



## Full wwPDB EM Validation Report ⓘ

Jul 18, 2024 – 06:08 PM JST

PDB ID : 8JU5  
EMDB ID : EMD-36659  
Title : Structure of human TRPV4 with antagonist A1  
Authors : Fan, J.; Lei, X.  
Deposited on : 2023-06-24  
Resolution : 3.74 Å(reported)

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>.

---

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

EMDB validation analysis : **FAILED**  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
MolProbity : 4.02b-467  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : **FAILED**  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.37.1

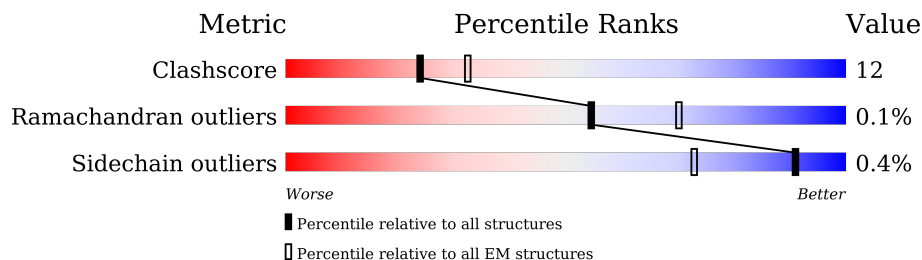
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 3.74 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	158937	4297
Ramachandran outliers	154571	4023
Sidechain outliers	154315	3826

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	1144	
1	B	1144	
1	C	1144	
1	D	1144	

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	F3L	B	1201	-	-	X	-
2	F3L	D	1201	-	-	X	-

## 2 Entry composition [i](#)

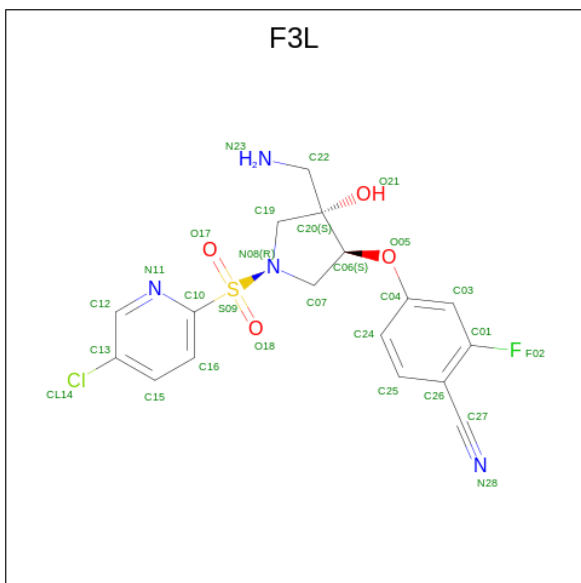
There are 2 unique types of molecules in this entry. The entry contains 19567 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Transient receptor potential cation channel subfamily V member 4,3C-GFP.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	595	Total	C	N	O	S	0	0
			4762	3099	791	848	24		
1	D	622	Total	C	N	O	S	0	0
			4986	3248	825	887	26		
1	C	595	Total	C	N	O	S	0	0
			4765	3105	790	847	23		
1	B	623	Total	C	N	O	S	0	0
			4998	3254	829	888	27		

- Molecule 2 is 4-[(3 {S},4 {S})-4-(aminomethyl)-1-(5-chloranylpyridin-2-yl)sulfonyl-4-oxidanyl-pyrrolidin-3-yl]oxy-2-fluoranyl-benzenecarbonitrile (three-letter code: F3L) (formula: C<sub>17</sub>H<sub>16</sub>ClFN<sub>4</sub>O<sub>4</sub>S) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms						AltConf	
			Total	C	Cl	F	N	O		S
2	D	1	Total	C	Cl	F	N	O	S	0
			28	17	1	1	4	4	1	

*Continued on next page...*

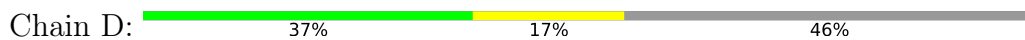
*Continued from previous page...*

Mol	Chain	Residues	Atoms						AltConf	
			Total	C	Cl	F	N	O		S
2	B	1	28	17	1	1	4	4	1	0



MET
ASP
GLU
TRP
GLY
HIS
PRO
GLN
PHE
GLY
LYS
GLY
GLY
GLY
SER
GLY
LYS

- Molecule 1: Transient receptor potential cation channel subfamily V member 4,3C-GFP



MET	ALA	ASP	GLY	ARG	TRP	LYS	ILE	ILE	T240	A241	L242	H243	I244	A245	I246	E247	R248	R249	C250	K251	H252	V253	V254	E255	V258	V148	A268	R269	I153	I157	L170	P188	L195	P196	K197	A198	L199	L200	R206	N207	I210	D215	I216	A217	E218	R219	R222	K223	R224	F226				
GLY	ASP	GLY	ARG	TRP	LYS	ILE	ILE	T240	A241	L242	H243	I244	A245	I246	E247	R248	R249	C250	K251	H252	V253	V254	E255	V258	V148	A268	R269	I153	I157	L170	P188	L195	P196	K197	A198	L199	L200	R206	N207	I210	D215	I216	A217	E218	R219	R222	K223	R224	F226					
LYS	ARG	TRP	LYS	ILE	ILE	T240	A241	L242	H243	I244	A245	I246	E247	R248	R249	C250	K251	H252	V253	V254	E255	V258	V148	A268	R269	I153	I157	L170	P188	L195	P196	K197	A198	L199	L200	R206	N207	I210	D215	I216	A217	E218	R219	R222	K223	R224	F226							
N338	I339	K340	F341	Y342	T343	K344	M345	L350	A354	E363	L366	N367	G370	L371	S372	M375	K379	F386	I390	R391	R392	E393	V394	F398	V399	D398	L402	S403	F406	K407	D408	W409	A410	P413	Y414	Y415	S416	S417	L418	L421	N322	T323	V324	T426	C427	L434								
E435	I436	L437	V438	Y439	M440	S441	I443	R446	I455	M456	E457	Y472	I473	M474	V475	V476	T486	T488	A488	Y490	K491	Q492	P493	L494	P498	P499	D507	R510	L518	F525	M625	D531	M534	K535	K536	C537	P538	F544	I545	D546	Q550	L551	L552	Y553										
S557	S563	A564	A565	L566	I571	L582	V583	M587	M588	Y591	F592	T593	R594	G595	L596	K597	T701	Y702	I703	L704	Y705	T706	F707	W708	L709	L710	L711	L714	I715	A716	L717	M718	G723	Q724	S729	K730	H731	I732	W733	Q736	W737	I741	L742											
THR	ASN	CYS	THR	V654	S659	C660	R661	D662	S663	L670	L671	F674	T677	M680	S688	V694	L698	L699	V700	T701	Y702	I703	L704	Y705	T706	F707	W708	L709	L710	L711	L714	I715	A716	L717	M718	G723	Q724	S729	K730	H731	I732	W733	Q736	W737	I741	L742								
R753	R757	E760	R761	V762	V769	D781	E782	W785	V788	ASN	GLN	ASN	GLN	ASN	ASP	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY								
LEU	ASN	LYS	ASN	ASN	PRO	ASP	GLU	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL					
VAL	VAL	PRO	ILE	LEU	VAL	GLU	LEU	ASP	GLY	ASP	VAL	PHE	VAL	VAL	ARG	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY	GLY				
PHE	SER	ARG	TYR	PRO	ASP	HIS	MET	LYS	ARG	HIS	LYS	ARG	ALA	LYS	PRO	GLY	THR	ILE	TYR	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	
LYS	GLY	ASP	GLY	ASN	ILE	LEU	GLY	HIS	LYS	GLY	THR	VAL	ASN	ASN	VAL	TYR	LYS	ILE	TYR	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL
GLY	PRO	VAL	LEU	LEU	PRO	ASP	ASN	HIS	TYR	LEU	THR	VAL	ASN	ASN	VAL	TYR	LYS	ILE	TYR	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL	VAL
SER	GLY	SER	ALA	TRP	SER	HIS	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO	PRO

