



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 17, 2026 – 08:25 PM UTC

PDB ID : 2XR8 / pdb_00002xr8
Title : Crystal structure of biphenyl dioxygenase from Burkholderia xenovorans LB400
Authors : Kumar, P.; Bolin, J.T.
Deposited on : 2010-09-12
Resolution : 2.49 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

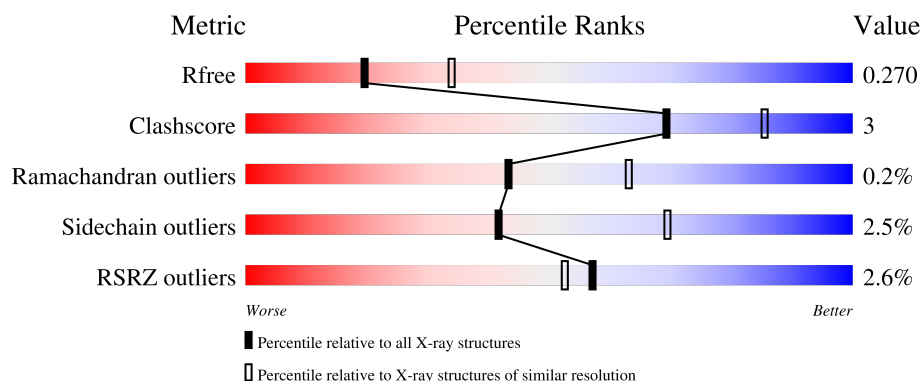
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.49 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	5829 (2.50-2.50)
Clashscore	190562	6492 (2.50-2.50)
Ramachandran outliers	187476	6378 (2.50-2.50)
Sidechain outliers	187428	6380 (2.50-2.50)
RSRZ outliers	180081	5833 (2.50-2.50)

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	459	
1	C	459	
1	E	459	
1	G	459	
1	I	459	

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Mol	Chain	Length	Quality of chain
1	K	459	
1	M	459	
1	O	459	
1	Q	459	
1	S	459	
1	U	459	
1	W	459	
2	B	188	
2	D	188	
2	F	188	
2	H	188	
2	J	188	
2	L	188	
2	N	188	
2	P	188	
2	R	188	
2	T	188	
2	V	188	
2	X	188	

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 59924 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 BIPHENYL DIOXYGENASE SUBUNIT ALPHA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	433	Total	C	N	O	S	0	0	0
			3436	2187	603	623	23			
1	C	433	Total	C	N	O	S	0	0	0
			3436	2187	603	623	23			
1	E	433	Total	C	N	O	S	0	0	0
			3436	2187	603	623	23			
1	G	433	Total	C	N	O	S	0	0	0
			3436	2187	603	623	23			
1	I	433	Total	C	N	O	S	0	0	0
			3436	2187	603	623	23			
1	K	433	Total	C	N	O	S	0	0	0
			3436	2187	603	623	23			
1	M	433	Total	C	N	O	S	0	0	0
			3432	2185	602	622	23			
1	O	433	Total	C	N	O	S	0	0	0
			3432	2185	602	622	23			
1	Q	433	Total	C	N	O	S	0	0	0
			3432	2185	602	622	23			
1	S	433	Total	C	N	O	S	0	0	0
			3436	2187	603	623	23			
1	U	433	Total	C	N	O	S	0	0	0
			3436	2187	603	623	23			
1	W	433	Total	C	N	O	S	0	0	0
			3436	2187	603	623	23			

- Molecule 2 is a protein called BIPHENYL DIOXYGENASE SUBUNIT BETA.

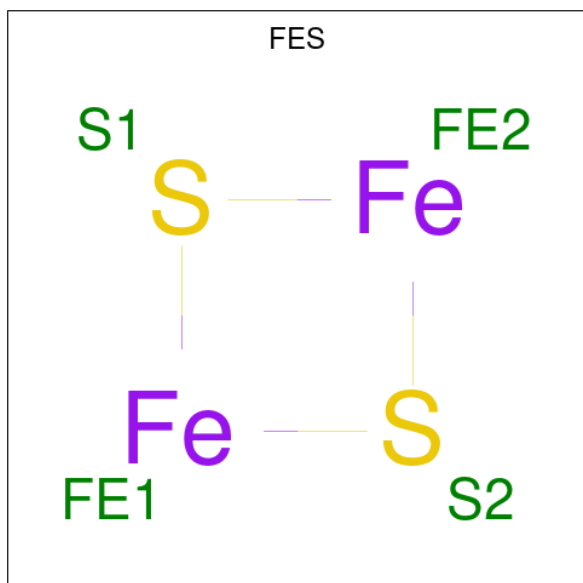
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	B	180	Total	C	N	O	S	0	0	0
			1496	948	265	279	4			
2	D	180	Total	C	N	O	S	0	0	0
			1496	948	265	279	4			

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Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	F	180	Total	C	N	O	S	0	0	0
			1496	948	265	279	4			
2	H	180	Total	C	N	O	S	0	0	0
			1496	948	265	279	4			
2	J	180	Total	C	N	O	S	0	0	0
			1496	948	265	279	4			
2	L	180	Total	C	N	O	S	0	0	0
			1496	948	265	279	4			
2	N	180	Total	C	N	O	S	0	0	0
			1496	948	265	279	4			
2	P	180	Total	C	N	O	S	0	0	0
			1496	948	265	279	4			
2	R	180	Total	C	N	O	S	0	0	0
			1496	948	265	279	4			
2	T	180	Total	C	N	O	S	0	0	0
			1496	948	265	279	4			
2	V	180	Total	C	N	O	S	0	0	0
			1496	948	265	279	4			
2	X	180	Total	C	N	O	S	0	0	0
			1496	948	265	279	4			

- Molecule 3 is FE2/S2 (INORGANIC) CLUSTER (CCD ID: FES) (formula: Fe_2S_2).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	Fe	S	0	0
			4	2	2		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	C	1	Total 4	Fe 2	S 2	0	0
3	E	1	Total 4	Fe 2	S 2	0	0
3	G	1	Total 4	Fe 2	S 2	0	0
3	I	1	Total 4	Fe 2	S 2	0	0
3	K	1	Total 4	Fe 2	S 2	0	0
3	M	1	Total 4	Fe 2	S 2	0	0
3	O	1	Total 4	Fe 2	S 2	0	0
3	Q	1	Total 4	Fe 2	S 2	0	0
3	S	1	Total 4	Fe 2	S 2	0	0
3	U	1	Total 4	Fe 2	S 2	0	0
3	W	1	Total 4	Fe 2	S 2	0	0

- Molecule 4 is FE (II) ION (CCD ID: FE2) (formula: Fe).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	1	Total 1	Fe 1	0	0
4	C	1	Total 1	Fe 1	0	0
4	E	1	Total 1	Fe 1	0	0
4	G	1	Total 1	Fe 1	0	0
4	I	1	Total 1	Fe 1	0	0
4	K	1	Total 1	Fe 1	0	0
4	M	1	Total 1	Fe 1	0	0
4	O	1	Total 1	Fe 1	0	0

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	Q	1	Total 1	Fe 1	0	0
4	S	1	Total 1	Fe 1	0	0
4	U	1	Total 1	Fe 1	0	0
4	W	1	Total 1	Fe 1	0	0

- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	44	Total 44	O 44	0	0
5	B	26	Total 26	O 26	0	0
5	C	28	Total 28	O 28	0	0
5	D	24	Total 24	O 24	0	0
5	E	35	Total 35	O 35	0	0
5	F	19	Total 19	O 19	0	0
5	G	23	Total 23	O 23	0	0
5	H	14	Total 14	O 14	0	0
5	I	23	Total 23	O 23	0	0
5	J	14	Total 14	O 14	0	0
5	K	49	Total 49	O 49	0	0
5	L	16	Total 16	O 16	0	0
5	M	49	Total 49	O 49	0	0
5	N	31	Total 31	O 31	0	0
5	O	58	Total 58	O 58	0	0

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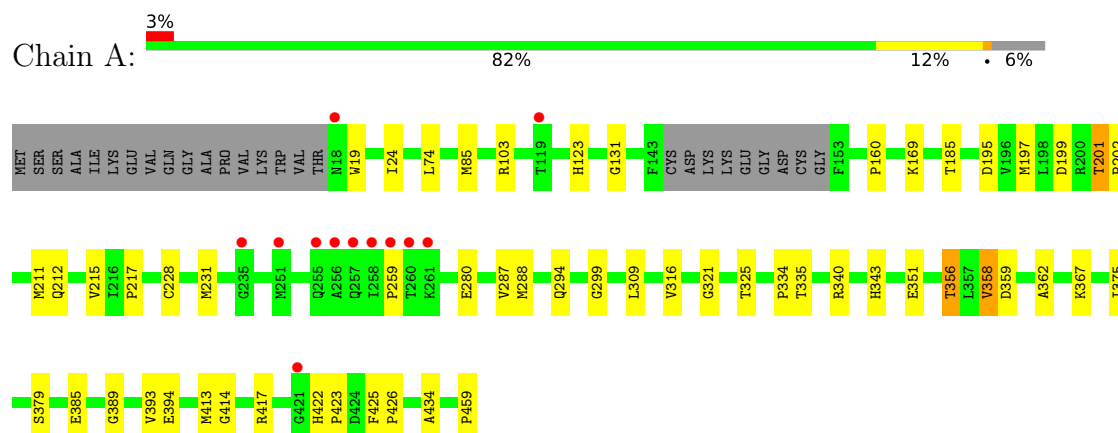
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	P	35	Total 35	O 35	0	0
5	Q	42	Total 42	O 42	0	0
5	R	24	Total 24	O 24	0	0
5	S	34	Total 34	O 34	0	0
5	T	23	Total 23	O 23	0	0
5	U	22	Total 22	O 22	0	0
5	V	15	Total 15	O 15	0	0
5	W	22	Total 22	O 22	0	0
5	X	22	Total 22	O 22	0	0

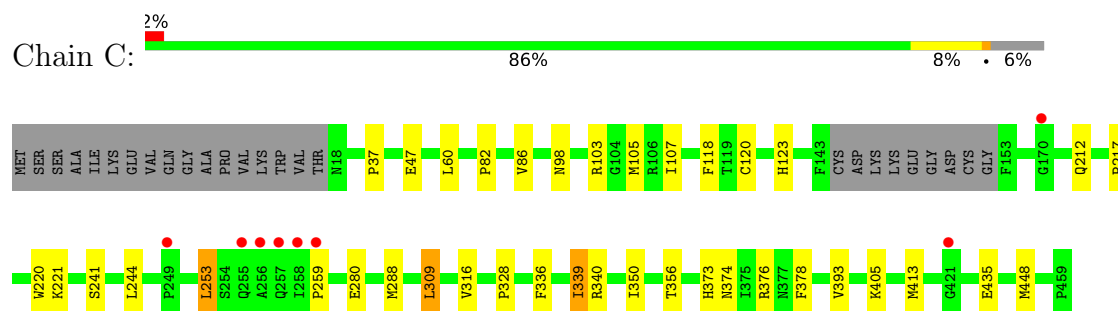
3 Residue-property plots [i](#)

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.

