



# wwPDB X-ray Structure Validation Summary Report ⓘ

Mar 8, 2026 – 06:49 AM UTC

PDB ID : 2BGC / pdb\_00002bgc  
Title : PrfA-G145S, a constitutive active mutant of the Transcriptional Regulator In L.monocytogenes  
Authors : Eiting, M.; Hagelueken, G.; Schubert, W.-D.; Heinz, D.W.  
Deposited on : 2004-12-20  
Resolution : 2.30 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 Phenix2.0  
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

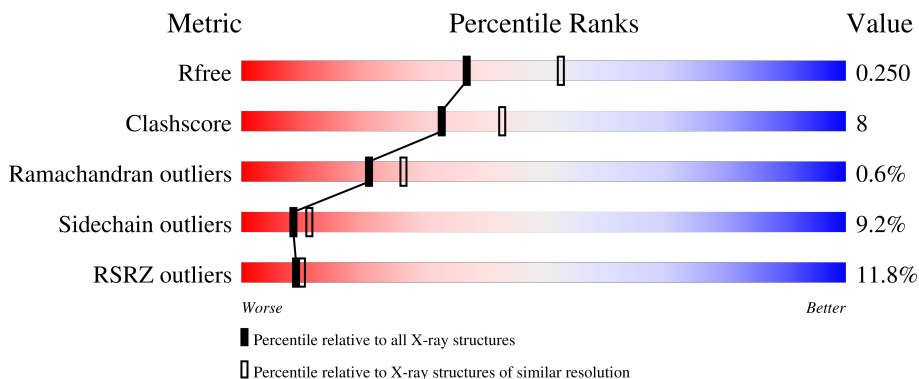
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 2.30 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.



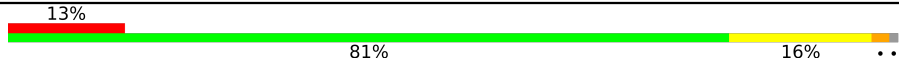


Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
$R_{free}$	180053	6319 (2.30-2.30)
Clashscore	190562	6919 (2.30-2.30)
Ramachandran outliers	187476	6854 (2.30-2.30)
Sidechain outliers	187428	6854 (2.30-2.30)
RSRZ outliers	180081	6325 (2.30-2.30)

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	238	
1	B	238	
1	D	238	
1	E	238	
1	F	238	

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Mol	Chain	Length	Quality of chain
1	G	238	
1	H	238	
1	I	238	

## 2 Entry composition i

There are 4 unique types of molecules in this entry. The entry contains 15644 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.

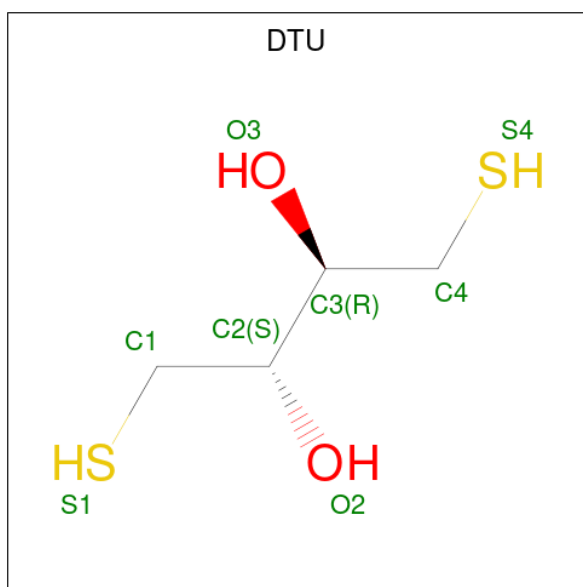
- Molecule 1 is a protein called PRFA.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	235	1916	1251	299	358	8	0	0	0
1	B	237	1932	1260	302	362	8	0	0	0
1	D	227	1859	1216	289	346	8	0	0	0
1	E	237	1930	1258	302	362	8	0	0	0
1	F	236	1924	1255	301	360	8	0	0	0
1	G	235	1916	1251	299	358	8	0	0	0
1	H	224	1838	1204	285	341	8	0	0	0
1	I	236	1924	1255	301	360	8	0	0	0

There are 8 discrepancies between the modelled and reference sequences:

