



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 28, 2026 – 05:50 AM UTC

PDB ID : 3T0T / pdb_00003t0t
Title : Crystal structure of S. aureus Pyruvate Kinase
Authors : Worrall, L.J.; Vuckovic, M.; Strynadka, N.C.J.
Deposited on : 2011-07-20
Resolution : 3.10 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 : 4-5-2 with Phenix2.0
Mogul : 2022.3.0, CSD as543be (2022)
Xtriage (Phenix) : 2.0
EDS : 3.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4 : 9.0.010 (Gargrove)
Density-Fitness : 1.0.12
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

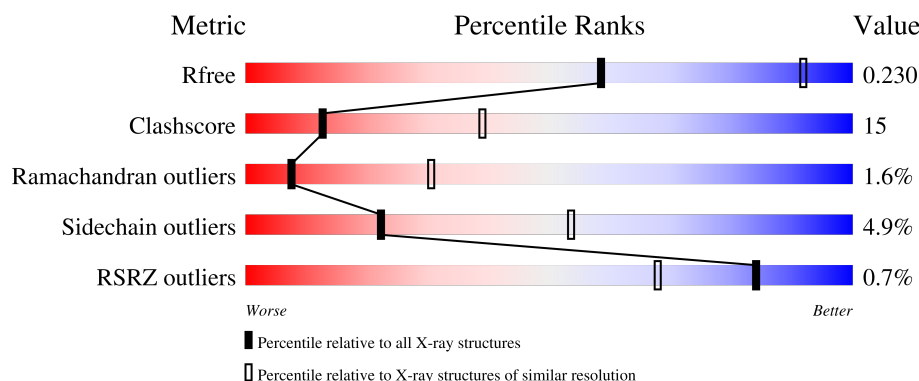
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.10 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}	180053	1456 (3.10-3.10)
Clashscore	190562	1539 (3.10-3.10)
Ramachandran outliers	187476	1467 (3.10-3.10)
Sidechain outliers	187428	1467 (3.10-3.10)
RSRZ outliers	180081	1456 (3.10-3.10)

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	606	 68% 25% . .
1	B	606	 68% 25% . .
1	C	606	 67% 26% . .
1	D	606	 68% 24% . .

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	PO4	A	587	-	-	X	-
3	PO4	B	586	-	-	X	-
3	PO4	D	587	-	-	X	-

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 17694 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 Pyruvate kinase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	583	Total	C	N	O	S	0	0	0
			4407	2745	764	880	18			
1	B	583	Total	C	N	O	S	0	0	0
			4407	2745	764	880	18			
1	C	583	Total	C	N	O	S	0	0	0
			4407	2745	764	880	18			
1	D	583	Total	C	N	O	S	0	0	0
			4407	2745	764	880	18			

There are 84 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-20	MET	-	expression tag	UNP Q6GG09
A	-19	GLY	-	expression tag	UNP Q6GG09
A	-18	SER	-	expression tag	UNP Q6GG09
A	-17	SER	-	expression tag	UNP Q6GG09
A	-16	HIS	-	expression tag	UNP Q6GG09
A	-15	HIS	-	expression tag	UNP Q6GG09
A	-14	HIS	-	expression tag	UNP Q6GG09
A	-13	HIS	-	expression tag	UNP Q6GG09
A	-12	HIS	-	expression tag	UNP Q6GG09
A	-11	HIS	-	expression tag	UNP Q6GG09
A	-10	SER	-	expression tag	UNP Q6GG09
A	-9	SER	-	expression tag	UNP Q6GG09
A	-8	GLY	-	expression tag	UNP Q6GG09
A	-7	LEU	-	expression tag	UNP Q6GG09
A	-6	VAL	-	expression tag	UNP Q6GG09
A	-5	PRO	-	expression tag	UNP Q6GG09
A	-4	ARG	-	expression tag	UNP Q6GG09
A	-3	GLY	-	expression tag	UNP Q6GG09
A	-2	SER	-	expression tag	UNP Q6GG09
A	-1	HIS	-	expression tag	UNP Q6GG09
A	0	MET	-	expression tag	UNP Q6GG09

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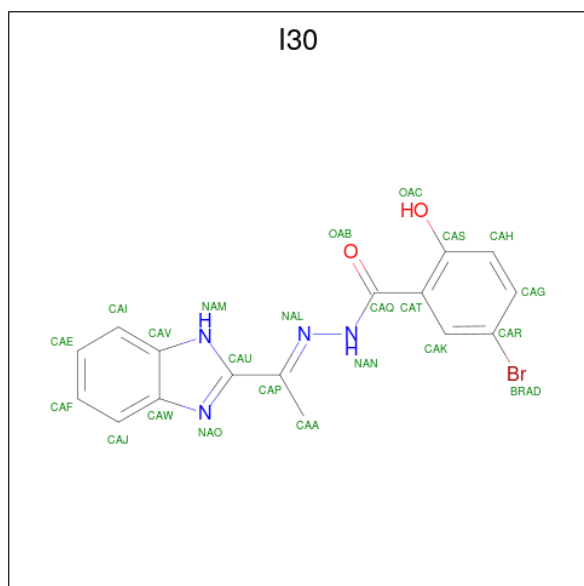
Chain	Residue	Modelled	Actual	Comment	Reference
B	-20	MET	-	expression tag	UNP Q6GG09
B	-19	GLY	-	expression tag	UNP Q6GG09
B	-18	SER	-	expression tag	UNP Q6GG09
B	-17	SER	-	expression tag	UNP Q6GG09
B	-16	HIS	-	expression tag	UNP Q6GG09
B	-15	HIS	-	expression tag	UNP Q6GG09
B	-14	HIS	-	expression tag	UNP Q6GG09
B	-13	HIS	-	expression tag	UNP Q6GG09
B	-12	HIS	-	expression tag	UNP Q6GG09
B	-11	HIS	-	expression tag	UNP Q6GG09
B	-10	SER	-	expression tag	UNP Q6GG09
B	-9	SER	-	expression tag	UNP Q6GG09
B	-8	GLY	-	expression tag	UNP Q6GG09
B	-7	LEU	-	expression tag	UNP Q6GG09
B	-6	VAL	-	expression tag	UNP Q6GG09
B	-5	PRO	-	expression tag	UNP Q6GG09
B	-4	ARG	-	expression tag	UNP Q6GG09
B	-3	GLY	-	expression tag	UNP Q6GG09
B	-2	SER	-	expression tag	UNP Q6GG09
B	-1	HIS	-	expression tag	UNP Q6GG09
B	0	MET	-	expression tag	UNP Q6GG09
C	-20	MET	-	expression tag	UNP Q6GG09
C	-19	GLY	-	expression tag	UNP Q6GG09
C	-18	SER	-	expression tag	UNP Q6GG09
C	-17	SER	-	expression tag	UNP Q6GG09
C	-16	HIS	-	expression tag	UNP Q6GG09
C	-15	HIS	-	expression tag	UNP Q6GG09
C	-14	HIS	-	expression tag	UNP Q6GG09
C	-13	HIS	-	expression tag	UNP Q6GG09
C	-12	HIS	-	expression tag	UNP Q6GG09
C	-11	HIS	-	expression tag	UNP Q6GG09
C	-10	SER	-	expression tag	UNP Q6GG09
C	-9	SER	-	expression tag	UNP Q6GG09
C	-8	GLY	-	expression tag	UNP Q6GG09
C	-7	LEU	-	expression tag	UNP Q6GG09
C	-6	VAL	-	expression tag	UNP Q6GG09
C	-5	PRO	-	expression tag	UNP Q6GG09
C	-4	ARG	-	expression tag	UNP Q6GG09
C	-3	GLY	-	expression tag	UNP Q6GG09
C	-2	SER	-	expression tag	UNP Q6GG09
C	-1	HIS	-	expression tag	UNP Q6GG09
C	0	MET	-	expression tag	UNP Q6GG09

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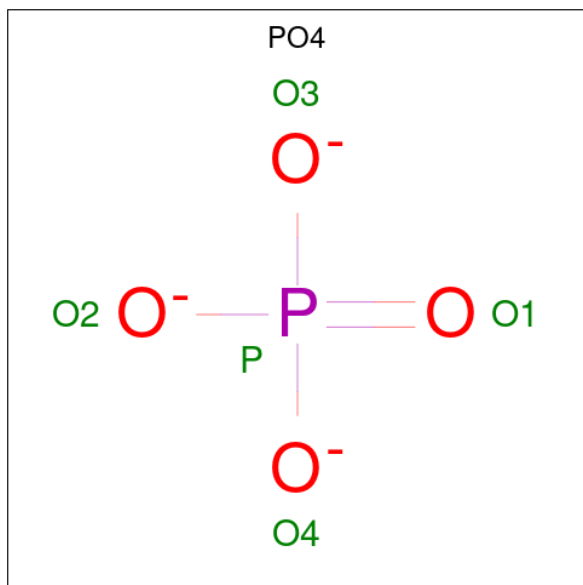
Chain	Residue	Modelled	Actual	Comment	Reference
D	-20	MET	-	expression tag	UNP Q6GG09
D	-19	GLY	-	expression tag	UNP Q6GG09
D	-18	SER	-	expression tag	UNP Q6GG09
D	-17	SER	-	expression tag	UNP Q6GG09
D	-16	HIS	-	expression tag	UNP Q6GG09
D	-15	HIS	-	expression tag	UNP Q6GG09
D	-14	HIS	-	expression tag	UNP Q6GG09
D	-13	HIS	-	expression tag	UNP Q6GG09
D	-12	HIS	-	expression tag	UNP Q6GG09
D	-11	HIS	-	expression tag	UNP Q6GG09
D	-10	SER	-	expression tag	UNP Q6GG09
D	-9	SER	-	expression tag	UNP Q6GG09
D	-8	GLY	-	expression tag	UNP Q6GG09
D	-7	LEU	-	expression tag	UNP Q6GG09
D	-6	VAL	-	expression tag	UNP Q6GG09
D	-5	PRO	-	expression tag	UNP Q6GG09
D	-4	ARG	-	expression tag	UNP Q6GG09
D	-3	GLY	-	expression tag	UNP Q6GG09
D	-2	SER	-	expression tag	UNP Q6GG09
D	-1	HIS	-	expression tag	UNP Q6GG09
D	0	MET	-	expression tag	UNP Q6GG09

- Molecule 2 is N'-[(1E)-1-(1H-benzimidazol-2-yl)ethylidene]-5-bromo-2-hydroxybenzohydrazide (CCD ID: I30) (formula: C₁₆H₁₃BrN₄O₂).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	A	1	Total	Br	C	N	O	0	0
			23	1	16	4	2		
2	D	1	Total	Br	C	N	O	0	0
			23	1	16	4	2		

- Molecule 3 is PHOSPHATE ION (CCD ID: PO4) (formula: O_4P).

