Full wwPDB X-ray Structure Validation Report (i)

Oct 14, 2023 – 01:27 PM EDT

PDB ID	:	7TN1
Title	:	Multistate design to stabilize viral class I fusion proteins
Authors	:	Huang, J.; Banerjee, A.; Gonzalez, K.; Mousa, J.; Strauch, E.
Deposited on	:	2022-01-20
Resolution	:	3.10 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*
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 (1)) were used in the production of this report:

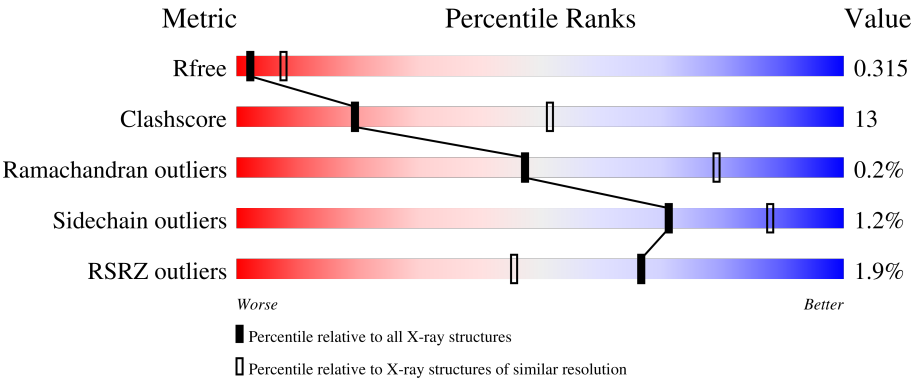
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

1 Overall quality at a glance (i)

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

The reported resolution of this entry is 3.10 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}	130704	1094 (3.10-3.10)
Clashscore	141614	1184 (3.10-3.10)
Ramachandran outliers	138981	1141 (3.10-3.10)
Sidechain outliers	138945	1141 (3.10-3.10)
RSRZ outliers	127900	1067 (3.10-3.10)

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 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	568	2% 58% 22% 20%
1	B	568	58% 21% 20%
1	F	568	58% 21% 20%

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	NAG	F	601	-	-	-	X

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 10463 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 Fusion glycoprotein F0.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	F	454	Total	C	N	O	S	0	0	0
			3465	2185	568	691	21			
1	A	454	Total	C	N	O	S	0	0	0
			3477	2191	575	690	21			
1	B	453	Total	C	N	O	S	0	0	0
			3476	2192	575	688	21			

There are 189 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
F	55	ALA	SER	conflict	UNP W8RJF9
F	60	PHE	GLU	conflict	UNP W8RJF9
F	66	GLU	LYS	conflict	UNP W8RJF9
F	150	GLU	SER	conflict	UNP W8RJF9
F	175	ARG	ASN	conflict	UNP W8RJF9
F	227	LEU	ASN	conflict	UNP W8RJF9
F	380	LYS	ASN	conflict	UNP W8RJF9
F	487	ASN	GLU	conflict	UNP W8RJF9
F	514	SER	HIS	conflict	UNP W8RJF9
F	515	ALA	ASN	conflict	UNP W8RJF9
F	516	ILE	VAL	conflict	UNP W8RJF9
F	517	GLY	ASN	conflict	UNP W8RJF9
F	518	GLY	ALA	conflict	UNP W8RJF9
F	519	TYR	-	expression tag	UNP W8RJF9
F	520	ILE	-	expression tag	UNP W8RJF9
F	521	PRO	-	expression tag	UNP W8RJF9
F	522	GLU	-	expression tag	UNP W8RJF9
F	523	ALA	-	expression tag	UNP W8RJF9
F	524	PRO	-	expression tag	UNP W8RJF9
F	525	ARG	-	expression tag	UNP W8RJF9
F	526	ASP	-	expression tag	UNP W8RJF9
F	527	GLY	-	expression tag	UNP W8RJF9
F	528	GLN	-	expression tag	UNP W8RJF9

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Chain	Residue	Modelled	Actual	Comment	Reference
F	529	ALA	-	expression tag	UNP W8RJF9
F	530	TYR	-	expression tag	UNP W8RJF9
F	531	VAL	-	expression tag	UNP W8RJF9
F	532	ARG	-	expression tag	UNP W8RJF9
F	533	LYS	-	expression tag	UNP W8RJF9
F	534	ASP	-	expression tag	UNP W8RJF9
F	535	GLY	-	expression tag	UNP W8RJF9
F	536	GLU	-	expression tag	UNP W8RJF9
F	537	TRP	-	expression tag	UNP W8RJF9
F	538	VAL	-	expression tag	UNP W8RJF9
F	539	LEU	-	expression tag	UNP W8RJF9
F	540	LEU	-	expression tag	UNP W8RJF9
F	541	SER	-	expression tag	UNP W8RJF9
F	542	THR	-	expression tag	UNP W8RJF9
F	543	PHE	-	expression tag	UNP W8RJF9
F	544	LEU	-	expression tag	UNP W8RJF9
F	545	GLY	-	expression tag	UNP W8RJF9
F	546	GLY	-	expression tag	UNP W8RJF9
F	547	LEU	-	expression tag	UNP W8RJF9
F	548	VAL	-	expression tag	UNP W8RJF9
F	549	PRO	-	expression tag	UNP W8RJF9
F	550	ARG	-	expression tag	UNP W8RJF9
F	551	GLY	-	expression tag	UNP W8RJF9
F	552	SER	-	expression tag	UNP W8RJF9
F	553	HIS	-	expression tag	UNP W8RJF9
F	554	HIS	-	expression tag	UNP W8RJF9
F	555	HIS	-	expression tag	UNP W8RJF9
F	556	HIS	-	expression tag	UNP W8RJF9
F	557	HIS	-	expression tag	UNP W8RJF9
F	558	HIS	-	expression tag	UNP W8RJF9
F	559	SER	-	expression tag	UNP W8RJF9
F	560	ALA	-	expression tag	UNP W8RJF9
F	561	TRP	-	expression tag	UNP W8RJF9
F	562	SER	-	expression tag	UNP W8RJF9
F	563	HIS	-	expression tag	UNP W8RJF9
F	564	PRO	-	expression tag	UNP W8RJF9
F	565	GLN	-	expression tag	UNP W8RJF9
F	566	PHE	-	expression tag	UNP W8RJF9
F	567	GLU	-	expression tag	UNP W8RJF9
F	568	LYS	-	expression tag	UNP W8RJF9
A	55	ALA	SER	conflict	UNP W8RJF9
A	60	PHE	GLU	conflict	UNP W8RJF9