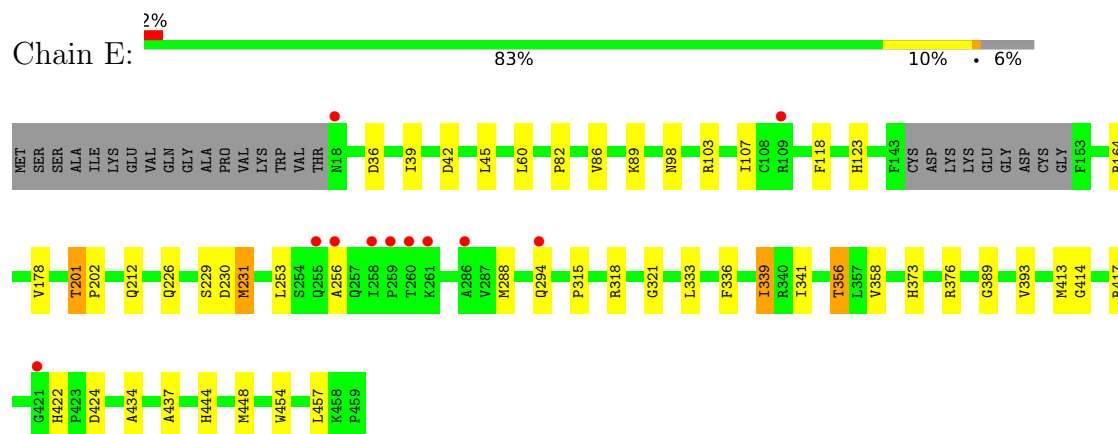
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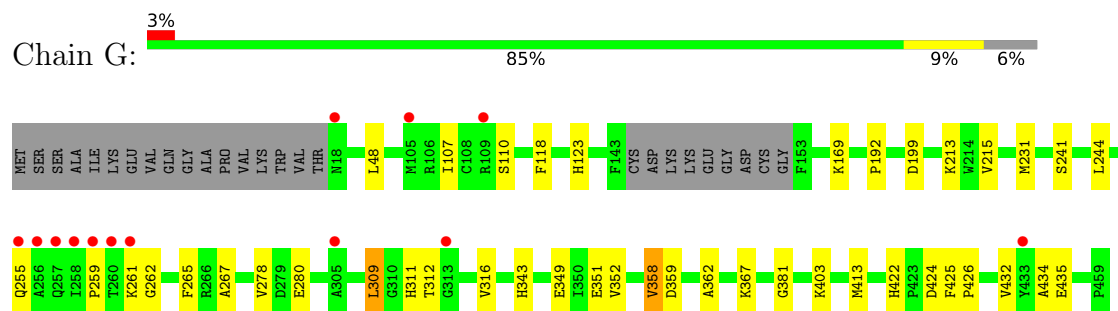
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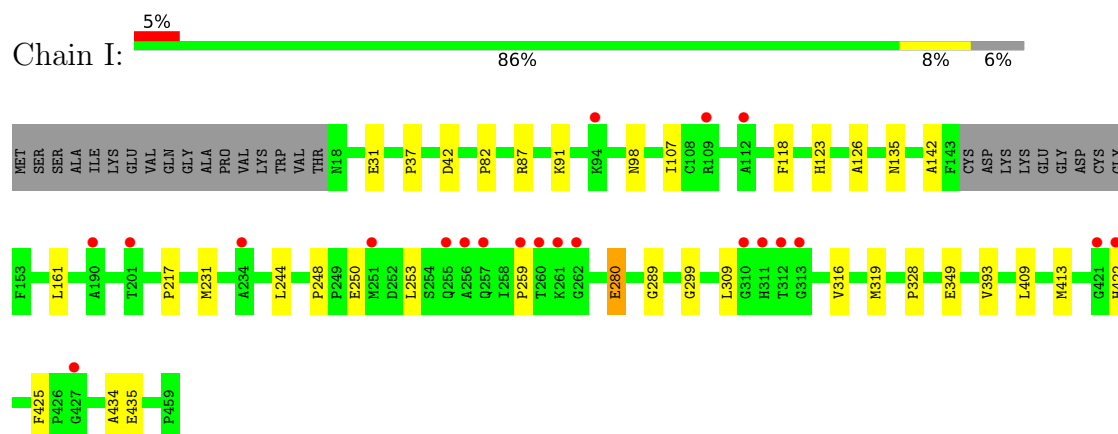
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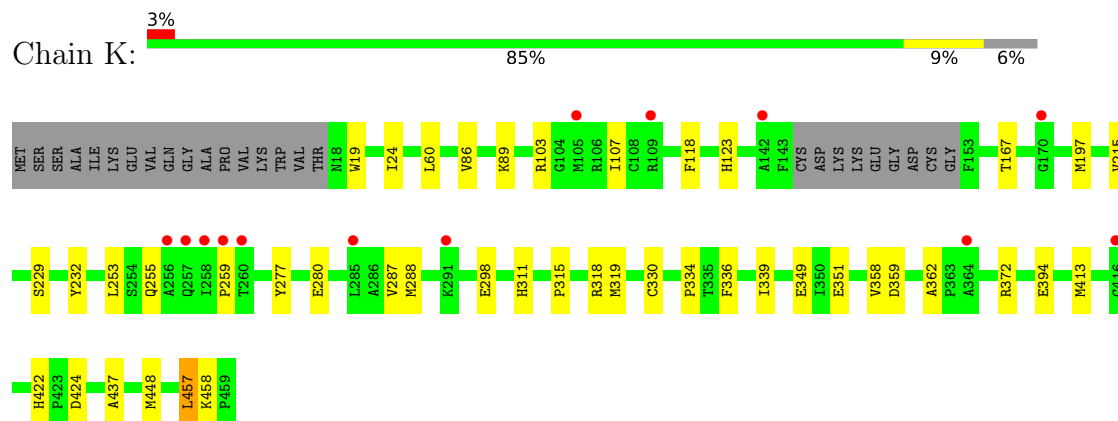
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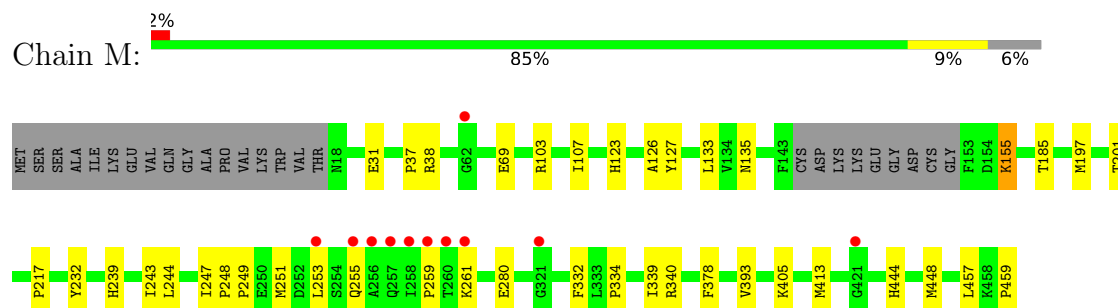
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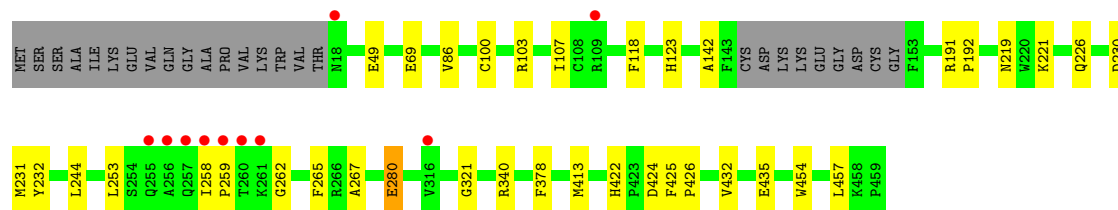
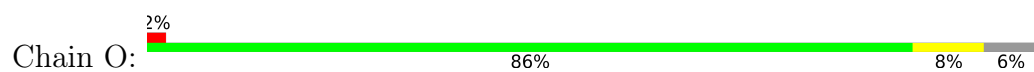
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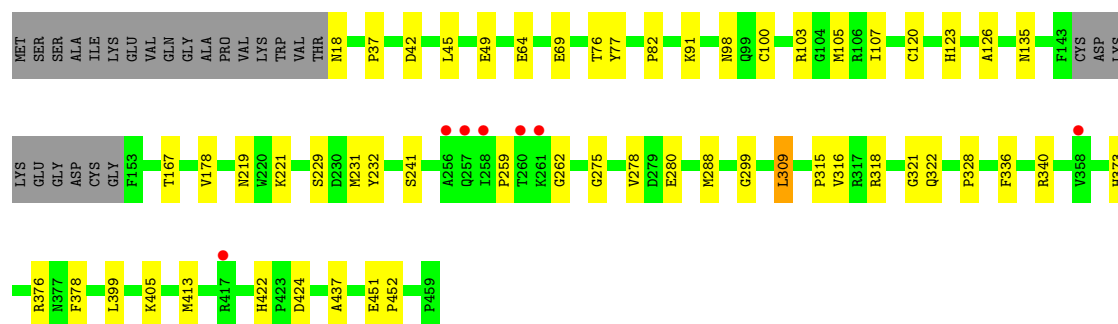
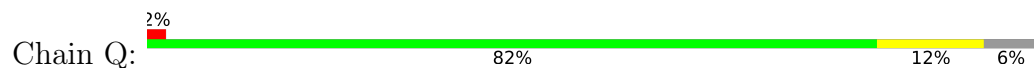
- Molecule 1: BIPHENYL DIOXYGENASE SUBUNIT ALPHA



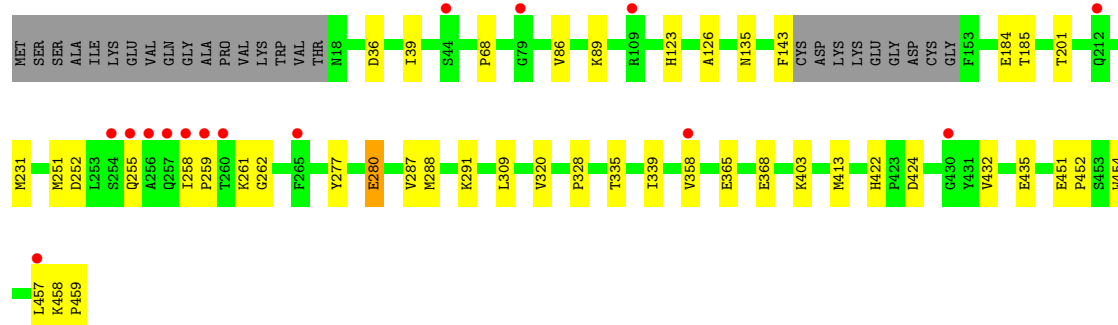
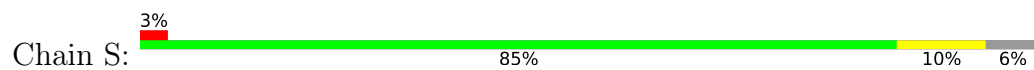
- Molecule 1: BIPHENYL DIOXYGENASE SUBUNIT ALPHA



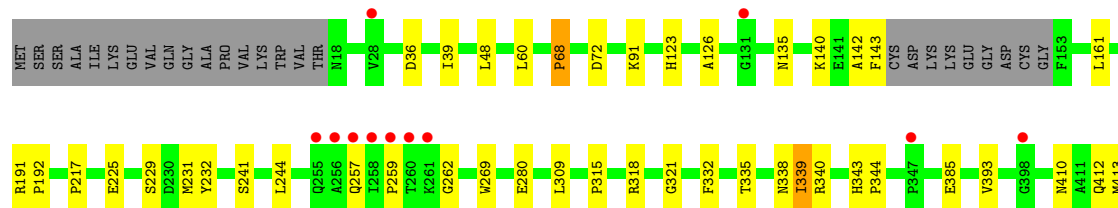
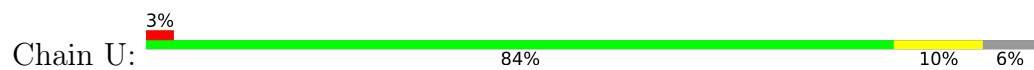
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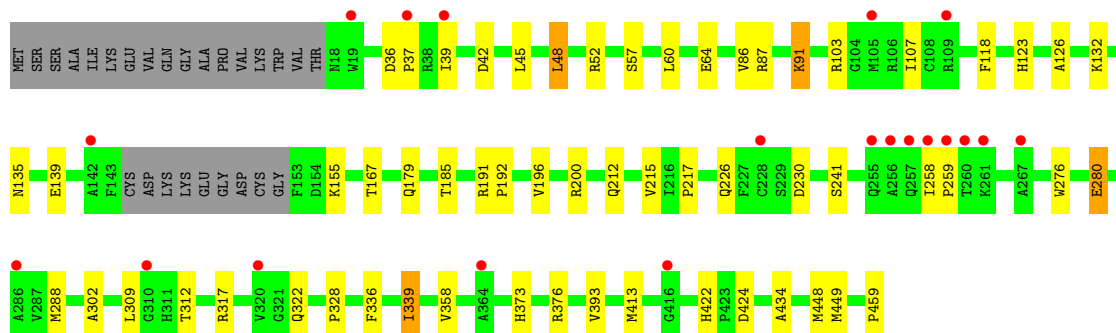
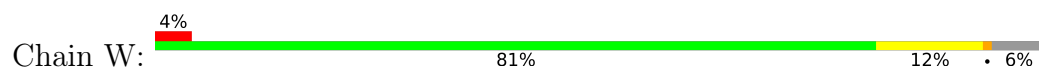


