



Full wwPDB X-ray Structure Validation Report ⓘ

May 29, 2020 – 11:16 am BST

PDB ID : 1TQY
Title : The Actinorhodin Ketosynthase/Chain Length Factor
Authors : Keatinge-Clay, A.T.; Maltby, D.A.; Medzihradzsky, K.F.; Khosla, C.; Stroud, R.M.
Deposited on : 2004-06-18
Resolution : 2.00 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467
Mogul : 1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix) : 1.13
EDS : 2.11
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.11

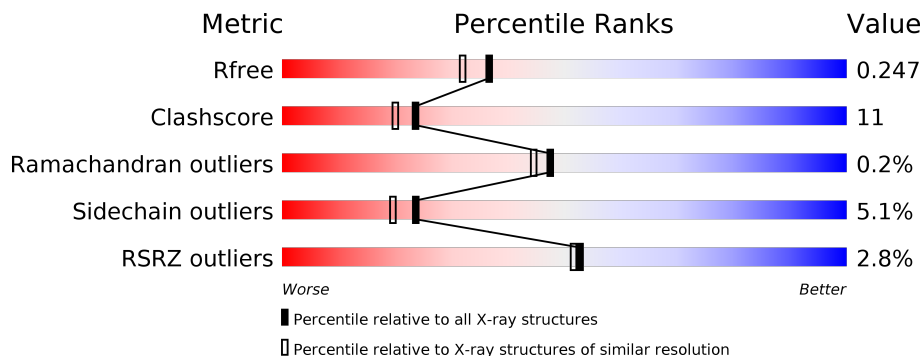
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.00 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}	130704	8085 (2.00-2.00)
Clashscore	141614	9178 (2.00-2.00)
Ramachandran outliers	138981	9054 (2.00-2.00)
Sidechain outliers	138945	9053 (2.00-2.00)
RSRZ outliers	127900	7900 (2.00-2.00)

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 ≥ 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	424	<div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 74%; 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: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">2% 74% 24% ..</p>
1	C	424	<div style="display: flex; align-items: center;"> <div style="width: 4%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 78%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 20%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">4% 78% 20% ..</p>
1	E	424	<div style="display: flex; align-items: center;"> <div style="width: 6%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 74%; 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: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">6% 74% 24% ..</p>
1	G	424	<div style="display: flex; align-items: center;"> <div style="width: 3%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 75%; 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: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">3% 75% 21% ..</p>
2	B	415	<div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 72%; height: 10px; background-color: green; margin-right: 5px;"></div> <div style="width: 22%; height: 10px; background-color: yellow; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">2% 72% 22% ..</p>
2	D	415	<div style="display: flex; align-items: center;"> <div style="width: 0%; height: 10px; background-color: red; margin-right: 5px;"></div> <div style="width: 79%; 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: 2%; height: 10px; background-color: orange; margin-right: 5px;"></div> <div style="width: 2%; height: 10px; background-color: grey;"></div> </div> <p style="text-align: center;">% 79% 16% ..</p>

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Mol	Chain	Length	Quality of chain
2	F	415	
2	H	415	

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
4	ACE	E	633	-	-	X	-
4	ACE	G	633	-	-	X	-

2 Entry composition [i](#)

There are 6 unique types of molecules in this entry. The entry contains 25535 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 Actinorhodin polyketide putative beta-ketoacyl synthase 1.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	421	3140	1936	570	618	16	0	0	0
1	C	421	3140	1936	570	618	16	0	0	0
1	E	421	3140	1936	570	618	16	0	0	0
1	G	421	3140	1936	570	618	16	0	0	0

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	1	MET	-	initiating methionine	UNP Q02059
C	1	MET	-	initiating methionine	UNP Q02059
E	1	MET	-	initiating methionine	UNP Q02059
G	1	MET	-	initiating methionine	UNP Q02059

- Molecule 2 is a protein called Actinorhodin polyketide putative beta-ketoacyl synthase 2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	402	2970	1863	537	565	5	0	0	0
2	D	402	2970	1863	537	565	5	0	0	0
2	F	402	2970	1863	537	565	5	0	0	0
2	H	402	2970	1863	537	565	5	0	0	0

There are 36 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	-7	MET	-	initiating methionine	UNP Q02062
B	-6	ASP	-	expression tag	UNP Q02062
B	-5	TYR	-	expression tag	UNP Q02062
B	-4	LYS	-	expression tag	UNP Q02062
B	-3	ASP	-	expression tag	UNP Q02062
B	-2	ASP	-	expression tag	UNP Q02062
B	-1	ASP	-	expression tag	UNP Q02062
B	0	ASP	-	expression tag	UNP Q02062
B	1	LYS	-	expression tag	UNP Q02062
D	-7	MET	-	initiating methionine	UNP Q02062
D	-6	ASP	-	expression tag	UNP Q02062
D	-5	TYR	-	expression tag	UNP Q02062
D	-4	LYS	-	expression tag	UNP Q02062
D	-3	ASP	-	expression tag	UNP Q02062
D	-2	ASP	-	expression tag	UNP Q02062
D	-1	ASP	-	expression tag	UNP Q02062
D	0	ASP	-	expression tag	UNP Q02062
D	1	LYS	-	expression tag	UNP Q02062
F	-7	MET	-	initiating methionine	UNP Q02062
F	-6	ASP	-	expression tag	UNP Q02062
F	-5	TYR	-	expression tag	UNP Q02062
F	-4	LYS	-	expression tag	UNP Q02062
F	-3	ASP	-	expression tag	UNP Q02062
F	-2	ASP	-	expression tag	UNP Q02062
F	-1	ASP	-	expression tag	UNP Q02062
F	0	ASP	-	expression tag	UNP Q02062
F	1	LYS	-	expression tag	UNP Q02062
H	-7	MET	-	initiating methionine	UNP Q02062
H	-6	ASP	-	expression tag	UNP Q02062
H	-5	TYR	-	expression tag	UNP Q02062
H	-4	LYS	-	expression tag	UNP Q02062
H	-3	ASP	-	expression tag	UNP Q02062
H	-2	ASP	-	expression tag	UNP Q02062
H	-1	ASP	-	expression tag	UNP Q02062
H	0	ASP	-	expression tag	UNP Q02062
H	1	LYS	-	expression tag	UNP Q02062

- Molecule 3 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

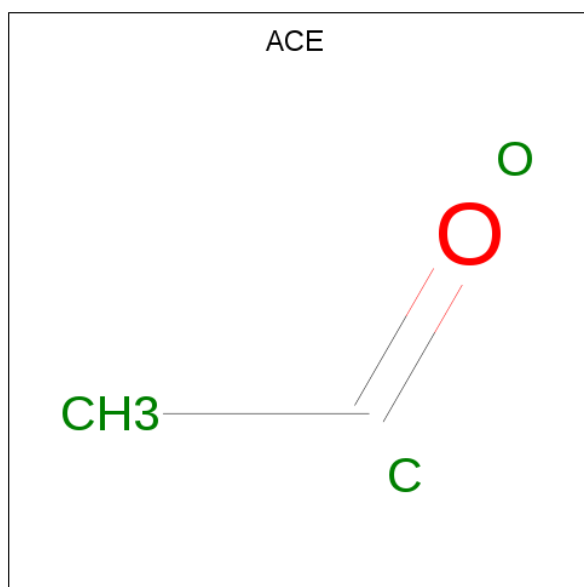
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	G	1	Total Mg 1 1	0	0

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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total Mg 1 1	0	0
3	C	1	Total Mg 1 1	0	0
3	E	1	Total Mg 1 1	0	0

- Molecule 4 is ACETYL GROUP (three-letter code: ACE) (formula: C₂H₄O).



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

- Molecule 5 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	H	1	Total Na 1 1	0	0
5	B	1	Total Na 1 1	0	0

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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	D	1	Total 1	Na 1	0	0
5	F	1	Total 1	Na 1	0	0

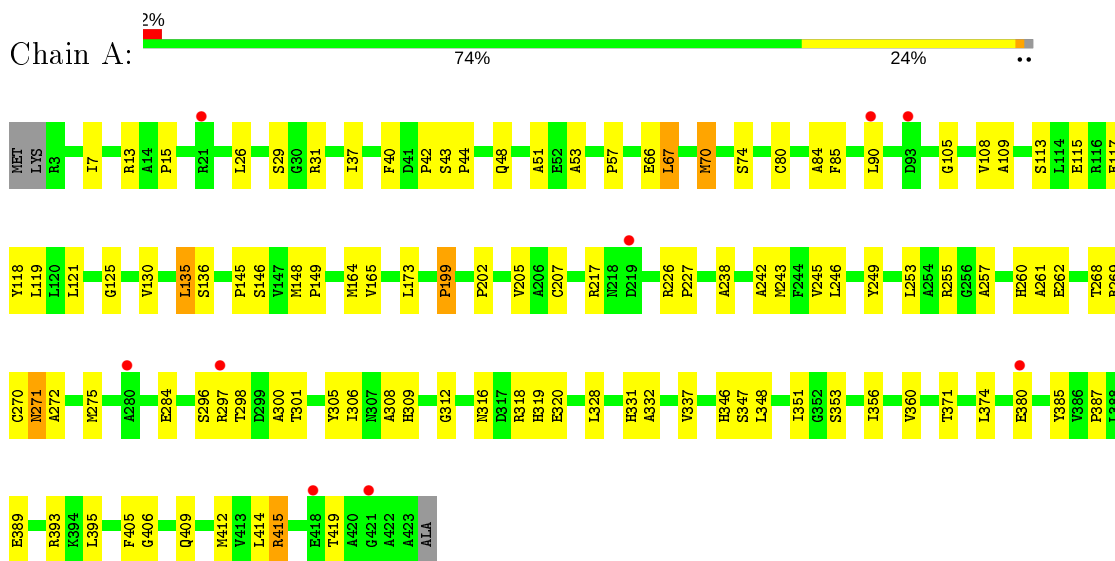
- Molecule 6 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	A	99	Total 99	O 99	0	0
6	B	144	Total 144	O 144	0	0
6	C	105	Total 105	O 105	0	0
6	D	187	Total 187	O 187	0	0
6	E	62	Total 62	O 62	0	0
6	F	157	Total 157	O 157	0	0
6	G	110	Total 110	O 110	0	0
6	H	211	Total 211	O 211	0	0

