Full wwPDB X-ray Structure Validation Report ⓘ

Sep 2, 2023 – 11:58 PM EDT

PDB ID	:	3R05
Title	:	Structure of neurexin 1 alpha (domains LNS1-LNS6), with splice insert SS3
Authors	:	Venugopal, V.; Rudenko, G.
Deposited on	:	2011-03-07
Resolution	:	2.95 Å(reported)

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

|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.35
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)	:	2.35
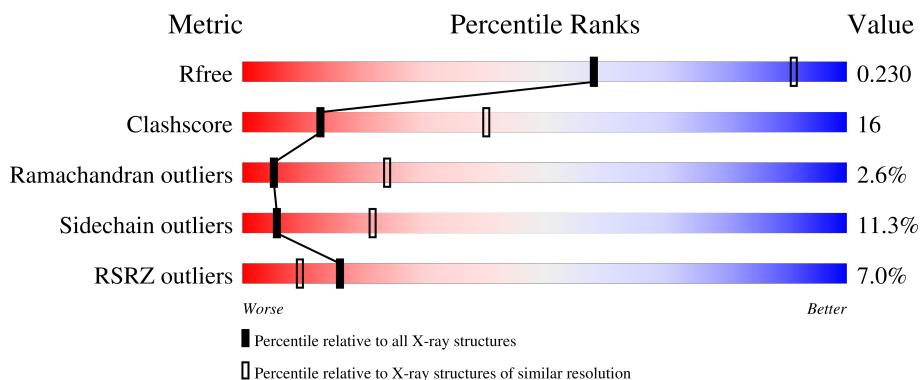
1 Overall quality at a glance ⓘ

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

The reported resolution of this entry is 2.95 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.

Metric	Percentile Ranks	Value
Rfree		0.230
Clashscore		16
Ramachandran outliers		2.6%
Sidechain outliers		11.3%
RSRZ outliers		7.0%

Worse *Better*

■ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	130704	3104 (3.00-2.92)
Clashscore	141614	3462 (3.00-2.92)
Ramachandran outliers	138981	3340 (3.00-2.92)
Sidechain outliers	138945	3343 (3.00-2.92)
RSRZ outliers	127900	2986 (3.00-2.92)

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	1254	6% / 50% 24% 5% 20%
1	B	1254	5% / 50% 24% 6% 20%
2	C	2	100%
2	D	2	50% 50%

WORLDWIDE
wwPDB
PROTEIN DATA BANK

2 Entry composition ⓘ

There are 2 unique types of molecules in this entry. The entry contains 15522 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 Neurexin-1-alpha.

| Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	1008	Total	C	N	O	S	0	0	0
			7733	4857	1334	1499	43			
1	B	1008	Total	C	N	O	S	0	0	0
			7733	4857	1334	1499	43			

There are 20 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1340	ALA	-	expression tag	UNP Q28146
A	1341	SER	-	expression tag	UNP Q28146
A	1342	THR	-	expression tag	UNP Q28146
A	1343	SER	-	expression tag	UNP Q28146
A	1344	HIS	-	expression tag	UNP Q28146
A	1345	HIS	-	expression tag	UNP Q28146
A	1346	HIS	-	expression tag	UNP Q28146
A	1347	HIS	-	expression tag	UNP Q28146
A	1348	HIS	-	expression tag	UNP Q28146
A	1349	HIS	-	expression tag	UNP Q28146
B	1340	ALA	-	expression tag	UNP Q28146
B	1341	SER	-	expression tag	UNP Q28146
B	1342	THR	-	expression tag	UNP Q28146
B	1343	SER	-	expression tag	UNP Q28146
B	1344	HIS	-	expression tag	UNP Q28146
B	1345	HIS	-	expression tag	UNP Q28146
B	1346	HIS	-	expression tag	UNP Q28146
B	1347	HIS	-	expression tag	UNP Q28146
B	1348	HIS	-	expression tag	UNP Q28146
B	1349	HIS	-	expression tag	UNP Q28146

- Molecule 2 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.
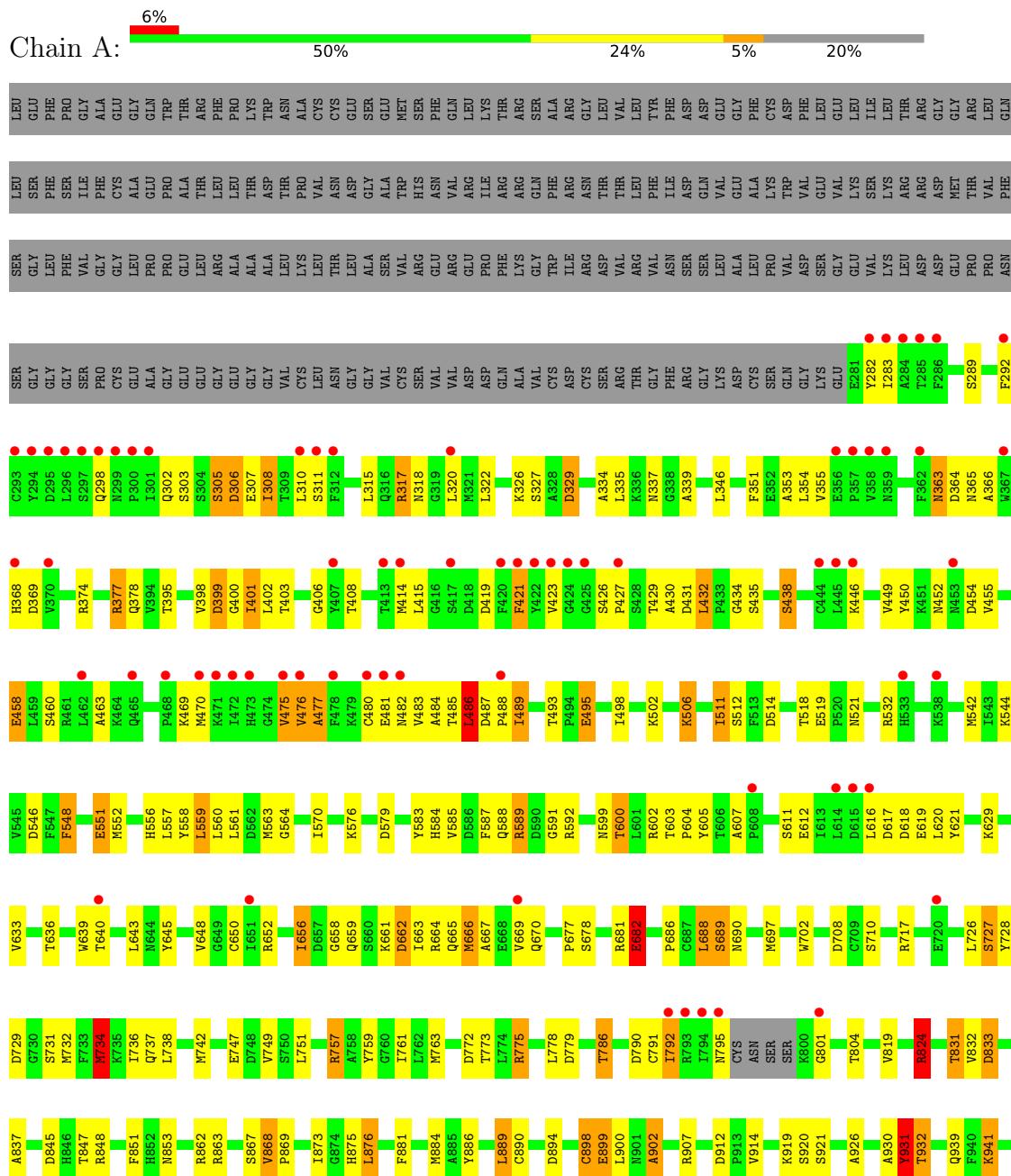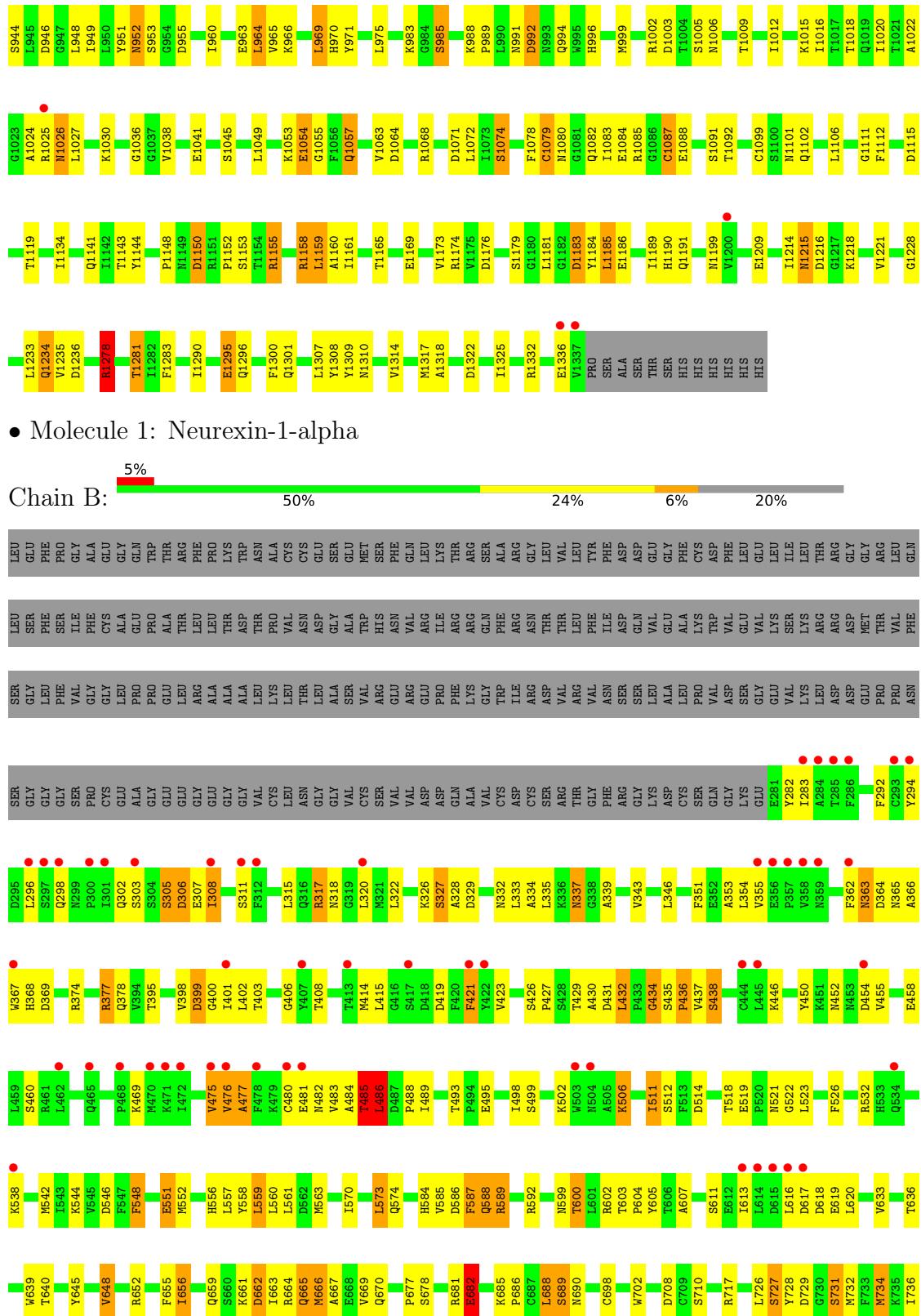
Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
2	C	2	Total	C	N	O	0	0	0
			28	16	2	10			
2	D	2	Total	C	N	O	0	0	0
			28	16	2	10			
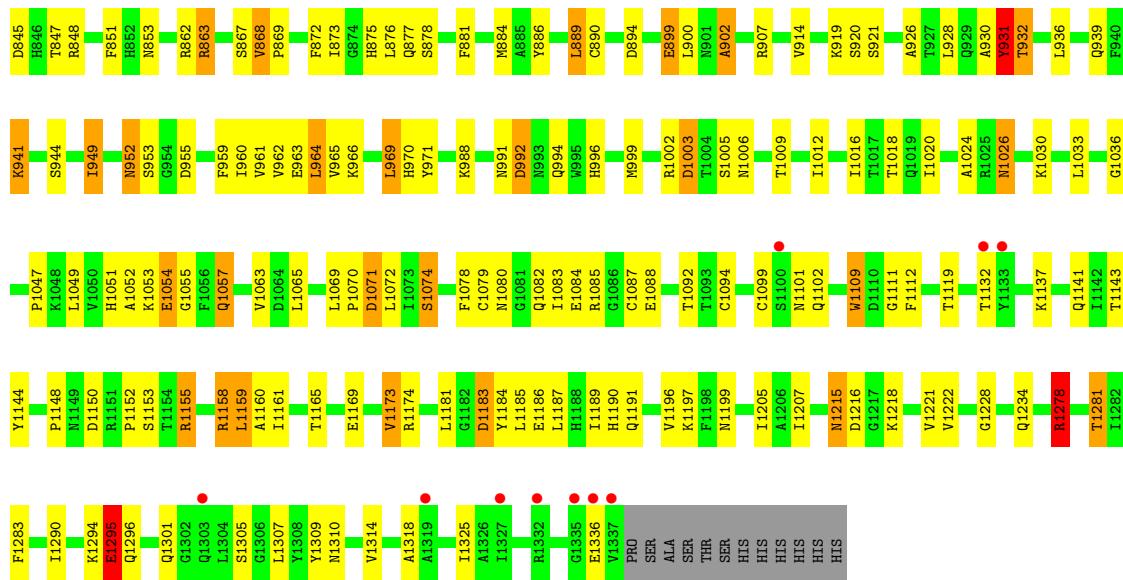
3 Residue-property plots ⓘ