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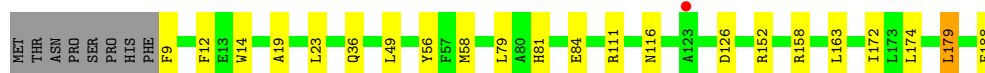
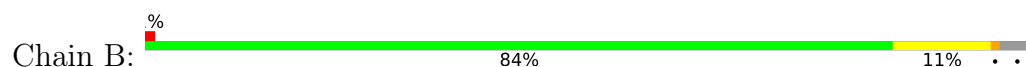




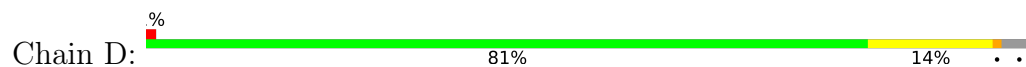
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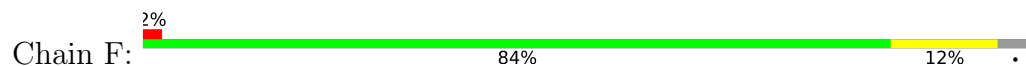
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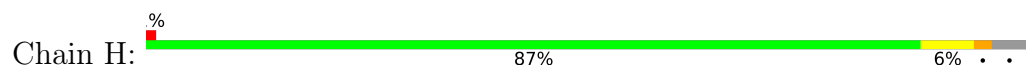
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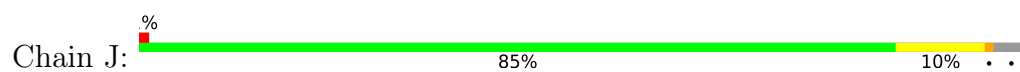
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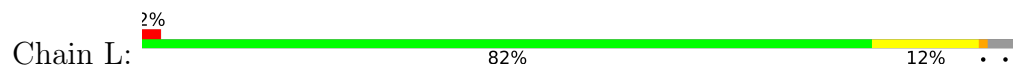
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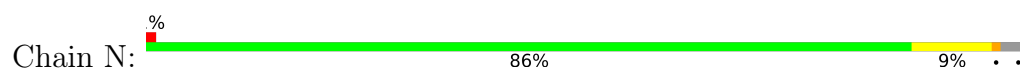
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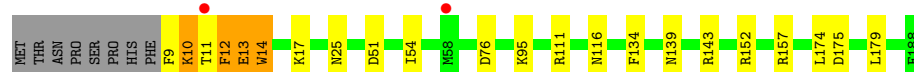
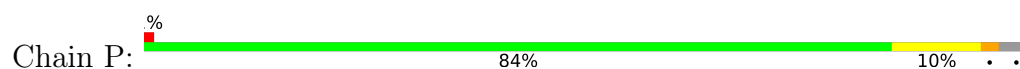
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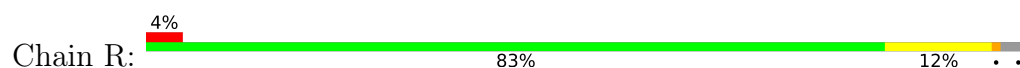
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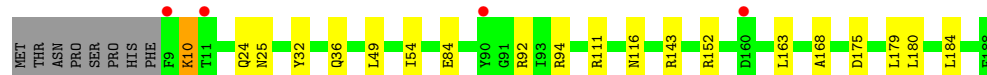
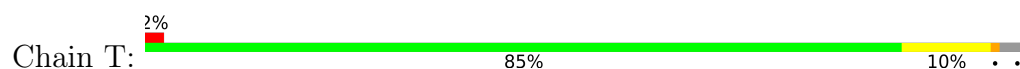
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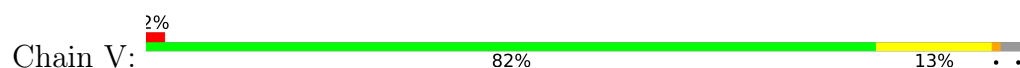
• Molecule 2: BIPHENYL DIOXYGENASE SUBUNIT BETA



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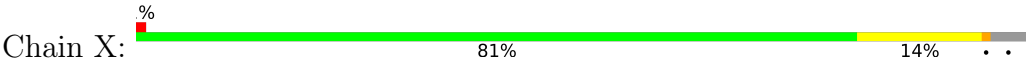


• Molecule 2: BIPHENYL DIOXYGENASE SUBUNIT BETA





● Molecule 2: BIPHENYL DIOXYGENASE SUBUNIT BETA



4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	132.59Å 132.35Å 132.98Å 102.60° 102.68° 104.61°	Depositor
Resolution (Å)	129.10 – 2.49 124.18 – 2.49	Depositor EDS
% Data completeness (in resolution range)	89.3 (129.10-2.49) 65.0 (124.18-2.49)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.49 (at 2.50Å)	Xtriage
Refinement program	REFMAC 5.2.0019	Depositor
R, R_{free}	0.216 , 0.267 0.229 , 0.270	Depositor DCC
R_{free} test set	514 reflections (0.26%)	wwPDB-VP
Wilson B-factor (Å ²)	36.0	Xtriage
Anisotropy	0.139	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.38 , 36.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	0.025 for l,h,k 0.025 for k,l,h 0.016 for -k,-h,-l 0.016 for -h,-l,-k 0.006 for -l,-k,-h	Xtriage
F_o, F_c correlation	0.91	EDS
Total number of atoms	59924	wwPDB-VP
Average B, all atoms (Å ²)	29.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.60% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: FE2, FES

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	0.43	0/3539	0.77	2/4804 (0.0%)
1	C	0.44	0/3539	0.78	0/4804
1	E	0.45	0/3539	0.77	3/4804 (0.1%)
1	G	0.44	0/3539	0.76	1/4804 (0.0%)
1	I	0.44	0/3539	0.77	7/4804 (0.1%)
1	K	0.43	0/3539	0.76	0/4804
1	M	0.44	0/3535	0.78	0/4799
1	O	0.45	0/3535	0.79	0/4799
1	Q	0.45	0/3535	0.78	2/4799 (0.0%)
1	S	0.45	0/3539	0.77	1/4804 (0.0%)
1	U	0.46	0/3539	0.78	0/4804
1	W	0.44	0/3539	0.77	0/4804
2	B	0.43	0/1530	0.70	0/2068
2	D	0.43	0/1530	0.72	0/2068
2	F	0.41	0/1530	0.69	0/2068
2	H	0.41	0/1530	0.71	0/2068
2	J	0.42	0/1530	0.72	0/2068
2	L	0.41	0/1530	0.70	0/2068
2	N	0.42	0/1530	0.73	0/2068
2	P	0.43	0/1530	0.74	2/2068 (0.1%)
2	R	0.42	0/1530	0.69	0/2068
2	T	0.42	0/1530	0.70	0/2068
2	V	0.44	0/1530	0.72	0/2068
2	X	0.42	0/1530	0.70	0/2068
All	All	0.44	0/60816	0.76	18/82449 (0.0%)

There are no bond length outliers.

All (18) bond angle outliers are listed below:

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	299	GLY	CA-C-N	6.11	125.32	118.97
1	A	299	GLY	C-N-CA	6.11	125.32	118.97
1	Q	299	GLY	CA-C-N	5.83	125.04	118.97
1	Q	299	GLY	C-N-CA	5.83	125.04	118.97
1	I	248	PRO	CA-C-N	5.59	125.96	119.47
1	I	248	PRO	C-N-CA	5.59	125.96	119.47
1	G	231	MET	N-CA-C	-5.54	106.69	113.50
1	I	289	GLY	CA-C-N	5.53	124.72	118.97
1	I	289	GLY	C-N-CA	5.53	124.72	118.97
1	E	231	MET	N-CA-C	-5.36	106.90	113.50
1	I	231	MET	N-CA-C	-5.27	107.02	113.50
1	I	299	GLY	CA-C-N	5.24	124.56	118.85
1	I	299	GLY	C-N-CA	5.24	124.56	118.85
2	P	12	PHE	N-CA-C	5.19	121.86	110.80
1	E	333	LEU	CA-C-N	5.09	125.13	119.32
1	E	333	LEU	C-N-CA	5.09	125.13	119.32
2	P	13	GLU	N-CA-C	5.08	116.81	111.28
1	S	231	MET	N-CA-C	-5.01	107.30	113.41

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	3436	0	3289	33	0
1	C	3436	0	3289	20	0
1	E	3436	0	3289	25	0
1	G	3436	0	3289	25	0
1	I	3436	0	3289	17	0
1	K	3436	0	3289	23	0
1	M	3432	0	3283	23	0
1	O	3432	0	3283	23	0
1	Q	3432	0	3283	28	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	S	3436	0	3289	20	0
1	U	3436	0	3289	26	0
1	W	3436	0	3289	31	0
2	B	1496	0	1447	18	0
2	D	1496	0	1447	18	0
2	F	1496	0	1447	18	0
2	H	1496	0	1447	13	0
2	J	1496	0	1447	14	0
2	L	1496	0	1447	18	0
2	N	1496	0	1447	10	0
2	P	1496	0	1447	12	0
2	R	1496	0	1447	14	0
2	T	1496	0	1447	13	0
2	V	1496	0	1447	18	0
2	X	1496	0	1447	19	0
3	A	4	0	0	1	0
3	C	4	0	0	1	0
3	E	4	0	0	1	0
3	G	4	0	0	1	0
3	I	4	0	0	1	0
3	K	4	0	0	1	0
3	M	4	0	0	1	0
3	O	4	0	0	1	0
3	Q	4	0	0	1	0
3	S	4	0	0	1	0
3	U	4	0	0	1	0
3	W	4	0	0	1	0
4	A	1	0	0	0	0
4	C	1	0	0	0	0
4	E	1	0	0	0	0
4	G	1	0	0	0	0
4	I	1	0	0	0	0
4	K	1	0	0	0	0
4	M	1	0	0	0	0
4	O	1	0	0	0	0
4	Q	1	0	0	0	0
4	S	1	0	0	0	0
4	U	1	0	0	0	0
4	W	1	0	0	0	0
5	A	44	0	0	1	0
5	B	26	0	0	1	0
5	C	28	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	D	24	0	0	0	0
5	E	35	0	0	0	0
5	F	19	0	0	1	0
5	G	23	0	0	1	0
5	H	14	0	0	0	0
5	I	23	0	0	0	0
5	J	14	0	0	0	0
5	K	49	0	0	2	0
5	L	16	0	0	0	0
5	M	49	0	0	0	0
5	N	31	0	0	0	0
5	O	58	0	0	0	0
5	P	35	0	0	0	0
5	Q	42	0	0	0	0
5	R	24	0	0	0	0
5	S	34	0	0	1	0
5	T	23	0	0	0	0
5	U	22	0	0	0	0
5	V	15	0	0	0	0
5	W	22	0	0	1	0
5	X	22	0	0	0	0
All	All	59924	0	56814	405	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 3.

