



# Full wwPDB X-ray Structure Validation Report ⓘ

Feb 15, 2024 – 05:09 AM EST

PDB ID : 3NL3  
Title : The Crystal Structure of *Candida glabrata* THI6, a Bifunctional Enzyme involved in Thiamin Biosynthesis of Eukaryotes  
Authors : Paul, D.; Chatterjee, A.; Begley, T.P.; Ealick, S.E.  
Deposited on : 2010-06-21  
Resolution : 3.01 Å (reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ 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:

MolProbity : 4.02b-467  
Mogul : 1.8.5 (274361), CSD as541be (2020)  
Xtriage (Phenix) : 1.13  
EDS : 2.36  
buster-report : 1.1.7 (2018)  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
Refmac : 5.8.0158  
CCP4 : 7.0.044 (Gargrove)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.36

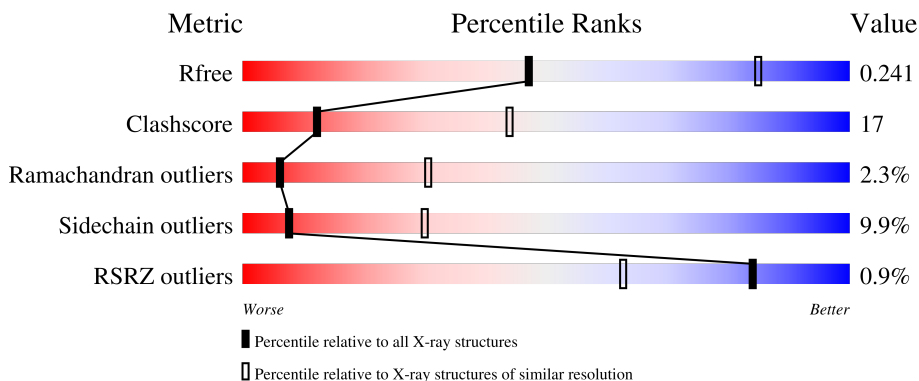
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.01 Å.

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



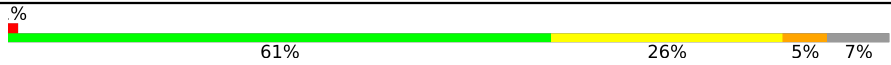
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	130704	2092 (3.00-3.00)
Clashscore	141614	2416 (3.00-3.00)
Ramachandran outliers	138981	2333 (3.00-3.00)
Sidechain outliers	138945	2336 (3.00-3.00)
RSRZ outliers	127900	1990 (3.00-3.00)

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  $\geq 3$ , 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  $\leq 5\%$ . 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	540	
1	B	540	
1	C	540	
1	D	540	
1	E	540	

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Mol	Chain	Length	Quality of chain
1	F	540	 <p>%</p> <p>61% 26% 5% 7%</p>

## 2 Entry composition [i](#)

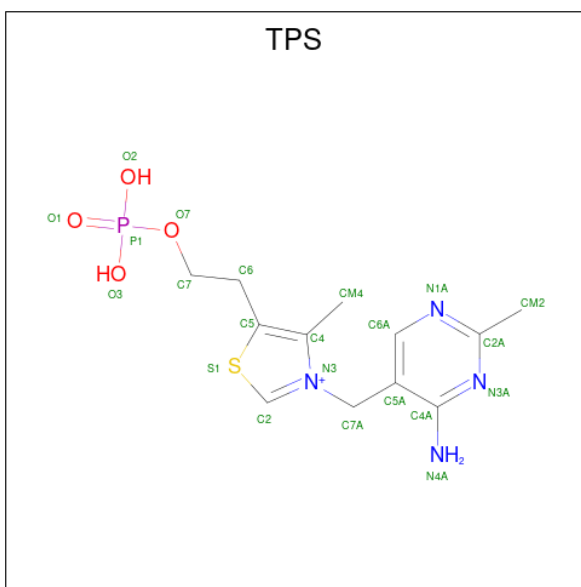
There are 3 unique types of molecules in this entry. The entry contains 22780 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Thiamine biosynthetic bifunctional enzyme.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	513	Total 3808	C 2407	N 644	O 736	S 21	0	0	0
1	B	503	Total 3767	C 2382	N 634	O 732	S 19	0	0	0
1	C	506	Total 3788	C 2397	N 638	O 732	S 21	0	0	0
1	D	504	Total 3768	C 2386	N 637	O 725	S 20	0	0	0
1	E	501	Total 3749	C 2371	N 631	O 728	S 19	0	0	0
1	F	502	Total 3756	C 2378	N 633	O 725	S 20	0	0	0

- Molecule 2 is THIAMIN PHOSPHATE (three-letter code: TPS) (formula: C<sub>12</sub>H<sub>18</sub>N<sub>4</sub>O<sub>4</sub>PS).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	
2	A	1	Total	C	N	O	P	S	0	0
			22	12	4	4	1	1		
2	B	1	Total	C	N	O	P	S	0	0
			22	12	4	4	1	1		
2	C	1	Total	C	N	O	P	S	0	0
			22	12	4	4	1	1		
2	D	1	Total	C	N	O	P	S	0	0
			22	12	4	4	1	1		
2	E	1	Total	C	N	O	P	S	0	0
			22	12	4	4	1	1		
2	F	1	Total	C	N	O	P	S	0	0
			22	12	4	4	1	1		

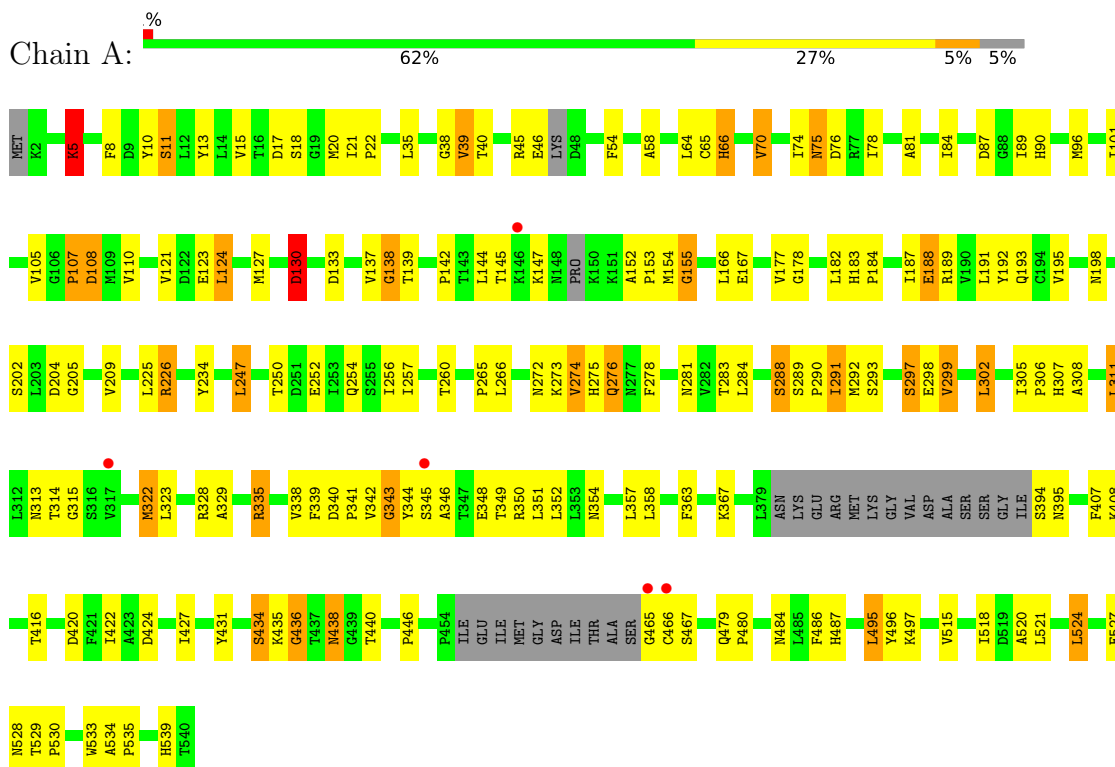
- Molecule 3 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	3	Total	Mg	0	0
			3	3		
3	B	1	Total	Mg	0	0
			1	1		
3	C	2	Total	Mg	0	0
			2	2		
3	D	3	Total	Mg	0	0
			3	3		
3	E	1	Total	Mg	0	0
			1	1		
3	F	2	Total	Mg	0	0
			2	2		

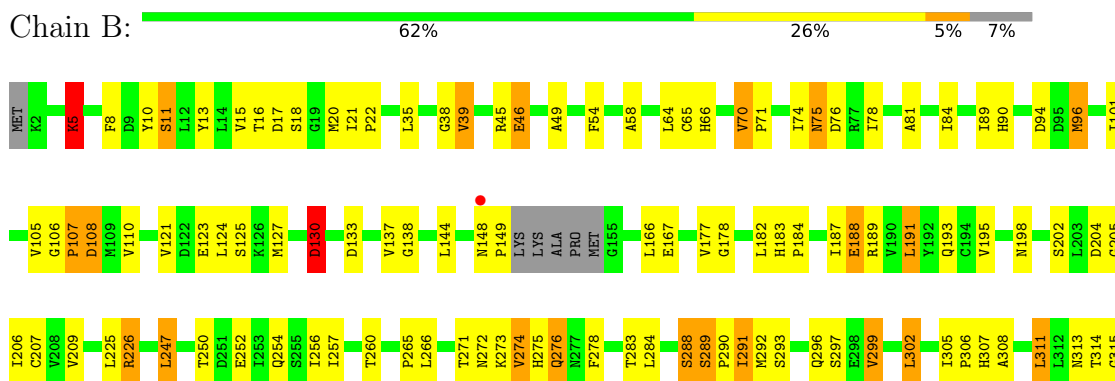
### 3 Residue-property plots

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.

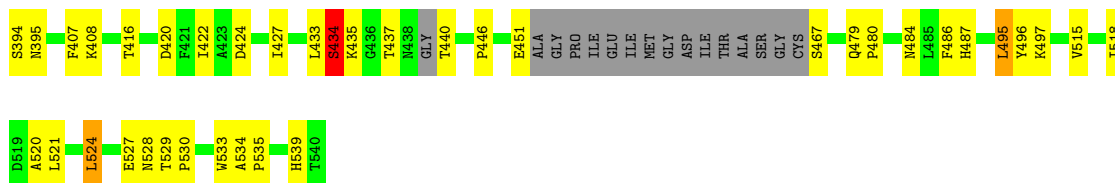
- Molecule 1: Thiamine biosynthetic bifunctional enzyme



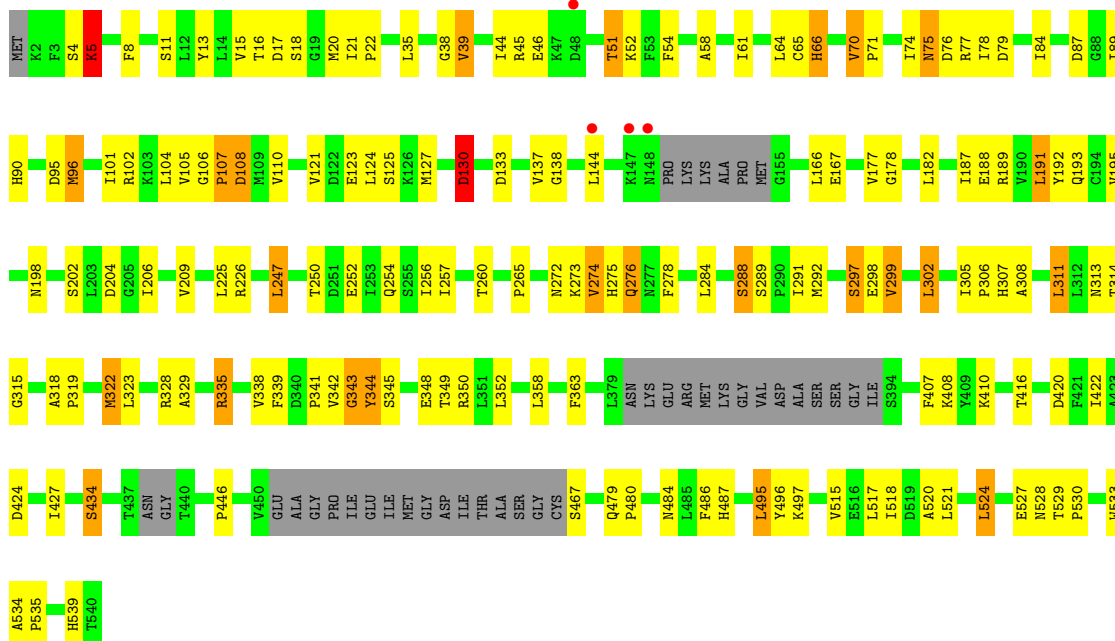
- Molecule 1: Thiamine biosynthetic bifunctional enzyme



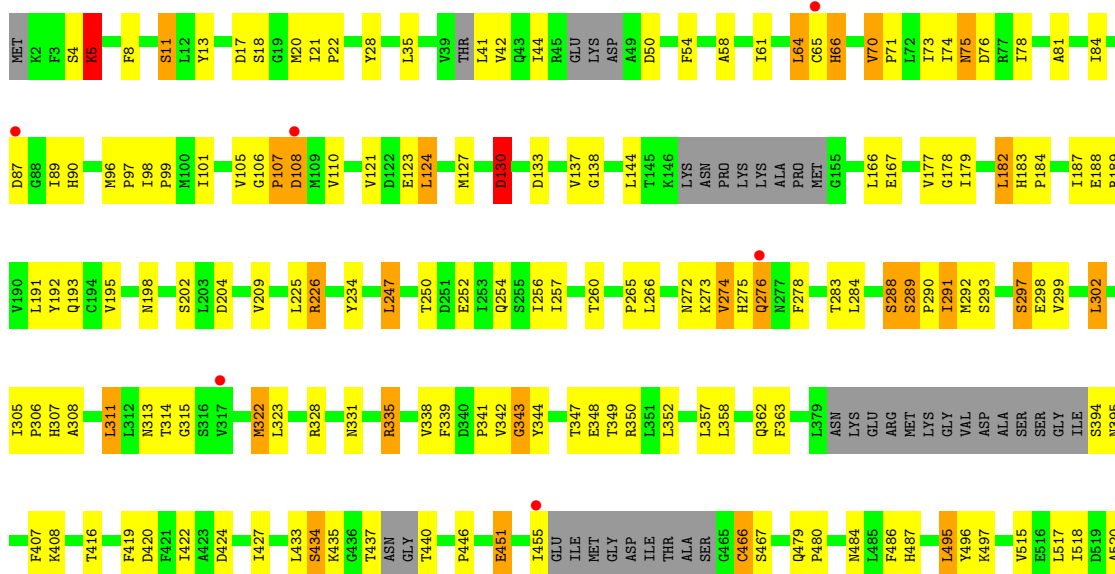




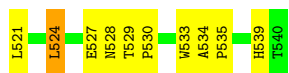
• Molecule 1: Thiamine biosynthetic bifunctional enzyme



• Molecule 1: Thiamine biosynthetic bifunctional enzyme







## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	104.54Å 154.29Å 148.63Å 90.00° 102.55° 90.00°	Depositor
Resolution (Å)	48.00 – 3.01 48.47 – 3.01	Depositor EDS
% Data completeness (in resolution range)	92.4 (48.00-3.01) 92.6 (48.47-3.01)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.63 (at 3.01Å)	Xtrriage
Refinement program	PHENIX	Depositor
R, $R_{free}$	0.212 , 0.242 0.211 , 0.241	Depositor DCC
$R_{free}$ test set	4214 reflections (4.98%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	56.0	Xtrriage
Anisotropy	0.440	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.31 , 49.8	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.48$ , $\langle L^2 \rangle = 0.31$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.91	EDS
Total number of atoms	22780	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	68.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 13.31% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

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

## 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: MG, TPS

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	0.40	0/3869	0.58	0/5250
1	B	0.40	0/3826	0.58	1/5191 (0.0%)
1	C	0.40	1/3848 (0.0%)	0.57	1/5218 (0.0%)
1	D	0.41	0/3827	0.58	1/5191 (0.0%)
1	E	0.42	0/3808	0.58	0/5168
1	F	0.41	0/3814	0.57	0/5171
All	All	0.41	1/22992 (0.0%)	0.58	3/31189 (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	2
1	B	0	1
1	D	0	1
All	All	0	4

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	207	CYS	CB-SG	-5.53	1.72	1.81

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	149	PRO	N-CA-CB	6.20	110.73	103.30
1	B	149	PRO	N-CA-CB	6.18	110.72	103.30
1	D	149	PRO	N-CA-CB	6.02	110.53	103.30

There are no chirality outliers.