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density (RSRZ > 2). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

• Molecule 1: Neurexin-1-alpha

S944 L945 D946 G947 L948 I949 L950 Y951 N952 S953 G954 D955 I960 E963 L964 V965 K966 L969 H970 Y971 L975 K983 G984 S985 K988 P989 L990 N991 D992 N993 Q994 W995 H996 M999 R1002 D1003 T1004 S1005 N1006 T1009 I1012 K1015 I1016 T1017 T1018 I1019 I1020 T1021 A1022

G1023 A1024 R1025 N1026 L1027 K1030 G1036 G1037 V1038 E1041 S1045 L1049 K1053 E1054 G1055 F1056 Q1057 V1063 D1064 R1068 D1071 L1072 I1073 S1074 F1078 C1079 N1080 G1081 Q1082 I1083 E1084 R1085 G1086 C1087 E1088 S1091 T1092 C1099 S1100 N1101 Q1102 L1106 G1111 F1112 D1115

T1119 I1134 I1142 Q1141 T1143 Y1144 P1148 N1149 D1150 R1151 P1152 S1153 T1154 R1155 R1158 L1159 A1160 I1161 T1165 E1169 V1173 R1174 V1175 D1176 S1179 G1180 L1181 G1182 D1183 Y1184 L1185 E1186 I1189 H1190 Q1191 N1199 V1200 E1209 I1214 N1215 D1216 G1217 K1218 V1221 G1228

L1233 Q1234 V1235 D1236 R1278 T1281 I1282 F1283 I1290 E1295 Q1296 F1300 Q1301 L1307 Y1308 Y1309 N1310 V1314 M1317 A1318 D1322 I1325 R1332 E1336 V1337 PRO SER ALA SER THR SER HIS HIS HIS HIS HIS

• Molecule 1: Neurexin-1-alpha

Chain B:

5%

50% 24% 6% 20%

LEU GLU PHE PRO GLY ALA GLU GLY GLN TRP THR ARG PHE PRO LYS ASN ALA CYS CYS GLU GLU SER GLU MET SER PHE GLN LEU LYS THR ARG SER ALA ARG GLY LEU VAL LEU TYR PHE ASP ASP GLU GLU GLY PHE CYS ASP PHE LEU GLU LEU ILE LEU THR ARG GLY ARG LEU GLN

LEU SER PHE SER ILE PHE CYS ALA GLU GLU PRO ALA THR LEU LEU THR ASP THR PRO VAL ASN ASP GLY ALA TRP HIS ASN VAL ILE ARG ARG GLN PHE ARG ASN THR LEU ILE ASP ASP VAL GLU GLY ALA LYS TRP VAL ASP GLY SER GLU VAL LYS SER LEU ARG ARG ASP MET THR VAL PHE

SER GLY LEU PHE VAL GLY GLY LEU PRO PRO GLU LEU ARG ALA ALA ALA LEU LYS LEU THR LEU ALA SER VAL ARG GLU GLU PHE LYS GLY TRP ILE ARG ASP VAL ARG VAL ASN SER SER LEU ALA LEU PRO VAL ASP SER GLY GLU VAL LYS LEU ASP ASP PRO PRO ASN

SER GLY GLY GLY SER PRO CYS GLU ALA GLY LEU GLU GLU GLY GLY GLY VAL CYS LEU ASN GLY GLY VAL CYS SER VAL VAL ASP ASP GLN ALA VAL ALA VAL CYS ASP CYS SER ARG THR GLY PHE ARG GLY LYS ASP CYS SER GLN GLY LYS GLU E281 Y282 I283 A284 T285 F286 F292 C293 Y294

D295 L296 S297 Q298 N299 P300 I301 Q302 S303 S304 S305 D306 E307 I308 S311 F312 L315 Q316 R317 N318 G319 L320 M321 L322 K326 S327 A328 D329 N332 L333 A334 L335 K336 N337 G338 A339 V343 L346 F351 E352 A353 L354 V355 E356 P357 Y358 N359 F362 N363 D364 N365 A366

W367 H368 D369 R374 R377 Q378 V394 T395 V398 D399 G400 I401 L402 T403 G406 Y407 T408 T413 M414 L415 G416 S417 D418 D419 P420 F421 V422 V423 S426 P427 S428 T429 A430 D431 L432 P433 G434 S435 P436 V437 S438 C444 L445 K446 Y450 K451 N452 N453 D454 V455 E458

L459 S460 R461 L462 Q465 P468 K469 M470 K471 I472 V475 V476 A477 F478 K479 C480 E481 N482 V483 A484 T485 L486 D487 P488 I489 T493 P494 E495 I498 S499 K502 W503 N504 A505 K506 I511 S512 F513 D514 T518 E519 P520 N521 G522 L523 F526 R532 H533 Q534

K538 M542 I543 K544 V545 D546 S547 F548 E551 M552 H556 L557 Y558 L559 L560 L561 D562 M563 I570 L573 Q574 H584 V585 D586 F587 Q588 R589 R592 N599 T600 L601 R602 T603 P604 Y605 T606 A607 S611 E612 I613 L614 D615 L616 D617 D618 E619 L620 V633 T636

W639 T640 Y645 V648 R652 F655 I656 Q659 S660 K661 D662 I663 R664 Q665 M666 A667 E668 V669 Q670 P677 S678 R681 E682 K685 P686 C687 L688 S689 N690 C698 W702 D708 C709 S710 R717 L726 S727 Y728 D729 G730 S731 M732 F733 M734 K735 I736

Q737 L738 M742 V749 S750 L751 R757 A758 Y759 M763 D772 T773 L774 R775 L776 E777 L778 D779 D790 C791 I792 R793 I794 N795 CYS ASN SER SER K800 G801 P802 E803 T804 L805 F806 Y809 V819 R824 T831 A837 Q841 K784 L785 T786 V787 N788 L789

• Molecule 2: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain C:

• Molecule 2: 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose

Chain D:

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	61.03Å 114.57Å 160.13Å 89.60° 89.98° 87.96°	Depositor
Resolution (Å)	44.29 – 2.95 44.29 – 2.94	Depositor EDS
% Data completeness (in resolution range)	98.2 (44.29-2.95) 97.7 (44.29-2.94)	Depositor EDS
R_{merge}	0.09	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.32 (at 2.96Å)	Xtriage
Refinement program	REFMAC	Depositor
R, R_{free}	0.208 , 0.235 0.202 , 0.230	Depositor DCC
R_{free} test set	4662 reflections (5.20%)	wwPDB-VP
Wilson B-factor (Å^2)	62.7	Xtriage
Anisotropy	0.812	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.28 , 47.5	EDS
L-test for twinning[2]	$< |L| > = 0.50, < L^2 > = 0.33$	Xtriage
Estimated twinning fraction	0.125 for h,-k,-l 0.004 for -h,k,-l 0.010 for -h,-k,l	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	15522	wwPDB-VP
Average B, all atoms (Å^2)	92.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.10% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< |L| >$, $< L^2 >$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5　Model quality ⓘ

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	1.19	32/7886 (0.4%)	1.12	25/10691 (0.2%)
1	B	1.19	29/7886 (0.4%)	1.13	28/10691 (0.3%)
All	All	1.19	61/15772 (0.4%)	1.13	53/21382 (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	3
1	B	0	3
All	All	0	6

All (61) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	1057	GLN	CG-CD	14.07	1.83	1.51
1	B	1057	GLN	CG-CD	13.73	1.82	1.51
1	A	898	CYS	CB-SG	10.65	2.00	1.82
1	B	868	VAL	CB-CG2	-9.30	1.33	1.52
1	B	963	GLU	CD-OE2	9.26	1.35	1.25
1	A	963	GLU	CD-OE2	8.43	1.34	1.25
1	B	1054	GLU	CG-CD	8.29	1.64	1.51
1	A	1054	GLU	CG-CD	8.18	1.64	1.51
1	A	868	VAL	CB-CG2	-8.06	1.35	1.52
1	A	1036	GLY	C-O	7.79	1.36	1.23
1	A	1084	GLU	CD-OE1	7.48	1.33	1.25
1	A	899	GLU	CD-OE1	7.46	1.33	1.25
1	B	1094	CYS	CB-SG	-7.43	1.69	1.82
1	B	551	GLU	CG-CD	7.14	1.62	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	1084	GLU	CD-OE1	7.07	1.33	1.25
1	A	1078	PHE	CE1-CZ	7.05	1.50	1.37
1	B	1295	GLU	CG-CD	6.99	1.62	1.51
1	A	1054	GLU	CD-OE1	6.87	1.33	1.25
1	B	931	TYR	CE2-CZ	6.84	1.47	1.38
1	B	1084	GLU	CD-OE2	6.83	1.33	1.25
1	A	551	GLU	CG-CD	6.68	1.61	1.51
1	A	931	TYR	CG-CD1	6.58	1.47	1.39
1	A	931	TYR	CE1-CZ	6.56	1.47	1.38
1	B	931	TYR	CE1-CZ	6.40	1.46	1.38
1	A	931	TYR	CE2-CZ	6.33	1.46	1.38
1	A	1038	VAL	CB-CG2	-6.30	1.39	1.52
1	A	1308	TYR	CD1-CE1	6.17	1.48	1.39
1	B	931	TYR	CG-CD1	6.16	1.47	1.39
1	A	963	GLU	CG-CD	6.15	1.61	1.51
1	A	1078	PHE	CB-CG	-6.15	1.40	1.51
1	B	1036	GLY	C-O	6.12	1.33	1.23
1	B	931	TYR	CD2-CE2	5.93	1.48	1.39
1	A	1057	GLN	CB-CG	5.89	1.68	1.52
1	B	1078	PHE	CD1-CE1	5.87	1.50	1.39
1	B	899	GLU	CD-OE1	5.85	1.32	1.25
1	B	1078	PHE	CE1-CZ	5.84	1.48	1.37
1	A	902	ALA	CA-CB	-5.80	1.40	1.52
1	A	1054	GLU	CD-OE2	5.77	1.31	1.25
1	A	951	TYR	CE1-CZ	-5.62	1.31	1.38
1	A	1099	CYS	CB-SG	5.62	1.91	1.82
1	B	890	CYS	CB-SG	-5.61	1.72	1.81
1	B	902	ALA	CA-CB	-5.61	1.40	1.52
1	B	872	PHE	CD1-CE1	-5.60	1.28	1.39
1	B	1054	GLU	CD-OE1	5.58	1.31	1.25
1	A	983	LYS	CD-CE	5.55	1.65	1.51
1	B	1109	TRP	CB-CG	-5.54	1.40	1.50
1	B	1057	GLN	CB-CG	5.51	1.67	1.52
1	B	926	ALA	CA-CB	-5.51	1.40	1.52
1	A	931	TYR	CD2-CE2	5.50	1.47	1.39
1	B	1099	CYS	CB-SG	5.50	1.91	1.82
1	B	1084	GLU	CG-CD	5.49	1.60	1.51
1	A	1084	GLU	CD-OE2	5.48	1.31	1.25
1	A	926	ALA	CA-CB	-5.40	1.41	1.52
1	B	1071	ASP	CB-CG	5.36	1.62	1.51
1	A	931	TYR	CD1-CE1	5.34	1.47	1.39
1	A	775	ARG	CG-CD	5.29	1.65	1.51

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	809	TYR	CB-CG	-5.29	1.43	1.51
1	A	1079	CYS	CB-SG	-5.28	1.73	1.81
1	A	931	TYR	CG-CD2	5.27	1.46	1.39
1	B	992	ASP	CB-CG	5.22	1.62	1.51
1	A	761	ILE	C-O	5.10	1.33	1.23