- Molecule 1: Transient receptor potential cation channel subfamily V member 4,3C-GFP







## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	102087	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose ( $e^-/\text{\AA}^2$ )	60	Depositor
Minimum defocus (nm)	1000	Depositor
Maximum defocus (nm)	2000	Depositor
Magnification	Not provided	
Image detector	GATAN K2 SUMMIT (4k 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: F3L

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	0.26	0/4871	0.51	1/6608 (0.0%)
1	B	0.25	0/5115	0.49	0/6936
1	C	0.25	0/4874	0.51	1/6610 (0.0%)
1	D	0.25	0/5103	0.50	0/6921
All	All	0.25	0/19963	0.50	2/27075 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	1

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed( $^{\circ}$ )	Ideal( $^{\circ}$ )
1	C	655	PRO	N-CA-CB	5.92	110.40	103.30
1	A	655	PRO	N-CA-CB	5.92	110.40	103.30

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	453	GLU	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	4762	0	4780	102	0
1	B	4998	0	5052	116	0
1	C	4765	0	4781	141	0
1	D	4986	0	5036	144	0
2	B	28	0	0	11	0
2	D	28	0	0	12	0
All	All	19567	0	19649	472	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 12.

All (472) 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:C:502:TYR:CE1	1:C:511:LEU:HD22	1.64	1.32
1:C:502:TYR:CE2	1:C:511:LEU:HD21	1.75	1.19
1:C:502:TYR:CZ	1:C:511:LEU:HD22	1.86	1.10
1:D:550:GLN:HG2	2:D:1201:F3L:O18	1.51	1.10
1:C:502:TYR:CZ	1:C:511:LEU:CD2	2.37	1.08
1:C:502:TYR:CG	1:C:511:LEU:HD23	1.92	1.04
1:C:502:TYR:CE1	1:C:511:LEU:CD2	2.41	1.04
1:C:502:TYR:CE2	1:C:511:LEU:CD2	2.40	1.03
1:C:502:TYR:CD2	1:C:511:LEU:CD2	2.48	0.96
1:C:502:TYR:CD1	1:C:511:LEU:CD2	2.49	0.95
1:A:549:PHE:N	1:A:591:TYR:HH	1.63	0.94
1:A:745:GLU:O	1:A:753:ARG:NH2	2.03	0.92
1:D:474:ASN:ND2	2:D:1201:F3L:C27	2.32	0.91
1:C:502:TYR:CG	1:C:511:LEU:CD2	2.54	0.89
1:C:315:ARG:HH12	1:C:353:CYS:HB2	1.35	0.89
1:A:753:ARG:O	1:A:757:ARG:HG3	1.74	0.88
1:B:474:ASN:HB2	2:B:1201:F3L:N28	1.86	0.88
1:C:502:TYR:CD2	1:C:511:LEU:HD21	2.07	0.86
1:C:502:TYR:CD1	1:C:511:LEU:HD22	2.11	0.85
1:C:509:LEU:HD12	1:C:509:LEU:O	1.79	0.82
1:D:544:PHE:O	1:D:736:GLN:NE2	2.12	0.81

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:437:LEU:O	1:A:439:TYR:N	2.13	0.81
1:D:474:ASN:CB	2:D:1201:F3L:N28	2.45	0.79
1:D:474:ASN:HB2	2:D:1201:F3L:N28	1.97	0.79
1:C:502:TYR:CD1	1:C:511:LEU:HD23	2.14	0.78
1:A:239:GLN:NE2	1:B:411:TYR:OH	2.17	0.76
1:D:443:ILE:HA	1:D:446:ARG:HD2	1.68	0.74
1:C:510:ARG:HG2	1:C:510:ARG:HH21	1.54	0.73
1:B:424:LEU:HA	1:B:433:VAL:HG12	1.72	0.72
1:A:249:ARG:NH1	1:A:297:GLN:OE1	2.23	0.72
1:A:661:ARG:HB2	1:A:665:THR:HG21	1.70	0.72
1:C:180:LEU:HD12	1:C:186:ARG:HH22	1.56	0.71
1:D:671:LEU:HD23	1:C:696:ILE:HD12	1.72	0.71
1:B:474:ASN:ND2	2:B:1201:F3L:C27	2.54	0.71
1:B:544:PHE:O	1:B:736:GLN:NE2	2.22	0.71
1:C:406:PHE:HB2	1:C:418:LEU:HB3	1.73	0.70
1:C:760:GLU:OE2	1:C:779:ARG:NH1	2.26	0.69
1:C:243:HIS:O	1:C:247:GLU:HB2	1.92	0.69
1:B:440:ASN:HD21	1:B:535:LYS:HD3	1.57	0.68
1:D:474:ASN:ND2	2:D:1201:F3L:N28	2.40	0.68
1:B:254:VAL:HG11	1:B:300:ILE:HD12	1.74	0.68
1:C:267:GLN:OE1	1:C:269:ARG:NH2	2.26	0.68
1:C:315:ARG:HH21	1:C:357:PHE:HD2	1.42	0.67
1:A:351:LEU:HD21	1:A:394:VAL:HG11	1.75	0.67
1:D:518:LEU:HD11	1:D:564:ALA:HB2	1.77	0.67
1:A:391:ARG:NH1	1:A:453:GLU:OE2	2.27	0.67
1:D:333:ASP:OD1	1:D:338:ASN:ND2	2.23	0.67
1:A:332:ALA:HB2	1:A:342:VAL:HG21	1.76	0.66
1:A:486:THR:HA	1:A:582:LEU:HD11	1.77	0.66
1:A:151:ARG:NH1	1:A:186:ARG:O	2.28	0.66
1:B:591:TYR:HE2	2:B:1201:F3L:C16	2.09	0.66
1:B:474:ASN:CB	2:B:1201:F3L:N28	2.56	0.66
1:A:676:LEU:HD12	1:A:683:LEU:HD11	1.78	0.66
1:B:534:MET:HG2	1:B:535:LYS:H	1.59	0.66
1:C:157:ILE:HG12	1:C:160:ARG:HH21	1.62	0.65
1:C:180:LEU:HB2	1:C:222:ASN:HD21	1.62	0.65
1:A:227:ILE:HG21	1:A:257:LEU:HD11	1.78	0.64
1:A:696:ILE:HD12	1:B:671:LEU:HD23	1.78	0.64
1:C:714:LEU:HD12	1:B:711:LEU:HD12	1.79	0.64
1:C:638:PRO:HD2	1:C:661:ARG:HG2	1.81	0.63
1:A:486:THR:HG22	1:A:582:LEU:HD21	1.81	0.63
1:C:351:LEU:HD11	1:C:394:VAL:HG21	1.78	0.63

