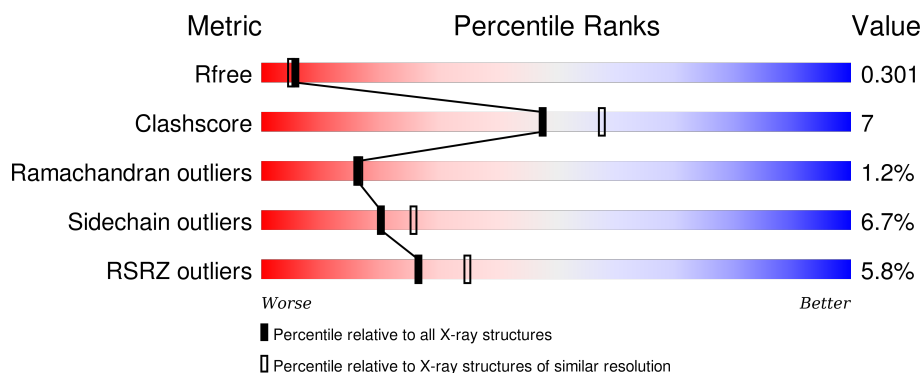
1 Overall quality at a glance

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))
R_{free}	91344	3852 (2.30-2.30)
Clashscore	102246	4452 (2.30-2.30)
Ramachandran outliers	100387	4410 (2.30-2.30)
Sidechain outliers	100360	4409 (2.30-2.30)
RSRZ outliers	91569	3857 (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 on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. 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	585	<div> <div>5%</div> <div> <div></div> <div>76%</div> <div>21%</div> <div>..</div> </div> </div>
1	B	585	<div> <div>6%</div> <div> <div></div> <div>76%</div> <div>20%</div> <div>..</div> </div> </div>

2 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 9259 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 Serum albumin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	578	Total	C	N	O	S	0	0	0
			4599	2903	776	879	41			
1	B	578	Total	C	N	O	S	0	0	0
			4599	2903	776	879	41			

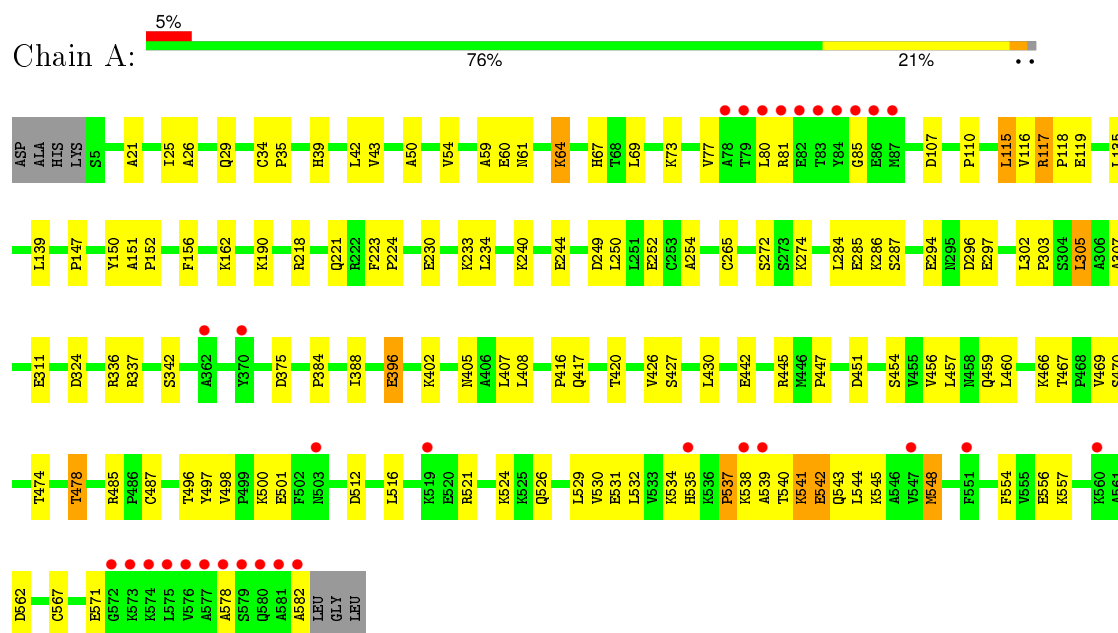
- Molecule 2 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	29	Total	O	0	0
			29	29		
2	B	32	Total	O	0	0
			32	32		

