



wwPDB X-ray Structure Validation Summary Report ⓘ

Aug 21, 2020 – 11:27 PM BST

PDB ID : 6A4K
Title : Human antibody 32D6 Fab in complex with H1N1 influenza A virus HA1
Authors : Lee, C.C.; Ko, T.P.; Lin, L.L.; Wang, A.H.J.
Deposited on : 2018-06-20
Resolution : 3.15 Å(reported)

This is a wwPDB X-ray Structure Validation Summary 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 : 2.13.1
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) : 2.13.1

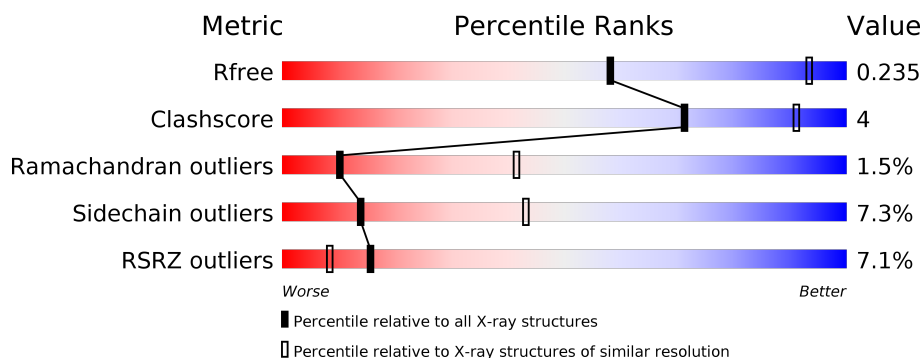
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.15 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	1665 (3.20-3.12)
Clashscore	141614	1804 (3.20-3.12)
Ramachandran outliers	138981	1770 (3.20-3.12)
Sidechain outliers	138945	1769 (3.20-3.12)
RSRZ outliers	127900	1616 (3.20-3.12)

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 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	235	<div> <div>5%</div> <div>84% 10% • 5%</div> </div>
1	B	235	<div> <div>5%</div> <div>82% 9% • 6%</div> </div>
1	C	235	<div> <div>%</div> <div>83% 11% • 5%</div> </div>
1	D	235	<div> <div>4%</div> <div>81% 10% • 6%</div> </div>
2	H	238	<div> <div>6%</div> <div>86% 10% • •</div> </div>
2	I	238	<div> <div>18%</div> <div>77% 19% • •</div> </div>

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Mol	Chain	Length	Quality of chain
2	J	238	<div><div></div><div>10%</div><div>82%</div><div>12%</div><div></div><div></div></div>
2	K	238	<div><div></div><div>12%</div><div>75%</div><div>20%</div><div></div><div></div></div>
3	L	216	<div><div></div><div>2%</div><div>85%</div><div>13%</div><div></div><div></div></div>
3	M	216	<div><div></div><div>18%</div><div>84%</div><div>16%</div><div></div><div></div></div>
3	N	216	<div><div></div><div>2%</div><div>81%</div><div>19%</div><div></div><div></div></div>
3	O	216	<div><div></div><div>3%</div><div>88%</div><div>12%</div><div></div><div></div></div>

2 Entry composition

There are 7 unique types of molecules in this entry. The entry contains 20618 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 Hemagglutinin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	223	Total	C	N	O	S	0	0	0
			1760	1123	296	335	6			
1	B	221	Total	C	N	O	S	0	0	0
			1745	1114	294	331	6			
1	C	223	Total	C	N	O	S	0	0	0
			1760	1123	296	335	6			
1	D	221	Total	C	N	O	S	0	0	0
			1745	1114	294	331	6			

- Molecule 2 is a protein called immunoglobulin Fab heavy chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	H	230	Total	C	N	O	S	0	0	0
			1722	1091	283	343	5			
2	I	230	Total	C	N	O	S	0	0	0
			1722	1091	283	343	5			
2	J	230	Total	C	N	O	S	0	0	0
			1722	1091	283	343	5			
2	K	230	Total	C	N	O	S	0	0	0
			1722	1091	283	343	5			

