



Full wwPDB X-ray Structure Validation Report ⓘ

Feb 27, 2014 – 04:32 AM GMT

PDB ID : 1PJ2
Title : Crystal structure of human mitochondrial NAD(P)+-dependent malic enzyme in a pentary complex with natural substrate malate, cofactor NADH, Mn++, and allosteric activator fumarate
Authors : Tao, X.; Yang, Z.; Tong, L.
Deposited on : 2003-05-30
Resolution : 2.30 Å(reported)

This is a full wwPDB validation report for a publicly released PDB entry.
We welcome your comments at validation@mail.wwpdb.org
A user guide is available at <http://wwpdb.org/ValidationPDFNotes.html>

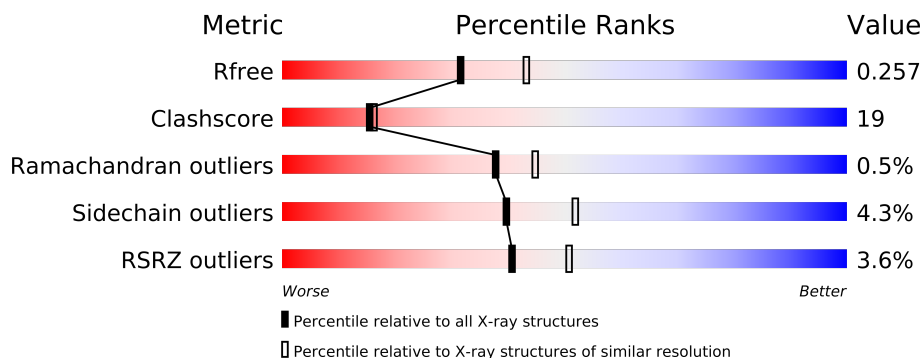
The following versions of software and data (see [references](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.15 2013
Xtriage (Phenix) : dev-1323
EDS : stable22639
Percentile statistics : 21963
Refmac : 5.8.0049
CCP4 : 6.3.0 (Settle)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et. al. (1996)
Validation Pipeline (wwPDB-VP) : stable22683

1 Overall quality at a glance

The reported resolution of this entry is 2.30 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}	66092	2929 (2.30-2.30)
Clashscore	79885	3679 (2.30-2.30)
Ramachandran outliers	78287	3642 (2.30-2.30)
Sidechain outliers	78261	3641 (2.30-2.30)
RSRZ outliers	66119	2930 (2.30-2.30)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments on the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density.

Mol	Chain	Length	Quality of chain
1	A	564	
1	B	564	
1	C	564	
1	D	564	

The following table lists non-polymeric compounds that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Geometry	Electron density
5	FUM	D	3700	-	X

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 18640 atoms, of which 0 are hydrogen and 0 are deuterium.

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 NAD-dependent malic enzyme, mitochondrial.

Mol	Chain	Residues	Atoms						ZeroOcc	AltConf	Trace
1	A	553	Total	C	N	O	S	Se	0	0	0
			4367	2796	744	804	9	14			
1	B	553	Total	C	N	O	S	Se	0	0	0
			4367	2796	744	804	9	14			
1	C	553	Total	C	N	O	S	Se	0	0	0
			4367	2796	744	804	9	14			
1	D	553	Total	C	N	O	S	Se	0	0	0
			4367	2796	744	804	9	14			

There are 56 discrepancies between the modelled and reference sequences:

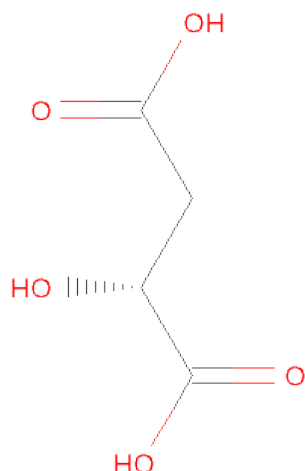
Chain	Residue	Modelled	Actual	Comment	Reference
A	29	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	38	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	47	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	75	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	86	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	108	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	177	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	219	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	239	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	325	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	327	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	343	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	407	MSE	MET	MODIFIED RESIDUE	UNP P23368
A	539	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1029	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1038	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1047	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1075	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1086	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1108	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1177	MSE	MET	MODIFIED RESIDUE	UNP P23368

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Chain	Residue	Modelled	Actual	Comment	Reference
B	1219	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1239	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1325	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1327	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1343	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1407	MSE	MET	MODIFIED RESIDUE	UNP P23368
B	1539	MSE	MET	MODIFIED RESIDUE	UNP P23368
C	2029	MSE	MET	MODIFIED RESIDUE	UNP P23368
C	2038	MSE	MET	MODIFIED RESIDUE	UNP P23368
C	2047	MSE	MET	MODIFIED RESIDUE	UNP P23368
C	2075	MSE	MET	MODIFIED RESIDUE	UNP P23368
C	2086	MSE	MET	MODIFIED RESIDUE	UNP P23368
C	2108	MSE	MET	MODIFIED RESIDUE	UNP P23368
C	2177	MSE	MET	MODIFIED RESIDUE	UNP P23368
C	2219	MSE	MET	MODIFIED RESIDUE	UNP P23368
C	2239	MSE	MET	MODIFIED RESIDUE	UNP P23368
C	2325	MSE	MET	MODIFIED RESIDUE	UNP P23368
C	2327	MSE	MET	MODIFIED RESIDUE	UNP P23368
C	2343	MSE	MET	MODIFIED RESIDUE	UNP P23368
C	2407	MSE	MET	MODIFIED RESIDUE	UNP P23368
C	2539	MSE	MET	MODIFIED RESIDUE	UNP P23368
D	3029	MSE	MET	MODIFIED RESIDUE	UNP P23368
D	3038	MSE	MET	MODIFIED RESIDUE	UNP P23368
D	3047	MSE	MET	MODIFIED RESIDUE	UNP P23368
D	3075	MSE	MET	MODIFIED RESIDUE	UNP P23368
D	3086	MSE	MET	MODIFIED RESIDUE	UNP P23368
D	3108	MSE	MET	MODIFIED RESIDUE	UNP P23368
D	3177	MSE	MET	MODIFIED RESIDUE	UNP P23368
D	3219	MSE	MET	MODIFIED RESIDUE	UNP P23368
D	3239	MSE	MET	MODIFIED RESIDUE	UNP P23368
D	3325	MSE	MET	MODIFIED RESIDUE	UNP P23368
D	3327	MSE	MET	MODIFIED RESIDUE	UNP P23368
D	3343	MSE	MET	MODIFIED RESIDUE	UNP P23368
D	3407	MSE	MET	MODIFIED RESIDUE	UNP P23368
D	3539	MSE	MET	MODIFIED RESIDUE	UNP P23368

- Molecule 2 is MALATE ION (three-letter code: MLT) (formula: $C_4H_6O_5$).

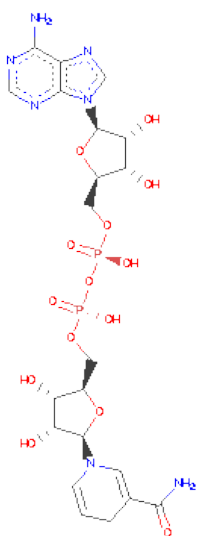


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	C	O	0	0
			9	4	5		
2	B	1	Total	C	O	0	0
			9	4	5		
2	C	1	Total	C	O	0	0
			9	4	5		
2	D	1	Total	C	O	0	0
			9	4	5		

- Molecule 3 is MANGANESE (II) ION (three-letter code: MN) (formula: Mn).

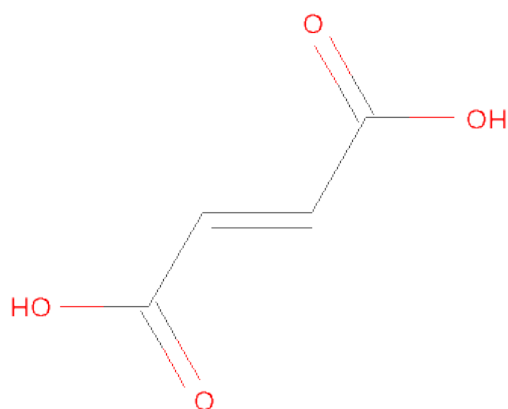
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	B	1	Total	Mn	0	0
			1	1		
3	A	1	Total	Mn	0	0
			1	1		
3	D	1	Total	Mn	0	0
			1	1		
3	C	1	Total	Mn	0	0
			1	1		

- Molecule 4 is 1,4-DIHYDRONICOTINAMIDEADENINE DINUCLEOTIDE (three-letter code: NAI) (formula: C₂₁H₂₉N₇O₁₄P₂).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
4	A	1	Total	C	N	O	P	0	0
			44	21	7	14	2		
4	A	1	Total	C	N	O	P	9	0
			44	21	7	14	2		
4	B	1	Total	C	N	O	P	0	0
			44	21	7	14	2		
4	B	1	Total	C	N	O	P	9	0
			44	21	7	14	2		
4	C	1	Total	C	N	O	P	0	0
			44	21	7	14	2		
4	C	1	Total	C	N	O	P	9	0
			44	21	7	14	2		
4	D	1	Total	C	N	O	P	0	0
			44	21	7	14	2		
4	D	1	Total	C	N	O	P	9	0
			44	21	7	14	2		

- Molecule 5 is FUMARIC ACID (three-letter code: FUM) (formula: C₄H₄O₄).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	A	1	Total	C	O	0	0
			8	4	4		
5	B	1	Total	C	O	0	0
			8	4	4		
5	C	1	Total	C	O	0	0
			8	4	4		
5	D	1	Total	C	O	0	0
			8	4	4		

- Molecule 6 is water.

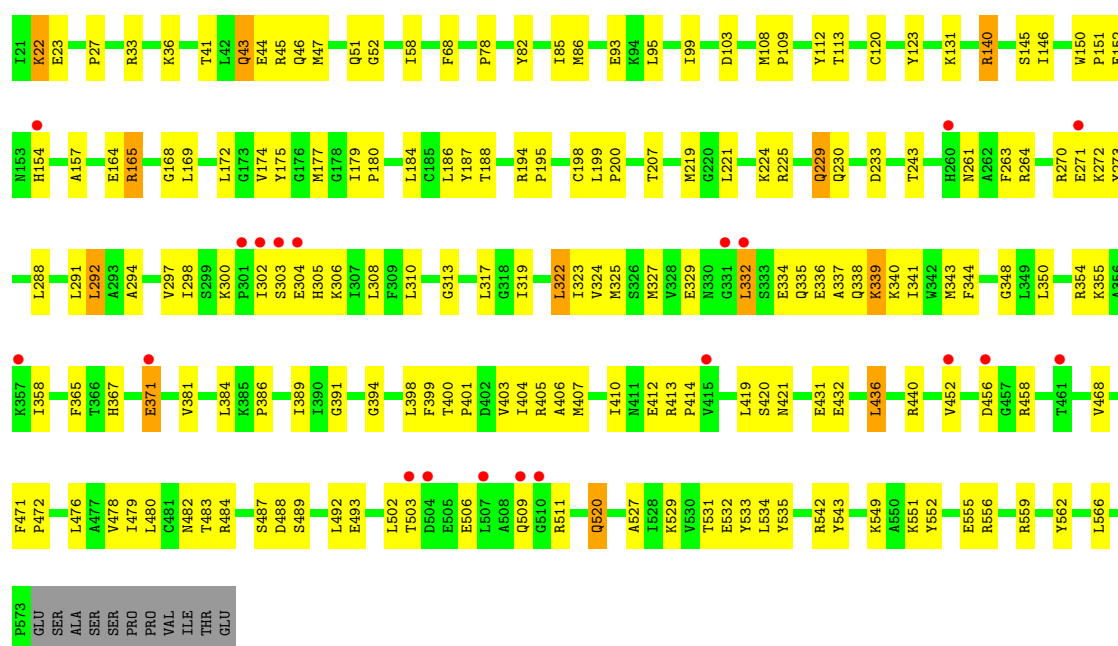
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	193	Total	O	0	0
			193	193		
6	B	164	Total	O	0	0
			164	164		
6	C	212	Total	O	0	0
			212	212		
6	D	179	Total	O	0	0
			179	179		

3 Residue-property plots

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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.

