



# wwPDB X-ray Structure Validation Summary Report ⓘ

Apr 28, 2025 – 01:32 PM EDT

PDB ID : 3IXS / pdb\_00003ixs  
Title : Ring1B C-terminal domain/RYPB C-terminal domain Complex  
Authors : Wang, R.; Taylor, A.B.; Kim, C.A.  
Deposited on : 2009-09-04  
Resolution : 1.70 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](mailto: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>.

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The following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4-5-2 with Phenix2.0rc1  
Mogul : 2022.3.0, CSD as543be (2022)  
Xtrriage (Phenix) : 2.0rc1  
EDS : 3.0  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
CCP4 : 9.0.006 (Gargrove)  
Density-Fitness : 1.0.12  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.43.1

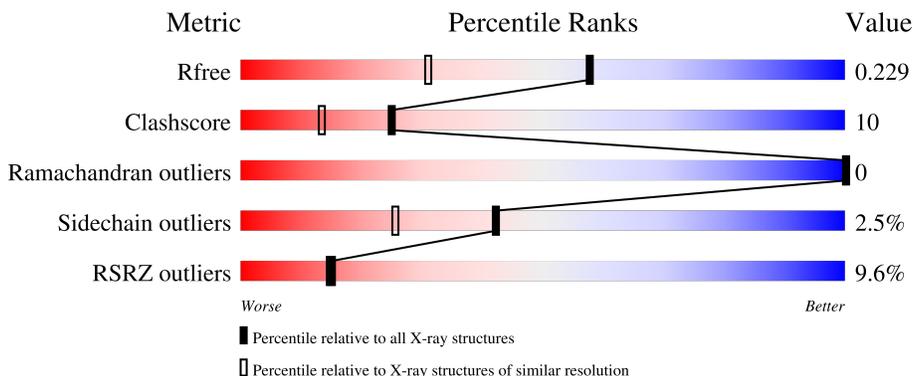
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 1.70 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))
$R_{free}$	164625	5161 (1.70-1.70)
Clashscore	180529	5671 (1.70-1.70)
Ramachandran outliers	177936	5594 (1.70-1.70)
Sidechain outliers	177891	5594 (1.70-1.70)
RSRZ outliers	164620	5159 (1.70-1.70)

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  $\geq 3$ , 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	111	<div style="display: flex; align-items: center;"> <div style="width: 8%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 83%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 16%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: grey;"></div> </div> <p style="margin-left: 20px;">8%      83%      16%      •</p>
1	C	111	<div style="display: flex; align-items: center;"> <div style="width: 5%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 83%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 16%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: grey;"></div> </div> <p style="margin-left: 20px;">5%      83%      16%      •</p>
1	E	111	<div style="display: flex; align-items: center;"> <div style="width: 6%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 70%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 21%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 9%; height: 10px; background-color: grey;"></div> </div> <p style="margin-left: 20px;">6%      70%      21%      9%</p>
1	G	111	<div style="display: flex; align-items: center;"> <div style="width: 11%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 64%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 24%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 1%; height: 10px; background-color: grey;"></div> </div> <p style="margin-left: 20px;">11%      64%      24%      •      11%</p>
1	I	111	<div style="display: flex; align-items: center;"> <div style="width: 12%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 70%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 15%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 14%; height: 10px; background-color: grey;"></div> </div> <p style="margin-left: 20px;">12%      70%      15%      14%</p>

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Mol	Chain	Length	Quality of chain
1	K	111	
2	B	37	
2	D	37	
2	F	37	
2	H	37	
2	J	37	
2	L	37	

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	EDO	C	4	-	-	X	-
3	EDO	E	1	-	-	X	-