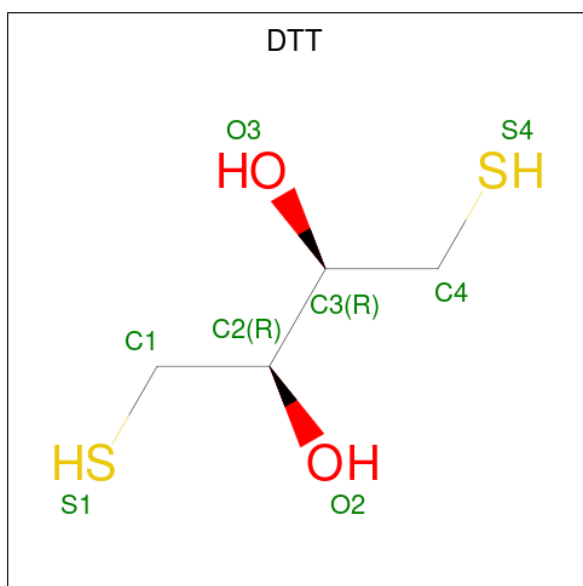
Chain	Residue	Modelled	Actual	Comment	Reference
A	145	SER	GLY	engineered mutation	UNP P22262
B	145	SER	GLY	engineered mutation	UNP P22262
D	145	SER	GLY	engineered mutation	UNP P22262
E	145	SER	GLY	engineered mutation	UNP P22262
F	145	SER	GLY	engineered mutation	UNP P22262
G	145	SER	GLY	engineered mutation	UNP P22262
H	145	SER	GLY	engineered mutation	UNP P22262
I	145	SER	GLY	engineered mutation	UNP P22262

- Molecule 2 is (2R,3S)-1,4-DIMERCAPTOBUTANE-2,3-DIOL (CCD ID: DTU) (formula: C<sub>4</sub>H<sub>10</sub>O<sub>2</sub>S<sub>2</sub>).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	O	S		
2	A	1	8	4	2	2	0	0

- Molecule 3 is 2,3-DIHYDROXY-1,4-DITHIOBUTANE (CCD ID: DTT) (formula:  $C_4H_{10}O_2S_2$ ).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	O	S		
3	F	1	8	4	2	2	0	0

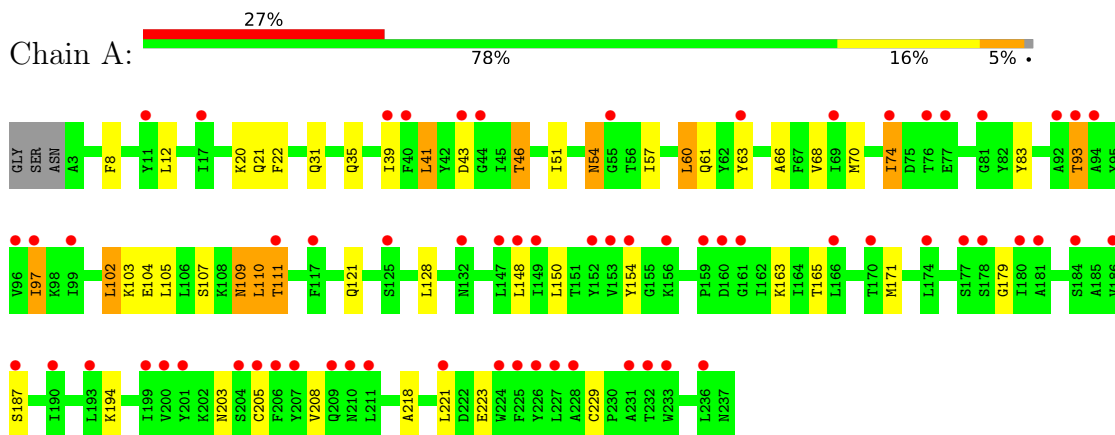
- Molecule 4 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	35	Total O 35 35	0	0
4	B	69	Total O 69 69	0	0
4	D	31	Total O 31 31	0	0
4	E	64	Total O 64 64	0	0
4	F	32	Total O 32 32	0	0
4	G	77	Total O 77 77	0	0
4	H	30	Total O 30 30	0	0
4	I	51	Total O 51 51	0	0