All (4) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	343	GLY	Peptide
1	A	435	LYS	Peptide
1	B	130	ASP	Peptide
1	D	46	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	3808	0	3781	145	0
1	B	3767	0	3753	122	0
1	C	3788	0	3786	134	0
1	D	3768	0	3767	154	0
1	E	3749	0	3735	123	0
1	F	3756	0	3758	132	0
2	A	22	0	16	3	0
2	B	22	0	16	0	0
2	C	22	0	16	1	0
2	D	22	0	16	0	0
2	E	22	0	16	2	0
2	F	22	0	16	1	0
3	A	3	0	0	0	0
3	B	1	0	0	0	0
3	C	2	0	0	0	0
3	D	3	0	0	0	0
3	E	1	0	0	0	0
3	F	2	0	0	0	0
All	All	22780	0	22676	771	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 17.

All (771) 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:D:77:ARG:HH12	1:E:77:ARG:HG2	1.07	1.13
1:D:12:LEU:HG	1:D:39:VAL:HG22	1.31	1.07
1:A:265:PRO:HD2	1:A:288:SER:HB3	1.37	1.06
1:D:47:LYS:HA	1:D:48:ASP:O	1.56	1.04
1:D:77:ARG:HG2	1:E:77:ARG:HH12	1.21	1.02
1:E:265:PRO:HD2	1:E:288:SER:HB3	1.42	1.01
1:D:265:PRO:HD2	1:D:288:SER:HB3	1.43	1.00
1:F:265:PRO:HD2	1:F:288:SER:HB3	1.40	0.99
1:C:265:PRO:HD2	1:C:288:SER:HB3	1.42	0.97
1:C:41:LEU:HD21	1:C:73:ILE:CD1	1.94	0.97
1:D:47:LYS:HA	1:D:48:ASP:C	1.83	0.95
1:A:344:TYR:CD2	1:A:345:SER:HB3	2.02	0.94
1:B:265:PRO:HD2	1:B:288:SER:HB3	1.48	0.93
1:D:12:LEU:O	1:D:39:VAL:HA	1.71	0.91
1:D:77:ARG:NH1	1:E:77:ARG:HG2	1.86	0.91
1:C:41:LEU:HD21	1:C:73:ILE:HD12	1.53	0.90
1:D:47:LYS:CB	1:D:49:ALA:HB2	2.02	0.89
1:A:167:GLU:HG2	1:A:198:ASN:HD21	1.40	0.85
1:D:484:ASN:HD22	1:D:487:HIS:H	1.23	0.85
1:F:167:GLU:HG2	1:F:198:ASN:HD21	1.41	0.84
1:D:77:ARG:HH11	1:E:77:ARG:NH1	1.74	0.84
1:F:41:LEU:HD12	1:F:42:VAL:H	1.41	0.84
1:F:484:ASN:HD22	1:F:487:HIS:H	1.25	0.84
1:D:167:GLU:HG2	1:D:198:ASN:HD21	1.43	0.83
1:B:484:ASN:HD22	1:B:487:HIS:H	1.28	0.81
1:E:89:ILE:HD11	1:E:101:ILE:HG21	1.60	0.81
1:C:484:ASN:HD22	1:C:487:HIS:H	1.27	0.81
1:E:484:ASN:HD22	1:E:487:HIS:H	1.27	0.81
1:B:89:ILE:HD11	1:B:101:ILE:HG21	1.61	0.81
1:A:484:ASN:HD22	1:A:487:HIS:H	1.29	0.80
1:E:167:GLU:HG2	1:E:198:ASN:HD21	1.46	0.80
1:D:273:LYS:HA	1:D:276:GLN:HG3	1.61	0.80
1:C:167:GLU:HG2	1:C:198:ASN:HD21	1.47	0.80
1:F:204:ASP:OD1	1:F:434:SER:HB3	1.83	0.79
1:F:343:GLY:HA2	1:F:350:ARG:HD3	1.65	0.79
1:A:89:ILE:HD11	1:A:101:ILE:HG21	1.63	0.78
1:D:12:LEU:HG	1:D:39:VAL:CG2	2.11	0.78
1:D:204:ASP:OD1	1:D:434:SER:HB3	1.83	0.78
1:F:89:ILE:HD11	1:F:101:ILE:HG21	1.63	0.78
1:D:49:ALA:HA	1:D:50:ASP:CB	2.13	0.77
1:D:77:ARG:NH1	1:E:77:ARG:NH1	2.33	0.77
1:B:167:GLU:HG2	1:B:198:ASN:HD21	1.49	0.77

