



Full wwPDB X-ray Structure Validation Report ⓘ

Jun 12, 2024 – 10:15 AM EDT

PDB ID : 2X6I
Title : THE CRYSTAL STRUCTURE OF THE DROSOPHILA CLASS III PI3-KINASE VPS34 IN COMPLEX WITH PIK-90
Authors : Miller, S.; Tavshanjian, B.; Oleksy, A.; Perisic, O.; Houseman, B.T.; Shokat, K.M.; Williams, R.L.
Deposited on : 2010-02-17
Resolution : 3.40 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 : 2022.3.0, CSD as543be (2022)
Xtriage (Phenix) : 1.20.1
EDS : 2.36.2
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) : 2.36.2

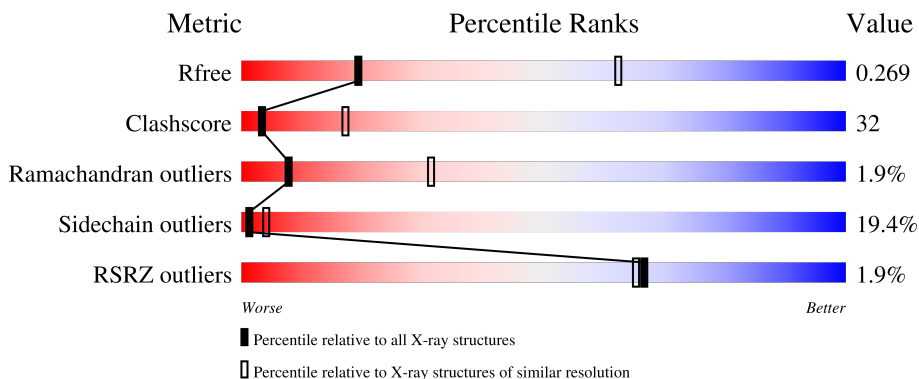
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.40 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	1026 (3.48-3.32)
Clashscore	141614	1055 (3.48-3.32)
Ramachandran outliers	138981	1038 (3.48-3.32)
Sidechain outliers	138945	1038 (3.48-3.32)
RSRZ outliers	127900	2173 (3.50-3.30)

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 $\leq 5\%$. 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	696	 2% 37% 30% 11% 22%
1	B	696	 2% 38% 31% 9% 22%

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	090	B	1950	-	-	X	-

2 Entry composition [i](#)

There are 2 unique types of molecules in this entry. The entry contains 8976 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.

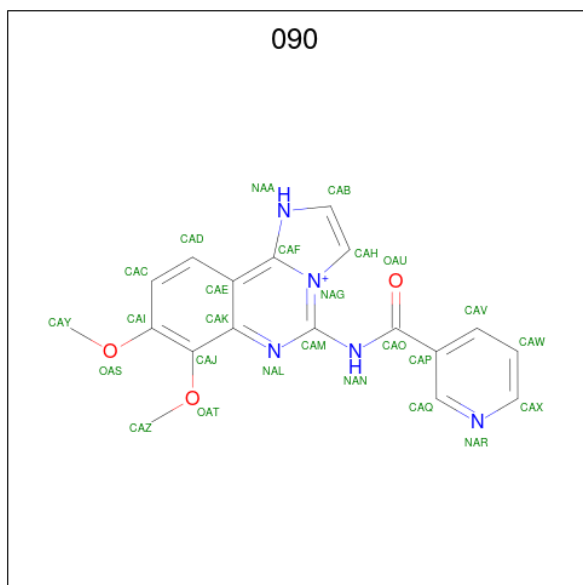
- Molecule 1 is a protein called PHOSPHOTIDYLINOSITOL 3 KINASE 59F.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	546	4468	2888	761	792	27	0	0	0
1	B	544	4456	2881	760	788	27	0	0	0

There are 10 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	254	GLY	-	expression tag	UNP Q9W1M7
A	255	SER	-	expression tag	UNP Q9W1M7
A	256	HIS	-	expression tag	UNP Q9W1M7
A	257	MET	-	expression tag	UNP Q9W1M7
A	455	ALA	GLY	engineered mutation	UNP Q9W1M7
B	254	GLY	-	expression tag	UNP Q9W1M7
B	255	SER	-	expression tag	UNP Q9W1M7
B	256	HIS	-	expression tag	UNP Q9W1M7
B	257	MET	-	expression tag	UNP Q9W1M7
B	455	ALA	GLY	engineered mutation	UNP Q9W1M7

- Molecule 2 is N-(2,3-DIHYDRO-7,8-DIMETHOXYIMIDAZO[1,2-C] QUINAZOLIN-5-YL) NICOTINAMIDE (three-letter code: 090) (formula: C₁₈H₁₆N₅O₃).

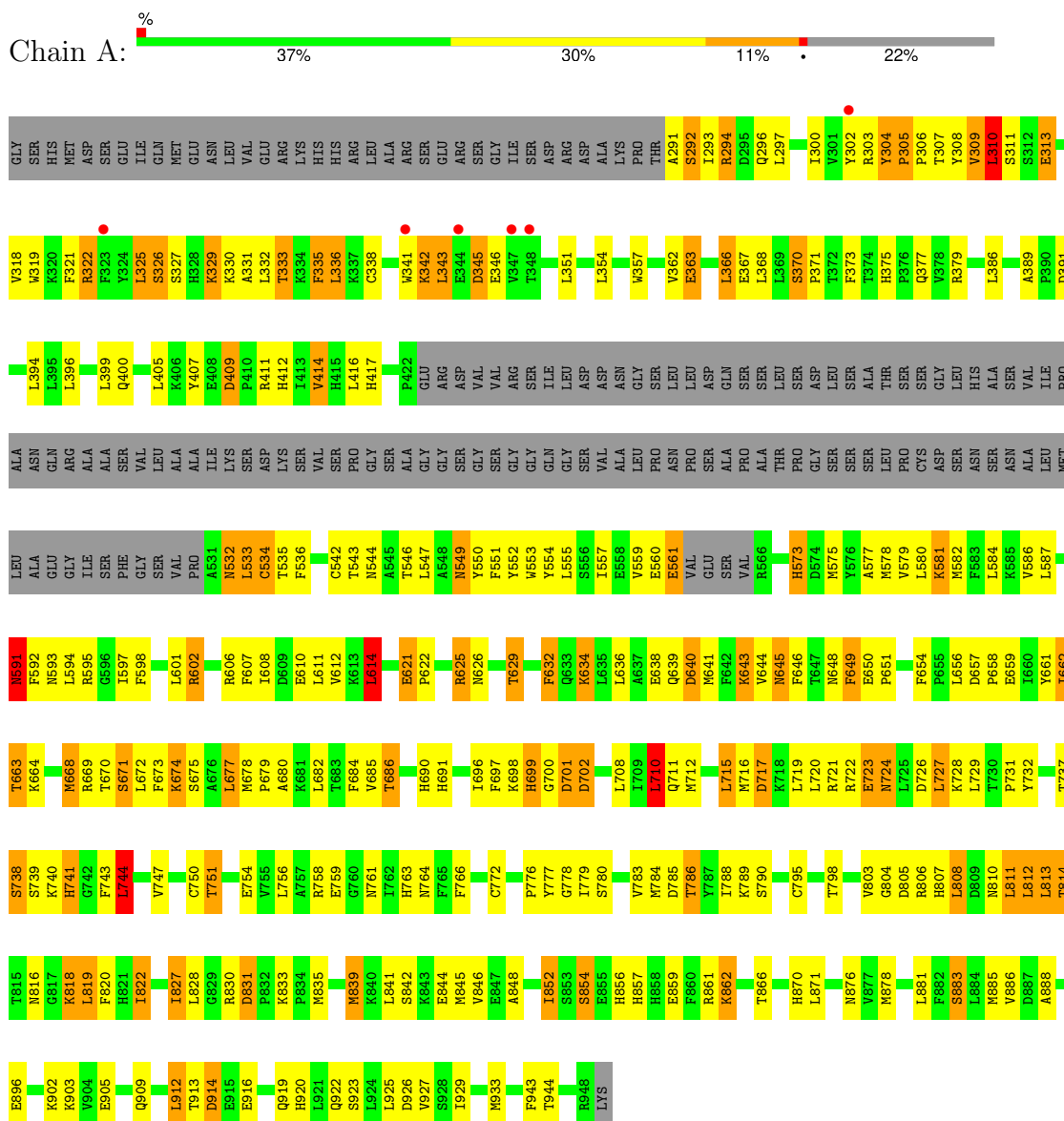


Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	N	O		
2	A	1	26	18	5	3	0	0
2	B	1	26	18	5	3	0	0

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: PHOSPHOTIDYLINOSITOL 3 KINASE 59F



- Molecule 1: PHOSPHOTIDYLINOSITOL 3 KINASE 59F



GLY	GLY	ASP	M582	T660	P731	T814	L908
SER	GLY	SER	M583	T661	Y732	T815	L909
HIS	LEU	SER	V586	T662	K733	K816	G909
MET	HIS	ASN	V587	T663	V734	G817	L912
ASP	ALA	SER	K664	T664	L735	K818	T913
SER	SER	ASN	G590	T665	A736	L819	T914
GLU	VAL	ALA	M591	T666	V737	S738	D914
LEU	ILE	LEU	F592	T667	S739	L822	E915
GLN	PRO	LEU	M593	T670	K740	D823	E916
ILE	PRO	ALA	L594	T671	L594	F824	A917
GLN	ALA	ALA	R595	T672	H741	G825	A918
MET	ASN	GLY	F598	L672	G742	Y826	Y919
GLU	GLN	LEU	Y599	T673	F743	L827	G920
MET	ASN	ILE	M600	T674	L744	L828	E921
GLU	ALA	SER	K603	T675	Q745	G829	Q922
ARG	ALA	PHE	F606	T676	Y746	R830	S923
LYS	VAL	GLY	L606	T677	V747	P838	L924
ARG	VAL	SER	E610	T678	D748	K839	L925
HIS	ALA	PRO	L611	L682	Y751	K840	D926
ARG	ALA	ALA	V612	T683	E754	L841	T930
LEU	ALA	ILE	L613	F684	E754	K842	A931
ALA	LYS	LYS	V614	V685	R758	K843	Y932
ALA	D409	SER	L614	T686	R759	S854	N933
ARG	P410	ASP	L615	S687	E759	E855	P934
SER	P410	LYS	V615	T688	H763	A848	E938
GLU	H412	SER	V618	T689	F766	K849	R942
ARG	H417	VAL	N624	T690	R767	G850	F943
ARG	H418	VAL	A545	T691	K768	K859	T944
GLY	L343	SER	T546	T692	H769	E859	R948
ILE	E344	SER	L547	T693	K631	F860	K949
SER	D345	GLY	A548	T694	L703	K861	
ASP	E346	SER	M549	T695	R704	K862	
ARG	V347	ALA	F551	T696	L705	Q863	
ASP	A350	GLY	L555	T697	Q706	G864	
ALA	L351	GLY	S556	T698	D706	T866	
LYS	W352	VAL	I557	T699	L708	L869	
PRO	K353	VAL	E558	T700	L709	H870	
THR	L354	GLY	V559	T701	L710	R873	
ALA	W357	GLY	E560	T702	Q711	L800	
S292	M360	VAL	GLU	T703	M712	L801	
I293	E363	GLY	VAL	T704	K718	G802	
R294	D364	LEU	GLU	T705	L719	V803	
D295	A365	ASN	SER	T706	L720	G804	
L297	L366	VAL	VAL	T707	R721	D805	
Q296	E367	PRO	R566	T708	R722	R806	
I296	M367	LEU	K567	T709	E723	H807	
T299	S370	ASP	Q568	T710	N724	L808	
I300	F371	SER	R571	T711	L725	D809	
V301	F372	ALA	A572	T712	L728	K810	
Y302	T373	LEU	H573	T713	L729	L811	
R303	T374	THR	D574	T714	L730	L812	
Y304	H375	GLY	M575	T715		L813	
P305	P376	LEU	Y576	T716			
P306	F377	SER	L560	T717			
T307	T378	ALA	K581	T718			
V308	R379	THR		T719			
Y309	P376	GLY		T720			
L310	Q377	ASP		T721			
S311	V378	SER		T722			
E313	K380	LEU		T723			
		THR		T724			
		ALA		T725			
		SER		T726			
		LEU		T727			
		PRO		T728			
		SER		T729			
		THR		T730			
		SER		T731			
		PRO		T732			

