



Full wwPDB X-ray Structure Validation Report ⓘ

Jan 31, 2016 – 10:31 PM GMT

PDB ID : 1TYE
Title : Structural basis for allostery in integrins and binding of ligand-mimetic therapeutics to the platelet receptor for fibrinogen
Authors : Xiao, T.; Takagi, J.; Collier, B.S.; Wang, J.-H.; Springer, T.A.
Deposited on : 2004-07-07
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
<http://wwpdb.org/validation/2016/XrayValidationReportHelp>
with specific help available everywhere you see the ⓘ symbol.

The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.7 (RC4), CSD as536be (2015)
Xtriage (Phenix) : 1.9-1692
EDS : rb-20026688
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)
Refmac : 5.8.0135
CCP4 : 6.5.0
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : trunk26865

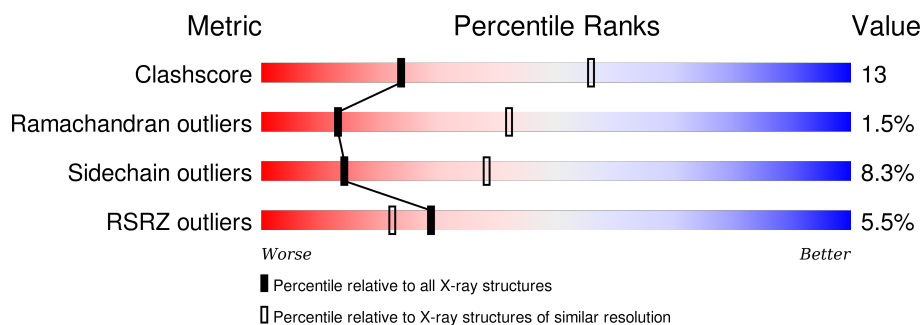
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.90 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	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	102246	1668 (2.90-2.90)
Ramachandran outliers	100387	1630 (2.90-2.90)
Sidechain outliers	100360	1632 (2.90-2.90)
RSRZ outliers	91569	1456 (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 on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	452	<div> <div>3%</div> <div>75%</div> <div>20%</div> <div>• •</div> </div>
1	C	452	<div> <div>%</div> <div>74%</div> <div>20%</div> <div>5%</div> <div>•</div> </div>
1	E	452	<div> <div>%</div> <div>74%</div> <div>21%</div> <div>5%</div> <div>•</div> </div>
2	B	440	<div> <div>9%</div> <div>64%</div> <div>33%</div> <div>•</div> </div>
2	D	440	<div> <div>6%</div> <div>73%</div> <div>23%</div> <div>• •</div> </div>
2	F	440	<div> <div>14%</div> <div>72%</div> <div>24%</div> <div>•</div> </div>

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
3	NAG	B	1006	-	-	-	X
4	NAG	F	1017	-	-	X	-
8	CA	B	1403	-	-	-	X

2 Entry composition

There are 9 unique types of molecules in this entry. The entry contains 21019 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 Integrin alpha-IIb.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	452	Total	C	N	O	S	0	0	0
			3468	2203	597	660	8			
1	C	452	Total	C	N	O	S	0	0	0
			3468	2203	597	660	8			
1	E	452	Total	C	N	O	S	0	0	0
			3468	2203	597	660	8			

- Molecule 2 is a protein called Integrin beta-3.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	440	Total	C	N	O	S	0	0	0
			3400	2125	574	672	29			
2	D	440	Total	C	N	O	S	0	0	0
			3400	2125	574	672	29			
2	F	440	Total	C	N	O	S	0	0	0
			3400	2125	574	672	29			

- Molecule 3 is SUGAR (N-ACETYL-D-GLUCOSAMINE) (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
3	B	1	Total	C	N	O	0	0
			14	8	1	5		
3	B	1	Total	C	N	O	0	0
			14	8	1	5		
3	D	1	Total	C	N	O	0	0
			14	8	1	5		
3	D	1	Total	C	N	O	0	0
			14	8	1	5		
3	E	1	Total	C	N	O	0	0
			14	8	1	5		
3	F	1	Total	C	N	O	0	0
			14	8	1	5		
3	F	1	Total	C	N	O	0	0
			14	8	1	5		

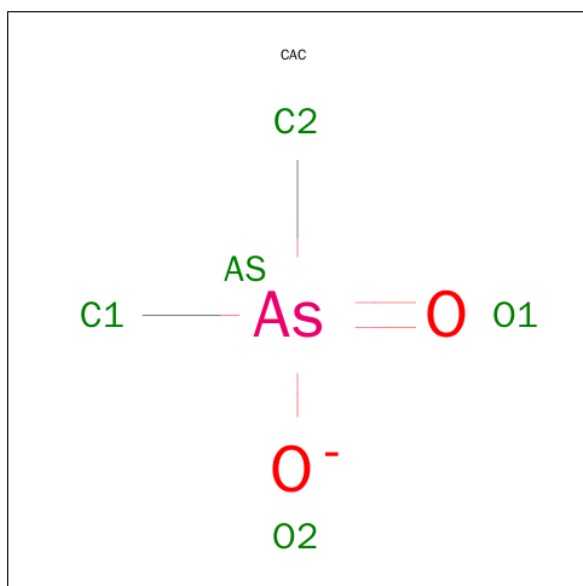
- Molecule 4 is a polymer of unknown type called SUGAR (4-MER).

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
4	B	4	Total	C	N	O	0	0
			50	28	2	20		
4	F	4	Total	C	N	O	0	0
			50	28	2	20		

- Molecule 5 is a polymer of unknown type called SUGAR (5-MER).

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
5	D	5	Total	C	N	O	0	0
			61	34	2	25		

- Molecule 6 is CACODYLATE ION (three-letter code: CAC) (formula: $C_2H_6AsO_2$).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
6	B	1	Total	As	C	O	0	0
			5	1	2	2		
6	D	1	Total	As	C	O	0	0
			5	1	2	2		
6	F	1	Total	As	C	O	0	0
			5	1	2	2		

- Molecule 7 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	B	1	Total	Mg	0	0
			1	1		
7	D	1	Total	Mg	0	0
			1	1		
7	F	1	Total	Mg	0	0
			1	1		

- Molecule 8 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
8	D	2	Total Ca 2 2	0	0
8	E	4	Total Ca 4 4	0	0
8	B	2	Total Ca 2 2	0	0
8	C	4	Total Ca 4 4	0	0
8	A	4	Total Ca 4 4	0	0
8	F	2	Total Ca 2 2	0	0

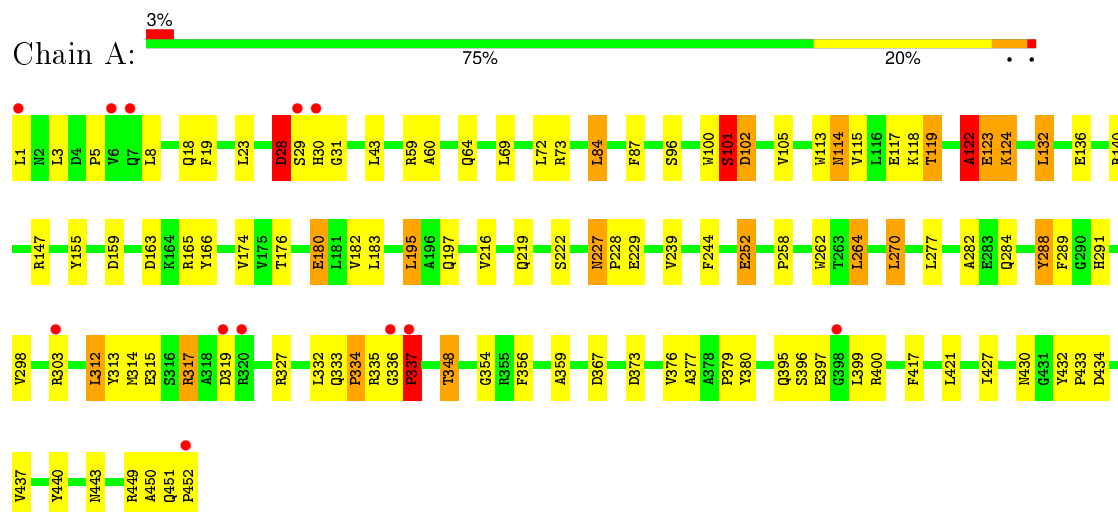
- Molecule 9 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
9	A	22	Total O 22 22	0	0
9	B	16	Total O 16 16	0	0
9	C	20	Total O 20 20	0	0
9	D	19	Total O 19 19	0	0
9	E	28	Total O 28 28	0	0
9	F	15	Total O 15 15	0	0