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:47:LYS:CA	1:D:48:ASP:C	2.54	0.77
1:C:343:GLY:HA2	1:C:350:ARG:HD3	1.67	0.76
1:D:77:ARG:HH11	1:E:77:ARG:HH11	1.31	0.76
1:D:89:ILE:HD11	1:D:101:ILE:HG21	1.67	0.76
1:C:419:PHE:CE1	1:C:451:GLU:HG2	2.22	0.75
1:C:89:ILE:HD11	1:C:101:ILE:HG21	1.67	0.75
1:A:438:ASN:C	1:A:440:THR:H	1.88	0.75
1:E:38:GLY:O	1:E:39:VAL:O	2.05	0.74
1:A:204:ASP:OD1	1:A:434:SER:HB3	1.86	0.74
1:A:438:ASN:C	1:A:440:THR:N	2.40	0.74
1:B:343:GLY:HA2	1:B:350:ARG:HD3	1.68	0.74
1:D:343:GLY:HA2	1:D:350:ARG:HD3	1.69	0.73
1:D:52:LYS:HB2	1:E:95:ASP:O	1.89	0.73
1:E:343:GLY:HA2	1:E:350:ARG:HD3	1.70	0.73
1:D:484:ASN:ND2	1:D:487:HIS:H	1.87	0.73
1:D:77:ARG:HG2	1:E:77:ARG:NH1	1.99	0.73
1:D:314:THR:H	1:D:342:VAL:HG23	1.54	0.72
1:B:204:ASP:OD1	1:B:434:SER:HB3	1.89	0.71
1:F:484:ASN:ND2	1:F:487:HIS:H	1.89	0.71
1:D:107:PRO:O	1:D:108:ASP:HB2	1.91	0.70
1:C:41:LEU:HD21	1:C:73:ILE:HD11	1.73	0.70
1:B:94:ASP:O	1:F:50:ASP:HB3	1.92	0.70
1:F:455:ILE:HG22	1:F:455:ILE:O	1.90	0.70
1:A:343:GLY:HA2	1:A:350:ARG:HD3	1.73	0.70
1:F:107:PRO:O	1:F:108:ASP:HB2	1.92	0.70
1:D:344:TYR:O	1:D:345:SER:OG	2.06	0.69
1:E:204:ASP:OD1	1:E:434:SER:HB3	1.92	0.69
1:F:407:PHE:HE2	1:F:427:ILE:HD11	1.57	0.69
1:C:419:PHE:CD1	1:C:451:GLU:HG2	2.27	0.69
1:F:167:GLU:HG2	1:F:198:ASN:ND2	2.07	0.69
1:B:484:ASN:ND2	1:B:487:HIS:H	1.90	0.68
1:E:107:PRO:O	1:E:108:ASP:HB2	1.93	0.68
1:B:187:ILE:HD12	1:B:225:LEU:HD22	1.75	0.68
1:B:107:PRO:O	1:B:108:ASP:HB2	1.92	0.68
1:E:484:ASN:ND2	1:E:487:HIS:H	1.91	0.68
1:C:484:ASN:ND2	1:C:487:HIS:H	1.91	0.68
1:D:167:GLU:HG2	1:D:198:ASN:ND2	2.09	0.67
1:F:313:ASN:ND2	1:F:466:CYS:SG	2.67	0.67
1:A:78:ILE:HD12	1:A:96:MET:CE	2.25	0.67
1:A:107:PRO:O	1:A:108:ASP:HB2	1.92	0.67
1:F:78:ILE:HD12	1:F:96:MET:CE	2.24	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:314:THR:H	1:F:342:VAL:HG23	1.58	0.67
1:C:107:PRO:O	1:C:108:ASP:HB2	1.93	0.67
1:E:187:ILE:HD12	1:E:225:LEU:HD22	1.77	0.67
1:A:273:LYS:HA	1:A:276:GLN:HG3	1.76	0.67
1:A:345:SER:HA	1:A:351:LEU:HD13	1.77	0.67
1:B:78:ILE:HD12	1:B:96:MET:HE3	1.76	0.67
1:A:187:ILE:HD12	1:A:225:LEU:HD22	1.75	0.67
1:B:314:THR:H	1:B:342:VAL:HG23	1.60	0.67
1:F:187:ILE:HD12	1:F:225:LEU:HD22	1.77	0.67
1:B:38:GLY:O	1:B:39:VAL:O	2.12	0.67
1:D:78:ILE:HD12	1:D:96:MET:CE	2.25	0.66
1:A:344:TYR:CE2	1:A:345:SER:HB3	2.30	0.66
1:B:273:LYS:HA	1:B:276:GLN:HG3	1.77	0.66
1:C:78:ILE:HD12	1:C:96:MET:CE	2.25	0.66
1:A:167:GLU:HG2	1:A:198:ASN:ND2	2.08	0.66
1:D:77:ARG:NH1	1:E:77:ARG:HH11	1.94	0.66
1:E:5:LYS:NZ	1:E:130:ASP:OD2	2.28	0.66
1:C:187:ILE:HD12	1:C:225:LEU:HD22	1.78	0.66
1:B:38:GLY:O	1:B:39:VAL:C	2.34	0.66
1:A:252:GLU:O	1:A:256:ILE:HG12	1.96	0.66
1:F:273:LYS:HA	1:F:276:GLN:HG3	1.78	0.66
1:D:187:ILE:HD12	1:D:225:LEU:HD22	1.77	0.66
1:E:273:LYS:HA	1:E:276:GLN:HG3	1.77	0.66
1:E:314:THR:H	1:E:342:VAL:HG23	1.61	0.66
1:C:273:LYS:HA	1:C:276:GLN:HG3	1.78	0.66
1:C:45:ARG:O	1:C:46:GLU:HG2	1.96	0.65
1:E:167:GLU:HG2	1:E:198:ASN:ND2	2.11	0.65
1:C:407:PHE:HE2	1:C:427:ILE:HD11	1.61	0.65
1:D:358:LEU:HD23	1:D:363:PHE:HE1	1.61	0.65
1:B:252:GLU:O	1:B:256:ILE:HG12	1.95	0.65
1:E:38:GLY:O	1:E:39:VAL:C	2.35	0.65
1:A:314:THR:H	1:A:342:VAL:HG23	1.61	0.65
1:A:5:LYS:NZ	1:A:130:ASP:OD2	2.29	0.65
1:E:78:ILE:HD12	1:E:96:MET:CE	2.27	0.65
1:E:358:LEU:HD23	1:E:363:PHE:HE1	1.62	0.65
1:A:484:ASN:ND2	1:A:487:HIS:H	1.92	0.64
1:F:252:GLU:O	1:F:256:ILE:HG12	1.98	0.64
1:A:358:LEU:HD23	1:A:363:PHE:HE1	1.62	0.64
1:C:5:LYS:NZ	1:C:130:ASP:OD2	2.30	0.64
1:D:339:PHE:CZ	1:D:341:PRO:HG3	2.33	0.64
1:A:123:GLU:O	1:A:127:MET:HG3	1.98	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:89:ILE:HG13	1:C:89:ILE:O	1.97	0.63
1:C:167:GLU:HG2	1:C:198:ASN:ND2	2.11	0.63
1:B:123:GLU:O	1:B:127:MET:HG3	1.98	0.63
1:C:252:GLU:O	1:C:256:ILE:HG12	1.98	0.63
1:F:41:LEU:HD12	1:F:42:VAL:N	2.10	0.63
1:D:20:MET:HE1	1:D:209:VAL:HG12	1.80	0.63
1:B:5:LYS:NZ	1:B:130:ASP:OD2	2.30	0.63
1:F:123:GLU:O	1:F:127:MET:HG3	1.99	0.63
1:F:339:PHE:CZ	1:F:341:PRO:HG3	2.34	0.63
1:F:358:LEU:HD23	1:F:363:PHE:HE1	1.64	0.63
1:B:78:ILE:HD12	1:B:96:MET:CE	2.29	0.62
1:D:47:LYS:CB	1:D:49:ALA:CB	2.77	0.62
1:D:78:ILE:HD12	1:D:96:MET:HE3	1.80	0.62
1:A:110:VAL:HA	1:A:133:ASP:OD2	2.00	0.62
1:A:254:GLN:HG3	1:A:528:ASN:HB3	1.82	0.62
1:C:314:THR:H	1:C:342:VAL:HG23	1.63	0.62
1:D:49:ALA:CA	1:D:50:ASP:CB	2.77	0.62
1:E:257:ILE:HD11	1:E:533:TRP:HH2	1.64	0.62
1:F:339:PHE:CE2	1:F:341:PRO:HG3	2.35	0.62
1:E:339:PHE:CZ	1:E:341:PRO:HG3	2.35	0.62
1:A:265:PRO:CD	1:A:288:SER:HB3	2.24	0.62
1:D:252:GLU:O	1:D:256:ILE:HG12	2.00	0.62
1:B:358:LEU:HD23	1:B:363:PHE:HE1	1.65	0.61
1:E:339:PHE:CE2	1:E:341:PRO:HG3	2.35	0.61
1:D:5:LYS:NZ	1:D:130:ASP:OD2	2.33	0.61
1:F:5:LYS:NZ	1:F:130:ASP:OD2	2.32	0.61
1:F:110:VAL:HA	1:F:133:ASP:OD2	1.99	0.61
1:E:252:GLU:O	1:E:256:ILE:HG12	2.00	0.61
1:D:407:PHE:HE2	1:D:427:ILE:HD11	1.66	0.61
1:D:257:ILE:HD11	1:D:533:TRP:HH2	1.66	0.61
1:E:78:ILE:HD12	1:E:96:MET:HE3	1.81	0.61
1:B:89:ILE:O	1:B:89:ILE:HG13	2.01	0.60
1:D:322:MET:HG3	1:D:323:LEU:N	2.15	0.60
1:F:101:ILE:O	1:F:105:VAL:HG22	2.01	0.60
1:B:322:MET:HG3	1:B:323:LEU:N	2.16	0.60
1:E:254:GLN:HG3	1:E:528:ASN:HB3	1.84	0.60
1:B:17:ASP:HB3	1:B:20:MET:HE1	1.84	0.60
1:B:254:GLN:HG3	1:B:528:ASN:HB3	1.84	0.60
1:E:407:PHE:HE2	1:E:427:ILE:HD11	1.67	0.60
1:A:322:MET:HG3	1:A:323:LEU:N	2.17	0.60
1:F:254:GLN:HG3	1:F:528:ASN:HB3	1.84	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:339:PHE:CZ	1:C:341:PRO:HG3	2.36	0.60
1:F:407:PHE:CE2	1:F:427:ILE:HD11	2.35	0.60
1:B:101:ILE:O	1:B:105:VAL:HG22	2.02	0.59
1:C:123:GLU:O	1:C:127:MET:HG3	2.02	0.59
1:F:308:ALA:O	1:F:335:ARG:HD3	2.02	0.59
1:A:407:PHE:HE2	1:A:427:ILE:HD11	1.66	0.59
1:B:339:PHE:CZ	1:B:341:PRO:HG3	2.37	0.59
1:B:167:GLU:HG2	1:B:198:ASN:ND2	2.13	0.59
1:C:254:GLN:HG3	1:C:528:ASN:HB3	1.85	0.59
1:D:339:PHE:CE2	1:D:341:PRO:HG3	2.37	0.59
1:D:110:VAL:HA	1:D:133:ASP:OD2	2.03	0.59
1:F:75:ASN:HB2	1:F:90:HIS:O	2.02	0.59
1:E:123:GLU:O	1:E:127:MET:HG3	2.03	0.59
1:B:110:VAL:HA	1:B:133:ASP:OD2	2.03	0.58
1:A:78:ILE:HD12	1:A:96:MET:HE3	1.84	0.58
1:A:152:ALA:HB1	1:A:153:PRO:HD2	1.83	0.58
1:D:254:GLN:HG3	1:D:528:ASN:HB3	1.85	0.58
1:E:322:MET:HG3	1:E:323:LEU:N	2.17	0.58
1:B:407:PHE:HE2	1:B:427:ILE:HD11	1.69	0.58
1:D:305:ILE:HG23	1:D:306:PRO:HD2	1.86	0.58
1:B:305:ILE:HG23	1:B:306:PRO:HD2	1.86	0.58
1:D:12:LEU:O	1:D:39:VAL:CA	2.49	0.58
1:A:65:CYS:HB3	1:A:70:VAL:O	2.04	0.58
1:A:339:PHE:CE2	1:A:341:PRO:HG3	2.39	0.58
1:C:407:PHE:CE2	1:C:427:ILE:HD11	2.39	0.57
1:F:78:ILE:HD12	1:F:96:MET:HE3	1.85	0.57
1:F:322:MET:HG3	1:F:323:LEU:N	2.19	0.57
1:D:394:SER:OG	1:D:395:ASN:N	2.35	0.57
1:F:257:ILE:HD11	1:F:533:TRP:HH2	1.69	0.57
1:A:247:LEU:HD13	1:A:539:HIS:NE2	2.19	0.57
1:C:20:MET:HE1	1:C:209:VAL:HG12	1.86	0.57
1:D:49:ALA:HA	1:D:50:ASP:C	2.23	0.57
1:F:96:MET:HG2	1:F:101:ILE:HG12	1.86	0.57
1:D:123:GLU:O	1:D:127:MET:HG3	2.04	0.57
1:F:137:VAL:CG2	1:F:178:GLY:HA2	2.35	0.57
1:B:308:ALA:O	1:B:335:ARG:HD3	2.03	0.57
1:A:137:VAL:CG2	1:A:178:GLY:HA2	2.34	0.57
1:A:344:TYR:CD2	1:A:344:TYR:C	2.78	0.57
1:E:101:ILE:O	1:E:105:VAL:HG22	2.05	0.57
1:A:339:PHE:CZ	1:A:341:PRO:HG3	2.40	0.56
1:B:339:PHE:CE2	1:B:341:PRO:HG3	2.40	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:274:VAL:HG23	1:D:275:HIS:ND1	2.20	0.56
1:D:94:ASP:O	1:E:52:LYS:HB3	2.05	0.56
1:B:257:ILE:HD11	1:B:533:TRP:HH2	1.70	0.56
1:C:110:VAL:HA	1:C:133:ASP:OD2	2.05	0.56
1:C:137:VAL:CG2	1:C:178:GLY:HA2	2.35	0.56
1:C:322:MET:HG3	1:C:323:LEU:N	2.19	0.56
1:F:89:ILE:HG13	1:F:89:ILE:O	2.03	0.56
1:F:314:THR:CG2	1:F:315:GLY:N	2.69	0.56
1:C:257:ILE:HD11	1:C:533:TRP:HH2	1.70	0.56
1:C:358:LEU:HD23	1:C:363:PHE:HE1	1.70	0.56
1:F:275:HIS:CD2	1:F:466:CYS:HB2	2.41	0.56
1:D:247:LEU:HD13	1:D:539:HIS:NE2	2.21	0.56
1:A:314:THR:CG2	1:A:315:GLY:N	2.69	0.56
1:B:65:CYS:HB3	1:B:70:VAL:O	2.06	0.56
1:E:247:LEU:HD13	1:E:539:HIS:NE2	2.21	0.56
1:A:74:ILE:HD11	1:A:84:ILE:HD11	1.88	0.56
1:D:308:ALA:O	1:D:335:ARG:HD3	2.06	0.56
1:F:65:CYS:HB3	1:F:70:VAL:O	2.06	0.56
1:B:137:VAL:CG2	1:B:178:GLY:HA2	2.37	0.55
1:E:96:MET:HG2	1:E:101:ILE:CG1	2.37	0.55
1:F:137:VAL:HG22	1:F:177:VAL:O	2.05	0.55
1:A:101:ILE:O	1:A:105:VAL:HG22	2.07	0.55
1:A:121:VAL:HG13	1:A:166:LEU:HD23	1.88	0.55
1:B:247:LEU:HD13	1:B:539:HIS:NE2	2.21	0.55
1:B:274:VAL:HG23	1:B:275:HIS:ND1	2.21	0.55
1:A:89:ILE:O	1:A:89:ILE:HG13	2.07	0.55
1:C:101:ILE:O	1:C:105:VAL:HG22	2.06	0.55
1:C:305:ILE:HG23	1:C:306:PRO:HD2	1.87	0.55
1:E:314:THR:CG2	1:E:315:GLY:N	2.69	0.55
1:F:247:LEU:HD13	1:F:539:HIS:NE2	2.22	0.55
1:C:78:ILE:HD12	1:C:96:MET:HE3	1.86	0.55
1:E:89:ILE:HG13	1:E:89:ILE:O	2.06	0.55
1:E:96:MET:HG2	1:E:101:ILE:HG12	1.88	0.55
1:E:110:VAL:HA	1:E:133:ASP:OD2	2.06	0.55
1:A:257:ILE:HD11	1:A:533:TRP:HH2	1.72	0.55
1:B:187:ILE:CD1	1:B:225:LEU:HD22	2.37	0.55
1:F:265:PRO:CD	1:F:288:SER:HB3	2.26	0.55
1:C:265:PRO:CD	1:C:288:SER:HB3	2.27	0.55
1:C:314:THR:CG2	1:C:315:GLY:N	2.70	0.55
1:E:65:CYS:HB3	1:E:70:VAL:O	2.07	0.55
1:E:274:VAL:HG23	1:E:275:HIS:ND1	2.22	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:75:ASN:HD22	1:B:76:ASP:HB3	1.72	0.54
1:C:247:LEU:HD13	1:C:539:HIS:NE2	2.21	0.54
1:D:314:THR:CG2	1:D:315:GLY:N	2.70	0.54
1:A:152:ALA:HB1	1:A:153:PRO:CD	2.37	0.54
1:E:187:ILE:CD1	1:E:225:LEU:HD22	2.37	0.54
1:F:394:SER:OG	1:F:395:ASN:N	2.39	0.54
1:D:137:VAL:CG2	1:D:178:GLY:HA2	2.37	0.54
1:A:305:ILE:HG23	1:A:306:PRO:HD2	1.90	0.54
1:C:65:CYS:HB3	1:C:70:VAL:O	2.07	0.54
1:D:12:LEU:HB3	1:D:39:VAL:HA	1.88	0.54
1:D:83:ALA:HB2	1:E:104:LEU:HD11	1.89	0.54
1:E:137:VAL:CG2	1:E:178:GLY:HA2	2.38	0.54
1:E:358:LEU:HD23	1:E:363:PHE:CE1	2.43	0.54
1:F:41:LEU:HD11	1:F:73:ILE:HG13	1.89	0.54
1:A:96:MET:HG2	1:A:101:ILE:HG12	1.89	0.54
1:D:121:VAL:HG13	1:D:166:LEU:HD23	1.88	0.54
1:E:265:PRO:CD	1:E:288:SER:HB3	2.28	0.54
1:A:407:PHE:CE2	1:A:427:ILE:HD11	2.42	0.54
1:B:314:THR:CG2	1:B:315:GLY:N	2.70	0.54
1:D:65:CYS:HB3	1:D:70:VAL:O	2.07	0.54
1:D:89:ILE:HG13	1:D:89:ILE:O	2.07	0.54
1:F:274:VAL:HG23	1:F:275:HIS:ND1	2.22	0.54
1:A:40:THR:O	1:A:70:VAL:CG2	2.56	0.54
1:B:74:ILE:HD11	1:B:84:ILE:HD11	1.89	0.54
1:C:275:HIS:CD2	1:C:466:CYS:CB	2.90	0.54
1:D:358:LEU:HD23	1:D:363:PHE:CE1	2.42	0.54
1:B:274:VAL:HG13	1:D:292:MET:HG3	1.90	0.54
1:A:137:VAL:HG22	1:A:177:VAL:O	2.08	0.54
1:C:137:VAL:HG22	1:C:177:VAL:O	2.08	0.54
1:E:75:ASN:HB2	1:E:90:HIS:O	2.08	0.54
1:C:339:PHE:CE2	1:C:341:PRO:HG3	2.43	0.53
1:C:520:ALA:O	1:C:524:LEU:HB2	2.09	0.53
1:D:313:ASN:HB3	1:D:342:VAL:CG2	2.39	0.53
1:F:74:ILE:HD11	1:F:84:ILE:HD11	1.90	0.53
1:A:274:VAL:HG23	1:A:275:HIS:ND1	2.23	0.53
1:C:96:MET:HG2	1:C:101:ILE:HG12	1.91	0.53
1:F:137:VAL:HG23	1:F:178:GLY:HA2	1.90	0.53
1:A:75:ASN:HD22	1:A:76:ASP:HB3	1.73	0.53
1:D:278:PHE:CE1	1:D:518:ILE:HD11	2.44	0.53
1:A:137:VAL:HG23	1:A:178:GLY:HA2	1.91	0.53
1:C:74:ILE:HD11	1:C:84:ILE:HD11	1.91	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:121:VAL:HG13	1:F:166:LEU:HD23	1.90	0.53
1:F:358:LEU:HD23	1:F:363:PHE:CE1	2.43	0.53
1:A:358:LEU:HD23	1:A:363:PHE:CE1	2.42	0.53
1:C:78:ILE:HD12	1:C:96:MET:HE2	1.91	0.53
1:E:137:VAL:HG22	1:E:177:VAL:O	2.08	0.53
1:C:274:VAL:HG23	1:C:275:HIS:ND1	2.24	0.53
1:E:305:ILE:HG23	1:E:306:PRO:HD2	1.91	0.53
1:E:314:THR:HG23	1:E:315:GLY:H	1.74	0.53
1:C:534:ALA:N	1:C:535:PRO:HD2	2.24	0.53
1:D:79:ASP:HB3	1:E:79:ASP:HB3	1.90	0.53
1:A:308:ALA:O	1:A:335:ARG:HD3	2.09	0.52
1:B:407:PHE:CE2	1:B:427:ILE:HD11	2.45	0.52
1:C:297:SER:HB2	1:D:349:THR:OG1	2.08	0.52
1:D:39:VAL:CG1	1:D:41:LEU:O	2.58	0.52
1:F:35:LEU:HD22	1:F:70:VAL:HG11	1.90	0.52
1:A:96:MET:HG2	1:A:101:ILE:CG1	2.39	0.52
1:C:422:ILE:HG22	1:C:486:PHE:HE1	1.74	0.52
1:D:407:PHE:CE2	1:D:427:ILE:HD11	2.44	0.52
1:A:187:ILE:CD1	1:A:225:LEU:HD22	2.40	0.52
1:C:75:ASN:HD22	1:C:76:ASP:HB3	1.74	0.52
1:E:308:ALA:O	1:E:335:ARG:HD3	2.10	0.52
1:F:275:HIS:CD2	1:F:466:CYS:CB	2.92	0.52
1:B:419:PHE:CE1	1:B:451:GLU:HG2	2.45	0.52
1:E:311:LEU:HD23	1:E:338:VAL:HB	1.92	0.52
1:F:314:THR:HG23	1:F:315:GLY:H	1.74	0.52
1:F:75:ASN:HD22	1:F:76:ASP:HB3	1.74	0.52
1:A:274:VAL:HG13	1:E:292:MET:HG3	1.90	0.52
1:B:265:PRO:CD	1:B:288:SER:HB3	2.32	0.52
1:A:121:VAL:CG1	1:A:166:LEU:HD23	2.40	0.52
1:B:121:VAL:HG13	1:B:166:LEU:HD23	1.92	0.52
1:C:137:VAL:HG23	1:C:178:GLY:HA2	1.92	0.52
1:D:8:PHE:CZ	1:D:110:VAL:HG21	2.45	0.52
1:A:314:THR:HG23	1:A:315:GLY:H	1.74	0.51
1:D:187:ILE:CD1	1:D:225:LEU:HD22	2.40	0.51
1:D:195:VAL:HG12	1:D:202:SER:HB3	1.93	0.51
1:E:407:PHE:CE2	1:E:427:ILE:HD11	2.43	0.51
1:F:305:ILE:HG23	1:F:306:PRO:HD2	1.91	0.51
1:D:101:ILE:O	1:D:105:VAL:HG22	2.10	0.51
1:B:358:LEU:HD23	1:B:363:PHE:CE1	2.43	0.51
1:C:527:GLU:HG3	1:C:527:GLU:O	2.11	0.51
1:A:416:THR:HA	1:A:420:ASP:OD1	2.09	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:529:THR:N	1:B:530:PRO:HD3	2.26	0.51
1:C:75:ASN:HB2	1:C:90:HIS:O	2.10	0.51
1:A:344:TYR:HD2	1:A:345:SER:HB3	1.63	0.51
1:E:75:ASN:HD22	1:E:76:ASP:HB3	1.76	0.51
1:E:121:VAL:HG13	1:E:166:LEU:HD23	1.92	0.51
1:F:187:ILE:CD1	1:F:225:LEU:HD22	2.39	0.51
1:B:137:VAL:HG23	1:B:178:GLY:HA2	1.93	0.51
1:F:534:ALA:N	1:F:535:PRO:HD2	2.26	0.51
1:C:276:GLN:HE22	1:C:292:MET:HB3	1.75	0.51
1:D:75:ASN:HD22	1:D:76:ASP:HB3	1.76	0.51
1:E:349:THR:OG1	1:F:297:SER:HB2	2.11	0.51
1:F:495:LEU:HD22	1:F:521:LEU:HD23	1.93	0.51
1:C:308:ALA:O	1:C:335:ARG:HD3	2.10	0.50
1:D:75:ASN:HB2	1:D:90:HIS:O	2.10	0.50
1:E:313:ASN:HB3	1:E:342:VAL:CG2	2.41	0.50
1:A:275:HIS:CD2	1:A:466:CYS:CB	2.93	0.50
1:D:278:PHE:HE1	1:D:518:ILE:HD11	1.75	0.50
1:F:422:ILE:HG22	1:F:486:PHE:HE1	1.76	0.50
1:C:15:VAL:O	1:C:209:VAL:HG13	2.12	0.50
1:D:276:GLN:HE22	1:D:292:MET:HB3	1.75	0.50
1:F:517:LEU:HD23	1:F:517:LEU:O	2.11	0.50
1:C:314:THR:HG23	1:C:315:GLY:H	1.77	0.50
1:F:278:PHE:CE2	1:F:467:SER:OG	2.65	0.50
1:A:529:THR:N	1:A:530:PRO:HD3	2.27	0.50
1:F:189:ARG:O	1:F:193:GLN:HG2	2.12	0.50
1:F:520:ALA:O	1:F:524:LEU:HB2	2.12	0.50
1:C:313:ASN:HB3	1:C:342:VAL:CG2	2.42	0.50
1:A:276:GLN:HE22	1:A:292:MET:HB3	1.76	0.50
1:A:313:ASN:HB3	1:A:342:VAL:CG2	2.41	0.50
1:D:121:VAL:CG1	1:D:166:LEU:HD23	2.42	0.50
1:D:534:ALA:N	1:D:535:PRO:HD2	2.27	0.50
1:A:75:ASN:HB2	1:A:90:HIS:O	2.12	0.50
1:A:302:LEU:HD13	1:F:347:THR:HG21	1.94	0.50
1:B:314:THR:HG23	1:B:315:GLY:H	1.77	0.50
1:C:35:LEU:HD22	1:C:70:VAL:HG11	1.93	0.50
1:C:358:LEU:HD23	1:C:363:PHE:CE1	2.47	0.50
1:C:529:THR:N	1:C:530:PRO:HD3	2.27	0.50
1:F:17:ASP:HB3	1:F:20:MET:HE1	1.94	0.50
1:F:276:GLN:HE22	1:F:292:MET:HB3	1.77	0.50
1:F:527:GLU:O	1:F:527:GLU:HG3	2.12	0.50
1:A:38:GLY:O	1:A:39:VAL:C	2.50	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:96:MET:HG2	1:D:101:ILE:HG12	1.93	0.49
1:A:154:MET:O	1:A:155:GLY:O	2.30	0.49
1:B:195:VAL:HG12	1:B:202:SER:HB3	1.94	0.49
1:C:298:GLU:OE1	1:D:350:ARG:HD2	2.13	0.49
1:F:278:PHE:CE1	1:F:518:ILE:HD11	2.47	0.49
1:B:517:LEU:HD23	1:B:517:LEU:O	2.12	0.49
1:D:416:THR:HA	1:D:420:ASP:OD1	2.12	0.49
1:E:276:GLN:HE22	1:E:292:MET:HB3	1.78	0.49
1:B:276:GLN:HE22	1:B:292:MET:HB3	1.76	0.49
1:F:78:ILE:HD12	1:F:96:MET:HE2	1.93	0.49
1:E:416:THR:HA	1:E:420:ASP:OD1	2.13	0.49
1:F:195:VAL:HG12	1:F:202:SER:HB3	1.95	0.49
1:D:35:LEU:HD22	1:D:70:VAL:HG11	1.94	0.49
1:E:278:PHE:CE1	1:E:518:ILE:HD11	2.48	0.49
1:C:187:ILE:CD1	1:C:225:LEU:HD22	2.41	0.49
1:C:495:LEU:HD22	1:C:521:LEU:HD23	1.95	0.49
1:D:314:THR:HG23	1:D:315:GLY:H	1.78	0.49
1:E:137:VAL:HG23	1:E:178:GLY:HA2	1.95	0.49
1:F:311:LEU:HD23	1:F:338:VAL:HB	1.95	0.49
1:F:529:THR:N	1:F:530:PRO:HD3	2.28	0.49
1:B:278:PHE:CE1	1:B:518:ILE:HD11	2.48	0.49
1:C:121:VAL:HG13	1:C:166:LEU:HD23	1.94	0.49
1:D:12:LEU:O	1:D:39:VAL:HG13	2.13	0.49
1:F:313:ASN:HB3	1:F:342:VAL:CG2	2.42	0.49
1:F:307:HIS:HA	1:F:335:ARG:NH1	2.28	0.49
1:A:495:LEU:HD22	1:A:521:LEU:HD23	1.94	0.48
1:C:278:PHE:CE2	1:C:467:SER:OG	2.66	0.48
1:F:124:LEU:C	1:F:124:LEU:HD23	2.32	0.48
1:F:484:ASN:HD21	1:F:486:PHE:HB3	1.78	0.48
1:A:520:ALA:O	1:A:524:LEU:HB2	2.13	0.48
1:D:96:MET:HG2	1:D:101:ILE:CG1	2.43	0.48
1:F:437:THR:HG1	1:F:440:THR:N	2.10	0.48
1:A:8:PHE:CZ	1:A:110:VAL:HG21	2.49	0.48
1:C:278:PHE:CE1	1:C:518:ILE:HD11	2.49	0.48
1:C:292:MET:HG3	1:D:274:VAL:HG13	1.96	0.48