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:466:PHE:HB2	1:A:756:PHE:CE1	2.34	0.63
1:A:150:ASN:H	1:A:153:ILE:HD12	1.63	0.62
1:B:406:PHE:HB2	1:B:418:LEU:HB3	1.81	0.62
1:D:732:ILE:HG23	1:D:736:GLN:HE22	1.63	0.62
1:B:442:LYS:HG3	1:B:444:GLU:HG2	1.82	0.62
1:A:576:ALA:HB1	1:D:694:VAL:HG11	1.81	0.62
1:B:559:LEU:HD22	1:B:581:ALA:HB2	1.80	0.62
1:A:466:PHE:HB2	1:A:756:PHE:CZ	2.35	0.62
1:C:307:ASN:ND2	1:C:310:LYS:O	2.33	0.62
1:C:484:ILE:O	1:C:488:THR:N	2.33	0.61
1:C:607:GLN:HG2	1:C:608:LYS:H	1.65	0.61
1:D:474:ASN:CG	2:D:1201:F3L:N28	2.53	0.61
1:C:509:LEU:HD12	1:C:509:LEU:C	2.19	0.61
1:D:354:ALA:HB2	1:D:402:LEU:HD11	1.83	0.61
1:D:434:LEU:HG	1:D:742:LEU:HD11	1.83	0.61
1:C:661:ARG:HB2	1:C:665:THR:HG21	1.82	0.61
1:C:434:LEU:HG	1:C:742:LEU:HD11	1.81	0.61
1:A:418:LEU:HD23	1:A:762:VAL:HG21	1.83	0.61
1:D:350:LEU:HG	1:D:402:LEU:HD13	1.81	0.61
1:D:406:PHE:HB2	1:D:418:LEU:HB3	1.83	0.60
1:D:427:CYS:HB2	1:D:757:ARG:HH21	1.67	0.60
1:D:662:ASP:OD1	1:D:663:SER:N	2.33	0.60
1:D:434:LEU:HD13	1:D:455:ILE:HD12	1.84	0.60
1:A:339:THR:HA	1:A:342:VAL:HG12	1.82	0.60
1:B:434:LEU:HD13	1:B:455:ILE:HD12	1.84	0.59
1:C:264:VAL:HB	1:C:312:ALA:HB2	1.84	0.59
1:D:418:LEU:HD21	1:D:762:VAL:HG11	1.85	0.59
1:C:318:ASP:OD1	1:C:322:ASN:N	2.36	0.59
1:D:170:LEU:HD21	1:D:216:ILE:HG12	1.83	0.58
1:D:415:TYR:N	1:D:782:GLU:O	2.30	0.58
1:A:338:ASN:HA	1:A:341:PHE:CE1	2.39	0.58
1:A:427:CYS:SG	1:A:757:ARG:CD	2.92	0.58
1:C:633:VAL:HG12	1:C:661:ARG:HH11	1.69	0.58
1:B:418:LEU:HD21	1:B:762:VAL:HG11	1.85	0.58
1:C:510:ARG:HH21	1:C:510:ARG:CG	2.16	0.58
1:C:329:VAL:HG22	1:C:385:ILE:HG12	1.86	0.58
1:C:502:TYR:CZ	1:C:511:LEU:HD21	2.13	0.58
1:B:387:GLN:OE1	1:B:391:ARG:NH2	2.37	0.58
1:A:157:ILE:HG21	1:A:166:LEU:HB3	1.85	0.58
1:B:711:LEU:O	1:B:715:ILE:HD12	2.03	0.58
1:D:591:TYR:OH	2:D:1201:F3L:C03	2.52	0.57

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:420:ASP:OD1	1:C:421:LEU:N	2.37	0.57
1:A:427:CYS:SG	1:A:757:ARG:HD3	2.45	0.57
1:A:748:PHE:HB2	1:A:753:ARG:HH21	1.69	0.57
1:C:301:VAL:HG11	1:C:349:LEU:HD21	1.87	0.57
1:B:426:THR:O	1:B:753:ARG:NH2	2.38	0.57
1:A:178:LYS:HD2	1:A:185:PHE:HZ	1.70	0.56
1:A:753:ARG:O	1:A:757:ARG:CG	2.50	0.56
1:C:502:TYR:HE1	1:C:510:ARG:NH1	2.04	0.56
1:B:426:THR:HG22	1:B:432:SER:HB3	1.87	0.56
1:D:207:ASN:O	1:D:253:TYR:OH	2.23	0.56
1:A:452:VAL:HG22	1:A:453:GLU:H	1.70	0.56
1:B:215:ASP:O	1:B:219:ARG:HG2	2.05	0.56
1:D:596:LEU:O	1:D:733:TRP:NE1	2.39	0.55
1:B:366:LEU:HB3	1:B:370:GLY:HA2	1.88	0.55
1:D:424:LEU:HD12	1:D:455:ILE:HD11	1.87	0.55
1:A:698:LEU:HD22	1:B:583:VAL:HG21	1.89	0.55
1:D:625:MET:HG2	1:D:670:LEU:HD11	1.88	0.55
1:B:494:LEU:HD22	1:B:575:LEU:HD22	1.86	0.55
1:B:486:THR:HA	1:B:582:LEU:HD11	1.89	0.55
1:D:229:SER:HB3	1:D:231:PHE:CE1	2.42	0.55
1:D:486:THR:HA	1:D:582:LEU:HD11	1.89	0.55
1:B:760:GLU:OE2	1:B:779:ARG:NH1	2.39	0.55
1:A:307:ASN:ND2	1:A:310:LYS:O	2.40	0.55
1:D:729:SER:O	1:D:730:LYS:HG2	2.07	0.55
1:C:195:LEU:HD13	1:C:213:LEU:HD11	1.88	0.55
1:B:726:SER:HB3	1:B:729:SER:HB2	1.88	0.55
1:C:265:HIS:NE2	1:C:313:ASP:OD1	2.33	0.55
1:A:393:GLU:HA	1:A:403:SER:HB2	1.89	0.54
1:B:536:LYS:HG2	1:B:537:CYS:H	1.72	0.54
1:A:456:ASN:OD1	1:A:457:GLU:N	2.41	0.54
1:C:553:TYR:HA	1:C:556:TYR:HB3	1.87	0.54
1:B:278:GLU:OE1	1:B:320:ARG:NH2	2.36	0.54
1:C:338:ASN:HA	1:C:341:PHE:CE1	2.42	0.54
1:B:507:ASP:OD1	1:B:510:ARG:NH1	2.35	0.54
1:A:453:GLU:O	1:A:455:ILE:N	2.40	0.54
1:B:434:LEU:HG	1:B:742:LEU:HD11	1.88	0.54
1:B:474:ASN:ND2	2:B:1201:F3L:C01	2.70	0.54
1:A:447:HIS:HB2	1:A:731:HIS:CE1	2.42	0.54
1:D:474:ASN:HD22	2:D:1201:F3L:C27	2.14	0.54
1:D:255:GLU:HG2	1:D:303:TYR:CZ	2.42	0.54
1:C:372:SER:H	1:C:375:MET:HE2	1.73	0.54