4 Data and refinement statistics

Property	Value	Source
Space group	I 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	111.47Å 156.22Å 244.24Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	72.83 – 3.40 72.83 – 3.40	Depositor EDS
% Data completeness (in resolution range)	97.6 (72.83-3.40) 97.7 (72.83-3.40)	Depositor EDS
R_{merge}	0.11	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.33 (at 3.41Å)	Xtrriage
Refinement program	REFMAC 5.5.0102	Depositor
R, R_{free}	0.217 , 0.279 0.211 , 0.269	Depositor DCC
R_{free} test set	1426 reflections (4.91%)	wwPDB-VP
Wilson B-factor (Å ²)	96.9	Xtrriage
Anisotropy	0.106	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.31 , 61.7	EDS
L-test for twinning ²	$\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.29$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	8976	wwPDB-VP
Average B, all atoms (Å ²)	68.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.75% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical 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: 090

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	0.79	2/4577 (0.0%)	0.91	7/6197 (0.1%)
1	B	0.62	0/4564	0.75	4/6177 (0.1%)
All	All	0.71	2/9141 (0.0%)	0.83	11/12374 (0.1%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	3

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	292	SER	CB-OG	18.05	1.65	1.42
1	A	795	CYS	CB-SG	-5.53	1.72	1.81

All (11) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	710	LEU	CA-CB-CG	-7.40	98.28	115.30
1	B	710	LEU	CA-CB-CG	-7.29	98.54	115.30
1	B	677	LEU	CA-CB-CG	7.13	131.71	115.30
1	B	335	PHE	CB-CG-CD2	6.36	125.25	120.80
1	A	854	SER	N-CA-C	-5.92	95.00	111.00
1	A	325	LEU	CA-CB-CG	5.84	128.74	115.30
1	B	405	LEU	CA-CB-CG	5.48	127.90	115.30
1	A	744	LEU	CA-CB-CG	5.45	127.83	115.30
1	A	818	LYS	N-CA-C	-5.41	96.40	111.00

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	310	LEU	CA-CB-CG	5.38	127.67	115.30
1	A	614	LEU	CA-CB-CG	5.18	127.22	115.30

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	591	ASN	Mainchain
1	A	663	THR	Mainchain
1	A	680	ALA	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	4468	0	4503	319	0
1	B	4456	0	4498	274	0
2	A	26	0	16	3	0
2	B	26	0	16	10	0
All	All	8976	0	9033	585	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 32.

All (585) 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:A:292:SER:CB	1:A:292:SER:OG	1.65	1.42
1:B:595:ARG:HG2	1:B:595:ARG:HH11	1.09	1.12
1:B:311:SER:HB2	1:B:314:GLU:HG3	1.24	1.11
1:A:677:LEU:HD11	1:A:700:GLY:H	1.18	1.05
1:B:311:SER:HB2	1:B:314:GLU:CG	1.87	1.05
1:A:677:LEU:HD11	1:A:700:GLY:N	1.72	1.04
1:A:367:GLU:O	1:A:370:SER:HB3	1.56	1.03
1:B:319:TRP:HA	1:B:322:ARG:HE	1.19	1.02

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:542:CYS:HB3	1:A:594:LEU:HD21	1.39	1.02
1:A:861:ARG:NH2	1:A:926:ASP:OD2	1.95	1.00
1:B:314:GLU:HA	1:B:317:LEU:HG	1.42	0.99
1:B:408:GLU:HB3	1:B:409:ASP:HA	1.45	0.99
1:A:814:THR:HG23	1:A:818:LYS:H	1.30	0.97
1:A:835:MET:CE	1:B:942:ARG:HD3	1.95	0.97
1:A:808:LEU:H	1:A:808:LEU:HD22	1.30	0.97
1:A:798:THR:HG23	1:A:803:VAL:HB	1.47	0.96
1:B:629:THR:HG22	1:B:672:LEU:HB2	1.46	0.95
1:A:835:MET:HE3	1:B:942:ARG:HD3	1.48	0.94
1:A:614:LEU:HD21	1:A:636:LEU:HD23	1.51	0.93
1:A:542:CYS:HB3	1:A:594:LEU:CD2	1.98	0.92
1:B:704:ARG:NH1	1:B:889:THR:HG21	1.84	0.91
1:A:308:TYR:HD1	1:A:310:LEU:HD22	1.36	0.90
1:A:412:HIS:HB3	1:A:532:ASN:ND2	1.87	0.89
1:B:595:ARG:HG2	1:B:595:ARG:NH1	1.88	0.87
1:A:854:SER:HB2	1:A:857:HIS:H	1.39	0.87
1:B:318:VAL:HG13	1:B:322:ARG:HH22	1.40	0.87
1:B:777:TYR:O	1:B:779:ILE:HG13	1.75	0.86
1:A:756:LEU:HD11	1:A:844:GLU:HG2	1.56	0.86
1:A:776:PRO:HG2	1:A:777:TYR:HD1	1.41	0.86
1:A:335:PHE:HD1	1:A:357:TRP:CZ3	1.94	0.85
1:B:335:PHE:HD2	1:B:336:LEU:HD12	1.39	0.85
1:B:813:LEU:HD12	1:B:818:LYS:O	1.76	0.85
1:B:865:TYR:CD1	1:B:918:VAL:HG13	2.11	0.85
1:B:948:ARG:O	1:B:949:LYS:HB2	1.76	0.84
1:A:645:ASN:C	1:A:645:ASN:HD22	1.80	0.84
1:B:733:LYS:H	1:B:745:GLN:HE21	1.25	0.84
1:B:534:CYS:O	1:B:538:ILE:HD12	1.78	0.83
1:B:319:TRP:HA	1:B:322:ARG:NE	1.93	0.83
1:B:318:VAL:HG13	1:B:322:ARG:NH2	1.94	0.82
1:A:399:LEU:HD12	1:A:554:TYR:CE1	2.14	0.82
1:B:682:LEU:H	1:B:682:LEU:HD22	1.46	0.80
1:A:677:LEU:O	1:A:679:PRO:HD3	1.82	0.80
1:A:846:VAL:HG11	1:A:933:MET:HE2	1.65	0.79
1:A:610:GLU:OE1	1:A:643:LYS:HB2	1.82	0.79
1:A:814:THR:CG2	1:A:818:LYS:H	1.96	0.79
1:B:734:VAL:HG22	1:B:744:LEU:HD22	1.64	0.79
1:B:347:VAL:O	1:B:351:LEU:CD2	2.31	0.78
1:A:608:ILE:O	1:A:612:VAL:HG23	1.83	0.78
1:A:806:ARG:HA	1:A:810:ASN:HD22	1.47	0.78