All (53) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	1071	ASP	CB-CG-OD1	10.07	127.37	118.30
1	A	824	ARG	NE-CZ-NH1	9.87	125.23	120.30
1	B	1053	LYS	CD-CE-NZ	-9.41	90.05	111.70
1	A	941	LYS	CD-CE-NZ	-8.72	91.65	111.70
1	A	824	ARG	NE-CZ-NH2	-8.72	115.94	120.30
1	B	941	LYS	CD-CE-NZ	-8.52	92.11	111.70
1	B	306	ASP	CB-CG-OD2	8.51	125.95	118.30
1	A	1053	LYS	CD-CE-NZ	-8.16	92.92	111.70
1	A	876	LEU	CB-CG-CD1	-7.89	97.59	111.00
1	A	1087	CYS	CA-CB-SG	-7.59	100.33	114.00
1	B	486	LEU	CA-CB-CG	6.88	131.13	115.30
1	A	486	LEU	CA-CB-CG	6.82	130.99	115.30
1	A	999	MET	CG-SD-CE	6.72	110.95	100.20
1	A	559	LEU	CA-CB-CG	-6.50	100.34	115.30
1	A	1119	THR	C-N-CA	-6.47	105.52	121.70
1	B	863	ARG	NE-CZ-NH1	-6.37	117.11	120.30
1	B	698	CYS	CA-CB-SG	-6.19	102.85	114.00
1	A	890	CYS	CA-CB-SG	-6.18	102.87	114.00
1	B	801	GLY	N-CA-C	-6.11	97.82	113.10
1	B	757	ARG	NE-CZ-NH2	-5.98	117.31	120.30
1	B	890	CYS	CA-CB-SG	-5.92	103.34	114.00
1	B	960	ILE	CG1-CB-CG2	-5.89	98.44	111.40
1	A	757	ARG	NE-CZ-NH2	-5.83	117.39	120.30
1	B	964	LEU	CA-CB-CG	-5.83	101.90	115.30
1	B	775	ARG	NE-CZ-NH2	-5.82	117.39	120.30
1	A	819	VAL	CB-CA-C	-5.79	100.40	111.40
1	B	1158	ARG	NE-CZ-NH1	-5.78	117.41	120.30
1	B	1119	THR	C-N-CA	-5.64	107.59	121.70
1	A	1064	ASP	CB-CG-OD1	5.64	123.38	118.30
1	A	1278	ARG	NE-CZ-NH1	5.61	123.10	120.30
1	B	1003	ASP	CB-CG-OD2	5.60	123.34	118.30
1	A	960	ILE	CG1-CB-CG2	-5.57	99.14	111.40
1	B	889	LEU	CA-CB-CG	-5.53	102.59	115.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	738	LEU	CA-CB-CG	-5.51	102.62	115.30
1	A	975	LEU	CB-CG-CD1	-5.44	101.75	111.00
1	B	969	LEU	CB-CG-CD1	-5.39	101.84	111.00
1	A	964	LEU	CA-CB-CG	-5.38	102.94	115.30
1	B	999	MET	CG-SD-CE	5.36	108.78	100.20
1	A	889	LEU	CA-CB-CG	-5.36	102.98	115.30
1	B	992	ASP	CB-CG-OD1	5.35	123.11	118.30
1	B	485	THR	N-CA-C	5.34	125.43	111.00
1	B	889	LEU	CB-CG-CD2	-5.34	101.92	111.00
1	A	992	ASP	CB-CG-OD2	5.31	123.08	118.30
1	A	1158	ARG	NE-CZ-NH1	-5.28	117.66	120.30
1	A	863	ARG	NE-CZ-NH1	-5.24	117.68	120.30
1	B	1278	ARG	NE-CZ-NH1	5.24	122.92	120.30
1	A	912	ASP	CB-CG-OD1	5.21	122.99	118.30
1	A	801	GLY	N-CA-C	-5.18	100.14	113.10
1	B	949	ILE	CG1-CB-CG2	-5.18	100.00	111.40
1	A	734	MET	CG-SD-CE	5.18	108.48	100.20
1	B	779	ASP	CB-CG-OD1	5.15	122.93	118.30
1	B	819	VAL	CB-CA-C	-5.08	101.74	111.40
1	B	559	LEU	CA-CB-CG	-5.07	103.64	115.30

There are no chirality outliers.

All (6) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	1215	ASN	Peptide
1	A	484	ALA	Peptide
1	A	747	GLU	Peptide
1	B	1215	ASN	Peptide
1	B	484	ALA	Peptide
1	B	790	ASP	Peptide

5.2 Too-close contacts (i)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	7733	0	7482	253	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	7733	0	7482	260	0
2	C	28	0	25	0	0
2	D	28	0	25	4	0
All	All	15522	0	15014	503	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 16.

