Full wwPDB X-ray Structure Validation Report ⓘ

Feb 4, 2025 – 02:12 PM JST

PDB ID	:	8X0O
Title	:	Crystal structure of Tyrosine decarboxylase H203F mutant in complex with the cofactor PLP and Tyrosine
Authors	:	Wang, H.; Yu, J.; Yao, M.
Deposited on	:	2023-11-05
Resolution	:	3.35 Å(reported)

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

We welcome your comments at *validation@mail.wwpdb.org*
A user guide is available at
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.

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

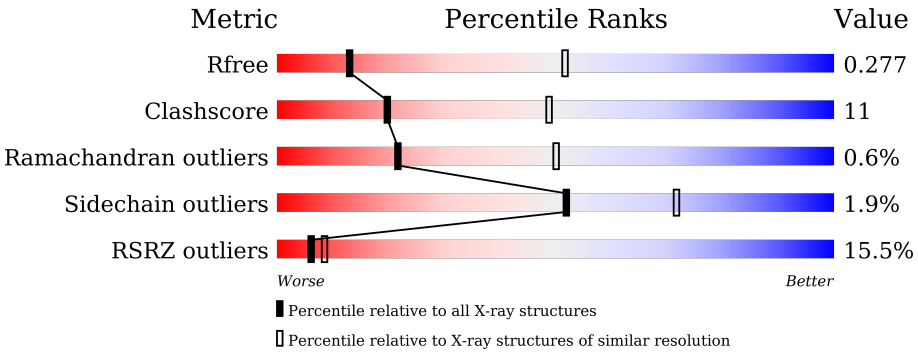
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.21
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.004 (Gargrove)
Density-Fitness	:	1.0.11
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.40

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 3.35 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}	164625	1012 (3.40-3.32)
Clashscore	180529	1035 (3.40-3.32)
Ramachandran outliers	177936	1037 (3.40-3.32)
Sidechain outliers	177891	1037 (3.40-3.32)
RSRZ outliers	164620	1012 (3.40-3.32)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for >=3, 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions <=5% The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	531	76% 14% • 9%
1	B	531	76% 14% • 9%
1	C	531	73% 18% • 9%
1	D	531	76% 14% • 9%
1	E	531	41% 55% 34% • 10%
1	F	531	37% 53% 34% • 11%

2 Entry composition (i)

There are 2 unique types of molecules in this entry. The entry contains 22960 atoms, of which 22 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.

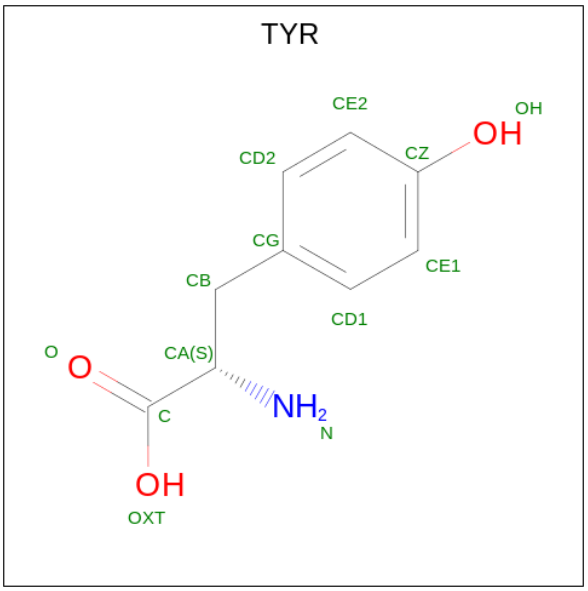
- Molecule 1 is a protein called Tyrosine/DOPA decarboxylase 2.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	485	Total	C	N	O	P	S	0	0	0
			3841	2467	641	708	1	24			
1	B	483	Total	C	N	O	P	S	0	0	0
			3824	2457	637	705	1	24			
1	C	485	Total	C	N	O	P	S	0	0	0
			3841	2467	641	708	1	24			
1	D	483	Total	C	N	O	P	S	0	0	0
			3824	2457	637	705	1	24			
1	E	479	Total	C	N	O	P	S	0	0	0
			3803	2445	633	700	1	24			
1	F	474	Total	C	N	O	P	S	0	0	0
			3755	2417	625	688	1	24			

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	203	PHE	HIS	engineered mutation	UNP P54769
B	203	PHE	HIS	engineered mutation	UNP P54769
C	203	PHE	HIS	engineered mutation	UNP P54769
D	203	PHE	HIS	engineered mutation	UNP P54769
E	203	PHE	HIS	engineered mutation	UNP P54769
F	203	PHE	HIS	engineered mutation	UNP P54769

- Molecule 2 is TYROSINE (three-letter code: TYR) (formula: $C_9H_{11}NO_3$) (labeled as "Ligand of Interest" by depositor).



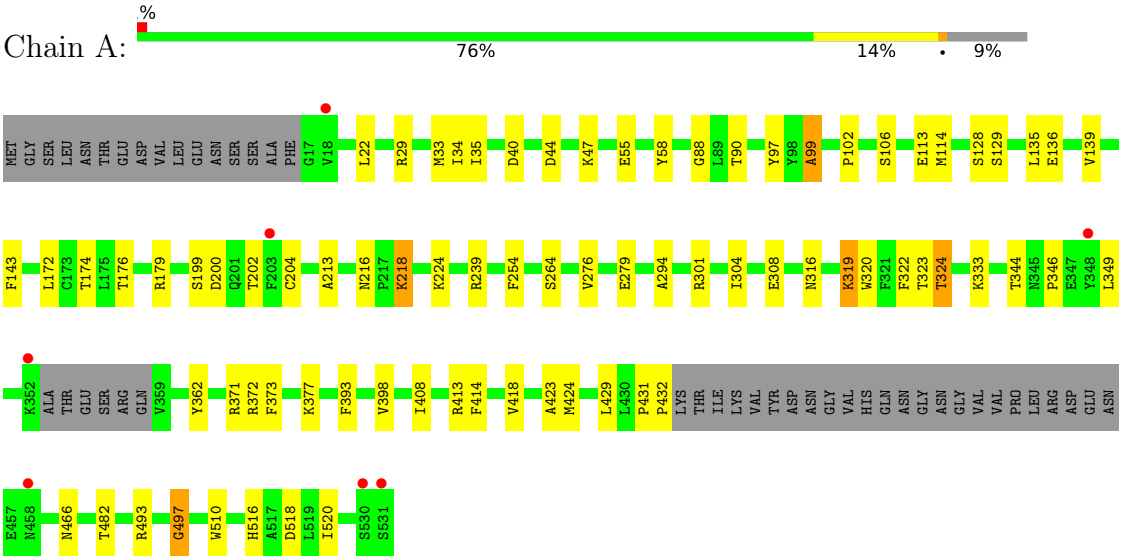
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total C H N O 24 9 11 1 3	0	0
2	B	1	Total C H N O 24 9 11 1 3	0	0
2	C	1	Total C N O 12 9 1 2	0	0
2	D	1	Total C N O 12 9 1 2	0	0

3 Residue-property plots (i)

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.

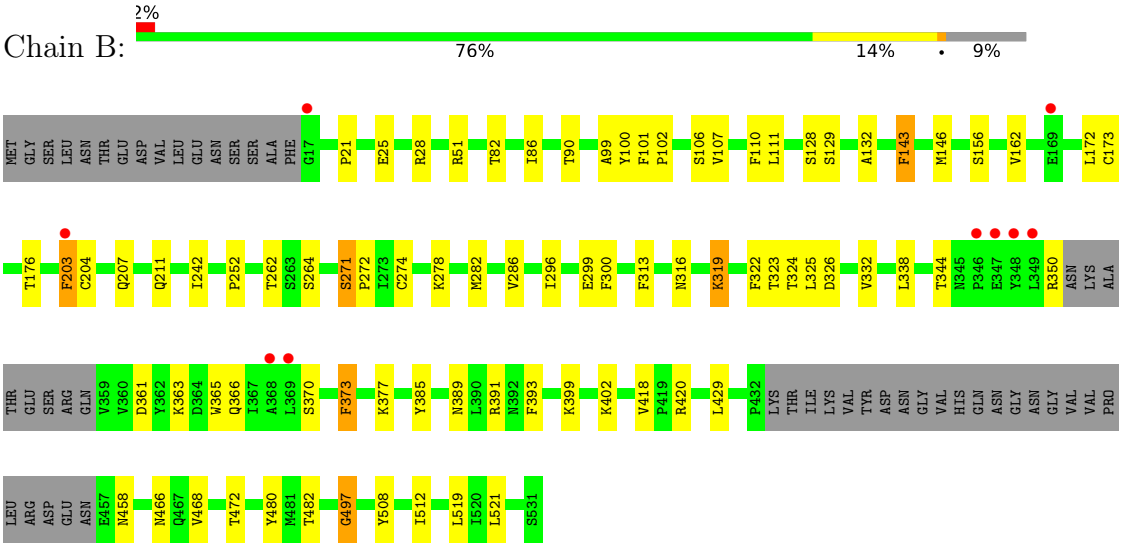
• Molecule 1: Tyrosine/DOPA decarboxylase 2

Chain A:



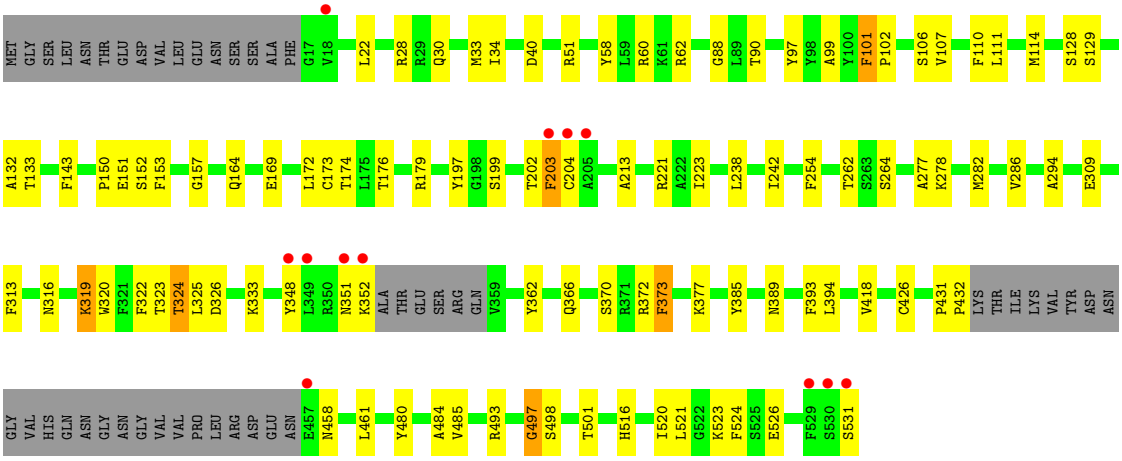
• Molecule 1: Tyrosine/DOPA decarboxylase 2

Chain B:



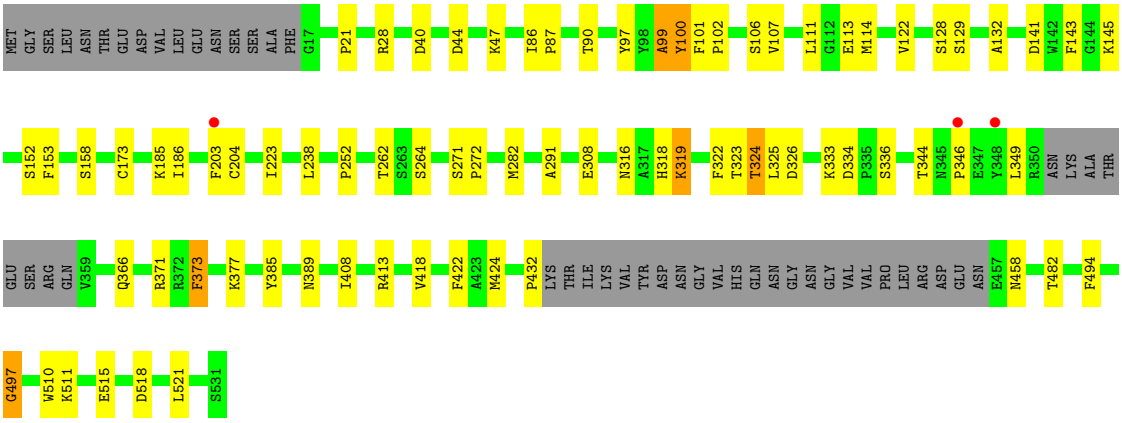
• Molecule 1: Tyrosine/DOPA decarboxylase 2

Chain C:



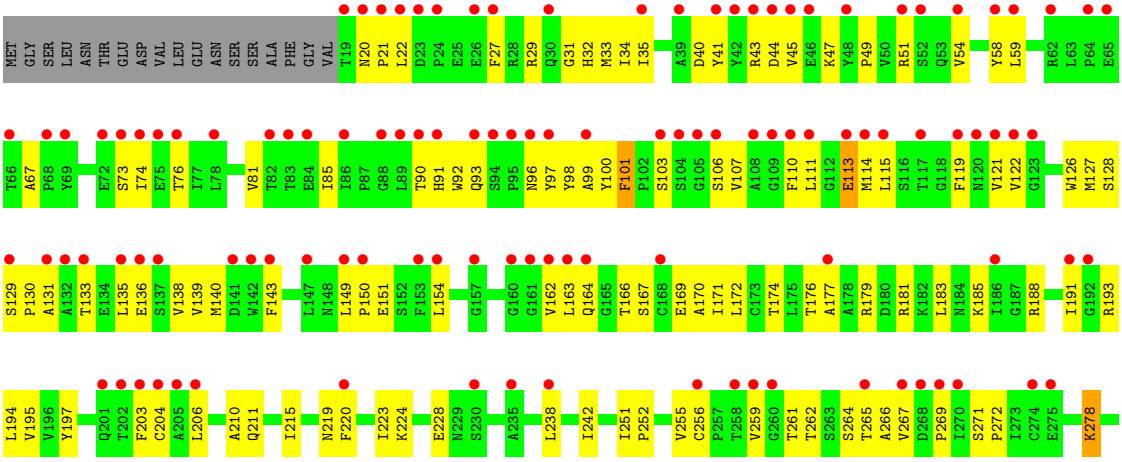
• Molecule 1: Tyrosine/DOPA decarboxylase 2