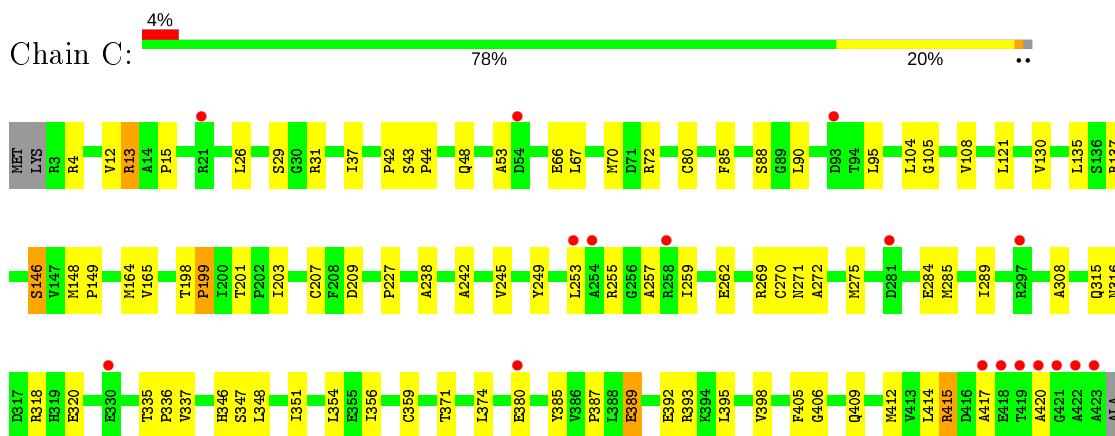
3 Residue-property plots [i](#)

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

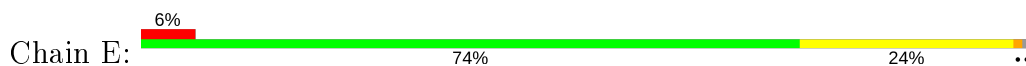
- Molecule 1: Actinorhodin polyketide putative beta-ketoacyl synthase 1

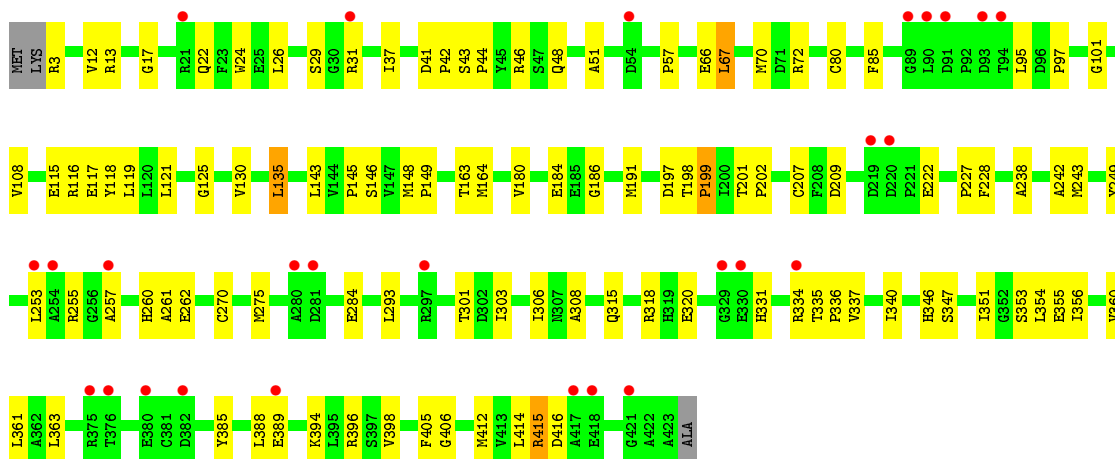


- Molecule 1: Actinorhodin polyketide putative beta-ketoacyl synthase 1

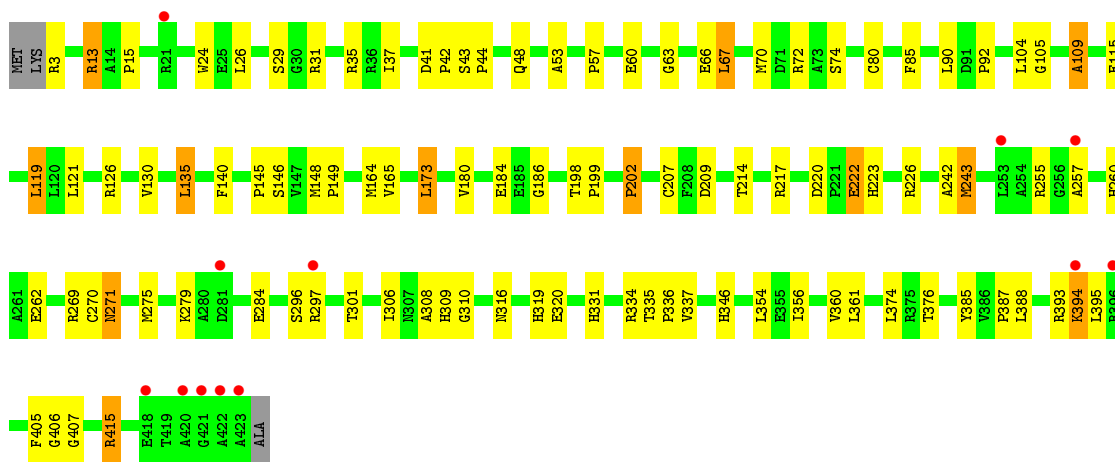
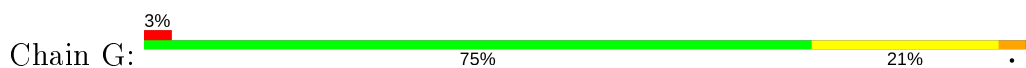


- Molecule 1: Actinorhodin polyketide putative beta-ketoacyl synthase 1

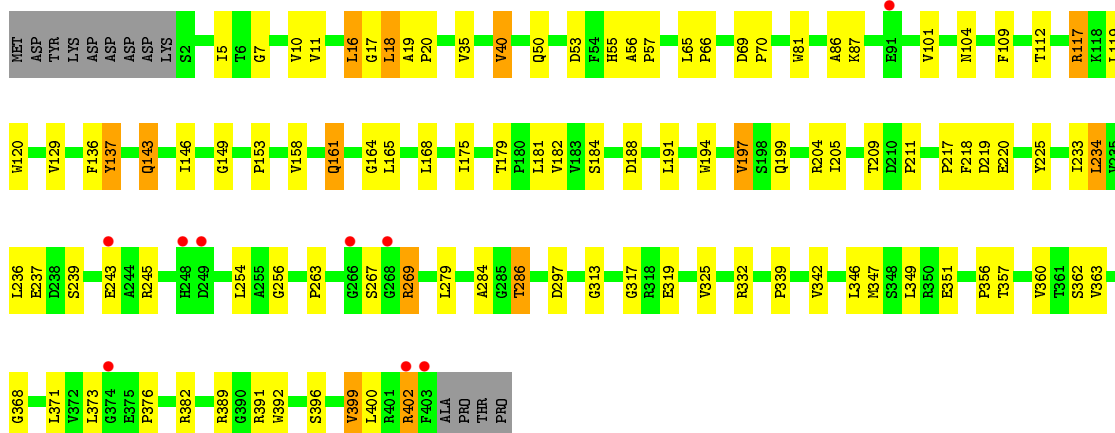




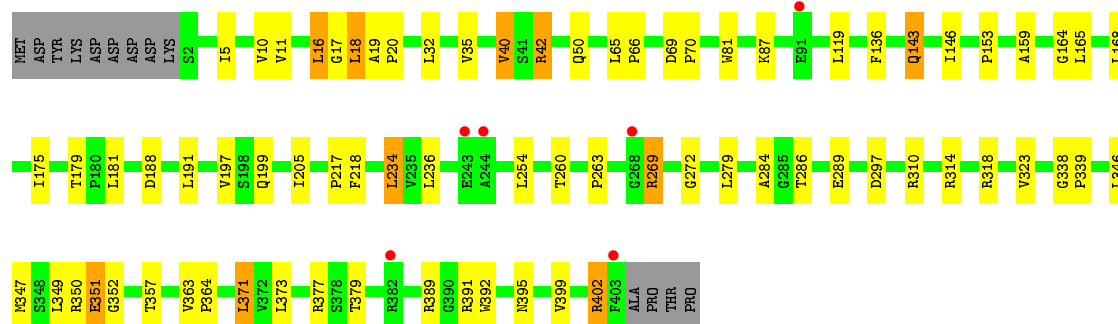
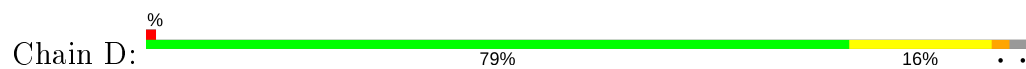
- Molecule 1: Actinorhodin polyketide putative beta-ketoacyl synthase 1



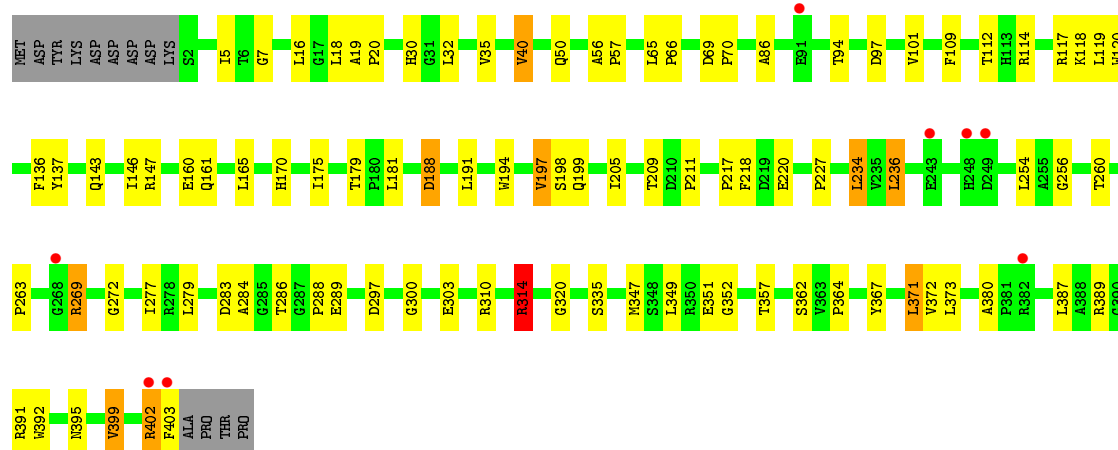
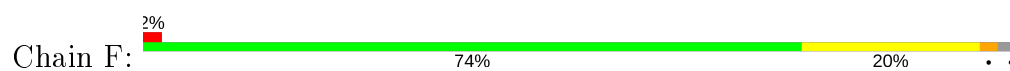
- Molecule 2: Actinorhodin polyketide putative beta-ketoacyl synthase 2



