



wwPDB X-ray Structure Validation Summary Report ⓘ

Mar 5, 2026 – 01:08 PM UTC

PDB ID : 2HLN / pdb_00002hln
Title : L-asparaginase from Erwinia carotovora in complex with glutamic acid
Authors : Kravchenko, O.V.; Kislitsin, Y.A.; Popov, A.N.; Nikonov, S.V.; Kuranova, I.P.
Deposited on : 2006-07-08
Resolution : 2.20 Å(reported)

This is a wwPDB X-ray Structure Validation Summary 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

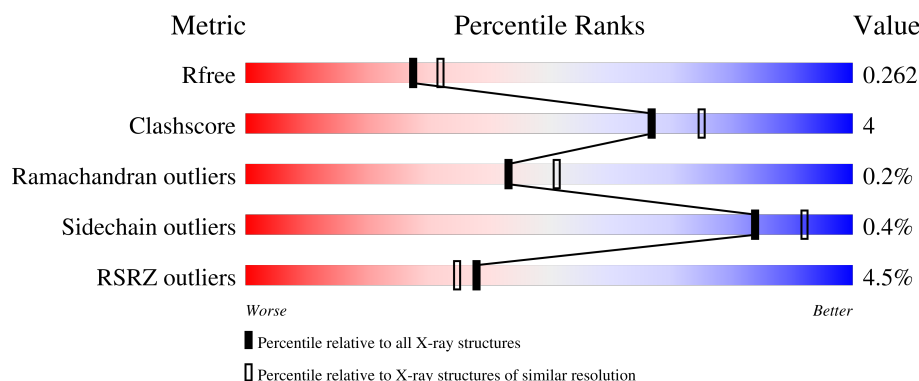
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.20 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	6164 (2.20-2.20)
Clashscore	190562	6851 (2.20-2.20)
Ramachandran outliers	187476	6768 (2.20-2.20)
Sidechain outliers	187428	6769 (2.20-2.20)
RSRZ outliers	180081	6166 (2.20-2.20)

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	327	2% 84% 9% 6%
1	B	327	2% 86% 8% 6%
1	C	327	2% 88% 6% 6%
1	D	327	4% 83% 11% 6%
1	E	327	6% 83% 10% 6%

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Mol	Chain	Length	Quality of chain
1	F	327	
1	G	327	
1	H	327	
1	I	327	
1	J	327	
1	K	327	
1	L	327	

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	PEG	A	2002	-	-	X	-
3	PEG	K	2001	-	-	X	-

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 29749 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 L-asparaginase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	308	Total	C	N	O	S	0	1	0
			2307	1456	395	450	6			
1	B	308	Total	C	N	O	S	0	1	0
			2310	1458	398	448	6			
1	E	308	Total	C	N	O	S	0	2	0
			2313	1461	396	450	6			
1	F	308	Total	C	N	O	S	0	1	0
			2307	1456	395	450	6			
1	C	308	Total	C	N	O	S	0	2	0
			2313	1461	396	450	6			
1	D	308	Total	C	N	O	S	0	0	0
			2302	1453	395	448	6			
1	G	308	Total	C	N	O	S	0	1	0
			2307	1456	395	450	6			
1	H	308	Total	C	N	O	S	0	2	0
			2315	1461	398	450	6			
1	I	308	Total	C	N	O	S	0	0	0
			2302	1453	395	448	6			
1	J	308	Total	C	N	O	S	0	0	0
			2302	1453	395	448	6			
1	K	308	Total	C	N	O	S	0	1	0
			2310	1458	398	448	6			
1	L	308	Total	C	N	O	S	0	1	0
			2307	1456	395	450	6			

