



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 6, 2026 – 08:05 PM UTC

PDB ID : 5H8K / pdb_00005h8k
Title : Crystal structure of Medicago truncatula N-carbamoylputrescine amidohydrolase (MtCPA) C158S mutant
Authors : Sekula, B.; Ruszkowski, M.; Malinska, M.; Dauter, Z.
Deposited on : 2015-12-23
Resolution : 2.39 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
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

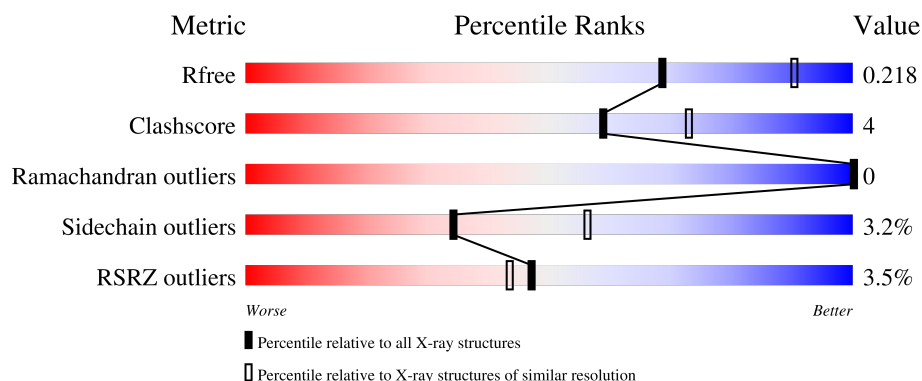
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.39 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.



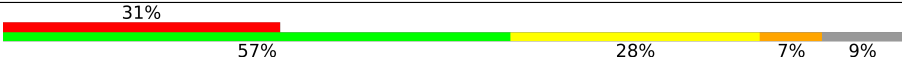
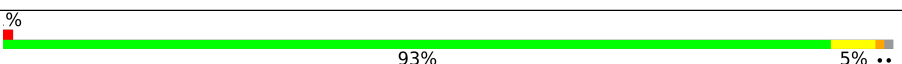
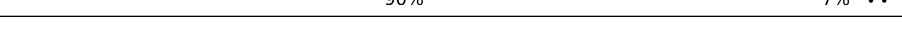
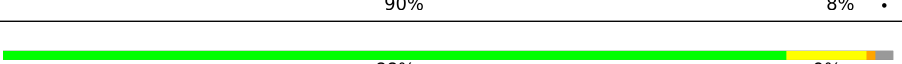
Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	180053	4912 (2.40-2.40)
Clashscore	190562	5391 (2.40-2.40)
Ramachandran outliers	187476	5320 (2.40-2.40)
Sidechain outliers	187428	5321 (2.40-2.40)
RSRZ outliers	180081	4916 (2.40-2.40)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. 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	304	4% 83% 12% ..
1	B	304	% 91% 6% .
1	C	304	% 89% 9% ..
1	D	304	88% 10% .
1	E	304	% 89% 9% .

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Mol	Chain	Length	Quality of chain
1	F	304	 87% 11% ..
1	G	304	 11% 73% 23% ..
1	H	304	 31% 57% 28% 7% 9%
1	I	304	 2% 83% 12% ..
1	J	304	 88% 10% ..
1	K	304	 93% 5% ..
1	L	304	 90% 7% ..
1	M	304	 90% 7% .
1	N	304	 90% 8% .
1	O	304	 88% 9% ..
1	P	304	 4% 81% 12% . 5%

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	GOL	P	401	-	-	X	-

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 40889 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 N-carbamoylputrescine amidohydrolase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	294	Total	C	N	O	S	0	1	0
			2333	1492	402	431	8			
1	B	297	Total	C	N	O	S	0	1	0
			2363	1509	408	439	7			
1	C	301	Total	C	N	O	S	0	1	0
			2390	1524	412	445	9			
1	D	298	Total	C	N	O	S	0	1	0
			2368	1511	409	440	8			
1	E	297	Total	C	N	O	S	0	0	0
			2357	1505	408	437	7			
1	F	298	Total	C	N	O	S	0	1	0
			2368	1511	409	440	8			
1	G	295	Total	C	N	O	S	0	0	0
			2344	1497	405	435	7			
1	H	278	Total	C	N	O	S	0	1	0
			2217	1423	383	403	8			
1	I	293	Total	C	N	O	S	0	1	0
			2327	1487	401	431	8			
1	J	298	Total	C	N	O	S	0	1	0
			2368	1511	409	440	8			
1	K	301	Total	C	N	O	S	0	2	0
			2396	1528	412	447	9			
1	L	298	Total	C	N	O	S	0	1	0
			2368	1511	409	440	8			
1	M	297	Total	C	N	O	S	0	1	0
			2360	1507	408	437	8			
1	N	298	Total	C	N	O	S	0	0	0
			2365	1509	409	440	7			
1	O	297	Total	C	N	O	S	0	0	0
			2357	1505	408	437	7			
1	P	288	Total	C	N	O	S	0	0	0
			2289	1465	394	423	7			

There are 64 discrepancies between the modelled and reference sequences:

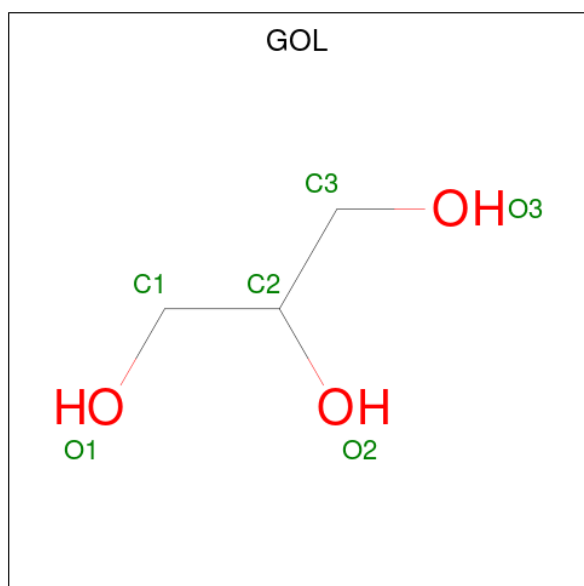
Chain	Residue	Modelled	Actual	Comment	Reference
A	-2	SER	-	expression tag	UNP G7ITU5
A	-1	ASN	-	expression tag	UNP G7ITU5
A	0	ALA	-	expression tag	UNP G7ITU5
A	158	SER	CYS	engineered mutation	UNP G7ITU5
B	-2	SER	-	expression tag	UNP G7ITU5
B	-1	ASN	-	expression tag	UNP G7ITU5
B	0	ALA	-	expression tag	UNP G7ITU5
B	158	SER	CYS	engineered mutation	UNP G7ITU5
C	-2	SER	-	expression tag	UNP G7ITU5
C	-1	ASN	-	expression tag	UNP G7ITU5
C	0	ALA	-	expression tag	UNP G7ITU5
C	158	SER	CYS	engineered mutation	UNP G7ITU5
D	-2	SER	-	expression tag	UNP G7ITU5
D	-1	ASN	-	expression tag	UNP G7ITU5
D	0	ALA	-	expression tag	UNP G7ITU5
D	158	SER	CYS	engineered mutation	UNP G7ITU5
E	-2	SER	-	expression tag	UNP G7ITU5
E	-1	ASN	-	expression tag	UNP G7ITU5
E	0	ALA	-	expression tag	UNP G7ITU5
E	158	SER	CYS	engineered mutation	UNP G7ITU5
F	-2	SER	-	expression tag	UNP G7ITU5
F	-1	ASN	-	expression tag	UNP G7ITU5
F	0	ALA	-	expression tag	UNP G7ITU5
F	158	SER	CYS	engineered mutation	UNP G7ITU5
G	-2	SER	-	expression tag	UNP G7ITU5
G	-1	ASN	-	expression tag	UNP G7ITU5
G	0	ALA	-	expression tag	UNP G7ITU5
G	158	SER	CYS	engineered mutation	UNP G7ITU5
H	-2	SER	-	expression tag	UNP G7ITU5
H	-1	ASN	-	expression tag	UNP G7ITU5
H	0	ALA	-	expression tag	UNP G7ITU5
H	158	SER	CYS	engineered mutation	UNP G7ITU5
I	-2	SER	-	expression tag	UNP G7ITU5
I	-1	ASN	-	expression tag	UNP G7ITU5
I	0	ALA	-	expression tag	UNP G7ITU5
I	158	SER	CYS	engineered mutation	UNP G7ITU5
J	-2	SER	-	expression tag	UNP G7ITU5
J	-1	ASN	-	expression tag	UNP G7ITU5
J	0	ALA	-	expression tag	UNP G7ITU5
J	158	SER	CYS	engineered mutation	UNP G7ITU5
K	-2	SER	-	expression tag	UNP G7ITU5
K	-1	ASN	-	expression tag	UNP G7ITU5

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Chain	Residue	Modelled	Actual	Comment	Reference
K	0	ALA	-	expression tag	UNP G7ITU5
K	158	SER	CYS	engineered mutation	UNP G7ITU5
L	-2	SER	-	expression tag	UNP G7ITU5
L	-1	ASN	-	expression tag	UNP G7ITU5
L	0	ALA	-	expression tag	UNP G7ITU5
L	158	SER	CYS	engineered mutation	UNP G7ITU5
M	-2	SER	-	expression tag	UNP G7ITU5
M	-1	ASN	-	expression tag	UNP G7ITU5
M	0	ALA	-	expression tag	UNP G7ITU5
M	158	SER	CYS	engineered mutation	UNP G7ITU5
N	-2	SER	-	expression tag	UNP G7ITU5
N	-1	ASN	-	expression tag	UNP G7ITU5
N	0	ALA	-	expression tag	UNP G7ITU5
N	158	SER	CYS	engineered mutation	UNP G7ITU5
O	-2	SER	-	expression tag	UNP G7ITU5
O	-1	ASN	-	expression tag	UNP G7ITU5
O	0	ALA	-	expression tag	UNP G7ITU5
O	158	SER	CYS	engineered mutation	UNP G7ITU5
P	-2	SER	-	expression tag	UNP G7ITU5
P	-1	ASN	-	expression tag	UNP G7ITU5
P	0	ALA	-	expression tag	UNP G7ITU5
P	158	SER	CYS	engineered mutation	UNP G7ITU5

- Molecule 2 is GLYCEROL (CCD ID: GOL) (formula: $C_3H_8O_3$).



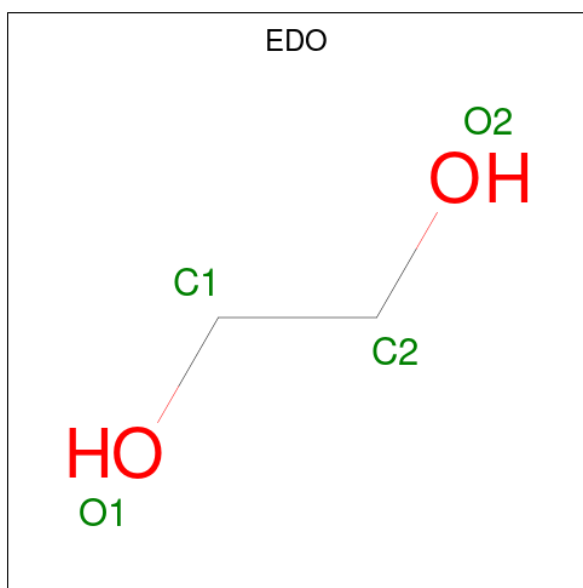
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	C	O	0	0
			6	3	3		
2	A	1	Total	C	O	0	0
			6	3	3		
2	B	1	Total	C	O	0	0
			6	3	3		
2	B	1	Total	C	O	0	0
			6	3	3		
2	B	1	Total	C	O	0	0
			6	3	3		
2	B	1	Total	C	O	0	0
			6	3	3		
2	C	1	Total	C	O	0	0
			6	3	3		
2	C	1	Total	C	O	0	0
			6	3	3		
2	C	1	Total	C	O	0	0
			6	3	3		
2	D	1	Total	C	O	0	0
			6	3	3		
2	D	1	Total	C	O	0	0
			6	3	3		
2	D	1	Total	C	O	0	0
			6	3	3		
2	D	1	Total	C	O	0	0
			6	3	3		
2	E	1	Total	C	O	0	0
			6	3	3		
2	E	1	Total	C	O	0	0
			6	3	3		
2	E	1	Total	C	O	0	0
			6	3	3		
2	E	1	Total	C	O	0	0
			6	3	3		
2	F	1	Total	C	O	0	0
			6	3	3		
2	F	1	Total	C	O	0	0
			6	3	3		
2	F	1	Total	C	O	0	0
			6	3	3		
2	G	1	Total	C	O	0	0
			6	3	3		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	G	1	Total	C	O	0	0
			6	3	3		
2	G	1	Total	C	O	0	0
			6	3	3		
2	I	1	Total	C	O	0	0
			6	3	3		
2	I	1	Total	C	O	0	0
			6	3	3		
2	J	1	Total	C	O	0	0
			6	3	3		
2	J	1	Total	C	O	0	0
			6	3	3		
2	K	1	Total	C	O	0	0
			6	3	3		
2	K	1	Total	C	O	0	0
			6	3	3		
2	K	1	Total	C	O	0	0
			6	3	3		
2	L	1	Total	C	O	0	0
			6	3	3		
2	L	1	Total	C	O	0	0
			6	3	3		
2	L	1	Total	C	O	0	0
			6	3	3		
2	M	1	Total	C	O	0	0
			6	3	3		
2	M	1	Total	C	O	0	0
			6	3	3		
2	M	1	Total	C	O	0	0
			6	3	3		
2	N	1	Total	C	O	0	0
			6	3	3		
2	N	1	Total	C	O	0	0
			6	3	3		
2	N	1	Total	C	O	0	0
			6	3	3		
2	N	1	Total	C	O	0	0
			6	3	3		
2	O	1	Total	C	O	0	0
			6	3	3		
2	P	1	Total	C	O	0	0
			6	3	3		

