Full wwPDB X-ray Structure Validation Report (i)

Jun 12, 2024 – 10:38 AM EDT

PDB ID	:	2X6K
Title	:	THE CRYSTAL STRUCTURE OF THE DROSOPHILA CLASS III PI3-KINASE VPS34 IN COMPLEX WITH PI-103
Authors	:	Miller, S.; Tavshanjian, B.; Oleksy, A.; Perisic, O.; Houseman, B.T.; Shokat, K.M.; Williams, R.L.
Deposited on	:	2010-02-17
Resolution	:	3.50 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 (i) 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 (i)) were used in the production of this report:

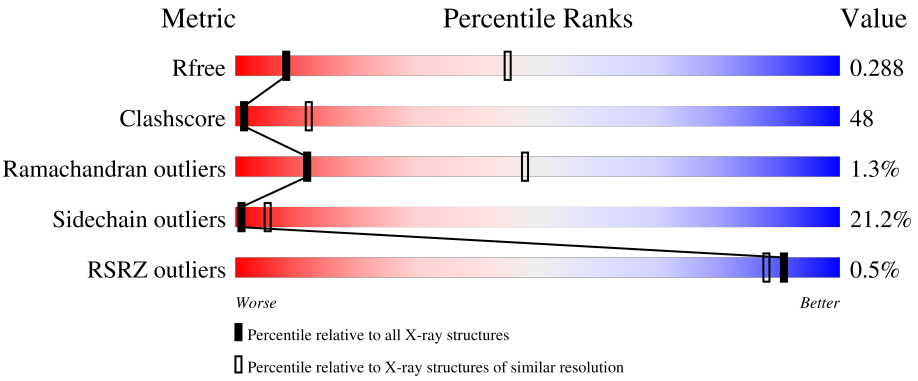
MolProbity	:	4.02b-467
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	1.20.1
EDS	:	2.36.2
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36.2

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 3.50 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	1659 (3.60-3.40)
Clashscore	141614	1036 (3.58-3.42)
Ramachandran outliers	138981	1005 (3.58-3.42)
Sidechain outliers	138945	1006 (3.58-3.42)
RSRZ outliers	127900	1559 (3.60-3.40)

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	696	31% 35% 12% • 21%
1	B	696	33% 35% 10% • 21%

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
3	X6K	B	1950	-	-	X	-

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 9062 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.

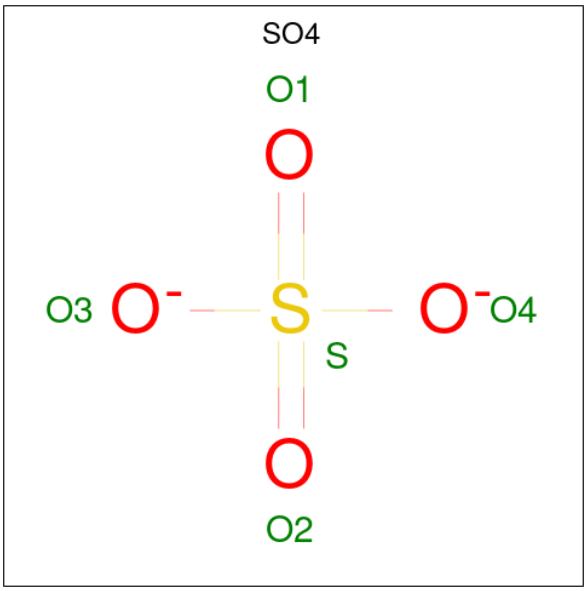
- Molecule 1 is a protein called PHOSPHOTIDYLINOSITOL 3 KINASE 59F.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	550	Total	C	N	O	S	0	0	0
			4497	2906	765	799	27			
1	B	550	Total	C	N	O	S	0	0	0
			4498	2907	766	798	27			

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	455	ALA	GLY	engineered mutation	UNP Q9W1M7
B	455	ALA	GLY	engineered mutation	UNP Q9W1M7

- Molecule 2 is SULFATE ION (three-letter code: SO4) (formula: O_4S).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	O	S	0	0
			5	4	1		

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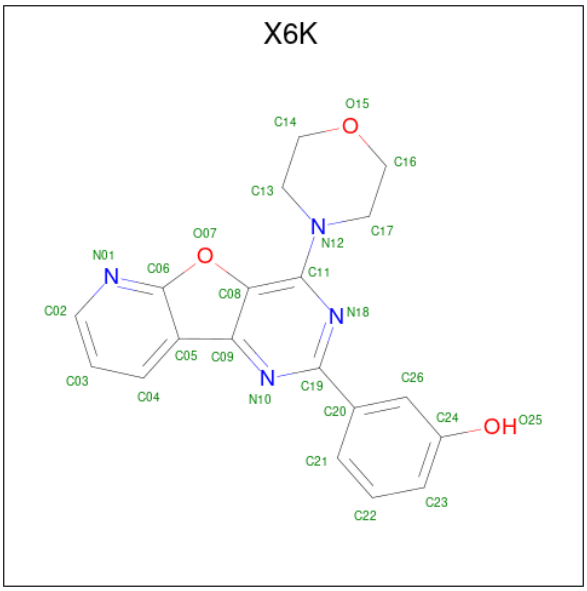
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total O S 5 4 1	0	0
2	B	1	Total O S 5 4 1	0	0

- Molecule 3 is 3-(4-MORPHOLIN-4-YLPYRIDO[3',2':4,5]FURO[3,2-D]PYRIMIDIN-2-YL)PHENOL (three-letter code: X6K) (formula: $C_{19}H_{16}N_4O_3$).



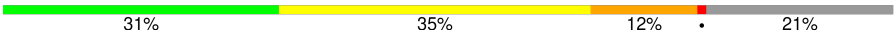
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C N O 26 19 4 3	0	0
3	B	1	Total C N O 26 19 4 3	0	0

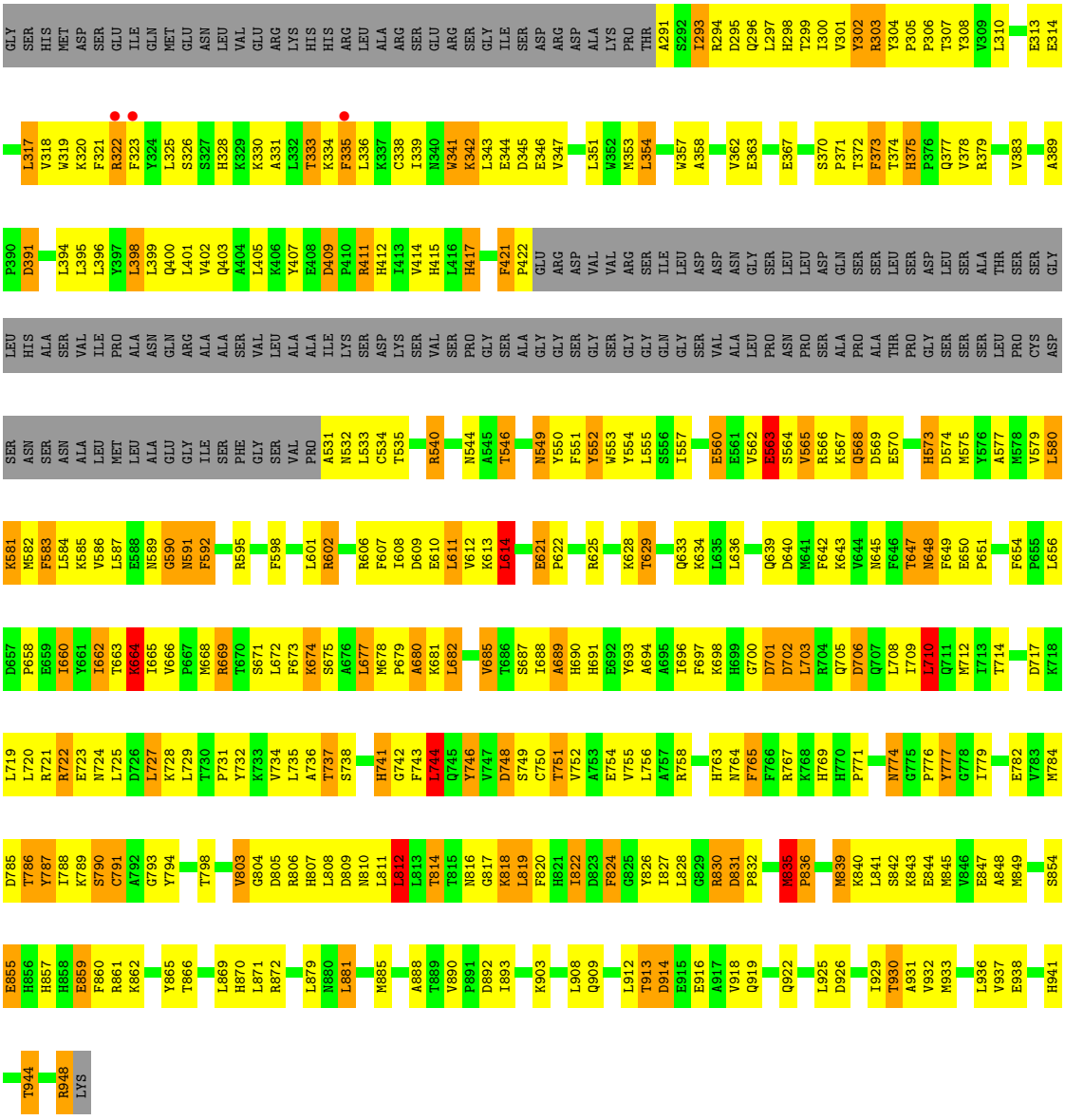
3 Residue-property plots (i)

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

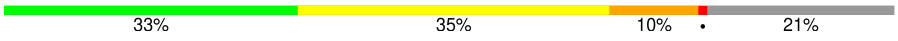
Chain A:

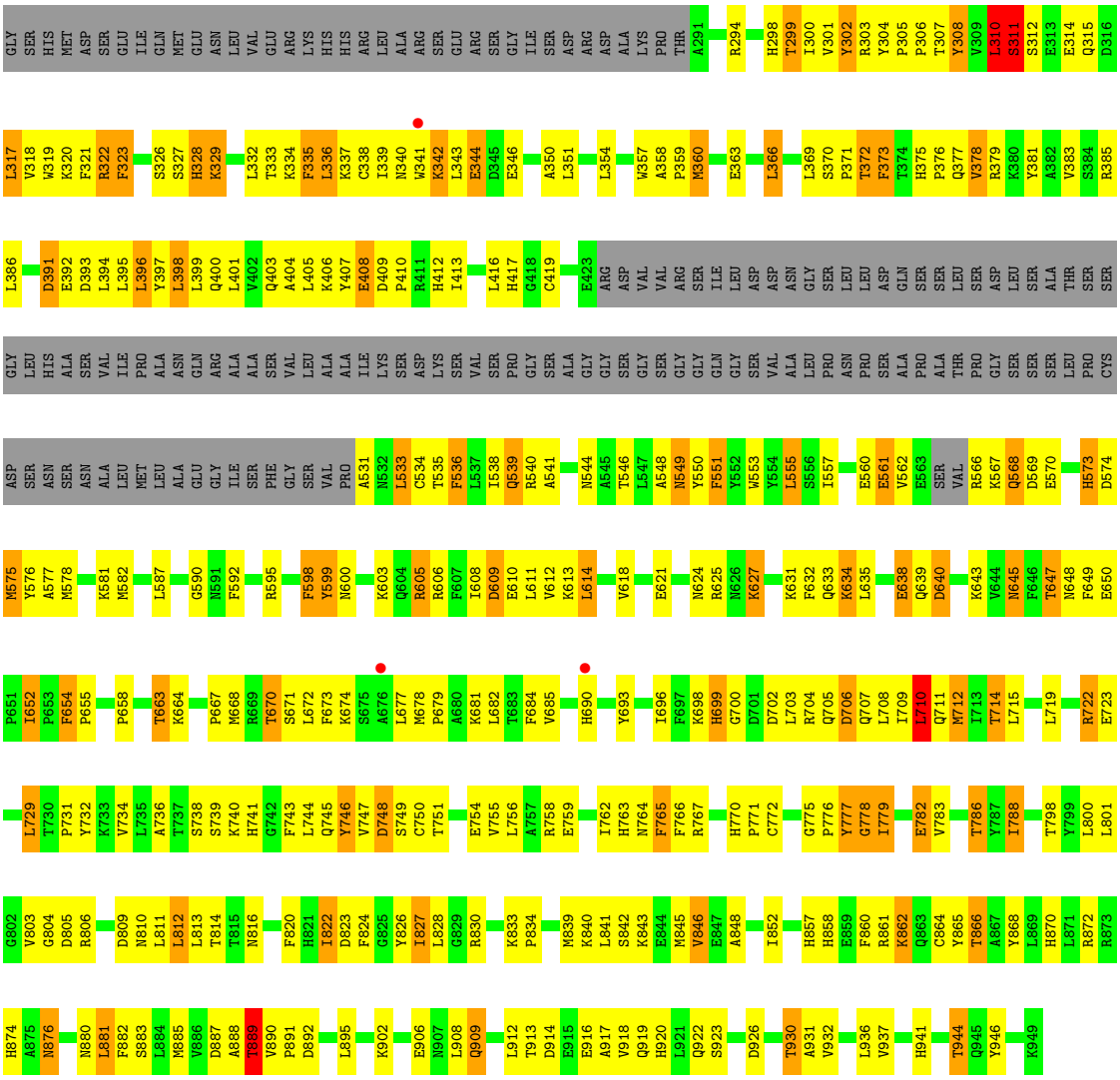




• Molecule 1: PHOSPHOTIDYLINOSITOL 3 KINASE 59F

Chain B:


33%
35%
10%
21%


GLY SER HIS MET ASP SER GLU ILE GLN MET GLU ASN LEU VAL GLU ARG LYS HIS HIS ARG LEU ALA ARG SER GLU ARG SER GLY ILE SER ASP ARG ASP ALA LYS PRO THR A291 R294 H298 T299 I300 V301 Y302 R303 Y304 P305 P306 T307 Y308 V309 L310 S311 S312 E313 E314 Q315 D316
L317 Y318 W319 K320 F321 R322 F323 S326 S327 H328 K329 L332 T333 K334 F335 L336 K337 C338 I339 N340 W341 K342 L343 E344 D345 E346 A350 L351 L354 W357 A358 P359 M360 E363 L366 L369 S370 P371 T372 F373 T374 H375 P376 Q377 V378 R379 K380 Y381 A382 V383 S384 R385
L386 D391 E392 D393 L394 L395 L396 Y397 L398 L399 Q400 L401 V402 Q403 A404 L405 K406 Y407 E408 D409 P410 R411 H412 I413 L416 H417 G418 C419 E423 ARG ASP VAL VAL ARG SER ILE LEU LEU ASP ASP ASN GLY SER LEU LEU ASP GLN SER SER LEU SER ASP LEU SER ALA THR SER SER
GLY LEU HIS ALA SER VAL ILE PRO ALA ASN GLN ARG ALA ALA SER VAL LEU ALA ALA ILE LYS SER ASP LYS SER VAL SER PRO GLY SER ALA GLY GLY SER GLY SER GLY GLY GLN GLY SER VAL ALA LEU PRO ASN PRO SER ALA PRO ALA THR PRO GLY SER SER LEU PRO CYS
ASP SER ASN SER ASN ALA LEU MET LEU ALA GLU GLY ILE SER PHE GLY SER VAL PRO A531 N532 L533 C534 T535 F536 L537 I538 Q539 R540 A541 N544 A545 T546 L547 A548 N549 Y550 F551 Y552 W553 Y554 L555 S556 I557 E560 E561 V562 E563 SER VAL R566 K567 Q568 D569 E570 H573 D574
M575 Y576 A577 M578 K581 M582 L587 G590 N591 F592 R595 F598 Y599 N600 K603 Q604 R605 R606 F607 I608 D609 E610 L611 V612 K613 L614 V618 E621 N624 R625 N626 K627 K631 F632 Q633 K634 L635 E638 Q639 D640 K643 V644 N645 F646 T647 N648 F649 E650
P651 I652 P653 F654 P655 P658 T663 K664 P667 M668 R669 T670 S671 L672 F673 K674 S675 A676 L677 M678 P679 A680 K681 L682 T683 F684 V685 H690 Y693 I696 F697 K698 H699 G700 D701 D702 L703 R704 Q705 D706 Q707 L708 I709 L710 Q711 M712 I713 T714 L715 L719 R722 E723
L729 T730 P731 Y732 K733 V734 L735 A736 T737 S738 S739 K740 H741 G742 F743 L744 Q745 Y746 V747 D748 S749 C750 T751 E754 V755 L756 A757 R758 E759 I762 H763 N764 F765 F766 R767 H770 P771 C772 G775 P776 Y777 G778 I779 E782 V783 T786 Y787 I788 T798 Y799 L800 L801
G802 V803 G804 D805 R806 D809 N810 L811 L812 L813 T814 T815 N816 F820 H821 I822 D823 F824 G825 Y826 I827 L828 G829 R830 K833 P834 M839 K840 L841 S842 K843 E844 M845 V846 E847 A848 I852 H857 H858 E859 F860 R861 K862 Q863 C864 Y865 T866 A867 Y868 L869 H870 L871 R872 R873
H874 A875 N876 N880 L881 F882 S883 L884 M885 V886 D887 A888 T889 V890 P891 D892 L895 K902 E906 N907 L908 Q909 L912 T913 D914 E915 E916 A917 V918 Q919 H920 L921 Q922 S923 D926 T930 A931 V932 L936 V937 H941 T944 Q945 Y946 K949

4 Data and refinement statistics (i)

Property	Value	Source
Space group	I 21 21 21	Depositor
Cell constants a, b, c, α, β, γ	111.44Å 155.68Å 244.00Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	61.74 – 3.50 61.74 – 3.50	Depositor EDS
% Data completeness (in resolution range)	99.5 (61.74-3.50) 99.5 (61.74-3.50)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	2.14 (at 3.49Å)	Xtriage
Refinement program	REFMAC 5.5.0102	Depositor
R, R_{free}	0.235 , 0.296 0.230 , 0.288	Depositor DCC
R_{free} test set	1340 reflections (4.95%)	wwPDB-VP
Wilson B-factor (Å^2)	110.3	Xtriage
Anisotropy	0.093	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 73.3	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	0.93	EDS
Total number of atoms	9062	wwPDB-VP
Average B, all atoms (Å^2)	75.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.73% of the height of the origin peak. No significant pseudotranslation is detected.*

[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: X6K, SO4

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	0.58	1/4607 (0.0%)	0.86	6/6240 (0.1%)
1	B	0.51	1/4607 (0.0%)	0.68	2/6237 (0.0%)
All	All	0.55	2/9214 (0.0%)	0.77	8/12477 (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	7

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	311	SER	CB-OG	10.06	1.55	1.42
1	A	590	GLY	C-O	7.84	1.36	1.23

All (8) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	710	LEU	CA-CB-CG	-7.23	98.68	115.30
1	A	818	LYS	N-CA-C	-6.73	92.82	111.00
1	B	310	LEU	CA-CB-CG	5.44	127.81	115.30
1	A	611	LEU	CA-CB-CG	5.14	127.13	115.30
1	A	744	LEU	CA-CB-CG	5.05	126.91	115.30
1	A	614	LEU	CA-CB-CG	5.03	126.88	115.30
1	A	710	LEU	CA-CB-CG	-5.03	103.74	115.30
1	A	812	LEU	CA-CB-CG	5.01	126.83	115.30

There are no chirality outliers.

All (7) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	589	ASN	Peptide
1	A	590	GLY	Mainchain
1	A	591	ASN	Mainchain
1	A	664	LYS	Peptide
1	A	680	ALA	Peptide
1	A	835	MET	Peptide
1	A	836	PRO	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	4497	0	4533	413	1
1	B	4498	0	4533	453	1
2	A	10	0	0	2	0
2	B	5	0	0	1	0
3	A	26	0	16	3	0
3	B	26	0	16	9	0
All	All	9062	0	9098	863	2

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 48.

All (863) 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:B:664:LYS:CG	1:B:685:VAL:HG21	1.52	1.39
1:A:677:LEU:HD22	1:A:700:GLY:HA3	1.22	1.21
1:A:827:ILE:HG22	1:A:828:LEU:HG	1.25	1.11
1:A:591:ASN:O	1:A:595:ARG:HD3	1.48	1.11
1:B:672:LEU:HD21	1:B:678:MET:HB2	1.27	1.10
1:B:664:LYS:HG3	1:B:685:VAL:HG21	1.33	1.08
1:A:798:THR:HG22	1:A:803:VAL:HG23	1.33	1.07
1:A:806:ARG:HH21	1:A:810:ASN:HB3	1.21	1.04

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:785:ASP:OD2	1:A:789:LYS:HE3	1.58	1.04
1:B:664:LYS:HG2	1:B:685:VAL:HG21	1.12	1.04
1:B:664:LYS:HG2	1:B:685:VAL:CG2	1.87	1.03
1:B:318:VAL:HG12	1:B:322:ARG:HG3	1.41	1.03
1:B:319:TRP:O	1:B:323:PHE:HE2	1.41	1.02
1:B:398:LEU:HA	1:B:401:LEU:CD1	1.90	1.01
1:B:810:ASN:O	1:B:822:ILE:HG22	1.59	1.01
1:B:319:TRP:O	1:B:323:PHE:CE2	2.14	1.00
1:B:342:LYS:HB3	1:B:346:GLU:HG3	1.38	0.99
1:B:323:PHE:H	1:B:323:PHE:HD2	1.03	0.99
1:B:315:GLN:O	1:B:322:ARG:NH2	1.94	0.99
1:B:664:LYS:CG	1:B:685:VAL:CG2	2.40	0.98
1:B:806:ARG:NH1	1:B:823:ASP:O	1.96	0.98
1:B:712:MET:HA	1:B:712:MET:CE	1.94	0.97
1:A:664:LYS:HG3	1:A:685:VAL:CG2	1.92	0.97
1:A:319:TRP:HA	1:A:322:ARG:NE	1.79	0.97
1:B:311:SER:CB	1:B:314:GLU:HB3	1.94	0.97
1:B:664:LYS:H	1:B:685:VAL:HG23	1.28	0.96
1:B:606:ARG:HH12	1:B:643:LYS:HB3	1.28	0.95
1:B:302:TYR:CE2	1:B:303:ARG:HG2	2.01	0.95
1:A:664:LYS:HG3	1:A:685:VAL:HG21	1.46	0.95
1:A:342:LYS:H	1:A:342:LYS:HD2	1.30	0.95
1:B:310:LEU:HD23	1:B:311:SER:HB3	1.49	0.93
1:A:577:ALA:O	1:A:581:LYS:HD2	1.68	0.93
1:A:343:LEU:HB2	1:A:346:GLU:CG	1.99	0.93
1:B:305:PRO:HB3	1:B:308:TYR:CE2	2.05	0.92
1:B:417:HIS:ND1	1:B:578:MET:HB2	1.84	0.92
1:A:855:GLU:H	1:A:855:GLU:CD	1.73	0.92
1:A:318:VAL:O	1:A:322:ARG:HG2	1.69	0.91
1:B:311:SER:OG	1:B:314:GLU:HB3	1.70	0.91
1:A:669:ARG:NH2	2:A:1950:SO4:O1	2.03	0.91
1:B:308:TYR:CD1	1:B:310:LEU:HB3	2.06	0.91
1:A:798:THR:CG2	1:A:803:VAL:HG23	2.01	0.90
1:B:409:ASP:HB3	1:B:412:HIS:CD2	2.06	0.90
1:A:664:LYS:CG	1:A:685:VAL:HG21	2.02	0.90
1:B:398:LEU:HA	1:B:401:LEU:HD12	1.53	0.89
1:B:417:HIS:CE1	1:B:578:MET:HB2	2.07	0.89
1:B:319:TRP:CH2	1:B:346:GLU:OE1	2.26	0.89
1:B:842:SER:OG	1:B:845:MET:SD	2.31	0.89
1:B:633:GLN:NE2	1:B:668:MET:HA	1.88	0.89
1:B:705:GLN:NE2	1:B:824:PHE:O	2.06	0.89