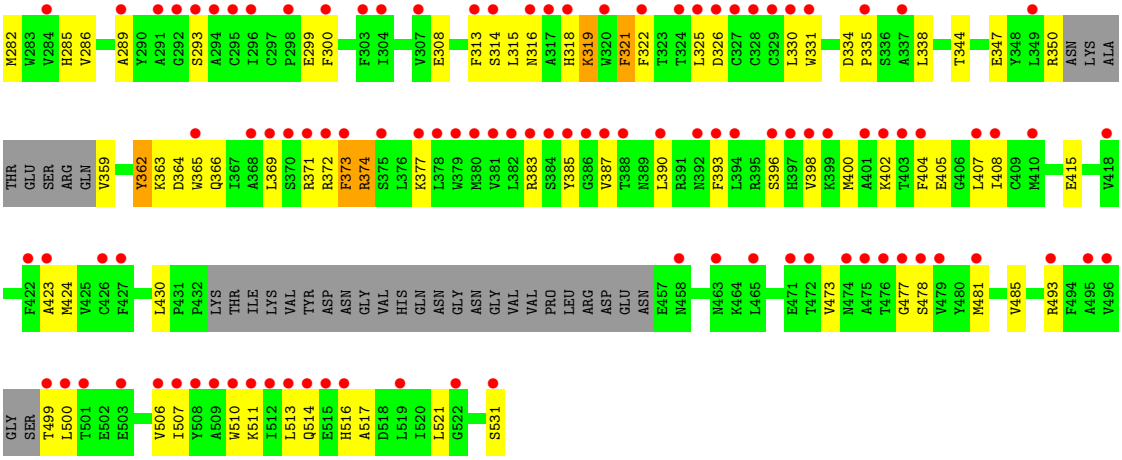
Chain D:



• Molecule 1: Tyrosine/DOPA decarboxylase 2

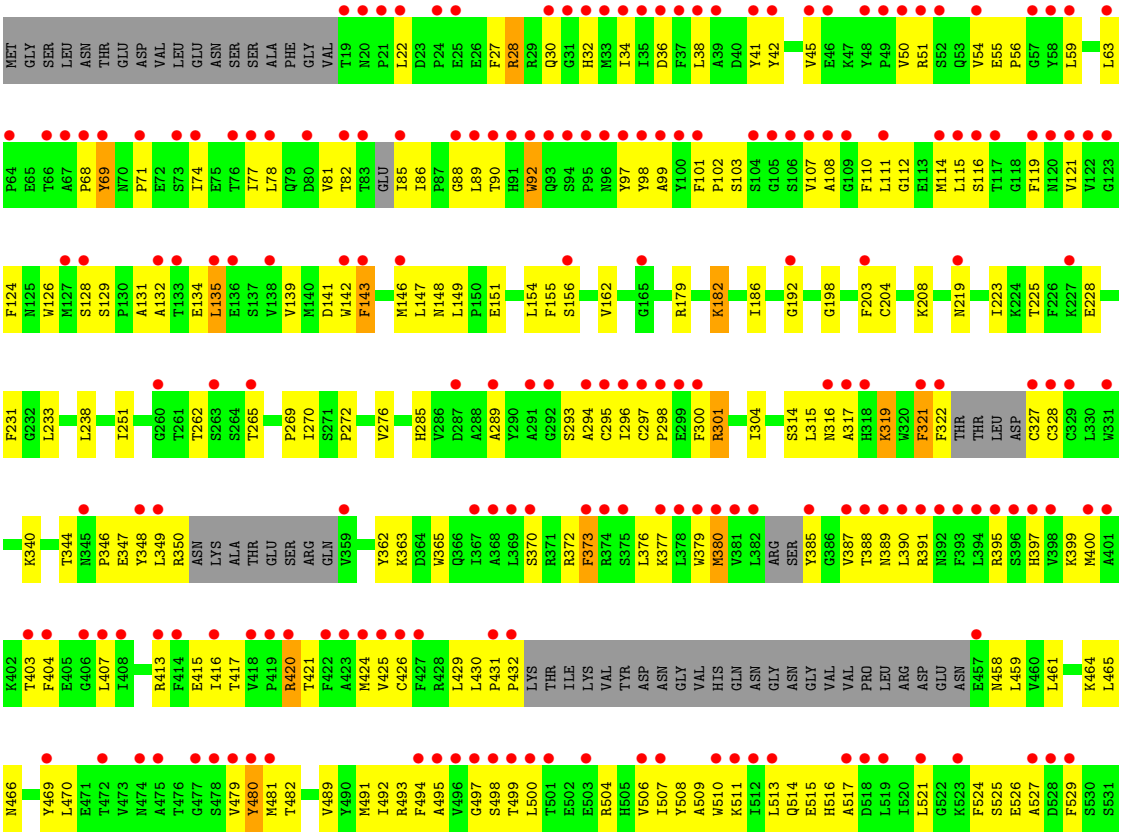
Chain E:





• Molecule 1: Tyrosine/DOPA decarboxylase 2

Chain F:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α, β, γ	218.55Å 118.50Å 181.88Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.41 – 3.35 48.41 – 3.35	Depositor EDS
% Data completeness (in resolution range)	99.8 (48.41-3.35) 99.9 (48.41-3.35)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	1.88 (at 3.33Å)	Xtriage
Refinement program	PHENIX 1.16_3549, PHENIX 1.16_3549	Depositor
R, R_{free}	0.234 , 0.279 0.233 , 0.277	Depositor DCC
R_{free} test set	3431 reflections (5.00%)	wwPDB-VP
Wilson B-factor (Å^2)	41.7	Xtriage
Anisotropy	0.186	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 49.4	EDS
L-test for twinning[2]	$< \|L\| > = 0.46$, $< L^2 > = 0.28$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.89	EDS
Total number of atoms	22960	wwPDB-VP
Average B, all atoms (Å^2)	38.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 38.09 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 3.8880e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

[1] Intensities estimated from amplitudes.

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

5 Model quality

5.1 Standard geometry

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

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	0.23	0/3910	0.39	0/5308
1	B	0.23	0/3893	0.38	0/5286
1	C	0.23	0/3910	0.39	0/5308
1	D	0.23	0/3893	0.39	0/5286
1	E	0.24	0/3871	0.39	0/5255
1	F	0.24	0/3821	0.41	0/5183
All	All	0.23	0/23298	0.39	0/31626

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts

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	3841	0	3784	57	0
1	B	3824	0	3765	55	0
1	C	3841	0	3784	71	0
1	D	3824	0	3765	56	0
1	E	3803	0	3744	161	0
1	F	3755	0	3692	182	0
2	A	13	11	8	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	B	13	11	8	1	0
2	C	12	0	8	3	0
2	D	12	0	8	2	0
All	All	22938	22	22566	512	0

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 11.