1:C:455:ILE:HG22	1:C:455:ILE:O	2.13	0.48
1:E:278:PHE:CE2	1:E:467:SER:OG	2.66	0.48
1:F:467:SER:HB3	1:F:496:TYR:HE1	1.78	0.48
1:C:8:PHE:CZ	1:C:110:VAL:HG21	2.47	0.48
1:D:137:VAL:HG22	1:D:177:VAL:O	2.13	0.48
1:B:527:GLU:O	1:B:527:GLU:HG3	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:394:SER:OG	1:C:395:ASN:N	2.45	0.48
1:D:189:ARG:O	1:D:193:GLN:HG2	2.13	0.48
1:D:484:ASN:HD21	1:D:486:PHE:HB3	1.79	0.48
1:E:350:ARG:HD2	1:F:298:GLU:OE1	2.14	0.48
1:A:298:GLU:HG3	1:F:349:THR:HB	1.96	0.48
1:B:189:ARG:O	1:B:193:GLN:HG2	2.14	0.48
1:C:9:ASP:O	1:C:40:THR:CB	2.61	0.48
1:C:275:HIS:HD2	1:C:466:CYS:HB3	1.79	0.48
1:D:107:PRO:O	1:D:108:ASP:CB	2.62	0.48
1:D:137:VAL:HG23	1:D:178:GLY:HA2	1.96	0.48
1:F:416:THR:HA	1:F:420:ASP:OD1	2.14	0.48
1:A:145:THR:HB	2:A:2001:TPS:H72	1.96	0.48
1:A:534:ALA:N	1:A:535:PRO:HD2	2.28	0.48
1:B:35:LEU:HD22	1:B:70:VAL:HG11	1.95	0.48
1:D:278:PHE:CE2	1:D:467:SER:OG	2.67	0.48
1:D:529:THR:N	1:D:530:PRO:HD3	2.28	0.48
1:E:74:ILE:HD11	1:E:84:ILE:HD11	1.96	0.48
1:A:20:MET:HE1	1:A:209:VAL:HG12	1.95	0.48
1:D:424:ASP:HB3	1:D:446:PRO:HG2	1.96	0.48
1:A:78:ILE:O	1:A:81:ALA:HB3	2.14	0.48
1:A:350:ARG:HD2	1:E:298:GLU:OE1	2.14	0.48
1:C:307:HIS:HA	1:C:335:ARG:NH1	2.29	0.48
1:C:467:SER:HB3	1:C:496:TYR:HE1	1.78	0.48
1:B:278:PHE:HE1	1:B:518:ILE:HD11	1.79	0.47
1:B:534:ALA:N	1:B:535:PRO:HD2	2.28	0.47
1:E:479:GLN:HA	1:E:480:PRO:HD3	1.68	0.47
1:F:419:PHE:CE1	1:F:451:GLU:HG2	2.49	0.47
1:A:40:THR:O	1:A:70:VAL:HG23	2.13	0.47
1:B:313:ASN:HB3	1:B:342:VAL:CG2	2.44	0.47
1:D:74:ILE:HD11	1:D:84:ILE:HD11	1.97	0.47
1:D:311:LEU:HD23	1:D:338:VAL:HB	1.96	0.47
1:E:15:VAL:O	1:E:209:VAL:HG13	2.14	0.47
1:F:419:PHE:CD1	1:F:451:GLU:HG2	2.49	0.47
1:F:427:ILE:O	1:F:427:ILE:HG22	2.14	0.47
1:B:15:VAL:O	1:B:209:VAL:HG13	2.14	0.47
1:B:307:HIS:HA	1:B:335:ARG:NH1	2.29	0.47
1:F:96:MET:HG2	1:F:101:ILE:CG1	2.44	0.47
1:A:189:ARG:O	1:A:193:GLN:HG2	2.15	0.47
1:E:534:ALA:N	1:E:535:PRO:HD2	2.29	0.47
1:B:291:ILE:HD13	1:C:350:ARG:HH12	1.79	0.47
1:E:467:SER:HB3	1:E:496:TYR:HE1	1.79	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:311:LEU:HD23	1:B:338:VAL:HB	1.96	0.47
1:B:416:THR:HA	1:B:420:ASP:OD1	2.14	0.47
1:E:35:LEU:HD22	1:E:70:VAL:HG11	1.96	0.47
1:E:278:PHE:HE1	1:E:518:ILE:HD11	1.79	0.47
1:B:137:VAL:HG22	1:B:177:VAL:O	2.13	0.47
1:D:265:PRO:CD	1:D:288:SER:HB3	2.29	0.47
1:D:420:ASP:OD2	1:D:497:LYS:HD3	2.14	0.47
1:D:479:GLN:HA	1:D:480:PRO:HD3	1.70	0.47
1:F:278:PHE:HE1	1:F:518:ILE:HD11	1.78	0.47
1:A:15:VAL:O	1:A:209:VAL:HG13	2.14	0.47
1:B:289:SER:HA	1:B:290:PRO:HD3	1.77	0.47
1:D:77:ARG:CG	1:E:77:ARG:HH12	2.08	0.47
1:A:90:HIS:CE1	2:A:2001:TPS:C2A	2.98	0.47
1:A:139:THR:O	1:A:153:PRO:HA	2.15	0.47
1:B:96:MET:HG2	1:B:101:ILE:HG12	1.97	0.47
1:D:307:HIS:HA	1:D:335:ARG:NH1	2.30	0.47
1:E:527:GLU:HG3	1:E:527:GLU:O	2.15	0.47
1:A:107:PRO:O	1:A:108:ASP:CB	2.62	0.47
1:E:20:MET:HE1	1:E:209:VAL:HG12	1.95	0.47
1:E:121:VAL:CG1	1:E:166:LEU:HD23	2.45	0.47
1:E:495:LEU:HD22	1:E:521:LEU:HD23	1.97	0.47
1:A:291:ILE:HG22	1:A:293:SER:H	1.80	0.46
1:D:342:VAL:O	1:D:343:GLY:O	2.33	0.46
1:A:278:PHE:HE1	1:A:518:ILE:HD11	1.81	0.46
1:B:89:ILE:HD11	1:B:101:ILE:CG2	2.39	0.46
1:B:467:SER:HB3	1:B:496:TYR:HE1	1.81	0.46
1:C:96:MET:HG2	1:C:101:ILE:CG1	2.45	0.46
1:F:98:ILE:N	1:F:99:PRO:HD2	2.31	0.46
1:C:39:VAL:O	1:C:40:THR:C	2.53	0.46
1:D:49:ALA:HA	1:D:50:ASP:O	2.16	0.46
1:A:278:PHE:CE2	1:A:467:SER:OG	2.68	0.46
1:C:266:LEU:HD11	1:C:291:ILE:HG13	1.97	0.46
1:E:195:VAL:HG12	1:E:202:SER:HB3	1.97	0.46
1:B:278:PHE:CE2	1:B:467:SER:OG	2.68	0.46
1:C:289:SER:HA	1:C:290:PRO:HD3	1.75	0.46
1:D:79:ASP:N	1:E:79:ASP:HB3	2.30	0.46
1:B:11:SER:HB3	1:B:226:ARG:NH2	2.29	0.46
1:E:107:PRO:O	1:E:108:ASP:CB	2.64	0.46
1:E:420:ASP:OD2	1:E:497:LYS:HD3	2.16	0.46
1:F:28:TYR:CZ	1:F:64:LEU:HG	2.51	0.46
1:F:20:MET:HE1	1:F:209:VAL:HG12	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:124:LEU:C	1:A:124:LEU:HD23	2.36	0.46
1:A:195:VAL:HG12	1:A:202:SER:HB3	1.96	0.46
1:A:465:GLY:C	1:A:467:SER:N	2.68	0.46
1:A:527:GLU:O	1:A:527:GLU:HG3	2.15	0.46
1:A:307:HIS:HA	1:A:335:ARG:NH1	2.30	0.46
1:A:465:GLY:C	1:A:467:SER:H	2.19	0.46
1:B:96:MET:HG2	1:B:101:ILE:CG1	2.46	0.46
1:C:78:ILE:O	1:C:81:ALA:HB3	2.16	0.46
1:C:278:PHE:HE1	1:C:518:ILE:HD11	1.79	0.46
1:C:484:ASN:HD21	1:C:486:PHE:HB3	1.81	0.46
1:F:424:ASP:HB3	1:F:446:PRO:HG2	1.98	0.46
1:C:189:ARG:O	1:C:193:GLN:HG2	2.15	0.46
1:C:416:THR:HA	1:C:420:ASP:OD1	2.16	0.46
1:D:273:LYS:HA	1:D:276:GLN:CG	2.37	0.46
1:B:191:LEU:HD13	1:B:206:ILE:HD11	1.98	0.45
1:C:66:HIS:HE1	1:C:87:ASP:OD1	1.99	0.45
1:A:291:ILE:HD13	1:F:350:ARG:HH12	1.81	0.45
1:A:422:ILE:HG22	1:A:486:PHE:HE1	1.80	0.45
1:C:226:ARG:HA	1:C:226:ARG:HD3	1.76	0.45
1:F:107:PRO:O	1:F:108:ASP:CB	2.63	0.45
1:A:427:ILE:O	1:A:427:ILE:HG22	2.17	0.45
1:C:291:ILE:HG22	1:C:293:SER:H	1.82	0.45
1:D:13:TYR:CD2	1:D:41:LEU:HD23	2.51	0.45
1:F:4:SER:O	1:F:5:LYS:C	2.55	0.45
1:A:311:LEU:HD23	1:A:338:VAL:HB	1.99	0.45
1:B:121:VAL:CG1	1:B:166:LEU:HD23	2.47	0.45
1:B:124:LEU:C	1:B:124:LEU:HD23	2.37	0.45
1:B:420:ASP:OD2	1:B:497:LYS:HD3	2.16	0.45
1:B:520:ALA:O	1:B:524:LEU:HB2	2.16	0.45
1:E:189:ARG:O	1:E:193:GLN:HG2	2.16	0.45
1:E:529:THR:N	1:E:530:PRO:HD3	2.31	0.45
1:F:121:VAL:CG1	1:F:166:LEU:HD23	2.46	0.45
1:A:17:ASP:HB3	1:A:20:MET:HE1	1.99	0.45
1:A:278:PHE:CE1	1:A:518:ILE:HD11	2.50	0.45
1:D:437:THR:HG1	1:D:440:THR:N	2.15	0.45
1:D:495:LEU:HD22	1:D:521:LEU:HD23	1.99	0.45
1:B:46:GLU:CD	1:B:49:ALA:HB2	2.37	0.45
1:A:349:THR:OG1	1:E:297:SER:HB2	2.16	0.45
1:C:420:ASP:OD2	1:C:497:LYS:HD3	2.17	0.45
1:C:427:ILE:O	1:C:427:ILE:HG22	2.17	0.45
1:E:307:HIS:HA	1:E:335:ARG:NH1	2.32	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:78:ILE:HD12	1:A:96:MET:HE1	1.96	0.45
1:D:10:TYR:O	1:D:205:GLY:HA3	2.17	0.45
1:D:527:GLU:O	1:D:527:GLU:HG3	2.16	0.45
1:F:192:TYR:CD1	1:F:234:TYR:HD2	2.35	0.45
1:F:283:THR:HB	1:F:290:PRO:HG3	1.99	0.45
1:F:420:ASP:OD2	1:F:497:LYS:HD3	2.16	0.45
1:A:209:VAL:HG21	2:A:2001:TPS:H62	1.98	0.45
1:D:39:VAL:HG12	1:D:41:LEU:O	2.16	0.45
1:A:38:GLY:O	1:A:39:VAL:O	2.35	0.44
1:A:45:ARG:O	1:A:46:GLU:HG2	2.17	0.44
1:A:188:GLU:H	1:A:188:GLU:HG2	1.58	0.44
1:D:38:GLY:O	1:D:39:VAL:HB	2.17	0.44
1:F:266:LEU:HD11	1:F:291:ILE:HG13	1.98	0.44
1:A:436:GLY:C	1:A:438:ASN:H	2.20	0.44
1:A:479:GLN:HA	1:A:480:PRO:HD3	1.70	0.44
1:C:266:LEU:CD1	1:C:291:ILE:HG13	2.47	0.44
1:C:275:HIS:CD2	1:C:466:CYS:HB3	2.52	0.44
1:C:318:ALA:HA	1:C:319:PRO:HD3	1.80	0.44
1:E:17:ASP:HB3	1:E:20:MET:HE1	1.99	0.44
1:B:283:THR:HB	1:B:290:PRO:HG3	2.00	0.44
1:D:191:LEU:HD13	1:D:206:ILE:HD11	1.99	0.44
1:D:422:ILE:HG22	1:D:486:PHE:HE1	1.81	0.44
1:A:298:GLU:OE1	1:F:350:ARG:HD2	2.17	0.44
1:E:89:ILE:HD11	1:E:101:ILE:CG2	2.40	0.44
1:E:484:ASN:HD21	1:E:486:PHE:HB3	1.82	0.44
1:F:289:SER:HA	1:F:290:PRO:HD3	1.76	0.44
1:A:420:ASP:OD2	1:A:497:LYS:HD3	2.17	0.44
1:F:455:ILE:O	1:F:455:ILE:CG2	2.62	0.44
1:B:422:ILE:HG22	1:B:486:PHE:HE1	1.81	0.44
1:D:266:LEU:HD11	1:D:291:ILE:HG13	1.99	0.44
1:D:427:ILE:HG22	1:D:427:ILE:O	2.17	0.44
1:E:124:LEU:C	1:E:124:LEU:HD23	2.38	0.44
1:F:75:ASN:HA	1:F:76:ASP:HA	1.68	0.44
1:F:247:LEU:HD12	1:F:247:LEU:HA	1.74	0.44
1:F:479:GLN:HA	1:F:480:PRO:HD3	1.69	0.44
1:A:323:LEU:HD13	1:A:357:LEU:HD21	1.99	0.44
1:A:394:SER:OG	1:A:395:ASN:N	2.50	0.44
1:C:124:LEU:HD23	1:C:124:LEU:C	2.37	0.44
1:C:517:LEU:O	1:C:517:LEU:HD23	2.18	0.44
1:E:520:ALA:O	1:E:524:LEU:HB2	2.18	0.44
1:A:75:ASN:HA	1:A:76:ASP:HA	1.70	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:8:PHE:CE1	1:D:110:VAL:HG21	2.53	0.44
1:F:11:SER:HB3	1:F:226:ARG:NH2	2.33	0.44
1:C:44:ILE:HD11	1:C:61:ILE:HD12	2.00	0.44
1:C:121:VAL:CG1	1:C:166:LEU:HD23	2.48	0.44
1:F:179:ILE:HG21	2:F:2002:TPS:C6A	2.47	0.44
1:B:340:ASP:CG	1:B:367:LYS:HE3	2.39	0.43
1:D:124:LEU:C	1:D:124:LEU:HD23	2.38	0.43
1:E:422:ILE:HG22	1:E:486:PHE:HE1	1.83	0.43
1:A:283:THR:HB	1:A:290:PRO:HG3	2.00	0.43
1:B:484:ASN:HD21	1:B:486:PHE:HB3	1.83	0.43
1:C:10:TYR:O	1:C:205:GLY:HA3	2.18	0.43
1:C:46:GLU:OE1	1:C:46:GLU:HA	2.18	0.43
1:D:15:VAL:O	1:D:209:VAL:HG13	2.17	0.43
1:D:467:SER:HB3	1:D:496:TYR:HE1	1.83	0.43
1:E:8:PHE:CZ	1:E:110:VAL:HG21	2.53	0.43
1:A:8:PHE:CE1	1:A:110:VAL:HG21	2.53	0.43
1:A:467:SER:HB3	1:A:496:TYR:HE1	1.82	0.43
1:C:8:PHE:CE1	1:C:110:VAL:HG21	2.52	0.43
1:E:90:HIS:CE1	2:E:2006:TPS:HM22	2.53	0.43
1:F:78:ILE:O	1:F:81:ALA:HB3	2.18	0.43
1:B:107:PRO:O	1:B:108:ASP:CB	2.62	0.43
1:C:102:ARG:HA	1:C:102:ARG:HD3	1.82	0.43
1:C:195:VAL:HG12	1:C:202:SER:HB3	2.00	0.43
1:D:4:SER:O	1:D:5:LYS:C	2.56	0.43
1:D:21:ILE:HA	1:D:22:PRO:HD3	1.86	0.43
1:E:344:TYR:O	1:E:345:SER:HB3	2.18	0.43
1:B:75:ASN:HB2	1:B:90:HIS:O	2.19	0.43
1:B:349:THR:OG1	1:D:297:SER:HB2	2.19	0.43
1:B:424:ASP:HB3	1:B:446:PRO:HG2	2.00	0.43
1:C:75:ASN:HA	1:C:76:ASP:HA	1.71	0.43
1:C:98:ILE:N	1:C:99:PRO:HD2	2.33	0.43
1:D:52:LYS:HB2	1:E:95:ASP:C	2.39	0.43
1:D:75:ASN:HA	1:D:76:ASP:HA	1.70	0.43
1:A:484:ASN:HD21	1:A:486:PHE:HB3	1.84	0.43
1:A:10:TYR:O	1:A:205:GLY:HA3	2.18	0.43
1:A:21:ILE:HA	1:A:22:PRO:HD3	1.88	0.43
1:B:75:ASN:ND2	1:B:75:ASN:C	2.72	0.43
1:B:299:VAL:HG13	1:B:329:ALA:CB	2.49	0.43
1:D:520:ALA:O	1:D:524:LEU:HB2	2.18	0.43
1:F:58:ALA:HB1	1:F:84:ILE:HD13	2.00	0.43
1:B:10:TYR:O	1:B:205:GLY:HA3	2.19	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:44:ILE:HD11	1:E:61:ILE:HD12	2.01	0.43
1:E:66:HIS:HE1	1:E:87:ASP:OD1	2.02	0.43
1:C:4:SER:O	1:C:5:LYS:C	2.56	0.43
1:C:424:ASP:HB3	1:C:446:PRO:HG2	2.01	0.43
1:C:479:GLN:HA	1:C:480:PRO:HD3	1.68	0.43
1:F:314:THR:HG23	1:F:315:GLY:N	2.33	0.43
1:A:58:ALA:HB1	1:A:84:ILE:HD13	2.01	0.42
1:A:89:ILE:HD11	1:A:101:ILE:CG2	2.42	0.42
1:B:424:ASP:HB2	1:B:486:PHE:CD1	2.54	0.42
1:C:298:GLU:OE1	1:D:350:ARG:NH1	2.52	0.42
1:D:79:ASP:CB	1:E:79:ASP:HB3	2.48	0.42
1:A:142:PRO:HG3	1:A:153:PRO:HG2	2.01	0.42
1:A:183:HIS:HB3	1:A:184:PRO:HD2	1.99	0.42
1:A:192:TYR:CD1	1:A:234:TYR:HD2	2.37	0.42
1:A:266:LEU:HD11	1:A:291:ILE:HG13	2.00	0.42
1:B:350:ARG:NH1	1:D:298:GLU:OE1	2.52	0.42
1:F:44:ILE:HD11	1:F:61:ILE:HD12	2.01	0.42
1:B:291:ILE:HG22	1:B:293:SER:H	1.83	0.42
1:B:495:LEU:HD22	1:B:521:LEU:HD23	2.01	0.42
1:C:76:ASP:O	1:C:76:ASP:OD1	2.37	0.42
1:C:331:ASN:HD22	1:C:331:ASN:HA	1.67	0.42
1:D:192:TYR:CD1	1:D:234:TYR:HD2	2.38	0.42
1:D:289:SER:HA	1:D:290:PRO:HD3	1.76	0.42
1:E:102:ARG:HA	1:E:102:ARG:HD3	1.90	0.42
1:E:424:ASP:HB3	1:E:446:PRO:HG2	2.01	0.42
1:F:182:LEU:HD12	1:F:182:LEU:HA	1.88	0.42
1:A:299:VAL:HG13	1:A:329:ALA:CB	2.49	0.42
1:B:302:LEU:HD13	1:C:347:THR:HG21	2.01	0.42
1:B:394:SER:OG	1:B:395:ASN:N	2.51	0.42
1:B:522:TYR:CD1	1:C:510:SER:OG	2.72	0.42
1:C:11:SER:HB3	1:C:226:ARG:NH2	2.34	0.42
1:D:271:THR:HG23	1:D:276:GLN:HG2	2.02	0.42
1:A:192:TYR:HA	1:A:431:TYR:HB3	2.01	0.42
1:B:58:ALA:HB1	1:B:84:ILE:HD13	2.01	0.42
1:D:79:ASP:H	1:E:79:ASP:HB3	1.85	0.42
1:D:271:THR:OG1	1:D:272:ASN:N	2.50	0.42
1:A:11:SER:HB3	1:A:226:ARG:NH2	2.33	0.42
1:A:314:THR:HG23	1:A:315:GLY:N	2.33	0.42
1:B:517:LEU:HD23	1:B:517:LEU:C	2.40	0.42
1:E:70:VAL:HA	1:E:71:PRO:HD3	1.85	0.42
1:E:191:LEU:HD12	1:E:191:LEU:HA	1.86	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:323:LEU:CD1	1:A:357:LEU:HD21	2.50	0.42
1:B:8:PHE:CZ	1:B:110:VAL:HG21	2.55	0.42
1:B:75:ASN:HA	1:B:76:ASP:HA	1.70	0.42
1:C:58:ALA:HB1	1:C:84:ILE:HD13	2.02	0.42
1:C:179:ILE:HG21	2:C:2004:TPS:C6A	2.50	0.42
1:D:58:ALA:HB1	1:D:84:ILE:HD13	2.02	0.42
1:D:66:HIS:HE1	1:D:87:ASP:OD1	2.03	0.42
1:D:266:LEU:CD1	1:D:291:ILE:HG13	2.49	0.42
1:F:70:VAL:HA	1:F:71:PRO:HD3	1.84	0.42
1:F:97:PRO:O	1:F:101:ILE:HG13	2.20	0.42
1:C:311:LEU:HD23	1:C:338:VAL:HB	2.02	0.42
1:D:78:ILE:O	1:D:81:ALA:HB3	2.20	0.42
1:F:266:LEU:CD1	1:F:291:ILE:HG13	2.50	0.42
1:B:167:GLU:CG	1:B:198:ASN:HD21	2.26	0.41
1:B:183:HIS:HB3	1:B:184:PRO:HD2	2.01	0.41
1:D:299:VAL:HG13	1:D:329:ALA:CB	2.50	0.41
1:E:16:THR:O	1:E:45:ARG:HD3	2.20	0.41
1:F:291:ILE:HG22	1:F:293:SER:H	1.85	0.41
1:A:275:HIS:HD2	1:A:466:CYS:HB3	1.84	0.41
1:A:344:TYR:CD2	1:A:345:SER:N	2.89	0.41
1:B:16:THR:O	1:B:45:ARG:HD3	2.20	0.41
1:D:187:ILE:HG23	1:D:206:ILE:CD1	2.50	0.41
1:D:524:LEU:HD12	1:D:524:LEU:HA	1.84	0.41
1:A:524:LEU:HA	1:A:524:LEU:HD12	1.74	0.41
1:C:314:THR:HG23	1:C:315:GLY:N	2.35	0.41
1:E:192:TYR:CZ	1:E:410:LYS:HB3	2.54	0.41
1:E:299:VAL:HG13	1:E:329:ALA:CB	2.50	0.41
1:F:89:ILE:HD11	1:F:101:ILE:CG2	2.43	0.41
1:B:357:LEU:HD23	1:B:357:LEU:HA	1.89	0.41
1:C:239:ILE:HG22	1:C:240:GLY:N	2.36	0.41
1:C:283:THR:HB	1:C:290:PRO:HG3	2.02	0.41
1:F:8:PHE:CE1	1:F:110:VAL:HG21	2.55	0.41
1:F:20:MET:CE	1:F:209:VAL:HG12	2.50	0.41
1:F:342:VAL:O	1:F:343:GLY:O	2.38	0.41
1:A:137:VAL:O	1:A:138:GLY:O	2.38	0.41
1:B:78:ILE:O	1:B:81:ALA:HB3	2.20	0.41
1:C:76:ASP:OD1	1:C:76:ASP:C	2.58	0.41
1:D:291:ILE:HG22	1:D:293:SER:H	1.85	0.41
1:E:517:LEU:O	1:E:517:LEU:HD23	2.20	0.41
1:A:183:HIS:HB3	1:A:184:PRO:CD	2.49	0.41
1:A:314:THR:HG21	1:A:354:ASN:HD21	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:188:GLU:H	1:B:188:GLU:HG2	1.60	0.41
1:B:427:ILE:HG22	1:B:427:ILE:O	2.21	0.41
1:C:107:PRO:O	1:C:108:ASP:CB	2.64	0.41
1:C:208:VAL:HG11	1:C:225:LEU:CD1	2.50	0.41
1:C:299:VAL:HG13	1:C:329:ALA:CB	2.50	0.41
1:E:318:ALA:HA	1:E:319:PRO:HD3	1.78	0.41
1:E:344:TYR:CD2	1:E:344:TYR:C	2.93	0.41
1:A:281:ASN:HD22	1:A:281:ASN:HA	1.70	0.41
1:B:226:ARG:HA	1:B:226:ARG:HD3	1.77	0.41
1:C:20:MET:HB3	1:C:20:MET:HE2	1.98	0.41
1:C:70:VAL:HA	1:C:71:PRO:HD3	1.89	0.41
1:C:314:THR:HG21	1:C:354:ASN:HD21	1.86	0.41
1:D:78:ILE:HD12	1:D:96:MET:HE1	1.99	0.41
1:D:323:LEU:HD13	1:D:357:LEU:HD21	2.03	0.41
1:E:90:HIS:CE1	2:E:2006:TPS:C2A	3.04	0.41
1:A:297:SER:HB2	1:F:349:THR:OG1	2.21	0.41
1:C:188:GLU:H	1:C:188:GLU:HG2	1.60	0.41
1:C:191:LEU:HD12	1:C:191:LEU:HA	1.81	0.41
1:E:4:SER:O	1:E:5:LYS:C	2.59	0.41
1:E:21:ILE:HA	1:E:22:PRO:HD3	1.86	0.41
1:E:125:SER:C	1:E:127:MET:H	2.24	0.41
1:F:323:LEU:CD1	1:F:357:LEU:HD21	2.50	0.41
1:A:35:LEU:HD22	1:A:70:VAL:HG11	2.01	0.41
1:A:247:LEU:HD12	1:A:247:LEU:HA	1.80	0.41
1:B:344:TYR:O	1:B:345:SER:HB3	2.21	0.41
1:C:13:TYR:CZ	1:C:41:LEU:HD23	2.56	0.41
1:C:21:ILE:HA	1:C:22:PRO:HD3	1.89	0.41
1:C:182:LEU:HD12	1:C:182:LEU:HA	1.90	0.41
1:C:192:TYR:CD1	1:C:234:TYR:HD2	2.39	0.41
1:E:58:ALA:HB1	1:E:84:ILE:HD13	2.03	0.41
1:E:247:LEU:HA	1:E:247:LEU:HD12	1.77	0.41
1:F:21:ILE:HA	1:F:22:PRO:HD3	1.87	0.41
1:A:424:ASP:HB2	1:A:486:PHE:CD1	2.56	0.41
1:B:344:TYR:CD2	1:B:344:TYR:C	2.94	0.41
1:D:331:ASN:HD22	1:D:331:ASN:HA	1.64	0.41
1:F:66:HIS:HE1	1:F:87:ASP:OD1	2.03	0.41
1:F:76:ASP:OD1	1:F:76:ASP:C	2.60	0.41
1:A:154:MET:O	1:A:155:GLY:C	2.59	0.40
1:A:340:ASP:CG	1:A:367:LYS:HE3	2.42	0.40
1:B:11:SER:CB	1:B:226:ARG:NH2	2.84	0.40
1:B:21:ILE:HA	1:B:22:PRO:HD3	1.90	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:78:ILE:HG12	1:D:89:ILE:HD13	2.02	0.40
1:F:302:LEU:HD12	1:F:302:LEU:HA	1.92	0.40
1:F:433:LEU:O	1:F:435:LYS:N	2.52	0.40
1:A:66:HIS:HE1	1:A:87:ASP:OD1	2.04	0.40
1:A:75:ASN:ND2	1:A:75:ASN:C	2.74	0.40
1:B:271:THR:HA	1:B:313:ASN:HB2	2.02	0.40
1:B:296:GLN:HG2	1:B:322:MET:HB2	2.03	0.40
1:B:314:THR:HG23	1:B:315:GLY:N	2.35	0.40
1:D:281:ASN:HD22	1:D:281:ASN:HA	1.70	0.40
1:A:424:ASP:HB3	1:A:446:PRO:HG2	2.03	0.40
1:B:266:LEU:CD1	1:B:291:ILE:HG13	2.51	0.40
1:B:302:LEU:HD12	1:B:302:LEU:HA	1.91	0.40
1:B:350:ARG:HD2	1:D:298:GLU:OE1	2.22	0.40
1:C:342:VAL:O	1:C:343:GLY:O	2.40	0.40
1:F:166:LEU:HD23	1:F:166:LEU:HA	1.81	0.40
1:B:125:SER:C	1:B:127:MET:H	2.25	0.40
1:D:98:ILE:N	1:D:99:PRO:HD2	2.36	0.40
1:D:191:LEU:HD12	1:D:191:LEU:HA	1.88	0.40
1:D:433:LEU:O	1:D:435:LYS:N	2.54	0.40
1:E:51:THR:HG22	1:E:51:THR:O	2.22	0.40
1:F:183:HIS:HB3	1:F:184:PRO:HD2	2.04	0.40
1:F:331:ASN:HD22	1:F:331:ASN:HA	1.66	0.40
1:A:226:ARG:HD3	1:A:226:ARG:HA	1.82	0.40
1:A:313:ASN:HB3	1:A:342:VAL:HG23	2.04	0.40
1:B:70:VAL:HA	1:B:71:PRO:HD3	1.86	0.40
1:B:314:THR:HG21	1:B:354:ASN:HD21	1.86	0.40
1:D:167:GLU:CG	1:D:198:ASN:HD21	2.24	0.40
1:D:284:LEU:HD12	1:D:284:LEU:HA	1.92	0.40
1:E:187:ILE:HG23	1:E:206:ILE:CD1	2.51	0.40
1:E:302:LEU:HD12	1:E:302:LEU:HA	1.82	0.40
1:F:75:ASN:ND2	1:F:75:ASN:C	2.74	0.40
1:F:517:LEU:HD23	1:F:517:LEU:C	2.41	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