- Molecule 2 is GLUTAMIC ACID (CCD ID: GLU) (formula: C₅H₉NO₄).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	C	N	O	0	0
			10	5	1	4		
2	B	1	Total	C	N	O	0	0
			10	5	1	4		
2	E	1	Total	C	N	O	0	0
			10	5	1	4		
2	F	1	Total	C	N	O	0	0
			10	5	1	4		
2	C	1	Total	C	N	O	0	0
			10	5	1	4		
2	D	1	Total	C	N	O	0	0
			10	5	1	4		
2	G	1	Total	C	N	O	0	0
			10	5	1	4		
2	H	1	Total	C	N	O	0	0
			10	5	1	4		
2	I	1	Total	C	N	O	0	0
			10	5	1	4		
2	J	1	Total	C	N	O	0	0
			10	5	1	4		
2	K	1	Total	C	N	O	0	0
			10	5	1	4		
2	L	1	Total	C	N	O	0	0
			10	5	1	4		

- Molecule 3 is DI(HYDROXYETHYL)ETHER (CCD ID: PEG) (formula: C₄H₁₀O₃).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			7	4	3		
3	B	1	Total	C	O	0	0
			7	4	3		
3	C	1	Total	C	O	0	0
			7	4	3		
3	G	1	Total	C	O	0	0
			7	4	3		
3	K	1	Total	C	O	0	0
			7	4	3		
3	K	1	Total	C	O	0	0
			7	4	3		
3	K	1	Total	C	O	0	0
			7	4	3		
3	K	1	Total	C	O	0	0
			7	4	3		

- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	242	Total	O	0	0
			242	242		
4	B	191	Total	O	0	0
			191	191		
4	E	146	Total	O	0	0
			146	146		
4	F	241	Total	O	0	0
			241	241		

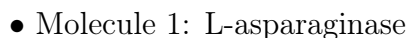
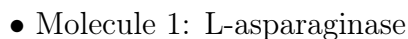
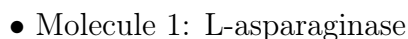
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	C	229	Total 229	O 229	0	0
4	D	109	Total 109	O 109	0	0
4	G	145	Total 145	O 145	0	0
4	H	129	Total 129	O 129	0	0
4	I	97	Total 97	O 97	0	0
4	J	110	Total 110	O 110	0	0
4	K	148	Total 148	O 148	0	0
4	L	91	Total 91	O 91	0	0

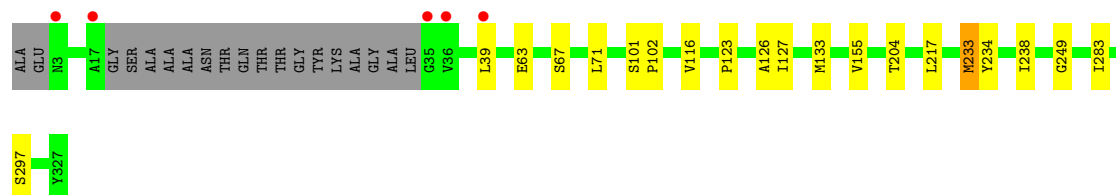
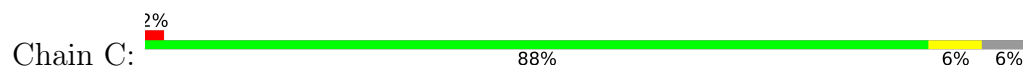
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- Molecule 1: L-asparaginase

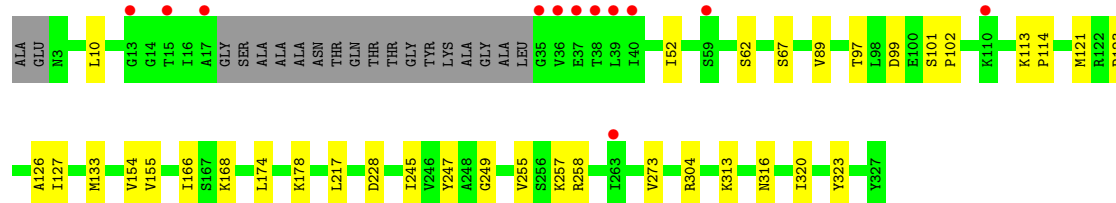
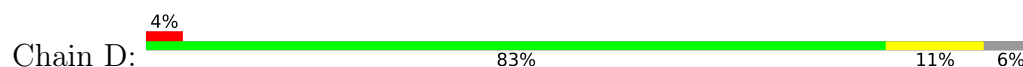




