



wwPDB X-ray Structure Validation Summary Report ⓘ

Mar 8, 2026 – 10:01 AM UTC

PDB ID : 5SX5 / pdb_00005sx5
Title : Crystal Structure of panitumumab in complex with epidermal growth factor receptor domain 3 mutant S468R.
Authors : Sickmier, E.A.
Deposited on : 2016-08-09
Resolution : 2.50 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

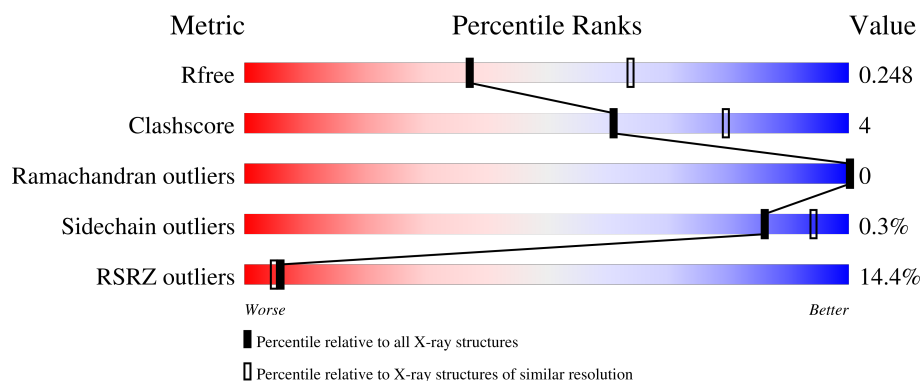
1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.50 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	K	214	3% 89% 10%
1	L	214	% 89% 10% .
2	H	221	5% 88% 5% 6%
2	J	221	8% 79% 14% 6%
3	M	201	39% 87% 9% .

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Mol	Chain	Length	Quality of chain
3	N	201	

2 Entry composition [i](#)

There are 8 unique types of molecules in this entry. The entry contains 9644 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 Panitumumab Fab Light Chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	K	213	Total	C	N	O	S	0	0	0
			1637	1025	273	334	5			
1	L	212	Total	C	N	O	S	0	0	0
			1628	1020	272	331	5			

- Molecule 2 is a protein called Panitumumab Fab Heavy Chain.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	J	207	Total	C	N	O	S	0	0	0
			1556	985	254	311	6			
2	H	207	Total	C	N	O	S	0	0	0
			1556	985	254	311	6			

- Molecule 3 is a protein called Epidermal growth factor receptor.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	M	194	Total	C	N	O	S	0	0	0
			1502	943	269	282	8			
3	N	192	Total	C	N	O	S	0	0	0
			1482	931	263	280	8			

There are 26 discrepancies between the modelled and reference sequences:

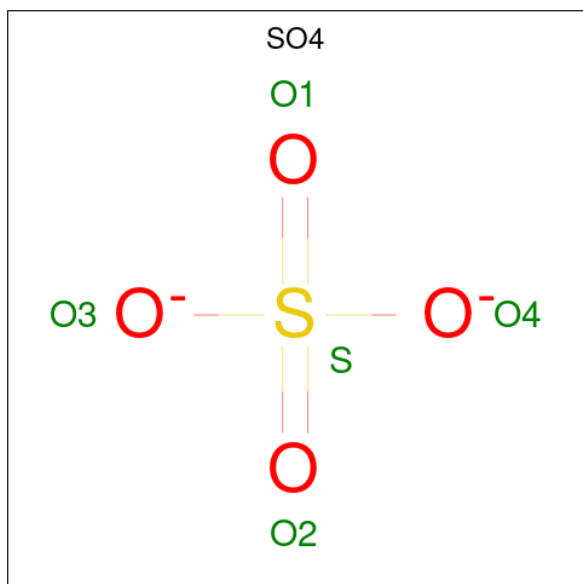
Chain	Residue	Modelled	Actual	Comment	Reference
M	307	LEU	-	expression tag	UNP P00533
M	308	GLU	-	expression tag	UNP P00533
M	309	GLU	-	expression tag	UNP P00533
M	310	LYS	-	expression tag	UNP P00533
M	328	ASP	ASN	conflict	UNP P00533
M	420	ASP	ASN	conflict	UNP P00533
M	468	ARG	SER	engineered mutation	UNP P00533
M	1502	HIS	-	expression tag	UNP P00533

