



# Full wwPDB X-ray Structure Validation Report ⓘ

Feb 1, 2016 – 05:19 AM GMT

PDB ID : 2Q5E  
Title : Crystal structure of human carboxy-terminal domain RNA polymerase II polypeptide A small phosphatase 2  
Authors : Bonanno, J.B.; Dickey, M.; Bain, K.T.; Lau, C.; Romero, R.; Smith, D.; Wasserman, S.; Sauder, J.M.; Burley, S.K.; Almo, S.C.; New York SGX Research Center for Structural Genomics (NYSGXRC)  
Deposited on : 2007-05-31  
Resolution : 2.51 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](mailto:validation@mail.wwpdb.org)  
A user guide is available at  
<http://wwpdb.org/validation/2016/XrayValidationReportHelp>  
with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467  
Mogul : 1.7 (RC4), CSD as536be (2015)  
Xtriage (Phenix) : 1.9-1692  
EDS : rb-20026688  
Percentile statistics : 20151230.v01 (using entries in the PDB archive December 30th 2015)  
Refmac : 5.8.0135  
CCP4 : 6.5.0  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : trunk26865

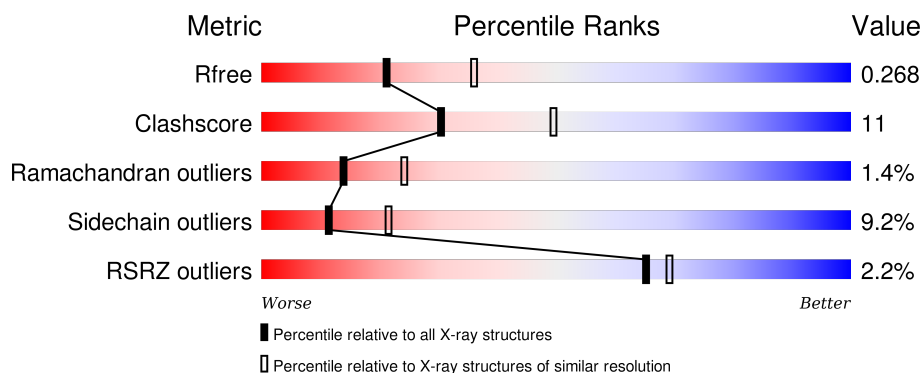
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

## *X-RAY DIFFRACTION*

The reported resolution of this entry is 2.51 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))
$R_{free}$	91344	3553 (2.50-2.50)
Clashscore	102246	4242 (2.50-2.50)
Ramachandran outliers	100387	4156 (2.50-2.50)
Sidechain outliers	100360	4158 (2.50-2.50)
RSRZ outliers	91569	3562 (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 on the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria. 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	187	<div> <div>2%</div> <div> <div></div> <div>71%</div> <div>21%</div> <div>• • •</div> </div> </div>
1	B	187	<div> <div>2%</div> <div> <div></div> <div>71%</div> <div>20%</div> <div>• 5%</div> </div> </div>
1	C	187	<div> <div>3%</div> <div> <div></div> <div>70%</div> <div>20%</div> <div>• • 5%</div> </div> </div>
1	D	187	<div> <div>2%</div> <div> <div></div> <div>72%</div> <div>18%</div> <div>• • 6%</div> </div> </div>
1	E	187	<div> <div>0%</div> <div> <div></div> <div>62%</div> <div>30%</div> <div>• •</div> </div> </div>

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Mol	Chain	Length	Quality of chain
1	F	187	
1	G	187	
1	H	187	

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
2	MG	C	1	-	-	-	X
2	MG	D	1	-	-	-	X
2	MG	E	1	-	-	-	X
2	MG	G	1	-	-	-	X
2	MG	H	1	-	-	-	X

## 2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 11566 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 Carboxy-terminal domain RNA polymerase II polypeptide A small phosphatase 2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	181	Total	C	N	O	S	0	0	0
			1454	930	241	276	7			
1	B	178	Total	C	N	O	S	0	0	0
			1433	919	236	271	7			
1	C	178	Total	C	N	O	S	0	0	0
			1433	919	236	271	7			
1	D	175	Total	C	N	O	S	0	0	0
			1405	902	229	267	7			
1	E	179	Total	C	N	O	S	0	0	0
			1436	918	236	274	8			
1	F	178	Total	C	N	O	S	0	0	0
			1428	916	233	271	8			
1	G	179	Total	C	N	O	S	0	0	0
			1439	922	237	272	8			
1	H	179	Total	C	N	O	S	0	0	0
			1439	922	237	272	8			

There are 16 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	85	SER	-	CLONING ARTIFACT	UNP O14595
A	86	LEU	-	CLONING ARTIFACT	UNP O14595
B	85	SER	-	CLONING ARTIFACT	UNP O14595
B	86	LEU	-	CLONING ARTIFACT	UNP O14595
C	85	SER	-	CLONING ARTIFACT	UNP O14595
C	86	LEU	-	CLONING ARTIFACT	UNP O14595
D	85	SER	-	CLONING ARTIFACT	UNP O14595
D	86	LEU	-	CLONING ARTIFACT	UNP O14595
E	85	SER	-	CLONING ARTIFACT	UNP O14595
E	86	LEU	-	CLONING ARTIFACT	UNP O14595
F	85	SER	-	CLONING ARTIFACT	UNP O14595
F	86	LEU	-	CLONING ARTIFACT	UNP O14595

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Chain	Residue	Modelled	Actual	Comment	Reference
G	85	SER	-	CLONING ARTIFACT	UNP O14595
G	86	LEU	-	CLONING ARTIFACT	UNP O14595
H	85	SER	-	CLONING ARTIFACT	UNP O14595
H	86	LEU	-	CLONING ARTIFACT	UNP O14595

- Molecule 2 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	G	1	Total Mg 1 1	0	0
2	D	1	Total Mg 1 1	0	0
2	E	1	Total Mg 1 1	0	0
2	H	1	Total Mg 1 1	0	0
2	B	1	Total Mg 1 1	0	0
2	C	1	Total Mg 1 1	0	0
2	A	1	Total Mg 1 1	0	0
2	F	1	Total Mg 1 1	0	0

- Molecule 3 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	11	Total O 11 11	0	0
3	B	12	Total O 12 12	0	0
3	C	11	Total O 11 11	0	0
3	D	11	Total O 11 11	0	0
3	E	11	Total O 11 11	0	0
3	F	7	Total O 7 7	0	0
3	G	11	Total O 11 11	0	0

