



## Full wwPDB EM Validation Report ⓘ

Apr 5, 2025 – 01:13 PM EDT

PDB ID : 9D3B / pdb\_00009d3b  
EMDB ID : EMD-46530  
Title : Gly-,Glu-,(S)-DQP-997-74 bound GluN1a-2B-2D NMDAR  
Authors : Hyunook, K.; Hiro, F.  
Deposited on : 2024-08-09  
Resolution : 3.71 Å(reported)  
Based on initial models : 8e96, 7saa

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto:validation@mail.wwpdb.org)

A user guide is available at

<https://www.wwpdb.org/validation/2017/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

EMDB validation analysis : 0.0.1.dev117  
Mogul : 2022.3.0, CSD as543be (2022)  
MolProbity : 4.02b-467  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
MapQ : **FAILED**  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.42

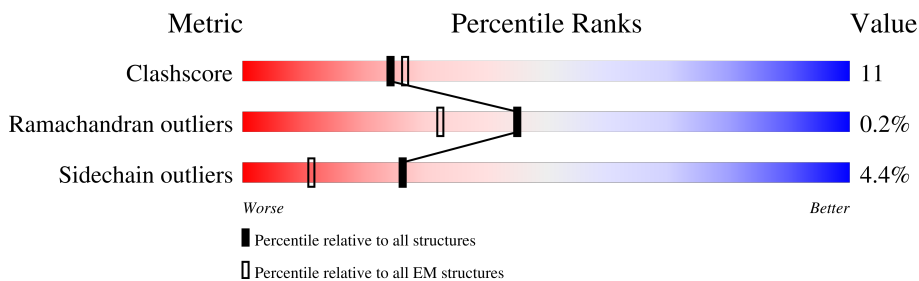
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.71 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)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ .

Mol	Chain	Length	Quality of chain
1	A	825	
1	C	825	
2	B	884	
3	D	861	
4	E	2	

## 2 Entry composition [i](#)

There are 8 unique types of molecules in this entry. The entry contains 23783 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 Glutamate receptor ionotropic, NMDA 1.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	773	5993	3815	1039	1107	32	0	0
1	C	793	6181	3945	1054	1148	34	0	0

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	844	ASN	ARG	engineered mutation	UNP Q05586
A	845	GLY	ARG	engineered mutation	UNP Q05586
A	846	ALA	LYS	engineered mutation	UNP Q05586
C	844	ASN	ARG	engineered mutation	UNP Q05586
C	845	GLY	ARG	engineered mutation	UNP Q05586
C	846	ALA	LYS	engineered mutation	UNP Q05586

- Molecule 2 is a protein called Glutamate receptor ionotropic, NMDA 2B.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	B	762	5758	3719	932	1071	36	0	0

There are 61 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	-8	TRP	-	expression tag	UNP Q13224
B	-7	SER	-	expression tag	UNP Q13224
B	-6	HIS	-	expression tag	UNP Q13224
B	-5	PRO	-	expression tag	UNP Q13224
B	-4	GLN	-	expression tag	UNP Q13224
B	-3	PHE	-	expression tag	UNP Q13224
B	-2	GLU	-	expression tag	UNP Q13224
B	-1	LYS	-	expression tag	UNP Q13224
B	0	GLY	-	expression tag	UNP Q13224

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Chain	Residue	Modelled	Actual	Comment	Reference
B	1	GLY	-	expression tag	UNP Q13224
B	2	GLY	-	expression tag	UNP Q13224
B	3	SER	-	expression tag	UNP Q13224
B	4	GLY	-	expression tag	UNP Q13224
B	5	GLY	-	expression tag	UNP Q13224
B	6	GLY	-	expression tag	UNP Q13224
B	7	SER	-	expression tag	UNP Q13224
B	8	GLY	-	expression tag	UNP Q13224
B	9	GLY	-	expression tag	UNP Q13224
B	10	SER	-	expression tag	UNP Q13224
B	11	ALA	-	expression tag	UNP Q13224
B	12	TRP	-	expression tag	UNP Q13224
B	13	SER	-	expression tag	UNP Q13224
B	14	HIS	-	expression tag	UNP Q13224
B	15	PRO	-	expression tag	UNP Q13224
B	16	GLN	-	expression tag	UNP Q13224
B	17	PHE	-	expression tag	UNP Q13224
B	18	GLU	-	expression tag	UNP Q13224
B	19	LYS	-	expression tag	UNP Q13224
B	20	GLY	-	expression tag	UNP Q13224
B	21	ALA	-	expression tag	UNP Q13224
B	22	LEU	-	expression tag	UNP Q13224
B	23	VAL	-	expression tag	UNP Q13224
B	24	PRO	-	expression tag	UNP Q13224
B	25	ARG	-	expression tag	UNP Q13224
B	26	GLY	-	expression tag	UNP Q13224
B	588	SER	CYS	engineered mutation	UNP Q13224
B	838	SER	CYS	engineered mutation	UNP Q13224
B	849	SER	CYS	engineered mutation	UNP Q13224
B	853	GLY	-	expression tag	UNP Q13224
B	854	PRO	-	expression tag	UNP Q13224
B	855	GLY	-	expression tag	UNP Q13224
B	856	SER	-	expression tag	UNP Q13224
B	857	GLY	-	expression tag	UNP Q13224
B	858	ALA	-	expression tag	UNP Q13224
B	859	THR	-	expression tag	UNP Q13224
B	860	ASN	-	expression tag	UNP Q13224
B	861	PHE	-	expression tag	UNP Q13224
B	862	SER	-	expression tag	UNP Q13224
B	863	LEU	-	expression tag	UNP Q13224
B	864	LEU	-	expression tag	UNP Q13224
B	865	LYS	-	expression tag	UNP Q13224

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Chain	Residue	Modelled	Actual	Comment	Reference
B	866	GLN	-	expression tag	UNP Q13224
B	867	ALA	-	expression tag	UNP Q13224
B	868	GLY	-	expression tag	UNP Q13224
B	869	ASP	-	expression tag	UNP Q13224
B	870	VAL	-	expression tag	UNP Q13224
B	871	GLU	-	expression tag	UNP Q13224
B	872	GLU	-	expression tag	UNP Q13224
B	873	ASN	-	expression tag	UNP Q13224
B	874	PRO	-	expression tag	UNP Q13224
B	875	GLY	-	expression tag	UNP Q13224

- Molecule 3 is a protein called Glutamate receptor ionotropic, NMDA 2D.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	D	749	5712	3666	973	1045	28	0	0

There are 8 discrepancies between the modelled and reference sequences:

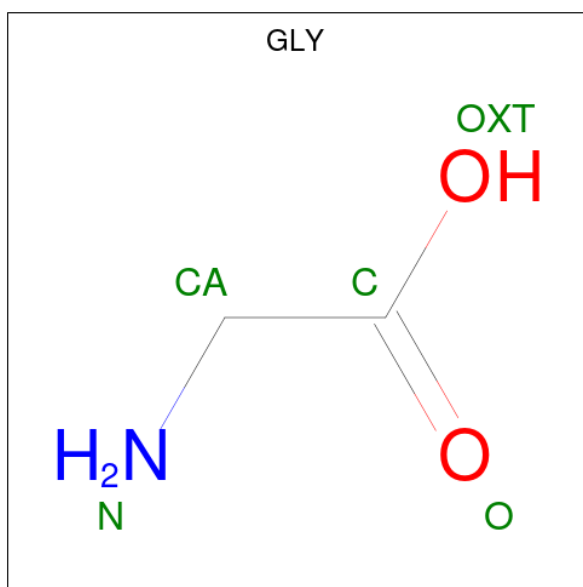
Chain	Residue	Modelled	Actual	Comment	Reference
D	881	GLU	-	expression tag	UNP O15399
D	882	THR	-	expression tag	UNP O15399
D	883	SER	-	expression tag	UNP O15399
D	884	GLN	-	expression tag	UNP O15399
D	885	VAL	-	expression tag	UNP O15399
D	886	ALA	-	expression tag	UNP O15399
D	887	PRO	-	expression tag	UNP O15399
D	888	ALA	-	expression tag	UNP O15399

- Molecule 4 is an oligosaccharide called 2-acetamido-2-deoxy-beta-D-glucopyranose-(1-4)-2-acetamido-2-deoxy-beta-D-glucopyranose.



Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O			
4	E	2	28	16	2	10		0	0

- Molecule 5 is GLYCINE (CCD ID: GLY) (formula: C<sub>2</sub>H<sub>5</sub>NO<sub>2</sub>) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				AltConf
5	A	1	Total	C	N	O	0
			5	2	1	2	
5	C	1	Total	C	N	O	0
			5	2	1	2	

- Molecule 6 is 2-acetamido-2-deoxy-beta-D-glucopyranose (CCD ID: NAG) (formula: C<sub>8</sub>H<sub>15</sub>NO<sub>6</sub>).



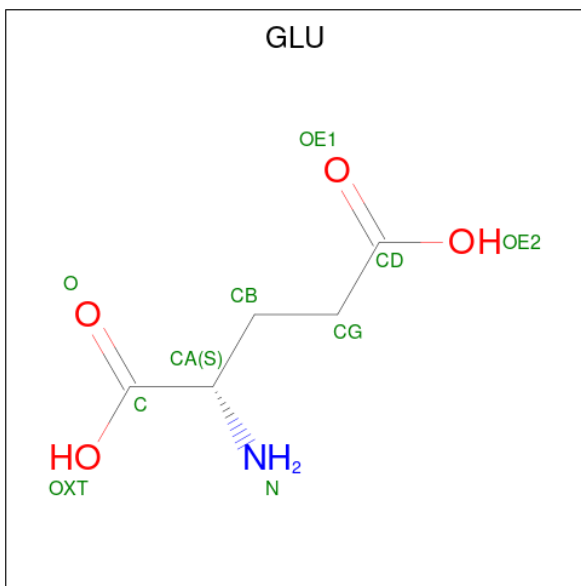
Mol	Chain	Residues	Atoms				AltConf
6	A	1	Total	C	N	O	0
			14	8	1	5	

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

- Molecule 7 is GLUTAMIC ACID (CCD ID: GLU) (formula: C<sub>5</sub>H<sub>9</sub>NO<sub>4</sub>) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				AltConf
			Total	C	N	O	
7	B	1	10	5	1	4	0
7	D	1	10	5	1	4	0

- Molecule 8 is 4-[(3R,5S)-5-(4-chlorophenyl)-3-[4-(4-chlorophenyl)-2-oxo-1,2-dihydroquinolin-3-yl]pyrazolidin-1-yl]-3,3-difluoro-4-oxobutanoic acid (CCD ID: A1A15) (formula: C<sub>28</sub>H<sub>21</sub>Cl<sub>2</sub>F<sub>2</sub>N<sub>3</sub>O<sub>4</sub>) (labeled as "Ligand of Interest" by depositor).