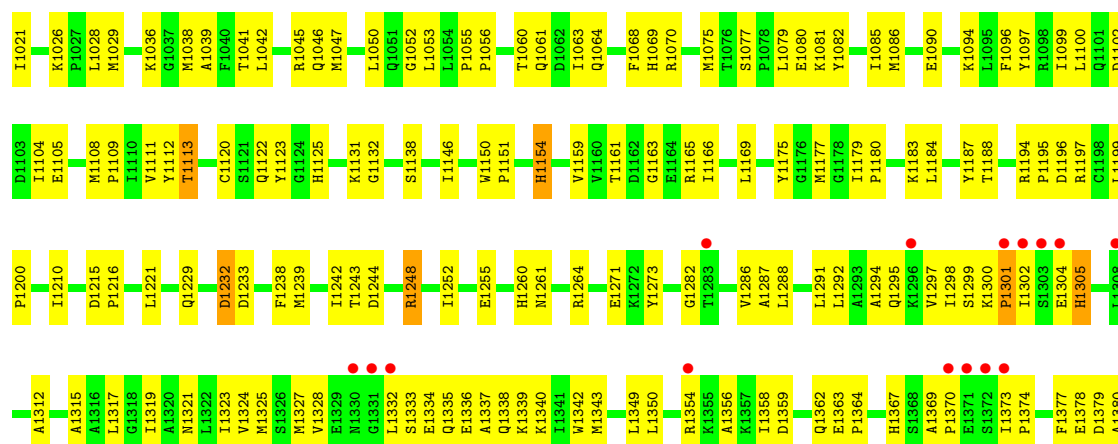
- Molecule 1: NAD-dependent malic enzyme, mitochondrial

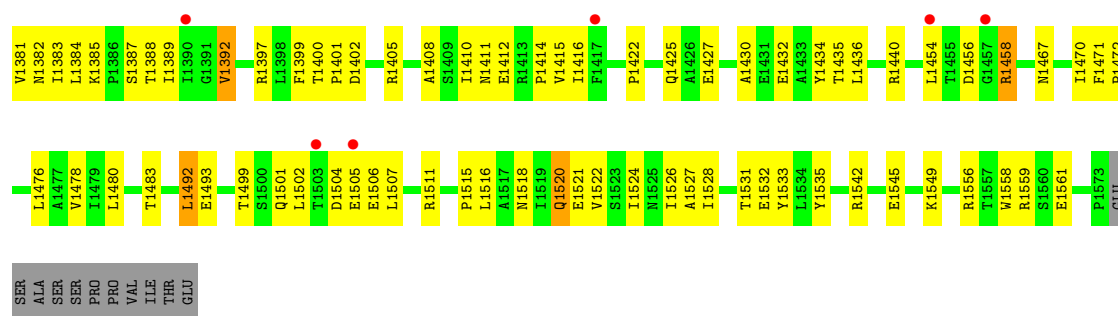
Chain A: 



- Molecule 1: NAD-dependent malic enzyme, mitochondrial

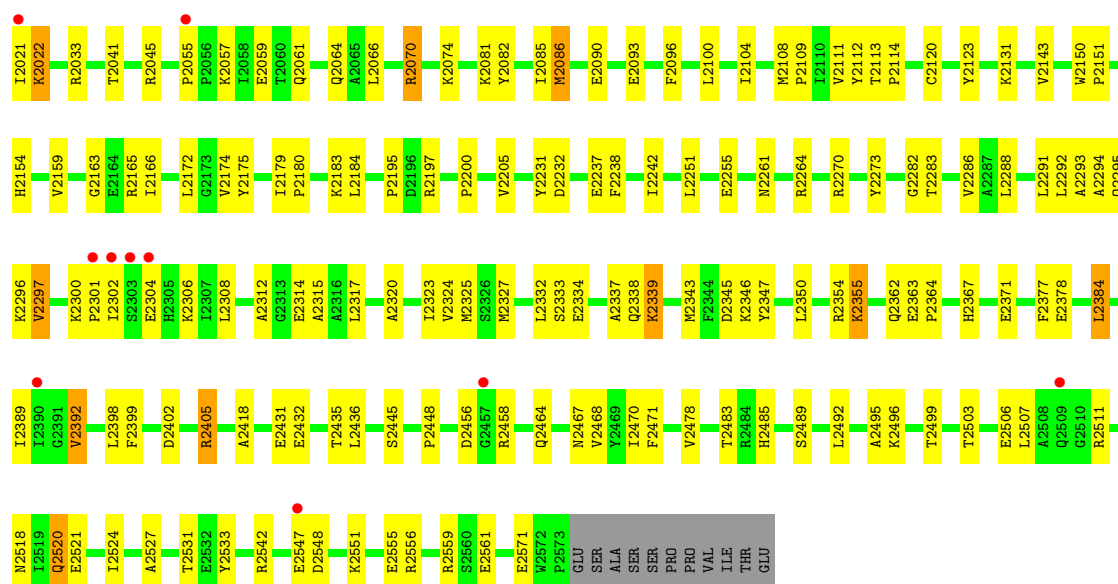
Chain B: 





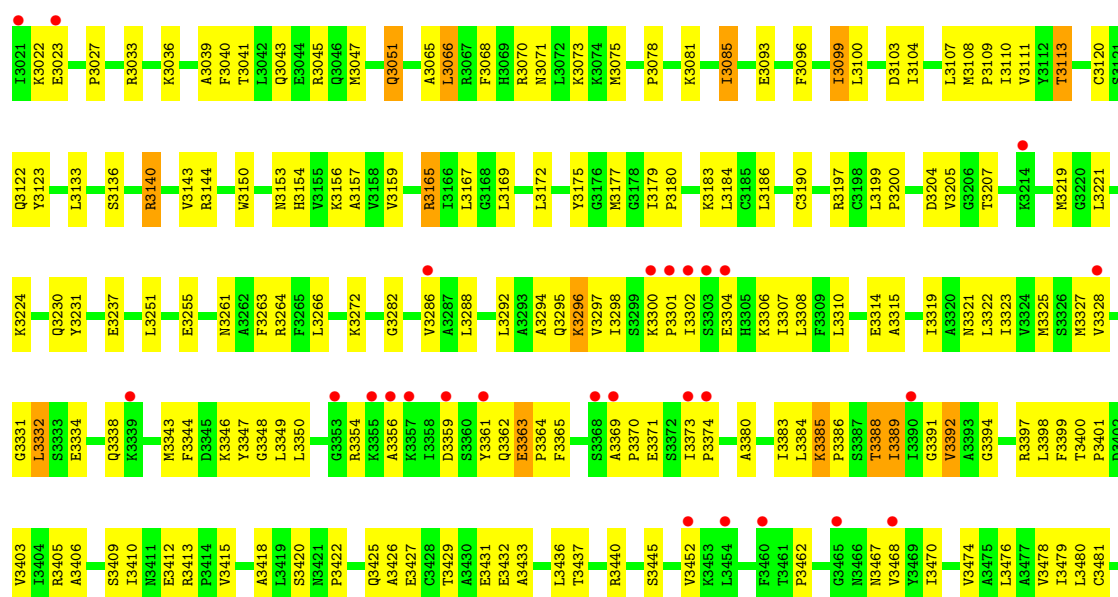
- Molecule 1: NAD-dependent malic enzyme, mitochondrial

Chain C:



- Molecule 1: NAD-dependent malic enzyme, mitochondrial

Chain D:





4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, α , β , γ	227.28Å 117.34Å 113.02Å 90.00° 109.79° 90.00°	Depositor
Resolution (Å)	20.00 – 2.30 29.62 – 2.30	Depositor EDS
% Data completeness (in resolution range)	93.9 (20.00-2.30) 94.7 (29.62-2.30)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	0.08	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.27 (at 2.29Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.205 , 0.256 0.207 , 0.257	Depositor DCC
R_{free} test set	8831 reflections (7.52%)	DCC
Wilson B-factor (Å ²)	32.1	Xtriage
Anisotropy	0.451	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 33.5	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning	$\langle L \rangle = 0.44$, $\langle L^2 \rangle = 0.27$	Xtriage
Outliers	0 of 117733 reflections	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	18640	wwPDB-VP
Average B, all atoms (Å ²)	37.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.30% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: NAI, FUM, MLT, MN

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	0.35	0/4447	0.60	0/5998
1	B	0.34	0/4447	0.60	0/5998
1	C	0.36	0/4447	0.61	0/5998
1	D	0.34	0/4447	0.59	0/5998
All	All	0.35	0/17788	0.60	0/23992

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 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 hydrogens added by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, and the number in parentheses is this value normalized per 1000 atoms of the molecule in the chain. The Symm-Clashes column gives symmetry related clashes, in the same way as for the Clashes column.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	4367	0	4407	154	0
1	B	4367	0	4407	211	0
1	C	4367	0	4407	128	0
1	D	4367	0	4407	177	0
2	A	9	0	3	1	0
2	B	9	0	3	2	0
2	C	9	0	3	2	0
2	D	9	0	3	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	A	1	0	0	0	0
3	B	1	0	0	0	0
3	C	1	0	0	0	0
3	D	1	0	0	0	0
4	A	88	0	54	4	0
4	B	88	0	54	1	0
4	C	88	0	54	7	0
4	D	88	0	54	4	0
5	A	8	0	2	0	0
5	B	8	0	2	0	0
5	C	8	0	2	0	0
5	D	8	0	2	0	0
6	A	193	0	0	12	0
6	B	164	0	0	3	0
6	C	212	0	0	5	0
6	D	179	0	0	6	0
All	All	18640	0	17864	667	0

Clashscore is defined as the number of clashes calculated for the entry per 1000 atoms (including hydrogens) of the entry. The overall clashscore for this entry is 19.

All (667) close contacts within the same asymmetric unit are listed below.

Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:1029:MSE:HE2	1:B:1050:LEU:HD22	1.23	1.13
1:A:381:VAL:HG13	1:A:407:MSE:HE3	1.42	1.01
1:D:3315:ALA:HB3	1:D:3392:VAL:HG21	1.43	0.99
1:B:1210:ILE:H	1:B:1210:ILE:HD12	1.26	0.99
1:D:3343:MSE:HE2	1:D:3365:PHE:HB2	1.46	0.97
1:A:532:GLU:HG2	1:A:549:LYS:HG3	1.44	0.97
1:C:2286:VAL:HG21	1:C:2467:ASN:HA	1.45	0.95
1:A:323:ILE:HG22	1:A:327:MSE:HE2	1.47	0.94
1:C:2323:ILE:HG22	1:C:2327:MSE:HE2	1.46	0.93
1:B:1315:ALA:HB3	1:B:1392:VAL:HG21	1.52	0.91
1:D:3286:VAL:HG21	1:D:3467:ASN:HA	1.52	0.90
1:B:1026:LYS:HA	1:B:1029:MSE:HE3	1.54	0.89
1:A:108:MSE:HE1	1:A:186:LEU:HD21	1.53	0.88
1:D:3113:THR:HB	6:D:4542:HOH:O	1.76	0.86
1:D:3334:GLU:O	1:D:3338:GLN:HG3	1.76	0.85
1:A:407:MSE:HE2	1:A:407:MSE:HA	1.58	0.84
1:D:3520:GLN:H	1:D:3520:GLN:HE21	1.25	0.83
1:C:2184:LEU:HD12	1:C:2200:PRO:HG3	1.60	0.83
1:B:1323:ILE:HG22	1:B:1327:MSE:HE2	1.60	0.82

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:1286:VAL:HG21	1:B:1467:ASN:HA	1.61	0.82
1:C:2355:LYS:HA	1:C:2355:LYS:HE3	1.61	0.80
1:B:1085:ILE:HD11	1:B:1111:VAL:HG12	1.64	0.80
1:B:1504:ASP:HA	1:B:1507:LEU:HD12	1.64	0.80
1:B:1301:PRO:HD2	1:B:1304:GLU:HG3	1.62	0.79
1:B:1339:LYS:HA	1:B:1367:HIS:CE1	2.18	0.79
1:B:1377:PHE:CZ	1:B:1389:ILE:HD11	2.18	0.79
1:D:3332:LEU:HD12	1:D:3332:LEU:H	1.48	0.79
1:C:2520:GLN:H	1:C:2520:GLN:HE21	1.29	0.78
1:B:1239:MSE:O	1:B:1243:THR:HG22	1.83	0.78
1:B:1300:LYS:HE2	1:B:1304:GLU:HB3	1.66	0.77
1:C:2086:MSE:HE1	1:C:2111:VAL:HG23	1.66	0.76
1:D:3140:ARG:HH21	1:D:3230:GLN:HG2	1.50	0.75
1:A:108:MSE:HB3	1:A:109:PRO:HD3	1.67	0.75
1:D:3068:PHE:CD2	1:D:3099:ILE:HG13	2.22	0.75
1:B:1047:MSE:HE2	1:D:3047:MSE:SE	2.37	0.75
1:C:2332:LEU:H	1:C:2332:LEU:HD12	1.52	0.75
1:B:1377:PHE:O	1:B:1381:VAL:HG23	1.86	0.75
1:A:493:GLU:HG3	1:A:533:TYR:CD1	2.22	0.75
1:A:381:VAL:CG1	1:A:407:MSE:HE3	2.17	0.75
1:A:261:ASN:HD22	1:A:264:ARG:HE	1.33	0.75
1:B:1515:PRO:HG2	1:B:1518:ASN:HD22	1.52	0.74
1:A:43:GLN:HG2	1:A:47:MSE:HE3	1.68	0.74
1:C:2527:ALA:O	1:C:2531:THR:HG23	1.86	0.74
1:D:3315:ALA:HB3	1:D:3392:VAL:CG2	2.15	0.73
2:A:701:MLT:H2	4:A:601:NAI:H42N	1.70	0.73
1:D:3022:LYS:O	1:D:3022:LYS:HD3	1.88	0.73
1:D:3302:ILE:HG23	1:D:3327:MSE:HE2	1.70	0.72
1:B:1515:PRO:HG2	1:B:1518:ASN:ND2	2.04	0.71
1:C:2325:MSE:HE2	1:C:2492:LEU:HD12	1.72	0.71
1:A:261:ASN:ND2	1:A:264:ARG:HE	1.87	0.71
1:D:3371:GLU:CD	1:D:3371:GLU:H	1.93	0.71
1:C:2033:ARG:HD3	1:C:2093:GLU:OE2	1.89	0.71
1:D:3527:ALA:O	1:D:3531:THR:HG22	1.90	0.71
1:B:1456:ASP:OD2	1:B:1458:ARG:HB2	1.90	0.70
1:D:3184:LEU:HD12	1:D:3200:PRO:HG3	1.73	0.70
1:C:2315:ALA:HB3	1:C:2392:VAL:HG21	1.74	0.70
1:C:2154:HIS:O	1:C:2197:ARG:HD2	1.91	0.70
1:D:3374:PRO:HG3	1:D:3383:ILE:HD12	1.74	0.70
1:C:2506:GLU:O	1:C:2511:ARG:HB2	1.91	0.70
1:D:3476:LEU:O	1:D:3480:LEU:HG	1.91	0.69
1:D:3179:ILE:HB	1:D:3180:PRO:HD3	1.74	0.69