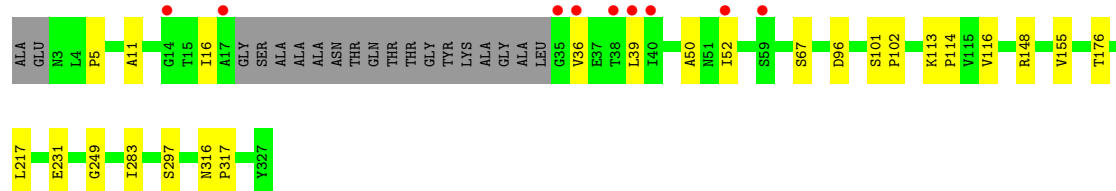
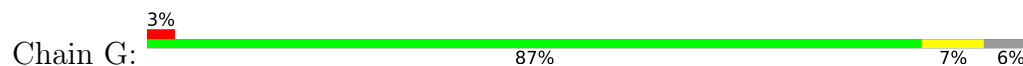
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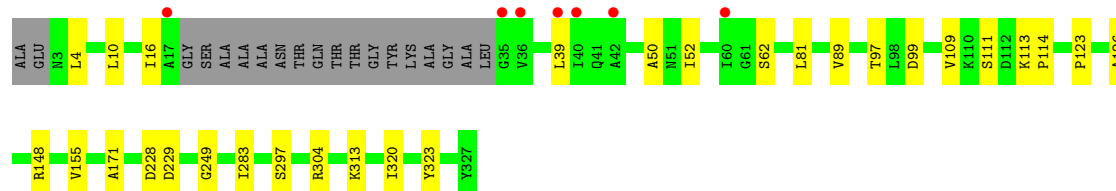
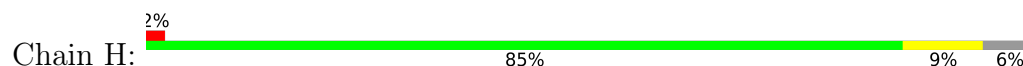
• Molecule 1: L-asparaginase