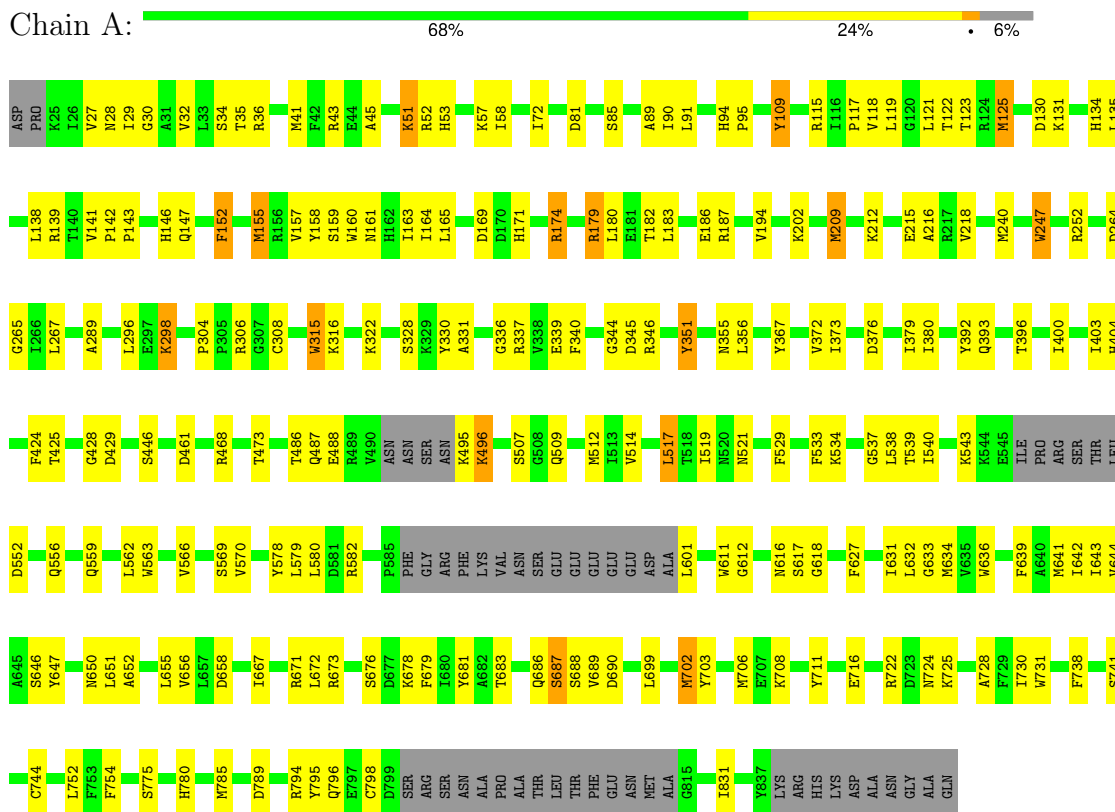




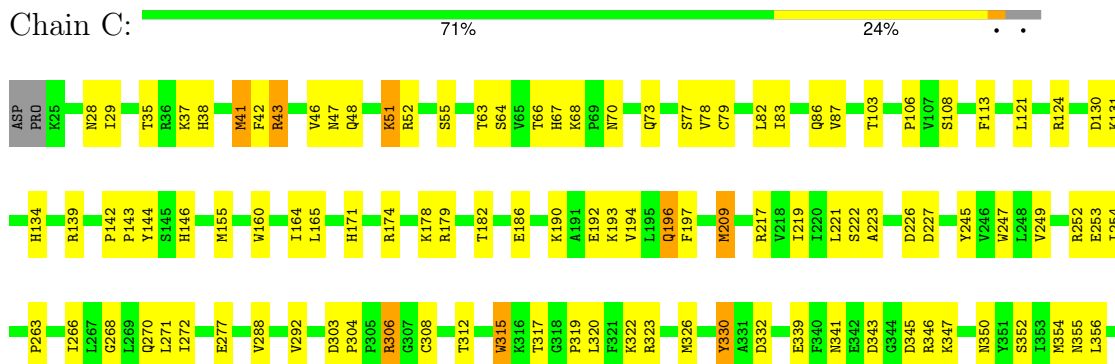
### 3 Residue-property plots

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. 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. 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.

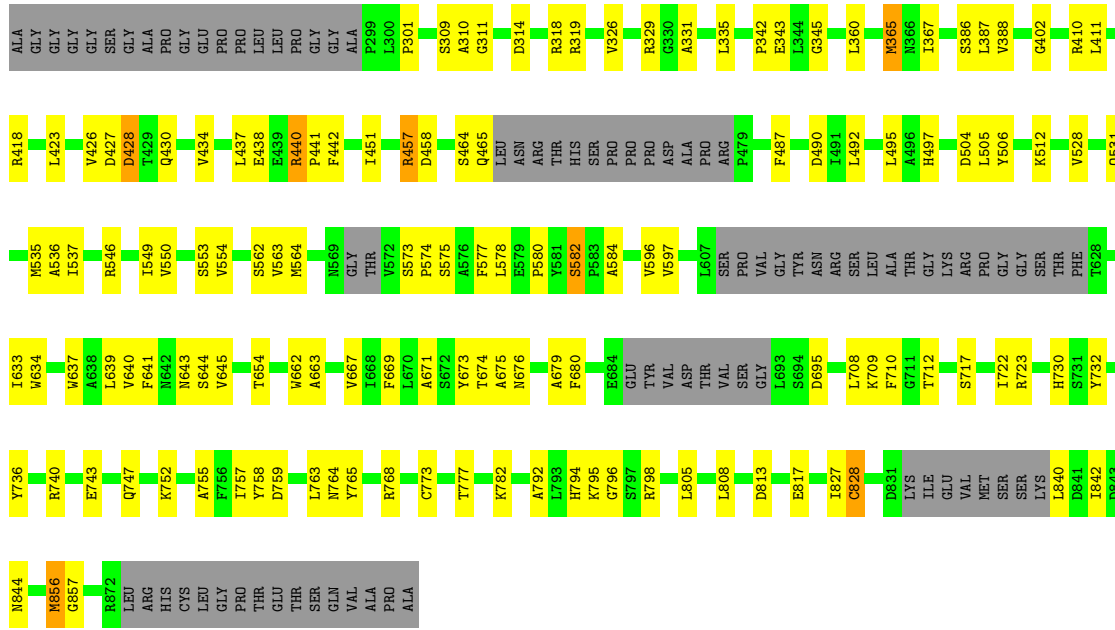
- Molecule 1: Glutamate receptor ionotropic, NMDA 1



- Molecule 1: Glutamate receptor ionotropic, NMDA 1







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



## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, C1	Depositor
Number of particles used	100870	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	NONE	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	61	Depositor
Minimum defocus (nm)	800	Depositor
Maximum defocus (nm)	2200	Depositor
Magnification	Not provided	
Image detector	GATAN K3 BIOQUANTUM (6k x 4k)	Depositor

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: NAG, A1A15

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	0.24	0/6124	0.49	0/8304
1	C	0.24	0/6321	0.51	0/8580
2	B	0.24	0/5880	0.47	0/7999
3	D	0.24	0/5841	0.50	0/7954
All	All	0.24	0/24166	0.49	0/32837

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

### 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	5993	0	5888	144	0
1	C	6181	0	6084	142	0
2	B	5758	0	5543	110	0
3	D	5712	0	5586	126	0
4	E	28	0	25	1	0
5	A	5	0	2	0	0
5	C	5	0	2	0	0
6	A	14	0	13	0	0
6	B	14	0	13	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
6	D	14	0	13	0	0
7	B	10	0	5	0	0
7	D	10	0	5	2	0
8	D	39	0	0	1	0
All	All	23783	0	23179	495	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 11.