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:D:3520:GLN:H	1:D:3520:GLN:NE2	1.90	0.69
1:A:272:LYS:HB2	1:A:272:LYS:NZ	2.08	0.69
1:D:3294:ALA:O	1:D:3297:VAL:HG22	1.93	0.68
2:B:1701:MLT:H2	4:B:1601:NAI:H42N	1.76	0.68
1:A:302:ILE:HD12	1:A:305:HIS:ND1	2.09	0.68
1:C:2478:VAL:HG13	1:C:2483:THR:HB	1.75	0.68
1:A:334:GLU:O	1:A:338:GLN:HG3	1.94	0.67
1:B:1324:VAL:HA	1:B:1327:MSE:HE3	1.76	0.67
1:D:3400:THR:OG1	1:D:3403:VAL:HG23	1.95	0.67
1:A:108:MSE:HE1	1:A:186:LEU:CD2	2.22	0.67
1:B:1377:PHE:HZ	1:B:1389:ILE:HD11	1.56	0.67
1:B:1179:ILE:HB	1:B:1180:PRO:HD3	1.76	0.67
1:C:2327:MSE:HE3	1:C:2337:ALA:HB1	1.75	0.67
1:B:1520:GLN:HE21	1:B:1520:GLN:H	1.42	0.67
1:D:3108:MSE:HB3	1:D:3109:PRO:HD3	1.77	0.67
1:A:288:LEU:HD22	1:A:322:LEU:HD12	1.76	0.67
1:D:3288:LEU:HD22	1:D:3322:LEU:HG	1.75	0.67
1:B:1177:MSE:O	1:B:1180:PRO:HD2	1.95	0.67
1:D:3503:THR:OG1	1:D:3506:GLU:HG3	1.95	0.67
1:B:1132:GLY:HA3	1:B:1200:PRO:HG2	1.75	0.67
1:B:1154:HIS:O	1:B:1197:ARG:HD3	1.95	0.66
1:A:413:ARG:HA	1:A:440:ARG:O	1.95	0.66
1:C:2286:VAL:CG2	1:C:2467:ASN:HA	2.25	0.66
1:B:1527:ALA:O	1:B:1531:THR:HG23	1.96	0.66
1:B:1260:HIS:O	1:B:1264:ARG:HG2	1.96	0.66
1:B:1315:ALA:O	1:B:1319:ILE:HG13	1.96	0.66
1:C:2061:GLN:HA	1:C:2064:GLN:HE21	1.61	0.65
2:D:3701:MLT:H2	4:D:3601:NAI:H42N	1.77	0.65
1:B:1210:ILE:H	1:B:1210:ILE:CD1	2.03	0.65
1:D:3298:ILE:HD12	1:D:3300:LYS:HE3	1.78	0.65
1:A:343:MSE:HE3	1:A:350:LEU:HD12	1.77	0.65
1:D:3385:LYS:HB3	1:D:3385:LYS:HZ3	1.61	0.65
1:B:1384:LEU:HD12	1:B:1384:LEU:N	2.12	0.65
1:B:1090:GLU:OE1	1:B:1131:LYS:HE2	1.97	0.65
1:D:3308:LEU:HD23	1:D:3389:ILE:HD11	1.79	0.64
1:B:1354:ARG:CZ	1:B:1356:ALA:HB3	2.28	0.64
1:A:343:MSE:HE2	1:A:365:PHE:HB2	1.80	0.64
1:C:2492:LEU:CD2	1:C:2496:LYS:HE3	2.26	0.64
1:D:3308:LEU:HB3	1:D:3389:ILE:CD1	2.27	0.64
1:A:319:ILE:O	1:A:323:ILE:HG13	1.97	0.64
1:B:1029:MSE:HE1	1:B:1053:LEU:CD1	2.29	0.63
1:D:3492:LEU:HD22	1:D:3496:LYS:HE2	1.80	0.63

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:D:3085:ILE:HD11	1:D:3111:VAL:HG12	1.80	0.63
1:B:1108:MSE:HB3	1:B:1109:PRO:HD3	1.81	0.63
1:C:2108:MSE:HB3	1:C:2109:PRO:HD3	1.80	0.63
1:B:1108:MSE:HE3	1:B:1516:LEU:HD11	1.81	0.63
1:B:1300:LYS:HG2	1:B:1304:GLU:CB	2.29	0.63
1:D:3301:PRO:HB2	1:D:3304:GLU:HG2	1.79	0.63
1:A:108:MSE:HE2	1:A:112:TYR:HB2	1.79	0.62
1:B:1305:HIS:HA	1:B:1387:SER:OG	1.99	0.62
1:A:298:ILE:HG22	1:A:300:LYS:HB2	1.80	0.62
1:B:1238:PHE:O	1:B:1242:ILE:HD13	1.99	0.62
1:A:36:LYS:HE2	1:A:562:TYR:HB3	1.81	0.62
1:B:1286:VAL:CG2	1:B:1467:ASN:HA	2.30	0.62
1:D:3391:GLY:HA3	1:D:3427:GLU:HG2	1.80	0.62
1:C:2282:GLY:O	1:C:2286:VAL:HG23	1.99	0.62
1:D:3363:GLU:HB3	1:D:3364:PRO:HD3	1.81	0.62
1:A:179:ILE:HB	1:A:180:PRO:HD3	1.81	0.62
1:A:184:LEU:HD12	1:A:200:PRO:HG3	1.82	0.62
1:D:3143:VAL:HB	1:D:3237:GLU:HG2	1.82	0.62
1:D:3394:GLY:HA2	1:D:3420:SER:HB3	1.81	0.61
1:D:3308:LEU:HB3	1:D:3389:ILE:HD12	1.82	0.61
1:B:1334:GLU:O	1:B:1338:GLN:HG3	2.00	0.61
1:A:41:THR:OG1	1:A:44:GLU:HG3	2.00	0.61
1:B:1085:ILE:C	1:B:1085:ILE:HD12	2.21	0.61
1:C:2492:LEU:HD22	1:C:2496:LYS:HE3	1.82	0.61
1:C:2402:ASP:HA	1:C:2405:ARG:NH1	2.15	0.61
1:A:288:LEU:CD2	1:A:322:LEU:HD12	2.30	0.61
1:B:1379:ASP:O	1:B:1383:ILE:HD13	1.99	0.61
1:D:3183:LYS:HE3	1:D:3255:GLU:OE2	2.00	0.61
1:C:2306:LYS:HE3	1:C:2384:LEU:O	2.01	0.61
1:D:3051:GLN:HE21	1:D:3051:GLN:HA	1.66	0.61
1:A:108:MSE:HE2	1:A:112:TYR:CB	2.31	0.61
1:B:1085:ILE:CD1	1:B:1111:VAL:HG12	2.30	0.61
1:B:1298:ILE:HD12	1:B:1300:LYS:HB3	1.82	0.61
1:B:1524:ILE:O	1:B:1528:ILE:HG13	2.00	0.61
1:D:3319:ILE:O	1:D:3323:ILE:HG13	1.99	0.61
1:A:288:LEU:HG	1:A:292:LEU:CD2	2.31	0.61
1:C:2183:LYS:HE3	1:C:2255:GLU:CD	2.20	0.60
1:B:1369:ALA:HB1	1:B:1373:ILE:HD11	1.83	0.60
1:B:1518:ASN:HB3	1:B:1521:GLU:OE2	2.01	0.60
1:B:1350:LEU:HD23	1:B:1354:ARG:CZ	2.31	0.60
1:B:1085:ILE:HD12	1:B:1086:MSE:N	2.17	0.60
1:A:207:THR:O	1:A:224:LYS:HA	2.02	0.60

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:C:2286:VAL:HG22	1:C:2470:ILE:HG12	1.82	0.60
1:B:1068:PHE:CD2	1:B:1099:ILE:HG13	2.37	0.60
1:C:2179:ILE:HB	1:C:2180:PRO:HD3	1.84	0.59
1:A:294:ALA:O	1:A:297:VAL:HG22	2.02	0.59
1:D:3385:LYS:HA	1:D:3410:ILE:HD13	1.84	0.59
1:D:3392:VAL:O	1:D:3392:VAL:HG22	2.02	0.59
1:C:2195:PRO:HG2	6:C:4349:HOH:O	2.03	0.59
1:C:2346:LYS:HE2	1:C:2347:TYR:CE1	2.36	0.59
1:C:2431:GLU:O	1:C:2435:THR:HG23	2.01	0.59
1:B:1342:TRP:HE3	1:B:1349:LEU:HD11	1.68	0.59
1:B:1343:MSE:HE3	1:B:1350:LEU:HD13	1.83	0.59
1:D:3140:ARG:NH2	1:D:3230:GLN:HG2	2.17	0.59
1:D:3401:PRO:HA	1:D:3436:LEU:HD13	1.83	0.59
1:D:3120:CYS:O	1:D:3175:TYR:HB3	2.02	0.59
1:C:2448:PRO:HD3	1:C:2464:GLN:HE22	1.68	0.59
1:B:1389:ILE:HG22	1:B:1416:ILE:HA	1.83	0.59
1:B:1506:GLU:O	1:B:1511:ARG:HB2	2.02	0.59
1:D:3354:ARG:NE	1:D:3356:ALA:HB3	2.18	0.59
1:D:3085:ILE:HD12	1:D:3096:PHE:HE1	1.68	0.58
1:B:1382:ASN:O	1:B:1385:LYS:HG3	2.03	0.58
1:D:3261:ASN:HD22	1:D:3264:ARG:HE	1.49	0.58
1:A:140:ARG:NH2	1:A:230:GLN:HA	2.18	0.58
1:B:1075:MSE:HG2	1:B:1080:GLU:CD	2.23	0.58
1:C:2363:GLU:HG2	6:C:4628:HOH:O	2.02	0.58
1:B:1335:GLN:O	1:B:1339:LYS:HG3	2.03	0.58
1:D:3314:GLU:HB2	4:D:3601:NAI:O1N	2.03	0.58
1:B:1325:MSE:HE2	1:B:1492:LEU:HD12	1.85	0.58
1:C:2021:ILE:HG13	1:C:2022:LYS:N	2.18	0.58
1:B:1505:GLU:CD	1:B:1505:GLU:H	2.06	0.58
1:B:1029:MSE:HE1	1:B:1053:LEU:HD13	1.86	0.58
1:D:3041:THR:O	1:D:3045:ARG:HG3	2.03	0.58
1:C:2301:PRO:HD2	1:C:2304:GLU:OE2	2.03	0.58
1:A:272:LYS:HZ3	1:A:272:LYS:HB2	1.68	0.58
1:B:1506:GLU:OE1	1:B:1515:PRO:HD3	2.04	0.58
1:D:3323:ILE:O	1:D:3327:MSE:HG3	2.03	0.58
1:B:1319:ILE:O	1:B:1323:ILE:HG13	2.03	0.58
1:A:332:LEU:HG	1:A:336:GLU:OE2	2.04	0.58
1:D:3388:THR:OG1	1:D:3415:VAL:HB	2.04	0.58
1:C:2503:THR:OG1	1:C:2506:GLU:HG3	2.04	0.57
1:D:3266:LEU:HD13	1:D:3266:LEU:C	2.25	0.57
1:A:325:MSE:HE1	1:A:488:ASP:HB3	1.87	0.57
1:D:3066:LEU:O	1:D:3070:ARG:HG2	2.04	0.57

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
2:C:2701:MLT:H2	4:C:2601:NAI:H42N	1.87	0.57
1:B:1339:LYS:HA	1:B:1367:HIS:NE2	2.20	0.57
1:B:1476:LEU:O	1:B:1480:LEU:HG	2.03	0.57
1:C:2061:GLN:HA	1:C:2064:GLN:NE2	2.19	0.57
1:A:556:ARG:HH11	1:A:556:ARG:HG3	1.69	0.57
1:D:3207:THR:O	1:D:3224:LYS:HA	2.05	0.56
1:A:140:ARG:NH2	1:A:233:ASP:HB2	2.20	0.56
1:A:288:LEU:HG	1:A:292:LEU:HD22	1.88	0.56
1:C:2402:ASP:HA	1:C:2405:ARG:HH12	1.69	0.56
1:B:1036:LYS:HB3	1:B:1039:ALA:HB3	1.88	0.56
1:B:1401:PRO:O	1:B:1405:ARG:HG3	2.05	0.56
1:B:1298:ILE:C	1:B:1300:LYS:H	2.08	0.56
1:A:484:ARG:NH1	1:D:3543:TYR:HB3	2.20	0.56
1:B:1042:LEU:O	1:B:1046:GLN:HG3	2.05	0.56
1:A:400:THR:OG1	1:A:403:VAL:HG23	2.05	0.56
1:A:506:GLU:HB3	1:A:511:ARG:HD2	1.87	0.56
1:A:371:GLU:CD	1:A:371:GLU:H	2.07	0.56
1:B:1261:ASN:HA	1:B:1264:ARG:HD3	1.87	0.56
1:B:1402:ASP:HA	1:B:1405:ARG:NH1	2.21	0.56
1:C:2041:THR:O	1:C:2045:ARG:HG3	2.05	0.56
1:B:1401:PRO:HA	1:B:1436:LEU:HD23	1.87	0.56
1:C:2324:VAL:HA	1:C:2327:MSE:HE3	1.87	0.55
1:D:3043:GLN:HG2	1:D:3047:MSE:HE3	1.87	0.55
1:B:1113:THR:HG21	2:B:1701:MLT:O4	2.05	0.55
1:B:1343:MSE:HB2	1:B:1350:LEU:CD1	2.36	0.55
1:B:1021:ILE:HG12	1:B:1028:LEU:HD21	1.87	0.55
1:D:3023:GLU:CG	1:D:3027:PRO:HB2	2.36	0.55
1:D:3023:GLU:HG3	1:D:3027:PRO:HB2	1.87	0.55
1:A:140:ARG:HH22	1:A:233:ASP:HB2	1.71	0.55
1:B:1363:GLU:HB3	1:B:1364:PRO:HD3	1.87	0.55
1:A:432:GLU:O	1:A:436:LEU:HB2	2.07	0.55
1:D:3099:ILE:HG22	1:D:3100:LEU:HD12	1.89	0.55
1:B:1456:ASP:OD2	1:B:1458:ARG:NH1	2.35	0.55
1:D:3043:GLN:HG2	1:D:3047:MSE:CE	2.37	0.55
1:A:113:THR:HB	6:A:4543:HOH:O	2.07	0.55
1:D:3073:LYS:HE3	6:D:4513:HOH:O	2.07	0.55
1:D:3343:MSE:HE2	1:D:3365:PHE:CB	2.30	0.55
1:A:41:THR:O	1:A:45:ARG:HG3	2.06	0.55
1:C:2520:GLN:H	1:C:2520:GLN:NE2	2.03	0.55
1:D:3380:ALA:O	1:D:3384:LEU:HB2	2.06	0.54
1:D:3169:LEU:HD21	1:D:3422:PRO:HD3	1.89	0.54
1:B:1081:LYS:O	1:B:1085:ILE:HG23	2.08	0.54