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Chain	Residue	Modelled	Actual	Comment	Reference
A	66	GLU	LYS	conflict	UNP W8RJF9
A	150	GLU	SER	conflict	UNP W8RJF9
A	175	ARG	ASN	conflict	UNP W8RJF9
A	227	LEU	ASN	conflict	UNP W8RJF9
A	380	LYS	ASN	conflict	UNP W8RJF9
A	487	ASN	GLU	conflict	UNP W8RJF9
A	514	SER	HIS	conflict	UNP W8RJF9
A	515	ALA	ASN	conflict	UNP W8RJF9
A	516	ILE	VAL	conflict	UNP W8RJF9
A	517	GLY	ASN	conflict	UNP W8RJF9
A	518	GLY	ALA	conflict	UNP W8RJF9
A	519	TYR	-	expression tag	UNP W8RJF9
A	520	ILE	-	expression tag	UNP W8RJF9
A	521	PRO	-	expression tag	UNP W8RJF9
A	522	GLU	-	expression tag	UNP W8RJF9
A	523	ALA	-	expression tag	UNP W8RJF9
A	524	PRO	-	expression tag	UNP W8RJF9
A	525	ARG	-	expression tag	UNP W8RJF9
A	526	ASP	-	expression tag	UNP W8RJF9
A	527	GLY	-	expression tag	UNP W8RJF9
A	528	GLN	-	expression tag	UNP W8RJF9
A	529	ALA	-	expression tag	UNP W8RJF9
A	530	TYR	-	expression tag	UNP W8RJF9
A	531	VAL	-	expression tag	UNP W8RJF9
A	532	ARG	-	expression tag	UNP W8RJF9
A	533	LYS	-	expression tag	UNP W8RJF9
A	534	ASP	-	expression tag	UNP W8RJF9
A	535	GLY	-	expression tag	UNP W8RJF9
A	536	GLU	-	expression tag	UNP W8RJF9
A	537	TRP	-	expression tag	UNP W8RJF9
A	538	VAL	-	expression tag	UNP W8RJF9
A	539	LEU	-	expression tag	UNP W8RJF9
A	540	LEU	-	expression tag	UNP W8RJF9
A	541	SER	-	expression tag	UNP W8RJF9
A	542	THR	-	expression tag	UNP W8RJF9
A	543	PHE	-	expression tag	UNP W8RJF9
A	544	LEU	-	expression tag	UNP W8RJF9
A	545	GLY	-	expression tag	UNP W8RJF9
A	546	GLY	-	expression tag	UNP W8RJF9
A	547	LEU	-	expression tag	UNP W8RJF9
A	548	VAL	-	expression tag	UNP W8RJF9
A	549	PRO	-	expression tag	UNP W8RJF9

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Chain	Residue	Modelled	Actual	Comment	Reference
A	550	ARG	-	expression tag	UNP W8RJF9
A	551	GLY	-	expression tag	UNP W8RJF9
A	552	SER	-	expression tag	UNP W8RJF9
A	553	HIS	-	expression tag	UNP W8RJF9
A	554	HIS	-	expression tag	UNP W8RJF9
A	555	HIS	-	expression tag	UNP W8RJF9
A	556	HIS	-	expression tag	UNP W8RJF9
A	557	HIS	-	expression tag	UNP W8RJF9
A	558	HIS	-	expression tag	UNP W8RJF9
A	559	SER	-	expression tag	UNP W8RJF9
A	560	ALA	-	expression tag	UNP W8RJF9
A	561	TRP	-	expression tag	UNP W8RJF9
A	562	SER	-	expression tag	UNP W8RJF9
A	563	HIS	-	expression tag	UNP W8RJF9
A	564	PRO	-	expression tag	UNP W8RJF9
A	565	GLN	-	expression tag	UNP W8RJF9
A	566	PHE	-	expression tag	UNP W8RJF9
A	567	GLU	-	expression tag	UNP W8RJF9
A	568	LYS	-	expression tag	UNP W8RJF9
B	55	ALA	SER	conflict	UNP W8RJF9
B	60	PHE	GLU	conflict	UNP W8RJF9
B	66	GLU	LYS	conflict	UNP W8RJF9
B	150	GLU	SER	conflict	UNP W8RJF9
B	175	ARG	ASN	conflict	UNP W8RJF9
B	227	LEU	ASN	conflict	UNP W8RJF9
B	380	LYS	ASN	conflict	UNP W8RJF9
B	487	ASN	GLU	conflict	UNP W8RJF9
B	514	SER	HIS	conflict	UNP W8RJF9
B	515	ALA	ASN	conflict	UNP W8RJF9
B	516	ILE	VAL	conflict	UNP W8RJF9
B	517	GLY	ASN	conflict	UNP W8RJF9
B	518	GLY	ALA	conflict	UNP W8RJF9
B	519	TYR	-	expression tag	UNP W8RJF9
B	520	ILE	-	expression tag	UNP W8RJF9
B	521	PRO	-	expression tag	UNP W8RJF9
B	522	GLU	-	expression tag	UNP W8RJF9
B	523	ALA	-	expression tag	UNP W8RJF9
B	524	PRO	-	expression tag	UNP W8RJF9
B	525	ARG	-	expression tag	UNP W8RJF9
B	526	ASP	-	expression tag	UNP W8RJF9
B	527	GLY	-	expression tag	UNP W8RJF9
B	528	GLN	-	expression tag	UNP W8RJF9