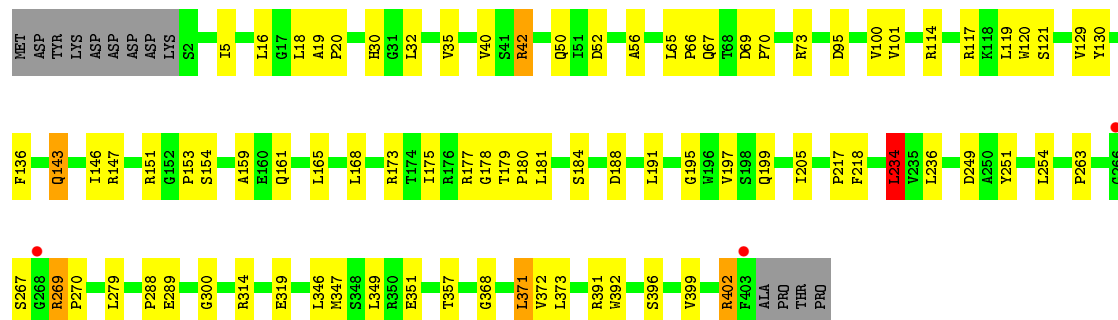
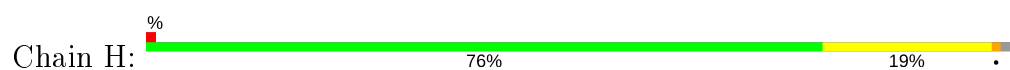
- Molecule 2: Actinorhodin polyketide putative beta-ketoacyl synthase 2



- Molecule 2: Actinorhodin polyketide putative beta-ketoacyl synthase 2



- Molecule 2: Actinorhodin polyketide putative beta-ketoacyl synthase 2



4 Data and refinement statistics

Property	Value	Source
Space group	H 3	Depositor
Cell constants a, b, c, α , β , γ	262.70Å 262.70Å 224.03Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	50.00 – 2.00 49.65 – 2.00	Depositor EDS
% Data completeness (in resolution range)	98.7 (50.00-2.00) 98.5 (49.65-2.00)	Depositor EDS
R_{merge}	0.07	Depositor
R_{sym}	0.07	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.70 (at 2.00Å)	Xtrriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.233 , 0.253 0.227 , 0.247	Depositor DCC
R_{free} test set	38543 reflections (10.00%)	wwPDB-VP
Wilson B-factor (Å ²)	25.2	Xtrriage
Anisotropy	0.059	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.39 , 42.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	0.016 for h,-h-k,-l	Xtrriage
F_o, F_c correlation	0.94	EDS
Total number of atoms	25535	wwPDB-VP
Average B, all atoms (Å ²)	30.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 11.06% 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: NA, MG, ACE

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	0.38	0/3199	0.65	2/4346 (0.0%)
1	C	0.37	0/3199	0.62	0/4346
1	E	0.34	0/3199	0.59	0/4346
1	G	0.38	0/3199	0.64	1/4346 (0.0%)
2	B	0.37	0/3041	0.64	0/4151
2	D	0.41	0/3041	0.68	0/4151
2	F	0.37	0/3041	0.95	5/4151 (0.1%)
2	H	0.40	0/3041	0.89	5/4151 (0.1%)
All	All	0.38	0/24960	0.72	13/33988 (0.0%)

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
2	B	0	1
2	F	0	2
All	All	0	3

There are no bond length outliers.

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	314	ARG	NE-CZ-NH2	-32.84	103.88	120.30
2	F	314	ARG	NE-CZ-NH1	30.51	135.55	120.30
2	H	314	ARG	NE-CZ-NH2	-27.43	106.59	120.30
2	H	314	ARG	NE-CZ-NH1	25.06	132.83	120.30
1	A	298	THR	CA-CB-CG2	8.28	123.99	112.40
2	H	314	ARG	CA-CB-CG	7.10	129.02	113.40

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	F	314	ARG	CG-CD-NE	6.85	126.18	111.80
1	A	298	THR	CA-CB-OG1	-5.82	96.77	109.00
2	H	314	ARG	CB-CG-CD	5.69	126.39	111.60
2	F	314	ARG	CB-CG-CD	5.58	126.10	111.60
2	F	314	ARG	CD-NE-CZ	5.38	131.13	123.60
2	H	234	LEU	CA-CB-CG	5.22	127.30	115.30
1	G	104	LEU	CA-CB-CG	5.08	126.99	115.30

There are no chirality outliers.

All (3) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
2	B	137	TYR	Sidechain
2	F	137	TYR	Sidechain
2	F	314	ARG	Sidechain

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	3140	0	3032	78	0
1	C	3140	0	3032	69	0
1	E	3140	0	3032	77	0
1	G	3140	0	3032	80	0
2	B	2970	0	2903	76	0
2	D	2970	0	2903	61	0
2	F	2970	0	2903	73	0
2	H	2970	0	2903	69	0
3	A	1	0	0	0	0
3	C	1	0	0	0	0
3	E	1	0	0	0	0
3	G	1	0	0	0	0
4	A	3	0	3	1	0
4	C	3	0	3	1	0
4	E	3	0	3	2	0
4	G	3	0	3	2	0
5	B	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	D	1	0	0	0	0
5	F	1	0	0	0	0
5	H	1	0	0	0	0
6	A	99	0	0	1	0
6	B	144	0	0	2	1
6	C	105	0	0	9	0
6	D	187	0	0	11	0
6	E	62	0	0	1	0
6	F	157	0	0	7	1
6	G	110	0	0	6	0
6	H	211	0	0	4	0
All	All	25535	0	23752	538	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 (538) 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)
2:D:402:ARG:HG3	6:D:1237:HOH:O	1.39	1.21
1:G:376:THR:HG23	6:G:1143:HOH:O	1.47	1.13
1:C:392:GLU:HB2	6:C:1124:HOH:O	1.50	1.11
1:G:275:MET:HE1	1:G:406:GLY:HA2	1.15	1.06
1:C:146:SER:HB2	6:D:1189:HOH:O	1.54	1.05
1:A:275:MET:HE1	1:A:406:GLY:HA2	1.42	1.00
1:C:412:MET:HE3	1:C:414:LEU:HD21	1.43	1.00
1:G:217:ARG:HD2	6:G:1200:HOH:O	1.63	0.99
1:A:412:MET:HE3	1:A:414:LEU:HD21	1.46	0.97
2:D:314:ARG:NH1	6:D:1103:HOH:O	2.02	0.93
2:F:5:ILE:HD12	2:F:236:LEU:HD22	1.52	0.91
1:E:275:MET:HE1	1:E:406:GLY:HA2	1.53	0.90
2:H:35:VAL:HB	2:H:40:VAL:HG11	1.52	0.89
1:C:308:ALA:HB1	1:C:320:GLU:OE2	1.76	0.85
1:G:275:MET:HE1	1:G:406:GLY:CA	2.06	0.84
1:E:146:SER:O	1:E:149:PRO:HD2	1.76	0.84
1:A:275:MET:HA	1:A:275:MET:HE2	1.58	0.84
1:G:275:MET:HE2	1:G:275:MET:HA	1.61	0.83
2:F:5:ILE:CD1	2:F:236:LEU:HD22	2.08	0.83
2:D:199:GLN:HB3	2:D:205:ILE:HD11	1.62	0.82
2:H:269:ARG:HH11	2:H:269:ARG:HB3	1.43	0.81
1:G:275:MET:CE	1:G:406:GLY:HA2	2.07	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:146:SER:O	1:A:149:PRO:HD2	1.81	0.80
1:E:146:SER:HB2	6:F:1172:HOH:O	1.82	0.80
1:E:66:GLU:O	1:E:70:MET:HG2	1.82	0.79
1:C:275:MET:HE3	2:D:146:ILE:HD12	1.64	0.79
2:D:351:GLU:HG2	6:D:1222:HOH:O	1.81	0.79
1:C:275:MET:HE1	1:C:406:GLY:HA2	1.65	0.77
2:B:5:ILE:HD13	2:B:236:LEU:HD22	1.65	0.76
1:G:66:GLU:O	1:G:70:MET:HG2	1.86	0.76
2:H:199:GLN:HB3	2:H:205:ILE:HD11	1.68	0.76
1:E:412:MET:HE3	1:E:414:LEU:HD21	1.68	0.76
1:G:269:ARG:NH1	2:H:153:PRO:HG3	2.01	0.75
1:E:57:PRO:HB3	1:E:67:LEU:HD11	1.68	0.75
2:D:402:ARG:HD2	6:D:1255:HOH:O	1.86	0.74
1:A:66:GLU:O	1:A:70:MET:HG3	1.88	0.74
2:H:402:ARG:HD2	6:H:1300:HOH:O	1.85	0.74
2:D:347:MET:CE	2:D:347:MET:HA	2.16	0.73
2:F:199:GLN:HB3	2:F:205:ILE:HD11	1.69	0.73
2:H:269:ARG:HB3	2:H:269:ARG:NH1	2.02	0.73
1:A:146:SER:HB2	6:B:1153:HOH:O	1.89	0.73
1:C:389:GLU:HG2	6:C:1197:HOH:O	1.89	0.72
1:G:148:MET:HB2	1:G:149:PRO:HD3	1.72	0.72
1:E:37:ILE:HB	1:E:42:PRO:HG3	1.71	0.72
2:B:199:GLN:HB3	2:B:205:ILE:HD11	1.72	0.72
1:G:42:PRO:HB2	1:G:48:GLN:HB3	1.71	0.72
1:C:37:ILE:HB	1:C:42:PRO:HG3	1.71	0.71
2:D:19:ALA:HB3	2:D:20:PRO:HD3	1.71	0.71
2:F:284:ALA:HB3	2:F:286:THR:HG22	1.73	0.71
2:D:402:ARG:CG	6:D:1237:HOH:O	2.10	0.71
1:A:356:ILE:HG12	1:A:412:MET:HE2	1.73	0.70
1:A:148:MET:HB2	1:A:149:PRO:HD3	1.74	0.70
1:E:334:ARG:HG3	1:E:334:ARG:HH11	1.56	0.70
2:H:269:ARG:HH11	2:H:269:ARG:CB	2.03	0.70
1:A:275:MET:CE	1:A:406:GLY:HA2	2.19	0.70
2:D:371:LEU:HD13	2:D:373:LEU:HD21	1.74	0.69
1:E:405:PHE:CD2	4:E:633:ACE:H3	2.27	0.69
1:A:57:PRO:HB3	1:A:67:LEU:HD11	1.75	0.69
2:B:129:VAL:HG21	2:F:289:GLU:HG2	1.73	0.69
1:C:269:ARG:NH1	2:D:153:PRO:HG3	2.08	0.69
1:C:389:GLU:CG	6:C:1197:HOH:O	2.40	0.69
1:G:72:ARG:HG2	1:G:198:THR:HG21	1.74	0.69
2:D:35:VAL:HB	2:D:40:VAL:HG11	1.74	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:146:SER:HB2	6:H:1148:HOH:O	1.94	0.68
2:B:204:ARG:NH1	6:B:1175:HOH:O	2.19	0.68
1:C:275:MET:CE	1:C:406:GLY:HA2	2.24	0.68
1:E:275:MET:HE2	1:E:275:MET:HA	1.76	0.67
1:C:275:MET:HA	1:C:275:MET:HE2	1.76	0.67
2:H:349:LEU:HB3	2:H:402:ARG:HG2	1.77	0.67
1:A:337:VAL:O	1:A:385:TYR:HA	1.95	0.67
1:G:308:ALA:HB1	1:G:320:GLU:OE2	1.95	0.66
2:D:5:ILE:CD1	2:D:236:LEU:HD22	2.26	0.66
1:E:275:MET:CE	2:F:146:ILE:HD12	2.26	0.66
1:G:262:GLU:OE1	1:G:415:ARG:HD3	1.95	0.66
1:A:308:ALA:HB1	1:A:320:GLU:OE2	1.95	0.66
2:H:391:ARG:HG2	2:H:391:ARG:HH11	1.61	0.65
2:F:35:VAL:HB	2:F:40:VAL:HG11	1.79	0.65
1:G:275:MET:HE3	2:H:146:ILE:HD12	1.78	0.64
1:A:135:LEU:HG	2:B:197:VAL:HG13	1.80	0.64
1:E:293:LEU:HD21	1:E:303:ILE:HD11	1.79	0.64
2:F:297:ASP:OD2	2:F:389:ARG:HD3	1.98	0.64
2:B:19:ALA:HB3	2:B:20:PRO:HD3	1.80	0.64
1:E:115:GLU:OE1	1:E:202:PRO:HB2	1.98	0.63
2:D:5:ILE:HG13	2:D:346:LEU:HD11	1.81	0.62
2:H:35:VAL:HB	2:H:40:VAL:CG1	2.27	0.62
2:D:351:GLU:CG	6:D:1222:HOH:O	2.44	0.62
1:G:135:LEU:HG	2:H:197:VAL:HG22	1.81	0.62
1:C:405:PHE:CD2	4:C:633:ACE:H3	2.36	0.61
1:C:359:CYS:HB3	1:C:398:VAL:HG21	1.82	0.61
1:E:17:GLY:HA2	1:E:22:GLN:HG2	1.82	0.61
1:E:42:PRO:HB2	1:E:48:GLN:HB3	1.81	0.61
2:H:52:ASP:OD1	6:H:1230:HOH:O	2.16	0.61
1:C:412:MET:CE	1:C:414:LEU:HD21	2.25	0.61
1:E:275:MET:HE3	2:F:146:ILE:HD12	1.80	0.61
2:H:347:MET:CE	2:H:347:MET:HA	2.30	0.61
2:F:69:ASP:CG	2:F:70:PRO:HD2	2.21	0.61
2:H:263:PRO:HG3	2:H:269:ARG:HB2	1.81	0.61
1:E:29:SER:OG	1:E:31:ARG:HG2	2.01	0.61
1:A:29:SER:OG	1:A:31:ARG:HG2	2.00	0.60
2:D:35:VAL:HB	2:D:40:VAL:CG1	2.30	0.60
1:C:29:SER:OG	1:C:31:ARG:HG2	2.01	0.60
1:C:392:GLU:CB	6:C:1124:HOH:O	2.26	0.60
1:C:148:MET:HB2	1:C:149:PRO:HD3	1.83	0.60
1:C:275:MET:HE3	2:D:146:ILE:CD1	2.29	0.60

