



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 7, 2026 – 02:33 AM UTC

PDB ID : 1QU0 / pdb_00001qu0
Title : CRYSTAL STRUCTURE OF THE FIFTH LAMININ G-LIKE MODULE OF THE MOUSE LAMININ ALPHA2 CHAIN
Authors : Hohenester, E.; Tisi, D.; Talts, J.F.; Timpl, R.
Deposited on : 1999-07-05
Resolution : 2.35 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

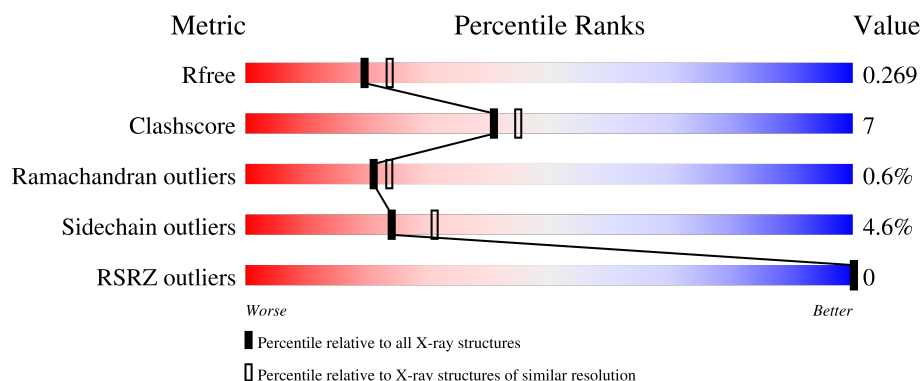
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.35 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	1596 (2.36-2.36)
Clashscore	190562	1663 (2.36-2.36)
Ramachandran outliers	187476	1646 (2.36-2.36)
Sidechain outliers	187428	1646 (2.36-2.36)
RSRZ outliers	180081	1598 (2.36-2.36)

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	191	 76% 17% • 5%
1	B	191	 77% 15% • 5%
1	C	191	 74% 19% • • •
1	D	191	 77% 15% • 5%

2 Entry composition

There are 4 unique types of molecules in this entry. The entry contains 5794 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 LAMININ ALPHA2 CHAIN.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	181	Total	C	N	O	S	9	0	0
			1366	863	239	256	8			
1	B	181	Total	C	N	O	S	8	0	0
			1366	863	239	256	8			
1	C	183	Total	C	N	O	S	13	0	0
			1382	872	241	261	8			
1	D	181	Total	C	N	O	S	9	0	0
			1366	863	239	256	8			

- Molecule 2 is CALCIUM ION (CCD ID: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	1	Total	Ca	0	0
			1	1		
2	B	1	Total	Ca	0	0
			1	1		
2	C	1	Total	Ca	0	0
			1	1		
2	D	1	Total	Ca	0	0
			1	1		

- Molecule 3 is SULFATE ION (CCD ID: SO4) (formula: O₄S).



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

- Molecule 4 is water.

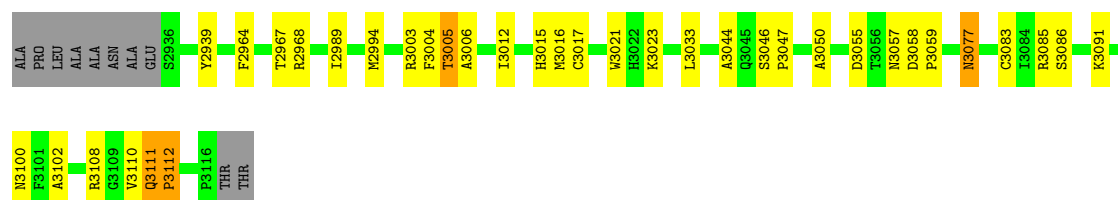
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	68	Total	O	0	0
			68	68		
4	B	68	Total	O	0	0
			68	68		
4	C	78	Total	O	0	0
			78	78		
4	D	61	Total	O	0	0
			61	61		