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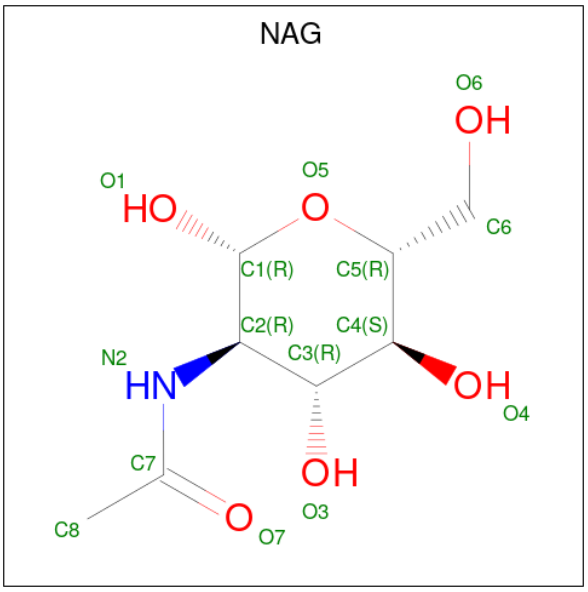
Chain	Residue	Modelled	Actual	Comment	Reference
B	529	ALA	-	expression tag	UNP W8RJF9
B	530	TYR	-	expression tag	UNP W8RJF9
B	531	VAL	-	expression tag	UNP W8RJF9
B	532	ARG	-	expression tag	UNP W8RJF9
B	533	LYS	-	expression tag	UNP W8RJF9
B	534	ASP	-	expression tag	UNP W8RJF9
B	535	GLY	-	expression tag	UNP W8RJF9
B	536	GLU	-	expression tag	UNP W8RJF9
B	537	TRP	-	expression tag	UNP W8RJF9
B	538	VAL	-	expression tag	UNP W8RJF9
B	539	LEU	-	expression tag	UNP W8RJF9
B	540	LEU	-	expression tag	UNP W8RJF9
B	541	SER	-	expression tag	UNP W8RJF9
B	542	THR	-	expression tag	UNP W8RJF9
B	543	PHE	-	expression tag	UNP W8RJF9
B	544	LEU	-	expression tag	UNP W8RJF9
B	545	GLY	-	expression tag	UNP W8RJF9
B	546	GLY	-	expression tag	UNP W8RJF9
B	547	LEU	-	expression tag	UNP W8RJF9
B	548	VAL	-	expression tag	UNP W8RJF9
B	549	PRO	-	expression tag	UNP W8RJF9
B	550	ARG	-	expression tag	UNP W8RJF9
B	551	GLY	-	expression tag	UNP W8RJF9
B	552	SER	-	expression tag	UNP W8RJF9
B	553	HIS	-	expression tag	UNP W8RJF9
B	554	HIS	-	expression tag	UNP W8RJF9
B	555	HIS	-	expression tag	UNP W8RJF9
B	556	HIS	-	expression tag	UNP W8RJF9
B	557	HIS	-	expression tag	UNP W8RJF9
B	558	HIS	-	expression tag	UNP W8RJF9
B	559	SER	-	expression tag	UNP W8RJF9
B	560	ALA	-	expression tag	UNP W8RJF9
B	561	TRP	-	expression tag	UNP W8RJF9
B	562	SER	-	expression tag	UNP W8RJF9
B	563	HIS	-	expression tag	UNP W8RJF9
B	564	PRO	-	expression tag	UNP W8RJF9
B	565	GLN	-	expression tag	UNP W8RJF9
B	566	PHE	-	expression tag	UNP W8RJF9
B	567	GLU	-	expression tag	UNP W8RJF9
B	568	LYS	-	expression tag	UNP W8RJF9

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



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

- Molecule 3 is water.

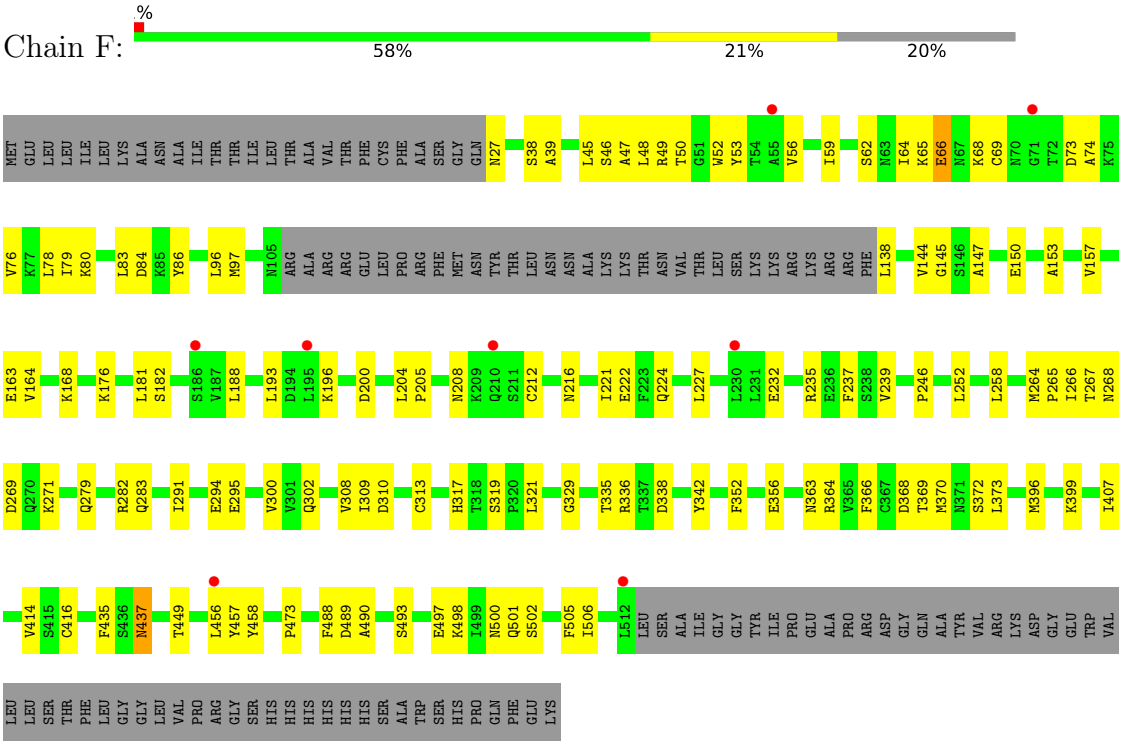
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	F	2	Total O 2 2	0	0
3	A	1	Total O 1 1	0	0

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.