## 2 Entry composition [i](#)

There are 5 unique types of molecules in this entry. The entry contains 6935 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 E3 ubiquitin-protein ligase RING2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	111	Total 890	C 564	N 145	O 178	S 3	0	1	0
1	C	111	Total 893	C 566	N 145	O 179	S 3	0	2	0
1	E	101	Total 810	C 519	N 130	O 159	S 2	0	0	0
1	G	99	Total 798	C 512	N 129	O 155	S 2	0	1	0
1	I	95	Total 766	C 493	N 123	O 148	S 2	0	0	0
1	K	100	Total 803	C 514	N 130	O 157	S 2	0	0	0

There are 6 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	306	ASP	ASN	engineered mutation	UNP Q99496
C	306	ASP	ASN	engineered mutation	UNP Q99496
E	306	ASP	ASN	engineered mutation	UNP Q99496
G	306	ASP	ASN	engineered mutation	UNP Q99496
I	306	ASP	ASN	engineered mutation	UNP Q99496
K	306	ASP	ASN	engineered mutation	UNP Q99496

- Molecule 2 is a protein called RING1 and YY1-binding protein.

Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
2	B	31	Total 241	C 151	N 44	O 46	0	0	0
2	D	34	Total 263	C 163	N 50	O 50	0	0	0
2	F	32	Total 252	C 157	N 48	O 47	0	0	0

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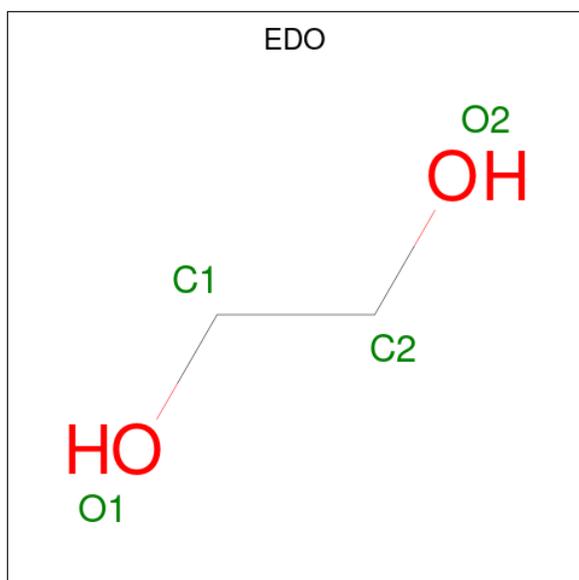
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Mol	Chain	Residues	Atoms				ZeroOcc	AltConf	Trace
			Total	C	N	O			
2	H	36	283	174	55	54	0	0	0
2	J	30	234	146	43	45	0	0	0
2	L	32	252	157	48	47	0	0	0

There are 12 discrepancies between the modelled and reference sequences:

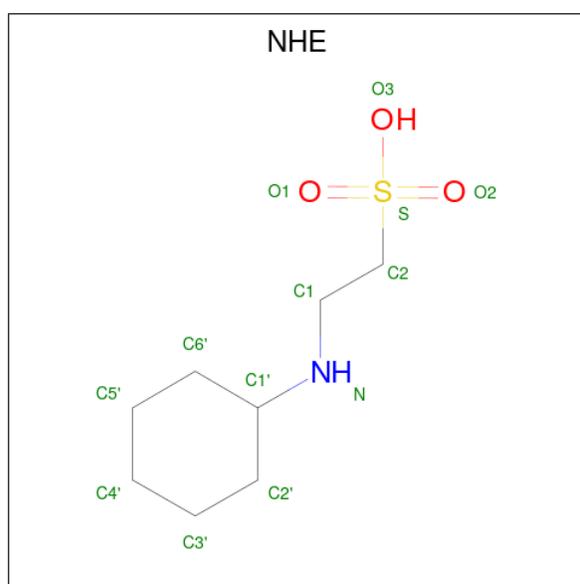
Chain	Residue	Modelled	Actual	Comment	Reference
B	143	GLY	-	expression tag	UNP Q8N488
B	144	THR	-	expression tag	UNP Q8N488
D	143	GLY	-	expression tag	UNP Q8N488
D	144	THR	-	expression tag	UNP Q8N488
F	143	GLY	-	expression tag	UNP Q8N488
F	144	THR	-	expression tag	UNP Q8N488
H	143	GLY	-	expression tag	UNP Q8N488
H	144	THR	-	expression tag	UNP Q8N488
J	143	GLY	-	expression tag	UNP Q8N488
J	144	THR	-	expression tag	UNP Q8N488
L	143	GLY	-	expression tag	UNP Q8N488
L	144	THR	-	expression tag	UNP Q8N488