All (512) 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:E:113:GLU:HG3	1:E:377:LYS:HE2	1.53	0.90
1:F:108:ALA:HB1	1:F:380:MET:HB3	1.54	0.89
1:F:81:VAL:HG13	1:F:85:ILE:HB	1.59	0.85
1:E:481:MET:HE1	1:E:513:LEU:HD21	1.58	0.84
1:A:344:THR:HG21	1:B:204:CYS:HB3	1.58	0.83
1:B:323:THR:O	1:B:324:THR:OG1	1.97	0.81
1:E:511:LYS:HA	1:E:514:GLN:HG2	1.64	0.80
1:E:127:MET:HE2	1:F:51:ARG:HH21	1.48	0.78
1:F:415:GLU:HB2	1:F:430:LEU:HD11	1.66	0.76
1:C:485:VAL:HB	1:E:531:SER:HA	1.68	0.75
1:F:413:ARG:HH21	1:F:517:ALA:HB3	1.49	0.75
1:D:323:THR:O	1:D:324:THR:HG22	1.88	0.74
1:A:323:THR:O	1:A:324:THR:HB	1.89	0.72
1:C:262:THR:HG1	2:C:601:TYR:N	1.86	0.72
1:F:417:THR:HG21	1:F:491:MET:HB2	1.73	0.71
1:F:417:THR:OG1	1:F:426:CYS:HB2	1.88	0.71
1:D:264:SER:HB2	1:D:418:VAL:HG21	1.72	0.71
1:F:521:LEU:HA	1:F:524:PHE:HB2	1.73	0.71
1:F:285:HIS:HE2	1:F:314:SER:HG	1.36	0.71
1:C:323:THR:O	1:C:324:THR:OG1	2.09	0.70
1:C:204:CYS:HB3	1:D:344:THR:HG21	1.73	0.70
1:F:111:LEU:O	1:F:115:LEU:HD12	1.92	0.69
1:D:316:ASN:HD22	1:D:319:LLP:HE2	1.58	0.69
1:A:413:ARG:NH1	1:A:518:ASP:OD1	2.23	0.69
1:E:151:GLU:HA	1:E:154:LEU:HG	1.74	0.69
1:E:344:THR:HG21	1:F:204:CYS:HB3	1.73	0.68
1:E:122:VAL:N	1:F:92:TRP:HZ2	1.92	0.68
1:E:289:ALA:HA	1:E:316:ASN:H	1.58	0.67
1:F:289:ALA:HA	1:F:315:LEU:HA	1.77	0.67
1:E:107:VAL:HA	1:E:110:PHE:HB3	1.75	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:102:PRO:HG3	1:D:497:GLY:HA3	1.74	0.67
1:E:122:VAL:H	1:F:92:TRP:HZ2	1.43	0.67
1:E:44:ASP:HB2	1:E:47:LYS:HD3	1.77	0.66
1:E:424:MET:SD	1:E:493:ARG:NH1	2.68	0.66
1:E:67:ALA:HB2	1:F:142:TRP:HB3	1.78	0.66
1:E:128:SER:HB3	1:F:92:TRP:HH2	1.60	0.65
1:A:346:PRO:HG2	1:A:349:LEU:HD12	1.78	0.65
1:E:261:THR:HG22	1:E:266:ALA:H	1.62	0.65
1:C:264:SER:HB2	1:C:418:VAL:HG21	1.77	0.65
1:E:293:SER:HB3	1:E:321:PHE:HD1	1.62	0.65
1:C:97:TYR:CZ	1:C:99:ALA:HB3	2.31	0.65
1:D:325:LEU:HG	1:D:326:ASP:HB3	1.78	0.65
1:E:101:PHE:HE2	1:E:262:THR:HA	1.62	0.65
1:E:398:VAL:HG22	1:E:423:ALA:HB2	1.78	0.64
1:A:113:GLU:HG2	1:A:377:LYS:HD3	1.81	0.64
1:F:420:ARG:HG3	1:F:425:VAL:HB	1.79	0.64
1:C:101:PHE:HE2	1:C:262:THR:HA	1.64	0.63
1:E:166:THR:HG23	1:E:169:GLU:H	1.63	0.63
1:F:429:LEU:HD11	1:F:521:LEU:HD11	1.79	0.63
1:A:179:ARG:NH1	1:A:213:ALA:O	2.31	0.63
1:C:531:SER:HA	1:E:485:VAL:HB	1.80	0.63
1:E:170:ALA:HB1	1:E:330:LEU:HD22	1.79	0.63
1:B:264:SER:HB2	1:B:418:VAL:HG21	1.80	0.63
1:C:128:SER:O	1:D:90:THR:HB	1.99	0.63
1:E:34:ILE:HD13	1:F:111:LEU:HD13	1.78	0.63
1:E:101:PHE:CE2	1:E:262:THR:HA	2.34	0.62
1:F:51:ARG:HD3	1:F:480:TYR:CE1	2.35	0.62
1:E:383:ARG:HG2	1:F:68:PRO:HG3	1.82	0.62
1:F:131:ALA:O	1:F:135:LEU:HD12	1.99	0.62
1:A:40:ASP:OD1	1:B:28:ARG:NH2	2.33	0.62
1:A:200:ASP:OD2	1:A:224:LYS:HD3	2.00	0.61
1:E:31:GLY:HA2	1:F:111:LEU:HD11	1.81	0.61
1:E:81:VAL:HA	1:E:85:ILE:HD13	1.83	0.61
1:E:97:TYR:CE1	1:E:99:ALA:HB3	2.35	0.61
1:E:128:SER:HB3	1:F:92:TRP:CH2	2.36	0.61
1:E:41:TYR:O	1:E:45:VAL:HG13	2.01	0.61
1:C:60:ARG:NH2	1:D:141:ASP:OD2	2.34	0.61
1:E:197:TYR:HB2	1:E:255:VAL:HG12	1.82	0.61
1:D:326:ASP:O	1:D:377:LYS:NZ	2.27	0.61
1:C:523:LYS:O	1:C:523:LYS:HD3	2.01	0.60
1:E:41:TYR:HH	1:E:91:HIS:HD1	1.48	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:96:ASN:HA	1:E:98:TYR:CZ	2.36	0.60
1:F:143:PHE:HE1	1:F:296:ILE:HD11	1.65	0.60
1:E:176:THR:HG22	1:E:179:ARG:HH21	1.66	0.60
1:C:526:GLU:HB3	1:E:224:LYS:HE2	1.84	0.60
1:F:92:TRP:CD1	1:F:103:SER:HB3	2.37	0.60
1:F:102:PRO:HG3	1:F:497:GLY:HA3	1.83	0.60
1:C:114:MET:HG2	1:D:114:MET:SD	2.42	0.59
1:E:92:TRP:HB3	1:E:103:SER:HB3	1.84	0.59
1:F:74:ILE:HA	1:F:77:ILE:HG22	1.84	0.59
1:E:191:ILE:HD12	1:E:194:LEU:HD12	1.84	0.59
1:F:81:VAL:HG12	1:F:86:ILE:HG13	1.84	0.59
1:F:74:ILE:O	1:F:78:LEU:HG	2.03	0.59
1:F:399:LYS:O	1:F:403:THR:HG23	2.03	0.59
1:E:286:VAL:HB	1:E:313:PHE:HD1	1.67	0.59
1:E:111:LEU:HD11	1:F:30:GLN:HB3	1.85	0.59
1:B:203:PHE:CD1	1:B:262:THR:HG21	2.38	0.58
1:E:135:LEU:O	1:E:139:VAL:HG22	2.03	0.58
1:A:136:GLU:OE1	1:A:371:ARG:NH2	2.25	0.58
1:C:28:ARG:NH2	1:D:40:ASP:OD1	2.36	0.58
1:E:54:VAL:HG13	1:E:58:TYR:CD2	2.38	0.58
1:F:192:GLY:O	1:F:219:ASN:ND2	2.36	0.58
1:E:107:VAL:HG21	1:F:27:PHE:HA	1.86	0.58
1:E:40:ASP:OD1	1:E:43:ARG:NH1	2.33	0.58
1:C:484:ALA:HB2	1:C:493:ARG:HD2	1.86	0.57
1:D:106:SER:HB3	1:D:322:PHE:HB3	1.85	0.57
1:F:265:THR:O	1:F:421:THR:OG1	2.21	0.57
1:D:408:ILE:HD13	1:D:510:TRP:HZ3	1.69	0.57
1:F:126:TRP:NE1	1:F:134:GLU:OE2	2.37	0.57
1:E:166:THR:HG23	1:E:169:GLU:HB2	1.85	0.57
1:E:211:GLN:O	1:F:179:ARG:NH2	2.31	0.57
1:C:106:SER:HB3	1:C:322:PHE:HB3	1.87	0.56
1:F:51:ARG:HD3	1:F:480:TYR:CZ	2.40	0.56
1:F:388:THR:HA	1:F:391:ARG:HG3	1.86	0.56
1:B:99:ALA:HB1	1:B:482:THR:HG23	1.87	0.56
1:E:114:MET:HB2	1:F:114:MET:HE1	1.87	0.56
1:E:366:GLN:HE22	1:E:371:ARG:HG3	1.70	0.56
1:F:74:ILE:O	1:F:77:ILE:HG22	2.06	0.56
1:F:88:GLY:O	1:F:89:LEU:HD23	2.05	0.56
1:F:293:SER:HB3	1:F:321:PHE:CD1	2.41	0.56
1:C:372:ARG:HG2	1:D:325:LEU:HD23	1.87	0.56
1:E:204:CYS:HB2	1:F:344:THR:HG21	1.88	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:296:ILE:HG22	1:B:391:ARG:HG2	1.87	0.56
1:B:385:TYR:O	1:B:389:ASN:HB2	2.05	0.56
1:F:162:VAL:HB	1:F:365:TRP:CE3	2.40	0.56
1:A:424:MET:SD	1:A:493:ARG:NH2	2.79	0.56
1:E:278:LYS:HD2	1:E:278:LYS:O	2.06	0.55
1:F:151:GLU:HA	1:F:154:LEU:HG	1.88	0.55
1:F:319:LLP:NZ	1:F:319:LLP:O3	2.39	0.55
1:F:420:ARG:HG2	1:F:424:MET:O	2.07	0.55
1:E:415:GLU:HB2	1:E:430:LEU:HD11	1.88	0.55
1:F:98:TYR:OH	1:F:506:VAL:HA	2.06	0.55
1:F:141:ASP:OD2	1:F:155:PHE:HB2	2.06	0.55
1:A:34:ILE:HG13	1:B:111:LEU:HD22	1.89	0.55
1:C:34:ILE:HG13	1:D:111:LEU:HD22	1.88	0.55
1:E:107:VAL:O	1:E:111:LEU:HG	2.06	0.55
1:D:101:PHE:CE2	1:D:262:THR:HA	2.41	0.55
1:E:166:THR:OG1	1:E:319:LLP:OP2	2.24	0.55
1:E:315:LEU:HD12	1:E:315:LEU:O	2.06	0.55
1:A:174:THR:HG22	1:A:254:PHE:HE2	1.70	0.55
1:A:35:ILE:HD11	1:A:114:MET:HE1	1.89	0.55
1:B:323:THR:C	1:B:324:THR:HG1	2.06	0.55
1:B:325:LEU:HG	1:B:326:ASP:HB3	1.89	0.54
1:C:326:ASP:O	1:C:377:LYS:NZ	2.37	0.54
1:E:404:PHE:CE1	1:E:408:ILE:HD11	2.42	0.54
1:C:521:LEU:HA	1:C:524:PHE:HB2	1.88	0.54
1:D:346:PRO:HG2	1:D:349:LEU:HD12	1.89	0.54
1:F:99:ALA:HB1	1:F:482:THR:HG23	1.88	0.54
1:F:110:PHE:HD2	1:F:111:LEU:HG	1.71	0.54
1:C:348:TYR:O	1:C:351:ASN:ND2	2.39	0.54
1:D:318:HIS:CD2	1:D:325:LEU:HD12	2.42	0.54
1:F:297:CYS:HA	1:F:391:ARG:HH11	1.73	0.54
1:C:40:ASP:OD1	1:D:28:ARG:NH2	2.30	0.54
1:B:106:SER:HB3	1:B:322:PHE:HB3	1.90	0.54
1:C:101:PHE:CE2	1:C:262:THR:HA	2.42	0.54
1:E:206:LEU:HG	1:E:220:PHE:HE1	1.73	0.54
1:F:233:LEU:HD21	1:F:238:LEU:HB2	1.89	0.54
1:A:323:THR:O	1:A:324:THR:CB	2.55	0.53
1:A:316:ASN:HD22	1:A:319:LLP:HE2	1.72	0.53
1:D:511:LYS:NZ	1:D:515:GLU:OE2	2.39	0.53
1:B:100:TYR:HB3	2:B:601:TYR:HB3	1.89	0.53
1:E:499:THR:HG23	1:F:22:LEU:HD23	1.88	0.53
1:E:259:VAL:HG13	1:E:267:VAL:HG13	1.91	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:49:PRO:HA	1:E:477:GLY:HA3	1.91	0.53
1:E:366:GLN:NE2	1:E:371:ARG:HG3	2.23	0.53
1:F:50:VAL:HG21	1:F:479:VAL:C	2.28	0.53
1:A:106:SER:HB3	1:A:322:PHE:HB3	1.91	0.53
1:E:34:ILE:HG21	1:F:111:LEU:HD22	1.91	0.53
1:F:322:PHE:CE1	1:F:499:THR:HG21	2.44	0.53
1:F:340:LYS:HE3	1:F:347:GLU:OE1	2.08	0.53
1:C:278:LYS:HE2	1:C:309:GLU:O	2.09	0.53
1:E:238:LEU:O	1:E:242:ILE:HG13	2.09	0.53
1:E:140:MET:HE2	1:E:162:VAL:O	2.09	0.52
1:E:183:LEU:HB3	1:E:188:ARG:HG2	1.91	0.52
1:A:174:THR:HG22	1:A:254:PHE:CE2	2.44	0.52
1:D:271:SER:HB3	1:D:272:PRO:HD3	1.91	0.52
1:F:132:ALA:HA	1:F:373:PHE:CE1	2.44	0.52
1:A:264:SER:HB2	1:A:418:VAL:HG21	1.90	0.52
1:A:516:HIS:O	1:A:520:ILE:HG12	2.08	0.52
1:E:299:GLU:HG2	1:E:300:PHE:CD1	2.45	0.52
1:A:102:PRO:HG3	1:A:497:GLY:HA3	1.92	0.52
1:E:32:HIS:NE2	1:F:36:ASP:OD1	2.42	0.52
1:E:151:GLU:HG3	1:E:154:LEU:HB2	1.92	0.52
1:F:404:PHE:HD1	1:F:407:LEU:HD12	1.75	0.52
1:A:408:ILE:HG12	1:A:510:TRP:CZ3	2.44	0.52
1:B:172:LEU:O	1:B:176:THR:HG23	2.10	0.52
1:F:316:ASN:HA	1:F:328:CYS:HA	1.91	0.52
1:B:143:PHE:CE1	1:B:296:ILE:HD11	2.45	0.52
1:F:162:VAL:HB	1:F:365:TRP:HE3	1.75	0.52
1:F:348:TYR:CD1	1:F:349:LEU:HG	2.45	0.52
1:E:121:VAL:HG21	1:E:129:SER:HB2	1.92	0.52
1:E:122:VAL:N	1:F:92:TRP:CZ2	2.72	0.52
1:E:321:PHE:CZ	1:E:390:LEU:HD13	2.45	0.52
1:B:429:LEU:HD11	1:B:521:LEU:HD11	1.91	0.52
1:F:293:SER:HB3	1:F:321:PHE:CE1	2.45	0.52
1:E:299:GLU:HG2	1:E:300:PHE:HD1	1.75	0.51
1:F:289:ALA:HB1	1:F:316:ASN:ND2	2.25	0.51
1:A:429:LEU:N	1:A:466:ASN:OD1	2.35	0.51
1:F:346:PRO:O	1:F:350:ARG:HG3	2.11	0.51
1:A:99:ALA:HB1	1:A:482:THR:HG23	1.93	0.51
1:E:111:LEU:HB3	1:F:34:ILE:HG13	1.92	0.51
1:E:252:PRO:HB2	1:E:282:MET:SD	2.51	0.51
1:B:51:ARG:HD3	1:B:480:TYR:CE1	2.45	0.51
1:E:372:ARG:O	1:E:374:ARG:N	2.44	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:51:ARG:HA	1:F:90:THR:HG23	1.92	0.51
1:C:101:PHE:HB2	2:C:601:TYR:CD1	2.46	0.50
1:E:517:ALA:O	1:E:521:LEU:HB2	2.11	0.50
1:B:429:LEU:N	1:B:466:ASN:OD1	2.40	0.50
1:D:100:TYR:HB3	2:D:601:TYR:HA	1.93	0.50
1:B:25:GLU:OE2	1:B:28:ARG:NH1	2.45	0.50
1:E:92:TRP:H	1:F:121:VAL:HG12	1.76	0.50
1:F:38:LEU:O	1:F:41:TYR:HB3	2.11	0.50
1:E:171:ILE:HA	1:E:174:THR:HG22	1.94	0.50
1:F:385:TYR:C	1:F:389:ASN:HD21	2.15	0.50
1:E:203:PHE:CD1	1:E:262:THR:HG21	2.47	0.50
1:F:148:ASN:HB3	1:F:301:ARG:HH11	1.76	0.50
1:B:252:PRO:HB2	1:B:282:MET:SD	2.52	0.50
1:E:181:ARG:NH1	1:E:334:ASP:OD2	2.44	0.50
1:D:107:VAL:O	1:D:111:LEU:HG	2.12	0.49
1:E:22:LEU:HB2	1:F:500:LEU:HD11	1.92	0.49
1:E:223:ILE:HD13	1:E:238:LEU:HA	1.94	0.49
1:A:393:PHE:CZ	1:B:21:PRO:HG3	2.47	0.49
1:E:195:VAL:HG12	1:E:219:ASN:HB3	1.94	0.49
1:A:204:CYS:HB3	1:B:344:THR:HG21	1.94	0.49
1:A:344:THR:CG2	1:B:204:CYS:HB3	2.35	0.49
1:B:143:PHE:HE1	1:B:296:ILE:HD11	1.77	0.49
1:B:508:TYR:CZ	1:B:512:ILE:HD11	2.47	0.49
1:D:141:ASP:O	1:D:145:LYS:HG3	2.12	0.49
1:F:298:PRO:HD3	1:F:391:ARG:HH12	1.76	0.49
1:B:316:ASN:HD22	1:B:319:LLP:HE2	1.78	0.49
1:D:366:GLN:OE1	1:D:371:ARG:HD2	2.12	0.49
1:E:34:ILE:CG2	1:F:111:LEU:HD22	2.43	0.49
1:C:458:ASN:OD1	1:C:458:ASN:N	2.45	0.49
1:E:271:SER:HB2	1:E:272:PRO:HD3	1.95	0.49
1:C:164:GLN:OE1	1:C:169:GLU:HG2	2.13	0.49
1:D:458:ASN:N	1:D:458:ASN:OD1	2.45	0.49
1:E:106:SER:OG	1:E:322:PHE:HB3	2.12	0.49
1:E:121:VAL:HG23	1:F:92:TRP:CZ2	2.47	0.49
1:D:86:ILE:N	1:D:87:PRO:HD2	2.28	0.49
1:E:135:LEU:HA	1:E:138:VAL:HG12	1.94	0.49
1:F:497:GLY:O	1:F:498:SER:HB3	2.12	0.49
1:D:334:ASP:OD1	1:D:336:SER:OG	2.30	0.49
1:F:147:LEU:HB2	1:F:149:LEU:HG	1.94	0.49
1:E:131:ALA:HB1	1:F:85:ILE:HD13	1.94	0.49
1:E:383:ARG:HB2	1:F:77:ILE:HD12	1.94	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:132:ALA:HA	1:C:373:PHE:CE1	2.48	0.48
1:F:82:THR:HA	1:F:86:ILE:HD12	1.95	0.48
1:C:110:PHE:O	1:C:114:MET:HG3	2.13	0.48
1:E:133:THR:HG22	1:E:362:TYR:HD2	1.79	0.48
1:E:383:ARG:CB	1:F:77:ILE:HD12	2.43	0.48
1:C:323:THR:O	1:C:324:THR:CB	2.62	0.48
1:A:113:GLU:HG2	1:A:377:LYS:CD	2.42	0.48
1:D:153:PHE:CE1	1:D:333:LYS:HG3	2.48	0.48
1:F:54:VAL:HG12	1:F:55:GLU:H	1.79	0.48
1:F:322:PHE:HE1	1:F:499:THR:HG21	1.79	0.48
1:A:294:ALA:HB2	1:A:320:TRP:CZ3	2.49	0.48
1:E:193:ARG:HB2	1:E:251:ILE:HD12	1.95	0.48
1:C:516:HIS:O	1:C:520:ILE:HG12	2.14	0.48
1:D:113:GLU:HB2	1:D:377:LYS:HD3	1.94	0.48
1:F:269:PRO:HB2	1:F:272:PRO:HD2	1.96	0.48
1:C:197:TYR:CE1	1:C:221:ARG:HG3	2.49	0.48
1:B:322:PHE:HZ	1:B:393:PHE:HB3	1.78	0.48
1:A:319:LLP:OP3	1:B:370:SER:OG	2.29	0.47
1:B:468:VAL:O	1:B:472:THR:HG23	2.14	0.47
1:E:289:ALA:HA	1:E:315:LEU:HA	1.95	0.47
1:F:404:PHE:HE1	1:F:510:TRP:CZ3	2.32	0.47
1:A:216:ASN:OD1	1:A:218:LYS:HD2	2.15	0.47
1:A:308:GLU:O	1:A:333:LYS:NZ	2.33	0.47
1:A:102:PRO:CG	1:A:497:GLY:HA3	2.44	0.47