3 Residue-property plots

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

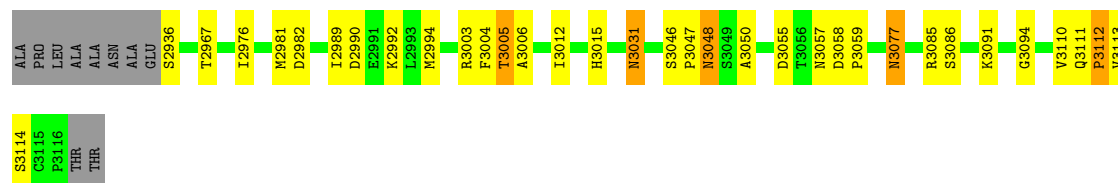
• Molecule 1: LAMININ ALPHA2 CHAIN

Chain A: 



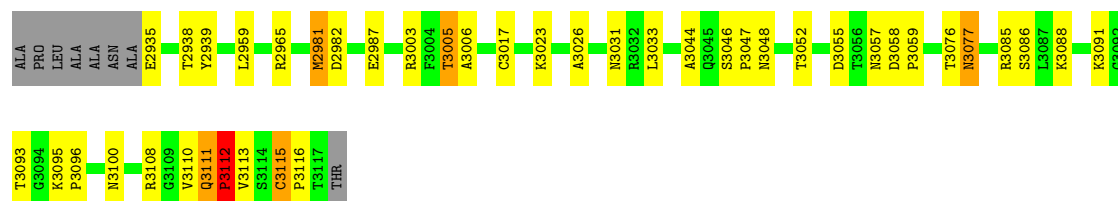
• Molecule 1: LAMININ ALPHA2 CHAIN

Chain B: 



• Molecule 1: LAMININ ALPHA2 CHAIN

Chain C: 



• Molecule 1: LAMININ ALPHA2 CHAIN

Chain D: 



P3112
P3113
S3114
C3115
P3116
THR
THR

4 Data and refinement statistics

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	42.22Å 112.89Å 117.40Å 90.00° 92.00° 90.00°	Depositor
Resolution (Å)	20.00 – 2.35 20.00 – 2.35	Depositor EDS
% Data completeness (in resolution range)	(Not available) (20.00-2.35) 85.8 (20.00-2.35)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	7.82 (at 2.33Å)	Xtriage
Refinement program	X-PLOR 3.851	Depositor
R, R_{free}	0.229 , 0.255 0.246 , 0.269	Depositor DCC
R_{free} test set	2175 reflections (5.03%)	wwPDB-VP
Wilson B-factor (Å ²)	18.6	Xtriage
Anisotropy	0.400	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.38 , 16.6	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	0.005 for -h,l,k 0.017 for -h,-l,-k 0.155 for h,-k,-l	Xtriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	5794	wwPDB-VP
Average B, all atoms (Å ²)	16.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.87% 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: SO4, CA

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	0/1392	0.99	9/1876 (0.5%)
1	B	0.42	0/1392	0.97	7/1876 (0.4%)
1	C	0.47	0/1408	1.04	9/1898 (0.5%)
1	D	0.44	0/1392	0.98	7/1876 (0.4%)
All	All	0.44	0/5584	0.99	32/7526 (0.4%)

There are no bond length outliers.

All (32) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	3111	GLN	CA-C-N	10.48	131.27	119.32
1	C	3111	GLN	C-N-CA	10.48	131.27	119.32
1	A	3111	GLN	CA-C-N	9.87	130.57	119.32
1	A	3111	GLN	C-N-CA	9.87	130.57	119.32
1	C	3113	VAL	N-CA-C	8.95	121.50	112.90
1	D	3111	GLN	CA-C-N	8.59	130.58	119.84
1	D	3111	GLN	C-N-CA	8.59	130.58	119.84
1	B	3111	GLN	CA-C-N	8.35	130.27	119.84
1	B	3111	GLN	C-N-CA	8.35	130.27	119.84
1	B	3113	VAL	N-CA-C	8.21	120.79	112.90
1	C	3115	CYS	CA-C-N	7.68	127.69	119.78
1	C	3115	CYS	C-N-CA	7.68	127.69	119.78
1	C	3112	PRO	N-CA-C	7.49	124.90	113.75
1	A	3112	PRO	N-CA-C	6.96	124.13	113.75
1	D	3050	ALA	N-CA-C	6.48	118.34	111.28
1	A	3050	ALA	N-CA-C	6.32	118.17	111.28
1	B	3005	THR	N-CA-C	6.12	119.17	109.50
1	C	3005	THR	N-CA-C	5.97	118.77	109.52
1	D	3005	THR	N-CA-C	5.89	118.81	109.50
1	A	3005	THR	N-CA-C	5.88	118.80	109.50