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

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



of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	503/540 (93%)	458 (91%)	32 (6%)	13 (3%)	5	27
1	B	493/540 (91%)	460 (93%)	21 (4%)	12 (2%)	6	29
1	C	496/540 (92%)	463 (93%)	21 (4%)	12 (2%)	6	29
1	D	494/540 (92%)	455 (92%)	27 (6%)	12 (2%)	6	29
1	E	491/540 (91%)	457 (93%)	23 (5%)	11 (2%)	6	31
1	F	488/540 (90%)	455 (93%)	24 (5%)	9 (2%)	8	37
All	All	2965/3240 (92%)	2748 (93%)	148 (5%)	69 (2%)	6	30

All (69) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	39	VAL
1	A	138	GLY
1	A	147	LYS
1	A	272	ASN
1	A	346	ALA
1	A	436	GLY
1	B	39	VAL
1	B	130	ASP
1	B	272	ASN
1	C	272	ASN
1	D	47	LYS
1	D	138	GLY
1	E	39	VAL
1	E	130	ASP
1	E	138	GLY
1	E	272	ASN
1	F	130	ASP
1	F	138	GLY
1	F	272	ASN
1	A	130	ASP
1	A	155	GLY
1	B	138	GLY
1	B	343	GLY
1	C	11	SER
1	C	130	ASP
1	C	138	GLY