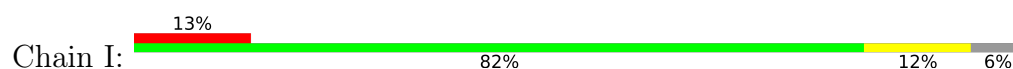
• Molecule 1: L-asparaginase

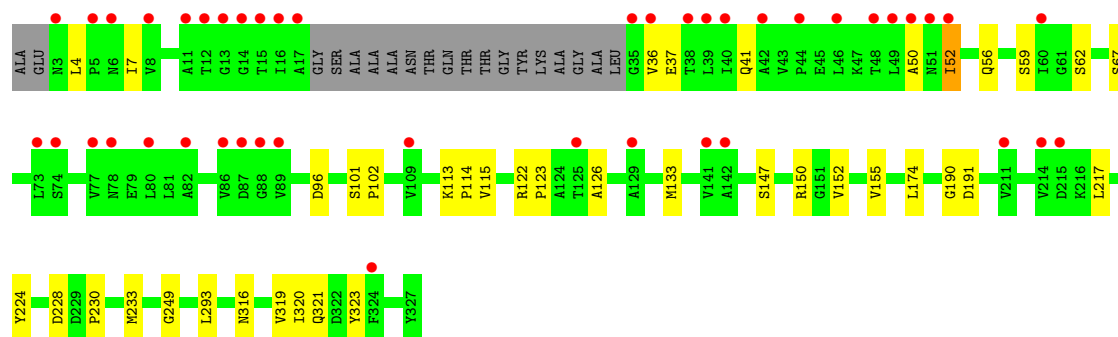


• Molecule 1: L-asparaginase

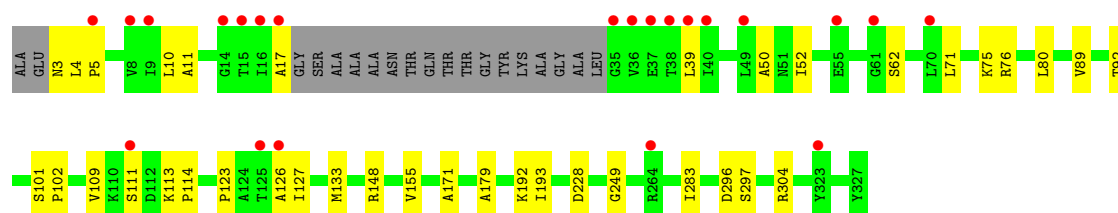
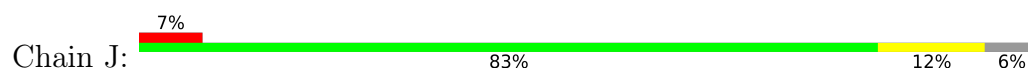


• Molecule 1: L-asparaginase

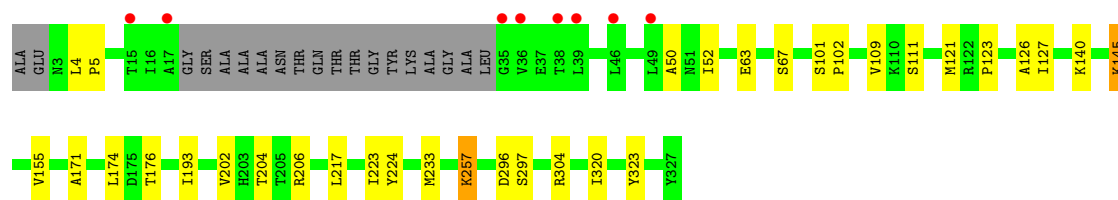
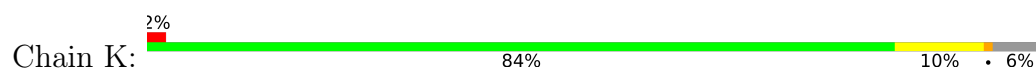




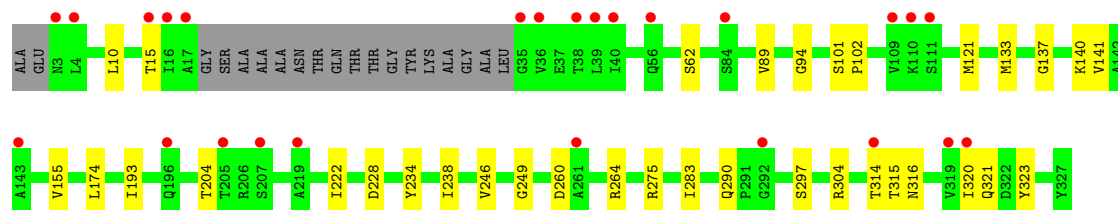
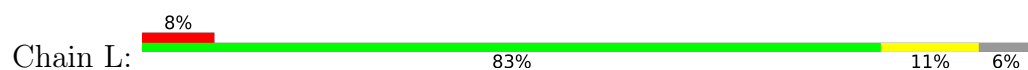
• Molecule 1: L-asparaginase