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	3112	PRO	N-CA-C	5.80	124.42	112.47
1	C	3086	SER	N-CA-C	5.72	119.28	111.39
1	D	3112	PRO	N-CA-C	5.55	123.91	112.47
1	B	3086	SER	N-CA-C	5.41	118.85	111.39
1	D	3086	SER	N-CA-C	5.36	118.79	111.39
1	A	3055	ASP	N-CA-C	5.30	117.75	108.52
1	A	3086	SER	N-CA-C	5.26	118.89	111.52
1	D	3055	ASP	N-CA-C	5.22	117.60	108.52
1	C	3055	ASP	N-CA-C	5.09	117.38	108.52
1	A	2968	ARG	CA-C-N	5.06	124.75	119.64
1	A	2968	ARG	C-N-CA	5.06	124.75	119.64
1	B	3055	ASP	N-CA-C	5.01	117.23	108.52

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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	1366	0	1362	17	0
1	B	1366	0	1362	20	0
1	C	1382	0	1375	21	0
1	D	1366	0	1362	15	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
2	C	1	0	0	0	0
2	D	1	0	0	0	0
3	A	10	0	0	1	0
3	B	5	0	0	0	0
3	C	10	0	0	1	0
3	D	10	0	0	1	0
4	A	68	0	0	2	0
4	B	68	0	0	2	0
4	C	78	0	0	2	0
4	D	61	0	0	1	0
All	All	5794	0	5461	71	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 7.