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:756:LEU:HD11	1:A:844:GLU:HG2	1.55	0.89
1:A:806:ARG:NH2	1:A:810:ASN:HB3	1.87	0.89
1:A:591:ASN:O	1:A:595:ARG:CD	2.21	0.88
1:A:400:GLN:HG2	1:A:881:LEU:HD23	1.55	0.88
1:B:739:SER:O	1:B:740:LYS:HG2	1.74	0.88
1:B:782:GLU:O	1:B:786:THR:HG22	1.74	0.88
1:A:843:LYS:HE2	1:A:847:GLU:OE2	1.72	0.87
1:B:729:LEU:H	1:B:729:LEU:HD12	1.36	0.87
1:B:685:VAL:HG12	1:B:690:HIS:CE1	2.09	0.87
1:B:319:TRP:CA	1:B:322:ARG:HE	1.87	0.87
1:A:948:ARG:HH11	1:A:948:ARG:HB3	1.39	0.86
1:B:578:MET:O	1:B:582:MET:HG3	1.76	0.86
1:B:767:ARG:HD3	1:B:778:GLY:HA3	1.54	0.85
1:B:822:ILE:HD11	3:B:1950:X6K:N10	1.91	0.85
1:B:606:ARG:HH12	1:B:643:LYS:CB	1.88	0.85
1:B:677:LEU:HD11	1:B:700:GLY:HA3	1.57	0.85
1:A:602:ARG:NH1	1:A:606:ARG:HD2	1.92	0.85
1:B:335:PHE:HD2	1:B:335:PHE:C	1.79	0.85
3:B:1950:X6K:O07	3:B:1950:X6K:H132	1.77	0.85
1:B:363:GLU:HA	1:B:366:LEU:HD12	1.57	0.84
1:B:534:CYS:O	1:B:538:ILE:HD12	1.78	0.84
1:A:343:LEU:HB2	1:A:346:GLU:HG3	1.58	0.84
1:B:654:PHE:HD1	1:B:655:PRO:HD2	1.43	0.84
1:B:310:LEU:CD2	1:B:311:SER:HB3	2.07	0.84
1:B:681:LYS:NZ	2:B:1951:SO4:O3	2.11	0.83
1:A:728:LYS:HG3	1:A:786:THR:HB	1.61	0.83
1:B:322:ARG:NH2	1:B:338:CYS:SG	2.51	0.83
1:B:685:VAL:CG1	1:B:690:HIS:CE1	2.62	0.83
1:B:335:PHE:C	1:B:335:PHE:CD2	2.51	0.83
1:B:723:GLU:OE2	1:B:874:HIS:NE2	2.12	0.83
1:A:319:TRP:CD1	1:A:323:PHE:CE2	2.66	0.83
1:B:318:VAL:HG12	1:B:322:ARG:CG	2.08	0.82
1:B:305:PRO:CB	1:B:308:TYR:CD2	2.62	0.82
1:B:417:HIS:CE1	1:B:578:MET:CB	2.62	0.82
1:B:712:MET:HA	1:B:712:MET:HE3	1.60	0.82
1:B:766:PHE:HB3	1:B:779:ILE:HG21	1.59	0.82
1:A:830:ARG:HH11	1:A:830:ARG:HG2	1.44	0.82
1:B:766:PHE:HB3	1:B:779:ILE:CG2	2.09	0.82
1:A:798:THR:CG2	1:A:803:VAL:CG2	2.57	0.82
1:B:408:GLU:CB	1:B:409:ASP:HA	2.10	0.81
1:A:319:TRP:CD1	1:A:323:PHE:HE2	1.98	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:794:TYR:O	1:A:798:THR:OG1	1.96	0.81
1:B:305:PRO:HB3	1:B:308:TYR:HE2	1.40	0.81
1:B:876:ASN:N	1:B:876:ASN:HD22	1.78	0.81
1:A:930:THR:HA	1:A:936:LEU:CD1	2.10	0.81
1:B:319:TRP:HD1	1:B:323:PHE:CE2	1.98	0.81
1:A:553:TRP:O	1:A:557:ILE:HG13	1.81	0.80
1:B:308:TYR:HD1	1:B:310:LEU:HB3	1.46	0.80
1:B:398:LEU:HA	1:B:401:LEU:HD13	1.64	0.80
1:A:776:PRO:HD2	1:A:779:ILE:O	1.82	0.80
1:A:326:SER:HB2	1:A:357:TRP:CE2	2.17	0.79
1:A:609:ASP:O	1:A:613:LYS:HG3	1.83	0.79
1:A:741:HIS:ND1	1:A:741:HIS:N	2.31	0.79
1:B:606:ARG:NH1	1:B:643:LYS:HB3	1.96	0.79
1:A:798:THR:HG22	1:A:803:VAL:CG2	2.13	0.79
1:A:677:LEU:HD22	1:A:700:GLY:CA	2.09	0.79
1:A:855:GLU:CD	1:A:855:GLU:N	2.36	0.79
1:B:319:TRP:CD1	1:B:323:PHE:CZ	2.70	0.79
1:A:400:GLN:NE2	1:A:885:MET:SD	2.55	0.78
1:A:835:MET:HB3	1:A:836:PRO:O	1.83	0.78
1:A:735:LEU:HG	1:A:736:ALA:O	1.83	0.78
1:A:830:ARG:HG2	1:A:830:ARG:NH1	1.94	0.78
1:B:326:SER:O	1:B:357:TRP:CE2	2.37	0.78
1:A:565:VAL:HB	1:A:570:GLU:HG2	1.66	0.78
1:B:322:ARG:HH11	1:B:335:PHE:HA	1.48	0.78
1:B:776:PRO:C	1:B:777:TYR:HD2	1.87	0.78
1:A:351:LEU:HD11	1:A:377:GLN:HG2	1.66	0.78
1:B:392:GLU:HG2	1:B:393:ASP:N	1.98	0.78
1:B:667:PRO:O	1:B:670:THR:HG22	1.83	0.78
1:B:777:TYR:HD2	1:B:777:TYR:N	1.82	0.77
1:B:302:TYR:CE2	1:B:303:ARG:CG	2.67	0.77
1:A:723:GLU:OE1	1:A:723:GLU:HA	1.83	0.77
1:B:557:ILE:HD11	1:B:736:ALA:O	1.85	0.77
1:A:582:MET:O	1:A:586:VAL:HG23	1.85	0.77
1:B:305:PRO:CB	1:B:308:TYR:CE2	2.68	0.76
1:A:552:TYR:C	1:A:552:TYR:CD2	2.57	0.76
1:B:360:MET:CE	1:B:381:TYR:HB3	2.15	0.76
1:B:685:VAL:CG1	1:B:690:HIS:HE1	1.97	0.76
1:B:812:LEU:CD2	1:B:822:ILE:HB	2.15	0.76
3:A:1951:X6K:H132	3:A:1951:X6K:O07	1.85	0.75
1:A:341:TRP:HD1	1:A:342:LYS:HZ3	1.34	0.75
1:B:301:VAL:O	1:B:305:PRO:HD2	1.87	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:738:SER:HB3	1:B:741:HIS:CE1	2.21	0.75
1:A:948:ARG:HB3	1:A:948:ARG:NH1	2.01	0.75
1:B:685:VAL:HG11	1:B:690:HIS:HE1	1.51	0.75
1:B:777:TYR:O	1:B:779:ILE:N	2.18	0.75
1:A:814:THR:HG23	1:A:816:ASN:H	1.52	0.75
1:B:409:ASP:HB3	1:B:412:HIS:HD2	1.51	0.75
1:A:827:ILE:CG2	1:A:828:LEU:HG	2.12	0.75
1:B:822:ILE:HD11	3:B:1950:X6K:C09	2.17	0.75
1:A:746:TYR:CE2	1:A:748:ASP:HA	2.22	0.75
1:B:323:PHE:N	1:B:323:PHE:CD2	2.54	0.74
1:A:351:LEU:CD1	1:A:377:GLN:HG2	2.18	0.74
1:A:629:THR:O	1:A:633:GLN:HG3	1.87	0.74
1:A:552:TYR:C	1:A:552:TYR:HD2	1.91	0.74
1:B:704:ARG:NH1	1:B:889:THR:HG21	2.03	0.74
1:B:703:LEU:HB2	1:B:736:ALA:HB2	1.69	0.74
1:A:400:GLN:CG	1:A:881:LEU:HD23	2.18	0.74
1:B:305:PRO:HB2	1:B:308:TYR:HD2	1.52	0.74
1:A:861:ARG:HD3	1:A:865:TYR:OH	1.87	0.74
1:B:319:TRP:HA	1:B:322:ARG:HE	1.52	0.74
1:B:606:ARG:NH1	1:B:643:LYS:CB	2.49	0.73
1:B:664:LYS:HG3	1:B:685:VAL:CG2	2.13	0.73
1:B:734:VAL:HG22	1:B:744:LEU:HD22	1.69	0.73
1:B:876:ASN:HD22	1:B:876:ASN:H	1.34	0.73
1:A:342:LYS:HD2	1:A:342:LYS:N	2.02	0.73
1:B:763:HIS:CE1	1:B:777:TYR:CD1	2.77	0.73
1:B:322:ARG:NH1	1:B:335:PHE:HA	2.03	0.73
1:B:633:GLN:HE22	1:B:668:MET:HA	1.54	0.73
1:B:667:PRO:O	1:B:670:THR:CG2	2.35	0.73
1:A:930:THR:HA	1:A:936:LEU:HD13	1.70	0.73
1:B:765:PHE:C	1:B:765:PHE:CD2	2.62	0.73
1:A:866:THR:O	1:A:870:HIS:HD2	1.71	0.73
1:B:827:ILE:CG2	1:B:828:LEU:HG	2.19	0.73
1:A:357:TRP:HD1	1:A:358:ALA:O	1.72	0.72
1:B:398:LEU:CA	1:B:401:LEU:HD12	2.18	0.72
1:B:729:LEU:HD12	1:B:729:LEU:N	2.03	0.72
1:B:852:ILE:HA	1:B:857:HIS:CD2	2.23	0.72
1:B:803:VAL:CG1	1:B:806:ARG:HD3	2.19	0.72
1:B:322:ARG:CZ	1:B:338:CYS:SG	2.77	0.72
1:A:647:THR:O	1:A:664:LYS:HB3	1.89	0.72
1:B:866:THR:O	1:B:870:HIS:HD2	1.71	0.72
1:A:664:LYS:HG3	1:A:685:VAL:HG22	1.70	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:839:MET:HG2	1:A:925:LEU:CD2	2.20	0.71
1:A:625:ARG:O	1:A:629:THR:HG23	1.90	0.71
1:A:608:ILE:O	1:A:612:VAL:HG23	1.91	0.71
1:B:319:TRP:CD1	1:B:323:PHE:CE2	2.78	0.71
1:B:648:ASN:HA	1:B:664:LYS:HB3	1.72	0.71
1:B:360:MET:HG2	1:B:385:ARG:HG3	1.72	0.71
1:A:648:ASN:HA	1:A:664:LYS:HB3	1.72	0.71
1:B:806:ARG:HH22	1:B:823:ASP:H	1.39	0.71
1:A:798:THR:HG23	1:A:803:VAL:HG21	1.70	0.71
1:B:335:PHE:CD1	1:B:357:TRP:HZ3	2.09	0.71
1:B:777:TYR:N	1:B:777:TYR:CD2	2.56	0.71
1:A:842:SER:OG	1:A:844:GLU:OE1	2.09	0.71
1:B:312:SER:O	1:B:315:GLN:HG2	1.92	0.70
1:B:560:GLU:OE1	1:B:739:SER:HB3	1.90	0.70
1:B:397:TYR:O	1:B:401:LEU:HD12	1.91	0.70
1:B:319:TRP:N	1:B:322:ARG:HE	1.89	0.70
1:B:299:THR:O	1:B:302:TYR:HD2	1.74	0.70
1:B:311:SER:HB2	1:B:314:GLU:HB3	1.74	0.70
1:B:743:PHE:O	1:B:744:LEU:HD23	1.92	0.69
1:B:763:HIS:NE2	1:B:848:ALA:HA	2.07	0.69
1:B:861:ARG:NH2	1:B:926:ASP:OD2	2.24	0.69
1:B:729:LEU:H	1:B:729:LEU:CD1	2.04	0.69
1:A:803:VAL:HG11	1:A:824:PHE:HD1	1.57	0.69
1:A:321:PHE:O	1:A:325:LEU:HD23	1.93	0.69
1:A:743:PHE:C	1:A:744:LEU:HD23	2.13	0.69
1:A:297:LEU:O	1:A:301:VAL:HG23	1.93	0.69
1:A:308:TYR:CD1	1:A:310:LEU:HB3	2.28	0.68
1:A:944:THR:HG23	1:B:931:ALA:O	1.93	0.68
1:B:561:GLU:OE1	1:B:561:GLU:HA	1.93	0.68
1:A:305:PRO:HB3	1:A:308:TYR:CZ	2.28	0.68
1:A:591:ASN:OD1	1:A:592:PHE:N	2.27	0.68
1:B:664:LYS:H	1:B:685:VAL:CG2	2.06	0.68
1:B:664:LYS:O	1:B:685:VAL:HG22	1.93	0.68
1:B:712:MET:HA	1:B:712:MET:HE2	1.74	0.68
1:A:412:HIS:HB3	1:A:531:ALA:N	2.09	0.68
1:A:728:LYS:O	1:A:818:LYS:HD3	1.93	0.68
1:B:930:THR:HG22	1:B:936:LEU:HB3	1.76	0.68
1:A:291:ALA:O	1:A:294:ARG:HG2	1.94	0.67
1:A:343:LEU:HB2	1:A:346:GLU:HG2	1.76	0.67
1:B:329:LYS:H	1:B:329:LYS:HD3	1.59	0.67
1:B:673:PHE:HB2	1:B:679:PRO:HD2	1.76	0.67