1:A:114:MET:HG3	1:B:110:PHE:HZ	1.79	0.47
1:A:239:ARG:NH2	1:A:279:GLU:OE1	2.37	0.47
1:E:73:SER:OG	1:E:76:THR:HG22	2.14	0.47
1:E:335:PRO:HB3	1:E:365:TRP:CH2	2.50	0.47
1:F:59:LEU:CD2	1:F:63:LEU:HD21	2.44	0.47
1:F:119:PHE:O	1:F:121:VAL:HG13	2.13	0.47
1:C:370:SER:OG	1:D:319:LLP:OP3	2.30	0.47
1:D:152:SER:HA	1:D:158:SER:HB3	1.96	0.47
1:F:459:LEU:HD11	1:F:489:VAL:HA	1.97	0.47
1:C:203:PHE:CD1	1:C:262:THR:HG21	2.49	0.47
1:F:142:TRP:O	1:F:146:MET:HG3	2.15	0.47
1:F:385:TYR:HB3	1:F:390:LEU:HD21	1.96	0.47
1:D:97:TYR:CZ	1:D:99:ALA:HB3	2.50	0.47
1:D:122:VAL:O	1:D:128:SER:HB3	2.14	0.47
1:E:20:ASN:ND2	1:E:21:PRO:HD2	2.30	0.47
1:F:385:TYR:O	1:F:389:ASN:ND2	2.46	0.47
1:F:404:PHE:HA	1:F:407:LEU:HD12	1.96	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:420:ARG:CZ	1:F:420:ARG:HB3	2.45	0.47
1:F:511:LYS:HA	1:F:514:GLN:HB3	1.96	0.47
1:E:149:LEU:HD23	1:E:150:PRO:HD2	1.97	0.46
1:E:402:LYS:HA	1:E:405:GLU:HB3	1.96	0.46
1:F:198:GLY:O	1:F:223:ILE:HG12	2.16	0.46
1:F:400:MET:O	1:F:403:THR:OG1	2.32	0.46
1:E:407:LEU:HD13	1:E:510:TRP:CD1	2.50	0.46
1:F:415:GLU:HB3	1:F:430:LEU:HD21	1.97	0.46
1:E:278:LYS:HD2	1:E:278:LYS:C	2.35	0.46
1:A:114:MET:HG3	1:B:110:PHE:CZ	2.49	0.46
1:C:151:GLU:HG2	1:C:157:GLY:HA3	1.96	0.46
1:D:346:PRO:HG2	1:D:349:LEU:CD1	2.46	0.46
1:E:172:LEU:O	1:E:176:THR:HG23	2.16	0.46
1:A:372:ARG:HG2	1:B:325:LEU:HD23	1.97	0.46
1:E:81:VAL:HG22	1:F:379:TRP:HZ3	1.79	0.46
1:E:206:LEU:HD22	1:E:256:CYS:HB3	1.97	0.46
1:A:44:ASP:O	1:A:47:LYS:HG2	2.16	0.46
1:C:102:PRO:CG	1:C:497:GLY:HA3	2.46	0.46
1:C:385:TYR:O	1:C:389:ASN:HB2	2.16	0.46
1:C:432:PRO:HD2	1:C:524:PHE:CE2	2.51	0.46
1:E:41:TYR:OH	1:E:91:HIS:ND1	2.40	0.46
1:A:199:SER:H	1:A:202:THR:CG2	2.29	0.46
1:A:199:SER:H	1:A:202:THR:HG23	1.80	0.46
1:E:129:SER:HA	1:F:89:LEU:HA	1.96	0.46
1:E:135:LEU:HD22	1:F:85:ILE:HD11	1.98	0.46
1:A:90:THR:HB	1:B:128:SER:O	2.16	0.46
1:B:286:VAL:HB	1:B:313:PHE:HD1	1.81	0.46
1:C:199:SER:H	1:C:202:THR:HG23	1.80	0.46
1:C:325:LEU:HA	1:C:326:ASP:HA	1.52	0.46
1:E:289:ALA:HA	1:E:316:ASN:N	2.30	0.46
1:D:413:ARG:HD2	1:D:521:LEU:HD12	1.97	0.45
1:E:115:LEU:O	1:E:119:PHE:N	2.38	0.45
1:F:51:ARG:HG2	1:F:480:TYR:CD2	2.50	0.45
1:F:143:PHE:CE1	1:F:296:ILE:HD11	2.47	0.45
1:F:289:ALA:HB1	1:F:316:ASN:HD21	1.81	0.45
1:E:31:GLY:O	1:E:35:ILE:HG12	2.16	0.45
1:F:270:ILE:HD12	1:F:304:ILE:HA	1.98	0.45
1:E:136:GLU:OE2	1:E:163:LEU:N	2.47	0.45
1:C:30:GLN:HG2	1:C:33:MET:HE1	1.98	0.45
1:D:185:LYS:HG3	1:D:186:ILE:HG23	1.99	0.45
1:E:93:GLN:CD	1:E:93:GLN:H	2.20	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:400:MET:HB3	1:E:506:VAL:HG21	1.97	0.45
1:F:429:LEU:HD12	1:F:465:LEU:HD21	1.98	0.45
1:E:325:LEU:HD11	1:F:370:SER:OG	2.17	0.45
1:E:177:ALA:HB2	1:E:338:LEU:HD23	1.98	0.45
1:E:264:SER:O	1:E:264:SER:OG	2.34	0.45
1:C:107:VAL:O	1:C:111:LEU:HG	2.17	0.45
1:E:181:ARG:O	1:E:185:LYS:HG3	2.17	0.45
1:A:324:THR:HG22	1:A:377:LYS:CD	2.47	0.45
1:D:99:ALA:HB1	1:D:482:THR:HG23	1.99	0.45
1:F:525:SER:C	1:F:527:ALA:H	2.21	0.45
1:A:324:THR:HG22	1:A:377:LYS:HD3	1.99	0.45
1:B:146:MET:HB3	1:B:296:ILE:HG13	1.99	0.45
1:B:326:ASP:O	1:B:377:LYS:NZ	2.32	0.45
1:D:325:LEU:HA	1:D:326:ASP:HA	1.50	0.45
1:E:228:GLU:OE1	1:E:228:GLU:N	2.47	0.45
1:C:179:ARG:NH1	1:C:213:ALA:O	2.45	0.44
1:C:316:ASN:HD22	1:C:319:LLP:HE2	1.80	0.44
1:C:352:LYS:HA	1:C:352:LYS:HD2	1.81	0.44
1:F:98:TYR:HB2	1:F:481:MET:HG2	1.97	0.44
1:B:107:VAL:O	1:B:111:LEU:HG	2.17	0.44
1:B:322:PHE:CZ	1:B:393:PHE:HB3	2.51	0.44
1:F:98:TYR:HA	1:F:495:ALA:O	2.16	0.44
1:C:418:VAL:HG22	1:C:426:CYS:HB2	1.99	0.44
1:C:498:SER:HB3	1:C:501:THR:OG1	2.17	0.44
1:B:402:LYS:HE2	1:B:420:ARG:NH2	2.33	0.44
1:D:291:ALA:HB1	1:D:422:PHE:CZ	2.52	0.44
1:F:504:ARG:HA	1:F:507:ILE:HD12	2.00	0.44
1:B:242:ILE:HD13	1:B:282:MET:HE1	1.99	0.44
1:B:332:VAL:HG11	1:B:338:LEU:HD11	1.99	0.44
1:B:399:LYS:HA	1:B:399:LYS:HD2	1.67	0.44
1:D:291:ALA:HB1	1:D:422:PHE:CE1	2.53	0.44
1:F:417:THR:HG21	1:F:491:MET:CB	2.46	0.44
1:F:464:LYS:HG3	1:F:529:PHE:HB3	1.99	0.44
1:C:133:THR:HG23	1:C:362:TYR:CD2	2.53	0.44
1:D:223:ILE:HD13	1:D:238:LEU:HA	2.00	0.44
1:E:92:TRP:HE1	1:F:128:SER:HB3	1.82	0.44
1:F:297:CYS:HA	1:F:391:ARG:NH1	2.33	0.44
1:A:135:LEU:O	1:A:139:VAL:HG22	2.18	0.44
1:A:172:LEU:O	1:A:176:THR:HG23	2.17	0.44
1:B:207:GLN:O	1:B:211:GLN:HG3	2.17	0.44
1:C:152:SER:HB2	1:C:333:LYS:HD3	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:385:TYR:O	1:D:389:ASN:HB2	2.18	0.44
1:E:285:HIS:CE1	1:E:314:SER:HG	2.34	0.44
1:F:97:TYR:CZ	1:F:99:ALA:HB3	2.53	0.44
1:F:102:PRO:CG	1:F:497:GLY:HA3	2.48	0.44
1:A:319:LLP:HG3	2:A:601:TYR:CZ	2.53	0.43
1:D:132:ALA:HA	1:D:373:PHE:CE1	2.53	0.43
1:D:308:GLU:O	1:D:333:LYS:NZ	2.26	0.43
1:E:369:LEU:HD21	1:F:208:LYS:HD3	2.00	0.43
1:A:97:TYR:CZ	1:A:99:ALA:HB3	2.52	0.43
1:E:164:GLN:HB3	1:E:366:GLN:OE1	2.18	0.43
1:F:28:ARG:HG3	1:F:32:HIS:CD2	2.53	0.43
1:C:294:ALA:HB2	1:C:320:TRP:CZ3	2.53	0.43
1:D:252:PRO:HB2	1:D:282:MET:SD	2.59	0.43
1:E:29:ARG:HD2	1:E:33:MET:HE2	2.00	0.43
1:E:106:SER:HB2	1:E:322:PHE:O	2.18	0.43
1:E:114:MET:HB2	1:F:114:MET:CE	2.48	0.43
1:F:115:LEU:O	1:F:119:PHE:N	2.31	0.43
1:F:296:ILE:HD12	1:F:321:PHE:HZ	1.82	0.43
1:C:173:CYS:SG	1:C:366:GLN:HA	2.58	0.43
1:E:27:PHE:HA	1:F:107:VAL:HG21	2.00	0.43
1:B:271:SER:HB3	1:B:272:PRO:HD3	2.00	0.43
1:C:286:VAL:HB	1:C:313:PHE:HD1	1.83	0.43
1:F:81:VAL:CG1	1:F:85:ILE:HB	2.38	0.43
1:F:373:PHE:CE1	1:F:376:LEU:HG	2.53	0.43
1:F:400:MET:HB3	1:F:400:MET:HE2	1.89	0.43
1:C:101:PHE:HB2	2:C:601:TYR:CE1	2.54	0.43
1:E:325:LEU:O	1:F:372:ARG:HD3	2.18	0.43
1:F:416:ILE:O	1:F:416:ILE:HG13	2.17	0.43
1:A:55:GLU:OE1	1:A:55:GLU:N	2.42	0.43
1:C:90:THR:HB	1:D:128:SER:O	2.19	0.43
1:D:100:TYR:HB3	2:D:601:TYR:N	2.33	0.43
1:E:315:LEU:HG	1:E:331:TRP:CH2	2.53	0.43
1:E:385:TYR:O	1:F:71:PRO:HB3	2.19	0.43
1:F:116:SER:OG	1:F:373:PHE:HB3	2.19	0.43
1:A:128:SER:O	1:B:90:THR:HB	2.19	0.43
1:A:301:ARG:NH1	1:A:304:ILE:HG13	2.34	0.43
1:C:51:ARG:HD3	1:C:480:TYR:CE1	2.53	0.43
1:E:224:LYS:HA	1:E:224:LYS:HD3	1.74	0.43
1:F:42:TYR:HA	1:F:45:VAL:HG23	2.01	0.43
1:F:272:PRO:O	1:F:276:VAL:HG12	2.19	0.43
1:F:481:MET:SD	1:F:513:LEU:HD21	2.58	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:150:PRO:HG2	1:C:153:PHE:HD2	1.83	0.43
1:F:295:CYS:O	1:F:301:ARG:HB3	2.19	0.43
1:F:461:LEU:HD21	1:F:526:GLU:HG2	1.99	0.43
1:E:126:TRP:CE2	1:E:130:PRO:HB3	2.54	0.42
1:F:413:ARG:NH2	1:F:514:GLN:O	2.46	0.42
1:A:29:ARG:NH1	1:A:33:MET:HE1	2.35	0.42
1:A:398:VAL:HG22	1:A:423:ALA:HB2	2.01	0.42
1:E:59:LEU:HG	1:F:134:GLU:CB	2.49	0.42
1:E:318:HIS:CG	1:E:325:LEU:HD12	2.54	0.42
1:F:50:VAL:CG2	1:F:480:TYR:HB2	2.50	0.42
1:E:92:TRP:CE3	1:E:103:SER:HB2	2.54	0.42
1:E:363:LYS:HG3	1:E:364:ASP:OD1	2.19	0.42
1:F:294:ALA:O	1:F:300:PHE:HD2	2.02	0.42
1:C:174:THR:HG22	1:C:254:PHE:CE1	2.55	0.42
1:C:323:THR:O	1:C:324:THR:HG23	2.19	0.42
1:D:413:ARG:NH1	1:D:518:ASP:OD1	2.44	0.42
1:E:74:ILE:HD12	1:E:74:ILE:N	2.35	0.42
1:E:325:LEU:HA	1:E:326:ASP:HA	1.52	0.42
1:E:255:VAL:HG13	1:E:282:MET:CE	2.50	0.42
1:F:391:ARG:O	1:F:395:ARG:NH1	2.53	0.42
1:F:429:LEU:N	1:F:466:ASN:OD1	2.48	0.42
1:F:479:VAL:HG11	1:F:509:ALA:HB1	2.00	0.42
1:C:322:PHE:CZ	1:C:393:PHE:HB3	2.55	0.42
1:E:269:PRO:HB2	1:E:272:PRO:HD2	2.02	0.42
1:E:318:HIS:CD2	1:E:325:LEU:HD12	2.55	0.42
1:F:269:PRO:HB2	1:F:272:PRO:HG2	2.01	0.42
1:F:317:ALA:N	1:F:327:CYS:O	2.45	0.42
1:A:322:PHE:CZ	1:A:393:PHE:HB3	2.55	0.42
1:A:408:ILE:HG23	1:A:414:PHE:CB	2.50	0.42
1:C:431:PRO:HA	1:C:432:PRO:HD3	1.87	0.42
1:D:44:ASP:O	1:D:47:LYS:HG2	2.19	0.42
1:E:51:ARG:HA	1:E:90:THR:HG23	2.02	0.42
1:E:387:VAL:HB	1:F:69:TYR:HA	2.01	0.42
1:E:393:PHE:O	1:E:396:SER:HB3	2.20	0.42
1:F:469:TYR:OH	1:F:513:LEU:HB3	2.19	0.42
1:C:58:TYR:OH	1:C:88:GLY:HA3	2.20	0.42
1:C:277:ALA:HA	1:C:282:MET:CE	2.50	0.42
1:D:424:MET:HA	1:D:494:PHE:O	2.20	0.42
1:E:359:VAL:HG12	1:F:56:PRO:HB3	2.02	0.42
1:F:124:PHE:CE1	1:F:363:LYS:HE3	2.55	0.42
1:F:387:VAL:O	1:F:391:ARG:HG3	2.19	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:510:TRP:CD1	1:F:511:LYS:HG3	2.55	0.42
1:F:251:ILE:HG23	1:F:251:ILE:O	2.20	0.42
1:A:239:ARG:NH1	1:A:276:VAL:HG22	2.35	0.41
1:B:102:PRO:CG	1:B:497:GLY:HA3	2.50	0.41
1:D:432:PRO:HD3	1:D:521:LEU:HD22	2.02	0.41
1:E:210:ALA:HB1	1:E:215:ILE:HB	2.01	0.41
1:F:295:CYS:SG	1:F:301:ARG:HA	2.60	0.41
1:F:182:LYS:O	1:F:186:ILE:HG12	2.20	0.41
1:F:373:PHE:CZ	1:F:376:LEU:HG	2.54	0.41
1:C:242:ILE:HD13	1:C:282:MET:HE1	2.01	0.41
1:C:277:ALA:HA	1:C:282:MET:HE2	2.02	0.41
1:E:315:LEU:HD12	1:E:315:LEU:C	2.41	0.41
1:F:112:GLY:HA3	1:F:377:LYS:HA	2.02	0.41
1:F:135:LEU:O	1:F:139:VAL:HG13	2.20	0.41
1:E:326:ASP:CG	1:E:374:ARG:HH12	2.23	0.41
1:B:132:ALA:HA	1:B:373:PHE:CE1	2.55	0.41
1:B:458:ASN:N	1:B:458:ASN:OD1	2.53	0.41
1:D:185:LYS:HE3	1:D:185:LYS:HB2	1.84	0.41
1:E:167:SER:O	1:E:171:ILE:HG13	2.19	0.41
1:E:347:GLU:HG2	1:E:350:ARG:NH1	2.35	0.41
1:F:28:ARG:HG3	1:F:32:HIS:HD2	1.85	0.41
1:F:470:LEU:CD2	1:F:492:ILE:HD13	2.50	0.41
1:C:102:PRO:HG3	1:C:497:GLY:HA3	2.02	0.41
1:B:299:GLU:HG2	1:B:300:PHE:CD1	2.55	0.41
1:C:223:ILE:HD13	1:C:238:LEU:HA	2.02	0.41
1:E:22:LEU:HD23	1:E:22:LEU:HA	1.87	0.41
1:E:90:THR:CG2	1:E:97:TYR:HE2	2.34	0.41
1:E:127:MET:HE3	1:F:51:ARG:HB3	2.02	0.41
1:E:407:LEU:HD11	1:E:507:ILE:HD13	2.03	0.41
1:E:473:VAL:HG22	1:E:516:HIS:CG	2.55	0.41
1:F:54:VAL:HG12	1:F:55:GLU:N	2.35	0.41
1:F:403:THR:O	1:F:407:LEU:HG	2.20	0.41
1:F:482:THR:OG1	1:F:493:ARG:NH1	2.54	0.41
1:F:110:PHE:CD2	1:F:111:LEU:HG	2.53	0.41
1:F:431:PRO:HA	1:F:432:PRO:HD3	1.93	0.41
1:A:22:LEU:HD12	1:A:22:LEU:HA	1.91	0.41
1:A:58:TYR:OH	1:A:88:GLY:HA3	2.20	0.41
1:B:162:VAL:HB	1:B:365:TRP:CE3	2.56	0.41
1:B:325:LEU:HA	1:B:326:ASP:HA	1.55	0.41
1:C:294:ALA:HA	1:C:394:LEU:HD13	2.03	0.41
1:E:195:VAL:HG23	1:E:252:PRO:HA	2.03	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:101:PHE:CE2	1:F:262:THR:HA	2.56	0.41
1:F:225:THR:HB	1:F:231:PHE:HA	2.02	0.41
1:F:376:LEU:HD23	1:F:376:LEU:HA	1.81	0.41
1:F:397:HIS:CE1	1:F:499:THR:HG22	2.56	0.41
1:F:424:MET:HA	1:F:494:PHE:O	2.20	0.41
1:F:504:ARG:O	1:F:508:TYR:N	2.45	0.41
1:A:431:PRO:HA	1:A:432:PRO:HD3	1.98	0.41
1:B:173:CYS:SG	1:B:366:GLN:HA	2.61	0.41
1:B:274:CYS:O	1:B:278:LYS:HG2	2.20	0.41
1:C:62:ARG:HE	1:C:62:ARG:HB3	1.76	0.41
1:C:172:LEU:O	1:C:176:THR:HG23	2.20	0.41
1:E:32:HIS:O	1:F:32:HIS:HE1	2.04	0.41
1:E:59:LEU:HG	1:F:134:GLU:HB2	2.02	0.41
1:F:413:ARG:O	1:F:429:LEU:HD22	2.21	0.41
1:B:82:THR:HA	1:B:86:ILE:HD12	2.03	0.40
1:B:361:ASP:OD1	1:B:363:LYS:HG2	2.22	0.40
1:E:150:PRO:HG3	1:E:308:GLU:HG3	2.02	0.40
1:E:499:THR:HG22	1:E:500:LEU:HD23	2.03	0.40
1:F:228:GLU:H	1:F:228:GLU:HG3	1.72	0.40
1:D:173:CYS:SG	1:D:366:GLN:HA	2.61	0.40
1:F:135:LEU:HD13	1:F:373:PHE:HZ	1.87	0.40
1:F:429:LEU:CD1	1:F:521:LEU:HD11	2.47	0.40
1:C:22:LEU:HD12	1:C:22:LEU:HA	1.89	0.40
1:E:166:THR:CG2	1:E:169:GLU:HB2	2.50	0.40
1:E:265:THR:O	1:E:265:THR:HG23	2.21	0.40
1:E:289:ALA:CA	1:E:316:ASN:H	2.28	0.40
1:F:397:HIS:HE1	1:F:499:THR:HG22	1.85	0.40
1:F:515:GLU:HG3	1:F:516:HIS:ND1	2.36	0.40
1:C:393:PHE:CZ	1:D:21:PRO:HG3	2.57	0.40
1:D:44:ASP:HB3	1:D:47:LYS:HE2	2.04	0.40
1:E:111:LEU:HD22	1:F:34:ILE:HG13	2.02	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	478/531 (90%)	463 (97%)	11 (2%)	4 (1%)	16	44
1	B	476/531 (90%)	457 (96%)	17 (4%)	2 (0%)	30	59
1	C	478/531 (90%)	459 (96%)	16 (3%)	3 (1%)	22	50
1	D	476/531 (90%)	455 (96%)	16 (3%)	5 (1%)	12	37
1	E	470/531 (88%)	440 (94%)	28 (6%)	2 (0%)	30	59
1	F	461/531 (87%)	426 (92%)	34 (7%)	1 (0%)	44	71
All	All	2839/3186 (89%)	2700 (95%)	122 (4%)	17 (1%)	22	50