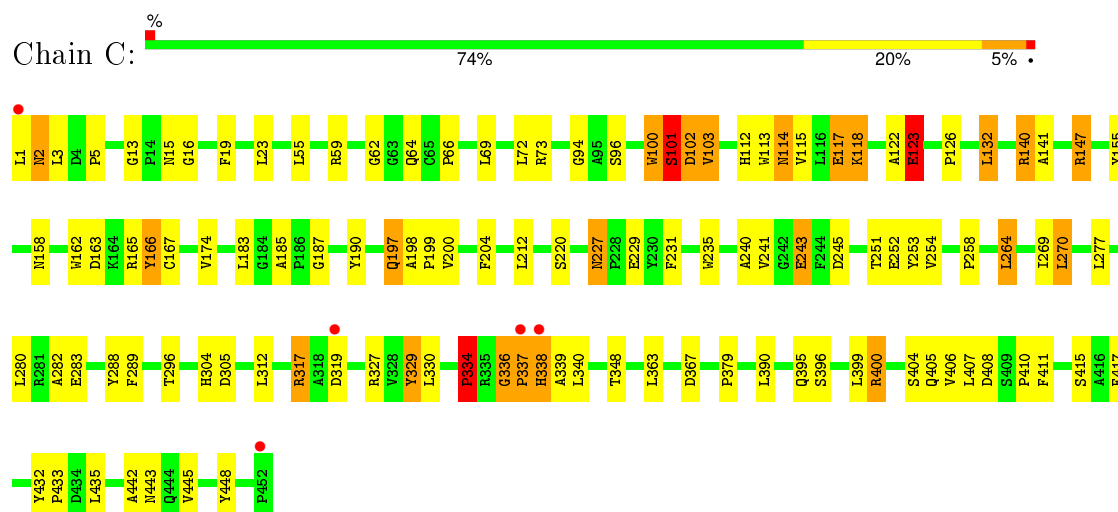
3 Residue-property plots

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: Integrin alpha-IIb

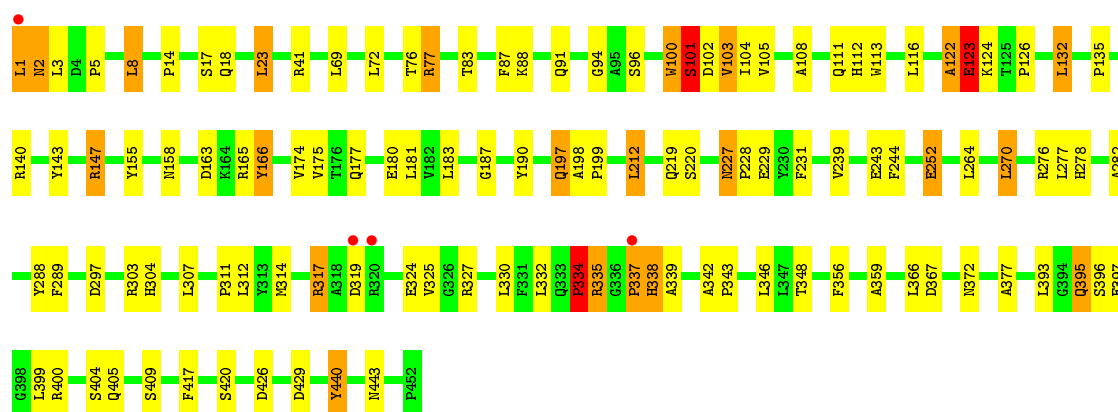


• Molecule 1: Integrin alpha-IIb

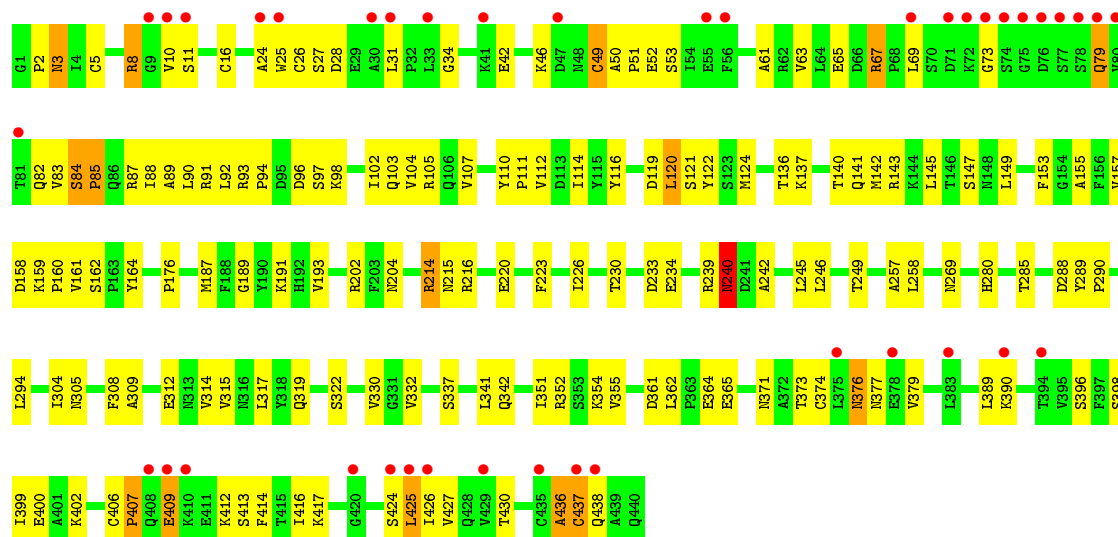


• Molecule 1: Integrin alpha-IIb

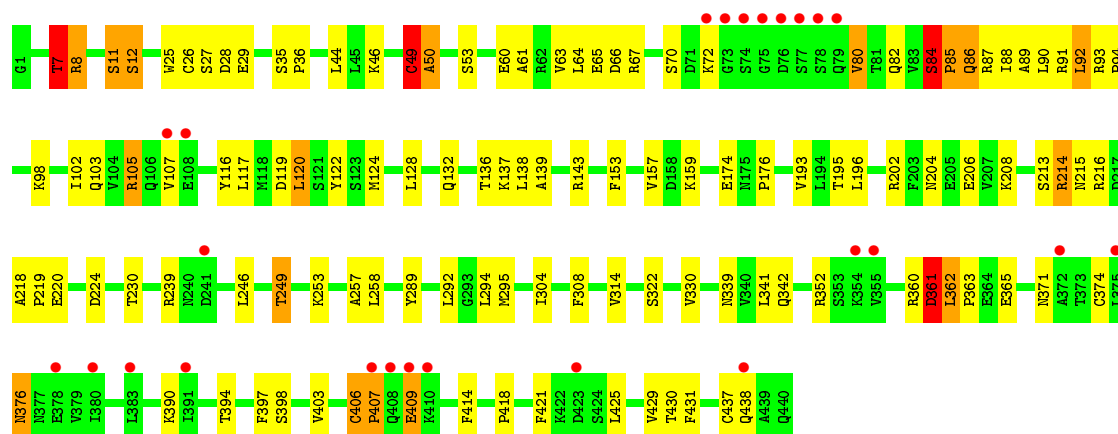




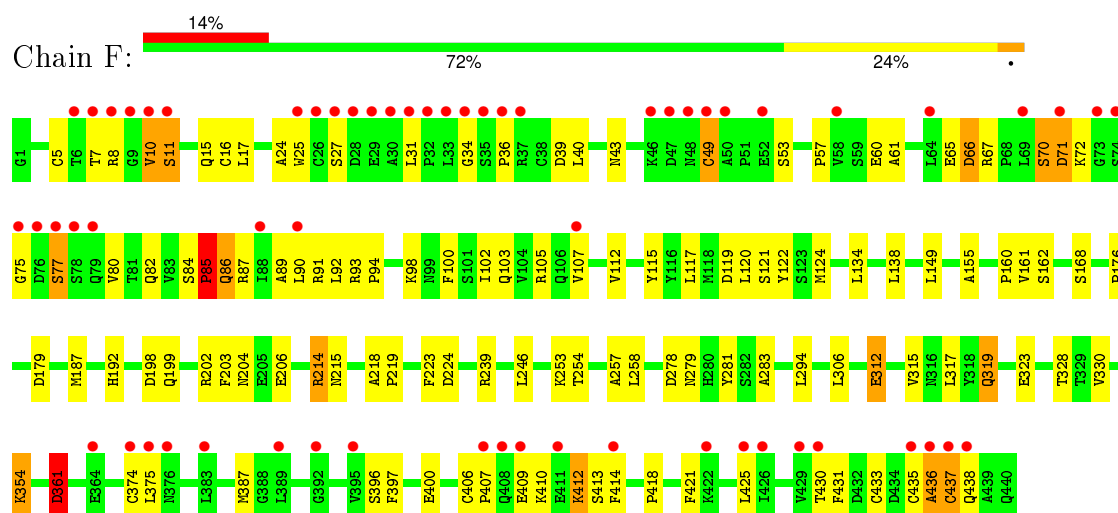
● Molecule 2: Integrin beta-3



● Molecule 2: Integrin beta-3



● Molecule 2: Integrin beta-3



4 Data and refinement statistics

Property	Value	Source
Space group	P 62	Depositor
Cell constants a, b, c, α , β , γ	332.09 Å 332.09 Å 88.29 Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	50.00 – 2.90 47.28 – 2.90	Depositor EDS
% Data completeness (in resolution range)	95.7 (50.00-2.90) 98.3 (47.28-2.90)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	0.10	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.22 (at 2.91 Å)	Xtriage
Refinement program	CNS	Depositor
R, R_{free}	0.219 , 0.254 0.217 , (Not available)	Depositor DCC
R_{free} test set	No test flags present.	DCC
Wilson B-factor (Å ²)	66.7	Xtriage
Anisotropy	0.006	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 56.1	EDS
Estimated twinning fraction	0.016 for h,-h-k,-l	Xtriage
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Outliers	0 of 121498 reflections	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	21019	wwPDB-VP
Average B, all atoms (Å ²)	65.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.65% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.375 respectively for untwinned datasets, and 0.333, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: MG, BMA, NAG, CA, CAC, MAN

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	0.75	9/3564 (0.3%)	0.86	11/4857 (0.2%)
1	C	0.60	7/3564 (0.2%)	0.95	17/4857 (0.4%)
1	E	0.61	4/3564 (0.1%)	0.88	12/4857 (0.2%)
2	B	0.40	0/3461	0.80	6/4693 (0.1%)
2	D	0.68	5/3461 (0.1%)	0.78	9/4693 (0.2%)
2	F	0.39	0/3461	0.73	9/4693 (0.2%)
All	All	0.59	25/21075 (0.1%)	0.84	64/28650 (0.2%)

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	4
1	C	0	5
1	E	0	3
2	D	0	3
2	F	0	1
All	All	0	16

All (25) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	85	PRO	N-CD	28.23	1.87	1.47
1	A	101	SER	CB-OG	22.05	1.71	1.42
1	A	123	GLU	CB-CG	17.06	1.84	1.52
1	E	123	GLU	C-N	-16.41	0.96	1.34
1	E	122	ALA	C-N	13.02	1.64	1.34
1	A	122	ALA	C-N	-12.71	1.04	1.34
1	C	117	GLU	CA-C	12.18	1.84	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	E	100	TRP	C-N	-11.80	1.06	1.34
1	C	101	SER	C-N	-11.77	1.06	1.34
1	C	100	TRP	C-N	-10.62	1.09	1.34
2	D	84	SER	C-N	-9.09	1.17	1.34
1	C	118	LYS	N-CA	-8.10	1.30	1.46
1	A	123	GLU	C-N	6.81	1.49	1.34
2	D	8	ARG	CB-CG	-6.72	1.34	1.52
1	C	123	GLU	N-CA	6.46	1.59	1.46
1	C	122	ALA	C-O	-6.27	1.11	1.23
1	A	28	ASP	CB-CG	-6.20	1.38	1.51
2	D	7	THR	C-N	-6.17	1.19	1.34
1	A	124	LYS	N-CA	-5.88	1.34	1.46
1	A	451	GLN	CB-CG	-5.83	1.36	1.52
1	A	334	PRO	N-CD	5.47	1.55	1.47
1	A	123	GLU	C-O	5.38	1.33	1.23
1	C	122	ALA	C-N	-5.38	1.21	1.34
2	D	85	PRO	CB-CG	5.34	1.76	1.50
1	E	123	GLU	CB-CG	-5.16	1.42	1.52

All (64) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	84	SER	C-N-CD	-26.08	63.23	120.60
1	C	101	SER	O-C-N	-24.91	82.84	122.70
1	E	123	GLU	O-C-N	-18.48	93.12	122.70
1	C	334	PRO	CA-N-CD	-16.12	88.93	111.50
1	A	122	ALA	O-C-N	-15.63	97.70	122.70
1	A	122	ALA	CA-C-N	15.40	151.09	117.20
1	C	101	SER	CA-C-N	14.37	148.82	117.20
2	D	85	PRO	CA-N-CD	-14.20	91.61	111.50
1	E	100	TRP	O-C-N	-12.67	102.43	122.70
1	E	100	TRP	C-N-CA	12.19	152.18	121.70
1	C	100	TRP	O-C-N	-11.90	103.66	122.70
1	E	123	GLU	CA-C-N	11.29	142.03	117.20
1	A	337	PRO	CA-N-CD	-11.03	96.06	111.50
2	D	84	SER	O-C-N	-10.66	100.84	121.10
1	A	122	ALA	C-N-CA	10.15	147.07	121.70
1	C	100	TRP	C-N-CA	10.02	146.76	121.70
1	C	117	GLU	O-C-N	10.02	138.73	122.70
1	C	122	ALA	CB-CA-C	9.85	124.88	110.10
1	C	101	SER	C-N-CA	9.79	146.18	121.70
1	E	334	PRO	CA-N-CD	-9.48	98.22	111.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	337	PRO	CA-N-CD	-9.07	98.80	111.50
1	E	101	SER	N-CA-CB	-8.74	97.39	110.50
2	B	8	ARG	NE-CZ-NH1	-8.37	116.11	120.30
1	E	100	TRP	CA-C-N	8.20	135.23	117.20
1	C	336	GLY	C-N-CD	-8.01	102.98	120.60
2	D	85	PRO	N-CD-CG	-7.79	91.52	103.20
2	F	361	ASP	CB-CG-OD2	-7.70	111.37	118.30
2	D	85	PRO	N-CA-CB	7.55	112.36	103.30
1	A	102	ASP	N-CA-C	7.47	131.16	111.00
2	F	85	PRO	N-CA-CB	-7.46	94.35	103.30
2	F	436	ALA	N-CA-C	-7.28	91.35	111.00
1	C	102	ASP	N-CA-C	7.25	130.57	111.00
2	D	84	SER	CA-C-N	7.23	137.33	117.10
1	A	102	ASP	N-CA-CB	-7.16	97.72	110.60
1	C	123	GLU	O-C-N	-7.15	111.27	122.70
1	C	100	TRP	CA-C-N	6.98	132.56	117.20
1	C	122	ALA	C-N-CA	6.97	139.12	121.70
2	F	85	PRO	CB-CA-C	6.91	129.27	112.00
2	F	11	SER	N-CA-C	6.83	129.43	111.00
1	E	337	PRO	CA-N-CD	-6.79	102.00	111.50
1	A	122	ALA	N-CA-C	-6.75	92.78	111.00
1	A	334	PRO	N-CA-CB	6.69	111.33	103.30
2	B	409	GLU	N-CA-C	-6.63	93.10	111.00
2	D	84	SER	C-N-CA	6.61	149.76	122.00
1	E	122	ALA	CA-C-N	-6.61	102.66	117.20
2	F	77	SER	N-CA-C	-6.51	93.43	111.00
1	E	123	GLU	CA-CB-CG	6.27	127.19	113.40
2	B	79	GLN	N-CA-C	-6.25	94.13	111.00
1	C	122	ALA	O-C-N	6.12	132.50	122.70
1	A	122	ALA	CA-C-O	-6.10	107.29	120.10
1	C	122	ALA	CA-C-N	-6.09	103.81	117.20
1	E	122	ALA	O-C-N	6.05	132.37	122.70
2	D	409	GLU	N-CA-C	-5.89	95.09	111.00
2	B	2	PRO	N-CA-C	-5.75	97.14	112.10
2	F	72	LYS	N-CA-C	5.75	126.52	111.00
2	B	84	SER	CB-CA-C	5.69	120.90	110.10
1	C	334	PRO	N-CD-CG	5.43	111.34	103.20
2	F	361	ASP	CB-CG-OD1	5.34	123.10	118.30
2	F	409	GLU	N-CA-C	-5.28	96.74	111.00
1	A	270	LEU	CA-CB-CG	5.25	127.38	115.30
2	D	85	PRO	N-CA-C	-5.15	98.71	112.10
1	A	123	GLU	C-N-CA	-5.15	108.83	121.70

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	85	PRO	CA-CB-CG	-5.08	94.34	104.00
1	E	270	LEU	CA-CB-CG	5.06	126.94	115.30

There are no chirality outliers.