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:347:VAL:O	1:B:351:LEU:HD22	1.83	0.78
1:B:934:PRO:O	1:B:938:GLU:HG3	1.84	0.78
1:B:412:HIS:HB3	1:B:532:ASN:HD21	1.49	0.77
1:B:682:LEU:HD23	1:B:684:PHE:HE2	1.47	0.77
1:A:727:LEU:HB2	1:A:729:LEU:HD21	1.65	0.77
1:A:303:ARG:O	1:A:304:TYR:HD2	1.67	0.76
1:A:846:VAL:CG1	1:A:933:MET:CE	2.63	0.76
1:A:727:LEU:HD23	1:A:727:LEU:N	2.01	0.76
1:A:602:ARG:CZ	1:A:606:ARG:HD2	2.14	0.76
1:B:822:ILE:HD11	2:B:1950:090:CAM	2.16	0.76
1:B:912:LEU:HB3	1:B:916:GLU:HB2	1.67	0.75
1:B:777:TYR:HD1	1:B:777:TYR:N	1.84	0.75
1:B:948:ARG:HG2	1:B:948:ARG:HH11	1.50	0.75
1:B:335:PHE:CD2	1:B:336:LEU:HD12	2.21	0.75
1:B:595:ARG:H	1:B:595:ARG:HD3	1.51	0.75
1:B:827:ILE:CG2	1:B:828:LEU:HG	2.17	0.74
1:A:846:VAL:HG11	1:A:933:MET:CE	2.17	0.74
1:A:785:ASP:OD1	1:A:789:LYS:HE3	1.88	0.74
1:A:416:LEU:HD12	1:A:535:THR:HG22	1.69	0.74
1:A:814:THR:HG23	1:A:818:LYS:N	2.03	0.74
1:B:300:ILE:O	1:B:305:PRO:HD2	1.87	0.74
1:A:919:GLN:HB3	1:B:922:GLN:HE22	1.52	0.74
1:A:308:TYR:CD1	1:A:310:LEU:HD22	2.23	0.74
1:A:577:ALA:O	1:A:581:LYS:HD2	1.87	0.74
1:A:803:VAL:HG12	1:A:806:ARG:HD3	1.68	0.74
1:A:808:LEU:H	1:A:808:LEU:CD2	2.00	0.73
1:B:677:LEU:HD11	1:B:700:GLY:HA3	1.70	0.73
1:B:822:ILE:HD11	2:B:1950:090:NAL	2.03	0.73
1:B:739:SER:O	1:B:740:LYS:HG2	1.88	0.73
1:B:663:THR:OG1	1:B:664:LYS:HG2	1.89	0.73
1:A:550:TYR:O	1:A:554:TYR:CD2	2.41	0.73
1:A:550:TYR:O	1:A:554:TYR:HD2	1.71	0.73
1:A:819:LEU:HD23	1:A:819:LEU:C	2.10	0.73
1:A:363:GLU:HA	1:A:366:LEU:CD1	2.18	0.72
1:A:808:LEU:HD22	1:A:808:LEU:N	2.04	0.72
1:B:319:TRP:CA	1:B:322:ARG:HE	1.98	0.72
1:B:822:ILE:HD11	2:B:1950:090:CAO	2.20	0.72
1:A:751:THR:HG23	1:A:754:GLU:CG	2.20	0.72
1:A:645:ASN:HD22	1:A:646:PHE:N	1.88	0.71
1:A:303:ARG:O	1:A:304:TYR:CD2	2.42	0.71
1:A:335:PHE:CD1	1:A:357:TRP:CZ3	2.78	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:777:TYR:N	1:B:777:TYR:CD1	2.57	0.71
1:A:913:THR:HG22	1:A:916:GLU:CD	2.11	0.71
1:A:677:LEU:CD1	1:A:700:GLY:H	1.99	0.71
1:A:751:THR:HG23	1:A:754:GLU:CD	2.10	0.71
1:B:304:TYR:HB2	1:B:305:PRO:CD	2.20	0.70
1:A:625:ARG:O	1:A:629:THR:HG22	1.91	0.70
1:A:674:LYS:H	1:A:674:LYS:HD3	1.57	0.70
1:B:405:LEU:HD21	1:B:575:MET:CE	2.22	0.70
1:A:739:SER:O	1:A:740:LYS:HG2	1.91	0.69
1:B:412:HIS:HB3	1:B:532:ASN:ND2	2.06	0.69
1:A:737:THR:HG22	1:A:738:SER:N	2.07	0.69
1:B:311:SER:HB2	1:B:314:GLU:CB	2.22	0.68
1:A:645:ASN:C	1:A:645:ASN:ND2	2.46	0.68
1:A:708:LEU:HD23	1:A:708:LEU:C	2.14	0.68
1:A:715:LEU:C	1:A:715:LEU:HD23	2.15	0.68
1:B:827:ILE:HG22	1:B:828:LEU:HG	1.77	0.67
1:A:811:LEU:N	1:A:811:LEU:HD23	2.09	0.67
1:A:634:LYS:HE2	1:A:634:LYS:O	1.95	0.67
1:A:362:VAL:HG21	1:A:389:ALA:HB2	1.76	0.67
1:A:846:VAL:CG1	1:A:933:MET:HE2	2.23	0.67
1:A:638:GLU:HG2	1:A:641:MET:HB2	1.77	0.67
1:A:591:ASN:O	1:A:595:ARG:CZ	2.42	0.66
1:A:560:GLU:OE1	1:A:738:SER:HB2	1.96	0.66
1:B:800:LEU:HD13	1:B:908:LEU:HD21	1.76	0.66
1:A:677:LEU:HD22	1:A:678:MET:H	1.61	0.66
1:B:698:LYS:NZ	2:B:1950:090:HAW	2.10	0.66
1:B:803:VAL:CG1	1:B:806:ARG:HD3	2.26	0.66
1:A:375:HIS:CD2	1:A:377:GLN:HB3	2.31	0.66
1:A:807:HIS:O	1:A:810:ASN:HB2	1.96	0.65
1:A:827:ILE:CG2	1:A:828:LEU:HG	2.26	0.65
1:A:922:GLN:HE22	1:B:919:GLN:HB3	1.62	0.65
1:A:625:ARG:HH21	1:A:674:LYS:HA	1.62	0.65
1:A:677:LEU:HD22	1:A:678:MET:N	2.11	0.65
1:A:399:LEU:HD12	1:A:554:TYR:HE1	1.60	0.65
1:A:776:PRO:HD2	1:A:779:ILE:O	1.95	0.65
1:B:363:GLU:HA	1:B:366:LEU:HD23	1.76	0.65
1:B:351:LEU:HD22	1:B:351:LEU:H	1.62	0.65
1:B:405:LEU:HD21	1:B:575:MET:HE3	1.77	0.65
1:A:677:LEU:HD11	1:A:700:GLY:CA	2.28	0.64
1:B:743:PHE:O	1:B:744:LEU:HD23	1.98	0.64
1:A:409:ASP:HB3	1:A:412:HIS:CE1	2.32	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:629:THR:HB	1:A:672:LEU:HG	1.78	0.64
1:A:335:PHE:CD1	1:A:357:TRP:HZ3	2.14	0.64
1:A:827:ILE:HG23	1:A:828:LEU:HG	1.79	0.64
1:B:311:SER:CB	1:B:314:GLU:HG3	2.15	0.63
1:A:595:ARG:HG3	1:A:595:ARG:HH11	1.62	0.63
1:B:558:GLU:HB2	1:B:576:TYR:CD1	2.33	0.63
1:A:743:PHE:C	1:A:744:LEU:HD23	2.19	0.63
1:B:656:LEU:C	1:B:656:LEU:HD23	2.20	0.63
1:B:311:SER:HB2	1:B:314:GLU:HB2	1.81	0.62
1:A:591:ASN:ND2	1:A:594:LEU:HD12	2.14	0.62
1:A:728:LYS:O	1:A:818:LYS:HD3	1.98	0.62
1:A:803:VAL:CG1	1:A:806:ARG:HD3	2.30	0.61
1:A:814:THR:HG22	1:A:818:LYS:O	2.00	0.61
1:B:397:TYR:N	1:B:397:TYR:CD1	2.65	0.61
1:B:810:ASN:O	1:B:822:ILE:HG22	2.00	0.61
1:B:408:GLU:HG2	1:B:410:PRO:HD3	1.83	0.61
1:B:838:PRO:HB2	1:B:924:LEU:HD12	1.83	0.61
1:B:667:PRO:O	1:B:670:THR:HG22	2.00	0.61
1:B:934:PRO:O	1:B:938:GLU:CG	2.48	0.60
1:A:668:MET:SD	1:A:668:MET:N	2.71	0.60
1:A:857:HIS:NE2	1:A:861:ARG:HD2	2.15	0.60
1:B:751:THR:HA	1:B:812:LEU:HD12	1.83	0.60
1:A:400:GLN:HG2	1:A:881:LEU:HD22	1.84	0.60
1:A:649:PHE:HE1	1:A:662:ILE:HG13	1.66	0.60
1:A:551:PHE:CE1	1:A:555:LEU:HD11	2.37	0.59
1:A:678:MET:O	1:A:699:HIS:CE1	2.55	0.59
1:B:807:HIS:HD2	1:B:809:ASP:H	1.50	0.59
1:B:326:SER:HA	1:B:357:TRP:CZ2	2.37	0.59
1:B:403:GLN:O	1:B:406:LYS:CB	2.49	0.59
1:B:913:THR:OG1	1:B:916:GLU:HG3	2.02	0.59
1:A:673:PHE:HB2	1:A:679:PRO:HD2	1.84	0.59
1:A:751:THR:HG23	1:A:754:GLU:HG3	1.83	0.59
1:A:854:SER:HB2	1:A:857:HIS:N	2.14	0.59
1:B:797:ILE:HG23	1:B:801:LEU:HD12	1.84	0.59
1:A:552:TYR:C	1:A:552:TYR:CD2	2.75	0.59
1:A:727:LEU:HB2	1:A:729:LEU:CD2	2.33	0.59
1:B:606:ARG:HH12	1:B:643:LYS:CG	2.16	0.59
1:B:343:LEU:HG	1:B:344:GLU:H	1.68	0.59
1:B:629:THR:HG22	1:B:672:LEU:CB	2.27	0.59
1:B:812:LEU:HD22	1:B:822:ILE:HB	1.85	0.59
1:A:657:ASP:OD2	1:A:657:ASP:C	2.41	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:862:LYS:O	1:A:866:THR:HG23	2.02	0.58
1:B:846:VAL:HA	1:B:849:MET:HG3	1.85	0.58
1:A:399:LEU:CD1	1:A:554:TYR:HE1	2.15	0.58
1:A:532:ASN:OD1	1:A:535:THR:HG23	2.03	0.58
1:B:336:LEU:HB3	1:B:373:PHE:HE1	1.69	0.58
1:B:397:TYR:N	1:B:397:TYR:HD1	2.01	0.58
1:B:590:GLY:O	1:B:595:ARG:HD2	2.04	0.58
1:A:783:VAL:HG13	1:A:816:ASN:O	2.03	0.58
1:B:557:ILE:O	1:B:560:GLU:HG2	2.04	0.58
1:A:657:ASP:OD2	1:A:659:GLU:N	2.31	0.58