All (503) 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:B:1057:GLN:CG	1:B:1057:GLN:CD	1.82	1.46
1:A:1057:GLN:CD	1:A:1057:GLN:CG	1.83	1.44
1:B:519:GLU:HG3	1:B:648:VAL:HG22	1.40	1.02
1:A:988:LYS:HG3	1:B:731:SER:HB3	1.41	1.02
1:A:727:SER:HB2	1:A:875:HIS:CD2	1.94	1.01
1:A:519:GLU:HG3	1:A:648:VAL:HG22	1.42	0.99
1:B:1278:ARG:HH11	1:B:1278:ARG:HB3	1.26	0.99
1:B:727:SER:HB2	1:B:875:HIS:CD2	1.96	0.99
1:A:1024:ALA:O	1:A:1026:ASN:ND2	1.96	0.98
1:A:1278:ARG:HB3	1:A:1278:ARG:HH11	1.24	0.97
1:B:667:ALA:HA	1:B:670:GLN:HB2	1.47	0.94
1:A:486:LEU:HG	1:A:662:ASP:HB2	1.49	0.94
1:A:599:ASN:O	1:A:600:THR:HB	1.65	0.93
1:A:618:ASP:HB3	1:A:619:GLU:OE2	1.69	0.91
1:B:1155:ARG:HG3	1:B:1155:ARG:HH11	1.37	0.89
1:A:667:ALA:HA	1:A:670:GLN:HB2	1.53	0.89
1:B:1228:GLY:HA3	1:B:1281:THR:HG22	1.56	0.86
1:A:1278:ARG:HB3	1:A:1278:ARG:NH1	1.90	0.86
1:B:1071:ASP:OD2	1:B:1074:SER:HB2	1.75	0.85
1:B:618:ASP:HB3	1:B:619:GLU:OE2	1.75	0.85
1:B:738:LEU:HD12	1:B:738:LEU:H	1.42	0.84
1:A:519:GLU:HG3	1:A:648:VAL:CG2	2.06	0.84
1:A:1183:ASP:HA	1:A:1199:ASN:O	1.79	0.82
1:A:1025:ARG:HD2	2:D:1:NAG:H83	1.62	0.82
1:B:751:LEU:C	1:B:751:LEU:HD12	2.00	0.82
1:A:599:ASN:O	1:A:600:THR:CB	2.28	0.81
1:B:599:ASN:O	1:B:600:THR:HB	1.82	0.80
1:B:952:ASN:HD22	1:B:953:SER:N	1.78	0.80
1:B:1155:ARG:HG3	1:B:1155:ARG:NH1	1.95	0.80
1:B:519:GLU:HG3	1:B:648:VAL:CG2	2.12	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:738:LEU:H	1:A:738:LEU:HD12	1.48	0.79
1:A:1101:ASN:O	1:A:1102:GLN:HB2	1.83	0.79
1:B:1278:ARG:HB3	1:B:1278:ARG:NH1	1.97	0.79
1:B:751:LEU:HD12	1:B:751:LEU:O	1.82	0.79
1:B:1174:ARG:HD3	1:B:1296:GLN:HE21	1.47	0.79
1:A:728:TYR:CE2	1:A:876:LEU:HD12	2.18	0.79
1:A:1228:GLY:HA3	1:A:1281:THR:HG22	1.65	0.78
1:B:738:LEU:HD12	1:B:738:LEU:N	1.99	0.77
1:A:988:LYS:CG	1:B:731:SER:HB3	2.14	0.77
1:B:1024:ALA:O	1:B:1026:ASN:ND2	2.17	0.77
1:B:667:ALA:HA	1:B:670:GLN:CB	2.14	0.76
1:A:688:LEU:C	1:A:690:ASN:H	1.89	0.75
1:A:305:SER:O	1:A:306:ASP:HB3	1.87	0.74
1:A:1161:ILE:HD12	1:A:1307:LEU:HB2	1.68	0.74
1:B:1101:ASN:O	1:B:1102:GLN:HB2	1.88	0.73
1:A:726:LEU:HD22	1:A:902:ALA:CB	2.18	0.73
1:A:488:PRO:HB3	1:A:652:ARG:HB3	1.71	0.73
1:A:667:ALA:HA	1:A:670:GLN:CB	2.18	0.73
1:B:426:SER:HB2	1:B:427:PRO:HD2	1.71	0.73
1:B:452:ASN:ND2	1:B:454:ASP:H	1.87	0.72
1:A:1174:ARG:HD3	1:A:1296:GLN:HE21	1.54	0.72
1:B:305:SER:O	1:B:306:ASP:HB3	1.88	0.72
1:B:353:ALA:O	1:B:354:LEU:HD12	1.90	0.72
1:A:548:PHE:O	1:A:548:PHE:CD2	2.43	0.71
1:A:738:LEU:HD12	1:A:738:LEU:N	2.05	0.71
1:A:452:ASN:ND2	1:A:454:ASP:H	1.88	0.70
1:B:318:ASN:HA	1:B:335:LEU:O	1.91	0.70
1:A:430:ALA:HB2	1:A:438:SER:HB3	1.71	0.70
1:B:431:ASP:O	1:B:432:LEU:C	2.29	0.70
1:A:353:ALA:O	1:A:354:LEU:HD12	1.92	0.69
1:B:475:VAL:O	1:B:476:VAL:HB	1.93	0.69
1:A:563:MET:CE	1:A:607:ALA:HB3	2.22	0.69
1:B:686:PRO:O	1:B:689:SER:HB3	1.93	0.69
1:A:738:LEU:HD22	1:A:742:MET:HG2	1.76	0.68
1:A:952:ASN:HD22	1:A:953:SER:N	1.92	0.68
1:B:429:THR:HG22	1:B:438:SER:HA	1.75	0.68
1:A:559:LEU:HG	1:A:560:LEU:N	2.09	0.67
1:A:751:LEU:HD12	1:A:751:LEU:C	2.15	0.67
1:B:306:ASP:OD2	1:B:374:ARG:HD3	1.95	0.67
1:B:587:PHE:CD1	1:B:587:PHE:C	2.66	0.67
1:A:302:GLN:HA	1:A:415:LEU:O	1.95	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:302:GLN:HA	1:B:415:LEU:O	1.94	0.66
1:B:688:LEU:C	1:B:690:ASN:H	1.96	0.66
1:A:688:LEU:C	1:A:690:ASN:N	2.47	0.66
1:B:587:PHE:C	1:B:587:PHE:HD1	1.99	0.66
1:B:292:PHE:HB2	1:B:423:VAL:HB	1.78	0.66
1:A:1155:ARG:NH1	1:A:1155:ARG:HG3	2.11	0.65
1:A:589:ARG:HB3	1:A:605:TYR:OH	1.96	0.65
1:A:1155:ARG:HG3	1:A:1155:ARG:HH11	1.62	0.65
1:B:488:PRO:HB3	1:B:652:ARG:HB3	1.77	0.65
1:A:292:PHE:HB2	1:A:423:VAL:HB	1.79	0.65
1:B:1174:ARG:HD3	1:B:1296:GLN:NE2	2.12	0.65
1:A:751:LEU:HD12	1:A:751:LEU:O	1.96	0.65
1:A:426:SER:HB2	1:A:427:PRO:HD2	1.79	0.65
1:A:306:ASP:OD2	1:A:374:ARG:HD3	1.98	0.64
1:A:921:SER:HA	1:A:1080:ASN:O	1.97	0.64
1:A:1020:ILE:HG23	1:A:1020:ILE:O	1.98	0.64
1:A:618:ASP:CB	1:A:619:GLU:OE2	2.45	0.64
1:B:589:ARG:HB3	1:B:605:TYR:OH	1.97	0.64
1:B:1020:ILE:HG23	1:B:1020:ILE:O	1.96	0.64
1:A:351:PHE:CE1	1:A:406:GLY:HA3	2.33	0.64
1:A:1071:ASP:OD2	1:A:1074:SER:HB2	1.98	0.64
1:A:311:SER:HB2	1:A:446:LYS:HB3	1.79	0.63
1:A:686:PRO:O	1:A:689:SER:HB3	1.98	0.63
1:A:688:LEU:O	1:A:690:ASN:N	2.32	0.63
1:B:1150:ASP:O	1:B:1152:PRO:HD3	1.98	0.63
1:A:727:SER:HB2	1:A:875:HIS:HD2	1.55	0.63
1:B:1159:LEU:C	1:B:1159:LEU:HD23	2.19	0.63
1:A:431:ASP:O	1:A:432:LEU:C	2.35	0.62
1:A:429:THR:HG22	1:A:438:SER:HA	1.79	0.62
1:B:538:LYS:HD2	1:B:792:ILE:HD13	1.82	0.62
1:A:432:LEU:HD12	1:A:435:SER:HB2	1.82	0.62
1:A:726:LEU:HD22	1:A:902:ALA:HB1	1.81	0.62
1:B:563:MET:CE	1:B:607:ALA:HB3	2.30	0.62
1:B:1216:ASP:OD2	1:B:1218:LYS:HB2	2.00	0.62
1:B:602:ARG:HH11	1:B:602:ARG:HB2	1.65	0.61
1:A:318:ASN:HA	1:A:335:LEU:O	2.01	0.61
1:A:969:LEU:HG	1:A:970:HIS:N	2.14	0.61
1:B:688:LEU:C	1:B:690:ASN:N	2.52	0.61
1:A:369:ASP:HB2	1:A:399:ASP:HA	1.83	0.61
1:B:311:SER:HB2	1:B:446:LYS:HB3	1.82	0.61
1:B:952:ASN:HD22	1:B:952:ASN:C	2.04	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1025:ARG:HH11	2:D:1:NAG:H83	1.65	0.60
1:A:1183:ASP:OD2	1:A:1183:ASP:N	2.33	0.60
1:B:1184:TYR:CD1	1:B:1184:TYR:C	2.74	0.60
1:A:502:LYS:HE2	1:A:618:ASP:H	1.66	0.60
1:A:708:ASP:OD1	1:A:710:SER:OG	2.17	0.60
1:B:738:LEU:HD22	1:B:742:MET:HG2	1.84	0.60
1:B:351:PHE:CE1	1:B:406:GLY:HA3	2.37	0.60
1:A:548:PHE:CD2	1:A:548:PHE:C	2.71	0.59
1:A:757:ARG:HD2	1:A:873:ILE:HD12	1.84	0.59
1:B:512:SER:HA	1:B:585:VAL:O	2.02	0.59
1:B:751:LEU:C	1:B:751:LEU:CD1	2.71	0.59
1:B:884:MET:HB2	1:B:886:TYR:CE1	2.37	0.59
1:B:1141:GLN:HE22	1:B:1295:GLU:HG2	1.68	0.59
1:B:900:LEU:N	1:B:900:LEU:HD23	2.18	0.59
1:A:663:ILE:C	1:A:665:GLN:H	2.06	0.58
1:B:548:PHE:HA	1:B:560:LEU:O	2.03	0.58
1:B:727:SER:HB2	1:B:875:HIS:HD2	1.60	0.58
1:A:563:MET:HE1	1:A:607:ALA:HB3	1.85	0.58
1:B:1183:ASP:HA	1:B:1199:ASN:O	2.02	0.58
1:A:1150:ASP:O	1:A:1152:PRO:HD3	2.03	0.58
1:B:346:LEU:CD2	1:B:415:LEU:HB2	2.34	0.58
1:B:618:ASP:CB	1:B:619:GLU:OE2	2.51	0.58
1:B:346:LEU:HD23	1:B:415:LEU:HB2	1.85	0.58
1:B:476:VAL:O	1:B:477:ALA:HB2	2.04	0.58
1:A:514:ASP:OD1	1:A:584:HIS:HA	2.04	0.58
1:A:726:LEU:HD22	1:A:902:ALA:HB3	1.85	0.58
1:A:476:VAL:O	1:A:477:ALA:HB2	2.04	0.57
1:B:559:LEU:HG	1:B:560:LEU:N	2.20	0.57
1:B:599:ASN:O	1:B:600:THR:CB	2.51	0.57
1:A:311:SER:HB2	1:A:446:LYS:HE2	1.86	0.57
1:B:889:LEU:CD2	1:B:894:ASP:HB2	2.35	0.57
1:A:1025:ARG:HD2	2:D:1:NAG:C8	2.32	0.57
1:A:1174:ARG:HD3	1:A:1296:GLN:NE2	2.20	0.57
1:A:1022:ALA:HB2	1:B:1158:ARG:HD3	1.85	0.57
1:A:1296:GLN:CD	1:A:1296:GLN:H	2.08	0.57
1:B:1161:ILE:HD12	1:B:1307:LEU:HB2	1.86	0.57
1:A:305:SER:O	1:A:306:ASP:CB	2.53	0.56
1:B:757:ARG:HD2	1:B:873:ILE:HD12	1.87	0.56
1:A:1009:THR:HG23	1:A:1018:THR:HG22	1.87	0.56
1:B:1137:LYS:HA	1:B:1301:GLN:HE21	1.70	0.56
1:A:1159:LEU:HD23	1:A:1159:LEU:C	2.26	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:889:LEU:CD2	1:A:894:ASP:HB2	2.35	0.56
1:A:1184:TYR:CD1	1:A:1184:TYR:C	2.79	0.56
1:B:302:GLN:O	1:B:302:GLN:HG3	2.05	0.56
1:B:305:SER:O	1:B:306:ASP:CB	2.54	0.56
1:A:548:PHE:HA	1:A:560:LEU:O	2.06	0.56
1:B:831:THR:HB	1:B:837:ALA:HA	1.87	0.56
1:B:551:GLU:OE1	1:B:640:THR:HG23	2.06	0.55
1:A:475:VAL:O	1:A:476:VAL:HB	2.07	0.55
1:A:884:MET:HB2	1:A:886:TYR:CE1	2.41	0.55
1:A:1190:HIS:ND1	1:A:1191:GLN:HG3	2.21	0.55
1:B:1005:SER:O	1:B:1006:ASN:HB2	2.07	0.55
1:A:377:ARG:CB	1:A:408:THR:OG1	2.55	0.55
1:B:663:ILE:C	1:B:665:GLN:H	2.09	0.55
1:A:302:GLN:HG3	1:A:302:GLN:O	2.06	0.55
1:B:1183:ASP:OD2	1:B:1183:ASP:N	2.40	0.55
1:A:322:LEU:HD12	1:A:421:PHE:CE1	2.43	0.54
1:A:570:ILE:CD1	1:A:605:TYR:HB3	2.37	0.54
1:A:570:ILE:HD13	1:A:605:TYR:HB3	1.88	0.54
1:B:949:ILE:HG22	1:B:949:ILE:O	2.04	0.54
1:A:1143:THR:HG23	1:A:1290:ILE:HG12	1.88	0.54
1:A:364:ASP:OD2	1:A:366:ALA:HB3	2.08	0.54
1:A:1216:ASP:OD2	1:A:1218:LYS:HB2	2.08	0.54
1:A:532:ARG:HH21	1:A:544:LYS:HB3	1.71	0.54
1:B:426:SER:CB	1:B:427:PRO:HD2	2.36	0.54
1:A:931:TYR:HD1	1:A:932:THR:H	1.55	0.54
1:A:1025:ARG:CD	2:D:1:NAG:H83	2.35	0.54
1:B:430:ALA:HB2	1:B:438:SER:HB3	1.88	0.54
1:A:665:GLN:HA	1:A:669:VAL:HG23	1.89	0.54
1:B:311:SER:HB2	1:B:446:LYS:HE2	1.88	0.54
1:B:969:LEU:HD23	1:B:1012:ILE:HD11	1.89	0.54
1:B:726:LEU:HD22	1:B:902:ALA:CB	2.38	0.54
1:A:791:CYS:O	1:A:792:ILE:HD12	2.08	0.54
1:B:486:LEU:HG	1:B:662:ASP:HB2	1.91	0.53
1:B:432:LEU:HD12	1:B:435:SER:HB2	1.89	0.53
1:B:728:TYR:CE2	1:B:876:LEU:HD12	2.44	0.53
1:B:377:ARG:CB	1:B:408:THR:OG1	2.57	0.53
1:B:786:THR:HG23	1:B:804:THR:HG22	1.89	0.53
1:A:900:LEU:HD23	1:A:900:LEU:N	2.22	0.53
1:A:1159:LEU:HD23	1:A:1160:ALA:N	2.24	0.53
1:A:889:LEU:HD23	1:A:894:ASP:HB2	1.91	0.53
1:A:1083:ILE:N	1:A:1083:ILE:HD12	2.24	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:639:TRP:CZ3	1:B:824:ARG:HB3	2.44	0.53
1:B:1159:LEU:HD23	1:B:1160:ALA:N	2.22	0.53
1:A:487:ASP:HB2	1:A:664:ARG:CB	2.38	0.53
1:A:831:THR:HB	1:A:837:ALA:HA	1.90	0.53
1:B:486:LEU:HG	1:B:662:ASP:CB	2.38	0.53
1:B:315:LEU:HD13	1:B:485:THR:HG22	1.91	0.53
1:B:1165:THR:O	1:B:1215:ASN:HA	2.09	0.52
1:A:1015:LYS:HD3	1:B:1109:TRP:CD2	2.45	0.52
1:B:322:LEU:HD12	1:B:421:PHE:CE1	2.44	0.52
1:A:1087:CYS:SG	1:A:1087:CYS:O	2.66	0.52
1:B:1143:THR:HG23	1:B:1290:ILE:HG12	1.92	0.52
1:A:1112:PHE:CD1	1:A:1112:PHE:C	2.83	0.52
1:B:969:LEU:CD2	1:B:1012:ILE:HD11	2.39	0.52
1:A:463:ALA:HA	1:A:470:MET:HG2	1.91	0.52
1:B:726:LEU:HD22	1:B:902:ALA:HB3	1.92	0.52
1:B:931:TYR:CD1	1:B:931:TYR:N	2.77	0.52
1:A:311:SER:CB	1:A:446:LYS:HE2	2.40	0.52
1:B:1228:GLY:CA	1:B:1281:THR:HG22	2.34	0.52
1:A:512:SER:HA	1:A:585:VAL:O	2.09	0.52
1:A:742:MET:HG3	1:A:851:PHE:CZ	2.45	0.52
1:B:315:LEU:O	1:B:363:ASN:HB2	2.09	0.52
1:B:369:ASP:HB2	1:B:399:ASP:HA	1.92	0.52
1:B:1009:THR:HG23	1:B:1018:THR:HG22	1.92	0.51
1:A:656:ILE:HG13	1:A:661:LYS:HG3	1.92	0.51
1:B:921:SER:HA	1:B:1080:ASN:O	2.10	0.51
1:B:742:MET:HG3	1:B:851:PHE:CZ	2.46	0.51
1:A:845:ASP:OD1	1:A:845:ASP:N	2.43	0.51
1:A:948:LEU:HD12	1:A:949:ILE:H	1.76	0.51
1:A:639:TRP:CZ3	1:A:824:ARG:HB3	2.46	0.51
1:B:532:ARG:HH21	1:B:544:LYS:HB3	1.76	0.51
1:B:570:ILE:HD13	1:B:605:TYR:HB3	1.92	0.51
1:B:889:LEU:HD23	1:B:894:ASP:HB2	1.92	0.51
1:B:1190:HIS:ND1	1:B:1191:GLN:HG3	2.25	0.51
1:A:308:ILE:HD13	1:A:450:TYR:HD1	1.76	0.51
1:B:772:ASP:OD1	1:B:790:ASP:HB2	2.11	0.51
1:A:663:ILE:C	1:A:665:GLN:N	2.64	0.51
1:A:1169:GLU:OE1	1:A:1190:HIS:HA	2.11	0.51
1:A:374:ARG:HA	1:A:378:GLN:O	2.11	0.50
1:A:1020:ILE:O	1:A:1020:ILE:CG2	2.58	0.50
1:B:738:LEU:H	1:B:738:LEU:CD1	2.20	0.50
1:B:548:PHE:CD2	1:B:548:PHE:O	2.64	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:476:VAL:O	1:A:477:ALA:CB	2.59	0.50
1:B:519:GLU:CG	1:B:648:VAL:HG22	2.27	0.50
1:A:322:LEU:HD12	1:A:421:PHE:HE1	1.76	0.50
1:A:438:SER:O	1:A:658:GLY:HA2	2.10	0.50
1:A:775:ARG:HG3	1:A:786:THR:OG1	2.12	0.50
1:A:346:LEU:CD2	1:A:415:LEU:HB2	2.41	0.50
1:B:502:LYS:HE2	1:B:618:ASP:H	1.77	0.50
1:A:426:SER:CB	1:A:427:PRO:HD2	2.40	0.50
1:B:431:ASP:O	1:B:432:LEU:O	2.29	0.50
1:B:452:ASN:HD21	1:B:454:ASP:HB2	1.77	0.50
1:B:311:SER:CB	1:B:446:LYS:HE2	2.42	0.49
1:B:1318:ALA:HA	1:B:1325:ILE:HG21	1.93	0.49
1:A:1317:MET:CE	1:A:1322:ASP:OD1	2.60	0.49
1:B:959:PHE:CD1	1:B:959:PHE:C	2.84	0.49
1:B:1020:ILE:O	1:B:1020:ILE:CG2	2.60	0.49
1:B:1112:PHE:CD1	1:B:1112:PHE:C	2.86	0.49
1:A:521:ASN:HB3	1:A:645:TYR:CD2	2.48	0.49
1:A:955:ASP:OD1	1:A:1030:LYS:HG3	2.12	0.49