All (16) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	100	TRP	Mainchain
1	A	122	ALA	Mainchain,Peptide
1	A	28	ASP	Mainchain
1	C	100	TRP	Mainchain,Peptide
1	C	101	SER	Mainchain,Peptide
1	C	123	GLU	Mainchain
2	D	11	SER	Mainchain
2	D	84	SER	Mainchain,Peptide
1	E	100	TRP	Mainchain,Peptide
1	E	123	GLU	Mainchain
2	F	361	ASP	Mainchain

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	3468	0	3300	85	0
1	C	3468	0	3299	75	0
1	E	3468	0	3297	84	0
2	B	3400	0	3350	110	0
2	D	3400	0	3349	91	0
2	F	3400	0	3350	85	0
3	B	28	0	26	2	0
3	D	28	0	26	0	0
3	E	14	0	13	0	0
3	F	28	0	26	3	0
4	B	50	0	43	6	0
4	F	50	0	43	9	0
5	D	61	0	52	5	0
6	B	5	0	0	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	D	5	0	0	1	0
6	F	5	0	0	1	0
7	B	1	0	0	0	0
7	D	1	0	0	0	0
7	F	1	0	0	0	0
8	A	4	0	0	0	0
8	B	2	0	0	0	0
8	C	4	0	0	0	0
8	D	2	0	0	0	0
8	E	4	0	0	0	0
8	F	2	0	0	0	0
9	A	22	0	0	1	0
9	B	16	0	0	0	0
9	C	20	0	0	1	0
9	D	19	0	0	0	0
9	E	28	0	0	1	0
9	F	15	0	0	0	0
All	All	21019	0	20174	541	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 (541) 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:D:85:PRO:CB	2:D:85:PRO:CG	1.76	1.59
1:A:123:GLU:CB	1:A:123:GLU:CG	1.84	1.52
1:C:117:GLU:C	1:C:117:GLU:CA	1.84	1.45
1:A:101:SER:CB	1:A:101:SER:OG	1.70	1.38
2:D:85:PRO:CD	2:D:85:PRO:N	1.87	1.37
1:E:91:GLN:HG2	1:E:108:ALA:HB1	1.32	1.11
2:F:66:ASP:HA	2:F:86:GLN:HE22	1.16	1.07
2:F:84:SER:HB2	2:F:103:GLN:H	1.19	1.05
1:A:303:ARG:HD2	1:A:335:ARG:HE	1.21	1.02
2:D:85:PRO:CD	2:D:85:PRO:CA	2.37	1.02
2:F:84:SER:HB3	2:F:85:PRO:HD2	1.41	0.99
2:D:25:TRP:HE1	2:D:27:SER:HB2	1.30	0.96
2:D:85:PRO:CG	2:D:85:PRO:CA	2.44	0.95
2:F:84:SER:HB3	2:F:85:PRO:CD	2.00	0.91
2:B:61:ALA:HB2	2:B:90:LEU:HD12	1.52	0.89
1:E:395:GLN:HG2	1:E:397:GLU:H	1.41	0.85