- Molecule 3 is 1,2-ETHANEDIOL (CCD ID: EDO) (formula: C<sub>2</sub>H<sub>6</sub>O<sub>2</sub>).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C O 4 2 2	0	0
3	C	1	Total C O 4 2 2	0	0
3	E	1	Total C O 4 2 2	0	0
3	H	1	Total C O 4 2 2	0	0

- Molecule 4 is 2-[N-CYCLOHEXYLAMINO]ETHANE SULFONIC ACID (CCD ID: NHE) (formula: C<sub>8</sub>H<sub>17</sub>NO<sub>3</sub>S).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	C	1	Total C N O S 13 8 1 3 1	0	0

- Molecule 5 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	88	Total O 88 88	0	0
5	B	27	Total O 27 27	0	0
5	C	100	Total O 100 100	0	0
5	D	36	Total O 36 36	0	0

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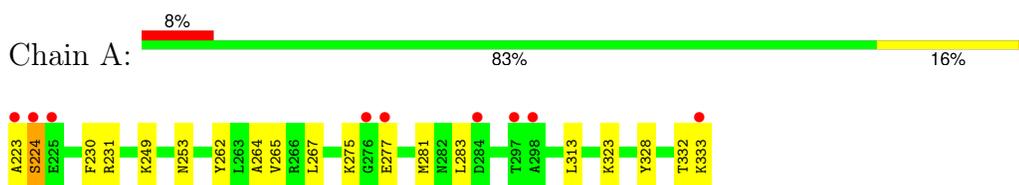
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<b>Mol</b>	<b>Chain</b>	<b>Residues</b>	<b>Atoms</b>		<b>ZeroOcc</b>	<b>AltConf</b>
5	E	53	Total 53	O 53	0	0
5	F	12	Total 12	O 12	0	0
5	G	24	Total 24	O 24	0	0
5	H	13	Total 13	O 13	0	0
5	I	16	Total 16	O 16	0	0
5	J	9	Total 9	O 9	0	0
5	K	36	Total 36	O 36	0	0
5	L	7	Total 7	O 7	0	0

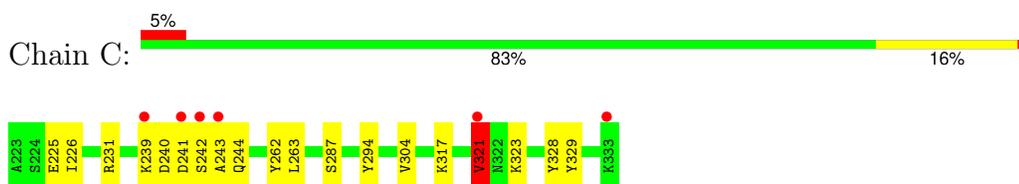
### 3 Residue-property plots [i](#)

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.

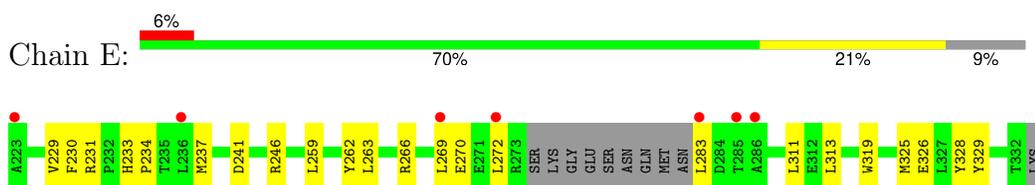
- Molecule 1: E3 ubiquitin-protein ligase RING2