All (495) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:429:CYS:SG	2:B:430:MET:N	2.58	0.77
1:A:160:TRP:HB3	1:A:163:ILE:HD11	1.67	0.76
1:C:602:THR:N	1:C:605:SER:HG	1.83	0.76
2:B:365:ILE:HD11	2:B:373:TRP:HB3	1.68	0.75
1:C:578:TYR:HB3	1:C:603:LEU:HD12	1.75	0.69
2:B:172:VAL:HG13	2:B:228:ILE:HD11	1.73	0.68
2:B:604:LYS:HD2	2:B:621:GLN:HG2	1.76	0.68
1:A:265:GLY:H	1:A:356:LEU:HB3	1.59	0.67
3:D:194:ALA:H	3:D:197:HIS:HD2	1.40	0.67
1:A:641:MET:SD	1:A:641:MET:N	2.64	0.67
1:A:115:ARG:NH2	1:A:315:TRP:O	2.28	0.66
3:D:717:SER:N	7:D:901:GLU:OE2	2.27	0.66
1:A:142:PRO:HD3	1:A:346:ARG:HB2	1.78	0.66
1:A:744:CYS:N	1:A:798:CYS:SG	2.63	0.66
3:D:640:VAL:HG23	3:D:641:PHE:HD1	1.61	0.66
1:A:147:GLN:HE22	1:A:252:ARG:HH22	1.45	0.65
1:C:670:PRO:O	1:C:674:ASN:ND2	2.29	0.65
1:A:164:ILE:HG23	1:A:216:ALA:HB3	1.77	0.65
2:B:533:GLY:H	2:B:733:ALA:HB3	1.61	0.64
1:A:115:ARG:HB2	1:A:315:TRP:HE1	1.62	0.64
1:C:576:MET:HA	1:C:579:LEU:HB2	1.78	0.64
3:D:773:CYS:N	3:D:828:CYS:SG	2.71	0.64
3:D:428:ASP:HB3	3:D:430:GLN:HG2	1.80	0.63
1:A:125:MET:O	1:A:139:ARG:NH2	2.30	0.62
1:A:618:GLY:H	3:D:639:LEU:HD13	1.64	0.62
3:D:743:GLU:OE2	3:D:747:GLN:NE2	2.32	0.62
1:C:86:GLN:HB2	1:C:306:ARG:HH12	1.64	0.62
1:C:808:LEU:H	1:C:808:LEU:HD23	1.65	0.62
1:C:363:GLN:NE2	1:C:365:GLY:O	2.33	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:554:PHE:HB3	1:C:812:ASN:HB2	1.82	0.61
1:C:319:PRO:HA	1:C:322:LYS:HG2	1.81	0.61
1:A:559:GLN:NE2	2:B:813:LEU:O	2.33	0.61
2:B:100:ALA:HB2	2:B:126:ILE:HB	1.82	0.61
1:A:634:MET:SD	1:A:634:MET:N	2.73	0.61
1:C:86:GLN:HE21	1:C:304:PRO:HB2	1.63	0.61
3:D:563:VAL:HG22	3:D:757:ILE:HG12	1.81	0.61
2:B:101:ASP:HB2	2:B:128:GLY:HA3	1.83	0.60
1:C:221:LEU:HB3	1:C:249:VAL:HG23	1.81	0.60
1:A:646:SER:O	1:A:650:ASN:N	2.32	0.60
2:B:654:MET:SD	2:B:654:MET:N	2.74	0.60
3:D:740:ARG:HB2	3:D:743:GLU:HB3	1.82	0.60
3:D:111:ARG:HH21	3:D:343:GLU:HG3	1.67	0.60
2:B:343:THR:HG22	2:B:348:ASN:HA	1.83	0.60
1:C:643:ILE:HD12	1:C:643:ILE:H	1.66	0.60
3:D:58:SER:HB3	3:D:119:ASP:HA	1.84	0.60
3:D:434:VAL:HG12	3:D:535:MET:HB2	1.84	0.60
1:A:647:TYR:HA	1:A:650:ASN:HB3	1.83	0.60
3:D:57:PHE:HD2	3:D:62:TYR:HB3	1.67	0.59
2:B:785:GLY:O	1:C:695:ARG:NH2	2.35	0.59
2:B:250:THR:HA	2:B:254:TYR:HB2	1.84	0.59
1:A:355:ASN:ND2	1:A:380:ILE:O	2.33	0.59
1:A:521:ASN:ND2	3:D:805:LEU:O	2.34	0.59
2:B:37:ILE:HG12	2:B:96:GLY:HA3	1.84	0.59
1:C:79:CYS:HA	1:C:83:ILE:HB	1.84	0.59
1:C:222:SER:O	1:C:222:SER:OG	2.21	0.59
3:D:457:ARG:NH2	3:D:458:ASP:OD2	2.36	0.59
1:A:304:PRO:O	1:A:306:ARG:NH1	2.36	0.58
1:A:789:ASP:OD2	1:A:794:ARG:NH2	2.36	0.58
2:B:498:ILE:HD11	2:B:523:VAL:HG21	1.85	0.58
1:A:671:ARG:HB3	1:A:679:PHE:HE2	1.68	0.58
2:B:234:LYS:NZ	2:B:268:THR:O	2.36	0.58
2:B:742:ARG:NH2	2:B:798:THR:O	2.36	0.58
3:D:562:SER:OG	3:D:782:LYS:O	2.21	0.58
1:A:117:PRO:HB3	1:A:322:LYS:HE2	1.86	0.58
3:D:237:ARG:HH22	3:D:263:ALA:HB1	1.69	0.58
3:D:318:ARG:O	3:D:318:ARG:NH1	2.35	0.58
3:D:856:MET:SD	3:D:857:GLY:N	2.77	0.58
3:D:573:SER:HB3	3:D:680:PHE:CE2	2.38	0.58
1:C:771:ASN:OD1	4:E:1:NAG:N2	2.36	0.58
1:A:641:MET:HA	1:A:644:VAL:HG22	1.84	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:341:ASN:HB3	1:C:347:LYS:HE3	1.86	0.58
3:D:554:VAL:HG11	3:D:808:LEU:HD21	1.86	0.58
1:C:330:TYR:CE2	1:C:332:ASP:HB3	2.39	0.57
3:D:309:SER:HA	3:D:387:LEU:HA	1.85	0.57
1:C:352:SER:HB2	1:C:363:GLN:HE22	1.68	0.57
3:D:817:GLU:H	3:D:817:GLU:CD	2.08	0.57
3:D:269:GLY:HA3	3:D:426:VAL:HG13	1.86	0.57
1:C:78:VAL:HA	1:C:82:LEU:HD23	1.87	0.56
1:C:70:ASN:HB3	1:C:73:GLN:HG2	1.87	0.56
1:C:700:SER:HB3	3:D:457:ARG:CZ	2.36	0.56
3:D:428:ASP:O	3:D:430:GLN:NE2	2.36	0.56
3:D:553:SER:OG	3:D:554:VAL:N	2.39	0.56
1:C:272:ILE:HD13	1:C:350:ASN:HB2	1.87	0.56
3:D:233:SER:O	3:D:237:ARG:NH1	2.39	0.56
1:A:152:PHE:CD2	1:A:183:LEU:HD13	2.41	0.56
1:A:552:ASP:O	1:A:556:GLN:NE2	2.38	0.56
2:B:348:ASN:O	2:B:359:HIS:NE2	2.38	0.56
1:C:51:LYS:O	1:C:52:ARG:NH1	2.33	0.56
1:C:673:ARG:NH2	1:C:698:GLU:OE2	2.39	0.56
3:D:676:ASN:N	3:D:676:ASN:OD1	2.39	0.56
3:D:89:LEU:HD23	3:D:91:LEU:HD22	1.88	0.56
1:A:41:MET:O	1:A:45:ALA:N	2.38	0.55
1:A:580:LEU:HD22	1:A:632:LEU:HD11	1.89	0.55
1:C:164:ILE:HG22	1:C:192:GLU:HB2	1.88	0.55
2:B:172:VAL:HG12	2:B:203:LEU:HD13	1.87	0.55
2:B:539:SER:OG	2:B:540:ARG:N	2.39	0.55
1:C:131:LYS:NZ	1:C:343:ASP:OD1	2.39	0.55
1:A:711:TYR:HD2	1:A:716:GLU:HG3	1.70	0.55
3:D:437:LEU:HD21	3:D:512:LYS:HA	1.88	0.55
1:A:29:ILE:HG13	1:A:89:ALA:HB3	1.88	0.55
1:A:655:LEU:HD12	1:A:655:LEU:H	1.71	0.55
1:C:47:ASN:O	1:C:51:LYS:NZ	2.37	0.55
1:C:308:CYS:SG	3:D:97:ARG:HD3	2.47	0.55
1:C:377:ARG:HH21	1:C:380:ILE:HG12	1.71	0.55
1:C:320:LEU:O	1:C:323:ARG:NH2	2.40	0.54
2:B:252:TYR:OH	2:B:393:ARG:NH1	2.39	0.54
1:C:352:SER:HA	1:C:366:ILE:HA	1.88	0.54
1:C:694:ARG:HH22	1:C:703:TYR:HB3	1.71	0.54
2:B:269:VAL:HG12	2:B:271:ALA:H	1.72	0.54
3:D:708:LEU:O	3:D:732:TYR:OH	2.19	0.54
1:A:738:PHE:HE1	1:A:796:GLN:HG3	1.73	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:682:ALA:HB3	1:C:726:LEU:HD21	1.88	0.54
1:A:683:THR:HG22	1:A:730:ILE:HB	1.90	0.54
1:C:124:ARG:HD3	1:C:144:TYR:HE1	1.73	0.54
3:D:200:PHE:HE1	3:D:247:PHE:HB2	1.72	0.54
2:B:534:ILE:HG23	2:B:757:PHE:HB2	1.89	0.54
1:A:209:MET:CE	1:A:209:MET:H	2.21	0.53
1:A:351:TYR:H	1:A:367:TYR:HB3	1.73	0.53
2:B:159:ASN:HB3	2:B:384:LEU:HD11	1.91	0.53
1:C:270:GLN:HB2	1:C:354:MET:HG2	1.90	0.53
2:B:37:ILE:HG21	2:B:297:ILE:HG22	1.90	0.53
3:D:536:ALA:HB3	3:D:792:ALA:HB3	1.90	0.53
1:A:72:ILE:HG13	2:B:323:ASN:H	1.74	0.53
2:B:136:ASP:OD1	2:B:136:ASP:N	2.38	0.53
2:B:162:GLU:HA	2:B:167:TYR:HE1	1.74	0.53
2:B:562:MET:N	2:B:562:MET:SD	2.81	0.53
2:B:822:PHE:HD1	2:B:825:LEU:HD12	1.74	0.53
1:C:73:GLN:O	1:C:77:SER:OG	2.21	0.53
3:D:764:ASN:HD21	3:D:768:ARG:HH21	1.57	0.53
1:A:131:LYS:NZ	1:A:135:LEU:O	2.39	0.53
3:D:194:ALA:O	3:D:198:ARG:NH1	2.42	0.53
1:A:538:LEU:HD13	1:A:754:PHE:HB3	1.91	0.53
1:A:655:LEU:HD23	3:D:679:ALA:HB2	1.91	0.53
2:B:536:VAL:HG12	2:B:730:ILE:HG12	1.91	0.53
1:C:86:GLN:NE2	1:C:304:PRO:HB2	2.23	0.53
3:D:573:SER:HB3	3:D:680:PHE:HE2	1.72	0.52
1:A:400:ILE:HG23	1:A:512:MET:HB2	1.91	0.52
1:A:403:ILE:HG13	1:A:404:HIS:H	1.73	0.52
3:D:111:ARG:NH2	3:D:342:PRO:O	2.41	0.52
3:D:710:PHE:HB3	3:D:755:ALA:HB3	1.91	0.52
1:A:53:HIS:HB3	1:A:289:ALA:HB1	1.90	0.52
1:A:57:LYS:HE3	1:A:296:LEU:HD21	1.90	0.52
1:A:91:LEU:HB3	1:A:121:LEU:HD11	1.90	0.52
1:C:499:ASN:ND2	1:C:686:GLN:OE1	2.41	0.52
1:C:641:MET:SD	1:C:641:MET:N	2.79	0.52
3:D:549:ILE:HG13	3:D:550:VAL:HG13	1.92	0.52
3:D:155:LYS:HE3	3:D:161:PHE:HB3	1.92	0.52
3:D:675:ALA:O	3:D:679:ALA:N	2.38	0.52
1:A:340:PHE:HB3	1:A:344:GLY:HA2	1.91	0.52
2:B:759:SER:HB3	1:C:535:TYR:HE1	1.74	0.52
1:A:161:ASN:HA	1:A:187:ARG:HH22	1.74	0.51
1:A:425:THR:OG1	1:A:428:GLY:O	2.27	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:643:ILE:O	1:A:646:SER:OG	2.18	0.51
2:B:414:ALA:HB3	2:B:415:PRO:HD3	1.91	0.51
1:C:108:SER:OG	1:C:134:HIS:ND1	2.31	0.51
1:C:554:PHE:HD1	1:C:555:MET:SD	2.33	0.51
2:B:84:ARG:HH21	2:B:88:LEU:HG	1.75	0.51
2:B:205:LEU:HD11	2:B:219:GLN:HB3	1.93	0.51
2:B:685:THR:OG1	2:B:686:VAL:N	2.44	0.51
1:A:741:SER:OG	1:A:795:TYR:O	2.28	0.51
1:C:263:PRO:HD2	1:C:266:ILE:HD11	1.93	0.51
3:D:464:SER:OG	3:D:465:GLN:N	2.43	0.51
2:B:423:ASP:H	2:B:429:CYS:HA	1.76	0.51
1:C:330:TYR:HE2	1:C:332:ASP:HB3	1.74	0.51