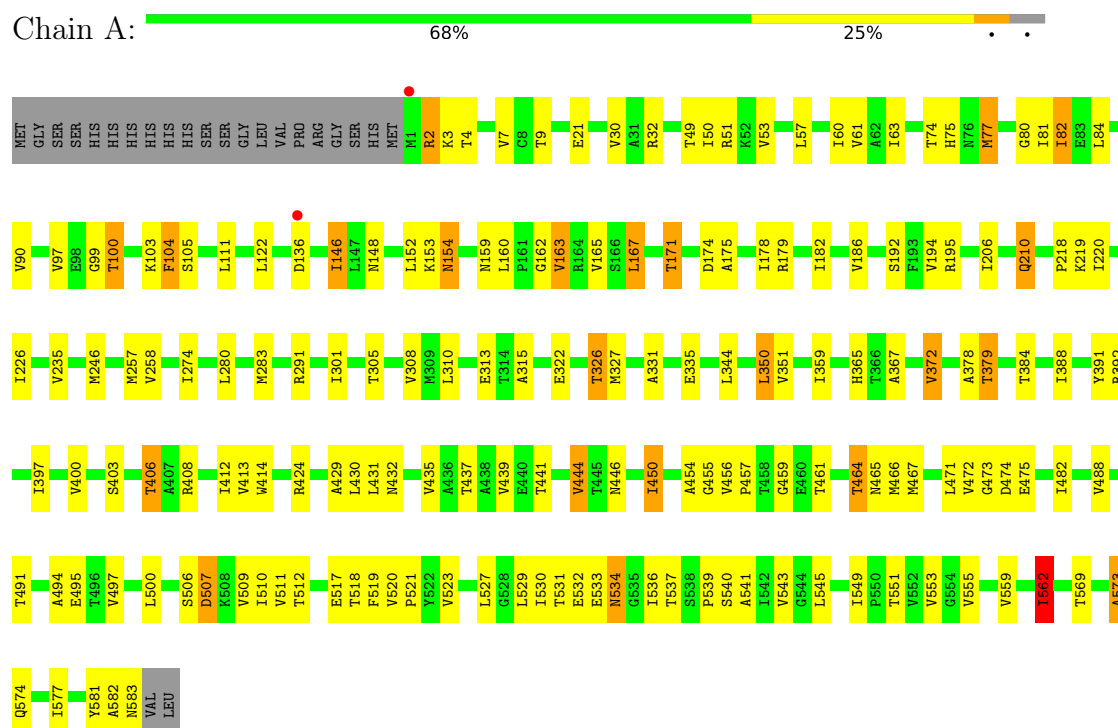


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	O	P	0	0
			5	4	1		
3	B	1	Total	O	P	0	0
			5	4	1		
3	C	1	Total	O	P	0	0
			5	4	1		
3	D	1	Total	O	P	0	0
			5	4	1		

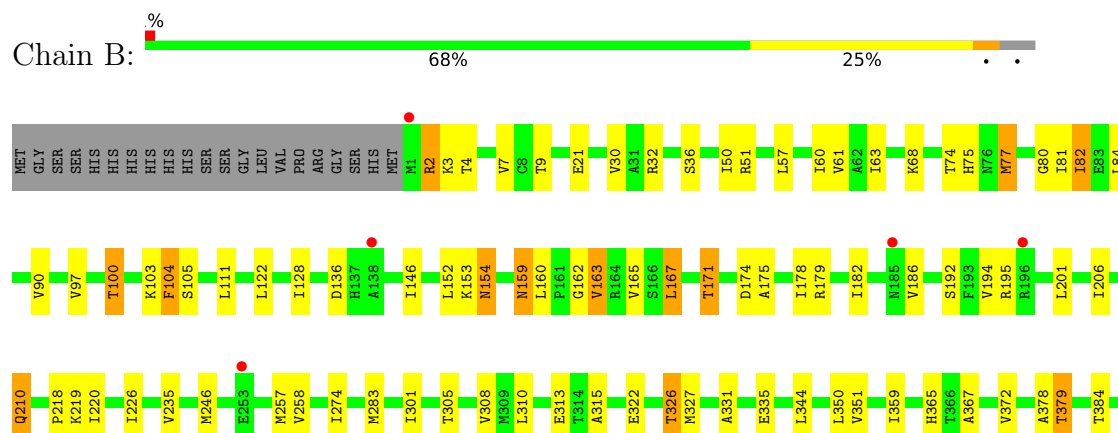
3 Residue-property plots [i](#)

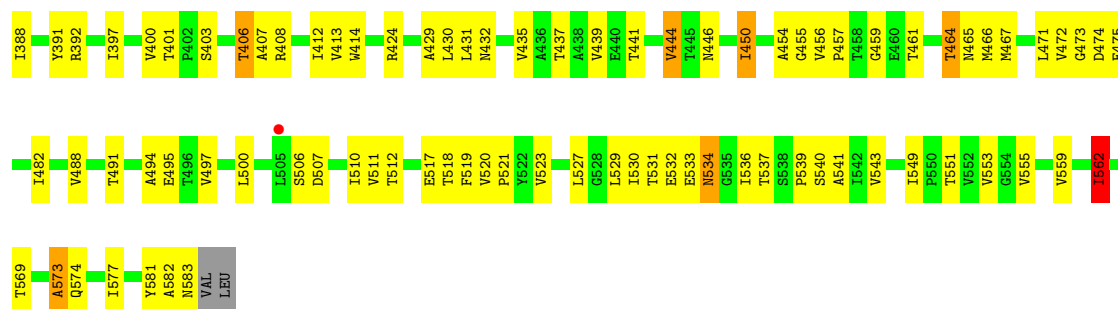
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. 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: Pyruvate kinase

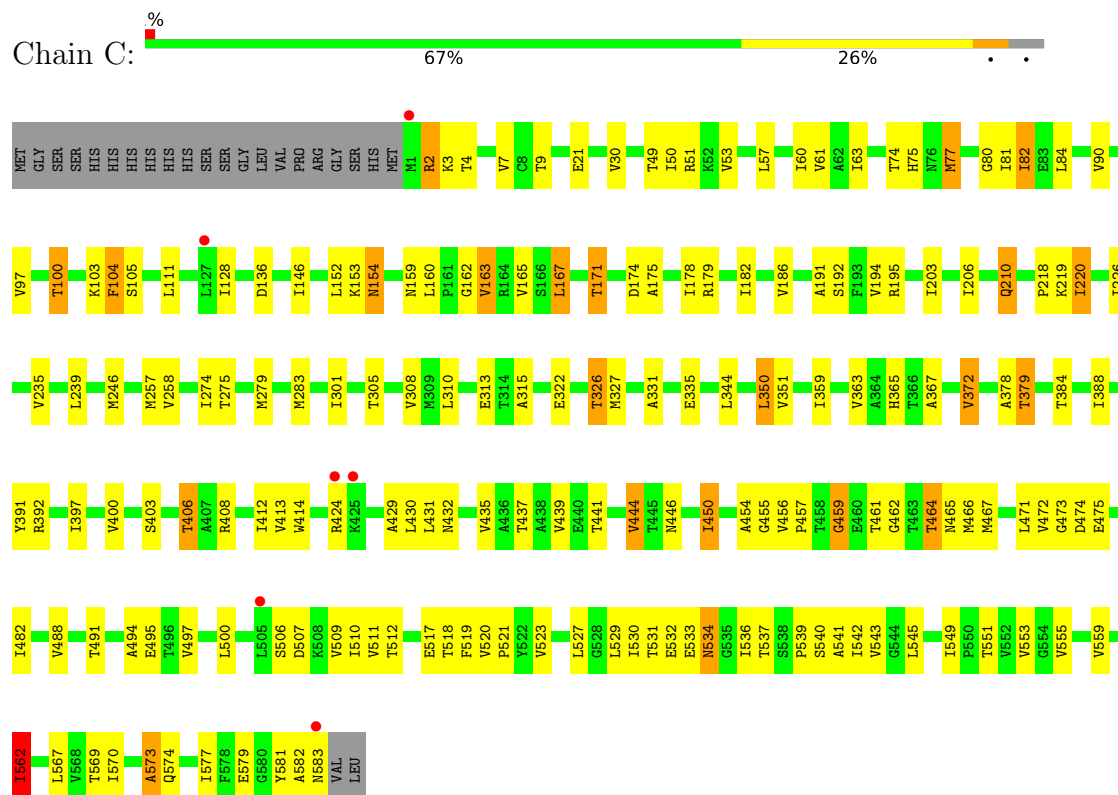


• Molecule 1: Pyruvate kinase

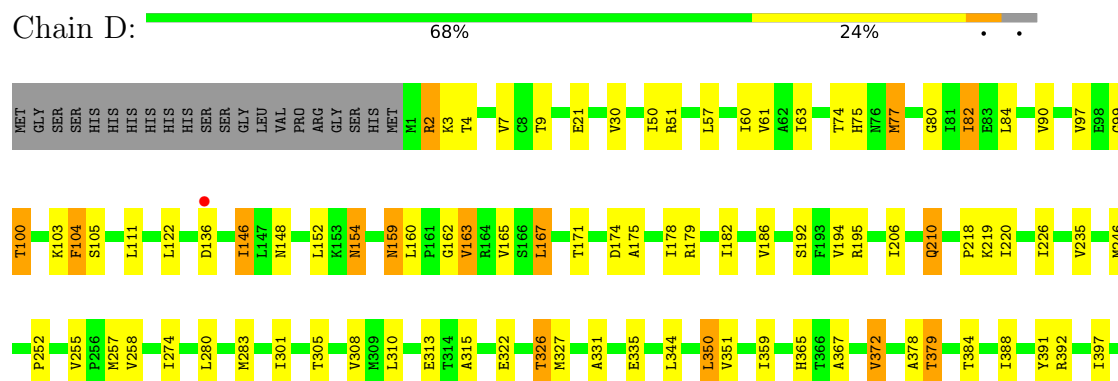




- Molecule 1: Pyruvate kinase



- Molecule 1: Pyruvate kinase





Y581
A582
N583
VAL
LEU

4 Data and refinement statistics

Property	Value	Source
Space group	P 41	Depositor
Cell constants a, b, c, α , β , γ	113.09Å 113.09Å 315.96Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	113.09 – 3.10 113.09 – 3.10	Depositor EDS
% Data completeness (in resolution range)	90.4 (113.09-3.10) 90.4 (113.09-3.10)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.13	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.81 (at 3.13Å)	Xtriage
Refinement program	REFMAC	Depositor
R, R_{free}	0.204 , 0.227 0.207 , 0.230	Depositor DCC
R_{free} test set	3284 reflections (5.07%)	wwPDB-VP
Wilson B-factor (Å ²)	86.2	Xtriage
Anisotropy	0.012	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 55.3	EDS
L-test for twinning ²	$\langle L \rangle = 0.47$, $\langle L^2 \rangle = 0.30$	Xtriage
Estimated twinning fraction	0.065 for h,-k,-l	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	17694	wwPDB-VP
Average B, all atoms (Å ²)	92.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.32% 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: PO4, I30