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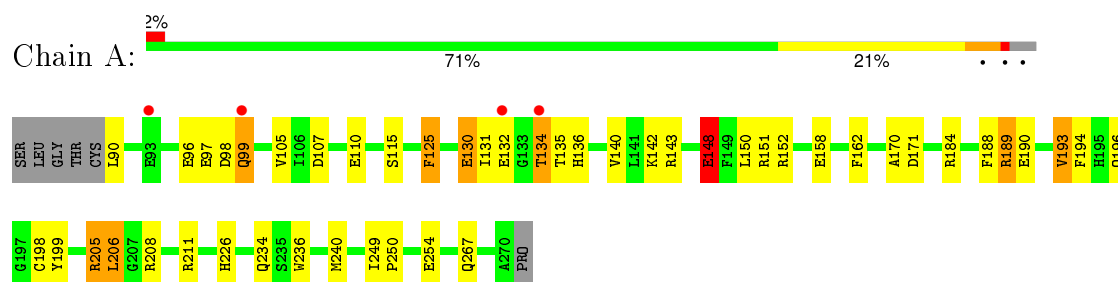
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	H	17	Total	O	0	0
			17	17		

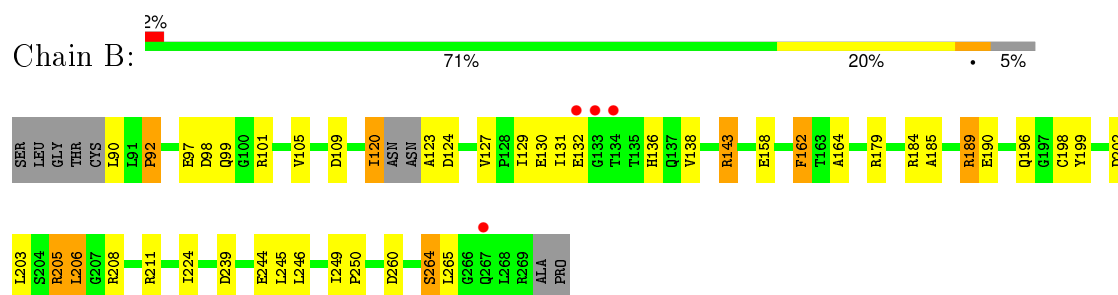
### 3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of errors 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.

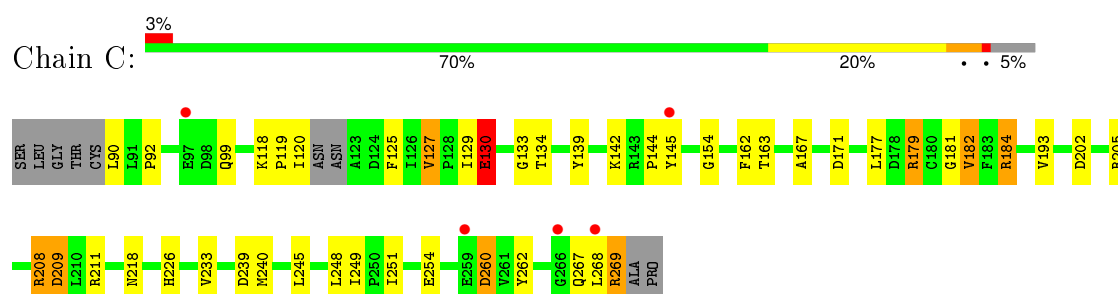
- Molecule 1: Carboxy-terminal domain RNA polymerase II polypeptide A small phosphatase 2



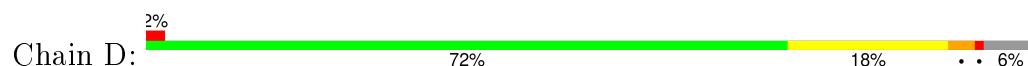
- Molecule 1: Carboxy-terminal domain RNA polymerase II polypeptide A small phosphatase 2

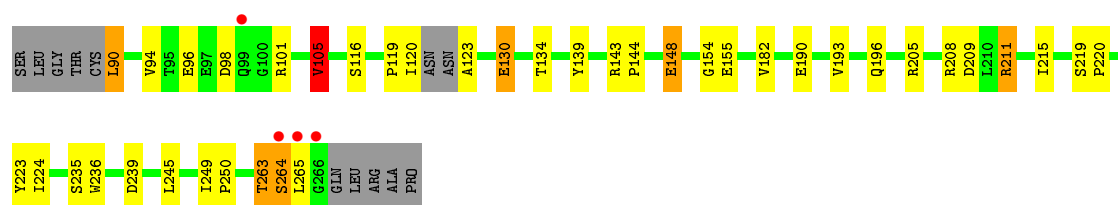


- Molecule 1: Carboxy-terminal domain RNA polymerase II polypeptide A small phosphatase 2

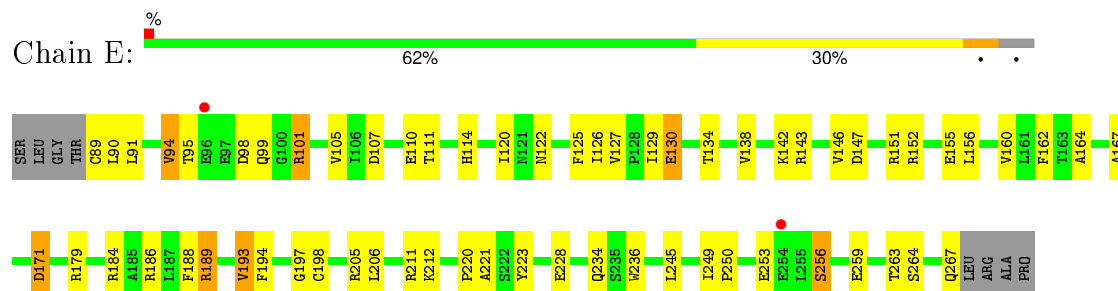


- Molecule 1: Carboxy-terminal domain RNA polymerase II polypeptide A small phosphatase 2