3:D:580:PRO:HA	3:D:676:ASN:HD22	1.75	0.51
2:B:649:ASN:OD1	2:B:649:ASN:N	2.44	0.51
2:B:727:ASP:OD1	2:B:727:ASP:N	2.43	0.51
3:D:575:SER:HB2	3:D:578:LEU:HA	1.92	0.51
1:C:630:ARG:HG2	3:D:634:TRP:HZ2	1.76	0.51
3:D:233:SER:OG	3:D:237:ARG:NH1	2.44	0.51
3:D:242:GLN:NE2	3:D:269:GLY:O	2.44	0.51
1:A:159:SER:OG	1:A:160:TRP:N	2.43	0.51
1:A:446:SER:O	1:A:446:SER:OG	2.25	0.51
2:B:216:ILE:HG12	2:B:243:VAL:HG21	1.93	0.51
1:C:565:LEU:O	1:C:569:SER:N	2.43	0.51
1:C:614:LEU:HD12	1:C:615:LEU:HD22	1.92	0.51
1:C:631:ILE:O	1:C:635:VAL:HG12	2.10	0.51
1:C:43:ARG:HA	1:C:46:VAL:HG12	1.92	0.50
3:D:56:VAL:HG12	3:D:89:LEU:HD22	1.93	0.50
1:A:240:MET:HG3	1:A:247:TRP:HH2	1.76	0.50
1:C:124:ARG:HH21	1:C:142:PRO:HG2	1.76	0.50
1:A:109:TYR:HA	1:A:134:HIS:HE1	1.76	0.50
1:C:323:ARG:HA	1:C:326:MET:HG2	1.93	0.50
1:A:672:LEU:O	1:A:681:TYR:OH	2.28	0.50
2:B:152:GLN:HE22	2:B:360:PRO:HD2	1.77	0.50
1:C:681:TYR:HB2	1:C:706:MET:HG3	1.93	0.50
1:A:617:SER:HA	3:D:639:LEU:HD11	1.94	0.50
2:B:601:THR:OG1	2:B:602:ILE:N	2.44	0.50
2:B:469:SER:OG	2:B:474:PHE:O	2.30	0.50
2:B:488:LYS:HG2	2:B:490:ILE:HG23	1.94	0.50
1:A:582:ARG:NH1	1:A:601:LEU:O	2.37	0.49
1:A:612:GLY:O	1:A:616:ASN:N	2.46	0.49
2:B:661:ASP:OD1	2:B:662:GLN:N	2.43	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:29:ILE:O	1:C:63:THR:OG1	2.30	0.49
3:D:190:VAL:HG12	3:D:220:ALA:H	1.76	0.49
1:A:367:TYR:HB2	1:A:372:VAL:HG22	1.93	0.49
1:C:155:MET:HB2	1:C:160:TRP:HB2	1.93	0.49
3:D:74:ALA:O	3:D:78:ARG:NH2	2.45	0.49
1:A:123:THR:OG1	1:A:141:VAL:O	2.29	0.49
2:B:612:LEU:HD22	2:B:635:TRP:NE1	2.27	0.49
1:C:130:ASP:OD1	1:C:130:ASP:N	2.45	0.49
1:A:169:ASP:OD1	1:A:169:ASP:N	2.42	0.49
2:B:537:MET:HB2	2:B:736:LEU:HD13	1.95	0.49
1:C:217:ARG:HD2	1:C:245:TYR:CE1	2.47	0.49
1:C:227:ASP:OD1	1:C:227:ASP:N	2.44	0.49
1:A:179:ARG:O	1:A:182:THR:OG1	2.30	0.49
2:B:631:MET:N	2:B:631:MET:SD	2.85	0.49
3:D:574:PRO:HA	3:D:844:ASN:ND2	2.27	0.49
2:B:233:THR:O	2:B:237:ALA:N	2.45	0.49
2:B:273:PHE:HB3	2:B:277:LEU:HD12	1.93	0.49
3:D:56:VAL:HG23	3:D:117:PHE:HA	1.93	0.49
1:A:72:ILE:HG21	2:B:322:TYR:HA	1.95	0.49
1:C:505:LEU:HA	1:C:510:ALA:HB3	1.93	0.49
3:D:796:GLY:HA2	3:D:798:ARG:HH21	1.77	0.49
1:A:537:GLY:HA3	1:A:752:LEU:HD23	1.94	0.49
1:A:143:PRO:HD2	1:A:146:HIS:CD2	2.48	0.49
1:A:209:MET:H	1:A:209:MET:HE3	1.77	0.49
2:B:171:ILE:HD13	2:B:229:LEU:HB3	1.95	0.49
1:C:578:TYR:HD2	1:C:606:ALA:HB2	1.77	0.49
1:A:633:GLY:HA2	1:A:636:TRP:HB3	1.94	0.48
1:C:178:LYS:O	1:C:182:THR:HG23	2.13	0.48
1:A:215:GLU:HA	1:A:393:GLN:HB2	1.95	0.48
1:C:539:THR:OG1	1:C:540:ILE:N	2.42	0.48
1:A:570:VAL:HG21	1:A:611:TRP:CD1	2.49	0.48
3:D:189:ALA:HB3	3:D:217:HIS:HE1	1.79	0.48
1:C:655:LEU:HD12	1:C:656:VAL:HG23	1.95	0.48
1:A:562:LEU:HD21	2:B:815:ILE:HB	1.94	0.48
1:A:831:ILE:HA	3:D:654:THR:HG21	1.95	0.48
1:C:604:SER:O	1:C:608:TRP:NE1	2.47	0.48
1:A:94:HIS:CG	1:A:95:PRO:HD2	2.49	0.48
3:D:365:MET:HE2	3:D:365:MET:H	1.78	0.48
1:A:215:GLU:HG3	1:A:393:GLN:H	1.78	0.48
1:A:752:LEU:HD12	1:A:752:LEU:H	1.78	0.48
1:C:407:PRO:HG2	1:C:408:PHE:HD1	1.79	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:172:LEU:HD21	3:D:200:PHE:HE2	1.79	0.48
1:A:165:LEU:HD23	1:A:194:VAL:HG22	1.96	0.48
1:C:609:PHE:HZ	3:D:645:VAL:HG12	1.79	0.48
1:C:638:GLY:HA2	3:D:641:PHE:HE2	1.79	0.48
2:B:609:LEU:HD12	2:B:610:TRP:H	1.78	0.47
1:C:226:ASP:OD1	1:C:227:ASP:N	2.46	0.47
1:C:442:THR:OG1	1:C:443:SER:N	2.47	0.47
3:D:695:ASP:OD1	3:D:695:ASP:N	2.45	0.47
1:A:699:LEU:HD22	1:A:702:MET:HB2	1.96	0.47
2:B:349:LEU:HA	2:B:359:HIS:HE2	1.79	0.47
1:C:139:ARG:NH2	1:C:143:PRO:HB3	2.29	0.47
1:A:139:ARG:HB2	1:A:345:ASP:HA	1.96	0.47
1:A:163:ILE:HG23	1:A:218:VAL:HG21	1.95	0.47
1:C:304:PRO:HG3	1:C:315:TRP:CH2	2.49	0.47
1:C:365:GLY:HA2	1:C:374:PRO:HD2	1.95	0.47
1:A:27:VAL:HG21	1:A:58:ILE:HG23	1.97	0.47
1:A:570:VAL:HG21	1:A:611:TRP:HD1	1.79	0.47
2:B:652:ALA:HB2	1:C:655:LEU:HD22	1.96	0.47
1:C:37:LYS:HZ1	1:C:41:MET:HG3	1.80	0.47
3:D:82:LEU:HD11	3:D:331:ALA:HB3	1.97	0.47
3:D:740:ARG:HD2	3:D:740:ARG:HA	1.73	0.47
1:A:32:VAL:N	1:A:91:LEU:O	2.46	0.47
2:B:247:VAL:HG23	2:B:249:LEU:HD22	1.97	0.47
1:C:219:ILE:HD11	1:C:247:TRP:CZ3	2.50	0.47
1:C:704:ARG:HE	1:C:704:ARG:HB3	1.52	0.47
1:C:564:LEU:O	1:C:568:LEU:N	2.46	0.47
3:D:528:VAL:HG21	3:D:536:ALA:HB2	1.96	0.47
1:A:180:LEU:HD23	1:A:180:LEU:H	1.80	0.47
2:B:816:ASP:OD1	2:B:817:ASN:N	2.48	0.47
3:D:434:VAL:HG23	3:D:505:LEU:HD13	1.96	0.47
1:A:157:VAL:HG13	1:A:158:TYR:HD1	1.79	0.47
2:B:176:PHE:HE2	2:B:232:CYS:HA	1.79	0.47
1:C:700:SER:O	1:C:700:SER:OG	2.30	0.47
3:D:643:ASN:HB3	3:D:644:SER:H	1.53	0.47
1:C:171:HIS:HA	1:C:174:ARG:HE	1.80	0.46
1:C:253:GLU:CD	1:C:253:GLU:H	2.19	0.46
2:B:632:VAL:HA	2:B:635:TRP:HB3	1.98	0.46
1:C:530:SER:OG	1:C:531:LYS:N	2.48	0.46
1:A:651:LEU:HD13	3:D:675:ALA:HB2	1.97	0.46
2:B:367:LEU:HD12	2:B:373:TRP:CE2	2.49	0.46
2:B:422:VAL:HG12	2:B:429:CYS:HB3	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:563:TRP:HH2	1:C:647:TYR:CE2	2.33	0.46
1:A:125:MET:SD	1:A:125:MET:N	2.89	0.46
3:D:124:PRO:HB3	3:D:150:LEU:HD13	1.98	0.46
1:C:52:ARG:HA	1:C:52:ARG:HD3	1.69	0.46
1:C:194:VAL:O	1:C:194:VAL:HG22	2.16	0.46
3:D:709:LYS:HG2	3:D:736:TYR:CZ	2.51	0.46
2:B:89:MET:HA	2:B:94:ILE:HB	1.98	0.46
2:B:371:ARG:HD3	2:B:371:ARG:HA	1.65	0.46
3:D:311:GLY:O	3:D:319:ARG:NH2	2.48	0.46
2:B:173:THR:OG1	2:B:174:THR:N	2.48	0.46
1:C:196:GLN:OE1	1:C:197:PHE:N	2.48	0.45
3:D:386:SER:O	3:D:386:SER:OG	2.35	0.45
1:A:652:ALA:O	1:A:656:VAL:HG23	2.15	0.45
1:C:554:PHE:CD1	1:C:555:MET:SD	3.10	0.45
1:C:617:SER:OG	1:C:618:GLY:N	2.47	0.45
1:C:562:LEU:O	1:C:565:LEU:HB3	2.17	0.45
3:D:712:THR:HG22	3:D:757:ILE:O	2.17	0.45
1:A:634:MET:HA	2:B:610:TRP:CZ2	2.51	0.45
1:C:288:VAL:O	1:C:292:VAL:HG23	2.17	0.45
3:D:331:ALA:O	3:D:335:LEU:HD13	2.16	0.45
1:A:28:ASN:ND2	1:A:85:SER:O	2.32	0.45
1:A:396:THR:O	1:A:473:THR:OG1	2.35	0.45
3:D:265:LEU:HA	3:D:270:TYR:CE2	2.52	0.45
3:D:492:LEU:HD22	3:D:537:ILE:HG21	1.98	0.45
2:B:287:TYR:HB3	2:B:292:ARG:HH21	1.82	0.45
1:A:94:HIS:HB2	1:A:122:THR:HG21	1.99	0.45
1:A:579:LEU:HA	1:A:582:ARG:HD3	1.99	0.45
1:A:616:ASN:OD1	2:B:616:ASN:ND2	2.49	0.45
2:B:530:ILE:HD12	2:B:530:ILE:HA	1.90	0.45
2:B:755:LYS:HD2	2:B:755:LYS:HA	1.74	0.45
1:C:68:LYS:HD3	1:C:68:LYS:HA	1.78	0.45
1:A:304:PRO:HG3	1:A:315:TRP:CZ3	2.52	0.45
2:B:746:CYS:HB3	2:B:801:CYS:HB3	1.90	0.45
1:A:34:SER:OG	1:A:35:THR:N	2.50	0.44
1:A:267:LEU:HD21	1:A:379:ILE:HD11	1.98	0.44
1:A:328:SER:HB2	1:A:330:TYR:CZ	2.52	0.44
1:A:641:MET:H	1:A:641:MET:CE	2.29	0.44
2:B:133:ILE:HD12	2:B:150:ILE:HG13	1.99	0.44
2:B:190:ILE:HG23	2:B:197:TRP:CD1	2.51	0.44
1:A:316:LYS:HA	1:A:316:LYS:HD2	1.74	0.44
1:A:731:TRP:HA	1:A:731:TRP:CE3	2.52	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:539:THR:HG23	1:C:736:LEU:HD12	1.97	0.44
3:D:55:LEU:HD23	3:D:86:PRO:HB3	1.99	0.44
3:D:451:ILE:HD12	3:D:451:ILE:H	1.82	0.44
1:A:681:TYR:HB3	1:A:728:ALA:HB3	1.99	0.44
3:D:66:ALA:HB1	3:D:88:ALA:HB1	1.99	0.44
3:D:150:LEU:HD21	3:D:277:PRO:HG3	1.99	0.44
3:D:266:THR:HG22	3:D:301:PRO:HG3	1.99	0.44
3:D:402:GLY:HA3	3:D:411:LEU:HD13	1.98	0.44
3:D:531:GLN:HA	3:D:794:HIS:NE2	2.32	0.44
3:D:827:ILE:HG13	3:D:828:CYS:H	1.81	0.44
1:A:119:LEU:HD23	1:A:138:LEU:HD22	1.98	0.44
2:B:174:THR:OG1	2:B:175:TYR:N	2.50	0.44
1:C:562:LEU:HD11	3:D:842:ILE:HD12	2.00	0.44
1:A:130:ASP:OD1	1:A:130:ASP:N	2.47	0.44
