



# Full wwPDB X-ray Structure Validation Report ⓘ

Feb 1, 2016 – 05:45 PM GMT

PDB ID : 4JDZ  
Title : Structures of SdrD from Staphylococcus aureus reveal the molecular mechanism of how the cell surface receptors recognize their ligands  
Authors : Wang, X.; Ge, J.; Yang, M.  
Deposited on : 2013-02-25  
Resolution : 2.10 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](mailto: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.

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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

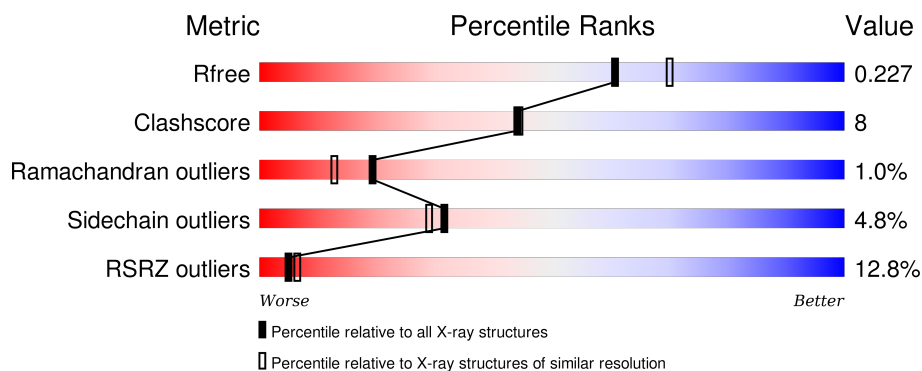
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.10 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	3939 (2.10-2.10)
Clashscore	102246	4460 (2.10-2.10)
Ramachandran outliers	100387	4413 (2.10-2.10)
Sidechain outliers	100360	4414 (2.10-2.10)
RSRZ outliers	91569	3948 (2.10-2.10)

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  $\geq 3$ , 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	B	445	<div> <div>6%</div> <div>84%</div> <div>13%</div> <div>.</div> </div>
2	A	438	<div> <div>20%</div> <div>76%</div> <div>20%</div> <div>..</div> </div>

## 2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 7277 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 Ser-Asp rich fibrinogen/bone sialoprotein-binding protein SdrD.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	B	445	Total	C	N	O	S	0	2	0
			3453	2151	571	727	4			

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	254	ILE	ASP	ENGINEERED MUTATION	UNP E5QTK7
B	522	ALA	GLU	SEE REMARK 999	UNP E5QTK7
B	557	ALA	GLY	SEE REMARK 999	UNP E5QTK7
B	595	ALA	LYS	SEE REMARK 999	UNP E5QTK7
B	596	ALA	THR	SEE REMARK 999	UNP E5QTK7
B	597	ALA	ASN	SEE REMARK 999	UNP E5QTK7
B	598	ALA	LYS	SEE REMARK 999	UNP E5QTK7
B	680	ALA	-	EXPRESSION TAG	UNP E5QTK7

- Molecule 2 is a protein called Ser-Asp rich fibrinogen/bone sialoprotein-binding protein SdrD.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	A	430	Total	C	N	O	S	0	0	0
			3320	2077	543	696	4			

There are 11 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	236	ALA	LYS	SEE REMARK 999	UNP E5QTK7
A	254	ILE	ASP	ENGINEERED MUTATION	UNP E5QTK7
A	522	ALA	GLU	SEE REMARK 999	UNP E5QTK7
A	550G	ALA	GLY	SEE REMARK 999	UNP E5QTK7
A	592	ALA	ASP	SEE REMARK 999	UNP E5QTK7
A	593	ALA	ASN	SEE REMARK 999	UNP E5QTK7
A	594	ALA	LYS	SEE REMARK 999	UNP E5QTK7
A	595	ALA	THR	SEE REMARK 999	UNP E5QTK7

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Chain	Residue	Modelled	Actual	Comment	Reference
A	596	ALA	ASN	SEE REMARK 999	UNP E5QTK7
A	640	ALA	ASN	SEE REMARK 999	UNP E5QTK7
A	672	ALA	LYS	SEE REMARK 999	UNP E5QTK7

- Molecule 3 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	B	4	Total Ca 4 4	0	0
3	A	4	Total Ca 4 4	0	0