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	0.67	1/4452 (0.0%)	0.83	2/6022 (0.0%)
1	B	0.71	1/4452 (0.0%)	0.85	2/6022 (0.0%)
1	C	0.69	1/4452 (0.0%)	0.85	3/6022 (0.0%)
1	D	0.71	2/4452 (0.0%)	0.85	2/6022 (0.0%)
All	All	0.70	5/17808 (0.0%)	0.84	9/24088 (0.0%)

All (5) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	562	ILE	CA-CB	5.73	1.60	1.54
1	D	255	VAL	CA-CB	5.44	1.57	1.54
1	A	562	ILE	CA-CB	5.21	1.60	1.54
1	C	562	ILE	CA-CB	5.14	1.60	1.54
1	D	562	ILE	CA-CB	5.01	1.59	1.54

All (9) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	446	ASN	N-CA-C	6.91	118.89	111.36
1	D	446	ASN	N-CA-C	6.66	118.61	111.36
1	C	446	ASN	N-CA-C	6.60	118.56	111.36
1	A	446	ASN	N-CA-C	6.06	117.97	111.36
1	D	573	ALA	N-CA-C	-5.67	102.64	110.35
1	C	573	ALA	N-CA-C	-5.58	102.76	110.35
1	B	573	ALA	N-CA-C	-5.29	103.16	110.35
1	C	3	LYS	N-CA-C	5.08	121.62	110.80
1	A	573	ALA	N-CA-C	-5.03	103.51	110.35

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts ⓘ

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4407	0	4533	139	0
1	B	4407	0	4533	138	0
1	C	4407	0	4533	140	0
1	D	4407	0	4533	133	0
2	A	23	0	12	1	0
2	D	23	0	12	1	0
3	A	5	0	0	2	0
3	B	5	0	0	2	0
3	C	5	0	0	1	0
3	D	5	0	0	2	0
All	All	17694	0	18156	543	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 15.

All (543) 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:569:THR:HG21	1:A:582:ALA:HB3	1.52	0.92
1:D:569:THR:HG21	1:D:582:ALA:HB3	1.54	0.90
1:C:431:LEU:HD21	1:C:466:MET:HE1	1.53	0.89
1:B:431:LEU:HD21	1:B:466:MET:HE1	1.55	0.87
1:D:379:THR:HG23	1:D:384:THR:HB	1.56	0.86
1:D:74:THR:HG22	1:D:75:HIS:O	1.75	0.86
1:C:569:THR:HG21	1:C:582:ALA:HB3	1.58	0.86
1:B:531:THR:HG21	1:B:540:SER:HB3	1.58	0.85
1:C:74:THR:HG22	1:C:75:HIS:O	1.76	0.85
1:A:431:LEU:HD21	1:A:466:MET:HE1	1.58	0.85
1:B:569:THR:HG21	1:B:582:ALA:HB3	1.58	0.85
1:B:74:THR:HG22	1:B:75:HIS:O	1.75	0.85
1:A:531:THR:HG21	1:A:540:SER:HB3	1.58	0.84
1:D:582:ALA:O	1:D:583:ASN:ND2	2.10	0.84
1:C:531:THR:HG21	1:C:540:SER:HB3	1.58	0.83
1:A:379:THR:HG23	1:A:384:THR:HB	1.60	0.83
1:D:84:LEU:HD23	1:D:90:VAL:HG21	1.61	0.83