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:61:ALA:HB2	2:D:90:LEU:HD12	1.59	0.85
2:B:67:ARG:H	2:B:67:ARG:HD2	1.41	0.85
2:F:66:ASP:HA	2:F:86:GLN:NE2	1.91	0.84
2:D:91:ARG:HG2	2:D:430:THR:HB	1.59	0.84
1:A:303:ARG:HB2	1:A:335:ARG:HH21	1.43	0.83
2:F:412:LYS:HE2	2:F:413:SER:H	1.43	0.81
4:B:1002:NAG:H61	4:B:1003:NAG:H82	1.63	0.80
2:D:84:SER:HB2	2:D:103:GLN:H	1.44	0.80
1:E:278:HIS:CE1	1:E:339:ALA:HB1	2.17	0.80
2:D:376:ASN:H	2:D:376:ASN:HD22	1.28	0.80
1:A:101:SER:OG	1:A:102:ASP:N	2.15	0.79
2:D:63:VAL:HA	2:D:88:ILE:HG22	1.63	0.79
2:D:361:ASP:O	2:D:414:PHE:HB3	1.83	0.78
1:A:264:LEU:O	1:A:282:ALA:HB3	1.84	0.78
2:D:27:SER:HB3	2:D:438:GLN:HB3	1.66	0.77
1:E:1:LEU:HA	1:E:367:ASP:HB3	1.67	0.77
2:F:84:SER:CB	2:F:85:PRO:CD	2.60	0.77
1:E:264:LEU:O	1:E:282:ALA:HB3	1.85	0.76
2:D:85:PRO:O	2:D:425:LEU:HD13	1.85	0.76
2:D:84:SER:C	2:D:85:PRO:CD	2.52	0.76
1:C:227:ASN:HD21	1:C:229:GLU:HG3	1.51	0.76
1:C:245:ASP:HA	1:C:338:HIS:HE1	1.48	0.76
2:B:365:GLU:HG3	2:B:407:PRO:HG3	1.69	0.75
1:A:163:ASP:OD1	1:A:165:ARG:HD3	1.86	0.74
2:B:412:LYS:HE2	2:B:413:SER:H	1.52	0.74
2:B:85:PRO:O	2:B:425:LEU:HD13	1.86	0.74
2:B:361:ASP:OD2	2:B:414:PHE:HA	1.88	0.74
2:D:85:PRO:N	2:D:85:PRO:CG	2.45	0.73
2:B:91:ARG:HG3	2:B:430:THR:HB	1.68	0.73
1:E:122:ALA:O	1:E:123:GLU:HB2	1.87	0.73
1:C:16:GLY:H	1:C:443:ASN:HD21	1.37	0.73
2:B:373:THR:HG22	2:B:379:VAL:HG22	1.71	0.73
2:F:375:LEU:H	2:F:375:LEU:HD12	1.54	0.73
2:B:84:SER:OG	2:B:103:GLN:HG3	1.88	0.72
1:A:105:VAL:HG22	1:A:132:LEU:HD13	1.71	0.72
2:F:436:ALA:HB3	2:F:438:GLN:NE2	2.03	0.72
2:D:26:CYS:HB2	2:D:44:LEU:HD13	1.72	0.72
2:B:3:ASN:HD21	2:B:5:CYS:HB2	1.54	0.71
2:F:85:PRO:O	2:F:425:LEU:HD13	1.90	0.71
1:A:303:ARG:HD2	1:A:335:ARG:NE	2.02	0.71
2:F:93:ARG:HB2	2:F:94:PRO:HD2	1.72	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:134:LEU:O	2:F:138:LEU:HB2	1.92	0.70
1:E:359:ALA:HB3	1:E:377:ALA:HB3	1.74	0.69
1:A:303:ARG:HB2	1:A:335:ARG:NH2	2.07	0.69
2:D:136:THR:HA	2:D:204:ASN:HD21	1.58	0.69
1:E:91:GLN:HG2	1:E:108:ALA:CB	2.19	0.69
4:F:1018:MAN:H3	4:F:1019:BMA:O2	1.91	0.69
1:A:114:ASN:HD22	1:A:115:VAL:H	1.41	0.68
1:A:119:THR:CG2	1:A:119:THR:O	2.40	0.68
2:D:25:TRP:NE1	2:D:27:SER:HB2	2.08	0.68
2:D:215:ASN:HB3	6:D:1302:CAC:C1	2.22	0.68
1:C:395:GLN:HG2	1:C:396:SER:N	2.08	0.68
2:D:8:ARG:HB2	2:D:8:ARG:CZ	2.23	0.68
1:A:312:LEU:HD22	2:B:258:LEU:HD12	1.75	0.68
2:D:93:ARG:HB2	2:D:94:PRO:HD2	1.76	0.68
1:A:1:LEU:HD13	1:A:367:ASP:HB3	1.73	0.68
4:F:1016:NAG:H61	4:F:1017:NAG:C8	2.24	0.67
2:B:104:VAL:HG21	2:B:355:VAL:HG11	1.76	0.67
2:B:337:SER:O	2:B:341:LEU:HD23	1.95	0.67
5:D:1008:NAG:C6	5:D:1009:NAG:H82	2.24	0.67
1:A:303:ARG:CD	1:A:335:ARG:HE	2.02	0.67
2:B:82:GLN:NE2	2:B:107:VAL:HG12	2.10	0.66
1:A:332:LEU:O	1:A:334:PRO:HD3	1.95	0.66
2:D:376:ASN:HD22	2:D:376:ASN:N	1.92	0.66
2:B:83:VAL:HG22	2:B:104:VAL:HG12	1.78	0.66
2:B:111:PRO:HB2	2:B:242:ALA:HB2	1.77	0.66
1:E:278:HIS:CE1	1:E:339:ALA:CB	2.78	0.66
1:C:163:ASP:OD1	1:C:165:ARG:HD3	1.96	0.66
2:D:176:PRO:HB2	2:D:214:ARG:HB2	1.78	0.65
1:A:122:ALA:O	1:A:123:GLU:HG3	1.97	0.65
2:B:365:GLU:HG3	2:B:407:PRO:CG	2.25	0.65
2:F:400:GLU:HB2	3:F:1020:NAG:H81	1.78	0.65
2:D:11:SER:O	2:D:12:SER:HB3	1.98	0.64
2:D:85:PRO:CD	2:D:85:PRO:CB	2.66	0.64
2:D:218:ALA:HB3	2:D:219:PRO:HD3	1.80	0.64
2:B:63:VAL:HA	2:B:88:ILE:HG22	1.79	0.64
2:D:92:LEU:HD13	2:D:403:VAL:HG11	1.78	0.64
2:F:306:LEU:HB3	2:F:328:THR:HG22	1.81	0.63
1:E:105:VAL:HG22	1:E:132:LEU:HD13	1.81	0.63
2:F:84:SER:HB2	2:F:103:GLN:N	2.02	0.63
2:B:376:ASN:HD22	2:B:376:ASN:N	1.96	0.63
2:F:61:ALA:HA	2:F:89:ALA:O	1.99	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:84:SER:CB	2:D:85:PRO:HD2	2.29	0.63
1:E:338:HIS:ND1	1:E:338:HIS:N	2.47	0.62
2:F:218:ALA:HB3	2:F:219:PRO:HD3	1.80	0.62
2:D:8:ARG:NH1	2:D:8:ARG:HB2	2.14	0.62
1:A:69:LEU:O	1:A:140:ARG:NH1	2.32	0.62
1:E:227:ASN:ND2	1:E:229:GLU:H	1.98	0.62
1:C:243:GLU:H	1:C:304:HIS:CD2	2.18	0.61
2:B:230:THR:HG23	2:B:304:ILE:HD12	1.82	0.61
2:D:61:ALA:HA	2:D:89:ALA:O	2.00	0.61
1:C:317:ARG:HH11	1:C:317:ARG:HG2	1.64	0.61
2:B:122:TYR:HB2	2:B:214:ARG:HG2	1.83	0.61
1:C:16:GLY:H	1:C:443:ASN:ND2	1.98	0.61
5:D:1008:NAG:H62	5:D:1009:NAG:H82	1.80	0.61
2:B:93:ARG:HB2	2:B:94:PRO:HD2	1.81	0.61
2:F:215:ASN:HB3	6:F:1303:CAC:C1	2.31	0.61
1:E:180:GLU:HB3	1:E:197:GLN:HE22	1.66	0.61
2:B:436:ALA:HB3	2:B:438:GLN:NE2	2.15	0.60
2:D:94:PRO:HB3	2:D:406:CYS:HB2	1.82	0.60
2:B:61:ALA:HA	2:B:89:ALA:O	2.01	0.60
4:F:1017:NAG:H3	4:F:1018:MAN:O5	2.00	0.60
2:B:31:LEU:HD11	2:B:49:CYS:SG	2.42	0.60
1:C:55:LEU:O	1:C:66:PRO:HD2	2.02	0.60
2:F:8:ARG:HH11	2:F:8:ARG:HG3	1.67	0.59
1:E:69:LEU:O	1:E:140:ARG:NH1	2.35	0.59
1:A:155:TYR:CE2	1:A:165:ARG:HD2	2.37	0.59
1:A:114:ASN:ND2	1:A:115:VAL:H	2.00	0.59
2:B:65:GLU:HG2	2:B:87:ARG:HB3	1.84	0.59
2:F:437:CYS:SG	2:F:437:CYS:O	2.60	0.59
2:F:176:PRO:HB2	2:F:214:ARG:HB2	1.83	0.59
2:D:361:ASP:O	2:D:414:PHE:CB	2.51	0.59
2:F:436:ALA:HB3	2:F:438:GLN:HE21	1.66	0.59
2:D:292:LEU:HA	2:D:295:MET:HE3	1.83	0.59
1:A:317:ARG:HH11	1:A:317:ARG:HG2	1.67	0.59
1:A:119:THR:O	1:A:119:THR:HG22	2.00	0.59
2:F:66:ASP:CG	2:F:85:PRO:HG3	2.23	0.59
1:C:117:GLU:CA	1:C:118:LYS:N	2.61	0.58
2:B:371:ASN:HB2	2:B:398:SER:HB3	1.85	0.58
1:A:227:ASN:HD22	1:A:227:ASN:C	2.05	0.58
2:B:337:SER:HB2	2:B:341:LEU:HD23	1.85	0.58
1:E:303:ARG:HD2	1:E:334:PRO:O	2.03	0.58
2:F:31:LEU:HD21	2:F:49:CYS:SG	2.43	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:F:354:LYS:HB3	2:F:387:MET:HG2	1.86	0.58
1:A:113:TRP:CE3	1:A:147:ARG:HD2	2.37	0.58
1:E:88:LYS:O	1:E:91:GLN:HB2	2.03	0.58
1:E:155:TYR:CE2	1:E:165:ARG:HD2	2.39	0.58
1:A:227:ASN:ND2	1:A:229:GLU:H	2.01	0.58
2:F:5:CYS:HB2	2:F:39:ASP:HA	1.84	0.58
1:E:41:ARG:HH11	1:E:41:ARG:HG2	1.69	0.58
1:A:101:SER:CA	1:A:101:SER:OG	2.50	0.57
1:A:30:HIS:HB3	1:E:429:ASP:OD2	2.04	0.57
2:D:418:PRO:HG2	2:D:421:PHE:HB2	1.87	0.57
2:F:61:ALA:HB2	2:F:90:LEU:HD12	1.87	0.57
1:E:3:LEU:O	1:E:5:PRO:HD3	2.03	0.57
1:C:330:LEU:HD22	1:C:399:LEU:HD12	1.85	0.57
1:C:334:PRO:HB2	1:C:338:HIS:HA	1.87	0.57
2:F:17:LEU:HD13	2:F:57:PRO:HG2	1.87	0.57
1:E:317:ARG:HG2	1:E:317:ARG:HH11	1.69	0.57
4:B:1003:NAG:O3	4:B:1004:MAN:H5	2.03	0.57
1:C:245:ASP:HA	1:C:338:HIS:CE1	2.36	0.57
2:D:219:PRO:HG3	2:D:253:LYS:HG3	1.86	0.57
2:F:122:TYR:HB2	2:F:214:ARG:HG2	1.87	0.57
2:F:27:SER:O	2:F:53:SER:HB2	2.05	0.57
1:E:180:GLU:HB3	1:E:197:GLN:NE2	2.20	0.57
1:E:41:ARG:CG	1:E:41:ARG:HH11	2.18	0.56
2:D:407:PRO:HB2	2:D:431:PHE:CE2	2.40	0.56
1:C:19:PHE:CE1	1:C:445:VAL:HG23	2.41	0.56
4:B:1004:MAN:H3	4:B:1005:BMA:O2	2.05	0.56
2:B:84:SER:HB2	2:B:103:GLN:H	1.69	0.56
2:D:136:THR:HA	2:D:204:ASN:ND2	2.21	0.56
4:F:1017:NAG:C3	4:F:1018:MAN:O5	2.54	0.56
2:B:82:GLN:HB2	2:B:105:ARG:O	2.05	0.56
1:E:227:ASN:C	1:E:227:ASN:HD22	2.08	0.56
2:F:10:VAL:HB	2:F:15:GLN:NE2	2.21	0.56
2:D:28:ASP:CG	2:D:29:GLU:H	2.09	0.56
2:B:8:ARG:O	2:B:10:VAL:HG23	2.06	0.56
1:C:264:LEU:O	1:C:282:ALA:HB3	2.07	0.55
2:B:161:VAL:HG23	2:B:285:THR:HG22	1.88	0.55
1:A:216:VAL:O	1:A:219:GLN:HB3	2.05	0.55
2:B:400:GLU:HB2	3:B:1006:NAG:H83	1.87	0.55
1:C:340:LEU:H	1:C:340:LEU:HD12	1.71	0.55
2:B:436:ALA:C	2:B:438:GLN:HE21	2.10	0.55
1:C:13:GLY:HA3	1:C:19:PHE:CD2	2.40	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:404:SER:O	1:C:405:GLN:HB2	2.05	0.55
1:E:166:TYR:O	1:E:187:GLY:HA3	2.05	0.55
2:D:82:GLN:NE2	2:D:107:VAL:HG12	2.20	0.55
5:D:1010:MAN:H3	5:D:1011:BMA:O2	2.07	0.55
1:E:2:ASN:HD22	1:E:2:ASN:N	2.05	0.55
1:C:243:GLU:H	1:C:304:HIS:HD2	1.55	0.55
2:B:158:ASP:O	2:B:189:GLY:HA2	2.06	0.55
1:C:243:GLU:HB2	1:C:304:HIS:HD2	1.72	0.55
1:C:114:ASN:ND2	1:C:115:VAL:H	2.05	0.55
2:D:102:ILE:HG22	2:D:397:PHE:HB2	1.89	0.55
2:D:70:SER:OG	2:D:80:VAL:HG22	2.07	0.54
1:A:18:GLN:H	1:A:443:ASN:HD21	1.54	0.54
1:C:197:GLN:NE2	1:C:220:SER:HB3	2.20	0.54
1:C:69:LEU:O	1:C:140:ARG:NH1	2.39	0.54
2:B:390:LYS:H	2:B:390:LYS:HD2	1.73	0.54
1:C:390:LEU:HG	1:C:406:VAL:HG22	1.90	0.54
1:E:395:GLN:HG2	1:E:397:GLU:N	2.19	0.54
2:B:161:VAL:CG2	2:B:285:THR:HG22	2.38	0.54
1:E:2:ASN:HD22	1:E:2:ASN:H	1.56	0.54
1:A:303:ARG:CB	1:A:335:ARG:HH21	2.18	0.54
2:F:10:VAL:HB	2:F:15:GLN:HE22	1.71	0.54
1:E:244:PHE:HB2	1:E:252:GLU:HG3	1.90	0.54
2:D:82:GLN:HB2	2:D:105:ARG:O	2.08	0.54
1:E:124:LYS:N	2:F:168:SER:HG	2.05	0.54
1:E:2:ASN:HB2	1:E:405:GLN:OE1	2.08	0.54
1:C:117:GLU:N	1:C:117:GLU:C	2.58	0.53
2:F:361:ASP:O	2:F:414:PHE:HB3	2.08	0.53
2:B:257:ALA:O	2:B:258:LEU:HB2	2.09	0.53
1:C:3:LEU:H	1:C:405:GLN:HE22	1.56	0.53
1:C:379:PRO:HA	1:C:417:PHE:O	2.09	0.53
2:D:66:ASP:HB2	2:D:85:PRO:HD3	1.90	0.53
1:E:227:ASN:HD22	1:E:228:PRO:N	2.06	0.53
2:B:16:CYS:SG	2:B:24:ALA:O	2.66	0.53
1:E:177:GLN:NE2	1:E:177:GLN:HA	2.24	0.53
1:E:426:ASP:CG	1:E:429:ASP:HA	2.28	0.53
2:B:161:VAL:HG12	2:B:162:SER:O	2.09	0.53
2:F:7:THR:HG22	2:F:8:ARG:HG3	1.91	0.53
1:A:395:GLN:CD	1:A:396:SER:H	2.13	0.53
1:A:262:TRP:CD1	2:B:317:LEU:HD12	2.44	0.53
2:D:122:TYR:HB2	2:D:213:SER:O	2.09	0.52
1:E:174:VAL:HG23	1:E:239:VAL:HG23	1.92	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:157:VAL:O	2:D:220:GLU:HB3	2.10	0.52
2:D:27:SER:CB	2:D:438:GLN:HB3	2.39	0.52
4:F:1016:NAG:H61	4:F:1017:NAG:H82	1.91	0.52
1:C:166:TYR:O	1:C:187:GLY:HA3	2.09	0.52
1:E:143:TYR:OH	1:E:219:GLN:HG3	2.09	0.52
2:B:191:LYS:HD3	2:B:280:HIS:NE2	2.25	0.52
2:B:157:VAL:O	2:B:220:GLU:HB3	2.09	0.52
2:D:376:ASN:ND2	2:D:376:ASN:H	2.04	0.52
2:B:69:LEU:HB2	2:B:105:ARG:NH1	2.24	0.52
1:E:332:LEU:O	1:E:334:PRO:HD3	2.10	0.52
1:E:227:ASN:HD21	1:E:229:GLU:HG3	1.74	0.52
1:C:3:LEU:O	1:C:5:PRO:HD3	2.10	0.52
2:D:84:SER:HB3	2:D:85:PRO:HD2	1.91	0.51
2:F:82:GLN:HB2	2:F:105:ARG:O	2.10	0.51
2:D:60:GLU:O	2:D:98:LYS:HE2	2.09	0.51
1:C:15:ASN:HA	1:C:443:ASN:ND2	2.25	0.51
2:B:111:PRO:HB2	2:B:242:ALA:CB	2.39	0.51
1:E:342:ALA:HB1	1:E:343:PRO:HD2	1.91	0.51
2:F:103:GLN:HG2	2:F:396:SER:HB3	1.91	0.51
1:E:282:ALA:HB2	1:E:289:PHE:CG	2.45	0.51
2:F:25:TRP:HE1	2:F:27:SER:HB2	1.76	0.51
2:D:371:ASN:HB2	2:D:398:SER:HB3	1.92	0.51
1:A:227:ASN:HD21	1:A:229:GLU:HG3	1.76	0.51
1:E:163:ASP:OD1	1:E:165:ARG:HD3	2.11	0.51
2:B:28:ASP:HB2	2:B:53:SER:OG	2.10	0.51
2:B:119:ASP:O	2:B:124:MET:HG3	2.10	0.51
2:F:5:CYS:CB	2:F:39:ASP:HA	2.41	0.51
5:D:1009:NAG:C3	5:D:1010:MAN:O5	2.59	0.50
2:F:100:PHE:HA	3:F:1015:NAG:H83	1.94	0.50
1:C:113:TRP:CE3	1:C:147:ARG:HD2	2.45	0.50
1:A:262:TRP:HD1	2:B:317:LEU:HD12	1.75	0.50
2:F:16:CYS:SG	2:F:24:ALA:O	2.69	0.50
1:A:395:GLN:OE1	1:A:397:GLU:HB2	2.11	0.50
2:F:66:ASP:CB	2:F:85:PRO:HG3	2.42	0.50
2:D:374:CYS:HB2	2:D:376:ASN:ND2	2.27	0.50
1:C:114:ASN:HD22	1:C:115:VAL:H	1.58	0.50
2:F:278:ASP:O	2:F:279:ASN:HB2	2.12	0.50
2:B:143:ARG:NH1	2:B:147:SER:HA	2.27	0.50
2:F:39:ASP:OD2	2:F:43:ASN:HB2	2.12	0.50
4:B:1003:NAG:O3	4:B:1004:MAN:C5	2.59	0.49
1:C:395:GLN:HG2	1:C:396:SER:H	1.75	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:7:THR:HG22	2:D:8:ARG:HG3	1.94	0.49
2:F:160:PRO:HA	2:F:187:MET:HE2	1.95	0.49
1:A:101:SER:CB	1:A:101:SER:HG	2.14	0.49
2:D:132:GLN:HE21	2:D:208:LYS:HA	1.77	0.49
1:C:2:ASN:N	1:C:2:ASN:HD22	2.10	0.49
1:E:282:ALA:HB2	1:E:289:PHE:CB	2.42	0.49
2:D:67:ARG:HG2	2:D:86:GLN:HE22	1.77	0.49
1:C:167:CYS:HB3	1:C:185:ALA:HB1	1.94	0.49
2:F:203:PHE:HD2	2:F:204:ASN:ND2	2.10	0.49
1:E:8:LEU:HD23	1:E:8:LEU:H	1.78	0.49
2:D:195:THR:HG22	2:D:196:LEU:N	2.28	0.49
2:D:50:ALA:HB3	2:D:53:SER:OG	2.11	0.49
1:E:87:PHE:CD1	1:E:124:LYS:HE3	2.47	0.49
2:D:230:THR:HG23	2:D:304:ILE:HD12	1.94	0.49
1:E:282:ALA:HB2	1:E:289:PHE:HB3	1.95	0.49
2:F:92:LEU:O	2:F:92:LEU:HD12	2.13	0.49
1:E:113:TRP:CE3	1:E:147:ARG:HD2	2.47	0.49
2:B:376:ASN:N	2:B:376:ASN:ND2	2.61	0.48
1:E:101:SER:OG	1:E:102:ASP:N	2.44	0.48
1:E:330:LEU:HD22	1:E:399:LEU:HD12	1.96	0.48
2:B:3:ASN:ND2	2:B:5:CYS:H	2.11	0.48