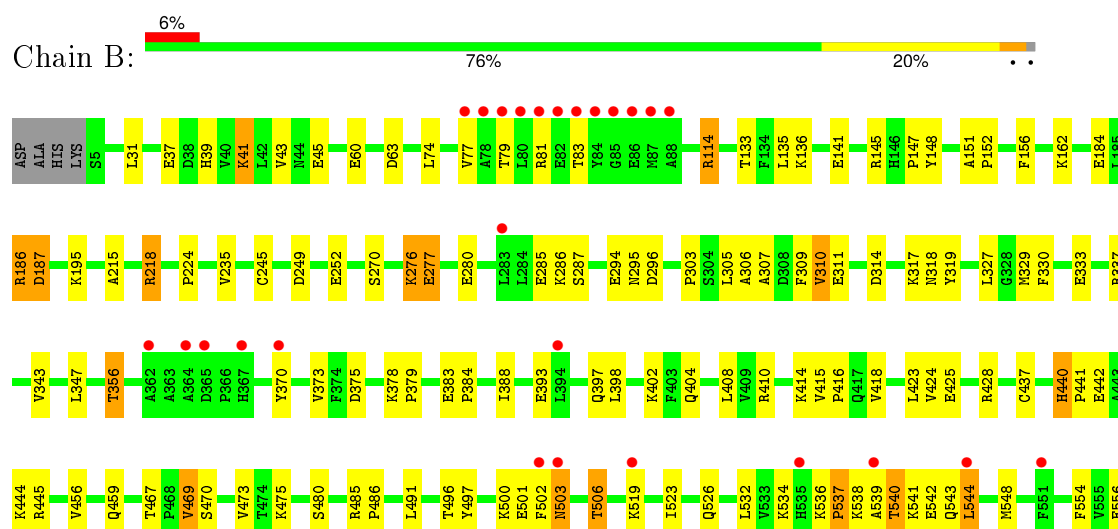
3 Residue-property plots

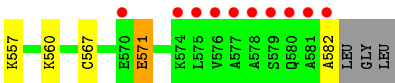
These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according 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: Serum albumin



• Molecule 1: Serum albumin





4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	58.74Å 58.66Å 95.73Å 87.85° 75.92° 73.47°	Depositor
Resolution (Å)	47.37 – 2.30 47.37 – 2.30	Depositor EDS
% Data completeness (in resolution range)	89.8 (47.37-2.30) 82.1 (47.37-2.30)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	0.10	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.35 (at 2.29Å)	Xtriage
Refinement program	PHENIX (phenix.refine: 1.7.3_928)	Depositor
R, R_{free}	0.240 , 0.317 0.228 , 0.301	Depositor DCC
R_{free} test set	1834 reflections (4.21%)	DCC
Wilson B-factor (Å ²)	41.0	Xtriage
Anisotropy	0.272	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 41.7	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Outliers	0 of 47433 reflections	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	9259	wwPDB-VP
Average B, all atoms (Å ²)	54.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 12.03% 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, 0.375 respectively for untwinned datasets, and 0.333, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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	0.44	0/4688	0.57	0/6324
1	B	0.47	0/4688	0.57	0/6324
All	All	0.45	0/9376	0.57	0/12648

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 [i](#)

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	4599	0	4518	69	0
1	B	4599	0	4518	65	0
2	A	29	0	0	0	0
2	B	32	0	0	1	0
All	All	9259	0	9036	134	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 7.