• Molecule 1: L-asparaginase



• Molecule 1: L-asparaginase



4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	81.11Å 123.67Å 197.45Å 90.00° 90.92° 90.00°	Depositor
Resolution (Å)	19.98 – 2.20 19.98 – 2.20	Depositor EDS
% Data completeness (in resolution range)	91.1 (19.98-2.20) 90.9 (19.98-2.20)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	3.69 (at 2.19Å)	Xtriage
Refinement program	REFMAC 5.2.0019	Depositor
R, R_{free}	0.220 , 0.267 0.217 , 0.262	Depositor DCC
R_{free} test set	9022 reflections (4.58%)	wwPDB-VP
Wilson B-factor (Å ²)	34.7	Xtriage
Anisotropy	0.162	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.34 , 47.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.51$, $\langle L^2 \rangle = 0.35$	Xtriage
Estimated twinning fraction	0.017 for h,-k,-l	Xtriage
F_o, F_c correlation	0.95	EDS
Total number of atoms	29749	wwPDB-VP
Average B, all atoms (Å ²)	43.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 14.47% 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: PEG

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	0.40	0/2344	0.86	8/3181 (0.3%)
1	B	0.40	0/2347	0.83	4/3184 (0.1%)
1	C	0.41	0/2353	0.82	3/3192 (0.1%)
1	D	0.39	0/2336	0.83	5/3170 (0.2%)
1	E	0.39	0/2353	0.83	7/3192 (0.2%)
1	F	0.41	0/2344	0.83	4/3181 (0.1%)
1	G	0.39	0/2344	0.83	6/3181 (0.2%)
1	H	0.38	0/2355	0.85	6/3195 (0.2%)
1	I	0.39	0/2336	0.83	6/3170 (0.2%)
1	J	0.40	0/2336	0.83	6/3170 (0.2%)
1	K	0.40	0/2347	0.82	4/3184 (0.1%)
1	L	0.39	0/2344	0.81	2/3181 (0.1%)
All	All	0.40	0/28139	0.83	61/38181 (0.2%)

There are no bond length outliers.

The worst 5 of 61 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	249	GLY	N-CA-C	7.05	120.08	112.33
1	D	52	ILE	N-CA-C	6.58	117.34	107.80
1	I	52	ILE	N-CA-C	6.54	117.33	108.17
1	E	249	GLY	N-CA-C	6.47	120.82	112.54
1	F	52	ILE	N-CA-C	6.34	117.05	108.17

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	2307	0	2364	20	0
1	B	2310	0	2373	18	0
1	C	2313	0	2377	11	0
1	D	2302	0	2360	21	0
1	E	2313	0	2377	18	0
1	F	2307	0	2364	15	0
1	G	2307	0	2364	11	0
1	H	2315	0	2377	17	0
1	I	2302	0	2360	23	0
1	J	2302	0	2360	21	0
1	K	2310	0	2373	25	0
1	L	2307	0	2364	22	0
2	A	10	0	5	2	0
2	B	10	0	5	0	0
2	C	10	0	5	1	0
2	D	10	0	5	1	0
2	E	10	0	5	1	0
2	F	10	0	5	1	0
2	G	10	0	5	0	0
2	H	10	0	5	1	0
2	I	10	0	5	1	0
2	J	10	0	5	1	0
2	K	10	0	5	1	0
2	L	10	0	5	2	0
3	A	7	0	10	5	0
3	B	7	0	10	3	0
3	C	7	0	10	0	0
3	G	7	0	10	0	0
3	K	28	0	40	8	0
4	A	242	0	0	0	0
4	B	191	0	0	0	0
4	C	229	0	0	0	0
4	D	109	0	0	0	0
4	E	146	0	0	0	0
4	F	241	0	0	0	0
4	G	145	0	0	0	0
4	H	129	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	I	97	0	0	0	0
4	J	110	0	0	0	0
4	K	148	0	0	1	0
4	L	91	0	0	1	0
All	All	29749	0	28553	206	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.