All (17) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	324	THR
1	C	324	THR
1	D	324	THR
1	E	100	TYR
1	E	373	PHE
1	A	99	ALA
1	A	497	GLY
1	B	497	GLY
1	C	497	GLY
1	D	99	ALA
1	D	204	CYS
1	D	497	GLY
1	D	129	SER
1	B	129	SER
1	F	129	SER
1	C	129	SER
1	A	129	SER

5.3.2 Protein sidechains (i)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all 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	415/455 (91%)	411 (99%)	4 (1%)	73 84
1	B	413/455 (91%)	405 (98%)	8 (2%)	52 72
1	C	415/455 (91%)	410 (99%)	5 (1%)	67 80
1	D	413/455 (91%)	409 (99%)	4 (1%)	73 84
1	E	411/455 (90%)	402 (98%)	9 (2%)	47 68
1	F	404/455 (89%)	388 (96%)	16 (4%)	27 52
All	All	2471/2730 (90%)	2425 (98%)	46 (2%)	52 72

All (46) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	143	PHE
1	A	218	LYS
1	A	362	TYR
1	A	373	PHE
1	B	101	PHE
1	B	143	PHE
1	B	156	SER
1	B	203	PHE
1	B	271	SER
1	B	350	ARG
1	B	373	PHE
1	B	519	LEU
1	C	101	PHE
1	C	143	PHE
1	C	203	PHE
1	C	373	PHE
1	C	461	LEU
1	D	100	TYR
1	D	143	PHE
1	D	203	PHE
1	D	373	PHE
1	E	101	PHE
1	E	113	GLU
1	E	143	PHE
1	E	278	LYS
1	E	321	PHE
1	E	362	TYR
1	E	373	PHE
1	E	374	ARG
1	E	478	SER

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Mol	Chain	Res	Type
1	F	28	ARG
1	F	69	TYR
1	F	92	TRP
1	F	135	LEU
1	F	143	PHE
1	F	156	SER
1	F	182	LYS
1	F	203	PHE
1	F	301	ARG
1	F	321	PHE
1	F	362	TYR
1	F	373	PHE
1	F	380	MET
1	F	420	ARG
1	F	458	ASN
1	F	480	TYR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	E	514	GLN

5.3.3 RNA (i)

There are no RNA molecules in this entry.

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

6 non-standard protein/DNA/RNA residues 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	$\#\|Z\| > 2$
1	LLP	A	319	1	23,24,25	2.60	6 (26%)	25,32,34	1.38	4 (16%)

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
1	LLP	B	319	1	23,24,25	2.62	6 (26%)	25,32,34	1.32	4 (16%)
1	LLP	D	319	1	23,24,25	2.63	6 (26%)	25,32,34	1.27	4 (16%)
1	LLP	C	319	1	23,24,25	2.62	6 (26%)	25,32,34	1.34	4 (16%)
1	LLP	F	319	1	23,24,25	2.63	6 (26%)	25,32,34	1.29	4 (16%)
1	LLP	E	319	1	23,24,25	2.62	6 (26%)	25,32,34	1.29	3 (12%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
1	LLP	A	319	1	-	3/16/17/19	0/1/1/1
1	LLP	B	319	1	-	3/16/17/19	0/1/1/1
1	LLP	D	319	1	-	4/16/17/19	0/1/1/1
1	LLP	C	319	1	-	3/16/17/19	0/1/1/1
1	LLP	F	319	1	-	5/16/17/19	0/1/1/1
1	LLP	E	319	1	-	7/16/17/19	0/1/1/1

All (36) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	E	319	LLP	C4-C4'	8.13	1.62	1.46
1	D	319	LLP	C4-C4'	8.12	1.62	1.46
1	F	319	LLP	C4-C4'	8.09	1.62	1.46
1	C	319	LLP	C4-C4'	8.01	1.61	1.46
1	B	319	LLP	C4-C4'	8.00	1.61	1.46
1	A	319	LLP	C4-C4'	7.93	1.61	1.46
1	E	319	LLP	C4'-NZ	4.96	1.43	1.27
1	F	319	LLP	C4'-NZ	4.95	1.43	1.27
1	D	319	LLP	C4'-NZ	4.94	1.43	1.27
1	B	319	LLP	C4'-NZ	4.93	1.43	1.27
1	C	319	LLP	C4'-NZ	4.88	1.43	1.27
1	A	319	LLP	C4'-NZ	4.84	1.43	1.27
1	C	319	LLP	C4-C5	-4.22	1.36	1.42
1	B	319	LLP	C4-C5	-4.21	1.36	1.42
1	D	319	LLP	C4-C5	-4.17	1.36	1.42
1	F	319	LLP	C4-C5	-4.15	1.36	1.42
1	A	319	LLP	C4-C5	-4.14	1.36	1.42
1	E	319	LLP	C4-C5	-3.92	1.37	1.42

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	F	319	LLP	C2'-C2	3.54	1.56	1.50
1	D	319	LLP	C2'-C2	3.52	1.56	1.50
1	A	319	LLP	C2'-C2	3.52	1.56	1.50
1	C	319	LLP	C2'-C2	3.52	1.56	1.50
1	B	319	LLP	C2'-C2	3.52	1.56	1.50
1	E	319	LLP	C2'-C2	3.51	1.56	1.50
1	A	319	LLP	C6-N1	3.06	1.40	1.34
1	F	319	LLP	C6-N1	3.05	1.40	1.34
1	C	319	LLP	C6-N1	3.05	1.40	1.34
1	B	319	LLP	C6-N1	3.03	1.40	1.34
1	D	319	LLP	C6-N1	3.02	1.40	1.34
1	E	319	LLP	C6-N1	3.01	1.40	1.34
1	A	319	LLP	C5'-C5	2.13	1.56	1.50
1	E	319	LLP	C5'-C5	2.12	1.56	1.50
1	F	319	LLP	C5'-C5	2.12	1.56	1.50
1	B	319	LLP	C5'-C5	2.09	1.56	1.50
1	C	319	LLP	C5'-C5	2.08	1.56	1.50
1	D	319	LLP	C5'-C5	2.07	1.56	1.50

All (23) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	E	319	LLP	C4-C4'-NZ	-3.69	107.38	124.31
1	C	319	LLP	C4-C4'-NZ	-3.39	108.76	124.31
1	F	319	LLP	C4-C4'-NZ	-3.38	108.79	124.31
1	A	319	LLP	CE-NZ-C4'	-3.35	108.62	118.90
1	D	319	LLP	C4-C4'-NZ	-3.27	109.30	124.31
1	A	319	LLP	C4-C4'-NZ	-3.26	109.33	124.31
1	B	319	LLP	C4-C4'-NZ	-3.25	109.41	124.31
1	C	319	LLP	CE-NZ-C4'	-3.08	109.46	118.90
1	B	319	LLP	CE-NZ-C4'	-3.05	109.53	118.90
1	F	319	LLP	CE-NZ-C4'	-2.83	110.22	118.90
1	D	319	LLP	CE-NZ-C4'	-2.81	110.29	118.90
1	A	319	LLP	C3-C4-C5	2.52	120.20	118.26
1	E	319	LLP	CE-NZ-C4'	-2.40	111.53	118.90
1	B	319	LLP	C3-C4-C5	2.39	120.09	118.26
1	C	319	LLP	C3-C4-C5	2.38	120.09	118.26
1	C	319	LLP	C5-C6-N1	-2.34	119.93	123.82
1	B	319	LLP	C5-C6-N1	-2.33	119.94	123.82
1	A	319	LLP	C5-C6-N1	-2.29	120.00	123.82
1	D	319	LLP	C5-C6-N1	-2.29	120.00	123.82
1	F	319	LLP	C5-C6-N1	-2.20	120.15	123.82

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	F	319	LLP	C3-C4-C5	2.14	119.90	118.26
1	D	319	LLP	C3-C4-C5	2.10	119.87	118.26
1	E	319	LLP	C5-C6-N1	-2.09	120.33	123.82

There are no chirality outliers.