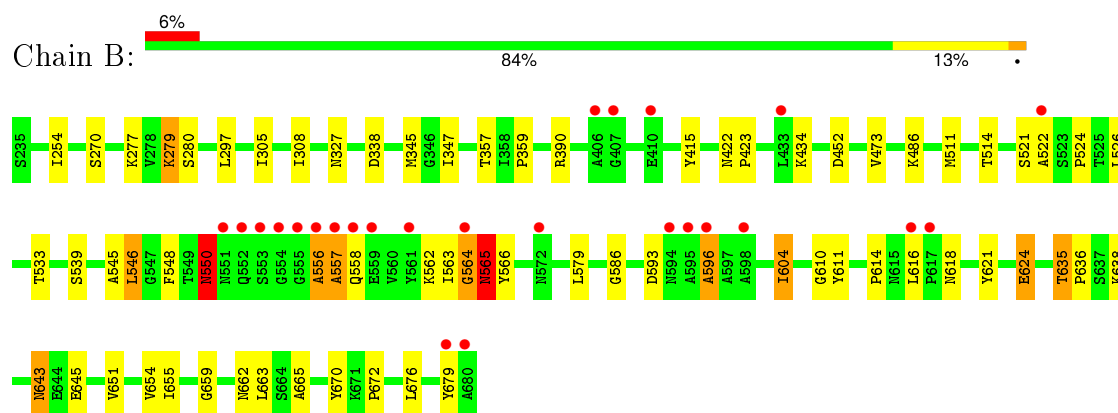
- Molecule 4 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	B	322	Total O 322 322	0	0
4	A	174	Total O 174 174	0	0

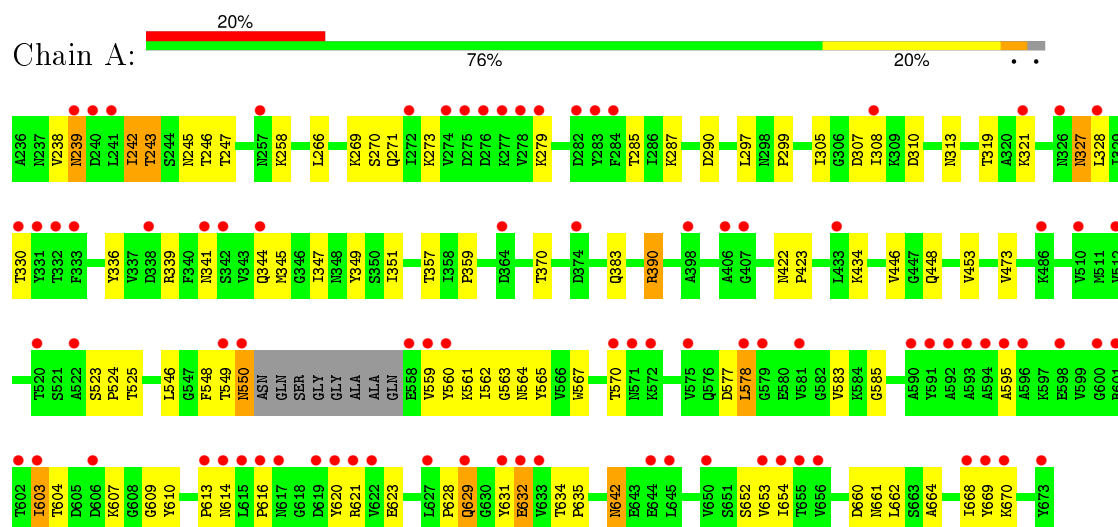
### 3 Residue-property plots

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: Ser-Asp rich fibrinogen/bone sialoprotein-binding protein SdrD



- Molecule 2: Ser-Asp rich fibrinogen/bone sialoprotein-binding protein SdrD



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	74.41Å 73.88Å 90.03Å 90.00° 102.42° 90.00°	Depositor
Resolution (Å)	50.00 – 2.10 29.47 – 2.10	Depositor EDS
% Data completeness (in resolution range)	(Not available) (50.00-2.10) 99.4 (29.47-2.10)	Depositor EDS
$R_{merge}$	0.06	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	4.36 (at 2.10Å)	Xtriage
Refinement program	Phenix	Depositor
R, $R_{free}$	0.185 , 0.232 0.181 , 0.227	Depositor DCC
$R_{free}$ test set	2822 reflections (5.07%)	DCC
Wilson B-factor (Å <sup>2</sup> )	32.3	Xtriage
Anisotropy	0.231	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.32 , 54.4	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.33$	Xtriage
Outliers	2 of 55806 reflections (0.004%)	Xtriage
$F_o, F_c$ correlation	0.96	EDS
Total number of atoms	7277	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	53.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 30.35 % 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 1.3283e-03. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

<sup>1</sup> Intensities estimated from amplitudes.