1:C:706:MET:SD	1:C:706:MET:N	2.91	0.44
3:D:671:ALA:O	3:D:674:THR:OG1	2.27	0.44
1:A:331:ALA:HA	1:A:337:ARG:H	1.82	0.44
1:A:708:LYS:HA	1:A:708:LYS:HD3	1.92	0.44
2:B:562:MET:O	2:B:566:LEU:HG	2.17	0.44
2:B:64:VAL:HG23	2:B:66:PRO:HD3	1.99	0.44
2:B:86:CYS:HB2	2:B:321:CYS:HB3	1.61	0.44
2:B:683:PHE:HB3	2:B:728:ALA:HB3	1.99	0.44
1:C:131:LYS:HZ1	1:C:343:ASP:HA	1.82	0.44
1:A:174:ARG:HE	1:A:174:ARG:HB3	1.60	0.44
1:C:613:VAL:HG13	1:C:636:TRP:CH2	2.52	0.44
3:D:135:ALA:HB2	3:D:159:SER:HB3	2.00	0.44
3:D:310:ALA:H	3:D:388:VAL:HG22	1.83	0.44
1:A:703:TYR:HA	1:A:706:MET:HB2	1.99	0.44
2:B:814:ASP:OD1	2:B:814:ASP:N	2.48	0.44
1:C:42:PHE:HE2	1:C:64:SER:HB2	1.81	0.44
1:C:658:ASP:N	1:C:658:ASP:OD1	2.50	0.44
3:D:827:ILE:HD12	3:D:827:ILE:HA	1.85	0.44
3:D:160:THR:HG23	3:D:360:LEU:HD23	2.00	0.43
3:D:442:PHE:O	3:D:487:PHE:N	2.41	0.43
3:D:759:ASP:OD2	7:D:901:GLU:N	2.51	0.43
1:A:30:GLY:N	1:A:89:ALA:O	2.50	0.43
2:B:634:VAL:HA	2:B:637:PHE:HE2	1.83	0.43
2:B:636:ALA:HB3	1:C:615:LEU:HD12	1.99	0.43
1:C:42:PHE:CE2	1:C:64:SER:HB2	2.53	0.43
1:C:377:ARG:NH2	1:C:380:ILE:HG12	2.32	0.43
3:D:495:LEU:HD12	3:D:495:LEU:HA	1.89	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:536:VAL:HG23	2:B:751:ILE:HB	2.01	0.43
1:C:694:ARG:HD3	1:C:694:ARG:HA	1.85	0.43
1:A:367:TYR:HA	1:A:372:VAL:HA	1.99	0.43
1:A:496:LYS:NZ	2:B:191:GLU:OE2	2.50	0.43
2:B:361:LYS:HA	2:B:361:LYS:HD3	1.81	0.43
3:D:723:ARG:HG2	3:D:730:HIS:CD2	2.53	0.43
1:A:81:ASP:O	1:A:85:SER:OG	2.28	0.43
2:B:624:LYS:O	2:B:628:SER:OG	2.28	0.43
1:C:35:THR:H	1:C:38:HIS:HB2	1.83	0.43
1:C:66:THR:OG1	1:C:67:HIS:N	2.51	0.43
3:D:546:ARG:O	3:D:550:VAL:HG22	2.19	0.43
1:A:72:ILE:HG13	2:B:323:ASN:N	2.34	0.43
1:A:578:TYR:HA	1:A:601:LEU:HD23	2.01	0.43
1:C:355:ASN:OD1	1:C:356:LEU:N	2.51	0.43
1:C:553:SER:OG	1:C:811:GLU:OE2	2.22	0.43
3:D:596:VAL:HG11	3:D:662:TRP:CZ2	2.54	0.43
1:A:496:LYS:HE2	1:A:496:LYS:HB2	1.64	0.43
2:B:277:LEU:HD22	2:B:373:TRP:HH2	1.83	0.43
2:B:609:LEU:HD12	2:B:610:TRP:N	2.34	0.43
3:D:577:PHE:O	3:D:577:PHE:CG	2.72	0.43
2:B:113:ASP:OD1	2:B:141:SER:OG	2.34	0.43
2:B:624:LYS:HA	2:B:624:LYS:HD3	1.73	0.43
1:C:563:TRP:HH2	1:C:647:TYR:HE2	1.67	0.43
3:D:504:ASP:N	3:D:504:ASP:OD1	2.52	0.43
1:A:52:ARG:HD2	1:A:52:ARG:HA	1.78	0.42
1:A:264:ASP:HA	1:A:356:LEU:HD23	2.00	0.42
1:C:644:VAL:O	1:C:648:THR:OG1	2.28	0.42
1:A:212:LYS:HA	1:A:212:LYS:HD3	1.85	0.42
1:A:724:ASN:O	1:A:725:LYS:HB3	2.19	0.42
2:B:673:ARG:HG2	2:B:677:PHE:HD2	1.84	0.42
1:C:83:ILE:O	1:C:306:ARG:NH2	2.52	0.42
1:C:721:VAL:HG22	1:C:726:LEU:HB3	2.01	0.42
3:D:438:GLU:OE2	3:D:440:ARG:NH2	2.52	0.42
3:D:597:VAL:HG21	3:D:633:ILE:HG13	2.02	0.42
3:D:634:TRP:HA	3:D:637:TRP:CZ2	2.54	0.42
1:C:345:ASP:OD1	1:C:346:ARG:N	2.52	0.42
1:C:528:GLU:N	1:C:528:GLU:OE1	2.52	0.42
3:D:200:PHE:HZ	3:D:275:VAL:HG21	1.85	0.42
3:D:794:HIS:O	3:D:795:LYS:HB3	2.19	0.42
1:A:486:THR:OG1	1:A:487:GLN:N	2.52	0.42
1:C:558:PHE:HD1	3:D:840:LEU:HD13	1.84	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:D:637:TRP:HZ3	3:D:645:VAL:HG21	1.84	0.42
1:A:517:LEU:HD23	1:A:517:LEU:HA	1.84	0.42
2:B:419:VAL:HG11	2:B:480:LEU:HD21	2.01	0.42
3:D:314:ASP:O	3:D:318:ARG:HB3	2.20	0.42
3:D:758:TYR:HB3	3:D:763:LEU:HG	2.02	0.42
1:A:400:ILE:HG21	1:A:514:VAL:HG22	2.02	0.42
3:D:722:ILE:HD11	8:D:902:A1A15:CL30	2.57	0.42
2:B:630:ILE:HD13	2:B:630:ILE:HA	1.90	0.42
3:D:139:LEU:HD21	3:D:345:GLY:HA3	2.00	0.42
1:A:155:MET:H	1:A:155:MET:HG2	1.67	0.42
2:B:278:ILE:HA	2:B:366:LEU:HA	2.02	0.42
1:A:336:GLY:C	1:A:337:ARG:HG2	2.41	0.42
1:C:86:GLN:OE1	1:C:306:ARG:NH1	2.52	0.42
1:A:36:ARG:HH21	1:A:43:ARG:HH12	1.66	0.41
1:A:376:ASP:OD1	1:A:376:ASP:N	2.53	0.41
1:C:174:ARG:O	1:C:178:LYS:HG2	2.20	0.41
1:C:477:HIS:ND1	1:C:478:LEU:O	2.50	0.41
3:D:198:ARG:H	3:D:198:ARG:HD2	1.85	0.41
1:A:566:VAL:O	1:A:569:SER:OG	2.33	0.41
2:B:527:VAL:HG11	2:B:781:LEU:HD21	2.01	0.41
1:C:146:HIS:CE1	1:C:179:ARG:HH12	2.38	0.41
1:C:317:THR:HA	1:C:320:LEU:HD12	2.01	0.41
3:D:97:ARG:HB3	3:D:101:LEU:HD12	2.01	0.41
1:A:373:ILE:HD12	1:A:373:ILE:HA	1.92	0.41
2:B:124:LEU:HD21	2:B:146:PHE:CE1	2.55	0.41
2:B:250:THR:O	2:B:250:THR:OG1	2.33	0.41
1:C:209:MET:SD	1:C:209:MET:N	2.80	0.41
2:B:275:THR:HG23	2:B:369:LYS:HA	2.02	0.41
2:B:651:ALA:HA	2:B:654:MET:HG2	2.03	0.41
1:C:578:TYR:CD2	1:C:606:ALA:HB2	2.54	0.41
1:A:51:LYS:H	1:A:51:LYS:HG2	1.59	0.41
1:A:533:PHE:O	1:A:780:HIS:NE2	2.52	0.41
2:B:124:LEU:HD21	2:B:146:PHE:HE1	1.85	0.41
2:B:550:PHE:HB3	2:B:821:VAL:HG13	2.03	0.41
1:C:103:THR:O	1:C:106:PRO:HD2	2.21	0.41
1:C:193:LYS:HD2	1:C:193:LYS:HA	1.88	0.41
1:C:221:LEU:HD23	1:C:223:ALA:H	1.84	0.41
1:C:271:LEU:HD12	1:C:272:ILE:H	1.85	0.41
3:D:752:LYS:HD2	3:D:752:LYS:HA	1.84	0.41
1:A:495:LYS:HD2	1:A:495:LYS:HA	1.82	0.41
1:A:539:THR:OG1	1:A:540:ILE:N	2.54	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:226:PRO:O	2:B:254:TYR:HA	2.20	0.41
2:B:550:PHE:HB3	2:B:821:VAL:HG22	2.02	0.41
1:C:523:ARG:HH21	1:C:688:SER:HB2	1.85	0.41
3:D:326:VAL:HG23	3:D:367:ILE:HG21	2.02	0.41
1:C:828:ILE:HD12	1:C:828:ILE:HA	1.87	0.41
3:D:266:THR:HA	3:D:301:PRO:HB3	2.03	0.41
3:D:441:PRO:HB3	3:D:765:TYR:CE2	2.55	0.41
1:A:543:LYS:NZ	1:A:724:ASN:OD1	2.54	0.41
2:B:98:VAL:HG11	2:B:293:VAL:HG23	2.02	0.41
2:B:237:ALA:HA	2:B:240:ILE:HG12	2.02	0.41
2:B:837:ILE:HD12	2:B:837:ILE:HA	1.94	0.41
3:D:166:SER:OG	3:D:171:GLN:NE2	2.49	0.41
3:D:174:VAL:HG21	3:D:387:LEU:HD22	2.02	0.41
3:D:564:MET:HA	3:D:777:THR:HA	2.03	0.41
1:A:90:ILE:HB	1:A:118:VAL:HG12	2.03	0.41
1:A:202:LYS:HA	1:A:202:LYS:HD2	1.88	0.41
1:A:534:LYS:HB3	1:A:534:LYS:HE2	1.85	0.41
1:A:676:SER:O	1:A:678:LYS:HG2	2.20	0.41
2:B:287:TYR:O	2:B:292:ARG:NH2	2.45	0.41
1:C:190:LYS:HE2	1:C:190:LYS:HB2	1.82	0.41
1:C:254:ILE:HD11	1:C:268:GLY:HA3	2.02	0.41
1:C:544:LYS:HA	1:C:747:VAL:HG12	2.03	0.41
3:D:423:LEU:HA	3:D:423:LEU:HD23	1.80	0.41
3:D:427:ASP:O	3:D:428:ASP:HB2	2.20	0.41
1:A:27:VAL:HG21	1:A:58:ILE:HG12	2.02	0.41
1:A:642:ILE:HD12	1:A:642:ILE:HA	1.90	0.41
1:C:28:ASN:HB2	1:C:87:VAL:HA	2.02	0.41
1:C:378:LYS:HE2	1:C:378:LYS:HB3	1.78	0.41
1:C:544:LYS:HG3	1:C:545:GLU:O	2.21	0.41
3:D:506:TYR:O	3:D:506:TYR:CG	2.73	0.41
1:A:538:LEU:HD21	1:A:689:VAL:HG12	2.02	0.40
1:A:559:GLN:HE22	2:B:813:LEU:HG	1.86	0.40
2:B:673:ARG:HD2	2:B:673:ARG:HA	1.98	0.40
1:C:48:GLN:O	1:C:52:ARG:NH1	2.54	0.40
1:C:505:LEU:HB2	1:C:513:ILE:HD11	2.03	0.40
3:D:582:SER:O	3:D:584:ALA:N	2.48	0.40
1:A:298:LYS:HE2	1:A:298:LYS:HB2	1.66	0.40
1:A:673:ARG:H	1:A:673:ARG:HG2	1.74	0.40
1:A:686:GLN:O	1:A:690:ASP:HB3	2.21	0.40
1:A:687:SER:OG	1:A:688:SER:N	2.52	0.40
2:B:157:MET:HA	2:B:160:ILE:HG22	2.03	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:360:LYS:HE3	1:C:360:LYS:HB3	1.98	0.40
1:C:544:LYS:NZ	1:C:545:GLU:O	2.51	0.40
1:A:267:LEU:HA	1:A:355:ASN:HA	2.02	0.40
1:C:401:VAL:HG12	1:C:477:HIS:CE1	2.57	0.40
3:D:663:ALA:O	3:D:667:VAL:HG22	2.21	0.40
1:A:507:SER:HB2	1:A:509:GLN:OE1	2.21	0.40
1:A:519:ILE:HG12	1:A:529:PHE:CD2	2.56	0.40
1:C:186:GLU:OE1	1:C:186:GLU:N	2.54	0.40
1:C:270:GLN:HG3	1:C:271:LEU:N	2.37	0.40
1:C:649:ALA:O	1:C:653:ALA:N	2.53	0.40
1:C:817:PHE:HA	1:C:820:VAL:HB	2.03	0.40
1:A:631:ILE:O	1:A:634:MET:HG2	2.22	0.40
2:B:430:MET:SD	2:B:431:ARG:N	2.95	0.40
1:C:312:THR:HG23	3:D:94:SER:HB3	2.02	0.40
1:C:402:THR:HG21	1:C:409:VAL:HG11	2.01	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