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:553:TYR:CE1	2:B:1201:F3L:C16	2.90	0.54
1:B:566:LEU:HB3	1:B:571:ILE:HB	1.89	0.54
1:C:290:SER:HA	1:C:324:VAL:HG23	1.89	0.54
1:C:357:PHE:CE2	1:C:359:ASP:HB3	2.43	0.54
1:B:231:PHE:HB2	1:B:236:TYR:O	2.08	0.54
1:B:596:LEU:O	1:B:733:TRP:NE1	2.41	0.54
1:B:662:ASP:OD1	1:B:663:SER:N	2.41	0.53
1:A:494:LEU:HB3	1:D:638:PRO:HG3	1.90	0.53
1:B:456:ASN:OD1	1:B:734:LYS:NZ	2.41	0.53
1:A:157:ILE:HG12	1:A:160:ARG:HH21	1.74	0.53
1:D:440:ASN:HD21	1:D:535:LYS:HD3	1.72	0.53
1:B:628:TYR:CE2	1:B:702:TYR:HB2	2.44	0.53
1:C:180:LEU:O	1:C:186:ARG:NH1	2.41	0.53
1:C:767:SER:OG	1:C:773:ASP:OD1	2.27	0.53
1:D:318:ASP:OD1	1:D:322:ASN:N	2.42	0.53
1:B:625:MET:HG2	1:B:670:LEU:HD11	1.91	0.53
1:C:607:GLN:HA	1:C:610:LEU:HD13	1.90	0.53
1:C:511:LEU:HD12	1:C:511:LEU:O	2.09	0.53
1:B:617:PHE:HZ	1:B:710:LEU:HD23	1.74	0.52
1:D:507:ASP:OD1	1:D:510:ARG:NH1	2.36	0.52
1:A:323:THR:HG22	1:A:326:HIS:ND1	2.23	0.52
1:A:571:ILE:HG22	1:A:573:ALA:H	1.74	0.52
1:C:396:ASP:OD1	1:C:399:THR:OG1	2.27	0.52
1:A:427:CYS:SG	1:A:757:ARG:HD2	2.49	0.52
1:A:638:PRO:HG3	1:B:494:LEU:HB2	1.92	0.52
1:D:670:LEU:HG	1:C:696:ILE:HD13	1.91	0.52
1:C:351:LEU:HD21	1:C:394:VAL:HG11	1.91	0.52
1:D:553:TYR:HE2	2:D:1201:F3L:C12	2.23	0.52
1:D:534:MET:HG2	1:D:535:LYS:H	1.74	0.52
1:C:329:VAL:HG13	1:C:385:ILE:HG21	1.92	0.52
1:D:488:THR:O	1:D:492:GLN:HG3	2.11	0.51
1:D:490:TYR:HA	1:C:634:SER:HB2	1.92	0.51
1:A:628:TYR:CE2	1:A:702:TYR:HB2	2.45	0.51
1:A:696:ILE:HD13	1:B:670:LEU:HG	1.93	0.51
1:C:274:GLN:OE1	1:C:320:ARG:NH2	2.35	0.51
1:C:380:THR:HG22	1:C:382:LYS:HE3	1.93	0.51
1:B:325:LEU:HB3	1:B:346:TYR:HE1	1.75	0.51
1:D:760:GLU:OE2	1:D:779:ARG:NH1	2.37	0.51
1:C:628:TYR:CE2	1:C:702:TYR:HB2	2.45	0.51
1:D:537:CYS:N	1:D:538:PRO:HD3	2.26	0.51
1:C:617:PHE:CE2	1:C:713:MET:HB2	2.46	0.51

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:186:ARG:HB3	1:A:193:THR:HG22	1.92	0.51
1:A:247:GLU:HB2	1:A:291:LEU:HD21	1.93	0.51
1:D:258:VAL:HG11	1:D:303:TYR:HE2	1.75	0.51
1:D:628:TYR:CE2	1:D:702:TYR:HB2	2.46	0.51
1:C:234:ILE:HB	1:C:271:ARG:HH12	1.76	0.51
1:D:457:GLU:OE2	1:D:457:GLU:N	2.44	0.50
1:C:556:TYR:CE1	1:C:582:LEU:HD22	2.46	0.50
1:B:591:TYR:CE2	2:B:1201:F3L:C16	2.93	0.50
1:D:426:THR:O	1:D:753:ARG:NH2	2.45	0.50
1:C:658:PRO:HA	1:C:669:PHE:HZ	1.76	0.50
1:D:439:TYR:HB3	1:D:535:LYS:HE2	1.93	0.50
1:D:711:LEU:O	1:D:715:ILE:HD12	2.11	0.50
1:C:283:TYR:OH	1:C:322:ASN:ND2	2.43	0.50
1:B:559:LEU:HA	1:B:562:VAL:HG12	1.93	0.50
1:D:231:PHE:HB2	1:D:236:TYR:O	2.12	0.50
1:B:537:CYS:N	1:B:538:PRO:HD3	2.26	0.50
1:D:410:ALA:HB1	1:D:415:TYR:HD2	1.76	0.50
1:C:510:ARG:CG	1:C:510:ARG:NH2	2.72	0.50
1:C:188:PRO:O	1:C:232:ARG:NH2	2.45	0.50
1:B:660:CYS:SG	1:B:661:ARG:N	2.84	0.50
1:A:362:LEU:O	1:A:365:VAL:HG12	2.11	0.50
1:A:497:THR:HG23	1:A:500:TYR:H	1.76	0.50
1:D:289:LEU:HD11	1:D:301:VAL:HG13	1.94	0.50
1:D:332:ALA:HB2	1:D:342:VAL:HG11	1.94	0.50
1:D:416:SER:HA	1:D:781:ASP:HA	1.93	0.50
1:B:362:LEU:O	1:B:365:VAL:HG12	2.11	0.49
1:D:699:LEU:O	1:D:703:ILE:HD12	2.12	0.49
1:D:718:MET:HE2	1:C:711:LEU:HD21	1.92	0.49
1:B:307:ASN:ND2	1:B:310:LYS:H	2.09	0.49
1:B:215:ASP:O	1:B:218:GLU:HG2	2.12	0.49
1:D:579:VAL:HG13	1:C:631:ALA:HB1	1.95	0.49
1:C:485:PHE:CG	1:C:582:LEU:HD12	2.48	0.49
1:B:457:GLU:N	1:B:457:GLU:OE2	2.46	0.49
1:B:607:GLN:NE2	1:B:733:TRP:HB2	2.27	0.49
1:C:329:VAL:HB	1:C:376:MET:HE1	1.95	0.49
1:B:372:SER:HB3	1:B:375:MET:HG2	1.95	0.49
1:D:583:VAL:O	1:D:587:MET:HG3	2.13	0.49
1:B:501:PRO:HB3	1:B:503:ARG:NH2	2.26	0.49
1:D:617:PHE:CE1	1:D:709:LEU:HG	2.48	0.48
1:A:176:HIS:HB3	1:A:178:LYS:HE2	1.95	0.48
1:D:553:TYR:CE2	2:D:1201:F3L:C13	2.96	0.48

*Continued on next page...*



*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:217:ALA:O	1:C:220:THR:OG1	2.27	0.48
1:D:659:SER:HA	1:D:688:SER:HA	1.95	0.48
1:C:229:SER:HB3	1:C:231:PHE:CE1	2.47	0.48
1:B:344:LYS:HE2	1:B:344:LYS:HA	1.94	0.48
1:A:465:LYS:NZ	1:A:757:ARG:O	2.46	0.48
1:D:622:LEU:HD12	1:C:697:ILE:HG12	1.95	0.48
1:B:318:ASP:OD1	1:B:322:ASN:N	2.47	0.48
1:B:346:TYR:HE2	1:B:389:ILE:HG12	1.79	0.48
1:B:553:TYR:HE1	2:B:1201:F3L:C16	2.27	0.48
1:C:387:GLN:O	1:C:391:ARG:HG2	2.14	0.48
1:A:525:PHE:HB2	1:A:557:SER:HB2	1.96	0.48
1:D:546:ASP:HA	1:D:594:ARG:HH22	1.78	0.48
1:D:531:ASP:HB2	1:D:536:LYS:HD2	1.96	0.48
1:A:579:VAL:HG11	1:D:635:LEU:HD11	1.96	0.48
1:D:443:ILE:HD12	1:D:443:ILE:H	1.78	0.48
1:D:215:ASP:O	1:D:219:ARG:HG2	2.14	0.48
1:C:274:GLN:O	1:C:280:GLY:HA3	2.14	0.48
1:B:474:ASN:ND2	1:B:592:PHE:HE1	2.11	0.48
1:A:381:GLY:HA3	1:A:443:ILE:HD11	1.96	0.47
1:D:206:ARG:HH22	1:D:252:HIS:HB2	1.78	0.47
1:A:160:ARG:NH2	1:A:165:ASP:OD2	2.47	0.47
1:C:332:ALA:HB2	1:C:342:VAL:HG11	1.96	0.47
1:B:514:GLU:O	1:B:518:LEU:HG	2.15	0.47
1:D:195:LEU:HB3	1:D:196:PRO:HD3	1.96	0.47
1:C:502:TYR:CD2	1:C:511:LEU:HD23	2.23	0.47
1:B:472:TYR:HA	1:B:475:VAL:HG12	1.96	0.47
1:A:383:ILE:HD13	1:A:448:GLU:HG3	1.96	0.47
1:A:438:VAL:HG12	1:A:446:ARG:HG2	1.96	0.47
1:A:696:ILE:HD11	1:B:674:PHE:HB2	1.96	0.47
1:B:408:ASP:OD2	1:B:779:ARG:NH2	2.41	0.47
1:A:691:TYR:OH	1:B:572:GLU:OE2	2.17	0.47
1:B:317:GLN:HB3	1:B:321:GLY:HA2	1.97	0.47
1:D:224:ARG:NH1	1:D:225:GLU:OE1	2.47	0.47
1:C:315:ARG:NH1	1:C:353:CYS:HB2	2.18	0.47
1:A:445:ASN:HB2	1:A:449:MET:SD	2.55	0.47
1:D:718:MET:SD	1:B:715:ILE:HG13	2.55	0.47
1:A:314:MET:SD	1:A:353:CYS:HB3	2.55	0.46
1:D:398:ASP:OD1	1:D:398:ASP:N	2.47	0.46
1:B:474:ASN:ND2	2:B:1201:F3L:C26	2.78	0.46
1:A:254:VAL:HG11	1:A:300:ILE:HD12	1.98	0.46
1:A:391:ARG:HG3	1:A:405:LYS:HD3	1.96	0.46