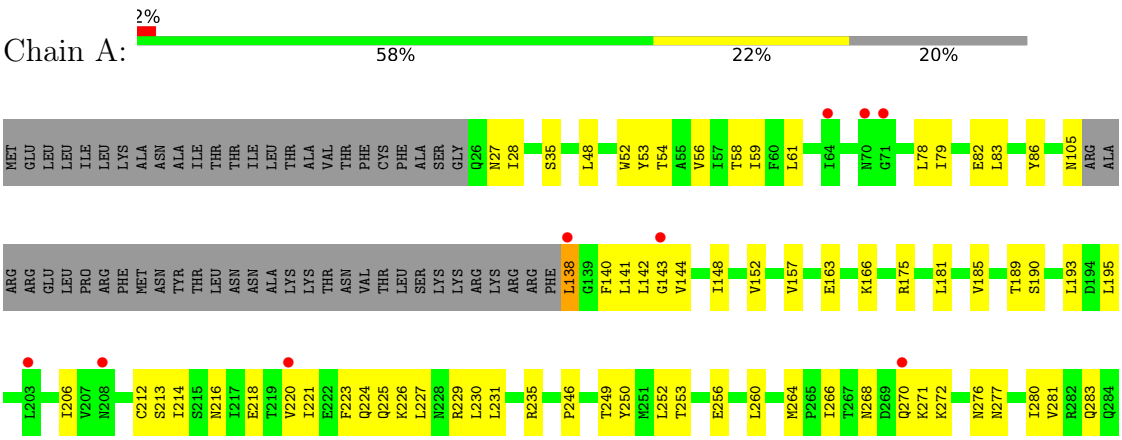
• Molecule 1: Fusion glycoprotein F0

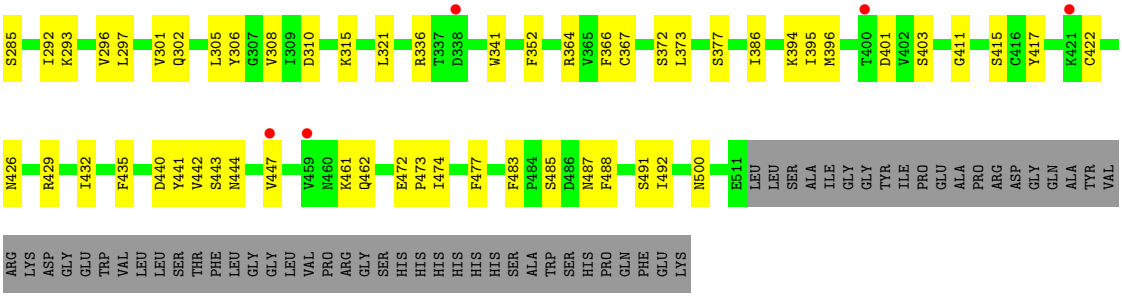
Chain F:



• Molecule 1: Fusion glycoprotein F0

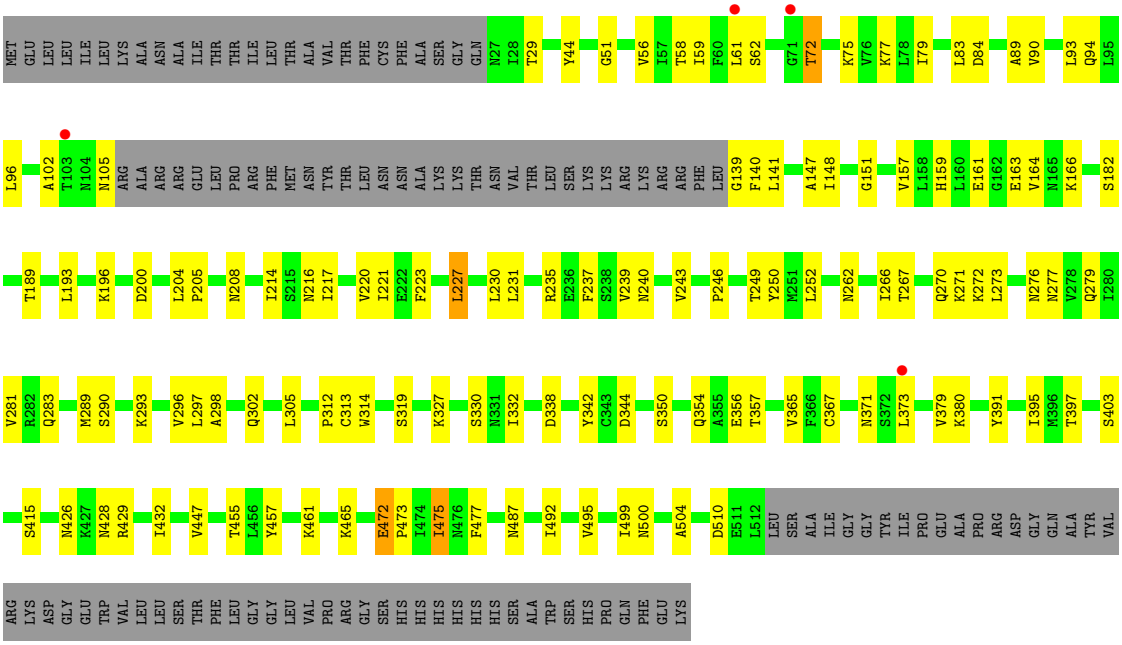
Chain A:





• Molecule 1: Fusion glycoprotein F0

Chain B:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 41 21 2	Depositor
Cell constants a, b, c, α, β, γ	170.47Å 170.47Å 171.15Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.28 – 3.10 49.28 – 3.10	Depositor EDS
% Data completeness (in resolution range)	96.1 (49.28-3.10) 90.3 (49.28-3.10)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.43 (at 3.12Å)	Xtriage
Refinement program	PHENIX 1.17.1_3660	Depositor
R, R_{free}	0.254 , 0.315 0.254 , 0.315	Depositor DCC
R_{free} test set	2001 reflections (4.47%)	wwPDB-VP
Wilson B-factor (Å^2)	70.0	Xtriage
Anisotropy	0.229	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.31 , 22.7	EDS
L-test for twinning[2]	$< \|L\| > = 0.41$, $< L^2 > = 0.24$	Xtriage
Estimated twinning fraction	0.216 for -h,l,k 0.136 for -l,-k,-h	Xtriage
F_o,F_c correlation	0.90	EDS
Total number of atoms	10463	wwPDB-VP
Average B, all atoms (Å^2)	70.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.05% of the height of the origin peak. No significant pseudotranslation is detected.*

[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: NAG

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	0.52	0/3527	0.71	1/4790 (0.0%)
1	B	0.51	0/3526	0.70	0/4786
1	F	0.52	0/3515	0.73	2/4776 (0.0%)
All	All	0.51	0/10568	0.71	3/14352 (0.0%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	F	66	GLU	CB-CA-C	-5.83	98.75	110.40
1	F	498	LYS	N-CA-C	5.33	125.40	111.00
1	A	105	ASN	CB-CA-C	5.26	120.92	110.40

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	3477	0	3472	92	0
1	B	3476	0	3486	91	0
1	F	3465	0	3448	94	0
2	A	14	0	13	1	0
2	B	14	0	13	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	F	14	0	13	1	0
3	A	1	0	0	0	0
3	F	2	0	0	0	0
All	All	10463	0	10445	268	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 13.