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:842:SER:O	1:B:846:VAL:HG23	1.94	0.67
1:A:409:ASP:OD1	1:A:409:ASP:C	2.33	0.67
1:A:314:GLU:O	1:A:318:VAL:HG23	1.94	0.67
1:B:305:PRO:CB	1:B:308:TYR:HD2	2.07	0.67
1:A:819:LEU:HD23	1:A:820:PHE:HA	1.77	0.67
1:B:342:LYS:HB3	1:B:346:GLU:CG	2.22	0.67
1:B:806:ARG:NH2	1:B:810:ASN:HB3	2.09	0.66
1:B:315:GLN:CG	1:B:338:CYS:HB2	2.25	0.66
1:A:830:ARG:HH11	1:A:830:ARG:CG	2.08	0.66
1:A:854:SER:OG	1:A:857:HIS:N	2.28	0.66
1:B:396:LEU:H	1:B:396:LEU:HD12	1.61	0.66
1:A:672:LEU:HD23	1:A:680:ALA:HA	1.77	0.66
1:B:302:TYR:HE2	1:B:303:ARG:CG	2.08	0.66
1:A:737:THR:HG22	1:A:738:SER:O	1.96	0.66
1:B:708:LEU:HD12	1:B:885:MET:CE	2.26	0.66
1:A:375:HIS:HB3	1:A:378:VAL:HG13	1.78	0.66
1:B:573:HIS:C	1:B:573:HIS:CD2	2.69	0.65
1:B:599:TYR:HD2	1:B:599:TYR:O	1.79	0.65
1:B:319:TRP:HA	1:B:322:ARG:NE	2.12	0.65
1:A:319:TRP:NE1	1:A:323:PHE:CE2	2.64	0.65
1:B:308:TYR:CE1	1:B:310:LEU:HB3	2.31	0.65
1:B:398:LEU:CA	1:B:401:LEU:CD1	2.72	0.65
1:A:727:LEU:O	1:A:729:LEU:N	2.29	0.65
1:A:342:LYS:H	1:A:342:LYS:CD	2.01	0.65
1:A:689:ALA:HB3	1:A:691:HIS:CE1	2.32	0.65
1:B:798:THR:HG23	1:B:803:VAL:HB	1.79	0.65
1:A:752:VAL:HG11	1:A:808:LEU:HD12	1.78	0.65
1:B:375:HIS:CD2	1:B:377:GLN:H	2.15	0.65
1:A:930:THR:HA	1:A:936:LEU:HD12	1.78	0.65
1:B:624:ASN:H	1:B:627:LYS:HE2	1.62	0.65
1:A:314:GLU:O	1:A:317:LEU:HG	1.97	0.64
1:A:751:THR:HG23	1:A:754:GLU:HG3	1.79	0.64
1:B:654:PHE:CD1	1:B:655:PRO:HD2	2.29	0.64
1:A:806:ARG:NH2	1:A:822:ILE:O	2.29	0.64
1:A:421:PHE:HB2	1:A:422:PRO:HD3	1.79	0.64
1:A:737:THR:HG21	1:A:741:HIS:CD2	2.32	0.64
1:A:861:ARG:NH2	1:A:926:ASP:OD2	2.30	0.64
1:B:360:MET:HE1	1:B:381:TYR:HB3	1.79	0.64
1:B:722:ARG:HH11	1:B:722:ARG:HB3	1.62	0.64
1:A:737:THR:H	1:A:742:GLY:HA2	1.62	0.64
1:B:696:ILE:O	1:B:743:PHE:HA	1.98	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:784:MET:O	1:A:788:ILE:HG12	1.97	0.64
1:B:343:LEU:HB3	1:B:344:GLU:OE1	1.97	0.64
1:B:765:PHE:CD2	1:B:766:PHE:HD2	2.16	0.64
1:A:819:LEU:HD23	1:A:819:LEU:C	2.18	0.63
1:B:598:PHE:C	1:B:598:PHE:CD2	2.71	0.63
1:A:610:GLU:OE1	1:A:643:LYS:N	2.31	0.63
1:B:375:HIS:CD2	1:B:378:VAL:HG13	2.33	0.63
1:A:664:LYS:CG	1:A:685:VAL:CG2	2.66	0.63
1:B:319:TRP:HH2	1:B:346:GLU:CD	2.01	0.63
1:B:335:PHE:CD1	1:B:357:TRP:CZ3	2.86	0.63
1:B:413:ILE:HD13	1:B:575:MET:HG2	1.80	0.63
1:B:575:MET:SD	1:B:575:MET:C	2.77	0.63
1:A:307:THR:O	1:A:308:TYR:HD2	1.81	0.63
1:A:806:ARG:NH2	1:A:810:ASN:CB	2.61	0.63
1:A:672:LEU:CD2	1:A:680:ALA:HA	2.29	0.62
1:B:709:ILE:HG21	1:B:824:PHE:CD1	2.34	0.62
1:B:319:TRP:HH2	1:B:346:GLU:OE1	1.81	0.62
1:B:654:PHE:HD1	1:B:655:PRO:CD	2.11	0.62
1:A:749:SER:OG	1:A:812:LEU:HD12	1.98	0.62
1:A:347:VAL:O	1:A:351:LEU:HD23	2.00	0.62
1:A:709:ILE:CG1	1:A:827:ILE:HD11	2.30	0.62
1:B:379:ARG:O	1:B:383:VAL:HG23	2.00	0.62
1:B:397:TYR:C	1:B:401:LEU:HD12	2.20	0.62
1:A:373:PHE:H	1:A:373:PHE:HD2	1.48	0.62
1:B:763:HIS:CE1	1:B:777:TYR:HD1	2.16	0.61
1:A:746:TYR:HE2	1:A:748:ASP:CA	2.12	0.61
1:B:373:PHE:N	1:B:373:PHE:CD2	2.67	0.61
1:B:375:HIS:CD2	1:B:377:GLN:N	2.68	0.61
1:B:698:LYS:O	1:B:741:HIS:HA	2.01	0.61
1:A:362:VAL:HG21	1:A:389:ALA:HB2	1.82	0.61
1:A:305:PRO:O	1:A:334:LYS:NZ	2.20	0.61
1:A:294:ARG:HG3	1:A:295:ASP:N	2.16	0.61
1:A:640:ASP:N	1:A:645:ASN:OD1	2.33	0.61
1:B:633:GLN:NE2	1:B:668:MET:CA	2.62	0.61
1:A:765:PHE:HE1	1:A:769:HIS:CD2	2.19	0.61
1:A:798:THR:HG23	1:A:803:VAL:CG2	2.24	0.61
1:B:392:GLU:HG2	1:B:393:ASP:H	1.64	0.61
1:A:776:PRO:HB2	1:A:777:TYR:HD1	1.65	0.60
1:A:922:GLN:NE2	1:B:919:GLN:HB3	2.16	0.60
1:B:698:LYS:HZ2	3:B:1950:X6K:H25	1.49	0.60
1:B:708:LEU:C	1:B:708:LEU:HD23	2.21	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:583:PHE:HD1	1:A:583:PHE:O	1.83	0.60
1:A:746:TYR:HE2	1:A:748:ASP:CB	2.13	0.60
1:B:827:ILE:HG23	1:B:828:LEU:HG	1.84	0.60
1:A:319:TRP:HA	1:A:322:ARG:CZ	2.30	0.60
1:A:645:ASN:O	1:A:648:ASN:O	2.19	0.60
1:B:314:GLU:HA	1:B:317:LEU:HB3	1.81	0.60
1:B:338:CYS:SG	1:B:339:ILE:N	2.75	0.60
1:B:369:LEU:HD11	1:B:386:LEU:HD11	1.82	0.60
1:A:746:TYR:HE2	1:A:748:ASP:HA	1.66	0.60
1:B:416:LEU:C	1:B:582:MET:HE1	2.22	0.60
1:B:618:VAL:HG21	1:B:632:PHE:CD2	2.37	0.60
1:B:302:TYR:CD2	1:B:303:ARG:N	2.70	0.60
1:A:819:LEU:HD23	1:A:820:PHE:CA	2.32	0.60
1:B:406:LYS:NZ	1:B:887:ASP:O	2.33	0.60
1:B:417:HIS:HE1	1:B:578:MET:CB	2.12	0.60
1:B:876:ASN:N	1:B:876:ASN:ND2	2.49	0.60
1:B:373:PHE:N	1:B:373:PHE:HD2	2.00	0.60
1:B:618:VAL:HG11	1:B:632:PHE:HD2	1.67	0.60
1:A:319:TRP:HD1	1:A:323:PHE:CE2	2.19	0.59
1:B:318:VAL:O	1:B:322:ARG:N	2.35	0.59
1:A:776:PRO:CB	1:A:777:TYR:HD1	2.15	0.59
1:A:777:TYR:CD1	1:A:777:TYR:N	2.70	0.59
1:B:305:PRO:HG3	1:B:308:TYR:CE2	2.37	0.59
1:A:573:HIS:C	1:A:573:HIS:CD2	2.74	0.59
1:A:664:LYS:HG2	1:A:685:VAL:HG21	1.84	0.59
1:B:533:LEU:HG	1:B:534:CYS:N	2.16	0.59
1:A:371:PRO:HB3	1:A:407:TYR:CD1	2.37	0.59
1:B:311:SER:OG	1:B:311:SER:O	2.19	0.59
1:B:417:HIS:CE1	1:B:578:MET:HB3	2.37	0.59
1:B:663:THR:OG1	1:B:664:LYS:HG2	2.03	0.59
1:A:746:TYR:C	1:A:746:TYR:CD2	2.76	0.59
1:A:805:ASP:N	1:A:831:ASP:OD2	2.35	0.59
1:B:375:HIS:NE2	1:B:377:GLN:CB	2.65	0.59
1:A:723:GLU:O	1:A:724:ASN:CB	2.48	0.59
1:B:606:ARG:NH1	1:B:643:LYS:HB2	2.18	0.58
1:B:763:HIS:ND1	1:B:777:TYR:HD1	2.01	0.58
1:A:319:TRP:HA	1:A:322:ARG:CD	2.33	0.58
1:A:914:ASP:OD1	1:A:914:ASP:N	2.33	0.58
1:A:663:THR:HG22	1:A:664:LYS:H	1.68	0.58
1:B:578:MET:O	1:B:582:MET:CG	2.51	0.58
1:B:610:GLU:OE1	1:B:643:LYS:N	2.35	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:811:LEU:C	1:A:812:LEU:HD23	2.24	0.58
1:A:922:GLN:HE22	1:B:919:GLN:HB3	1.68	0.58
1:A:930:THR:HG22	1:A:936:LEU:HB3	1.85	0.58
1:B:315:GLN:HG3	1:B:338:CYS:HB2	1.83	0.58
1:B:783:VAL:HG13	1:B:816:ASN:O	2.02	0.58
1:B:743:PHE:C	1:B:744:LEU:HD23	2.23	0.58
1:A:295:ASP:OD1	1:A:296:GLN:N	2.37	0.58
1:B:605:ARG:O	1:B:609:ASP:OD1	2.22	0.58
1:B:746:TYR:C	1:B:746:TYR:CD2	2.77	0.58
1:B:803:VAL:HG12	1:B:806:ARG:HD3	1.84	0.58
1:B:865:TYR:CD1	1:B:918:VAL:HG13	2.38	0.58
1:B:920:HIS:O	1:B:923:SER:HB3	2.03	0.58
1:A:703:LEU:CD1	1:A:744:LEU:HD21	2.34	0.58
1:B:707:GLN:HB3	1:B:734:VAL:HG12	1.85	0.58
1:A:806:ARG:HH21	1:A:810:ASN:CB	2.06	0.57
1:A:827:ILE:N	1:A:892:ASP:OD2	2.37	0.57
1:B:704:ARG:CZ	1:B:889:THR:HG21	2.34	0.57
1:B:765:PHE:C	1:B:765:PHE:HD2	2.05	0.57
1:A:319:TRP:CH2	1:A:346:GLU:OE1	2.57	0.57
1:A:550:TYR:O	1:A:554:TYR:CD2	2.58	0.57
1:B:375:HIS:HD2	1:B:378:VAL:H	1.53	0.57
1:A:341:TRP:CD1	1:A:342:LYS:HA	2.39	0.57
1:B:706:ASP:OD2	3:B:1950:X6K:H22	2.04	0.57
1:B:888:ALA:O	1:B:889:THR:HB	2.04	0.57
1:A:587:LEU:HB3	1:A:598:PHE:HB2	1.86	0.57
1:A:872:ARG:NH2	1:A:912:LEU:O	2.38	0.57
1:B:767:ARG:CD	1:B:778:GLY:HA3	2.30	0.57
1:A:549:ASN:HD22	1:A:550:TYR:N	2.02	0.57
1:B:645:ASN:OD1	1:B:645:ASN:C	2.43	0.57
1:B:891:PRO:O	1:B:895:LEU:HD12	2.04	0.56
1:B:708:LEU:HD12	1:B:885:MET:HE3	1.88	0.56
1:B:763:HIS:HE1	1:B:777:TYR:CD1	2.22	0.56
1:A:552:TYR:CD2	1:A:552:TYR:O	2.57	0.56
1:B:412:HIS:ND1	1:B:531:ALA:HA	2.20	0.56
1:B:677:LEU:HD23	1:B:699:HIS:CE1	2.40	0.56
1:B:772:CYS:N	1:B:778:GLY:O	2.37	0.56
1:B:299:THR:O	1:B:302:TYR:CD2	2.56	0.56
1:B:335:PHE:HD1	1:B:357:TRP:HZ3	1.53	0.56
1:B:909:GLN:HG3	1:B:912:LEU:HG	1.88	0.56
1:A:417:HIS:ND1	1:A:417:HIS:C	2.59	0.56
1:B:319:TRP:HA	1:B:322:ARG:CD	2.36	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:305:PRO:O	1:B:334:LYS:NZ	2.25	0.56
1:A:566:ARG:O	1:A:567:LYS:HG2	2.06	0.56
1:B:889:THR:HG23	1:B:889:THR:O	2.05	0.56
1:A:298:HIS:HE1	1:A:318:VAL:HA	1.71	0.56
1:B:375:HIS:CD2	1:B:378:VAL:H	2.23	0.56
1:B:587:LEU:HB3	1:B:598:PHE:HB2	1.88	0.56
1:A:746:TYR:CE2	1:A:748:ASP:CA	2.89	0.56
1:B:765:PHE:HD2	1:B:766:PHE:N	2.03	0.56
1:A:306:PRO:HG3	1:A:879:LEU:HD13	1.88	0.56
1:B:398:LEU:HD23	1:B:399:LEU:N	2.22	0.55
1:B:712:MET:SD	1:B:882:PHE:HE2	2.28	0.55
1:B:739:SER:O	1:B:740:LYS:CG	2.52	0.55
1:A:373:PHE:N	1:A:373:PHE:CD2	2.73	0.55
1:A:677:LEU:HD12	1:A:677:LEU:H	1.70	0.55
1:A:776:PRO:C	1:A:777:TYR:CD1	2.80	0.55
1:B:405:LEU:HB3	1:B:575:MET:CE	2.36	0.55
1:B:710:LEU:O	1:B:714:THR:OG1	2.25	0.55
1:A:412:HIS:CB	1:A:531:ALA:N	2.69	0.55
1:B:372:THR:HG1	1:B:373:PHE:HD2	1.54	0.55
1:B:377:GLN:HG3	1:B:381:TYR:HE2	1.72	0.55
1:A:862:LYS:O	1:A:866:THR:HG23	2.07	0.55
1:A:703:LEU:N	1:A:703:LEU:HD23	2.22	0.55
1:B:319:TRP:N	1:B:322:ARG:NE	2.55	0.55
1:B:699:HIS:O	1:B:740:LYS:O	2.25	0.55
1:A:591:ASN:CG	1:A:592:PHE:H	2.06	0.55
1:A:804:GLY:O	1:A:805:ASP:HB3	2.06	0.55
1:A:565:VAL:HG12	1:A:569:ASP:HB2	1.89	0.55
1:B:868:TYR:O	1:B:872:ARG:HD3	2.06	0.55
1:A:400:GLN:O	1:A:403:GLN:HB2	2.07	0.55
1:A:948:ARG:HH11	1:A:948:ARG:CB	2.13	0.55
1:A:357:TRP:CD1	1:A:358:ALA:N	2.75	0.54
1:A:302:TYR:HA	1:A:334:LYS:HG3	1.89	0.54
1:A:709:ILE:HG13	1:A:827:ILE:HD11	1.89	0.54
1:A:787:TYR:HE1	1:A:791:CYS:SG	2.30	0.54
1:A:826:TYR:HD1	1:A:830:ARG:HB3	1.72	0.54
1:B:767:ARG:HD3	1:B:778:GLY:CA	2.32	0.54
1:A:562:VAL:C	1:A:564:SER:H	2.10	0.54
1:A:727:LEU:HB2	1:A:729:LEU:HD21	1.89	0.54
1:B:397:TYR:C	1:B:401:LEU:CD1	2.75	0.54
1:B:311:SER:HB2	1:B:314:GLU:CB	2.37	0.54
1:B:762:ILE:O	1:B:765:PHE:HB3	2.08	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:305:PRO:HB3	1:A:308:TYR:CE1	2.42	0.54
1:A:807:HIS:O	1:A:810:ASN:HB2	2.08	0.54
1:A:734:VAL:HG22	1:A:744:LEU:HD22	1.90	0.54
1:A:855:GLU:O	1:A:859:GLU:HB2	2.07	0.54
1:A:710:LEU:O	1:A:714:THR:OG1	2.24	0.54
1:B:614:LEU:O	1:B:618:VAL:HG23	2.08	0.54
1:B:329:LYS:HG2	1:B:359:PRO:O	2.07	0.53
1:A:621:GLU:O	1:A:628:LYS:HE2	2.09	0.53
1:A:673:PHE:HB2	1:A:679:PRO:HD2	1.90	0.53
1:B:338:CYS:O	1:B:341:TRP:HB3	2.08	0.53
1:B:788:ILE:HG13	1:B:860:PHE:HB2	1.90	0.53