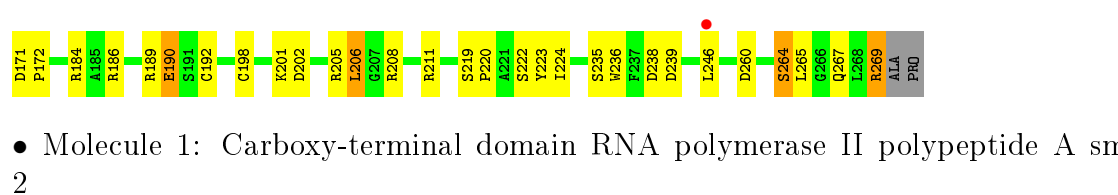
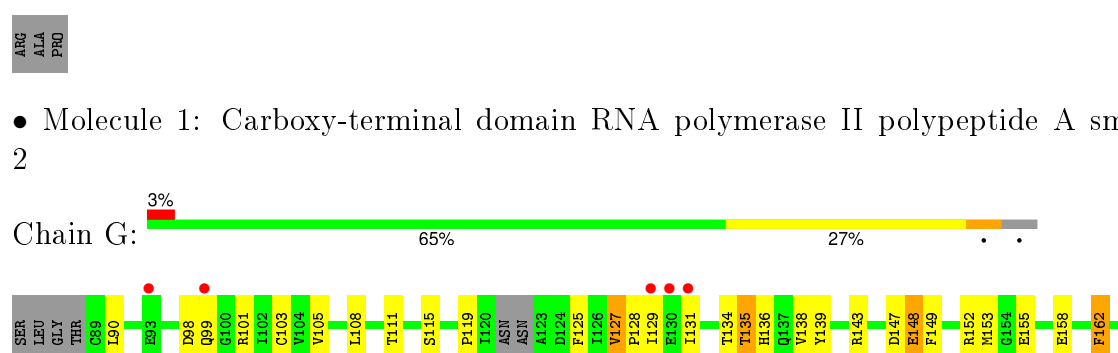
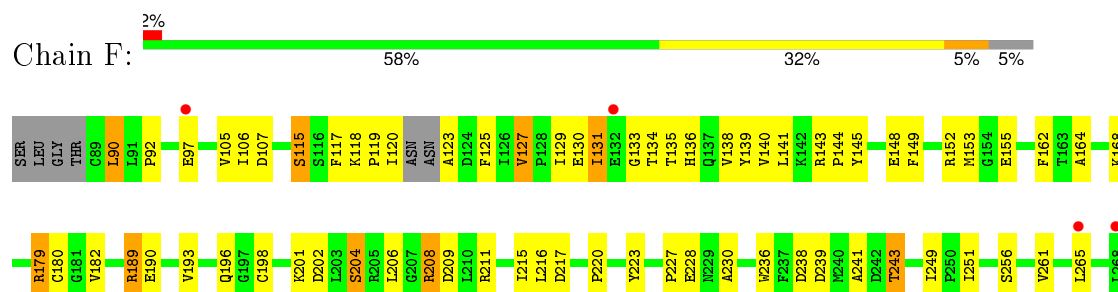




• Molecule 1: Carboxy-terminal domain RNA polymerase II polypeptide A small phosphatase 2



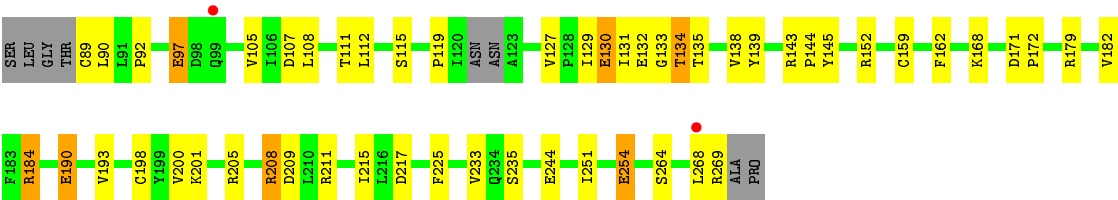
• Molecule 1: Carboxy-terminal domain RNA polymerase II polypeptide A small phosphatase 2



• Molecule 1: Carboxy-terminal domain RNA polymerase II polypeptide A small phosphatase 2







## 4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	108.64Å 117.64Å 170.13Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	20.00 – 2.51 31.30 – 2.51	Depositor EDS
% Data completeness (in resolution range)	96.4 (20.00-2.51) 96.4 (31.30-2.51)	Depositor EDS
$R_{merge}$	0.07	Depositor
$R_{sym}$	0.07	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.53 (at 2.51Å)	Xtriage
Refinement program	REFMAC 5.2.0019	Depositor
R, $R_{free}$	0.216 , 0.278 0.211 , 0.268	Depositor DCC
$R_{free}$ test set	3629 reflections (5.29%)	DCC
Wilson B-factor (Å <sup>2</sup> )	46.2	Xtriage
Anisotropy	0.214	Xtriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.33 , 34.0	EDS
Estimated twinning fraction	No twinning to report.	Xtriage
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.49$ , $\langle L^2 \rangle = 0.32$	Xtriage
Outliers	0 of 72370 reflections	Xtriage
$F_o, F_c$ correlation	0.94	EDS
Total number of atoms	11566	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	45.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.92% 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, 0.375 respectively for untwinned datasets, and 0.333, 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: MG

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	1.16	3/1485 (0.2%)	1.16	7/2018 (0.3%)
1	B	1.08	2/1463 (0.1%)	1.06	6/1986 (0.3%)
1	C	1.09	1/1463 (0.1%)	1.10	4/1986 (0.2%)
1	D	1.05	2/1435 (0.1%)	1.02	2/1949 (0.1%)
1	E	1.09	3/1467 (0.2%)	1.00	2/1994 (0.1%)
1	F	1.05	0/1458	1.03	6/1980 (0.3%)
1	G	1.07	3/1469 (0.2%)	0.96	4/1994 (0.2%)
1	H	1.17	3/1469 (0.2%)	1.11	4/1994 (0.2%)
All	All	1.10	17/11709 (0.1%)	1.06	35/15901 (0.2%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand. A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
1	D	0	1
1	E	0	1
All	All	0	2

All (17) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	G	198	CYS	CB-SG	-13.77	1.58	1.82
1	B	198	CYS	CB-SG	-10.49	1.64	1.82
1	E	198	CYS	CB-SG	-10.37	1.64	1.82
1	A	254	GLU	CG-CD	7.82	1.63	1.51
1	H	198	CYS	CB-SG	-7.23	1.70	1.82
1	H	225	PHE	CE1-CZ	6.71	1.50	1.37
1	G	192	CYS	CB-SG	-6.70	1.70	1.82
1	H	105	VAL	CB-CG1	-6.63	1.39	1.52

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	198	CYS	CB-SG	-6.47	1.71	1.82
1	G	103	CYS	CB-SG	-5.95	1.72	1.81
1	B	244	GLU	CD-OE2	5.56	1.31	1.25
1	D	155	GLU	CG-CD	5.53	1.60	1.51
1	E	130	GLU	CG-CD	5.33	1.59	1.51
1	E	221	ALA	CA-CB	-5.27	1.41	1.52
1	C	130	GLU	CB-CG	5.14	1.61	1.52
1	A	193	VAL	CB-CG1	-5.12	1.42	1.52
1	D	105	VAL	CB-CG1	-5.04	1.42	1.52