All (134) 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:303:PRO:O	1:A:337:ARG:NH1	2.11	0.82

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:303:PRO:O	1:B:337:ARG:NH1	2.11	0.82
1:B:224:PRO:HD2	1:B:296:ASP:HB3	1.68	0.75
1:A:474:THR:O	1:A:478:THR:OG1	2.07	0.72
1:A:516:LEU:O	1:A:521:ARG:NH2	2.23	0.70
1:B:540:THR:HA	1:B:543:GLN:HE21	1.58	0.69
1:A:537:PRO:O	1:A:539:ALA:N	2.24	0.69
1:A:531:GLU:O	1:A:535:HIS:ND1	2.26	0.68
1:B:114:ARG:HH11	1:B:114:ARG:HB3	1.59	0.67
1:A:578:ALA:HA	1:A:582:ALA:HB3	1.77	0.66
1:A:224:PRO:HD2	1:A:296:ASP:HB3	1.79	0.65
1:B:384:PRO:O	1:B:388:ILE:HG12	1.99	0.63
1:B:437:CYS:O	1:B:440:HIS:HB2	2.00	0.61
1:B:156:PHE:HE1	1:B:285:GLU:HG3	1.64	0.61
1:B:414:LYS:HD3	1:B:491:LEU:HB2	1.84	0.60
1:B:156:PHE:CE1	1:B:285:GLU:HG3	2.37	0.59
1:A:427:SER:HA	1:A:430:LEU:HD12	1.84	0.59
1:A:305:LEU:HD11	1:A:337:ARG:HD2	1.85	0.59
1:A:540:THR:HA	1:A:543:GLN:HE21	1.67	0.59
1:A:156:PHE:HE1	1:A:285:GLU:HG3	1.68	0.58
1:B:416:PRO:O	1:B:534:LYS:HE2	2.04	0.58
1:B:306:ALA:HA	1:B:310:VAL:HG23	1.86	0.57
1:B:329:MET:O	1:B:333:GLU:HG2	2.04	0.57
1:A:384:PRO:O	1:A:388:ILE:HG12	2.05	0.56
1:A:296:ASP:OD1	1:A:297:GLU:N	2.33	0.56
1:A:156:PHE:CE1	1:A:285:GLU:HG3	2.41	0.56
1:B:314:ASP:HB3	1:B:317:LYS:HB3	1.87	0.56
1:A:42:LEU:HD22	1:A:73:LYS:HG3	1.88	0.56
1:B:276:LYS:O	1:B:280:GLU:HG2	2.05	0.56
1:B:195:LYS:NZ	2:B:631:HOH:O	2.40	0.55
1:B:519:LYS:O	1:B:523:ILE:HG13	2.06	0.55
1:B:141:GLU:OE1	1:B:145:ARG:NH1	2.30	0.54
1:B:276:LYS:HG3	1:B:277:GLU:N	2.22	0.54
1:A:61:ASN:HB3	1:A:64:LYS:HE2	1.90	0.53
1:A:408:LEU:HD11	1:A:526:GLN:HB3	1.90	0.52
1:A:554:PHE:CE1	1:A:571:GLU:HB2	2.44	0.52
1:B:567:CYS:O	1:B:571:GLU:HG2	2.10	0.51
1:B:393:GLU:HG2	1:B:397:GLN:NE2	2.25	0.51
1:A:223:PHE:CD1	1:A:272:SER:HB2	2.46	0.51
1:B:415:VAL:HG11	1:B:473:VAL:HG23	1.91	0.51
1:B:428:ARG:NE	1:B:526:GLN:OE1	2.44	0.51
1:B:398:LEU:HB3	1:B:402:LYS:HB2	1.93	0.51