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	C	343	GLY
1	D	11	SER
1	D	130	ASP
1	D	343	GLY
1	E	343	GLY
1	F	11	SER
1	F	343	GLY
1	A	11	SER
1	A	107	PRO
1	A	438	ASN
1	B	11	SER
1	B	107	PRO
1	B	148	ASN
1	B	395	ASN
1	C	46	GLU
1	C	107	PRO
1	D	107	PRO
1	D	148	ASN
1	E	11	SER
1	E	107	PRO
1	F	107	PRO
1	A	5	LYS
1	B	5	LYS
1	C	5	LYS
1	C	148	ASN
1	D	108	ASP
1	E	5	LYS
1	E	51	THR
1	F	5	LYS
1	A	108	ASP
1	B	108	ASP
1	C	108	ASP
1	D	5	LYS
1	E	108	ASP
1	F	108	ASP
1	C	40	THR
1	D	39	VAL
1	D	434	SER
1	E	106	GLY
1	C	106	GLY
1	D	106	GLY
1	B	106	GLY

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Mol	Chain	Res	Type
1	F	106	GLY

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

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	408/449 (91%)	370 (91%)	38 (9%)	9	33
1	B	408/449 (91%)	365 (90%)	43 (10%)	7	27
1	C	410/449 (91%)	371 (90%)	39 (10%)	8	32
1	D	407/449 (91%)	367 (90%)	40 (10%)	8	30
1	E	406/449 (90%)	366 (90%)	40 (10%)	8	30
1	F	407/449 (91%)	365 (90%)	42 (10%)	7	28
All	All	2446/2694 (91%)	2204 (90%)	242 (10%)	8	30

All (242) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	5	LYS
1	A	13	TYR
1	A	18	SER
1	A	54	PHE
1	A	64	LEU
1	A	66	HIS
1	A	70	VAL
1	A	75	ASN
1	A	124	LEU
1	A	130	ASP
1	A	144	LEU
1	A	182	LEU
1	A	188	GLU
1	A	191	LEU
1	A	226	ARG
1	A	247	LEU
1	A	250	THR

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	A	260	THR
1	A	274	VAL
1	A	276	GLN
1	A	284	LEU
1	A	288	SER
1	A	289	SER
1	A	291	ILE
1	A	297	SER
1	A	299	VAL
1	A	302	LEU
1	A	311	LEU
1	A	322	MET
1	A	328	ARG
1	A	335	ARG
1	A	348	GLU
1	A	352	LEU
1	A	408	LYS
1	A	434	SER
1	A	495	LEU
1	A	515	VAL
1	A	524	LEU
1	B	5	LYS
1	B	13	TYR
1	B	18	SER
1	B	46	GLU
1	B	54	PHE
1	B	64	LEU
1	B	66	HIS
1	B	70	VAL
1	B	75	ASN
1	B	96	MET
1	B	130	ASP
1	B	144	LEU
1	B	182	LEU
1	B	188	GLU
1	B	191	LEU
1	B	207	CYS
1	B	226	ARG
1	B	247	LEU
1	B	250	THR
1	B	260	THR
1	B	274	VAL

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	B	276	GLN
1	B	284	LEU
1	B	288	SER
1	B	289	SER
1	B	291	ILE
1	B	297	SER
1	B	299	VAL
1	B	302	LEU
1	B	311	LEU
1	B	322	MET
1	B	328	ARG
1	B	335	ARG
1	B	344	TYR
1	B	348	GLU
1	B	352	LEU
1	B	362	GLN
1	B	408	LYS
1	B	434	SER
1	B	451	GLU
1	B	495	LEU
1	B	515	VAL
1	B	524	LEU
1	C	5	LYS
1	C	13	TYR
1	C	18	SER
1	C	54	PHE
1	C	64	LEU
1	C	66	HIS
1	C	70	VAL
1	C	75	ASN
1	C	130	ASP
1	C	144	LEU
1	C	182	LEU
1	C	188	GLU
1	C	191	LEU
1	C	226	ARG
1	C	247	LEU
1	C	250	THR
1	C	260	THR
1	C	274	VAL
1	C	276	GLN
1	C	284	LEU

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	C	288	SER
1	C	289	SER
1	C	291	ILE
1	C	297	SER
1	C	299	VAL
1	C	302	LEU
1	C	311	LEU
1	C	322	MET
1	C	328	ARG
1	C	335	ARG
1	C	344	TYR
1	C	348	GLU
1	C	352	LEU
1	C	362	GLN
1	C	408	LYS
1	C	451	GLU
1	C	495	LEU
1	C	515	VAL
1	C	524	LEU
1	D	5	LYS
1	D	13	TYR
1	D	18	SER
1	D	54	PHE
1	D	64	LEU
1	D	66	HIS
1	D	70	VAL
1	D	75	ASN
1	D	130	ASP
1	D	144	LEU
1	D	182	LEU
1	D	188	GLU
1	D	191	LEU
1	D	226	ARG
1	D	247	LEU
1	D	250	THR
1	D	260	THR
1	D	274	VAL
1	D	276	GLN
1	D	284	LEU
1	D	288	SER
1	D	289	SER
1	D	291	ILE

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	D	297	SER
1	D	299	VAL
1	D	302	LEU
1	D	311	LEU
1	D	322	MET
1	D	328	ARG
1	D	335	ARG
1	D	344	TYR
1	D	348	GLU
1	D	352	LEU
1	D	362	GLN
1	D	408	LYS
1	D	434	SER
1	D	451	GLU
1	D	495	LEU
1	D	515	VAL
1	D	524	LEU
1	E	5	LYS
1	E	13	TYR
1	E	18	SER
1	E	46	GLU
1	E	54	PHE
1	E	64	LEU
1	E	66	HIS
1	E	70	VAL
1	E	75	ASN
1	E	96	MET
1	E	130	ASP
1	E	144	LEU
1	E	182	LEU
1	E	188	GLU
1	E	191	LEU
1	E	226	ARG
1	E	247	LEU
1	E	250	THR
1	E	260	THR
1	E	274	VAL
1	E	276	GLN
1	E	284	LEU
1	E	288	SER
1	E	289	SER
1	E	291	ILE

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	E	297	SER
1	E	299	VAL
1	E	302	LEU
1	E	311	LEU
1	E	322	MET
1	E	328	ARG
1	E	335	ARG
1	E	344	TYR
1	E	348	GLU
1	E	352	LEU
1	E	408	LYS
1	E	434	SER
1	E	495	LEU
1	E	515	VAL
1	E	524	LEU
1	F	5	LYS
1	F	13	TYR
1	F	18	SER
1	F	54	PHE
1	F	64	LEU
1	F	66	HIS
1	F	70	VAL
1	F	75	ASN
1	F	124	LEU
1	F	130	ASP
1	F	144	LEU
1	F	182	LEU
1	F	188	GLU
1	F	191	LEU
1	F	226	ARG
1	F	247	LEU
1	F	250	THR
1	F	260	THR
1	F	274	VAL
1	F	276	GLN
1	F	284	LEU
1	F	288	SER
1	F	289	SER
1	F	291	ILE
1	F	297	SER
1	F	299	VAL
1	F	302	LEU

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	F	311	LEU
1	F	322	MET
1	F	328	ARG
1	F	335	ARG
1	F	344	TYR
1	F	348	GLU
1	F	352	LEU
1	F	362	GLN
1	F	408	LYS
1	F	434	SER
1	F	451	GLU
1	F	466	CYS
1	F	495	LEU
1	F	515	VAL
1	F	524	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (67) such sidechains are listed below:

<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	A	66	HIS
1	A	75	ASN
1	A	93	GLN
1	A	193	GLN
1	A	272	ASN
1	A	275	HIS
1	A	276	GLN
1	A	281	ASN
1	A	313	ASN
1	A	355	ASN
1	A	484	ASN
1	A	514	GLN
1	B	66	HIS
1	B	75	ASN
1	B	93	GLN
1	B	193	GLN
1	B	272	ASN
1	B	276	GLN
1	B	281	ASN
1	B	313	ASN
1	B	355	ASN
1	B	484	ASN
1	B	514	GLN

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<b>Mol</b>	<b>Chain</b>	<b>Res</b>	<b>Type</b>
1	C	66	HIS
1	C	75	ASN
1	C	93	GLN
1	C	193	GLN
1	C	272	ASN
1	C	275	HIS
1	C	276	GLN
1	C	281	ASN
1	C	313	ASN
1	C	355	ASN
1	C	484	ASN
1	D	66	HIS
1	D	75	ASN
1	D	93	GLN
1	D	193	GLN
1	D	269	HIS
1	D	272	ASN
1	D	276	GLN
1	D	281	ASN
1	D	313	ASN
1	D	355	ASN
1	D	484	ASN
1	D	514	GLN
1	E	66	HIS
1	E	75	ASN
1	E	93	GLN
1	E	193	GLN
1	E	272	ASN
1	E	276	GLN
1	E	281	ASN
1	E	313	ASN
1	E	355	ASN
1	E	484	ASN
1	E	514	GLN
1	F	66	HIS
1	F	75	ASN
1	F	93	GLN
1	F	193	GLN
1	F	272	ASN
1	F	275	HIS
1	F	276	GLN
1	F	281	ASN

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Mol	Chain	Res	Type
1	F	355	ASN
1	F	484	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](#)

Of 18 ligands modelled in this entry, 12 are monoatomic - leaving 6 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# $ Z  > 2$	Counts	RMSZ	# $ Z  > 2$
2	TPS	F	2002	-	20,23,23	6.37	10 (50%)	25,33,33	1.95	7 (28%)
2	TPS	E	2006	-	20,23,23	6.45	9 (45%)	25,33,33	1.71	7 (28%)
2	TPS	A	2001	-	20,23,23	6.31	11 (55%)	25,33,33	2.50	10 (40%)
2	TPS	D	2003	-	20,23,23	6.36	11 (55%)	25,33,33	1.81	8 (32%)
2	TPS	B	2005	-	20,23,23	6.24	10 (50%)	25,33,33	1.97	6 (24%)
2	TPS	C	2004	-	20,23,23	6.22	10 (50%)	25,33,33	1.89	7 (28%)

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	TPS	F	2002	-	-	3/10/11/11	0/2/2/2
2	TPS	E	2006	-	-	3/10/11/11	0/2/2/2
2	TPS	A	2001	-	-	5/10/11/11	0/2/2/2
2	TPS	D	2003	-	-	6/10/11/11	0/2/2/2
2	TPS	B	2005	-	-	7/10/11/11	0/2/2/2
2	TPS	C	2004	-	-	7/10/11/11	0/2/2/2

All (61) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	E	2006	TPS	C4-N3	25.27	1.61	1.39
2	D	2003	TPS	C4-N3	24.87	1.61	1.39
2	F	2002	TPS	C4-N3	24.86	1.61	1.39
2	A	2001	TPS	C4-N3	24.56	1.61	1.39
2	B	2005	TPS	C4-N3	24.37	1.60	1.39
2	C	2004	TPS	C4-N3	24.26	1.60	1.39
2	F	2002	TPS	C2-N3	9.68	1.56	1.36
2	B	2005	TPS	C2-N3	9.64	1.56	1.36
2	A	2001	TPS	C2-N3	9.58	1.56	1.36
2	D	2003	TPS	C2-N3	9.57	1.56	1.36
2	C	2004	TPS	C2-N3	9.42	1.55	1.36
2	E	2006	TPS	C2-N3	9.40	1.55	1.36
2	F	2002	TPS	C4A-N4A	4.92	1.46	1.34
2	E	2006	TPS	C2A-N1A	4.82	1.42	1.34
2	C	2004	TPS	C4A-N4A	4.74	1.46	1.34
2	D	2003	TPS	C4A-N4A	4.71	1.46	1.34
2	B	2005	TPS	C4A-N4A	4.62	1.45	1.34
2	E	2006	TPS	C4A-N4A	4.62	1.45	1.34
2	A	2001	TPS	C2A-N1A	4.49	1.41	1.34
2	B	2005	TPS	C2A-N1A	4.42	1.41	1.34
2	A	2001	TPS	C4A-N4A	4.33	1.45	1.34
2	F	2002	TPS	C2A-N1A	4.26	1.41	1.34
2	D	2003	TPS	C2A-N1A	3.97	1.40	1.34
2	C	2004	TPS	C2A-N1A	3.93	1.40	1.34
2	E	2006	TPS	C4A-N3A	-3.35	1.30	1.35
2	D	2003	TPS	C4A-N3A	-3.34	1.30	1.35
2	E	2006	TPS	C6-C5	3.27	1.52	1.50
2	A	2001	TPS	C4A-N3A	-3.19	1.30	1.35
2	B	2005	TPS	C4A-N3A	-3.11	1.30	1.35
2	D	2003	TPS	C6-C5	3.11	1.52	1.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	C	2004	TPS	C4A-N3A	-3.09	1.30	1.35
2	F	2002	TPS	P1-O3	2.92	1.66	1.54
2	F	2002	TPS	C2A-N3A	2.91	1.39	1.34
2	D	2003	TPS	P1-O3	2.85	1.65	1.54
2	E	2006	TPS	P1-O3	2.85	1.65	1.54
2	A	2001	TPS	P1-O2	2.85	1.65	1.54
2	A	2001	TPS	P1-O3	2.84	1.65	1.54
2	F	2002	TPS	C4A-N3A	-2.80	1.31	1.35
2	C	2004	TPS	P1-O3	2.79	1.65	1.54
2	C	2004	TPS	P1-O2	2.77	1.65	1.54
2	A	2001	TPS	C6-C5	2.71	1.52	1.50
2	A	2001	TPS	C2A-N3A	2.69	1.38	1.34
2	B	2005	TPS	P1-O2	2.64	1.65	1.54
2	F	2002	TPS	P1-O2	2.61	1.64	1.54
2	E	2006	TPS	P1-O2	2.60	1.64	1.54
2	E	2006	TPS	C2A-N3A	2.59	1.38	1.34
2	C	2004	TPS	C2A-N3A	2.55	1.38	1.34
2	D	2003	TPS	P1-O2	2.54	1.64	1.54
2	F	2002	TPS	C5A-C4A	2.52	1.47	1.42
2	B	2005	TPS	P1-O3	2.52	1.64	1.54
2	D	2003	TPS	C6A-C5A	-2.48	1.32	1.37
2	C	2004	TPS	C5A-C4A	2.46	1.47	1.42
2	C	2004	TPS	C6A-C5A	-2.43	1.32	1.37
2	D	2003	TPS	C2A-N3A	2.36	1.38	1.34
2	B	2005	TPS	C5A-C4A	2.33	1.46	1.42
2	A	2001	TPS	C5A-C4A	2.33	1.46	1.42
2	F	2002	TPS	C6A-C5A	-2.29	1.32	1.37
2	A	2001	TPS	C6A-C5A	-2.28	1.33	1.37
2	B	2005	TPS	C2A-N3A	2.19	1.37	1.34
2	D	2003	TPS	C5A-C4A	2.14	1.46	1.42
2	B	2005	TPS	C6A-C5A	-2.09	1.33	1.37

All (45) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	2001	TPS	C6-C5-C4	-9.09	120.14	127.43
2	B	2005	TPS	C6-C5-C4	-5.38	123.12	127.43
2	F	2002	TPS	C6-C5-C4	-5.26	123.21	127.43
2	C	2004	TPS	C6-C5-C4	-5.19	123.27	127.43
2	D	2003	TPS	C6A-C5A-C4A	4.15	121.37	115.72
2	F	2002	TPS	C6A-C5A-C4A	3.86	120.98	115.72
2	E	2006	TPS	C6A-C5A-C4A	3.68	120.73	115.72

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	2003	TPS	C6-C5-C4	-3.64	124.51	127.43
2	C	2004	TPS	C6A-C5A-C4A	3.49	120.48	115.72
2	A	2001	TPS	N1A-C2A-N3A	-3.40	119.69	125.54
2	B	2005	TPS	CM2-C2A-N1A	3.36	120.84	117.14
2	B	2005	TPS	C6A-C5A-C4A	3.29	120.20	115.72
2	E	2006	TPS	CM2-C2A-N1A	3.18	120.64	117.14
2	B	2005	TPS	N1A-C2A-N3A	-3.17	120.08	125.54
2	A	2001	TPS	C6A-C5A-C4A	3.08	119.92	115.72
2	C	2004	TPS	N1A-C2A-N3A	-3.03	120.32	125.54
2	F	2002	TPS	N1A-C2A-N3A	-2.92	120.51	125.54
2	A	2001	TPS	CM2-C2A-N1A	2.91	120.34	117.14
2	E	2006	TPS	C6-C5-C4	-2.81	125.18	127.43
2	E	2006	TPS	CM4-C4-C5	-2.80	121.47	127.60
2	E	2006	TPS	N1A-C2A-N3A	-2.76	120.79	125.54
2	A	2001	TPS	C6A-N1A-C2A	2.72	120.59	115.96
2	B	2005	TPS	C5A-C6A-N1A	-2.70	119.33	123.82
2	D	2003	TPS	C5A-C6A-N1A	-2.68	119.35	123.82
2	B	2005	TPS	C6A-N1A-C2A	2.58	120.36	115.96
2	A	2001	TPS	C5A-C6A-N1A	-2.56	119.56	123.82
2	D	2003	TPS	N1A-C2A-N3A	-2.51	121.22	125.54
2	C	2004	TPS	CM2-C2A-N1A	2.42	119.80	117.14
2	C	2004	TPS	C5A-C6A-N1A	-2.36	119.88	123.82
2	C	2004	TPS	C6A-N1A-C2A	2.35	119.95	115.96
2	F	2002	TPS	C5A-C6A-N1A	-2.34	119.93	123.82
2	E	2006	TPS	C5A-C6A-N1A	-2.23	120.10	123.82
2	C	2004	TPS	CM4-C4-N3	2.19	125.33	122.53
2	F	2002	TPS	CM4-C4-C5	-2.19	122.81	127.60
2	A	2001	TPS	CM4-C4-N3	2.15	125.27	122.53
2	F	2002	TPS	C6A-N1A-C2A	2.12	119.56	115.96
2	D	2003	TPS	C5A-C7A-N3	-2.10	109.78	113.28
2	D	2003	TPS	P1-O7-C7	2.09	124.06	118.30
2	E	2006	TPS	N4A-C4A-N3A	2.08	119.97	117.03
2	F	2002	TPS	CM2-C2A-N3A	2.06	120.37	117.15
2	D	2003	TPS	O7-P1-O1	2.06	112.24	106.47
2	A	2001	TPS	O7-P1-O1	2.04	112.19	106.47
2	D	2003	TPS	C6A-N1A-C2A	2.03	119.42	115.96
2	A	2001	TPS	CM4-C4-C5	-2.03	123.17	127.60
2	A	2001	TPS	P1-O7-C7	2.02	123.86	118.30

There are no chirality outliers.