1:B:475:VAL:O	1:B:476:VAL:CB	2.60	0.49
1:B:613:ILE:N	1:B:613:ILE:HD12	2.27	0.49
1:B:329:ASP:OD1	1:B:414:MET:O	2.31	0.49
1:B:663:ILE:C	1:B:665:GLN:N	2.66	0.49
1:B:1137:LYS:HA	1:B:1301:GLN:NE2	2.28	0.49
1:B:656:ILE:HG13	1:B:661:LYS:HG3	1.94	0.49
1:B:734:MET:HE3	1:B:736:ILE:HD12	1.93	0.49
1:B:1222:VAL:HG13	1:B:1222:VAL:O	2.12	0.49
1:A:1186:GLU:O	1:A:1186:GLU:HG2	2.12	0.49
1:B:955:ASP:OD1	1:B:1030:LYS:HG3	2.11	0.49
1:A:493:THR:C	1:A:648:VAL:HG12	2.33	0.49
1:B:729:ASP:OD1	1:B:732:MET:HG3	2.13	0.48
1:A:480:CYS:SG	1:A:481:GLU:N	2.83	0.48
1:A:737:GLN:O	1:A:738:LEU:C	2.51	0.48
1:B:665:GLN:HA	1:B:669:VAL:HG23	1.94	0.48
1:B:686:PRO:O	1:B:689:SER:CB	2.60	0.48
1:A:298:GLN:HG2	1:A:469:LYS:HE3	1.95	0.48
1:A:946:ASP:HA	1:A:964:LEU:O	2.13	0.48
1:A:1022:ALA:CB	1:B:1158:ARG:HD3	2.42	0.48
1:A:1063:VAL:HG21	1:A:1072:LEU:HD11	1.94	0.48
1:B:364:ASP:OD2	1:B:366:ALA:HB3	2.13	0.48
1:B:587:PHE:HD1	1:B:588:GLN:N	2.11	0.48
1:B:784:LYS:HG3	1:B:806:PHE:CE1	2.47	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1165:THR:O	1:A:1215:ASN:HA	2.14	0.48
1:B:965:VAL:O	1:B:966:LYS:HB2	2.13	0.48
1:A:511:ILE:CG2	1:A:587:PHE:HB3	2.43	0.48
1:A:681:ARG:HG3	1:A:702:TRP:CH2	2.48	0.48
1:B:320:LEU:HA	1:B:334:ALA:HB2	1.95	0.48
1:A:1002:ARG:NH1	1:A:1026:ASN:OD1	2.46	0.48
1:A:1144:TYR:HA	1:A:1325:ILE:HD13	1.96	0.48
1:B:1296:GLN:CD	1:B:1296:GLN:H	2.17	0.48
1:A:728:TYR:HE2	1:A:876:LEU:HD12	1.75	0.48
1:A:751:LEU:C	1:A:751:LEU:CD1	2.81	0.48
1:A:952:ASN:HD22	1:A:952:ASN:C	2.17	0.48
1:B:476:VAL:O	1:B:477:ALA:CB	2.62	0.48
1:B:480:CYS:SG	1:B:481:GLU:N	2.83	0.48
1:B:919:LYS:HG2	1:B:1055:GLY:O	2.13	0.48
1:B:949:ILE:O	1:B:949:ILE:CG2	2.59	0.48
1:B:688:LEU:O	1:B:690:ASN:N	2.47	0.48
1:B:791:CYS:O	1:B:792:ILE:HB	2.14	0.47
1:A:519:GLU:CG	1:A:648:VAL:HG22	2.30	0.47
1:A:964:LEU:HD12	1:A:964:LEU:HA	1.50	0.47
1:A:315:LEU:O	1:A:363:ASN:HB2	2.13	0.47
1:A:1015:LYS:HD3	1:B:1109:TRP:CE2	2.49	0.47
1:A:919:LYS:HG2	1:A:1055:GLY:O	2.15	0.47
1:A:1027:LEU:HD12	1:B:1155:ARG:NE	2.29	0.47
1:A:1101:ASN:O	1:A:1102:GLN:CB	2.55	0.47
1:B:1159:LEU:C	1:B:1159:LEU:CD2	2.83	0.47
1:A:311:SER:HA	1:A:368:HIS:O	2.15	0.47
1:A:587:PHE:CD1	1:A:587:PHE:C	2.83	0.47
1:B:1197:LYS:HA	1:B:1205:ILE:O	2.14	0.47
1:B:1207:ILE:O	1:B:1207:ILE:HG23	2.15	0.47
1:A:728:TYR:CZ	1:A:876:LEU:HD12	2.50	0.47
1:A:759:TYR:HA	1:A:778:LEU:O	2.14	0.47
1:B:317:ARG:HG3	1:B:317:ARG:HH11	1.78	0.47
1:B:845:ASP:N	1:B:845:ASP:OD1	2.42	0.47
1:A:395:THR:HG23	1:A:403:THR:HG23	1.97	0.47
1:A:602:ARG:HH11	1:A:602:ARG:HB2	1.79	0.47
1:A:965:VAL:O	1:A:966:LYS:HB2	2.15	0.47
1:A:1307:LEU:HD23	1:A:1314:VAL:HB	1.96	0.47
1:B:317:ARG:HH11	1:B:317:ARG:CG	2.28	0.47
1:B:737:GLN:O	1:B:738:LEU:C	2.51	0.47
1:B:1092:THR:O	1:B:1111:GLY:HA2	2.14	0.47
1:A:339:ALA:HB1	1:A:355:VAL:O	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:311:SER:HA	1:B:368:HIS:O	2.15	0.47
1:B:320:LEU:HA	1:B:334:ALA:CB	2.45	0.47
1:B:395:THR:HG23	1:B:403:THR:HG23	1.96	0.47
1:A:1141:GLN:HE22	1:A:1295:GLU:HG2	1.80	0.47
1:A:1174:ARG:HG3	1:A:1186:GLU:HB2	1.96	0.47
1:B:681:ARG:HG3	1:B:702:TRP:CH2	2.49	0.47
1:B:928:LEU:HD21	1:B:936:LEU:HD21	1.97	0.47
1:B:1101:ASN:O	1:B:1102:GLN:CB	2.58	0.47
1:A:289:SER:HB3	1:A:659:GLN:OE1	2.14	0.47
1:B:988:LYS:HE3	1:B:988:LYS:HB2	1.58	0.47
1:B:1155:ARG:HH11	1:B:1155:ARG:CG	2.18	0.46
1:A:1003:ASP:OD1	1:A:1003:ASP:C	2.54	0.46
1:A:1296:GLN:CD	1:A:1296:GLN:N	2.68	0.46
1:A:551:GLU:OE1	1:A:640:THR:HG23	2.15	0.46
1:A:317:ARG:HG3	1:A:317:ARG:HH11	1.79	0.46
1:B:655:PHE:HA	1:B:659:GLN:O	2.15	0.46
1:A:452:ASN:HD21	1:A:454:ASP:HB2	1.80	0.46
1:A:992:ASP:OD2	1:A:994:GLN:NE2	2.48	0.46
1:A:1072:LEU:HA	1:A:1072:LEU:HD23	1.53	0.46
1:B:282:TYR:HB3	1:B:460:SER:HB3	1.96	0.46
1:B:469:LYS:HD3	1:B:469:LYS:HA	1.78	0.46
1:B:969:LEU:HG	1:B:970:HIS:N	2.30	0.46
1:A:939:GLN:HA	1:A:996:HIS:O	2.15	0.46
1:B:339:ALA:HB1	1:B:355:VAL:O	2.15	0.46
1:B:570:ILE:CD1	1:B:605:TYR:HB3	2.46	0.46
1:B:1072:LEU:HD23	1:B:1072:LEU:HA	1.42	0.46
1:A:556:HIS:NE2	1:A:576:LYS:HG2	2.31	0.46
1:B:1016:ILE:HG22	1:B:1018:THR:HG23	1.98	0.46
1:A:991:ASN:OD1	1:A:991:ASN:N	2.41	0.46
1:B:1002:ARG:NH1	1:B:1026:ASN:OD1	2.49	0.46
1:B:367:TRP:CZ3	1:B:446:LYS:HB2	2.52	0.45
1:A:282:TYR:HB3	1:A:460:SER:HB3	1.97	0.45
1:A:868:VAL:O	1:A:869:PRO:C	2.53	0.45
1:B:514:ASP:OD1	1:B:584:HIS:HA	2.16	0.45
1:B:759:TYR:HA	1:B:778:LEU:O	2.16	0.45
1:B:841:GLN:HA	1:B:841:GLN:OE1	2.16	0.45
1:B:1065:LEU:CD1	1:B:1070:PRO:HG3	2.46	0.45
1:B:772:ASP:HA	1:B:788:ASN:O	2.17	0.45
1:B:788:ASN:HD22	1:B:802:PRO:HB3	1.82	0.45
1:B:1030:LYS:HA	1:B:1030:LYS:HD3	1.82	0.45
1:A:315:LEU:HD13	1:A:485:THR:HG23	1.98	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:729:ASP:OD1	1:A:732:MET:HG3	2.17	0.45
1:B:586:ASP:OD2	1:B:588:GLN:NE2	2.50	0.45
1:A:1005:SER:O	1:A:1006:ASN:HB2	2.17	0.45
1:B:332:ASN:ND2	1:B:435:SER:HA	2.32	0.45
1:B:931:TYR:HD1	1:B:932:THR:H	1.64	0.45
1:A:1317:MET:HE3	1:A:1322:ASP:OD1	2.17	0.45
1:B:322:LEU:HD12	1:B:421:PHE:HE1	1.81	0.45
1:B:685:LYS:HB2	1:B:685:LYS:HE3	1.88	0.45
1:B:952:ASN:HB2	1:B:1033:LEU:HD12	1.97	0.45
1:A:621:TYR:OH	1:A:629:LYS:HD3	2.16	0.45
1:A:786:THR:HG23	1:A:804:THR:HG22	1.98	0.45
1:B:552:MET:HA	1:B:556:HIS:O	2.16	0.45
1:B:991:ASN:OD1	1:B:991:ASN:N	2.43	0.45
1:A:377:ARG:HB3	1:A:408:THR:OG1	2.16	0.44
1:A:317:ARG:HH11	1:A:317:ARG:CG	2.30	0.44
1:B:374:ARG:HA	1:B:378:GLN:O	2.17	0.44
1:A:636:THR:HG21	1:A:848:ARG:HG3	1.98	0.44
1:B:343:VAL:HG21	1:B:434:GLY:O	2.18	0.44
1:B:928:LEU:HD13	1:B:1065:LEU:HB3	1.99	0.44
1:B:308:ILE:HD13	1:B:450:TYR:HD1	1.82	0.44
1:A:1158:ARG:HH11	1:A:1158:ARG:HD2	1.55	0.44
1:B:1003:ASP:C	1:B:1003:ASP:OD1	2.55	0.44
1:A:736:ILE:HG12	1:A:886:TYR:CD2	2.52	0.44
1:A:557:LEU:HG	1:A:558:TYR:N	2.33	0.44
1:A:1185:LEU:HD12	1:A:1186:GLU:N	2.32	0.44
1:A:579:ASP:OD2	1:A:583:TYR:OH	2.36	0.44
1:A:749:VAL:HG22	1:A:881:PHE:CD1	2.53	0.44
1:B:708:ASP:OD1	1:B:710:SER:OG	2.27	0.44
1:B:805:LEU:HD23	1:B:805:LEU:HA	1.79	0.44
1:A:931:TYR:CD1	1:A:931:TYR:N	2.84	0.44
1:B:734:MET:CE	1:B:736:ILE:CD1	2.96	0.44
1:A:489:ILE:CD1	1:A:664:ARG:HA	2.48	0.43
1:A:551:GLU:HG2	1:A:560:LEU:HD13	2.00	0.43
1:A:884:MET:CB	1:A:886:TYR:CE1	3.01	0.43
1:B:681:ARG:O	1:B:682:GLU:C	2.56	0.43
1:B:1132:THR:HG23	1:B:1305:SER:HB2	2.00	0.43
1:B:1158:ARG:HH11	1:B:1158:ARG:HD2	1.54	0.43
1:B:1169:GLU:HA	1:B:1189:ILE:O	2.18	0.43
1:B:557:LEU:HG	1:B:558:TYR:N	2.33	0.43
1:B:636:THR:HG21	1:B:848:ARG:HG3	1.98	0.43
1:B:889:LEU:HD23	1:B:889:LEU:HA	1.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:1173:VAL:HG13	1:B:1187:LEU:HB3	2.01	0.43
1:A:398:VAL:C	1:A:400:GLY:H	2.21	0.43
1:A:734:MET:HE3	1:A:736:ILE:HD12	2.01	0.43
1:A:1016:ILE:HG22	1:A:1018:THR:HG23	2.00	0.43
1:A:1309:TYR:O	1:A:1310:ASN:C	2.56	0.43
1:B:298:GLN:HG2	1:B:469:LYS:HE3	2.01	0.43
1:B:436:PRO:HD2	1:B:437:VAL:H	1.83	0.43
1:A:548:PHE:HD1	1:A:587:PHE:HE2	1.64	0.43
1:A:681:ARG:O	1:A:682:GLU:C	2.56	0.43
1:B:727:SER:HB2	1:B:875:HIS:NE2	2.32	0.43
1:A:310:LEU:HD12	1:A:310:LEU:O	2.19	0.43
1:A:329:ASP:OD1	1:A:414:MET:O	2.37	0.43
1:A:1159:LEU:C	1:A:1159:LEU:CD2	2.86	0.43
1:B:1144:TYR:HA	1:B:1325:ILE:HD13	2.01	0.43
1:B:663:ILE:HA	1:B:666:MET:HB2	2.01	0.43
1:B:961:VAL:CG1	1:B:962:VAL:N	2.82	0.43
1:B:1309:TYR:O	1:B:1310:ASN:C	2.57	0.43
1:A:1092:THR:O	1:A:1111:GLY:HA2	2.19	0.43
1:A:1134:ILE:HD12	1:A:1332:ARG:HH22	1.83	0.43
1:B:522:GLY:HA2	1:B:645:TYR:O	2.19	0.43
1:B:734:MET:CE	1:B:736:ILE:HD12	2.49	0.43
1:A:772:ASP:OD1	1:A:790:ASP:HB2	2.19	0.43
1:A:1012:ILE:HG23	1:A:1012:ILE:HD12	1.69	0.43
1:B:511:ILE:HG23	1:B:587:PHE:HB3	2.01	0.42
1:B:573:LEU:HD12	1:B:574:GLN:H	1.84	0.42
1:B:1063:VAL:HG21	1:B:1072:LEU:HD11	2.01	0.42
1:B:1307:LEU:HD23	1:B:1314:VAL:HB	2.01	0.42
1:B:952:ASN:HD22	1:B:953:SER:H	1.62	0.42
1:A:320:LEU:HA	1:A:334:ALA:CB	2.48	0.42
1:A:488:PRO:CB	1:A:652:ARG:HB3	2.46	0.42
1:A:570:ILE:CD1	1:A:605:TYR:CB	2.97	0.42
1:A:988:LYS:CD	1:B:731:SER:HB3	2.49	0.42
1:B:398:VAL:C	1:B:400:GLY:H	2.23	0.42
1:A:791:CYS:O	1:A:792:ILE:HB	2.19	0.42
1:B:521:ASN:HB3	1:B:645:TYR:CD2	2.55	0.42
1:B:532:ARG:NH2	1:B:544:LYS:HB3	2.34	0.42
1:B:793:ARG:HE	1:B:793:ARG:HB2	1.70	0.42
1:B:294:TYR:HD2	1:B:296:LEU:HD23	1.85	0.42
1:B:523:LEU:HD11	1:B:526:PHE:HB2	2.02	0.42
1:B:952:ASN:HB2	1:B:1033:LEU:CD1	2.50	0.42
1:A:320:LEU:HA	1:A:334:ALA:HB2	2.00	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:1041:GLU:HA	1:A:1041:GLU:OE1	2.19	0.42
1:B:327:SER:HB2	1:B:328:ALA:H	1.46	0.42
1:B:1296:GLN:CD	1:B:1296:GLN:N	2.73	0.42
1:A:495:GLU:OE2	1:A:495:GLU:N	2.51	0.42
1:B:551:GLU:HG2	1:B:560:LEU:HD13	2.01	0.41
1:B:749:VAL:HG22	1:B:881:PHE:CD1	2.55	0.41
1:B:1196:VAL:HG12	1:B:1197:LYS:N	2.35	0.41
1:A:308:ILE:CD1	1:A:450:TYR:HD1	2.33	0.41
1:B:603:THR:HA	1:B:604:PRO:HD2	1.90	0.41
1:B:964:LEU:HD12	1:B:964:LEU:HA	1.61	0.41
1:A:832:VAL:O	1:A:833:ASP:HB2	2.19	0.41
1:A:985:SER:HG	1:B:1109:TRP:HE1	1.67	0.41
1:B:900:LEU:HD23	1:B:900:LEU:H	1.83	0.41
1:A:449:VAL:HG13	1:A:458:GLU:HA	2.02	0.41
1:A:486:LEU:HG	1:A:662:ASP:CB	2.35	0.41
1:A:779:ASP:C	1:A:779:ASP:OD1	2.59	0.41
1:B:488:PRO:HB3	1:B:652:ARG:CB	2.46	0.41
1:B:322:LEU:CD2	1:B:333:LEU:HD23	2.50	0.41
1:B:1087:CYS:O	1:B:1087:CYS:SG	2.79	0.41
1:A:488:PRO:HB3	1:A:652:ARG:CB	2.47	0.41
1:A:493:THR:HB	1:A:495:GLU:OE2	2.20	0.41
1:B:992:ASP:OD2	1:B:994:GLN:NE2	2.54	0.41
1:B:1069:LEU:HA	1:B:1070:PRO:HD2	1.91	0.41
1:A:398:VAL:C	1:A:400:GLY:N	2.73	0.41
1:A:1169:GLU:HA	1:A:1189:ILE:O	2.20	0.41
1:A:1233:LEU:HD12	1:A:1233:LEU:HA	1.65	0.41
1:A:532:ARG:NH1	1:A:564:GLY:HA2	2.36	0.41
1:A:570:ILE:HD11	1:A:605:TYR:HB2	2.03	0.41
1:A:591:GLY:HA2	1:A:612:GLU:O	2.20	0.41
1:A:738:LEU:H	1:A:738:LEU:CD1	2.27	0.41
1:A:1214:ILE:C	1:A:1214:ILE:HD12	2.41	0.41
1:B:563:MET:HE1	1:B:607:ALA:HB3	2.01	0.41
1:B:790:ASP:OD2	1:B:791:CYS:N	2.44	0.41
1:A:1228:GLY:CA	1:A:1281:THR:HG22	2.43	0.41
1:A:643:LEU:HD21	1:A:824:ARG:NH2	2.36	0.40
1:A:662:ASP:O	1:A:666:MET:HE2	2.22	0.40
1:A:1027:LEU:HD12	1:B:1155:ARG:CZ	2.50	0.40
1:B:868:VAL:HB	1:B:869:PRO:HD2	2.02	0.40
1:A:400:GLY:O	1:A:401:ILE:CB	2.69	0.40
1:A:548:PHE:CD1	1:A:587:PHE:HE2	2.39	0.40
1:A:603:THR:HA	1:A:604:PRO:HD2	1.94	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:563:MET:HE2	1:B:607:ALA:HB3	2.00	0.40
1:B:776:LEU:HA	1:B:776:LEU:HD23	1.90	0.40
1:A:489:ILE:O	1:A:650:CYS:HA	2.21	0.40
1:A:512:SER:HB2	1:A:584:HIS:HE1	1.87	0.40
1:A:552:MET:HA	1:A:556:HIS:O	2.21	0.40
1:A:1300:PHE:CG	1:A:1301:GLN:N	2.89	0.40
1:B:450:TYR:CZ	1:B:452:ASN:HB3	2.55	0.40
1:B:877:GLN:O	1:B:878:SER:HB2	2.21	0.40
1:B:939:GLN:HA	1:B:996:HIS:O	2.21	0.40
1:B:1051:HIS:O	1:B:1052:ALA:C	2.60	0.40
1:A:475:VAL:O	1:A:476:VAL:CB	2.70	0.40
1:A:728:TYR:CE2	1:A:876:LEU:CD1	2.99	0.40
1:A:1024:ALA:O	1:A:1025:ARG:C	2.59	0.40
1:A:1234:GLN:NE2	1:A:1236:ASP:O	2.55	0.40
1:A:1318:ALA:HA	1:A:1325:ILE:HG21	2.03	0.40
1:B:317:ARG:HG2	1:B:337:ASN:HA	2.03	0.40
1:B:1083:ILE:HD12	1:B:1083:ILE:N	2.36	0.40
1:A:686:PRO:O	1:A:689:SER:CB	2.69	0.40
1:A:1106:LEU:HD11	1:A:1115:ASP:HB2	2.04	0.40
1:B:362:PHE:C	1:B:364:ASP:H	2.24	0.40
1:B:493:THR:HB	1:B:495:GLU:OE2	2.22	0.40
1:B:742:MET:HB3	1:B:851:PHE:CE2	2.55	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	1004/1254 (80%)	881 (88%)	97 (10%)	26 (3%)	5	24
1	B	1004/1254 (80%)	881 (88%)	96 (10%)	27 (3%)	5	23
All	All	2008/2508 (80%)	1762 (88%)	193 (10%)	53 (3%)	5	24