- Molecule 3 is 1,2-ETHANEDIOL (CCD ID: EDO) (formula: $C_2H_6O_2$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			4	2	2		
3	C	1	Total	C	O	0	0
			4	2	2		
3	D	1	Total	C	O	0	0
			4	2	2		
3	I	1	Total	C	O	0	0
			4	2	2		
3	K	1	Total	C	O	0	0
			4	2	2		
3	L	1	Total	C	O	0	0
			4	2	2		

- Molecule 4 is DI(HYDROXYETHYL)ETHER (CCD ID: PEG) (formula: $C_4H_{10}O_3$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	C	1	Total	C	O	0	0
			7	4	3		
4	G	1	Total	C	O	0	0
			7	4	3		
4	J	1	Total	C	O	0	0
			7	4	3		
4	L	1	Total	C	O	0	0
			7	4	3		

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	140	Total	O	0	0
			140	140		
5	B	219	Total	O	0	0
			219	219		
5	C	256	Total	O	0	0
			256	256		
5	D	256	Total	O	0	0
			256	256		
5	E	242	Total	O	0	0
			242	242		
5	F	151	Total	O	0	0
			151	151		
5	G	87	Total	O	0	0
			87	87		
5	H	23	Total	O	0	0
			23	23		

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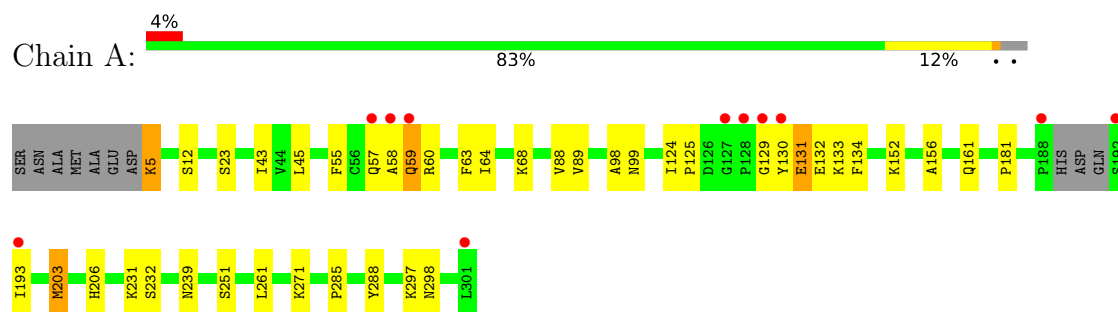
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	I	183	Total 183	O 183	0	0
5	J	238	Total 238	O 238	0	0
5	K	220	Total 220	O 220	0	0
5	L	253	Total 253	O 253	0	0
5	M	239	Total 239	O 239	0	0
5	N	252	Total 252	O 252	0	0
5	O	160	Total 160	O 160	0	0
5	P	90	Total 90	O 90	0	0

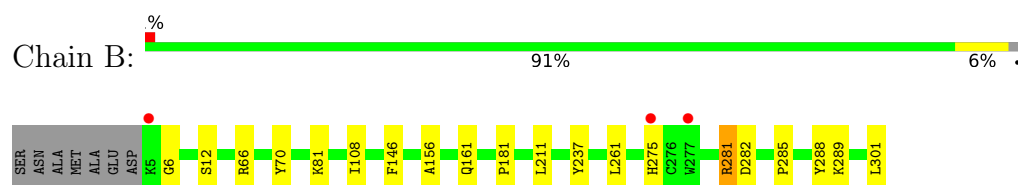
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

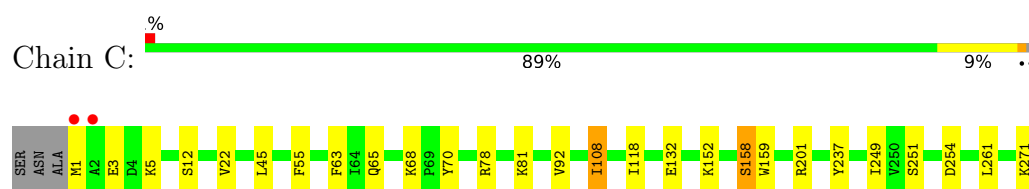
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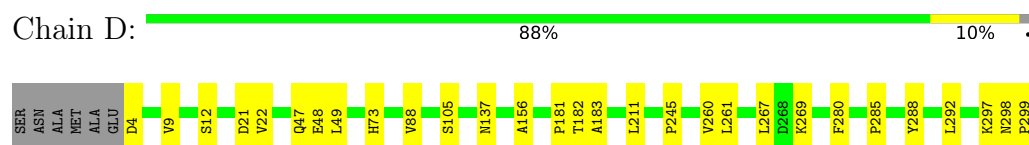
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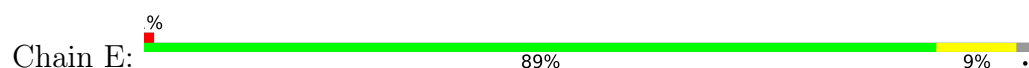
- Molecule 1: N-carbamoylputrescine amidohydrolase



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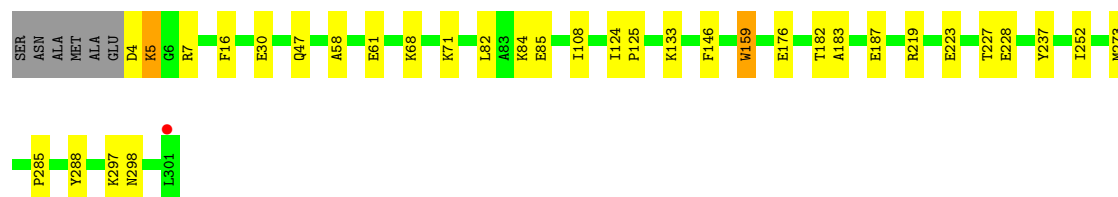
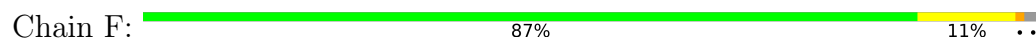


- Molecule 1: N-carbamoylputrescine amidohydrolase

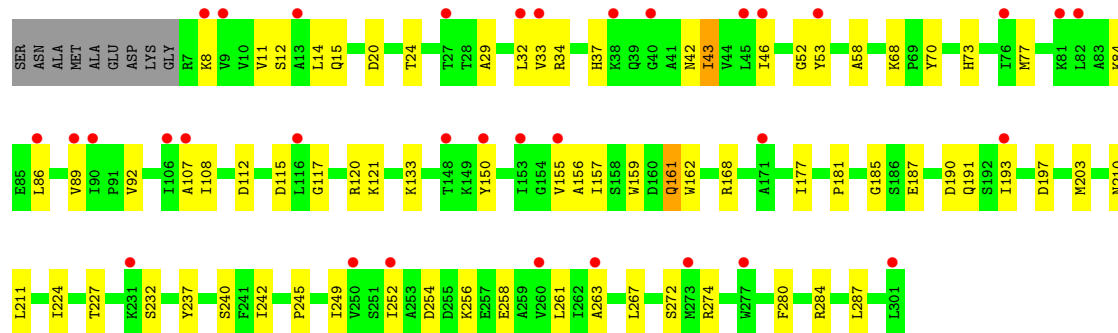
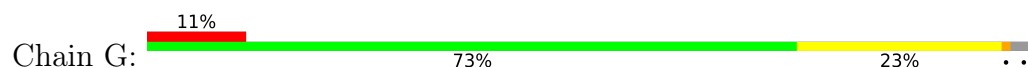




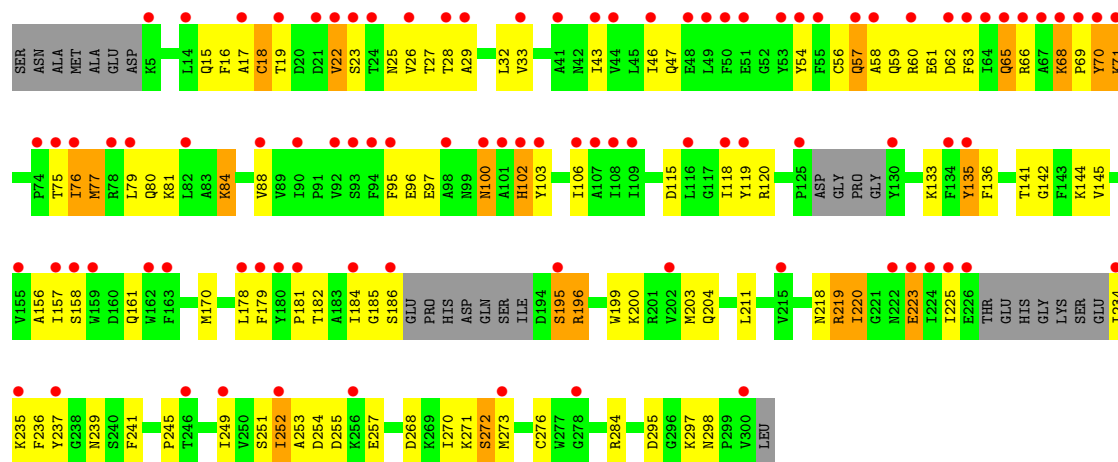
- Molecule 1: N-carbamoylputrescine amidohydrolase



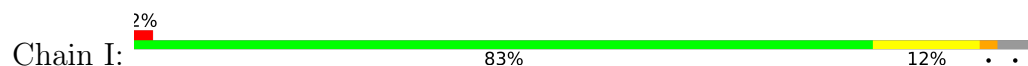
- Molecule 1: N-carbamoylputrescine amidohydrolase

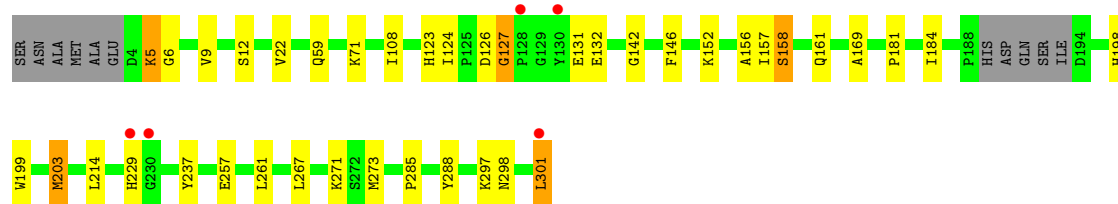


- Molecule 1: N-carbamoylputrescine amidohydrolase



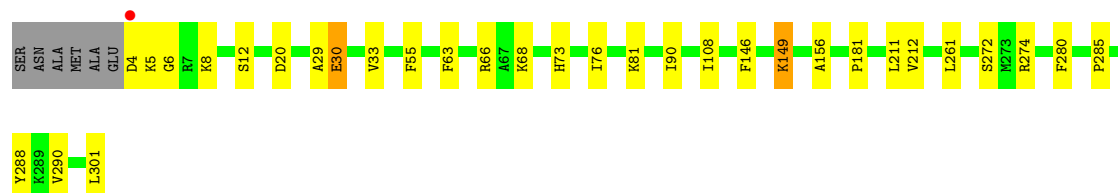
- Molecule 1: N-carbamoylputrescine amidohydrolase





● Molecule 1: N-carbamoylputrescine amidohydrolase

Chain J: 88% 10% ..