All (35) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	D	208	ARG	NE-CZ-NH2	-10.89	114.85	120.30
1	H	208	ARG	NE-CZ-NH2	-10.56	115.02	120.30
1	D	208	ARG	NE-CZ-NH1	9.23	124.92	120.30
1	A	208	ARG	NE-CZ-NH2	-8.62	115.99	120.30
1	C	208	ARG	NE-CZ-NH1	8.39	124.50	120.30
1	F	208	ARG	NE-CZ-NH1	7.61	124.10	120.30
1	A	208	ARG	NE-CZ-NH1	7.55	124.08	120.30
1	A	152	ARG	NE-CZ-NH2	-6.75	116.93	120.30
1	F	208	ARG	NE-CZ-NH2	-6.74	116.93	120.30
1	A	107	ASP	CB-CG-OD1	6.62	124.26	118.30
1	A	211	ARG	NE-CZ-NH1	6.30	123.45	120.30
1	C	177	LEU	CB-CG-CD1	-6.25	100.38	111.00
1	B	109	ASP	CB-CG-OD2	-6.11	112.80	118.30
1	B	124	ASP	CB-CG-OD2	6.08	123.78	118.30
1	H	208	ARG	CG-CD-NE	-5.96	99.27	111.80
1	C	202	ASP	CB-CG-OD1	5.65	123.38	118.30
1	H	89	CYS	CA-CB-SG	-5.57	103.97	114.00
1	H	152	ARG	NE-CZ-NH1	-5.52	117.54	120.30
1	F	107	ASP	CB-CG-OD1	5.51	123.26	118.30
1	C	208	ARG	NE-CZ-NH2	-5.51	117.55	120.30
1	E	90	LEU	CA-CB-CG	5.40	127.72	115.30
1	G	206	LEU	CA-CB-CG	5.35	127.61	115.30
1	B	143	ARG	NE-CZ-NH1	-5.32	117.64	120.30
1	E	184	ARG	NE-CZ-NH1	5.31	122.95	120.30
1	F	179	ARG	NE-CZ-NH1	5.22	122.91	120.30
1	B	109	ASP	CB-CG-OD1	5.22	123.00	118.30
1	B	198	CYS	CA-CB-SG	-5.22	104.61	114.00
1	G	189	ARG	NE-CZ-NH1	-5.19	117.70	120.30
1	G	224	ILE	CG1-CB-CG2	-5.14	100.09	111.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	F	107	ASP	CB-CG-OD2	-5.09	113.72	118.30
1	G	198	CYS	CB-CA-C	-5.08	100.23	110.40
1	A	148	GLU	CA-CB-CG	5.07	124.56	113.40
1	B	239	ASP	CB-CG-OD1	5.07	122.86	118.30
1	F	168	LYS	CD-CE-NZ	5.06	123.33	111.70
1	A	205	ARG	NE-CZ-NH2	5.03	122.81	120.30

There are no chirality outliers.

All (2) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	D	263	THR	Peptide
1	E	89	CYS	Peptide

## 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	1454	0	1431	32	0
1	B	1433	0	1413	28	0
1	C	1433	0	1413	30	1
1	D	1405	0	1381	24	0
1	E	1436	0	1407	35	0
1	F	1428	0	1405	42	0
1	G	1439	0	1418	37	0
1	H	1439	0	1418	29	1
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
2	E	1	0	0	0	0
2	F	1	0	0	0	0
2	G	1	0	0	0	0
2	H	1	0	0	0	0
3	A	11	0	0	3	0
3	B	12	0	0	0	0
3	C	11	0	0	3	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
3	D	11	0	0	0	0
3	E	11	0	0	0	0
3	F	7	0	0	0	0
3	G	11	0	0	3	0
3	H	17	0	0	4	0
All	All	11566	0	11286	251	1

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 11.

All (251) 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:98:ASP:O	1:E:101:ARG:HG3	1.59	1.02
1:G:147:ASP:HA	3:G:282:HOH:O	1.57	1.02
1:F:227:PRO:HD2	1:F:228:GLU:OE2	1.63	0.96
1:A:131:ILE:N	1:A:134:THR:O	1.98	0.95
1:H:264:SER:O	1:H:268:LEU:HD13	1.72	0.90
1:F:164:ALA:O	1:F:189:ARG:HD3	1.70	0.90
1:B:98:ASP:HA	1:B:101:ARG:HD2	1.57	0.86
1:E:164:ALA:O	1:E:189:ARG:HD3	1.79	0.82
1:G:152:ARG:NH1	1:G:155:GLU:OE1	2.14	0.80
1:C:92:PRO:O	1:C:208:ARG:NH2	2.14	0.80
1:F:143:ARG:CZ	1:F:236:TRP:HB2	2.15	0.77
1:E:98:ASP:HA	1:E:101:ARG:HD2	1.67	0.76
1:H:168:LYS:HD2	3:H:281:HOH:O	1.85	0.76
1:F:145:TYR:CE1	1:F:243:THR:HG22	2.21	0.75
1:D:148:GLU:N	1:D:148:GLU:OE2	2.21	0.73
1:D:209:ASP:OD2	1:D:211:ARG:NH1	2.21	0.73
1:E:171:ASP:OD1	1:E:186:ARG:NH1	2.21	0.73
1:E:143:ARG:O	1:E:146:VAL:HG12	1.89	0.73
1:A:98:ASP:OD2	3:A:279:HOH:O	2.07	0.73
1:E:107:ASP:O	1:E:111:THR:HB	1.88	0.72
1:C:144:PRO:O	1:C:145:TYR:HB2	1.90	0.72
1:A:130:GLU:HB2	1:A:135:THR:HG22	1.71	0.72
1:B:90:LEU:HB2	1:B:205:ARG:O	1.89	0.71
1:F:92:PRO:O	1:F:208:ARG:NH2	2.19	0.70
1:A:90:LEU:HB2	1:A:205:ARG:O	1.90	0.70
1:A:131:ILE:HG13	1:A:136:HIS:CD2	2.27	0.69
1:B:158:GLU:OE2	1:B:208:ARG:NH1	2.29	0.66
1:F:209:ASP:OD2	1:F:211:ARG:NH1	2.28	0.66