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:46:GLN:HG2	1:A:51:GLN:HG3	1.89	0.54
1:D:3078:PRO:HD2	6:D:4257:HOH:O	2.07	0.54
1:D:3397:ARG:HA	1:D:3427:GLU:O	2.08	0.54
1:C:2495:ALA:O	1:C:2499:THR:HG22	2.07	0.54
1:D:3040:PHE:HE2	1:D:3565:LEU:HD12	1.71	0.54
1:D:3315:ALA:O	1:D:3319:ILE:HG13	2.07	0.54
1:D:3177:MSE:O	1:D:3180:PRO:HD2	2.08	0.54
1:A:288:LEU:HD22	1:A:322:LEU:CD1	2.37	0.54
1:D:3506:GLU:O	1:D:3511:ARG:HB2	2.08	0.54
1:B:1132:GLY:CA	1:B:1200:PRO:HG2	2.37	0.54
1:C:2273:TYR:HB3	6:C:4008:HOH:O	2.08	0.54
1:D:3397:ARG:HD3	1:D:3426:ALA:O	2.08	0.54
1:D:3385:LYS:HB3	1:D:3385:LYS:NZ	2.23	0.54
1:C:2559:ARG:HG2	1:C:2559:ARG:HH11	1.72	0.54
1:D:3420:SER:HA	4:D:3601:NAI:H1D	1.90	0.54
1:C:2022:LYS:HB3	1:C:2022:LYS:NZ	2.23	0.54
1:C:2520:GLN:HG2	6:C:4597:HOH:O	2.08	0.53
1:C:2302:ILE:HG21	1:C:2332:LEU:HD11	1.90	0.53
1:A:529:LYS:HA	1:A:529:LYS:HE2	1.89	0.53
1:B:1343:MSE:HE1	1:B:1362:GLN:HG2	1.90	0.53
1:A:389:ILE:HG23	1:A:399:PHE:CE1	2.44	0.53
1:B:1383:ILE:HG22	1:B:1384:LEU:HD12	1.91	0.53
1:C:2456:ASP:OD2	1:C:2458:ARG:HD3	2.07	0.53
1:B:1504:ASP:HA	1:B:1507:LEU:CD1	2.36	0.53
1:C:2082:TYR:O	1:C:2086:MSE:HB2	2.09	0.53
1:A:483:THR:OG1	1:A:534:LEU:HD13	2.08	0.53
1:D:3315:ALA:CB	1:D:3392:VAL:HG21	2.27	0.53
1:B:1324:VAL:O	1:B:1328:VAL:HG23	2.09	0.53
1:B:1248:ARG:HH11	1:B:1248:ARG:HG2	1.73	0.53
1:B:1261:ASN:HD22	1:B:1264:ARG:HD3	1.74	0.53
1:C:2021:ILE:HG13	1:C:2022:LYS:H	1.74	0.53
1:A:108:MSE:HE3	1:A:108:MSE:HA	1.90	0.53
1:B:1559:ARG:HB3	1:B:1561:GLU:OE1	2.09	0.53
1:D:3065:ALA:HA	1:D:3099:ILE:HD11	1.89	0.53
1:C:2286:VAL:HG22	1:C:2470:ILE:CG1	2.39	0.52
1:B:1432:GLU:O	1:B:1436:LEU:HB2	2.09	0.52
1:D:3068:PHE:HE1	1:D:3085:ILE:HG22	1.74	0.52
1:B:1493:GLU:HG3	1:B:1533:TYR:CD1	2.44	0.52
1:B:1401:PRO:HA	1:B:1436:LEU:CD2	2.39	0.52
1:C:2432:GLU:O	1:C:2436:LEU:HD23	2.09	0.52
1:A:341:ILE:O	1:A:367:HIS:HE1	1.92	0.52
1:C:2312:ALA:HB1	1:C:2362:GLN:HE21	1.73	0.52

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:68:PHE:CD2	1:A:99:ILE:HG13	2.44	0.52
1:B:1343:MSE:HB2	1:B:1350:LEU:HD12	1.91	0.52
1:D:3559:ARG:HG3	1:D:3561:GLU:OE1	2.09	0.52
1:A:407:MSE:CE	1:A:407:MSE:HA	2.35	0.52
1:B:1099:ILE:HG22	1:B:1100:LEU:HD12	1.90	0.52
1:A:184:LEU:HD22	1:A:198:CYS:HB3	1.92	0.52
1:B:1282:GLY:O	1:B:1286:VAL:HG23	2.09	0.52
1:C:2327:MSE:CE	1:C:2337:ALA:HB1	2.40	0.52
1:A:22:LYS:HD2	1:A:23:GLU:N	2.25	0.52
1:A:551:LYS:O	1:A:555:GLU:HG3	2.09	0.52
1:D:3344:PHE:CZ	1:D:3348:GLY:HA2	2.45	0.52
1:C:2165:ARG:NH2	2:C:2701:MLT:O1	2.43	0.51
1:A:165:ARG:NE	1:A:165:ARG:O	2.42	0.51
1:B:1542:ARG:C	1:B:1542:ARG:HD3	2.31	0.51
1:D:3286:VAL:HG22	1:D:3470:ILE:CG1	2.41	0.51
1:C:2551:LYS:O	1:C:2555:GLU:HB2	2.09	0.51
1:A:543:TYR:HB3	1:D:3484:ARG:NH1	2.25	0.51
1:D:3033:ARG:NH1	1:D:3093:GLU:OE2	2.43	0.51
1:B:1335:GLN:HE21	1:B:1339:LYS:HE2	1.75	0.51
1:D:3096:PHE:O	1:D:3100:LEU:HD13	2.10	0.51
1:C:2205:VAL:HG11	1:C:2231:TYR:HD1	1.74	0.51
1:B:1295:GLN:OE1	1:B:1302:ILE:HD11	2.10	0.51
1:D:3343:MSE:O	1:D:3349:LEU:HD12	2.11	0.51
1:B:1298:ILE:HG13	1:B:1300:LYS:H	1.74	0.51
1:A:354:ARG:HD2	6:A:4396:HOH:O	2.11	0.51
1:B:1298:ILE:CD1	1:B:1305:HIS:HE2	2.24	0.51
1:D:3085:ILE:C	1:D:3085:ILE:HD12	2.31	0.51
1:A:503:THR:OG1	1:A:506:GLU:HG3	2.10	0.51
1:D:3418:ALA:O	1:D:3445:SER:HA	2.10	0.51
1:A:298:ILE:CG2	1:A:300:LYS:HB2	2.41	0.51
1:A:78:PRO:HD2	6:A:4088:HOH:O	2.10	0.51
1:B:1380:ALA:O	1:B:1384:LEU:HD13	2.11	0.50
1:A:468:VAL:HA	1:A:471:PHE:CE2	2.46	0.50
1:C:2333:SER:HB2	6:C:4596:HOH:O	2.10	0.50
1:B:1385:LYS:HG2	1:B:1410:ILE:HD13	1.93	0.50
1:C:2085:ILE:HD12	1:C:2096:PHE:HE1	1.76	0.50
1:B:1302:ILE:HA	6:B:4055:HOH:O	2.11	0.50
1:B:1515:PRO:CG	1:B:1518:ASN:ND2	2.74	0.50
1:C:2261:ASN:ND2	1:C:2264:ARG:HH21	2.09	0.50
1:B:1384:LEU:N	1:B:1384:LEU:CD1	2.74	0.50
1:B:1312:ALA:HB1	1:B:1343:MSE:CE	2.41	0.50
1:C:2378:GLU:OE1	1:C:2402:ASP:HB3	2.12	0.50

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:1478:VAL:HG13	1:B:1483:THR:HB	1.92	0.50
1:B:1315:ALA:CB	1:B:1392:VAL:HG21	2.32	0.50
1:C:2363:GLU:HB3	1:C:2364:PRO:HD3	1.92	0.50
1:C:2300:LYS:HG3	1:C:2301:PRO:HD2	1.93	0.50
1:A:120:CYS:O	1:A:175:TYR:HB3	2.12	0.50
1:B:1120:CYS:O	1:B:1175:TYR:HB3	2.11	0.50
1:D:3282:GLY:O	1:D:3286:VAL:HG23	2.12	0.50
1:A:394:GLY:HA2	1:A:420:SER:HB3	1.93	0.50
1:D:3346:LYS:HG2	4:D:3601:NAI:O2B	2.12	0.50
1:A:308:LEU:HB3	1:A:389:ILE:HD12	1.94	0.50
1:A:68:PHE:CE1	1:A:85:ILE:HG22	2.47	0.50
1:D:3535:TYR:CD2	1:D:3545:GLU:HG3	2.47	0.50
1:C:2317:LEU:HD23	1:C:2343:MSE:HE1	1.94	0.50
1:D:3431:GLU:OE1	1:D:3452:VAL:HG13	2.10	0.50
1:B:1096:PHE:O	1:B:1100:LEU:HD13	2.12	0.50
1:A:489:SER:HB3	1:A:533:TYR:OH	2.12	0.50
1:D:3051:GLN:NE2	1:D:3051:GLN:HA	2.27	0.50
1:A:157:ALA:HB2	1:A:479:ILE:HD11	1.93	0.49
1:A:43:GLN:HG2	1:A:47:MSE:CE	2.41	0.49
1:A:95:LEU:O	1:A:99:ILE:HD13	2.12	0.49
1:D:3302:ILE:HD12	1:D:3327:MSE:HE2	1.94	0.49
1:A:324:VAL:HA	1:A:327:MSE:HE3	1.95	0.49
1:D:3150:TRP:CE2	1:D:3199:LEU:HD13	2.47	0.49
1:C:2104:ILE:HG13	1:C:2108:MSE:HE2	1.94	0.49
1:B:1556:ARG:HH11	1:B:1556:ARG:HG3	1.76	0.49
1:D:3286:VAL:HG22	1:D:3470:ILE:HG12	1.93	0.49
1:D:3081:LYS:O	1:D:3085:ILE:HG23	2.11	0.49
1:D:3167:LEU:HB2	1:D:3169:LEU:CD2	2.43	0.49
1:A:535:TYR:OH	1:A:542:ARG:HB3	2.11	0.49
1:C:2389:ILE:HG23	1:C:2399:PHE:CE1	2.46	0.49
1:C:2081:LYS:O	1:C:2085:ILE:HG23	2.13	0.49
1:C:2154:HIS:O	1:C:2197:ARG:CD	2.60	0.49
1:D:3429:THR:OG1	1:D:3432:GLU:HG3	2.12	0.49
1:B:1041:THR:O	1:B:1045:ARG:HG3	2.12	0.49
1:D:3528:ILE:O	1:D:3531:THR:HG23	2.12	0.49
1:A:532:GLU:HG2	1:A:549:LYS:CG	2.31	0.49
1:B:1312:ALA:HB1	1:B:1343:MSE:HE3	1.95	0.49
1:D:3302:ILE:HG23	1:D:3327:MSE:CE	2.42	0.49
1:D:3371:GLU:CD	1:D:3371:GLU:N	2.65	0.49
1:C:2392:VAL:HG13	1:C:2392:VAL:O	2.13	0.49
1:B:1196:ASP:OD1	1:B:1197:ARG:HG2	2.12	0.49
1:D:3389:ILE:HG23	1:D:3399:PHE:CZ	2.47	0.49

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:C:2300:LYS:HG3	1:C:2304:GLU:OE2	2.13	0.49
1:C:2163:GLY:HA2	1:C:2166:ILE:HD11	1.94	0.49
1:C:2315:ALA:CB	1:C:2392:VAL:HG21	2.42	0.49
1:D:3385:LYS:HZ3	1:D:3410:ILE:HG23	1.78	0.49
1:B:1359:ASP:OD2	1:B:1362:GLN:HG3	2.13	0.49
1:D:3169:LEU:CD2	1:D:3422:PRO:HD3	2.43	0.49
1:B:1422:PRO:HD2	1:B:1425:GLN:NE2	2.28	0.49
1:A:302:ILE:HD12	1:A:305:HIS:HD1	1.75	0.48
1:A:420:SER:HA	4:A:601:NAI:H1D	1.95	0.48
1:D:3308:LEU:HB3	1:D:3389:ILE:HD11	1.95	0.48
1:B:1515:PRO:CG	1:B:1518:ASN:HD22	2.23	0.48
1:B:1183:LYS:HE3	1:B:1255:GLU:CD	2.33	0.48
1:D:3292:LEU:O	1:D:3296:LYS:HE2	2.13	0.48
1:A:310:LEU:HD21	1:A:398:LEU:HB2	1.95	0.48
1:B:1343:MSE:O	1:B:1350:LEU:HD12	2.13	0.48
1:D:3401:PRO:O	1:D:3405:ARG:HG3	2.13	0.48
1:D:3535:TYR:CE2	1:D:3545:GLU:HG3	2.49	0.48
1:B:1163:GLY:HA2	1:B:1166:ILE:HD11	1.95	0.48
1:B:1532:GLU:HG2	1:B:1549:LYS:HG2	1.95	0.48
1:A:177:MSE:O	1:A:180:PRO:HD2	2.13	0.48
1:B:1333:SER:OG	1:B:1336:GLU:HG2	2.12	0.48
1:A:243:THR:HG21	1:A:273:TYR:CD2	2.49	0.48
1:A:520:GLN:HE21	1:A:520:GLN:H	1.61	0.48
1:A:339:LYS:NZ	1:A:339:LYS:HB2	2.28	0.48
1:B:1248:ARG:CZ	4:C:2602:NAI:O2N	2.61	0.48
1:A:412:GLU:O	1:A:440:ARG:NH1	2.46	0.48
1:D:3359:ASP:OD2	1:D:3362:GLN:HG3	2.12	0.48
1:B:1029:MSE:HE1	1:B:1053:LEU:HD12	1.96	0.48
1:D:3307:ILE:HD13	1:D:3323:ILE:HD13	1.95	0.48
1:A:168:GLY:N	1:A:421:ASN:O	2.47	0.48
1:B:1210:ILE:N	1:B:1210:ILE:HD12	2.10	0.48
1:B:1400:THR:HB	1:B:1401:PRO:HD2	1.95	0.48
1:D:3172:LEU:O	1:D:3175:TYR:HB2	2.13	0.48
1:B:1273:TYR:HB3	6:B:4691:HOH:O	2.12	0.48
1:C:2090:GLU:OE1	1:C:2131:LYS:HE2	2.14	0.48
1:A:151:PRO:HG2	1:A:152:GLU:OE1	2.13	0.48
1:A:332:LEU:H	1:A:332:LEU:HD12	1.79	0.47
1:B:1287:ALA:O	1:B:1291:LEU:HD23	2.14	0.47
1:B:1383:ILE:HD12	1:B:1383:ILE:N	2.29	0.47
1:D:3369:ALA:HB1	1:D:3373:ILE:CD1	2.44	0.47
1:D:3036:LYS:HB3	1:D:3039:ALA:HB3	1.96	0.47
1:A:476:LEU:O	1:A:480:LEU:HG	2.15	0.47