● Molecule 1: N-carbamoylputrescine amidohydrolase

Chain K: 93% 5% ..



● Molecule 1: N-carbamoylputrescine amidohydrolase

Chain L: 90% 7% ..



● Molecule 1: N-carbamoylputrescine amidohydrolase

Chain M: 90% 7% ..



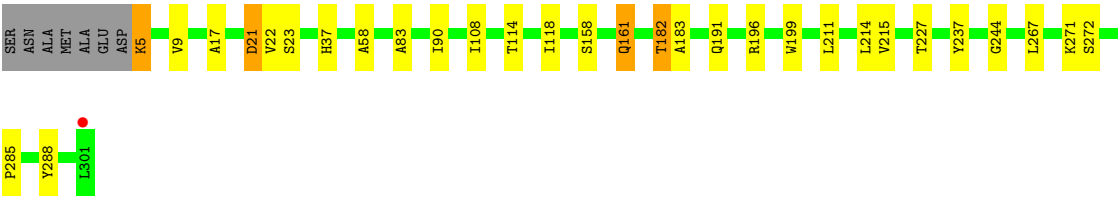
● Molecule 1: N-carbamoylputrescine amidohydrolase

Chain N: 90% 8% ..

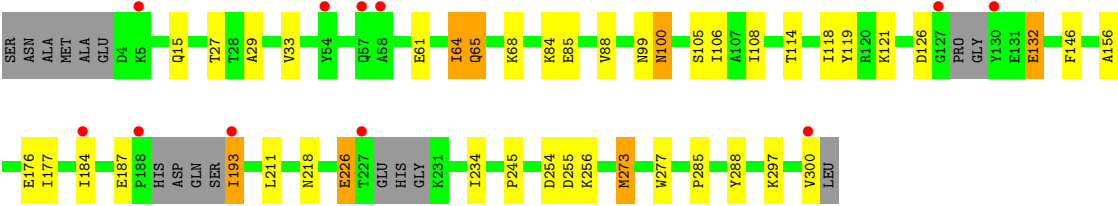
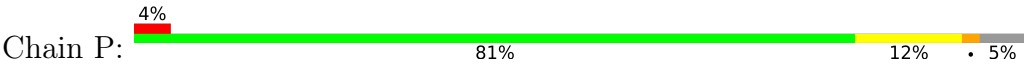


● Molecule 1: N-carbamoylputrescine amidohydrolase

Chain O: 88% 9% ..



● Molecule 1: N-carbamoylputrescine amidohydrolase



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 2	Depositor
Cell constants a, b, c, α , β , γ	152.53Å 210.76Å 208.72Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	49.43 – 2.39 49.43 – 2.39	Depositor EDS
% Data completeness (in resolution range)	99.2 (49.43-2.39) 99.2 (49.43-2.39)	Depositor EDS
R_{merge}	0.14	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.88 (at 2.39Å)	Xtriage
Refinement program	REFMAC 5.8.0135	Depositor
R, R_{free}	0.158 , 0.212 0.170 , 0.218	Depositor DCC
R_{free} test set	2615 reflections (1.00%)	wwPDB-VP
Wilson B-factor (Å ²)	33.0	Xtriage
Anisotropy	0.685	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 59.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.46$, $\langle L^2 \rangle = 0.29$	Xtriage
Estimated twinning fraction	0.000 for -h,l,k	Xtriage
F_o, F_c correlation	0.97	EDS
Total number of atoms	40889	wwPDB-VP
Average B, all atoms (Å ²)	57.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 42.31 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 2.0771e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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: PEG, GOL, EDO

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	1.08	0/2390	1.15	5/3231 (0.2%)
1	B	1.09	1/2422 (0.0%)	1.13	3/3276 (0.1%)
1	C	1.10	1/2449 (0.0%)	1.10	5/3312 (0.2%)
1	D	1.12	2/2427 (0.1%)	1.13	8/3283 (0.2%)
1	E	1.08	2/2413 (0.1%)	1.09	5/3264 (0.2%)
1	F	0.98	1/2427 (0.0%)	1.14	6/3283 (0.2%)
1	G	1.15	6/2400 (0.2%)	1.19	8/3248 (0.2%)
1	H	0.97	2/2269 (0.1%)	1.12	14/3065 (0.5%)
1	I	1.12	1/2384 (0.0%)	1.16	7/3223 (0.2%)
1	J	1.14	1/2427 (0.0%)	1.14	6/3283 (0.2%)
1	K	1.08	1/2458 (0.0%)	1.10	2/3324 (0.1%)
1	L	1.14	2/2427 (0.1%)	1.13	4/3283 (0.1%)
1	M	1.09	2/2419 (0.1%)	1.10	4/3272 (0.1%)
1	N	1.11	1/2421 (0.0%)	1.10	1/3275 (0.0%)
1	O	1.05	2/2413 (0.1%)	1.08	5/3264 (0.2%)
1	P	0.94	1/2339 (0.0%)	1.04	2/3160 (0.1%)
All	All	1.08	26/38485 (0.1%)	1.12	85/52046 (0.2%)

All (26) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	G	52	GLY	C-O	7.26	1.31	1.23
1	L	260	VAL	C-O	-7.20	1.16	1.24
1	H	102	HIS	CA-C	6.68	1.60	1.52
1	P	126	ASP	CA-C	6.49	1.61	1.52
1	J	149	LYS	C-O	-6.23	1.16	1.24
1	K	48	GLU	C-O	-6.23	1.16	1.23
1	G	117	GLY	C-O	6.07	1.28	1.23
1	M	99	ASN	C-O	-5.87	1.19	1.24
1	D	260	VAL	C-O	-5.87	1.17	1.24
1	M	140	ASP	C-O	-5.77	1.16	1.24

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	L	250	VAL	C-O	-5.66	1.18	1.24
1	D	298	ASN	C-O	-5.61	1.18	1.24
1	G	107	ALA	CA-C	5.58	1.59	1.52
1	G	34	ARG	N-CA	5.42	1.53	1.46
1	O	114	THR	CA-C	5.41	1.60	1.52
1	F	159	TRP	CA-C	5.32	1.59	1.52
1	C	249	ILE	C-O	-5.26	1.18	1.24
1	H	284	ARG	CA-C	5.26	1.59	1.52
1	I	198	HIS	CA-C	-5.24	1.46	1.52
1	O	17	ALA	C-O	5.23	1.29	1.23
1	N	6	GLY	N-CA	5.22	1.50	1.45
1	B	6	GLY	N-CA	5.18	1.50	1.45
1	G	155	VAL	CA-CB	5.10	1.60	1.54
1	G	197	ASP	CA-C	5.08	1.59	1.52
1	E	99	ASN	C-O	-5.05	1.19	1.24
1	E	163	PHE	CA-C	5.01	1.58	1.52

All (85) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	H	63	PHE	N-CA-C	8.03	122.80	112.92
1	P	226	GLU	N-CA-C	7.77	121.85	110.59
1	F	68	LYS	CA-C-N	-6.88	113.56	120.31
1	F	68	LYS	C-N-CA	-6.88	113.56	120.31
1	D	73	HIS	CA-C-N	-6.88	111.89	119.19
1	D	73	HIS	C-N-CA	-6.88	111.89	119.19
1	G	157	ILE	N-CA-C	6.72	117.52	108.11
1	D	137	ASN	CA-C-N	-6.66	112.90	119.76
1	D	137	ASN	C-N-CA	-6.66	112.90	119.76
1	J	68	LYS	CA-C-N	-6.63	113.16	119.85
1	J	68	LYS	C-N-CA	-6.63	113.16	119.85
1	H	65	GLN	N-CA-C	6.57	118.44	111.28
1	H	61	GLU	N-CA-C	-6.51	104.44	112.38
1	B	281	ARG	N-CA-C	-6.44	104.12	112.23
1	A	59	GLN	N-CA-C	-6.37	97.98	108.49
1	M	275	HIS	N-CA-C	6.34	118.28	111.36
1	A	45	LEU	N-CA-C	6.32	119.03	108.73
1	I	298	ASN	N-CA-C	6.31	118.01	109.24
1	I	127	GLY	CA-C-N	6.27	127.68	119.84
1	I	127	GLY	C-N-CA	6.27	127.68	119.84
1	F	47	GLN	N-CA-C	6.26	118.63	110.43
1	M	35	ALA	N-CA-C	-6.18	104.63	111.36

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	F	16	PHE	N-CA-C	6.16	117.25	108.74
1	J	90	ILE	CA-C-N	6.13	126.33	119.90
1	J	90	ILE	C-N-CA	6.13	126.33	119.90
1	J	280	PHE	N-CA-C	6.10	118.43	111.11
1	A	298	ASN	N-CA-C	6.05	117.65	109.24
1	D	280	PHE	N-CA-C	6.02	118.63	111.71
1	O	182	THR	N-CA-C	5.99	118.52	109.23
1	H	19	THR	N-CA-C	-5.99	100.85	109.29
1	H	77	MET	N-CA-C	5.98	117.60	111.14
1	B	282	ASP	N-CA-C	5.80	119.98	113.02
1	H	100	ASN	N-CA-C	-5.80	105.22	112.93
1	D	292	LEU	N-CA-C	-5.78	105.81	112.92
1	F	252	ILE	N-CA-C	5.76	115.43	108.06
1	H	88	VAL	N-CA-C	5.75	116.77	108.48
1	K	252	ILE	N-CA-C	5.75	115.94	108.35
1	L	22	VAL	CB-CA-C	-5.74	104.54	111.88
1	B	289	LYS	N-CA-C	5.71	118.28	111.71
1	C	92	VAL	N-CA-C	5.67	116.30	107.28
1	H	136	PHE	N-CA-C	5.66	117.64	108.41
1	F	298	ASN	N-CA-C	5.65	117.62	109.04
1	C	237	TYR	N-CA-C	5.64	119.15	112.72
1	O	196	ARG	N-CA-C	5.63	117.42	111.28
1	G	92	VAL	N-CA-C	5.62	115.66	106.72
1	I	22	VAL	CB-CA-C	-5.60	104.80	111.97
1	H	96	GLU	N-CA-C	5.56	118.30	109.96
1	I	22	VAL	N-CA-C	5.55	115.75	110.42
1	G	284	ARG	CA-C-N	5.47	125.14	119.56
1	G	284	ARG	C-N-CA	5.47	125.14	119.56
1	G	68	LYS	CA-C-N	-5.42	114.37	119.90
1	G	68	LYS	C-N-CA	-5.42	114.37	119.90
1	D	105	SER	N-CA-C	5.38	118.04	109.81
1	C	271	LYS	N-CA-C	-5.37	105.32	111.07
1	C	132	GLU	N-CA-C	5.37	117.88	111.71
1	E	142	GLY	N-CA-C	-5.34	104.06	112.61
1	E	279	VAL	N-CA-C	5.32	116.68	110.62
1	K	63	PHE	N-CA-C	-5.26	106.37	112.89
1	A	206	HIS	CB-CA-C	-5.26	101.91	110.85
1	E	275	HIS	N-CA-C	5.23	116.79	111.14
1	L	109	ILE	CB-CA-C	-5.22	104.65	110.96
1	P	105	SER	N-CA-C	5.21	117.81	110.14
1	G	34	ARG	N-CA-C	5.21	117.63	111.33
1	E	118	ILE	N-CA-C	5.20	117.53	108.95

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	H	272	SER	CA-C-N	5.20	127.20	120.44
1	H	272	SER	C-N-CA	5.20	127.20	120.44
1	L	193	ILE	CB-CA-C	-5.20	104.46	110.91
1	O	23	SER	N-CA-C	5.20	116.95	111.28
1	E	109	ILE	CB-CA-C	-5.18	104.69	110.96
1	M	267	LEU	N-CA-C	5.17	117.66	111.71
1	L	47	GLN	N-CA-C	5.17	117.20	110.43
1	H	223	GLU	N-CA-C	5.14	117.02	108.02
1	D	47	GLN	N-CA-C	5.14	116.96	110.33
1	H	196	ARG	N-CA-C	-5.12	107.58	113.88
1	J	81	LYS	N-CA-C	-5.12	105.88	111.82
1	O	244	GLY	CA-C-N	5.11	124.72	119.56
1	O	244	GLY	C-N-CA	5.11	124.72	119.56
1	C	45	LEU	N-CA-C	5.07	116.95	107.99
1	H	298	ASN	N-CA-C	5.07	116.28	109.24
1	G	11	VAL	N-CA-C	5.06	116.64	108.85
1	A	239	ASN	N-CA-C	5.04	118.56	111.90
1	I	142	GLY	N-CA-C	-5.03	105.37	112.81
1	I	257	GLU	N-CA-C	5.03	117.79	109.85
1	M	45	LEU	N-CA-C	5.02	116.92	108.73
1	N	259	ALA	N-CA-C	5.01	116.86	108.99