The worst 5 of 206 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:206[A]:ARG:HH11	1:B:206[A]:ARG:HG2	1.05	1.08
1:K:233:MET:HG3	3:K:2001:PEG:H31	1.41	1.01
1:B:233:MET:HG3	3:B:2003:PEG:H22	1.53	0.91
1:B:206[A]:ARG:HG2	1:B:206[A]:ARG:NH1	1.83	0.89
1:A:202:VAL:HG21	3:A:2002:PEG:H12	1.54	0.89

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	305/327 (93%)	300 (98%)	4 (1%)	1 (0%)	36	42
1	B	305/327 (93%)	297 (97%)	7 (2%)	1 (0%)	36	42
1	C	306/327 (94%)	298 (97%)	7 (2%)	1 (0%)	36	42
1	D	304/327 (93%)	296 (97%)	8 (3%)	0	100	100
1	E	306/327 (94%)	299 (98%)	7 (2%)	0	100	100
1	F	305/327 (93%)	299 (98%)	5 (2%)	1 (0%)	36	42

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	G	305/327 (93%)	296 (97%)	9 (3%)	0	100	100
1	H	306/327 (94%)	299 (98%)	7 (2%)	0	100	100
1	I	304/327 (93%)	294 (97%)	10 (3%)	0	100	100
1	J	304/327 (93%)	296 (97%)	8 (3%)	0	100	100
1	K	305/327 (93%)	295 (97%)	9 (3%)	1 (0%)	36	42
1	L	305/327 (93%)	296 (97%)	8 (3%)	1 (0%)	36	42
All	All	3660/3924 (93%)	3565 (97%)	89 (2%)	6 (0%)	43	51

5 of 6 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	F	204	THR
1	C	204	THR
1	A	204	THR
1	K	204	THR
1	B	204	THR

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	252/261 (97%)	252 (100%)	0	100	100
1	B	252/261 (97%)	249 (99%)	3 (1%)	63	78
1	C	253/261 (97%)	252 (100%)	1 (0%)	84	92
1	D	251/261 (96%)	250 (100%)	1 (0%)	84	92
1	E	253/261 (97%)	252 (100%)	1 (0%)	84	92
1	F	252/261 (97%)	252 (100%)	0	100	100
1	G	252/261 (97%)	252 (100%)	0	100	100
1	H	253/261 (97%)	253 (100%)	0	100	100
1	I	251/261 (96%)	251 (100%)	0	100	100
1	J	251/261 (96%)	251 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	K	252/261 (97%)	250 (99%)	2 (1%)	73	85
1	L	252/261 (97%)	252 (100%)	0	100	100
All	All	3024/3132 (97%)	3016 (100%)	8 (0%)	84	93

5 of 8 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	K	257	LYS
1	K	145	LYS
1	C	233	MET
1	E	313	LYS
1	D	178	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 24 such sidechains are listed below:

Mol	Chain	Res	Type
1	I	56	GLN
1	J	3	ASN
1	I	213	ASN
1	K	3	ASN
1	C	41	GLN

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 ⓘ

20 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
2	GLU	G	3356	-	8,9,9	1.08	1 (12%)	8,11,11	1.34	1 (12%)
2	GLU	I	3358	-	8,9,9	1.07	1 (12%)	8,11,11	1.35	1 (12%)
3	PEG	K	2005	-	6,6,6	0.45	0	5,5,5	0.30	0
3	PEG	G	2006	-	6,6,6	0.46	0	5,5,5	0.26	0
3	PEG	C	2004	-	6,6,6	0.45	0	5,5,5	0.28	0
2	GLU	C	3354	-	8,9,9	1.07	1 (12%)	8,11,11	1.31	1 (12%)
2	GLU	F	3353	-	8,9,9	1.08	1 (12%)	8,11,11	1.30	1 (12%)
3	PEG	K	2007	-	6,6,6	0.46	0	5,5,5	0.30	0
3	PEG	A	2002	-	6,6,6	0.48	0	5,5,5	0.18	0
2	GLU	K	3360	-	8,9,9	1.06	1 (12%)	8,11,11	1.35	1 (12%)
2	GLU	B	3359	-	8,9,9	1.09	1 (12%)	8,11,11	1.29	1 (12%)
2	GLU	A	3350	-	8,9,9	1.05	1 (12%)	8,11,11	1.28	1 (12%)
2	GLU	E	3352	-	8,9,9	1.07	1 (12%)	8,11,11	1.32	1 (12%)
2	GLU	D	3355	-	8,9,9	1.06	1 (12%)	8,11,11	1.35	1 (12%)
2	GLU	L	3361	-	8,9,9	1.05	1 (12%)	8,11,11	1.32	1 (12%)
3	PEG	K	2001	-	6,6,6	0.52	0	5,5,5	0.17	0
3	PEG	B	2003	-	6,6,6	0.53	0	5,5,5	0.20	0
2	GLU	H	3357	-	8,9,9	1.05	1 (12%)	8,11,11	1.38	1 (12%)
2	GLU	J	3351	-	8,9,9	1.06	1 (12%)	8,11,11	1.31	1 (12%)
3	PEG	K	2008	-	6,6,6	0.47	0	5,5,5	0.24	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	GLU	G	3356	-	-	6/9/9/9	-
2	GLU	I	3358	-	-	5/9/9/9	-
3	PEG	K	2005	-	-	3/4/4/4	-
3	PEG	G	2006	-	-	3/4/4/4	-

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	PEG	C	2004	-	-	4/4/4/4	-
2	GLU	C	3354	-	-	5/9/9/9	-
2	GLU	F	3353	-	-	4/9/9/9	-
3	PEG	K	2007	-	-	3/4/4/4	-
3	PEG	A	2002	-	-	4/4/4/4	-
2	GLU	K	3360	-	-	9/9/9/9	-
2	GLU	B	3359	-	-	5/9/9/9	-
2	GLU	A	3350	-	-	2/9/9/9	-
2	GLU	E	3352	-	-	5/9/9/9	-
2	GLU	D	3355	-	-	5/9/9/9	-
2	GLU	L	3361	-	-	8/9/9/9	-
3	PEG	K	2001	-	-	1/4/4/4	-
3	PEG	B	2003	-	-	2/4/4/4	-
2	GLU	H	3357	-	-	5/9/9/9	-
2	GLU	J	3351	-	-	4/9/9/9	-
3	PEG	K	2008	-	-	1/4/4/4	-

The worst 5 of 12 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	B	3359	GLU	OXT-C	-2.35	1.23	1.30
2	C	3354	GLU	OXT-C	-2.29	1.23	1.30
2	G	3356	GLU	OXT-C	-2.26	1.23	1.30
2	D	3355	GLU	OXT-C	-2.24	1.23	1.30
2	J	3351	GLU	OXT-C	-2.23	1.23	1.30

The worst 5 of 12 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	D	3355	GLU	OXT-C-O	-2.84	117.63	124.08
2	K	3360	GLU	OXT-C-O	-2.84	117.64	124.08
2	I	3358	GLU	OXT-C-O	-2.77	117.79	124.08
2	H	3357	GLU	OXT-C-O	-2.75	117.85	124.08
2	G	3356	GLU	OXT-C-O	-2.74	117.86	124.08

There are no chirality outliers.

5 of 84 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	L	3361	GLU	O-C-CA-N
2	K	3360	GLU	OXT-C-CA-N
2	L	3361	GLU	OXT-C-CA-N
2	D	3355	GLU	OXT-C-CA-N
2	G	3356	GLU	OXT-C-CA-N

There are no ring outliers.