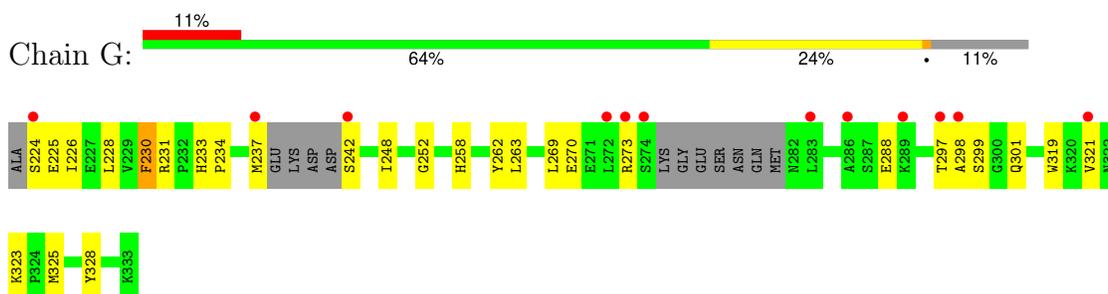
- Molecule 1: E3 ubiquitin-protein ligase RING2



- Molecule 1: E3 ubiquitin-protein ligase RING2



- Molecule 1: E3 ubiquitin-protein ligase RING2



- Molecule 1: E3 ubiquitin-protein ligase RING2





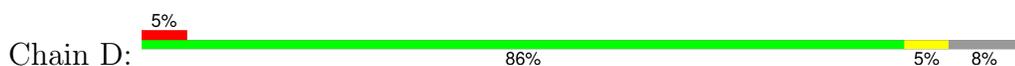
- Molecule 1: E3 ubiquitin-protein ligase RING2



- Molecule 2: RING1 and YY1-binding protein



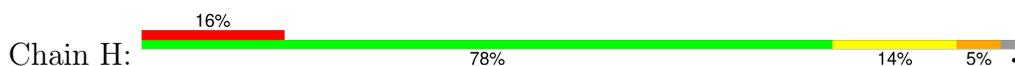
- Molecule 2: RING1 and YY1-binding protein



- Molecule 2: RING1 and YY1-binding protein



- Molecule 2: RING1 and YY1-binding protein



- Molecule 2: RING1 and YY1-binding protein



- Molecule 2: RING1 and YY1-binding protein



## 4 Data and refinement statistics

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	37.89Å 56.55Å 100.35Å 100.88° 90.61° 100.49°	Depositor
Resolution (Å)	40.68 – 1.70 40.68 – 1.70	Depositor EDS
% Data completeness (in resolution range)	95.9 (40.68-1.70) 95.9 (40.68-1.70)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	0.10	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.13 (at 1.70Å)	Xtrriage
Refinement program	PHENIX (phenix.refine: 1.4_4)	Depositor
R, $R_{free}$	0.203 , 0.234 0.198 , 0.229	Depositor DCC
$R_{free}$ test set	4271 reflections (5.04%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	24.8	Xtrriage
Anisotropy	0.222	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.37 , 43.3	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.51$ , $\langle L^2 \rangle = 0.34$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
$F_o, F_c$ correlation	0.96	EDS
Total number of atoms	6935	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	35.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 6.69% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup>Intensities estimated from amplitudes.

<sup>2</sup>Theoretical 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: EDO, NHE

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	0.45	0/910	0.80	0/1229
1	C	0.49	0/916	0.78	1/1237 (0.1%)
1	E	0.39	0/826	0.73	0/1119
1	G	0.35	0/816	0.71	0/1102
1	I	0.32	0/781	0.66	0/1057
1	K	0.39	0/819	0.70	0/1106
2	B	0.54	0/242	0.84	0/326
2	D	0.50	0/264	0.85	0/356
2	F	0.35	0/253	0.77	0/341
2	H	0.39	0/284	0.83	2/383 (0.5%)
2	J	0.32	0/234	0.71	0/315
2	L	0.34	0/253	0.72	0/341
All	All	0.41	0/6598	0.75	3/8912 (0.0%)

There are no bond length outliers.