All (405) 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:O:259:PRO:HB3	1:O:280:GLU:HG2	1.53	0.89
1:A:259:PRO:HB3	1:A:280:GLU:HG2	1.55	0.86
1:I:123:HIS:HB2	3:I:900:FES:S2	2.17	0.84
1:C:259:PRO:HB3	1:C:280:GLU:HG2	1.58	0.83
1:K:259:PRO:HB3	1:K:280:GLU:HG2	1.60	0.82
1:M:448:MET:HE2	1:M:457:LEU:HD22	1.61	0.81
1:U:259:PRO:HB3	1:U:280:GLU:HG2	1.65	0.79
1:W:123:HIS:HB2	3:W:900:FES:S2	2.23	0.78
2:P:11:THR:O	2:P:13:GLU:N	2.17	0.78
2:R:58:MET:HE3	2:R:174:LEU:HD22	1.68	0.76
1:E:123:HIS:HB2	3:E:900:FES:S2	2.27	0.75
1:W:259:PRO:HB3	1:W:280:GLU:HG2	1.66	0.75

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:R:58:MET:CE	2:R:174:LEU:HD22	2.19	0.73
1:G:123:HIS:HB2	3:G:900:FES:S2	2.29	0.73
1:E:448:MET:HE2	1:E:457:LEU:HD22	1.71	0.72
1:O:100:CYS:HB2	1:O:107:ILE:HD11	1.71	0.70
1:M:259:PRO:HB3	1:M:280:GLU:HG2	1.73	0.70
1:C:373:HIS:HD2	1:C:376:ARG:HE	1.39	0.69
2:N:24:GLN:HG2	2:R:25:ASN:HD21	1.59	0.68
1:W:288:MET:HE3	1:W:336:PHE:HB3	1.75	0.67
1:K:123:HIS:HB2	3:K:900:FES:S2	2.34	0.67
1:E:288:MET:HE3	1:E:336:PHE:HB3	1.76	0.67
1:O:123:HIS:HB2	3:O:900:FES:S2	2.35	0.67
1:G:422:HIS:HD2	1:G:424:ASP:H	1.43	0.66
1:I:259:PRO:HB3	1:I:280:GLU:HG2	1.78	0.65
2:B:36:GLN:HE21	2:D:12:PHE:H	1.42	0.65
2:N:56:TYR:HB3	2:N:84:GLU:HB2	1.79	0.64
2:B:81:HIS:CE1	2:B:179:LEU:HD21	2.31	0.64
1:M:133:LEU:HG	1:M:155:LYS:HG2	1.79	0.64
1:A:294:GLN:HG2	5:A:2028:HOH:O	1.96	0.64
1:C:123:HIS:HB2	3:C:900:FES:S2	2.38	0.64
1:S:123:HIS:HB2	3:S:900:FES:S2	2.38	0.64
1:G:403:LYS:HE3	1:I:161:LEU:HD21	1.78	0.63
1:O:422:HIS:HD2	1:O:424:ASP:H	1.46	0.63
2:T:25:ASN:HD21	2:V:24:GLN:HG2	1.64	0.63
1:Q:422:HIS:HD2	1:Q:424:ASP:H	1.47	0.62
1:M:185:THR:HG22	1:M:459:PRO:HG2	1.82	0.61
1:M:123:HIS:HB2	3:M:900:FES:S2	2.39	0.61
1:Q:309:LEU:HD13	1:Q:316:VAL:HG21	1.82	0.61
1:Q:259:PRO:HB3	1:Q:280:GLU:HG2	1.83	0.61
1:A:413:MET:HG2	1:A:434:ALA:HA	1.83	0.60
1:M:251:MET:HE3	1:M:255:GLN:HB2	1.82	0.60
1:E:413:MET:HG2	1:E:434:ALA:HA	1.84	0.60
1:A:201:THR:HG22	1:A:202:PRO:HD2	1.84	0.60
2:T:49:LEU:HD21	2:T:163:LEU:HD13	1.84	0.60
1:E:201:THR:HG22	1:E:202:PRO:HD2	1.83	0.60
1:S:251:MET:O	2:T:94:ARG:NH2	2.34	0.59
1:M:126:ALA:HB3	1:M:135:ASN:HB3	1.85	0.59
1:S:126:ALA:HB3	1:S:135:ASN:HB3	1.84	0.59
2:D:9:PHE:O	2:D:10:LYS:HG2	2.03	0.59
2:B:9:PHE:HA	5:B:2002:HOH:O	2.01	0.59
1:M:244:LEU:HD13	1:M:253:LEU:HG	1.85	0.59
1:U:123:HIS:HB2	3:U:900:FES:S2	2.42	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:O:49:GLU:OE1	1:O:221:LYS:HE3	2.02	0.59
1:K:448:MET:HA	1:K:457:LEU:HD11	1.83	0.59
2:L:54:ILE:HA	2:L:168:ALA:O	2.03	0.59
2:N:26:GLU:OE1	2:N:158:ARG:NH2	2.36	0.58
1:W:373:HIS:HD2	1:W:376:ARG:HH21	1.52	0.58
1:U:60:LEU:HD22	1:U:339:ILE:HD11	1.86	0.58
2:D:36:GLN:NE2	2:F:12:PHE:H	2.01	0.58
1:U:91:LYS:HE2	1:U:91:LYS:HA	1.85	0.57
1:K:315:PRO:HB2	1:K:318:ARG:HG3	1.87	0.57
2:L:87:GLU:HG3	2:P:76:ASP:OD1	2.04	0.57
1:K:422:HIS:HD2	1:K:424:ASP:H	1.53	0.57
1:W:60:LEU:CD2	1:W:339:ILE:HD11	2.34	0.57
1:Q:288:MET:HE3	1:Q:336:PHE:HB3	1.85	0.57
1:Q:123:HIS:HB2	3:Q:900:FES:S2	2.45	0.57
2:T:36:GLN:HE21	2:V:12:PHE:H	1.50	0.56
1:Q:229:SER:HB2	1:Q:437:ALA:HB3	1.87	0.56
1:Q:100:CYS:HB2	1:Q:107:ILE:HD11	1.88	0.56
2:J:172:ILE:HD13	2:J:188:PHE:HB2	1.87	0.55
1:K:287:VAL:HG12	1:K:288:MET:HE2	1.88	0.55
1:O:413:MET:HE3	1:O:435:GLU:HG3	1.88	0.55
2:B:14:TRP:CE2	2:F:33:ARG:HD3	2.41	0.55
2:B:36:GLN:NE2	2:D:12:PHE:H	2.04	0.55
1:S:287:VAL:HG12	1:S:288:MET:HE3	1.89	0.55
1:A:123:HIS:HB2	3:A:900:FES:S2	2.47	0.55
1:K:422:HIS:CD2	1:K:424:ASP:H	2.24	0.55
1:G:413:MET:HG3	1:I:142:ALA:HB1	1.89	0.54
2:N:111:ARG:HB2	2:P:175:ASP:OD2	2.08	0.54
2:V:26:GLU:OE1	2:V:158:ARG:NH2	2.41	0.54
1:U:232:TYR:CE1	1:W:123:HIS:HB3	2.42	0.54
1:W:42:ASP:HB3	1:W:45:LEU:HB2	1.89	0.54
1:A:228:CYS:HB2	1:A:325:THR:HB	1.90	0.54
1:W:107:ILE:HG22	1:W:118:PHE:HB3	1.90	0.54
2:B:172:ILE:HD13	2:B:188:PHE:HB2	1.90	0.54
1:G:422:HIS:CD2	1:G:424:ASP:H	2.23	0.54
2:L:58:MET:CE	2:L:174:LEU:HD22	2.38	0.54
2:P:25:ASN:HD21	2:R:24:GLN:HG2	1.72	0.54
1:C:82:PRO:HB2	1:C:98:ASN:HB3	1.90	0.53
1:Q:126:ALA:HB3	1:Q:135:ASN:HB3	1.90	0.53
2:F:54:ILE:HA	2:F:168:ALA:O	2.08	0.53
1:M:244:LEU:HG	2:N:94:ARG:HG2	1.90	0.53
1:Q:82:PRO:HB2	1:Q:98:ASN:HB3	1.89	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:56:TYR:HB3	2:D:84:GLU:HB2	1.90	0.53
1:Q:241:SER:HB2	2:R:95:LYS:HG3	1.90	0.53
2:X:41:ARG:HE	2:X:107:PRO:HB2	1.73	0.53
2:D:36:GLN:HE21	2:F:12:PHE:H	1.55	0.53
1:M:239:HIS:O	1:M:243:ILE:HG12	2.08	0.53
1:C:241:SER:HB2	2:D:95:LYS:HG2	1.91	0.53
2:J:32:TYR:CD1	2:L:116:ASN:HA	2.43	0.53
2:T:111:ARG:HB2	2:V:175:ASP:OD2	2.09	0.53
1:O:107:ILE:HG22	1:O:118:PHE:HB3	1.91	0.53
2:J:111:ARG:HB2	2:L:175:ASP:OD2	2.09	0.52
1:K:253:LEU:HB3	2:P:10:LYS:HB2	1.91	0.52
1:W:413:MET:HB3	1:W:434:ALA:HA	1.91	0.52
2:H:25:ASN:HD21	2:J:24:GLN:HG2	1.73	0.52
1:I:87:ARG:HD2	1:I:91:LYS:HD3	1.90	0.52
1:E:60:LEU:HD23	1:E:341:ILE:HG12	1.91	0.52
2:L:81:HIS:CE1	2:L:179:LEU:HD21	2.43	0.52
1:W:422:HIS:HD2	1:W:424:ASP:H	1.56	0.52
1:E:356:THR:HG23	2:F:79:LEU:HD11	1.92	0.52
1:M:340:ARG:HH21	1:M:378:PHE:HB3	1.73	0.52
1:U:315:PRO:HB2	1:U:318:ARG:HG3	1.91	0.51
2:D:90:TYR:CE2	2:D:94:ARG:HD2	2.45	0.51
1:E:454:TRP:HA	1:E:457:LEU:HB2	1.90	0.51
1:W:48:LEU:HD23	1:W:52:ARG:HG3	1.91	0.51
2:T:175:ASP:OD2	2:X:111:ARG:HB2	2.10	0.51
1:I:316:VAL:HA	1:I:319:MET:HG2	1.92	0.51
1:A:309:LEU:HD13	1:A:316:VAL:HG11	1.93	0.51
1:W:191:ARG:N	1:W:192:PRO:HD2	2.25	0.51
2:B:116:ASN:HA	2:F:32:TYR:CD1	2.45	0.51
2:B:126:ASP:HB3	2:B:158:ARG:HB2	1.90	0.51
1:E:42:ASP:HB3	1:E:45:LEU:HB2	1.93	0.51
1:M:37:PRO:HG2	1:M:405:LYS:HA	1.93	0.51
1:Q:373:HIS:HD2	1:Q:376:ARG:HE	1.58	0.51
1:S:403:LYS:HE3	1:U:161:LEU:HD21	1.92	0.51
2:H:33:ARG:HG2	2:J:14:TRP:CE2	2.46	0.51
1:I:244:LEU:HD13	1:I:253:LEU:HG	1.93	0.51
1:E:164:ARG:HD2	1:E:178:VAL:HA	1.93	0.50
1:G:107:ILE:HG22	1:G:118:PHE:HB3	1.92	0.50
1:A:231:MET:HE1	1:A:321:GLY:O	2.11	0.50
1:E:231:MET:HE1	1:E:321:GLY:O	2.10	0.50
1:C:107:ILE:HG22	1:C:118:PHE:HB3	1.92	0.50
1:W:126:ALA:HB3	1:W:135:ASN:HB3	1.92	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:U:191:ARG:N	1:U:192:PRO:HD2	2.27	0.50
1:Q:49:GLU:OE1	1:Q:221:LYS:HE3	2.12	0.50
1:C:413:MET:HE2	1:C:435:GLU:HG3	1.93	0.50
1:S:36:ASP:O	1:S:39:ILE:HG12	2.11	0.50
1:U:244:LEU:HG	2:V:94:ARG:HG2	1.92	0.50
1:I:422:HIS:HD2	1:I:425:PHE:H	1.59	0.50
1:C:60:LEU:CD2	1:C:339:ILE:HD11	2.42	0.50
1:U:217:PRO:HD2	1:U:393:VAL:HG22	1.93	0.50