All (25) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	319	LLP	C-CA-CB-CG
1	B	319	LLP	C4-C4'-NZ-CE
1	B	319	LLP	C-CA-CB-CG
1	C	319	LLP	C4-C4'-NZ-CE
1	C	319	LLP	C-CA-CB-CG
1	D	319	LLP	C4-C4'-NZ-CE
1	D	319	LLP	C-CA-CB-CG
1	E	319	LLP	C4-C5-C5'-OP4
1	E	319	LLP	C6-C5-C5'-OP4
1	E	319	LLP	O-C-CA-CB
1	E	319	LLP	CG-CD-CE-NZ
1	F	319	LLP	N-CA-CB-CG
1	F	319	LLP	C-CA-CB-CG
1	A	319	LLP	C4-C4'-NZ-CE
1	F	319	LLP	C4-C4'-NZ-CE
1	E	319	LLP	CA-CB-CG-CD
1	F	319	LLP	CE-CD-CG-CB
1	B	319	LLP	CD-CE-NZ-C4'
1	F	319	LLP	CD-CE-NZ-C4'
1	C	319	LLP	CD-CE-NZ-C4'
1	A	319	LLP	CD-CE-NZ-C4'
1	E	319	LLP	CD-CE-NZ-C4'
1	D	319	LLP	CD-CE-NZ-C4'
1	E	319	LLP	C3-C4-C4'-NZ
1	D	319	LLP	CG-CD-CE-NZ

There are no ring outliers.

6 monomers are involved in 9 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	A	319	LLP	3	0
1	B	319	LLP	1	0
1	D	319	LLP	2	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	C	319	LLP	1	0
1	F	319	LLP	1	0
1	E	319	LLP	1	0

5.5 Carbohydrates (i)

There are no oligosaccharides in this entry.

5.6 Ligand geometry (i)

4 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	TYR	B	601	-	12,13,13	0.69	1 (8%)	16,17,17	0.90	2 (12%)
2	TYR	A	601	-	12,13,13	0.70	1 (8%)	16,17,17	0.87	2 (12%)
2	TYR	D	601	-	11,12,13	0.40	0	12,15,17	0.24	0
2	TYR	C	601	-	11,12,13	0.40	0	12,15,17	0.24	0

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the Chemical Component Dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	TYR	B	601	-	-	2/8/8/8	0/1/1/1
2	TYR	A	601	-	-	2/8/8/8	0/1/1/1
2	TYR	D	601	-	-	3/5/6/8	0/1/1/1
2	TYR	C	601	-	-	5/5/6/8	0/1/1/1

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	601	TYR	OXT-C	-2.14	1.23	1.30
2	B	601	TYR	OXT-C	-2.09	1.23	1.30

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	601	TYR	OXT-C-O	-2.64	118.10	124.09
2	B	601	TYR	OXT-C-O	-2.62	118.14	124.09
2	B	601	TYR	OXT-C-CA	2.31	121.25	113.38
2	A	601	TYR	OXT-C-CA	2.13	120.65	113.38

There are no chirality outliers.

All (12) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	C	601	TYR	O-C-CA-CB
2	C	601	TYR	C-CA-CB-CG
2	D	601	TYR	O-C-CA-CB
2	D	601	TYR	C-CA-CB-CG
2	C	601	TYR	N-CA-CB-CG
2	A	601	TYR	C-CA-CB-CG
2	D	601	TYR	N-CA-CB-CG
2	A	601	TYR	N-CA-CB-CG
2	B	601	TYR	N-CA-CB-CG
2	C	601	TYR	CA-CB-CG-CD1
2	B	601	TYR	C-CA-CB-CG
2	C	601	TYR	CA-CB-CG-CD2

There are no ring outliers.

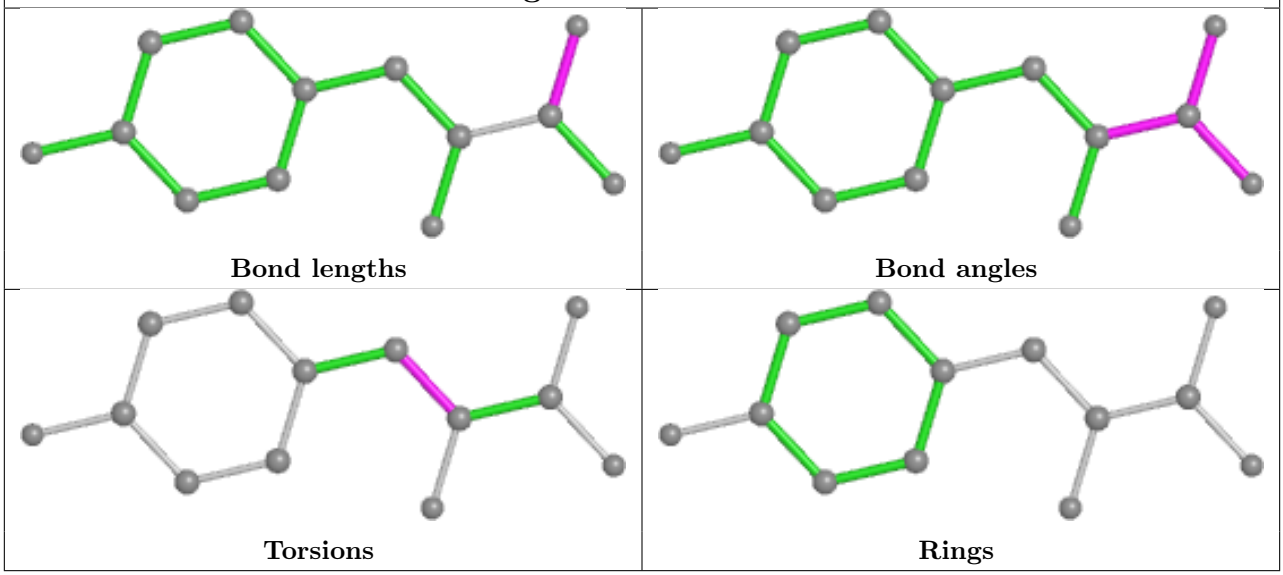
4 monomers are involved in 7 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	B	601	TYR	1	0
2	A	601	TYR	1	0
2	D	601	TYR	2	0
2	C	601	TYR	3	0

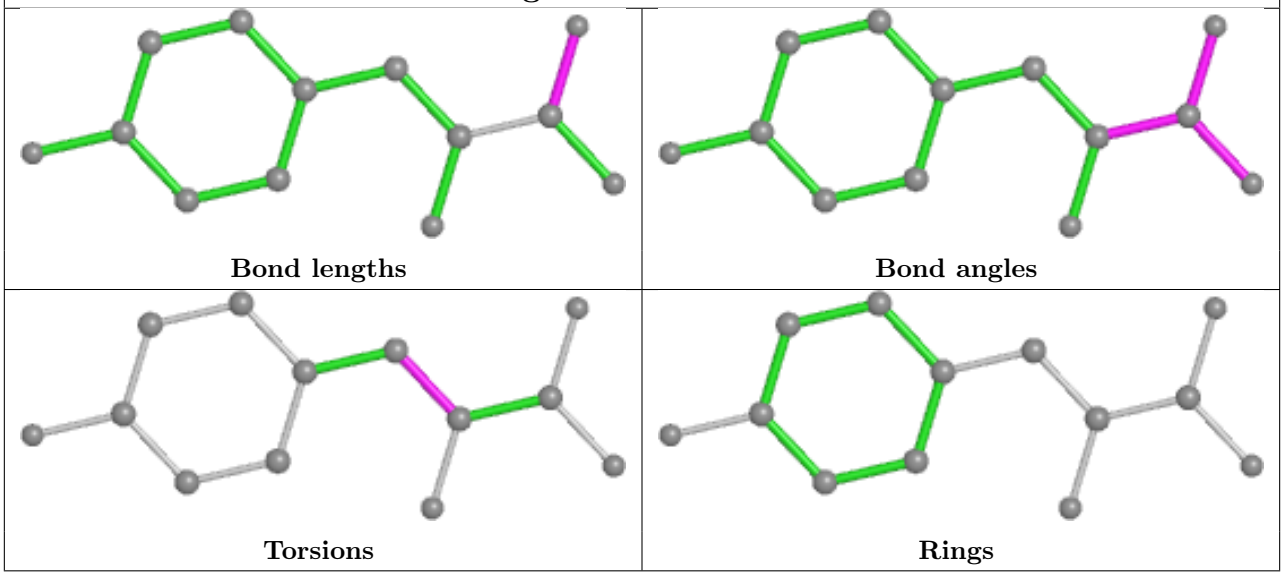
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less then 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.

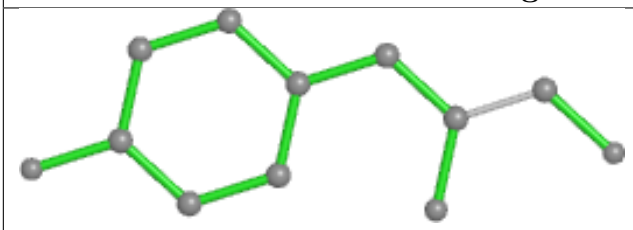
Ligand TYR B 601



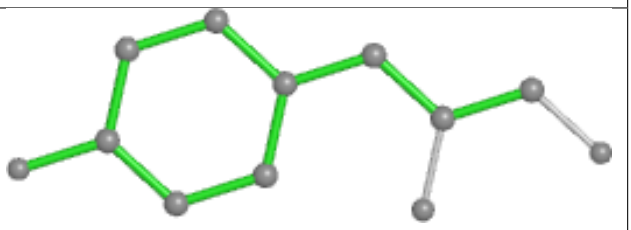
Ligand TYR A 601



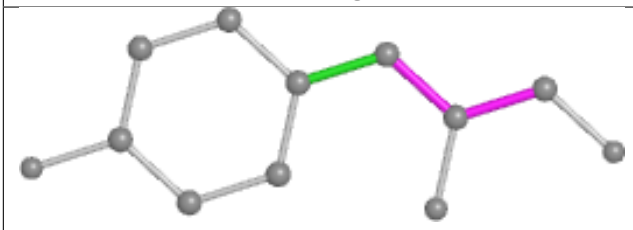
Ligand TYR D 601



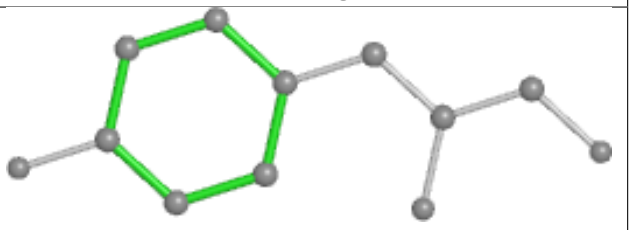
Bond lengths



Bond angles

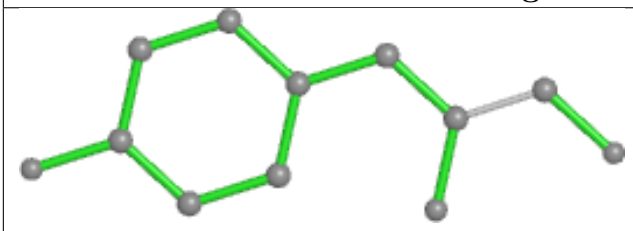


Torsions

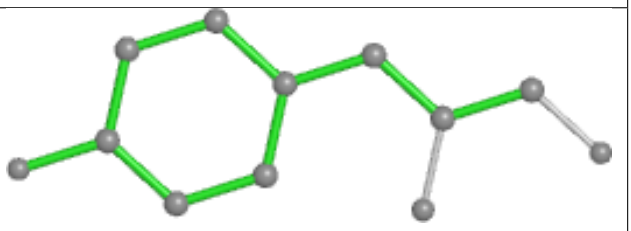


Rings

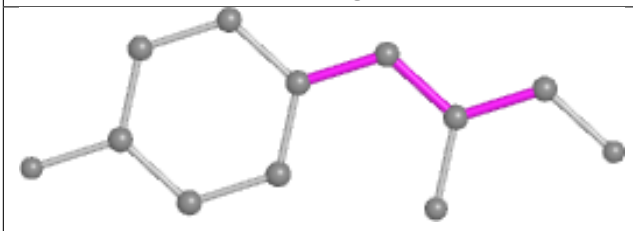
Ligand TYR C 601



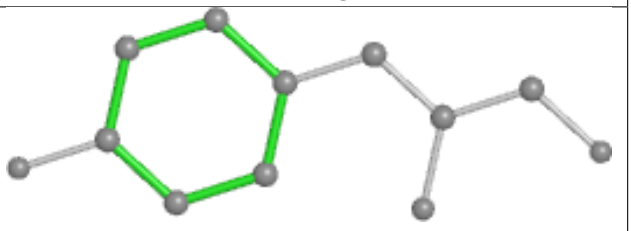
Bond lengths



Bond angles



Torsions



Rings

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^{th} percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q< 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å^2)	Q<0.9
1	A	484/531 (91%)	-0.06	7 (1%) 73 66	8, 20, 45, 87	0
1	B	482/531 (90%)	-0.18	9 (1%) 66 56	5, 17, 38, 98	0
1	C	484/531 (91%)	-0.02	12 (2%) 58 49	9, 21, 52, 97	0
1	D	482/531 (90%)	-0.15	3 (0%) 85 81	6, 17, 39, 85	0
1	E	478/531 (90%)	2.02	217 (45%) 1 1	42, 75, 95, 115	0
1	F	473/531 (89%)	1.89	198 (41%) 1 1	26, 71, 95, 108	0
All	All	2883/3186 (90%)	0.58	446 (15%) 6 8	5, 25, 89, 115	0