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	2333	0	2304	25	0
1	B	2363	0	2325	8	0
1	C	2390	0	2351	15	0
1	D	2368	0	2328	10	0
1	E	2357	0	2319	9	0
1	F	2368	0	2328	19	0
1	G	2344	0	2303	38	0
1	H	2217	0	2198	85	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	I	2327	0	2292	22	0
1	J	2368	0	2328	17	0
1	K	2396	0	2357	12	0
1	L	2368	0	2328	12	0
1	M	2360	0	2324	12	0
1	N	2365	0	2323	16	0
1	O	2357	0	2319	12	0
1	P	2289	0	2259	23	0
2	A	12	0	16	0	0
2	B	30	0	40	1	0
2	C	18	0	24	0	0
2	D	24	0	32	1	0
2	E	24	0	32	0	0
2	F	18	0	24	2	0
2	G	18	0	24	1	0
2	I	12	0	16	0	0
2	J	12	0	16	1	0
2	K	18	0	24	1	0
2	L	18	0	24	0	0
2	M	18	0	24	0	0
2	N	24	0	32	0	0
2	O	6	0	8	1	0
2	P	6	0	8	4	0
3	A	4	0	6	1	0
3	C	4	0	6	1	0
3	D	4	0	6	0	0
3	I	4	0	6	0	0
3	K	4	0	6	2	0
3	L	4	0	6	2	0
4	C	7	0	10	0	0
4	G	7	0	10	0	0
4	J	7	0	10	0	0
4	L	7	0	10	0	0
5	A	140	0	0	2	0
5	B	219	0	0	3	0
5	C	256	0	0	5	0
5	D	256	0	0	3	0
5	E	242	0	0	5	0
5	F	151	0	0	1	0
5	G	87	0	0	1	0
5	H	23	0	0	1	0
5	I	183	0	0	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	J	238	0	0	5	0
5	K	220	0	0	2	0
5	L	253	0	0	4	0
5	M	239	0	0	3	0
5	N	252	0	0	1	0
5	O	160	0	0	1	0
5	P	90	0	0	1	0
All	All	40889	0	37406	330	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 4.