All (53) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	327	SER
1	A	401	ILE
1	A	476	VAL
1	A	477	ALA
1	A	506	LYS
1	A	666	MET
1	A	677	PRO
1	A	689	SER
1	A	792	ILE
1	B	327	SER
1	B	401	ILE
1	B	476	VAL
1	B	477	ALA
1	B	506	LYS
1	B	666	MET
1	B	677	PRO
1	B	689	SER
1	B	792	ILE
1	B	1278	ARG
1	A	306	ASP
1	A	475	VAL
1	A	600	THR
1	A	682	GLU
1	A	920	SER
1	A	930	ALA
1	A	1278	ARG
1	B	434	GLY
1	B	475	VAL
1	B	682	GLU
1	B	930	ALA
1	A	399	ASP
1	A	434	GLY
1	B	399	ASP
1	B	485	THR
1	B	600	THR
1	B	664	ARG
1	B	920	SER
1	A	363	ASN
1	A	833	ASP
1	A	1045	SER
1	B	337	ASN
1	B	573	LEU

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Mol	Chain	Res	Type
1	A	337	ASN
1	A	1179	SER
1	A	1209	GLU
1	B	363	ASN
1	B	791	CYS
1	A	1148	PRO
1	B	436	PRO
1	B	1047	PRO
1	B	483	VAL
1	A	483	VAL
1	B	1148	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	839/1068 (79%)	742 (88%)	97 (12%)	5	20
1	B	839/1068 (79%)	747 (89%)	92 (11%)	6	22
All	All	1678/2136 (79%)	1489 (89%)	189 (11%)	6	21

All (189) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	283	ILE
1	A	303	SER
1	A	305	SER
1	A	307	GLU
1	A	308	ILE
1	A	317	ARG
1	A	326	LYS
1	A	329	ASP
1	A	365	ASN
1	A	377	ARG
1	A	402	LEU
1	A	419	ASP

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Mol	Chain	Res	Type
1	A	421	PHE
1	A	432	LEU
1	A	438	SER
1	A	455	VAL
1	A	458	GLU
1	A	482	ASN
1	A	486	LEU
1	A	489	ILE
1	A	495	GLU
1	A	498	ILE
1	A	506	LYS
1	A	511	ILE
1	A	518	THR
1	A	542	MET
1	A	546	ASP
1	A	548	PHE
1	A	561	LEU
1	A	588	GLN
1	A	589	ARG
1	A	592	ARG
1	A	611	SER
1	A	616	LEU
1	A	617	ASP
1	A	620	LEU
1	A	633	VAL
1	A	656	ILE
1	A	662	ASP
1	A	678	SER
1	A	682	GLU
1	A	688	LEU
1	A	697	MET
1	A	717	ARG
1	A	727	SER
1	A	731	SER
1	A	734	MET
1	A	763	MET
1	A	773	THR
1	A	786	THR
1	A	795	ASN
1	A	824	ARG
1	A	831	THR
1	A	847	THR

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Mol	Chain	Res	Type
1	A	853	ASN
1	A	862	ARG
1	A	867	SER
1	A	898	CYS
1	A	899	GLU
1	A	907	ARG
1	A	914	VAL
1	A	931	TYR
1	A	932	THR
1	A	941	LYS
1	A	944	SER
1	A	952	ASN
1	A	969	LEU
1	A	971	TYR
1	A	985	SER
1	A	989	PRO
1	A	1026	ASN
1	A	1049	LEU
1	A	1054	GLU
1	A	1068	ARG
1	A	1074	SER
1	A	1079	CYS
1	A	1082	GLN
1	A	1085	ARG
1	A	1088	GLU
1	A	1091	SER
1	A	1150	ASP
1	A	1153	SER
1	A	1155	ARG
1	A	1159	LEU
1	A	1173	VAL
1	A	1176	ASP
1	A	1181	LEU
1	A	1183	ASP
1	A	1185	LEU
1	A	1221	VAL
1	A	1234	GLN
1	A	1235	VAL
1	A	1278	ARG
1	A	1281	THR
1	A	1283	PHE
1	A	1295	GLU

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Mol	Chain	Res	Type
1	A	1336	GLU
1	B	283	ILE
1	B	303	SER
1	B	305	SER
1	B	307	GLU
1	B	308	ILE
1	B	317	ARG
1	B	326	LYS
1	B	365	ASN
1	B	377	ARG
1	B	402	LEU
1	B	419	ASP
1	B	421	PHE
1	B	432	LEU
1	B	438	SER
1	B	455	VAL
1	B	458	GLU
1	B	482	ASN
1	B	485	THR
1	B	486	LEU
1	B	489	ILE
1	B	498	ILE
1	B	499	SER
1	B	506	LYS
1	B	511	ILE
1	B	518	THR
1	B	542	MET
1	B	546	ASP
1	B	548	PHE
1	B	561	LEU
1	B	587	PHE
1	B	588	GLN
1	B	589	ARG
1	B	592	ARG
1	B	611	SER
1	B	616	LEU
1	B	617	ASP
1	B	620	LEU
1	B	633	VAL
1	B	648	VAL
1	B	656	ILE
1	B	662	ASP

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Mol	Chain	Res	Type
1	B	665	GLN
1	B	678	SER
1	B	682	GLU
1	B	688	LEU
1	B	717	ARG
1	B	727	SER
1	B	731	SER
1	B	734	MET
1	B	763	MET
1	B	773	THR
1	B	786	THR
1	B	795	ASN
1	B	831	THR
1	B	847	THR
1	B	853	ASN
1	B	862	ARG
1	B	863	ARG
1	B	867	SER
1	B	899	GLU
1	B	907	ARG
1	B	914	VAL
1	B	931	TYR
1	B	932	THR
1	B	941	LYS
1	B	944	SER
1	B	952	ASN
1	B	971	TYR
1	B	1026	ASN
1	B	1049	LEU
1	B	1054	GLU
1	B	1074	SER
1	B	1079	CYS
1	B	1082	GLN
1	B	1085	ARG
1	B	1088	GLU
1	B	1153	SER
1	B	1155	ARG
1	B	1159	LEU
1	B	1173	VAL
1	B	1181	LEU
1	B	1183	ASP
1	B	1185	LEU

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Mol	Chain	Res	Type
1	B	1186	GLU
1	B	1221	VAL
1	B	1234	GLN
1	B	1278	ARG
1	B	1281	THR
1	B	1283	PHE
1	B	1294	LYS
1	B	1295	GLU
1	B	1336	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (19) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	365	ASN
1	A	452	ASN
1	A	788	ASN
1	A	952	ASN
1	A	994	GLN
1	A	1301	GLN
1	A	1321	ASN
1	B	365	ASN
1	B	378	GLN
1	B	440	ASN
1	B	452	ASN
1	B	588	GLN
1	B	743	HIS
1	B	788	ASN
1	B	952	ASN
1	B	1008	HIS
1	B	1141	GLN
1	B	1301	GLN
1	B	1321	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

There are no non-standard protein/DNA/RNA residues in this entry.