1:B:645:ASN:OD1	1:B:645:ASN:C	2.41	0.58
1:A:412:HIS:CB	1:A:532:ASN:ND2	2.66	0.58
1:A:549:ASN:C	1:A:549:ASN:ND2	2.57	0.58
1:B:738:SER:HB3	1:B:741:HIS:CE1	2.38	0.58
1:B:347:VAL:O	1:B:351:LEU:HD21	2.02	0.57
1:B:876:ASN:ND2	1:B:876:ASN:H	2.00	0.57
1:B:600:ASN:HA	1:B:603:LYS:HD3	1.86	0.57
1:A:363:GLU:H	1:A:363:GLU:CD	2.07	0.57
1:B:665:ILE:HG22	1:B:666:VAL:N	2.20	0.57
1:A:806:ARG:HD2	1:A:806:ARG:N	2.20	0.57
1:A:944:THR:OG1	1:B:931:ALA:O	2.15	0.57
1:B:367:GLU:HG2	1:B:880:ASN:OD1	2.03	0.57
1:B:335:PHE:CD1	1:B:357:TRP:CZ3	2.93	0.57
1:A:306:PRO:HG3	1:A:876:ASN:HA	1.87	0.57
1:B:403:GLN:O	1:B:406:LYS:HB3	2.05	0.57
1:B:595:ARG:HH11	1:B:595:ARG:CG	1.98	0.57
1:A:712:MET:O	1:A:716:MET:HG3	2.05	0.56
1:A:811:LEU:N	1:A:811:LEU:CD2	2.67	0.56
1:A:830:ARG:HH22	1:A:903:LYS:NZ	2.01	0.56
1:B:682:LEU:HD23	1:B:684:PHE:CE2	2.36	0.56
1:A:776:PRO:HG2	1:A:777:TYR:N	2.20	0.56
1:A:363:GLU:HA	1:A:366:LEU:HD12	1.86	0.56
1:A:776:PRO:HG2	1:A:777:TYR:H	1.71	0.56
1:A:819:LEU:HD23	1:A:819:LEU:O	2.06	0.56
1:A:883:SER:O	1:A:886:VAL:HG23	2.06	0.56
1:A:649:PHE:CZ	1:A:663:THR:O	2.59	0.56
1:A:751:THR:CG2	1:A:754:GLU:CD	2.74	0.56
1:A:812:LEU:HD12	1:A:820:PHE:CZ	2.40	0.56
1:A:677:LEU:CD1	1:A:700:GLY:HA3	2.35	0.56
1:A:302:TYR:HE1	1:A:331:ALA:CB	2.19	0.55
1:B:768:LYS:HE2	1:B:769:HIS:NE2	2.20	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:842:SER:OG	1:A:844:GLU:OE1	2.18	0.55
1:A:549:ASN:HD22	1:A:550:TYR:N	2.04	0.55
1:A:701:ASP:O	1:A:740:LYS:HA	2.07	0.55
1:B:909:GLN:HG3	1:B:912:LEU:HG	1.87	0.55
1:A:292:SER:CB	1:A:292:SER:HG	2.09	0.55
1:A:533:LEU:O	1:A:536:PHE:HB3	2.07	0.55
1:A:645:ASN:O	1:A:648:ASN:O	2.24	0.55
1:B:603:LYS:HB3	1:B:652:ILE:HD11	1.88	0.55
1:B:304:TYR:CB	1:B:305:PRO:CD	2.84	0.55
1:A:553:TRP:O	1:A:557:ILE:HG13	2.07	0.55
1:B:776:PRO:HB2	1:B:777:TYR:HD1	1.72	0.55
1:B:304:TYR:HB2	1:B:305:PRO:HD3	1.88	0.55
1:B:741:HIS:ND1	1:B:741:HIS:N	2.55	0.55
1:B:723:GLU:C	1:B:724:ASN:OD1	2.45	0.55
1:A:326:SER:HB2	1:A:357:TRP:CE2	2.42	0.54
1:A:573:HIS:C	1:A:573:HIS:CD2	2.80	0.54
1:A:830:ARG:HH22	1:A:903:LYS:HZ1	1.53	0.54
1:A:307:THR:OG1	1:A:905:GLU:OE2	2.26	0.54
1:A:909:GLN:HG3	1:A:912:LEU:HG	1.88	0.54
1:B:806:ARG:N	1:B:806:ARG:HD2	2.22	0.54
1:B:827:ILE:HG23	1:B:828:LEU:HG	1.89	0.54
1:A:591:ASN:HD21	1:A:594:LEU:HD12	1.72	0.54
1:A:550:TYR:HB3	1:A:554:TYR:HE2	1.72	0.54
1:B:614:LEU:HD12	1:B:614:LEU:C	2.28	0.54
1:A:913:THR:HG23	1:A:916:GLU:H	1.72	0.54
1:B:311:SER:CB	1:B:314:GLU:HB2	2.36	0.54
1:B:661:TYR:O	1:B:686:THR:HA	2.08	0.54
1:B:667:PRO:O	1:B:670:THR:CG2	2.55	0.54
1:A:291:ALA:O	1:A:294:ARG:HG2	2.08	0.54
1:A:723:GLU:O	1:A:724:ASN:CB	2.55	0.54
1:B:865:TYR:HD1	1:B:918:VAL:HG13	1.67	0.54
1:A:723:GLU:OE1	1:A:723:GLU:HA	2.08	0.53
1:B:838:PRO:HB2	1:B:924:LEU:CD1	2.38	0.53
1:A:678:MET:O	1:A:699:HIS:NE2	2.42	0.53
1:A:343:LEU:HB3	1:A:346:GLU:HG2	1.89	0.53
1:B:719:LEU:O	1:B:723:GLU:HG2	2.09	0.53
1:A:575:MET:O	1:A:579:VAL:HG23	2.08	0.53
1:A:871:LEU:HD22	1:A:878:MET:HE1	1.89	0.53
1:B:813:LEU:CD1	1:B:818:LYS:O	2.53	0.53
1:B:926:ASP:O	1:B:930:THR:HG23	2.08	0.53
1:B:314:GLU:CA	1:B:317:LEU:HG	2.26	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:803:VAL:HG12	1:B:806:ARG:HD3	1.90	0.53
1:A:370:SER:O	1:A:379:ARG:NH2	2.41	0.53
1:A:737:THR:O	1:A:738:SER:C	2.48	0.53
1:B:594:LEU:N	1:B:594:LEU:HD23	2.24	0.53
1:B:405:LEU:C	1:B:405:LEU:HD23	2.30	0.53
1:B:859:GLU:OE1	1:B:859:GLU:HA	2.08	0.53
1:A:737:THR:CG2	1:A:738:SER:N	2.71	0.53
1:A:729:LEU:HD23	1:A:729:LEU:N	2.24	0.52
1:A:728:LYS:HG3	1:A:786:THR:HB	1.92	0.52
1:A:632:PHE:HE1	1:A:636:LEU:HD21	1.75	0.52
1:B:381:TYR:O	1:B:384:SER:OG	2.26	0.52
1:A:343:LEU:HD22	1:A:345:ASP:H	1.73	0.52
1:B:948:ARG:HH11	1:B:948:ARG:CG	2.22	0.52
1:A:294:ARG:HD2	1:A:321:PHE:CE1	2.45	0.52
1:B:790:SER:HB2	1:B:819:LEU:H	1.74	0.52
1:A:756:LEU:CD1	1:A:844:GLU:HG2	2.35	0.52
1:B:568:GLN:HE22	1:B:571:ARG:HH11	1.58	0.52
1:A:766:PHE:CE1	1:A:813:LEU:HD12	2.44	0.52
1:B:385:ARG:HA	1:B:385:ARG:NE	2.23	0.52
1:A:399:LEU:CD1	1:A:554:TYR:CE1	2.89	0.52
1:A:806:ARG:NH2	1:A:822:ILE:O	2.33	0.52
1:B:782:GLU:O	1:B:786:THR:HG23	2.09	0.52
1:A:602:ARG:NH2	1:A:606:ARG:HD2	2.25	0.51
1:B:364:ASP:O	1:B:367:GLU:HB2	2.09	0.51
1:B:595:ARG:NH1	1:B:595:ARG:CG	2.66	0.51
1:B:679:PRO:HB3	1:B:698:LYS:HG3	1.92	0.51
1:B:300:ILE:HA	1:B:304:TYR:HD2	1.76	0.51
1:B:656:LEU:HD12	1:B:743:PHE:HB3	1.93	0.51
1:B:763:HIS:CE1	1:B:777:TYR:CD2	2.99	0.51
1:B:297:LEU:O	1:B:300:ILE:HG12	2.10	0.51
1:B:732:TYR:HB2	1:B:745:GLN:HB3	1.93	0.51
1:A:304:TYR:CB	1:A:305:PRO:HD3	2.41	0.51
1:A:696:ILE:HG22	1:A:697:PHE:N	2.25	0.51
1:B:698:LYS:O	1:B:741:HIS:HA	2.11	0.51
1:B:914:ASP:N	1:B:914:ASP:OD1	2.44	0.51
1:A:409:ASP:OD1	1:A:411:ARG:N	2.42	0.51
1:B:400:GLN:HG2	1:B:881:LEU:HD13	1.92	0.51
1:B:592:PHE:N	1:B:595:ARG:HE	2.08	0.51
1:B:812:LEU:CD2	1:B:822:ILE:HB	2.40	0.51
1:A:559:VAL:HG22	1:A:577:ALA:HA	1.93	0.51
1:A:677:LEU:CD1	1:A:700:GLY:CA	2.89	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:351:LEU:HA	1:B:354:LEU:HB3	1.92	0.51
1:B:664:LYS:HG3	1:B:685:VAL:CG2	2.41	0.51
1:A:326:SER:O	1:A:326:SER:OG	2.27	0.51
1:B:582:MET:O	1:B:586:VAL:HG23	2.10	0.50
1:A:776:PRO:HG3	1:A:784:MET:HG3	1.92	0.50
1:B:380:LYS:HD2	1:B:380:LYS:C	2.31	0.50
1:A:293:ILE:O	1:A:297:LEU:HG	2.12	0.50
1:A:610:GLU:OE1	1:A:643:LYS:CB	2.56	0.50
1:A:835:MET:CE	1:B:942:ARG:CD	2.81	0.50
1:A:866:THR:O	1:A:870:HIS:HD2	1.94	0.50
1:B:575:MET:HE2	1:B:575:MET:O	2.10	0.50
1:B:624:ASN:OD1	1:B:625:ARG:N	2.44	0.50
1:B:823:ASP:OD1	1:B:824:PHE:N	2.45	0.50
1:B:920:HIS:C	1:B:920:HIS:CD2	2.85	0.50
1:B:776:PRO:HB2	1:B:777:TYR:CD1	2.46	0.50
1:A:610:GLU:OE1	1:A:643:LYS:N	2.45	0.50
1:B:698:LYS:HZ1	2:B:1950:090:HAW	1.75	0.50
1:A:723:GLU:OE1	1:A:723:GLU:CA	2.60	0.50
1:A:772:CYS:O	1:A:778:GLY:HA2	2.12	0.50
1:A:549:ASN:C	1:A:549:ASN:HD22	2.15	0.50
1:A:805:ASP:N	1:A:831:ASP:OD2	2.45	0.50
1:B:888:ALA:O	1:B:889:THR:HB	2.12	0.50
1:A:595:ARG:HG3	1:A:595:ARG:NH1	2.27	0.49