All (330) 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:H:60:ARG:HG2	1:H:62:ASP:HB2	1.21	1.19
1:G:20:ASP:HB2	1:G:53:TYR:CE2	1.95	1.00
1:H:196:ARG:HB3	1:H:237:TYR:CE1	1.97	0.98
2:O:401:GOL:H12	5:P:527:HOH:O	1.64	0.97
1:H:196:ARG:HB3	1:H:237:TYR:CZ	2.00	0.96
1:H:196:ARG:HA	1:H:237:TYR:OH	1.67	0.93
1:I:5:LYS:HE3	1:I:6:GLY:N	1.85	0.90
1:A:58:ALA:HB1	1:A:60:ARG:HG3	1.55	0.88
1:H:60:ARG:HG2	1:H:62:ASP:CB	2.05	0.86
1:H:196:ARG:CB	1:H:237:TYR:CE1	2.61	0.83
1:G:20:ASP:HB2	1:G:53:TYR:CD2	2.16	0.80
1:H:196:ARG:CA	1:H:237:TYR:OH	2.30	0.79
1:A:59:GLN:NE2	1:A:131:GLU:HG3	1.98	0.78
1:H:170:MET:HE3	1:H:178:LEU:HD22	1.65	0.77
1:A:129:GLY:O	1:A:130:TYR:CD1	2.39	0.76
1:H:18:CYS:HB3	1:H:25:ASN:CG	2.12	0.74
1:H:66:ARG:O	1:H:68:LYS:HD2	1.88	0.73
1:G:58:ALA:HB2	1:G:227:THR:HG22	1.70	0.72
1:A:161:GLN:HB2	1:A:203:MET:HE1	1.72	0.72
1:J:5:LYS:HD2	1:J:6:GLY:N	2.05	0.71
1:H:70:TYR:CD1	1:H:71:LYS:HE2	2.25	0.71
1:H:196:ARG:CB	1:H:237:TYR:CZ	2.71	0.71
1:M:245:PRO:HG2	1:M:273:MET:HE1	1.74	0.70
1:F:58:ALA:HB2	1:F:227:THR:HG22	1.73	0.70
1:L:22:VAL:HG23	5:L:618:HOH:O	1.92	0.69
1:H:141:THR:HB	1:H:144:LYS:HE3	1.75	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:129:GLY:O	1:A:130:TYR:HD1	1.76	0.68
1:B:281:ARG:HD2	5:B:653:HOH:O	1.94	0.68
1:J:66:ARG:HD2	5:J:564:HOH:O	1.94	0.67
1:A:55:PHE:HB2	1:A:63:PHE:CD2	2.30	0.67
1:M:245:PRO:CG	1:M:273:MET:HE1	2.25	0.66
1:P:65:GLN:NE2	1:P:65:GLN:HA	2.10	0.65
3:K:404:EDO:H21	5:M:631:HOH:O	1.95	0.65
1:C:152:LYS:HE2	5:C:635:HOH:O	1.97	0.64
1:E:21:ASP:HB2	5:E:712:HOH:O	1.97	0.64
1:G:29:ALA:HB1	1:G:46:ILE:HD13	1.79	0.63
1:H:18:CYS:HB3	1:H:25:ASN:ND2	2.14	0.63
1:B:66:ARG:HD2	5:B:634:HOH:O	1.98	0.62
1:F:133:LYS:HB3	1:G:133:LYS:HD3	1.82	0.62
1:H:57:GLN:OE1	1:H:234:ILE:HD11	2.00	0.62
1:G:185:GLY:HA2	1:G:237:TYR:CD2	2.36	0.61
1:N:245:PRO:HB2	1:N:273:MET:HE1	1.83	0.61
1:H:18:CYS:CB	1:H:25:ASN:ND2	2.64	0.61
1:E:12:SER:HA	1:E:261:LEU:O	2.00	0.60
1:H:156:ALA:O	1:H:181:PRO:HD2	2.01	0.60
1:H:161:GLN:HB2	1:H:203:MET:HE1	1.82	0.60
1:A:58:ALA:CB	1:A:60:ARG:HG3	2.31	0.59
1:I:157:ILE:HG22	1:I:158:SER:HB3	1.83	0.59
1:F:183:ALA:HB2	5:F:535:HOH:O	2.01	0.59
1:G:70:TYR:HH	1:G:115:ASP:CG	2.10	0.58
1:P:273:MET:HE3	2:P:401:GOL:C1	2.33	0.58
1:G:43:ILE:HG23	1:G:89:VAL:HB	1.85	0.58
1:J:4:ASP:OD2	1:J:8:LYS:HD3	2.03	0.58
1:H:22:VAL:O	1:H:26:VAL:HG23	2.04	0.58
1:L:299:PRO:HB3	5:L:523:HOH:O	2.04	0.57
1:G:20:ASP:HB2	1:G:53:TYR:HE2	1.60	0.57
1:H:29:ALA:O	1:H:33:VAL:HG23	2.05	0.57
1:N:9:VAL:HG21	1:N:267:LEU:HD11	1.87	0.57
1:O:9:VAL:HG21	1:O:267:LEU:HD11	1.87	0.57
1:G:20:ASP:CB	1:G:53:TYR:CD2	2.87	0.56
1:H:60:ARG:HE	1:H:62:ASP:CG	2.13	0.56
1:C:251:SER:HB2	5:C:598:HOH:O	2.05	0.56
1:E:156:ALA:O	1:E:181:PRO:HD2	2.06	0.56
1:H:70:TYR:CE1	1:H:71:LYS:HE2	2.41	0.56
1:H:186:SER:N	1:H:234:ILE:HG23	2.21	0.56
1:H:204:GLN:NE2	1:H:249:ILE:HG12	2.21	0.56
1:G:42:ASN:ND2	1:G:150:TYR:CE1	2.74	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:I:156:ALA:O	1:I:181:PRO:HD2	2.05	0.55
1:A:55:PHE:C	1:A:57:GLN:N	2.62	0.55
1:H:196:ARG:HB2	1:H:237:TYR:CE1	2.42	0.55
1:C:108:ILE:HD13	1:C:108:ILE:N	2.21	0.55
1:G:15:GLN:O	1:G:258:GLU:HA	2.06	0.55
1:A:125:PRO:HG3	5:A:531:HOH:O	2.07	0.54
1:H:60:ARG:HE	1:H:62:ASP:CB	2.21	0.54
1:F:133:LYS:HB3	1:G:133:LYS:CD	2.38	0.54
5:E:649:HOH:O	2:F:401:GOL:H12	2.08	0.54
1:K:277:TRP:CZ3	2:K:402:GOL:H32	2.42	0.54
1:I:301:LEU:H	1:I:301:LEU:HD22	1.72	0.54
1:H:196:ARG:O	1:H:200:LYS:HB2	2.08	0.53
1:C:201:ARG:HD3	2:D:404:GOL:H2	1.90	0.53
1:A:12:SER:HA	1:A:261:LEU:O	2.07	0.53
1:A:55:PHE:C	1:A:57:GLN:H	2.16	0.53
1:G:254:ASP:HB2	5:G:538:HOH:O	2.07	0.53
1:H:17:ALA:HB2	1:H:220:ILE:CG2	2.39	0.53
1:I:199:TRP:CD1	1:I:203:MET:HE3	2.44	0.53
1:P:193:ILE:O	1:P:193:ILE:HG13	2.07	0.53
1:G:108:ILE:N	1:G:108:ILE:HD12	2.24	0.53
1:G:168:ARG:NH1	1:G:210:ASN:OD1	2.42	0.52
1:H:69:PRO:HA	1:H:97:GLU:O	2.09	0.52
1:H:204:GLN:HE21	1:H:249:ILE:HG12	1.74	0.52
1:D:4:ASP:HA	1:D:269:LYS:NZ	2.25	0.52
1:A:58:ALA:HB1	1:A:60:ARG:CG	2.35	0.52
1:C:22:VAL:HG23	5:C:647:HOH:O	2.09	0.52
1:O:214:LEU:HD23	1:O:215:VAL:N	2.23	0.52
1:E:48:GLU:HG2	1:E:49:LEU:HG	1.92	0.52
1:O:182:THR:HG22	1:O:183:ALA:N	2.25	0.52
1:P:65:GLN:HA	1:P:65:GLN:HE21	1.74	0.52
1:A:43:ILE:HG12	1:A:89:VAL:HB	1.91	0.52
1:G:249:ILE:HG21	1:G:252:ILE:HB	1.91	0.52
1:M:191:GLN:O	1:M:191:GLN:HG2	2.10	0.52
1:L:4:ASP:HB3	5:L:631:HOH:O	2.09	0.52
1:H:161:GLN:HB2	1:H:203:MET:CE	2.40	0.51
1:H:16:PHE:C	1:H:220:ILE:HG22	2.35	0.51
1:I:5:LYS:HE3	1:I:5:LYS:C	2.34	0.51
1:P:29:ALA:O	1:P:33:VAL:HG23	2.10	0.51
1:H:245:PRO:HG3	1:H:270:ILE:HD13	1.92	0.51
1:H:199:TRP:O	1:H:203:MET:HG2	2.11	0.51
1:H:81:LYS:O	1:H:81:LYS:HD3	2.11	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:O:108:ILE:HD13	1:O:108:ILE:N	2.26	0.51
1:B:156:ALA:O	1:B:181:PRO:HD2	2.10	0.51
1:E:22:VAL:HG23	5:E:623:HOH:O	2.10	0.51
1:F:285:PRO:HA	1:F:288:TYR:CD2	2.46	0.51
1:H:237:TYR:HD1	1:H:237:TYR:O	1.94	0.51
5:J:616:HOH:O	3:L:405:EDO:H12	2.10	0.51
1:D:211:LEU:HA	1:D:245:PRO:O	2.12	0.50
1:G:177:ILE:HD11	1:G:267:LEU:HD11	1.93	0.50
1:A:5:LYS:HE3	1:A:5:LYS:HA	1.92	0.50
1:A:132:GLU:C	1:A:134:PHE:H	2.19	0.50
1:H:84:LYS:HG2	1:H:84:LYS:O	2.10	0.50
1:I:124:ILE:HG23	1:I:132:GLU:HG2	1.93	0.50
1:M:201:ARG:HD3	5:M:560:HOH:O	2.11	0.50
1:P:108:ILE:HG13	1:P:146:PHE:CD2	2.46	0.50
1:K:5:LYS:HA	1:K:5:LYS:HE3	1.93	0.50
1:P:273:MET:HE3	2:P:401:GOL:O1	2.12	0.50
1:B:70:TYR:CD2	2:B:405:GOL:H2	2.47	0.50
1:H:18:CYS:HB2	1:H:25:ASN:ND2	2.27	0.50
1:J:55:PHE:HB2	1:J:63:PHE:CD2	2.46	0.50
1:D:9:VAL:HG11	1:D:267:LEU:HD11	1.93	0.50
1:G:156:ALA:O	1:G:181:PRO:HD2	2.11	0.50
1:H:161:GLN:HE22	1:H:182:THR:CB	2.25	0.50
1:I:9:VAL:HG21	1:I:267:LEU:HD11	1.92	0.50
1:J:156:ALA:O	1:J:181:PRO:HD2	2.12	0.49
1:A:285:PRO:HA	1:A:288:TYR:CD2	2.47	0.49
3:A:403:EDO:H12	5:D:618:HOH:O	2.10	0.49
1:D:182:THR:HG22	1:D:183:ALA:N	2.27	0.49
1:B:12:SER:HA	1:B:261:LEU:O	2.12	0.49
1:H:47:GLN:OE1	1:H:219:ARG:HA	2.13	0.49
1:O:214:LEU:HD23	1:O:214:LEU:C	2.37	0.49
1:N:211:LEU:HD23	1:N:273:MET:HE3	1.95	0.49
1:G:14:LEU:HD22	1:G:32:LEU:HB3	1.94	0.49
1:E:297:LYS:NZ	5:E:502:HOH:O	2.45	0.48
1:H:119:TYR:CE2	1:H:156:ALA:HA	2.47	0.48
1:H:17:ALA:HB2	1:H:220:ILE:HG22	1.95	0.48
1:J:5:LYS:HD2	1:J:5:LYS:C	2.38	0.48
1:P:121:LYS:NZ	1:P:132:GLU:OE2	2.46	0.48
1:M:185:GLY:HA2	1:M:237:TYR:CD2	2.48	0.48
1:N:245:PRO:CG	1:N:273:MET:HE1	2.43	0.48
1:I:123:HIS:C	1:I:124:ILE:HD13	2.39	0.48
1:N:182:THR:HG22	1:N:183:ALA:N	2.29	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:287:LEU:HD22	1:H:142:GLY:HA2	1.96	0.48
1:J:73:HIS:HB3	1:J:76:ILE:HG13	1.94	0.48
5:J:616:HOH:O	3:L:405:EDO:C1	2.62	0.48
1:L:211:LEU:HA	1:L:245:PRO:O	2.14	0.48
1:I:273:MET:HE1	5:I:683:HOH:O	2.13	0.47
1:H:196:ARG:CB	1:H:237:TYR:OH	2.61	0.47
1:M:182:THR:HG22	1:M:183:ALA:N	2.29	0.47
1:H:58:ALA:O	1:H:59:GLN:HB3	2.14	0.47
1:J:12:SER:HA	1:J:261:LEU:O	2.14	0.47
1:O:285:PRO:HA	1:O:288:TYR:CD2	2.50	0.46
1:A:156:ALA:O	1:A:181:PRO:HD2	2.16	0.46
1:P:176:GLU:C	1:P:177:ILE:HG13	2.39	0.46
1:H:295:ASP:OD1	1:H:297:LYS:N	2.46	0.46
1:A:55:PHE:HB2	1:A:63:PHE:HD2	1.78	0.46
1:F:84:LYS:O	1:F:85:GLU:C	2.57	0.46
1:M:214:LEU:HD23	1:M:214:LEU:C	2.40	0.46
1:I:214:LEU:C	1:I:214:LEU:HD23	2.41	0.46
1:G:120:ARG:O	1:G:121:LYS:C	2.59	0.46
1:I:71:LYS:HB2	1:I:71:LYS:HE3	1.79	0.46
1:J:20:ASP:HA	5:J:501:HOH:O	2.16	0.46
1:H:77:MET:HE2	1:H:80:GLN:OE1	2.16	0.46
1:H:185:GLY:O	1:H:186:SER:CB	2.64	0.46
1:P:100:ASN:HD22	1:P:100:ASN:N	2.14	0.46
1:F:4:ASP:HB3	1:F:5:LYS:H	1.51	0.46
1:F:133:LYS:HD2	1:G:133:LYS:HB3	1.98	0.46
1:K:118:ILE:HG21	1:K:118:ILE:HD13	1.64	0.46
1:L:12:SER:HA	1:L:261:LEU:O	2.16	0.46
1:M:108:ILE:HD13	1:M:108:ILE:N	2.31	0.46
1:H:237:TYR:CD1	1:H:237:TYR:C	2.94	0.46
1:D:299:PRO:HB3	5:D:549:HOH:O	2.16	0.45
1:J:29:ALA:O	1:J:33:VAL:HG23	2.16	0.45
1:N:176:GLU:O	1:N:177:ILE:HG13	2.16	0.45
1:C:12:SER:HA	1:C:261:LEU:O	2.16	0.45
1:J:212:VAL:HG23	1:J:212:VAL:O	2.15	0.45
1:C:81:LYS:NZ	5:C:509:HOH:O	2.49	0.45
1:F:30:GLU:HG3	1:F:82:LEU:HD22	1.99	0.45
1:I:12:SER:HA	1:I:261:LEU:O	2.17	0.45
1:H:218:ASN:OD1	1:H:219:ARG:N	2.50	0.45
1:H:252:ILE:O	1:H:252:ILE:HG23	2.17	0.45
1:I:108:ILE:HG13	1:I:146:PHE:CD1	2.52	0.45
1:K:248:GLU:HG2	5:K:519:HOH:O	2.15	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:P:211:LEU:HA	1:P:245:PRO:O	2.16	0.45
1:H:161:GLN:HE22	1:H:182:THR:HB	1.81	0.45
2:G:402:GOL:O3	1:H:273:MET:HG3	2.17	0.45
1:K:285:PRO:HD2	3:K:404:EDO:H22	1.99	0.45
1:A:130:TYR:HB2	5:A:615:HOH:O	2.17	0.44
1:G:274:ARG:HD2	1:G:280:PHE:HE2	1.81	0.44
1:N:245:PRO:HG2	1:N:273:MET:HE1	1.99	0.44
1:A:132:GLU:C	1:A:134:PHE:N	2.73	0.44
1:N:12:SER:HA	1:N:261:LEU:O	2.17	0.44
1:C:285:PRO:HD2	3:C:405:EDO:H22	1.98	0.44
1:F:182:THR:HG22	1:F:183:ALA:N	2.33	0.44
1:H:16:PHE:HD2	1:H:32:LEU:HD12	1.82	0.44
1:J:274:ARG:HE	2:J:402:GOL:H12	1.83	0.44
1:L:182:THR:HG22	1:L:183:ALA:N	2.33	0.44
1:P:255:ASP:OD1	1:P:256:LYS:HG2	2.16	0.44
1:A:271:LYS:HE2	1:C:65:GLN:HE22	1.82	0.44
1:H:102:HIS:HB2	1:H:135:TYR:O	2.17	0.44
1:L:248:GLU:HB3	5:L:509:HOH:O	2.18	0.44
1:H:15:GLN:NE2	1:H:220:ILE:HD13	2.32	0.44
1:H:211:LEU:HA	1:H:245:PRO:O	2.18	0.44
1:P:273:MET:HG3	2:P:401:GOL:O1	2.17	0.44
1:H:106:ILE:O	1:H:106:ILE:HG23	2.17	0.44
1:K:3:GLU:HG2	1:K:4:ASP:N	2.32	0.44
1:N:9:VAL:HG21	1:N:267:LEU:CD1	2.48	0.44
1:A:124:ILE:HA	1:A:125:PRO:HD2	1.79	0.44
1:L:285:PRO:HA	1:L:288:TYR:CD2	2.53	0.43
1:C:254:ASP:OD1	1:C:254:ASP:C	2.61	0.43
1:P:254:ASP:OD1	1:P:254:ASP:C	2.61	0.43
1:D:12:SER:HA	1:D:261:LEU:O	2.19	0.43
1:G:12:SER:HA	1:G:261:LEU:O	2.18	0.43
1:H:254:ASP:OD1	1:H:257:GLU:HG3	2.18	0.43
1:J:108:ILE:HG13	1:J:146:PHE:CD1	2.53	0.43
1:P:277:TRP:CE3	2:P:401:GOL:H2	2.54	0.43
1:I:59:GLN:OE1	1:I:131:GLU:HG3	2.19	0.43
1:H:219:ARG:HD2	1:H:223:GLU:OE2	2.19	0.43
1:I:124:ILE:CG2	1:I:132:GLU:HG2	2.48	0.43
1:N:176:GLU:C	1:N:177:ILE:HG13	2.43	0.43
1:C:68:LYS:HE2	5:C:593:HOH:O	2.18	0.43
1:H:103:TYR:CG	1:H:120:ARG:HD3	2.53	0.43
1:H:270:ILE:HD11	5:H:423:HOH:O	2.16	0.43
1:J:30:GLU:HG2	5:J:693:HOH:O	2.17	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:N:158:SER:O	1:N:161:GLN:CD	2.61	0.43
1:N:245:PRO:CB	1:N:273:MET:HE1	2.46	0.43
1:P:15:GLN:HG3	1:P:218:ASN:O	2.18	0.43
1:H:75:THR:O	1:H:76:ILE:C	2.62	0.43
1:F:61:GLU:HG2	1:H:272:SER:OG	2.19	0.43
1:H:60:ARG:C	1:H:62:ASP:N	2.74	0.43
1:M:71:LYS:HE2	5:M:723:HOH:O	2.18	0.43
1:P:99:ASN:HB3	1:P:100:ASN:H	1.65	0.43
1:G:84:LYS:HD2	1:G:112:ASP:C	2.44	0.43
1:H:16:PHE:CE1	1:H:47:GLN:NE2	2.87	0.43
1:I:126:ASP:CG	1:I:127:GLY:N	2.76	0.43
1:F:124:ILE:O	1:F:133:LYS:NZ	2.49	0.43
1:F:228:GLU:CD	1:F:228:GLU:H	2.27	0.43
1:H:95:PHE:CD1	1:H:95:PHE:C	2.97	0.43
1:I:271:LYS:HE2	1:K:65:GLN:HE22	1.84	0.43
1:O:37:HIS:CE1	5:O:535:HOH:O	2.72	0.42
1:B:108:ILE:HG13	1:B:146:PHE:CD1	2.54	0.42
1:H:28:THR:O	1:H:28:THR:CG2	2.66	0.42
1:H:56:CYS:HA	1:H:135:TYR:HE2	1.84	0.42
1:F:125:PRO:HB3	1:F:159:TRP:CD2	2.54	0.42
1:P:119:TYR:CE2	1:P:156:ALA:HA	2.55	0.42
1:H:195:SER:O	1:H:237:TYR:OH	2.35	0.42
1:H:220:ILE:HD11	1:H:255:ASP:O	2.19	0.42
1:I:152:LYS:HE3	1:I:152:LYS:HB2	1.84	0.42
1:G:161:GLN:HB2	1:G:203:MET:SD	2.59	0.42
1:K:49:LEU:HA	5:K:646:HOH:O	2.19	0.42
1:N:161:GLN:HB3	1:N:180:TYR:CD1	2.55	0.42
1:B:285:PRO:HA	1:B:288:TYR:CD2	2.54	0.42
1:C:55:PHE:HB2	1:C:63:PHE:CD2	2.55	0.42
1:G:287:LEU:HD22	1:H:142:GLY:CA	2.49	0.42
1:O:5:LYS:HB3	1:O:5:LYS:NZ	2.34	0.42
1:G:29:ALA:O	1:G:33:VAL:HG23	2.19	0.42
1:H:157:ILE:HG22	1:H:158:SER:HB2	2.01	0.42
1:P:285:PRO:HA	1:P:288:TYR:CD2	2.55	0.42
1:C:78:ARG:O	1:C:81:LYS:HB2	2.20	0.42
1:I:169:ALA:HB1	1:J:290:VAL:HG11	2.02	0.42
1:M:211:LEU:HD23	1:M:273:MET:HE3	2.02	0.42
1:D:48:GLU:HG2	1:D:49:LEU:HG	2.01	0.42
1:E:33:VAL:HG22	1:E:44:VAL:HG11	2.02	0.42
5:N:686:HOH:O	1:P:273:MET:HB2	2.20	0.42
1:G:190:ASP:HB3	1:G:193:ILE:HD12	2.02	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:241:PHE:HA	1:H:251:SER:O	2.21	0.41
1:I:285:PRO:HA	1:I:288:TYR:CD2	2.54	0.41
1:P:108:ILE:HG13	1:P:146:PHE:CE2	2.55	0.41
1:A:98:ALA:O	1:A:99:ASN:CB	2.68	0.41
1:G:211:LEU:HD12	1:G:245:PRO:O	2.20	0.41
1:H:254:ASP:OD1	1:H:254:ASP:N	2.52	0.41
1:D:285:PRO:HA	1:D:288:TYR:CD2	2.55	0.41
1:H:54:TYR:HB3	1:H:236:PHE:HZ	1.86	0.41
1:L:199:TRP:CE2	1:L:203:MET:HE1	2.56	0.41
1:B:81:LYS:HE3	5:B:702:HOH:O	2.20	0.41
1:E:168:ARG:HD3	1:E:210:ASN:OD1	2.20	0.41
1:H:268:ASP:O	1:H:271:LYS:HB3	2.20	0.41
1:J:285:PRO:HA	1:J:288:TYR:CD2	2.56	0.41
1:O:161:GLN:CD	1:O:199:TRP:HE1	2.28	0.41
1:D:156:ALA:O	1:D:181:PRO:HD2	2.20	0.41
1:F:61:GLU:HG3	1:H:276[B]:CYS:HB3	2.02	0.41
1:G:73:HIS:O	1:G:77:MET:HG3	2.20	0.41
1:H:28:THR:O	1:H:28:THR:HG22	2.20	0.41
1:M:254:ASP:OD1	1:M:254:ASP:C	2.64	0.41
1:E:248:GLU:HG2	5:E:606:HOH:O	2.20	0.41
1:K:107:ALA:HA	1:K:118:ILE:HG22	2.01	0.41
1:K:108:ILE:HG13	1:K:146:PHE:CD1	2.55	0.41
1:G:159:TRP:CE3	1:G:162:TRP:CD1	3.08	0.41
1:N:54:TYR:CE2	1:N:56:CYS:HB2	2.56	0.41
1:O:83:ALA:HB2	1:O:90:ILE:HD12	2.03	0.41
1:F:7:ARG:NH2	1:F:176:GLU:OE1	2.51	0.41
1:G:37:HIS:CD2	1:G:86:LEU:HB3	2.55	0.41
1:G:224:ILE:HA	1:G:232:SER:O	2.21	0.41
1:I:161:GLN:HB2	1:I:203:MET:SD	2.60	0.41
1:C:70:TYR:CZ	1:C:118:ILE:HG23	2.56	0.41
1:H:219:ARG:CG	1:H:236:PHE:CD2	3.04	0.41
1:K:3:GLU:CG	1:K:4:ASP:N	2.84	0.41
1:L:109:ILE:HD13	1:L:109:ILE:N	2.36	0.41
1:O:58:ALA:HB2	1:O:227:THR:HG22	2.02	0.41
1:F:108:ILE:HG13	1:F:146:PHE:CD1	2.57	0.40
1:P:61:GLU:HA	1:P:64:ILE:HD13	2.03	0.40
1:A:98:ALA:O	1:A:99:ASN:HB2	2.19	0.40
1:A:131:GLU:O	1:A:134:PHE:HB2	2.20	0.40
1:C:158:SER:HB3	1:C:159:TRP:H	1.63	0.40
1:H:239:ASN:HA	1:H:253:ALA:O	2.21	0.40
1:F:187:GLU:OE1	2:F:401:GOL:O2	2.38	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:234:ILE:CG2	1:H:235:LYS:N	2.84	0.40
1:N:45:LEU:HD11	1:N:181:PRO:HG3	2.03	0.40
1:P:84:LYS:O	1:P:85:GLU:C	2.65	0.40
1:D:22:VAL:HG23	5:D:623:HOH:O	2.21	0.40
1:F:219:ARG:HD3	1:F:223:GLU:OE2	2.22	0.40
1:H:43:ILE:HG21	1:H:179:PHE:CZ	2.57	0.40
1:H:254:ASP:OD1	1:H:257:GLU:CG	2.70	0.40
1:J:108:ILE:HG13	1:J:146:PHE:CE1	2.57	0.40
1:G:20:ASP:CG	1:G:53:TYR:HD2	2.29	0.40
1:G:240:SER:O	1:G:261:LEU:HD11	2.21	0.40
1:G:242:ILE:HG21	1:G:263:ALA:HB3	2.04	0.40
1:H:57:GLN:OE1	1:H:234:ILE:CD1	2.66	0.40
1:K:285:PRO:HG2	1:L:300:VAL:HG11	2.03	0.40
1:L:118:ILE:HD13	1:L:118:ILE:HG21	1.74	0.40
1:M:199:TRP:CE2	1:M:203:MET:HE1	2.57	0.40
1:N:156:ALA:O	1:N:181:PRO:HD2	2.21	0.40
1:O:21:ASP:O	1:O:22:VAL:C	2.65	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	291/304 (96%)	278 (96%)	13 (4%)	0	100	100
1	B	296/304 (97%)	287 (97%)	9 (3%)	0	100	100
1	C	300/304 (99%)	283 (94%)	17 (6%)	0	100	100
1	D	297/304 (98%)	287 (97%)	10 (3%)	0	100	100
1	E	295/304 (97%)	285 (97%)	10 (3%)	0	100	100
1	F	297/304 (98%)	285 (96%)	12 (4%)	0	100	100
1	G	293/304 (96%)	270 (92%)	23 (8%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	H	271/304 (89%)	244 (90%)	27 (10%)	0	100	100
1	I	290/304 (95%)	278 (96%)	12 (4%)	0	100	100
1	J	297/304 (98%)	288 (97%)	9 (3%)	0	100	100
1	K	301/304 (99%)	293 (97%)	8 (3%)	0	100	100
1	L	297/304 (98%)	289 (97%)	8 (3%)	0	100	100
1	M	296/304 (97%)	286 (97%)	10 (3%)	0	100	100
1	N	296/304 (97%)	284 (96%)	12 (4%)	0	100	100
1	O	295/304 (97%)	281 (95%)	14 (5%)	0	100	100
1	P	280/304 (92%)	267 (95%)	13 (5%)	0	100	100
All	All	4692/4864 (96%)	4485 (96%)	207 (4%)	0	100	100