15 monomers are involved in 28 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	I	3358	GLU	1	0
2	C	3354	GLU	1	0
2	F	3353	GLU	1	0
3	K	2007	PEG	1	0
3	A	2002	PEG	5	0
2	K	3360	GLU	1	0
2	A	3350	GLU	2	0
2	E	3352	GLU	1	0
2	D	3355	GLU	1	0
2	L	3361	GLU	2	0
3	K	2001	PEG	5	0
3	B	2003	PEG	3	0
2	H	3357	GLU	1	0
2	J	3351	GLU	1	0
3	K	2008	PEG	2	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 [i](#)

6.1 Protein, DNA and RNA chains [i](#)

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	308/327 (94%)	-0.21	6 (1%) 66 63	16, 28, 47, 126	1 (0%)
1	B	308/327 (94%)	-0.03	5 (1%) 70 67	19, 33, 61, 105	1 (0%)
1	C	308/327 (94%)	-0.17	5 (1%) 70 67	14, 30, 51, 91	2 (0%)
1	D	308/327 (94%)	0.48	12 (3%) 43 40	26, 48, 76, 150	0
1	E	308/327 (94%)	0.43	18 (5%) 29 25	22, 41, 72, 143	2 (0%)
1	F	308/327 (94%)	-0.19	6 (1%) 66 63	17, 27, 53, 106	1 (0%)
1	G	308/327 (94%)	0.18	9 (2%) 53 50	18, 38, 70, 124	1 (0%)
1	H	308/327 (94%)	0.35	7 (2%) 61 58	24, 42, 70, 128	2 (0%)
1	I	308/327 (94%)	0.90	44 (14%) 6 4	24, 50, 103, 147	0
1	J	308/327 (94%)	0.68	22 (7%) 22 19	28, 48, 85, 152	0
1	K	308/327 (94%)	0.08	8 (2%) 57 54	22, 35, 73, 114	1 (0%)
1	L	308/327 (94%)	0.77	25 (8%) 18 15	28, 50, 80, 147	1 (0%)
All	All	3696/3924 (94%)	0.27	167 (4%) 38 35	14, 39, 78, 152	12 (0%)

The worst 5 of 167 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	35	GLY	6.6
1	H	35	GLY	5.0
1	F	36	VAL	4.9
1	C	35	GLY	4.7
1	E	36	VAL	4.6

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	PEG	C	2004	7/7	0.69	0.17	43,64,78,82	0
3	PEG	K	2008	7/7	0.69	0.18	59,64,71,73	0
3	PEG	G	2006	7/7	0.71	0.17	36,53,65,68	0
3	PEG	K	2007	7/7	0.77	0.15	59,73,81,83	0
3	PEG	K	2005	7/7	0.77	0.14	58,66,70,72	0
2	GLU	L	3361	10/10	0.80	0.15	40,50,62,70	0
2	GLU	J	3351	10/10	0.81	0.13	59,63,69,70	0
3	PEG	B	2003	7/7	0.83	0.21	10,24,48,58	0
3	PEG	K	2001	7/7	0.84	0.18	16,26,47,57	0
2	GLU	H	3357	10/10	0.84	0.11	46,52,61,75	0
2	GLU	I	3358	10/10	0.84	0.12	38,44,54,56	0
3	PEG	A	2002	7/7	0.84	0.19	19,38,50,59	0
2	GLU	E	3352	10/10	0.87	0.11	36,44,55,59	0
2	GLU	D	3355	10/10	0.87	0.08	40,43,57,57	0
2	GLU	K	3360	10/10	0.89	0.09	29,37,53,57	0
2	GLU	G	3356	10/10	0.92	0.08	33,41,50,60	0
2	GLU	F	3353	10/10	0.92	0.10	24,38,43,45	0
2	GLU	C	3354	10/10	0.94	0.08	28,34,39,52	0
2	GLU	A	3350	10/10	0.94	0.07	23,32,39,40	0
2	GLU	B	3359	10/10	0.95	0.08	27,28,49,52	0

6.5 Other polymers [i](#)

There are no such residues in this entry.