5.5 Carbohydrates (i)

4 monosaccharides 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	C	1	2,1	14,14,15	0.88	0	17,19,21	2.97	10 (58%)
2	NAG	C	2	2	14,14,15	0.61	0	17,19,21	1.72	3 (17%)
2	NAG	D	1	2,1	14,14,15	0.84	0	17,19,21	3.05	9 (52%)
2	NAG	D	2	2	14,14,15	0.81	1 (7%)	17,19,21	1.60	4 (23%)

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	C	1	2,1	-	1/6/23/26	0/1/1/1
2	NAG	C	2	2	-	2/6/23/26	0/1/1/1
2	NAG	D	1	2,1	-	1/6/23/26	0/1/1/1
2	NAG	D	2	2	-	2/6/23/26	0/1/1/1

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	2	NAG	C1-C2	2.06	1.55	1.52

All (26) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	D	1	NAG	C1-O5-C5	7.00	121.67	112.19
2	C	1	NAG	C1-O5-C5	6.05	120.39	112.19
2	C	1	NAG	O5-C5-C6	4.63	114.46	107.20
2	C	2	NAG	O5-C5-C6	4.53	114.30	107.20
2	D	1	NAG	O5-C5-C6	4.49	114.24	107.20

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	D	2	NAG	O5-C5-C6	4.41	114.12	107.20
2	C	1	NAG	O7-C7-C8	-4.24	114.19	122.06
2	D	1	NAG	C2-N2-C7	4.11	128.76	122.90
2	D	1	NAG	C1-C2-N2	4.08	117.45	110.49
2	C	1	NAG	C1-C2-N2	3.93	117.21	110.49
2	D	1	NAG	O7-C7-C8	-3.57	115.43	122.06
2	C	1	NAG	C2-N2-C7	3.39	127.73	122.90
2	D	1	NAG	O7-C7-N2	3.20	127.83	121.95
2	D	1	NAG	O4-C4-C3	-3.02	103.38	110.35
2	C	1	NAG	O4-C4-C3	-2.91	103.63	110.35
2	C	1	NAG	C4-C3-C2	2.88	115.24	111.02
2	C	1	NAG	O7-C7-N2	2.82	127.14	121.95
2	C	2	NAG	C1-O5-C5	-2.76	108.45	112.19
2	C	1	NAG	C6-C5-C4	2.61	119.12	113.00
2	D	1	NAG	O6-C6-C5	2.60	120.21	111.29
2	C	2	NAG	C2-N2-C7	-2.38	119.51	122.90
2	D	2	NAG	C1-O5-C5	-2.36	108.99	112.19
2	D	2	NAG	C4-C3-C2	2.35	114.46	111.02
2	C	1	NAG	O6-C6-C5	2.28	119.12	111.29
2	D	1	NAG	C6-C5-C4	2.12	117.96	113.00
2	D	2	NAG	C2-N2-C7	-2.05	119.99	122.90

There are no chirality outliers.

All (6) torsion outliers are listed below:
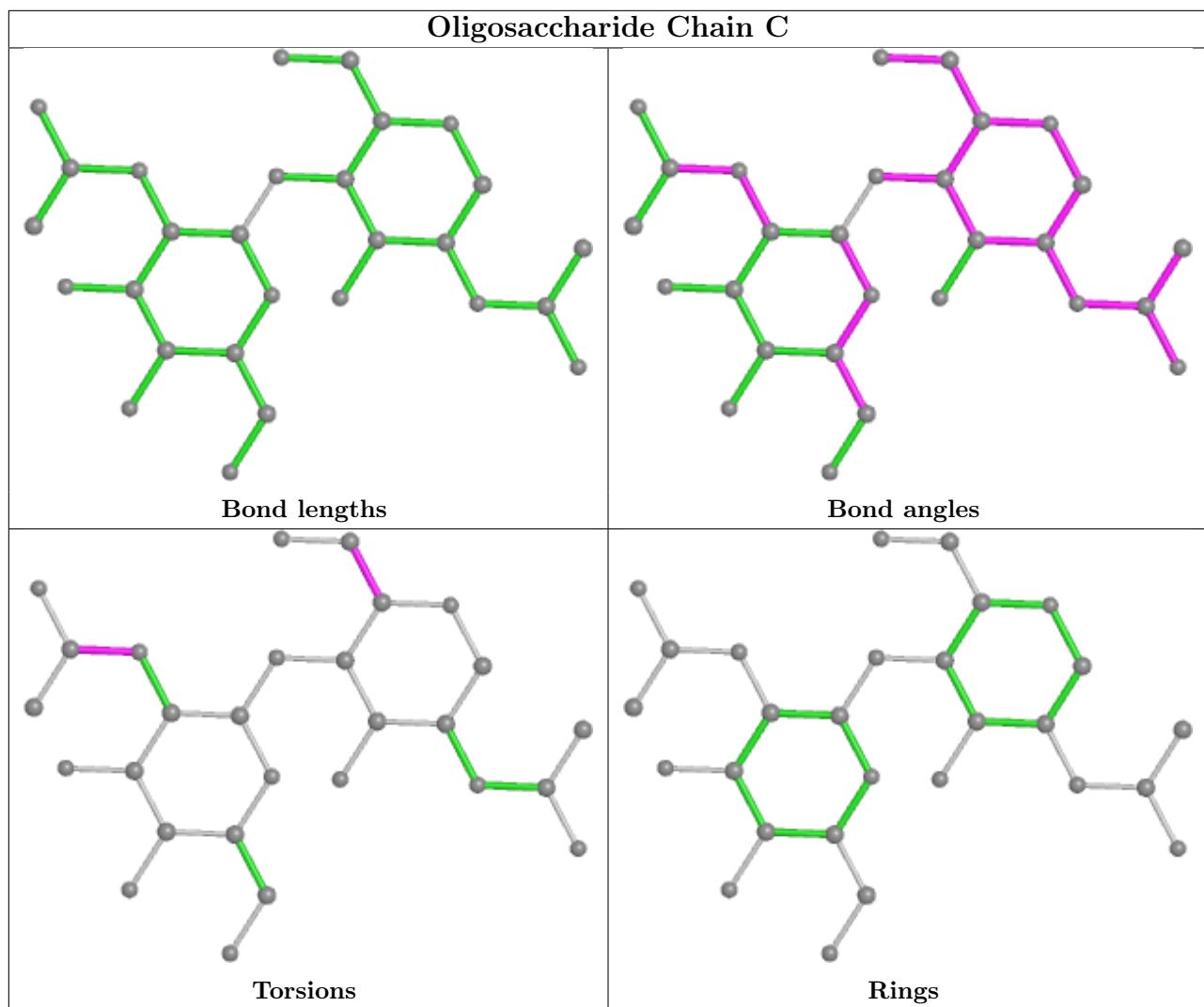
Mol	Chain	Res	Type	Atoms
2	D	2	NAG	C8-C7-N2-C2
2	C	2	NAG	C8-C7-N2-C2
2	D	2	NAG	O7-C7-N2-C2
2	C	2	NAG	O7-C7-N2-C2
2	C	1	NAG	O5-C5-C6-O6
2	D	1	NAG	O5-C5-C6-O6
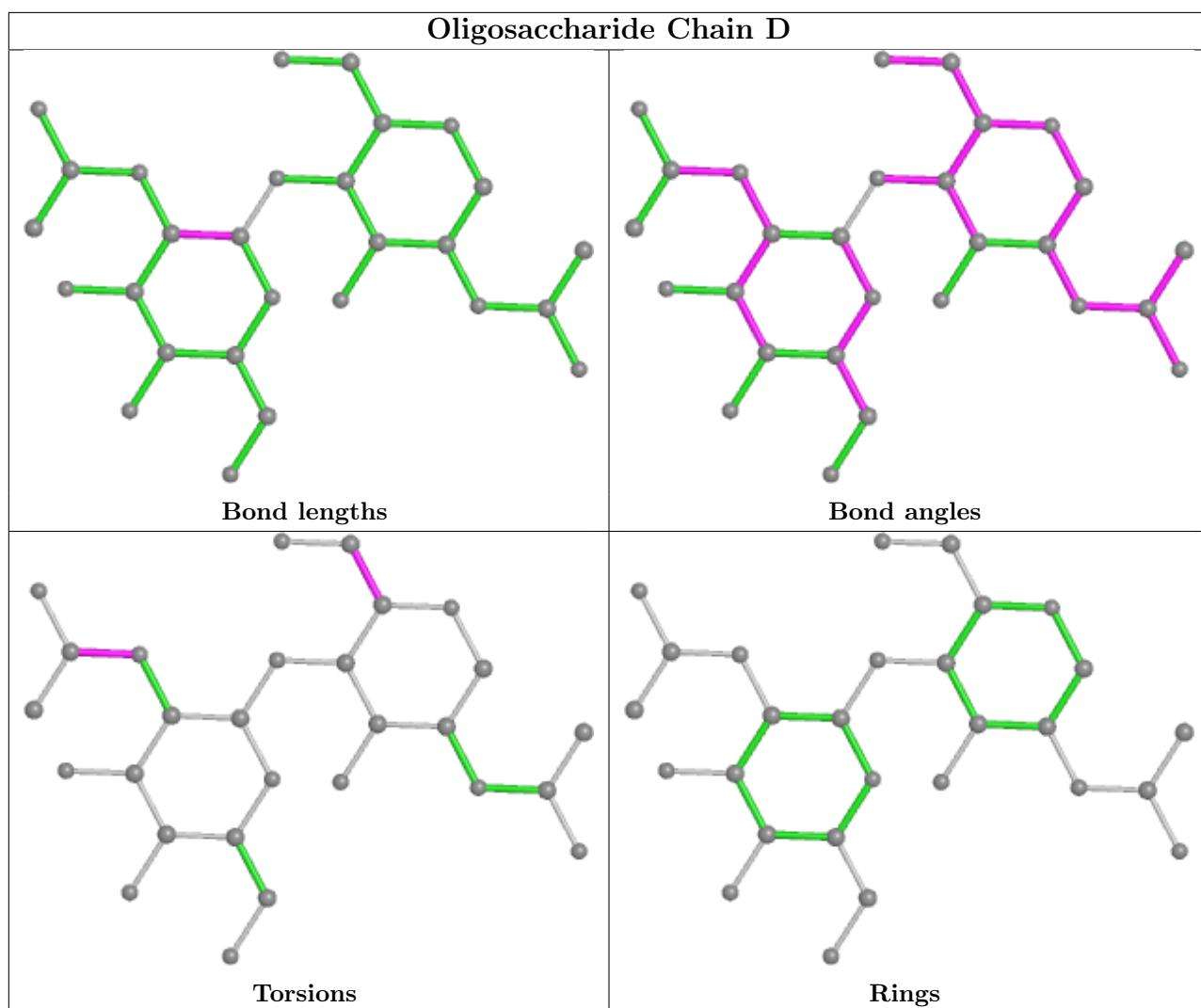
There are no ring outliers.

1 monomer is involved in 4 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	1	NAG	4	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for oligosaccharide.

Oligosaccharide Chain C

Bond lengths

Bond angles

Torsions

Rings

Oligosaccharide Chain D

5.6 Ligand geometry ⓘ

There are no ligands in this entry.