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:275:MET:CE	2:H:146:ILE:HD12	2.32	0.60
2:D:347:MET:HE3	2:D:347:MET:HA	1.83	0.60
2:F:263:PRO:HG3	2:F:269:ARG:HB2	1.83	0.60
1:C:392:GLU:CG	6:C:1124:HOH:O	2.50	0.60
1:C:417:ALA:O	1:C:420:ALA:HB3	2.01	0.60
2:B:5:ILE:CD1	2:B:236:LEU:HD22	2.32	0.59
2:D:269:ARG:HH11	2:D:269:ARG:CB	2.15	0.59
2:F:19:ALA:HB3	2:F:20:PRO:HD3	1.83	0.59
1:A:108:VAL:HG21	1:A:199:PRO:HB3	1.83	0.59
1:A:275:MET:HE3	2:B:146:ILE:HD12	1.84	0.59
2:F:234:LEU:N	2:F:234:LEU:HD23	2.18	0.59
2:D:10:VAL:HG22	2:D:18:LEU:N	2.18	0.59
1:C:43:SER:HB2	1:C:44:PRO:HD3	1.84	0.59
1:G:275:MET:CE	2:H:146:ILE:CD1	2.80	0.59
1:A:275:MET:HE3	2:B:146:ILE:CD1	2.33	0.59
1:A:26:LEU:HD12	1:A:31:ARG:HG3	1.85	0.59
2:F:347:MET:CE	2:F:347:MET:HA	2.33	0.59
1:C:146:SER:O	1:C:149:PRO:HD2	2.02	0.58
1:E:148:MET:HB2	1:E:149:PRO:HD3	1.85	0.58
1:E:262:GLU:OE1	1:E:415:ARG:HD3	2.03	0.58
1:G:37:ILE:HB	1:G:42:PRO:HG3	1.84	0.58
1:E:356:ILE:HG12	1:E:412:MET:HE2	1.86	0.58
2:F:352:GLY:HA2	6:F:1212:HOH:O	2.01	0.58
1:E:37:ILE:HB	1:E:42:PRO:CG	2.33	0.58
2:B:269:ARG:CB	2:B:269:ARG:HH11	2.16	0.58
1:A:269:ARG:NH1	2:B:153:PRO:HG3	2.19	0.58
1:G:57:PRO:HB3	1:G:67:LEU:HD11	1.84	0.58
1:C:392:GLU:HG3	6:C:1124:HOH:O	2.02	0.58
1:A:393:ARG:O	1:A:395:LEU:HD22	2.03	0.58
2:H:5:ILE:CD1	2:H:236:LEU:HD22	2.34	0.58
1:A:42:PRO:HB2	1:A:48:GLN:HB3	1.87	0.57
1:C:26:LEU:HD12	1:C:31:ARG:HG3	1.86	0.57
2:D:377:ARG:HG2	2:D:379:THR:HG23	1.87	0.57
2:D:357:THR:HB	2:D:373:LEU:HD23	1.86	0.57
1:E:255:ARG:CZ	1:E:257:ALA:HB2	2.35	0.57
1:G:66:GLU:HB3	1:G:70:MET:HE3	1.87	0.57
1:A:255:ARG:CZ	1:A:257:ALA:HB2	2.35	0.57
2:D:402:ARG:CD	6:D:1237:HOH:O	2.42	0.57
1:E:51:ALA:HB3	1:E:238:ALA:CB	2.35	0.57
2:H:5:ILE:HD12	2:H:236:LEU:HD22	1.87	0.57
1:C:15:PRO:HA	1:C:53:ALA:HA	1.85	0.57