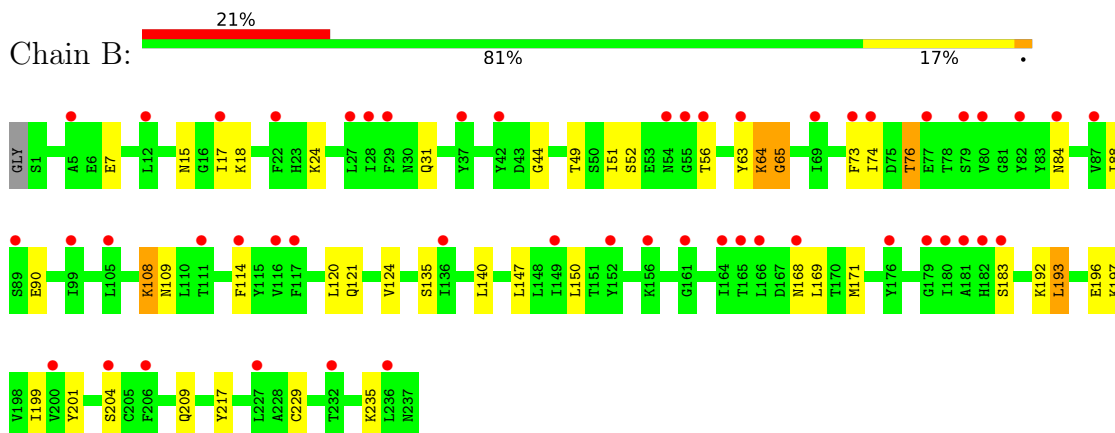
### 3 Residue-property plots [i](#)

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.