1:A:105:VAL:HG22	1:A:132:LEU:CD1	2.42	0.48
1:A:227:ASN:HD22	1:A:228:PRO:N	2.12	0.48
1:C:282:ALA:HB2	1:C:289:PHE:HB3	1.96	0.48
2:B:114:ILE:HD11	2:B:142:MET:HG3	1.96	0.48
2:F:120:LEU:HD22	2:F:155:ALA:CB	2.43	0.48
1:A:427:ILE:HG22	1:A:434:ASP:OD2	2.14	0.48
4:F:1016:NAG:H61	4:F:1017:NAG:H81	1.93	0.48
2:F:361:ASP:O	2:F:414:PHE:CB	2.61	0.48
1:C:1:LEU:HA	1:C:367:ASP:HB3	1.94	0.48
1:C:227:ASN:ND2	1:C:229:GLU:H	2.11	0.48
4:F:1016:NAG:C6	4:F:1017:NAG:H82	2.44	0.48
2:F:418:PRO:HG2	2:F:421:PHE:HB2	1.95	0.48
2:F:119:ASP:O	2:F:124:MET:HG3	2.14	0.48
2:B:376:ASN:ND2	2:B:376:ASN:H	2.12	0.48
1:A:359:ALA:HB3	1:A:377:ALA:HB3	1.95	0.48
1:C:317:ARG:NH1	1:C:317:ARG:HG2	2.28	0.48
2:D:257:ALA:O	2:D:258:LEU:HB2	2.14	0.47
2:D:84:SER:O	2:D:85:PRO:C	2.52	0.47
2:F:435:CYS:HB2	2:F:436:ALA:O	2.15	0.47
2:B:3:ASN:HD21	2:B:5:CYS:CB	2.25	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:395:GLN:NE2	1:C:400:ARG:HH12	2.13	0.47
1:A:19:PHE:O	1:A:440:TYR:HA	2.15	0.47
2:B:116:TYR:HB3	2:B:153:PHE:HB2	1.95	0.47
1:E:23:LEU:HG	1:E:420:SER:OG	2.14	0.47
1:A:195:LEU:HD11	1:A:239:VAL:HG11	1.96	0.47
1:A:18:GLN:H	1:A:443:ASN:ND2	2.13	0.47
1:C:174:VAL:HG11	1:C:240:ALA:HA	1.96	0.47
2:B:120:LEU:HD22	2:B:155:ALA:HB1	1.97	0.47
2:B:319:GLN:O	2:B:322:SER:HB3	2.14	0.47
2:D:7:THR:HG22	2:D:8:ARG:N	2.30	0.47
2:B:82:GLN:HB3	2:B:107:VAL:HG12	1.97	0.47
9:C:1434:HOH:O	2:D:216:ARG:HD3	2.13	0.47
1:C:166:TYR:CE1	2:D:216:ARG:HD2	2.49	0.47
2:B:50:ALA:C	2:B:52:GLU:H	2.18	0.47
1:A:303:ARG:CZ	1:A:336:GLY:H	2.27	0.47
2:D:376:ASN:ND2	2:D:376:ASN:N	2.63	0.47
1:A:395:GLN:CG	1:A:396:SER:H	2.28	0.47
2:D:90:LEU:HD23	2:D:429:VAL:HG12	1.97	0.46
2:B:102:ILE:HD12	2:B:425:LEU:HD23	1.97	0.46
2:B:337:SER:HB2	2:B:341:LEU:CD2	2.45	0.46
1:A:421:LEU:CD2	1:A:437:VAL:HG22	2.45	0.46
1:A:117:GLU:O	1:A:118:LYS:HB2	2.16	0.46
1:A:73:ARG:NH1	1:C:73:ARG:HB2	2.31	0.46
2:B:312:GLU:HA	2:B:315:VAL:HG23	1.97	0.46
1:C:155:TYR:CZ	1:C:165:ARG:HD2	2.51	0.46
2:B:223:PHE:HD1	2:B:226:ILE:HD12	1.81	0.46
1:A:84:LEU:HD12	1:A:115:VAL:HG13	1.98	0.46
1:A:395:GLN:CD	1:A:397:GLU:H	2.18	0.46
2:B:361:ASP:O	2:B:414:PHE:HB3	2.15	0.46
1:E:393:LEU:HG	1:E:404:SER:HB3	1.98	0.46
1:A:327:ARG:HH21	1:A:348:THR:HG21	1.80	0.46
1:E:395:GLN:HB2	1:E:400:ARG:HH11	1.81	0.46
2:D:105:ARG:HB3	2:D:394:THR:HG23	1.98	0.46
1:C:283:GLU:HG2	1:C:329:TYR:OH	2.15	0.46
2:F:86:GLN:CD	2:F:86:GLN:H	2.19	0.46
1:A:114:ASN:HD22	1:A:115:VAL:N	2.11	0.46
1:C:235:TRP:HZ2	1:C:270:LEU:HD21	1.80	0.46
1:E:243:GLU:H	1:E:304:HIS:CD2	2.34	0.46
1:C:103:VAL:HG21	1:C:200:VAL:HG11	1.98	0.46
2:B:121:SER:O	2:B:124:MET:HB2	2.15	0.46
2:D:132:GLN:NE2	2:D:208:LYS:HA	2.31	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:258:PRO:HB2	1:A:288:TYR:CD2	2.50	0.46
1:C:132:LEU:N	1:C:132:LEU:HD22	2.31	0.46
1:A:432:TYR:HA	1:A:433:PRO:HD3	1.82	0.46
2:F:102:ILE:HD12	2:F:425:LEU:CD2	2.46	0.45
1:E:332:LEU:O	1:E:334:PRO:CD	2.65	0.45
2:D:407:PRO:HB2	2:D:431:PHE:HE2	1.81	0.45
2:B:389:LEU:H	2:B:389:LEU:HD23	1.81	0.45
1:C:19:PHE:HE1	1:C:445:VAL:HG23	1.79	0.45
2:D:67:ARG:H	2:D:86:GLN:HE22	1.62	0.45
2:F:98:LYS:HA	2:F:98:LYS:HD2	1.78	0.45
1:A:282:ALA:HB2	1:A:289:PHE:CG	2.50	0.45
1:C:132:LEU:HB2	1:C:141:ALA:HB3	1.98	0.45
2:F:319:GLN:HA	2:F:330:VAL:HG21	1.98	0.45
1:E:395:GLN:HG2	1:E:396:SER:N	2.30	0.45
1:A:291:HIS:HD2	2:B:258:LEU:HD13	1.81	0.45
1:E:317:ARG:NH1	1:E:317:ARG:HG2	2.32	0.45
1:C:254:VAL:HG22	1:C:269:ILE:CD1	2.47	0.45
1:C:327:ARG:HG2	1:C:329:TYR:CE1	2.52	0.45
1:C:329:TYR:N	1:C:329:TYR:CD1	2.85	0.45
1:A:313:TYR:HE1	1:A:315:GLU:HA	1.82	0.45
2:B:376:ASN:HD22	2:B:376:ASN:H	1.62	0.45
1:C:264:LEU:HD22	1:C:282:ALA:HB3	1.97	0.45
1:E:270:LEU:HD13	1:E:276:ARG:HA	1.98	0.45
2:F:94:PRO:HB3	2:F:406:CYS:HB2	1.98	0.44
2:D:92:LEU:CD1	2:D:403:VAL:HG11	2.44	0.44
2:B:176:PRO:HB2	2:B:214:ARG:HB2	1.99	0.44
1:A:176:THR:OG1	1:A:180:GLU:HG2	2.17	0.44
1:A:3:LEU:O	1:A:5:PRO:HD3	2.17	0.44
1:E:14:PRO:HG2	1:E:17:SER:HB3	1.98	0.44
1:A:29:SER:HB3	1:A:102:ASP:OD1	2.17	0.44
2:F:84:SER:OG	2:F:103:GLN:HB2	2.18	0.44
2:F:317:LEU:HA	4:F:1016:NAG:H81	2.00	0.44
2:F:71:ASP:O	2:F:107:VAL:HG22	2.17	0.44
2:D:360:ARG:HG2	2:D:360:ARG:HH11	1.83	0.44
2:D:35:SER:HA	2:D:36:PRO:HD3	1.84	0.44
2:B:308:PHE:HB2	2:B:330:VAL:HG22	1.99	0.44
2:B:112:VAL:O	2:B:149:LEU:HD12	2.17	0.44
2:F:115:TYR:HH	2:F:192:HIS:HD1	1.66	0.44
1:C:59:ARG:HG3	1:C:62:GLY:H	1.82	0.44
1:E:338:HIS:HB2	1:E:339:ALA:H	1.43	0.44
2:B:88:ILE:HG13	2:B:427:VAL:HG13	2.00	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:241:VAL:HG12	1:C:253:TYR:HD1	1.81	0.44
2:B:249:THR:HG22	2:B:309:ALA:HB3	2.00	0.44
1:A:317:ARG:NH1	1:A:317:ARG:HG2	2.31	0.44
2:D:119:ASP:O	2:D:124:MET:HG3	2.18	0.44
1:A:354:GLY:HA2	1:A:380:TYR:C	2.38	0.44
1:A:284:GLN:OE1	1:A:314:MET:HB2	2.18	0.44
1:C:296:THR:O	1:C:305:ASP:HB2	2.17	0.44
1:C:155:TYR:CE2	1:C:165:ARG:HD2	2.53	0.43
2:B:220:GLU:OE1	6:B:1301:CAC:C1	2.66	0.43
1:A:379:PRO:HA	1:A:417:PHE:O	2.18	0.43
1:A:400:ARG:NH1	1:A:400:ARG:HG3	2.33	0.43
2:B:240:ASN:N	2:B:240:ASN:ND2	2.66	0.43
2:F:57:PRO:O	2:F:93:ARG:HD2	2.17	0.43
2:D:159:LYS:HE2	2:D:289:TYR:CE1	2.53	0.43
1:E:231:PHE:CD1	1:E:231:PHE:N	2.85	0.43
2:D:84:SER:HB3	2:D:85:PRO:CD	2.48	0.43
1:A:195:LEU:HD11	1:A:239:VAL:CG1	2.49	0.43
2:B:164:TYR:HB3	2:B:215:ASN:HD21	1.84	0.43
2:F:223:PHE:CZ	2:F:254:THR:HG21	2.53	0.43
2:B:120:LEU:HD22	2:B:155:ALA:CB	2.48	0.43
1:A:400:ARG:HH11	1:A:400:ARG:HG3	1.82	0.43
1:E:103:VAL:HG23	1:E:104:ILE:N	2.33	0.43
1:E:112:HIS:NE2	1:E:126:PRO:HG3	2.34	0.43
2:B:98:LYS:HA	2:B:98:LYS:HD2	1.80	0.43
2:D:128:LEU:HD12	2:D:128:LEU:HA	1.85	0.43
2:B:373:THR:CG2	2:B:379:VAL:HG22	2.44	0.43
2:D:84:SER:CB	2:D:85:PRO:CD	2.97	0.43
2:D:82:GLN:HB3	2:D:107:VAL:HG12	2.01	0.43
2:B:25:TRP:CG	2:B:26:CYS:N	2.86	0.43
2:F:65:GLU:HG3	2:F:87:ARG:HB3	2.00	0.43
2:D:84:SER:HB2	2:D:103:GLN:N	2.23	0.43
2:D:70:SER:HB2	2:D:107:VAL:HG21	2.01	0.43
9:A:1429:HOH:O	2:B:216:ARG:HD3	2.18	0.43
1:E:91:GLN:HG3	1:E:111:GLN:HB2	2.01	0.43
2:B:104:VAL:HG21	2:B:355:VAL:CG1	2.45	0.43
2:B:341:LEU:HD13	2:B:341:LEU:HA	1.82	0.43
1:A:227:ASN:ND2	1:A:227:ASN:C	2.71	0.43
1:C:415:SER:HB2	1:C:442:ALA:HB2	2.01	0.43
1:A:298:VAL:HG11	1:A:399:LEU:HD11	2.00	0.43
1:E:94:GLY:C	1:E:96:SER:H	2.22	0.43
1:E:327:ARG:NH1	1:E:346:LEU:HD23	2.34	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:390:LYS:HE3	2:D:390:LYS:HB2	1.86	0.43
2:B:136:THR:HA	2:B:204:ASN:HD21	1.84	0.43
1:A:123:GLU:CD	1:A:165:ARG:NH2	2.72	0.42
2:F:102:ILE:CG2	2:F:397:PHE:HB2	2.49	0.42
2:B:84:SER:HG	2:B:103:GLN:HG3	1.82	0.42
4:F:1016:NAG:O6	4:F:1017:NAG:H82	2.18	0.42
2:F:60:GLU:HG3	2:F:61:ALA:H	1.83	0.42
1:E:227:ASN:C	1:E:227:ASN:ND2	2.71	0.42
1:C:94:GLY:C	1:C:96:SER:H	2.22	0.42
2:F:91:ARG:HG2	2:F:430:THR:HB	2.00	0.42
1:C:243:GLU:N	1:C:304:HIS:HD2	2.16	0.42
2:F:257:ALA:O	2:F:258:LEU:HB2	2.19	0.42
1:C:258:PRO:HA	1:C:289:PHE:O	2.19	0.42
2:F:71:ASP:O	2:F:107:VAL:CG2	2.67	0.42
2:F:34:GLY:O	2:F:36:PRO:HD3	2.19	0.42
1:A:356:PHE:CZ	1:A:376:VAL:HG11	2.53	0.42
1:C:363:LEU:HD21	1:C:435:LEU:HD13	2.02	0.42
1:C:227:ASN:HD22	1:C:227:ASN:C	2.21	0.42
2:D:122:TYR:HB2	2:D:214:ARG:HG2	2.01	0.42
1:C:269:ILE:O	1:C:277:LEU:HB2	2.20	0.42
1:A:3:LEU:HA	1:A:449:ARG:O	2.20	0.42
1:E:311:PRO:HA	1:E:356:PHE:O	2.18	0.42
4:B:1003:NAG:H3	4:B:1004:MAN:O5	2.19	0.42
2:B:110:TYR:HA	2:B:111:PRO:HD3	1.91	0.42
1:A:28:ASP:O	1:A:30:HIS:N	2.53	0.42
1:A:417:PHE:CE1	1:A:437:VAL:HG11	2.54	0.42
1:A:119:THR:O	1:A:119:THR:HG23	2.19	0.42
1:C:112:HIS:NE2	1:C:126:PRO:HG3	2.35	0.42
1:C:1:LEU:H1	1:C:367:ASP:HA	1.84	0.42
2:B:46:LYS:NZ	2:B:46:LYS:HB3	2.34	0.42
2:B:3:ASN:ND2	2:B:5:CYS:HB2	2.29	0.42
1:E:197:GLN:HG3	1:E:220:SER:HB3	2.02	0.42
1:E:18:GLN:H	1:E:443:ASN:ND2	2.18	0.42
2:F:281:TYR:CE1	2:F:283:ALA:HB3	2.54	0.42
1:C:407:LEU:HD13	1:C:448:TYR:CD2	2.54	0.42
2:B:82:GLN:NE2	2:B:107:VAL:H	2.17	0.42
2:D:65:GLU:HG2	2:D:87:ARG:HB3	2.01	0.42
1:C:231:PHE:CD1	1:C:231:PHE:N	2.87	0.42
1:A:333:GLN:O	1:A:335:ARG:NH2	2.54	0.41
2:B:141:GLN:HG2	2:B:341:LEU:HD12	2.02	0.41
2:B:400:GLU:CB	3:B:1006:NAG:H83	2.50	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:433:PRO:O	1:A:450:ALA:HB2	2.20	0.41
2:B:249:THR:HA	2:B:309:ALA:O	2.19	0.41
1:E:325:VAL:O	1:E:356:PHE:HB3	2.20	0.41
2:D:139:ALA:O	2:D:143:ARG:HB2	2.19	0.41
1:E:335:ARG:HG2	1:E:335:ARG:HH11	1.84	0.41
1:C:340:LEU:H	1:C:340:LEU:CD1	2.33	0.41
1:E:297:ASP:O	1:E:372:ASN:HB2	2.20	0.41
1:E:181:LEU:O	1:E:197:GLN:HA	2.21	0.41
2:B:390:LYS:HD2	2:B:390:LYS:N	2.35	0.41
2:F:121:SER:O	2:F:124:MET:HB2	2.20	0.41
1:A:377:ALA:HB2	1:A:421:LEU:HD11	2.02	0.41
1:A:430:ASN:O	1:A:432:TYR:HD1	2.03	0.41
2:F:70:SER:OG	2:F:80:VAL:HG23	2.19	0.41
1:E:409:SER:HB2	1:E:417:PHE:CD2	2.55	0.41
2:B:82:GLN:HE21	2:B:107:VAL:H	1.68	0.41
2:F:354:LYS:HE3	2:F:354:LYS:HB2	1.89	0.41
2:D:44:LEU:O	2:D:49:CYS:HB2	2.21	0.41
1:E:174:VAL:CG2	1:E:239:VAL:HG23	2.49	0.41
1:A:87:PHE:CG	1:A:124:LYS:HE3	2.56	0.41
1:A:174:VAL:HG23	1:A:182:VAL:HB	2.02	0.41
2:B:351:ILE:C	2:B:352:ARG:HD2	2.40	0.41
2:F:161:VAL:HG12	2:F:162:SER:N	2.35	0.41
2:F:400:GLU:HB2	3:F:1020:NAG:C8	2.46	0.41
1:E:198:ALA:HA	1:E:199:PRO:HD3	1.91	0.41
2:D:116:TYR:HB3	2:D:153:PHE:CB	2.50	0.41
4:B:1003:NAG:C3	4:B:1004:MAN:O5	2.68	0.41
2:B:103:GLN:HB3	2:B:396:SER:HB3	2.02	0.41
2:F:60:GLU:O	2:F:98:LYS:HE2	2.19	0.41
1:A:113:TRP:O	1:A:124:LYS:HA	2.20	0.41
1:C:198:ALA:HA	1:C:199:PRO:HD3	1.93	0.41
2:D:117:LEU:HA	2:D:117:LEU:HD12	1.89	0.41
2:B:87:ARG:HA	2:B:426:ILE:O	2.20	0.41
2:F:84:SER:CB	2:F:85:PRO:HD3	2.49	0.41
1:E:395:GLN:CG	1:E:396:SER:N	2.84	0.41
2:F:219:PRO:HA	2:F:253:LYS:O	2.21	0.41
2:B:93:ARG:HG3	2:B:96:ASP:HB2	2.02	0.41
1:E:174:VAL:HG12	1:E:175:VAL:N	2.35	0.41
1:E:175:VAL:HA	1:E:180:GLU:O	2.21	0.41
1:E:83:THR:HB	1:E:116:LEU:HB2	2.03	0.41
2:F:112:VAL:O	2:F:149:LEU:HD12	2.21	0.41
2:B:245:LEU:HD23	2:B:305:ASN:HB2	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:97:SER:OG	2:B:402:LYS:HG3	2.19	0.41
1:C:432:TYR:HA	1:C:433:PRO:HD3	1.89	0.41
2:F:312:GLU:HA	2:F:315:VAL:HG23	2.03	0.41
1:E:440:TYR:CD1	1:E:440:TYR:C	2.94	0.41
2:F:410:LYS:HA	2:F:431:PHE:HB2	2.03	0.41
1:A:303:ARG:NH2	1:A:336:GLY:H	2.19	0.41
2:D:60:GLU:HG3	2:D:61:ALA:H	1.85	0.41
2:B:136:THR:HA	2:B:204:ASN:ND2	2.36	0.41
2:B:159:LYS:HA	2:B:160:PRO:HD3	1.87	0.41
1:E:314:MET:HB2	1:E:314:MET:HE3	1.98	0.41
5:D:1009:NAG:O3	5:D:1010:MAN:C5	2.69	0.40
2:D:119:ASP:HB2	2:D:249:THR:O	2.20	0.40
1:C:410:PRO:HG2	1:C:411:PHE:CE2	2.56	0.40
2:B:269:ASN:ND2	2:B:290:PRO:HB3	2.35	0.40
2:F:117:LEU:HD12	2:F:117:LEU:HA	1.89	0.40
2:B:436:ALA:O	2:B:437:CYS:HB2	2.21	0.40
2:B:399:ILE:HD13	2:B:416:ILE:HD13	2.03	0.40
1:E:324:GLU:HG2	9:E:1442:HOH:O	2.21	0.40
2:D:120:LEU:HD12	2:D:120:LEU:HA	1.72	0.40
2:B:377:ASN:N	2:B:377:ASN:HD22	2.19	0.40
1:A:244:PHE:HB2	1:A:252:GLU:HG3	2.02	0.40
1:A:114:ASN:ND2	1:A:115:VAL:N	2.68	0.40
2:B:223:PHE:CD1	2:B:226:ILE:HD12	2.56	0.40
2:B:417:LYS:HB3	2:B:424:SER:CB	2.52	0.40
2:B:42:GLU:CD	2:B:42:GLU:H	2.23	0.40
2:D:362:LEU:O	2:D:363:PRO:C	2.60	0.40
2:F:253:LYS:H	2:F:253:LYS:HG2	1.58	0.40
1:C:103:VAL:HG11	1:C:204:PHE:CE2	2.56	0.40
2:F:70:SER:CB	2:F:80:VAL:HG23	2.52	0.40
1:E:77:ARG:HA	1:E:77:ARG:HD3	1.86	0.40
1:E:77:ARG:HG2	1:E:212:LEU:HD22	2.04	0.40
2:B:288:ASP:OD1	2:B:289:TYR:N	2.52	0.40
2:D:308:PHE:HB2	2:D:330:VAL:HG22	2.03	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	450/452 (100%)	404 (90%)	40 (9%)	6 (1%)	15	46
1	C	450/452 (100%)	409 (91%)	34 (8%)	7 (2%)	12	40
1	E	450/452 (100%)	414 (92%)	33 (7%)	3 (1%)	26	63
2	B	438/440 (100%)	390 (89%)	39 (9%)	9 (2%)	9	32
2	D	438/440 (100%)	387 (88%)	43 (10%)	8 (2%)	11	37
2	F	438/440 (100%)	386 (88%)	45 (10%)	7 (2%)	12	40
All	All	2664/2676 (100%)	2390 (90%)	234 (9%)	40 (2%)	13	42