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:394:LYS:HD2	1:G:394:LYS:N	2.19	0.57
2:H:117:ARG:O	2:H:121:SER:HB2	2.05	0.57
2:B:17:GLY:O	2:B:20:PRO:HD2	2.05	0.56
1:E:315:GLN:HA	1:E:318:ARG:HH21	1.69	0.56
2:F:109:PHE:HA	2:F:112:THR:HG22	1.87	0.56
1:E:275:MET:HE2	2:F:146:ILE:CD1	2.35	0.56
2:B:35:VAL:HB	2:B:40:VAL:HG11	1.87	0.56
2:D:310:ARG:HG2	2:D:314:ARG:NH2	2.20	0.56
1:E:275:MET:CE	2:F:146:ILE:CD1	2.83	0.56
1:E:275:MET:CE	1:E:406:GLY:HA2	2.33	0.56
1:G:275:MET:HE3	2:H:146:ILE:CD1	2.35	0.56
2:H:5:ILE:HG13	2:H:346:LEU:HD11	1.86	0.56
2:B:117:ARG:HH21	2:F:314:ARG:CZ	2.18	0.56
2:B:263:PRO:HG3	2:B:269:ARG:HB2	1.87	0.56
1:C:66:GLU:O	1:C:70:MET:HG3	2.06	0.56
2:D:269:ARG:HH11	2:D:269:ARG:HB3	1.70	0.56
2:D:323:VAL:O	2:D:371:LEU:HD23	2.05	0.56
2:F:117:ARG:NH2	6:F:1230:HOH:O	2.38	0.56
1:G:149:PRO:HG2	1:G:164:MET:HB2	1.87	0.56
1:C:412:MET:HE3	1:C:414:LEU:CD2	2.28	0.56
1:G:405:PHE:CD2	4:G:633:ACE:H3	2.41	0.56
2:B:391:ARG:O	2:B:392:TRP:HB2	2.06	0.56
2:D:5:ILE:HD13	2:D:236:LEU:HD22	1.86	0.56
2:D:391:ARG:O	2:D:392:TRP:HB2	2.05	0.56
2:H:19:ALA:HB3	2:H:20:PRO:HD3	1.87	0.56
1:G:140:PHE:CE2	2:H:391:ARG:HD3	2.41	0.56
2:D:318:ARG:HD2	2:H:114:ARG:CZ	2.36	0.55
2:F:143:GLN:HE21	2:F:143:GLN:HA	1.71	0.55
1:E:24:TRP:HB2	1:E:361:LEU:HD13	1.86	0.55
2:B:56:ALA:HB3	2:B:57:PRO:HD3	1.88	0.55
1:C:227:PRO:HG2	1:C:371:THR:HG23	1.89	0.55
1:G:275:MET:HE2	2:H:146:ILE:HD11	1.88	0.55
2:B:164:GLY:HA3	2:B:339:PRO:HD3	1.89	0.55
1:C:242:ALA:HB2	1:C:354:LEU:HD13	1.88	0.55
1:C:42:PRO:HB2	1:C:48:GLN:HB3	1.87	0.55
2:D:16:LEU:HD13	2:D:81:TRP:HH2	1.70	0.55
1:E:337:VAL:O	1:E:385:TYR:HA	2.07	0.55
1:A:217:ARG:NH1	1:A:226:ARG:HD2	2.22	0.55
1:E:306:ILE:HB	1:E:337:VAL:HG22	1.88	0.55
1:G:217:ARG:CD	6:G:1200:HOH:O	2.38	0.55
1:G:255:ARG:CZ	1:G:257:ALA:HB2	2.37	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:80:CYS:HB3	1:G:243:MET:HB2	1.89	0.54
1:E:301:THR:HA	1:E:331:HIS:CE1	2.42	0.54
2:F:114:ARG:O	2:F:118:LYS:HG3	2.07	0.54
1:G:29:SER:OG	1:G:31:ARG:HG2	2.07	0.54
1:C:337:VAL:O	1:C:385:TYR:HA	2.07	0.54
2:B:5:ILE:HG13	2:B:346:LEU:HD11	1.90	0.54
1:C:272:ALA:O	6:C:1179:HOH:O	2.18	0.54
2:D:234:LEU:N	2:D:234:LEU:HD23	2.21	0.54
2:D:263:PRO:HG3	2:D:269:ARG:HB2	1.89	0.54
1:E:43:SER:HB2	1:E:44:PRO:HD3	1.88	0.54
2:F:175:ILE:HA	2:F:179:THR:O	2.07	0.54
1:G:337:VAL:O	1:G:385:TYR:HA	2.07	0.54
2:B:297:ASP:OD2	2:B:389:ARG:HD3	2.08	0.54
2:D:284:ALA:HB3	2:D:286:THR:HG22	1.90	0.54
1:E:51:ALA:HB3	1:E:238:ALA:HB2	1.90	0.54
2:D:17:GLY:O	2:D:20:PRO:HD2	2.07	0.54
1:A:318:ARG:HD3	1:A:380:GLU:CD	2.29	0.53
2:H:119:LEU:C	2:H:119:LEU:HD23	2.28	0.53
1:C:374:LEU:HD23	1:C:387:PRO:HB3	1.90	0.53
2:F:217:PRO:HA	2:F:300:GLY:HA2	1.90	0.53
2:F:94:THR:HB	2:F:97:ASP:OD2	2.09	0.53
2:F:209:THR:O	2:F:211:PRO:HD3	2.09	0.53
1:C:121:LEU:HB3	1:C:130:VAL:HB	1.91	0.53
2:F:391:ARG:O	2:F:392:TRP:HB2	2.08	0.53
1:C:270:CYS:O	1:C:284:GLU:HG2	2.09	0.53
1:C:275:MET:CE	2:D:146:ILE:HD12	2.35	0.53
2:F:284:ALA:HB2	2:F:399:VAL:HG11	1.91	0.53
2:B:217:PRO:HG3	2:B:325:VAL:HG11	1.91	0.53
2:F:310:ARG:O	2:F:314:ARG:HG3	2.09	0.53
2:H:289:GLU:H	2:H:289:GLU:CD	2.10	0.53
2:D:297:ASP:OD2	2:D:389:ARG:HD3	2.09	0.52
1:E:242:ALA:HB3	1:E:353:SER:HB3	1.91	0.52
2:F:289:GLU:H	2:F:289:GLU:CD	2.10	0.52
1:E:121:LEU:HB3	1:E:130:VAL:HB	1.91	0.52
1:G:13:ARG:HB2	1:G:80:CYS:SG	2.50	0.52
2:B:55:HIS:HE1	6:F:1178:HOH:O	1.92	0.52
1:G:43:SER:HB2	1:G:44:PRO:HD3	1.91	0.52
2:B:284:ALA:HB3	2:B:286:THR:HG22	1.91	0.52
1:E:275:MET:HE2	2:F:146:ILE:HD11	1.91	0.52
1:A:37:ILE:HB	1:A:42:PRO:HG3	1.92	0.52
1:C:275:MET:CE	2:D:146:ILE:CD1	2.87	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:D:69:ASP:CG	2:D:70:PRO:HD2	2.29	0.51
1:A:262:GLU:OE1	1:A:415:ARG:HD3	2.11	0.51
2:B:256:GLY:N	2:B:399:VAL:HG13	2.26	0.51
2:H:56:ALA:CB	2:H:73:ARG:HD3	2.41	0.51
2:D:42:ARG:HH11	2:D:42:ARG:HG3	1.76	0.51
1:E:108:VAL:HG21	1:E:199:PRO:HB3	1.93	0.51
2:B:234:LEU:N	2:B:234:LEU:HD23	2.25	0.51
1:E:135:LEU:HG	2:F:197:VAL:HG13	1.91	0.51
2:H:69:ASP:CG	2:H:70:PRO:HD2	2.31	0.51
2:B:165:LEU:HB3	2:B:396:SER:OG	2.10	0.51
1:A:249:TYR:CZ	1:A:253:LEU:HD11	2.45	0.51
2:B:357:THR:HB	2:B:373:LEU:HD23	1.91	0.51
1:C:249:TYR:HE1	1:C:259:ILE:HD13	1.76	0.51
1:E:308:ALA:HB1	1:E:320:GLU:OE2	2.10	0.51
1:G:149:PRO:CG	1:G:164:MET:HB2	2.41	0.51
1:G:376:THR:CG2	6:G:1143:HOH:O	2.28	0.51
2:D:352:GLY:HA2	6:D:1157:HOH:O	2.11	0.51
1:A:260:HIS:HB3	1:A:360:VAL:CG1	2.41	0.51
1:A:316:ASN:O	1:A:319:HIS:HB3	2.11	0.51
1:A:118:TYR:HB2	2:B:194:TRP:CH2	2.46	0.51
2:F:217:PRO:O	2:F:218:PHE:HB2	2.11	0.50
2:F:35:VAL:HB	2:F:40:VAL:CG1	2.40	0.50
1:C:238:ALA:O	1:C:347:SER:HA	2.11	0.50
2:B:269:ARG:NH1	2:B:269:ARG:HB3	2.27	0.50
2:B:269:ARG:HH11	2:B:269:ARG:HB3	1.75	0.50
2:B:175:ILE:HA	2:B:179:THR:O	2.11	0.50
2:D:347:MET:HE2	2:D:347:MET:HA	1.92	0.50
1:C:348:LEU:O	1:C:351:ILE:HG22	2.12	0.49
1:C:105:GLY:HA2	1:C:165:VAL:O	2.12	0.49
1:E:334:ARG:NH1	1:E:334:ARG:HG3	2.26	0.49
2:H:175:ILE:HA	2:H:179:THR:O	2.12	0.49
1:C:356:ILE:HG12	1:C:412:MET:HE2	1.94	0.49
2:H:234:LEU:N	2:H:234:LEU:HD23	2.28	0.49
1:A:205:VAL:HG13	6:A:1131:HOH:O	2.12	0.49
2:H:50:GLN:HG2	2:H:191:LEU:HD13	1.94	0.49
1:G:309:HIS:HD2	1:G:316:ASN:HD21	1.60	0.49
2:F:181:LEU:HD23	2:F:181:LEU:C	2.33	0.49
2:F:272:GLY:HA2	6:F:1099:HOH:O	2.12	0.49
2:B:349:LEU:HB3	2:B:402:ARG:HG2	1.94	0.49
1:C:108:VAL:HG21	1:C:199:PRO:HB3	1.95	0.49
1:G:15:PRO:HA	1:G:53:ALA:HA	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:374:LEU:HD23	1:G:387:PRO:HB3	1.94	0.49
1:C:90:LEU:HD23	1:C:95:LEU:HD11	1.94	0.49
1:G:109:ALA:HB1	1:G:145:PRO:HB3	1.94	0.49
2:B:11:VAL:HG23	2:B:11:VAL:O	2.12	0.48
1:C:149:PRO:HG2	1:C:164:MET:HB2	1.94	0.48
1:A:405:PHE:CD2	4:A:633:ACE:H3	2.48	0.48
1:C:37:ILE:HB	1:C:42:PRO:CG	2.41	0.48
2:F:56:ALA:HB3	2:F:57:PRO:HD3	1.95	0.48