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:416:PRO:O	1:A:534:LYS:HE2	2.12	0.50
1:B:356:THR:HG21	1:B:373:VAL:HG22	1.94	0.50
1:B:503:ASN:HB2	1:B:506:THR:OG1	2.12	0.50
1:A:240:LYS:HE2	1:A:244:GLU:OE2	2.11	0.50
1:B:186:ARG:NH1	1:B:187:ASP:OD1	2.45	0.50
1:B:218:ARG:NH2	1:B:295:ASN:OD1	2.45	0.50
1:A:135:LEU:HD11	1:A:162:LYS:HG3	1.94	0.49
1:A:408:LEU:HD12	1:A:529:LEU:HD23	1.94	0.49
1:A:223:PHE:HD1	1:A:272:SER:HB2	1.75	0.49
1:A:29:GLN:HG2	1:A:147:PRO:HA	1.94	0.49
1:A:61:ASN:O	1:A:64:LYS:HB2	2.13	0.49
1:A:152:PRO:HG3	1:A:254:ALA:HA	1.95	0.48
1:B:410:ARG:O	1:B:414:LYS:HG3	2.14	0.48
1:A:64:LYS:HB3	1:A:69:LEU:HG	1.94	0.48
1:A:26:ALA:HB2	1:A:250:LEU:HD12	1.95	0.48
1:A:21:ALA:O	1:A:25:ILE:HG13	2.14	0.48
1:B:404:GLN:HG2	1:B:428:ARG:HA	1.96	0.47
1:A:405:ASN:ND2	1:A:548:MET:SD	2.87	0.47
1:A:537:PRO:C	1:A:539:ALA:H	2.18	0.47
1:B:135:LEU:HD11	1:B:162:LYS:HG3	1.96	0.47
1:A:50:ALA:O	1:A:54:VAL:HG23	2.14	0.47
1:B:441:PRO:HG2	1:B:444:LYS:HD3	1.96	0.46
1:A:249:ASP:HB3	1:A:252:GLU:CG	2.44	0.46
1:A:426:VAL:HG21	1:A:460:LEU:HB2	1.96	0.46
1:A:265:CYS:SG	1:A:286:LYS:HD2	2.56	0.46
1:B:456:VAL:O	1:B:459:GLN:HB3	2.16	0.46
1:A:540:THR:HA	1:A:543:GLN:NE2	2.30	0.45
1:A:420:THR:OG1	1:A:531:GLU:OE2	2.21	0.45
1:B:538:LYS:HB2	1:B:539:ALA:H	1.45	0.45
1:A:302:LEU:HB3	1:A:337:ARG:NH1	2.32	0.45
1:B:383:GLU:HB3	1:B:384:PRO:HD3	1.99	0.45
1:A:416:PRO:HB2	1:A:497:TYR:CE1	2.52	0.45
1:A:218:ARG:HH21	1:A:221:GLN:HB2	1.82	0.44
1:B:63:ASP:OD1	1:B:63:ASP:N	2.39	0.44
1:B:485:ARG:HB3	1:B:486:PRO:HD3	1.99	0.44
1:A:67:HIS:NE2	1:A:249:ASP:OD1	2.51	0.44
1:B:41:LYS:O	1:B:45:GLU:HG3	2.18	0.44
1:A:117:ARG:HA	1:A:118:PRO:HD3	1.81	0.44
1:B:310:VAL:HG12	1:B:370:TYR:O	2.18	0.43
1:B:39:HIS:O	1:B:43:VAL:HG23	2.18	0.43
1:B:408:LEU:HD11	1:B:526:GLN:HB3	1.99	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:342:SER:HA	1:A:447:PRO:HA	1.99	0.43
1:A:416:PRO:HB2	1:A:497:TYR:CD1	2.53	0.43
1:B:343:VAL:O	1:B:347:LEU:HG	2.17	0.43
1:A:230:GLU:O	1:A:234:LEU:HG	2.19	0.43
1:B:307:ALA:HA	1:B:311:GLU:HB2	1.99	0.43
1:B:133:THR:HA	1:B:136:LYS:HE3	2.00	0.43
1:A:402:LYS:HD3	1:A:545:LYS:HE3	2.00	0.43
1:A:151:ALA:HB3	1:A:152:PRO:HD3	2.01	0.43
1:B:309:PHE:CZ	1:B:330:PHE:HA	2.54	0.43
1:A:540:THR:HG21	1:A:544:LEU:HD21	2.01	0.43
1:B:428:ARG:NE	1:B:523:ILE:HG12	2.34	0.43
1:B:424:VAL:HG12	1:B:428:ARG:HD2	2.01	0.43
1:A:39:HIS:O	1:A:43:VAL:HG23	2.18	0.42
1:B:151:ALA:HB3	1:B:152:PRO:HD3	1.99	0.42
1:B:536:LYS:HE3	1:B:582:ALA:O	2.20	0.42
1:B:501:GLU:HG3	1:B:502:PHE:H	1.84	0.42
1:B:249:ASP:HB3	1:B:252:GLU:CG	2.50	0.42
1:A:107:ASP:O	1:A:110:PRO:HD3	2.19	0.42
1:A:396:GLU:HG2	1:A:396:GLU:H	1.70	0.42
1:A:567:CYS:O	1:A:571:GLU:HG2	2.20	0.42
1:B:319:TYR:HE1	1:B:327:LEU:HD11	1.84	0.42
1:A:417:GLN:HB3	1:A:469:VAL:HG12	2.02	0.42
1:A:139:LEU:HA	1:A:139:LEU:HD23	1.76	0.42
1:B:393:GLU:HG2	1:B:397:GLN:HE21	1.85	0.42
1:B:537:PRO:HB2	1:B:538:LYS:H	1.62	0.42
1:B:541:LYS:HB2	1:B:542:GLU:H	1.73	0.42
1:B:467:THR:O	1:B:469:VAL:N	2.53	0.42
1:A:274:LYS:HE2	1:A:296:ASP:HA	2.01	0.41
1:B:31:LEU:HG	1:B:74:LEU:HD22	2.02	0.41
1:B:215:ALA:HB3	1:B:235:VAL:HG13	2.02	0.41
1:A:541:LYS:HB3	1:A:542:GLU:H	1.54	0.41
1:A:457:LEU:HA	1:A:457:LEU:HD23	1.84	0.41
1:A:485:ARG:HD2	1:A:485:ARG:O	2.20	0.41
1:A:307:ALA:HA	1:A:311:GLU:HB2	2.02	0.41
1:B:416:PRO:HB2	1:B:497:TYR:CD1	2.55	0.41
1:A:451:ASP:O	1:A:454:SER:HB2	2.20	0.41
1:B:544:LEU:HA	1:B:544:LEU:HD22	1.77	0.41
1:B:548:MET:HE3	1:B:548:MET:HA	2.02	0.41
1:B:428:ARG:CZ	1:B:523:ILE:HG12	2.51	0.41
1:A:81:ARG:HG3	1:A:85:GLY:O	2.21	0.41
1:A:407:LEU:HD13	1:A:430:LEU:HB3	2.02	0.41