2:V:9:PHE:O	2:V:10:LYS:HB3	2.11	0.50
1:A:389:GLY:O	1:A:393:VAL:HG23	2.12	0.49
2:R:11:THR:C	2:R:13:GLU:H	2.20	0.49
1:O:100:CYS:CB	1:O:107:ILE:HD11	2.42	0.49
1:O:340:ARG:HH21	1:O:378:PHE:HB3	1.77	0.49
1:S:185:THR:HG22	1:S:459:PRO:HG2	1.93	0.49
1:G:309:LEU:HD13	1:G:316:VAL:HG11	1.94	0.49
1:G:413:MET:HG2	1:G:434:ALA:HA	1.94	0.49
1:C:244:LEU:HD12	1:C:253:LEU:HD12	1.94	0.49
1:E:229:SER:HB2	1:E:437:ALA:HB3	1.95	0.49
1:I:217:PRO:HD2	1:I:393:VAL:HG22	1.94	0.49
1:M:38:ARG:HG2	1:M:405:LYS:HD2	1.94	0.49
1:U:229:SER:OG	1:U:438:ALA:HB2	2.13	0.49
2:J:143:ARG:NH2	1:K:349:GLU:OE2	2.46	0.49
1:O:231:MET:HE1	1:O:321:GLY:O	2.12	0.49
2:X:54:ILE:HA	2:X:168:ALA:O	2.12	0.49
2:P:111:ARG:HB2	2:R:175:ASP:OD2	2.13	0.49
2:V:54:ILE:HA	2:V:168:ALA:O	2.12	0.48
1:E:414:GLY:HA2	1:E:417:ARG:HD2	1.93	0.48
1:G:259:PRO:HB3	1:G:280:GLU:HG2	1.94	0.48
1:I:309:LEU:HD13	1:I:316:VAL:HG11	1.95	0.48
1:W:185:THR:HG22	1:W:459:PRO:HG2	1.95	0.48
2:F:56:TYR:HB3	2:F:84:GLU:HB2	1.96	0.48
2:N:13:GLU:O	2:N:14:TRP:HB2	2.13	0.48
1:S:143:PHE:HA	5:W:2020:HOH:O	2.13	0.48
2:X:56:TYR:HB3	2:X:84:GLU:HB2	1.95	0.48
1:K:288:MET:HE3	1:K:336:PHE:HB3	1.96	0.48
2:T:84:GLU:CD	2:T:92:ARG:HE	2.21	0.48
1:W:217:PRO:HG2	1:W:393:VAL:HG22	1.95	0.48
1:Q:64:GLU:OE2	1:Q:167:THR:HG21	2.13	0.48
1:C:309:LEU:HD13	1:C:316:VAL:HG11	1.95	0.48
1:E:82:PRO:HB2	1:E:98:ASN:HB3	1.96	0.48
1:M:413:MET:HG2	1:O:142:ALA:HB1	1.95	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:Q:399:LEU:O	1:Q:405:LYS:HE3	2.15	0.47
1:A:131:GLY:O	1:A:160:PRO:HD2	2.13	0.47
1:A:359:ASP:HB2	1:A:362:ALA:HB2	1.96	0.47
1:E:60:LEU:CD2	1:E:339:ILE:HD11	2.44	0.47
1:O:422:HIS:CD2	1:O:424:ASP:H	2.28	0.47
2:B:111:ARG:HB2	2:D:175:ASP:OD2	2.14	0.47
1:G:213:LYS:HA	1:G:352:VAL:O	2.15	0.47
2:L:35:ALA:HB1	2:L:112:HIS:HB2	1.96	0.47
1:S:184:GLU:HG2	5:S:2010:HOH:O	2.14	0.47
1:A:169:LYS:HE2	1:A:199:ASP:CG	2.39	0.47
1:A:217:PRO:HD2	1:A:393:VAL:HG22	1.97	0.47
1:G:343:HIS:HB2	1:G:351:GLU:HB2	1.96	0.47
2:N:32:TYR:CD1	2:P:116:ASN:HA	2.49	0.47
1:A:185:THR:HG22	1:A:459:PRO:HG2	1.96	0.47
2:T:179:LEU:HD21	2:T:184:LEU:HD11	1.96	0.47
1:C:356:THR:HG21	1:C:374:ASN:HB3	1.97	0.47
2:J:25:ASN:HD21	2:L:24:GLN:HG2	1.80	0.47
1:O:219:ASN:OD1	1:O:221:LYS:NZ	2.48	0.47
2:B:58:MET:CE	2:B:174:LEU:HD22	2.45	0.47
1:Q:219:ASN:OD1	1:Q:221:LYS:NZ	2.47	0.47
1:W:212:GLN:HG2	2:X:60:LEU:HD21	1.96	0.47
2:H:32:TYR:CD1	2:J:116:ASN:HA	2.49	0.46
1:I:413:MET:HE2	1:I:435:GLU:HG3	1.96	0.46
1:O:100:CYS:HB2	1:O:107:ILE:CD1	2.44	0.46
1:K:229:SER:HB2	1:K:437:ALA:HB3	1.98	0.46
1:Q:42:ASP:HB3	1:Q:45:LEU:HB2	1.96	0.46
1:I:126:ALA:HB3	1:I:135:ASN:HB3	1.98	0.46
1:Q:100:CYS:CB	1:Q:107:ILE:HD11	2.45	0.46
2:B:12:PHE:H	2:F:36:GLN:HE21	1.62	0.46
1:O:244:LEU:HD13	1:O:253:LEU:HG	1.97	0.46
1:C:288:MET:HE3	1:C:336:PHE:HB3	1.97	0.46
2:T:32:TYR:CD1	2:V:116:ASN:HA	2.50	0.46
1:U:338:ASN:OD1	1:U:340:ARG:HD3	2.16	0.46
1:A:287:VAL:HG12	1:A:288:MET:CE	2.46	0.46
1:E:226:GLN:HA	1:E:230:ASP:HB3	1.96	0.46
1:E:373:HIS:HD2	1:E:376:ARG:HH21	1.63	0.46
1:G:425:PHE:HA	1:G:426:PRO:HD3	1.79	0.46
1:Q:232:TYR:CE1	1:Q:413:MET:HE1	2.51	0.46
1:W:60:LEU:HD22	1:W:339:ILE:HD11	1.97	0.46
1:M:332:PHE:HB3	1:M:339:ILE:HD13	1.96	0.46
2:B:58:MET:HE3	2:B:174:LEU:HD22	1.97	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:356:THR:HG23	2:D:79:LEU:HD11	1.98	0.46
2:L:58:MET:HE3	2:L:174:LEU:HD22	1.98	0.46
2:N:32:TYR:CG	2:P:116:ASN:HA	2.51	0.46
2:N:175:ASP:OD2	2:R:111:ARG:HB2	2.16	0.46
2:V:36:GLN:NE2	2:X:12:PHE:H	2.14	0.45
2:P:51:ASP:OD2	2:P:157:ARG:NH1	2.50	0.45
1:Q:262:GLY:HA2	1:Q:278:VAL:HG23	1.99	0.45
1:A:358:VAL:HG11	1:A:367:LYS:HA	1.99	0.45
1:K:232:TYR:CD2	1:K:413:MET:HE1	2.51	0.45
2:L:58:MET:HE1	2:L:174:LEU:HD22	1.99	0.45
2:D:49:LEU:HD21	2:D:163:LEU:HD13	1.98	0.45
2:P:134:PHE:CD2	2:P:152:ARG:HD3	2.51	0.45
1:S:259:PRO:HB3	1:S:280:GLU:HG2	1.99	0.45
1:W:87:ARG:HD2	1:W:91:LYS:HE3	1.99	0.45
2:R:58:MET:HE1	2:R:174:LEU:HD22	1.94	0.45
1:E:107:ILE:HG22	1:E:118:PHE:HB3	1.98	0.45
1:Q:315:PRO:HB2	1:Q:318:ARG:HD3	1.97	0.45
1:U:340:ARG:HH22	1:U:385:GLU:CD	2.22	0.45
2:V:56:TYR:HB3	2:V:84:GLU:HB2	1.99	0.45
2:F:159:ALA:HB2	2:F:166:SER:HB2	1.99	0.44
1:G:241:SER:HB2	2:H:95:LYS:HG3	1.99	0.44
2:D:29:GLN:O	2:D:33:ARG:HG3	2.16	0.44
1:G:358:VAL:HG11	1:G:367:LYS:HA	1.98	0.44
1:Q:275:GLY:O	1:Q:322:GLN:HA	2.17	0.44
1:S:252:ASP:H	1:S:255:GLN:HE21	1.64	0.44
2:D:32:TYR:CD1	2:F:116:ASN:HA	2.51	0.44
1:S:454:TRP:HA	1:S:457:LEU:HB2	1.98	0.44
1:U:231:MET:HE1	1:U:321:GLY:O	2.17	0.44
1:A:287:VAL:HG12	1:A:288:MET:HE3	2.00	0.44
1:E:389:GLY:O	1:E:393:VAL:HG23	2.18	0.44
2:D:179:LEU:HD21	2:D:184:LEU:HD11	2.00	0.44
2:P:9:PHE:O	2:P:11:THR:N	2.51	0.44
2:V:93:ILE:HA	2:V:96:VAL:HG12	2.00	0.44
2:X:172:ILE:HD13	2:X:188:PHE:HB2	1.99	0.44
1:I:413:MET:HG2	1:I:434:ALA:HA	1.99	0.44
1:K:359:ASP:HB2	1:K:362:ALA:HB2	1.99	0.44
1:U:142:ALA:O	1:U:143:PHE:HB2	2.17	0.44
1:C:217:PRO:HG2	1:C:393:VAL:HG22	2.00	0.44
1:O:265:PHE:CZ	1:O:267:ALA:HA	2.53	0.44
1:C:37:PRO:HG2	1:C:405:LYS:HA	1.99	0.43
1:G:381:GLY:HA3	2:H:184:LEU:HB2	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:K:60:LEU:HD22	1:K:330:CYS:SG	2.58	0.43
2:L:134:PHE:CD2	2:L:152:ARG:HD3	2.52	0.43
2:V:36:GLN:HE21	2:X:12:PHE:H	1.65	0.43
1:A:375:ILE:O	1:A:379:SER:HB3	2.18	0.43
1:A:422:HIS:HD2	1:A:425:PHE:H	1.66	0.43
1:I:37:PRO:HG3	1:I:409:LEU:HG	2.00	0.43
1:K:448:MET:HG2	1:K:457:LEU:HD21	1.99	0.43
2:R:56:TYR:HB3	2:R:84:GLU:HB2	1.99	0.43
2:T:24:GLN:HG2	2:X:25:ASN:HD21	1.82	0.43
1:K:215:VAL:HG22	1:K:351:GLU:HG2	1.99	0.43
1:Q:340:ARG:HH21	1:Q:378:PHE:HB3	1.84	0.43
1:U:68:PRO:HD2	1:U:72:ASP:OD2	2.18	0.43
1:U:262:GLY:C	1:U:432:VAL:HB	2.43	0.43
1:A:340:ARG:HH12	1:A:385:GLU:CD	2.26	0.43
1:O:425:PHE:HA	1:O:426:PRO:HD3	1.90	0.43
2:F:58:MET:HE3	2:F:174:LEU:HD22	1.99	0.43
2:H:56:TYR:HB3	2:H:84:GLU:HB2	2.00	0.43
1:I:107:ILE:HG22	1:I:118:PHE:HB3	2.00	0.43
1:Q:231:MET:HE1	1:Q:321:GLY:O	2.18	0.43
1:S:251:MET:HE3	1:S:255:GLN:HG3	2.00	0.43
1:K:107:ILE:HG22	1:K:118:PHE:HB3	2.01	0.43
1:K:259:PRO:HB2	1:K:277:TYR:CE2	2.54	0.43
1:K:372:ARG:HD2	5:K:2037:HOH:O	2.18	0.43
1:U:410:ASN:ND2	1:U:412:GLN:H	2.16	0.43
2:X:162:ASN:H	2:X:162:ASN:HD22	1.66	0.43
1:G:359:ASP:HB2	1:G:362:ALA:HB2	2.00	0.43
2:H:143:ARG:NH2	1:I:349:GLU:OE2	2.51	0.43
1:S:277:TYR:HB2	1:S:320:VAL:HG23	2.01	0.43
1:G:349:GLU:OE2	2:L:143:ARG:NH2	2.51	0.43
1:Q:451:GLU:HA	1:Q:452:PRO:HD3	1.85	0.43
1:C:340:ARG:NH2	1:C:378:PHE:HB3	2.34	0.43