All (268) 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:F:68:LYS:HG3	1:F:69:CYS:H	0.95	1.07
1:A:321:LEU:HD11	1:A:473:PRO:HB3	1.43	1.00
1:F:68:LYS:CG	1:F:69:CYS:H	1.75	0.98
1:F:68:LYS:HG3	1:F:69:CYS:N	1.79	0.96
1:F:68:LYS:HE3	1:F:212:CYS:SG	2.06	0.95
1:F:204:LEU:O	1:F:208:ASN:N	2.08	0.86
1:F:497:GLU:OE2	1:F:501:GLN:NE2	2.11	0.84
1:B:472:GLU:OE1	1:B:477:PHE:CE1	2.32	0.83
1:B:204:LEU:HB3	1:B:205:PRO:HD3	1.60	0.80
1:B:141:LEU:HD23	1:B:141:LEU:O	1.83	0.79
1:A:246:PRO:HB3	1:A:283:GLN:HA	1.64	0.78
1:F:147:ALA:O	1:F:302:GLN:NE2	2.15	0.77
1:A:444:ASN:O	1:A:461:LYS:NZ	2.17	0.77
1:B:246:PRO:HB3	1:B:283:GLN:HA	1.68	0.75
1:F:144:VAL:HG11	1:F:370:MET:HG2	1.70	0.74
1:B:273:LEU:O	1:B:277:ASN:ND2	2.16	0.73
1:F:329:GLY:O	1:F:399:LYS:NZ	2.21	0.72
1:B:75:LYS:HB3	1:B:214:ILE:HG12	1.71	0.72
1:B:62:SER:HB2	1:B:196:LYS:HA	1.72	0.72
1:F:267:THR:HG22	1:F:269:ASP:H	1.55	0.71
1:F:157:VAL:O	1:F:163:GLU:HG3	1.92	0.70
1:B:475:ILE:O	1:B:475:ILE:HD12	1.92	0.70
1:A:157:VAL:HG21	1:A:185:VAL:HG21	1.74	0.69
1:F:356:GLU:CD	1:F:356:GLU:H	1.97	0.68
1:F:53:TYR:HE2	1:F:265:PRO:HD2	1.59	0.68
1:B:79:ILE:HD11	1:B:220:VAL:HA	1.76	0.67
1:B:44:TYR:HB2	1:B:313:CYS:HB2	1.77	0.67
1:B:500:ASN:OD1	2:B:601:NAG:N2	2.21	0.66
1:B:272:LYS:O	1:B:276:ASN:ND2	2.29	0.65
1:A:483:PHE:HD2	1:A:485:SER:HB3	1.61	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:264:MET:HE2	1:A:266:ILE:HD13	1.77	0.65
1:B:75:LYS:HB2	1:B:214:ILE:HG21	1.79	0.64
1:F:246:PRO:HB3	1:F:283:GLN:HA	1.79	0.64
1:A:79:ILE:HG12	1:A:220:VAL:HG22	1.79	0.64
1:A:444:ASN:ND2	1:A:462:GLN:O	2.29	0.64
1:A:59:ILE:HG23	1:A:193:LEU:HB3	1.80	0.64
1:B:72:THR:HG22	1:B:77:LYS:HD2	1.80	0.63
1:B:312:PRO:HG2	1:B:344:ASP:OD2	1.99	0.62
1:A:422:CYS:HB2	1:A:435:PHE:HB2	1.82	0.61
1:B:102:ALA:HA	1:B:148:ILE:HD11	1.83	0.61
1:A:483:PHE:CD2	1:A:485:SER:HB3	2.36	0.61
1:F:74:ALA:O	1:F:78:LEU:HG	2.01	0.61
1:A:86:TYR:HB2	1:A:227:LEU:HD11	1.83	0.61
1:B:332:ILE:HG13	1:B:475:ILE:HD11	1.84	0.60
1:F:69:CYS:SG	1:F:69:CYS:O	2.60	0.60
1:F:205:PRO:HA	1:F:208:ASN:HB2	1.84	0.59
1:A:250:TYR:OH	1:B:235:ARG:NH1	2.35	0.59
1:A:293:LYS:O	1:A:296:VAL:HG12	2.02	0.59
1:A:83:LEU:HD13	1:A:223:PHE:CE2	2.38	0.58
1:A:83:LEU:HD13	1:A:223:PHE:HE2	1.67	0.58
1:A:310:ASP:OD1	1:A:364:ARG:NH2	2.35	0.58
1:B:29:THR:HG22	1:B:465:LYS:HB2	1.84	0.58
1:B:79:ILE:HG12	1:B:220:VAL:HG22	1.86	0.58
1:B:105:ASN:HD21	1:B:147:ALA:H	1.50	0.58
1:F:416:CYS:O	1:F:437:ASN:HA	2.03	0.58
1:B:204:LEU:HD12	1:B:208:ASN:OD1	2.04	0.58
1:F:338:ASP:HB3	1:F:342:TYR:OH	2.04	0.57
1:A:429:ARG:HH21	1:A:432:ILE:HG21	1.69	0.57
1:A:157:VAL:O	1:A:163:GLU:HG3	2.04	0.57
1:B:249:THR:HA	1:B:252:LEU:O	2.05	0.57
1:B:231:LEU:O	1:B:235:ARG:HG2	2.04	0.57
1:A:394:LYS:HA	1:A:491:SER:HA	1.86	0.57
1:B:157:VAL:O	1:B:163:GLU:HG3	2.05	0.57
1:F:493:SER:O	1:F:497:GLU:N	2.34	0.57
1:B:279:GLN:O	1:B:283:GLN:HG3	2.05	0.56
1:A:260:LEU:O	1:A:264:MET:HG3	2.05	0.56
1:B:338:ASP:O	1:B:342:TYR:OH	2.20	0.56
1:A:426:ASN:HB2	1:A:432:ILE:HD13	1.88	0.56
1:F:232:GLU:OE2	1:A:235:ARG:NH2	2.39	0.55
1:F:163:GLU:OE2	1:F:182:SER:HB3	2.06	0.55
1:B:395:ILE:HD13	1:B:492:ILE:HD13	1.88	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:252:LEU:HD21	1:A:260:LEU:HD22	1.88	0.55
1:B:204:LEU:HB3	1:B:205:PRO:CD	2.32	0.55
1:F:235:ARG:HE	1:B:250:TYR:HE2	1.54	0.55
1:F:449:THR:HB	1:F:456:LEU:HD11	1.86	0.55
1:B:200:ASP:HA	1:B:204:LEU:HB2	1.88	0.54
1:F:73:ASP:HB3	1:F:76:VAL:HG23	1.89	0.54
1:F:264:MET:HE2	1:F:266:ILE:HD13	1.89	0.54
1:B:83:LEU:HD12	1:B:223:PHE:CE2	2.44	0.53
1:F:46:SER:HB3	1:F:313:CYS:SG	2.48	0.53
1:A:48:LEU:HD22	1:A:367:CYS:HB2	1.89	0.53
1:A:206:ILE:HG23	1:A:213:SER:O	2.09	0.53
1:B:61:LEU:O	1:B:196:LYS:HB2	2.09	0.53
1:F:68:LYS:CG	1:F:69:CYS:N	2.50	0.53
1:F:321:LEU:HD11	1:F:473:PRO:HB3	1.90	0.53
1:B:231:LEU:HB3	1:B:235:ARG:NH2	2.24	0.52
2:F:601:NAG:O7	2:F:601:NAG:O3	2.25	0.52
1:A:48:LEU:HB2	1:A:308:VAL:HB	1.92	0.52
1:B:350:SER:HA	1:B:373:LEU:O	2.10	0.52
1:B:239:VAL:HG23	1:B:240:ASN:OD1	2.10	0.52