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:431:LEU:HD21	1:D:466:MET:HE1	1.60	0.83
1:D:494:ALA:HB3	1:D:512:THR:HG22	1.61	0.83
1:C:84:LEU:HD23	1:C:90:VAL:HG21	1.61	0.82
1:A:494:ALA:HB3	1:A:512:THR:HG22	1.59	0.82
1:B:84:LEU:HD23	1:B:90:VAL:HG21	1.60	0.82
1:A:74:THR:HG22	1:A:75:HIS:O	1.79	0.82
1:C:379:THR:HG23	1:C:384:THR:HB	1.62	0.82
1:D:531:THR:HG21	1:D:540:SER:HB3	1.60	0.81
1:B:494:ALA:HB3	1:B:512:THR:HG22	1.61	0.81
1:B:379:THR:HG23	1:B:384:THR:HB	1.60	0.81
1:A:84:LEU:HD23	1:A:90:VAL:HG21	1.62	0.80
1:B:582:ALA:O	1:B:583:ASN:ND2	2.15	0.80
1:A:582:ALA:O	1:A:583:ASN:ND2	2.15	0.79
1:C:494:ALA:HB3	1:C:512:THR:HG22	1.63	0.79
1:B:482:ILE:HD13	1:B:541:ALA:CB	2.14	0.77
1:A:378:ALA:HB3	1:A:454:ALA:HB2	1.65	0.77
1:B:4:THR:HG22	1:B:335:GLU:OE2	1.83	0.77
1:A:482:ILE:HD13	1:A:541:ALA:CB	2.15	0.76
1:C:582:ALA:O	1:C:583:ASN:ND2	2.18	0.76
1:C:226:ILE:HD11	1:C:246:MET:HE3	1.69	0.75
1:D:4:THR:HG22	1:D:335:GLU:OE2	1.86	0.74
1:B:510:ILE:HD11	1:B:523:VAL:HG22	1.71	0.73
1:C:482:ILE:HD13	1:C:541:ALA:CB	2.18	0.73
1:B:378:ALA:HB3	1:B:454:ALA:HB2	1.68	0.73
1:D:432:ASN:O	1:D:435:VAL:HG12	1.88	0.73
1:B:344:LEU:HD21	1:B:365:HIS:ND1	2.03	0.73
1:D:77:MET:HE1	1:D:104:PHE:CD2	2.24	0.72
1:C:510:ILE:HD11	1:C:523:VAL:HG22	1.70	0.72
1:A:344:LEU:HD21	1:A:365:HIS:ND1	2.05	0.72
1:A:510:ILE:HD11	1:A:523:VAL:HG22	1.71	0.71
1:A:77:MET:HE1	1:A:104:PHE:CD2	2.24	0.71
1:C:4:THR:HG22	1:C:335:GLU:OE2	1.89	0.71
1:A:432:ASN:O	1:A:435:VAL:HG12	1.91	0.71
1:C:378:ALA:HB3	1:C:454:ALA:HB2	1.72	0.71
1:D:235:VAL:HG12	1:D:235:VAL:O	1.90	0.71
1:D:344:LEU:HD21	1:D:365:HIS:ND1	2.06	0.70
1:B:432:ASN:O	1:B:435:VAL:HG12	1.92	0.70
1:C:432:ASN:O	1:C:435:VAL:HG12	1.90	0.70
1:B:77:MET:HE1	1:B:104:PHE:CD2	2.27	0.70
1:B:178:ILE:HD11	1:B:206:ILE:HD12	1.74	0.69
1:D:482:ILE:HD13	1:D:541:ALA:CB	2.21	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:174:ASP:O	1:B:178:ILE:HG23	1.93	0.69
1:D:529:LEU:HB3	1:D:551:THR:HG22	1.74	0.69
1:A:21:GLU:HG3	1:A:57:LEU:HD11	1.75	0.68
1:B:359:ILE:HD12	1:B:465:ASN:C	2.18	0.68
1:C:77:MET:HE1	1:C:104:PHE:CD2	2.28	0.68
1:B:50:ILE:HG21	1:B:63:ILE:HD11	1.74	0.68
1:D:226:ILE:HD11	1:D:246:MET:HE3	1.76	0.68
1:D:378:ALA:HB3	1:D:454:ALA:HB2	1.76	0.68
1:C:467:MET:HE2	1:D:467:MET:HE2	1.75	0.67
1:D:510:ILE:HD11	1:D:523:VAL:HG22	1.75	0.67
1:B:529:LEU:HB3	1:B:551:THR:HG22	1.76	0.67
1:C:100:THR:HG23	1:C:103:LYS:O	1.95	0.67
1:C:21:GLU:HG3	1:C:57:LEU:HD11	1.77	0.67
1:D:351:VAL:HG21	1:D:391:TYR:CZ	2.29	0.66
1:B:351:VAL:HG21	1:B:391:TYR:CZ	2.31	0.66
1:C:344:LEU:HD21	1:C:365:HIS:ND1	2.10	0.66
1:A:529:LEU:HB3	1:A:551:THR:HG22	1.76	0.66
1:A:4:THR:HG22	1:A:335:GLU:OE2	1.96	0.66
1:A:351:VAL:HG21	1:A:391:TYR:CZ	2.30	0.65
1:A:178:ILE:HD11	1:A:206:ILE:HD12	1.77	0.65
1:C:529:LEU:HB3	1:C:551:THR:HG22	1.77	0.65
1:C:50:ILE:HG21	1:C:63:ILE:HD11	1.78	0.65
1:C:351:VAL:HG21	1:C:391:TYR:CZ	2.33	0.64
1:B:21:GLU:HG3	1:B:57:LEU:HD11	1.79	0.64
1:D:50:ILE:HG21	1:D:63:ILE:HD11	1.78	0.64
1:D:21:GLU:HG3	1:D:57:LEU:HD11	1.78	0.64
1:B:235:VAL:HG12	1:B:235:VAL:O	1.96	0.64
1:C:488:VAL:HG12	1:C:569:THR:OG1	1.98	0.64
1:D:174:ASP:O	1:D:178:ILE:HG23	1.97	0.64
1:C:246:MET:CE	1:C:258:VAL:HG11	2.28	0.63
1:B:482:ILE:HD13	1:B:541:ALA:HA	1.81	0.63
1:D:400:VAL:HG22	1:D:437:THR:HG21	1.80	0.63
1:D:100:THR:HG23	1:D:103:LYS:O	1.98	0.63
1:A:235:VAL:HG12	1:A:235:VAL:O	1.98	0.63
1:A:437:THR:O	1:A:441:THR:HG23	1.99	0.63
1:A:174:ASP:O	1:A:178:ILE:HG23	1.98	0.63
1:C:400:VAL:HG22	1:C:437:THR:HG21	1.79	0.63
1:A:400:VAL:HG22	1:A:437:THR:HG21	1.79	0.63
1:A:482:ILE:HD13	1:A:541:ALA:HA	1.80	0.62
1:C:178:ILE:HD11	1:C:206:ILE:HD12	1.81	0.62
1:A:50:ILE:HG21	1:A:63:ILE:HD11	1.80	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:178:ILE:HD11	1:D:206:ILE:HD12	1.80	0.62
1:C:482:ILE:HD13	1:C:541:ALA:HA	1.81	0.62
1:B:379:THR:HG22	3:B:586:PO4:O4	1.99	0.62
1:A:359:ILE:HD12	1:A:465:ASN:C	2.24	0.62
1:D:235:VAL:O	1:D:235:VAL:CG1	2.47	0.61
1:B:100:THR:HG23	1:B:103:LYS:O	2.00	0.61
1:B:517:GLU:O	1:B:520:VAL:HG22	2.01	0.61
1:A:533:GLU:O	1:A:534:ASN:CG	2.44	0.60
1:C:246:MET:HE1	1:C:258:VAL:CG1	2.31	0.60
1:D:359:ILE:HD12	1:D:465:ASN:C	2.27	0.60
1:C:533:GLU:O	1:C:534:ASN:CG	2.44	0.60
1:D:482:ILE:HD13	1:D:541:ALA:HA	1.82	0.60
1:B:226:ILE:HD11	1:B:246:MET:HE3	1.82	0.60
1:B:437:THR:O	1:B:441:THR:HG23	2.01	0.60
1:C:235:VAL:O	1:C:235:VAL:HG12	2.02	0.60
1:A:100:THR:HG23	1:A:103:LYS:O	2.01	0.60
1:D:246:MET:CE	1:D:258:VAL:HG11	2.32	0.60
1:B:400:VAL:HG22	1:B:437:THR:HG21	1.83	0.59
1:B:488:VAL:HG12	1:B:569:THR:OG1	2.01	0.59
1:B:246:MET:CE	1:B:258:VAL:HG11	2.32	0.59
1:C:431:LEU:CD2	1:C:466:MET:HE1	2.29	0.59
1:B:533:GLU:O	1:B:534:ASN:CG	2.45	0.59
1:B:310:LEU:HG	1:B:327:MET:HE3	1.84	0.59
1:D:111:LEU:C	1:D:111:LEU:HD23	2.28	0.59
1:D:517:GLU:O	1:D:520:VAL:HG22	2.02	0.59
1:B:482:ILE:CD1	1:B:541:ALA:CB	2.81	0.59
1:C:359:ILE:HD12	1:C:465:ASN:C	2.27	0.59
1:C:301:ILE:CD1	1:C:331:ALA:HA	2.33	0.59
1:C:517:GLU:O	1:C:520:VAL:HG22	2.03	0.58
1:C:308:VAL:HG11	1:C:327:MET:SD	2.44	0.58
1:A:482:ILE:HD13	1:A:541:ALA:CA	2.33	0.58
1:B:482:ILE:HD13	1:B:541:ALA:CA	2.33	0.58
1:A:545:LEU:HD11	1:B:235:VAL:CG2	2.33	0.58
1:D:246:MET:HE1	1:D:258:VAL:CG1	2.34	0.58
1:D:9:THR:HG22	1:D:315:ALA:HB2	1.85	0.58
1:B:308:VAL:HG11	1:B:327:MET:SD	2.43	0.58
1:B:532:GLU:O	1:B:555:VAL:N	2.37	0.58
1:B:246:MET:HE1	1:B:258:VAL:CG1	2.34	0.57
1:A:482:ILE:CD1	1:A:541:ALA:CB	2.82	0.57
1:C:532:GLU:O	1:C:555:VAL:N	2.37	0.57
1:C:437:THR:O	1:C:441:THR:HG23	2.04	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:246:MET:CE	1:A:258:VAL:HG11	2.33	0.57
1:A:467:MET:HE2	1:B:467:MET:HE2	1.87	0.57
1:D:533:GLU:O	1:D:534:ASN:CG	2.48	0.57
1:B:444:VAL:HG21	1:B:450:ILE:HD11	1.86	0.57
1:D:444:VAL:HG21	1:D:450:ILE:HD11	1.86	0.57
1:A:175:ALA:O	1:A:179:ARG:HG3	2.05	0.57
1:A:455:GLY:HA3	1:A:461:THR:HG23	1.87	0.57
1:B:9:THR:HG22	1:B:315:ALA:HB2	1.86	0.56
1:D:532:GLU:O	1:D:555:VAL:N	2.38	0.56
1:A:488:VAL:HG12	1:A:569:THR:OG1	2.04	0.56
1:B:520:VAL:HG12	1:B:543:VAL:HG11	1.88	0.56
1:C:174:ASP:O	1:C:178:ILE:HG23	2.05	0.56
1:C:482:ILE:HD13	1:C:541:ALA:CA	2.35	0.56
1:D:301:ILE:CD1	1:D:331:ALA:HA	2.35	0.56
1:D:437:THR:O	1:D:441:THR:HG23	2.05	0.56
1:B:549:ILE:O	1:B:551:THR:HG23	2.05	0.56
1:A:9:THR:HG22	1:A:315:ALA:HB2	1.88	0.56
1:A:520:VAL:HG12	1:A:543:VAL:HG11	1.88	0.56
1:A:301:ILE:CD1	1:A:331:ALA:HA	2.36	0.56
1:B:455:GLY:HA3	1:B:461:THR:HG23	1.86	0.56
1:D:488:VAL:HG12	1:D:569:THR:OG1	2.06	0.56
1:B:235:VAL:O	1:B:235:VAL:CG1	2.53	0.56
1:A:488:VAL:HG11	1:A:581:TYR:CD2	2.41	0.56
1:C:520:VAL:HG12	1:C:543:VAL:HG11	1.88	0.56
1:D:274:ILE:HD11	1:D:412:ILE:HD11	1.87	0.56
1:D:488:VAL:HG11	1:D:581:TYR:CD2	2.40	0.56
1:C:530:ILE:HG12	1:C:577:ILE:HD13	1.87	0.56
1:A:246:MET:HE1	1:A:258:VAL:CG1	2.36	0.55
1:D:159:ASN:C	1:D:160:LEU:HD12	2.31	0.55
1:A:531:THR:HG21	1:A:540:SER:CB	2.34	0.55
1:A:111:LEU:HD23	1:A:111:LEU:C	2.31	0.55
1:D:455:GLY:HA3	1:D:461:THR:HG23	1.88	0.55
1:A:532:GLU:O	1:A:555:VAL:N	2.40	0.55
1:D:283:MET:SD	1:D:326:THR:HG21	2.46	0.55
1:D:530:ILE:HG12	1:D:577:ILE:HD13	1.87	0.55
1:B:283:MET:SD	1:B:326:THR:HG21	2.46	0.55
1:C:403:SER:OG	1:C:406:THR:HG23	2.06	0.55
1:C:455:GLY:HA3	1:C:461:THR:HG23	1.87	0.54
1:A:165:VAL:CG1	1:A:167:LEU:HD23	2.37	0.54
1:B:175:ALA:O	1:B:179:ARG:HG3	2.07	0.54
1:A:283:MET:SD	1:A:326:THR:HG21	2.47	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:488:VAL:HG11	1:C:581:TYR:CD2	2.42	0.54
1:A:517:GLU:O	1:A:520:VAL:HG22	2.07	0.54
1:B:81:ILE:HD11	1:B:153:LYS:HZ2	1.71	0.54
1:C:482:ILE:CD1	1:C:541:ALA:CB	2.86	0.54
1:A:461:THR:HG21	3:A:587:PO4:O3	2.07	0.54
1:B:488:VAL:HG11	1:B:581:TYR:CD2	2.43	0.54
1:C:444:VAL:HG21	1:C:450:ILE:HD11	1.90	0.54
1:D:175:ALA:O	1:D:179:ARG:HG3	2.08	0.54
1:C:283:MET:SD	1:C:326:THR:HG21	2.48	0.54
1:C:549:ILE:O	1:C:551:THR:HG23	2.07	0.54