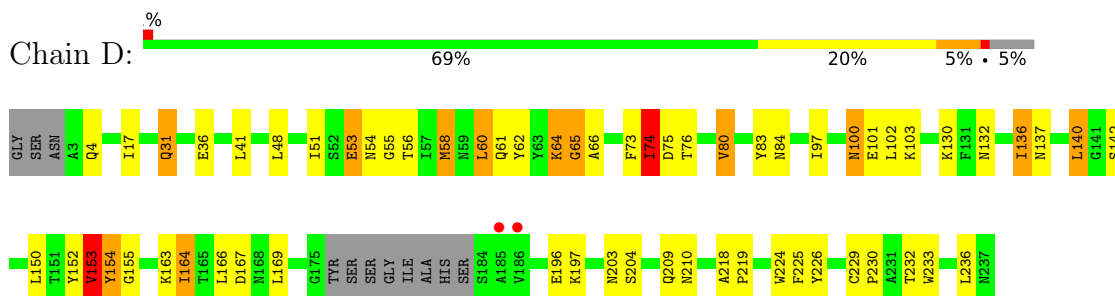
- Molecule 1: PRFA



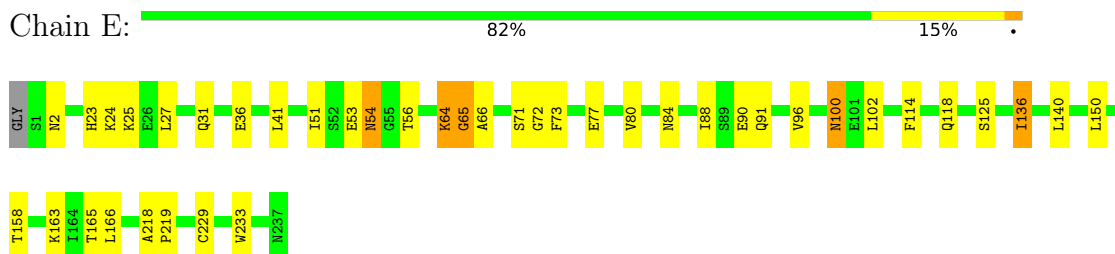
- Molecule 1: PRFA



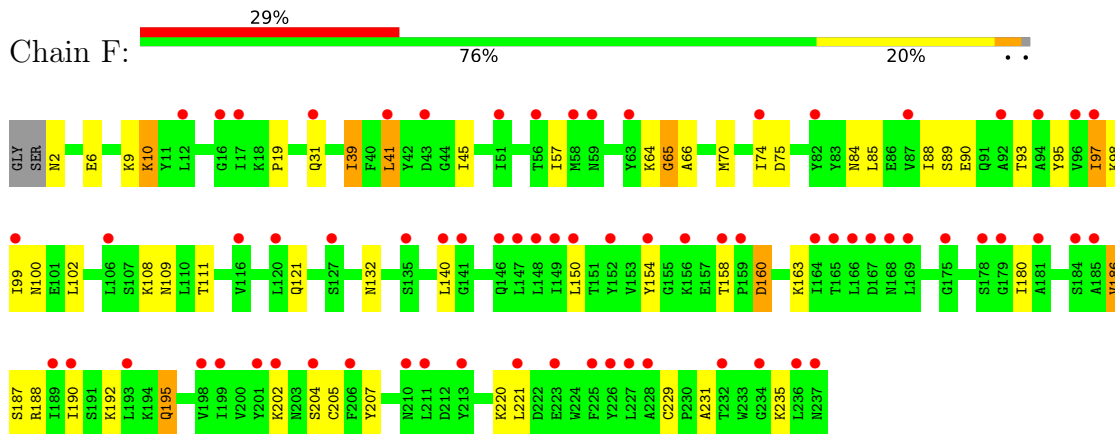
- Molecule 1: PRFA



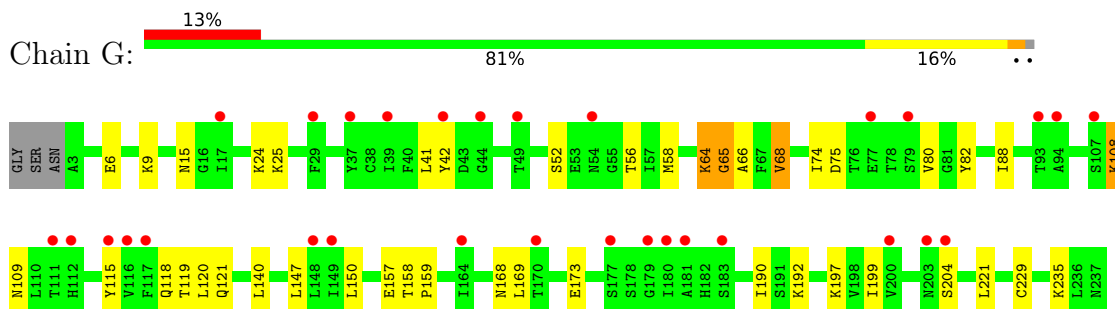
- Molecule 1: PRFA



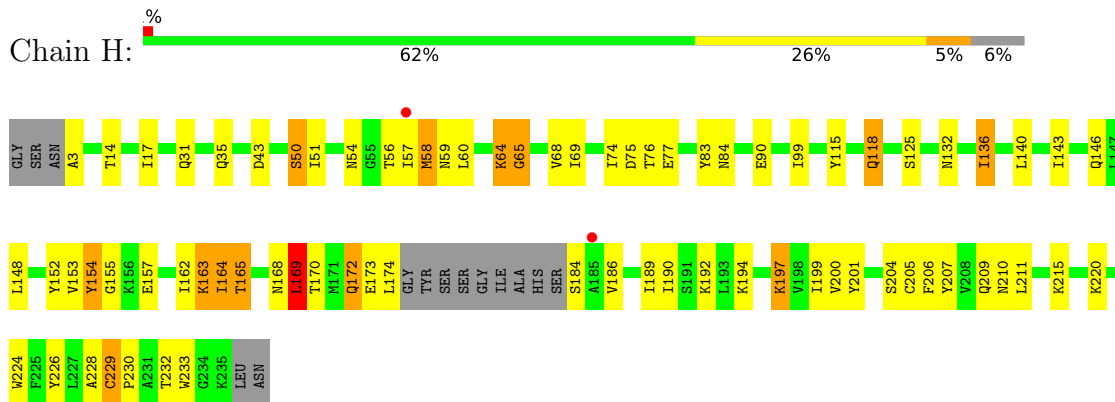
- Molecule 1: PRFA




- Molecule 1: PRFA

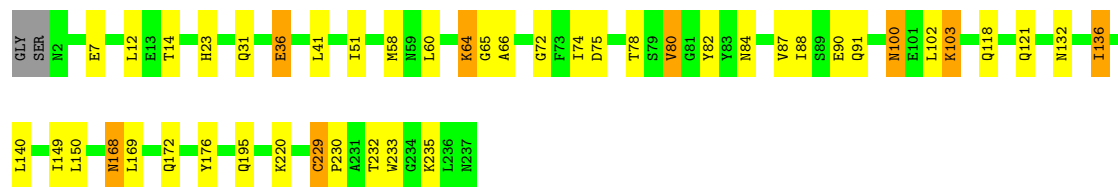


- Molecule 1: PRFA



- Molecule 1: PRFA

Chain I:  80% 16% ..



## 4 Data and refinement statistics

Property	Value	Source
Space group	C 1 2 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	117.25Å 100.24Å 189.56Å 90.00° 90.33° 90.00°	Depositor
Resolution (Å)	182.57 – 2.30 182.57 – 2.30	Depositor EDS
% Data completeness (in resolution range)	95.6 (182.57-2.30) 93.8 (182.57-2.30)	Depositor EDS
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ <sup>1</sup>	2.19 (at 2.29Å)	Xtrriage
Refinement program	REFMAC 5.2.0005	Depositor
R, $R_{free}$	0.195 , 0.268 0.210 , 0.250	Depositor DCC
$R_{free}$ test set	4648 reflections (4.99%)	wwPDB-VP
Wilson B-factor (Å <sup>2</sup> )	40.6	Xtrriage
Anisotropy	0.587	Xtrriage
Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> )	0.32 , 170.3	EDS
L-test for twinning <sup>2</sup>	$\langle  L  \rangle = 0.50$ , $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	0.467 for -h,-k,l	Xtrriage
$F_o, F_c$ correlation	0.85	EDS
Total number of atoms	15644	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	51.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 4.28% 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: PR3, DTT, DTU

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	0.99	0/1951	1.05	1/2632 (0.0%)
1	B	1.19	3/1965 (0.2%)	1.11	3/2651 (0.1%)