1:B:876:ASN:H	1:B:876:ASN:ND2	2.05	0.53
1:A:719:LEU:O	1:A:722:ARG:HB2	2.07	0.53
1:A:765:PHE:CE1	1:A:769:HIS:CD2	2.96	0.53
1:B:335:PHE:HD2	1:B:336:LEU:N	2.06	0.53
1:A:583:PHE:CD1	1:A:583:PHE:C	2.81	0.53
1:A:633:GLN:OE1	1:A:668:MET:SD	2.66	0.53
1:A:808:LEU:H	1:A:808:LEU:HD22	1.73	0.53
1:B:906:GLU:O	1:B:909:GLN:OE1	2.25	0.53
1:A:790:SER:CB	1:A:819:LEU:H	2.22	0.53
1:A:717:ASP:OD1	1:A:721:ARG:NH1	2.30	0.53
1:B:672:LEU:HD21	1:B:678:MET:CB	2.20	0.53
1:A:302:TYR:CE1	1:A:303:ARG:HG3	2.44	0.53
1:A:313:GLU:OE1	1:A:313:GLU:HA	2.08	0.53
1:A:679:PRO:HG3	1:A:698:LYS:HG3	1.89	0.53
1:B:326:SER:HA	1:B:357:TRP:CH2	2.44	0.53
1:A:805:ASP:HB2	1:A:832:PRO:HD3	1.91	0.53
1:B:409:ASP:OD1	1:B:410:PRO:HD2	2.09	0.53
1:B:541:ALA:HB2	1:B:551:PHE:HD2	1.73	0.53
1:B:827:ILE:HG22	1:B:828:LEU:HG	1.90	0.53
1:A:357:TRP:CD1	1:A:358:ALA:O	2.59	0.53
1:A:777:TYR:HD1	1:A:777:TYR:N	2.06	0.53
1:B:334:LYS:O	1:B:337:LYS:HB2	2.09	0.52
1:A:549:ASN:C	1:A:549:ASN:ND2	2.62	0.52
1:B:842:SER:OG	1:B:845:MET:CG	2.57	0.52
1:A:787:TYR:O	1:A:787:TYR:CD1	2.62	0.52
1:B:705:GLN:HB2	1:B:890:VAL:HG13	1.92	0.52
1:B:860:PHE:CE1	1:B:864:CYS:SG	3.02	0.52
1:B:865:TYR:CD1	1:B:918:VAL:CG1	2.92	0.52
1:A:845:MET:O	1:A:848:ALA:HB3	2.10	0.52
1:B:328:HIS:CD2	1:B:329:LYS:HD3	2.44	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:710:LEU:HD22	1:A:732:TYR:O	2.10	0.52
1:B:311:SER:OG	1:B:314:GLU:CB	2.50	0.52
1:B:319:TRP:CD1	1:B:323:PHE:HZ	2.23	0.52
1:B:621:GLU:HB2	1:B:631:LYS:NZ	2.25	0.52
1:B:810:ASN:HA	1:B:822:ILE:CG2	2.40	0.52
1:A:335:PHE:C	1:A:335:PHE:CD2	2.82	0.52
1:A:395:LEU:C	1:A:395:LEU:HD23	2.30	0.52
1:A:814:THR:HG23	1:A:816:ASN:N	2.23	0.52
1:B:319:TRP:CA	1:B:322:ARG:NE	2.66	0.52
1:B:323:PHE:HD2	1:B:323:PHE:N	1.85	0.52
1:A:610:GLU:OE1	1:A:642:PHE:HB3	2.09	0.52
1:A:776:PRO:C	1:A:777:TYR:HD1	2.13	0.52
1:B:673:PHE:HD2	1:B:679:PRO:HB2	1.75	0.52
1:A:320:LYS:HB2	1:A:321:PHE:CD2	2.45	0.52
1:A:649:PHE:HE1	1:A:662:ILE:HG13	1.75	0.52
1:A:614:LEU:C	1:A:614:LEU:HD12	2.30	0.52
1:A:866:THR:O	1:A:870:HIS:CD2	2.58	0.52
1:B:319:TRP:CH2	1:B:346:GLU:CD	2.82	0.52
1:B:326:SER:O	1:B:357:TRP:CZ2	2.62	0.52
1:B:417:HIS:N	1:B:582:MET:HE1	2.25	0.52
1:B:664:LYS:N	1:B:685:VAL:HG23	2.11	0.52
1:B:912:LEU:HD12	1:B:917:ALA:HA	1.92	0.52
1:A:702:ASP:OD2	1:A:702:ASP:C	2.48	0.51
1:A:786:THR:O	1:A:790:SER:OG	2.22	0.51
1:B:319:TRP:HH2	1:B:346:GLU:OE2	1.91	0.51
1:B:375:HIS:NE2	1:B:377:GLN:HB2	2.25	0.51
1:B:888:ALA:O	1:B:889:THR:CB	2.58	0.51
1:A:705:GLN:OE1	1:A:827:ILE:HD12	2.10	0.51
1:A:765:PHE:CE1	1:A:769:HIS:HD2	2.28	0.51
1:B:305:PRO:CG	1:B:308:TYR:CE2	2.93	0.51
1:B:326:SER:O	1:B:357:TRP:NE1	2.42	0.51
1:B:375:HIS:CD2	1:B:375:HIS:C	2.83	0.51
1:A:552:TYR:CD1	1:A:601:LEU:HD22	2.45	0.51
1:A:690:HIS:O	1:A:691:HIS:C	2.47	0.51
1:B:577:ALA:O	1:B:581:LYS:HD3	2.10	0.51
1:A:591:ASN:O	1:A:595:ARG:CG	2.59	0.51
1:B:391:ASP:OD2	1:B:540:ARG:NH2	2.44	0.51
1:B:412:HIS:CG	1:B:531:ALA:HA	2.46	0.51
1:B:746:TYR:HE2	1:B:748:ASP:HA	1.76	0.51
1:B:339:ILE:HD12	1:B:340:ASN:N	2.26	0.51
1:A:560:GLU:O	1:A:560:GLU:HG3	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:719:LEU:O	1:A:723:GLU:HG2	2.11	0.51
1:A:763:HIS:NE2	1:A:848:ALA:O	2.44	0.51
1:B:827:ILE:HB	1:B:892:ASP:OD2	2.11	0.51
1:A:396:LEU:C	1:A:396:LEU:HD23	2.31	0.51
1:A:723:GLU:O	1:A:724:ASN:HB3	2.10	0.51
1:A:339:ILE:O	1:A:342:LYS:HG2	2.11	0.51
1:A:649:PHE:O	1:A:663:THR:HG23	2.11	0.51
1:A:737:THR:HG23	1:A:738:SER:N	2.25	0.51
1:B:913:THR:HG22	1:B:916:GLU:CD	2.31	0.51
1:A:552:TYR:HD2	1:A:552:TYR:O	1.95	0.50
1:A:579:VAL:HA	1:A:582:MET:HE3	1.91	0.50
1:A:764:ASN:ND2	1:A:767:ARG:HH12	2.10	0.50
1:B:573:HIS:HD2	1:B:574:ASP:N	2.08	0.50
1:A:421:PHE:N	1:A:421:PHE:CD1	2.78	0.50
1:B:763:HIS:HD1	1:B:777:TYR:HD1	1.58	0.50
1:A:305:PRO:HB2	1:A:308:TYR:CD2	2.46	0.50
1:A:751:THR:HG23	1:A:754:GLU:CG	2.42	0.50
1:A:826:TYR:HB3	1:A:830:ARG:O	2.11	0.50
1:A:824:PHE:N	1:A:824:PHE:CD2	2.79	0.50
1:A:913:THR:CG2	1:A:916:GLU:CD	2.80	0.50
1:B:536:PHE:C	1:B:536:PHE:CD1	2.85	0.50
1:B:667:PRO:O	1:B:670:THR:HG23	2.12	0.50
1:A:787:TYR:CD1	1:A:787:TYR:C	2.84	0.50
1:A:872:ARG:NH1	1:A:909:GLN:O	2.39	0.50
1:B:749:SER:HB3	1:B:820:PHE:HZ	1.76	0.50
1:B:674:LYS:HG2	3:B:1950:X6K:H03	1.94	0.50
1:A:698:LYS:HZ1	3:A:1951:X6K:C24	2.24	0.50
1:A:765:PHE:C	1:A:765:PHE:CD1	2.84	0.50
1:B:906:GLU:HA	1:B:906:GLU:OE1	2.11	0.50
1:B:360:MET:HG2	1:B:385:ARG:CG	2.41	0.50
1:B:914:ASP:O	1:B:918:VAL:HG23	2.12	0.50
1:A:398:LEU:CD1	1:A:402:VAL:HG23	2.42	0.49
1:A:575:MET:SD	1:A:575:MET:C	2.91	0.49
1:A:665:ILE:HG22	1:A:666:VAL:N	2.25	0.49
1:B:302:TYR:HE2	1:B:303:ARG:HG3	1.76	0.49
1:B:677:LEU:HD23	1:B:699:HIS:HE1	1.77	0.49
1:A:647:THR:O	1:A:664:LYS:CB	2.58	0.49
1:B:712:MET:HE1	1:B:715:LEU:HD13	1.94	0.49
1:B:755:VAL:HG13	1:B:765:PHE:HD1	1.76	0.49
1:A:577:ALA:O	1:A:581:LYS:CD	2.51	0.49
1:B:876:ASN:O	1:B:880:ASN:ND2	2.45	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:315:GLN:C	1:B:322:ARG:NH2	2.65	0.49
1:A:351:LEU:HD11	1:A:377:GLN:CG	2.40	0.49
1:A:885:MET:O	1:A:888:ALA:HB2	2.13	0.49
1:B:610:GLU:OE2	1:B:613:LYS:HD2	2.12	0.49
1:A:563:GLU:HA	1:A:563:GLU:OE1	2.11	0.49
1:A:814:THR:CG2	1:A:816:ASN:HB2	2.41	0.49
1:B:357:TRP:CD1	1:B:358:ALA:N	2.80	0.49
1:A:937:VAL:O	1:A:941:HIS:CD2	2.65	0.49
1:B:318:VAL:C	1:B:322:ARG:HG3	2.33	0.49
1:B:401:LEU:HA	1:B:404:ALA:HB3	1.94	0.49
1:A:303:ARG:C	1:A:304:TYR:HD2	2.16	0.49
1:A:844:GLU:OE1	1:A:844:GLU:N	2.43	0.49
1:A:861:ARG:NH2	1:A:929:ILE:HD12	2.27	0.49
1:A:308:TYR:HD1	1:A:310:LEU:HB3	1.78	0.49
1:B:751:THR:OG1	1:B:809:ASP:HA	2.12	0.49
1:A:803:VAL:HG11	1:A:824:PHE:CD1	2.42	0.49
1:B:377:GLN:O	1:B:381:TYR:HD2	1.96	0.49
1:A:398:LEU:C	1:A:398:LEU:HD12	2.34	0.48
1:A:412:HIS:HB3	1:A:531:ALA:CA	2.44	0.48
1:B:405:LEU:HB3	1:B:575:MET:HE1	1.94	0.48
1:B:541:ALA:O	1:B:548:ALA:HB2	2.14	0.48
1:B:573:HIS:CD2	1:B:574:ASP:N	2.81	0.48
1:B:631:LYS:O	1:B:635:LEU:HD23	2.12	0.48
1:B:756:LEU:HA	1:B:759:GLU:O	2.13	0.48
1:A:640:ASP:CA	1:A:645:ASN:OD1	2.61	0.48
1:A:654:PHE:CE2	1:A:693:TYR:CE1	3.00	0.48
1:A:737:THR:CG2	1:A:738:SER:N	2.76	0.48
1:B:360:MET:CG	1:B:385:ARG:HG3	2.43	0.48
1:B:375:HIS:CG	1:B:376:PRO:HD2	2.48	0.48
1:B:539:GLN:HG2	1:B:540:ARG:N	2.26	0.48
1:B:822:ILE:CD1	3:B:1950:X6K:C09	2.91	0.48
1:B:843:LYS:HA	1:B:932:VAL:CG1	2.43	0.48
1:A:294:ARG:HG3	1:A:295:ASP:H	1.79	0.48
1:A:814:THR:CG2	1:A:816:ASN:N	2.76	0.48
1:A:857:HIS:NE2	1:A:861:ARG:NH1	2.61	0.48
1:B:881:LEU:N	1:B:881:LEU:HD23	2.28	0.48
1:B:913:THR:CG2	1:B:916:GLU:HG3	2.43	0.48
1:A:709:ILE:HG12	1:A:827:ILE:HD11	1.95	0.48
1:B:746:TYR:C	1:B:746:TYR:HD2	2.15	0.48
1:A:295:ASP:O	1:A:299:THR:N	2.46	0.48
1:A:552:TYR:HD1	1:A:601:LEU:HD13	1.78	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:752:VAL:CG1	1:A:808:LEU:HD12	2.41	0.48
1:A:625:ARG:O	1:A:629:THR:CG2	2.59	0.48
1:A:709:ILE:O	1:A:712:MET:HB2	2.12	0.48
1:B:305:PRO:CG	1:B:308:TYR:CD2	2.96	0.48
1:B:336:LEU:HD11	1:B:354:LEU:HB2	1.94	0.48
1:B:614:LEU:HD12	1:B:614:LEU:C	2.34	0.48
1:B:634:LYS:HE3	1:B:638:GLU:OE2	2.13	0.48
1:A:575:MET:O	1:A:579:VAL:HG23	2.13	0.48
1:A:580:LEU:HD22	1:A:584:LEU:CD1	2.43	0.48
1:A:629:THR:HG22	1:A:672:LEU:HD12	1.94	0.48
1:A:703:LEU:CD1	1:A:744:LEU:CD2	2.92	0.48
1:A:811:LEU:N	1:A:811:LEU:HD23	2.28	0.48
1:A:296:GLN:O	1:A:299:THR:HG22	2.14	0.48
1:A:319:TRP:HH2	1:A:346:GLU:OE1	1.96	0.48
1:A:814:THR:HG21	1:A:816:ASN:HB2	1.95	0.48
1:A:819:LEU:HD23	1:A:820:PHE:N	2.27	0.48
1:A:826:TYR:CD1	1:A:830:ARG:HB3	2.49	0.48
1:B:709:ILE:HD12	1:B:801:LEU:HD13	1.95	0.48
1:A:544:ASN:C	1:A:544:ASN:OD1	2.52	0.48
1:A:787:TYR:CE1	1:A:791:CYS:SG	3.06	0.48
1:A:913:THR:HG22	1:A:916:GLU:OE1	2.14	0.48
1:B:332:LEU:HB2	1:B:357:TRP:CE2	2.49	0.48
1:B:843:LYS:CA	1:B:932:VAL:CG1	2.92	0.48
1:A:660:ILE:HG12	1:A:660:ILE:O	2.12	0.47
1:A:777:TYR:HB2	1:A:779:ILE:HD12	1.96	0.47
1:A:843:LYS:N	1:A:932:VAL:CG1	2.77	0.47
1:B:704:ARG:HA	1:B:707:GLN:HG2	1.96	0.47
1:B:810:ASN:C	1:B:822:ILE:HG22	2.33	0.47
1:A:294:ARG:O	1:A:298:HIS:HD2	1.97	0.47
1:A:353:MET:O	1:A:357:TRP:HB2	2.14	0.47
1:A:398:LEU:HD12	1:A:398:LEU:O	2.14	0.47
1:A:649:PHE:CE2	1:A:664:LYS:HA	2.48	0.47
1:B:399:LEU:HD12	1:B:399:LEU:O	2.13	0.47
1:B:776:PRO:C	1:B:777:TYR:CD2	2.78	0.47
1:B:902:LYS:O	1:B:906:GLU:HG2	2.13	0.47
1:A:673:PHE:HE2	1:A:696:ILE:HG12	1.79	0.47
1:A:806:ARG:HA	1:A:810:ASN:HD22	1.80	0.47
1:A:857:HIS:CD2	1:A:857:HIS:C	2.87	0.47
1:B:858:HIS:C	1:B:858:HIS:ND1	2.67	0.47
1:A:391:ASP:OD2	1:A:391:ASP:N	2.47	0.47
1:A:931:ALA:O	1:B:944:THR:OG1	2.26	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:712:MET:SD	1:B:882:PHE:CE2	3.07	0.47
1:A:335:PHE:CD2	1:A:335:PHE:O	2.68	0.47
1:A:814:THR:CG2	1:A:816:ASN:H	2.23	0.47
1:A:354:LEU:HD23	1:A:354:LEU:C	2.35	0.47
1:B:339:ILE:HD13	1:B:350:ALA:CB	2.45	0.47
1:B:710:LEU:HD22	1:B:732:TYR:O	2.15	0.47
1:A:293:ILE:O	1:A:296:GLN:N	2.45	0.47
1:A:551:PHE:CE1	1:A:555:LEU:HD11	2.49	0.47
1:B:332:LEU:HD13	1:B:357:TRP:CD2	2.49	0.47
1:B:708:LEU:HD12	1:B:885:MET:HE2	1.96	0.47
1:A:319:TRP:HD1	1:A:319:TRP:O	1.98	0.47
1:A:839:MET:HG2	1:A:925:LEU:HD23	1.95	0.47
1:B:400:GLN:OE1	1:B:711:GLN:OE1	2.33	0.47
1:A:379:ARG:O	1:A:383:VAL:HG23	2.15	0.46
1:B:417:HIS:HE1	1:B:578:MET:HB3	1.76	0.46
1:A:808:LEU:HD22	1:A:808:LEU:N	2.30	0.46
1:A:830:ARG:HH22	1:A:903:LYS:NZ	2.14	0.46
1:B:391:ASP:OD2	1:B:391:ASP:N	2.48	0.46
1:B:544:ASN:OD1	1:B:544:ASN:C	2.53	0.46
1:B:746:TYR:CE2	1:B:748:ASP:HA	2.49	0.46
1:A:614:LEU:HD21	1:A:636:LEU:HD23	1.98	0.46
1:A:744:LEU:HD23	1:A:744:LEU:N	2.31	0.46
1:A:865:TYR:CD1	1:A:918:VAL:HG13	2.50	0.46