1:B:530:ILE:HG12	1:B:577:ILE:HD13	1.89	0.54
1:D:4:THR:CG2	1:D:331:ALA:HB1	2.38	0.54
1:A:235:VAL:O	1:A:235:VAL:CG1	2.55	0.53
1:B:301:ILE:CD1	1:B:331:ALA:HA	2.38	0.53
1:D:359:ILE:HD12	1:D:465:ASN:HA	1.90	0.53
1:A:549:ILE:O	1:A:551:THR:HG23	2.08	0.53
1:D:549:ILE:O	1:D:551:THR:HG23	2.08	0.53
1:C:444:VAL:HG11	1:C:450:ILE:HD11	1.91	0.53
1:D:308:VAL:HG11	1:D:327:MET:SD	2.49	0.53
1:A:530:ILE:HG12	1:A:577:ILE:HD13	1.89	0.53
1:C:162:GLY:HA2	1:C:163:VAL:O	2.09	0.53
1:C:257:MET:HE3	1:C:257:MET:N	2.23	0.53
1:C:274:ILE:HD11	1:C:412:ILE:HD11	1.91	0.53
1:C:111:LEU:HD23	1:C:111:LEU:C	2.34	0.52
1:C:235:VAL:O	1:C:235:VAL:CG1	2.57	0.52
1:B:4:THR:HG21	1:B:301:ILE:HD13	1.92	0.52
1:D:482:ILE:HD13	1:D:541:ALA:CA	2.37	0.52
1:B:194:VAL:HG21	1:B:218:PRO:HB3	1.91	0.52
1:D:482:ILE:CD1	1:D:541:ALA:CB	2.88	0.52
1:C:194:VAL:HG21	1:C:218:PRO:HB3	1.91	0.52
1:D:403:SER:OG	1:D:406:THR:HG23	2.09	0.52
1:D:520:VAL:HG12	1:D:543:VAL:HG11	1.91	0.52
1:B:257:MET:HE3	1:B:257:MET:N	2.25	0.52
1:C:9:THR:HG22	1:C:315:ALA:HB2	1.91	0.52
1:D:444:VAL:HG11	1:D:450:ILE:HD11	1.91	0.52
1:A:308:VAL:HG11	1:A:327:MET:SD	2.50	0.52
1:A:473:GLY:HA3	1:A:474:ASP:HB2	1.92	0.52
1:D:431:LEU:CD2	1:D:466:MET:HE1	2.34	0.52
1:C:165:VAL:CG1	1:C:167:LEU:HD23	2.40	0.52
1:A:359:ILE:HD12	1:A:465:ASN:HA	1.92	0.51
1:A:379:THR:HG22	3:A:587:PO4:O1	2.10	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:165:VAL:CG1	1:D:167:LEU:HD23	2.40	0.51
1:D:182:ILE:HG21	1:D:210:GLN:HG2	1.93	0.51
1:D:435:VAL:O	1:D:439:VAL:HG23	2.10	0.51
2:D:586:I30:OAC	2:D:586:I30:NAN	2.27	0.51
1:B:472:VAL:HG12	1:B:472:VAL:O	2.11	0.51
1:A:159:ASN:C	1:A:160:LEU:HD12	2.35	0.51
1:C:175:ALA:O	1:C:179:ARG:HG3	2.10	0.51
1:C:497:VAL:HG11	1:C:518:THR:OG1	2.11	0.51
1:A:246:MET:CE	1:A:258:VAL:CG1	2.89	0.51
1:A:444:VAL:HG11	1:A:450:ILE:HD11	1.93	0.51
1:B:431:LEU:CD2	1:B:466:MET:HE1	2.34	0.51
1:C:246:MET:CE	1:C:258:VAL:CG1	2.88	0.51
1:D:482:ILE:HD12	1:D:553:VAL:HG13	1.93	0.51
1:A:226:ILE:HD11	1:A:246:MET:HE3	1.91	0.51
1:A:497:VAL:HG11	1:A:518:THR:HB	1.93	0.51
1:D:194:VAL:HG21	1:D:218:PRO:HB3	1.92	0.51
1:B:182:ILE:HG21	1:B:210:GLN:HG2	1.92	0.50
1:D:450:ILE:HD12	1:D:472:VAL:CG2	2.41	0.50
1:A:497:VAL:HG11	1:A:518:THR:CB	2.41	0.50
1:C:424:ARG:HB3	1:C:429:ALA:CB	2.42	0.50
1:D:257:MET:N	1:D:257:MET:HE3	2.27	0.50
1:D:472:VAL:HG12	1:D:472:VAL:O	2.11	0.50
1:A:392:ARG:HD3	1:A:414:TRP:CE3	2.46	0.50
1:A:537:THR:HG22	1:B:201:LEU:HB3	1.93	0.50
1:B:274:ILE:HD11	1:B:412:ILE:HD11	1.93	0.50
1:B:482:ILE:HD13	1:B:541:ALA:HB1	1.94	0.50
1:B:520:VAL:CG2	1:B:521:PRO:HD3	2.41	0.50
1:D:473:GLY:HA3	1:D:474:ASP:HB2	1.93	0.50
1:C:4:THR:CG2	1:C:331:ALA:HB1	2.42	0.50
1:D:431:LEU:HD21	1:D:466:MET:CE	2.38	0.50
1:A:444:VAL:HG21	1:A:450:ILE:HD11	1.94	0.50
1:D:497:VAL:HG11	1:D:518:THR:HB	1.93	0.50
1:A:431:LEU:CD2	1:A:466:MET:HE1	2.35	0.50
1:A:497:VAL:HG11	1:A:518:THR:OG1	2.11	0.50
1:C:482:ILE:HD12	1:C:553:VAL:HG13	1.94	0.50
1:B:4:THR:HG21	1:B:301:ILE:CD1	2.42	0.50
1:C:178:ILE:O	1:C:182:ILE:HG13	2.11	0.50
1:D:384:THR:HA	1:D:464:THR:HG21	1.94	0.50
1:A:257:MET:N	1:A:257:MET:HE3	2.27	0.50
1:D:246:MET:CE	1:D:258:VAL:CG1	2.90	0.50
1:C:520:VAL:CG2	1:C:521:PRO:HD3	2.42	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:471:LEU:HD23	1:C:472:VAL:N	2.27	0.49
1:A:520:VAL:CG2	1:A:521:PRO:HD3	2.42	0.49
1:D:4:THR:HG21	1:D:301:ILE:CD1	2.42	0.49
1:B:111:LEU:C	1:B:111:LEU:HD23	2.38	0.49
1:B:246:MET:CE	1:B:258:VAL:CG1	2.90	0.49
1:C:473:GLY:HA3	1:C:474:ASP:HB2	1.94	0.49
1:D:310:LEU:HG	1:D:327:MET:HE3	1.95	0.49
1:B:494:ALA:HB3	1:B:512:THR:CG2	2.40	0.49
1:C:159:ASN:C	1:C:160:LEU:HD12	2.37	0.49
1:C:182:ILE:HG21	1:C:210:GLN:HG2	1.94	0.49
1:C:533:GLU:O	1:C:534:ASN:CB	2.61	0.49
1:A:520:VAL:HG23	1:A:521:PRO:HD3	1.95	0.49
1:B:511:VAL:HG21	1:B:562:ILE:HD11	1.94	0.49
1:C:384:THR:HA	1:C:464:THR:HG21	1.93	0.49
1:D:497:VAL:HG11	1:D:518:THR:CB	2.43	0.49
1:A:472:VAL:HG12	1:A:472:VAL:O	2.12	0.49
1:D:511:VAL:HG21	1:D:562:ILE:HD11	1.94	0.49
1:A:435:VAL:O	1:A:439:VAL:HG23	2.12	0.49
1:D:359:ILE:HD12	1:D:465:ASN:CA	2.43	0.49
1:D:367:ALA:HA	1:D:372:VAL:HG13	1.93	0.49
2:A:586:I30:OAC	2:A:586:I30:NAN	2.37	0.49
1:B:520:VAL:HG23	1:B:521:PRO:HD3	1.94	0.49
1:C:497:VAL:HG11	1:C:518:THR:CB	2.43	0.49
1:B:507:ASP:HA	1:B:527:LEU:HD12	1.95	0.48
1:D:4:THR:HG21	1:D:301:ILE:HD13	1.95	0.48
1:C:301:ILE:HA	1:C:305:THR:HG22	1.94	0.48
1:C:497:VAL:HG11	1:C:518:THR:HB	1.95	0.48
1:D:520:VAL:CG2	1:D:521:PRO:HD3	2.42	0.48
1:B:165:VAL:CG1	1:B:167:LEU:HD23	2.43	0.48
1:C:450:ILE:HD12	1:C:472:VAL:CG2	2.43	0.48
1:D:178:ILE:O	1:D:182:ILE:HG13	2.14	0.48
1:B:4:THR:CG2	1:B:331:ALA:HB1	2.43	0.48
1:B:482:ILE:HD12	1:B:553:VAL:HG13	1.94	0.48
1:C:424:ARG:HB3	1:C:429:ALA:HB1	1.95	0.48
1:D:533:GLU:O	1:D:534:ASN:CB	2.62	0.48
1:B:310:LEU:HD22	1:B:313:GLU:HB2	1.95	0.48
1:B:379:THR:HG22	3:B:586:PO4:P	2.53	0.48
1:B:456:VAL:HA	1:B:457:PRO:C	2.37	0.48
1:B:497:VAL:HG11	1:B:518:THR:HB	1.96	0.48
1:A:246:MET:HE1	1:A:258:VAL:HG12	1.96	0.48
1:B:322:GLU:O	1:B:326:THR:HB	2.14	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:388:ILE:HG22	1:C:397:ILE:HD13	1.94	0.48
1:D:162:GLY:HA2	1:D:163:VAL:O	2.14	0.48
1:B:473:GLY:HA3	1:B:474:ASP:HB2	1.95	0.48
1:B:533:GLU:O	1:B:534:ASN:CB	2.62	0.48
1:D:7:VAL:HG22	1:D:30:VAL:HB	1.94	0.48
1:A:482:ILE:HD12	1:A:553:VAL:HG13	1.95	0.48
1:C:531:THR:HG21	1:C:540:SER:CB	2.38	0.48
1:A:178:ILE:O	1:A:182:ILE:HG13	2.13	0.48
1:A:274:ILE:HD11	1:A:412:ILE:HD11	1.95	0.48
1:A:494:ALA:HB3	1:A:512:THR:CG2	2.37	0.48
1:B:450:ILE:HD12	1:B:472:VAL:CG2	2.43	0.48
1:A:456:VAL:HA	1:A:457:PRO:C	2.39	0.47
1:C:520:VAL:HG23	1:C:521:PRO:HD3	1.96	0.47
1:B:301:ILE:HA	1:B:305:THR:HG22	1.95	0.47
1:A:194:VAL:HG21	1:A:218:PRO:HB3	1.97	0.47
1:A:378:ALA:HB3	1:A:454:ALA:CB	2.42	0.47
1:B:435:VAL:O	1:B:439:VAL:HG23	2.14	0.47
1:C:403:SER:CB	1:C:406:THR:HG23	2.44	0.47
1:C:545:LEU:HD11	1:D:235:VAL:CG2	2.44	0.47
1:A:7:VAL:HG22	1:A:30:VAL:HB	1.97	0.47
1:B:159:ASN:C	1:B:160:LEU:HD12	2.39	0.47
1:C:310:LEU:HD22	1:C:313:GLU:HB2	1.97	0.47
1:C:310:LEU:HG	1:C:327:MET:HE3	1.96	0.47
1:D:392:ARG:HD3	1:D:414:TRP:CE3	2.50	0.47
1:A:403:SER:OG	1:A:406:THR:HG23	2.14	0.47
1:B:384:THR:HA	1:B:464:THR:HG21	1.97	0.47
1:C:246:MET:HE1	1:C:258:VAL:HG12	1.96	0.47
1:C:435:VAL:O	1:C:439:VAL:HG23	2.15	0.47
1:B:444:VAL:HG11	1:B:450:ILE:HD11	1.95	0.47
1:D:520:VAL:HG23	1:D:521:PRO:HD3	1.96	0.47
1:A:359:ILE:HD12	1:A:465:ASN:CA	2.45	0.47
1:A:511:VAL:HG21	1:A:562:ILE:HD11	1.97	0.47
1:B:162:GLY:HA2	1:B:163:VAL:O	2.15	0.47
1:B:192:SER:HA	1:B:219:LYS:HD3	1.97	0.47
1:B:367:ALA:HA	1:B:372:VAL:HG13	1.97	0.47
1:D:531:THR:HG21	1:D:540:SER:CB	2.39	0.47
1:A:162:GLY:HA2	1:A:163:VAL:O	2.15	0.47
1:A:573:ALA:O	1:A:574:GLN:HB2	2.15	0.47
1:B:531:THR:HG21	1:B:540:SER:CB	2.37	0.47
1:A:310:LEU:HG	1:A:327:MET:HE3	1.96	0.46
1:B:359:ILE:CD1	1:B:465:ASN:C	2.87	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:512:THR:HG21	1:B:519:PHE:CE2	2.49	0.46
1:A:301:ILE:HA	1:A:305:THR:HG22	1.96	0.46
1:B:77:MET:HE2	1:B:152:LEU:HD23	1.96	0.46
1:D:301:ILE:HA	1:D:305:THR:HG22	1.96	0.46
1:A:388:ILE:HG22	1:A:397:ILE:HD13	1.97	0.46
1:B:431:LEU:HD21	1:B:466:MET:CE	2.38	0.46
1:C:392:ARG:HD3	1:C:414:TRP:CE3	2.51	0.46
1:B:7:VAL:HG22	1:B:30:VAL:HB	1.98	0.46
1:B:471:LEU:HD23	1:B:472:VAL:N	2.30	0.46
1:B:392:ARG:HD3	1:B:414:TRP:CE3	2.50	0.46
1:B:497:VAL:HG11	1:B:518:THR:CB	2.46	0.46
1:C:81:ILE:HD11	1:C:153:LYS:HZ1	1.80	0.46
1:A:182:ILE:HG21	1:A:210:GLN:HG2	1.98	0.46
1:A:384:THR:HA	1:A:464:THR:HG21	1.96	0.46
1:B:482:ILE:CD1	1:B:541:ALA:HB2	2.45	0.46
1:C:536:ILE:HG13	1:C:537:THR:HG23	1.98	0.46
1:A:178:ILE:HD11	1:A:206:ILE:CD1	2.46	0.46
1:A:471:LEU:HD23	1:A:472:VAL:N	2.30	0.46
1:A:482:ILE:CD1	1:A:541:ALA:HB2	2.45	0.46
1:A:507:ASP:HA	1:A:527:LEU:HD12	1.98	0.46
1:C:388:ILE:HG22	1:C:397:ILE:CD1	2.46	0.46