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:526:GLN:O	1:A:530:VAL:HG23	2.21	0.41
1:A:456:VAL:O	1:A:459:GLN:HB3	2.21	0.41
1:A:284:LEU:HA	1:A:284:LEU:HD23	1.86	0.41
1:B:418:VAL:HG12	1:B:423:LEU:HG	2.02	0.40
1:B:378:LYS:HB3	1:B:379:PRO:HD3	2.03	0.40
1:A:34:CYS:HA	1:A:35:PRO:HD3	1.86	0.40
1:A:115:LEU:HA	1:A:115:LEU:HD13	1.87	0.40
1:A:442:GLU:HA	1:A:445:ARG:HB2	2.02	0.40
1:B:442:GLU:HG2	1:B:445:ARG:HD2	2.03	0.40
1:B:147:PRO:HG2	1:B:148:TYR:CD1	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	576/585 (98%)	543 (94%)	24 (4%)	9 (2%)	12	11
1	B	576/585 (98%)	538 (93%)	33 (6%)	5 (1%)	21	24
All	All	1152/1170 (98%)	1081 (94%)	57 (5%)	14 (1%)	16	16

All (14) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	60	GLU
1	A	537	PRO
1	A	538	LYS
1	B	276	LYS
1	A	501	GLU
1	A	541	LYS
1	B	60	GLU
1	B	537	PRO

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	80	LEU
1	B	83	THR
1	B	560	LYS
1	A	59	ALA
1	A	466	LYS
1	A	150	TYR

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	506/511 (99%)	476 (94%)	30 (6%)	24	32
1	B	506/511 (99%)	468 (92%)	38 (8%)	17	21
All	All	1012/1022 (99%)	944 (93%)	68 (7%)	20	26

All (68) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	64	LYS
1	A	77	VAL
1	A	115	LEU
1	A	116	VAL
1	A	117	ARG
1	A	119	GLU
1	A	190	LYS
1	A	233	LYS
1	A	287	SER
1	A	294	GLU
1	A	305	LEU
1	A	324	ASP
1	A	336	ARG
1	A	375	ASP
1	A	396	GLU
1	A	467	THR
1	A	470	SER