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:D:3556:ARG:HH11	1:D:3556:ARG:HG3	1.79	0.47
1:A:329:GLU:HA	6:A:4296:HOH:O	2.13	0.47
1:B:1343:MSE:C	1:B:1350:LEU:HD12	2.35	0.47
1:C:2288:LEU:O	1:C:2292:LEU:HD13	2.14	0.47
1:B:1499:THR:C	1:B:1501:GLN:H	2.18	0.47
1:D:3022:LYS:HD3	1:D:3022:LYS:C	2.34	0.47
1:A:51:GLN:NE2	6:A:4239:HOH:O	2.48	0.47
1:C:2312:ALA:CB	1:C:2362:GLN:HE21	2.28	0.47
1:D:3154:HIS:HD2	1:D:3197:ARG:CZ	2.27	0.47
1:B:1286:VAL:HG22	1:B:1470:ILE:HG12	1.96	0.47
1:A:68:PHE:HE1	1:A:85:ILE:HG22	1.80	0.47
1:A:471:PHE:CG	1:A:472:PRO:HD3	2.50	0.47
1:B:1556:ARG:HG3	1:B:1556:ARG:NH1	2.30	0.47
1:B:1060:THR:OG1	1:B:1063:ILE:HG13	2.15	0.47
1:A:527:ALA:O	1:A:531:THR:HG23	2.15	0.47
1:C:2339:LYS:HA	1:C:2367:HIS:CE1	2.50	0.47
1:D:3186:LEU:HD13	1:D:3468:VAL:HG23	1.96	0.47
1:B:1188:THR:HG21	1:B:1195:PRO:HG3	1.97	0.47
1:C:2143:VAL:HB	1:C:2237:GLU:HG2	1.96	0.47
1:A:45:ARG:NH2	1:A:58:ILE:HD13	2.30	0.47
1:D:3331:GLY:O	1:D:3332:LEU:O	2.33	0.46
1:B:1161:THR:HG22	1:B:1180:PRO:HG2	1.97	0.46
1:A:371:GLU:CD	1:A:371:GLU:N	2.68	0.46
1:D:3165:ARG:NE	1:D:3165:ARG:O	2.47	0.46
1:D:3526:ILE:O	1:D:3530:VAL:HG23	2.14	0.46
1:D:3328:VAL:HA	1:D:3332:LEU:O	2.14	0.46
1:A:401:PRO:O	1:A:405:ARG:HG3	2.14	0.46
1:C:2293:ALA:O	1:C:2296:LYS:HB2	2.15	0.46
1:C:2197:ARG:HG3	1:C:2197:ARG:HH11	1.79	0.46
1:B:1232:ASP:OD1	1:B:1264:ARG:NH2	2.49	0.46
1:D:3532:GLU:HG2	1:D:3549:LYS:HG2	1.96	0.46
1:B:1302:ILE:C	1:B:1304:GLU:H	2.15	0.46
1:D:3350:LEU:HD13	1:D:3354:ARG:CZ	2.45	0.46
1:D:3261:ASN:ND2	1:D:3264:ARG:HE	2.13	0.46
1:C:2489:SER:HB3	1:C:2533:TYR:OH	2.16	0.46
1:A:229:GLN:HG2	1:A:229:GLN:O	2.15	0.46
1:A:145:SER:HB2	6:A:4288:HOH:O	2.15	0.46
1:A:406:ALA:O	1:A:410:ILE:HG13	2.15	0.46
1:B:1328:VAL:HA	1:B:1332:LEU:O	2.15	0.46
1:C:2086:MSE:CE	1:C:2111:VAL:HG23	2.41	0.46
1:D:3346:LYS:HG3	1:D:3347:TYR:CD1	2.51	0.46
1:B:1150:TRP:CE2	1:B:1199:LEU:HD13	2.50	0.46

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:C:2295:GLN:NE2	1:C:2300:LYS:O	2.47	0.46
1:D:3321:ASN:O	1:D:3325:MSE:HG3	2.16	0.46
1:A:354:ARG:NE	1:A:358:ILE:HD11	2.31	0.46
1:C:2120:CYS:O	1:C:2175:TYR:HB3	2.15	0.45
1:D:3136:SER:HA	1:D:3204:ASP:O	2.16	0.45
1:B:1294:ALA:O	1:B:1297:VAL:HB	2.16	0.45
1:C:2302:ILE:CG2	1:C:2332:LEU:HD11	2.46	0.45
1:C:2315:ALA:HB3	1:C:2392:VAL:CG2	2.45	0.45
1:D:3263:PHE:CZ	1:D:3314:GLU:HA	2.52	0.45
1:A:401:PRO:HA	1:A:436:LEU:HD23	1.98	0.45
1:B:1288:LEU:HG	1:B:1292:LEU:HD13	1.99	0.45
1:A:327:MSE:HE3	1:A:337:ALA:HB1	1.99	0.45
1:C:2270:ARG:O	1:C:2485:HIS:HD2	1.99	0.45
1:D:3051:GLN:HE21	1:D:3051:GLN:CA	2.27	0.45
1:A:306:LYS:HB3	1:A:386:PRO:HA	1.98	0.45
1:A:219:MSE:HG2	1:B:1038:MSE:HE1	1.99	0.45
1:C:2468:VAL:HA	1:C:2471:PHE:CE2	2.51	0.45
1:C:2057:LYS:HE2	1:C:2059:GLU:HG2	1.97	0.45
1:B:1392:VAL:O	1:B:1392:VAL:HG13	2.16	0.45
1:A:52:GLY:HA3	1:B:1146:ILE:HG23	1.98	0.45
1:B:1079:LEU:O	1:B:1082:TYR:HB3	2.17	0.45
1:C:2085:ILE:HD11	1:C:2086:MSE:SE	2.66	0.45
1:D:3068:PHE:CE1	1:D:3085:ILE:HG22	2.50	0.45
1:A:43:GLN:NE2	1:A:566:LEU:HD11	2.32	0.45
1:A:520:GLN:NE2	1:A:520:GLN:H	2.15	0.45
1:A:271:GLU:HB2	6:A:4614:HOH:O	2.16	0.45
1:D:3297:VAL:HG23	1:D:3298:ILE:HG23	1.99	0.45
1:A:343:MSE:HE3	1:A:350:LEU:CD1	2.45	0.45
1:D:3306:LYS:HE3	1:D:3384:LEU:O	2.16	0.45
1:B:1154:HIS:O	1:B:1197:ARG:CD	2.63	0.45
1:A:172:LEU:O	1:A:175:TYR:HB2	2.17	0.45
1:B:1422:PRO:HD2	1:B:1425:GLN:HE21	1.82	0.45
1:B:1229:GLN:HG3	1:B:1233:ASP:OD2	2.16	0.45
1:A:194:ARG:HA	1:A:195:PRO:HD3	1.87	0.45
1:D:3412:GLU:HG3	1:D:3413:ARG:HG2	1.99	0.45
1:A:146:ILE:HG23	1:B:1052:GLY:HA3	1.99	0.45
1:B:1300:LYS:HG2	1:B:1304:GLU:HB3	1.97	0.45
1:B:1321:ASN:O	1:B:1325:MSE:HG3	2.17	0.45
1:A:509:GLN:NE2	1:A:511:ARG:HE	2.15	0.45
1:A:33:ARG:HD2	1:A:93:GLU:OE2	2.17	0.45
1:C:2205:VAL:HG11	1:C:2231:TYR:CD1	2.52	0.44
1:B:1392:VAL:HG22	1:B:1392:VAL:O	2.16	0.44

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:C:2070:ARG:O	1:C:2074:LYS:HD3	2.17	0.44
1:A:86:MSE:HE3	1:A:131:LYS:NZ	2.31	0.44
1:B:1518:ASN:O	1:B:1521:GLU:HG2	2.18	0.44
1:D:3528:ILE:O	1:D:3531:THR:CG2	2.65	0.44
1:B:1520:GLN:O	1:B:1524:ILE:HG12	2.18	0.44
1:D:3369:ALA:HA	1:D:3370:PRO:HD3	1.80	0.44
1:C:2172:LEU:O	1:C:2175:TYR:HB2	2.17	0.44
1:D:3474:VAL:O	1:D:3478:VAL:HG23	2.17	0.44
1:B:1342:TRP:CZ3	1:B:1349:LEU:HD21	2.53	0.44
1:B:1069:HIS:HE1	1:B:1102:ASP:OD2	2.00	0.44
1:A:154:HIS:CD2	6:A:4548:HOH:O	2.70	0.44
1:C:2150:TRP:HA	1:C:2151:PRO:HD3	1.80	0.44
1:B:1458:ARG:HH11	1:B:1458:ARG:HB2	1.82	0.44
1:D:3036:LYS:HE3	1:D:3565:LEU:HG	2.00	0.44
1:D:3186:LEU:HD13	1:D:3468:VAL:CG2	2.47	0.44
1:C:2520:GLN:O	1:C:2524:ILE:HG12	2.18	0.44
1:C:2308:LEU:HD23	1:C:2389:ILE:HD11	1.99	0.44
1:B:1122:GLN:HG2	1:B:1125:HIS:HB2	1.99	0.44
1:C:2518:ASN:O	1:C:2521:GLU:HG2	2.17	0.44
1:D:3159:VAL:HG23	1:D:3184:LEU:HD21	1.99	0.44
1:A:350:LEU:HD22	1:A:354:ARG:CZ	2.48	0.44
1:D:3385:LYS:N	1:D:3386:PRO:CD	2.80	0.44
1:C:2350:LEU:HD13	1:C:2354:ARG:CZ	2.48	0.44
1:A:263:PHE:HZ	1:A:317:LEU:HB2	1.81	0.44
1:A:306:LYS:CG	1:A:386:PRO:HA	2.48	0.44
1:D:3413:ARG:HA	1:D:3440:ARG:O	2.18	0.44
1:B:1471:PHE:CG	1:B:1472:PRO:HD3	2.53	0.44
1:D:3199:LEU:HA	1:D:3200:PRO:HD3	1.89	0.43
1:A:552:TYR:O	1:A:556:ARG:HG3	2.17	0.43
1:D:3406:ALA:O	1:D:3409:SER:HB3	2.17	0.43
1:B:1239:MSE:SE	1:B:1252:ILE:HD13	2.69	0.43
1:D:3272:LYS:HE3	1:D:3272:LYS:HB3	1.92	0.43
1:B:1302:ILE:C	1:B:1304:GLU:N	2.69	0.43
1:B:1184:LEU:O	1:B:1187:TYR:HB2	2.18	0.43
1:B:1378:GLU:OE1	1:B:1402:ASP:HB3	2.18	0.43
1:A:478:VAL:HG13	1:A:483:THR:HB	1.99	0.43
1:B:1399:PHE:CG	1:B:1427:GLU:HB3	2.53	0.43
1:B:1522:VAL:O	1:B:1526:ILE:HG13	2.18	0.43
1:A:482:ASN:HD21	4:A:602:NAI:H4B	1.84	0.43
1:D:3071:ASN:O	1:D:3075:MSE:HG3	2.18	0.43
1:C:2334:GLU:O	1:C:2338:GLN:HG3	2.17	0.43
1:B:1298:ILE:O	1:B:1299:SER:HB2	2.18	0.43

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:23:GLU:CG	1:A:27:PRO:HB2	2.48	0.43
1:A:306:LYS:HE3	6:A:4713:HOH:O	2.18	0.43
1:A:188:THR:HG21	1:A:195:PRO:HG3	1.99	0.43
1:C:2066:LEU:O	1:C:2070:ARG:HB2	2.18	0.43
1:D:3157:ALA:HB2	1:D:3479:ILE:HD11	2.00	0.43
1:A:332:LEU:CD1	1:A:332:LEU:H	2.32	0.43
1:A:344:PHE:CZ	1:A:348:GLY:HA2	2.53	0.43
1:D:3156:LYS:HA	1:D:3156:LYS:HE2	2.00	0.43
1:C:2556:ARG:HH11	1:C:2556:ARG:HG3	1.84	0.43
1:B:1327:MSE:HE3	1:B:1337:ALA:HB1	2.01	0.43
1:A:184:LEU:O	1:A:187:TYR:HB2	2.19	0.43
1:A:506:GLU:O	1:A:511:ARG:HB2	2.19	0.43
1:B:1068:PHE:CE1	1:B:1085:ILE:HG22	2.53	0.43
1:B:1300:LYS:HA	1:B:1301:PRO:HD3	1.91	0.43
1:B:1094:LYS:HD2	1:B:1558:TRP:CZ2	2.53	0.43
1:D:3140:ARG:HG3	1:D:3140:ARG:O	2.18	0.43
1:A:288:LEU:CD2	1:A:322:LEU:CD1	2.95	0.43
1:B:1184:LEU:HD12	1:B:1200:PRO:HB3	2.01	0.43
1:C:2448:PRO:HD3	1:C:2464:GLN:NE2	2.33	0.43
1:B:1298:ILE:C	1:B:1300:LYS:N	2.71	0.43
1:C:2082:TYR:CE1	1:C:2086:MSE:HE2	2.54	0.43
1:D:3300:LYS:HB2	1:D:3300:LYS:HZ2	1.84	0.43
1:B:1261:ASN:HA	1:B:1264:ARG:CG	2.48	0.43
1:D:3310:LEU:HB3	1:D:3391:GLY:HA2	2.00	0.43
1:B:1411:ASN:HB2	1:B:1414:PRO:HB3	2.00	0.43
1:A:414:PRO:HD2	1:A:440:ARG:O	2.19	0.42
1:D:3310:LEU:HD21	1:D:3398:LEU:HB2	2.01	0.42
1:B:1405:ARG:O	1:B:1408:ALA:HB3	2.18	0.42
1:D:3481:CYS:HB3	1:D:3540:ALA:CB	2.49	0.42
1:D:3104:ILE:O	1:D:3108:MSE:HB2	2.19	0.42
1:D:3143:VAL:CB	1:D:3237:GLU:HG2	2.49	0.42
1:B:1229:GLN:HA	1:B:1229:GLN:HE21	1.84	0.42
1:D:3295:GLN:HG3	1:D:3295:GLN:O	2.19	0.42
1:D:3085:ILE:HD11	1:D:3111:VAL:CG1	2.48	0.42
1:B:1260:HIS:NE2	1:B:1264:ARG:HD2	2.34	0.42
1:D:3186:LEU:O	1:D:3190:CYS:HB2	2.19	0.42
1:D:3144:ARG:HD2	1:D:3144:ARG:HA	1.86	0.42
1:D:3462:PRO:HB2	6:D:4170:HOH:O	2.20	0.42
1:C:2418:ALA:O	1:C:2445:SER:HA	2.20	0.42
1:B:1138:SER:OG	1:B:1221:LEU:HD21	2.20	0.42
1:D:3085:ILE:CD1	1:D:3096:PHE:HE1	2.29	0.42
1:B:1097:TYR:CE2	1:B:1188:THR:HB	2.55	0.42