All (31) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	2001	TPS	C5-C6-C7-O7
2	A	2001	TPS	C7-O7-P1-O2
2	A	2001	TPS	C7-O7-P1-O3
2	A	2001	TPS	C6A-C5A-C7A-N3
2	B	2005	TPS	C5-C6-C7-O7
2	B	2005	TPS	C7-O7-P1-O1
2	B	2005	TPS	C7-O7-P1-O2
2	B	2005	TPS	C7-O7-P1-O3
2	B	2005	TPS	C6A-C5A-C7A-N3
2	C	2004	TPS	C4-C5-C6-C7
2	C	2004	TPS	C5-C6-C7-O7
2	C	2004	TPS	C7-O7-P1-O1
2	C	2004	TPS	C7-O7-P1-O2
2	C	2004	TPS	C7-O7-P1-O3
2	C	2004	TPS	C6A-C5A-C7A-N3
2	D	2003	TPS	C4-C5-C6-C7
2	D	2003	TPS	C5-C6-C7-O7
2	D	2003	TPS	C7-O7-P1-O1
2	D	2003	TPS	C7-O7-P1-O2
2	D	2003	TPS	C7-O7-P1-O3
2	D	2003	TPS	C6A-C5A-C7A-N3
2	E	2006	TPS	C4-C5-C6-C7
2	E	2006	TPS	C6A-C5A-C7A-N3
2	F	2002	TPS	C4-C5-C6-C7
2	F	2002	TPS	C6A-C5A-C7A-N3
2	B	2005	TPS	C4A-C5A-C7A-N3
2	C	2004	TPS	C4A-C5A-C7A-N3
2	F	2002	TPS	C4A-C5A-C7A-N3
2	E	2006	TPS	C5-C6-C7-O7
2	A	2001	TPS	C4-C5-C6-C7
2	B	2005	TPS	C4-C5-C6-C7

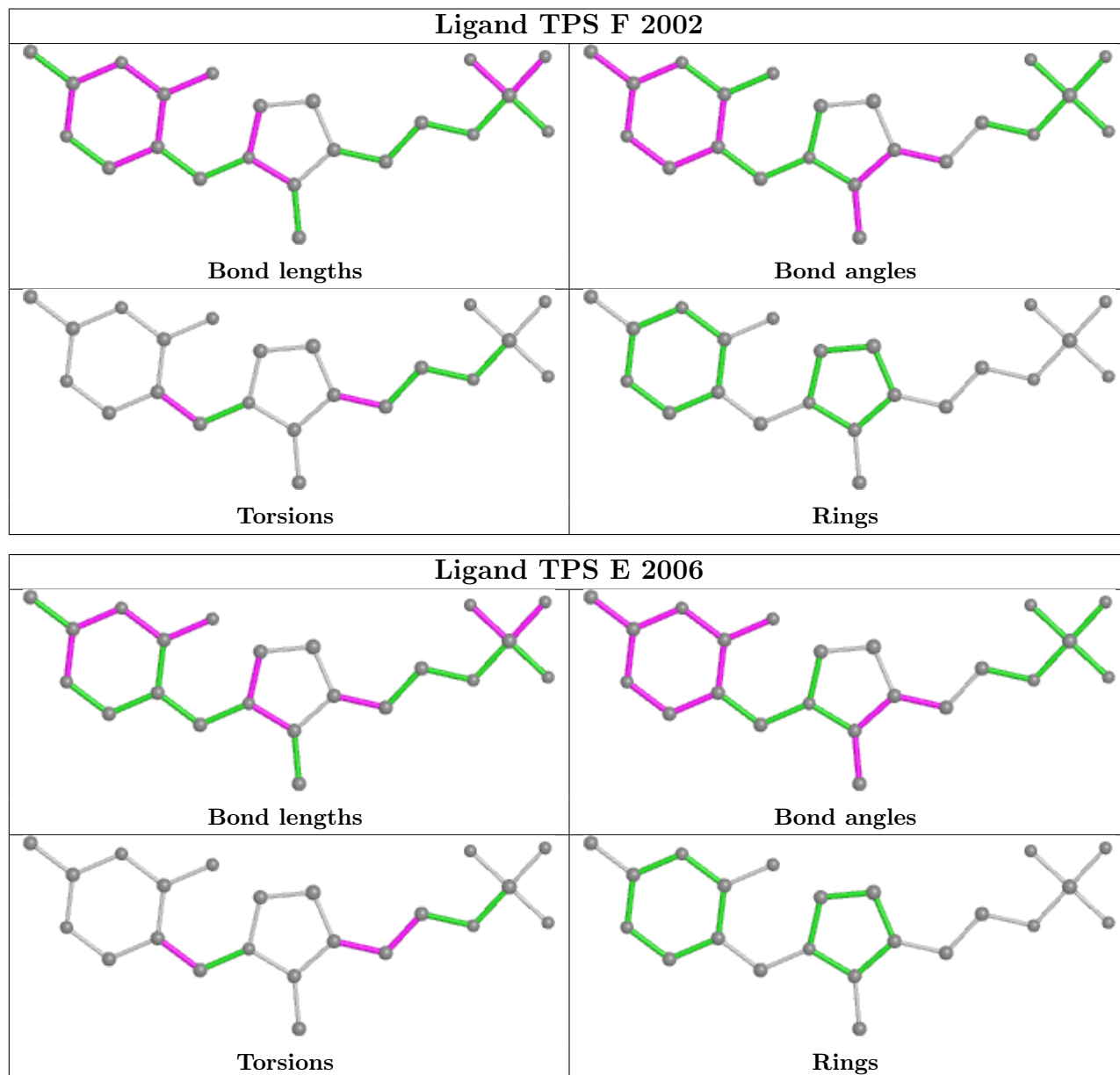
There are no ring outliers.

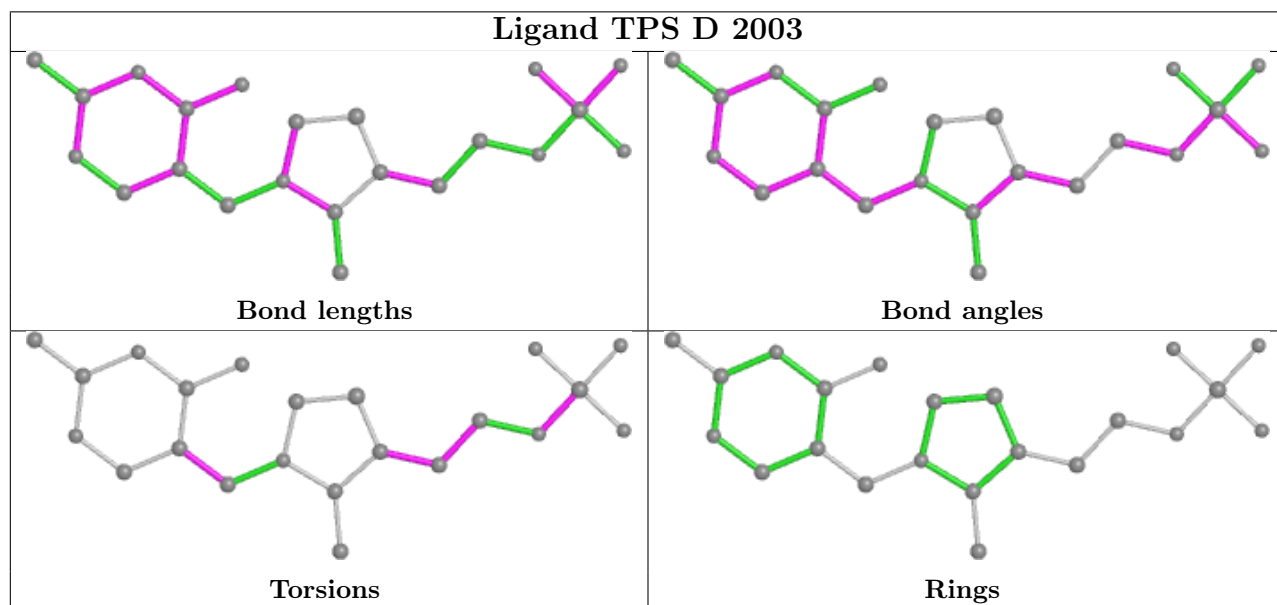
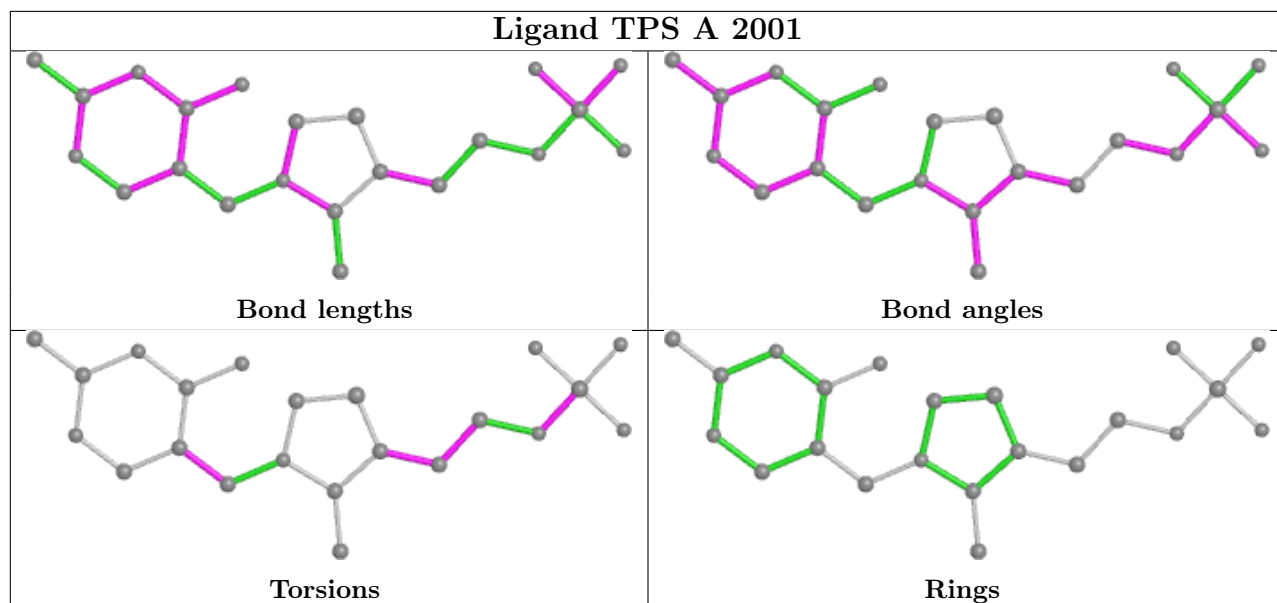
4 monomers are involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	F	2002	TPS	1	0
2	E	2006	TPS	2	0
2	A	2001	TPS	3	0
2	C	2004	TPS	1	0

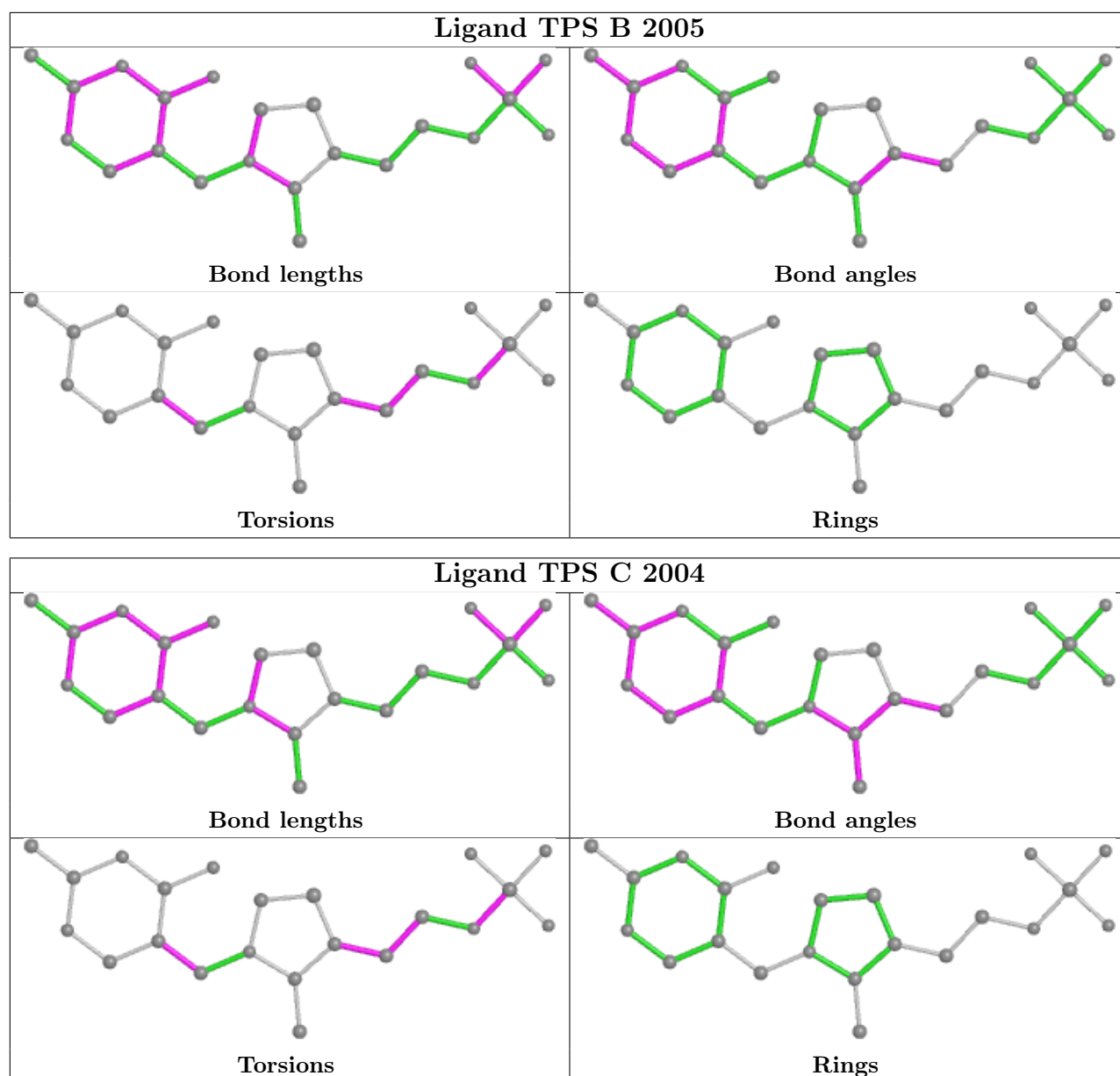
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In

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 Fit of model and data

### 6.1 Protein, DNA and RNA chains

In the following table, the column labelled ‘#RSRZ> 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	513/540 (95%)	-0.36	5 (0%) 82 59	30, 65, 106, 146	0
1	B	503/540 (93%)	-0.35	1 (0%) 95 87	32, 65, 101, 145	0
1	C	506/540 (93%)	-0.30	2 (0%) 92 79	28, 66, 108, 150	0
1	D	504/540 (93%)	-0.34	8 (1%) 72 44	26, 65, 96, 146	0
1	E	501/540 (92%)	-0.34	4 (0%) 86 65	34, 64, 98, 146	0
1	F	502/540 (92%)	-0.21	6 (1%) 79 54	33, 67, 102, 146	0
All	All	3029/3240 (93%)	-0.32	26 (0%) 84 63	26, 66, 102, 150	0