2:B:66:PRO:HG3	2:F:320:GLY:O	2.14	0.48
2:B:356:PRO:HD3	2:B:376:PRO:HG3	1.95	0.48
2:B:382:ARG:HG2	2:B:402:ARG:HB2	1.96	0.48
1:G:35:ARG:NH1	1:G:222:GLU:HG3	2.29	0.48
1:A:270:CYS:O	1:A:284:GLU:HG2	2.13	0.48
2:B:104:ASN:O	2:B:158:VAL:HG22	2.14	0.48
2:B:109:PHE:HA	2:B:112:THR:HG22	1.96	0.48
1:C:262:GLU:OE1	1:C:415:ARG:HD3	2.14	0.48
2:D:350:ARG:NH1	6:D:1233:HOH:O	2.33	0.48
1:E:145:PRO:HG3	6:E:1099:HOH:O	2.12	0.48
1:G:271:ASN:HB2	1:G:407:GLY:HA3	1.95	0.48
1:A:356:ILE:HG12	1:A:412:MET:CE	2.41	0.48
1:A:15:PRO:HA	1:A:53:ALA:HA	1.96	0.48
1:G:63:GLY:O	1:G:67:LEU:HD22	2.14	0.48
1:C:12:VAL:O	1:C:13:ARG:HD3	2.13	0.47
1:G:275:MET:HE2	2:H:146:ILE:CD1	2.44	0.47
2:H:347:MET:HA	2:H:347:MET:HE2	1.94	0.47
1:G:146:SER:O	1:G:149:PRO:HD2	2.14	0.47
1:G:220:ASP:OD2	1:G:223:HIS:HD2	1.97	0.47
1:G:260:HIS:HB3	1:G:360:VAL:CG1	2.44	0.47
2:D:50:GLN:HG2	2:D:191:LEU:HD13	1.96	0.47
1:E:80:CYS:HB3	1:E:243:MET:HB2	1.95	0.47
2:B:143:GLN:HE21	2:B:143:GLN:HA	1.79	0.47
2:D:289:GLU:CD	2:D:289:GLU:H	2.16	0.47
2:D:11:VAL:HG23	2:D:11:VAL:O	2.14	0.47
2:D:175:ILE:HA	2:D:179:THR:O	2.14	0.47
1:G:37:ILE:HB	1:G:42:PRO:CG	2.43	0.47
2:H:195:GLY:O	2:H:199:GLN:HG3	2.14	0.47
2:D:289:GLU:HG2	2:H:129:VAL:HG21	1.95	0.47
2:D:349:LEU:HB3	2:D:402:ARG:HG2	1.96	0.47
2:F:30:HIS:ND1	2:F:32:LEU:HB2	2.29	0.47
2:H:67:GLN:HB3	2:H:130:TYR:CD1	2.49	0.47
1:G:145:PRO:HG3	6:G:1106:HOH:O	2.15	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:H:100:VAL:O	2:H:154:SER:HB3	2.14	0.47
1:E:26:LEU:HD12	1:E:31:ARG:HG3	1.96	0.47
2:F:269:ARG:HB3	2:F:269:ARG:HH11	1.79	0.47
1:G:180:VAL:O	1:G:184:GLU:HG3	2.15	0.47
2:H:199:GLN:HB3	2:H:205:ILE:CD1	2.44	0.46
1:C:271:ASN:HD21	1:C:409:GLN:NE2	2.14	0.46
1:C:393:ARG:O	1:C:395:LEU:HD22	2.14	0.46
2:B:10:VAL:HG22	2:B:18:LEU:N	2.30	0.46
2:B:219:ASP:HB2	2:B:360:VAL:HG13	1.96	0.46
1:C:104:LEU:O	1:C:164:MET:HA	2.15	0.46
1:E:46:ARG:HB3	1:E:209:ASP:CG	2.35	0.46
2:B:284:ALA:HB2	2:B:399:VAL:HG11	1.98	0.46
2:H:181:LEU:HD23	2:H:181:LEU:C	2.36	0.46
2:H:217:PRO:O	2:H:218:PHE:HB2	2.16	0.46
1:E:180:VAL:O	1:E:184:GLU:HG3	2.16	0.46
1:A:149:PRO:HG2	1:A:164:MET:HB2	1.98	0.46
2:B:35:VAL:HB	2:B:40:VAL:CG1	2.46	0.46
2:B:65:LEU:N	2:B:66:PRO:CD	2.79	0.46
2:H:35:VAL:CB	2:H:40:VAL:HG11	2.36	0.46
1:A:275:MET:CE	2:B:146:ILE:CD1	2.93	0.46
1:G:309:HIS:HD2	1:G:316:ASN:ND2	2.14	0.46
1:A:296:SER:O	1:A:297:ARG:HB2	2.15	0.46
2:D:272:GLY:HA2	6:D:1118:HOH:O	2.16	0.46
1:E:118:TYR:HB2	2:F:194:TRP:CH2	2.51	0.46
2:F:269:ARG:CB	2:F:269:ARG:HH11	2.30	0.46
2:F:357:THR:HB	2:F:373:LEU:HD23	1.98	0.46
2:H:30:HIS:HB2	2:H:32:LEU:HD13	1.99	0.46
1:A:121:LEU:HB3	1:A:130:VAL:HB	1.98	0.45
1:E:412:MET:HE3	1:E:414:LEU:CD2	2.44	0.45
1:G:115:GLU:OE1	1:G:202:PRO:HB2	2.15	0.45
1:A:328:LEU:HB2	1:A:332:ALA:HB2	1.98	0.45
1:E:363:LEU:HD21	1:E:398:VAL:HG13	1.97	0.45
2:H:391:ARG:NH1	2:H:391:ARG:HG2	2.28	0.45
2:B:347:MET:HA	2:B:347:MET:CE	2.46	0.45
1:G:301:THR:HA	1:G:331:HIS:CE1	2.51	0.45
2:H:173:ARG:O	2:H:177:ARG:HG3	2.15	0.45
1:C:4:ARG:HH22	1:C:420:ALA:C	2.19	0.45
1:E:412:MET:CE	1:E:414:LEU:HD21	2.44	0.45
1:G:405:PHE:N	4:G:633:ACE:O	2.38	0.45
2:H:357:THR:HB	2:H:373:LEU:HD23	1.97	0.45
2:B:256:GLY:H	2:B:399:VAL:HG13	1.81	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:G:275:MET:HE2	1:G:275:MET:CA	2.39	0.45
2:F:349:LEU:HB3	2:F:402:ARG:HG2	1.99	0.45
1:A:125:GLY:O	2:B:117:ARG:NH1	2.50	0.45
2:D:217:PRO:O	2:D:218:PHE:HB2	2.16	0.45
2:F:284:ALA:HB2	2:F:399:VAL:CG1	2.46	0.45
2:B:342:VAL:HG13	2:B:400:LEU:HD11	1.99	0.45
1:E:396:ARG:HA	1:E:416:ASP:OD2	2.15	0.45
2:F:371:LEU:HD23	2:F:372:VAL:N	2.32	0.45
1:G:126:ARG:C	2:H:117:ARG:HH12	2.19	0.45
2:H:147:ARG:NH1	6:H:1196:HOH:O	2.45	0.45
1:A:51:ALA:HB3	1:A:238:ALA:CB	2.47	0.45
1:C:249:TYR:CZ	1:C:253:LEU:HD11	2.52	0.45
2:D:269:ARG:NH1	2:D:269:ARG:HB3	2.32	0.45
2:H:119:LEU:HD23	2:H:119:LEU:O	2.17	0.45
2:H:143:GLN:HE21	2:H:143:GLN:HA	1.81	0.45
2:H:269:ARG:HB3	2:H:270:PRO:HD2	1.99	0.45
1:A:135:LEU:HD22	1:A:136:SER:O	2.17	0.45
1:C:88:SER:OG	1:C:90:LEU:HB2	2.17	0.45
2:D:181:LEU:HD23	2:D:181:LEU:C	2.37	0.45
1:E:46:ARG:HB3	1:E:209:ASP:OD1	2.17	0.45
2:F:50:GLN:HG2	2:F:191:LEU:HD13	1.98	0.45
2:F:260:THR:OG1	2:F:395:ASN:HB2	2.18	0.45
1:G:275:MET:CE	2:H:146:ILE:HD11	2.44	0.45
2:B:209:THR:O	2:B:211:PRO:HD3	2.17	0.44
2:F:147:ARG:HD3	6:F:1200:HOH:O	2.16	0.44
2:F:199:GLN:HB3	2:F:205:ILE:CD1	2.42	0.44
2:D:310:ARG:O	2:D:314:ARG:HG3	2.16	0.44
2:F:188:ASP:OD1	2:F:335:SER:OG	2.35	0.44
1:C:201:THR:HG23	1:C:203:ILE:HG22	1.99	0.44
2:D:164:GLY:HA3	2:D:339:PRO:HD3	1.99	0.44
1:E:260:HIS:O	1:E:261:ALA:HB2	2.17	0.44
1:E:143:LEU:HD22	2:F:198:SER:HB3	1.99	0.44
2:B:69:ASP:CG	2:B:70:PRO:HD2	2.38	0.44
2:F:288:PRO:HD2	2:F:289:GLU:OE2	2.18	0.44
2:H:288:PRO:HD2	2:H:289:GLU:OE2	2.18	0.44
1:C:149:PRO:CG	1:C:164:MET:HB2	2.47	0.44
2:F:364:PRO:HD2	2:F:367:TYR:CD2	2.53	0.44
1:G:209:ASP:HA	6:G:1113:HOH:O	2.18	0.44
1:G:275:MET:CE	1:G:275:MET:HA	2.41	0.44
1:G:334:ARG:HG3	1:G:334:ARG:HH11	1.82	0.44
1:C:255:ARG:CZ	1:C:257:ALA:HB2	2.48	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:222:GLU:CD	1:E:222:GLU:H	2.21	0.44
2:F:101:VAL:HG11	2:F:170:HIS:HB3	1.98	0.44
2:F:352:GLY:HA2	2:F:380:ALA:HA	1.98	0.44
1:A:374:LEU:HD23	1:A:387:PRO:HB3	2.00	0.44
2:B:181:LEU:HD23	2:B:182:VAL:N	2.33	0.44
1:A:272:ALA:HB1	2:B:149:GLY:HA2	2.00	0.44
2:B:363:VAL:HG21	2:B:371:LEU:HD12	2.00	0.44
2:F:143:GLN:HA	2:F:143:GLN:NE2	2.33	0.44
2:F:65:LEU:HB2	2:F:66:PRO:HD3	2.00	0.44
1:A:309:HIS:HD2	1:A:316:ASN:ND2	2.15	0.43
1:C:137:ARG:HD3	6:C:1131:HOH:O	2.17	0.43
1:E:275:MET:HE3	2:F:146:ILE:CD1	2.47	0.43
1:E:405:PHE:CD2	4:E:633:ACE:CH3	3.01	0.43
2:B:129:VAL:CG2	2:F:289:GLU:HG2	2.46	0.43
1:G:41:ASP:HA	1:G:42:PRO:HD3	1.84	0.43
1:A:305:TYR:CD1	1:A:306:ILE:N	2.86	0.43
1:A:40:PHE:O	1:A:42:PRO:HD3	2.18	0.43