### 5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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	763/825 (92%)	709 (93%)	52 (7%)	2 (0%)	37 67
1	C	787/825 (95%)	726 (92%)	61 (8%)	0	100 100
2	B	750/884 (85%)	705 (94%)	44 (6%)	1 (0%)	48 78
3	D	735/861 (85%)	676 (92%)	57 (8%)	2 (0%)	37 67
All	All	3035/3395 (89%)	2816 (93%)	214 (7%)	5 (0%)	45 72

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
3	D	428	ASP
1	A	667	ILE
2	B	678	SER
1	A	429	ASP
3	D	582	SER

### 5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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	638/710 (90%)	606 (95%)	32 (5%)	20	47
1	C	667/710 (94%)	637 (96%)	30 (4%)	23	49
2	B	598/760 (79%)	569 (95%)	29 (5%)	21	48
3	D	592/701 (84%)	574 (97%)	18 (3%)	36	58
All	All	2495/2881 (87%)	2386 (96%)	109 (4%)	26	50

All (109) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	51	LYS
1	A	109	TYR
1	A	125	MET
1	A	152	PHE
1	A	155	MET
1	A	171	HIS
1	A	174	ARG
1	A	179	ARG
1	A	186	GLU
1	A	209	MET
1	A	247	TRP
1	A	298	LYS
1	A	308	CYS
1	A	315	TRP
1	A	339	GLU
1	A	351	TYR
1	A	392	TYR

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	A	424	PHE
1	A	461	ASP
1	A	468	ARG
1	A	488	GLU
1	A	496	LYS
1	A	517	LEU
1	A	563	TRP
1	A	627	PHE
1	A	639	PHE
1	A	658	ASP
1	A	687	SER
1	A	702	MET
1	A	722	ARG
1	A	775	SER
1	A	785	MET
2	B	86	CYS
2	B	99	PHE
2	B	112	LEU
2	B	138	ASP
2	B	143	PHE
2	B	157	MET
2	B	191	GLU
2	B	241	PHE
2	B	249	LEU
2	B	273	PHE
2	B	287	TYR
2	B	378	LYS
2	B	429	CYS
2	B	463	ASP
2	B	467	LYS
2	B	504	LYS
2	B	508	MET
2	B	526	SER
2	B	550	PHE
2	B	554	PHE
2	B	609	LEU
2	B	621	GLN
2	B	681	PHE
2	B	693	ARG
2	B	703	HIS
2	B	802	HIS
2	B	818	MET

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
2	B	824	MET
2	B	841	LEU
1	C	41	MET
1	C	43	ARG
1	C	51	LYS
1	C	55	SER
1	C	113	PHE
1	C	121	LEU
1	C	165	LEU
1	C	196	GLN
1	C	209	MET
1	C	252	ARG
1	C	277	GLU
1	C	303	ASP
1	C	306	ARG
1	C	315	TRP
1	C	330	TYR
1	C	339	GLU
1	C	533	PHE
1	C	552	ASP
1	C	554	PHE
1	C	563	TRP
1	C	576	MET
1	C	639	PHE
1	C	671	ARG
1	C	695	ARG
1	C	704	ARG
1	C	708	LYS
1	C	766	SER
1	C	789	ASP
1	C	796	GLN
1	C	832	PHE
3	D	85	ARG
3	D	111	ARG
3	D	122	ARG
3	D	246	LEU
3	D	270	TYR
3	D	329	ARG
3	D	365	MET
3	D	410	ARG
3	D	418	ARG
3	D	440	ARG

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Mol	Chain	Res	Type
3	D	457	ARG
3	D	490	ASP
3	D	497	HIS
3	D	669	PHE
3	D	673	TYR
3	D	813	ASP
3	D	828	CYS
3	D	856	MET

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (9) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	556	GLN
1	A	650	ASN
1	C	40	GLN
1	C	73	GLN
1	C	280	HIS
1	C	674	ASN
3	D	171	GLN
3	D	197	HIS
3	D	569	ASN

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

## 5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

## 5.5 Carbohydrates [i](#)

2 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	$\# Z  > 2$
4	NAG	E	1	4,1	14,14,15	0.37	0	17,19,21	0.55	0
4	NAG	E	2	4	14,14,15	0.23	0	17,19,21	0.46	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	E	1	4,1	-	0/6/23/26	0/1/1/1
4	NAG	E	2	4	-	2/6/23/26	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (2) torsion outliers are listed below:

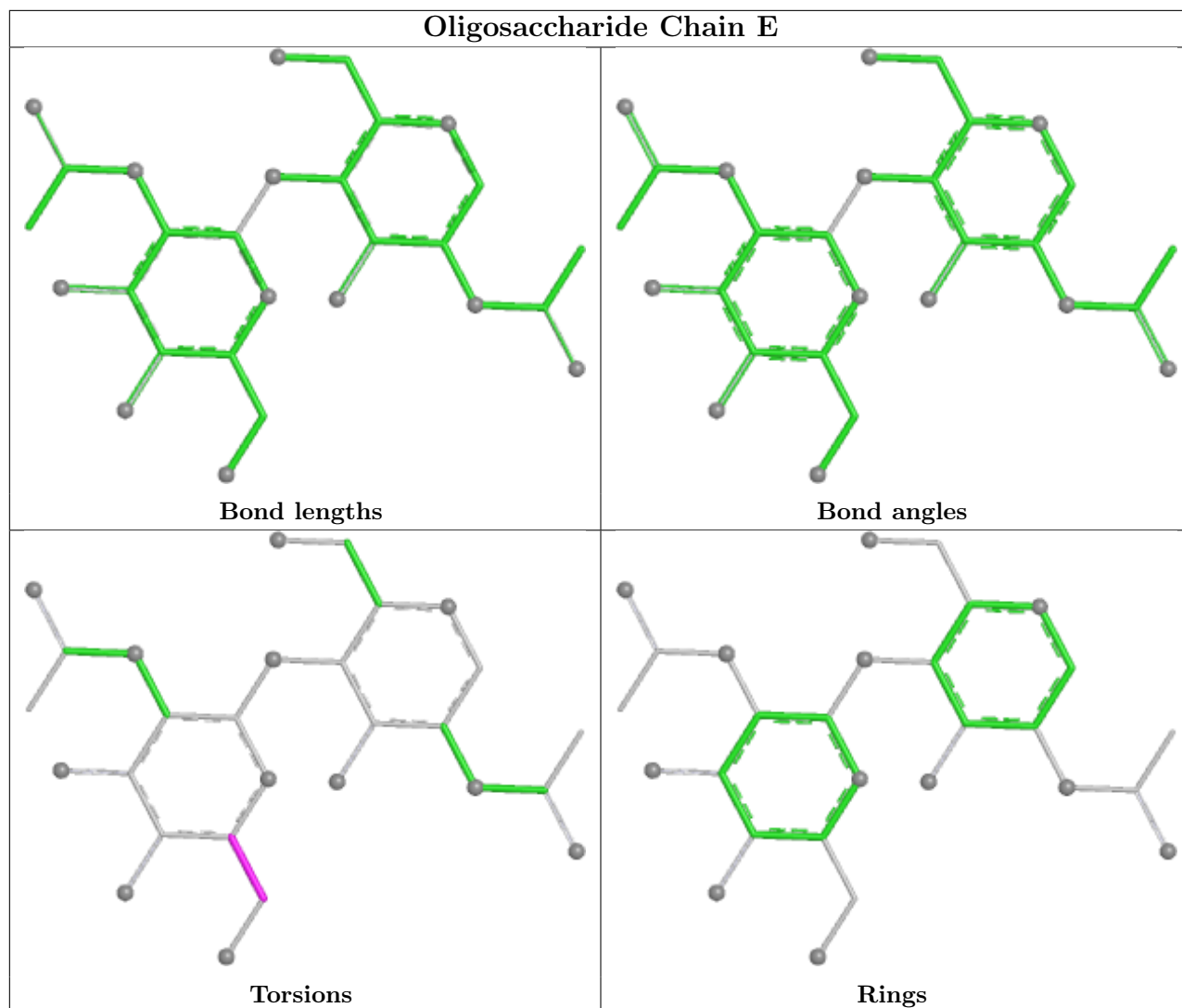
Mol	Chain	Res	Type	Atoms
4	E	2	NAG	O5-C5-C6-O6
4	E	2	NAG	C4-C5-C6-O6

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	E	1	NAG	1	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.