All (26) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	466	CYS	5.9
1	D	148	ASN	3.9
1	D	317	VAL	3.7
1	E	48	ASP	3.5
1	F	87	ASP	3.4
1	F	108	ASP	3.2
1	D	272	ASN	3.0
1	E	148	ASN	2.9
1	C	466	CYS	2.9
1	F	455	ILE	2.9
1	D	23	GLU	2.7
1	B	148	ASN	2.6
1	A	465	GLY	2.5
1	D	24	GLY	2.4
1	E	147	LYS	2.4
1	F	65	CYS	2.3
1	D	138	GLY	2.3
1	D	348	GLU	2.3
1	F	317	VAL	2.2

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Mol	Chain	Res	Type	RSRZ
1	A	146	LYS	2.2
1	A	317	VAL	2.2
1	A	345	SER	2.2
1	D	149	PRO	2.2
1	C	87	ASP	2.1
1	F	276	GLN	2.1
1	E	144	LEU	2.1

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

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

## 6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

## 6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> 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.

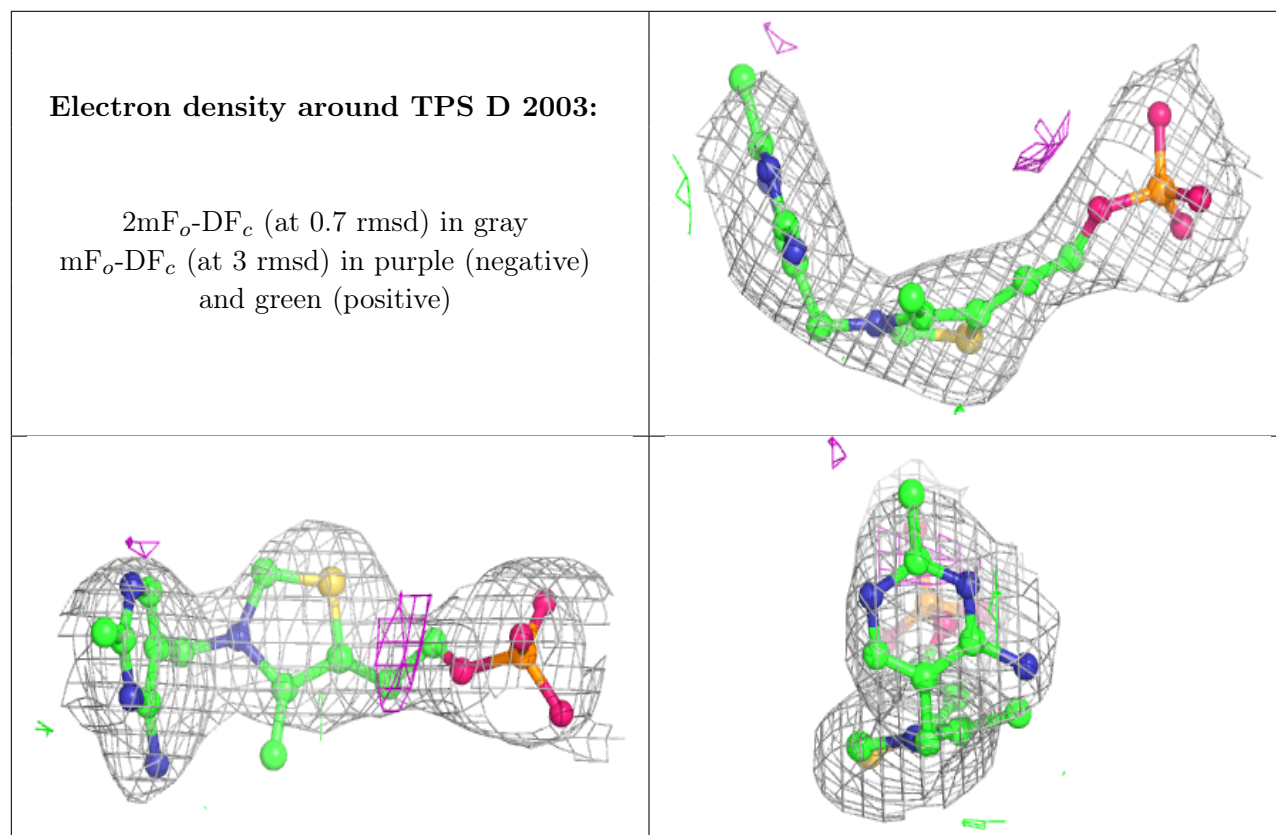
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å <sup>2</sup> )	Q<0.9
3	MG	D	542	1/1	0.42	0.24	90,90,90,90	0
3	MG	A	541	1/1	0.56	0.24	110,110,110,110	0
3	MG	C	541	1/1	0.76	0.28	83,83,83,83	0
3	MG	F	541	1/1	0.81	0.15	85,85,85,85	0
3	MG	A	542	1/1	0.88	0.34	74,74,74,74	0
3	MG	D	541	1/1	0.90	0.15	72,72,72,72	0
3	MG	C	542	1/1	0.93	0.31	47,47,47,47	0
2	TPS	D	2003	22/22	0.96	0.18	44,53,71,78	0
2	TPS	F	2002	22/22	0.96	0.17	56,71,95,107	0
2	TPS	C	2004	22/22	0.96	0.20	48,66,81,97	0
3	MG	D	543	1/1	0.97	0.17	37,37,37,37	0
2	TPS	E	2006	22/22	0.97	0.22	45,61,76,81	0
3	MG	F	542	1/1	0.97	0.28	50,50,50,50	0
3	MG	B	541	1/1	0.98	0.23	41,41,41,41	0
2	TPS	A	2001	22/22	0.98	0.18	45,56,75,98	0
3	MG	E	541	1/1	0.98	0.29	34,34,34,34	0

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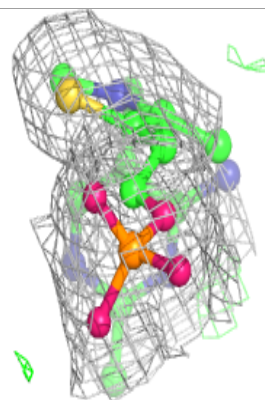
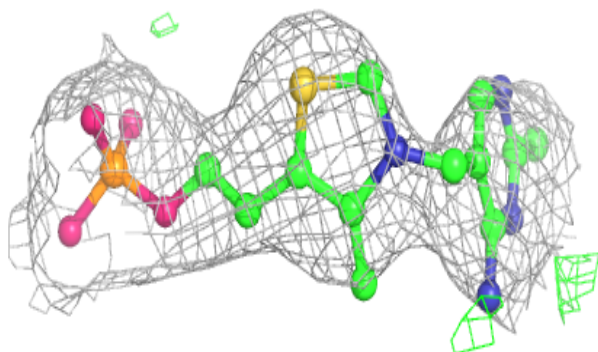
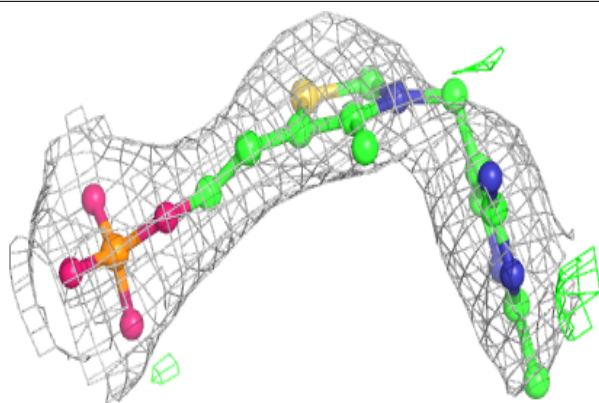
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
2	TPS	B	2005	22/22	0.98	0.18	40,55,75,76	0
3	MG	A	543	1/1	0.98	0.34	41,41,41,41	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

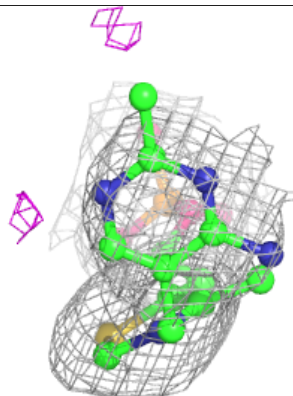
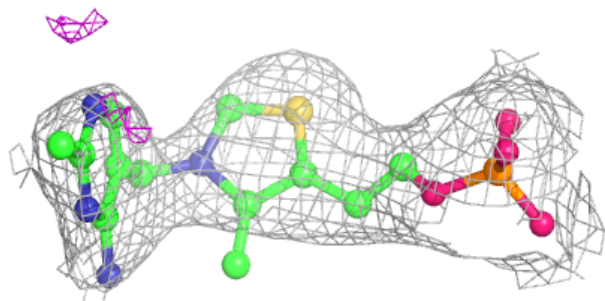
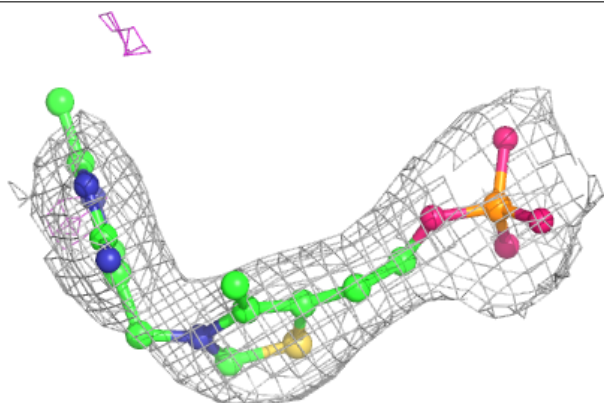


**Electron density around TPS F 2002:**

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

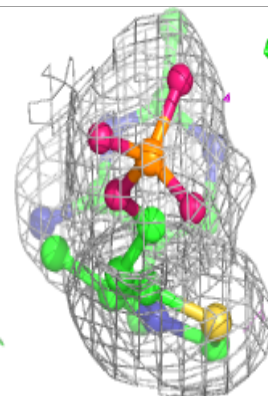
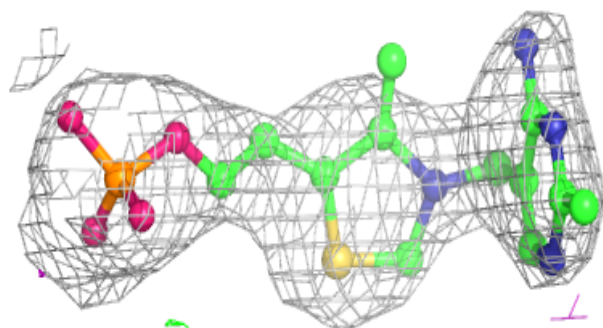
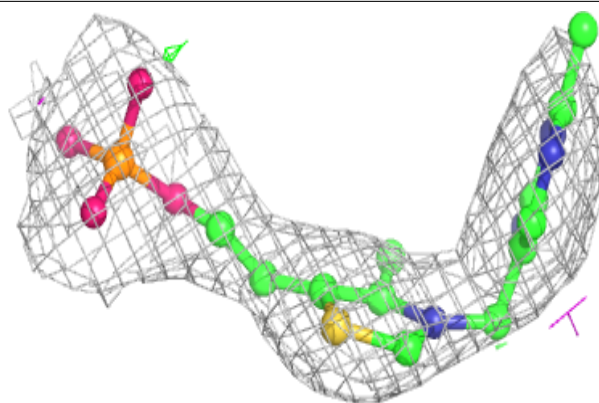
**Electron density around TPS C 2004:**

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

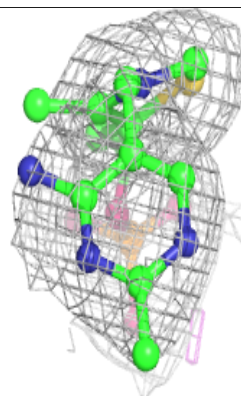
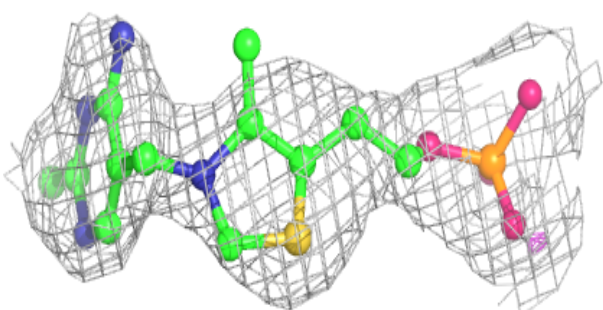
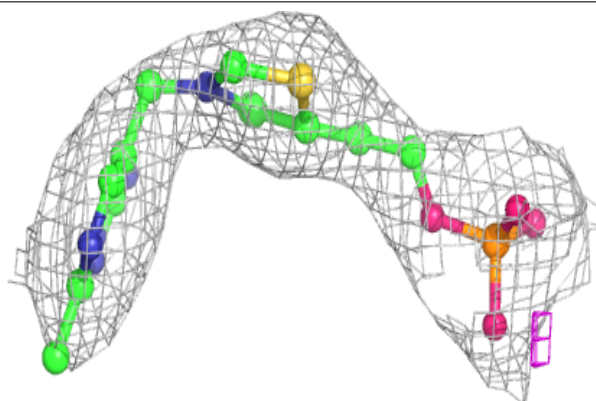


**Electron density around TPS E 2006:**

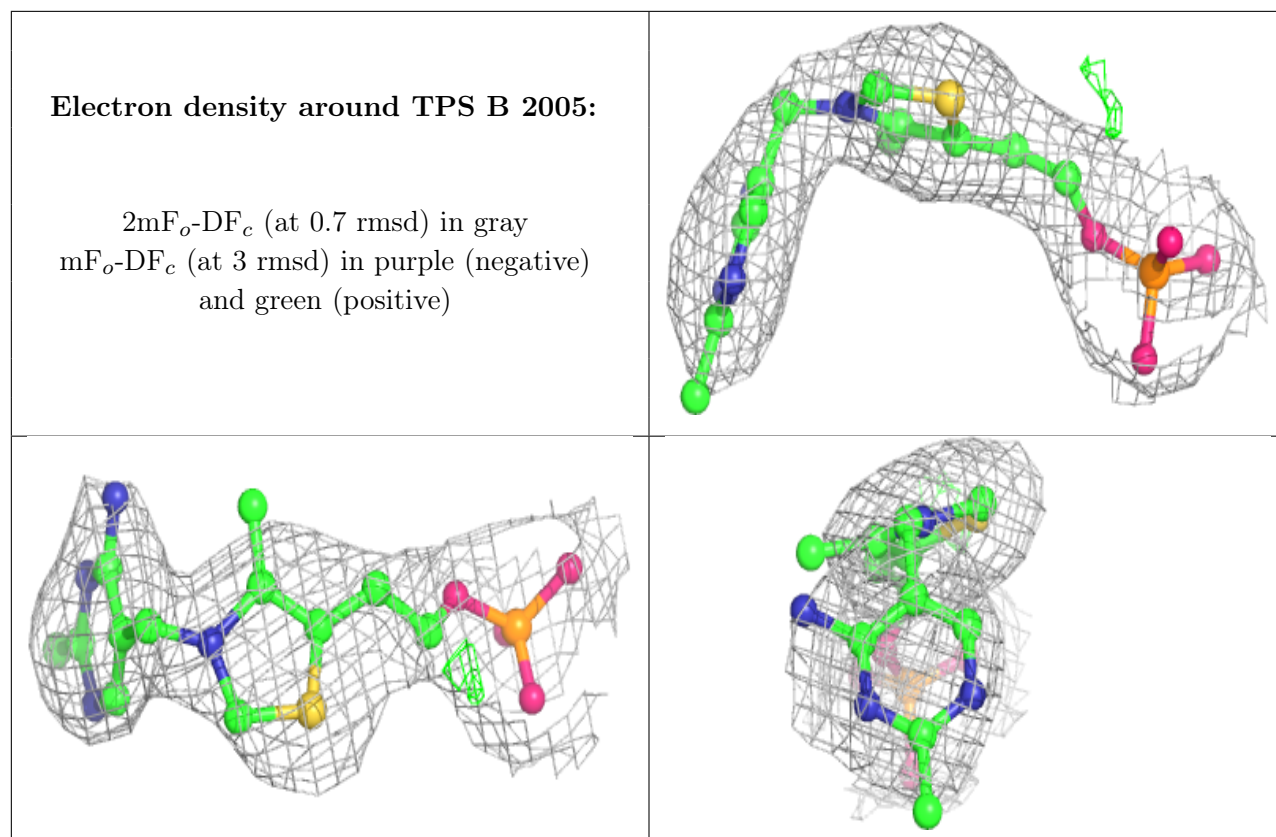
$2mF_o-DF_c$  (at 0.7 rmsd) in gray  
 $mF_o-DF_c$  (at 3 rmsd) in purple (negative)  
and green (positive)

**Electron density around TPS A 2001:**

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







## 6.5 Other polymers [i](#)

There are no such residues in this entry.