1:G:393:ARG:O	1:G:395:LEU:HD22	2.18	0.43
1:G:271:ASN:HB2	1:G:407:GLY:CA	2.48	0.43
1:G:70:MET:HB2	1:G:74:SER:HB2	2.00	0.43
2:B:284:ALA:CB	2:B:286:THR:HG22	2.48	0.43
1:G:121:LEU:HB3	1:G:130:VAL:HB	2.00	0.43
2:H:95:ASP:HB2	2:H:151:ARG:HG3	2.00	0.43
1:A:115:GLU:OE1	1:A:202:PRO:HB2	2.18	0.43
1:A:43:SER:HB2	1:A:44:PRO:HD3	2.00	0.43
1:G:119:LEU:HD11	2:H:120:TRP:CE2	2.54	0.43
1:A:301:THR:HA	1:A:331:HIS:CE1	2.54	0.43
1:E:356:ILE:O	1:E:360:VAL:HG23	2.18	0.43
1:E:72:ARG:HG2	1:E:198:THR:HG21	2.01	0.43
1:E:95:LEU:O	1:E:97:PRO:HD3	2.19	0.43
2:F:69:ASP:CG	2:F:70:PRO:CD	2.86	0.43
1:G:24:TRP:HB2	1:G:361:LEU:HD13	2.01	0.43
2:H:217:PRO:HA	2:H:300:GLY:HA2	2.00	0.43
2:H:391:ARG:O	2:H:392:TRP:HB2	2.19	0.43
1:A:242:ALA:HB3	1:A:353:SER:HB3	2.00	0.43
2:H:319:GLU:OE2	2:H:368:GLY:HA2	2.19	0.43
1:A:37:ILE:HB	1:A:42:PRO:CG	2.48	0.43
2:B:199:GLN:HB3	2:B:205:ILE:CD1	2.44	0.43
1:G:26:LEU:HD12	1:G:31:ARG:NE	2.33	0.43
1:G:335:THR:HA	1:G:336:PRO:HD3	1.90	0.43
1:A:105:GLY:HA2	1:A:165:VAL:O	2.18	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:233:ILE:C	2:B:234:LEU:HD23	2.39	0.42
1:E:335:THR:HA	1:E:336:PRO:HD3	1.91	0.42
2:B:217:PRO:O	2:B:218:PHE:HB2	2.19	0.42
1:G:173:LEU:HA	1:G:173:LEU:HD12	1.91	0.42
1:A:271:ASN:HA	1:A:271:ASN:HD22	1.55	0.42
2:B:220:GLU:HG2	2:B:362:SER:OG	2.20	0.42
1:C:88:SER:HB3	1:C:245:VAL:HG21	2.01	0.42
1:C:4:ARG:NH2	1:C:420:ALA:HB1	2.33	0.42
2:D:165:LEU:HD13	2:D:338:GLY:HA3	2.00	0.42
1:E:334:ARG:CG	1:E:334:ARG:HH11	2.28	0.42
1:C:13:ARG:HB2	1:C:80:CYS:SG	2.59	0.42
2:D:5:ILE:HD12	2:D:236:LEU:HD22	1.97	0.42
1:E:119:LEU:HD11	2:F:120:TRP:CE2	2.55	0.42
2:F:199:GLN:OE1	2:F:227:PRO:HB3	2.20	0.42
1:A:119:LEU:HD11	2:B:120:TRP:CE2	2.54	0.42
2:H:42:ARG:HG3	2:H:42:ARG:HH11	1.83	0.42
1:A:145:PRO:HG2	2:B:137:TYR:CZ	2.55	0.42
1:A:268:THR:HA	1:A:409:GLN:O	2.20	0.42
2:B:267:SER:C	2:B:269:ARG:H	2.23	0.42
2:F:165:LEU:HA	2:F:165:LEU:HD12	1.83	0.42
1:A:374:LEU:CD2	1:A:385:TYR:HB2	2.49	0.42
1:E:351:ILE:O	1:E:355:GLU:HG3	2.18	0.42
2:F:303:GLU:HB2	6:F:1183:HOH:O	2.18	0.42
1:G:279:LYS:O	1:G:319:HIS:HD2	2.02	0.42
2:H:165:LEU:HB3	2:H:396:SER:OG	2.19	0.42
2:H:251:TYR:CE1	2:H:347:MET:HE1	2.54	0.42
1:A:300:ALA:O	1:A:331:HIS:CD2	2.72	0.42
1:A:415:ARG:HG3	1:A:419:THR:HB	2.02	0.42
1:C:249:TYR:CE1	1:C:259:ILE:HD13	2.53	0.42
1:G:242:ALA:HB2	1:G:354:LEU:HD13	2.01	0.42
1:A:227:PRO:HG2	1:A:371:THR:HG23	2.02	0.42
1:C:318:ARG:HG3	1:C:380:GLU:HB3	2.02	0.42
2:F:7:GLY:HA3	2:F:86:ALA:HB2	2.02	0.42
1:G:105:GLY:HA2	1:G:165:VAL:O	2.20	0.42
1:E:340:ILE:HD11	1:E:355:GLU:HG2	2.02	0.42
1:A:90:LEU:HD13	1:A:255:ARG:NE	2.34	0.41
2:B:237:GLU:OE2	2:B:245:ARG:NH2	2.45	0.41
2:D:260:THR:OG1	2:D:395:ASN:HB2	2.19	0.41
1:E:12:VAL:HG23	1:E:354:LEU:HD13	2.02	0.41
2:H:32:LEU:CD1	2:H:32:LEU:N	2.83	0.41
1:A:74:SER:OG	1:A:148:MET:HG2	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:7:GLY:HA3	2:B:86:ALA:HB2	2.02	0.41
1:C:72:ARG:HG2	1:C:198:THR:HG21	2.00	0.41
1:E:116:ARG:NH1	1:E:117:GLU:OE2	2.53	0.41
1:E:238:ALA:O	1:E:347:SER:HA	2.20	0.41
1:G:270:CYS:O	1:G:284:GLU:HG2	2.19	0.41
1:G:356:ILE:O	1:G:360:VAL:HG23	2.20	0.41
1:G:13:ARG:HH21	1:G:60:GLU:CD	2.23	0.41
1:A:7:ILE:HG12	1:A:246:LEU:CD2	2.51	0.41
1:C:209:ASP:HA	6:C:1105:HOH:O	2.20	0.41
2:H:101:VAL:O	2:H:184:SER:HA	2.21	0.41
1:A:80:CYS:HB3	1:A:243:MET:HB2	2.01	0.41
1:A:275:MET:CE	2:B:146:ILE:HD11	2.50	0.41
1:E:118:TYR:OH	1:E:125:GLY:HA2	2.19	0.41
1:A:348:LEU:O	1:A:351:ILE:HG22	2.21	0.41
1:C:315:GLN:HG3	1:C:316:ASN:N	2.36	0.41
1:G:306:ILE:HB	1:G:337:VAL:HG22	2.03	0.41
2:H:65:LEU:N	2:H:66:PRO:CD	2.84	0.41
2:B:161:GLN:HG3	2:B:161:GLN:O	2.20	0.41
1:C:335:THR:HA	1:C:336:PRO:HD3	1.85	0.41
1:E:41:ASP:HA	1:E:42:PRO:HD3	1.81	0.41
1:A:51:ALA:HB3	1:A:238:ALA:HB2	2.03	0.41
2:B:313:GLY:O	2:B:317:GLY:N	2.53	0.41
1:E:249:TYR:CZ	1:E:253:LEU:HD11	2.56	0.41
2:F:220:GLU:HG2	2:F:362:SER:OG	2.21	0.41
1:A:109:ALA:HB1	1:A:145:PRO:HB3	2.03	0.41
1:E:163:THR:OG1	1:E:164:MET:N	2.54	0.41
2:F:277:ILE:HG12	2:F:387:LEU:HD21	2.03	0.41
2:H:267:SER:C	2:H:269:ARG:H	2.23	0.41
1:A:217:ARG:HH12	1:A:226:ARG:HD2	1.84	0.41
1:A:238:ALA:O	1:A:347:SER:HA	2.19	0.41
1:A:356:ILE:HD13	1:A:412:MET:HE1	2.02	0.41
2:B:16:LEU:HD22	2:B:81:TRP:CH2	2.56	0.41
1:G:90:LEU:O	1:G:92:PRO:HD3	2.21	0.41
2:H:371:LEU:HD23	2:H:372:VAL:N	2.36	0.41
2:B:53:ASP:OD2	2:B:53:ASP:N	2.52	0.41
2:D:65:LEU:N	2:D:66:PRO:CD	2.83	0.41
1:E:227:PRO:O	1:E:228:PHE:HB2	2.21	0.41
2:F:256:GLY:HA2	2:F:283:ASP:OD2	2.20	0.41
2:F:284:ALA:CB	2:F:399:VAL:HG11	2.51	0.41
1:A:84:ALA:HB1	1:A:245:VAL:HG23	2.03	0.41
2:B:101:VAL:O	2:B:184:SER:HA	2.21	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:225:TYR:CG	2:B:332:ARG:HD3	2.56	0.41
2:B:50:GLN:HG2	2:B:191:LEU:HD13	2.02	0.41
2:D:143:GLN:HA	2:D:143:GLN:HE21	1.85	0.41
1:E:101:GLY:HA3	1:E:191:MET:SD	2.61	0.41
2:B:65:LEU:HB2	2:B:66:PRO:HD3	2.03	0.40
1:E:199:PRO:O	1:E:201:THR:N	2.55	0.40
2:F:220:GLU:HG2	2:F:362:SER:HG	1.86	0.40
1:A:227:PRO:HA	1:A:312:GLY:HA2	2.03	0.40
2:B:319:GLU:OE2	2:B:368:GLY:HA2	2.20	0.40
2:H:32:LEU:HD12	2:H:32:LEU:N	2.37	0.40
1:E:270:CYS:O	1:E:284:GLU:HG2	2.21	0.40
1:E:3:ARG:HH21	1:E:186:GLY:HA2	1.87	0.40
2:H:178:GLY:O	2:H:180:PRO:HD3	2.21	0.40
1:A:260:HIS:HB3	1:A:360:VAL:HG11	2.03	0.40
1:C:285:MET:O	1:C:289:ILE:HG13	2.22	0.40
2:D:165:LEU:HD13	2:D:338:GLY:CA	2.51	0.40
2:D:363:VAL:HA	2:D:364:PRO:HD3	1.97	0.40
2:F:402:ARG:NE	2:F:403:PHE:H	2.19	0.40
1:G:296:SER:O	1:G:297:ARG:HB2	2.22	0.40
1:G:3:ARG:HH21	1:G:186:GLY:HA2	1.84	0.40
1:A:113:SER:O	1:A:117:GLU:HG2	2.21	0.40
1:A:260:HIS:O	1:A:261:ALA:HB2	2.20	0.40
2:B:181:LEU:HD23	2:B:181:LEU:C	2.42	0.40
1:E:143:LEU:HD22	2:F:198:SER:CB	2.51	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)
6:B:1122:HOH:O	6:F:1120:HOH:O[9_554]	2.14	0.06