1:D:60:ILE:HG23	1:D:408:ARG:HG2	1.97	0.46
1:D:310:LEU:HD22	1:D:313:GLU:HB2	1.97	0.46
1:A:4:THR:CG2	1:A:331:ALA:HB1	2.45	0.46
1:B:9:THR:OG1	1:B:32:ARG:NH1	2.48	0.46
1:C:431:LEU:HD21	1:C:466:MET:CE	2.37	0.46
1:A:450:ILE:HD12	1:A:472:VAL:CG2	2.45	0.46
1:C:456:VAL:HA	1:C:457:PRO:C	2.42	0.46
1:C:512:THR:HG21	1:C:519:PHE:CE2	2.50	0.46
1:B:359:ILE:HD12	1:B:465:ASN:CA	2.45	0.45
1:D:192:SER:HA	1:D:219:LYS:HD3	1.98	0.45
1:A:322:GLU:O	1:A:326:THR:HB	2.17	0.45
1:C:511:VAL:HG21	1:C:562:ILE:HD11	1.97	0.45
1:D:497:VAL:HG11	1:D:518:THR:OG1	2.16	0.45
1:A:533:GLU:O	1:A:534:ASN:CB	2.63	0.45
1:D:246:MET:HE1	1:D:258:VAL:HG12	1.97	0.45
1:A:495:GLU:OE2	1:A:559:VAL:HG11	2.17	0.45
1:A:482:ILE:HD13	1:A:541:ALA:HB1	1.95	0.45
1:B:378:ALA:HB3	1:B:454:ALA:CB	2.44	0.45
1:C:4:THR:HG21	1:C:301:ILE:CD1	2.47	0.45
1:C:472:VAL:O	1:C:472:VAL:HG12	2.15	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:60:ILE:HG23	1:C:408:ARG:HG2	1.98	0.45
1:C:77:MET:HE2	1:C:152:LEU:HD23	1.99	0.45
1:C:192:SER:HA	1:C:219:LYS:HD3	1.98	0.45
1:B:3:LYS:HD2	1:B:414:TRP:CZ2	2.52	0.45
1:D:322:GLU:O	1:D:326:THR:HB	2.16	0.45
1:B:384:THR:OG1	1:B:464:THR:HB	2.16	0.45
1:B:529:LEU:HD11	1:B:531:THR:HG22	1.99	0.45
1:C:322:GLU:O	1:C:326:THR:HB	2.17	0.45
1:C:574:GLN:OE1	1:D:462:GLY:HA3	2.17	0.45
1:B:573:ALA:O	1:B:574:GLN:HB2	2.17	0.45
1:D:573:ALA:O	1:D:574:GLN:HB2	2.17	0.45
1:A:367:ALA:HA	1:A:372:VAL:HG13	1.98	0.44
1:B:359:ILE:HD12	1:B:465:ASN:HA	1.98	0.44
1:C:482:ILE:HD13	1:C:541:ALA:HB1	1.97	0.44
1:A:392:ARG:HA	1:A:414:TRP:CZ3	2.52	0.44
1:A:403:SER:CB	1:A:406:THR:HG23	2.47	0.44
1:C:367:ALA:HA	1:C:372:VAL:HG13	1.99	0.44
1:A:350:LEU:HD22	1:A:350:LEU:O	2.17	0.44
1:C:7:VAL:HG22	1:C:30:VAL:HB	1.98	0.44
1:C:275:THR:O	1:C:279:MET:HE3	2.16	0.44
1:C:350:LEU:O	1:C:350:LEU:HD22	2.17	0.44
1:D:350:LEU:HD22	1:D:350:LEU:O	2.17	0.44
1:D:494:ALA:HB3	1:D:512:THR:CG2	2.39	0.44
1:D:495:GLU:OE2	1:D:559:VAL:HG11	2.18	0.44
1:A:77:MET:HE2	1:A:152:LEU:HD23	2.00	0.44
1:B:122:LEU:HD12	1:B:122:LEU:N	2.32	0.44
1:B:430:LEU:HD23	1:B:430:LEU:C	2.43	0.44
1:C:359:ILE:O	1:C:363:VAL:HG23	2.18	0.44
1:C:495:GLU:OE2	1:C:559:VAL:HG11	2.17	0.44
1:D:491:THR:HG21	1:D:562:ILE:CD1	2.47	0.44
1:A:122:LEU:N	1:A:122:LEU:HD12	2.33	0.44
1:A:310:LEU:HD22	1:A:313:GLU:HB2	1.99	0.43
1:A:512:THR:HG21	1:A:519:PHE:CE2	2.53	0.43
1:B:392:ARG:HA	1:B:414:TRP:CZ3	2.53	0.43
1:D:80:GLY:HA2	1:D:154:ASN:HD21	1.83	0.43
1:A:291:ARG:CB	1:D:252:PRO:HB3	2.48	0.43
1:A:473:GLY:CA	1:A:474:ASP:HB2	2.49	0.43
1:A:491:THR:HG21	1:A:562:ILE:CD1	2.48	0.43
1:B:497:VAL:HG11	1:B:518:THR:OG1	2.18	0.43
1:C:80:GLY:HA2	1:C:154:ASN:HD21	1.83	0.43
1:D:473:GLY:CA	1:D:474:ASP:HB2	2.48	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:504:ASP:OD2	1:D:504:ASP:N	2.52	0.43
1:D:482:ILE:HD13	1:D:541:ALA:HB1	2.00	0.43
1:A:9:THR:OG1	1:A:32:ARG:NH1	2.49	0.43
1:B:539:PRO:O	1:B:543:VAL:HG13	2.19	0.43
1:D:388:ILE:HG22	1:D:397:ILE:HD13	2.01	0.43
1:D:403:SER:CB	1:D:406:THR:HG23	2.49	0.43
1:A:60:ILE:HG23	1:A:408:ARG:HG2	2.00	0.43
1:A:82:ILE:HG22	1:A:152:LEU:HB3	2.01	0.43
1:C:430:LEU:C	1:C:430:LEU:HD23	2.44	0.43
1:D:539:PRO:O	1:D:543:VAL:HG13	2.18	0.43
1:A:80:GLY:HA2	1:A:154:ASN:HD21	1.83	0.43
1:B:308:VAL:CG1	1:B:327:MET:SD	3.05	0.43
1:C:507:ASP:HA	1:C:527:LEU:HD12	2.00	0.43
1:D:3:LYS:HD2	1:D:414:TRP:CZ2	2.54	0.43
1:A:81:ILE:HD11	1:A:153:LYS:HZ1	1.83	0.43
1:A:388:ILE:HG22	1:A:397:ILE:CD1	2.48	0.43
1:B:388:ILE:HG22	1:B:397:ILE:HD13	2.00	0.43
1:D:536:ILE:HG13	1:D:537:THR:HG23	2.00	0.43
1:B:536:ILE:HG13	1:B:537:THR:HG23	2.01	0.43
1:C:82:ILE:HG22	1:C:152:LEU:HB3	2.01	0.43
1:D:359:ILE:CD1	1:D:465:ASN:C	2.91	0.43
1:D:456:VAL:HA	1:D:457:PRO:C	2.44	0.43
1:D:82:ILE:HG22	1:D:152:LEU:HB3	2.00	0.43
1:D:379:THR:HG22	3:D:587:PO4:O2	2.18	0.43
1:A:424:ARG:HB3	1:A:429:ALA:CB	2.49	0.43
1:B:246:MET:HE1	1:B:258:VAL:HG12	2.00	0.43
1:C:226:ILE:CD1	1:C:246:MET:HE3	2.43	0.43
1:C:379:THR:HG22	3:C:586:PO4:O3	2.19	0.43
1:C:567:LEU:O	1:C:579:GLU:O	2.36	0.43
1:A:49:THR:O	1:A:53:VAL:HG23	2.18	0.42
1:A:97:VAL:HG22	1:A:105:SER:HB3	2.01	0.42
1:A:146:ILE:HD11	1:A:148:ASN:O	2.18	0.42
1:A:192:SER:HA	1:A:219:LYS:HD3	2.01	0.42
1:A:4:THR:HG21	1:A:301:ILE:CD1	2.49	0.42
1:D:351:VAL:HG21	1:D:391:TYR:OH	2.18	0.42
1:A:3:LYS:HD2	1:A:414:TRP:CZ2	2.54	0.42
1:B:403:SER:OG	1:B:406:THR:HG23	2.19	0.42
1:B:494:ALA:HB2	1:B:500:LEU:HD23	2.00	0.42
1:D:529:LEU:HB3	1:D:551:THR:CG2	2.46	0.42
1:A:539:PRO:O	1:A:543:VAL:HG13	2.19	0.42
1:A:545:LEU:HD11	1:B:235:VAL:HG22	2.01	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:529:LEU:HD11	1:D:531:THR:HG22	2.01	0.42
1:B:3:LYS:HB2	1:B:335:GLU:CD	2.44	0.42
1:B:80:GLY:HA2	1:B:154:ASN:HD21	1.84	0.42
1:C:49:THR:O	1:C:53:VAL:HG23	2.20	0.42
1:C:84:LEU:HD13	1:C:128:ILE:HD12	2.01	0.42
1:C:462:GLY:HA3	1:D:574:GLN:OE1	2.19	0.42
1:C:494:ALA:HB2	1:C:500:LEU:HD23	2.01	0.42
1:C:509:VAL:HG23	1:C:509:VAL:O	2.19	0.42
1:A:529:LEU:HB3	1:A:551:THR:CG2	2.46	0.42
1:C:539:PRO:O	1:C:543:VAL:HG13	2.19	0.42
1:B:60:ILE:HG23	1:B:408:ARG:HG2	2.02	0.42
1:B:178:ILE:O	1:B:182:ILE:HG13	2.20	0.42
1:B:491:THR:HG21	1:B:562:ILE:CD1	2.50	0.42
1:C:491:THR:HG21	1:C:562:ILE:CD1	2.50	0.42
1:C:494:ALA:HB3	1:C:512:THR:CG2	2.43	0.42
1:D:122:LEU:HD12	1:D:122:LEU:N	2.35	0.42
1:D:392:ARG:HA	1:D:414:TRP:CZ3	2.55	0.42
1:A:171:THR:HB	1:A:174:ASP:H	1.85	0.42
1:B:81:ILE:HD11	1:B:153:LYS:NZ	2.35	0.42
1:C:529:LEU:HD11	1:C:531:THR:HG22	2.01	0.42
1:C:308:VAL:CG1	1:C:327:MET:SD	3.08	0.42
1:D:471:LEU:HD23	1:D:472:VAL:N	2.35	0.42
1:D:494:ALA:HB2	1:D:500:LEU:HD23	2.02	0.42
1:A:509:VAL:HG23	1:A:509:VAL:O	2.20	0.41
1:B:84:LEU:HD13	1:B:128:ILE:HD12	2.02	0.41
1:C:573:ALA:O	1:C:574:GLN:HB2	2.20	0.41
1:D:146:ILE:HD11	1:D:148:ASN:O	2.20	0.41
1:C:351:VAL:HG21	1:C:391:TYR:OH	2.20	0.41
1:D:512:THR:HG21	1:D:519:PHE:CE2	2.54	0.41
1:A:536:ILE:HG13	1:A:537:THR:HG23	2.02	0.41
1:B:97:VAL:HG22	1:B:105:SER:HB3	2.02	0.41
1:A:165:VAL:HG12	1:A:167:LEU:HD23	2.02	0.41
1:A:359:ILE:CD1	1:A:465:ASN:C	2.91	0.41
1:A:351:VAL:HG21	1:A:391:TYR:OH	2.20	0.41
1:A:494:ALA:HB2	1:A:500:LEU:HD23	2.01	0.41
1:B:84:LEU:HD13	1:B:128:ILE:CD1	2.50	0.41
1:B:401:THR:HG21	1:B:407:ALA:HB2	2.02	0.41
1:C:84:LEU:HD13	1:C:128:ILE:CD1	2.50	0.41
1:B:529:LEU:HB3	1:B:551:THR:CG2	2.47	0.41
1:C:171:THR:HB	1:C:174:ASP:H	1.85	0.41
1:C:473:GLY:CA	1:C:474:ASP:HB2	2.50	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:482:ILE:CD1	1:C:541:ALA:HB2	2.50	0.41
1:C:529:LEU:HB3	1:C:551:THR:CG2	2.46	0.41
1:D:160:LEU:HD12	1:D:160:LEU:N	2.35	0.41
1:D:379:THR:HG22	3:D:587:PO4:O1	2.20	0.41
1:D:459:GLY:C	1:D:461:THR:H	2.29	0.41
1:B:310:LEU:HD22	1:B:313:GLU:CB	2.51	0.41
1:B:403:SER:CB	1:B:406:THR:HG23	2.50	0.41
1:A:430:LEU:HD23	1:A:430:LEU:C	2.45	0.41
1:C:220:ILE:CG2	1:C:226:ILE:HD13	2.50	0.41
1:D:350:LEU:HD22	1:D:350:LEU:C	2.46	0.41
1:D:509:VAL:HG23	1:D:509:VAL:O	2.21	0.41
1:B:388:ILE:HG22	1:B:397:ILE:CD1	2.50	0.41
1:C:220:ILE:HG13	1:C:239:LEU:HD11	2.03	0.41
1:D:97:VAL:HG22	1:D:105:SER:HB3	2.02	0.41
1:A:3:LYS:HB2	1:A:335:GLU:CD	2.46	0.41
1:B:36:SER:HA	1:B:68:LYS:HB2	2.03	0.41
1:B:495:GLU:OE2	1:B:559:VAL:HG11	2.20	0.41
1:D:490:THR:HA	1:D:567:LEU:HA	2.03	0.41
1:B:82:ILE:HG22	1:B:152:LEU:HB3	2.02	0.40
1:C:310:LEU:HD22	1:C:313:GLU:CB	2.51	0.40
1:D:388:ILE:HG22	1:D:397:ILE:CD1	2.51	0.40
1:A:99:GLY:C	1:A:100:THR:HG22	2.46	0.40
1:B:171:THR:HB	1:B:174:ASP:H	1.86	0.40
1:C:97:VAL:HG22	1:C:105:SER:HB3	2.03	0.40
1:C:191:ALA:HB2	1:C:203:ILE:CD1	2.51	0.40
1:C:384:THR:OG1	1:C:464:THR:HB	2.22	0.40
1:C:392:ARG:HA	1:C:414:TRP:CZ3	2.55	0.40
1:C:459:GLY:C	1:C:461:THR:H	2.29	0.40
1:A:280:LEU:HD13	1:A:326:THR:CG2	2.51	0.40
1:C:178:ILE:HD11	1:C:206:ILE:CD1	2.49	0.40
1:D:99:GLY:C	1:D:100:THR:HG22	2.47	0.40
1:D:280:LEU:HD13	1:D:326:THR:CG2	2.52	0.40
1:A:246:MET:HE3	1:A:258:VAL:HG11	2.04	0.40
1:B:424:ARG:HB3	1:B:429:ALA:CB	2.52	0.40