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Chain	Residue	Modelled	Actual	Comment	Reference
M	1503	HIS	-	expression tag	UNP P00533
M	1504	HIS	-	expression tag	UNP P00533
M	1505	HIS	-	expression tag	UNP P00533
M	1506	HIS	-	expression tag	UNP P00533
M	1507	HIS	-	expression tag	UNP P00533
N	307	LEU	-	expression tag	UNP P00533
N	308	GLU	-	expression tag	UNP P00533
N	309	GLU	-	expression tag	UNP P00533
N	310	LYS	-	expression tag	UNP P00533
N	328	ASP	ASN	conflict	UNP P00533
N	420	ASP	ASN	conflict	UNP P00533
N	468	ARG	SER	engineered mutation	UNP P00533
N	502	HIS	-	expression tag	UNP P00533
N	503	HIS	-	expression tag	UNP P00533
N	504	HIS	-	expression tag	UNP P00533
N	505	HIS	-	expression tag	UNP P00533
N	506	HIS	-	expression tag	UNP P00533
N	507	HIS	-	expression tag	UNP P00533

- Molecule 4 is SULFATE ION (CCD ID: SO4) (formula: O₄S).



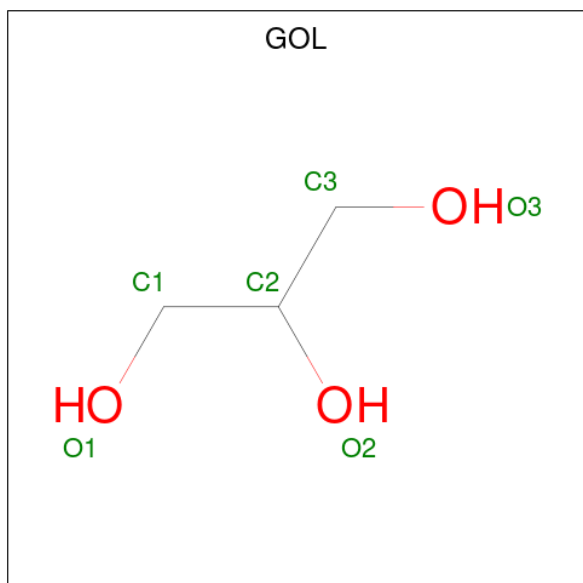
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	K	1	Total	O	S	0	0
			5	4	1		
4	K	1	Total	O	S	0	0
			5	4	1		

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Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	K	1	Total	O	S	0	0
			5	4	1		
4	L	1	Total	O	S	0	0
			5	4	1		
4	L	1	Total	O	S	0	0
			5	4	1		
4	L	1	Total	O	S	0	0
			5	4	1		
4	L	1	Total	O	S	0	0
			5	4	1		
4	H	1	Total	O	S	0	0
			5	4	1		
4	H	1	Total	O	S	0	0
			5	4	1		
4	H	1	Total	O	S	0	0
			5	4	1		
4	N	1	Total	O	S	0	0
			5	4	1		

- Molecule 5 is GLYCEROL (CCD ID: GOL) (formula: $C_3H_8O_3$).



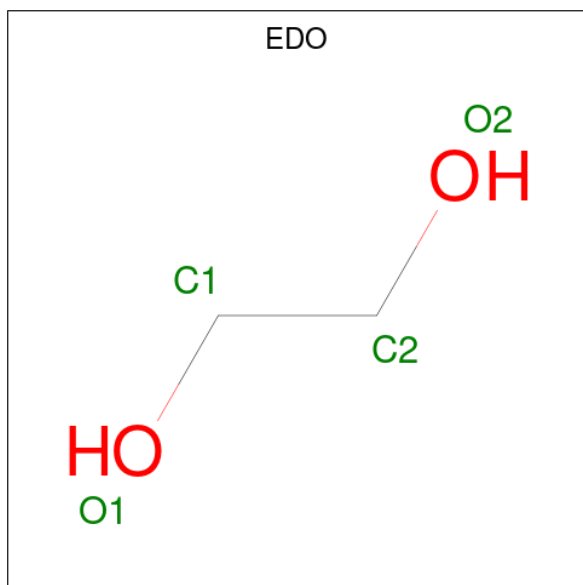
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	K	1	Total	C	O	0	0
			6	3	3		