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:269:ARG:NH1	1:D:319:SER:OG	2.48	0.46
1:C:638:PRO:HG3	1:C:660:CYS:HB3	1.96	0.46
1:C:781:ASP:OD1	1:C:781:ASP:N	2.44	0.46
1:D:222:ASN:O	1:D:226:PHE:N	2.48	0.46
1:D:303:TYR:O	1:D:307:ASN:HB3	2.15	0.46
1:C:237:ARG:H	1:C:270:GLY:HA2	1.81	0.46
1:C:511:LEU:HD13	1:C:511:LEU:HA	1.73	0.46
1:C:553:TYR:HE1	1:C:588:ASN:HB3	1.80	0.46
1:B:447:HIS:CG	1:B:731:HIS:HB3	2.51	0.46
1:A:396:ASP:OD1	1:A:396:ASP:N	2.48	0.46
1:D:680:MET:HE1	1:C:682:ASP:HA	1.98	0.46
1:C:414:VAL:HA	1:C:783:VAL:HG22	1.97	0.46
1:B:434:LEU:HD23	1:B:742:LEU:HD21	1.98	0.46
1:B:723:GLY:O	1:B:724:GLN:CB	2.64	0.46
1:D:197:LYS:HD2	1:D:197:LYS:HA	1.69	0.46
1:C:344:LYS:HE3	1:C:344:LYS:HB2	1.80	0.46
1:A:318:ASP:OD1	1:A:322:ASN:N	2.49	0.45
1:A:691:TYR:CD2	1:B:576:ALA:HB2	2.51	0.45
1:D:394:VAL:HG12	1:D:403:SER:HB2	1.97	0.45
1:C:332:ALA:O	1:C:382:LYS:HD2	2.16	0.45
1:A:633:VAL:HA	1:A:636:LEU:HD13	1.97	0.45
1:B:222:ASN:O	1:B:226:PHE:N	2.47	0.45
1:B:462:LYS:NZ	1:B:745:GLU:OE1	2.42	0.45
1:D:215:ASP:HA	1:D:218:GLU:OE2	2.17	0.45
1:D:472:TYR:HA	1:D:475:VAL:HG12	1.98	0.45
1:D:553:TYR:CE2	2:D:1201:F3L:CL14	3.07	0.45
1:A:192:LYS:HG3	1:A:196:PRO:HB2	1.99	0.45
1:D:674:PHE:HB2	1:C:696:ILE:HD11	1.99	0.45
1:D:714:LEU:HD21	1:B:714:LEU:HD21	1.99	0.45
1:C:209:THR:HG22	1:C:213:LEU:HD23	1.98	0.45
1:C:763:THR:OG1	1:C:774:ARG:NH1	2.49	0.45
1:B:504:THR:O	1:B:508:TYR:N	2.45	0.45
1:A:623:LEU:HA	1:A:626:ILE:HG22	1.98	0.45
1:D:563:SER:OG	1:D:577:VAL:HG23	2.16	0.45
1:D:723:GLY:O	1:D:724:GLN:CB	2.64	0.45
1:C:511:LEU:HD12	1:C:511:LEU:C	2.36	0.45
1:A:254:VAL:O	1:A:258:VAL:HG12	2.17	0.45
1:C:657:TYR:HB2	1:C:658:PRO:HD3	1.98	0.45
1:B:386:PHE:HE1	1:B:433:VAL:HG21	1.81	0.45
1:D:494:LEU:HD11	1:D:575:LEU:HD23	1.98	0.45
1:D:553:TYR:CE2	2:D:1201:F3L:C12	3.00	0.45

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:418:LEU:HD21	1:C:762:VAL:HG11	1.98	0.45
1:B:202:LEU:HD21	1:B:205:GLY:HA2	1.97	0.45
1:A:767:SER:OG	1:A:773:ASP:OD1	2.34	0.44
1:D:704:ILE:O	1:D:708:VAL:HG23	2.17	0.44
1:D:290:SER:HA	1:D:324:VAL:HG23	2.00	0.44
1:D:441:SER:O	1:D:446:ARG:NH1	2.50	0.44
1:C:381:GLY:HA2	1:C:449:MET:HE2	1.99	0.44
1:C:579:VAL:HG11	1:B:635:LEU:HD11	1.98	0.44
1:B:474:ASN:ND2	2:B:1201:F3L:F02	2.37	0.44
1:C:210:ILE:HD13	1:C:213:LEU:HD21	2.00	0.44
1:A:271:ARG:HH21	1:A:279:GLY:HA3	1.82	0.44
1:A:330:ALA:O	1:A:382:LYS:NZ	2.50	0.44
1:A:617:PHE:CE1	1:A:713:MET:HG2	2.53	0.44
1:D:240:THR:HG23	1:D:242:LEU:H	1.82	0.44
1:C:629:ALA:HB2	1:C:673:LEU:HD22	2.00	0.44
1:B:416:SER:HA	1:B:781:ASP:HA	1.99	0.44
1:B:443:ILE:HD12	1:B:443:ILE:H	1.82	0.44
1:C:176:HIS:HB3	1:C:178:LYS:HE2	2.00	0.44
1:C:340:LYS:HD3	1:C:340:LYS:HA	1.64	0.44
1:B:332:ALA:HB2	1:B:342:VAL:HG11	1.99	0.44
1:B:683:LEU:H	1:B:683:LEU:HD23	1.82	0.44
1:D:298:PRO:HG3	1:D:345:MET:HE1	2.00	0.44
1:C:275:PRO:HG3	1:C:283:TYR:CE2	2.52	0.44
1:D:250:CYS:O	1:D:254:VAL:HG23	2.17	0.44
1:D:536:LYS:HG2	1:D:537:CYS:H	1.83	0.44
1:B:732:ILE:HG23	1:B:736:GLN:HE22	1.83	0.44
1:A:357:PHE:CE2	1:A:359:ASP:HB3	2.52	0.43
1:D:268:ALA:HB1	1:D:273:PHE:CD2	2.52	0.43
1:C:317:GLN:CG	1:C:321:GLY:HA2	2.48	0.43
1:B:427:CYS:SG	1:B:757:ARG:NE	2.88	0.43
1:D:218:GLU:HG3	1:D:219:ARG:HD3	2.00	0.43
1:D:737:TRP:CE2	1:D:741:ILE:HD11	2.54	0.43
1:C:313:ASP:OD1	1:C:316:ARG:HB2	2.18	0.43
1:A:697:ILE:HG12	1:B:622:LEU:HD12	2.00	0.43
1:D:242:LEU:O	1:D:246:ILE:HG12	2.18	0.43
1:D:440:ASN:ND2	1:D:535:LYS:HD3	2.33	0.43
1:D:498:PRO:HA	1:D:499:PRO:HD3	1.88	0.43
1:B:583:VAL:O	1:B:587:MET:HG3	2.18	0.43
1:D:188:PRO:HA	1:D:232:ARG:HH21	1.84	0.43
1:D:313:ASP:N	1:D:313:ASP:OD1	2.50	0.43
1:C:488:THR:O	1:C:492:GLN:HG2	2.18	0.43