1:B:472:GLU:OE1	1:B:477:PHE:HE1	1.87	0.52
1:B:204:LEU:O	1:B:208:ASN:HB2	2.11	0.51
1:A:216:ASN:N	1:A:216:ASN:OD1	2.43	0.51
1:A:221:ILE:HG22	1:A:225:GLN:HE21	1.75	0.51
1:B:240:ASN:HB3	1:B:243:VAL:O	2.11	0.51
1:F:396:MET:CB	1:F:489:ASP:HA	2.40	0.51
1:A:79:ILE:O	1:A:83:LEU:HB2	2.10	0.51
1:B:59:ILE:HD13	1:B:193:LEU:HD23	1.93	0.51
1:A:281:VAL:O	1:A:285:SER:OG	2.25	0.50
1:B:365:VAL:HG12	1:B:367:CYS:SG	2.51	0.50
1:F:144:VAL:HG11	1:F:370:MET:CG	2.41	0.50
1:B:90:VAL:O	1:B:94:GLN:HG3	2.11	0.50
1:B:327:LYS:HE3	1:B:330:SER:HB3	1.93	0.50
1:B:266:ILE:HG13	1:B:271:LYS:HG3	1.94	0.50
1:A:227:LEU:O	1:A:231:LEU:HG	2.11	0.50
1:F:80:LYS:O	1:F:84:ASP:N	2.45	0.50
1:A:500:ASN:OD1	2:A:601:NAG:N2	2.45	0.50
1:F:235:ARG:O	1:F:239:VAL:HG22	2.12	0.49
1:B:267:THR:H	1:B:270:GLN:HE21	1.60	0.49
1:A:216:ASN:ND2	1:A:218:GLU:HB2	2.28	0.49
1:F:144:VAL:HG12	1:F:145:GLY:N	2.27	0.49
1:F:216:ASN:OD1	1:F:216:ASN:N	2.46	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:253:THR:HG23	1:A:256:GLU:OE1	2.12	0.49
1:F:59:ILE:HG23	1:F:193:LEU:HB3	1.94	0.49
1:B:314:TRP:CZ2	1:B:380:LYS:HD3	2.48	0.48
1:F:53:TYR:CE2	1:F:265:PRO:HD2	2.44	0.48
1:F:414:VAL:HG21	1:F:435:PHE:CE2	2.47	0.48
1:B:428:ASN:HB2	1:B:429:ARG:NH1	2.27	0.48
1:B:432:ILE:HD11	1:B:447:VAL:HG22	1.95	0.48
1:F:96:LEU:HD13	1:F:237:PHE:HB3	1.96	0.48
1:F:176:LYS:HD2	1:F:188:LEU:HD21	1.94	0.48
1:F:449:THR:HG22	1:F:458:TYR:HD1	1.78	0.48
1:B:356:GLU:CD	1:B:356:GLU:H	2.17	0.48
1:F:369:THR:O	1:B:455:THR:HG23	2.14	0.48
1:A:277:ASN:O	1:A:281:VAL:HG23	2.14	0.48
1:B:61:LEU:HD21	1:B:230:LEU:HD22	1.96	0.47
1:F:407:ILE:HD11	1:F:457:TYR:HB3	1.96	0.47
1:F:68:LYS:CE	1:F:212:CYS:SG	2.94	0.47
1:F:266:ILE:HG13	1:F:271:LYS:HG3	1.95	0.47
1:B:290:SER:HB3	1:B:298:ALA:O	2.14	0.47
1:F:79:ILE:O	1:F:83:LEU:HB2	2.15	0.47
1:F:335:THR:HG22	1:F:336:ARG:O	2.14	0.47
1:B:500:ASN:O	1:B:504:ALA:N	2.46	0.47
1:A:227:LEU:HD22	1:A:230:LEU:HD23	1.97	0.47
1:F:47:ALA:O	1:F:366:PHE:HA	2.14	0.47
1:F:457:TYR:CZ	1:A:143:GLY:HA3	2.49	0.47
1:A:352:PHE:CE2	1:A:372:SER:HB3	2.50	0.47
1:F:48:LEU:HB2	1:F:308:VAL:HB	1.97	0.47
1:F:163:GLU:OE1	1:F:181:LEU:HB2	2.14	0.47
1:A:415:SER:HB3	1:A:417:TYR:CE2	2.50	0.47
1:A:148:ILE:O	1:A:152:VAL:HG23	2.15	0.46
1:B:164:VAL:HG13	1:B:296:VAL:HG11	1.97	0.46
1:F:73:ASP:O	1:F:76:VAL:N	2.48	0.46
1:B:216:ASN:OD1	1:B:216:ASN:N	2.47	0.46
1:F:138:LEU:HD13	1:F:138:LEU:O	2.14	0.46
1:A:83:LEU:O	1:A:86:TYR:HB3	2.14	0.46
1:B:397:THR:O	1:B:487:ASN:HA	2.15	0.46
1:F:78:LEU:HD13	1:B:221:ILE:CG2	2.46	0.46
1:F:144:VAL:HG12	1:F:145:GLY:H	1.80	0.46
1:F:252:LEU:O	1:F:282:ARG:NH1	2.44	0.46
1:A:83:LEU:HD12	1:A:83:LEU:HA	1.72	0.46
1:A:52:TRP:CE3	1:A:302:GLN:HG2	2.51	0.46
1:F:49:ARG:HE	1:F:368:ASP:CG	2.19	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:35:SER:O	1:A:474:ILE:HG23	2.16	0.45
1:A:226:LYS:HA	1:A:226:LYS:HD3	1.75	0.45
1:A:272:LYS:O	1:A:276:ASN:ND2	2.46	0.45
1:B:139:GLY:N	1:B:354:GLN:HG3	2.31	0.45
1:F:39:ALA:HB3	1:F:317:HIS:HB2	1.99	0.45
1:B:357:THR:HG21	1:B:371:ASN:HB2	1.97	0.45
1:A:175:ARG:O	1:A:190:SER:HA	2.16	0.45
1:B:159:HIS:O	1:B:293:LYS:NZ	2.50	0.45
1:F:279:GLN:O	1:F:283:GLN:HG3	2.16	0.45
1:B:151:GLY:N	1:B:302:GLN:OE1	2.47	0.45
1:B:379:VAL:HG23	1:B:391:TYR:CE2	2.52	0.45
1:A:270:GLN:NE2	1:A:306:TYR:O	2.50	0.45
1:A:474:ILE:HA	1:A:477:PHE:CE2	2.52	0.45
1:F:227:LEU:HD23	1:F:227:LEU:HA	1.80	0.45
1:B:332:ILE:CG1	1:B:475:ILE:HD11	2.46	0.45
1:A:315:LYS:HD2	1:A:341:TRP:CE2	2.52	0.44
1:B:475:ILE:HD13	1:B:475:ILE:HA	1.82	0.44
1:F:488:PHE:CE2	1:F:490:ALA:HB2	2.52	0.44
1:A:166:LYS:NZ	1:A:181:LEU:O	2.46	0.44
1:A:442:VAL:CG2	1:A:447:VAL:HG21	2.48	0.44
1:F:267:THR:HG22	1:F:268:ASN:N	2.33	0.44
1:F:502:SER:O	1:F:506:ILE:HG13	2.18	0.44
1:B:267:THR:HB	1:B:270:GLN:HG3	1.99	0.44
1:A:266:ILE:O	1:A:271:LYS:HE3	2.17	0.44
1:F:65:LYS:C	1:F:66:GLU:HG3	2.37	0.44
1:F:396:MET:HB3	1:F:489:ASP:HA	1.99	0.44
1:A:82:GLU:CD	1:A:224:GLN:HG2	2.38	0.44
1:A:249:THR:HG23	1:A:253:THR:HA	2.00	0.44
1:A:401:ASP:OD1	1:A:401:ASP:N	2.51	0.44