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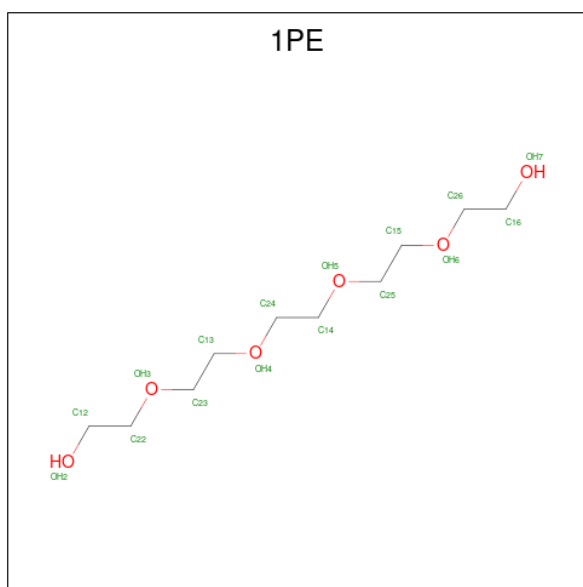
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
5	K	1	Total	C	O	0	0
			6	3	3		
5	L	1	Total	C	O	0	0
			6	3	3		
5	H	1	Total	C	O	0	0
			6	3	3		

- Molecule 6 is 1,2-ETHANEDIOL (CCD ID: EDO) (formula: $C_2H_6O_2$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
6	K	1	Total	C	O	0	0
			4	2	2		
6	J	1	Total	C	O	0	0
			4	2	2		
6	H	1	Total	C	O	0	0
			4	2	2		

- Molecule 7 is PENTAETHYLENE GLYCOL (CCD ID: 1PE) (formula: $C_{10}H_{22}O_6$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
7	J	1	Total	C	O	0	0
			16	10	6		
7	L	1	Total	C	O	0	0
			16	10	6		
7	H	1	Total	C	O	0	0
			16	10	6		

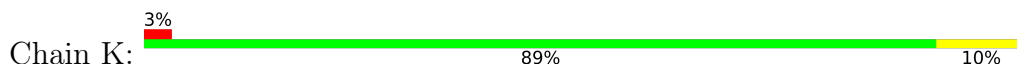
- Molecule 8 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
8	K	43	Total	O	0	0
			43	43		
8	J	21	Total	O	0	0
			21	21		
8	L	38	Total	O	0	0
			38	38		
8	H	30	Total	O	0	0
			30	30		
8	M	4	Total	O	0	0
			4	4		
8	N	3	Total	O	0	0
			3	3		

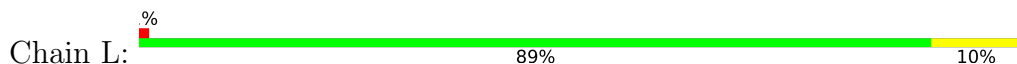
3 Residue-property plots [i](#)

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.

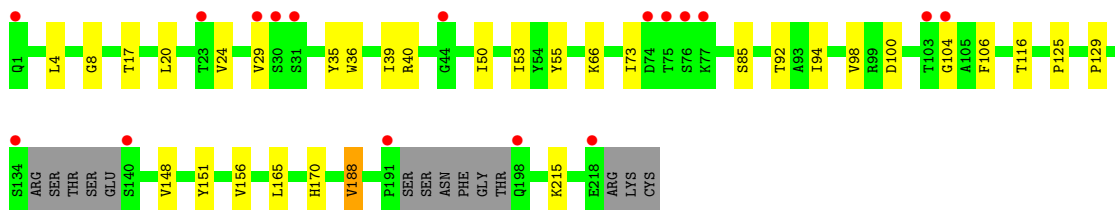
- Molecule 1: Panitumumab Fab Light Chain



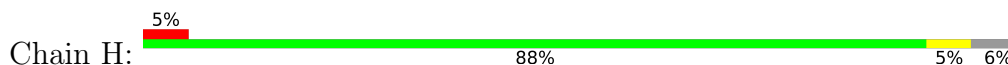
- Molecule 1: Panitumumab Fab Light Chain



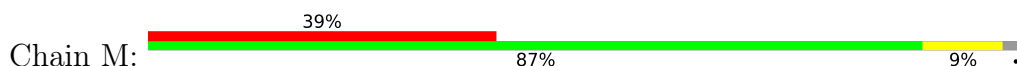
- Molecule 2: Panitumumab Fab Heavy Chain