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:D:3107:LEU:HA	1:D:3110:ILE:HD12	2.01	0.42
1:A:302:ILE:HG13	1:A:340:LYS:HE2	2.02	0.42
1:B:1085:ILE:HD11	1:B:1086:MSE:SE	2.69	0.42
1:C:2165:ARG:NH1	4:C:2601:NAI:O1N	2.49	0.42
1:A:174:VAL:O	1:A:174:VAL:HG12	2.19	0.42
1:A:407:MSE:CE	1:A:410:ILE:HD12	2.50	0.42
1:A:108:MSE:N	1:A:109:PRO:CD	2.83	0.42
1:B:1298:ILE:HG13	1:B:1299:SER:N	2.35	0.42
1:B:1243:THR:OG1	1:B:1248:ARG:HA	2.19	0.42
1:C:2085:ILE:HD12	1:C:2085:ILE:C	2.39	0.42
1:B:1412:GLU:O	1:B:1440:ARG:HB3	2.20	0.42
1:D:3551:LYS:O	1:D:3555:GLU:HG3	2.19	0.42
1:B:1535:TYR:CE2	1:B:1545:GLU:HG3	2.55	0.42
1:C:2542:ARG:HD3	1:C:2542:ARG:C	2.40	0.42
1:A:313:GLY:HA2	6:A:4407:HOH:O	2.19	0.42
1:C:2184:LEU:HD12	1:C:2200:PRO:CG	2.40	0.42
1:C:2238:PHE:CE1	1:C:2242:ILE:HG13	2.54	0.42
1:B:1243:THR:HG23	1:B:1244:ASP:N	2.34	0.42
1:A:270:ARG:HH21	1:A:487:SER:HA	1.85	0.42
1:D:3307:ILE:HG23	1:D:3388:THR:HG22	2.01	0.42
1:C:2096:PHE:O	1:C:2100:LEU:HD13	2.20	0.42
1:B:1232:ASP:CG	1:B:1264:ARG:HH22	2.21	0.41
1:B:1194:ARG:HA	1:B:1195:PRO:HD3	1.85	0.41
1:B:1229:GLN:HA	1:B:1229:GLN:NE2	2.34	0.41
1:B:1094:LYS:HD2	1:B:1558:TRP:HZ2	1.85	0.41
1:B:1104:ILE:HG23	1:B:1105:GLU:N	2.35	0.41
1:C:2086:MSE:HE1	1:C:2111:VAL:CG2	2.44	0.41
1:A:556:ARG:CG	1:A:556:ARG:HH11	2.31	0.41
1:B:1400:THR:HB	1:B:1401:PRO:CD	2.51	0.41
1:C:2288:LEU:HG	1:C:2292:LEU:HD13	2.02	0.41
1:B:1150:TRP:HA	1:B:1151:PRO:HD3	1.91	0.41
1:C:2314:GLU:HB2	4:C:2601:NAI:O1N	2.20	0.41
1:D:3556:ARG:NH1	1:D:3556:ARG:HG3	2.35	0.41
1:C:2112:TYR:CG	1:C:2113:THR:N	2.89	0.41
1:B:1159:VAL:HG23	1:B:1184:LEU:HD21	2.01	0.41
1:B:1349:LEU:HD22	1:B:1374:PRO:HG2	2.02	0.41
1:D:3167:LEU:HB2	1:D:3169:LEU:HD23	2.01	0.41
1:A:154:HIS:HD2	6:A:4548:HOH:O	2.02	0.41
1:B:1215:ASP:HA	1:B:1216:PRO:HD3	1.86	0.41
1:B:1286:VAL:HG21	1:B:1467:ASN:CA	2.39	0.41
1:D:3122:GLN:HE21	1:D:3122:GLN:HB3	1.64	0.41
1:C:2283:THR:CG2	4:C:2601:NAI:H4N	2.51	0.41

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:A:556:ARG:NH1	1:A:556:ARG:CG	2.84	0.41
1:B:1077:SER:HB2	6:B:4206:HOH:O	2.21	0.41
1:D:3361:TYR:H	1:D:3361:TYR:HD1	1.67	0.41
1:B:1354:ARG:NE	1:B:1358:ILE:HD11	2.35	0.41
1:D:3549:LYS:HB2	6:D:4386:HOH:O	2.20	0.41
1:B:1388:THR:HG23	1:B:1415:VAL:CG1	2.50	0.41
1:C:2294:ALA:O	1:C:2297:VAL:HG13	2.20	0.41
1:B:1383:ILE:CG2	1:B:1384:LEU:HD12	2.51	0.41
1:C:2295:GLN:OE1	1:C:2295:GLN:HA	2.21	0.41
1:A:431:GLU:OE2	1:A:452:VAL:HG13	2.21	0.41
1:B:1430:ALA:O	1:B:1434:TYR:HD1	2.03	0.41
1:C:2055:PRO:HG2	1:D:3219:MSE:HE3	2.02	0.41
1:A:302:ILE:HD11	1:A:327:MSE:SE	2.70	0.41
1:C:2355:LYS:HA	1:C:2355:LYS:CE	2.40	0.41
1:B:1304:GLU:O	1:B:1305:HIS:HB2	2.20	0.41
1:B:1298:ILE:HD11	1:B:1305:HIS:HE2	1.84	0.41
1:B:1381:VAL:O	1:B:1385:LYS:HA	2.20	0.41
1:D:3068:PHE:CD2	1:D:3099:ILE:CG1	3.00	0.41
1:D:3093:GLU:O	1:D:3096:PHE:HB3	2.21	0.41
1:C:2332:LEU:CD1	1:C:2332:LEU:H	2.26	0.41
1:C:2197:ARG:NH1	1:C:2197:ARG:HG3	2.36	0.41
1:C:2108:MSE:N	1:C:2109:PRO:CD	2.84	0.41
1:D:3350:LEU:HD13	1:D:3354:ARG:NH1	2.36	0.41
1:A:310:LEU:HB3	1:A:391:GLY:HA2	2.03	0.41
1:A:164:GLU:HB2	1:A:225:ARG:CZ	2.51	0.41
1:D:3433:ALA:O	1:D:3437:THR:HG23	2.21	0.41
1:B:1061:GLN:HA	1:B:1064:GLN:HE21	1.85	0.41
1:B:1298:ILE:HD12	1:B:1300:LYS:CB	2.50	0.41
1:A:419:LEU:O	4:A:601:NAI:H2N	2.21	0.41
1:B:1312:ALA:CB	1:B:1343:MSE:HE3	2.51	0.41
1:C:2345:ASP:HB2	4:C:2601:NAI:O2B	2.21	0.41
1:C:2548:ASP:OD2	1:C:2551:LYS:HB2	2.21	0.41
1:A:82:TYR:CZ	1:A:86:MSE:HG3	2.55	0.41
1:B:1435:THR:HG22	1:B:1454:LEU:CD2	2.50	0.41
1:A:302:ILE:HG23	1:A:303:SER:N	2.36	0.40
1:C:2159:VAL:HG23	1:C:2184:LEU:HD21	2.03	0.40
1:B:1286:VAL:HG22	1:B:1470:ILE:CG1	2.52	0.40
1:C:2346:LYS:HG2	4:C:2601:NAI:O2B	2.21	0.40
1:B:1430:ALA:O	1:B:1434:TYR:CD1	2.74	0.40
1:A:456:ASP:OD1	1:A:458:ARG:HD3	2.21	0.40
1:D:3205:VAL:HG11	1:D:3231:TYR:HD1	1.86	0.40
1:D:3099:ILE:HA	1:D:3099:ILE:HD12	1.82	0.40

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Atom-1	Atom-2	Distance(Å)	Clash(Å)
1:B:1317:LEU:HD21	1:B:1362:GLN:HG2	2.02	0.40
1:A:308:LEU:HB3	1:A:389:ILE:CD1	2.51	0.40
1:A:150:TRP:CE2	1:A:199:LEU:HD13	2.56	0.40
1:D:3113:THR:CB	6:D:4542:HOH:O	2.48	0.40
1:B:1108:MSE:O	1:B:1112:TYR:HB3	2.21	0.40
1:B:1342:TRP:CH2	1:B:1370:PRO:HG3	2.56	0.40
1:A:233:ASP:HB3	6:A:4438:HOH:O	2.22	0.40
1:C:2377:PHE:CZ	1:C:2389:ILE:HD11	2.56	0.40
1:B:1055:PRO:HA	1:B:1056:PRO:HD3	1.99	0.40
1:D:3108:MSE:N	1:D:3109:PRO:CD	2.85	0.40
1:A:412:GLU:O	1:A:440:ARG:HB3	2.22	0.40
1:C:2183:LYS:HE3	1:C:2255:GLU:OE1	2.21	0.40
1:D:3023:GLU:HA	1:D:3023:GLU:OE1	2.22	0.40
1:A:68:PHE:CE2	1:A:99:ILE:HG23	2.56	0.40
1:C:2294:ALA:O	1:C:2297:VAL:CG1	2.69	0.40
1:C:2174:VAL:O	1:C:2174:VAL:HG12	2.21	0.40
1:C:2320:ALA:O	1:C:2324:VAL:HG23	2.22	0.40
1:A:400:THR:O	1:A:404:ILE:HG13	2.21	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	551/564 (98%)	522 (95%)	27 (5%)	2 (0%)	43	52
1	B	551/564 (98%)	518 (94%)	29 (5%)	4 (1%)	30	34
1	C	551/564 (98%)	530 (96%)	19 (3%)	2 (0%)	43	52
1	D	551/564 (98%)	518 (94%)	30 (5%)	3 (0%)	38	45
All	All	2204/2256 (98%)	2088 (95%)	105 (5%)	11 (0%)	38	45

All (11) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	3332	LEU
1	B	1392	VAL
1	B	1301	PRO
1	C	2392	VAL
1	B	1305	HIS
1	B	1397	ARG
1	C	2371	GLU
1	D	3103	ASP
1	D	3392	VAL
1	A	103	ASP
1	A	332	LEU

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	469/465 (101%)	447 (95%)	22 (5%)	36	47
1	B	469/465 (101%)	455 (97%)	14 (3%)	53	70
1	C	469/465 (101%)	450 (96%)	19 (4%)	41	55
1	D	469/465 (101%)	444 (95%)	25 (5%)	32	41
All	All	1876/1860 (101%)	1796 (96%)	80 (4%)	40	52

All (80) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	22	LYS
1	A	43	GLN
1	A	123	TYR
1	A	140	ARG
1	A	165	ARG
1	A	169	LEU
1	A	221	LEU
1	A	229	GLN
1	A	291	LEU
1	A	292	LEU
1	A	304	GLU
1	A	322	LEU

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Mol	Chain	Res	Type
1	A	335	GLN
1	A	339	LYS
1	A	355	LYS
1	A	371	GLU
1	A	384	LEU
1	A	436	LEU
1	A	492	LEU
1	A	502	LEU
1	A	520	GLN
1	A	559	ARG
1	B	1070	ARG
1	B	1113	THR
1	B	1123	TYR
1	B	1154	HIS
1	B	1165	ARG
1	B	1169	LEU
1	B	1232	ASP
1	B	1248	ARG
1	B	1271	GLU
1	B	1340	LYS
1	B	1458	ARG
1	B	1492	LEU
1	B	1502	LEU
1	B	1520	GLN
1	C	2022	LYS
1	C	2070	ARG
1	C	2086	MSE
1	C	2114	PRO
1	C	2123	TYR
1	C	2232	ASP
1	C	2251	LEU
1	C	2291	LEU
1	C	2297	VAL
1	C	2339	LYS
1	C	2355	LYS
1	C	2384	LEU
1	C	2398	LEU
1	C	2405	ARG
1	C	2507	LEU
1	C	2520	GLN
1	C	2547	GLU
1	C	2561	GLU

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Mol	Chain	Res	Type
1	C	2571	GLU
1	D	3051	GLN
1	D	3066	LEU
1	D	3085	ILE
1	D	3099	ILE
1	D	3113	THR
1	D	3123	TYR
1	D	3133	LEU
1	D	3140	ARG
1	D	3153	ASN
1	D	3165	ARG
1	D	3221	LEU
1	D	3251	LEU
1	D	3296	LYS
1	D	3363	GLU
1	D	3385	LYS
1	D	3388	THR
1	D	3389	ILE
1	D	3425	GLN
1	D	3492	LEU
1	D	3520	GLN
1	D	3529	LYS
1	D	3531	THR
1	D	3549	LYS
1	D	3559	ARG
1	D	3561	GLU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (47) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	43	GLN
1	A	51	GLN
1	A	64	GLN
1	A	125	HIS
1	A	230	GLN
1	A	261	ASN
1	A	330	ASN
1	A	335	GLN
1	A	367	HIS
1	A	482	ASN
1	A	509	GLN
1	A	518	ASN

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Mol	Chain	Res	Type
1	A	520	GLN
1	B	1043	GLN
1	B	1064	GLN
1	B	1069	HIS
1	B	1229	GLN
1	B	1249	ASN
1	B	1261	ASN
1	B	1335	GLN
1	B	1338	GLN
1	B	1425	GLN
1	B	1482	ASN
1	B	1509	GLN
1	B	1518	ASN
1	B	1520	GLN
1	C	2064	GLN
1	C	2229	GLN
1	C	2230	GLN
1	C	2261	ASN
1	C	2362	GLN
1	C	2425	GLN
1	C	2482	ASN
1	C	2518	ASN
1	C	2520	GLN
1	D	3043	GLN
1	D	3051	GLN
1	D	3064	GLN
1	D	3122	GLN
1	D	3153	ASN
1	D	3230	GLN
1	D	3261	ASN
1	D	3305	HIS
1	D	3330	ASN
1	D	3425	GLN
1	D	3509	GLN
1	D	3520	GLN

5.3.3 RNA ⓘ

There are no RNA chains 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 carbohydrates in this entry.