- Molecule 3 is a protein called immunoglobulin Fab light chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	L	216	Total	C	N	O	S	0	0	0
			1614	1000	277	330	7			
3	M	216	Total	C	N	O	S	0	0	0
			1614	1000	277	330	7			
3	N	216	Total	C	N	O	S	0	0	0
			1614	1000	277	330	7			
3	O	216	Total	C	N	O	S	0	0	0
			1614	1000	277	330	7			

- Molecule 4 is 2-acetamido-2-deoxy-beta-D-glucopyranose (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	A	1	Total	C	N	O	0	0
			14	8	1	5		
4	B	1	Total	C	N	O	0	0
			14	8	1	5		
4	C	1	Total	C	N	O	0	0
			14	8	1	5		
4	D	1	Total	C	N	O	0	0
			14	8	1	5		

- Molecule 5 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	O	1	Total	Ca	0	0
			1	1		
5	B	1	Total	Ca	0	0
			1	1		
5	A	1	Total	Ca	0	0
			1	1		
5	D	1	Total	Ca	0	0
			1	1		
5	C	1	Total	Ca	0	0
			1	1		

- Molecule 6 is ACETATE ION (three-letter code: ACT) (formula: $C_2H_3O_2$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	B	1	Total	C	O	0	0
			4	2	2		
6	D	1	Total	C	O	0	0
			4	2	2		

- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	28	Total	O	0	0
			28	28		
7	H	17	Total	O	0	0
			17	17		
7	L	29	Total	O	0	0
			29	29		
7	B	15	Total	O	0	0
			15	15		
7	I	6	Total	O	0	0
			6	6		
7	M	5	Total	O	0	0
			5	5		
7	C	24	Total	O	0	0
			24	24		
7	N	7	Total	O	0	0
			7	7		
7	D	31	Total	O	0	0
			31	31		
7	K	12	Total	O	0	0
			12	12		

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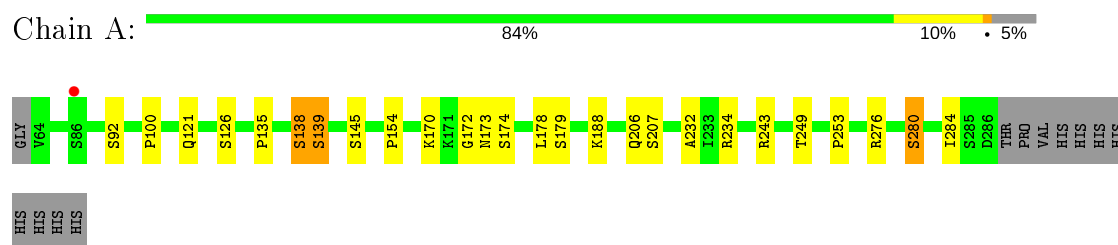
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	O	21	Total	O	0	0
			21	21		

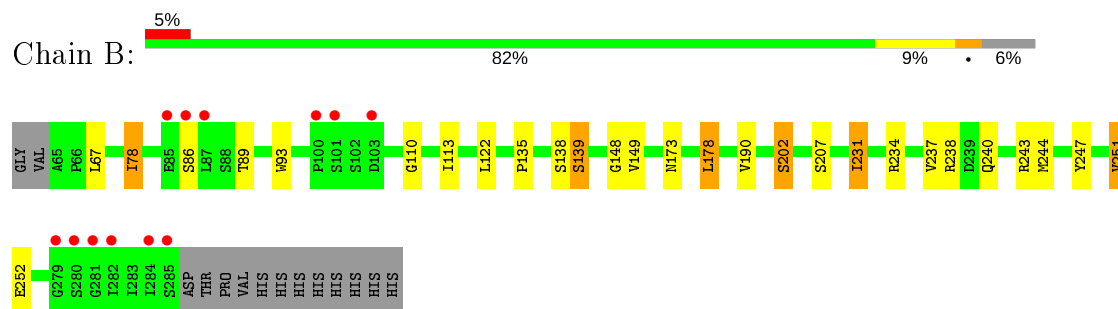
3 Residue-property plots [i](#)

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.