All (40) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	101	SER
2	B	85	PRO
1	C	101	SER
1	C	102	ASP
1	C	123	GLU
2	D	12	SER
2	D	49	CYS
2	D	84	SER
1	E	123	GLU
2	F	85	PRO
2	F	361	ASP
2	B	240	ASN
1	C	336	GLY
1	C	339	ALA
2	D	7	THR
2	D	72	LYS
1	E	101	SER
2	F	11	SER
1	A	31	GLY
2	B	11	SER

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Mol	Chain	Res	Type
2	B	436	ALA
2	D	64	LEU
1	E	319	ASP
2	F	70	SER
1	A	319	ASP
1	C	319	ASP
2	D	361	ASP
2	B	34	GLY
2	B	51	PRO
2	B	73	GLY
2	B	233	ASP
2	B	374	CYS
1	C	334	PRO
2	F	199	GLN
1	A	60	ALA
1	A	222	SER
2	D	50	ALA
2	F	374	CYS
2	F	75	GLY
1	A	337	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	360/360 (100%)	329 (91%)	31 (9%)	13	36
1	C	360/360 (100%)	327 (91%)	33 (9%)	11	33
1	E	360/360 (100%)	328 (91%)	32 (9%)	12	35
2	B	392/392 (100%)	361 (92%)	31 (8%)	15	41
2	D	392/392 (100%)	358 (91%)	34 (9%)	13	36
2	F	392/392 (100%)	365 (93%)	27 (7%)	19	48
All	All	2256/2256 (100%)	2068 (92%)	188 (8%)	14	38