All (3) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	H	145	ARG	CA-C-N	5.77	125.96	119.90
2	H	145	ARG	C-N-CA	5.77	125.96	119.90
1	C	321	VAL	N-CA-C	5.08	116.60	108.89

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	890	0	883	19	0
1	C	893	0	888	14	0
1	E	810	0	803	22	0
1	G	798	0	799	24	0
1	I	766	0	760	10	0
1	K	803	0	799	17	0
2	B	241	0	258	3	0
2	D	263	0	280	2	0
2	F	252	0	270	11	0
2	H	283	0	302	11	0
2	J	234	0	250	2	0
2	L	252	0	270	7	0
3	A	4	0	6	0	0
3	C	4	0	6	4	0
3	E	4	0	6	4	0
3	H	4	0	6	0	0
4	C	13	0	17	0	0
5	A	88	0	0	1	0
5	B	27	0	0	0	0
5	C	100	0	0	3	0
5	D	36	0	0	0	0
5	E	53	0	0	1	0
5	F	12	0	0	0	0
5	G	24	0	0	0	0
5	H	13	0	0	0	0
5	I	16	0	0	0	0
5	J	9	0	0	0	0
5	K	36	0	0	0	0
5	L	7	0	0	0	0
All	All	6935	0	6603	126	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 10.

The worst 5 of 126 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:E:246:ARG:HE	3:E:1:EDO:H12	1.09	1.07
1:K:231:ARG:HH12	1:K:326:GLU:CD	1.71	0.98

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:332:THR:HA	1:A:333:LYS:CB	2.01	0.90
3:C:4:EDO:H21	2:D:145:ARG:HG3	1.56	0.87
2:F:175:GLU:O	2:F:176:LYS:HB2	1.74	0.85

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	110/111 (99%)	107 (97%)	3 (3%)	0	100	100
1	C	111/111 (100%)	108 (97%)	3 (3%)	0	100	100
1	E	97/111 (87%)	94 (97%)	3 (3%)	0	100	100
1	G	94/111 (85%)	90 (96%)	4 (4%)	0	100	100
1	I	89/111 (80%)	87 (98%)	2 (2%)	0	100	100
1	K	96/111 (86%)	93 (97%)	3 (3%)	0	100	100
2	B	29/37 (78%)	29 (100%)	0	0	100	100
2	D	32/37 (86%)	32 (100%)	0	0	100	100
2	F	30/37 (81%)	28 (93%)	2 (7%)	0	100	100
2	H	34/37 (92%)	34 (100%)	0	0	100	100
2	J	28/37 (76%)	28 (100%)	0	0	100	100
2	L	30/37 (81%)	28 (93%)	2 (7%)	0	100	100
All	All	780/888 (88%)	758 (97%)	22 (3%)	0	100	100

There are no Ramachandran outliers to report.

### 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	99/98 (101%)	97 (98%)	2 (2%)	50	34
1	C	100/98 (102%)	96 (96%)	4 (4%)	27	11
1	E	89/98 (91%)	88 (99%)	1 (1%)	70	60
1	G	89/98 (91%)	87 (98%)	2 (2%)	47	30
1	I	84/98 (86%)	81 (96%)	3 (4%)	30	14
1	K	88/98 (90%)	86 (98%)	2 (2%)	45	29
2	B	28/33 (85%)	28 (100%)	0	100	100
2	D	30/33 (91%)	30 (100%)	0	100	100
2	F	29/33 (88%)	29 (100%)	0	100	100
2	H	33/33 (100%)	31 (94%)	2 (6%)	15	4
2	J	27/33 (82%)	27 (100%)	0	100	100
2	L	29/33 (88%)	27 (93%)	2 (7%)	13	3
All	All	725/786 (92%)	707 (98%)	18 (2%)	42	25