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:253:GLU:O	1:E:256:SER:OG	2.14	0.66
1:G:190:GLU:OE2	3:G:274:HOH:O	2.14	0.65
1:A:130:GLU:OE1	1:A:135:THR:HG23	1.96	0.65
1:C:181:GLY:O	1:E:205:ARG:NH1	2.30	0.63
1:A:148:GLU:N	1:A:148:GLU:OE2	2.25	0.63
1:H:171:ASP:HB2	1:H:172:PRO:HD3	1.82	0.62
1:E:250:PRO:HA	1:E:253:GLU:HB2	1.82	0.61
1:F:190:GLU:CD	1:F:190:GLU:H	2.04	0.61
1:A:130:GLU:HB2	1:A:135:THR:CG2	2.29	0.61
1:H:269:ARG:HG3	1:H:269:ARG:HH11	1.66	0.60
1:C:269:ARG:HH11	1:C:269:ARG:CG	2.15	0.60
1:C:226:HIS:HD2	3:C:272:HOH:O	1.83	0.60
1:H:168:LYS:CD	3:H:281:HOH:O	2.45	0.59
1:A:189:ARG:HD2	1:A:199:TYR:CZ	2.38	0.59
1:F:220:PRO:HA	1:F:223:TYR:CZ	2.38	0.59
1:B:131:ILE:HG13	1:B:136:HIS:CD2	2.37	0.58
1:C:90:LEU:HB2	1:C:205:ARG:O	2.03	0.58
1:C:125:PHE:CZ	1:C:142:LYS:HD3	2.39	0.58
1:E:152:ARG:NH1	1:E:155:GLU:OE1	2.35	0.58
1:H:209:ASP:OD2	1:H:211:ARG:NH1	2.36	0.58
1:E:101:ARG:NH2	1:E:155:GLU:O	2.37	0.58
1:H:129:ILE:HD12	1:H:138:VAL:HG21	1.86	0.57
1:D:263:THR:O	1:D:265:LEU:N	2.37	0.57
1:F:115:SER:HB3	1:F:140:VAL:HG22	1.85	0.57
1:B:202:ASP:HB3	1:B:205:ARG:HD2	1.87	0.57
1:D:143:ARG:HG3	1:D:236:TRP:CG	2.39	0.57
1:A:131:ILE:HG13	1:A:136:HIS:HD2	1.68	0.57
1:F:152:ARG:HD2	1:F:155:GLU:OE1	2.05	0.57
1:F:118:LYS:O	1:F:120:ILE:HG23	2.06	0.56
1:G:115:SER:HB3	1:G:138:VAL:CG1	2.35	0.56
1:G:101:ARG:NH1	1:G:184:ARG:NH2	2.53	0.56
1:H:131:ILE:O	1:H:132:GLU:C	2.42	0.56
1:B:131:ILE:HG13	1:B:136:HIS:HD2	1.69	0.56
1:H:111:THR:HG23	1:H:233:VAL:HG11	1.87	0.56
1:C:184:ARG:O	1:E:193:VAL:HG23	2.06	0.56
1:G:264:SER:O	1:G:267:GLN:HG2	2.06	0.56
1:G:220:PRO:HA	1:G:223:TYR:CZ	2.41	0.56
1:C:144:PRO:O	1:C:145:TYR:CB	2.54	0.55
1:F:180:CYS:HB2	1:F:182:VAL:HG23	1.89	0.55
1:C:154:GLY:HA3	1:C:182:VAL:HG22	1.87	0.55
1:G:171:ASP:OD1	1:G:186:ARG:NH1	2.38	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:94:VAL:HG22	1:E:95:THR:H	1.72	0.55
1:C:260:ASP:OD1	1:C:262:TYR:N	2.39	0.55
1:E:98:ASP:OD1	1:E:101:ARG:NH1	2.36	0.55
1:F:117:PHE:O	1:F:119:PRO:HD3	2.07	0.55
1:B:211:ARG:HG2	1:B:260:ASP:OD2	2.07	0.54
1:D:209:ASP:OD1	1:D:211:ARG:HB2	2.06	0.54
1:G:211:ARG:HG2	1:G:260:ASP:OD2	2.08	0.54
1:B:90:LEU:CB	1:B:205:ARG:O	2.54	0.54
1:F:143:ARG:NE	1:F:236:TRP:HB2	2.23	0.54
1:A:115:SER:OG	1:A:140:VAL:HG22	2.08	0.54
1:F:90:LEU:HD23	1:F:206:LEU:HD12	1.90	0.53
1:D:143:ARG:HG3	1:D:236:TRP:CD2	2.44	0.53
1:F:202:ASP:OD1	1:F:204:SER:OG	2.23	0.53
1:F:143:ARG:HG3	1:F:236:TRP:CG	2.44	0.53
1:H:201:LYS:NZ	1:H:217:ASP:OD2	2.38	0.53
1:A:130:GLU:HA	1:A:134:THR:O	2.09	0.53
1:H:129:ILE:HD12	1:H:138:VAL:CG2	2.38	0.53
1:B:105:VAL:HG13	1:B:162:PHE:CB	2.38	0.53
1:C:125:PHE:HZ	1:C:142:LYS:HD3	1.74	0.52
1:E:212:LYS:HZ3	1:E:259:GLU:HG2	1.74	0.52
1:G:131:ILE:HD12	1:G:136:HIS:CD2	2.44	0.52
1:A:96:GLU:O	1:A:99:GLN:HB2	2.08	0.52
1:E:194:PHE:CZ	1:E:197:GLY:N	2.73	0.52
1:G:147:ASP:CA	3:G:282:HOH:O	2.33	0.52
1:G:101:ARG:HH12	1:G:184:ARG:NH2	2.08	0.52
1:G:143:ARG:CZ	1:G:236:TRP:HB2	2.40	0.52
1:G:101:ARG:NH1	1:G:184:ARG:HH21	2.07	0.52
1:G:158:GLU:OE2	1:G:208:ARG:NH1	2.38	0.51
1:E:143:ARG:HD3	1:E:245:LEU:HG	1.91	0.51
1:D:90:LEU:HB2	1:D:205:ARG:O	2.09	0.51
1:G:131:ILE:HD12	1:G:136:HIS:HD2	1.76	0.51
1:D:190:GLU:H	1:D:190:GLU:CD	2.13	0.51
1:B:105:VAL:HG13	1:B:162:PHE:HB3	1.93	0.51
1:B:164:ALA:O	1:B:189:ARG:HD3	2.10	0.51
1:H:269:ARG:CG	1:H:269:ARG:HH11	2.23	0.51
1:D:143:ARG:HD3	1:D:245:LEU:HG	1.92	0.51
1:G:158:GLU:OE1	1:G:208:ARG:NH1	2.44	0.51
1:H:205:ARG:NE	3:H:279:HOH:O	2.41	0.50
1:G:265:LEU:HB3	1:G:269:ARG:HH12	1.76	0.50
1:E:125:PHE:CZ	1:E:142:LYS:HD3	2.47	0.50
1:D:105:VAL:HG12	1:D:215:ILE:HG13	1.93	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:F:120:ILE:CD1	1:F:141:LEU:HD11	2.41	0.50
1:C:184:ARG:HD2	1:E:193:VAL:HA	1.93	0.50
1:B:189:ARG:HD2	1:B:199:TYR:CZ	2.46	0.50
1:G:148:GLU:N	1:G:148:GLU:OE2	2.41	0.50
1:A:131:ILE:O	1:A:134:THR:N	2.39	0.49
1:E:143:ARG:CZ	1:E:236:TRP:HB2	2.43	0.49
1:D:98:ASP:HA	1:D:101:ARG:HD2	1.95	0.49
1:A:188:PHE:O	1:A:189:ARG:C	2.51	0.49
1:A:125:PHE:CE2	1:A:142:LYS:HD2	2.48	0.49
1:A:193:VAL:HG23	1:A:194:PHE:N	2.28	0.49
1:G:158:GLU:HG3	1:G:184:ARG:HG3	1.93	0.49
1:C:118:LYS:HB3	3:C:282:HOH:O	2.13	0.49
1:B:92:PRO:O	1:B:208:ARG:NH2	2.46	0.48
1:C:218:ASN:HA	1:C:233:VAL:O	2.13	0.48
1:A:125:PHE:CZ	1:A:142:LYS:HD2	2.48	0.48
1:A:234:GLN:NE2	1:C:119:PRO:O	2.47	0.48
1:F:119:PRO:HA	1:F:139:TYR:CZ	2.48	0.48
1:F:143:ARG:HG3	1:F:236:TRP:CD2	2.49	0.48
1:G:202:ASP:HB3	1:G:205:ARG:HD2	1.94	0.48
1:A:110:GLU:OE2	3:A:275:HOH:O	2.20	0.48
1:C:119:PRO:HA	1:C:139:TYR:CZ	2.49	0.48
1:E:129:ILE:HD12	1:E:138:VAL:CG2	2.44	0.48
1:C:154:GLY:HA3	1:C:182:VAL:CG2	2.44	0.47
1:F:123:ALA:HA	1:F:141:LEU:HD21	1.95	0.47
1:E:125:PHE:HZ	1:E:142:LYS:HD3	1.78	0.47
1:C:209:ASP:OD1	1:C:211:ARG:HB2	2.13	0.47
1:D:219:SER:HA	1:D:220:PRO:HD2	1.80	0.47
1:F:106:ILE:HG23	1:F:216:LEU:HD23	1.96	0.47
1:C:269:ARG:HH11	1:C:269:ARG:HG2	1.80	0.47
