WORLDWIDE wwPDB PROTEIN DATA BANK

Full wwPDB X-ray Structure Validation Report (i)

Oct 29, 2024 – 04:11 PM JST

PDB ID	:	9II9
Title	:	Crystal structure of SARS-CoV-2 neutralizing antibody K4-66
Authors	:	Kimura, T.K.; Hashiguchi, T.
Deposited on	:	2024-06-19
Resolution	:	2.90 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 (i) 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 (i)) were used in the production of this report:

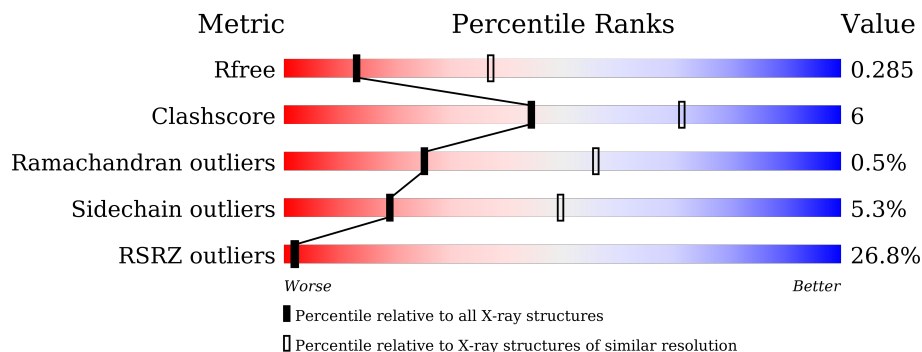|		
MolProbity	:	4.02b-467
Xtriage (Phenix)	:	1.13
EDS	:	3.0
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.003 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.39

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 2.90 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		0.285
Clashscore		6
Ramachandran outliers		0.5%
Sidechain outliers		5.3%
RSRZ outliers		26.8%

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}	164625	2335 (2.90-2.90)
Clashscore	180529	2564 (2.90-2.90)
Ramachandran outliers	177936	2514 (2.90-2.90)
Sidechain outliers	177891	2516 (2.90-2.90)
RSRZ outliers	164620	2337 (2.90-2.90)

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	218	7% / 86% / 14%
1	C	218	61% / 87% / 8% ·
2	B	214	% / 84% / 14% ··
2	D	214	35% / 79% / 18% ·

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2 Entry composition ⓘ

There are 2 unique types of molecules in this entry. The entry contains 5784 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 antigen-binding fragments (Fabs).

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	218	Total	C	N	O	S	0	0	0
			1577	994	273	304	6			
1	C	209	Total	C	N	O	S	0	0	0
			1208	742	219	243	4			

- Molecule 2 is a protein called antigen-binding fragments (Fabs).

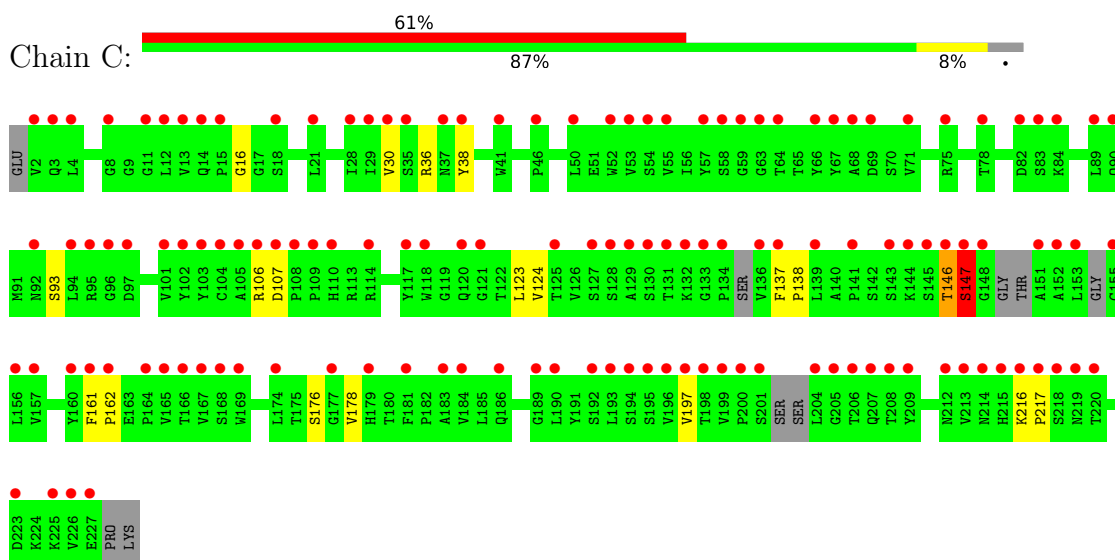| Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	212	Total	C	N	O	S	0	0	0
			1608	1003	269	331	5			
2	D	208	Total	C	N	O	S	0	0	0
			1391	862	239	285	5			