<sup>2</sup> Theoretical 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

### 5.1 Standard geometry

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

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	B	0.40	0/3512	0.56	0/4783
2	A	0.35	0/3377	0.50	0/4601
All	All	0.38	0/6889	0.53	0/9384

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

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	564	GLY	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	B	3453	0	3320	47	0
2	A	3320	0	3207	60	0
3	A	4	0	0	0	0
3	B	4	0	0	0	0
4	A	174	0	0	3	0
4	B	322	0	0	2	0
All	All	7277	0	6527	106	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 8.

All (106) 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)
2:A:629:GLN:H	2:A:629:GLN:HE21	1.13	0.92
1:B:473:VAL:HG11	1:B:511:MET:CE	2.06	0.86
1:B:473:VAL:HG11	1:B:511:MET:HE2	1.66	0.76
1:B:586:GLY:HA2	1:B:604:ILE:HD11	1.67	0.76
2:A:629:GLN:NE2	2:A:629:GLN:H	1.84	0.74
2:A:239:ASN:HD21	2:A:285:THR:H	1.40	0.69
1:B:522:ALA:HA	1:B:550:ASN:HB3	1.74	0.69
2:A:246:THR:HG23	2:A:270:SER:HB2	1.77	0.67
1:B:522:ALA:HA	1:B:550:ASN:CB	2.25	0.67
1:B:473:VAL:HG11	1:B:511:MET:HE1	1.75	0.66
2:A:258:LYS:HE3	2:A:383:GLN:HG2	1.80	0.64
2:A:287:LYS:HG3	2:A:370:THR:HB	1.82	0.62
2:A:585:GLY:HA2	2:A:603:ILE:HD11	1.80	0.62
2:A:563:GLY:HA2	2:A:610:TYR:CE2	2.35	0.61
1:B:565:ASN:N	1:B:611:TYR:CE1	2.69	0.61
2:A:524:PRO:HA	4:A:896:HOH:O	2.00	0.60
2:A:561:LYS:HB3	2:A:613:PRO:HA	1.83	0.60
2:A:243:THR:HG23	2:A:273:LYS:HB2	1.83	0.60
2:A:328:LEU:HD21	2:A:330:THR:OG1	2.01	0.59
2:A:629:GLN:N	2:A:629:GLN:HE21	1.93	0.59
1:B:564:GLY:HA2	1:B:611:TYR:OH	2.04	0.58
1:B:280:SER:HB2	1:B:338:ASP:OD2	2.03	0.58
1:B:618:ASN:HD21	1:B:659:GLY:H	1.53	0.56
1:B:521:SER:O	1:B:522:ALA:HB3	2.04	0.56
2:A:654:ILE:HD13	2:A:664:ALA:HB2	1.86	0.56
1:B:593:ASP:HB3	1:B:596:ALA:HB3	1.88	0.55
2:A:327:ASN:HD22	2:A:327:ASN:N	2.04	0.55
1:B:452:ASP:OD1	2:A:390:ARG:NH2	2.40	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:A:562:ILE:HA	2:A:661:ASN:O	2.07	0.54
2:A:634:THR:OG1	2:A:635:PRO:HD2	2.07	0.54
1:B:565:ASN:HA	1:B:611:TYR:O	2.07	0.54
2:A:336:TYR:HA	2:A:339:ARG:HH11	1.73	0.54
2:A:297:LEU:O	2:A:299:PRO:HD3	2.09	0.54
2:A:616:PRO:HD2	2:A:620:TYR:OH	2.08	0.53
2:A:307:ASP:OD2	2:A:319:THR:HG22	2.08	0.53
2:A:247:THR:HG22	2:A:269:LYS:HB2	1.91	0.53
2:A:565:TYR:CZ	2:A:567:TRP:HB3	2.44	0.53
2:A:583:VAL:HG21	2:A:668:ILE:HD11	1.90	0.52
1:B:618:ASN:ND2	1:B:659:GLY:H	2.08	0.52
2:A:336:TYR:HA	2:A:339:ARG:NH1	2.25	0.52
2:A:603:ILE:HG12	2:A:604:THR:N	2.24	0.52
1:B:357:THR:C	1:B:359:PRO:HD3	2.31	0.52
1:B:564:GLY:CA	1:B:611:TYR:CZ	2.93	0.51
2:A:448:GLN:HG2	2:A:453:VAL:HG21	1.92	0.51
2:A:273:LYS:HE3	2:A:344:GLN:NE2	2.25	0.51
2:A:670:LYS:HG3	2:A:670:LYS:O	2.12	0.50