5.6 Ligand geometry ⓘ

Of 20 ligands modelled in this entry, 4 are monoatomic - leaving 16 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
4	NAI	A	601	-	48,48,48	1.69	12 (25%)	73,73,73	1.93	12 (16%)
4	NAI	A	602	-	48,48,48	1.83	14 (29%)	73,73,73	1.88	13 (17%)
5	FUM	A	700	-	7,7,7	1.93	3 (42%)	8,8,8	1.13	0
2	MLT	A	701	3	8,8,8	1.28	1 (12%)	10,10,10	1.35	2 (20%)
4	NAI	B	1601	-	48,48,48	1.76	14 (29%)	73,73,73	1.91	9 (12%)
4	NAI	B	1602	-	48,48,48	1.89	12 (25%)	73,73,73	1.84	11 (15%)
5	FUM	B	1700	-	7,7,7	1.93	3 (42%)	8,8,8	1.08	0
2	MLT	B	1701	3	8,8,8	1.09	1 (12%)	10,10,10	1.41	2 (20%)
4	NAI	C	2601	-	48,48,48	1.82	14 (29%)	73,73,73	1.96	12 (16%)
4	NAI	C	2602	-	48,48,48	1.84	13 (27%)	73,73,73	1.86	13 (17%)
5	FUM	C	2700	-	7,7,7	2.16	3 (42%)	8,8,8	1.07	0
2	MLT	C	2701	3	8,8,8	1.07	0	10,10,10	1.34	2 (20%)
4	NAI	D	3601	-	48,48,48	1.76	14 (29%)	73,73,73	1.91	11 (15%)
4	NAI	D	3602	-	48,48,48	1.83	14 (29%)	73,73,73	1.87	12 (16%)
5	FUM	D	3700	-	7,7,7	1.98	3 (42%)	8,8,8	1.06	0
2	MLT	D	3701	3	8,8,8	1.05	0	10,10,10	1.40	2 (20%)

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral

centers analysed, the number of these observed in the model and the number defined in the chemical component dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	NAI	A	601	-	-	0/30/72/72	0/3/5/5
4	NAI	A	602	-	-	0/30/72/72	0/3/5/5
5	FUM	A	700	-	-	0/5/5/5	0/0/0/0
2	MLT	A	701	3	1/1/3/3	0/8/8/8	0/0/0/0
4	NAI	B	1601	-	-	0/30/72/72	0/3/5/5
4	NAI	B	1602	-	-	0/30/72/72	0/3/5/5
5	FUM	B	1700	-	-	0/5/5/5	0/0/0/0
2	MLT	B	1701	3	1/1/3/3	0/8/8/8	0/0/0/0
4	NAI	C	2601	-	-	0/30/72/72	0/3/5/5
4	NAI	C	2602	-	-	0/30/72/72	0/3/5/5
5	FUM	C	2700	-	-	0/5/5/5	0/0/0/0
2	MLT	C	2701	3	1/1/3/3	0/8/8/8	0/0/0/0
4	NAI	D	3601	-	-	0/30/72/72	0/3/5/5
4	NAI	D	3602	-	-	0/30/72/72	0/3/5/5
5	FUM	D	3700	-	-	0/5/5/5	0/0/0/0
2	MLT	D	3701	3	1/1/3/3	0/8/8/8	0/0/0/0

All (121) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	C	2601	NAI	C4N-C3N	-4.48	1.41	1.50
4	B	1601	NAI	C4N-C3N	-4.26	1.42	1.50
4	B	1602	NAI	C2N-N1N	4.25	1.44	1.36
4	D	3601	NAI	C4N-C3N	-4.17	1.42	1.50
4	C	2602	NAI	C2N-N1N	4.14	1.44	1.36
4	A	601	NAI	C4N-C3N	-3.91	1.42	1.50
4	C	2602	NAI	C4N-C3N	-3.85	1.42	1.50
4	B	1602	NAI	C4N-C3N	-3.84	1.42	1.50
4	D	3602	NAI	C4N-C3N	-3.82	1.42	1.50
4	B	1602	NAI	C2N-C3N	3.80	1.42	1.34
4	D	3602	NAI	C6N-C5N	3.74	1.41	1.33
4	A	602	NAI	C4N-C3N	-3.74	1.43	1.50
4	A	602	NAI	C6N-C5N	3.73	1.41	1.33
4	A	602	NAI	C2N-N1N	3.71	1.43	1.36
4	B	1602	NAI	O4B-C1B	3.70	1.47	1.41
4	D	3601	NAI	O4B-C1B	3.70	1.47	1.41
4	D	3602	NAI	C2N-C3N	3.68	1.41	1.34
4	C	2601	NAI	C7N-C3N	3.67	1.55	1.47
4	C	2602	NAI	C6N-C5N	3.64	1.41	1.33
4	B	1602	NAI	C4N-C5N	-3.63	1.41	1.49

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	1602	NAI	C6N-C5N	3.60	1.40	1.33
4	C	2602	NAI	C7N-C3N	3.59	1.55	1.47
4	A	602	NAI	C7N-C3N	3.59	1.55	1.47
4	A	602	NAI	C2N-C3N	3.58	1.41	1.34
4	D	3602	NAI	C2N-N1N	3.58	1.43	1.36
4	D	3602	NAI	C7N-C3N	3.57	1.55	1.47
4	C	2602	NAI	C2N-C3N	3.50	1.41	1.34
4	A	601	NAI	C6N-C5N	3.49	1.40	1.33
4	A	601	NAI	C7N-C3N	3.49	1.55	1.47
4	C	2602	NAI	O4B-C1B	3.48	1.46	1.41
4	D	3601	NAI	C7N-C3N	3.46	1.55	1.47
4	C	2601	NAI	C2N-N1N	3.43	1.43	1.36
4	D	3601	NAI	C6N-C5N	3.35	1.40	1.33
4	B	1601	NAI	C7N-C3N	3.34	1.54	1.47
4	C	2601	NAI	C4A-N9A	-3.33	1.32	1.37
4	A	601	NAI	C4A-N9A	-3.33	1.32	1.37
4	D	3601	NAI	C2N-N1N	3.29	1.42	1.36
4	B	1601	NAI	C6N-C5N	3.28	1.40	1.33
4	A	601	NAI	C5A-C4A	-3.27	1.33	1.40
4	C	2601	NAI	C5A-C4A	-3.26	1.33	1.40
4	B	1602	NAI	C7N-C3N	3.25	1.54	1.47
4	C	2602	NAI	C4A-N9A	-3.19	1.33	1.37
4	C	2601	NAI	C2N-C3N	3.18	1.41	1.34
4	B	1601	NAI	C4N-C5N	-3.17	1.42	1.49
4	D	3602	NAI	O4B-C1B	3.16	1.46	1.41
4	C	2601	NAI	C6N-C5N	3.16	1.40	1.33
4	D	3601	NAI	C4N-C5N	-3.15	1.42	1.49
4	D	3601	NAI	C2N-C3N	3.13	1.40	1.34
4	A	602	NAI	O4B-C1B	3.10	1.46	1.41
4	D	3602	NAI	C4N-C5N	-3.09	1.42	1.49
4	C	2601	NAI	O4B-C1B	3.08	1.46	1.41
4	D	3602	NAI	C4A-N9A	-3.08	1.33	1.37
4	A	602	NAI	C4N-C5N	-3.08	1.42	1.49
4	B	1602	NAI	C4A-N9A	-3.06	1.33	1.37
4	C	2602	NAI	C5A-C4A	-3.05	1.33	1.40
4	D	3602	NAI	C5A-C4A	-3.03	1.33	1.40
4	D	3601	NAI	C5A-C4A	-3.02	1.33	1.40
4	B	1601	NAI	C2A-N3A	3.01	1.38	1.32
4	D	3601	NAI	C2A-N3A	2.99	1.38	1.32
4	B	1601	NAI	C2N-C3N	2.96	1.40	1.34
4	C	2601	NAI	C4N-C5N	-2.94	1.42	1.49
4	B	1602	NAI	C5A-C4A	-2.94	1.33	1.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
5	C	2700	FUM	C5-C6	2.85	1.55	1.48
4	A	602	NAI	C2A-N3A	2.83	1.37	1.32
4	B	1601	NAI	O4B-C1B	2.82	1.45	1.41
4	B	1601	NAI	C5A-C4A	-2.78	1.34	1.40
4	A	601	NAI	C2N-C3N	2.78	1.40	1.34
4	A	601	NAI	C2N-N1N	2.78	1.41	1.36
4	A	602	NAI	C5A-C4A	-2.77	1.34	1.40
4	A	602	NAI	C4A-N9A	-2.71	1.33	1.37
4	B	1601	NAI	C4A-N9A	-2.70	1.33	1.37
5	D	3700	FUM	C5-C6	2.67	1.54	1.48
4	A	601	NAI	C6N-N1N	2.66	1.45	1.37
4	A	601	NAI	C2A-N3A	2.66	1.37	1.32
4	B	1602	NAI	C1D-N1N	2.66	1.51	1.46
4	A	601	NAI	C4N-C5N	-2.61	1.43	1.49
4	C	2602	NAI	C4N-C5N	-2.59	1.43	1.49
4	A	602	NAI	C1D-N1N	2.59	1.51	1.46
4	B	1602	NAI	C2A-N3A	2.58	1.37	1.32
4	D	3601	NAI	C4A-N9A	-2.58	1.34	1.37
5	C	2700	FUM	C5-C4	2.58	1.40	1.32
4	C	2602	NAI	C1D-N1N	2.55	1.51	1.46
5	B	1700	FUM	O1-C2	-2.55	1.22	1.30
4	C	2601	NAI	C2B-C1B	-2.54	1.49	1.53
4	D	3601	NAI	C5A-N7A	-2.53	1.30	1.40
5	D	3700	FUM	O1-C2	-2.49	1.23	1.30
4	D	3602	NAI	C2A-N3A	2.49	1.37	1.32
4	D	3602	NAI	C1D-N1N	2.48	1.51	1.46
4	D	3601	NAI	C6N-N1N	2.47	1.44	1.37
4	C	2602	NAI	C2A-N3A	2.47	1.37	1.32
5	A	700	FUM	C5-C4	2.47	1.40	1.32
5	C	2700	FUM	O1-C2	-2.45	1.23	1.30
4	C	2601	NAI	C2A-N3A	2.45	1.37	1.32
4	B	1601	NAI	C5A-N7A	-2.44	1.31	1.40
4	C	2601	NAI	C5A-N7A	-2.42	1.31	1.40
5	B	1700	FUM	C5-C4	2.38	1.40	1.32
4	A	602	NAI	C5A-N7A	-2.38	1.31	1.40
4	B	1601	NAI	C2N-N1N	2.37	1.41	1.36
4	B	1602	NAI	C5A-N7A	-2.34	1.31	1.40
4	A	602	NAI	C6N-N1N	2.34	1.44	1.37
4	B	1601	NAI	C6N-N1N	2.33	1.44	1.37
4	D	3602	NAI	C6N-N1N	2.32	1.44	1.37
5	A	700	FUM	O1-C2	-2.32	1.23	1.30
5	A	700	FUM	C5-C6	2.32	1.54	1.48

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	601	NAI	C5A-N7A	-2.30	1.31	1.40
4	C	2602	NAI	C5A-N7A	-2.30	1.31	1.40
4	D	3602	NAI	C5A-N7A	-2.26	1.31	1.40
5	B	1700	FUM	C5-C6	2.23	1.53	1.48
5	D	3700	FUM	C5-C4	2.23	1.39	1.32
4	A	602	NAI	O4D-C1D	2.20	1.47	1.42
2	A	701	MLT	C3-C2	2.19	1.56	1.52
4	A	601	NAI	O4B-C1B	2.19	1.44	1.41
4	D	3602	NAI	O4D-C1D	2.18	1.47	1.42
4	C	2601	NAI	C6N-N1N	2.16	1.44	1.37
4	C	2601	NAI	O4B-C4B	2.15	1.50	1.45
4	B	1601	NAI	C2A-N1A	2.14	1.38	1.33
4	B	1601	NAI	O4D-C1D	2.10	1.47	1.42
2	B	1701	MLT	O2-C1	-2.07	1.22	1.30
4	D	3601	NAI	O4D-C1D	2.06	1.47	1.42
4	D	3601	NAI	C2A-N1A	2.01	1.37	1.33
4	C	2602	NAI	C2B-C1B	-2.00	1.50	1.53