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: antigen-binding fragments (Fabs)

Chain A:

- Molecule 1: antigen-binding fragments (Fabs)

Chain C:

- Molecule 2: antigen-binding fragments (Fabs)

Chain B:

V210 T211 H212 Q213 G226 GLU CYS

• Molecule 2: antigen-binding fragments (Fabs)

Chain D:

35%

79%   18%

D1 I2 S7 P8 L11 V19 T20 I21 T22 C23 I29 N30 K31 Y32 L33 N34 W35 Q38 K39 P40 A43 L46 L47 I48 Y49 E62 R69 G74 S77 D80 F81 A94 T95 Y96 Y97 C98 Q99 Q100 S101 D102 N103 L108 P109 P110 T111 G115 T116

N117 I120 K121 R122 T123 A126 P127 F130 I131 F132 P133 P134 S135 D136 E137 Q138 L139 T143 A144 S145 V146 V147 C148 L149 L150 N151 V160 Q161 W162 K163 V164 A167 L168 Q169 S170 G171 N172 S173 T178 E179 Q180 D181 S182 S185 S188 L193 T194 L195 S196 K197

ALA ASP Y200 E201 K202 H203 K204 V205 Y206 A207 C208 E209 V210 T211 H212 S216 L217 P218 V219 T220 K221 S222 F223 N224 ARG GLY GLU CYS

4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 41 21 2	Depositor
Cell constants a, b, c, α, β, γ	147.45Å 147.45Å 154.93Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.41 – 2.90 49.41 – 2.90	Depositor EDS
% Data completeness (in resolution range)	100.0 (49.41-2.90) 100.0 (49.41-2.90)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.05 (at 2.81Å)	Xtriage
Refinement program	REFMAC 1.20.1_4487, PHENIX 1.20.1_4487	Depositor
R, R_{free}	0.262 , 0.288 0.266 , 0.285	Depositor DCC
R_{free} test set	1993 reflections (5.18%)	wwPDB-VP
Wilson B-factor (Å^2)	80.6	Xtriage
Anisotropy	0.261	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.29 , 71.9	EDS
L-test for twinning[2]	$< |L| > = 0.48, < L^2 > = 0.30$	Xtriage
Estimated twinning fraction	0.024 for -h,l,k 0.014 for -l,-k,-h	Xtriage
F_o,F_c correlation	0.90	EDS
Total number of atoms	5784	wwPDB-VP
Average B, all atoms (Å^2)	88.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.41% 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 (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	0.28	0/1615	0.53	0/2209
1	C	0.25	0/1227	0.48	0/1698
2	B	0.28	0/1641	0.49	0/2236
2	D	0.26	0/1417	0.50	0/1948
All	All	0.27	0/5900	0.50	0/8091

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	C	0	2
2	D	0	1
All	All	0	3

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	C	146	THR	Peptide
1	C	216	LYS	Peptide
2	D	202	LYS	Peptide

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	1577	0	1486	20	0
1	C	1208	0	822	10	0
2	B	1608	0	1539	17	0
2	D	1391	0	1143	19	0
All	All	5784	0	4990	64	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 6.