All (446) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	E	478	SER	8.6
1	E	96	ASN	7.3
1	F	132	ALA	6.4
1	E	122	VAL	6.3
1	F	379	TRP	6.3
1	F	387	VAL	6.3
1	F	120	ASN	6.0
1	E	500	LEU	5.9
1	E	22	LEU	5.9
1	F	498	SER	5.9
1	F	423	ALA	5.6
1	E	292	GLY	5.5
1	E	328	CYS	5.4
1	F	42	TYR	5.4
1	B	349	LEU	5.3
1	F	74	ILE	5.2
1	E	88	GLY	5.1
1	F	37	PHE	5.1
1	E	20	ASN	5.1

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Mol	Chain	Res	Type	RSRZ
1	F	318	HIS	5.1
1	E	121	VAL	5.1
1	E	394	LEU	5.0
1	F	348	TYR	4.9
1	E	163	LEU	4.9
1	E	168	CYS	4.9
1	F	380	MET	4.9
1	F	382	LEU	4.8
1	F	96	ASN	4.8
1	F	85	ILE	4.7
1	E	269	PRO	4.7
1	F	474	ASN	4.7
1	F	92	TRP	4.7
1	F	41	TYR	4.6
1	E	45	VAL	4.6
1	F	513	LEU	4.6
1	F	480	TYR	4.6
1	E	373	PHE	4.6
1	F	24	PRO	4.5
1	E	27	PHE	4.5
1	E	474	ASN	4.5
1	F	393	PHE	4.4
1	E	393	PHE	4.4
1	F	90	THR	4.4
1	F	67	ALA	4.3
1	F	45	VAL	4.3
1	F	406	GLY	4.3
1	F	477	GLY	4.3
1	F	478	SER	4.3
1	E	507	ILE	4.3
1	E	365	TRP	4.3
1	E	404	PHE	4.3
1	E	58	TYR	4.2
1	F	77	ILE	4.2
1	E	51	ARG	4.2
1	B	346	PRO	4.2
1	E	324	THR	4.2
1	F	66	THR	4.2
1	B	348	TYR	4.1
1	F	400	MET	4.1
1	F	499	THR	4.1
1	F	291	ALA	4.0

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Mol	Chain	Res	Type	RSRZ
1	E	379	TRP	4.0
1	F	59	LEU	4.0
1	E	316	ASN	4.0
1	F	49	PRO	4.0
1	A	348	TYR	3.9
1	F	48	TYR	3.9
1	F	327	CYS	3.9
1	F	529	PHE	3.9
1	E	205	ALA	3.9
1	F	296	ILE	3.9
1	F	370	SER	3.9
1	E	19	THR	3.9
1	F	381	VAL	3.9
1	F	122	VAL	3.9
1	E	384	SER	3.8
1	F	317	ALA	3.8
1	E	24	PRO	3.8
1	E	143	PHE	3.8
1	F	142	TRP	3.8
1	E	105	GLY	3.8
1	E	109	GLY	3.8
1	E	397	HIS	3.8
1	F	97	TYR	3.8
1	E	381	VAL	3.7
1	E	479	VAL	3.7
1	E	72	GLU	3.7
1	F	408	ILE	3.7
1	E	377	LYS	3.7
1	E	93	GLN	3.7
1	F	375	SER	3.7
1	E	511	LYS	3.7
1	F	133	THR	3.7
1	E	372	ARG	3.7
1	E	84	GLU	3.6
1	F	20	ASN	3.6
1	F	292	GLY	3.6
1	E	506	VAL	3.6
1	E	52	SER	3.6
1	F	425	VAL	3.6
1	E	44	ASP	3.6
1	F	64	PRO	3.6
1	E	161	GLY	3.6

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Mol	Chain	Res	Type	RSRZ
1	F	396	SER	3.6
1	F	22	LEU	3.6
1	F	349	LEU	3.6
1	E	21	PRO	3.6
1	F	373	PHE	3.6
1	F	494	PHE	3.6
1	E	117	THR	3.6
1	E	383	ARG	3.5
1	F	300	PHE	3.5
1	F	52	SER	3.5
1	E	30	GLN	3.5
1	E	123	GLY	3.5
1	F	203	PHE	3.5
1	F	419	PRO	3.5
1	E	91	HIS	3.5
1	E	329	CYS	3.5
1	F	38	LEU	3.5
1	F	391	ARG	3.5
1	E	120	ASN	3.4
1	E	509	ALA	3.4
1	F	100	TYR	3.4
1	F	401	ALA	3.4
1	E	378	LEU	3.4
1	E	59	LEU	3.4
1	F	481	MET	3.4
1	E	42	TYR	3.4
1	E	82	THR	3.4
1	E	106	SER	3.4
1	E	382	LEU	3.4
1	F	34	ILE	3.4
1	E	327	CYS	3.3
1	E	203	PHE	3.3
1	F	503	GLU	3.3
1	F	82	THR	3.3
1	E	73	SER	3.3
1	F	93	GLN	3.3
1	F	510	TRP	3.3
1	F	106	SER	3.3
1	D	348	TYR	3.3
1	F	98	TYR	3.3
1	F	115	LEU	3.3
1	A	531	SER	3.3

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Mol	Chain	Res	Type	RSRZ
1	E	471	GLU	3.2
1	E	501	THR	3.2
1	E	267	VAL	3.2
1	F	119	PHE	3.2
1	E	147	LEU	3.2
1	F	76	THR	3.2
1	E	89	LEU	3.2
1	E	104	SER	3.2
1	F	395	ARG	3.2
1	F	457	GLU	3.2
1	E	418	VAL	3.2
1	E	74	ILE	3.2
1	E	260	GLY	3.2
1	E	48	TYR	3.2
1	F	322	PHE	3.2
1	E	380	MET	3.1
1	E	407	LEU	3.1
1	E	265	THR	3.1
1	E	114	MET	3.1
1	F	36	ASP	3.1
1	A	352	LYS	3.1
1	F	506	VAL	3.1
1	F	321	PHE	3.1
1	E	493	ARG	3.1
1	E	83	THR	3.1
1	E	68	PRO	3.1
1	F	21	PRO	3.1
1	F	33	MET	3.1
1	E	41	TYR	3.1
1	F	104	SER	3.1
1	F	298	PRO	3.1
1	E	204	CYS	3.1
1	E	514	GLN	3.1
1	F	496	VAL	3.1
1	E	463	ASN	3.1
1	F	424	MET	3.1
1	F	138	VAL	3.1
1	F	394	LEU	3.0
1	F	51	ARG	3.0
1	F	517	ALA	3.0
1	E	508	TYR	3.0
1	C	351	ASN	3.0

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Mol	Chain	Res	Type	RSRZ
1	E	403	THR	3.0
1	F	416	ILE	3.0
1	E	97	TYR	3.0
1	F	388	THR	3.0
1	F	389	ASN	3.0
1	E	142	TRP	3.0
1	E	481	MET	3.0
1	F	398	VAL	3.0
1	E	369	LEU	3.0
1	F	369	LEU	3.0
1	E	422	PHE	3.0
1	F	143	PHE	3.0
1	F	404	PHE	3.0
1	F	299	GLU	3.0
1	D	203	PHE	3.0
1	F	426	CYS	2.9
1	F	432	PRO	2.9
1	E	110	PHE	2.9
1	F	422	PHE	2.9
1	F	83	THR	2.9
1	F	501	THR	2.9
1	E	293	SER	2.9
1	E	477	GLY	2.9
1	F	89	LEU	2.9
1	E	149	LEU	2.9
1	F	507	ILE	2.9
1	E	268	ASP	2.9
1	E	111	LEU	2.9
1	E	206	LEU	2.9
1	E	513	LEU	2.9
1	F	523	LYS	2.9
1	E	132	ALA	2.9
1	E	499	THR	2.9
1	F	63	LEU	2.9
1	F	50	VAL	2.9
1	F	121	VAL	2.9
1	C	348	TYR	2.9
1	E	322	PHE	2.9
1	E	317	ALA	2.8
1	F	30	GLN	2.8
1	E	103	SER	2.8
1	F	32	HIS	2.8

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Mol	Chain	Res	Type	RSRZ
1	F	94	SER	2.8
1	F	95	PRO	2.8
1	E	113	GLU	2.8
1	F	46	GLU	2.8
1	E	90	THR	2.8
1	F	135	LEU	2.8
1	F	295	CYS	2.8
1	F	377	LYS	2.8
1	E	164	GLN	2.8
1	F	31	GLY	2.8
1	E	515	GLU	2.8
1	E	402	LYS	2.8
1	F	479	VAL	2.8
1	E	270	ILE	2.8
1	E	304	ILE	2.8
1	F	413	ARG	2.8
1	E	387	VAL	2.8
1	F	88	GLY	2.8
1	C	204	CYS	2.8
1	C	529	PHE	2.8
1	E	375	SER	2.8
1	F	403	THR	2.8
1	B	203	PHE	2.8
1	E	39	ALA	2.7
1	F	69	TYR	2.7
1	F	500	LEU	2.7
1	E	503	GLU	2.7
1	E	531	SER	2.7
1	F	116	SER	2.7
1	F	128	SER	2.7
1	F	518	ASP	2.7
1	E	303	PHE	2.7
1	F	528	ASP	2.7
1	F	512	ILE	2.7
1	F	19	THR	2.7
1	E	259	VAL	2.7
1	E	326	ASP	2.7
1	F	287	ASP	2.7
1	F	165	GLY	2.7
1	F	71	PRO	2.7
1	E	401	ALA	2.7
1	F	108	ALA	2.7

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Mol	Chain	Res	Type	RSRZ
1	F	378	LEU	2.7
1	A	203	PHE	2.6
1	A	530	SER	2.6
1	F	495	ALA	2.6
1	E	256	CYS	2.6
1	F	109	GLY	2.6
1	E	325	LEU	2.6
1	E	294	ALA	2.6
1	E	133	THR	2.6
1	F	329	CYS	2.6
1	E	95	PRO	2.6
1	E	423	ALA	2.6
1	F	294	ALA	2.6
1	F	117	THR	2.6
1	F	127	MET	2.6
1	F	385	TYR	2.6
1	E	300	PHE	2.6
1	F	527	ALA	2.6
1	E	410	MET	2.6
1	E	284	VAL	2.6
1	E	516	HIS	2.6
1	F	368	ALA	2.6
1	E	129	SER	2.6
1	E	398	VAL	2.6
1	F	397	HIS	2.6
1	E	296	ILE	2.5
1	E	157	GLY	2.5
1	E	43	ARG	2.5
1	E	108	ALA	2.5
1	E	289	ALA	2.5
1	F	54	VAL	2.5
1	E	115	LEU	2.5
1	E	238	LEU	2.5
1	E	386	GLY	2.5
1	C	531	SER	2.5
1	F	472	THR	2.5
1	C	352	LYS	2.5
1	E	335	PRO	2.5
1	F	101	PHE	2.5
1	F	420	ARG	2.5
1	B	368	ALA	2.5
1	F	263	SER	2.5

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Mol	Chain	Res	Type	RSRZ
1	E	141	ASP	2.5
1	F	328	CYS	2.5
1	E	298	PRO	2.5
1	E	136	GLU	2.5
1	E	191	ILE	2.4
1	C	349	LEU	2.4
1	E	371	ARG	2.4
1	E	314	SER	2.4
1	E	162	VAL	2.4
1	F	35	ILE	2.4
1	E	330	LEU	2.4
1	F	374	ARG	2.4
1	E	94	SER	2.4
1	E	46	GLU	2.4
1	F	427	PHE	2.4
1	E	495	ALA	2.4
1	F	99	ALA	2.4
1	F	289	ALA	2.4
1	E	78	LEU	2.4
1	F	345	ASN	2.4
1	C	457	GLU	2.4
1	E	119	PHE	2.4
1	F	192	GLY	2.4
1	E	320	TRP	2.4
1	F	227	LYS	2.4
1	F	511	LYS	2.4
1	F	316	ASN	2.4
1	E	313	PHE	2.4
1	C	205	ALA	2.4
1	E	202	THR	2.4
1	E	396	SER	2.3
1	A	458	ASN	2.3
1	E	522	GLY	2.3
1	E	388	THR	2.3
1	E	472	THR	2.3
1	F	407	LEU	2.3
1	F	414	PHE	2.3
1	E	295	CYS	2.3
1	F	57	GLY	2.3
1	F	359	VAL	2.3
1	E	331	TRP	2.3
1	F	431	PRO	2.3

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Mol	Chain	Res	Type	RSRZ
1	F	469	TYR	2.3
1	E	131	ALA	2.3
1	E	291	ALA	2.3
1	F	156	SER	2.3
1	E	399	LYS	2.3
1	F	475	ALA	2.3
1	F	80	ASP	2.3
1	F	91	HIS	2.3
1	F	111	LEU	2.3
1	F	519	LEU	2.3
1	E	69	TYR	2.3
1	E	201	GLN	2.3
1	F	58	TYR	2.3
1	F	146	MET	2.3
1	B	169	GLU	2.3
1	F	390	LEU	2.3
1	E	64	PRO	2.2
1	E	220	PHE	2.2
1	F	265	THR	2.2
1	E	54	VAL	2.2
1	F	25	GLU	2.2
1	E	458	ASN	2.2
1	E	510	TRP	2.2
1	C	203	PHE	2.2
1	E	307	VAL	2.2
1	E	496	VAL	2.2
1	F	418	VAL	2.2
1	E	135	LEU	2.2
1	E	512	ILE	2.2
1	B	347	GLU	2.2
1	E	23	ASP	2.2
1	E	392	ASN	2.2
1	E	385	TYR	2.2
1	F	114	MET	2.2
1	F	297	CYS	2.2
1	E	154	LEU	2.2
1	E	160	GLY	2.2
1	F	73	SER	2.2
1	F	331	TRP	2.2
1	A	18	VAL	2.2
1	C	18	VAL	2.2
1	E	99	ALA	2.2