All (71) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3003:ARG:HD2	4:A:916:HOH:O	1.93	0.68
1:D:3003:ARG:HD2	4:D:1217:HOH:O	1.96	0.66
1:B:3094:GLY:H	1:C:3048:ASN:HD22	1.44	0.64
1:B:3048:ASN:HD21	1:B:3050:ALA:HB3	1.65	0.61
1:B:3048:ASN:HD22	1:B:3050:ALA:H	1.49	0.61
1:B:3031:ASN:HD22	1:B:3031:ASN:H	1.50	0.58
1:B:3003:ARG:HD2	4:B:1017:HOH:O	2.04	0.57
1:B:3048:ASN:HD22	1:B:3048:ASN:C	2.14	0.56
1:A:3033:LEU:HB2	1:A:3044:ALA:HB3	1.87	0.56
1:C:3003:ARG:HD2	4:C:1117:HOH:O	2.05	0.55
1:D:3033:LEU:HB2	1:D:3044:ALA:HB3	1.89	0.54
1:D:2937:GLY:H	1:D:3114:SER:HA	1.74	0.52
1:C:3023:LYS:HE2	4:C:1150:HOH:O	2.10	0.52
1:D:2939:TYR:HB3	1:D:3111:GLN:HB3	1.94	0.50
1:A:2939:TYR:HB3	1:A:3111:GLN:HB3	1.94	0.50
1:A:2964:PHE:HZ	1:A:3016:MET:HE3	1.76	0.50
1:D:3110:VAL:O	1:D:3112:PRO:HD3	2.12	0.49
1:C:3031:ASN:ND2	1:C:3052:THR:HG22	2.28	0.49
1:A:3012:ILE:O	1:A:3015:HIS:HB2	2.12	0.49
1:C:3058:ASP:HB3	1:C:3059:PRO:CD	2.43	0.49
1:C:2935:GLU:OE2	1:C:2965:ARG:NH1	2.46	0.48
1:D:3012:ILE:O	1:D:3015:HIS:HB2	2.13	0.48
1:B:3031:ASN:HD22	1:B:3031:ASN:N	2.11	0.48
1:C:3033:LEU:HB2	1:C:3044:ALA:HB3	1.96	0.48
1:D:2978:SER:HB3	1:D:2981:MET:O	2.14	0.47
1:A:3108:ARG:NH1	3:A:802:SO4:O2	2.47	0.47
1:B:3110:VAL:O	1:B:3112:PRO:HD3	2.15	0.47
1:C:2987:GLU:OE1	1:C:3076:THR:HG22	2.14	0.46
1:A:2989:ILE:HB	1:A:2994:MET:HE3	1.97	0.46
1:B:3058:ASP:HB3	1:B:3059:PRO:CD	2.46	0.46
1:C:2939:TYR:HB3	1:C:3111:GLN:HB3	1.97	0.46
1:D:3108:ARG:NH1	3:D:807:SO4:O2	2.47	0.46
1:B:3048:ASN:ND2	1:B:3050:ALA:H	2.14	0.46
1:D:2961:GLU:HB2	1:D:3088:LYS:HG3	1.98	0.45
1:C:3005:THR:HG22	1:C:3006:ALA:N	2.32	0.45
1:A:3091:LYS:HB3	1:A:3091:LYS:HE2	1.74	0.45
1:A:2964:PHE:CZ	1:A:3016:MET:HE3	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:3046:SER:HA	1:A:3047:PRO:HD3	1.88	0.44
1:C:3108:ARG:NH1	3:C:805:SO4:O2	2.47	0.44
1:B:2990:ASP:O	1:B:2992:LYS:NZ	2.45	0.43
1:C:3077:ASN:HD22	1:C:3077:ASN:C	2.26	0.43
1:D:2936:SER:N	1:D:3115:CYS:O	2.52	0.43
1:B:2989:ILE:HB	1:B:2994:MET:HE3	2.00	0.43
1:A:3110:VAL:O	1:A:3112:PRO:HD3	2.18	0.43
1:D:2981:MET:O	1:D:2982:ASP:HB2	2.19	0.43
1:C:3110:VAL:O	1:C:3112:PRO:HD3	2.19	0.42
1:D:3058:ASP:HB3	1:D:3059:PRO:CD	2.50	0.42
1:B:3015:HIS:HD2	4:B:1028:HOH:O	2.02	0.42
1:C:2981:MET:O	1:C:2982:ASP:HB2	2.20	0.42
1:B:2936:SER:HB2	1:B:3114:SER:HA	2.02	0.42
1:B:3005:THR:HG22	1:B:3006:ALA:N	2.34	0.42
1:A:3058:ASP:HB3	1:A:3059:PRO:CD	2.50	0.42
1:C:3046:SER:HA	1:C:3047:PRO:HD3	1.87	0.42
1:D:2990:ASP:O	1:D:2992:LYS:NZ	2.45	0.42
1:A:3100:ASN:ND2	1:A:3102:ALA:H	2.17	0.42
1:B:2981:MET:O	1:B:2982:ASP:HB2	2.19	0.42
1:A:3077:ASN:C	1:A:3077:ASN:HD22	2.26	0.42
1:B:3077:ASN:C	1:B:3077:ASN:HD22	2.28	0.41
1:A:3023:LYS:HE2	4:A:955:HOH:O	2.20	0.41
1:C:3115:CYS:HA	1:C:3116:PRO:HD3	1.80	0.41
1:A:3005:THR:HG22	1:A:3006:ALA:N	2.35	0.41
1:B:3094:GLY:H	1:C:3048:ASN:ND2	2.14	0.41
1:C:2938:THR:HG23	1:C:3112:PRO:HA	2.03	0.41
1:B:3012:ILE:O	1:B:3015:HIS:HB2	2.20	0.41
1:C:2959:LEU:HD12	1:C:3026:ALA:O	2.21	0.41
1:A:3021:TRP:CH2	1:A:3083:CYS:SG	3.14	0.40
1:C:3095:LYS:HB2	1:C:3096:PRO:HD2	2.02	0.40
1:D:3046:SER:HA	1:D:3047:PRO:HD3	1.87	0.40
1:B:3046:SER:HA	1:B:3047:PRO:HD3	1.91	0.40
1:C:3100:ASN:C	1:C:3100:ASN:HD22	2.29	0.40
1:D:3077:ASN:ND2	1:D:3077:ASN:C	2.80	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	179/191 (94%)	167 (93%)	11 (6%)	1 (1%)	21	24
1	B	179/191 (94%)	167 (93%)	11 (6%)	1 (1%)	21	24
1	C	181/191 (95%)	170 (94%)	10 (6%)	1 (1%)	21	24
1	D	179/191 (94%)	166 (93%)	12 (7%)	1 (1%)	21	24
All	All	718/764 (94%)	670 (93%)	44 (6%)	4 (1%)	21	24