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	A	478	THR
1	A	487	CYS
1	A	496	THR
1	A	498	VAL
1	A	500	LYS
1	A	512	ASP
1	A	524	LYS
1	A	532	LEU
1	A	542	GLU
1	A	548	MET
1	A	556	GLU
1	A	557	LYS
1	A	562	ASP
1	B	37	GLU
1	B	41	LYS
1	B	77	VAL
1	B	79	THR
1	B	81	ARG
1	B	114	ARG
1	B	184	GLU
1	B	186	ARG
1	B	187	ASP
1	B	218	ARG
1	B	245	CYS
1	B	270	SER
1	B	277	GLU
1	B	286	LYS
1	B	287	SER
1	B	294	GLU
1	B	305	LEU
1	B	310	VAL
1	B	318	ASN
1	B	356	THR
1	B	375	ASP
1	B	425	GLU
1	B	440	HIS
1	B	469	VAL
1	B	470	SER
1	B	475	LYS
1	B	480	SER
1	B	496	THR
1	B	500	LYS

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	503	ASN
1	B	506	THR
1	B	532	LEU
1	B	540	THR
1	B	544	LEU
1	B	554	PHE
1	B	556	GLU
1	B	557	LYS
1	B	571	GLU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	543	GLN
1	B	543	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no carbohydrates 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 ⓘ

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(Å ²)	Q<0.9
1	A	578/585 (98%)	0.37	31 (5%) 29 38	32, 50, 89, 127	0
1	B	578/585 (98%)	0.35	36 (6%) 24 32	29, 49, 90, 121	0
All	All	1156/1170 (98%)	0.36	67 (5%) 26 35	29, 49, 90, 127	0

All (67) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	575	LEU	13.5
1	A	581	ALA	10.6
1	B	582	ALA	10.3
1	A	575	LEU	9.5
1	A	576	VAL	9.2
1	A	85	GLY	8.9
1	A	577	ALA	7.9
1	A	78	ALA	7.5
1	B	82	GLU	7.4
1	A	580	GLN	7.2
1	B	578	ALA	7.2
1	A	79	THR	7.1
1	A	83	THR	6.8
1	A	582	ALA	6.7
1	B	576	VAL	6.6
1	B	581	ALA	6.6
1	A	82	GLU	6.4
1	B	362	ALA	5.9
1	B	83	THR	5.9
1	B	579	SER	5.6
1	A	84	TYR	5.1
1	B	80	LEU	4.8
1	A	80	LEU	4.8
1	A	87	MET	4.7

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	B	81	ARG	4.6
1	A	579	SER	3.8
1	A	539	ALA	3.6
1	A	574	LYS	3.6
1	B	79	THR	3.6
1	B	85	GLY	3.5
1	B	84	TYR	3.4
1	B	88	ALA	3.4
1	B	551	PHE	3.4
1	A	362	ALA	3.3
1	B	87	MET	3.3
1	B	365	ASP	3.2
1	A	572	GLY	3.1
1	B	574	LYS	3.1
1	A	81	ARG	3.0
1	B	364	ALA	3.0
1	B	367	HIS	2.9
1	B	580	GLN	2.9
1	A	578	ALA	2.8
1	B	77	VAL	2.7
1	A	503	ASN	2.7
1	B	86	GLU	2.7
1	B	503	ASN	2.6
1	B	535	HIS	2.6
1	A	538	LYS	2.6
1	B	539	ALA	2.6
1	B	502	PHE	2.6
1	B	283	LEU	2.6
1	A	551	PHE	2.5
1	B	544	LEU	2.5
1	A	86	GLU	2.5
1	B	370	TYR	2.4
1	A	547	VAL	2.4
1	A	519	LYS	2.4
1	B	570	GLU	2.3
1	B	519	LYS	2.3
1	A	560	LYS	2.3
1	A	573	LYS	2.2
1	B	78	ALA	2.2
1	B	577	ALA	2.2
1	A	535	HIS	2.1
1	A	370	TYR	2.1

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	B	394	LEU	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 carbohydrates 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.