1:B:751:THR:OG1	1:B:809:ASP:HA	2.12	0.49
1:B:885:MET:O	1:B:888:ALA:HB2	2.11	0.49
1:A:640:ASP:OD2	1:A:640:ASP:N	2.45	0.49
1:B:363:GLU:HG2	1:B:877:VAL:HG22	1.95	0.49
1:B:888:ALA:O	1:B:889:THR:CB	2.59	0.49
1:A:375:HIS:HD2	1:A:377:GLN:HB3	1.77	0.49
1:A:341:TRP:CD1	1:A:342:LYS:HG2	2.47	0.49
1:B:394:LEU:O	1:B:398:LEU:HB2	2.11	0.49
1:A:743:PHE:O	1:A:744:LEU:HD23	2.11	0.49
1:B:558:GLU:HB2	1:B:576:TYR:HD1	1.76	0.49
1:A:761:ASN:OD1	1:A:764:ASN:ND2	2.45	0.49
1:A:332:LEU:HD12	1:A:336:LEU:CD2	2.43	0.49
1:A:763:HIS:HE1	1:A:777:TYR:CE2	2.31	0.49
1:B:575:MET:HE1	1:B:576:TYR:HA	1.94	0.49
1:B:606:ARG:HH12	1:B:643:LYS:HG3	1.76	0.49
1:B:763:HIS:HE1	1:B:777:TYR:CD2	2.30	0.49
1:B:862:LYS:O	1:B:866:THR:HG23	2.12	0.49
1:A:649:PHE:CE2	1:A:663:THR:O	2.65	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:710:LEU:HD22	1:A:732:TYR:O	2.13	0.49
1:B:698:LYS:HZ2	2:B:1950:090:HAW	1.78	0.49
1:B:720:LEU:O	1:B:723:GLU:HB2	2.13	0.49
1:B:304:TYR:HB2	1:B:305:PRO:HD2	1.95	0.49
1:A:400:GLN:HG2	1:A:881:LEU:CD2	2.43	0.49
1:A:807:HIS:H	1:A:810:ASN:HB2	1.78	0.49
1:A:943:PHE:HB2	1:B:931:ALA:HB1	1.94	0.49
1:B:790:SER:CB	1:B:819:LEU:H	2.26	0.48
1:B:826:TYR:HB3	1:B:830:ARG:O	2.13	0.48
1:A:300:ILE:O	1:A:304:TYR:HB2	2.13	0.48
1:A:302:TYR:HE1	1:A:331:ALA:HB2	1.78	0.48
1:B:315:GLN:HG3	1:B:316:ASP:N	2.28	0.48
1:B:724:ASN:OD1	1:B:724:ASN:N	2.46	0.48
1:A:362:VAL:O	1:A:366:LEU:HD12	2.13	0.48
1:A:582:MET:O	1:A:586:VAL:HG23	2.13	0.48
1:A:677:LEU:CD1	1:A:700:GLY:N	2.61	0.48
1:A:726:ASP:C	1:A:727:LEU:HD23	2.33	0.48
1:A:835:MET:HE1	1:B:942:ARG:HD3	1.90	0.48
1:A:841:LEU:HD23	1:A:845:MET:HE2	1.96	0.48
1:B:822:ILE:HD11	2:B:1950:090:OAU	2.13	0.48
1:B:822:ILE:CD1	2:B:1950:090:CAM	2.91	0.48
1:A:702:ASP:OD2	1:A:702:ASP:C	2.52	0.48
1:B:408:GLU:HB3	1:B:410:PRO:HD3	1.96	0.48
1:A:335:PHE:C	1:A:335:PHE:CD2	2.87	0.48
1:A:411:ARG:HA	1:A:414:VAL:CG2	2.43	0.48
1:A:920:HIS:O	1:A:923:SER:HB3	2.13	0.48
1:A:302:TYR:CE1	1:A:331:ALA:CB	2.97	0.48
1:A:332:LEU:HD12	1:A:336:LEU:HD23	1.95	0.48
1:A:561:GLU:N	1:A:561:GLU:CD	2.67	0.48
1:A:708:LEU:HD23	1:A:708:LEU:O	2.14	0.48
1:A:405:LEU:HD23	1:A:533:LEU:HD21	1.96	0.48
1:A:777:TYR:N	1:A:777:TYR:CD1	2.81	0.48
1:A:371:PRO:HG3	1:A:407:TYR:CZ	2.48	0.47
1:A:846:VAL:CB	1:A:933:MET:HE2	2.44	0.47
1:B:300:ILE:HA	1:B:304:TYR:CD2	2.49	0.47
1:B:712:MET:HE1	1:B:878:MET:HG2	1.95	0.47
1:B:295:ASP:O	1:B:299:THR:HG23	2.14	0.47
1:B:654:PHE:CD1	1:B:655:PRO:HD2	2.48	0.47
1:B:728:LYS:HZ3	1:B:786:THR:HG22	1.78	0.47
1:A:913:THR:HG22	1:A:916:GLU:CG	2.44	0.47
1:A:925:LEU:O	1:A:929:ILE:HG13	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:702:ASP:OD1	1:B:704:ARG:NH2	2.47	0.47
1:A:673:PHE:HD2	1:A:679:PRO:HG2	1.79	0.47
1:B:763:HIS:HE2	1:B:848:ALA:C	2.18	0.47
1:A:305:PRO:HG2	1:A:308:TYR:CD1	2.49	0.47
1:A:852:ILE:N	1:A:852:ILE:CD1	2.77	0.47
1:A:587:LEU:HB3	1:A:598:PHE:HB2	1.97	0.47
1:B:335:PHE:CD1	1:B:357:TRP:HZ3	2.32	0.47
1:B:703:LEU:CD2	1:B:744:LEU:HD21	2.44	0.47
1:B:746:TYR:C	1:B:746:TYR:CD2	2.87	0.47
1:A:811:LEU:C	1:A:812:LEU:HD23	2.35	0.47
1:B:350:ALA:O	1:B:353:MET:HB2	2.14	0.47
1:A:313:GLU:CA	1:A:313:GLU:OE1	2.63	0.47
1:A:561:GLU:CD	1:A:561:GLU:H	2.16	0.47
1:B:624:ASN:H	1:B:627:LYS:HD2	1.80	0.47
1:A:677:LEU:HD11	1:A:700:GLY:HA3	1.97	0.47
1:B:319:TRP:CD1	1:B:322:ARG:HD2	2.50	0.47
1:A:373:PHE:N	1:A:373:PHE:CD2	2.83	0.46
1:A:663:THR:HG23	1:A:685:VAL:HG22	1.96	0.46
1:B:360:MET:HA	1:B:360:MET:CE	2.44	0.46
1:B:618:VAL:HG11	1:B:632:PHE:HD2	1.79	0.46
1:A:412:HIS:HB3	1:A:532:ASN:HD21	1.74	0.46
1:A:651:PRO:HA	1:A:662:ILE:O	2.15	0.46
1:A:739:SER:O	1:A:740:LYS:CG	2.61	0.46
1:B:661:TYR:HB3	1:B:687:SER:HB3	1.97	0.46
1:B:763:HIS:NE2	1:B:848:ALA:O	2.39	0.46
1:B:861:ARG:O	1:B:865:TYR:CD2	2.68	0.46
1:A:416:LEU:CD1	1:A:535:THR:HG22	2.42	0.46
1:A:727:LEU:O	1:A:729:LEU:N	2.46	0.46
1:A:913:THR:HG22	1:A:916:GLU:HB2	1.97	0.46
1:A:648:ASN:HA	1:A:664:LYS:HG2	1.97	0.46
1:B:342:LYS:HG3	1:B:343:LEU:HD23	1.97	0.46
1:B:408:GLU:CB	1:B:409:ASP:HA	2.26	0.46
1:B:549:ASN:HD22	1:B:550:TYR:N	2.13	0.46
1:B:573:HIS:CD2	1:B:573:HIS:C	2.89	0.46
1:A:737:THR:HG21	1:A:741:HIS:CD2	2.50	0.46
1:A:814:THR:CG2	1:A:818:LYS:N	2.69	0.46
1:B:777:TYR:O	1:B:779:ILE:N	2.48	0.46
1:B:861:ARG:HB3	1:B:865:TYR:HE2	1.81	0.46
1:A:649:PHE:CE1	1:A:663:THR:O	2.68	0.46
1:B:648:ASN:HA	1:B:664:LYS:HB3	1.98	0.46
1:A:553:TRP:CZ3	1:A:737:THR:HG23	2.51	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:677:LEU:CG	1:A:700:GLY:HA3	2.45	0.45
1:A:720:LEU:HD23	1:A:720:LEU:N	2.30	0.45
1:A:805:ASP:O	1:A:810:ASN:ND2	2.48	0.45
1:A:330:LYS:O	1:A:333:THR:HG23	2.15	0.45
1:A:717:ASP:OD2	1:A:721:ARG:NH1	2.48	0.45
1:A:766:PHE:HE1	1:A:813:LEU:HD12	1.81	0.45
1:B:816:ASN:OD1	1:B:816:ASN:O	2.33	0.45
1:B:822:ILE:HD11	2:B:1950:090:NAN	2.31	0.45
1:B:842:SER:O	1:B:846:VAL:HG23	2.15	0.45
1:A:591:ASN:O	1:A:595:ARG:NH1	2.50	0.45
1:A:812:LEU:O	1:A:819:LEU:HA	2.16	0.45
1:B:850:GLY:O	1:B:854:SER:HB2	2.16	0.45
1:B:863:GLN:OE1	1:B:863:GLN:HA	2.15	0.45
1:A:677:LEU:HG	1:A:700:GLY:HA3	1.98	0.45
1:B:723:GLU:O	1:B:724:ASN:OD1	2.34	0.45
1:A:677:LEU:HB3	1:A:698:LYS:HE3	1.98	0.45
1:A:785:ASP:O	1:A:789:LYS:HG3	2.17	0.45
1:B:587:LEU:HB3	1:B:598:PHE:HB2	1.99	0.45
1:B:629:THR:O	1:B:633:GLN:HG3	2.15	0.45
1:A:578:MET:O	1:A:582:MET:HE2	2.17	0.45
1:B:612:VAL:CG2	1:B:741:HIS:HD2	2.29	0.45
1:B:657:ASP:OD2	1:B:657:ASP:C	2.55	0.45
1:B:363:GLU:N	1:B:363:GLU:OE2	2.50	0.45
1:B:408:GLU:CB	1:B:410:PRO:HD3	2.47	0.45
1:B:558:GLU:HG3	1:B:576:TYR:CE1	2.52	0.45
1:B:610:GLU:OE1	1:B:643:LYS:NZ	2.49	0.45
1:A:368:LEU:HD22	1:A:373:PHE:CE1	2.52	0.44
1:B:682:LEU:HD22	1:B:682:LEU:N	2.22	0.44
1:B:829:GLY:O	1:B:830:ARG:C	2.54	0.44
1:B:306:PRO:O	1:B:307:THR:HG23	2.17	0.44
1:B:558:GLU:HG3	1:B:576:TYR:HE1	1.82	0.44
1:B:672:LEU:HD22	1:B:678:MET:HB2	2.00	0.44
1:A:305:PRO:HG2	1:A:308:TYR:CG	2.53	0.44
1:A:763:HIS:CE1	1:A:777:TYR:CD2	3.05	0.44
1:A:386:LEU:HA	1:A:386:LEU:HD23	1.71	0.44