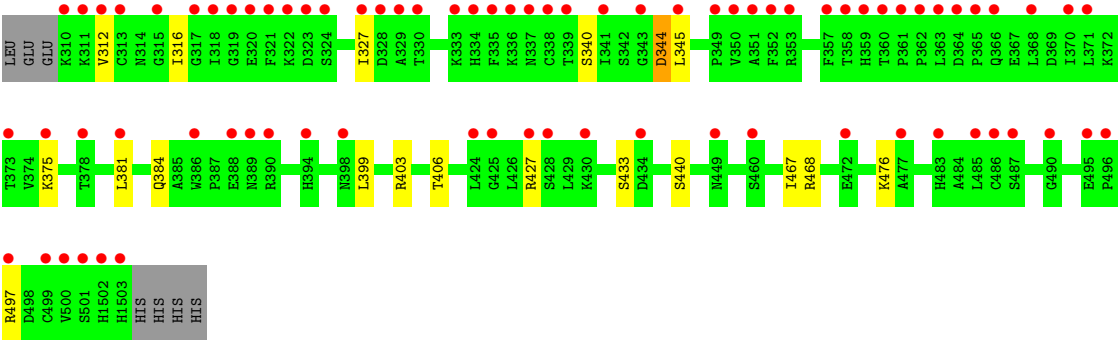


- Molecule 2: Panitumumab Fab Heavy Chain

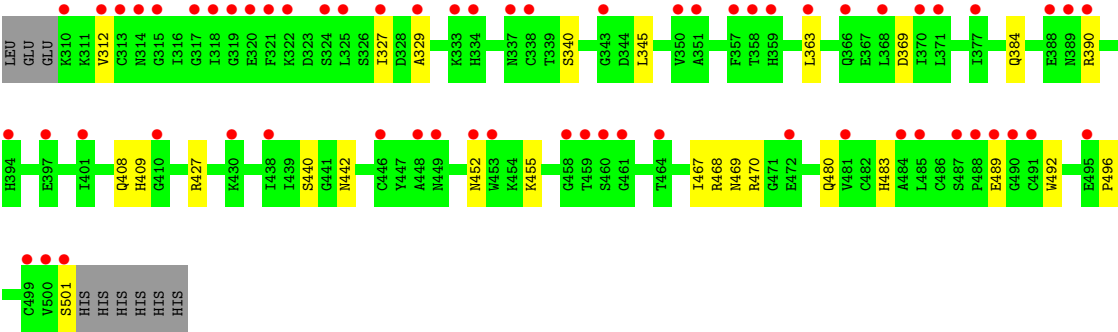
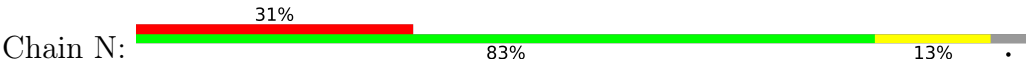


- Molecule 3: Epidermal growth factor receptor





• Molecule 3: Epidermal growth factor receptor



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	65.07Å 113.11Å 231.40Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	29.98 – 2.50 29.98 – 2.50	Depositor EDS
% Data completeness (in resolution range)	91.8 (29.98-2.50) 87.3 (29.98-2.50)	Depositor EDS
R_{merge}	0.05	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	2.92 (at 2.51Å)	Xtriage
Refinement program	PHENIX dev_2356	Depositor
R, R_{free}	0.226 , 0.250 0.227 , 0.248	Depositor DCC
R_{free} test set	2687 reflections (4.47%)	wwPDB-VP
Wilson B-factor (Å ²)	35.2	Xtriage
Anisotropy	0.077	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.33 , 45.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.92	EDS
Total number of atoms	9644	wwPDB-VP
Average B, all atoms (Å ²)	55.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 19.57% 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 [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: 1PE, GOL, EDO, SO4

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	K	0.09	0/1673	0.29	0/2272
1	L	0.09	0/1664	0.30	0/2260
2	H	0.10	0/1593	0.30	0/2177
2	J	0.09	0/1593	0.31	0/2177
3	M	0.09	0/1532	0.28	0/2070
3	N	0.08	0/1510	0.27	0/2040
All	All	0.09	0/9565	0.29	0/12996

There are no bond length outliers.

There are no bond angle outliers.