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:712:ASN:HA	1:C:715:ILE:HG22	2.00	0.43
1:A:637:ASN:HB3	1:A:660:CYS:HA	2.00	0.43
1:D:206:ARG:HE	1:D:206:ARG:HA	1.82	0.43
1:D:434:LEU:HD23	1:D:742:LEU:HD21	1.99	0.43
1:D:566:LEU:HB3	1:D:571:ILE:HB	2.00	0.43
1:B:737:TRP:CE2	1:B:741:ILE:HD11	2.53	0.43
1:A:170:LEU:HD12	1:A:216:ILE:HA	2.00	0.43
1:D:474:ASN:ND2	1:D:592:PHE:HE1	2.17	0.43
1:C:510:ARG:HG2	1:C:510:ARG:NH2	2.29	0.43
1:B:580:PHE:O	1:B:584:LEU:HD23	2.19	0.43
1:B:240:THR:HG22	1:B:243:HIS:ND1	2.33	0.43
1:B:398:ASP:OD1	1:B:398:ASP:N	2.49	0.43
1:A:466:PHE:CB	1:A:756:PHE:CZ	3.01	0.43
1:D:215:ASP:O	1:D:218:GLU:HG2	2.19	0.43
1:D:473:ILE:HA	1:D:476:VAL:HG22	2.01	0.43
1:C:504:THR:HG22	1:C:506:VAL:H	1.84	0.43
1:C:686:LEU:HD11	1:C:699:LEU:HD22	2.01	0.43
1:C:714:LEU:HD22	1:B:708:VAL:HG22	2.01	0.43
1:A:151:ARG:HB3	1:A:152:PRO:HD3	2.00	0.43
1:A:156:ASP:O	1:A:160:ARG:HG2	2.18	0.43
1:B:154:LEU:HA	1:B:157:ILE:HG22	2.01	0.43
1:B:207:ASN:O	1:B:253:TYR:OH	2.35	0.43
1:B:313:ASP:OD1	1:B:313:ASP:N	2.50	0.42
1:A:170:LEU:HB3	1:A:171:PRO:HD3	2.00	0.42
1:A:714:LEU:HD21	1:D:708:VAL:HG22	2.01	0.42
1:A:784:ASN:HB3	1:A:787:HIS:CD2	2.54	0.42
1:D:240:THR:HG22	1:D:243:HIS:ND1	2.35	0.42
1:B:229:SER:HB3	1:B:231:PHE:CE1	2.54	0.42
1:D:284:PHE:CZ	1:D:291:LEU:HD12	2.54	0.42
1:D:609:ILE:HD13	1:D:717:LEU:HD22	2.01	0.42
1:C:420:ASP:OD1	1:C:422:SER:N	2.52	0.42
1:C:513:GLY:O	1:C:517:THR:HG23	2.20	0.42
1:C:244:ILE:HA	1:C:247:GLU:HB3	2.02	0.42
1:C:386:PHE:HA	1:C:389:ILE:HG22	2.00	0.42
1:A:549:PHE:N	1:A:591:TYR:OH	2.41	0.42
1:D:732:ILE:CG2	1:D:736:GLN:HE22	2.30	0.42
1:C:170:LEU:HB3	1:C:171:PRO:HD3	2.02	0.42
1:C:485:PHE:CD2	1:C:582:LEU:HD12	2.55	0.42
1:B:181:THR:HG22	1:B:222:ASN:HD21	1.85	0.42
1:B:338:ASN:HA	1:B:341:PHE:CE1	2.54	0.42
1:D:286:GLU:HB2	1:D:318:ASP:HB2	2.02	0.42

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:156:ASP:O	1:C:160:ARG:HG3	2.19	0.42
1:C:386:PHE:CZ	1:C:390:ILE:HD11	2.55	0.42
1:B:222:ASN:OD1	1:B:225:GLU:HB3	2.20	0.42
1:B:635:LEU:HD22	1:B:695:PHE:HD1	1.84	0.42
1:A:742:LEU:O	1:A:746:ARG:HG3	2.19	0.42
1:D:408:ASP:OD2	1:D:779:ARG:NH2	2.45	0.42
1:D:785:TRP:CD1	1:C:341:PHE:HZ	2.37	0.42
1:C:571:ILE:HG22	1:C:573:ALA:H	1.85	0.42
1:B:195:LEU:HB3	1:B:196:PRO:HD3	2.02	0.42
1:B:326:HIS:HB3	1:B:376:MET:HE1	2.01	0.42
1:A:464:ARG:HA	1:A:464:ARG:HD3	1.75	0.41
1:A:178:LYS:HD2	1:A:185:PHE:CZ	2.54	0.41
1:D:367:ASN:OD1	1:D:371:LEU:N	2.54	0.41
1:D:698:LEU:O	1:D:701:THR:OG1	2.37	0.41
1:C:186:ARG:HE	1:C:193:THR:HG22	1.85	0.41
1:B:368:ASN:OD1	1:B:369:ASP:N	2.52	0.41
1:A:233:ASP:O	1:A:237:ARG:HG2	2.20	0.41
1:A:261:GLY:HA3	1:A:309:HIS:CE1	2.54	0.41
1:D:210:ILE:HD13	1:D:253:TYR:OH	2.21	0.41
1:D:674:PHE:CB	1:C:696:ILE:HD11	2.50	0.41
1:C:635:LEU:HD21	1:C:694:VAL:HG13	2.02	0.41
1:D:421:LEU:HD12	1:D:424:LEU:HB2	2.01	0.41
1:D:525:PHE:HB2	1:D:557:SER:HB3	2.02	0.41
1:D:552:LEU:HD23	1:D:588:ASN:OD1	2.20	0.41
1:D:602:TYR:O	1:D:605:MET:HG3	2.20	0.41
1:C:497:THR:OG1	1:C:499:PRO:HD2	2.21	0.41
1:C:512:ALA:O	1:C:515:VAL:N	2.53	0.41
1:C:734:LYS:HZ2	1:C:737:TRP:HZ3	1.68	0.41
1:C:579:VAL:O	1:C:583:VAL:HG23	2.20	0.41
1:A:610:LEU:HD23	1:A:610:LEU:H	1.85	0.41
1:D:244:ILE:O	1:D:248:ARG:HG2	2.21	0.41
1:A:617:PHE:CZ	1:A:713:MET:HG2	2.56	0.41
1:A:634:SER:O	1:B:575:LEU:HD21	2.21	0.41
1:D:371:LEU:HD21	1:D:379:LYS:HD3	2.01	0.41
1:D:438:VAL:O	1:D:446:ARG:NH2	2.39	0.41
1:B:151:ARG:HH22	1:B:152:PRO:HG3	1.86	0.41
1:B:170:LEU:HD21	1:B:216:ILE:HG12	2.03	0.41
1:A:200:LEU:HD12	1:A:244:ILE:HG21	2.02	0.41
1:A:664:GLU:N	1:A:664:GLU:OE1	2.54	0.41
1:A:708:VAL:HG22	1:B:717:LEU:HD11	2.02	0.41
1:D:413:PRO:HB3	1:D:785:TRP:CE2	2.56	0.41