All (101) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	601	NAI	N3A-C2A-N1A	-9.87	120.46	128.71
4	C	2601	NAI	N3A-C2A-N1A	-9.76	120.55	128.71
4	A	602	NAI	N3A-C2A-N1A	-9.65	120.64	128.71
4	D	3602	NAI	N3A-C2A-N1A	-9.62	120.66	128.71
4	B	1601	NAI	N3A-C2A-N1A	-9.60	120.69	128.71
4	B	1602	NAI	N3A-C2A-N1A	-9.58	120.70	128.71
4	C	2602	NAI	N3A-C2A-N1A	-9.57	120.71	128.71
4	D	3601	NAI	N3A-C2A-N1A	-9.39	120.86	128.71
4	D	3601	NAI	N3A-C4A-N9A	5.77	135.86	125.43
4	B	1601	NAI	N3A-C4A-N9A	5.64	135.62	125.43
4	C	2601	NAI	N3A-C4A-N9A	5.53	135.41	125.43
4	A	601	NAI	N3A-C4A-N9A	5.50	135.36	125.43
4	A	602	NAI	N3A-C4A-N9A	5.49	135.34	125.43
4	C	2602	NAI	N3A-C4A-N9A	5.47	135.31	125.43
4	B	1602	NAI	N3A-C4A-N9A	5.42	135.23	125.43
4	D	3602	NAI	N3A-C4A-N9A	5.33	135.05	125.43
4	C	2601	NAI	O4B-C1B-N9A	5.24	113.32	108.44
4	D	3602	NAI	C4A-C5A-N7A	4.95	113.76	109.52
4	C	2601	NAI	C4A-C5A-N7A	4.94	113.76	109.52
4	B	1602	NAI	C4A-C5A-N7A	4.94	113.75	109.52
4	D	3601	NAI	C4A-C5A-N7A	4.94	113.75	109.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	1601	NAI	C4A-C5A-N7A	4.92	113.74	109.52
4	C	2602	NAI	C4A-C5A-N7A	4.91	113.72	109.52
4	A	601	NAI	C4A-C5A-N7A	4.89	113.71	109.52
4	A	602	NAI	C4A-C5A-N7A	4.85	113.68	109.52
4	B	1601	NAI	O4B-C1B-N9A	4.05	112.21	108.44
4	A	601	NAI	O4B-C1B-N9A	4.03	112.19	108.44
4	D	3601	NAI	C6A-C5A-C4A	3.91	124.43	117.25
4	B	1601	NAI	C6A-C5A-C4A	3.76	124.15	117.25
4	C	2601	NAI	C6A-C5A-C4A	3.67	123.98	117.25
4	A	602	NAI	C6A-C5A-C4A	3.66	123.96	117.25
4	A	601	NAI	C6A-C5A-C4A	3.64	123.92	117.25
4	C	2602	NAI	C6A-C5A-C4A	3.56	123.78	117.25
4	B	1602	NAI	C6A-C5A-C4A	3.53	123.73	117.25
4	D	3602	NAI	C6A-C5A-C4A	3.47	123.62	117.25
4	D	3601	NAI	C5A-C4A-N3A	-3.36	118.38	125.70
4	D	3601	NAI	O4B-C1B-N9A	3.35	111.56	108.44
4	D	3601	NAI	C5N-C4N-C3N	3.34	121.65	112.60
4	B	1601	NAI	C5A-C4A-N3A	-3.31	118.49	125.70
4	C	2601	NAI	C5N-C4N-C3N	3.31	121.57	112.60
4	A	602	NAI	C5A-C4A-N3A	-3.30	118.52	125.70
4	B	1602	NAI	C5A-C4A-N3A	-3.29	118.53	125.70
4	D	3602	NAI	C5A-C4A-N3A	-3.26	118.61	125.70
4	C	2602	NAI	C5A-C4A-N3A	-3.26	118.61	125.70
4	B	1602	NAI	C5N-C4N-C3N	3.24	121.38	112.60
4	A	601	NAI	C5N-C4N-C3N	3.22	121.31	112.60
4	B	1601	NAI	C5N-C4N-C3N	3.21	121.29	112.60
4	A	601	NAI	C5A-C4A-N3A	-3.18	118.78	125.70
4	C	2601	NAI	C5A-C4A-N3A	-3.17	118.80	125.70
4	D	3602	NAI	C5N-C4N-C3N	3.12	121.06	112.60
4	A	602	NAI	C5N-C4N-C3N	3.10	121.00	112.60
4	C	2602	NAI	C3B-C2B-C1B	3.06	105.70	100.91
4	D	3602	NAI	O4B-C1B-N9A	3.03	111.26	108.44
4	A	602	NAI	C3B-C2B-C1B	3.00	105.60	100.91
4	C	2602	NAI	C5N-C4N-C3N	2.81	120.21	112.60
4	C	2601	NAI	C4B-O4B-C1B	-2.73	106.78	109.75
4	D	3602	NAI	C3B-C2B-C1B	2.67	105.08	100.91
4	C	2602	NAI	O4B-C1B-N9A	2.60	110.86	108.44
2	D	3701	MLT	O2-C1-C2	2.56	120.08	113.19
4	C	2602	NAI	C3D-C2D-C1D	2.55	106.42	101.35
2	B	1701	MLT	O2-C1-C2	2.54	120.01	113.19
4	B	1602	NAI	C3B-C2B-C1B	2.53	104.86	100.91
2	C	2701	MLT	O2-C1-C2	2.51	119.95	113.19

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	701	MLT	O2-C1-C2	2.50	119.90	113.19
4	D	3601	NAI	C6A-C5A-N7A	-2.49	121.82	131.34
4	D	3601	NAI	C3B-C2B-C1B	2.43	104.72	100.91
4	B	1601	NAI	C6A-C5A-N7A	-2.42	122.11	131.34
4	B	1602	NAI	C3N-C2N-N1N	-2.42	119.62	123.05
4	B	1602	NAI	C3D-C2D-C1D	2.38	106.07	101.35
4	D	3602	NAI	C3D-C2D-C1D	2.37	106.06	101.35
4	C	2601	NAI	C6A-C5A-N7A	-2.37	122.27	131.34
4	B	1601	NAI	C3B-C2B-C1B	2.36	104.60	100.91
4	A	601	NAI	C6A-C5A-N7A	-2.35	122.37	131.34
4	A	602	NAI	C6A-C5A-N7A	-2.35	122.36	131.34
4	C	2602	NAI	C6A-C5A-N7A	-2.31	122.49	131.34
4	B	1602	NAI	C6A-C5A-N7A	-2.31	122.52	131.34
4	A	602	NAI	C3D-C2D-C1D	2.30	105.93	101.35
2	B	1701	MLT	O2-C1-O1	-2.29	118.90	124.07
4	D	3602	NAI	C6A-C5A-N7A	-2.28	122.62	131.34
2	D	3701	MLT	O2-C1-O1	-2.24	119.02	124.07
4	A	601	NAI	C4B-O4B-C1B	-2.22	107.34	109.75
4	C	2601	NAI	C4N-C3N-C2N	-2.18	119.03	121.68
4	A	601	NAI	N7A-C8A-N9A	-2.18	108.21	114.36
4	D	3601	NAI	C3N-C2N-N1N	-2.17	119.97	123.05
2	C	2701	MLT	O2-C1-O1	-2.14	119.23	124.07
2	A	701	MLT	O2-C1-O1	-2.13	119.25	124.07
4	D	3602	NAI	C3N-C2N-N1N	-2.13	120.02	123.05
4	C	2601	NAI	C3N-C2N-N1N	-2.12	120.04	123.05
4	B	1602	NAI	C2A-N3A-C4A	2.11	120.01	114.01
4	A	602	NAI	O4B-C1B-N9A	2.11	110.40	108.44
4	C	2602	NAI	C3N-C2N-N1N	-2.06	120.13	123.05
4	C	2601	NAI	N7A-C8A-N9A	-2.06	108.54	114.36
4	D	3602	NAI	C2A-N3A-C4A	2.05	119.84	114.01
4	A	602	NAI	C3N-C2N-N1N	-2.04	120.16	123.05
4	A	601	NAI	C4N-C3N-C2N	-2.03	119.21	121.68
4	A	602	NAI	C2A-N3A-C4A	2.02	119.77	114.01
4	C	2602	NAI	C2A-N3A-C4A	2.02	119.76	114.01
4	D	3601	NAI	C4N-C3N-C2N	-2.01	119.23	121.68
4	A	602	NAI	C2D-C3D-C4D	2.01	106.67	102.65
4	C	2602	NAI	N7A-C8A-N9A	-2.01	108.67	114.36
4	A	601	NAI	C1D-N1N-C2N	-2.01	117.60	121.02

All (4) chirality outliers are listed below:

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Mol	Chain	Res	Type	Atom
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Mol	Chain	Res	Type	Atom
2	D	3701	MLT	C2
2	C	2701	MLT	C2
2	A	701	MLT	C2
2	B	1701	MLT	C2

There are no torsion outliers.

There are no ring outliers.

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, 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	553/564 (98%)	0.07	20 (3%)	41 51	16, 33, 60, 79	0
1	B	553/564 (98%)	0.24	21 (3%)	38 49	18, 36, 67, 97	0
1	C	553/564 (98%)	-0.03	10 (1%)	65 74	16, 31, 54, 68	0
1	D	553/564 (98%)	0.28	30 (5%)	25 34	20, 38, 69, 93	0
All	All	2212/2256 (98%)	0.14	81 (3%)	41 50	16, 34, 64, 97	0

All (81) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	1303	SER	7.7
1	B	1301	PRO	7.7
1	B	1302	ILE	4.9
1	D	3302	ILE	4.7
1	A	304	GLU	4.6
1	B	1331	GLY	4.6
1	A	301	PRO	4.3
1	A	510	GLY	4.3
1	C	2303	SER	4.1
1	A	507	LEU	4.0
1	D	3301	PRO	3.9
1	D	3374	PRO	3.9
1	A	303	SER	3.8
1	D	3303	SER	3.6
1	D	3304	GLU	3.5
1	C	2304	GLU	3.5
1	B	1372	SER	3.4
1	A	302	ILE	3.4
1	C	2457	GLY	3.3
1	D	3021	ILE	3.3
1	D	3504	ASP	3.3

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Mol	Chain	Res	Type	RSRZ
1	B	1390	ILE	3.2
1	B	1332	LEU	3.1
1	A	504	ASP	3.0
1	C	2301	PRO	3.0
1	D	3509	GLN	2.9
1	B	1373	ILE	2.9
1	D	3300	LYS	2.9
1	A	509	GLN	2.9
1	B	1370	PRO	2.8
1	D	3355	LYS	2.8
1	C	2021	ILE	2.7
1	C	2390	ILE	2.7
1	B	1505	GLU	2.7
1	B	1330	ASN	2.7
1	A	452	VAL	2.7
1	B	1454	LEU	2.7
1	D	3460	PHE	2.6
1	D	3353	GLY	2.6
1	B	1457	GLY	2.6
1	B	1503	THR	2.6
1	A	371	GLU	2.6
1	A	331	GLY	2.5
1	B	1283	THR	2.5
1	B	1296	LYS	2.5
1	D	3328	VAL	2.5
1	C	2547	GLU	2.5
1	D	3368	SER	2.5
1	D	3356	ALA	2.4
1	B	1417	PHE	2.4
1	D	3023	GLU	2.4
1	D	3361	TYR	2.3
1	D	3465	GLY	2.3
1	C	2509	GLN	2.3
1	B	1354	ARG	2.3
1	B	1304	GLU	2.3
1	D	3286	VAL	2.3
1	D	3373	ILE	2.3
1	D	3573	PRO	2.3
1	A	357	LYS	2.2
1	A	461	THR	2.2
1	C	2302	ILE	2.2
1	D	3359	ASP	2.2

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Mol	Chain	Res	Type	RSRZ
1	D	3452	VAL	2.2
1	B	1371	GLU	2.2
1	A	456	ASP	2.2
1	D	3390	ILE	2.2
1	D	3214	LYS	2.1
1	A	415	VAL	2.1
1	D	3454	LEU	2.1
1	A	260	HIS	2.1
1	A	503	THR	2.1
1	A	332	LEU	2.1
1	B	1308	LEU	2.1
1	D	3468	VAL	2.1
1	A	154	HIS	2.1
1	A	271	GLU	2.1
1	D	3369	ALA	2.1
1	C	2055	PRO	2.1
1	D	3357	LYS	2.1
1	D	3339	LYS	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 carbohydrates 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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. 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	RSR	LLDF	B-factors(Å ²)	Q<0.9
5	FUM	D	3700	8/8	0.21	2.19	35,37,38,38	0
5	FUM	B	1700	8/8	0.17	1.28	42,44,46,46	0
4	NAI	C	2602	44/44	0.17	1.08	36,58,91,92	9

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Mol	Type	Chain	Res	Atoms	RSR	LLDF	B-factors(\AA^2)	Q<0.9
4	NAI	A	602	44/44	0.17	0.86	37,54,82,82	9
5	FUM	C	2700	8/8	0.15	0.71	34,38,41,42	0
5	FUM	A	700	8/8	0.17	0.60	32,35,37,39	0
4	NAI	D	3602	44/44	0.14	0.44	30,51,79,79	9
4	NAI	B	1602	44/44	0.13	-0.04	30,55,79,79	9
2	MLT	A	701	9/9	0.12	-0.05	15,20,21,22	0
2	MLT	D	3701	9/9	0.15	-0.12	24,30,32,35	0
2	MLT	C	2701	9/9	0.13	-0.15	18,20,24,25	0
3	MN	B	1604	1/1	0.14	-0.16	31,31,31,31	0
4	NAI	C	2601	44/44	0.12	-0.36	22,30,36,37	0
2	MLT	B	1701	9/9	0.13	-0.39	25,28,32,33	0
3	MN	C	2604	1/1	0.13	-0.50	27,27,27,27	0
4	NAI	A	601	44/44	0.10	-0.51	24,30,32,36	0
3	MN	A	604	1/1	0.10	-0.58	25,25,25,25	0
4	NAI	B	1601	44/44	0.14	-0.63	28,35,41,42	0
4	NAI	D	3601	44/44	0.11	-0.83	22,39,45,47	0
3	MN	D	3604	1/1	0.12	-0.94	30,30,30,30	0

6.5 Other polymers ⓘ

There are no such residues in this entry.