5 of 18 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	K	230	PHE
2	L	172	ASP
2	L	151	VAL
1	G	301	GLN
1	I	288	GLU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
2	B	157	GLN
2	F	157	GLN

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

## 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

5 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
3	EDO	A	2	-	3,3,3	0.50	0	2,2,2	0.37	0
3	EDO	H	3	-	3,3,3	0.43	0	2,2,2	0.33	0
4	NHE	C	1	-	13,13,13	2.85	4 (30%)	16,17,17	1.15	2 (12%)
3	EDO	C	4	-	3,3,3	0.45	0	2,2,2	0.43	0
3	EDO	E	1	-	3,3,3	0.40	0	2,2,2	0.30	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	EDO	A	2	-	-	1/1/1/1	-
3	EDO	H	3	-	-	0/1/1/1	-
4	NHE	C	1	-	-	0/7/15/15	0/1/1/1
3	EDO	C	4	-	-	1/1/1/1	-
3	EDO	E	1	-	-	0/1/1/1	-

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	C	1	NHE	O2-S	6.92	1.64	1.45
4	C	1	NHE	O1-S	4.83	1.58	1.45
4	C	1	NHE	O3-S	4.23	1.63	1.47
4	C	1	NHE	C2-S	2.56	1.81	1.77

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	C	1	NHE	C1-N-C1'	-2.52	109.34	114.18
4	C	1	NHE	O1-S-C2	2.49	110.49	106.73

There are no chirality outliers.

All (2) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	2	EDO	O1-C1-C2-O2
3	C	4	EDO	O1-C1-C2-O2

There are no ring outliers.

2 monomers are involved in 8 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	C	4	EDO	4	0
3	E	1	EDO	4	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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
1	A	111/111 (100%)	0.46	9 (8%) 19 20	13, 26, 44, 52	1 (0%)
1	C	111/111 (100%)	0.21	6 (5%) 32 35	14, 22, 56, 77	2 (1%)
1	E	101/111 (90%)	0.71	7 (6%) 24 25	22, 32, 56, 80	0
1	G	99/111 (89%)	0.85	12 (12%) 10 9	19, 34, 62, 67	1 (1%)
1	I	95/111 (85%)	1.02	13 (13%) 8 7	28, 38, 67, 82	0
1	K	100/111 (90%)	0.78	13 (13%) 9 8	17, 32, 64, 85	0
2	B	31/37 (83%)	-0.04	1 (3%) 50 53	14, 20, 44, 50	0
2	D	34/37 (91%)	0.07	2 (5%) 29 31	16, 21, 41, 47	0
2	F	32/37 (86%)	0.92	2 (6%) 27 28	27, 41, 53, 55	0
2	H	36/37 (97%)	0.94	6 (16%) 5 4	26, 35, 57, 58	0
2	J	30/37 (81%)	1.04	1 (3%) 49 52	28, 42, 59, 60	0
2	L	32/37 (86%)	1.32	6 (18%) 4 3	25, 48, 68, 69	0
All	All	812/888 (91%)	0.67	78 (9%) 15 15	13, 32, 61, 85	4 (0%)

The worst 5 of 78 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	223	ALA	6.4
1	C	243	ALA	5.3
1	E	272	LEU	5.2
1	E	285	THR	4.8
1	K	321	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 monosaccharides 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, 95<sup>th</sup> 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 <sup>2</sup> )	Q<0.9
3	EDO	C	4	4/4	0.84	0.25	23,25,39,46	0
3	EDO	H	3	4/4	0.88	0.11	36,46,52,54	0
3	EDO	E	1	4/4	0.89	0.14	36,40,42,44	0
3	EDO	A	2	4/4	0.96	0.07	19,23,25,26	0
4	NHE	C	1	13/13	0.97	0.07	13,16,19,20	0

### 6.5 Other polymers [i](#)

There are no such residues in this entry.