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	K	1637	0	1579	15	0
1	L	1628	0	1573	13	0
2	H	1556	0	1525	9	0
2	J	1556	0	1523	21	0
3	M	1502	0	1498	13	0
3	N	1482	0	1482	18	0
4	H	15	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	K	15	0	0	1	0
4	L	25	0	0	1	0
4	N	5	0	0	0	0
5	H	6	0	8	0	0
5	K	12	0	16	1	0
5	L	6	0	8	0	0
6	H	4	0	6	0	0
6	J	4	0	6	0	0
6	K	4	0	6	0	0
7	H	16	0	22	1	0
7	J	16	0	22	2	0
7	L	16	0	22	0	0
8	H	30	0	0	0	0
8	J	21	0	0	0	0
8	K	43	0	0	1	0
8	L	38	0	0	0	0
8	M	4	0	0	0	0
8	N	3	0	0	0	0
All	All	9644	0	9296	78	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 78 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)
3:N:327:ILE:HD11	3:N:345:LEU:HD22	1.71	0.71
1:K:91:PHE:HA	1:K:96:LEU:HD22	1.77	0.66
2:J:55:TYR:OH	3:M:384:GLN:NE2	2.30	0.64
3:M:375:LYS:HA	3:M:399:LEU:HA	1.78	0.64
3:N:452:ASN:HB3	3:N:455:LYS:HE3	1.81	0.62

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	K	211/214 (99%)	206 (98%)	5 (2%)	0	100	100
1	L	210/214 (98%)	205 (98%)	5 (2%)	0	100	100
2	H	201/221 (91%)	196 (98%)	5 (2%)	0	100	100
2	J	201/221 (91%)	196 (98%)	5 (2%)	0	100	100
3	M	192/201 (96%)	183 (95%)	9 (5%)	0	100	100
3	N	190/201 (94%)	183 (96%)	7 (4%)	0	100	100
All	All	1205/1272 (95%)	1169 (97%)	36 (3%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains ⓘ

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	K	187/188 (100%)	187 (100%)	0	100	100
1	L	186/188 (99%)	186 (100%)	0	100	100
2	H	180/193 (93%)	180 (100%)	0	100	100
2	J	180/193 (93%)	178 (99%)	2 (1%)	65	84
3	M	169/176 (96%)	168 (99%)	1 (1%)	78	91
3	N	167/176 (95%)	167 (100%)	0	100	100
All	All	1069/1114 (96%)	1066 (100%)	3 (0%)	86	94

All (3) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	J	66	LYS
2	J	188	VAL
3	M	344	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 21

such sidechains are listed below:

Mol	Chain	Res	Type
3	M	398	ASN
3	M	480	GLN
3	N	469	ASN
3	N	384	GLN
3	M	444	ASN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

22 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	$\# Z > 2$
6	EDO	H	306	-	3,3,3	0.43	0	2,2,2	0.40	0
4	SO4	L	305	-	4,4,4	0.23	0	6,6,6	0.06	0
4	SO4	L	302	-	4,4,4	0.24	0	6,6,6	0.07	0
6	EDO	J	302	-	3,3,3	0.41	0	2,2,2	0.39	0
6	EDO	K	306	-	3,3,3	0.43	0	2,2,2	0.36	0
7	1PE	H	304	-	15,15,15	0.55	0	14,14,14	0.23	0
4	SO4	H	303	-	4,4,4	0.24	0	6,6,6	0.07	0
4	SO4	L	301	-	4,4,4	0.24	0	6,6,6	0.08	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z > 2	Counts	RMSZ	# Z > 2
5	GOL	K	304	-	5,5,5	0.38	0	5,5,5	0.28	0
5	GOL	K	305	-	5,5,5	0.38	0	5,5,5	0.33	0
7	1PE	L	306	-	15,15,15	0.54	0	14,14,14	0.23	0
4	SO4	L	304	-	4,4,4	0.24	0	6,6,6	0.08	0
4	SO4	H	302	-	4,4,4	0.24	0	6,6,6	0.08	0
5	GOL	H	305	-	5,5,5	0.37	0	5,5,5	0.35	0
4	SO4	N	601	-	4,4,4	0.23	0	6,6,6	0.07	0
4	SO4	H	301	-	4,4,4	0.24	0	6,6,6	0.08	0
4	SO4	K	302	-	4,4,4	0.24	0	6,6,6	0.07	0
4	SO4	K	301	-	4,4,4	0.24	0	6,6,6	0.07	0
4	SO4	L	303	-	4,4,4	0.24	0	6,6,6	0.08	0
4	SO4	K	303	-	4,4,4	0.23	0	6,6,6	0.08	0
5	GOL	L	307	-	5,5,5	0.36	0	5,5,5	0.32	0
7	1PE	J	301	-	15,15,15	0.54	0	14,14,14	0.21	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
7	1PE	L	306	-	-	10/13/13/13	-
6	EDO	K	306	-	-	0/1/1/1	-
6	EDO	H	306	-	-	0/1/1/1	-
7	1PE	H	304	-	-	6/13/13/13	-
5	GOL	H	305	-	-	2/4/4/4	-
6	EDO	J	302	-	-	0/1/1/1	-
5	GOL	L	307	-	-	2/4/4/4	-
5	GOL	K	304	-	-	2/4/4/4	-
5	GOL	K	305	-	-	2/4/4/4	-
7	1PE	J	301	-	-	7/13/13/13	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