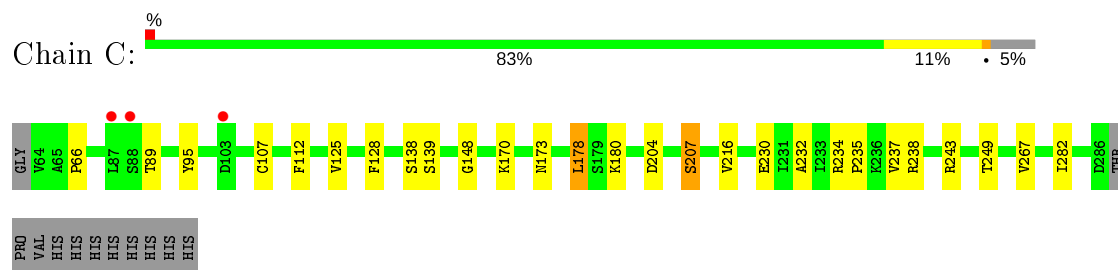
• Molecule 1: Hemagglutinin



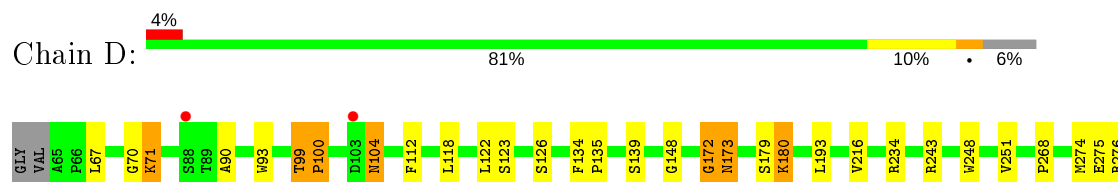
• Molecule 1: Hemagglutinin

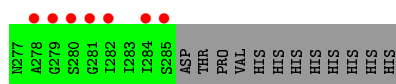


• Molecule 1: Hemagglutinin

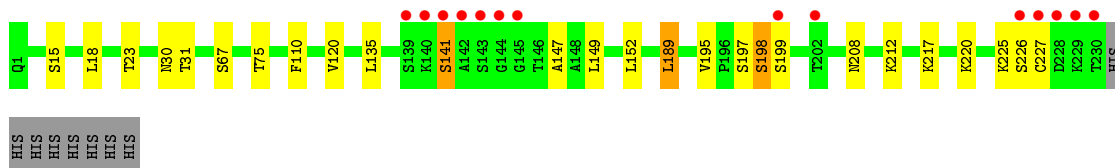
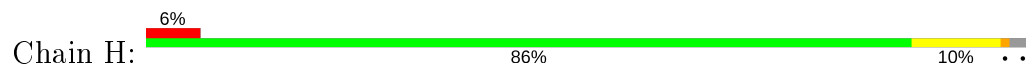


• Molecule 1: Hemagglutinin

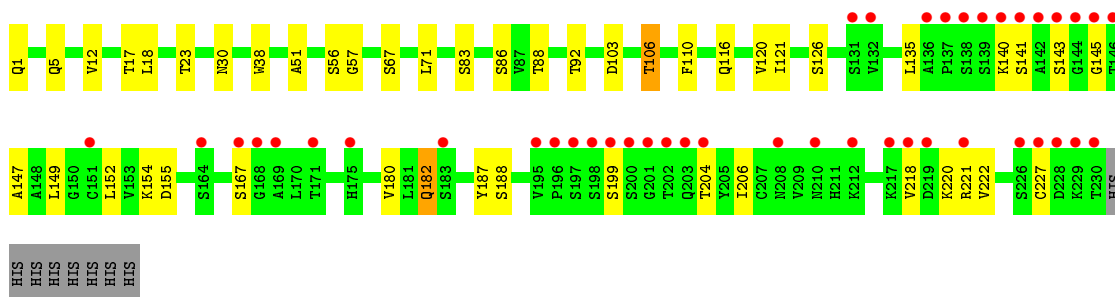
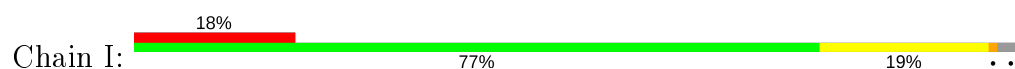