All (64) 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:B:157:GLU:N	2:B:157:GLU:OE1	2.19	0.75
1:A:215:HIS:CD2	1:A:217:PRO:HD2	2.24	0.71
2:B:129:VAL:HG21	2:B:210:VAL:HG11	1.73	0.70
2:D:8:PRO:HG2	2:D:21:ILE:HG22	1.73	0.70
1:A:134:PRO:HB3	1:A:160:TYR:HB3	1.73	0.68
2:D:164:VAL:HA	2:D:206:TYR:HA	1.79	0.65
1:C:16:GLY:HA2	1:C:93:SER:HA	1.85	0.58
2:B:46:LEU:HD21	2:B:49:TYR:HB3	1.86	0.57
2:B:164:VAL:HG22	2:B:169:GLN:NE2	2.21	0.56
2:D:39:LYS:HD3	2:D:40:PRO:HD2	1.87	0.56
2:D:11:LEU:HD21	2:D:19:VAL:HB	1.87	0.55
2:B:164:VAL:HG22	2:B:169:GLN:HE21	1.70	0.55
2:D:122:ARG:NH1	2:D:123:THR:OG1	2.39	0.55
2:D:46:LEU:HD22	2:D:62:GLU:HG2	1.89	0.55
2:D:21:ILE:HG21	2:D:116:THR:HG21	1.89	0.54
1:A:13:VAL:HG21	1:A:94:LEU:HD13	1.89	0.54
1:A:138:PRO:HA	1:A:225:LYS:HZ2	1.73	0.54
1:A:14:GLN:HG3	1:A:15:PRO:HD2	1.89	0.53
1:A:137:PHE:CE2	2:B:138:GLN:HG3	2.43	0.53
2:D:151:ASN:O	2:D:188:SER:OG	2.24	0.53
2:D:35:TRP:HB2	2:D:48:ILE:HB	1.91	0.53
1:A:169:TRP:CH2	1:A:211:CYS:HB3	2.44	0.51
1:A:215:HIS:CG	1:A:217:PRO:HD2	2.45	0.51
1:A:141:PRO:HG3	1:A:153:LEU:HB3	1.94	0.50
1:A:162:PRO:O	1:A:215:HIS:HE1	1.94	0.50
2:D:127:PRO:HD3	2:D:212:HIS:CD2	2.47	0.50
1:A:217:PRO:O	1:A:219:ASN:N	2.44	0.49
2:B:19:VAL:HG21	2:B:88:LEU:HD22	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:11:LEU:HD11	2:B:118:VAL:HG22	1.95	0.47
1:C:93:SER:O	1:C:93:SER:OG	2.29	0.47
1:A:225:LYS:HA	1:A:225:LYS:HD3	1.61	0.47
2:D:40:PRO:HB3	2:D:179:GLU:OE1	2.14	0.47
2:D:30:ASN:OD1	2:D:31:LYS:N	2.46	0.47
2:D:7:SER:HB2	2:D:8:PRO:HD3	1.97	0.47
2:D:39:LYS:HD3	2:D:94:ALA:HB2	1.97	0.47
1:A:52:TRP:CD2	2:B:110:PRO:HD2	2.50	0.46
1:A:138:PRO:CA	1:A:225:LYS:HZ2	2.27	0.46
1:A:217:PRO:HB2	1:A:219:ASN:OD1	2.16	0.46
2:B:200:TYR:O	2:B:206:TYR:OH	2.33	0.46
1:C:146:THR:O	1:C:147:SER:HB2	2.15	0.46
1:C:38:TYR:H	1:C:106:ARG:NE	2.14	0.45
1:C:30:VAL:C	1:C:36:ARG:H	2.20	0.45
1:A:12:LEU:HD22	1:A:162:PRO:HG3	1.99	0.44
1:A:19:LEU:HD12	1:A:19:LEU:HA	1.78	0.44
2:B:35:TRP:CE2	2:B:83:PHE:HB2	2.52	0.44
2:B:159:LYS:HB3	2:B:211:THR:HB	1.99	0.44
2:B:35:TRP:CZ3	2:B:98:CYS:HB3	2.53	0.43
1:A:134:PRO:HD3	1:A:215:HIS:CD2	2.53	0.43
1:C:161:PHE:H	1:C:162:PRO:HD2	1.83	0.42
1:A:94:LEU:HD22	1:A:126:VAL:HG21	2.01	0.42
2:B:159:LYS:HE2	2:B:161:GLN:HG3	2.02	0.42
2:B:4:MET:HE3	2:B:100:GLN:HB3	2.00	0.42
2:D:8:PRO:O	2:D:116:THR:OG1	2.24	0.42
1:A:12:LEU:HA	1:A:125:THR:O	2.20	0.42
2:D:95:THR:HG22	2:D:117:ASN:HA	2.01	0.42
2:D:46:LEU:HD21	2:D:49:TYR:HB3	2.02	0.42
2:D:33:LEU:HD12	2:D:34:ASN:N	2.35	0.41
2:B:134:PRO:HG2	2:B:144:ALA:HB1	2.02	0.41
1:C:123:LEU:HD22	1:C:124:VAL:N	2.34	0.41
1:C:178:VAL:HA	1:C:197:VAL:HG22	2.02	0.41
2:D:74:GLY:HA3	2:D:81:PHE:HA	2.03	0.41
1:C:137:PHE:HA	1:C:138:PRO:HD3	1.92	0.41
2:B:144:ALA:HB3	2:B:195:LEU:HD12	2.03	0.40
1:C:106:ARG:HG2	1:C:107:ASP:N	2.36	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	216/218 (99%)	208 (96%)	8 (4%)	0	100	100
1	C	199/218 (91%)	173 (87%)	24 (12%)	2 (1%)	13	40
2	B	210/214 (98%)	201 (96%)	8 (4%)	1 (0%)	25	56
2	D	204/214 (95%)	186 (91%)	17 (8%)	1 (0%)	25	56
All	All	829/864 (96%)	768 (93%)	57 (7%)	4 (0%)	25	56