1:B:302:TYR:CE2	1:B:303:ARG:HG3	2.48	0.46
1:A:872:ARG:HH12	1:A:909:GLN:C	2.18	0.46
1:A:913:THR:HG22	1:A:916:GLU:CD	2.36	0.46
1:A:300:ILE:O	1:A:304:TYR:HB2	2.15	0.46
1:A:567:LYS:HG3	1:A:568:GLN:H	1.80	0.46
1:B:363:GLU:HA	1:B:366:LEU:CD1	2.35	0.46
1:A:583:PHE:O	1:A:583:PHE:CD1	2.65	0.46
1:A:664:LYS:O	1:A:685:VAL:HG22	2.15	0.46
1:A:774:ASN:OD1	1:A:774:ASN:N	2.48	0.46
1:B:417:HIS:ND1	1:B:578:MET:CB	2.66	0.46
1:B:332:LEU:HB2	1:B:357:TRP:CD1	2.51	0.46
1:B:357:TRP:HD1	1:B:358:ALA:O	1.99	0.46
1:B:698:LYS:NZ	3:B:1950:X6K:O25	2.26	0.46
1:A:318:VAL:O	1:A:322:ARG:CG	2.52	0.46
1:B:800:LEU:HD13	1:B:908:LEU:HD21	1.97	0.46
1:B:813:LEU:HD12	1:B:813:LEU:HA	1.80	0.46
1:B:826:TYR:HB3	1:B:830:ARG:O	2.16	0.46
1:A:708:LEU:HD23	1:A:708:LEU:C	2.36	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:727:LEU:HD12	1:A:793:GLY:CA	2.46	0.46
1:A:763:HIS:O	1:A:767:ARG:HB2	2.16	0.46
1:A:330:LYS:O	1:A:333:THR:HG23	2.16	0.45
1:A:583:PHE:CE1	1:A:587:LEU:HD11	2.51	0.45
1:A:746:TYR:C	1:A:746:TYR:HD2	2.19	0.45
1:B:371:PRO:HB3	1:B:407:TYR:CD2	2.51	0.45
1:B:755:VAL:HG13	1:B:765:PHE:CD1	2.50	0.45
1:A:398:LEU:HD12	1:A:402:VAL:HG23	1.99	0.45
1:A:737:THR:CG2	1:A:741:HIS:CD2	2.98	0.45
1:A:755:VAL:CG1	1:A:765:PHE:CD2	2.99	0.45
1:B:541:ALA:CB	1:B:551:PHE:HD2	2.29	0.45
1:A:865:TYR:O	1:A:869:LEU:HG	2.17	0.45
1:B:405:LEU:HD23	1:B:533:LEU:HD11	1.96	0.45
1:B:674:LYS:HD3	3:B:1950:X6K:H03	1.98	0.45
1:B:779:ILE:H	1:B:779:ILE:HG12	1.32	0.45
1:A:331:ALA:HB3	1:A:357:TRP:HZ2	1.81	0.45
1:A:682:LEU:CD1	1:A:682:LEU:N	2.80	0.45
1:B:305:PRO:HG3	1:B:308:TYR:CD2	2.52	0.45
1:B:308:TYR:CE1	1:B:310:LEU:HD22	2.51	0.45
1:B:823:ASP:OD1	1:B:823:ASP:C	2.55	0.45
1:A:798:THR:HA	1:A:803:VAL:CG2	2.46	0.45
1:B:567:LYS:HG3	1:B:568:GLN:H	1.80	0.45
1:B:624:ASN:OD1	1:B:625:ARG:N	2.49	0.45
1:B:803:VAL:O	1:B:840:LYS:NZ	2.50	0.45
1:B:560:GLU:OE1	1:B:739:SER:CB	2.61	0.45
1:A:544:ASN:OD1	1:A:546:THR:N	2.50	0.45
1:A:727:LEU:HB2	1:A:729:LEU:CD2	2.47	0.45
1:B:639:GLN:O	1:B:640:ASP:CB	2.65	0.45
1:B:908:LEU:HD23	1:B:908:LEU:HA	1.74	0.45
1:B:300:ILE:O	1:B:304:TYR:HB2	2.17	0.45
1:B:342:LYS:CB	1:B:346:GLU:HG3	2.29	0.45
1:B:722:ARG:HB3	1:B:722:ARG:NH1	2.30	0.45
1:B:319:TRP:O	1:B:323:PHE:CD2	2.67	0.44
1:B:598:PHE:HD2	1:B:599:TYR:N	2.15	0.44
1:A:614:LEU:HD12	1:A:614:LEU:O	2.17	0.44
1:A:675:SER:HA	2:A:1949:SO4:O1	2.17	0.44
1:B:862:LYS:O	1:B:866:THR:HG22	2.18	0.44
1:A:326:SER:HB2	1:A:357:TRP:CD2	2.52	0.44
1:A:807:HIS:CD2	1:A:809:ASP:HB2	2.52	0.44
1:A:861:ARG:O	1:A:865:TYR:CD2	2.71	0.44
1:A:948:ARG:HD2	1:A:948:ARG:C	2.38	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:674:LYS:H	1:A:674:LYS:HG2	1.56	0.44
1:A:723:GLU:OE1	1:A:723:GLU:CA	2.58	0.44
1:A:830:ARG:HA	1:A:830:ARG:HD3	1.81	0.44
1:B:804:GLY:O	1:B:805:ASP:HB3	2.16	0.44
1:B:392:GLU:O	1:B:396:LEU:HD12	2.18	0.44
1:B:605:ARG:HA	1:B:605:ARG:HD3	1.82	0.44
1:B:751:THR:HG23	1:B:754:GLU:CB	2.47	0.44
1:A:398:LEU:O	1:A:401:LEU:N	2.51	0.44
1:B:319:TRP:HD1	1:B:323:PHE:HE2	1.58	0.44
1:B:765:PHE:HD2	1:B:766:PHE:HD2	1.64	0.44
1:B:843:LYS:N	1:B:932:VAL:HG11	2.33	0.44
1:B:305:PRO:HB3	1:B:308:TYR:CD2	2.36	0.44
1:B:395:LEU:O	1:B:398:LEU:HB3	2.18	0.44
1:B:392:GLU:CG	1:B:393:ASP:N	2.73	0.44
1:B:865:TYR:HB3	1:B:918:VAL:HG13	2.00	0.44
1:A:343:LEU:O	1:A:347:VAL:HG23	2.18	0.44
1:A:533:LEU:HD23	1:A:534:CYS:N	2.33	0.44
1:A:585:LYS:HD2	1:A:585:LYS:HA	1.70	0.44
1:B:318:VAL:CG1	1:B:322:ARG:HG3	2.29	0.44
1:B:335:PHE:HD1	1:B:357:TRP:CZ3	2.30	0.44
1:A:776:PRO:CB	1:A:777:TYR:CD1	2.99	0.43
1:A:922:GLN:OE1	1:B:922:GLN:OE1	2.35	0.43
1:B:549:ASN:ND2	1:B:550:TYR:N	2.65	0.43
1:B:603:LYS:HB3	1:B:652:ILE:HD11	2.00	0.43
1:B:702:ASP:OD2	1:B:704:ARG:HB2	2.18	0.43
1:B:712:MET:HE2	1:B:712:MET:CA	2.44	0.43
1:A:398:LEU:O	1:A:399:LEU:C	2.56	0.43
1:A:566:ARG:HB2	1:A:567:LYS:HE3	1.99	0.43
1:B:403:GLN:NE2	1:B:888:ALA:HA	2.34	0.43
1:B:608:ILE:O	1:B:612:VAL:HG23	2.19	0.43
1:B:684:PHE:HB2	1:B:693:TYR:O	2.18	0.43
1:B:866:THR:O	1:B:870:HIS:CD2	2.61	0.43
1:A:763:HIS:CE1	1:A:777:TYR:CD2	3.06	0.43
1:B:314:GLU:HG3	1:B:314:GLU:O	2.18	0.43
1:B:664:LYS:N	1:B:685:VAL:CG2	2.78	0.43
1:B:767:ARG:HG2	1:B:778:GLY:HA3	2.01	0.43
1:B:777:TYR:O	1:B:778:GLY:C	2.56	0.43
1:A:409:ASP:OD1	1:A:411:ARG:N	2.51	0.43
1:A:701:ASP:OD2	1:A:702:ASP:N	2.52	0.43
1:A:728:LYS:CG	1:A:786:THR:HB	2.40	0.43
1:A:822:ILE:HD11	3:A:1951:X6K:H162	1.99	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:332:LEU:O	1:B:336:LEU:HD22	2.17	0.43
1:A:351:LEU:HD12	1:A:377:GLN:HG2	1.96	0.43
1:A:743:PHE:O	1:A:744:LEU:HD23	2.19	0.43
1:A:820:PHE:N	1:A:820:PHE:CD2	2.86	0.43
1:A:341:TRP:CD1	1:A:342:LYS:N	2.86	0.43
1:A:591:ASN:CG	1:A:592:PHE:N	2.72	0.43
1:B:621:GLU:HB2	1:B:631:LYS:HZ3	1.83	0.43
1:B:732:TYR:HB2	1:B:745:GLN:HB3	2.00	0.43
1:A:363:GLU:H	1:A:363:GLU:CD	2.20	0.43
1:A:398:LEU:HA	1:A:401:LEU:HG	2.00	0.43
1:A:403:GLN:HG3	1:A:885:MET:SD	2.59	0.43
1:A:656:LEU:HA	1:A:656:LEU:HD23	1.66	0.43
1:A:842:SER:HB3	1:A:845:MET:SD	2.59	0.43
1:B:913:THR:HG23	1:B:916:GLU:HG3	2.00	0.43
1:A:861:ARG:O	1:A:865:TYR:CE2	2.71	0.43
1:B:310:LEU:HD23	1:B:311:SER:CB	2.34	0.43
1:B:751:THR:HG23	1:B:754:GLU:HB2	2.01	0.43
1:B:770:HIS:O	1:B:779:ILE:HA	2.19	0.43
1:B:858:HIS:HE1	1:B:862:LYS:NZ	2.16	0.43
1:A:294:ARG:HH11	1:A:321:PHE:HE1	1.66	0.43
1:B:751:THR:HA	1:B:812:LEU:CD1	2.49	0.43
1:B:912:LEU:HB3	1:B:916:GLU:HB2	2.00	0.43
1:A:395:LEU:HD23	1:A:395:LEU:O	2.19	0.42
1:B:329:LYS:O	1:B:332:LEU:HB3	2.18	0.42
1:B:360:MET:HE2	1:B:381:TYR:HB3	1.98	0.42
1:A:663:THR:O	1:A:664:LYS:O	2.37	0.42
1:A:720:LEU:HD23	1:A:720:LEU:N	2.34	0.42
1:B:553:TRP:O	1:B:557:ILE:HG13	2.20	0.42
1:B:599:TYR:HD2	1:B:599:TYR:C	2.22	0.42
1:B:648:ASN:OD1	1:B:649:PHE:N	2.52	0.42
1:A:682:LEU:O	1:A:694:ALA:HB1	2.19	0.42
1:B:310:LEU:CG	1:B:311:SER:HB3	2.49	0.42
1:B:381:TYR:O	1:B:385:ARG:HG2	2.18	0.42
1:A:621:GLU:HA	1:A:622:PRO:HD3	1.84	0.42
1:A:696:ILE:CG2	1:A:697:PHE:N	2.83	0.42
1:A:845:MET:O	1:A:849:MET:HG3	2.20	0.42
1:A:299:THR:O	1:A:303:ARG:HB2	2.19	0.42
1:A:326:SER:HB2	1:A:357:TRP:CZ2	2.53	0.42
1:B:416:LEU:HB3	1:B:582:MET:HE1	2.02	0.42
1:A:654:PHE:HE2	1:A:693:TYR:HE1	1.67	0.42
1:A:708:LEU:HD23	1:A:708:LEU:O	2.20	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:306:PRO:CG	1:A:879:LEU:HD13	2.49	0.42
1:A:666:VAL:HB	1:A:669:ARG:HB2	2.00	0.42
1:B:763:HIS:HE1	1:B:777:TYR:CE1	2.37	0.42
1:A:305:PRO:HB3	1:A:308:TYR:CE2	2.55	0.42
1:A:341:TRP:CD1	1:A:342:LYS:CA	3.03	0.42
1:A:807:HIS:H	1:A:810:ASN:HB2	1.84	0.42
1:B:294:ARG:O	1:B:298:HIS:HD2	2.02	0.42
1:B:332:LEU:HB2	1:B:357:TRP:NE1	2.35	0.42
1:B:764:ASN:HA	1:B:767:ARG:NH1	2.35	0.42
1:B:398:LEU:N	1:B:401:LEU:CD1	2.83	0.42
1:B:549:ASN:ND2	1:B:658:PRO:CG	2.83	0.42
1:B:551:PHE:CE1	1:B:555:LEU:HG	2.54	0.42
1:B:575:MET:SD	1:B:576:TYR:N	2.93	0.42
1:A:362:VAL:CG2	1:A:389:ALA:HB2	2.47	0.41
1:A:835:MET:C	1:A:836:PRO:O	2.58	0.41
1:A:835:MET:HA	1:A:836:PRO:HD3	1.94	0.41
1:B:645:ASN:OD1	1:B:647:THR:HG23	2.20	0.41
1:B:845:MET:O	1:B:848:ALA:HB3	2.20	0.41
1:A:567:LYS:CG	1:A:568:GLN:H	2.33	0.41
1:A:727:LEU:HD23	1:A:727:LEU:N	2.35	0.41
1:B:590:GLY:O	1:B:595:ARG:NE	2.53	0.41
1:A:580:LEU:HD22	1:A:584:LEU:HD11	2.02	0.41
1:B:549:ASN:CG	1:B:658:PRO:HG3	2.40	0.41
1:A:394:LEU:HD23	1:A:540:ARG:HH11	1.85	0.41
1:A:400:GLN:OE1	1:A:881:LEU:HD23	2.20	0.41
1:A:871:LEU:HD23	1:A:871:LEU:HA	1.97	0.41
1:B:311:SER:OG	1:B:314:GLU:HG2	2.20	0.41
1:B:777:TYR:C	1:B:779:ILE:N	2.74	0.41
1:B:811:LEU:HD12	1:B:845:MET:SD	2.60	0.41
1:A:671:SER:O	1:A:672:LEU:HD23	2.20	0.41
1:A:681:LYS:C	1:A:682:LEU:HD12	2.41	0.41
1:A:705:GLN:HB2	1:A:890:VAL:HG13	2.02	0.41
1:A:727:LEU:HD12	1:A:793:GLY:HA3	2.03	0.41
1:A:755:VAL:HG11	1:A:765:PHE:HD2	1.85	0.41
1:B:569:ASP:OD1	1:B:570:GLU:N	2.54	0.41
1:A:755:VAL:HG11	1:A:765:PHE:CD2	2.56	0.41
1:A:765:PHE:CD1	1:A:765:PHE:O	2.73	0.41
1:A:930:THR:CG2	1:A:936:LEU:HD13	2.51	0.41
1:B:375:HIS:NE2	1:B:377:GLN:HB3	2.35	0.41
1:B:833:LYS:HB3	1:B:834:PRO:CD	2.50	0.41
1:B:303:ARG:HB2	1:B:304:TYR:HD2	1.85	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:775:GLY:O	1:B:776:PRO:C	2.58	0.41
1:A:843:LYS:CE	1:A:847:GLU:OE2	2.56	0.41
1:A:937:VAL:O	1:A:941:HIS:HD2	2.02	0.41
1:A:375:HIS:O	1:A:378:VAL:HG22	2.21	0.41
1:A:933:MET:HB2	1:A:936:LEU:HD12	2.02	0.41
1:B:299:THR:O	1:B:303:ARG:HG3	2.21	0.41
1:B:315:GLN:HB2	1:B:338:CYS:CB	2.51	0.41
1:B:329:LYS:HE3	1:B:329:LYS:HB2	1.82	0.41
1:B:649:PHE:CG	1:B:650:GLU:N	2.89	0.41
1:B:708:LEU:CD1	1:B:885:MET:HG3	2.51	0.41
1:B:812:LEU:HD21	1:B:822:ILE:HB	1.98	0.41
1:B:833:LYS:HB3	1:B:834:PRO:HD2	2.03	0.41
1:B:314:GLU:O	1:B:317:LEU:HB3	2.21	0.41
1:B:336:LEU:HD11	1:B:354:LEU:HD12	2.03	0.41
1:B:551:PHE:C	1:B:551:PHE:CD1	2.95	0.41
1:B:555:LEU:HD22	1:B:555:LEU:HA	1.92	0.41
1:A:607:PHE:CD1	1:A:607:PHE:C	2.95	0.40
1:B:315:GLN:HB2	1:B:338:CYS:HB2	2.04	0.40
1:B:566:ARG:O	1:B:570:GLU:OE2	2.39	0.40
1:A:405:LEU:HD23	1:A:533:LEU:CD2	2.50	0.40
1:A:662:ILE:H	1:A:662:ILE:HG12	1.71	0.40
1:B:403:GLN:NE2	1:B:406:LYS:HE3	2.36	0.40
1:B:416:LEU:HD22	1:B:535:THR:HG22	2.03	0.40
1:A:533:LEU:HD23	1:A:533:LEU:C	2.41	0.40
1:A:706:ASP:O	1:A:710:LEU:HD12	2.21	0.40
1:A:724:ASN:O	1:A:724:ASN:ND2	2.54	0.40
1:A:776:PRO:HB2	1:A:777:TYR:CD1	2.50	0.40
1:A:861:ARG:HH22	1:A:929:ILE:HD12	1.86	0.40
1:B:567:LYS:HG3	1:B:568:GLN:N	2.37	0.40
1:A:549:ASN:CG	1:A:658:PRO:HG3	2.42	0.40
1:A:650:GLU:HA	1:A:651:PRO:HD3	1.94	0.40
1:A:814:THR:HG22	1:A:817:GLY:N	2.36	0.40
1:A:400:GLN:CD	1:A:881:LEU:HD23	2.42	0.40
1:B:332:LEU:HD13	1:B:357:TRP:CG	2.56	0.40
1:B:678:MET:HA	1:B:679:PRO:HD3	1.72	0.40