2:J:179:LEU:HD21	2:J:184:LEU:HD11	2.01	0.43
1:M:232:TYR:CE1	1:O:123:HIS:HB3	2.54	0.43
2:T:54:ILE:HA	2:T:168:ALA:O	2.19	0.43
2:V:111:ARG:HB2	2:X:175:ASP:OD2	2.18	0.43
2:J:155:VAL:HB	2:J:169:LYS:HB2	2.01	0.42
1:K:394:GLU:HG2	5:K:2043:HOH:O	2.17	0.42
2:L:56:TYR:HB3	2:L:84:GLU:HB2	2.00	0.42
2:N:106:PRO:HA	2:N:107:PRO:HD3	1.90	0.42
1:S:422:HIS:HD2	1:S:424:ASP:H	1.66	0.42
1:G:169:LYS:HE2	1:G:199:ASP:CG	2.44	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:244:LEU:HG	2:H:94:ARG:HG2	2.01	0.42
1:U:241:SER:HB2	2:V:95:LYS:HG3	1.99	0.42
1:W:241:SER:HB2	2:X:95:LYS:HG3	2.01	0.42
2:X:29:GLN:O	2:X:33:ARG:HG3	2.20	0.42
1:W:57:SER:HB3	1:W:328:PRO:HD3	1.99	0.42
1:A:212:GLN:HE21	1:A:212:GLN:HB2	1.68	0.42
1:A:425:PHE:HA	1:A:426:PRO:HD3	1.77	0.42
1:C:105:MET:HB3	1:C:120:CYS:SG	2.60	0.42
1:G:192:PRO:HB3	1:G:312:THR:HG21	2.00	0.42
1:M:197:MET:HB2	1:M:334:PRO:HB3	2.00	0.42
1:Q:422:HIS:CD2	1:Q:424:ASP:H	2.32	0.42
1:S:451:GLU:HA	1:S:452:PRO:HD3	1.84	0.42
1:U:269:TRP:CZ2	1:U:444:HIS:HE1	2.38	0.42
1:E:212:GLN:HE21	1:E:212:GLN:HB2	1.67	0.42
1:E:422:HIS:HD2	1:E:424:ASP:H	1.68	0.42
1:K:19:TRP:HB3	1:K:24:ILE:HD11	2.01	0.42
1:O:232:TYR:CD1	1:O:413:MET:HE1	2.55	0.42
2:R:106:PRO:HA	2:R:107:PRO:HD3	1.89	0.42
1:U:332:PHE:CE2	1:U:339:ILE:HD13	2.54	0.42
2:V:25:ASN:HD21	2:X:24:GLN:HG2	1.84	0.42
1:A:74:LEU:HD21	1:A:211:MET:HE1	2.01	0.42
1:C:212:GLN:HG2	2:D:60:LEU:HD21	2.01	0.42
2:F:9:PHE:HA	5:F:2001:HOH:O	2.19	0.42
1:W:64:GLU:OE2	1:W:167:THR:HG21	2.20	0.42
1:W:215:VAL:O	2:X:182:ASN:HA	2.19	0.42
2:D:35:ALA:HB1	2:D:112:HIS:HB2	2.01	0.42
1:O:191:ARG:N	1:O:192:PRO:HD2	2.34	0.42
2:P:139:ASN:OD1	2:R:176:ALA:HA	2.19	0.42
2:R:31:TYR:HB3	2:R:114:VAL:HG11	2.01	0.42
1:A:197:MET:HB2	1:A:334:PRO:HB3	2.01	0.42
1:A:343:HIS:HB2	1:A:351:GLU:HB2	2.01	0.42
1:C:356:THR:HG21	1:C:374:ASN:CB	2.50	0.42
2:L:49:LEU:HD21	2:L:163:LEU:HD13	2.00	0.42
2:R:14:TRP:O	2:R:15:PRO:C	2.62	0.42
1:W:276:TRP:HB3	1:W:322:GLN:HG3	2.01	0.42
1:A:195:ASP:HB3	1:A:309:LEU:HD21	2.02	0.42
2:H:36:GLN:NE2	2:J:12:PHE:H	2.18	0.42
2:H:113:LEU:HD22	2:J:135:ILE:HG13	2.02	0.42
1:K:277:TYR:O	1:K:319:MET:HA	2.19	0.42
2:T:116:ASN:HA	2:X:32:TYR:CG	2.55	0.42
2:X:60:LEU:H	2:X:74:SER:HB3	1.85	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:356:THR:HG21	2:B:79:LEU:HD21	2.02	0.42
1:U:126:ALA:HB3	1:U:135:ASN:HB3	2.02	0.42
1:U:422:HIS:HD2	1:U:424:ASP:H	1.68	0.42
1:G:265:PHE:CZ	1:G:267:ALA:HA	2.55	0.41
1:O:226:GLN:HA	1:O:230:ASP:HB3	2.02	0.41
2:B:49:LEU:HD11	2:B:163:LEU:HD22	2.02	0.41
1:G:262:GLY:HA2	1:G:278:VAL:HG23	2.02	0.41
1:U:343:HIS:HA	1:U:344:PRO:HD2	1.92	0.41
1:W:258:ILE:HA	1:W:259:PRO:HD3	1.90	0.41
1:E:315:PRO:HB2	1:E:318:ARG:HD3	2.02	0.41
1:W:36:ASP:HA	1:W:37:PRO:HD3	1.93	0.41
1:W:48:LEU:HB3	1:W:449:MET:HE1	2.01	0.41
2:J:36:GLN:HE21	2:L:12:PHE:H	1.68	0.41
1:W:139:GLU:OE1	1:W:155:LYS:HE3	2.21	0.41
2:B:56:TYR:HB3	2:B:84:GLU:HB2	2.03	0.41
1:M:107:ILE:HD12	1:M:127:TYR:CE1	2.56	0.41
1:O:454:TRP:HA	1:O:457:LEU:HB2	2.03	0.41
2:F:58:MET:CE	2:F:174:LEU:HD22	2.51	0.41
2:F:126:ASP:HB3	2:F:158:ARG:HB2	2.02	0.41
1:I:82:PRO:HB2	1:I:98:ASN:HB3	2.02	0.41
1:S:413:MET:HE2	1:S:435:GLU:HG3	2.03	0.41
1:W:36:ASP:O	1:W:39:ILE:HG12	2.20	0.41
2:D:111:ARG:HB2	2:F:175:ASP:OD2	2.20	0.41
1:E:60:LEU:HD22	1:E:339:ILE:HD11	2.01	0.41
1:M:217:PRO:HG2	1:M:393:VAL:HG22	2.03	0.41
1:Q:76:THR:OG1	1:Q:77:TYR:N	2.52	0.41
1:U:36:ASP:O	1:U:39:ILE:HG12	2.21	0.41
2:V:49:LEU:HD21	2:V:163:LEU:HD13	2.01	0.41
1:G:262:GLY:C	1:G:432:VAL:HB	2.46	0.41
1:Q:105:MET:HB3	1:Q:120:CYS:SG	2.60	0.41
1:S:259:PRO:HB2	1:S:277:TYR:CE2	2.56	0.41
1:W:196:VAL:O	1:W:200:ARG:HD3	2.21	0.41
1:W:302:ALA:HB1	1:W:317:ARG:HG2	2.01	0.41
2:X:179:LEU:HD21	2:X:184:LEU:HD11	2.03	0.41
1:C:220:TRP:HA	1:C:350:ILE:HG21	2.02	0.41
2:F:29:GLN:O	2:F:33:ARG:HG3	2.20	0.41
1:G:311:HIS:HB2	5:G:2017:HOH:O	2.20	0.41
2:H:29:GLN:O	2:H:33:ARG:HD3	2.20	0.41
1:K:197:MET:HB2	1:K:334:PRO:HB3	2.03	0.41
1:M:261:LYS:HD3	1:M:261:LYS:HA	1.90	0.41
1:O:262:GLY:C	1:O:432:VAL:HB	2.46	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:T:32:TYR:CG	2:V:116:ASN:HA	2.56	0.41
2:V:32:TYR:CD1	2:X:116:ASN:HA	2.56	0.41
1:A:414:GLY:HA2	1:A:417:ARG:HD2	2.03	0.40
1:A:422:HIS:HA	1:A:423:PRO:HD3	1.95	0.40
2:B:19:ALA:HB1	2:B:23:LEU:HD23	2.03	0.40
2:D:36:GLN:HB3	2:F:11:THR:HG23	2.03	0.40
1:E:444:HIS:CE1	1:E:448:MET:HE3	2.56	0.40
2:H:116:ASN:HA	2:L:32:TYR:CD1	2.56	0.40
1:Q:37:PRO:HG2	1:Q:405:LYS:HA	2.03	0.40
1:A:19:TRP:HB3	1:A:24:ILE:HD11	2.03	0.40
1:A:356:THR:CG2	2:B:79:LEU:HD21	2.52	0.40
1:M:248:PRO:HA	1:M:249:PRO:HD3	1.87	0.40
1:M:444:HIS:CE1	1:M:448:MET:HE3	2.56	0.40
1:G:215:VAL:HG21	2:L:143:ARG:NH1	2.37	0.40
2:H:135:ILE:HD12	2:L:113:LEU:HD22	2.04	0.40
1:S:258:ILE:HA	1:S:259:PRO:HD3	1.96	0.40
1:U:232:TYR:CE1	1:U:413:MET:HE1	2.56	0.40
1:A:215:VAL:HG21	2:F:143:ARG:HD3	2.04	0.40
1:A:356:THR:HG22	2:B:79:LEU:HD11	2.02	0.40
1:S:262:GLY:C	1:S:432:VAL:HB	2.46	0.40
1:W:226:GLN:HA	1:W:230:ASP:HB3	2.03	0.40
1:E:36:ASP:O	1:E:39:ILE:HG12	2.22	0.40
2:J:148:PHE:HB3	2:J:174:LEU:HD11	2.04	0.40
1:M:247:ILE:HD12	1:M:251:MET:HG3	2.04	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	429/459 (94%)	415 (97%)	14 (3%)	0	100 100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	C	429/459 (94%)	417 (97%)	11 (3%)	1 (0%)	43	63
1	E	429/459 (94%)	410 (96%)	18 (4%)	1 (0%)	43	63
1	G	429/459 (94%)	418 (97%)	11 (3%)	0	100	100
1	I	429/459 (94%)	410 (96%)	18 (4%)	1 (0%)	43	63
1	K	429/459 (94%)	414 (96%)	15 (4%)	0	100	100
1	M	429/459 (94%)	418 (97%)	11 (3%)	0	100	100
1	O	429/459 (94%)	412 (96%)	17 (4%)	0	100	100
1	Q	429/459 (94%)	420 (98%)	8 (2%)	1 (0%)	43	63
1	S	429/459 (94%)	415 (97%)	12 (3%)	2 (0%)	24	43
1	U	429/459 (94%)	411 (96%)	17 (4%)	1 (0%)	43	63
1	W	429/459 (94%)	408 (95%)	21 (5%)	0	100	100
2	B	178/188 (95%)	170 (96%)	8 (4%)	0	100	100
2	D	178/188 (95%)	172 (97%)	6 (3%)	0	100	100
2	F	178/188 (95%)	172 (97%)	6 (3%)	0	100	100
2	H	178/188 (95%)	170 (96%)	8 (4%)	0	100	100
2	J	178/188 (95%)	171 (96%)	7 (4%)	0	100	100
2	L	178/188 (95%)	171 (96%)	7 (4%)	0	100	100
2	N	178/188 (95%)	173 (97%)	4 (2%)	1 (1%)	21	38
2	P	178/188 (95%)	167 (94%)	8 (4%)	3 (2%)	7	13
2	R	178/188 (95%)	167 (94%)	9 (5%)	2 (1%)	11	22
2	T	178/188 (95%)	172 (97%)	5 (3%)	1 (1%)	21	38
2	V	178/188 (95%)	170 (96%)	8 (4%)	0	100	100
2	X	178/188 (95%)	170 (96%)	8 (4%)	0	100	100
All	All	7284/7764 (94%)	7013 (96%)	257 (4%)	14 (0%)	43	63