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	D	203	HIS
1	C	147	SER
2	B	152	ASN
1	C	217	PRO

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	162/183 (88%)	152 (94%)	10 (6%)	15	43
1	C	66/183 (36%)	64 (97%)	2 (3%)	36	71
2	B	182/190 (96%)	174 (96%)	8 (4%)	24	57
2	D	121/190 (64%)	113 (93%)	8 (7%)	14	39
All	All	531/746 (71%)	503 (95%)	28 (5%)	19	49

All (28) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	18	SER
1	A	37	ASN
1	A	54	SER
1	A	69	ASP
1	A	106	ARG
1	A	113	ARG
1	A	153	LEU
1	A	212	ASN
1	A	221	LYS
1	A	227	GLU
2	B	1	ASP
2	B	22	THR
2	B	42	LYS
2	B	73	SER
2	B	82	SER
2	B	152	ASN
2	B	194	THR
2	B	195	LEU
1	C	147	SER
1	C	176	SER
2	D	23	CYS
2	D	69	ARG
2	D	80	ASP
2	D	136	ASP
2	D	143	THR
2	D	151	ASN
2	D	182	SER
2	D	185	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
2	B	169	GLN

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 ⓘ

There are no ligands in this entry.

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(Å^2)	Q<0.9
1	A	218/218 (100%)	0.17	16 (7%)	22	19	40, 56, 90, 139	0
1	C	209/218 (95%)	2.59	133 (63%)	0	0	96, 140, 181, 247	0
2	B	212/214 (99%)	-0.09	3 (1%)	73	68	39, 59, 92, 110	0
2	D	208/214 (97%)	1.51	75 (36%)	1	1	60, 102, 185, 234	0
All	All	847/864 (98%)	1.03	227 (26%)	2	2	39, 82, 171, 247	0