5 of 31 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
5	K	305	GOL	O1-C1-C2-C3

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Mol	Chain	Res	Type	Atoms
5	L	307	GOL	O1-C1-C2-C3
5	H	305	GOL	O1-C1-C2-C3
7	H	304	1PE	OH6-C15-C25-OH5
7	H	304	1PE	OH4-C13-C23-OH3

There are no ring outliers.

5 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
7	H	304	1PE	1	0
5	K	304	GOL	1	0
4	L	304	SO4	1	0
4	K	303	SO4	1	0
7	J	301	1PE	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	K	213/214 (99%)	0.03	6 (2%) 55 50	21, 37, 59, 105	0
1	L	212/214 (99%)	-0.01	3 (1%) 73 70	19, 36, 56, 74	0
2	H	207/221 (93%)	0.26	10 (4%) 35 31	22, 39, 72, 108	0
2	J	207/221 (93%)	0.51	17 (8%) 17 15	23, 45, 85, 111	0
3	M	194/201 (96%)	1.99	78 (40%) 0 0	50, 86, 128, 178	0
3	N	192/201 (95%)	1.66	63 (32%) 1 1	51, 81, 112, 129	0
All	All	1225/1272 (96%)	0.71	177 (14%) 6 5	19, 46, 106, 178	0

The worst 5 of 177 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
3	M	472	GLU	5.9
3	N	500	VAL	5.8
3	M	329	ALA	5.7
3	M	310	LYS	5.6
3	M	319	GLY	5.6

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(Å ²)	Q<0.9
4	SO4	N	601	5/5	0.64	0.16	97,97,99,100	0
4	SO4	L	303	5/5	0.69	0.12	109,111,111,113	0
4	SO4	K	302	5/5	0.71	0.19	94,97,98,103	0
4	SO4	L	301	5/5	0.72	0.29	89,91,97,97	0
4	SO4	H	303	5/5	0.77	0.18	87,90,94,96	0
4	SO4	L	302	5/5	0.77	0.31	92,93,96,96	0
7	1PE	L	306	16/16	0.81	0.19	50,59,67,68	0
4	SO4	H	301	5/5	0.82	0.24	89,93,96,97	0
7	1PE	J	301	16/16	0.83	0.16	44,54,68,69	0
5	GOL	K	305	6/6	0.83	0.19	55,57,59,62	0
4	SO4	L	305	5/5	0.84	0.15	68,71,76,77	0
5	GOL	L	307	6/6	0.85	0.16	44,56,57,57	0
5	GOL	K	304	6/6	0.86	0.14	48,53,56,57	0
5	GOL	H	305	6/6	0.86	0.16	51,54,57,60	0
4	SO4	K	303	5/5	0.87	0.11	74,79,80,81	0
6	EDO	K	306	4/4	0.87	0.14	41,43,47,47	0
4	SO4	L	304	5/5	0.89	0.11	69,72,77,79	0
6	EDO	J	302	4/4	0.89	0.15	47,49,52,56	0
4	SO4	H	302	5/5	0.90	0.19	92,94,96,98	0
7	1PE	H	304	16/16	0.90	0.12	34,49,56,60	0
4	SO4	K	301	5/5	0.93	0.11	66,68,73,74	0
6	EDO	H	306	4/4	0.95	0.12	46,47,48,51	0

6.5 Other polymers [i](#)

There are no such residues in this entry.