There are no Ramachandran outliers to report.

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	245/252 (97%)	231 (94%)	14 (6%)	18	33
1	B	248/252 (98%)	243 (98%)	5 (2%)	48	70
1	C	251/252 (100%)	245 (98%)	6 (2%)	43	65
1	D	249/252 (99%)	246 (99%)	3 (1%)	63	81
1	E	247/252 (98%)	240 (97%)	7 (3%)	38	60
1	F	249/252 (99%)	244 (98%)	5 (2%)	48	70
1	G	246/252 (98%)	238 (97%)	8 (3%)	33	55
1	H	232/252 (92%)	207 (89%)	25 (11%)	6	9
1	I	244/252 (97%)	236 (97%)	8 (3%)	33	55
1	J	249/252 (99%)	244 (98%)	5 (2%)	48	70
1	K	252/252 (100%)	247 (98%)	5 (2%)	48	70
1	L	249/252 (99%)	247 (99%)	2 (1%)	73	86

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	M	248/252 (98%)	245 (99%)	3 (1%)	63	81
1	N	248/252 (98%)	246 (99%)	2 (1%)	73	86
1	O	247/252 (98%)	237 (96%)	10 (4%)	28	47
1	P	240/252 (95%)	222 (92%)	18 (8%)	12	21
All	All	3944/4032 (98%)	3818 (97%)	126 (3%)	34	56

All (126) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	5	LYS
1	A	23	SER
1	A	64	ILE
1	A	68	LYS
1	A	88	VAL
1	A	131	GLU
1	A	133	LYS
1	A	152	LYS
1	A	193	ILE
1	A	203	MET
1	A	231	LYS
1	A	232	SER
1	A	251	SER
1	A	297	LYS
1	B	161	GLN
1	B	211	LEU
1	B	237	TYR
1	B	275	HIS
1	B	301	LEU
1	C	1	MET
1	C	3	GLU
1	C	5	LYS
1	C	108	ILE
1	C	158	SER
1	C	301	LEU
1	D	21	ASP
1	D	88	VAL
1	D	297	LYS
1	E	5	LYS
1	E	108	ILE
1	E	152	LYS
1	E	158	SER

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Mol	Chain	Res	Type
1	E	191	GLN
1	E	248	GLU
1	E	251	SER
1	F	5	LYS
1	F	71	LYS
1	F	237	TYR
1	F	273	MET
1	F	297	LYS
1	G	8	LYS
1	G	24	THR
1	G	43	ILE
1	G	161	GLN
1	G	187	GLU
1	G	191	GLN
1	G	256	LYS
1	G	272	SER
1	H	18	CYS
1	H	22	VAL
1	H	23	SER
1	H	27	THR
1	H	46	ILE
1	H	57	GLN
1	H	65	GLN
1	H	68	LYS
1	H	70	TYR
1	H	71	LYS
1	H	76	ILE
1	H	79	LEU
1	H	84	LYS
1	H	100	ASN
1	H	115	ASP
1	H	118	ILE
1	H	133	LYS
1	H	135	TYR
1	H	145	VAL
1	H	184	ILE
1	H	195	SER
1	H	219	ARG
1	H	220	ILE
1	H	225	ILE
1	H	252	ILE
1	I	5	LYS

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Mol	Chain	Res	Type
1	I	158	SER
1	I	184	ILE
1	I	203	MET
1	I	229	HIS
1	I	237	TYR
1	I	297	LYS
1	I	301	LEU
1	J	30	GLU
1	J	149	LYS
1	J	211	LEU
1	J	272	SER
1	J	301	LEU
1	K	4	ASP
1	K	5	LYS
1	K	81	LYS
1	K	191	GLN
1	K	269	LYS
1	L	5	LYS
1	L	237	TYR
1	M	108	ILE
1	M	118	ILE
1	M	152	LYS
1	N	5	LYS
1	N	301	LEU
1	O	5	LYS
1	O	21	ASP
1	O	118	ILE
1	O	158	SER
1	O	161	GLN
1	O	191	GLN
1	O	211	LEU
1	O	237	TYR
1	O	271	LYS
1	O	272	SER
1	P	27	THR
1	P	64	ILE
1	P	65	GLN
1	P	68	LYS
1	P	88	VAL
1	P	100	ASN
1	P	106	ILE
1	P	114	THR

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Mol	Chain	Res	Type
1	P	118	ILE
1	P	132	GLU
1	P	184	ILE
1	P	187	GLU
1	P	193	ILE
1	P	226	GLU
1	P	234	ILE
1	P	273	MET
1	P	297	LYS
1	P	300	VAL

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (50) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	59	GLN
1	A	137	ASN
1	A	161	GLN
1	A	204	GLN
1	B	65	GLN
1	B	102	HIS
1	B	204	GLN
1	C	59	GLN
1	C	65	GLN
1	C	73	HIS
1	C	102	HIS
1	C	229	HIS
1	D	204	GLN
1	D	222	ASN
1	E	37	HIS
1	E	204	GLN
1	F	59	GLN
1	F	204	GLN
1	G	73	HIS
1	G	102	HIS
1	G	147	GLN
1	G	173	GLN
1	G	189	HIS
1	H	25	ASN
1	H	161	GLN
1	H	204	GLN
1	H	222	ASN
1	I	37	HIS

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Mol	Chain	Res	Type
1	I	39	GLN
1	I	137	ASN
1	I	161	GLN
1	J	37	HIS
1	K	39	GLN
1	K	65	GLN
1	K	191	GLN
1	L	59	GLN
1	L	65	GLN
1	M	59	GLN
1	M	147	GLN
1	N	59	GLN
1	N	65	GLN
1	O	65	GLN
1	O	102	HIS
1	O	189	HIS
1	P	39	GLN
1	P	65	GLN
1	P	100	ASN
1	P	137	ASN
1	P	161	GLN
1	P	204	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