1	D	1.03	2/1891 (0.1%)	1.06	3/2549 (0.1%)
1	E	1.22	4/1965 (0.2%)	1.17	6/2651 (0.2%)
1	F	0.97	1/1959 (0.1%)	1.00	1/2643 (0.0%)
1	G	1.20	5/1951 (0.3%)	1.11	2/2632 (0.1%)
1	H	1.04	2/1870 (0.1%)	1.03	1/2522 (0.0%)
1	I	1.22	4/1959 (0.2%)	1.15	6/2643 (0.2%)
All	All	1.11	21/15511 (0.1%)	1.09	23/20923 (0.1%)

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	B	0	1
1	D	0	1
1	E	0	1
1	F	0	1
1	G	0	1
1	H	0	2
1	I	0	1
All	All	0	8

The worst 5 of 21 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	G	68	VAL	CA-CB	8.62	1.66	1.54
1	E	65	GLY	N-CA	7.08	1.55	1.45
1	I	233	TRP	N-CA	6.44	1.54	1.46

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	I	65	GLY	CA-C	-6.38	1.44	1.52
1	G	65	GLY	N-CA	6.16	1.54	1.45

The worst 5 of 23 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	I	65	GLY	N-CA-C	-10.39	92.69	112.02
1	E	88	ILE	CB-CA-C	-9.69	102.00	111.30
1	E	65	GLY	N-CA-C	-9.52	90.62	113.18
1	G	65	GLY	N-CA-C	-9.24	96.14	112.22
1	H	65	GLY	N-CA-C	-8.94	96.66	112.22

There are no chirality outliers.

5 of 8 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	B	64	LYS	Peptide
1	D	64	LYS	Peptide
1	E	64	LYS	Peptide
1	F	64	LYS	Peptide
1	G	64	LYS	Peptide

## 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	1916	0	1914	32	0
1	B	1932	0	1936	24	0
1	D	1859	0	1864	40	0
1	E	1930	0	1928	23	0
1	F	1924	0	1920	39	0
1	G	1916	0	1915	17	0
1	H	1838	0	1843	60	0
1	I	1924	0	1920	35	0
2	A	8	0	10	0	0
3	F	8	0	10	1	0
4	A	35	0	0	1	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
4	B	69	0	0	1	0
4	D	31	0	0	1	0
4	E	64	0	0	2	0
4	F	32	0	0	3	0
4	G	77	0	0	0	0
4	H	30	0	0	1	0
4	I	51	0	0	4	0
All	All	15644	0	15260	238	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 8.