1:B:473:VAL:CG1	1:B:511:MET:HE1	2.41	0.49
2:A:570:THR:O	2:A:570:THR:HG22	2.13	0.48
2:A:621:ARG:HA	2:A:652:SER:O	2.12	0.48
1:B:565:ASN:O	1:B:610:GLY:HA2	2.14	0.48
1:B:655:ILE:HD13	1:B:665:ALA:HB2	1.96	0.48
2:A:564:ASN:O	2:A:609:GLY:HA2	2.14	0.48
1:B:550:ASN:C	1:B:550:ASN:HD22	2.18	0.47
1:B:526:LEU:O	1:B:545:ALA:HA	2.13	0.47
1:B:635:THR:OG1	1:B:636:PRO:HD2	2.14	0.47
1:B:254:ILE:HG12	1:B:254:ILE:O	2.14	0.47
2:A:328:LEU:C	2:A:328:LEU:HD23	2.36	0.46
1:B:621:TYR:O	1:B:654:VAL:HA	2.16	0.46
1:B:533:THR:HG22	1:B:539:SER:HB3	1.97	0.46
1:B:643:ASN:ND2	1:B:645:GLU:H	2.13	0.46
1:B:562:LYS:HB3	1:B:614:PRO:HA	1.98	0.46
1:B:297:LEU:HD13	1:B:546:LEU:HD21	1.98	0.45
2:A:270:SER:HB3	2:A:347:ILE:HG12	1.99	0.45
2:A:357:THR:C	2:A:359:PRO:HD3	2.37	0.45
1:B:556:ALA:O	1:B:557:ALA:C	2.55	0.45
2:A:434:LYS:HD2	4:A:942:HOH:O	2.16	0.45
1:B:434:LYS:HE3	4:B:911:HOH:O	2.17	0.45
2:A:523:SER:HA	2:A:548:PHE:O	2.17	0.45
2:A:307:ASP:CG	2:A:319:THR:HA	2.37	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:297:LEU:CD1	1:B:546:LEU:HD21	2.47	0.45
2:A:243:THR:O	2:A:273:LYS:N	2.47	0.44
1:B:563:ILE:HA	1:B:662:ASN:O	2.17	0.44
1:B:624:GLU:HA	1:B:651:VAL:O	2.17	0.44
2:A:560:TYR:HB3	2:A:660:ASP:OD2	2.17	0.44
2:A:266:LEU:HB2	2:A:351:ILE:HG13	2.00	0.44
2:A:310:ASP:HB3	2:A:313:ASN:OD1	2.18	0.43
2:A:307:ASP:OD2	2:A:319:THR:HA	2.18	0.43
1:B:415:TYR:CZ	1:B:514:THR:CG2	3.01	0.43
1:B:422:ASN:N	1:B:423:PRO:CD	2.81	0.43
2:A:563:GLY:HA3	2:A:564:ASN:HB3	2.01	0.43
2:A:359:PRO:HD2	4:A:809:HOH:O	2.18	0.43
2:A:305:ILE:HG23	2:A:349:TYR:CZ	2.53	0.43
2:A:308:ILE:HG21	2:A:345:MET:HB3	2.00	0.43
1:B:277:LYS:O	1:B:279:LYS:HD3	2.19	0.43
2:A:559:VAL:HG21	2:A:614:ASN:HA	2.01	0.43
2:A:577:ASP:O	2:A:578:LEU:C	2.57	0.43
1:B:521:SER:O	1:B:522:ALA:CB	2.67	0.42
1:B:670:TYR:HE1	1:B:672:PRO:HG3	1.84	0.42
2:A:631:TYR:CD2	2:A:668:ILE:HD12	2.54	0.42
1:B:638:LYS:HB3	1:B:638:LYS:HE2	1.82	0.42
1:B:670:TYR:CE1	1:B:672:PRO:HG3	2.54	0.42
1:B:524:PRO:HD2	1:B:548:PHE:O	2.19	0.42
2:A:549:THR:O	2:A:550:ASN:C	2.57	0.42
1:B:305:ILE:HD12	4:B:1024:HOH:O	2.20	0.41
2:A:628:PRO:O	2:A:631:TYR:HB2	2.21	0.41
2:A:642:ASN:C	2:A:642:ASN:HD22	2.23	0.41
1:B:308:ILE:HG21	1:B:345:MET:HB3	2.02	0.41
2:A:422:ASN:N	2:A:423:PRO:CD	2.84	0.41
2:A:546:LEU:HD12	2:A:546:LEU:HA	1.83	0.41
2:A:446:VAL:HG22	2:A:525:THR:O	2.21	0.41
1:B:270:SER:HB3	1:B:347:ILE:HG12	2.03	0.41
2:A:632:GLU:HB3	2:A:669:TYR:CZ	2.56	0.41
2:A:620:TYR:O	2:A:653:VAL:HA	2.21	0.40
1:B:564:GLY:HA3	1:B:611:TYR:CE2	2.56	0.40
2:A:239:ASN:HA	2:A:242:ILE:CD1	2.51	0.40
1:B:327:ASN:N	1:B:327:ASN:HD22	2.19	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	B	445/445 (100%)	422 (95%)	17 (4%)	6 (1%)	15	9
2	A	426/438 (97%)	397 (93%)	26 (6%)	3 (1%)	26	21
All	All	871/883 (99%)	819 (94%)	43 (5%)	9 (1%)	19	13