All (227) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	C	148	GLY	9.0
2	D	1	ASP	8.3
2	D	224	ASN	8.1
1	C	194	SER	7.6
1	C	151	ALA	7.2
1	C	201	SER	7.1
1	C	108	PRO	6.3
1	C	106	ARG	6.0
1	C	213	VAL	5.8
1	C	219	ASN	5.7
2	D	103	ASN	5.5
1	C	193	LEU	5.2
1	C	160	TYR	5.2
2	D	148	CYS	5.2
1	C	156	LEU	5.1
2	D	2	ILE	5.1
1	C	134	PRO	5.0
2	D	162	TRP	4.9
1	C	204	LEU	4.8
1	A	147	SER	4.8
1	C	165	VAL	4.8

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Mol	Chain	Res	Type	RSRZ
1	C	198	THR	4.8
1	C	104	CYS	4.8
1	C	107	ASP	4.7
2	D	206	TYR	4.7
1	C	144	LYS	4.7
1	C	192	SER	4.6
1	C	58	SER	4.6
1	C	103	TYR	4.6
1	C	146	THR	4.6
1	C	155	CYS	4.5
1	C	63	GLY	4.5
1	C	200	PRO	4.5
2	D	149	LEU	4.5
2	D	102	ASP	4.4
1	C	35	SER	4.3
1	C	38	TYR	4.3
1	A	229	LYS	4.2
1	C	28	ILE	4.2
1	C	215	HIS	4.2
1	C	212	ASN	4.1
1	C	208	THR	4.1
1	C	30	VAL	4.1
2	D	208	CYS	4.1
1	A	228	PRO	4.0
1	A	226	VAL	4.0
1	C	109	PRO	4.0
1	C	183	ALA	3.9
1	A	217	PRO	3.9
1	C	145	SER	3.9
1	C	162	PRO	3.9
1	C	214	ASN	3.9
1	C	114	ARG	3.8
1	C	66	TYR	3.8
2	D	207	ALA	3.8
2	D	43	ALA	3.8
1	C	166	THR	3.8
2	D	144	ALA	3.7
2	D	173	SER	3.7
2	D	223	PHE	3.7
1	C	133	GLY	3.6
1	C	136	VAL	3.6
1	A	216	LYS	3.6

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Mol	Chain	Res	Type	RSRZ
1	C	157	VAL	3.6
1	A	225	LYS	3.6
2	D	170	SER	3.5
2	D	202	LYS	3.5
1	C	4	LEU	3.5
2	D	101	SER	3.4
2	D	222	SER	3.4
1	C	139	LEU	3.4
1	C	137	PHE	3.4
2	D	167	ALA	3.4
1	C	195	SER	3.4
1	C	153	LEU	3.3
2	D	143	THR	3.3
2	D	205	VAL	3.3
1	C	54	SER	3.3
1	C	82	ASP	3.3
1	C	216	LYS	3.3
1	C	225	LYS	3.3
1	C	14	GLN	3.2
1	C	129	ALA	3.1
1	C	110	HIS	3.1
1	C	130	SER	3.1
1	C	218	SER	3.1
1	C	131	THR	3.1
1	C	97	ASP	3.1
1	C	57	TYR	3.1
2	D	131	ILE	3.1
1	C	46	PRO	3.1
2	D	94	ALA	3.1
2	D	193	LEU	3.0
1	C	132	LYS	3.0
1	C	90	GLN	3.0
1	C	92	ASN	3.0
1	C	168	SER	3.0
1	C	226	VAL	3.0
1	C	8	GLY	3.0
1	C	125	THR	3.0
2	D	160	VAL	3.0
1	C	161	PHE	2.9
1	C	59	GLY	2.9
2	D	137	GLU	2.9
2	D	127	PRO	2.9