## 5.6 Ligand geometry [i](#)

8 ligands are modelled in this entry.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with  $|Z| > 2$  is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z  > 2$	Counts	RMSZ	$\# Z  > 2$
5	GLY	A	901	-	4,4,4	1.15	1 (25%)	3,4,4	1.71	2 (66%)
7	GLU	D	901	-	8,9,9	1.13	1 (12%)	8,11,11	1.20	1 (12%)
6	NAG	A	902	1	14,14,15	0.45	0	17,19,21	0.72	1 (5%)



Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
6	NAG	D	903	3	14,14,15	0.37	0	17,19,21	0.73	1 (5%)
5	GLY	C	901	-	4,4,4	1.16	1 (25%)	3,4,4	1.64	1 (33%)
6	NAG	B	902	2	14,14,15	0.43	0	17,19,21	0.48	0
8	A1A15	D	902	-	38,43,43	2.99	10 (26%)	51,64,64	2.33	8 (15%)
7	GLU	B	901	-	8,9,9	1.11	1 (12%)	8,11,11	1.20	1 (12%)

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
5	GLY	A	901	-	-	0/2/2/2	-
7	GLU	D	901	-	-	5/9/9/9	-
6	NAG	A	902	1	-	4/6/23/26	0/1/1/1
6	NAG	D	903	3	-	2/6/23/26	0/1/1/1
5	GLY	C	901	-	-	0/2/2/2	-
6	NAG	B	902	2	-	0/6/23/26	0/1/1/1
8	A1A15	D	902	-	-	2/23/39/39	0/5/5/5
7	GLU	B	901	-	-	4/9/9/9	-

All (14) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
8	D	902	A1A15	C25-C03	10.50	1.47	1.35
8	D	902	A1A15	C38-N39	7.88	1.53	1.39
8	D	902	A1A15	C02-N39	7.85	1.46	1.35
8	D	902	A1A15	C24-C04	-7.30	1.37	1.54
8	D	902	A1A15	C24-C16	2.89	1.58	1.54
8	D	902	A1A15	O01-C02	-2.50	1.18	1.23
8	D	902	A1A15	C33-C25	2.48	1.53	1.47
8	D	902	A1A15	C02-C03	2.38	1.48	1.43
7	D	901	GLU	OXT-C	-2.34	1.23	1.30
7	B	901	GLU	OXT-C	-2.29	1.23	1.30
5	C	901	GLY	OXT-C	-2.21	1.23	1.30
5	A	901	GLY	OXT-C	-2.21	1.23	1.30
8	D	902	A1A15	C26-C25	2.20	1.53	1.49
8	D	902	A1A15	O15-C07	-2.07	1.18	1.22

All (15) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
8	D	902	A1A15	C17-C16-N06	11.22	123.93	112.31
8	D	902	A1A15	C24-C16-C17	-6.75	100.55	114.09
8	D	902	A1A15	C24-C04-N05	5.25	111.34	103.05
8	D	902	A1A15	F10-C08-F09	3.81	109.52	104.96
8	D	902	A1A15	C38-N39-C02	-3.54	119.87	124.82
8	D	902	A1A15	O01-C02-C03	-2.97	119.81	124.75
7	D	901	GLU	OXT-C-O	-2.73	117.88	124.08
7	B	901	GLU	OXT-C-O	-2.71	117.93	124.08
8	D	902	A1A15	C11-C08-C07	-2.50	109.89	115.43
6	A	902	NAG	C1-O5-C5	2.35	115.33	112.19
6	D	903	NAG	C1-O5-C5	2.31	115.28	112.19
5	A	901	GLY	OXT-C-O	-2.14	117.83	123.33
8	D	902	A1A15	C38-C33-C25	2.12	120.45	118.54
5	C	901	GLY	OXT-C-O	-2.05	118.05	123.33
5	A	901	GLY	OXT-C-CA	2.02	121.40	113.38

There are no chirality outliers.

All (17) torsion outliers are listed below:

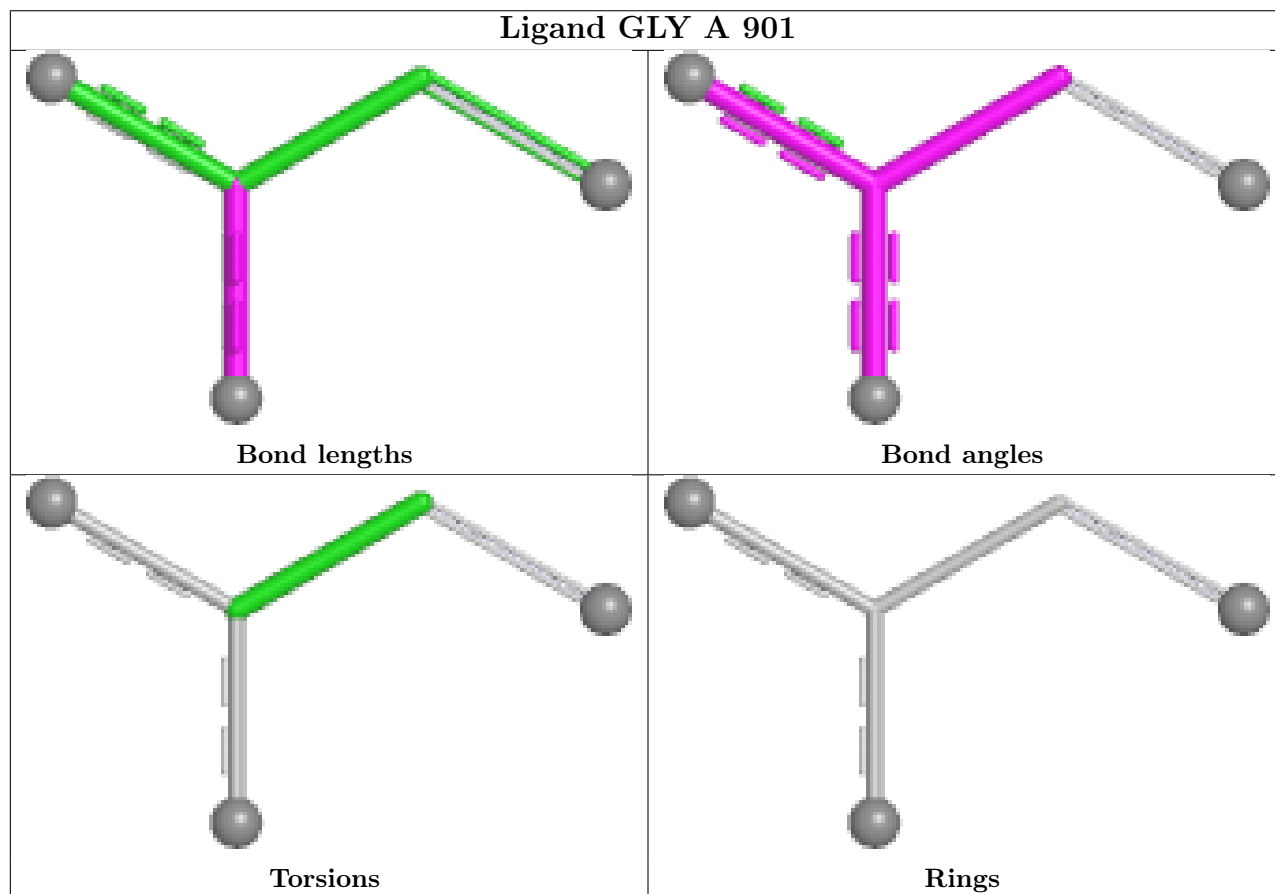
Mol	Chain	Res	Type	Atoms
7	B	901	GLU	C-CA-CB-CG
8	D	902	A1A15	C02-C03-C04-C24
8	D	902	A1A15	C02-C03-C04-N05
6	D	903	NAG	O5-C5-C6-O6
6	A	902	NAG	O5-C5-C6-O6
6	A	902	NAG	C4-C5-C6-O6
7	D	901	GLU	OXT-C-CA-N
7	D	901	GLU	CA-CB-CG-CD
6	D	903	NAG	C4-C5-C6-O6
7	B	901	GLU	N-CA-CB-CG
6	A	902	NAG	C3-C2-N2-C7
7	D	901	GLU	OE2-CD-CG-CB
7	B	901	GLU	O-C-CA-N
7	D	901	GLU	OE1-CD-CG-CB
6	A	902	NAG	C1-C2-N2-C7
7	B	901	GLU	OXT-C-CA-N
7	D	901	GLU	O-C-CA-N