1:F:120:ILE:HD11	1:F:141:LEU:HD11	1.97	0.47
1:A:105:VAL:HG21	1:A:206:LEU:HD21	1.96	0.47
1:A:226:HIS:HD2	3:A:274:HOH:O	1.98	0.46
1:G:115:SER:HB3	1:G:138:VAL:HG12	1.97	0.46
1:H:251:ILE:O	1:H:254:GLU:HB3	2.14	0.46
1:B:264:SER:O	1:B:265:LEU:C	2.52	0.46
1:C:127:VAL:HG23	1:C:129:ILE:HD11	1.98	0.46
1:F:239:ASP:OD1	1:F:241:ALA:HB3	2.15	0.46
1:F:127:VAL:HG23	1:F:138:VAL:HB	1.97	0.46
1:H:112:LEU:O	1:H:143:ARG:HB3	2.15	0.46
1:E:110:GLU:OE2	1:E:114:HIS:ND1	2.43	0.46
1:H:119:PRO:HA	1:H:139:TYR:CE1	2.50	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:H:159:CYS:HB2	1:H:182:VAL:HG12	1.99	0.45
1:D:249:ILE:N	1:D:250:PRO:HD2	2.31	0.45
1:G:162:PHE:CD2	1:G:201:LYS:HG2	2.52	0.45
1:G:147:ASP:HB2	1:G:148:GLU:OE2	2.16	0.45
1:C:130:GLU:HG3	1:C:130:GLU:O	2.17	0.45
1:E:105:VAL:HG22	1:E:160:VAL:HB	1.98	0.45
1:B:143:ARG:HD3	1:B:245:LEU:HG	1.98	0.45
1:F:115:SER:HA	1:F:139:TYR:O	2.17	0.45
1:B:203:LEU:O	1:B:206:LEU:HB2	2.16	0.45
1:B:164:ALA:O	1:B:189:ARG:HB2	2.16	0.45
1:D:120:ILE:HG13	1:D:123:ALA:HB2	1.99	0.45
1:F:227:PRO:CD	1:F:228:GLU:OE2	2.51	0.45
1:E:220:PRO:HA	1:E:223:TYR:CZ	2.51	0.45
1:A:249:ILE:N	1:A:250:PRO:HD2	2.32	0.45
1:C:254:GLU:HB3	1:C:268:LEU:HD11	1.99	0.44
1:F:145:TYR:HE1	1:F:243:THR:HG22	1.73	0.44
1:F:211:ARG:O	1:F:261:VAL:HG22	2.17	0.44
1:C:118:LYS:O	1:C:120:ILE:HG23	2.16	0.44
1:E:167:ALA:HB2	1:E:188:PHE:CD1	2.53	0.44
1:C:269:ARG:NH1	1:C:269:ARG:CG	2.81	0.44
1:B:127:VAL:CG2	1:B:138:VAL:HB	2.47	0.44
1:G:153:MET:HB3	1:G:153:MET:HE3	1.77	0.44
1:B:224:ILE:HG12	1:H:134:THR:HB	2.00	0.44
1:E:249:ILE:N	1:E:250:PRO:HD2	2.33	0.44
1:B:196:GLN:HE22	1:D:190:GLU:HB2	1.82	0.44
1:H:97:GLU:HG3	1:H:97:GLU:H	1.58	0.44
1:H:190:GLU:CD	1:H:190:GLU:H	2.20	0.44
1:H:144:PRO:O	1:H:145:TYR:HB2	2.18	0.44
1:A:90:LEU:HD22	1:A:205:ARG:HB3	1.99	0.44
1:G:158:GLU:CD	1:G:208:ARG:NH1	2.71	0.44
1:G:119:PRO:HA	1:G:139:TYR:CZ	2.53	0.44
1:B:158:GLU:HG3	1:B:184:ARG:HG3	1.99	0.43
1:D:143:ARG:HG2	1:D:144:PRO:HD2	2.00	0.43
1:G:98:ASP:O	1:G:101:ARG:HB2	2.18	0.43
1:D:119:PRO:HB3	1:D:139:TYR:CZ	2.53	0.43
1:A:143:ARG:CZ	1:A:236:TRP:HB2	2.48	0.43
1:G:149:PHE:O	1:G:153:MET:HG2	2.18	0.43
1:A:150:LEU:HD23	1:A:150:LEU:HA	1.85	0.43
1:E:126:ILE:HA	1:E:138:VAL:O	2.17	0.43
1:H:130:GLU:OE1	1:H:133:GLY:CA	2.66	0.43
1:E:98:ASP:CA	1:E:101:ARG:HD2	2.44	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:D:143:ARG:CZ	1:D:236:TRP:HB2	2.49	0.43
1:F:215:ILE:HG23	1:F:230:ALA:HA	2.01	0.43
1:H:131:ILE:HD13	1:H:168:LYS:NZ	2.33	0.43
1:H:130:GLU:OE1	1:H:133:GLY:HA2	2.19	0.42
1:F:131:ILE:HG13	1:F:136:HIS:HD2	1.84	0.42
1:F:149:PHE:HA	1:F:249:ILE:HD11	2.01	0.42
1:B:246:LEU:HA	1:B:246:LEU:HD12	1.77	0.42
1:C:248:LEU:HA	1:C:251:ILE:HD12	1.99	0.42
1:C:267:GLN:O	1:C:268:LEU:C	2.58	0.42
1:F:139:TYR:N	1:F:139:TYR:CD1	2.87	0.42
1:D:105:VAL:HG12	1:D:105:VAL:O	2.18	0.42
1:H:92:PRO:O	1:H:208:ARG:NH2	2.37	0.42
1:B:101:ARG:NH1	1:B:184:ARG:HH21	2.17	0.42
1:F:131:ILE:C	1:F:133:GLY:N	2.72	0.42
1:F:220:PRO:HA	1:F:223:TYR:CE2	2.55	0.42
1:G:98:ASP:HA	1:G:101:ARG:HD2	2.01	0.42
1:D:94:VAL:O	1:D:94:VAL:HG13	2.19	0.42
1:G:119:PRO:HA	1:G:139:TYR:CE1	2.55	0.42
1:A:130:GLU:HA	1:A:135:THR:HA	2.01	0.42
1:F:143:ARG:HG2	1:F:144:PRO:HD2	2.02	0.42
1:F:149:PHE:CE2	1:F:153:MET:HG3	2.55	0.42
1:G:129:ILE:O	1:G:135:THR:HA	2.20	0.41
1:A:131:ILE:O	1:A:132:GLU:C	2.59	0.41
1:C:226:HIS:CD2	3:C:272:HOH:O	2.65	0.41
1:B:105:VAL:HG13	1:B:162:PHE:HB2	2.01	0.41
1:C:167:ALA:O	1:C:171:ASP:HB2	2.20	0.41
1:E:147:ASP:O	1:E:151:ARG:HB2	2.20	0.41
1:H:184:ARG:HG2	1:H:184:ARG:O	2.20	0.41
1:A:170:ALA:HB3	1:A:188:PHE:CE2	2.56	0.41
1:B:105:VAL:CG1	1:B:162:PHE:HB3	2.49	0.41
1:D:220:PRO:HA	1:D:223:TYR:CZ	2.56	0.41
1:E:91:LEU:HD21	1:E:160:VAL:HG11	2.03	0.41
1:H:107:ASP:OD1	1:H:108:LEU:N	2.50	0.41
1:G:219:SER:O	1:G:222:SER:HB2	2.20	0.41
1:H:205:ARG:HD3	3:H:279:HOH:O	2.21	0.41
1:B:120:ILE:HG13	1:B:123:ALA:HB2	2.01	0.41
1:E:94:VAL:HG22	1:E:95:THR:N	2.36	0.41
1:B:127:VAL:HG23	1:B:138:VAL:HB	2.03	0.41
1:F:201:LYS:NZ	1:F:217:ASP:OD2	2.33	0.41
1:G:264:SER:O	1:G:267:GLN:N	2.53	0.41
1:D:119:PRO:HA	1:D:139:TYR:CD1	2.55	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:151:ARG:HD2	1:A:151:ARG:HH11	1.73	0.41
1:A:158:GLU:HG3	1:A:184:ARG:HG3	2.01	0.41
1:C:245:LEU:O	1:C:249:ILE:HG13	2.21	0.41
1:G:190:GLU:HG3	1:G:190:GLU:H	1.31	0.41
1:F:131:ILE:O	1:F:133:GLY:N	2.54	0.41
1:D:130:GLU:O	1:D:130:GLU:HG3	2.20	0.41
1:D:154:GLY:HA3	1:D:182:VAL:HG22	2.02	0.41
1:G:171:ASP:CB	1:G:172:PRO:CD	2.98	0.40
1:G:127:VAL:HA	1:G:128:PRO:HD3	1.68	0.40
1:A:189:ARG:HD2	1:A:199:TYR:CE2	2.57	0.40
1:F:119:PRO:HA	1:F:139:TYR:CE2	2.56	0.40
1:B:249:ILE:O	1:B:250:PRO:C	2.59	0.40
1:F:131:ILE:HG13	1:F:136:HIS:CD2	2.57	0.40
1:E:264:SER:HA	1:E:267:GLN:HG2	2.04	0.40
1:E:152:ARG:HG2	1:E:249:ILE:CG2	2.52	0.40
1:E:156:LEU:HD13	1:E:256:SER:HB3	2.04	0.40
1:F:143:ARG:NH2	1:F:236:TRP:HB2	2.37	0.40
1:H:115:SER:HB3	1:H:138:VAL:CG1	2.52	0.40