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Mol	Chain	Res	Type	RSRZ
1	C	102	TYR	2.9
1	C	55	VAL	2.9
2	D	209	GLU	2.9
1	C	18	SER	2.9
1	C	147	SER	2.9
2	D	40	PRO	2.9
1	C	177	GLY	2.9
1	C	190	LEU	2.8
1	C	186	GLN	2.8
1	C	196	VAL	2.8
1	C	128	SER	2.8
2	D	100	GLN	2.8
1	C	199	VAL	2.8
1	C	209	TYR	2.8
1	C	15	PRO	2.8
2	D	108	LEU	2.8
2	B	226	GLY	2.8
2	D	32	TYR	2.8
2	D	47	LEU	2.8
1	A	222	VAL	2.7
1	C	64	THR	2.7
1	C	41	TRP	2.7
1	C	75	ARG	2.7
1	C	105	ALA	2.7
2	D	126	ALA	2.7
1	C	84	LYS	2.7
2	D	138	GLN	2.7
1	C	181	PHE	2.7
2	D	200	TYR	2.7
2	D	133	PRO	2.7
2	D	151	ASN	2.7
2	D	217	LEU	2.7
2	D	201	GLU	2.7
2	D	115	GLY	2.7
1	C	13	VAL	2.6
2	D	134	PRO	2.6
1	C	71	VAL	2.6
1	C	220	THR	2.6
2	D	216	SER	2.6
1	C	184	VAL	2.6
1	C	169	TRP	2.6
2	D	211	THR	2.6

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Mol	Chain	Res	Type	RSRZ
1	C	205	GLY	2.6
1	C	197	VAL	2.6
2	D	181	ASP	2.6
2	D	48	ILE	2.5
2	D	98	CYS	2.5
2	D	221	LYS	2.5
2	D	188	SER	2.5
2	D	196	SER	2.5
2	D	109	PRO	2.5
1	A	146	THR	2.5
1	C	174	LEU	2.5
2	D	77	SER	2.5
2	D	130	PHE	2.5
1	C	121	GLY	2.5
2	D	147	VAL	2.5
1	C	95	ARG	2.5
1	C	21	LEU	2.5
1	C	206	THR	2.5
1	C	29	ILE	2.4
1	C	101	VAL	2.4
1	C	164	PRO	2.4
2	D	7	SER	2.4
2	D	203	HIS	2.4
1	C	68	ALA	2.4
2	D	194	THR	2.4
2	D	220	THR	2.4
1	C	207	GLN	2.4
1	C	94	LEU	2.4
1	C	11	GLY	2.3
1	C	83	SER	2.3
1	C	118	TRP	2.3
1	C	127	SER	2.3
1	C	227	GLU	2.3
1	C	152	ALA	2.3
1	A	203	SER	2.3
1	C	143	SER	2.3
2	D	145	SER	2.3
1	C	37	ASN	2.3
1	C	89	LEU	2.3
1	C	217	PRO	2.3
1	C	117	TYR	2.3
2	D	29	ILE	2.3

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Mol	Chain	Res	Type	RSRZ
1	C	69	ASP	2.3
2	D	132	PHE	2.3
1	A	207	GLN	2.3
2	B	213	GLN	2.2
1	C	179	HIS	2.2
2	D	139	LEU	2.2
1	C	167	VAL	2.2
1	C	189	GLY	2.2
2	D	219	VAL	2.2
2	D	97	TYR	2.2
2	D	178	THR	2.2
1	C	3	GLN	2.2
2	D	161	GLN	2.2
1	A	142	SER	2.2
1	A	145	SER	2.2
1	C	12	LEU	2.2
1	C	78	THR	2.1
2	D	172	ASN	2.1
2	D	150	LEU	2.1
1	C	2	VAL	2.1
1	A	205	GLY	2.1
2	D	111	THR	2.1
1	C	120	GLN	2.1
1	C	67	TYR	2.1
1	A	227	GLU	2.1
1	C	53	VAL	2.1
1	C	96	GLY	2.1
2	D	195	LEU	2.1
1	C	223	ASP	2.1
2	B	144	ALA	2.1
1	A	59	GLY	2.1
2	D	169	GLN	2.0
1	C	52	TRP	2.0
2	D	38	GLN	2.0
1	C	141	PRO	2.0
2	D	120	ILE	2.0
2	D	164	VAL	2.0
1	C	50	LEU	2.0

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 ⓘ

There are no ligands in this entry.

6.5 Other polymers ⓘ

There are no such residues in this entry.