The worst 5 of 238 close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:31:GLN:HE21	1:B:84:ASN:HD21	1.15	0.94
1:H:74:ILE:H	1:I:121:GLN:HE22	1.21	0.85
1:D:153:VAL:O	1:D:154:TYR:CD2	2.34	0.81
1:F:75:ASP:HB3	1:G:118:GLN:NE2	1.97	0.79
1:H:190:ILE:O	1:H:194:LYS:NZ	2.15	0.79

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	232/238 (98%)	220 (95%)	12 (5%)	0	<a href="#">100</a> <a href="#">100</a>
1	B	234/238 (98%)	227 (97%)	6 (3%)	1 (0%)	<a href="#">30</a> <a href="#">38</a>
1	D	222/238 (93%)	200 (90%)	16 (7%)	6 (3%)	<a href="#">4</a> <a href="#">3</a>
1	E	234/238 (98%)	228 (97%)	6 (3%)	0	<a href="#">100</a> <a href="#">100</a>

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	F	233/238 (98%)	226 (97%)	6 (3%)	1 (0%)	30	38
1	G	232/238 (98%)	226 (97%)	5 (2%)	1 (0%)	30	38
1	H	219/238 (92%)	204 (93%)	13 (6%)	2 (1%)	14	17
1	I	233/238 (98%)	225 (97%)	8 (3%)	0	100	100
All	All	1839/1904 (97%)	1756 (96%)	72 (4%)	11 (1%)	21	27

5 of 11 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	D	154	TYR
1	D	167	ASP
1	H	169	LEU
1	B	169	LEU
1	G	169	LEU

### 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	210/212 (99%)	187 (89%)	23 (11%)	6	7
1	B	212/212 (100%)	199 (94%)	13 (6%)	17	24
1	D	204/212 (96%)	182 (89%)	22 (11%)	6	7
1	E	212/212 (100%)	201 (95%)	11 (5%)	21	31
1	F	211/212 (100%)	190 (90%)	21 (10%)	7	9
1	G	210/212 (99%)	196 (93%)	14 (7%)	15	21
1	H	202/212 (95%)	170 (84%)	32 (16%)	2	2
1	I	211/212 (100%)	193 (92%)	18 (8%)	10	13
All	All	1672/1696 (99%)	1518 (91%)	154 (9%)	8	11

5 of 154 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	H	136	ILE
1	I	80	VAL
1	H	154	TYR
1	H	200	VAL
1	I	150	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 84 such sidechains are listed below:

Mol	Chain	Res	Type
1	G	61	GLN
1	H	132	ASN
1	G	118	GLN
1	H	31	GLN
1	I	15	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](#)

8 non-standard protein/DNA/RNA residues 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
1	PR3	E	229	1	6,7,9	1.00	0	4,7,9	2.21	1 (25%)
1	PR3	G	229	1	6,7,9	0.81	0	4,7,9	1.61	1 (25%)
1	PR3	F	229	1	6,7,9	0.81	0	4,7,9	1.79	2 (50%)
1	PR3	D	229	1	6,7,9	0.70	0	4,7,9	2.05	2 (50%)
1	PR3	H	229	1	6,7,9	1.36	1 (16%)	4,7,9	2.73	4 (100%)
1	PR3	I	229	1	6,7,9	1.06	1 (16%)	4,7,9	2.13	2 (50%)
1	PR3	B	229	1	8,9,9	0.90	0	6,9,9	2.25	2 (33%)
1	PR3	A	229	1	6,7,9	0.92	0	4,7,9	2.27	2 (50%)

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
1	PR3	E	229	1	-	0/2/6/8	-
1	PR3	G	229	1	-	0/2/6/8	-
1	PR3	F	229	1	-	0/2/6/8	-
1	PR3	D	229	1	-	2/2/6/8	-
1	PR3	H	229	1	-	1/2/6/8	-
1	PR3	I	229	1	-	0/2/6/8	-
1	PR3	B	229	1	-	2/5/8/8	-
1	PR3	A	229	1	-	0/2/6/8	-