1:A:715:LEU:HD23	1:A:716:MET:N	2.33	0.44
1:B:751:THR:HG23	1:B:754:GLU:H	1.83	0.44
1:A:747:VAL:CG2	1:A:820:PHE:CZ	3.00	0.44
1:B:296:GLN:O	1:B:300:ILE:HG23	2.18	0.44
1:B:308:TYR:CD1	1:B:310:LEU:HB2	2.53	0.44
1:B:380:LYS:HZ1	1:B:381:TYR:HB2	1.83	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:557:ILE:HD11	1:B:736:ALA:O	2.18	0.44
1:B:704:ARG:CZ	1:B:889:THR:HG21	2.46	0.44
1:A:302:TYR:CE1	1:A:331:ALA:HB2	2.52	0.44
1:A:552:TYR:CG	1:A:601:LEU:HD22	2.52	0.44
1:B:672:LEU:HD23	1:B:679:PRO:O	2.18	0.44
1:A:341:TRP:NE1	1:A:342:LYS:HG2	2.32	0.43
1:A:593:ASN:O	1:A:597:ILE:HG13	2.18	0.43
1:A:671:SER:O	1:A:672:LEU:HD23	2.17	0.43
1:A:674:LYS:H	1:A:674:LYS:CD	2.26	0.43
1:A:727:LEU:N	1:A:727:LEU:CD2	2.69	0.43
1:B:403:GLN:O	1:B:406:LYS:HB2	2.18	0.43
1:A:342:LYS:HD3	1:A:342:LYS:HA	1.66	0.43
1:A:812:LEU:HD21	1:A:822:ILE:HD12	2.01	0.43
1:A:854:SER:C	1:A:856:HIS:N	2.68	0.43
1:B:364:ASP:OD2	1:B:365:ALA:N	2.51	0.43
1:A:318:VAL:O	1:A:322:ARG:HB3	2.17	0.43
1:B:311:SER:OG	1:B:314:GLU:HB2	2.19	0.43
1:B:375:HIS:CD2	1:B:377:GLN:H	2.36	0.43
1:A:776:PRO:CG	1:A:777:TYR:N	2.81	0.43
1:B:734:VAL:HG13	1:B:744:LEU:CD2	2.49	0.43
1:B:822:ILE:HG23	1:B:823:ASP:N	2.33	0.43
1:A:662:ILE:H	1:A:662:ILE:HG12	1.67	0.43
1:B:763:HIS:CD2	1:B:848:ALA:HA	2.54	0.43
1:A:677:LEU:HD21	1:A:699:HIS:HD2	1.84	0.43
1:B:319:TRP:HA	1:B:322:ARG:HB3	2.01	0.43
1:B:336:LEU:HB3	1:B:373:PHE:CE1	2.50	0.43
1:A:625:ARG:HG3	1:A:626:ASN:N	2.30	0.43
1:A:625:ARG:NH2	1:A:674:LYS:HA	2.29	0.43
1:A:638:GLU:HG2	1:A:641:MET:SD	2.59	0.43
1:A:708:LEU:C	1:A:708:LEU:CD2	2.85	0.43
1:A:779:ILE:O	1:A:780:SER:C	2.56	0.43
1:A:839:MET:HE2	1:A:925:LEU:HD21	2.01	0.43
1:A:885:MET:O	1:A:888:ALA:HB2	2.19	0.43
2:A:1949:090:OAU	2:A:1949:090:NAL	2.52	0.43
1:B:824:PHE:HB3	1:B:827:ILE:HD11	2.01	0.43
1:A:672:LEU:HD12	1:A:678:MET:CE	2.49	0.43
1:A:766:PHE:CZ	1:A:813:LEU:HD11	2.53	0.43
1:A:822:ILE:HD13	1:A:822:ILE:HG21	1.80	0.43
1:B:631:LYS:O	1:B:635:LEU:HD23	2.18	0.43
1:A:737:THR:CG2	1:A:741:HIS:CD2	3.02	0.43
1:B:322:ARG:HD3	1:B:335:PHE:CD1	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:408:GLU:CG	1:B:410:PRO:HD3	2.49	0.43
1:B:591:ASN:O	1:B:593:ASN:N	2.52	0.43
1:B:618:VAL:HG22	1:B:631:LYS:HG3	1.99	0.43
1:B:912:LEU:HD12	1:B:917:ALA:HA	2.00	0.43
1:A:766:PHE:HZ	1:A:813:LEU:HD11	1.83	0.42
1:B:382:ALA:O	1:B:385:ARG:HB2	2.19	0.42
1:B:660:ILE:HG23	1:B:686:THR:HG23	2.01	0.42
1:B:804:GLY:O	1:B:805:ASP:HB3	2.19	0.42
1:A:621:GLU:HA	1:A:622:PRO:HD3	1.90	0.42
1:A:684:PHE:CD2	1:A:684:PHE:N	2.87	0.42
1:A:716:MET:HG2	1:A:878:MET:HE1	2.01	0.42
1:B:551:PHE:CE1	1:B:555:LEU:HD21	2.55	0.42
1:B:751:THR:CA	1:B:812:LEU:HD12	2.49	0.42
1:B:841:LEU:O	1:B:932:VAL:HG21	2.20	0.42
1:A:292:SER:OG	1:A:292:SER:CA	2.56	0.42
1:A:602:ARG:NH1	1:A:606:ARG:HD2	2.34	0.42
1:A:610:GLU:HG3	1:A:644:VAL:HG12	2.02	0.42
1:A:830:ARG:NH2	1:A:903:LYS:HZ1	2.17	0.42
1:B:682:LEU:H	1:B:682:LEU:CD2	2.26	0.42
1:A:806:ARG:NH2	1:A:810:ASN:HB3	2.33	0.42
1:A:914:ASP:OD1	1:A:914:ASP:N	2.52	0.42
1:B:370:SER:HB2	1:B:371:PRO:CD	2.49	0.42
1:B:678:MET:HA	1:B:679:PRO:HD3	1.85	0.42
1:A:650:GLU:HA	1:A:651:PRO:HD3	1.88	0.42
1:A:846:VAL:HB	1:A:933:MET:CE	2.49	0.42
1:B:734:VAL:CG2	1:B:744:LEU:HD22	2.43	0.42
1:B:828:LEU:N	1:B:828:LEU:HD23	2.34	0.42
1:A:677:LEU:CD1	1:A:698:LYS:HE3	2.50	0.42
1:B:710:LEU:HD22	1:B:732:TYR:O	2.19	0.42
1:B:729:LEU:N	1:B:729:LEU:HD23	2.35	0.42
1:B:870:HIS:O	1:B:873:ARG:HB2	2.20	0.42
1:A:343:LEU:CB	1:A:346:GLU:HG2	2.48	0.42
1:A:657:ASP:HA	1:A:658:PRO:HD3	1.86	0.42
1:A:763:HIS:NE2	1:A:848:ALA:O	2.35	0.42
1:B:603:LYS:HE3	1:B:652:ILE:HG12	2.02	0.42
1:A:747:VAL:HG22	2:A:1949:090:HAA	1.85	0.42
1:B:614:LEU:HD23	1:B:646:PHE:CE1	2.55	0.42
1:A:719:LEU:HD23	1:A:719:LEU:HA	1.81	0.42
1:A:719:LEU:O	1:A:723:GLU:HG2	2.20	0.42
1:A:830:ARG:NH2	1:A:903:LYS:NZ	2.68	0.42
1:B:888:ALA:O	1:B:889:THR:HG22	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:296:GLN:OE1	1:A:296:GLN:HA	2.20	0.41
1:B:544:ASN:OD1	1:B:544:ASN:C	2.57	0.41
1:B:766:PHE:CZ	1:B:817:GLY:HA2	2.55	0.41
1:A:318:VAL:O	1:A:322:ARG:CB	2.68	0.41
1:A:552:TYR:CD1	1:A:601:LEU:HD22	2.54	0.41
1:B:948:ARG:CG	1:B:948:ARG:NH1	2.83	0.41
1:A:661:TYR:O	1:A:686:THR:HB	2.20	0.41
1:A:663:THR:HG23	1:A:685:VAL:CG2	2.51	0.41
1:A:922:GLN:HE22	1:B:919:GLN:CB	2.30	0.41
1:B:661:TYR:CB	1:B:687:SER:HB3	2.51	0.41
1:A:363:GLU:HA	1:A:366:LEU:HD13	2.00	0.41
1:A:319:TRP:CD1	1:A:322:ARG:NH2	2.85	0.41
1:A:335:PHE:CD2	1:A:335:PHE:O	2.73	0.41
1:A:533:LEU:HD23	1:A:534:CYS:N	2.34	0.41
1:A:586:VAL:HG12	1:A:586:VAL:O	2.20	0.41
1:B:339:ILE:H	1:B:339:ILE:HG13	1.66	0.41
1:A:607:PHE:CD1	1:A:607:PHE:C	2.95	0.41
1:A:634:LYS:O	1:A:634:LYS:CE	2.67	0.41
1:B:409:ASP:OD1	1:B:410:PRO:HD2	2.20	0.41
1:B:718:LYS:O	1:B:722:ARG:HG3	2.20	0.41
1:B:822:ILE:CD1	2:B:1950:090:NAL	2.77	0.41
1:A:776:PRO:HG2	1:A:777:TYR:CD1	2.33	0.41
1:B:320:LYS:HG3	1:B:321:PHE:N	2.34	0.41
1:B:575:MET:HE2	1:B:575:MET:C	2.42	0.41
1:A:584:LEU:HD23	1:A:584:LEU:HA	1.91	0.41
1:A:804:GLY:HA3	1:A:831:ASP:OD2	2.21	0.41
1:A:822:ILE:HD13	2:A:1949:090:CAM	2.51	0.41
1:B:375:HIS:HB3	1:B:378:VAL:HG22	2.03	0.41
1:B:420:ILE:O	1:B:420:ILE:HG22	2.19	0.41
1:B:614:LEU:HB2	1:B:642:PHE:CE1	2.56	0.41
1:A:417:HIS:HD2	1:A:578:MET:HG2	1.86	0.40
1:B:319:TRP:N	1:B:322:ARG:HH21	2.19	0.40
1:B:843:LYS:HA	1:B:932:VAL:CG1	2.51	0.40
1:A:309:VAL:O	1:A:311:SER:N	2.54	0.40
1:A:405:LEU:HD23	1:A:533:LEU:CD2	2.51	0.40
1:A:544:ASN:OD1	1:A:544:ASN:C	2.59	0.40
1:B:908:LEU:HD23	1:B:908:LEU:HA	1.87	0.40
1:A:625:ARG:CG	1:A:626:ASN:N	2.81	0.40
1:A:758:ARG:HE	1:A:758:ARG:HB2	1.70	0.40
1:A:883:SER:O	1:A:886:VAL:CG2	2.70	0.40
1:A:373:PHE:N	1:A:373:PHE:HD2	2.19	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:330:LYS:NZ	1:B:334:LYS:HE2	2.37	0.40
1:A:657:ASP:OD2	1:A:659:GLU:HB2	2.21	0.40
1:B:343:LEU:HD23	1:B:343:LEU:H	1.86	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [\(i\)](#)