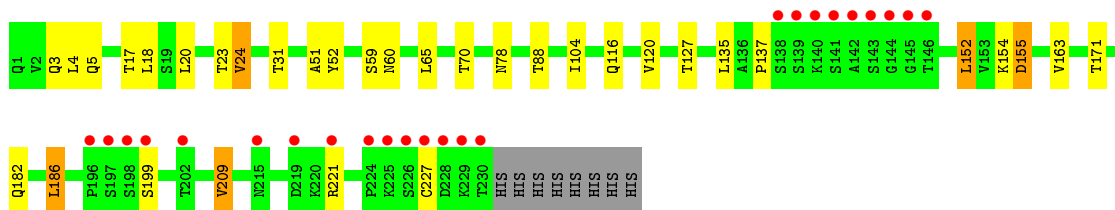
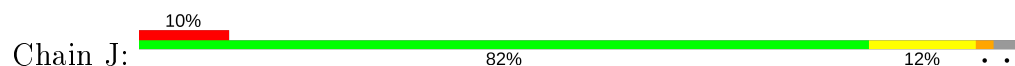
- Molecule 2: immunoglobulin Fab heavy chain



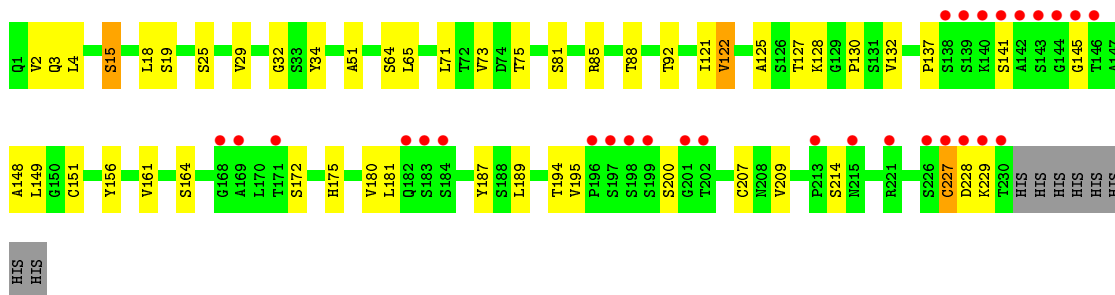
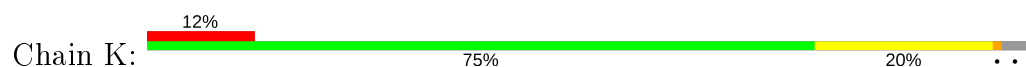
- Molecule 2: immunoglobulin Fab heavy chain



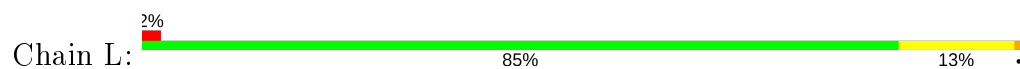
- Molecule 2: immunoglobulin Fab heavy chain



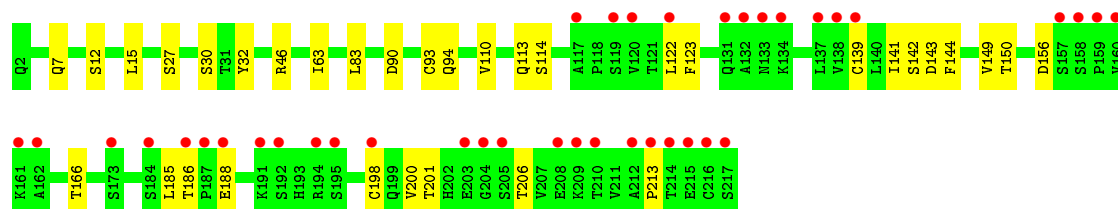
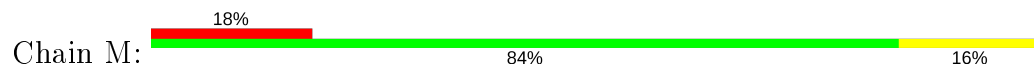
- Molecule 2: immunoglobulin Fab heavy chain



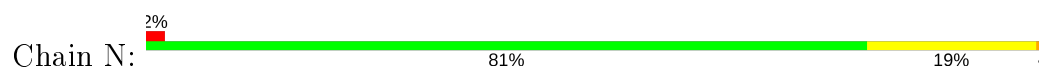
- Molecule 3: immunoglobulin Fab light chain