53 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	$\# Z > 2$
3	EDO	K	404	-	3,3,3	0.42	0	2,2,2	0.39	0
2	GOL	F	402	-	5,5,5	0.41	0	5,5,5	0.37	0
2	GOL	E	403	-	5,5,5	0.37	0	5,5,5	0.31	0
3	EDO	L	405	-	3,3,3	0.44	0	2,2,2	0.32	0
2	GOL	J	402	-	5,5,5	0.46	0	5,5,5	0.47	0
3	EDO	I	403	-	3,3,3	0.53	0	2,2,2	0.05	0
2	GOL	N	403	-	5,5,5	0.48	0	5,5,5	0.41	0
2	GOL	D	403	-	5,5,5	0.53	0	5,5,5	0.40	0
2	GOL	F	401	-	5,5,5	0.90	0	5,5,5	0.68	0
2	GOL	C	403	-	5,5,5	0.57	0	5,5,5	0.80	0
2	GOL	K	401	-	5,5,5	1.08	0	5,5,5	0.57	0
2	GOL	E	401	-	5,5,5	1.20	0	5,5,5	0.96	0
2	GOL	N	402	-	5,5,5	0.63	0	5,5,5	0.40	0
2	GOL	P	401	-	5,5,5	0.30	0	5,5,5	0.77	0
2	GOL	C	401	-	5,5,5	1.21	0	5,5,5	0.87	0
2	GOL	O	401	-	5,5,5	0.53	0	5,5,5	0.84	0
2	GOL	M	401	-	5,5,5	0.96	0	5,5,5	1.12	0
2	GOL	B	405	-	5,5,5	0.71	0	5,5,5	0.39	0
2	GOL	L	401	-	5,5,5	1.05	0	5,5,5	0.99	0
4	PEG	J	403	-	6,6,6	0.61	0	5,5,5	0.25	0
2	GOL	L	403	-	5,5,5	0.50	0	5,5,5	0.34	0
2	GOL	A	401	-	5,5,5	0.61	0	5,5,5	0.40	0
2	GOL	G	402	-	5,5,5	0.44	0	5,5,5	0.48	0
3	EDO	A	403	-	3,3,3	0.48	0	2,2,2	0.23	0
2	GOL	E	402	-	5,5,5	0.52	0	5,5,5	0.72	0
2	GOL	K	403	-	5,5,5	0.51	0	5,5,5	0.21	0
2	GOL	N	401	-	5,5,5	0.73	0	5,5,5	0.58	0
2	GOL	G	401	-	5,5,5	0.66	0	5,5,5	0.53	0
2	GOL	M	402	-	5,5,5	0.25	0	5,5,5	0.26	0
2	GOL	I	401	-	5,5,5	0.44	0	5,5,5	0.77	0
2	GOL	C	402	-	5,5,5	0.37	0	5,5,5	0.28	0
2	GOL	F	403	-	5,5,5	0.47	0	5,5,5	0.33	0
2	GOL	L	402	-	5,5,5	0.37	0	5,5,5	0.08	0
4	PEG	L	404	-	6,6,6	0.55	0	5,5,5	0.26	0
3	EDO	D	405	-	3,3,3	0.60	0	2,2,2	0.05	0
2	GOL	B	404	-	5,5,5	0.35	0	5,5,5	0.62	0
2	GOL	M	403	-	5,5,5	0.46	0	5,5,5	0.62	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	GOL	K	402	-	5,5,5	0.40	0	5,5,5	0.33	0
2	GOL	I	402	-	5,5,5	0.54	0	5,5,5	0.38	0
2	GOL	J	401	-	5,5,5	0.41	0	5,5,5	0.64	0
4	PEG	G	404	-	6,6,6	0.54	0	5,5,5	0.26	0
2	GOL	D	404	-	5,5,5	0.74	0	5,5,5	0.54	0
2	GOL	B	402	-	5,5,5	0.28	0	5,5,5	0.53	0
2	GOL	B	403	-	5,5,5	0.60	0	5,5,5	0.80	0
2	GOL	D	401	-	5,5,5	0.96	0	5,5,5	0.77	0
2	GOL	N	404	-	5,5,5	0.69	0	5,5,5	0.75	0
2	GOL	A	402	-	5,5,5	0.39	0	5,5,5	0.51	0
2	GOL	D	402	-	5,5,5	0.34	0	5,5,5	0.30	0
2	GOL	B	401	-	5,5,5	0.99	0	5,5,5	0.72	0
2	GOL	E	404	-	5,5,5	0.57	0	5,5,5	0.32	0
4	PEG	C	404	-	6,6,6	0.63	0	5,5,5	0.40	0
2	GOL	G	403	-	5,5,5	0.40	0	5,5,5	0.30	0
3	EDO	C	405	-	3,3,3	0.46	0	2,2,2	0.34	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
3	EDO	K	404	-	-	1/1/1/1	-
2	GOL	F	402	-	-	2/4/4/4	-
2	GOL	E	403	-	-	2/4/4/4	-
3	EDO	L	405	-	-	1/1/1/1	-
2	GOL	J	402	-	-	0/4/4/4	-
3	EDO	I	403	-	-	0/1/1/1	-
2	GOL	N	403	-	-	2/4/4/4	-
2	GOL	D	403	-	-	2/4/4/4	-
2	GOL	F	401	-	-	4/4/4/4	-
2	GOL	C	403	-	-	2/4/4/4	-
2	GOL	K	401	-	-	2/4/4/4	-
2	GOL	E	401	-	-	2/4/4/4	-
2	GOL	N	402	-	-	2/4/4/4	-
2	GOL	P	401	-	-	2/4/4/4	-
2	GOL	C	401	-	-	2/4/4/4	-
2	GOL	O	401	-	-	2/4/4/4	-
2	GOL	M	401	-	-	0/4/4/4	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	GOL	B	405	-	-	4/4/4/4	-
2	GOL	L	401	-	-	2/4/4/4	-
4	PEG	J	403	-	-	4/4/4/4	-
2	GOL	L	403	-	-	2/4/4/4	-
2	GOL	A	401	-	-	1/4/4/4	-
2	GOL	G	402	-	-	0/4/4/4	-
3	EDO	A	403	-	-	1/1/1/1	-
2	GOL	E	402	-	-	4/4/4/4	-
2	GOL	K	403	-	-	2/4/4/4	-
2	GOL	N	401	-	-	2/4/4/4	-
2	GOL	G	401	-	-	4/4/4/4	-
2	GOL	M	402	-	-	2/4/4/4	-
2	GOL	I	401	-	-	4/4/4/4	-
2	GOL	C	402	-	-	2/4/4/4	-
2	GOL	F	403	-	-	2/4/4/4	-
2	GOL	L	402	-	-	4/4/4/4	-
4	PEG	L	404	-	-	2/4/4/4	-
3	EDO	D	405	-	-	0/1/1/1	-
2	GOL	B	404	-	-	0/4/4/4	-
2	GOL	M	403	-	-	2/4/4/4	-
2	GOL	K	402	-	-	2/4/4/4	-
2	GOL	I	402	-	-	2/4/4/4	-
2	GOL	J	401	-	-	1/4/4/4	-
4	PEG	G	404	-	-	3/4/4/4	-
2	GOL	D	404	-	-	2/4/4/4	-
2	GOL	B	402	-	-	1/4/4/4	-
2	GOL	B	403	-	-	0/4/4/4	-
2	GOL	D	401	-	-	2/4/4/4	-
2	GOL	N	404	-	-	2/4/4/4	-
2	GOL	A	402	-	-	2/4/4/4	-
2	GOL	D	402	-	-	3/4/4/4	-
2	GOL	B	401	-	-	2/4/4/4	-
2	GOL	E	404	-	-	2/4/4/4	-
4	PEG	C	404	-	-	2/4/4/4	-
2	GOL	G	403	-	-	3/4/4/4	-
3	EDO	C	405	-	-	1/1/1/1	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (102) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	402	GOL	C1-C2-C3-O3
2	B	401	GOL	C1-C2-C3-O3
2	B	405	GOL	O1-C1-C2-C3
2	C	402	GOL	O1-C1-C2-C3
2	C	403	GOL	C1-C2-C3-O3
2	D	401	GOL	C1-C2-C3-O3
2	D	403	GOL	O1-C1-C2-C3
2	E	401	GOL	O1-C1-C2-C3
2	E	402	GOL	O1-C1-C2-C3
2	E	402	GOL	C1-C2-C3-O3
2	F	401	GOL	O1-C1-C2-C3
2	F	401	GOL	C1-C2-C3-O3
2	F	403	GOL	C1-C2-C3-O3
2	G	401	GOL	C1-C2-C3-O3
2	G	403	GOL	C1-C2-C3-O3
2	I	401	GOL	O1-C1-C2-C3
2	K	401	GOL	C1-C2-C3-O3
2	K	402	GOL	C1-C2-C3-O3
2	K	402	GOL	O2-C2-C3-O3
2	K	403	GOL	O1-C1-C2-O2
2	K	403	GOL	O1-C1-C2-C3
2	L	401	GOL	C1-C2-C3-O3
2	L	401	GOL	O2-C2-C3-O3
2	L	402	GOL	O1-C1-C2-C3
2	M	402	GOL	O1-C1-C2-C3
2	N	401	GOL	C1-C2-C3-O3
2	N	401	GOL	O2-C2-C3-O3
2	N	402	GOL	O1-C1-C2-C3
2	N	403	GOL	C1-C2-C3-O3
2	N	404	GOL	O1-C1-C2-C3
2	O	401	GOL	O1-C1-C2-C3
2	D	402	GOL	O2-C2-C3-O3
2	F	402	GOL	O1-C1-C2-O2
2	G	401	GOL	O2-C2-C3-O3
2	K	401	GOL	O2-C2-C3-O3
2	O	401	GOL	O1-C1-C2-O2
4	C	404	PEG	O1-C1-C2-O2

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Mol	Chain	Res	Type	Atoms
2	B	405	GOL	C1-C2-C3-O3
2	C	401	GOL	C1-C2-C3-O3
2	D	402	GOL	O1-C1-C2-C3
2	D	402	GOL	C1-C2-C3-O3
2	D	404	GOL	O1-C1-C2-C3
2	E	403	GOL	C1-C2-C3-O3
2	E	404	GOL	O1-C1-C2-C3
2	F	402	GOL	O1-C1-C2-C3
2	G	401	GOL	O1-C1-C2-C3
2	I	401	GOL	C1-C2-C3-O3
2	I	402	GOL	C1-C2-C3-O3
2	L	402	GOL	C1-C2-C3-O3
2	P	401	GOL	C1-C2-C3-O3
2	B	401	GOL	O2-C2-C3-O3
2	B	405	GOL	O1-C1-C2-O2
2	C	402	GOL	O1-C1-C2-O2
2	D	401	GOL	O2-C2-C3-O3
2	E	401	GOL	O1-C1-C2-O2
2	E	402	GOL	O1-C1-C2-O2
2	E	404	GOL	O1-C1-C2-O2
2	F	401	GOL	O1-C1-C2-O2
2	F	401	GOL	O2-C2-C3-O3
2	F	403	GOL	O2-C2-C3-O3
2	G	403	GOL	O2-C2-C3-O3
2	I	401	GOL	O1-C1-C2-O2
2	I	401	GOL	O2-C2-C3-O3
2	I	402	GOL	O2-C2-C3-O3
2	L	402	GOL	O1-C1-C2-O2
2	N	402	GOL	O1-C1-C2-O2
2	P	401	GOL	O2-C2-C3-O3
3	C	405	EDO	O1-C1-C2-O2
2	A	402	GOL	O2-C2-C3-O3
2	B	405	GOL	O2-C2-C3-O3
2	C	401	GOL	O2-C2-C3-O3
2	C	403	GOL	O2-C2-C3-O3
2	E	403	GOL	O2-C2-C3-O3
2	N	404	GOL	O1-C1-C2-O2
2	A	401	GOL	C1-C2-C3-O3
4	G	404	PEG	O2-C3-C4-O4
4	J	403	PEG	O1-C1-C2-O2
2	D	404	GOL	O1-C1-C2-O2
2	N	403	GOL	O2-C2-C3-O3

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Mol	Chain	Res	Type	Atoms
3	A	403	EDO	O1-C1-C2-O2
4	J	403	PEG	O2-C3-C4-O4
2	B	402	GOL	O2-C2-C3-O3
2	D	403	GOL	O1-C1-C2-O2
2	E	402	GOL	O2-C2-C3-O3
2	L	402	GOL	O2-C2-C3-O3
2	M	403	GOL	O2-C2-C3-O3
2	J	401	GOL	O1-C1-C2-C3
2	M	403	GOL	C1-C2-C3-O3
4	L	404	PEG	O2-C3-C4-O4
3	K	404	EDO	O1-C1-C2-O2
4	G	404	PEG	C4-C3-O2-C2
4	L	404	PEG	O1-C1-C2-O2
3	L	405	EDO	O1-C1-C2-O2
4	G	404	PEG	O1-C1-C2-O2
2	G	401	GOL	O1-C1-C2-O2
2	M	402	GOL	O1-C1-C2-O2
4	J	403	PEG	C1-C2-O2-C3
4	C	404	PEG	C4-C3-O2-C2
2	L	403	GOL	O2-C2-C3-O3
4	J	403	PEG	C4-C3-O2-C2
2	L	403	GOL	C1-C2-C3-O3
2	G	403	GOL	O1-C1-C2-O2

There are no ring outliers.