All (4) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	3057	ASN
1	C	3057	ASN
1	D	3057	ASN
1	A	3057	ASN

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	146/152 (96%)	141 (97%)	5 (3%)	32	43
1	B	146/152 (96%)	138 (94%)	8 (6%)	19	24
1	C	148/152 (97%)	140 (95%)	8 (5%)	20	24
1	D	146/152 (96%)	140 (96%)	6 (4%)	27	36
All	All	586/608 (96%)	559 (95%)	27 (5%)	24	31

All (27) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	2967	THR
1	A	3004	PHE
1	A	3017	CYS
1	A	3077	ASN
1	A	3085	ARG
1	B	2967	THR
1	B	2976	ILE
1	B	3004	PHE
1	B	3031	ASN
1	B	3048	ASN
1	B	3077	ASN
1	B	3085	ARG
1	B	3091	LYS
1	C	2981	MET
1	C	3017	CYS
1	C	3077	ASN
1	C	3085	ARG
1	C	3088	LYS
1	C	3091	LYS
1	C	3093	THR
1	C	3112	PRO
1	D	2936	SER
1	D	2967	THR
1	D	2981	MET
1	D	3004	PHE
1	D	3077	ASN
1	D	3085	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (17) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	3077	ASN
1	A	3100	ASN
1	B	3015	HIS
1	B	3020	GLN
1	B	3031	ASN
1	B	3040	ASN
1	B	3048	ASN
1	B	3077	ASN
1	B	3100	ASN
1	C	3020	GLN

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Mol	Chain	Res	Type
1	C	3048	ASN
1	C	3077	ASN
1	C	3100	ASN
1	D	3020	GLN
1	D	3040	ASN
1	D	3077	ASN
1	D	3100	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 11 ligands modelled in this entry, 4 are monoatomic - leaving 7 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	SO4	D	806	2	4,4,4	0.31	0	6,6,6	0.18	0
3	SO4	B	803	2	4,4,4	0.29	0	6,6,6	0.12	0
3	SO4	A	801	2	4,4,4	0.31	0	6,6,6	0.17	0
3	SO4	D	807	-	4,4,4	0.34	0	6,6,6	0.17	0
3	SO4	A	802	-	4,4,4	0.33	0	6,6,6	0.17	0
3	SO4	C	805	-	4,4,4	0.34	0	6,6,6	0.18	0
3	SO4	C	804	2	4,4,4	0.25	0	6,6,6	0.14	0

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.

3 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	D	807	SO4	1	0
3	A	802	SO4	1	0
3	C	805	SO4	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 [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	181/191 (94%)	-1.60	0 100 100	8, 16, 32, 42	3 (1%)
1	B	181/191 (94%)	-1.62	0 100 100	6, 14, 23, 32	2 (1%)
1	C	183/191 (95%)	-1.57	0 100 100	6, 14, 26, 39	3 (1%)
1	D	181/191 (94%)	-1.56	0 100 100	7, 17, 35, 43	2 (1%)
All	All	726/764 (95%)	-1.59	0 100 100	6, 15, 30, 43	10 (1%)

There are no RSRZ outliers to report.

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(Å ²)	Q<0.9
3	SO4	A	802	5/5	0.99	0.05	55,57,59,60	0
3	SO4	C	805	5/5	0.99	0.06	74,76,77,78	0
3	SO4	D	806	5/5	0.99	0.04	34,37,38,41	0
3	SO4	D	807	5/5	0.99	0.06	65,66,68,69	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
3	SO4	A	801	5/5	1.00	0.02	23,24,25,31	0
2	CA	A	701	1/1	1.00	0.01	22,22,22,22	0
3	SO4	B	803	5/5	1.00	0.03	16,16,21,23	0
3	SO4	C	804	5/5	1.00	0.02	18,20,20,24	0
2	CA	B	702	1/1	1.00	0.02	20,20,20,20	0
2	CA	C	703	1/1	1.00	0.02	21,21,21,21	0
2	CA	D	704	1/1	1.00	0.01	24,24,24,24	0

6.5 Other polymers [i](#)

There are no such residues in this entry.