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	H	229	PR3	O-C	2.80	1.30	1.20
1	I	229	PR3	CB-SG	-2.13	1.74	1.81

The worst 5 of 16 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	229	PR3	CE-SD-SG	4.20	121.91	103.46
1	A	229	PR3	CB-SG-SD	3.46	112.82	103.86
1	D	229	PR3	CB-SG-SD	3.29	112.37	103.86
1	E	229	PR3	CE-SD-SG	3.10	126.94	104.23
1	H	229	PR3	CE-SD-SG	2.87	125.28	104.23

There are no chirality outliers.

All (5) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	D	229	PR3	N-CA-CB-SG
1	B	229	PR3	CE-SD-SG-CB
1	B	229	PR3	CZ-CE-SD-SG
1	D	229	PR3	CA-CB-SG-SD
1	H	229	PR3	CA-CB-SG-SD

There are no ring outliers.

1 monomer is involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	I	229	PR3	2	0

## 5.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

## 5.6 Ligand geometry [i](#)

2 ligands are modelled in this entry.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
2	DTU	A	1238	-	7,7,7	0.73	0	4,8,8	1.23	0
3	DTT	F	1238	-	7,7,7	0.79	0	4,8,8	0.77	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	DTU	A	1238	-	-	4/8/8/8	-
3	DTT	F	1238	-	-	0/8/8/8	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	1238	DTU	S1-C1-C2-O2
2	A	1238	DTU	S1-C1-C2-C3
2	A	1238	DTU	C2-C3-C4-S4

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Mol	Chain	Res	Type	Atoms
2	A	1238	DTU	O3-C3-C4-S4

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	F	1238	DTT	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, 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	234/238 (98%)	1.58	65 (27%) <b>1</b> <b>1</b>	32, 55, 84, 101	0
1	B	236/238 (99%)	1.27	50 (21%) <b>2</b> <b>3</b>	30, 41, 61, 92	0
1	D	226/238 (94%)	-0.16	2 (0%) <b>81</b> <b>82</b>	35, 54, 112, 132	0
1	E	236/238 (99%)	-0.36	0 <b>100</b> <b>100</b>	30, 41, 64, 94	0
1	F	235/238 (98%)	1.56	70 (29%) <b>1</b> <b>1</b>	33, 54, 85, 102	0
1	G	234/238 (98%)	0.95	30 (12%) <b>7</b> <b>8</b>	30, 41, 59, 74	0
1	H	223/238 (93%)	-0.14	2 (0%) <b>81</b> <b>82</b>	31, 54, 108, 119	0
1	I	235/238 (98%)	-0.39	0 <b>100</b> <b>100</b>	30, 41, 64, 90	0
All	All	1859/1904 (97%)	0.55	219 (11%) <b>9</b> <b>10</b>	30, 47, 86, 132	0

The worst 5 of 219 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	209	GLN	6.2
1	G	181	ALA	5.7
1	B	180	ILE	5.6
1	A	211	LEU	5.2
1	F	228	ALA	5.1

### 6.2 Non-standard residues in protein, DNA, RNA chains [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
1	PR3	F	229	8/10	0.87	0.17	62,65,81,86	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors( $\text{\AA}^2$ )	Q<0.9
1	PR3	G	229	8/10	0.92	0.12	37,41,59,64	0
1	PR3	A	229	8/10	0.94	0.15	60,64,84,87	0
1	PR3	B	229	10/10	0.94	0.12	40,48,65,66	0
1	PR3	D	229	8/10	0.96	0.10	92,94,98,99	0
1	PR3	I	229	8/10	0.96	0.08	52,62,80,84	0
1	PR3	H	229	8/10	0.97	0.09	103,105,107,107	0
1	PR3	E	229	8/10	0.97	0.06	50,61,80,82	0

### 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, 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( $\text{\AA}^2$ )	Q<0.9
3	DTT	F	1238	8/8	0.95	0.09	80,81,85,88	0
2	DTU	A	1238	8/8	0.96	0.09	51,52,53,54	8

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

There are no such residues in this entry.