12 monomers are involved in 18 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	K	404	EDO	2	0
3	L	405	EDO	2	0
2	J	402	GOL	1	0
2	F	401	GOL	2	0
2	P	401	GOL	4	0
2	O	401	GOL	1	0
2	B	405	GOL	1	0
2	G	402	GOL	1	0
3	A	403	EDO	1	0
2	K	402	GOL	1	0
2	D	404	GOL	1	0
3	C	405	EDO	1	0

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	294/304 (96%)	0.02	11 (3%) 45 41	29, 57, 105, 133	1 (0%)
1	B	297/304 (97%)	-0.45	3 (1%) 79 76	29, 45, 68, 113	1 (0%)
1	C	301/304 (99%)	-0.57	2 (0%) 84 81	28, 42, 62, 113	1 (0%)
1	D	298/304 (98%)	-0.62	0 100 100	28, 42, 60, 99	1 (0%)
1	E	297/304 (97%)	-0.50	2 (0%) 84 81	31, 45, 65, 99	0
1	F	298/304 (98%)	-0.17	1 (0%) 90 88	27, 57, 80, 108	1 (0%)
1	G	295/304 (97%)	0.96	34 (11%) 9 7	60, 90, 113, 123	0
1	H	278/304 (91%)	1.67	94 (33%) 1 1	58, 118, 143, 162	1 (0%)
1	I	293/304 (96%)	-0.26	5 (1%) 69 65	29, 48, 92, 132	1 (0%)
1	J	298/304 (98%)	-0.51	1 (0%) 90 88	31, 42, 62, 121	1 (0%)
1	K	301/304 (99%)	-0.50	2 (0%) 84 81	29, 45, 67, 118	2 (0%)
1	L	298/304 (98%)	-0.62	0 100 100	30, 42, 59, 98	1 (0%)
1	M	297/304 (97%)	-0.58	0 100 100	31, 43, 62, 87	1 (0%)
1	N	298/304 (98%)	-0.54	0 100 100	32, 42, 60, 110	0
1	O	297/304 (97%)	-0.13	1 (0%) 90 88	40, 61, 82, 119	0
1	P	288/304 (94%)	0.42	11 (3%) 44 40	43, 73, 117, 132	0
All	All	4728/4864 (97%)	-0.16	167 (3%) 47 43	27, 49, 110, 162	12 (0%)

All (167) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	130	TYR	5.7
1	H	224	ILE	4.9
1	P	127	GLY	4.9
1	H	225	ILE	4.8
1	P	227	THR	4.6

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Mol	Chain	Res	Type	RSRZ
1	H	76	ILE	4.3
1	H	159	TRP	4.2
1	A	57	GLN	4.2
1	A	193	ILE	4.1
1	H	22	VAL	4.1
1	P	193	ILE	4.0
1	H	49	LEU	3.9
1	H	130	TYR	3.8
1	A	127	GLY	3.8
1	H	74	PRO	3.7
1	P	188	PRO	3.7
1	H	118	ILE	3.6
1	G	82	LEU	3.6
1	H	135	TYR	3.5
1	H	50	PHE	3.5
1	H	58	ALA	3.5
1	H	57	GLN	3.4
1	H	92	VAL	3.4
1	H	53	TYR	3.4
1	H	180	TYR	3.4
1	H	234	ILE	3.3
1	H	195	SER	3.3
1	K	2	ALA	3.3
1	A	301	LEU	3.3
1	P	130	TYR	3.3
1	H	24	THR	3.3
1	H	29	ALA	3.3
1	G	273	MET	3.3
1	I	301	LEU	3.2
1	H	70	TYR	3.2
1	I	130	TYR	3.2
1	H	88	VAL	3.2
1	G	38	LYS	3.2
1	H	64	ILE	3.1
1	H	155	VAL	3.1
1	H	46	ILE	3.0
1	H	28	THR	3.0
1	G	301	LEU	3.0
1	G	277	TRP	3.0
1	H	95	PHE	3.0
1	H	184	ILE	3.0
1	H	71	LYS	3.0

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Mol	Chain	Res	Type	RSRZ
1	H	54	TYR	3.0
1	H	179	PHE	2.9
1	H	134	PHE	2.9
1	H	106	ILE	2.9
1	I	128	PRO	2.9
1	H	63	PHE	2.9
1	G	76	ILE	2.9
1	G	90	ILE	2.8
1	H	186	SER	2.8
1	A	129	GLY	2.8
1	A	188	PRO	2.8
1	H	79	LEU	2.8
1	H	98	ALA	2.8
1	A	58	ALA	2.8
1	G	107	ALA	2.8
1	A	192	SER	2.7
1	G	81	LYS	2.7
1	H	19	THR	2.7
1	H	69	PRO	2.7
1	G	8	LYS	2.7
1	H	44	VAL	2.7
1	H	109	ILE	2.7
1	H	125	PRO	2.7
1	H	26	VAL	2.7
1	H	202	VAL	2.7
1	H	223	GLU	2.7
1	G	193	ILE	2.7
1	P	58	ALA	2.6
1	G	89	VAL	2.6
1	H	181	PRO	2.6
1	H	21	ASP	2.6
1	H	94	PHE	2.6
1	G	46	ILE	2.6
1	G	86	LEU	2.6
1	H	66	ARG	2.6
1	H	93	SER	2.6
1	P	184	ILE	2.6
1	H	102	HIS	2.6
1	C	2	ALA	2.5
1	H	222	ASN	2.5
1	H	273	MET	2.5
1	A	128	PRO	2.5

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Mol	Chain	Res	Type	RSRZ
1	H	300	VAL	2.5
1	H	82	LEU	2.5
1	J	4	ASP	2.5
1	G	33	VAL	2.5
1	G	150	TYR	2.5
1	H	235	LYS	2.5
1	H	55	PHE	2.5
1	B	5	LYS	2.5
1	H	78	ARG	2.4
1	H	163	PHE	2.4
1	H	17	ALA	2.4
1	H	33	VAL	2.4
1	H	215	VAL	2.4
1	G	32	LEU	2.4
1	O	301	LEU	2.4
1	H	101	ALA	2.4
1	G	250	VAL	2.4
1	H	108	ILE	2.4
1	H	256	LYS	2.4
1	P	300	VAL	2.4
1	C	1	MET	2.4
1	H	116	LEU	2.4
1	G	53	TYR	2.4
1	H	103	TYR	2.4
1	H	237	TYR	2.4
1	G	9	VAL	2.4
1	H	226	GLU	2.4
1	P	54	TYR	2.3
1	G	252	ILE	2.3
1	H	252	ILE	2.3
1	G	171	ALA	2.3
1	H	67	ALA	2.3
1	H	158	SER	2.3
1	K	1	MET	2.3
1	F	301	LEU	2.3
1	G	116	LEU	2.3
1	G	231	LYS	2.3
1	H	68	LYS	2.3
1	A	59	GLN	2.3
1	P	57	GLN	2.3
1	H	5	LYS	2.3
1	P	5	LYS	2.3

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Mol	Chain	Res	Type	RSRZ
1	H	60	ARG	2.2
1	B	275	HIS	2.2
1	G	27	THR	2.2
1	G	148	THR	2.2
1	H	23	SER	2.2
1	G	155	VAL	2.2
1	H	14	LEU	2.2
1	H	48	GLU	2.2
1	B	277	TRP	2.2
1	H	162	TRP	2.2
1	H	246	THR	2.2
1	G	153	ILE	2.2
1	G	106	ILE	2.1
1	H	178	LEU	2.1
1	G	263	ALA	2.1
1	H	41	ALA	2.1
1	H	43	ILE	2.1
1	H	90	ILE	2.1
1	H	157	ILE	2.1
1	H	62	ASP	2.1
1	G	260	VAL	2.1
1	H	278	GLY	2.1
1	I	230	GLY	2.1
1	H	75	THR	2.1
1	G	13	ALA	2.1
1	E	301	LEU	2.1
1	H	119	TYR	2.0
1	G	40	GLY	2.0
1	H	51	GLU	2.0
1	H	107	ALA	2.0
1	H	65	GLN	2.0
1	I	229	HIS	2.0
1	G	45	LEU	2.0
1	H	100	ASN	2.0
1	H	249	ILE	2.0
1	E	5	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 oligosaccharides in this entry.

6.4 Ligands ⓘ

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 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(Å ²)	Q<0.9
4	PEG	G	404	7/7	0.78	0.16	73,89,99,102	0
2	GOL	G	402	6/6	0.84	0.17	75,82,95,100	0
4	PEG	C	404	7/7	0.84	0.21	68,102,116,120	0
2	GOL	E	404	6/6	0.84	0.16	73,85,99,100	0
2	GOL	B	405	6/6	0.87	0.15	62,68,87,87	0
2	GOL	D	404	6/6	0.87	0.17	50,65,73,85	0
2	GOL	G	403	6/6	0.88	0.13	61,73,84,85	0
4	PEG	J	403	7/7	0.89	0.14	74,97,101,102	0
2	GOL	N	404	6/6	0.90	0.13	65,76,82,89	0
2	GOL	E	402	6/6	0.90	0.14	63,66,76,78	0
2	GOL	G	401	6/6	0.90	0.12	76,78,79,81	0
2	GOL	J	402	6/6	0.90	0.12	63,67,79,92	0
2	GOL	N	402	6/6	0.91	0.17	47,74,97,98	0
2	GOL	A	401	6/6	0.91	0.14	68,79,90,90	0
2	GOL	P	401	6/6	0.91	0.13	53,63,66,68	0
2	GOL	B	403	6/6	0.92	0.13	52,72,79,85	0
2	GOL	B	404	6/6	0.92	0.12	61,68,71,74	0
2	GOL	F	403	6/6	0.92	0.11	62,77,82,89	0
2	GOL	N	401	6/6	0.92	0.13	57,60,64,66	0
2	GOL	E	401	6/6	0.92	0.13	49,52,55,55	0
4	PEG	L	404	7/7	0.92	0.15	68,75,98,100	0
2	GOL	K	402	6/6	0.93	0.12	52,59,81,84	0
2	GOL	M	401	6/6	0.93	0.13	50,54,56,59	0
2	GOL	A	402	6/6	0.93	0.10	55,65,69,72	0
3	EDO	K	404	4/4	0.93	0.15	68,70,73,73	0
2	GOL	C	401	6/6	0.94	0.10	46,49,51,54	0
2	GOL	O	401	6/6	0.94	0.11	62,67,69,70	0
2	GOL	K	401	6/6	0.94	0.10	49,52,55,56	0
3	EDO	D	405	4/4	0.94	0.14	60,65,72,76	0
3	EDO	I	403	4/4	0.94	0.15	58,62,66,77	0
2	GOL	C	403	6/6	0.94	0.11	49,57,66,67	0
2	GOL	K	403	6/6	0.94	0.10	57,67,74,77	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
2	GOL	B	401	6/6	0.94	0.10	49,52,55,55	0
2	GOL	F	401	6/6	0.94	0.12	71,74,76,77	0
2	GOL	J	401	6/6	0.94	0.12	49,53,53,54	0
3	EDO	A	403	4/4	0.95	0.13	64,64,67,74	0
3	EDO	C	405	4/4	0.95	0.13	65,69,71,79	0
2	GOL	L	402	6/6	0.95	0.10	62,68,83,91	0
2	GOL	D	403	6/6	0.95	0.12	54,61,67,70	0
2	GOL	E	403	6/6	0.95	0.11	56,59,65,66	0
3	EDO	L	405	4/4	0.95	0.13	52,67,69,71	0
2	GOL	D	401	6/6	0.95	0.11	49,51,54,63	0
2	GOL	D	402	6/6	0.95	0.12	53,57,87,89	0
2	GOL	I	402	6/6	0.95	0.10	61,68,75,76	0
2	GOL	L	401	6/6	0.95	0.12	51,60,62,73	0
2	GOL	N	403	6/6	0.96	0.09	49,61,64,72	0
2	GOL	L	403	6/6	0.96	0.12	49,67,71,73	0
2	GOL	B	402	6/6	0.96	0.09	44,60,65,85	0
2	GOL	M	402	6/6	0.96	0.10	52,61,68,85	0
2	GOL	M	403	6/6	0.96	0.12	53,62,70,72	0
2	GOL	C	402	6/6	0.96	0.10	52,58,85,90	0
2	GOL	F	402	6/6	0.96	0.10	54,66,78,84	0
2	GOL	I	401	6/6	0.97	0.09	48,55,67,79	0

6.5 Other polymers [i](#)

There are no such residues in this entry.