All (14) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	E	256	ALA
2	P	12	PHE
2	P	10	LYS
2	R	12	PHE
2	R	15	PRO
2	T	10	LYS

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Mol	Chain	Res	Type
2	N	14	TRP
2	P	14	TRP
1	S	68	PRO
1	U	68	PRO
1	C	328	PRO
1	I	328	PRO
1	S	328	PRO
1	Q	328	PRO

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	352/373 (94%)	345 (98%)	7 (2%)	48	75
1	C	352/373 (94%)	344 (98%)	8 (2%)	44	72
1	E	352/373 (94%)	343 (97%)	9 (3%)	40	68
1	G	352/373 (94%)	345 (98%)	7 (2%)	48	75
1	I	352/373 (94%)	348 (99%)	4 (1%)	65	84
1	K	352/373 (94%)	341 (97%)	11 (3%)	35	62
1	M	351/373 (94%)	346 (99%)	5 (1%)	59	81
1	O	351/373 (94%)	346 (99%)	5 (1%)	59	81
1	Q	351/373 (94%)	345 (98%)	6 (2%)	53	78
1	S	352/373 (94%)	339 (96%)	13 (4%)	30	57
1	U	352/373 (94%)	345 (98%)	7 (2%)	48	75
1	W	352/373 (94%)	340 (97%)	12 (3%)	32	60
2	B	159/167 (95%)	157 (99%)	2 (1%)	61	82
2	D	159/167 (95%)	153 (96%)	6 (4%)	29	56
2	F	159/167 (95%)	157 (99%)	2 (1%)	61	82
2	H	159/167 (95%)	153 (96%)	6 (4%)	29	56
2	J	159/167 (95%)	155 (98%)	4 (2%)	42	69

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	L	159/167 (95%)	154 (97%)	5 (3%)	35	62
2	N	159/167 (95%)	152 (96%)	7 (4%)	25	50
2	P	159/167 (95%)	152 (96%)	7 (4%)	25	50
2	R	159/167 (95%)	153 (96%)	6 (4%)	29	56
2	T	159/167 (95%)	155 (98%)	4 (2%)	42	69
2	V	159/167 (95%)	154 (97%)	5 (3%)	35	62
2	X	159/167 (95%)	153 (96%)	6 (4%)	29	56
All	All	6129/6480 (95%)	5975 (98%)	154 (2%)	42	69

All (154) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	85	MET
1	A	103	ARG
1	A	201	THR
1	A	335	THR
1	A	356	THR
1	A	358	VAL
1	A	394	GLU
2	B	152	ARG
2	B	179	LEU
1	C	47	GLU
1	C	86	VAL
1	C	103	ARG
1	C	221	LYS
1	C	253	LEU
1	C	309	LEU
1	C	339	ILE
1	C	448	MET
2	D	10	LYS
2	D	52	LYS
2	D	54	ILE
2	D	67	ARG
2	D	135	ILE
2	D	180	LEU
1	E	86	VAL
1	E	89	LYS
1	E	103	ARG
1	E	201	THR
1	E	253	LEU

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Mol	Chain	Res	Type
1	E	294	GLN
1	E	339	ILE
1	E	356	THR
1	E	358	VAL
2	F	135	ILE
2	F	180	LEU
1	G	48	LEU
1	G	110	SER
1	G	255	GLN
1	G	261	LYS
1	G	309	LEU
1	G	358	VAL
1	G	435	GLU
2	H	33	ARG
2	H	76	ASP
2	H	94	ARG
2	H	135	ILE
2	H	143	ARG
2	H	169	LYS
1	I	31	GLU
1	I	42	ASP
1	I	250	GLU
1	I	280	GLU
2	J	70	GLU
2	J	140	ARG
2	J	143	ARG
2	J	179	LEU
1	K	86	VAL
1	K	89	LYS
1	K	103	ARG
1	K	167	THR
1	K	255	GLN
1	K	298	GLU
1	K	311	HIS
1	K	339	ILE
1	K	358	VAL
1	K	457	LEU
1	K	458	LYS
2	L	10	LYS
2	L	17	LYS
2	L	94	ARG
2	L	143	ARG

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Mol	Chain	Res	Type
2	L	179	LEU
1	M	31	GLU
1	M	69	GLU
1	M	103	ARG
1	M	155	LYS
1	M	201	THR
2	N	27	ILE
2	N	51	ASP
2	N	94	ARG
2	N	143	ARG
2	N	162	ASN
2	N	174	LEU
2	N	179	LEU
1	O	69	GLU
1	O	86	VAL
1	O	103	ARG
1	O	258	ILE
1	O	280	GLU
2	P	14	TRP
2	P	17	LYS
2	P	54	ILE
2	P	95	LYS
2	P	143	ARG
2	P	174	LEU
2	P	179	LEU
1	Q	18	ASN
1	Q	69	GLU
1	Q	91	LYS
1	Q	103	ARG
1	Q	178	VAL
1	Q	309	LEU
2	R	54	ILE
2	R	120	LYS
2	R	143	ARG
2	R	162	ASN
2	R	174	LEU
2	R	179	LEU
1	S	86	VAL
1	S	89	LYS
1	S	201	THR
1	S	261	LYS
1	S	280	GLU

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Mol	Chain	Res	Type
1	S	291	LYS
1	S	309	LEU
1	S	335	THR
1	S	339	ILE
1	S	358	VAL
1	S	365	GLU
1	S	368	GLU
1	S	458	LYS
2	T	10	LYS
2	T	143	ARG
2	T	152	ARG
2	T	180	LEU
1	U	48	LEU
1	U	140	LYS
1	U	225	GLU
1	U	257	GLN
1	U	309	LEU
1	U	335	THR
1	U	339	ILE
2	V	17	LYS
2	V	94	ARG
2	V	121	GLU
2	V	143	ARG
2	V	179	LEU
1	W	48	LEU
1	W	86	VAL
1	W	91	LYS
1	W	103	ARG
1	W	132	LYS
1	W	179	GLN
1	W	280	GLU
1	W	309	LEU
1	W	312	THR
1	W	339	ILE
1	W	358	VAL
1	W	448	MET
2	X	13	GLU
2	X	17	LYS
2	X	67	ARG
2	X	74	SER
2	X	94	ARG
2	X	179	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (153) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	43	GLN
1	A	88	GLN
1	A	212	GLN
1	A	343	HIS
1	A	386	GLN
1	A	391	ASN
1	A	410	ASN
1	A	422	HIS
1	A	443	HIS
1	A	444	HIS
2	B	25	ASN
2	B	36	GLN
1	C	43	GLN
1	C	99	GLN
1	C	179	GLN
1	C	212	GLN
1	C	226	GLN
1	C	373	HIS
1	C	377	ASN
1	C	391	ASN
1	C	410	ASN
1	C	412	GLN
1	C	419	GLN
1	C	444	HIS
2	D	25	ASN
2	D	36	GLN
1	E	43	GLN
1	E	99	GLN
1	E	179	GLN
1	E	212	GLN
1	E	226	GLN
1	E	294	GLN
1	E	373	HIS
1	E	391	ASN
1	E	410	ASN
1	E	419	GLN
1	E	422	HIS
1	E	443	HIS
1	E	444	HIS
2	F	131	ASN
1	G	43	GLN

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Mol	Chain	Res	Type
1	G	255	GLN
1	G	264	GLN
1	G	343	HIS
1	G	386	GLN
1	G	391	ASN
1	G	410	ASN
1	G	422	HIS
1	G	443	HIS
1	G	444	HIS
2	H	25	ASN
2	H	29	GLN
2	H	36	GLN
2	H	144	GLN
1	I	43	GLN
1	I	88	GLN
1	I	99	GLN
1	I	377	ASN
1	I	410	ASN
1	I	422	HIS
1	I	443	HIS
1	I	444	HIS
2	J	25	ASN
2	J	36	GLN
2	J	131	ASN
2	J	144	GLN
1	K	43	GLN
1	K	88	GLN
1	K	255	GLN
1	K	264	GLN
1	K	322	GLN
1	K	391	ASN
1	K	410	ASN
1	K	419	GLN
1	K	422	HIS
1	K	443	HIS
1	K	444	HIS
2	L	25	ASN
1	M	43	GLN
1	M	88	GLN
1	M	212	GLN
1	M	255	GLN
1	M	311	HIS

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Mol	Chain	Res	Type
1	M	377	ASN
1	M	386	GLN
1	M	391	ASN
1	M	410	ASN
1	M	422	HIS
1	M	443	HIS
2	N	55	HIS
2	N	162	ASN
1	O	99	GLN
1	O	212	GLN
1	O	311	HIS
1	O	391	ASN
1	O	410	ASN
1	O	422	HIS
1	O	444	HIS
2	P	25	ASN
2	P	162	ASN
1	Q	43	GLN
1	Q	255	GLN
1	Q	264	GLN
1	Q	294	GLN
1	Q	373	HIS
1	Q	377	ASN
1	Q	391	ASN
1	Q	410	ASN
1	Q	422	HIS
1	Q	428	ASN
1	Q	443	HIS
2	R	25	ASN
2	R	131	ASN
2	R	162	ASN
1	S	88	GLN
1	S	255	GLN
1	S	386	GLN
1	S	391	ASN
1	S	410	ASN
1	S	422	HIS
1	S	443	HIS
2	T	25	ASN
2	T	36	GLN
2	T	131	ASN
2	T	144	GLN

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Mol	Chain	Res	Type
1	U	88	GLN
1	U	257	GLN
1	U	294	GLN
1	U	343	HIS
1	U	377	ASN
1	U	386	GLN
1	U	391	ASN
1	U	407	GLN
1	U	410	ASN
1	U	422	HIS
1	U	444	HIS
2	V	25	ASN
2	V	36	GLN
2	V	131	ASN
2	V	144	GLN
2	V	162	ASN
1	W	43	GLN
1	W	255	GLN
1	W	377	ASN
1	W	386	GLN
1	W	391	ASN
1	W	412	GLN
1	W	422	HIS
1	W	444	HIS
2	X	25	ASN
2	X	36	GLN
2	X	144	GLN
2	X	162	ASN

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry

Of 24 ligands modelled in this entry, 12 are monoatomic - leaving 12 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	$\# Z > 2$
3	FES	S	900	1	0,4,4	-	-	-		
3	FES	W	900	1	0,4,4	-	-	-		
3	FES	Q	900	1	0,4,4	-	-	-		
3	FES	A	900	1	0,4,4	-	-	-		
3	FES	M	900	1	0,4,4	-	-	-		
3	FES	I	900	1	0,4,4	-	-	-		
3	FES	O	900	1	0,4,4	-	-	-		
3	FES	E	900	1	0,4,4	-	-	-		
3	FES	G	900	1	0,4,4	-	-	-		
3	FES	C	900	1	0,4,4	-	-	-		
3	FES	U	900	1	0,4,4	-	-	-		
3	FES	K	900	1	0,4,4	-	-	-		

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	FES	S	900	1	-	-	0/1/1/1
3	FES	W	900	1	-	-	0/1/1/1
3	FES	Q	900	1	-	-	0/1/1/1
3	FES	A	900	1	-	-	0/1/1/1
3	FES	M	900	1	-	-	0/1/1/1
3	FES	I	900	1	-	-	0/1/1/1
3	FES	O	900	1	-	-	0/1/1/1
3	FES	E	900	1	-	-	0/1/1/1
3	FES	G	900	1	-	-	0/1/1/1
3	FES	C	900	1	-	-	0/1/1/1
3	FES	U	900	1	-	-	0/1/1/1
3	FES	K	900	1	-	-	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