All (9) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	596	ALA
2	A	578	LEU
1	B	550	ASN
1	B	557	ALA
1	B	565	ASN
1	B	556	ALA
1	B	558	GLN
2	A	595	ALA
2	A	238	VAL

### 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	B	387/385 (100%)	370 (96%)	17 (4%)	35	33
2	A	372/376 (99%)	352 (95%)	20 (5%)	27	24
All	All	759/761 (100%)	722 (95%)	37 (5%)	31	28

All (37) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	279	LYS
1	B	390[A]	ARG
1	B	390[B]	ARG
1	B	486	LYS
1	B	546	LEU
1	B	550	ASN
1	B	565	ASN
1	B	566	TYR
1	B	579	LEU
1	B	604	ILE
1	B	616	LEU
1	B	624	GLU
1	B	635	THR
1	B	643	ASN
1	B	663	LEU
1	B	676	LEU
1	B	679	TYR
2	A	239	ASN
2	A	242	ILE
2	A	243	THR
2	A	245	ASN
2	A	271	GLN
2	A	279	LYS
2	A	290	ASP
2	A	321	LYS
2	A	327	ASN
2	A	341	ASN
2	A	390	ARG
2	A	473	VAL
2	A	550	ASN
2	A	603	ILE
2	A	607	LYS
2	A	623	GLU
2	A	629	GLN
2	A	632	GLU
2	A	642	ASN
2	A	662	LEU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (29) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	304	ASN
1	B	327	ASN
1	B	383	GLN
1	B	417	GLN
1	B	448	GLN
1	B	476	ASN
1	B	506	ASN
1	B	528	GLN
1	B	544	ASN
1	B	550	ASN
1	B	551	ASN
1	B	594	ASN
1	B	618	ASN
1	B	643	ASN
2	A	239	ASN
2	A	245	ASN
2	A	271	GLN
2	A	304	ASN
2	A	327	ASN
2	A	417	GLN
2	A	448	GLN
2	A	476	ASN
2	A	528	GLN
2	A	544	ASN
2	A	550	ASN
2	A	571	ASN
2	A	617	ASN
2	A	629	GLN
2	A	642	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 carbohydrates in this entry.

## 5.6 Ligand geometry

Of 8 ligands modelled in this entry, 8 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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	B	445/445 (100%)	0.23	25 (5%) 28 36	16, 37, 76, 171	0
2	A	430/438 (98%)	0.83	87 (20%) 1 1	19, 65, 120, 150	0
All	All	875/883 (99%)	0.53	112 (12%) 5 6	16, 44, 113, 171	0

All (112) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	A	596	ALA	8.1
2	A	600	GLY	8.0
1	B	680	ALA	8.0
1	B	556	ALA	7.9
2	A	594	ALA	7.4
2	A	559	VAL	6.7
1	B	552	GLN	6.4
1	B	558	GLN	6.3
2	A	673	TYR	6.0
1	B	557	ALA	5.9
1	B	551	ASN	5.7
1	B	553	SER	5.7
1	B	555	GLY	4.9
1	B	679	TYR	4.8
2	A	578	LEU	4.5
2	A	558	GLU	4.4
2	A	593	ALA	4.3
1	B	407	GLY	4.2
2	A	283	TYR	4.2
2	A	570	THR	4.1
2	A	278	VAL	4.1
2	A	275	ASP	4.0
2	A	572	LYS	4.0
2	A	284	PHE	3.9