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

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all 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	540/696 (78%)	504 (93%)	26 (5%)	10 (2%)	8	31
1	B	538/696 (77%)	503 (94%)	24 (4%)	11 (2%)	7	30
All	All	1078/1392 (77%)	1007 (93%)	50 (5%)	21 (2%)	8	31

All (21) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	343	LEU
1	B	592	PHE
1	B	778	GLY
1	A	305	PRO
1	A	310	LEU
1	A	327	SER
1	A	591	ASN
1	B	304	TYR
1	B	306	PRO
1	B	690	HIS
1	A	304	TYR
1	B	310	LEU
1	A	731	PRO
1	B	731	PRO
1	B	776	PRO

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Mol	Chain	Res	Type
1	A	329	LYS
1	A	675	SER
1	A	690	HIS
1	A	738	SER
1	B	805	ASP
1	B	305	PRO

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	491/612 (80%)	389 (79%)	102 (21%)	1 3
1	B	490/612 (80%)	402 (82%)	88 (18%)	1 6
All	All	981/1224 (80%)	791 (81%)	190 (19%)	1 4

All (190) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	294	ARG
1	A	309	VAL
1	A	310	LEU
1	A	313	GLU
1	A	322	ARG
1	A	325	LEU
1	A	326	SER
1	A	329	LYS
1	A	333	THR
1	A	335	PHE
1	A	336	LEU
1	A	338	CYS
1	A	342	LYS
1	A	343	LEU
1	A	345	ASP
1	A	351	LEU
1	A	354	LEU

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Mol	Chain	Res	Type
1	A	363	GLU
1	A	366	LEU
1	A	370	SER
1	A	391	ASP
1	A	394	LEU
1	A	396	LEU
1	A	409	ASP
1	A	414	VAL
1	A	532	ASN
1	A	533	LEU
1	A	534	CYS
1	A	543	THR
1	A	546	THR
1	A	547	LEU
1	A	549	ASN
1	A	561	GLU
1	A	573	HIS
1	A	580	LEU
1	A	581	LYS
1	A	591	ASN
1	A	592	PHE
1	A	602	ARG
1	A	611	LEU
1	A	614	LEU
1	A	621	GLU
1	A	625	ARG
1	A	629	THR
1	A	632	PHE
1	A	634	LYS
1	A	639	GLN
1	A	640	ASP
1	A	643	LYS
1	A	645	ASN
1	A	649	PHE
1	A	654	PHE
1	A	656	LEU
1	A	662	ILE
1	A	668	MET
1	A	669	ARG
1	A	670	THR
1	A	671	SER
1	A	674	LYS

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Mol	Chain	Res	Type
1	A	677	LEU
1	A	682	LEU
1	A	686	THR
1	A	691	HIS
1	A	699	HIS
1	A	701	ASP
1	A	702	ASP
1	A	710	LEU
1	A	711	GLN
1	A	715	LEU
1	A	717	ASP
1	A	722	ARG
1	A	723	GLU
1	A	724	ASN
1	A	727	LEU
1	A	741	HIS
1	A	744	LEU
1	A	750	CYS
1	A	751	THR
1	A	759	GLU
1	A	786	THR
1	A	788	ILE
1	A	790	SER
1	A	808	LEU
1	A	811	LEU
1	A	812	LEU
1	A	813	LEU
1	A	814	THR
1	A	819	LEU
1	A	822	ILE
1	A	827	ILE
1	A	831	ASP
1	A	833	LYS
1	A	839	MET
1	A	852	ILE
1	A	859	GLU
1	A	862	LYS
1	A	883	SER
1	A	896	GLU
1	A	902	LYS
1	A	912	LEU
1	A	914	ASP

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Mol	Chain	Res	Type
1	A	927	VAL
1	B	294	ARG
1	B	301	VAL
1	B	308	TYR
1	B	309	VAL
1	B	313	GLU
1	B	314	GLU
1	B	317	LEU
1	B	318	VAL
1	B	321	PHE
1	B	327	SER
1	B	328	HIS
1	B	333	THR
1	B	346	GLU
1	B	351	LEU
1	B	354	LEU
1	B	363	GLU
1	B	364	ASP
1	B	367	GLU
1	B	374	THR
1	B	377	GLN
1	B	380	LYS
1	B	391	ASP
1	B	405	LEU
1	B	417	HIS
1	B	419	CYS
1	B	546	THR
1	B	547	LEU
1	B	549	ASN
1	B	568	GLN
1	B	571	ARG
1	B	573	HIS
1	B	575	MET
1	B	580	LEU
1	B	594	LEU
1	B	595	ARG
1	B	599	TYR
1	B	611	LEU
1	B	614	LEU
1	B	640	ASP
1	B	643	LYS
1	B	645	ASN

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Mol	Chain	Res	Type
1	B	654	PHE
1	B	656	LEU
1	B	660	ILE
1	B	663	THR
1	B	670	THR
1	B	672	LEU
1	B	677	LEU
1	B	682	LEU
1	B	685	VAL
1	B	688	ILE
1	B	691	HIS
1	B	699	HIS
1	B	702	ASP
1	B	704	ARG
1	B	706	ASP
1	B	708	LEU
1	B	724	ASN
1	B	725	LEU
1	B	741	HIS
1	B	746	TYR
1	B	747	VAL
1	B	748	ASP
1	B	758	ARG
1	B	759	GLU
1	B	777	TYR
1	B	782	GLU
1	B	803	VAL
1	B	812	LEU
1	B	814	THR
1	B	839	MET
1	B	843	LYS
1	B	846	VAL
1	B	855	GLU
1	B	859	GLU
1	B	863	GLN
1	B	866	THR
1	B	869	LEU
1	B	876	ASN
1	B	881	LEU
1	B	889	THR
1	B	898	ASP
1	B	914	ASP

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Mol	Chain	Res	Type
1	B	920	HIS
1	B	923	SER
1	B	924	LEU
1	B	944	THR
1	B	948	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (29) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	298	HIS
1	A	375	HIS
1	A	377	GLN
1	A	403	GLN
1	A	532	ASN
1	A	549	ASN
1	A	573	HIS
1	A	645	ASN
1	A	764	ASN
1	A	807	HIS
1	A	810	ASN
1	A	870	HIS
1	A	922	GLN
1	B	340	ASN
1	B	349	GLN
1	B	403	GLN
1	B	532	ASN
1	B	549	ASN
1	B	568	GLN
1	B	573	HIS
1	B	589	ASN
1	B	711	GLN
1	B	741	HIS
1	B	745	GLN
1	B	807	HIS
1	B	810	ASN
1	B	857	HIS
1	B	876	ASN
1	B	922	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](#)

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

5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

5.6 Ligand geometry [i](#)

2 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	090	A	1949	-	25,29,29	4.30	15 (60%)	30,41,41	1.77	6 (20%)
2	090	B	1950	-	25,29,29	4.52	16 (64%)	30,41,41	1.68	6 (20%)

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	090	A	1949	-	-	1/12/12/12	0/4/4/4
2	090	B	1950	-	-	1/12/12/12	0/4/4/4

All (31) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	1950	090	CAF-NAA	14.63	1.47	1.33

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	1949	090	CAF-NAA	13.55	1.46	1.33
2	B	1950	090	CAE-CAF	8.42	1.52	1.41
2	A	1949	090	CAE-CAF	7.48	1.51	1.41
2	A	1949	090	CAQ-CAP	7.46	1.51	1.39
2	B	1950	090	CAQ-CAP	7.33	1.50	1.39
2	B	1950	090	CAM-NAL	5.62	1.46	1.33
2	A	1949	090	CAM-NAL	5.38	1.45	1.33
2	A	1949	090	CAH-CAB	5.09	1.55	1.36
2	A	1949	090	CAJ-CAK	-4.99	1.36	1.42
2	B	1950	090	CAH-CAB	4.93	1.54	1.36
2	A	1949	090	CAK-NAL	4.26	1.45	1.37
2	B	1950	090	CAO-NAN	3.93	1.47	1.35
2	B	1950	090	CAK-NAL	3.90	1.45	1.37
2	B	1950	090	CAE-CAK	3.65	1.45	1.41
2	B	1950	090	CAB-NAA	3.63	1.54	1.37
2	A	1949	090	CAO-NAN	3.57	1.46	1.35
2	A	1949	090	CAB-NAA	3.39	1.53	1.37
2	B	1950	090	CAJ-CAK	-3.35	1.38	1.42
2	B	1950	090	CAV-CAP	-2.84	1.35	1.39
2	B	1950	090	CAW-CAX	2.83	1.45	1.37
2	A	1949	090	CAW-CAX	2.55	1.45	1.37
2	A	1949	090	CAE-CAK	2.52	1.44	1.41
2	A	1949	090	OAS-CAI	2.38	1.41	1.37
2	B	1950	090	CAD-CAC	2.32	1.41	1.36
2	A	1949	090	CAV-CAP	-2.31	1.35	1.39
2	B	1950	090	OAS-CAI	2.28	1.40	1.37
2	B	1950	090	CAX-NAR	2.27	1.40	1.33
2	A	1949	090	CAP-CAO	2.22	1.55	1.50
2	A	1949	090	CAX-NAR	2.20	1.40	1.33
2	B	1950	090	CAC-CAI	2.06	1.43	1.39

All (12) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	B	1950	090	CAB-CAH-NAG	-5.74	102.27	106.86
2	A	1949	090	CAB-CAH-NAG	-3.92	103.72	106.86
2	A	1949	090	OAS-CAI-CAJ	3.77	120.96	116.44
2	A	1949	090	CAY-OAS-CAI	3.55	122.72	117.51
2	A	1949	090	OAS-CAI-CAC	-3.40	118.56	124.30
2	B	1950	090	CAJ-CAK-CAE	2.95	122.14	119.28
2	A	1949	090	NAN-CAM-NAG	2.67	121.60	116.20
2	B	1950	090	CAV-CAP-CAQ	2.45	120.34	117.61

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	1949	090	CAD-CAE-CAF	-2.36	119.04	122.47
2	B	1950	090	CAZ-OAT-CAJ	2.29	121.06	114.88
2	B	1950	090	NAN-CAM-NAG	2.11	120.47	116.20
2	B	1950	090	CAY-OAS-CAI	2.02	120.47	117.51

There are no chirality outliers.