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:179:ARG:NH2	1:H:145:TYR:OH[4_455]	2.16	0.04

## 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	179/187 (96%)	166 (93%)	12 (7%)	1 (1%)	30 50
1	B	174/187 (93%)	161 (92%)	11 (6%)	2 (1%)	17 31

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	C	174/187 (93%)	158 (91%)	13 (8%)	3 (2%)	11	19
1	D	171/187 (91%)	156 (91%)	12 (7%)	3 (2%)	11	18
1	E	177/187 (95%)	157 (89%)	18 (10%)	2 (1%)	17	31
1	F	174/187 (93%)	158 (91%)	14 (8%)	2 (1%)	17	31
1	G	175/187 (94%)	159 (91%)	11 (6%)	5 (3%)	6	8
1	H	175/187 (94%)	169 (97%)	5 (3%)	1 (1%)	30	50
All	All	1399/1496 (94%)	1284 (92%)	96 (7%)	19 (1%)	14	24

All (19) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	264	SER
1	E	99	GLN
1	G	99	GLN
1	B	185	ALA
1	A	196	GLN
1	C	239	ASP
1	D	196	GLN
1	D	239	ASP
1	G	90	LEU
1	C	240	MET
1	E	94	VAL
1	F	238	ASP
1	G	238	ASP
1	H	190	GLU
1	B	92	PRO
1	G	108	LEU
1	G	264	SER
1	C	133	GLY
1	F	251	ILE

### 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	163/168 (97%)	150 (92%)	13 (8%)	15	28
1	B	161/168 (96%)	148 (92%)	13 (8%)	15	27
1	C	161/168 (96%)	148 (92%)	13 (8%)	15	27
1	D	158/168 (94%)	146 (92%)	12 (8%)	16	30
1	E	162/168 (96%)	145 (90%)	17 (10%)	8	16
1	F	161/168 (96%)	139 (86%)	22 (14%)	4	8
1	G	162/168 (96%)	148 (91%)	14 (9%)	13	24
1	H	162/168 (96%)	147 (91%)	15 (9%)	11	21
All	All	1290/1344 (96%)	1171 (91%)	119 (9%)	11	21