1:B:58:THR:HA	1:B:297:LEU:O	2.18	0.44
1:A:432:ILE:HD11	1:A:447:VAL:HG22	1.98	0.44
1:B:495:VAL:O	1:B:499:ILE:HG13	2.18	0.44
1:A:229:ARG:NH2	1:A:256:GLU:OE1	2.48	0.44
1:B:56:VAL:HB	1:B:189:THR:HG23	1.99	0.44
1:F:52:TRP:CE3	1:F:302:GLN:HG2	2.52	0.43
1:F:144:VAL:HG13	1:B:457:TYR:CE2	2.53	0.43
1:F:258:LEU:HD23	1:F:258:LEU:HA	1.90	0.43
1:A:266:ILE:HD12	1:A:270:GLN:CB	2.48	0.43
1:F:407:ILE:HD11	1:F:457:TYR:CB	2.48	0.43
1:A:440:ASP:OD1	1:A:441:TYR:N	2.47	0.43
1:B:96:LEU:HD13	1:B:237:PHE:HB3	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:56:VAL:HG22	1:F:300:VAL:HG22	2.00	0.43
1:F:68:LYS:HE2	1:F:76:VAL:HG13	2.00	0.43
1:F:150:GLU:O	1:F:153:ALA:HB3	2.17	0.43
1:A:403:SER:HA	1:A:415:SER:O	2.18	0.43
1:B:75:LYS:HE2	1:B:214:ILE:HG23	2.00	0.43
1:B:223:PHE:O	1:B:227:LEU:HB2	2.19	0.43
1:F:501:GLN:HB3	1:F:505:PHE:CE2	2.53	0.43
1:A:58:THR:HA	1:A:297:LEU:O	2.18	0.43
1:A:266:ILE:HD12	1:A:270:GLN:HB2	2.00	0.43
1:B:403:SER:HA	1:B:415:SER:O	2.18	0.43
1:F:407:ILE:HG12	1:A:144:VAL:O	2.17	0.43
1:A:138:LEU:HD22	1:A:138:LEU:HA	1.75	0.43
1:A:411:GLY:HA3	1:A:443:SER:HA	2.00	0.43
1:F:449:THR:HG22	1:F:458:TYR:CD1	2.54	0.43
1:B:51:GLY:O	1:B:305:LEU:N	2.43	0.43
1:B:461:LYS:HD2	1:B:461:LYS:HA	1.80	0.43
1:A:56:VAL:O	1:A:189:THR:HA	2.19	0.43
1:A:395:ILE:HD13	1:A:492:ILE:HD13	2.01	0.43
1:F:45:LEU:O	1:F:364:ARG:HG3	2.19	0.43
1:F:164:VAL:HG11	1:F:294:GLU:HB2	2.00	0.43
1:A:54:THR:HA	1:A:301:VAL:O	2.18	0.43
1:A:61:LEU:HD23	1:A:195:LEU:HD12	2.00	0.43
1:A:221:ILE:O	1:A:225:GLN:HG2	2.19	0.43
1:A:268:ASN:O	1:A:272:LYS:N	2.42	0.43
1:F:86:TYR:HD2	1:F:227:LEU:HD21	1.83	0.42
1:A:268:ASN:HA	1:A:271:LYS:HB2	1.99	0.42
1:B:75:LYS:HG2	1:B:217:ILE:HD13	2.01	0.42
1:F:53:TYR:CE2	1:F:264:MET:HG2	2.54	0.42
1:A:249:THR:HA	1:A:252:LEU:O	2.19	0.42
1:B:472:GLU:OE1	1:B:477:PHE:CZ	2.69	0.42
1:A:214:ILE:HD12	1:A:214:ILE:H	1.84	0.42
1:B:314:TRP:CH2	1:B:380:LYS:HD3	2.54	0.42
1:F:48:LEU:O	1:F:50:THR:HG23	2.19	0.42
1:F:205:PRO:HA	1:F:208:ASN:CB	2.47	0.42
1:F:457:TYR:CE1	1:A:143:GLY:HA3	2.55	0.42
1:B:161:GLU:OE2	1:B:161:GLU:N	2.52	0.42
1:F:38:SER:HA	1:F:317:HIS:O	2.19	0.42
1:A:280:ILE:HG21	1:A:366:PHE:CG	2.55	0.42
1:B:262:ASN:O	1:B:271:LYS:NZ	2.33	0.42
1:B:332:ILE:CD1	1:B:475:ILE:HD11	2.49	0.42
1:F:222:GLU:HB2	1:A:78:LEU:HD21	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:216:ASN:HD22	1:A:218:GLU:HB2	1.85	0.42
1:B:96:LEU:HB3	1:B:289:MET:HG2	2.02	0.42
1:B:277:ASN:O	1:B:281:VAL:HG23	2.19	0.42
1:B:426:ASN:OD1	1:B:428:ASN:N	2.46	0.42
1:A:206:ILE:O	1:A:212:CYS:HA	2.19	0.42
1:F:168:LYS:HE3	1:F:168:LYS:HB2	1.61	0.42
1:F:97:MET:HG3	1:F:291:ILE:HA	2.02	0.41
1:B:89:ALA:O	1:B:93:LEU:HG	2.20	0.41
1:A:396:MET:HA	1:A:488:PHE:O	2.20	0.41
1:B:472:GLU:HG2	1:B:473:PRO:HD2	2.02	0.41
1:F:196:LYS:NZ	1:F:295:GLU:OE1	2.41	0.41
1:A:27:ASN:OD1	1:A:27:ASN:N	2.52	0.41
1:F:62:SER:O	1:F:64:ILE:N	2.52	0.41
1:B:166:LYS:NZ	1:B:182:SER:HB3	2.35	0.41
1:F:221:ILE:O	1:F:224:GLN:HB2	2.21	0.41
1:A:140:PHE:C	1:A:142:LEU:H	2.24	0.41
1:A:292:ILE:HG23	1:A:292:ILE:O	2.21	0.41
1:A:442:VAL:HG22	1:A:447:VAL:HG21	2.02	0.41
1:A:27:ASN:C	1:A:28:ILE:HD13	2.42	0.41
1:A:472:GLU:HG2	1:A:473:PRO:HD2	2.02	0.41
1:B:79:ILE:HD13	1:B:79:ILE:HA	1.76	0.41
1:F:309:ILE:HG22	1:F:310:ASP:CG	2.41	0.40
1:A:53:TYR:HB2	1:A:305:LEU:HD13	2.03	0.40
1:A:336:ARG:HD2	1:A:386:ILE:HD12	2.02	0.40
1:B:105:ASN:ND2	1:B:147:ALA:H	2.17	0.40
1:F:373:LEU:HA	1:F:373:LEU:HD23	1.89	0.40
1:A:48:LEU:CD2	1:A:367:CYS:HB2	2.52	0.40
1:A:83:LEU:CD1	1:A:223:PHE:HE2	2.33	0.40
1:B:204:LEU:N	1:B:205:PRO:HD2	2.36	0.40
1:F:200:ASP:HA	1:F:204:LEU:HB2	2.03	0.40
1:F:204:LEU:O	1:F:208:ASN:HB2	2.21	0.40
1:B:204:LEU:N	1:B:205:PRO:CD	2.84	0.40
1:F:352:PHE:CE2	1:F:372:SER:HB3	2.56	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	A	450/568 (79%)	415 (92%)	33 (7%)	2 (0%)	34 69
1	B	449/568 (79%)	416 (93%)	32 (7%)	1 (0%)	47 79
1	F	450/568 (79%)	409 (91%)	41 (9%)	0	100 100
All	All	1349/1704 (79%)	1240 (92%)	106 (8%)	3 (0%)	47 79