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Mol	Chain	Res	Type	RSRZ
1	B	554	GLY	3.9
2	A	241	LEU	3.9
2	A	614	ASN	3.8
2	A	620	TYR	3.8
2	A	595	ALA	3.8
2	A	650	VAL	3.7
2	A	616	PRO	3.7
2	A	342	SER	3.6
2	A	581	VAL	3.5
2	A	522	ALA	3.4
2	A	520	THR	3.4
1	B	596	ALA	3.4
2	A	240	ASP	3.3
2	A	272	ILE	3.3
1	B	559	GLU	3.3
2	A	653	VAL	3.2
2	A	613	PRO	3.2
2	A	406	ALA	3.2
2	A	277	LYS	3.2
2	A	670	LYS	3.2
2	A	598	GLU	3.1
2	A	579	GLY	3.1
2	A	332	THR	3.1
2	A	601	ARG	3.1
2	A	619	ASP	3.0
2	A	592	ALA	3.0
2	A	602	THR	3.0
1	B	594	ASN	3.0
2	A	407	GLY	3.0
1	B	406	ALA	3.0
2	A	629	GLN	3.0
2	A	341	ASN	3.0
2	A	328	LEU	2.9
2	A	621	ARG	2.9
2	A	338	ASP	2.9
1	B	616	LEU	2.9
2	A	615	LEU	2.9
2	A	433	LEU	2.8
2	A	575	VAL	2.8
2	A	622	VAL	2.8
2	A	590	ALA	2.8
2	A	326	ASN	2.7

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Mol	Chain	Res	Type	RSRZ
2	A	654	ILE	2.7
2	A	321	LYS	2.7
2	A	239	ASN	2.6
2	A	668	ILE	2.6
2	A	631	TYR	2.6
1	B	617	PRO	2.5
2	A	398	ALA	2.5
2	A	374	ASP	2.5
2	A	656	VAL	2.5
2	A	669	TYR	2.5
2	A	627	LEU	2.5
2	A	331	TYR	2.4
2	A	591	TYR	2.4
2	A	330	THR	2.4
1	B	522	ALA	2.4
2	A	644	GLU	2.4
2	A	279	LYS	2.4
2	A	571	ASN	2.4
2	A	603	ILE	2.3
2	A	550	ASN	2.3
2	A	512	VAL	2.3
1	B	410	GLU	2.3
1	B	433	LEU	2.3
2	A	276	ASP	2.2
2	A	645	LEU	2.2
2	A	274	VAL	2.2
2	A	549	THR	2.2
2	A	655	THR	2.2
2	A	560	TYR	2.2
2	A	606	ASP	2.2
2	A	617	ASN	2.2
2	A	308	ILE	2.2
2	A	632	GLU	2.1
2	A	486	LYS	2.1
2	A	633	VAL	2.1
1	B	598	ALA	2.1
2	A	282	ASP	2.1
1	B	572	ASN	2.1
1	B	564	GLY	2.1
1	B	561	TYR	2.1
2	A	333	PHE	2.1
2	A	364	ASP	2.1

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Mol	Chain	Res	Type	RSRZ
1	B	595	ALA	2.0
2	A	344	GLN	2.0
2	A	257	ASN	2.0
2	A	510	VAL	2.0

## 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](#)

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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. The B-factors column lists the minimum, median, 95<sup>th</sup> 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	LLDF	B-factors( $\text{\AA}^2$ )	Q<0.9
3	CA	A	704	1/1	0.96	0.24	0.34	53,53,53,53	0
3	CA	B	703	1/1	0.99	0.11	-0.17	25,25,25,25	0
3	CA	B	702	1/1	0.99	0.06	-1.17	28,28,28,28	0
3	CA	A	703	1/1	0.97	0.09	-1.17	46,46,46,46	0
3	CA	B	701	1/1	0.95	0.07	-1.60	21,21,21,21	0
3	CA	A	702	1/1	0.93	0.05	-1.79	42,42,42,42	0
3	CA	A	701	1/1	0.96	0.04	-1.96	44,44,44,44	0
3	CA	B	704	1/1	0.96	0.04	-2.85	25,25,25,25	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.