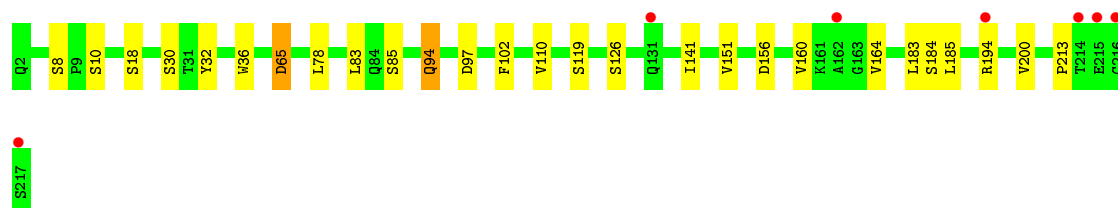
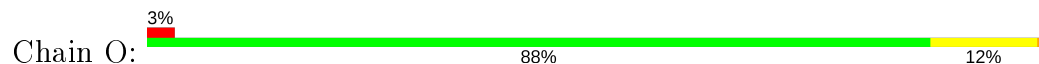
- Molecule 3: immunoglobulin Fab light chain



- Molecule 3: immunoglobulin Fab light chain



- Molecule 3: immunoglobulin Fab light chain



4 Data and refinement statistics

Property	Value	Source
Space group	P 31 1 2	Depositor
Cell constants a, b, c, α , β , γ	181.74Å 181.74Å 248.09Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	20.00 – 3.15 19.91 – 3.15	Depositor EDS
% Data completeness (in resolution range)	94.5 (20.00-3.15) 94.8 (19.91-3.15)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.43 (at 3.15Å)	Xtriage
Refinement program	REFMAC 5.8.0158	Depositor
R, R_{free}	0.175 , 0.233 0.178 , 0.235	Depositor DCC
R_{free} test set	3830 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å ²)	65.1	Xtriage
Anisotropy	0.010	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.29 , 60.0	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	0.029 for -h,-k,l	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	20618	wwPDB-VP
Average B, all atoms (Å ²)	84.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.87% 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, 0.333 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: CA, NAG, ACT

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	0.54	0/1810	0.74	0/2457
1	B	0.51	0/1795	0.72	0/2436
1	C	0.52	0/1810	0.74	0/2457
1	D	0.53	0/1795	0.74	1/2436 (0.0%)
2	H	0.53	0/1766	0.77	1/2414 (0.0%)
2	I	0.54	0/1766	0.73	0/2414
2	J	0.51	0/1766	0.69	0/2414
2	K	0.55	0/1766	0.74	0/2414
3	L	0.54	0/1651	0.78	0/2246
3	M	0.54	0/1651	0.73	0/2246
3	N	0.51	0/1651	0.72	1/2246 (0.0%)
3	O	0.55	0/1651	0.75	0/2246
All	All	0.53	0/20878	0.74	3/28426 (0.0%)

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	1
1	C	0	1
1	D	0	1
2	H	0	1
3	L	0	1
3	N	0	1
All	All	0	6

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	173	ASN	N-CA-CB	-5.33	101.01	110.60
3	N	40	ARG	NE-CZ-NH1	5.17	122.88	120.30
2	H	189	LEU	CA-CB-CG	5.12	127.07	115.30

There are no chirality outliers.

5 of 6 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	280	SER	Peptide
1	C	89	THR	Peptide
2	H	198	SER	Peptide
3	L	213	PRO	Peptide
3	N	215	GLU	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	A	1760	0	1696	8	0
1	B	1745	0	1683	12	0
1	C	1760	0	1696	9	0
1	D	1745	0	1683	15	0
2	H	1722	0	1687	8	0
2	I	1722	0	1687	18	0
2	J	1722	0	1687	12	0
2	K	1722	0	1687	18	0
3	L	1614	0	1553	13	0
3	M	1614	0	1553	14	0
3	N	1614	0	1553	14	0
3	O	1614	0	1553	9	0
4	A	14	0	13	1	0
4	B	14	0	13	0	0
4	C	14	0	13	0	0
4	D	14	0	13	0	0
5	A	1	0	0	0	0
5	B	1	0	0	0	0
5	C	1	0	0	0	0
5	D	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	O	1	0	0	0	0
6	B	4	0	3	0	0
6	D	4	0	3	0	0
7	A	28	0	0	0	0
7	B	15	0	0	1	0
7	C	24	0	0	0	0
7	D	31	0	0	0	0
7	H	17	0	0	1	0
7	I	6	0	0	0	0
7	K	12	0	0	0	0
7	L	29	0	0	1	0
7	M	5	0	0	0	0
7	N	7	0	0	1	0
7	O	21	0	0	0	0
All	All	20618	0	19776	142	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.