*Continued on next page...*

*Continued from previous page...*

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:231:PHE:O	1:C:237:ARG:HD2	2.21	0.41
1:B:474:ASN:CG	2:B:1201:F3L:C27	2.88	0.41
1:A:214:LEU:O	1:A:218:GLU:OE1	2.39	0.41
1:A:396:ASP:OD2	1:A:399:THR:OG1	2.38	0.41
1:A:490:TYR:O	1:D:661:ARG:NH2	2.52	0.41
1:D:363:GLU:OE2	1:D:392:ARG:NH1	2.54	0.41
1:D:366:LEU:HD23	1:D:370:GLY:HA2	2.02	0.41
1:D:494:LEU:HD23	1:D:494:LEU:HA	1.93	0.41
1:D:594:ARG:HD3	1:D:736:GLN:HB3	2.02	0.41
1:C:317:GLN:HG3	1:C:321:GLY:HA2	2.03	0.41
1:B:333:ASP:OD1	1:B:338:ASN:ND2	2.32	0.41
1:B:251:LYS:HA	1:B:254:VAL:HG12	2.02	0.41
1:B:498:PRO:HA	1:B:499:PRO:HD3	1.85	0.41
1:A:446:ARG:HD2	1:A:735:LEU:HD11	2.03	0.40
1:D:200:LEU:HD12	1:D:244:ILE:HG21	2.02	0.40
1:C:192:LYS:HD2	1:C:197:LYS:HD2	2.03	0.40
1:C:623:LEU:HA	1:C:626:ILE:HG22	2.03	0.40
1:A:354:ALA:HB2	1:A:402:LEU:HD11	2.04	0.40
1:D:435:GLU:OE2	1:D:436:ILE:HG13	2.21	0.40
1:C:234:ILE:HB	1:C:271:ARG:NH1	2.36	0.40
1:C:236:TYR:O	1:C:238:GLY:N	2.54	0.40
1:C:393:GLU:HA	1:C:403:SER:HB2	2.03	0.40
1:C:424:LEU:HA	1:C:433:VAL:HB	2.03	0.40
1:B:229:SER:HB3	1:B:231:PHE:HE1	1.86	0.40
1:B:501:PRO:HA	1:B:503:ARG:NH1	2.36	0.40
1:A:478:TYR:HE2	1:A:589:ALA:HB2	1.85	0.40
1:D:195:LEU:O	1:D:199:LEU:HD23	2.21	0.40
1:C:313:ASP:OD1	1:C:313:ASP:N	2.54	0.40
1:A:349:LEU:HD12	1:A:349:LEU:HA	1.96	0.40
1:D:340:LYS:O	1:D:344:LYS:HG2	2.21	0.40
1:D:372:SER:HB3	1:D:375:MET:HG2	2.02	0.40
1:D:386:PHE:CE2	1:D:390:ILE:HD11	2.57	0.40
1:D:677:THR:HG23	1:D:706:THR:HG21	2.04	0.40
1:D:732:ILE:O	1:D:736:GLN:OE1	2.40	0.40
1:C:199:LEU:O	1:C:202:LEU:HG	2.20	0.40
1:C:276:LYS:HA	1:C:280:GLY:O	2.22	0.40
1:B:197:LYS:HD2	1:B:197:LYS:HA	1.89	0.40
1:D:153:ILE:O	1:D:157:ILE:HG12	2.21	0.40
1:D:375:MET:HE3	1:D:436:ILE:HD12	2.02	0.40
1:C:485:PHE:CD1	1:C:582:LEU:HD12	2.57	0.40
1:C:633:VAL:HG21	1:C:666:PHE:HD1	1.86	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	585/1144 (51%)	545 (93%)	39 (7%)	1 (0%)	47	78
1	B	617/1144 (54%)	571 (92%)	45 (7%)	1 (0%)	47	78
1	C	583/1144 (51%)	543 (93%)	40 (7%)	0	100	100
1	D	616/1144 (54%)	568 (92%)	48 (8%)	0	100	100
All	All	2401/4576 (52%)	2227 (93%)	172 (7%)	2 (0%)	54	83

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	438	VAL
1	B	730	LYS

### 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	515/991 (52%)	513 (100%)	2 (0%)	91	95
1	B	546/991 (55%)	545 (100%)	1 (0%)	93	97
1	C	514/991 (52%)	510 (99%)	4 (1%)	81	89
1	D	544/991 (55%)	543 (100%)	1 (0%)	93	97
All	All	2119/3964 (54%)	2111 (100%)	8 (0%)	91	95



All (8) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	754	LYS
1	A	756	PHE
1	D	224	ARG
1	C	509	LEU
1	C	510	ARG
1	C	511	LEU
1	C	754	LYS
1	B	391	ARG

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

Mol	Chain	Res	Type
1	A	239	GLN
1	D	474	ASN
1	B	474	ASN

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

2 ligands are modelled in this entry.

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



Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	F3L	D	1201	-	29,30,30	7.18	24 (82%)	33,45,45	2.97	14 (42%)
2	F3L	B	1201	-	29,30,30	7.19	24 (82%)	33,45,45	3.13	14 (42%)

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	F3L	D	1201	-	-	3/18/36/36	0/3/3/3
2	F3L	B	1201	-	-	3/18/36/36	0/3/3/3

All (48) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	1201	F3L	C07-N08	-14.07	1.33	1.48
2	D	1201	F3L	C07-N08	-14.05	1.33	1.48
2	B	1201	F3L	C19-N08	13.55	1.64	1.48
2	D	1201	F3L	C19-N08	13.32	1.64	1.48
2	B	1201	F3L	C10-N11	10.37	1.49	1.33
2	D	1201	F3L	C10-N11	10.29	1.49	1.33
2	D	1201	F3L	C16-C10	9.95	1.54	1.37
2	B	1201	F3L	C16-C10	9.92	1.54	1.37
2	D	1201	F3L	C25-C26	9.69	1.55	1.40
2	B	1201	F3L	C25-C26	9.69	1.55	1.40
2	D	1201	F3L	C03-C01	9.53	1.54	1.37
2	D	1201	F3L	C03-C04	9.29	1.55	1.38
2	B	1201	F3L	C03-C01	9.28	1.53	1.37
2	B	1201	F3L	C10-S09	9.18	1.86	1.78
2	B	1201	F3L	C03-C04	9.14	1.54	1.38
2	D	1201	F3L	C10-S09	8.93	1.86	1.78
2	D	1201	F3L	C25-C24	8.72	1.54	1.38
2	B	1201	F3L	C25-C24	8.71	1.54	1.38
2	D	1201	F3L	C26-C01	8.04	1.53	1.38
2	B	1201	F3L	C12-N11	7.97	1.51	1.34
2	B	1201	F3L	C26-C01	7.93	1.53	1.38
2	D	1201	F3L	C12-N11	7.85	1.51	1.34
2	D	1201	F3L	C24-C04	7.52	1.53	1.38
2	B	1201	F3L	C24-C04	7.48	1.53	1.38
2	B	1201	F3L	C12-C13	6.92	1.53	1.38
2	D	1201	F3L	C12-C13	6.92	1.53	1.38