All (3) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	487	ASN
1	B	140	PHE
1	A	141	LEU

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	A	404/509 (79%)	401 (99%)	3 (1%)	84 93
1	B	405/509 (80%)	398 (98%)	7 (2%)	60 83
1	F	402/509 (79%)	397 (99%)	5 (1%)	71 88
All	All	1211/1527 (79%)	1196 (99%)	15 (1%)	71 88

All (15) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	F	27	ASN
1	F	319	SER
1	F	363	ASN
1	F	437	ASN
1	F	500	ASN
1	A	138	LEU
1	A	373	LEU
1	A	377	SER
1	B	72	THR
1	B	84	ASP
1	B	227	LEU
1	B	319	SER
1	B	472	GLU
1	B	475	ILE
1	B	510	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (3) such sidechains are listed below:

Mol	Chain	Res	Type
1	F	283	GLN
1	A	462	GLN
1	B	105	ASN

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 monosaccharides in this entry.

5.6 Ligand geometry (i)

3 ligands are modelled in this entry.

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	$\#\|Z\| > 2$
2	NAG	A	601	1	14,14,15	0.69	1 (7%)	17,19,21	0.45	0
2	NAG	B	601	1	14,14,15	0.78	1 (7%)	17,19,21	0.57	0
2	NAG	F	601	1	14,14,15	1.34	2 (14%)	17,19,21	1.32	1 (5%)

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
2	NAG	A	601	1	-	0/6/23/26	0/1/1/1
2	NAG	B	601	1	-	4/6/23/26	0/1/1/1
2	NAG	F	601	1	-	4/6/23/26	0/1/1/1

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	F	601	NAG	C1-C2	3.57	1.57	1.52
2	F	601	NAG	O5-C1	3.23	1.48	1.43
2	A	601	NAG	C1-C2	2.43	1.56	1.52
2	B	601	NAG	C1-C2	2.29	1.55	1.52

All (1) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	F	601	NAG	C1-O5-C5	4.33	118.06	112.19

There are no chirality outliers.

All (8) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	F	601	NAG	C1-C2-N2-C7

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Mol	Chain	Res	Type	Atoms
2	F	601	NAG	O5-C5-C6-O6
2	B	601	NAG	O5-C5-C6-O6
2	F	601	NAG	C4-C5-C6-O6
2	B	601	NAG	C4-C5-C6-O6
2	B	601	NAG	C1-C2-N2-C7
2	F	601	NAG	C3-C2-N2-C7
2	B	601	NAG	C3-C2-N2-C7

There are no ring outliers.

3 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	601	NAG	1	0
2	B	601	NAG	1	0
2	F	601	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, 95^{th} 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	454/568 (79%)	0.16	14 (3%) 49 26	42, 63, 118, 162	0
1	B	453/568 (79%)	0.10	4 (0%) 84 69	45, 64, 127, 193	0
1	F	454/568 (79%)	0.09	8 (1%) 68 47	39, 61, 108, 150	0
All	All	1361/1704 (79%)	0.12	26 (1%) 66 46	39, 62, 117, 193	0

All (26) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	138	LEU	4.1
1	F	71	GLY	3.5
1	A	143	GLY	3.3
1	F	512	LEU	3.2
1	B	61	LEU	3.2
1	A	400	THR	3.2
1	F	55	ALA	2.8
1	A	64	ILE	2.7
1	A	459	VAL	2.7
1	A	208	ASN	2.6
1	F	230	LEU	2.6
1	A	71	GLY	2.6
1	A	421	LYS	2.5
1	A	447	VAL	2.4
1	A	70	ASN	2.4
1	A	203	LEU	2.3
1	A	220	VAL	2.3
1	B	103	THR	2.2
1	B	71	GLY	2.2
1	F	456	LEU	2.2
1	A	270	GLN	2.2
1	F	195	LEU	2.1
1	F	210	GLN	2.1

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Mol	Chain	Res	Type	RSRZ
1	B	373	LEU	2.1
1	F	186	SER	2.1
1	A	338	ASP	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 monosaccharides 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. The B-factors column lists the minimum, median, 95^{th} 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
2	NAG	A	601	14/15	0.70	0.23	91,112,114,115	0
2	NAG	B	601	14/15	0.75	0.30	91,115,121,132	0
2	NAG	F	601	14/15	0.77	0.42	92,104,111,119	0

6.5 Other polymers (i)

There are no such residues in this entry.