All (2) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:391:ASP:OD2	1:A:724:ASN:OD1[6_555]	1.87	0.33

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:600:ASN:ND2	1:B:782:GLU:OE2[8_565]	2.11	0.09

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	546/696 (78%)	507 (93%)	34 (6%)	5 (1%)	17 56
1	B	544/696 (78%)	519 (95%)	16 (3%)	9 (2%)	9 42
All	All	1090/1392 (78%)	1026 (94%)	50 (5%)	14 (1%)	12 48

All (14) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	664	LYS
1	A	731	PRO
1	B	408	GLU
1	B	778	GLY
1	A	563	GLU
1	B	889	THR
1	A	689	ALA
1	B	640	ASP
1	B	946	TYR
1	A	771	PRO
1	B	592	PHE
1	B	771	PRO
1	B	306	PRO
1	B	731	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	495/612 (81%)	382 (77%)	113 (23%)	1 4
1	B	494/612 (81%)	397 (80%)	97 (20%)	1 7
All	All	989/1224 (81%)	779 (79%)	210 (21%)	1 5

All (210) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	293	ILE
1	A	302	TYR
1	A	303	ARG
1	A	317	LEU
1	A	322	ARG
1	A	328	HIS
1	A	333	THR
1	A	335	PHE
1	A	336	LEU
1	A	338	CYS
1	A	341	TRP
1	A	342	LYS
1	A	344	GLU
1	A	345	ASP
1	A	354	LEU
1	A	367	GLU
1	A	370	SER
1	A	372	THR
1	A	373	PHE
1	A	374	THR
1	A	375	HIS
1	A	391	ASP
1	A	398	LEU
1	A	409	ASP
1	A	411	ARG
1	A	414	VAL
1	A	415	HIS
1	A	417	HIS
1	A	421	PHE
1	A	532	ASN
1	A	535	THR

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Mol	Chain	Res	Type
1	A	540	ARG
1	A	546	THR
1	A	549	ASN
1	A	552	TYR
1	A	560	GLU
1	A	563	GLU
1	A	565	VAL
1	A	568	GLN
1	A	573	HIS
1	A	574	ASP
1	A	580	LEU
1	A	581	LYS
1	A	583	PHE
1	A	592	PHE
1	A	602	ARG
1	A	611	LEU
1	A	614	LEU
1	A	621	GLU
1	A	629	THR
1	A	634	LYS
1	A	639	GLN
1	A	647	THR
1	A	648	ASN
1	A	660	ILE
1	A	662	ILE
1	A	669	ARG
1	A	674	LYS
1	A	677	LEU
1	A	678	MET
1	A	682	LEU
1	A	685	VAL
1	A	687	SER
1	A	688	ILE
1	A	701	ASP
1	A	702	ASP
1	A	703	LEU
1	A	706	ASP
1	A	710	LEU
1	A	722	ARG
1	A	725	LEU
1	A	727	LEU
1	A	737	THR

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Mol	Chain	Res	Type
1	A	741	HIS
1	A	744	LEU
1	A	746	TYR
1	A	748	ASP
1	A	750	CYS
1	A	751	THR
1	A	758	ARG
1	A	765	PHE
1	A	774	ASN
1	A	777	TYR
1	A	782	GLU
1	A	786	THR
1	A	787	TYR
1	A	790	SER
1	A	791	CYS
1	A	803	VAL
1	A	812	LEU
1	A	814	THR
1	A	819	LEU
1	A	822	ILE
1	A	824	PHE
1	A	830	ARG
1	A	831	ASP
1	A	835	MET
1	A	839	MET
1	A	840	LYS
1	A	841	LEU
1	A	855	GLU
1	A	859	GLU
1	A	860	PHE
1	A	881	LEU
1	A	893	ILE
1	A	908	LEU
1	A	913	THR
1	A	914	ASP
1	A	919	GLN
1	A	930	THR
1	A	938	GLU
1	A	944	THR
1	A	948	ARG
1	B	299	THR
1	B	302	TYR

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Mol	Chain	Res	Type
1	B	307	THR
1	B	308	TYR
1	B	310	LEU
1	B	311	SER
1	B	317	LEU
1	B	320	LYS
1	B	321	PHE
1	B	322	ARG
1	B	323	PHE
1	B	327	SER
1	B	328	HIS
1	B	329	LYS
1	B	333	THR
1	B	335	PHE
1	B	336	LEU
1	B	342	LYS
1	B	344	GLU
1	B	351	LEU
1	B	360	MET
1	B	366	LEU
1	B	370	SER
1	B	372	THR
1	B	373	PHE
1	B	378	VAL
1	B	391	ASP
1	B	394	LEU
1	B	396	LEU
1	B	398	LEU
1	B	419	CYS
1	B	533	LEU
1	B	536	PHE
1	B	539	GLN
1	B	546	THR
1	B	549	ASN
1	B	551	PHE
1	B	555	LEU
1	B	561	GLU
1	B	562	VAL
1	B	568	GLN
1	B	573	HIS
1	B	575	MET
1	B	598	PHE

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Mol	Chain	Res	Type
1	B	599	TYR
1	B	605	ARG
1	B	609	ASP
1	B	611	LEU
1	B	614	LEU
1	B	627	LYS
1	B	634	LYS
1	B	638	GLU
1	B	645	ASN
1	B	647	THR
1	B	652	ILE
1	B	654	PHE
1	B	663	THR
1	B	670	THR
1	B	671	SER
1	B	682	LEU
1	B	699	HIS
1	B	706	ASP
1	B	710	LEU
1	B	712	MET
1	B	714	THR
1	B	719	LEU
1	B	722	ARG
1	B	729	LEU
1	B	746	TYR
1	B	747	VAL
1	B	748	ASP
1	B	750	CYS
1	B	758	ARG
1	B	765	PHE
1	B	777	TYR
1	B	779	ILE
1	B	782	GLU
1	B	786	THR
1	B	788	ILE
1	B	812	LEU
1	B	814	THR
1	B	822	ILE
1	B	827	ILE
1	B	839	MET
1	B	841	LEU
1	B	846	VAL

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Mol	Chain	Res	Type
1	B	862	LYS
1	B	866	THR
1	B	876	ASN
1	B	881	LEU
1	B	883	SER
1	B	889	THR
1	B	909	GLN
1	B	930	THR
1	B	937	VAL
1	B	941	HIS
1	B	944	THR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (30) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	298	HIS
1	A	340	ASN
1	A	403	GLN
1	A	412	HIS
1	A	549	ASN
1	A	573	HIS
1	A	639	GLN
1	A	691	HIS
1	A	764	ASN
1	A	769	HIS
1	A	810	ASN
1	A	863	GLN
1	A	870	HIS
1	A	919	GLN
1	A	941	HIS
1	B	298	HIS
1	B	328	HIS
1	B	356	ASN
1	B	403	GLN
1	B	415	HIS
1	B	549	ASN
1	B	573	HIS
1	B	633	GLN
1	B	690	HIS
1	B	711	GLN
1	B	810	ASN
1	B	858	HIS

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Mol	Chain	Res	Type
1	B	870	HIS
1	B	876	ASN
1	B	880	ASN

5.3.3 RNA

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains

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

5.5 Carbohydrates

There are no monosaccharides in this entry.

5.6 Ligand geometry

5 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	SO4	A	1950	-	4,4,4	0.35	0	6,6,6	0.29	0
2	SO4	A	1949	-	4,4,4	0.24	0	6,6,6	0.17	0
3	X6K	B	1950	-	27,30,30	2.42	10 (37%)	27,43,43	1.90	6 (22%)
2	SO4	B	1951	-	4,4,4	0.24	0	6,6,6	0.07	0
3	X6K	A	1951	-	27,30,30	2.43	10 (37%)	27,43,43	1.77	8 (29%)

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
3	X6K	B	1950	-	-	2/4/16/16	0/5/5/5
3	X6K	A	1951	-	-	2/4/16/16	0/5/5/5

All (20) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	A	1951	X6K	C06-N01	5.37	1.45	1.35
3	B	1950	X6K	C19-N10	5.35	1.44	1.35
3	A	1951	X6K	C19-N10	5.33	1.44	1.35
3	B	1950	X6K	C06-N01	5.25	1.44	1.35
3	B	1950	X6K	C11-N18	4.28	1.34	1.30
3	B	1950	X6K	C22-C23	4.19	1.46	1.38
3	A	1951	X6K	C11-N18	3.99	1.34	1.30
3	A	1951	X6K	C22-C23	3.97	1.45	1.38
3	A	1951	X6K	C05-C09	3.50	1.52	1.42
3	A	1951	X6K	C26-C20	3.46	1.49	1.42
3	B	1950	X6K	C26-C20	3.39	1.49	1.42
3	B	1950	X6K	C05-C09	3.29	1.51	1.42
3	A	1951	X6K	C05-C06	-2.66	1.35	1.42
3	B	1950	X6K	C05-C06	-2.45	1.36	1.42
3	B	1950	X6K	C22-C21	2.22	1.41	1.36
3	B	1950	X6K	C19-N18	-2.20	1.32	1.36
3	A	1951	X6K	C21-C20	-2.16	1.37	1.42
3	A	1951	X6K	C19-N18	-2.14	1.32	1.36
3	A	1951	X6K	C11-N12	2.13	1.46	1.39
3	B	1950	X6K	C21-C20	-2.10	1.37	1.42

All (14) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	B	1950	X6K	C17-N12-C13	4.83	122.44	111.57
3	A	1951	X6K	C17-N12-C11	3.85	129.60	116.86
3	B	1950	X6K	C17-N12-C11	3.68	129.05	116.86
3	A	1951	X6K	C17-N12-C13	3.21	118.79	111.57
3	A	1951	X6K	C05-C06-N01	-3.07	119.84	124.94
3	B	1950	X6K	C05-C06-N01	-2.90	120.11	124.94
3	A	1951	X6K	C02-N01-C06	2.82	120.01	116.63
3	B	1950	X6K	C03-C02-N01	-2.67	120.05	123.97
3	B	1950	X6K	C13-N12-C11	-2.52	108.52	116.86
3	A	1951	X6K	C03-C02-N01	-2.47	120.34	123.97
3	A	1951	X6K	C11-N18-C19	2.29	120.53	117.11
3	B	1950	X6K	C02-N01-C06	2.22	119.29	116.63
3	A	1951	X6K	C26-C20-C21	2.13	120.81	118.15

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	A	1951	X6K	C08-C11-N18	-2.11	119.38	122.93

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	1951	X6K	C08-C11-N12-C13
3	A	1951	X6K	N18-C11-N12-C13
3	B	1950	X6K	C08-C11-N12-C13
3	B	1950	X6K	N18-C11-N12-C13

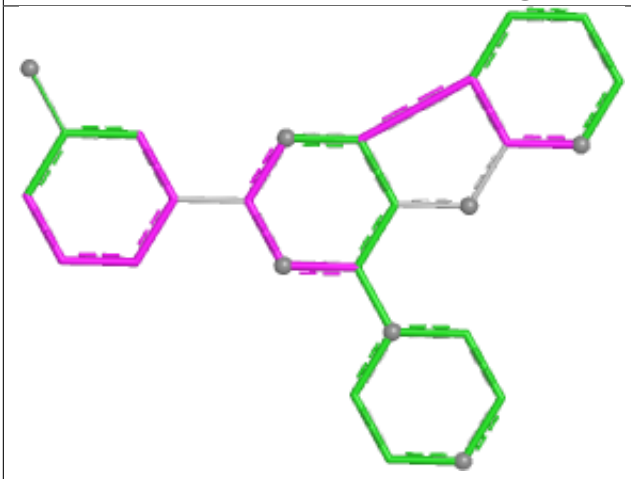
There are no ring outliers.