All (119) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	97	GLU
1	A	99	GLN
1	A	125	PHE
1	A	130	GLU
1	A	134	THR
1	A	148	GLU
1	A	162	PHE
1	A	171	ASP
1	A	189	ARG
1	A	190	GLU
1	A	206	LEU
1	A	240	MET
1	A	267	GLN
1	B	97	GLU
1	B	99	GLN
1	B	120	ILE
1	B	129	ILE
1	B	130	GLU
1	B	132	GLU
1	B	162	PHE
1	B	179	ARG
1	B	189	ARG
1	B	190	GLU
1	B	205	ARG
1	B	206	LEU
1	B	264	SER
1	C	99	GLN

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Mol	Chain	Res	Type
1	C	127	VAL
1	C	130	GLU
1	C	134	THR
1	C	162	PHE
1	C	163	THR
1	C	179	ARG
1	C	182	VAL
1	C	184	ARG
1	C	193	VAL
1	C	209	ASP
1	C	260	ASP
1	C	269	ARG
1	D	90	LEU
1	D	96	GLU
1	D	105	VAL
1	D	116	SER
1	D	130	GLU
1	D	134	THR
1	D	148	GLU
1	D	193	VAL
1	D	211	ARG
1	D	224	ILE
1	D	235	SER
1	D	264	SER
1	E	101	ARG
1	E	120	ILE
1	E	122	ASN
1	E	127	VAL
1	E	130	GLU
1	E	134	THR
1	E	162	PHE
1	E	171	ASP
1	E	179	ARG
1	E	189	ARG
1	E	193	VAL
1	E	206	LEU
1	E	211	ARG
1	E	228	GLU
1	E	234	GLN
1	E	256	SER
1	E	263	THR
1	F	90	LEU

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Mol	Chain	Res	Type
1	F	97	GLU
1	F	105	VAL
1	F	115	SER
1	F	125	PHE
1	F	127	VAL
1	F	129	ILE
1	F	130	GLU
1	F	131	ILE
1	F	134	THR
1	F	135	THR
1	F	148	GLU
1	F	162	PHE
1	F	179	ARG
1	F	189	ARG
1	F	193	VAL
1	F	196	GLN
1	F	198	CYS
1	F	204	SER
1	F	243	THR
1	F	256	SER
1	F	265	LEU
1	G	105	VAL
1	G	111	THR
1	G	125	PHE
1	G	127	VAL
1	G	134	THR
1	G	135	THR
1	G	148	GLU
1	G	162	PHE
1	G	190	GLU
1	G	206	LEU
1	G	235	SER
1	G	239	ASP
1	G	246	LEU
1	G	269	ARG
1	H	90	LEU
1	H	97	GLU
1	H	127	VAL
1	H	130	GLU
1	H	134	THR
1	H	135	THR
1	H	162	PHE

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Mol	Chain	Res	Type
1	H	179	ARG
1	H	184	ARG
1	H	193	VAL
1	H	200	VAL
1	H	215	ILE
1	H	235	SER
1	H	244	GLU
1	H	254	GLU

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (13) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	136	HIS
1	A	226	HIS
1	A	234	GLN
1	B	136	HIS
1	B	226	HIS
1	C	99	GLN
1	C	226	HIS
1	D	247	ASN
1	E	122	ASN
1	E	226	HIS
1	G	136	HIS
1	G	226	HIS
1	H	218	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 carbohydrates in this entry.

## 5.6 Ligand geometry

Of 8 ligands modelled in this entry, 8 are monoatomic - leaving 0 for Mogul analysis.

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.

No monomer is involved in short contacts.

## 5.7 Other polymers

There are no such residues in this entry.

## 5.8 Polymer linkage issues

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, 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	181/187 (96%)	-0.30	4 (2%) 65 69	24, 34, 63, 81	0
1	B	178/187 (95%)	-0.24	4 (2%) 65 69	26, 39, 65, 74	0
1	C	178/187 (95%)	-0.18	5 (2%) 56 61	27, 42, 63, 81	0
1	D	175/187 (93%)	-0.18	4 (2%) 64 67	27, 42, 60, 82	0
1	E	179/187 (95%)	-0.04	2 (1%) 82 84	30, 45, 73, 84	0
1	F	178/187 (95%)	-0.09	4 (2%) 65 69	27, 47, 67, 81	0
1	G	179/187 (95%)	0.06	6 (3%) 49 54	29, 54, 78, 89	0
1	H	179/187 (95%)	-0.27	2 (1%) 82 84	22, 38, 56, 74	0
All	All	1427/1496 (95%)	-0.15	31 (2%) 65 69	22, 42, 70, 89	0

All (31) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	D	265	LEU	6.9
1	A	132	GLU	4.4
1	C	259	GLU	3.5
1	B	133	GLY	3.3
1	G	130	GLU	3.3
1	D	266	GLY	3.2
1	F	268	LEU	3.0
1	G	129	ILE	3.0
1	C	268	LEU	2.9
1	F	265	LEU	2.8
1	D	264	SER	2.7
1	E	96	GLU	2.7
1	G	93	GLU	2.6
1	A	93	GLU	2.5
1	E	254	GLU	2.5
1	B	134	THR	2.4

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Mol	Chain	Res	Type	RSRZ
1	B	267	GLN	2.4
1	H	268	LEU	2.4
1	G	131	ILE	2.4
1	H	99	GLN	2.3
1	G	246	LEU	2.3
1	C	97	GLU	2.2
1	G	99	GLN	2.2
1	B	132	GLU	2.2
1	A	134	THR	2.1
1	F	132	GLU	2.1
1	A	99	GLN	2.0
1	D	99	GLN	2.0
1	C	266	GLY	2.0
1	C	145	TYR	2.0
1	F	97	GLU	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 carbohydrates 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. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains. 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	LLDF	B-factors(Å <sup>2</sup> )	Q<0.9
2	MG	C	1	1/1	0.84	0.32	8.29	60,60,60,60	0
2	MG	G	1	1/1	0.84	0.34	6.08	50,50,50,50	0
2	MG	E	1	1/1	0.91	0.25	3.44	47,47,47,47	0
2	MG	H	1	1/1	0.74	0.13	2.61	47,47,47,47	0
2	MG	D	1	1/1	0.80	0.17	2.22	58,58,58,58	0
2	MG	A	1	1/1	0.83	0.20	1.79	38,38,38,38	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	LLDF	B-factors( $\text{\AA}^2$ )	Q<0.9
2	MG	F	1	1/1	0.75	0.12	-1.01	59,59,59,59	0
2	MG	B	1	1/1	0.92	0.09	-2.54	40,40,40,40	0

## 6.5 Other polymers [i](#)

There are no such residues in this entry.