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	1201	F3L	C16-C15	6.79	1.51	1.38
2	D	1201	F3L	C15-C13	6.76	1.50	1.38
2	B	1201	F3L	C16-C15	6.75	1.51	1.38
2	B	1201	F3L	C15-C13	6.69	1.50	1.38
2	B	1201	F3L	S09-N08	6.46	1.72	1.63
2	D	1201	F3L	C26-C27	6.34	1.53	1.44
2	B	1201	F3L	C26-C27	6.23	1.53	1.44
2	D	1201	F3L	S09-N08	6.11	1.72	1.63
2	B	1201	F3L	C22-C20	4.92	1.60	1.56
2	D	1201	F3L	C22-C20	4.88	1.60	1.56
2	B	1201	F3L	O21-C20	-4.80	1.36	1.44
2	D	1201	F3L	O21-C20	-4.66	1.36	1.44
2	B	1201	F3L	O18-S09	3.05	1.46	1.43
2	D	1201	F3L	O18-S09	2.99	1.46	1.43
2	D	1201	F3L	C07-C06	2.94	1.60	1.53
2	D	1201	F3L	O05-C04	2.93	1.44	1.38
2	D	1201	F3L	O17-S09	2.91	1.46	1.43
2	B	1201	F3L	O17-S09	2.87	1.46	1.43
2	B	1201	F3L	O05-C04	2.86	1.43	1.38
2	B	1201	F3L	C07-C06	2.84	1.59	1.53
2	B	1201	F3L	C13-CL14	2.23	1.79	1.74
2	D	1201	F3L	C13-CL14	2.14	1.79	1.74

All (28) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	1201	F3L	O18-S09-O17	-11.30	101.20	119.52
2	D	1201	F3L	O18-S09-O17	-10.84	101.95	119.52
2	D	1201	F3L	O17-S09-N08	5.44	111.64	106.69
2	B	1201	F3L	O17-S09-N08	5.40	111.61	106.69
2	D	1201	F3L	O18-S09-N08	5.28	111.50	106.69
2	B	1201	F3L	O18-S09-N08	5.27	111.49	106.69
2	B	1201	F3L	C16-C10-N11	-4.98	119.81	125.28
2	D	1201	F3L	C16-C10-N11	-4.64	120.19	125.28
2	B	1201	F3L	S09-C10-N11	4.57	120.51	114.76
2	B	1201	F3L	C12-N11-C10	4.19	120.37	115.91
2	D	1201	F3L	C12-N11-C10	3.93	120.09	115.91
2	D	1201	F3L	S09-C10-N11	3.87	119.63	114.76
2	B	1201	F3L	C07-N08-C19	-3.75	102.72	109.99
2	D	1201	F3L	C07-N08-C19	-3.54	103.13	109.99
2	B	1201	F3L	C07-N08-S09	3.45	124.65	119.62
2	B	1201	F3L	C03-C01-C26	-2.87	119.53	122.89

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	1201	F3L	C25-C26-C01	2.61	120.01	117.49
2	D	1201	F3L	C03-C01-C26	-2.60	119.85	122.89
2	D	1201	F3L	O17-S09-C10	2.54	112.08	107.50
2	B	1201	F3L	C19-N08-S09	2.52	124.56	120.11
2	D	1201	F3L	C07-N08-S09	2.48	123.24	119.62
2	B	1201	F3L	C20-C22-N23	-2.36	109.21	114.77
2	D	1201	F3L	C25-C26-C01	2.36	119.76	117.49
2	D	1201	F3L	O18-S09-C10	2.35	111.73	107.50
2	D	1201	F3L	C20-C22-N23	-2.33	109.29	114.77
2	B	1201	F3L	F02-C01-C26	2.18	120.55	117.67
2	B	1201	F3L	O17-S09-C10	2.12	111.32	107.50
2	D	1201	F3L	C19-N08-S09	2.04	123.71	120.11

There are no chirality outliers.

All (6) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	D	1201	F3L	C07-N08-S09-O18
2	D	1201	F3L	C19-N08-S09-O18
2	D	1201	F3L	C07-N08-S09-C10
2	B	1201	F3L	C01-C26-C27-N28
2	B	1201	F3L	C24-C04-O05-C06
2	B	1201	F3L	C03-C04-O05-C06

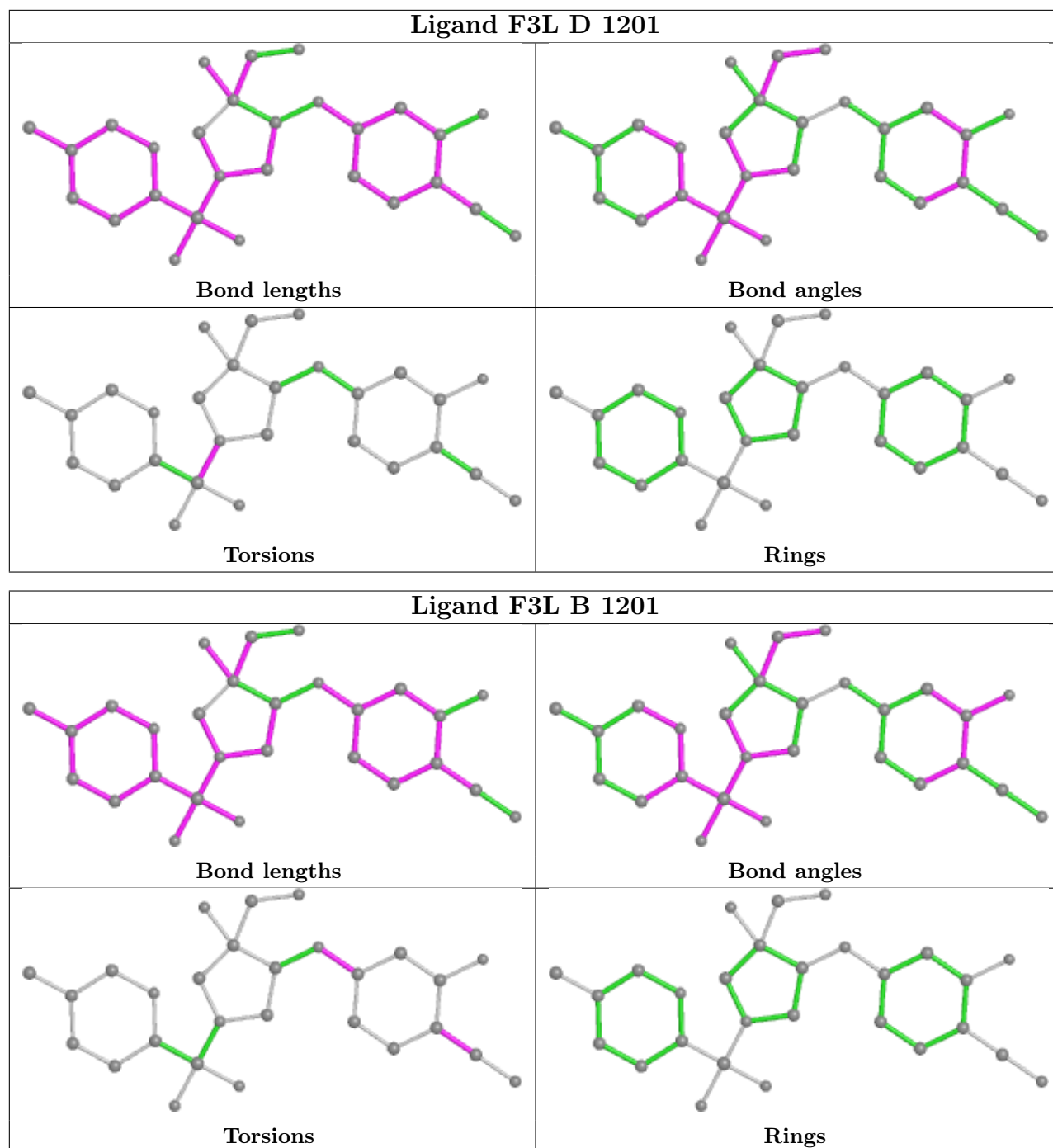
There are no ring outliers.

2 monomers are involved in 23 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	1201	F3L	12	0
2	B	1201	F3L	11	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

There are no chain breaks in this entry.