All (188) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	8	LEU
1	A	23	LEU
1	A	28	ASP
1	A	43	LEU
1	A	59	ARG
1	A	64	GLN
1	A	72	LEU
1	A	84	LEU
1	A	96	SER
1	A	114	ASN
1	A	119	THR
1	A	132	LEU
1	A	136	GLU
1	A	159	ASP
1	A	166	TYR
1	A	180	GLU
1	A	183	LEU
1	A	195	LEU
1	A	197	GLN
1	A	227	ASN
1	A	252	GLU
1	A	264	LEU
1	A	270	LEU
1	A	277	LEU
1	A	288	TYR
1	A	312	LEU
1	A	317	ARG
1	A	337	PRO
1	A	348	THR
1	A	373	ASP
1	A	452	PRO
2	B	3	ASN
2	B	27	SER
2	B	49	CYS
2	B	67	ARG
2	B	79	GLN
2	B	92	LEU
2	B	120	LEU
2	B	137	LYS
2	B	140	THR
2	B	145	LEU
2	B	187	MET
2	B	193	VAL

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Mol	Chain	Res	Type
2	B	202	ARG
2	B	214	ARG
2	B	234	GLU
2	B	239	ARG
2	B	240	ASN
2	B	246	LEU
2	B	294	LEU
2	B	314	VAL
2	B	332	VAL
2	B	342	GLN
2	B	354	LYS
2	B	362	LEU
2	B	364	GLU
2	B	376	ASN
2	B	406	CYS
2	B	407	PRO
2	B	409	GLU
2	B	425	LEU
2	B	437	CYS
1	C	2	ASN
1	C	23	LEU
1	C	64	GLN
1	C	72	LEU
1	C	103	VAL
1	C	114	ASN
1	C	132	LEU
1	C	140	ARG
1	C	147	ARG
1	C	158	ASN
1	C	162	TRP
1	C	166	TYR
1	C	183	LEU
1	C	190	TYR
1	C	197	GLN
1	C	212	LEU
1	C	227	ASN
1	C	243	GLU
1	C	251	THR
1	C	252	GLU
1	C	264	LEU
1	C	270	LEU
1	C	280	LEU

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Mol	Chain	Res	Type
1	C	288	TYR
1	C	312	LEU
1	C	317	ARG
1	C	329	TYR
1	C	334	PRO
1	C	337	PRO
1	C	338	HIS
1	C	348	THR
1	C	400	ARG
1	C	408	ASP
2	D	46	LYS
2	D	49	CYS
2	D	80	VAL
2	D	84	SER
2	D	86	GLN
2	D	92	LEU
2	D	105	ARG
2	D	120	LEU
2	D	137	LYS
2	D	138	LEU
2	D	174	GLU
2	D	193	VAL
2	D	202	ARG
2	D	206	GLU
2	D	214	ARG
2	D	224	ASP
2	D	239	ARG
2	D	246	LEU
2	D	249	THR
2	D	294	LEU
2	D	314	VAL
2	D	322	SER
2	D	339	ASN
2	D	341	LEU
2	D	342	GLN
2	D	352	ARG
2	D	361	ASP
2	D	362	LEU
2	D	365	GLU
2	D	376	ASN
2	D	406	CYS
2	D	407	PRO

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Mol	Chain	Res	Type
2	D	409	GLU
2	D	437	CYS
1	E	1	LEU
1	E	2	ASN
1	E	8	LEU
1	E	23	LEU
1	E	72	LEU
1	E	76	THR
1	E	77	ARG
1	E	103	VAL
1	E	132	LEU
1	E	135	PRO
1	E	147	ARG
1	E	158	ASN
1	E	166	TYR
1	E	183	LEU
1	E	190	TYR
1	E	197	GLN
1	E	212	LEU
1	E	227	ASN
1	E	252	GLU
1	E	277	LEU
1	E	288	TYR
1	E	307	LEU
1	E	312	LEU
1	E	317	ARG
1	E	334	PRO
1	E	335	ARG
1	E	337	PRO
1	E	338	HIS
1	E	348	THR
1	E	366	LEU
1	E	395	GLN
1	E	440	TYR
2	F	10	VAL
2	F	40	LEU
2	F	49	CYS
2	F	66	ASP
2	F	67	ARG
2	F	71	ASP
2	F	77	SER
2	F	85	PRO

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Mol	Chain	Res	Type
2	F	86	GLN
2	F	179	ASP
2	F	198	ASP
2	F	202	ARG
2	F	206	GLU
2	F	214	ARG
2	F	224	ASP
2	F	239	ARG
2	F	246	LEU
2	F	294	LEU
2	F	312	GLU
2	F	319	GLN
2	F	323	GLU
2	F	354	LYS
2	F	361	ASP
2	F	407	PRO
2	F	412	LYS
2	F	433	CYS
2	F	437	CYS

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (55) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	18	GLN
1	A	114	ASN
1	A	158	ASN
1	A	197	GLN
1	A	227	ASN
1	A	372	ASN
1	A	388	GLN
1	A	443	ASN
2	B	3	ASN
2	B	15	GLN
2	B	82	GLN
2	B	141	GLN
2	B	204	ASN
2	B	240	ASN
2	B	319	GLN
2	B	342	GLN
2	B	376	ASN
2	B	377	ASN
2	B	408	GLN

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Mol	Chain	Res	Type
2	B	438	GLN
1	C	2	ASN
1	C	114	ASN
1	C	134	GLN
1	C	227	ASN
1	C	304	HIS
1	C	338	HIS
1	C	388	GLN
1	C	395	GLN
1	C	443	ASN
1	C	444	GLN
2	D	15	GLN
2	D	82	GLN
2	D	132	GLN
2	D	199	GLN
2	D	204	ASN
2	D	319	GLN
2	D	376	ASN
2	D	440	GLN
1	E	2	ASN
1	E	18	GLN
1	E	85	GLN
1	E	158	ASN
1	E	177	GLN
1	E	197	GLN
1	E	227	ASN
1	E	278	HIS
1	E	304	HIS
1	E	351	GLN
1	E	372	ASN
2	F	15	GLN
2	F	82	GLN
2	F	86	GLN
2	F	199	GLN
2	F	204	ASN
2	F	440	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 ⓘ

13 carbohydrates 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	$\# Z > 2$
4	NAG	B	1002	2,4	14,14,15	0.39	0	15,19,21	0.79	1 (6%)
4	NAG	B	1003	4	14,14,15	0.49	0	15,19,21	0.89	1 (6%)
4	MAN	B	1004	4	11,11,12	0.70	0	14,15,17	1.43	2 (14%)
4	BMA	B	1005	4	11,11,12	0.46	0	14,15,17	0.43	0
5	NAG	D	1008	2,5	14,14,15	0.43	0	15,19,21	0.83	1 (6%)
5	NAG	D	1009	5	14,14,15	0.62	0	15,19,21	0.90	0
5	MAN	D	1010	5	11,11,12	0.75	0	14,15,17	1.23	2 (14%)
5	BMA	D	1011	5	11,11,12	0.47	0	14,15,17	0.59	0
5	MAN	D	1012	5	11,11,12	0.56	0	14,15,17	0.62	0
4	NAG	F	1016	2,4	14,14,15	0.42	0	15,19,21	0.71	0
4	NAG	F	1017	4	14,14,15	0.69	0	15,19,21	0.89	1 (6%)
4	MAN	F	1018	4	11,11,12	0.65	0	14,15,17	1.05	1 (7%)
4	BMA	F	1019	4	11,11,12	0.49	0	14,15,17	0.65	0

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	B	1002	2,4	-	0/6/23/26	0/1/1/1
4	NAG	B	1003	4	-	0/6/23/26	0/1/1/1
4	MAN	B	1004	4	-	0/2/19/22	0/1/1/1
4	BMA	B	1005	4	-	0/2/19/22	0/1/1/1
5	NAG	D	1008	2,5	-	0/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	NAG	D	1009	5	-	0/6/23/26	0/1/1/1
5	MAN	D	1010	5	-	0/2/19/22	0/1/1/1
5	BMA	D	1011	5	-	0/2/19/22	0/1/1/1
5	MAN	D	1012	5	-	0/2/19/22	0/1/1/1
4	NAG	F	1016	2,4	-	0/6/23/26	0/1/1/1
4	NAG	F	1017	4	-	0/6/23/26	0/1/1/1
4	MAN	F	1018	4	-	0/2/19/22	0/1/1/1
4	BMA	F	1019	4	-	0/2/19/22	0/1/1/1

There are no bond length outliers.