5 monomers are involved in 15 short contacts:

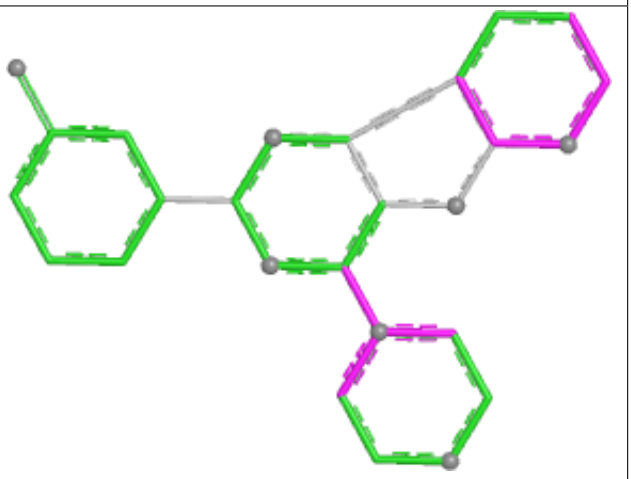
Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	1950	SO4	1	0
2	A	1949	SO4	1	0
3	B	1950	X6K	9	0
2	B	1951	SO4	1	0
3	A	1951	X6K	3	0

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.

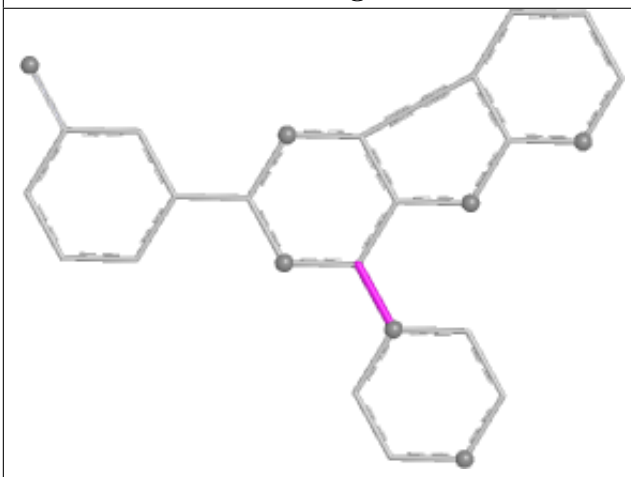
Ligand X6K B 1950



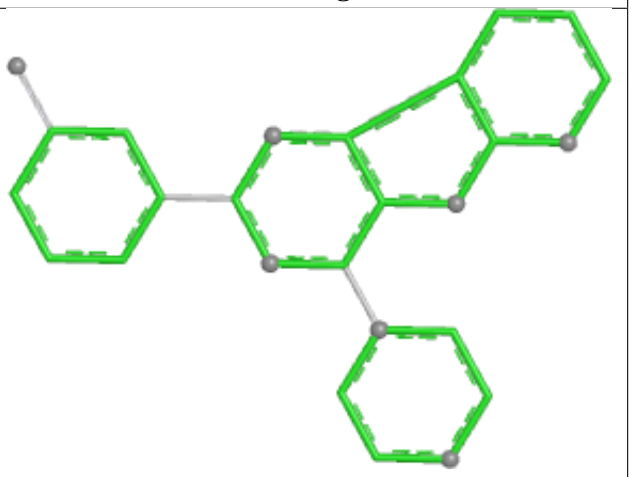
Bond lengths



Bond angles

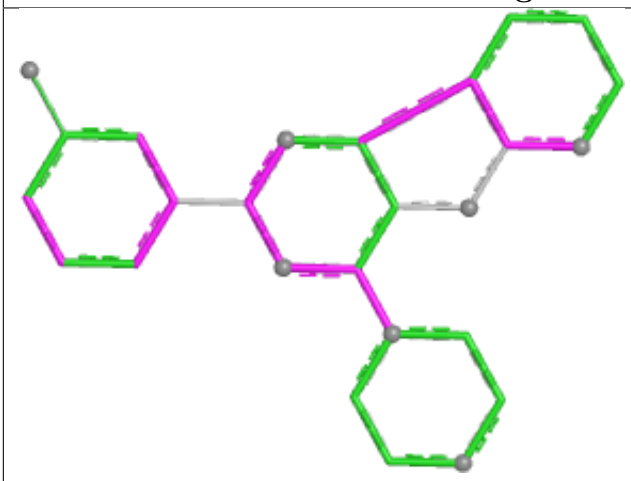


Torsions

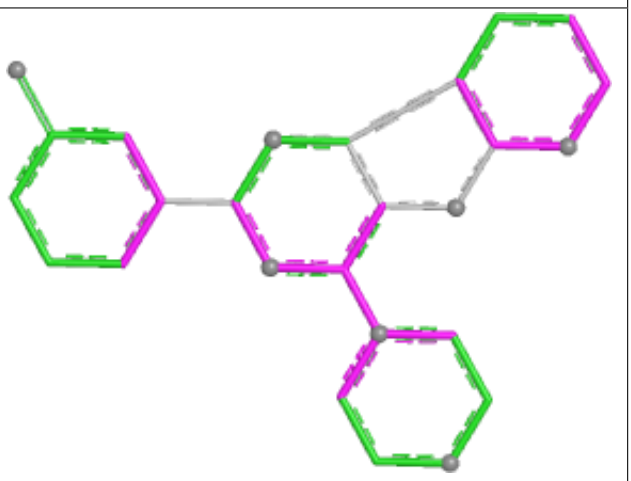


Rings

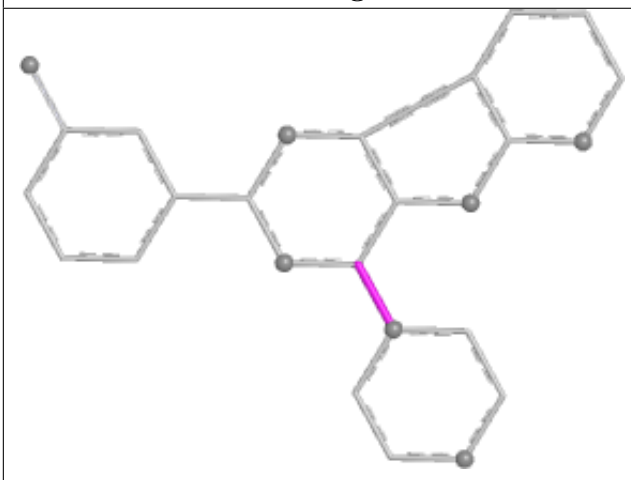
Ligand X6K A 1951



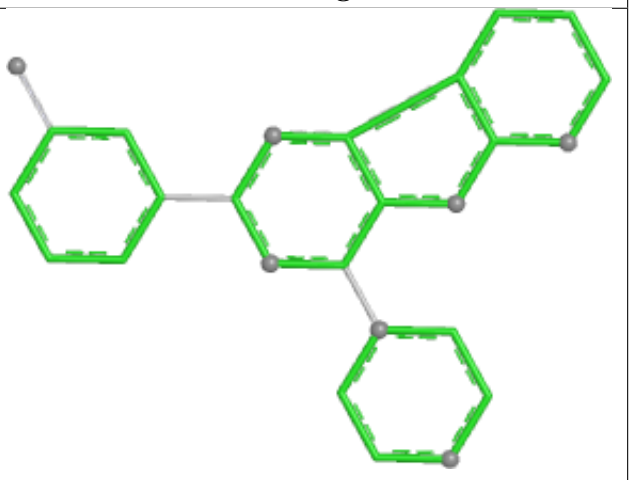
Bond lengths



Bond angles



Torsions



Rings

5.7 Other polymers

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, 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	550/696 (79%)	-0.26	3 (0%)	91	88	18, 62, 117, 129	0
1	B	550/696 (79%)	-0.21	3 (0%)	91	88	48, 75, 126, 135	0
All	All	1100/1392 (79%)	-0.24	6 (0%)	91	88	18, 69, 121, 135	0

All (6) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	690	HIS	2.8
1	A	322	ARG	2.5
1	A	323	PHE	2.3
1	B	341	TRP	2.2
1	A	335	PHE	2.1
1	B	676	ALA	2.0

6.2 Non-standard residues in protein, DNA, RNA chains

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

6.3 Carbohydrates

There are no monosaccharides in this entry.

6.4 Ligands

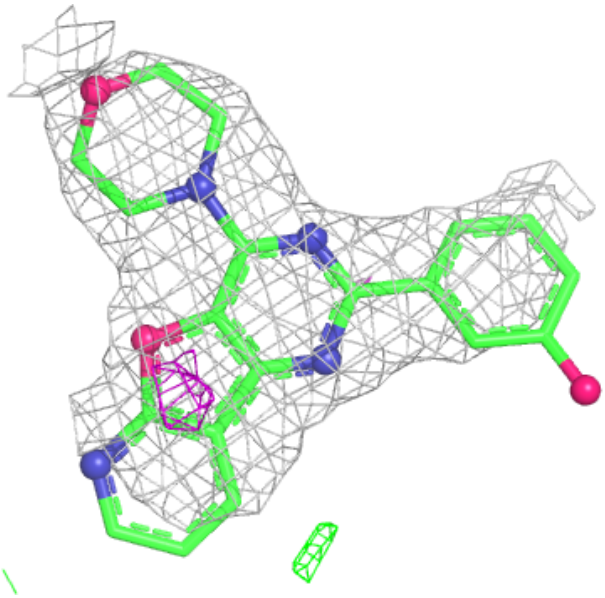
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

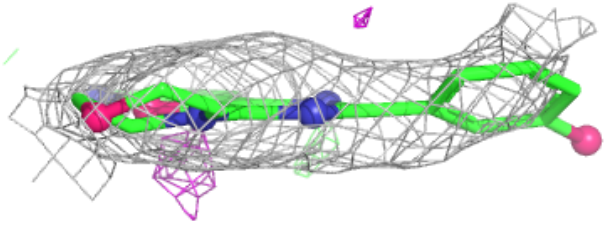
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
2	SO4	B	1951	5/5	0.65	0.17	194,194,194,194	0
3	X6K	B	1950	26/26	0.85	0.52	113,121,125,125	0
2	SO4	A	1949	5/5	0.87	0.23	145,145,145,146	0
3	X6K	A	1951	26/26	0.89	0.35	114,119,123,123	0
2	SO4	A	1950	5/5	0.93	0.35	146,147,147,147	0

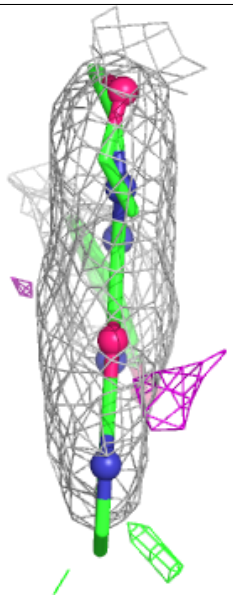
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around X6K B 1950:

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

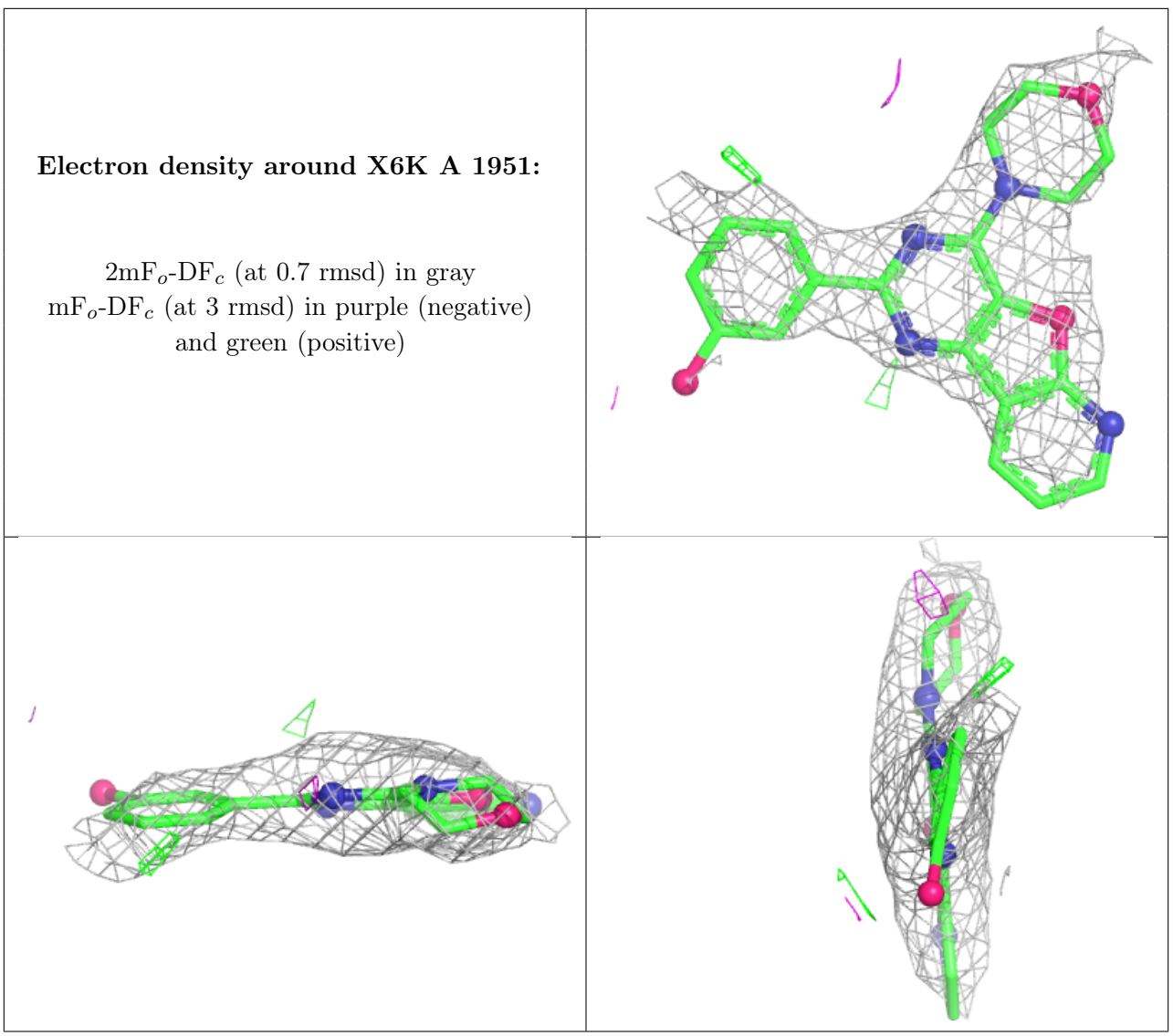






Electron density around X6K A 1951:

$2mF_o$-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.