The worst 5 of 142 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)
3:M:7:GLN:NE2	3:M:93:CYS:SG	2.48	0.87
3:M:7:GLN:HE22	3:M:93:CYS:H	1.31	0.78
2:I:218:VAL:HG12	2:I:220:LYS:HG2	1.73	0.71
3:O:151:VAL:HG12	3:O:200:VAL:HG12	1.72	0.70
2:H:110:PHE:HA	3:L:94:GLN:HE22	1.59	0.67

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	221/235 (94%)	202 (91%)	16 (7%)	3 (1%)	11	43
1	B	219/235 (93%)	197 (90%)	19 (9%)	3 (1%)	11	43
1	C	221/235 (94%)	203 (92%)	17 (8%)	1 (0%)	29	65
1	D	219/235 (93%)	201 (92%)	15 (7%)	3 (1%)	11	43
2	H	228/238 (96%)	200 (88%)	23 (10%)	5 (2%)	6	32
2	I	228/238 (96%)	198 (87%)	26 (11%)	4 (2%)	8	37
2	J	228/238 (96%)	203 (89%)	20 (9%)	5 (2%)	6	32
2	K	228/238 (96%)	197 (86%)	25 (11%)	6 (3%)	5	28
3	L	214/216 (99%)	200 (94%)	12 (6%)	2 (1%)	17	53
3	M	214/216 (99%)	193 (90%)	19 (9%)	2 (1%)	17	53
3	N	214/216 (99%)	201 (94%)	10 (5%)	3 (1%)	11	43
3	O	214/216 (99%)	204 (95%)	7 (3%)	3 (1%)	11	43
All	All	2648/2756 (96%)	2399 (91%)	209 (8%)	40 (2%)	10	41

5 of 40 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
2	H	15	SER
2	H	225	LYS
2	H	227	CYS
3	L	213	PRO
1	B	86	SER

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	192/203 (95%)	180 (94%)	12 (6%)	18	49
1	B	190/203 (94%)	180 (95%)	10 (5%)	22	55
1	C	192/203 (95%)	180 (94%)	12 (6%)	18	49
1	D	190/203 (94%)	180 (95%)	10 (5%)	22	55

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	H	199/207 (96%)	186 (94%)	13 (6%)	17	48
2	I	199/207 (96%)	180 (90%)	19 (10%)	8	30
2	J	199/207 (96%)	184 (92%)	15 (8%)	13	42
2	K	199/207 (96%)	183 (92%)	16 (8%)	12	39
3	L	180/180 (100%)	165 (92%)	15 (8%)	11	37
3	M	180/180 (100%)	165 (92%)	15 (8%)	11	37
3	N	180/180 (100%)	162 (90%)	18 (10%)	7	28
3	O	180/180 (100%)	168 (93%)	12 (7%)	16	47
All	All	2280/2360 (97%)	2113 (93%)	167 (7%)	14	43

5 of 167 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	M	142	SER
1	C	249	THR
2	K	227	CYS
3	M	144	PHE
1	C	112	PHE

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 17 such sidechains are listed below:

Mol	Chain	Res	Type
3	M	94	GLN
3	M	113	GLN
1	D	173	ASN
2	I	208	ASN
2	K	30	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 monosaccharides in this entry.

5.6 Ligand geometry

Of 11 ligands modelled in this entry, 5 are monoatomic - leaving 6 for Mogul analysis.