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	1003	NAG	C2-N2-C7	-2.53	119.79	123.04
4	B	1002	NAG	C2-N2-C7	-2.43	119.92	123.04
5	D	1008	NAG	C2-N2-C7	-2.34	120.03	123.04
5	D	1010	MAN	C3-C4-C5	2.15	113.95	110.20
4	F	1017	NAG	C4-C3-C2	2.20	114.64	111.23
4	B	1004	MAN	C1-C2-C3	2.49	112.48	109.54
4	F	1018	MAN	C1-C2-C3	3.09	113.20	109.54
5	D	1010	MAN	C1-C2-C3	3.19	113.32	109.54
4	B	1004	MAN	C3-C4-C5	3.68	116.61	110.20

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

12 monomers are involved in 20 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	1002	NAG	1	0
4	B	1003	NAG	5	0
4	B	1004	MAN	5	0
4	B	1005	BMA	1	0
5	D	1008	NAG	2	0
5	D	1009	NAG	4	0
5	D	1010	MAN	3	0
5	D	1011	BMA	1	0
4	F	1016	NAG	6	0
4	F	1017	NAG	7	0
4	F	1018	MAN	3	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	F	1019	BMA	1	0

5.6 Ligand geometry

Of 31 ligands modelled in this entry, 21 are monoatomic - leaving 10 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	$\# Z > 2$
3	NAG	B	1001	2	14,14,15	0.48	0	15,19,21	0.78	0
3	NAG	B	1006	2	14,14,15	0.50	0	15,19,21	0.75	1 (6%)
6	CAC	B	1301	7	0,4,4	0.00	-	0,6,6	0.00	-
3	NAG	D	1007	2	14,14,15	0.54	0	15,19,21	0.63	0
3	NAG	D	1013	2	14,14,15	0.49	0	15,19,21	0.95	1 (6%)
6	CAC	D	1302	7	0,4,4	0.00	-	0,6,6	0.00	-
3	NAG	E	1014	1	14,14,15	0.69	0	15,19,21	0.65	0
3	NAG	F	1015	2	14,14,15	0.58	0	15,19,21	0.68	0
3	NAG	F	1020	2	14,14,15	0.42	0	15,19,21	0.82	1 (6%)
6	CAC	F	1303	7	0,4,4	0.00	-	0,6,6	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
3	NAG	B	1001	2	-	0/6/23/26	0/1/1/1
3	NAG	B	1006	2	-	0/6/23/26	0/1/1/1
6	CAC	B	1301	7	-	0/0/0/0	0/0/0/0
3	NAG	D	1007	2	-	0/6/23/26	0/1/1/1
3	NAG	D	1013	2	-	0/6/23/26	0/1/1/1
6	CAC	D	1302	7	-	0/0/0/0	0/0/0/0
3	NAG	E	1014	1	-	1/6/23/26	0/1/1/1
3	NAG	F	1015	2	-	1/6/23/26	0/1/1/1
3	NAG	F	1020	2	-	0/6/23/26	0/1/1/1

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
6	CAC	F	1303	7	-	0/0/0/0	0/0/0/0

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	D	1013	NAG	C2-N2-C7	-2.99	119.20	123.04
3	F	1020	NAG	C2-N2-C7	-2.45	119.89	123.04
3	B	1006	NAG	C2-N2-C7	-2.25	120.15	123.04

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	F	1015	NAG	O7-C7-N2-C2
3	E	1014	NAG	C8-C7-N2-C2

There are no ring outliers.

6 monomers are involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	1006	NAG	2	0
6	B	1301	CAC	1	0
6	D	1302	CAC	1	0
3	F	1015	NAG	1	0
3	F	1020	NAG	2	0
6	F	1303	CAC	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	452/452 (100%)	0.12	12 (2%) 58 52	19, 52, 91, 113	2 (0%)
1	C	452/452 (100%)	-0.05	5 (1%) 82 80	24, 47, 87, 108	2 (0%)
1	E	452/452 (100%)	-0.04	4 (0%) 85 84	26, 45, 79, 107	2 (0%)
2	B	440/440 (100%)	0.49	40 (9%) 11 7	31, 75, 118, 120	8 (1%)
2	D	440/440 (100%)	0.34	25 (5%) 27 21	27, 67, 108, 120	8 (1%)
2	F	440/440 (100%)	0.64	61 (13%) 4 2	36, 97, 120, 120	8 (1%)
All	All	2676/2676 (100%)	0.25	147 (5%) 29 22	19, 58, 117, 120	30 (1%)

All (147) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	B	76	ASP	13.9
2	D	73	GLY	13.8
2	D	76	ASP	10.2
2	B	75	GLY	9.8
2	D	75	GLY	9.3
2	F	11	SER	8.7
2	B	77	SER	7.7
2	F	75	GLY	7.1
1	C	1	LEU	6.9
2	F	79	GLN	6.8
2	F	74	SER	6.6
2	D	74	SER	6.5
2	B	74	SER	6.3
1	A	1	LEU	6.2
2	B	79	GLN	6.0
2	B	11	SER	5.0
2	F	34	GLY	4.9
1	A	29	SER	4.9
2	F	77	SER	4.9

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Mol	Chain	Res	Type	RSRZ
1	E	1	LEU	4.8
2	F	31	LEU	4.8
2	F	375	LEU	4.6
2	F	48	ASN	4.6
2	D	72	LYS	4.6
1	A	336	GLY	4.6
2	F	73	GLY	4.6
2	F	78	SER	4.5
2	F	30	ALA	4.4
1	A	6	VAL	4.3
2	B	31	LEU	4.2
2	B	408	GLN	4.1
2	F	435	CYS	4.1
1	A	30	HIS	4.0
2	D	408	GLN	3.9
2	F	33	LEU	3.9
2	D	355	VAL	3.8
2	F	6	THR	3.8
2	F	408	GLN	3.7
2	F	36	PRO	3.7
2	B	33	LEU	3.7
2	F	35	SER	3.7
2	B	78	SER	3.6
2	D	78	SER	3.6
2	F	88	ILE	3.6
1	A	320	ARG	3.5
2	F	407	PRO	3.5
2	D	410	LYS	3.4
2	F	10	VAL	3.4
2	B	410	LYS	3.4
2	B	41	LYS	3.4
2	B	435	CYS	3.3
2	F	46	LYS	3.3
2	F	436	ALA	3.3
2	F	26	CYS	3.3
2	F	37	ARG	3.3
1	C	338	HIS	3.3
2	D	107	VAL	3.3
2	B	383	LEU	3.2
2	B	80	VAL	3.2
2	F	426	ILE	3.1
2	D	79	GLN	3.1

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Mol	Chain	Res	Type	RSRZ
2	F	28	ASP	3.1
1	E	319	ASP	3.1
2	B	390	LYS	3.0
2	B	10	VAL	3.0
2	B	30	ALA	3.0
2	F	90	LEU	2.9
2	B	9	GLY	2.9
2	B	71	ASP	2.9
1	C	452	PRO	2.9
1	E	337	PRO	2.9
2	B	47	ASP	2.8
2	B	55	GLU	2.8
2	B	81	THR	2.8
2	D	77	SER	2.7
2	B	24	ALA	2.7
1	E	320	ARG	2.7
2	F	7	THR	2.7
2	F	438	GLN	2.7
2	F	425	LEU	2.7
2	D	409	GLU	2.7
2	B	73	GLY	2.7
2	F	422	LYS	2.6
2	D	108	GLU	2.6
2	F	107	VAL	2.6
1	A	303	ARG	2.6
2	F	437	CYS	2.6
2	B	69	LEU	2.6
2	B	438	GLN	2.6
2	D	375	LEU	2.6
2	F	76	ASP	2.5
2	B	426	ILE	2.5
2	F	32	PRO	2.5
2	B	56	PHE	2.5
2	F	430	THR	2.5
2	D	378	GLU	2.5
2	F	52	GLU	2.5
2	F	49	CYS	2.5
2	F	392	GLY	2.5
2	B	420	GLY	2.5
2	B	394	THR	2.5
1	A	337	PRO	2.5
2	F	409	GLU	2.5

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Mol	Chain	Res	Type	RSRZ
2	F	395	VAL	2.5
1	A	7	GLN	2.4
2	B	25	TRP	2.4
2	F	383	LEU	2.4
2	F	414	PHE	2.4
2	B	375	LEU	2.4
2	B	409	GLU	2.4
2	F	411	GLU	2.4
2	B	437	CYS	2.4
1	A	452	PRO	2.4
2	F	47	ASP	2.4
2	D	241	ASP	2.3
2	D	423	ASP	2.3
2	F	374	CYS	2.3
2	F	9	GLY	2.3
1	A	398	GLY	2.3
2	F	25	TRP	2.3
2	B	429	VAL	2.3
2	F	58	VAL	2.2
2	B	378	GLU	2.2
2	F	64	LEU	2.2
2	F	29	GLU	2.2
2	F	69	LEU	2.2
2	F	50	ALA	2.2
2	F	71	ASP	2.2
2	B	424	SER	2.2
2	D	380	ILE	2.2
2	D	354	LYS	2.1
2	F	8	ARG	2.1
2	B	72	LYS	2.1
2	F	27	SER	2.1
2	D	407	PRO	2.1
2	F	389	LEU	2.1
2	D	372	ALA	2.1
2	B	425	LEU	2.1
2	F	364	GLU	2.1
2	F	376	ASN	2.1
1	C	337	PRO	2.0
1	A	319	ASP	2.0
2	F	429	VAL	2.0
1	C	319	ASP	2.0
2	D	391	ILE	2.0

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Mol	Chain	Res	Type	RSRZ
2	D	438	GLN	2.0
2	D	383	LEU	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](#)

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, 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	LLDF	B-factors(Å ²)	Q<0.9
4	NAG	F	1016	14/15	0.93	0.21	0.96	53,59,66,69	0
4	NAG	B	1002	14/15	0.94	0.17	-0.19	53,59,61,69	0
4	NAG	F	1017	14/15	0.84	0.28	-	77,81,86,91	0
5	NAG	D	1009	14/15	0.78	0.21	-	77,81,87,95	0
5	BMA	D	1011	11/12	0.77	0.47	-	115,116,117,117	0
5	MAN	D	1012	11/12	0.72	0.39	-	117,118,119,119	0
4	NAG	B	1003	14/15	0.85	0.28	-	77,82,88,96	0
4	MAN	F	1018	11/12	0.80	0.28	-	97,101,102,103	0
4	MAN	B	1004	11/12	0.73	0.37	-	103,107,108,111	0
5	NAG	D	1008	14/15	0.94	0.12	-	48,52,58,68	0
5	MAN	D	1010	11/12	0.64	0.32	-	103,110,113,116	0
4	BMA	F	1019	11/12	0.84	0.21	-	102,103,104,104	0
4	BMA	B	1005	11/12	0.83	0.27	-	112,113,114,115	0

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, 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	LLDF	B-factors(\AA^2)	Q<0.9
8	CA	B	1403	1/1	0.97	0.20	3.04	28,28,28,28	0
3	NAG	B	1006	14/15	0.85	0.30	2.89	102,103,103,103	0
6	CAC	B	1301	5/5	0.97	0.21	1.59	100,101,102,102	0
8	CA	D	1410	1/1	0.97	0.21	1.28	24,24,24,24	0
6	CAC	F	1303	5/5	0.93	0.19	0.91	114,114,115,115	0
3	NAG	F	1020	14/15	0.78	0.26	0.62	109,112,113,114	0
6	CAC	D	1302	5/5	0.97	0.17	0.40	96,96,98,98	0
8	CA	F	1417	1/1	0.84	0.18	0.29	42,42,42,42	0
3	NAG	D	1013	14/15	0.81	0.17	-0.13	92,94,96,96	0
8	CA	C	1412	1/1	0.96	0.12	-0.82	46,46,46,46	0
7	MG	F	1415	1/1	0.95	0.13	-0.90	32,32,32,32	0
8	CA	E	1419	1/1	0.93	0.12	-0.98	35,35,35,35	0
7	MG	B	1401	1/1	0.99	0.12	-1.06	24,24,24,24	0
8	CA	C	1411	1/1	0.85	0.09	-1.45	58,58,58,58	0
7	MG	D	1408	1/1	0.91	0.13	-1.52	18,18,18,18	0
8	CA	E	1418	1/1	0.98	0.09	-1.61	48,48,48,48	0
8	CA	C	1414	1/1	0.86	0.07	-1.70	68,68,68,68	0
8	CA	A	1405	1/1	0.96	0.07	-1.87	75,75,75,75	0
8	CA	E	1420	1/1	0.85	0.08	-1.94	51,51,51,51	0
8	CA	A	1407	1/1	0.73	0.07	-2.16	68,68,68,68	0
8	CA	A	1404	1/1	0.89	0.06	-2.35	61,61,61,61	0
8	CA	E	1421	1/1	0.83	0.08	-2.36	65,65,65,65	0
8	CA	C	1413	1/1	0.87	0.07	-2.50	70,70,70,70	0
8	CA	A	1406	1/1	0.79	0.07	-3.22	73,73,73,73	0
3	NAG	D	1007	14/15	0.78	0.29	-	101,104,105,105	0
8	CA	F	1416	1/1	0.77	0.06	-	63,63,63,63	0
3	NAG	E	1014	14/15	0.77	0.30	-	87,92,95,95	0
8	CA	D	1409	1/1	0.91	0.14	-	54,54,54,54	0
3	NAG	F	1015	14/15	0.65	0.42	-	118,119,120,120	0
3	NAG	B	1001	14/15	0.85	0.28	-	109,111,113,114	0
8	CA	B	1402	1/1	0.95	0.15	-	48,48,48,48	0

6.5 Other polymers ⓘ

There are no such residues in this entry.