5.7 Other polymers ⓘ

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled '#RSRZ> 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å^2)	Q<0.9
1	A	1008/1254 (80%)	0.20	75 (7%)	14	8	35, 91, 151, 196	0
1	B	1008/1254 (80%)	0.20	67 (6%)	18	10	34, 92, 152, 201	0
All	All	2016/2508 (80%)	0.20	142 (7%)	16	9	34, 91, 152, 201	0

All (142) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	472	ILE	5.9
1	B	358	VAL	5.7
1	A	359	ASN	5.7
1	B	284	ALA	5.5
1	A	480	CYS	5.5
1	B	445	LEU	5.4
1	A	358	VAL	5.2
1	B	794	ILE	5.2
1	A	294	TYR	5.1
1	A	445	LEU	4.9
1	A	300	PRO	4.9
1	A	1337	VAL	4.8
1	A	481	GLU	4.7
1	A	284	ALA	4.6
1	A	296	LEU	4.6
1	A	478	PHE	4.6
1	B	359	ASN	4.6
1	A	293	CYS	4.3
1	A	425	GLY	4.1
1	A	444	CYS	4.0
1	B	481	GLU	3.9
1	B	614	LEU	3.9
1	A	295	ASP	3.9
1	B	476	VAL	3.8

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Mol	Chain	Res	Type	RSRZ
1	B	1335	GLY	3.7
1	B	312	PHE	3.7
1	A	312	PHE	3.7
1	A	357	PRO	3.7
1	B	301	ILE	3.7
1	B	478	PHE	3.6
1	B	615	ASP	3.6
1	A	301	ILE	3.6
1	B	795	ASN	3.6
1	A	417	SER	3.4
1	A	283	ILE	3.4
1	A	311	SER	3.4
1	B	311	SER	3.4
1	A	362	PHE	3.4
1	A	367	TRP	3.4
1	A	462	LEU	3.3
1	B	470	MET	3.3
1	B	294	TYR	3.3
1	B	293	CYS	3.2
1	B	283	ILE	3.2
1	A	356	GLU	3.2
1	B	1337	VAL	3.1
1	A	795	ASN	3.1
1	A	320	LEU	3.1
1	A	538	LYS	3.1
1	A	470	MET	3.1
1	A	472	ILE	3.1
1	A	422	TYR	3.1
1	A	297	SER	3.1
1	A	794	ILE	3.1
1	A	423	VAL	3.0
1	B	367	TRP	3.0
1	B	413	THR	3.0
1	B	538	LYS	3.0
1	B	357	PRO	3.0
1	B	444	CYS	3.0
1	B	286	PHE	2.9
1	A	488	PRO	2.9
1	A	615	ASP	2.9
1	B	1303	GLN	2.9
1	A	285	THR	2.8
1	B	308	ILE	2.8

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Mol	Chain	Res	Type	RSRZ
1	A	1025	ARG	2.8
1	B	616	LEU	2.8
1	A	424	GLY	2.7
1	B	613	ILE	2.7
1	B	362	PHE	2.7
1	B	480	CYS	2.7
1	B	1319	ALA	2.7
1	B	462	LEU	2.7
1	B	1336	GLU	2.7
1	A	310	LEU	2.7
1	A	286	PHE	2.6
1	B	417	SER	2.6
1	A	298	GLN	2.6
1	A	468	PRO	2.6
1	A	471	LYS	2.6
1	A	482	ASN	2.6
1	B	1133	TYR	2.5
1	A	614	LEU	2.5
1	A	475	VAL	2.5
1	B	356	GLU	2.5
1	A	651	ILE	2.5
1	A	1200	VAL	2.4
1	A	465	GLN	2.4
1	A	420	PHE	2.4
1	A	476	VAL	2.4
1	B	1100	SER	2.4
1	A	616	LEU	2.4
1	B	407	TYR	2.4
1	B	421	PHE	2.4
1	A	299	ASN	2.4
1	A	792	ILE	2.4
1	B	792	ILE	2.4
1	A	1336	GLU	2.4
1	A	407	TYR	2.4
1	B	504	ASN	2.4
1	A	453	ASN	2.3
1	B	320	LEU	2.3
1	A	292	PHE	2.3
1	A	669	VAL	2.3
1	B	793	ARG	2.3
1	B	791	CYS	2.3
1	A	368	HIS	2.3

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Mol	Chain	Res	Type	RSRZ
1	A	801	GLY	2.3
1	B	534	GLN	2.3
1	B	1332	ARG	2.3
1	B	422	TYR	2.3
1	B	465	GLN	2.3
1	B	475	VAL	2.3
1	A	414	MET	2.3
1	A	421	PHE	2.3
1	B	298	GLN	2.2
1	B	1132	THR	2.2
1	A	720	GLU	2.2
1	A	793	ARG	2.2
1	B	468	PRO	2.2
1	B	454	ASP	2.2
1	A	533	HIS	2.2
1	B	285	THR	2.2
1	A	427	PRO	2.2
1	B	471	LYS	2.1
1	B	617	ASP	2.1
1	B	503	TRP	2.1
1	A	473	HIS	2.1
1	B	303	SER	2.1
1	A	413	THR	2.1
1	B	355	VAL	2.1
1	B	300	PRO	2.1
1	A	640	THR	2.1
1	B	297	SER	2.1
1	A	282	TYR	2.1
1	B	1327	ILE	2.1
1	B	296	LEU	2.0
1	B	401	ILE	2.0
1	A	608	PRO	2.0
1	A	370	VAL	2.0
1	A	446	LYS	2.0

## 6.2 Non-standard residues in protein, DNA, RNA chains ⓘ
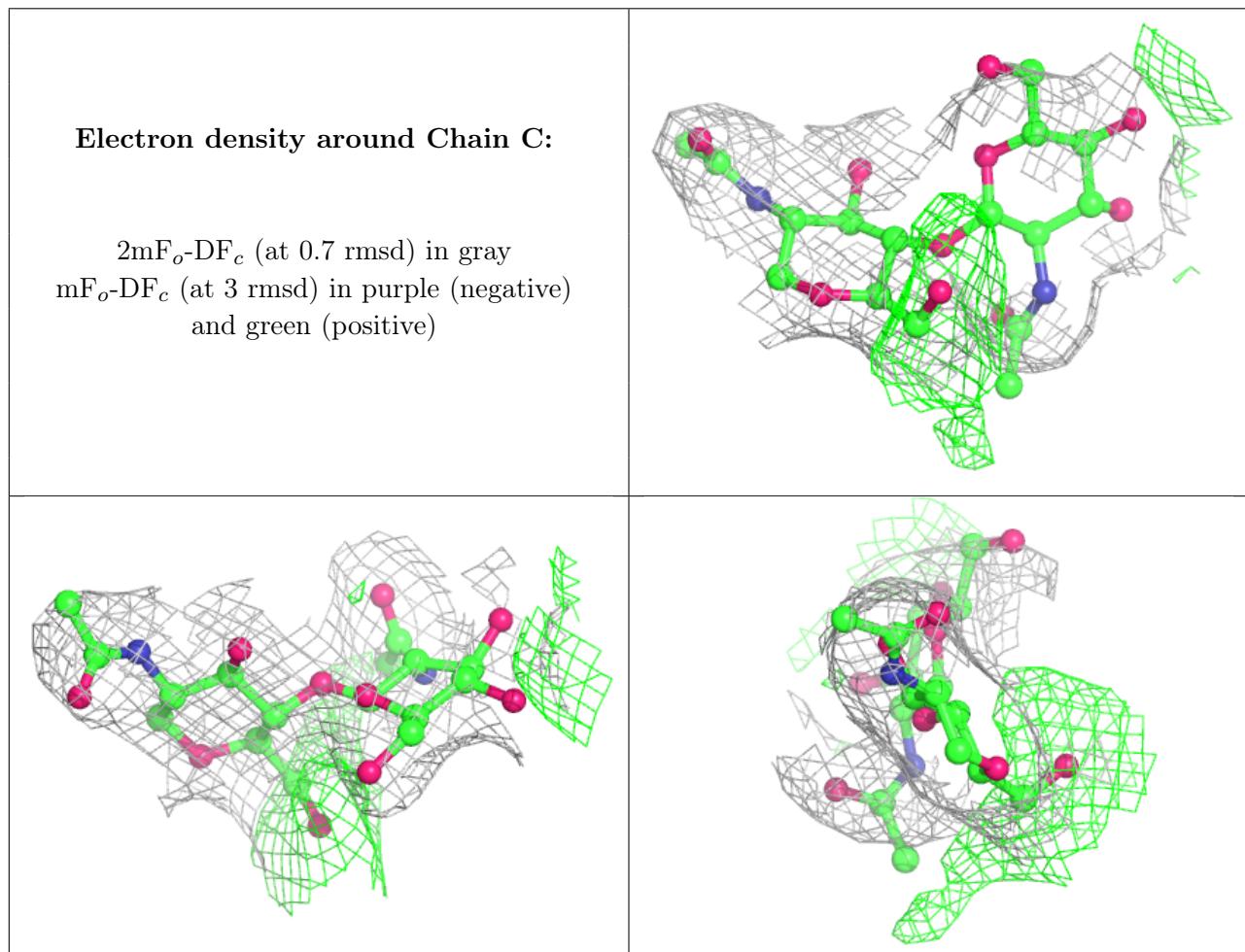
There are no non-standard protein/DNA/RNA residues in this entry.
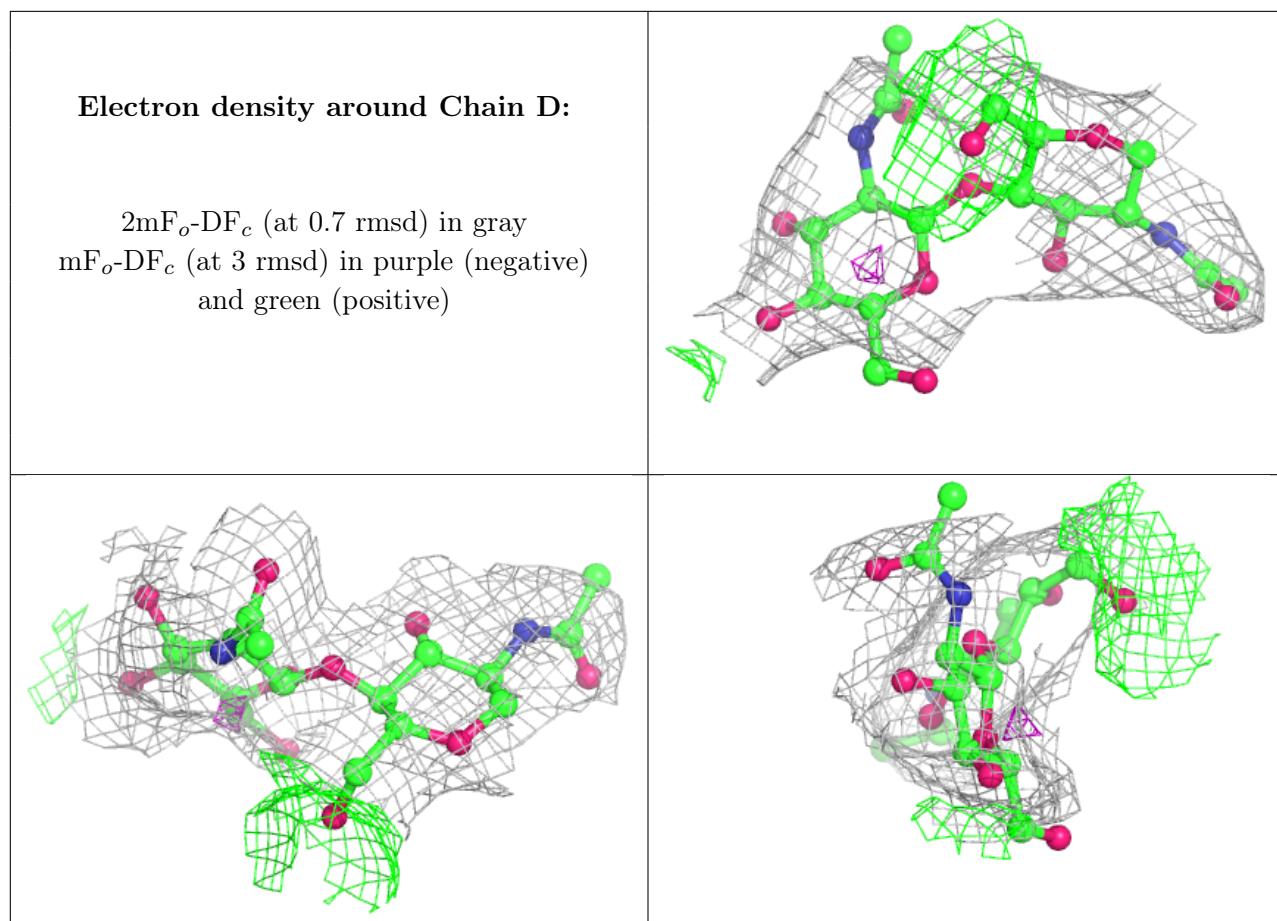
6.3 Carbohydrates ⓘ

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	NAG	D	2	14/15	0.82	0.33	113,126,132,134	0
2	NAG	C	2	14/15	0.84	0.23	110,124,129,133	0
2	NAG	D	1	14/15	0.85	0.18	87,101,111,114	0
2	NAG	C	1	14/15	0.86	0.16	89,102,110,114	0

The following is a graphical depiction of the model fit to experimental electron density for oligosaccharide. Each fit is shown from different orientation to approximate a three-dimensional view.

Electron density around Chain C:

2mF$_o$-DF$_c$ (at 0.7 rmsd) in gray
mF$_o$-DF$_c$ (at 3 rmsd) in purple (negative)
and green (positive)

Electron density around Chain D:

$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative)
and green (positive)

6.4 Ligands ⓘ

There are no ligands in this entry.

6.5 Other polymers ⓘ

There are no such residues in this entry.