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
6	ACT	B	503	-	1,3,3	2.27	1 (100%)	0,3,3	0.00	-
4	NAG	C	501	1	14,14,15	0.57	0	17,19,21	1.06	1 (5%)
4	NAG	D	501	1	14,14,15	0.58	0	17,19,21	1.31	2 (11%)
4	NAG	A	501	1	14,14,15	0.57	0	17,19,21	1.96	2 (11%)
4	NAG	B	501	1	14,14,15	0.91	0	17,19,21	1.73	4 (23%)
6	ACT	D	503	-	1,3,3	2.08	1 (100%)	0,3,3	0.00	-

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
4	NAG	A	501	1	-	2/6/23/26	0/1/1/1
4	NAG	B	501	1	-	2/6/23/26	0/1/1/1
4	NAG	C	501	1	-	2/6/23/26	0/1/1/1
4	NAG	D	501	1	-	0/6/23/26	0/1/1/1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	B	503	ACT	CH3-C	2.27	1.51	1.48
6	D	503	ACT	CH3-C	2.08	1.51	1.48

The worst 5 of 9 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed($^{\circ}$)	Ideal($^{\circ}$)
4	A	501	NAG	C1-O5-C5	7.21	121.97	112.19
4	B	501	NAG	C2-N2-C7	3.55	127.96	122.90
4	C	501	NAG	C1-O5-C5	2.82	116.02	112.19
4	B	501	NAG	C1-O5-C5	2.67	115.82	112.19
4	D	501	NAG	O5-C5-C6	2.64	111.35	107.20

There are no chirality outliers.

5 of 6 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
4	B	501	NAG	C4-C5-C6-O6
4	B	501	NAG	O5-C5-C6-O6
4	C	501	NAG	O5-C5-C6-O6
4	A	501	NAG	O5-C5-C6-O6
4	A	501	NAG	C4-C5-C6-O6

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	501	NAG	1	0

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

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	223/235 (94%)	-0.53	1 (0%) 92 89	34, 55, 110, 171	0
1	B	221/235 (94%)	-0.18	12 (5%) 25 13	42, 72, 155, 183	0
1	C	223/235 (94%)	-0.49	3 (1%) 77 66	40, 62, 112, 169	0
1	D	221/235 (94%)	-0.37	9 (4%) 37 22	33, 60, 136, 196	0
2	H	230/238 (96%)	-0.21	14 (6%) 21 11	33, 67, 150, 226	0
2	I	230/238 (96%)	0.62	43 (18%) 1 0	43, 76, 223, 261	0
2	J	230/238 (96%)	0.24	24 (10%) 6 3	46, 95, 186, 200	0
2	K	230/238 (96%)	0.19	29 (12%) 3 2	33, 86, 182, 212	0
3	L	216/216 (100%)	-0.58	4 (1%) 66 53	32, 56, 88, 202	0
3	M	216/216 (100%)	0.53	39 (18%) 1 1	43, 81, 219, 268	0
3	N	216/216 (100%)	-0.12	5 (2%) 60 46	43, 95, 145, 197	0
3	O	216/216 (100%)	-0.20	7 (3%) 47 30	30, 65, 155, 191	0
All	All	2672/2756 (96%)	-0.09	190 (7%) 16 8	30, 69, 183, 268	0

The worst 5 of 190 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	282	ILE	11.8
2	H	227	CYS	10.7
1	D	281	GLY	9.9
2	I	196	PRO	9.2
3	M	216	CYS	7.6

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
4	NAG	B	501	14/15	0.83	0.31	97,120,125,127	0
4	NAG	D	501	14/15	0.86	0.31	116,127,130,132	0
4	NAG	A	501	14/15	0.88	0.29	80,103,112,117	0
4	NAG	C	501	14/15	0.88	0.27	111,122,127,129	0
6	ACT	B	503	4/4	0.92	0.25	58,60,63,66	0
6	ACT	D	503	4/4	0.93	0.20	51,51,57,58	0
5	CA	O	301	1/1	0.97	0.46	122,122,122,122	1
5	CA	B	502	1/1	0.98	0.06	72,72,72,72	0
5	CA	C	502	1/1	0.98	0.07	71,71,71,71	0
5	CA	A	502	1/1	0.98	0.09	69,69,69,69	0
5	CA	D	502	1/1	0.99	0.04	71,71,71,71	0

6.5 Other polymers ⓘ

There are no such residues in this entry.