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	419/424 (99%)	397 (95%)	22 (5%)	0	100	100
1	C	419/424 (99%)	393 (94%)	25 (6%)	1 (0%)	47	44
1	E	419/424 (99%)	394 (94%)	24 (6%)	1 (0%)	47	44
1	G	419/424 (99%)	399 (95%)	17 (4%)	3 (1%)	22	16
2	B	400/415 (96%)	379 (95%)	21 (5%)	0	100	100
2	D	400/415 (96%)	383 (96%)	16 (4%)	1 (0%)	41	37
2	F	400/415 (96%)	385 (96%)	15 (4%)	0	100	100
2	H	400/415 (96%)	381 (95%)	18 (4%)	1 (0%)	41	37
All	All	3276/3356 (98%)	3111 (95%)	158 (5%)	7 (0%)	47	44

All (7) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	G	310	GLY
1	G	388	LEU
1	E	388	LEU
1	G	109	ALA
1	C	146	SER
2	D	159	ALA
2	H	159	ALA

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	319/321 (99%)	307 (96%)	12 (4%)	33	31
1	C	319/321 (99%)	310 (97%)	9 (3%)	43	44
1	E	319/321 (99%)	308 (97%)	11 (3%)	37	36
1	G	319/321 (99%)	302 (95%)	17 (5%)	22	18
2	B	297/309 (96%)	275 (93%)	22 (7%)	13	9

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	D	297/309 (96%)	277 (93%)	20 (7%)	16	11
2	F	297/309 (96%)	279 (94%)	18 (6%)	18	14
2	H	297/309 (96%)	280 (94%)	17 (6%)	20	16
All	All	2464/2520 (98%)	2338 (95%)	126 (5%)	24	19

All (126) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	13	ARG
1	A	67	LEU
1	A	70	MET
1	A	85	PHE
1	A	135	LEU
1	A	173	LEU
1	A	199	PRO
1	A	207	CYS
1	A	271	ASN
1	A	346	HIS
1	A	389	GLU
1	A	415	ARG
2	B	16	LEU
2	B	18	LEU
2	B	40	VAL
2	B	87	LYS
2	B	117	ARG
2	B	119	LEU
2	B	136	PHE
2	B	143	GLN
2	B	161	GLN
2	B	168	LEU
2	B	188	ASP
2	B	197	VAL
2	B	234	LEU
2	B	239	SER
2	B	243	GLU
2	B	254	LEU
2	B	269	ARG
2	B	279	LEU
2	B	286	THR
2	B	351	GLU
2	B	399	VAL

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Mol	Chain	Res	Type
2	B	402	ARG
1	C	13	ARG
1	C	67	LEU
1	C	85	PHE
1	C	135	LEU
1	C	199	PRO
1	C	207	CYS
1	C	346	HIS
1	C	389	GLU
1	C	415	ARG
2	D	16	LEU
2	D	18	LEU
2	D	32	LEU
2	D	40	VAL
2	D	42	ARG
2	D	87	LYS
2	D	119	LEU
2	D	136	PHE
2	D	143	GLN
2	D	168	LEU
2	D	188	ASP
2	D	197	VAL
2	D	234	LEU
2	D	254	LEU
2	D	269	ARG
2	D	279	LEU
2	D	351	GLU
2	D	371	LEU
2	D	399	VAL
2	D	402	ARG
1	E	13	ARG
1	E	67	LEU
1	E	85	PHE
1	E	135	LEU
1	E	197	ASP
1	E	199	PRO
1	E	207	CYS
1	E	346	HIS
1	E	389	GLU
1	E	394	LYS
1	E	415	ARG
2	F	16	LEU

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Mol	Chain	Res	Type
2	F	18	LEU
2	F	40	VAL
2	F	119	LEU
2	F	136	PHE
2	F	160	GLU
2	F	161	GLN
2	F	188	ASP
2	F	197	VAL
2	F	234	LEU
2	F	236	LEU
2	F	254	LEU
2	F	269	ARG
2	F	279	LEU
2	F	351	GLU
2	F	371	LEU
2	F	399	VAL
2	F	402	ARG
1	G	13	ARG
1	G	67	LEU
1	G	85	PHE
1	G	119	LEU
1	G	135	LEU
1	G	173	LEU
1	G	199	PRO
1	G	202	PRO
1	G	207	CYS
1	G	214	THR
1	G	222	GLU
1	G	226	ARG
1	G	243	MET
1	G	271	ASN
1	G	346	HIS
1	G	394	LYS
1	G	415	ARG
2	H	16	LEU
2	H	18	LEU
2	H	42	ARG
2	H	136	PHE
2	H	143	GLN
2	H	161	GLN
2	H	168	LEU
2	H	188	ASP

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Mol	Chain	Res	Type
2	H	234	LEU
2	H	249	ASP
2	H	254	LEU
2	H	269	ARG
2	H	279	LEU
2	H	351	GLU
2	H	371	LEU
2	H	399	VAL
2	H	402	ARG

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (19) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	316	ASN
2	B	55	HIS
2	B	67	GLN
2	B	143	GLN
2	B	282	ASN
1	C	271	ASN
1	C	316	ASN
1	C	373	ASN
2	D	67	GLN
2	D	143	GLN
2	D	248	HIS
2	F	55	HIS
2	F	67	GLN
2	F	143	GLN
1	G	271	ASN
1	G	316	ASN
2	H	55	HIS
2	H	67	GLN
2	H	143	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 carbohydrates in this entry.

5.6 Ligand geometry [i](#)

Of 12 ligands modelled in this entry, 8 are monoatomic - leaving 4 for Mogul analysis.

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

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\# Z > 2$	Counts	RMSZ	$\# Z > 2$
4	ACE	E	633	1	1,2,2	1.00	0	1,1,1	0.25	0
4	ACE	G	633	1	1,2,2	1.03	0	1,1,1	0.26	0
4	ACE	A	633	1	1,2,2	1.01	0	1,1,1	0.25	0
4	ACE	C	633	1	1,2,2	1.01	0	1,1,1	0.25	0

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

4 monomers are involved in 6 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	E	633	ACE	2	0
4	G	633	ACE	2	0
4	A	633	ACE	1	0
4	C	633	ACE	1	0

5.7 Other polymers [i](#)

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, 95th percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled ‘Q< 0.9’ lists the number of (and percentage) of residues with an average occupancy less than 0.9.

Mol	Chain	Analysed	<RSRZ>	#RSRZ>2	OWAB(Å ²)	Q<0.9
1	A	421/424 (99%)	-0.08	9 (2%) 63 62	20, 30, 45, 63	0
1	C	421/424 (99%)	0.05	17 (4%) 38 37	18, 29, 49, 79	0
1	E	421/424 (99%)	0.26	27 (6%) 19 18	20, 37, 56, 66	0
1	G	421/424 (99%)	-0.11	12 (2%) 51 50	18, 28, 46, 62	0
2	B	402/415 (96%)	-0.14	9 (2%) 62 60	18, 27, 43, 56	0
2	D	402/415 (96%)	-0.26	6 (1%) 73 72	16, 23, 39, 56	0
2	F	402/415 (96%)	-0.19	8 (1%) 65 63	19, 28, 45, 62	0
2	H	402/415 (96%)	-0.21	3 (0%) 87 87	17, 24, 41, 59	0
All	All	3292/3356 (98%)	-0.08	91 (2%) 53 51	16, 28, 48, 79	0

All (91) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
2	F	403	PHE	6.2
1	C	422	ALA	5.0
1	C	421	GLY	4.8
1	G	297	ARG	4.5
1	G	422	ALA	4.4
2	B	403	PHE	4.2
1	C	420	ALA	4.0
1	E	421	GLY	3.9
1	E	380	GLU	3.6
1	E	375	ARG	3.6
2	B	249	ASP	3.6
1	A	297	ARG	3.5
2	F	248	HIS	3.5
1	C	423	ALA	3.4
2	H	268	GLY	3.4
1	C	417	ALA	3.4

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Mol	Chain	Res	Type	RSRZ
1	C	297	ARG	3.3
1	C	418	GLU	3.3
2	B	266	GLY	3.3
2	F	243	GLU	3.3
2	B	243	GLU	3.2
1	G	253	LEU	3.2
1	C	380	GLU	3.2
1	G	418	GLU	3.1
1	E	253	LEU	3.1
2	H	403	PHE	3.1
1	E	418	GLU	3.0
1	E	330	GLU	3.0
1	E	417	ALA	3.0
1	E	21	ARG	2.9
1	E	389	GLU	2.9
1	E	257	ALA	2.9
2	F	249	ASP	2.9
1	E	31	ARG	2.8
2	F	402	ARG	2.8
1	G	421	GLY	2.8
2	B	374	GLY	2.8
1	C	281	ASP	2.8
1	C	54	ASP	2.8
1	E	54	ASP	2.8
2	F	91	GLU	2.8
1	E	334	ARG	2.8
2	D	91	GLU	2.7
1	E	219	ASP	2.7
1	C	330	GLU	2.7
1	C	21	ARG	2.7
1	G	423	ALA	2.7
2	F	382	ARG	2.7
1	A	219	ASP	2.6
2	D	268	GLY	2.6
1	C	253	LEU	2.6
1	E	254	ALA	2.6
1	E	91	ASP	2.6
1	E	280	ALA	2.6
1	C	419	THR	2.5
2	D	403	PHE	2.5
2	F	268	GLY	2.5
1	E	94	THR	2.4

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Mol	Chain	Res	Type	RSRZ
1	C	93	ASP	2.4
1	A	280	ALA	2.4
1	A	380	GLU	2.4
2	D	244	ALA	2.4
1	G	21	ARG	2.3
2	H	266	GLY	2.3
1	E	93	ASP	2.3
1	C	254	ALA	2.3
1	C	258	ARG	2.3
1	G	394	LYS	2.2
1	G	420	ALA	2.2
1	E	382	ASP	2.2
2	D	243	GLU	2.2
1	E	89	GLY	2.2
1	A	418	GLU	2.2
1	A	21	ARG	2.2
2	B	402	ARG	2.2
2	D	382	ARG	2.2
1	E	376	THR	2.2
1	A	90	LEU	2.2
1	E	297	ARG	2.2
2	B	248	HIS	2.2
1	A	93	ASP	2.2
1	G	396	ARG	2.2
1	E	281	ASP	2.1
2	B	268	GLY	2.1
1	G	281	ASP	2.1
1	G	257	ALA	2.1
1	E	90	LEU	2.1
1	A	421	GLY	2.1
2	B	91	GLU	2.1
1	E	220	ASP	2.0
1	E	329	GLY	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. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q<0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q<0.9
3	MG	A	1095	1/1	0.34	0.20	51,51,51,51	0
5	NA	B	1091	1/1	0.70	0.09	39,39,39,39	0
3	MG	E	1097	1/1	0.83	0.14	47,47,47,47	0
4	ACE	A	633	3/3	0.85	0.20	52,52,52,52	0
3	MG	C	1096	1/1	0.86	0.08	39,39,39,39	0
4	ACE	G	633	3/3	0.87	0.22	46,46,47,47	0
4	ACE	E	633	3/3	0.93	0.13	47,47,48,48	0
4	ACE	C	633	3/3	0.93	0.15	52,52,53,53	0
5	NA	D	1092	1/1	0.94	0.13	38,38,38,38	0
3	MG	G	1098	1/1	0.96	0.07	35,35,35,35	0
5	NA	F	1093	1/1	0.96	0.11	45,45,45,45	0
5	NA	H	1094	1/1	0.97	0.06	36,36,36,36	0

6.5 Other polymers [i](#)

There are no such residues in this entry.