12 monomers are involved in 12 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	S	900	FES	1	0
3	W	900	FES	1	0
3	Q	900	FES	1	0
3	A	900	FES	1	0
3	M	900	FES	1	0
3	I	900	FES	1	0
3	O	900	FES	1	0
3	E	900	FES	1	0
3	G	900	FES	1	0
3	C	900	FES	1	0
3	U	900	FES	1	0
3	K	900	FES	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	433/459 (94%)	0.21	12 (2%) 55 50	7, 26, 32, 44	18 (4%)
1	C	433/459 (94%)	0.19	8 (1%) 67 64	14, 27, 37, 43	18 (4%)
1	E	433/459 (94%)	0.23	11 (2%) 58 54	16, 26, 34, 39	18 (4%)
1	G	433/459 (94%)	0.33	13 (3%) 52 48	16, 29, 39, 43	18 (4%)
1	I	433/459 (94%)	0.59	21 (4%) 35 31	18, 31, 39, 44	18 (4%)
1	K	433/459 (94%)	0.21	13 (3%) 52 48	9, 26, 34, 40	18 (4%)
1	M	433/459 (94%)	0.20	11 (2%) 58 54	14, 25, 35, 45	18 (4%)
1	O	433/459 (94%)	0.11	10 (2%) 61 57	15, 25, 33, 44	18 (4%)
1	Q	433/459 (94%)	0.12	7 (1%) 70 67	15, 25, 35, 44	18 (4%)
1	S	433/459 (94%)	0.43	15 (3%) 47 42	17, 37, 49, 53	18 (4%)
1	U	433/459 (94%)	0.44	14 (3%) 50 46	18, 36, 47, 51	18 (4%)
1	W	433/459 (94%)	0.57	20 (4%) 37 33	20, 38, 50, 54	18 (4%)
2	B	180/188 (95%)	0.13	1 (0%) 85 83	18, 25, 33, 43	4 (2%)
2	D	180/188 (95%)	0.08	2 (1%) 78 75	18, 25, 32, 39	4 (2%)
2	F	180/188 (95%)	0.12	3 (1%) 69 65	17, 25, 35, 40	4 (2%)
2	H	180/188 (95%)	0.06	1 (0%) 85 83	19, 27, 33, 39	4 (2%)
2	J	180/188 (95%)	0.15	2 (1%) 78 75	17, 26, 36, 46	4 (2%)
2	L	180/188 (95%)	0.11	3 (1%) 69 65	18, 26, 33, 38	4 (2%)
2	N	180/188 (95%)	0.10	2 (1%) 78 75	14, 24, 35, 44	4 (2%)
2	P	180/188 (95%)	0.13	2 (1%) 78 75	17, 25, 36, 44	4 (2%)
2	R	180/188 (95%)	0.23	8 (4%) 39 34	16, 24, 45, 65	4 (2%)
2	T	180/188 (95%)	0.22	4 (2%) 62 58	19, 30, 43, 49	4 (2%)
2	V	180/188 (95%)	0.21	4 (2%) 62 58	19, 28, 35, 39	4 (2%)
2	X	180/188 (95%)	0.15	2 (1%) 78 75	21, 31, 38, 40	4 (2%)

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Mol	Chain	Analysed	<RSRZ>	#RSRZ>2			OWAB(Å ²)	Q<0.9
All	All	7356/7764 (94%)	0.26	189 (2%)	57	52	7, 27, 42, 65	264 (3%)

All (189) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	Q	256	ALA	6.6
1	I	256	ALA	6.4
1	C	256	ALA	6.1
2	P	11	THR	5.9
1	M	256	ALA	5.6
1	U	260	THR	5.4
1	G	256	ALA	5.3
1	U	256	ALA	5.3
2	R	12	PHE	5.2
1	A	255	GLN	5.1
1	M	255	GLN	5.0
1	A	256	ALA	4.9
1	E	255	GLN	4.9
1	A	260	THR	4.7
1	W	257	GLN	4.7
1	U	257	GLN	4.5
1	I	260	THR	4.5
1	O	260	THR	4.5
1	A	257	GLN	4.4
2	R	14	TRP	4.4
1	Q	260	THR	4.3
1	C	255	GLN	4.3
1	E	256	ALA	4.2
1	A	421	GLY	4.2
1	E	261	LYS	4.0
1	M	260	THR	4.0
1	M	259	PRO	4.0
1	U	261	LYS	4.0
1	K	256	ALA	4.0
1	O	256	ALA	3.9
1	S	254	SER	3.9
1	U	255	GLN	3.9
1	M	261	LYS	3.8
1	G	260	THR	3.8
1	W	256	ALA	3.7
1	I	427	GLY	3.7
1	W	258	ILE	3.7

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Mol	Chain	Res	Type	RSRZ
1	E	258	ILE	3.7
1	I	255	GLN	3.7
1	Q	261	LYS	3.7
2	R	15	PRO	3.7
1	C	257	GLN	3.6
1	C	258	ILE	3.6
1	K	258	ILE	3.6
1	I	311	HIS	3.6
1	K	257	GLN	3.6
1	O	258	ILE	3.6
1	S	256	ALA	3.6
2	R	9	PHE	3.6
1	S	260	THR	3.5
1	U	259	PRO	3.4
1	W	142	ALA	3.4
2	N	10	LYS	3.4
1	S	255	GLN	3.3
2	P	58	MET	3.3
1	O	259	PRO	3.2
2	D	16	SER	3.2
1	K	170	GLY	3.2
1	K	416	GLY	3.2
1	U	421	GLY	3.2
1	I	190	ALA	3.1
1	G	259	PRO	3.1
1	I	259	PRO	3.1
1	U	258	ILE	3.1
1	M	421	GLY	3.0
1	W	260	THR	3.0
1	M	257	GLN	3.0
2	R	18	ALA	2.9
1	O	261	LYS	2.9
1	I	257	GLN	2.9
1	K	142	ALA	2.9
1	W	364	ALA	2.9
1	K	109	ARG	2.9
1	G	109	ARG	2.9
1	Q	257	GLN	2.9
1	I	262	GLY	2.9
1	W	261	LYS	2.8
1	W	310	GLY	2.8
1	E	294	GLN	2.8

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Mol	Chain	Res	Type	RSRZ
1	W	416	GLY	2.8
1	G	258	ILE	2.8
1	O	18	ASN	2.8
1	U	131	GLY	2.7
1	I	313	GLY	2.7
1	G	261	LYS	2.7
1	I	422	HIS	2.7
1	I	421	GLY	2.6
1	G	255	GLN	2.6
1	W	255	GLN	2.6
2	F	11	THR	2.6
1	S	457	LEU	2.6
1	K	260	THR	2.6
1	M	62	GLY	2.5
1	S	258	ILE	2.5
2	R	16	SER	2.5
1	A	235	GLY	2.5
1	E	18	ASN	2.5
1	U	28	VAL	2.5
2	N	11	THR	2.5
1	C	421	GLY	2.5
1	G	313	GLY	2.5
1	O	255	GLN	2.5
1	O	109	ARG	2.5
1	A	119	THR	2.5
2	V	16	SER	2.5
1	A	258	ILE	2.4
1	I	109	ARG	2.4
2	X	162	ASN	2.4
1	E	286	ALA	2.4
1	U	437	ALA	2.4
1	C	259	PRO	2.4
1	G	257	GLN	2.4
1	W	267	ALA	2.4
1	W	286	ALA	2.4
1	I	261	LYS	2.4
2	T	90	TYR	2.4
2	J	58	MET	2.4
1	S	358	VAL	2.4
2	B	123	ALA	2.4
2	L	87	GLU	2.4
1	M	258	ILE	2.3

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Mol	Chain	Res	Type	RSRZ
1	S	109	ARG	2.3
1	O	257	GLN	2.3
2	F	77	GLN	2.3
1	I	234	ALA	2.3
1	K	364	ALA	2.3
1	K	291	LYS	2.3
1	O	316	VAL	2.3
1	G	305	ALA	2.3
1	S	212	GLN	2.3
1	K	105	MET	2.3
2	V	9	PHE	2.3
1	G	433	TYR	2.3
1	A	261	LYS	2.2
1	S	44	SER	2.2
2	V	160	ASP	2.2
2	L	13	GLU	2.2
1	E	259	PRO	2.2
1	W	320	VAL	2.2
1	A	18	ASN	2.2
2	V	18	ALA	2.2
2	R	10	LYS	2.2
1	Q	258	ILE	2.2
2	L	44	GLU	2.2
1	A	251	MET	2.2
1	S	79	GLY	2.2
2	X	160	ASP	2.2
1	C	249	PRO	2.2
1	K	259	PRO	2.2
1	S	265	PHE	2.2
1	W	37	PRO	2.2
2	H	9	PHE	2.2
1	I	312	THR	2.2
2	T	11	THR	2.2
1	C	170	GLY	2.2
2	T	160	ASP	2.2
1	I	94	LYS	2.2
1	I	310	GLY	2.1
1	K	285	LEU	2.1
1	M	253	LEU	2.1
1	M	321	GLY	2.1
1	U	398	GLY	2.1
1	W	39	ILE	2.1

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Mol	Chain	Res	Type	RSRZ
1	S	259	PRO	2.1
1	W	19	TRP	2.1
1	E	421	GLY	2.1
1	I	201	THR	2.1
1	W	109	ARG	2.1
2	J	160	ASP	2.1
2	T	9	PHE	2.1
1	S	257	GLN	2.1
1	U	434	ALA	2.1
1	S	430	GLY	2.1
1	E	109	ARG	2.1
1	Q	417	ARG	2.1
2	R	11	THR	2.1
2	F	16	SER	2.1
1	U	347	PRO	2.1
1	W	228	CYS	2.1
1	W	105	MET	2.1
1	I	112	ALA	2.0
1	E	260	THR	2.0
1	A	259	PRO	2.0
1	W	259	PRO	2.0
1	G	105	MET	2.0
1	Q	358	VAL	2.0
1	G	18	ASN	2.0
1	I	251	MET	2.0
2	D	115	SER	2.0

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

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

6.3 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

6.4 Ligands [i](#)

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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
3	FES	O	900	4/4	0.90	0.11	29,30,32,35	0
3	FES	A	900	4/4	0.91	0.11	37,39,39,43	0
3	FES	S	900	4/4	0.92	0.09	48,49,49,51	0
3	FES	E	900	4/4	0.93	0.09	39,40,42,44	0
3	FES	U	900	4/4	0.93	0.09	37,38,39,41	0
3	FES	M	900	4/4	0.94	0.07	36,38,39,43	0
3	FES	I	900	4/4	0.95	0.09	47,48,49,51	0
4	FE2	Q	901	1/1	0.95	0.08	30,30,30,30	0
3	FES	K	900	4/4	0.96	0.06	46,47,48,49	0
3	FES	G	900	4/4	0.96	0.06	35,36,37,40	0
3	FES	Q	900	4/4	0.97	0.07	36,38,38,41	0
3	FES	W	900	4/4	0.97	0.06	34,35,36,38	0
4	FE2	A	901	1/1	0.97	0.07	31,31,31,31	0
4	FE2	E	901	1/1	0.97	0.08	33,33,33,33	0
4	FE2	M	901	1/1	0.97	0.07	29,29,29,29	0
3	FES	C	900	4/4	0.97	0.06	29,29,30,34	0
4	FE2	S	901	1/1	0.97	0.09	42,42,42,42	0
4	FE2	I	901	1/1	0.98	0.04	39,39,39,39	0
4	FE2	O	901	1/1	0.98	0.09	29,29,29,29	0
4	FE2	C	901	1/1	0.99	0.04	33,33,33,33	0
4	FE2	K	901	1/1	0.99	0.06	31,31,31,31	0
4	FE2	G	901	1/1	0.99	0.09	39,39,39,39	0
4	FE2	U	901	1/1	0.99	0.06	33,33,33,33	0
4	FE2	W	901	1/1	0.99	0.07	38,38,38,38	0

6.5 Other polymers [i](#)

There are no such residues in this entry.