There are no symmetry-related clashes.

5.3 Torsion angles

5.3.1 Protein backbone

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	581/606 (96%)	529 (91%)	42 (7%)	10 (2%)	7	30
1	B	581/606 (96%)	528 (91%)	44 (8%)	9 (2%)	8	32
1	C	581/606 (96%)	526 (90%)	46 (8%)	9 (2%)	8	32
1	D	581/606 (96%)	529 (91%)	42 (7%)	10 (2%)	7	30
All	All	2324/2424 (96%)	2112 (91%)	174 (8%)	38 (2%)	7	30

All (38) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	154	ASN
1	A	220	ILE
1	A	475	GLU
1	A	506	SER
1	A	534	ASN
1	B	2	ARG
1	B	154	ASN
1	B	220	ILE
1	B	475	GLU
1	B	506	SER
1	B	534	ASN
1	C	2	ARG
1	C	154	ASN
1	C	220	ILE
1	C	475	GLU
1	C	506	SER
1	C	534	ASN
1	D	2	ARG
1	D	154	ASN
1	D	475	GLU
1	D	506	SER
1	D	534	ASN

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Mol	Chain	Res	Type
1	A	2	ARG
1	D	220	ILE
1	A	104	PHE
1	B	104	PHE
1	C	104	PHE
1	D	104	PHE
1	A	163	VAL
1	A	507	ASP
1	B	163	VAL
1	B	459	GLY
1	C	163	VAL
1	D	163	VAL
1	D	507	ASP
1	A	459	GLY
1	C	459	GLY
1	D	459	GLY

5.3.2 Protein sidechains ⓘ

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	490/510 (96%)	467 (95%)	23 (5%)	23	55
1	B	490/510 (96%)	467 (95%)	23 (5%)	23	55
1	C	490/510 (96%)	465 (95%)	25 (5%)	21	52
1	D	490/510 (96%)	465 (95%)	25 (5%)	21	52
All	All	1960/2040 (96%)	1864 (95%)	96 (5%)	22	53

All (96) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	2	ARG
1	A	51	ARG
1	A	61	VAL
1	A	77	MET
1	A	82	ILE

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Mol	Chain	Res	Type
1	A	100	THR
1	A	136	ASP
1	A	146	ILE
1	A	167	LEU
1	A	171	THR
1	A	186	VAL
1	A	195	ARG
1	A	210	GLN
1	A	326	THR
1	A	350	LEU
1	A	372	VAL
1	A	379	THR
1	A	406	THR
1	A	413	VAL
1	A	444	VAL
1	A	450	ILE
1	A	464	THR
1	A	562	ILE
1	B	2	ARG
1	B	51	ARG
1	B	61	VAL
1	B	77	MET
1	B	82	ILE
1	B	100	THR
1	B	136	ASP
1	B	146	ILE
1	B	159	ASN
1	B	167	LEU
1	B	171	THR
1	B	186	VAL
1	B	195	ARG
1	B	210	GLN
1	B	326	THR
1	B	350	LEU
1	B	379	THR
1	B	406	THR
1	B	413	VAL
1	B	444	VAL
1	B	450	ILE
1	B	464	THR
1	B	562	ILE
1	C	2	ARG

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Mol	Chain	Res	Type
1	C	51	ARG
1	C	61	VAL
1	C	77	MET
1	C	82	ILE
1	C	100	THR
1	C	136	ASP
1	C	146	ILE
1	C	167	LEU
1	C	171	THR
1	C	186	VAL
1	C	195	ARG
1	C	210	GLN
1	C	326	THR
1	C	350	LEU
1	C	372	VAL
1	C	379	THR
1	C	406	THR
1	C	413	VAL
1	C	444	VAL
1	C	450	ILE
1	C	464	THR
1	C	542	ILE
1	C	562	ILE
1	C	570	ILE
1	D	2	ARG
1	D	51	ARG
1	D	61	VAL
1	D	77	MET
1	D	82	ILE
1	D	100	THR
1	D	136	ASP
1	D	146	ILE
1	D	159	ASN
1	D	167	LEU
1	D	171	THR
1	D	186	VAL
1	D	195	ARG
1	D	210	GLN
1	D	326	THR
1	D	350	LEU
1	D	372	VAL
1	D	379	THR

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Mol	Chain	Res	Type
1	D	406	THR
1	D	413	VAL
1	D	444	VAL
1	D	450	ILE
1	D	464	THR
1	D	562	ILE
1	D	570	ILE

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (12) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	417	GLN
1	A	446	ASN
1	A	513	ASN
1	B	154	ASN
1	B	513	ASN
1	C	154	ASN
1	C	417	GLN
1	C	446	ASN
1	C	513	ASN
1	D	267	ASN
1	D	417	GLN
1	D	513	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 oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

6 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	I30	A	586	-	25,25,25	2.63	6 (24%)	33,35,35	1.73	7 (21%)
3	PO4	A	587	-	4,4,4	0.94	0	6,6,6	0.50	0
2	I30	D	586	-	25,25,25	2.64	6 (24%)	33,35,35	1.89	10 (30%)
3	PO4	D	587	-	4,4,4	0.84	0	6,6,6	0.56	0
3	PO4	C	586	-	4,4,4	0.93	0	6,6,6	0.80	0
3	PO4	B	586	-	4,4,4	1.00	0	6,6,6	0.71	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	I30	A	586	-	-	0/12/13/13	0/3/3/3
2	I30	D	586	-	-	0/12/13/13	0/3/3/3

All (12) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	D	586	I30	NAN-NAL	-8.51	1.22	1.37
2	A	586	I30	NAN-NAL	-8.34	1.23	1.37
2	A	586	I30	CAU-CAP	-7.34	1.38	1.47
2	D	586	I30	CAU-CAP	-7.20	1.38	1.47
2	A	586	I30	CAT-CAQ	3.80	1.57	1.50
2	D	586	I30	CAP-NAL	3.39	1.33	1.29
2	D	586	I30	CAW-NAO	-2.97	1.33	1.39
2	A	586	I30	CAW-NAO	-2.88	1.34	1.39
2	D	586	I30	CAT-CAQ	2.80	1.55	1.50
2	D	586	I30	CAV-NAM	-2.73	1.33	1.38
2	A	586	I30	CAV-NAM	-2.68	1.33	1.38
2	A	586	I30	CAP-NAL	2.56	1.32	1.29

All (17) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	586	I30	CAP-NAL-NAN	4.72	125.12	117.96
2	A	586	I30	BRAD-CAR-CAK	4.07	125.00	119.23
2	A	586	I30	NAM-CAU-NAO	-3.94	109.00	113.22
2	D	586	I30	NAM-CAU-NAO	-3.93	109.02	113.22
2	A	586	I30	CAW-NAO-CAU	3.54	108.27	104.68
2	A	586	I30	BRAD-CAR-CAG	-3.37	114.70	119.30
2	D	586	I30	CAW-NAO-CAU	3.08	107.81	104.68
2	D	586	I30	BRAD-CAR-CAG	-2.96	115.26	119.30
2	D	586	I30	BRAD-CAR-CAK	2.93	123.38	119.23
2	A	586	I30	CAP-NAL-NAN	2.70	122.06	117.96
2	D	586	I30	CAK-CAT-CAQ	2.63	124.68	117.21
2	A	586	I30	CAK-CAT-CAQ	2.50	124.32	117.21
2	D	586	I30	CAA-CAP-CAU	2.26	122.15	118.35
2	D	586	I30	CAJ-CAW-CAV	-2.20	117.83	120.26
2	D	586	I30	CAJ-CAW-NAO	2.12	134.22	128.21
2	D	586	I30	CAF-CAE-CAI	-2.11	117.63	120.24
2	A	586	I30	CAA-CAP-CAU	2.10	121.88	118.35

There are no chirality outliers.