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Mol	Chain	Res	Type	RSRZ
1	E	337	ALA	2.2
1	F	105	GLY	2.2
1	E	66	THR	2.2
1	E	368	ALA	2.1
1	B	17	GLY	2.1
1	F	497	GLY	2.1
1	E	86	ILE	2.1
1	E	408	ILE	2.1
1	E	65	GLU	2.1
1	E	370	SER	2.1
1	E	76	THR	2.1
1	E	35	ILE	2.1
1	F	78	LEU	2.1
1	E	186	ILE	2.1
1	E	26	GLU	2.1
1	E	150	PRO	2.1
1	F	68	PRO	2.1
1	F	107	VAL	2.1
1	E	235	ALA	2.1
1	E	137	SER	2.1
1	E	427	PHE	2.1
1	E	318	HIS	2.1
1	F	521	LEU	2.1
1	F	136	GLU	2.1
1	E	258	THR	2.1
1	E	519	LEU	2.1
1	E	426	CYS	2.1
1	E	62	ARG	2.0
1	E	177	ALA	2.0
1	E	476	THR	2.0
1	C	530	SER	2.0
1	F	219	ASN	2.0
1	F	392	ASN	2.0
1	D	346	PRO	2.0
1	F	260	GLY	2.0
1	E	153	PHE	2.0
1	B	369	LEU	2.0
1	E	230	SER	2.0
1	E	349	LEU	2.0
1	E	390	LEU	2.0
1	E	465	LEU	2.0
1	E	75	GLU	2.0

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Mol	Chain	Res	Type	RSRZ
1	E	275	GLU	2.0
1	E	475	ALA	2.0
1	F	39	ALA	2.0
1	F	367	ILE	2.0
1	E	192	GLY	2.0
1	E	274	CYS	2.0
1	F	123	GLY	2.0

6.2 Non-standard residues in protein, DNA, RNA chains (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^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
1	LLP	E	319	24/25	0.78	0.22	60,85,107,115	0
1	LLP	F	319	24/25	0.83	0.20	43,70,90,99	0
1	LLP	C	319	24/25	0.90	0.15	6,37,54,68	0
1	LLP	B	319	24/25	0.93	0.14	8,31,51,62	0
1	LLP	A	319	24/25	0.93	0.13	12,39,62,73	0
1	LLP	D	319	24/25	0.94	0.11	13,25,47,60	0

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

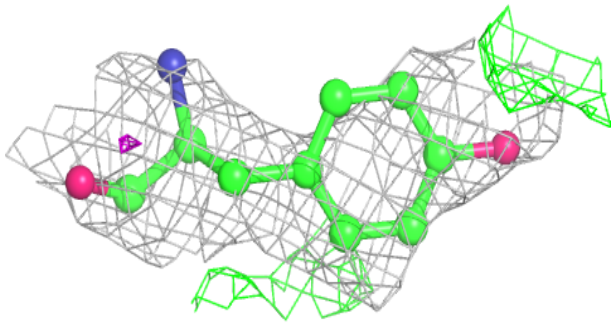
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

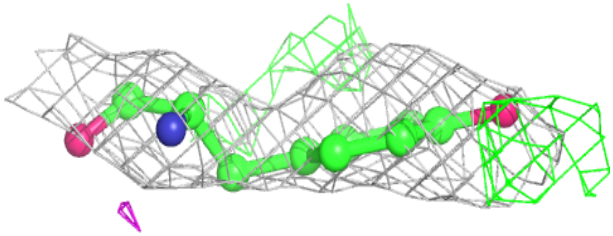
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	TYR	D	601	12/13	0.77	0.27	29,41,56,56	0
2	TYR	C	601	12/13	0.85	0.19	26,32,44,49	0
2	TYR	A	601	13/13	0.86	0.23	22,47,66,66	0
2	TYR	B	601	13/13	0.90	0.18	19,37,46,57	0

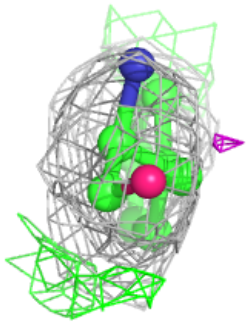
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around TYR D 601:

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

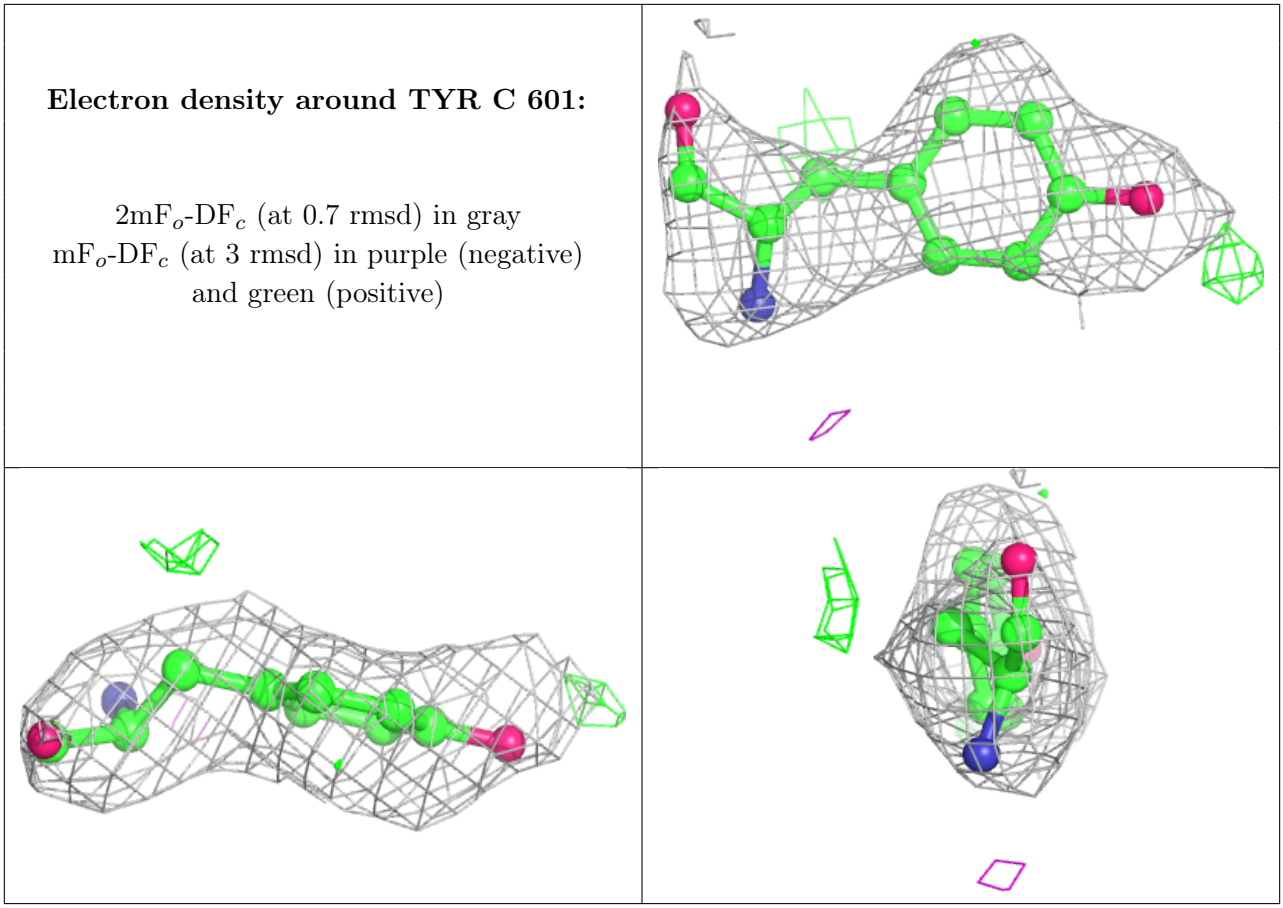






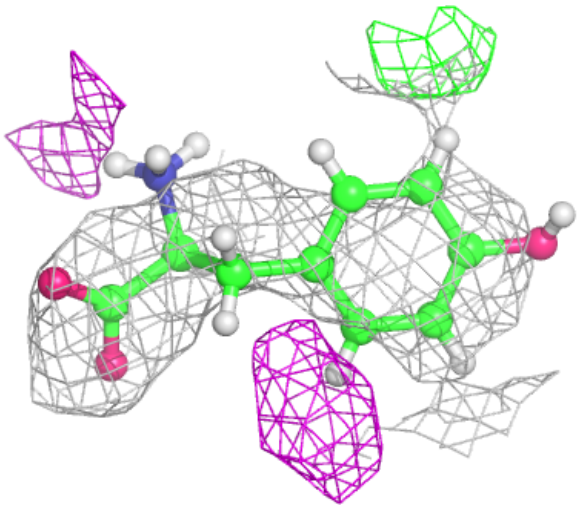
Electron density around TYR C 601:

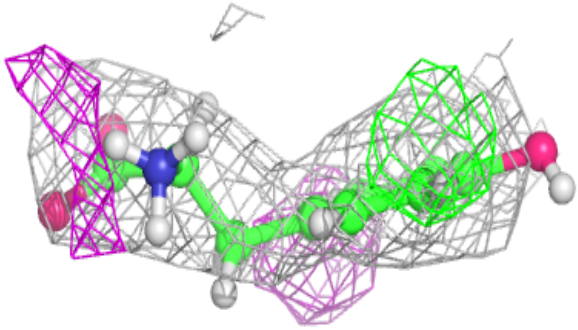
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

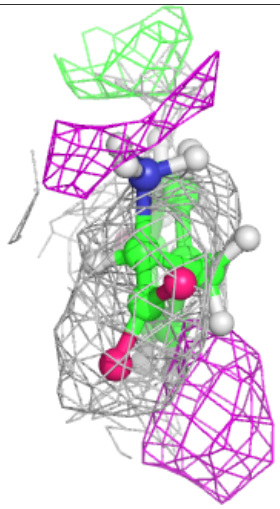


Electron density around TYR A 601:

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

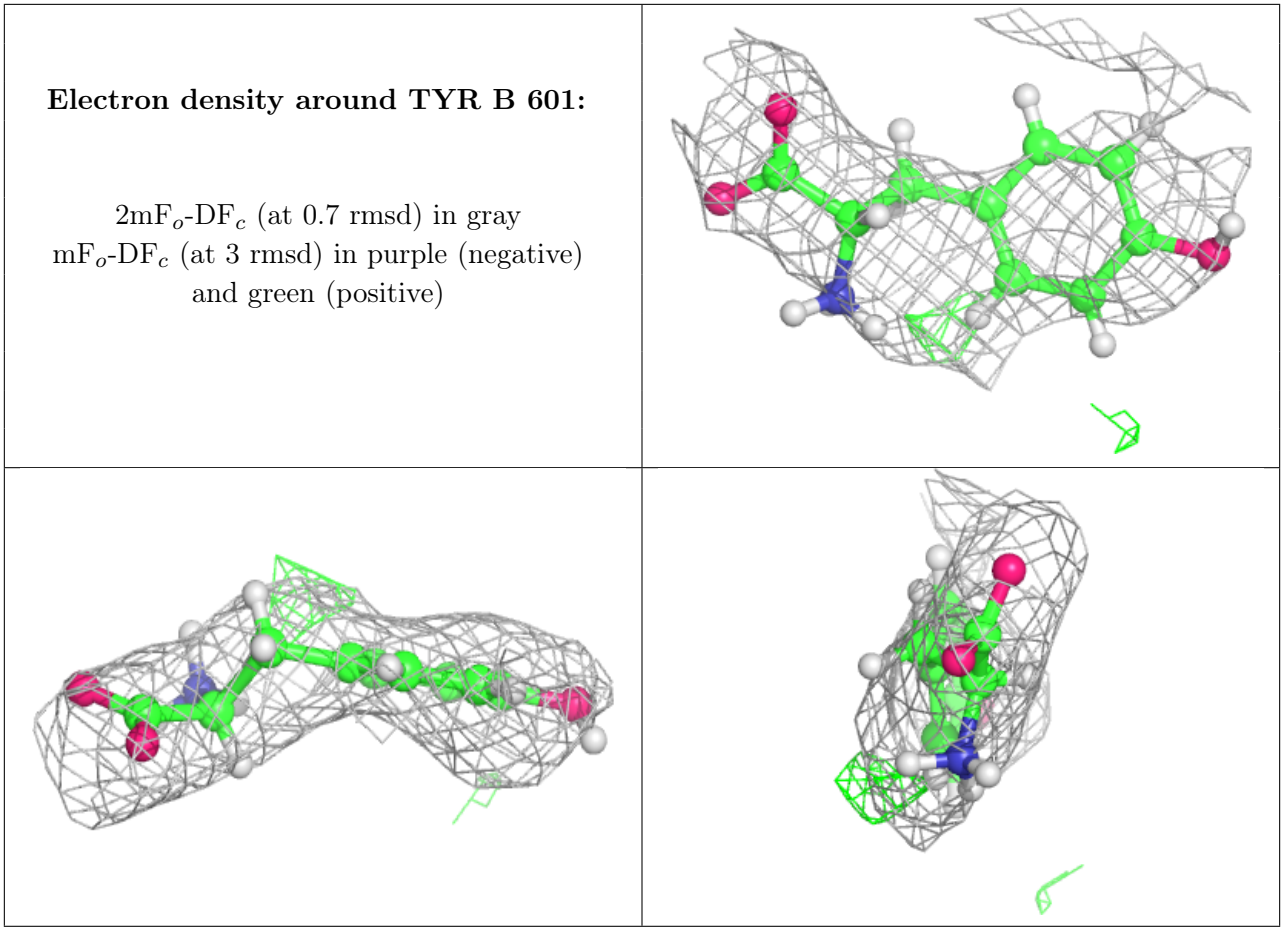






Electron density around TYR B 601:

$2mF_o$-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.