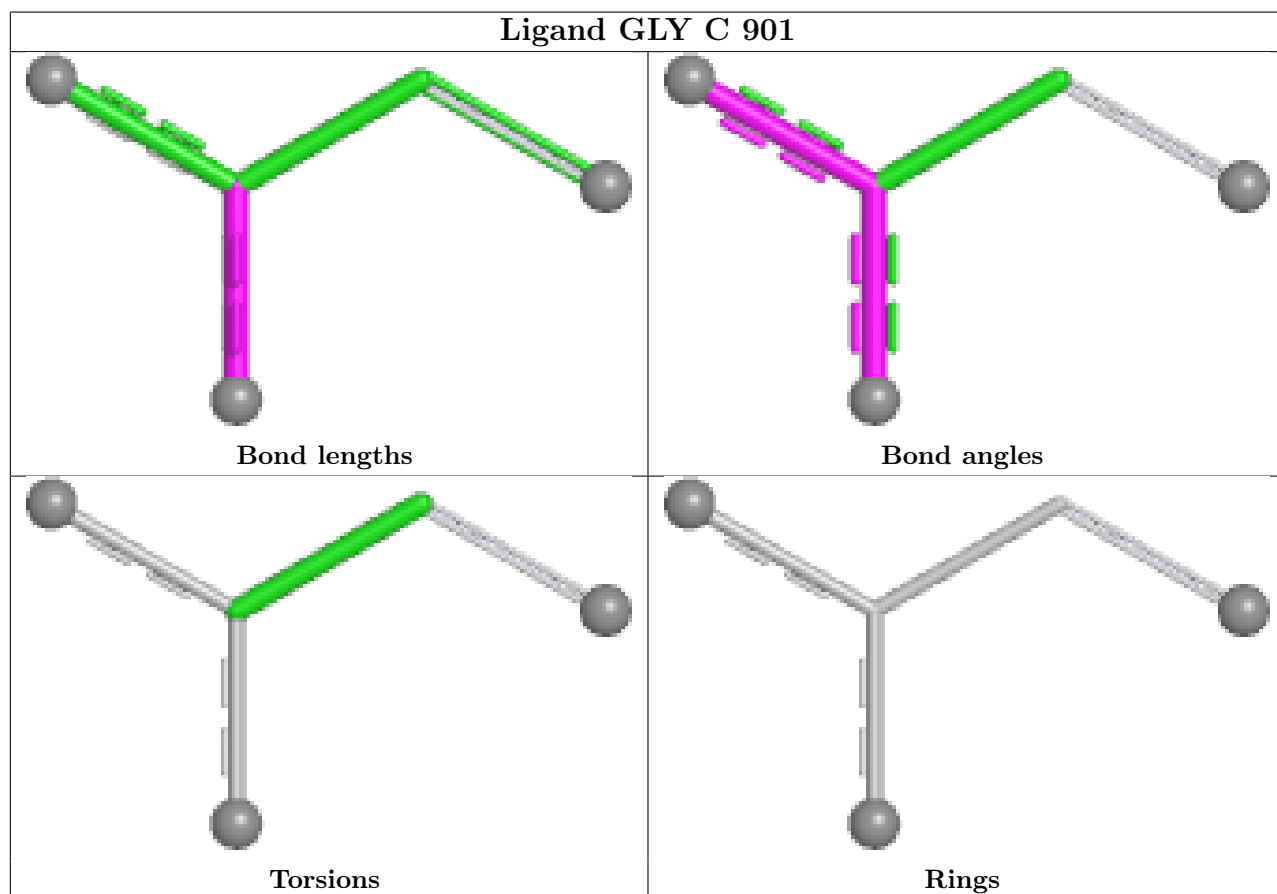
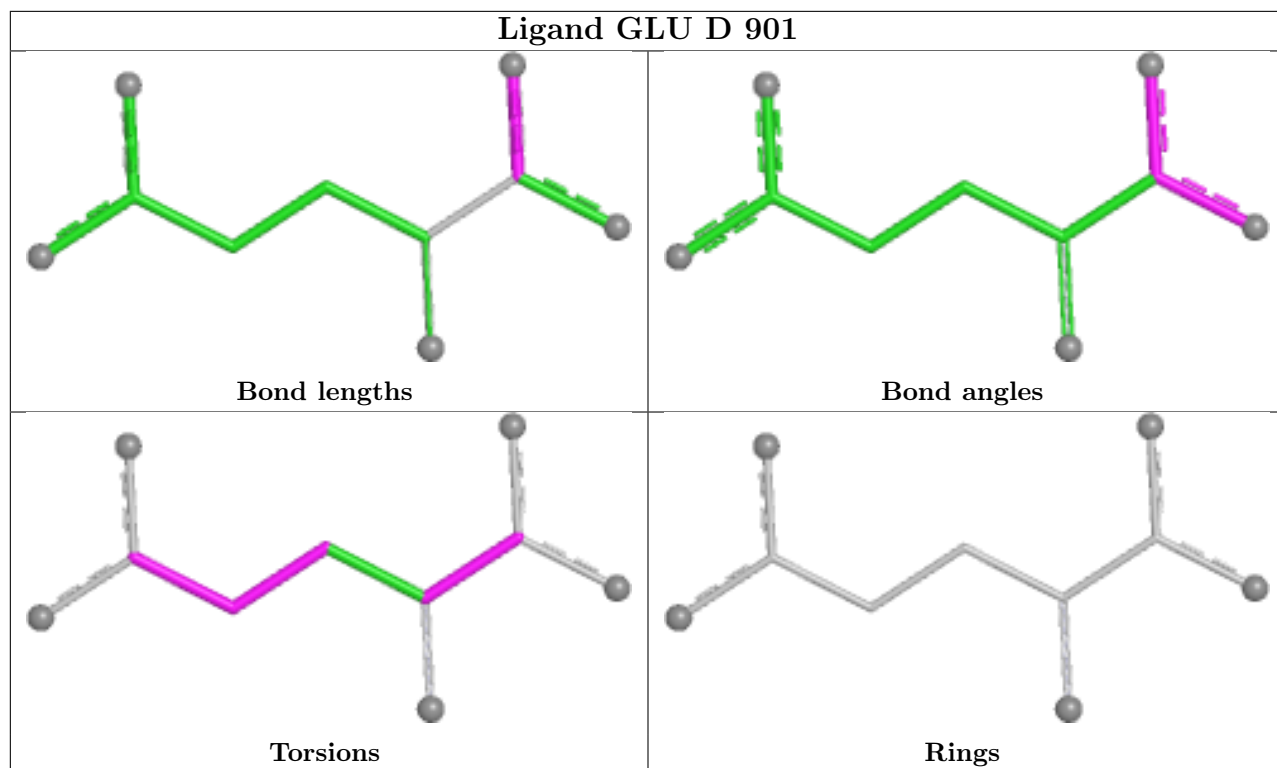
There are no ring outliers.

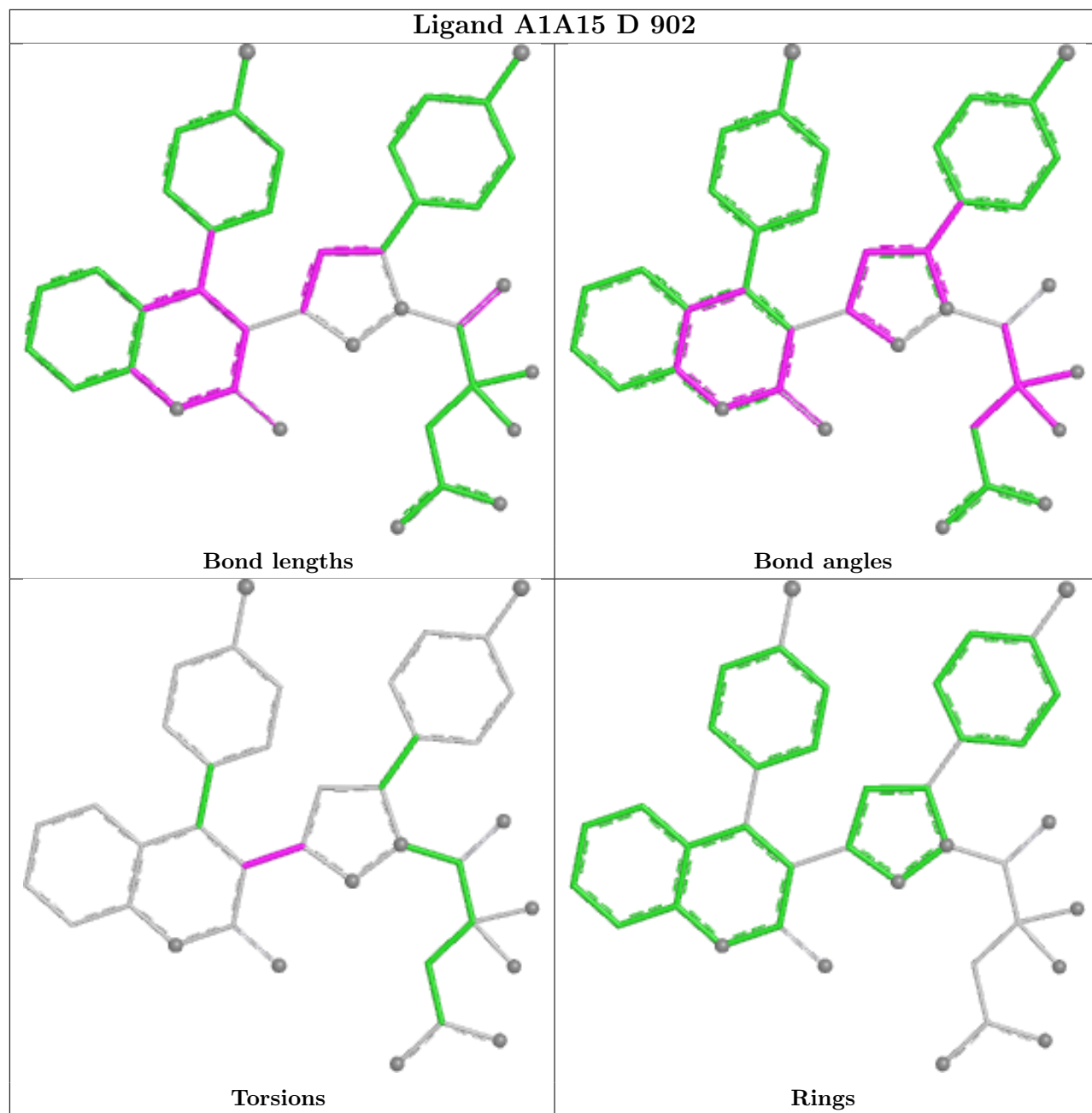
2 monomers are involved in 3 short contacts:

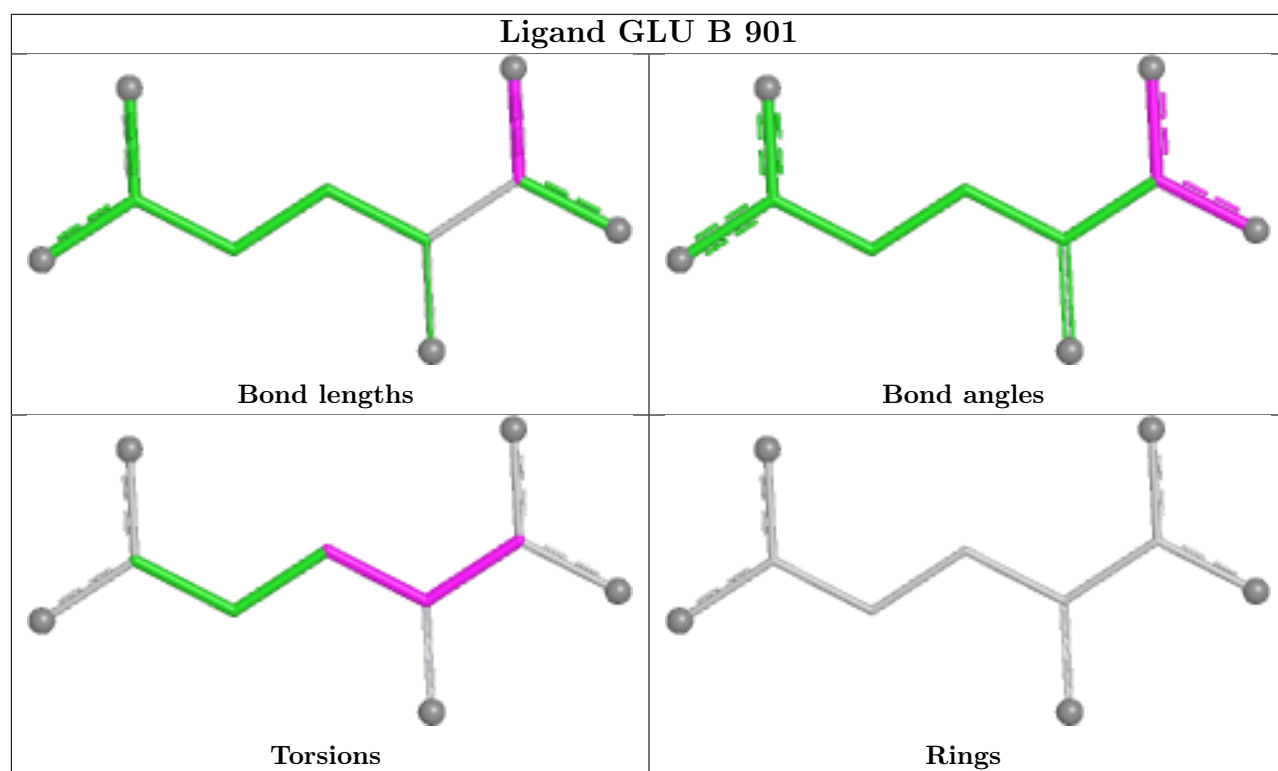
Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	D	901	GLU	2	0
8	D	902	A1A15	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.









## 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 Map visualisation

This section contains visualisations of the EMDB entry EMD-46530. These allow visual inspection of the internal detail of the map and identification of artifacts.

No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

### 6.1 Orthogonal projections

This section was not generated.

### 6.2 Central slices

This section was not generated.

### 6.3 Largest variance slices

This section was not generated.

### 6.4 Orthogonal standard-deviation projections (False-color)

This section was not generated.

### 6.5 Orthogonal surface views

This section was not generated.

### 6.6 Mask visualisation

This section was not generated. No masks/segmentation were deposited.

## 7 Map analysis

This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution

This section was not generated.

### 7.2 Volume estimate versus contour level

This section was not generated.

### 7.3 Rotationally averaged power spectrum

This section was not generated. The rotationally averaged power spectrum had issues being displayed.



## 8 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

## 9 Map-model fit

This section was not generated.