All (2) torsion outliers are listed below:

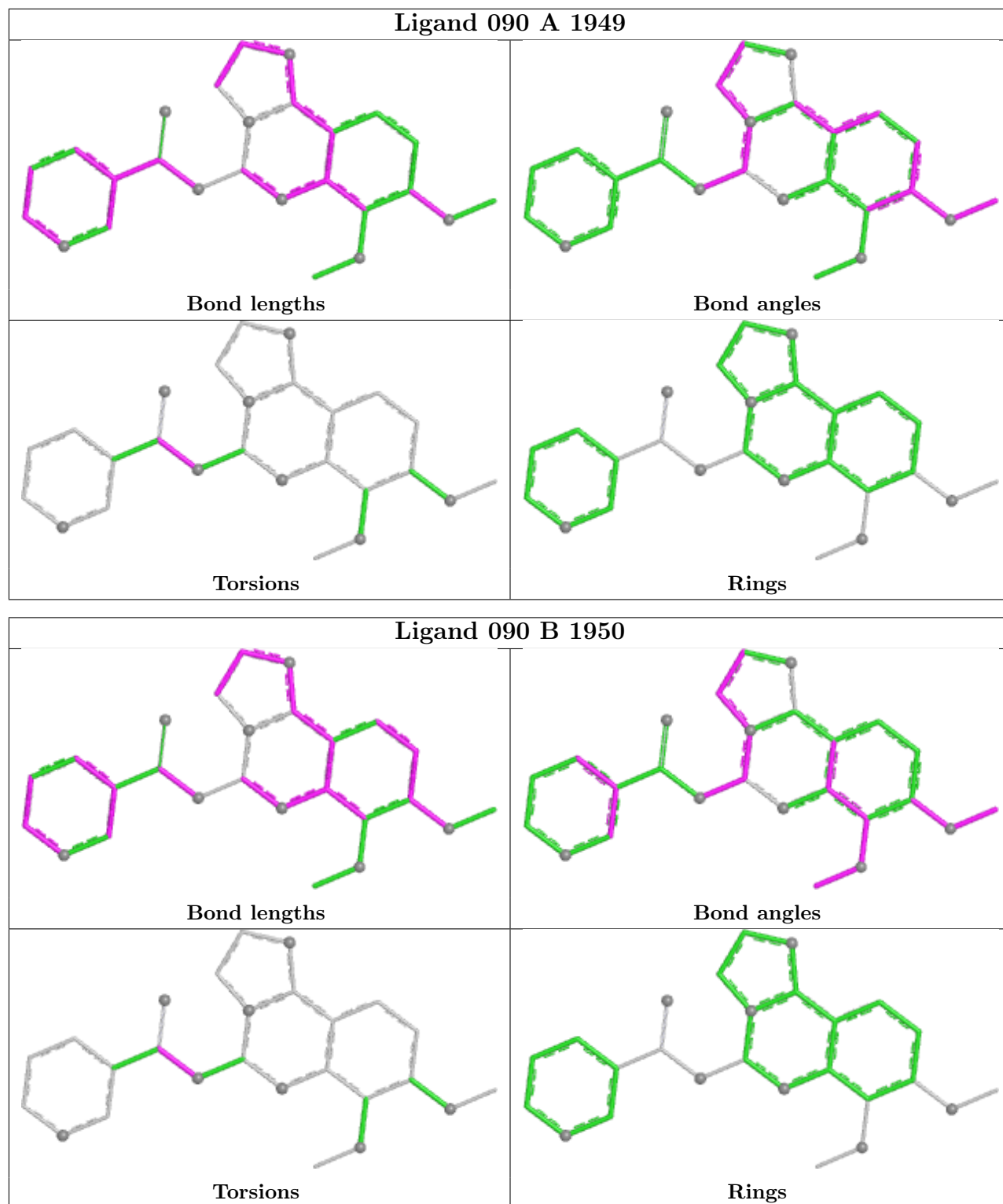
Mol	Chain	Res	Type	Atoms
2	A	1949	090	OAU-CAO-NAN-CAM
2	B	1950	090	CAP-CAO-NAN-CAM

There are no ring outliers.

2 monomers are involved in 13 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	1949	090	3	0
2	B	1950	090	10	0

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



5.7 Other polymers [\(i\)](#)

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

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

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	546/696 (78%)	0.09	6 (1%) 80 79	36, 59, 97, 114	0
1	B	544/696 (78%)	0.23	15 (2%) 53 51	47, 70, 100, 110	0
All	All	1090/1392 (78%)	0.16	21 (1%) 66 65	36, 65, 99, 114	0

All (21) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	302	TYR	5.8
1	B	341	TRP	4.3
1	B	302	TYR	4.1
1	B	324	TYR	3.9
1	B	636	LEU	3.4
1	B	676	ALA	3.4
1	A	341	TRP	3.3
1	A	323	PHE	2.7
1	B	298	HIS	2.6
1	A	344	GLU	2.6
1	B	632	PHE	2.5
1	B	342	LYS	2.5
1	B	347	VAL	2.4
1	B	673	PHE	2.3
1	B	695	ALA	2.3
1	A	347	VAL	2.2
1	A	348	THR	2.2
1	B	699	HIS	2.2
1	B	317	LEU	2.1
1	B	700	GLY	2.1
1	B	615	VAL	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](#)

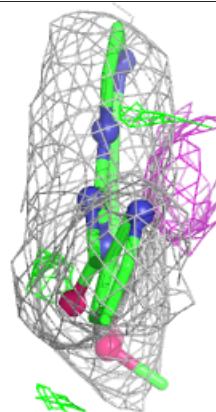
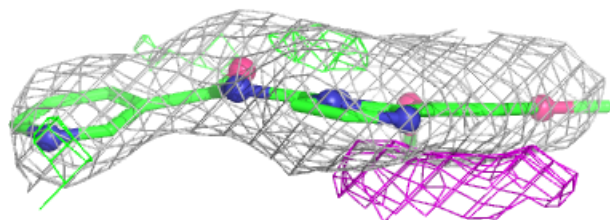
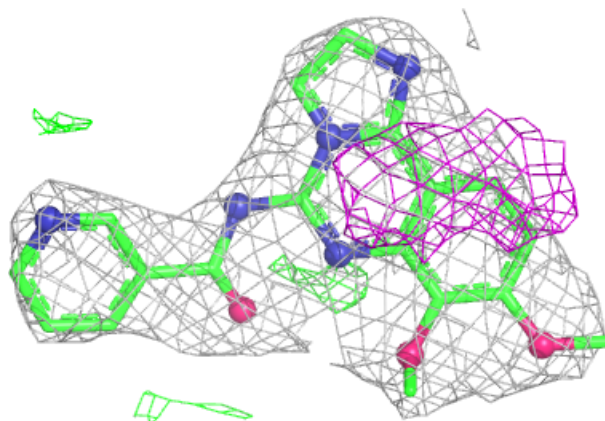
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

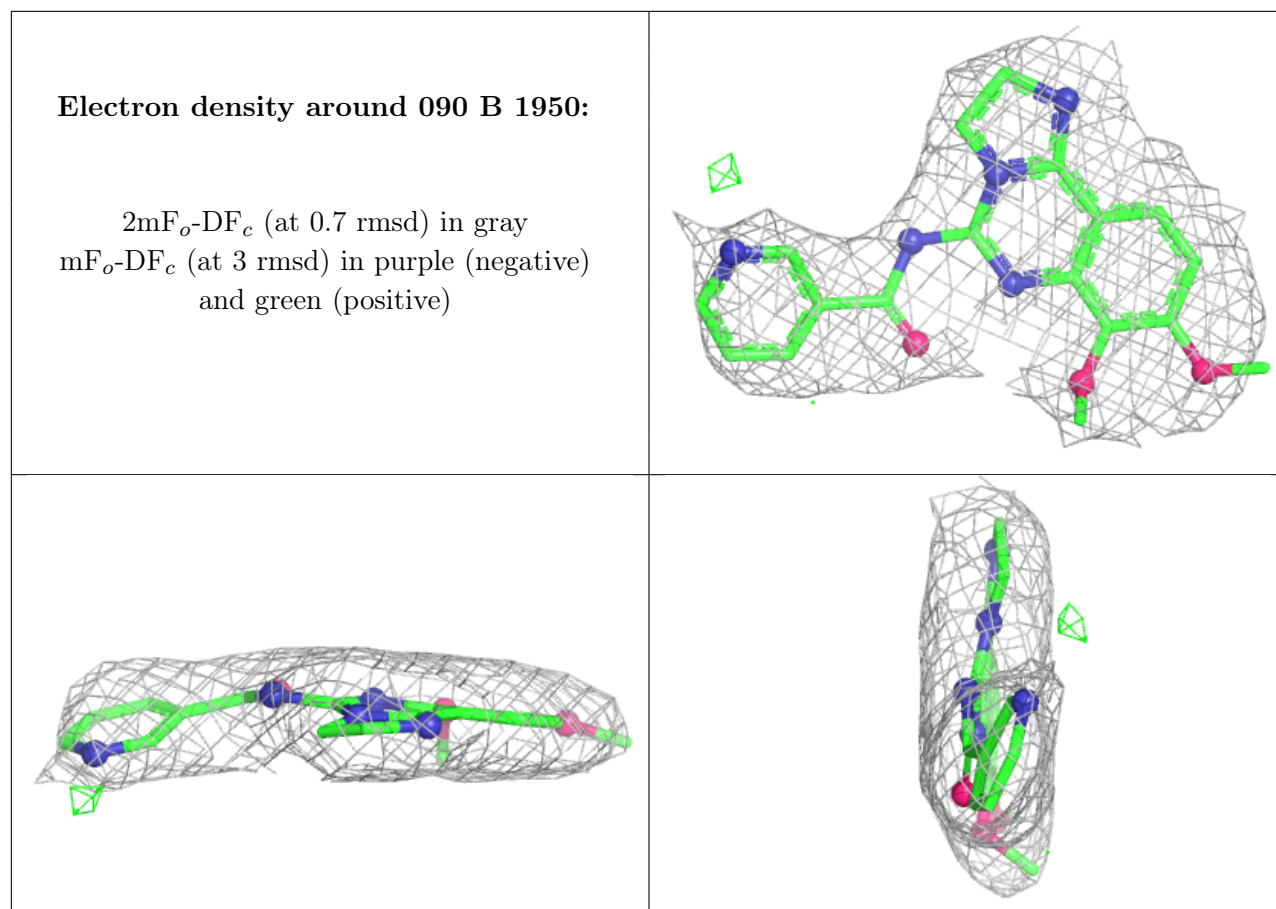
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
2	090	A	1949	26/26	0.91	0.35	69,77,87,88	0
2	090	B	1950	26/26	0.95	0.28	75,80,95,96	0

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 090 A 1949:

$2mF_o-DF_c$ (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.