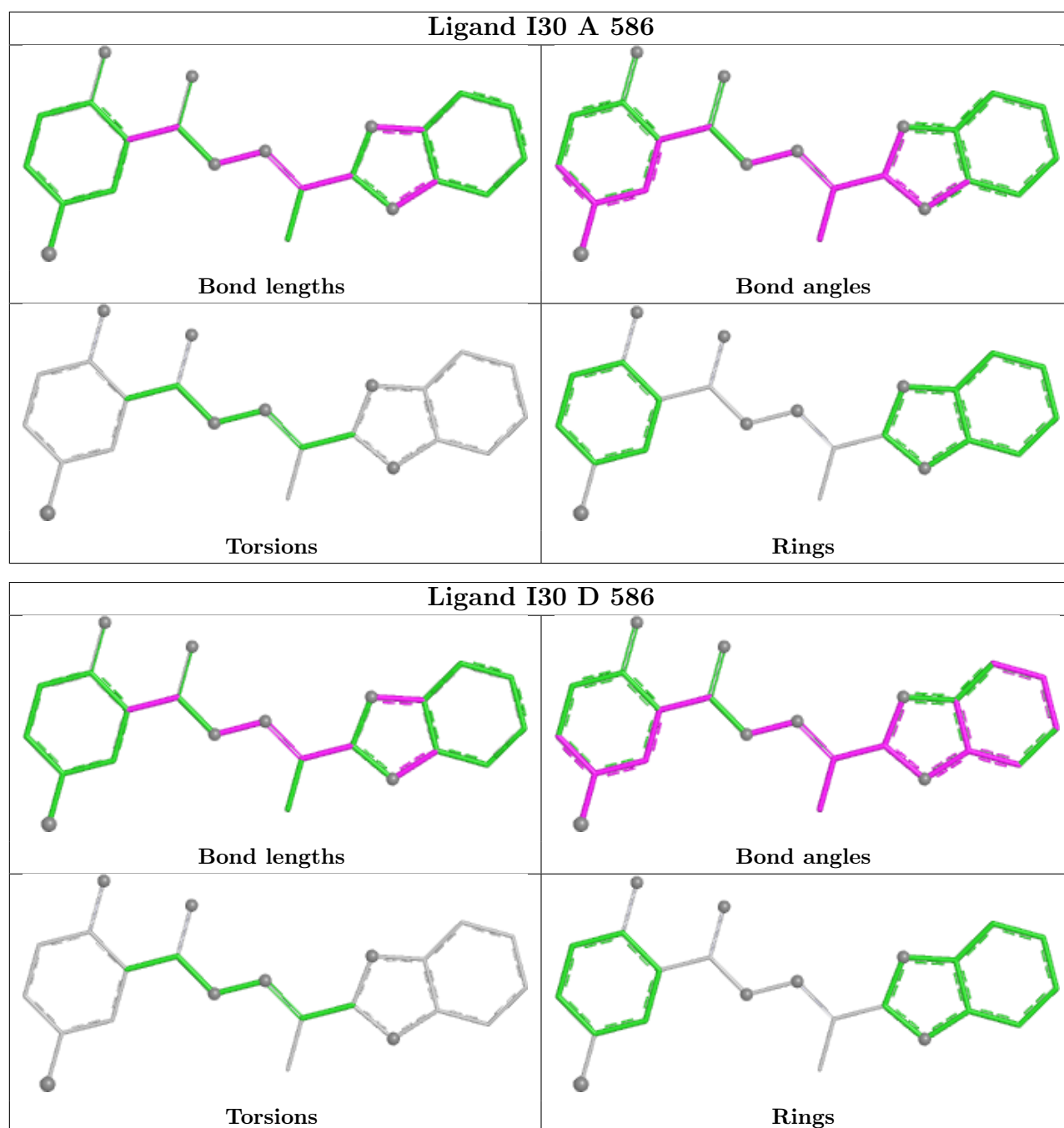
There are no torsion outliers.

There are no ring outliers.

6 monomers are involved in 9 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	586	I30	1	0
3	A	587	PO4	2	0
2	D	586	I30	1	0
3	D	587	PO4	2	0
3	C	586	PO4	1	0
3	B	586	PO4	2	0

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



5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

In the following table, the column labelled ‘#RSRZ > 2’ contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 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	583/606 (96%)	-0.21	2 (0%) 90 80	56, 91, 133, 168	0
1	B	583/606 (96%)	-0.14	6 (1%) 79 61	47, 80, 162, 198	0
1	C	583/606 (96%)	-0.18	6 (1%) 79 61	51, 91, 154, 190	0
1	D	583/606 (96%)	-0.30	3 (0%) 87 73	50, 83, 126, 165	0
All	All	2332/2424 (96%)	-0.21	17 (0%) 84 68	47, 86, 147, 198	0

All (17) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	185	ASN	4.0
1	B	138	ALA	2.8
1	B	505	LEU	2.5
1	D	505	LEU	2.5
1	B	1	MET	2.4
1	C	505	LEU	2.4
1	B	253	GLU	2.4
1	D	461	THR	2.3
1	A	136	ASP	2.3
1	C	1	MET	2.3
1	C	425	LYS	2.2
1	A	1	MET	2.1
1	C	583	ASN	2.1
1	B	196	ARG	2.1
1	C	424	ARG	2.1
1	D	136	ASP	2.1
1	C	127	LEU	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 [i](#)

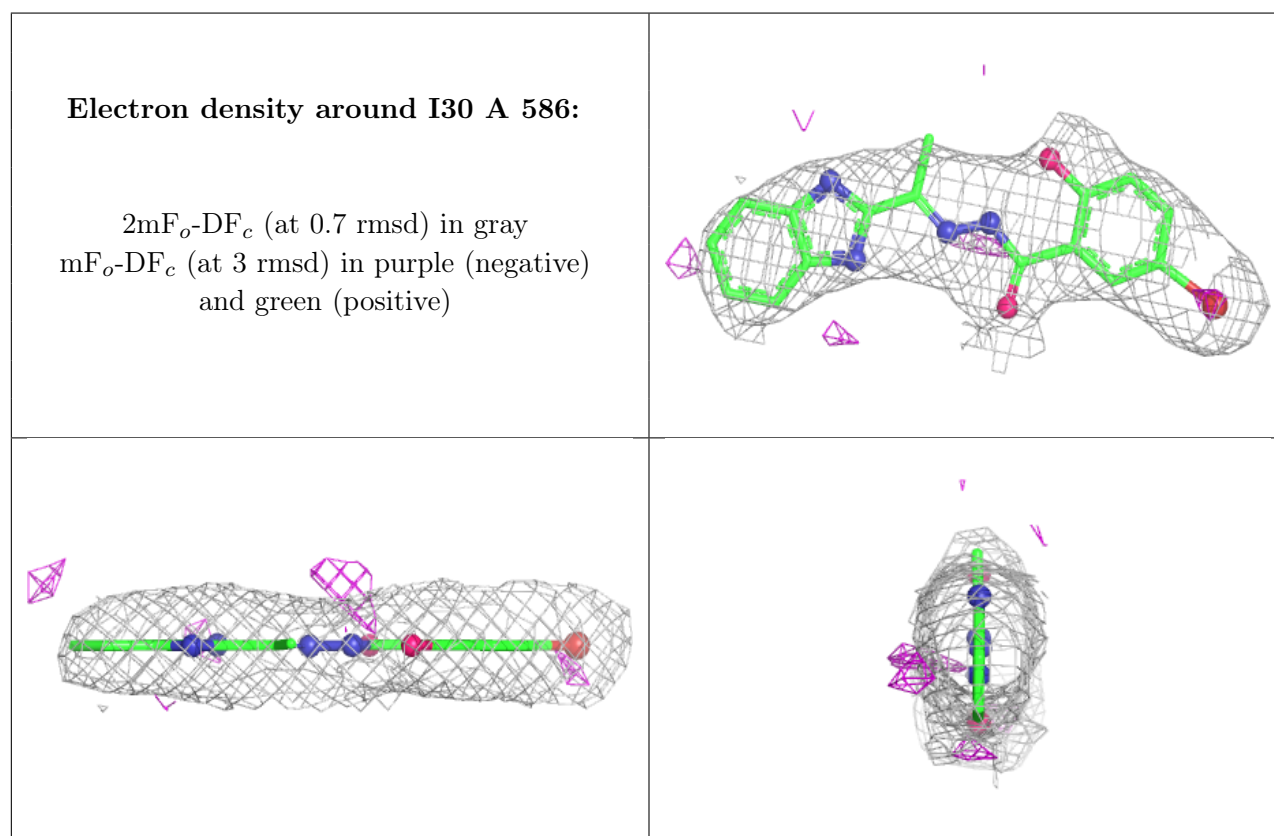
There are no oligosaccharides in this entry.

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.

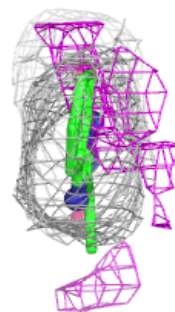
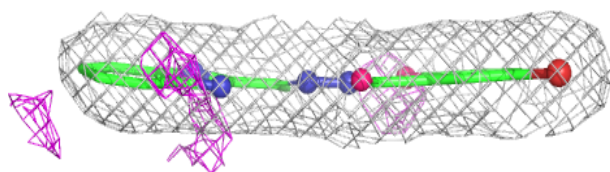
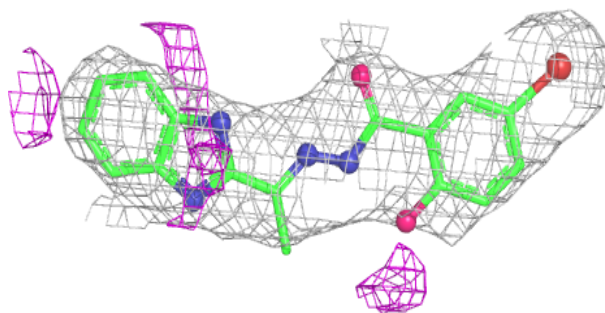
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
3	PO4	D	587	5/5	0.86	0.12	94,98,105,111	0
3	PO4	C	586	5/5	0.93	0.11	90,99,102,104	0
3	PO4	A	587	5/5	0.93	0.09	98,104,106,109	0
3	PO4	B	586	5/5	0.94	0.08	88,94,96,97	0
2	I30	A	586	23/23	0.96	0.08	58,69,78,103	0
2	I30	D	586	23/23	0.96	0.08	50,69,85,103	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 I30 D 586:

$2mF_o-DF_c$ (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.