



wwPDB X-ray Structure Validation Summary Report ⓘ

Aug 16, 2021 – 02:17 pm BST

PDB ID : 7AE4
Title : Structure of *Sedimentibacter hydroxybenzoicus* vanillic acid decarboxylase (ShVdcCD) in closed form
Authors : Marshall, S.A.; Leys, D.
Deposited on : 2020-09-17
Resolution : 3.31 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The 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 : 2.23.1
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) : 2.23.1

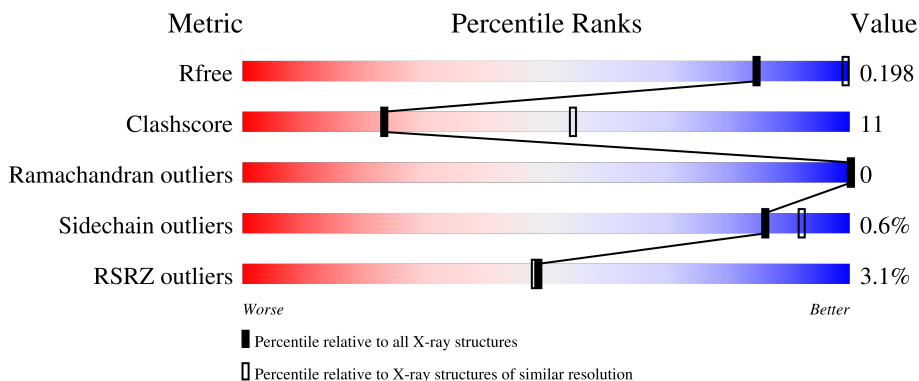
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.31 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	1089 (3.36-3.28)
Clashscore	141614	1137 (3.36-3.28)
Ramachandran outliers	138981	1115 (3.36-3.28)
Sidechain outliers	138945	1114 (3.36-3.28)
RSRZ outliers	127900	1059 (3.36-3.28)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	480	<div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 2px;"></div> <div style="width: 71%; height: 10px; background-color: green; margin-right: 2px;"></div> <div style="width: 28%; height: 10px; background-color: yellow; margin-right: 2px;"></div> <div style="width: 1%; height: 10px; background-color: grey; margin-right: 2px;"></div> </div> <p style="margin: 0;">2% 71% 28% .</p>
1	B	480	<div style="display: flex; align-items: center;"> <div style="width: 3%; height: 10px; background-color: red; margin-right: 2px;"></div> <div style="width: 74%; height: 10px; background-color: green; margin-right: 2px;"></div> <div style="width: 25%; height: 10px; background-color: yellow; margin-right: 2px;"></div> <div style="width: 1%; height: 10px; background-color: grey; margin-right: 2px;"></div> </div> <p style="margin: 0;">3% 74% 25% .</p>
1	C	480	<div style="display: flex; align-items: center;"> <div style="width: 5%; height: 10px; background-color: red; margin-right: 2px;"></div> <div style="width: 74%; height: 10px; background-color: green; margin-right: 2px;"></div> <div style="width: 25%; height: 10px; background-color: yellow; margin-right: 2px;"></div> <div style="width: 1%; height: 10px; background-color: grey; margin-right: 2px;"></div> </div> <p style="margin: 0;">5% 74% 25% .</p>
1	D	480	<div style="display: flex; align-items: center;"> <div style="width: 2%; height: 10px; background-color: red; margin-right: 2px;"></div> <div style="width: 75%; height: 10px; background-color: green; margin-right: 2px;"></div> <div style="width: 24%; height: 10px; background-color: yellow; margin-right: 2px;"></div> <div style="width: 1%; height: 10px; background-color: grey; margin-right: 2px;"></div> </div> <p style="margin: 0;">2% 75% 24% .</p>
1	E	480	<div style="display: flex; align-items: center;"> <div style="width: 0%; height: 10px; background-color: red; margin-right: 2px;"></div> <div style="width: 74%; height: 10px; background-color: green; margin-right: 2px;"></div> <div style="width: 24%; height: 10px; background-color: yellow; margin-right: 2px;"></div> <div style="width: 1%; height: 10px; background-color: grey; margin-right: 2px;"></div> </div> <p style="margin: 0;">% 74% 24% .</p>

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Mol	Chain	Length	Quality of chain
1	F	480	
2	a	68	
2	b	68	
2	c	68	
2	d	68	
2	e	68	
2	f	68	

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
3	PEG	A	501	-	-	-	X
3	PEG	D	501	-	-	-	X
7	CL	B	506	-	-	-	X
7	CL	D	507	-	-	-	X
8	EDO	E	502	-	-	-	X

2 Entry composition [i](#)

There are 9 unique types of molecules in this entry. The entry contains 25763 atoms, of which 66 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.

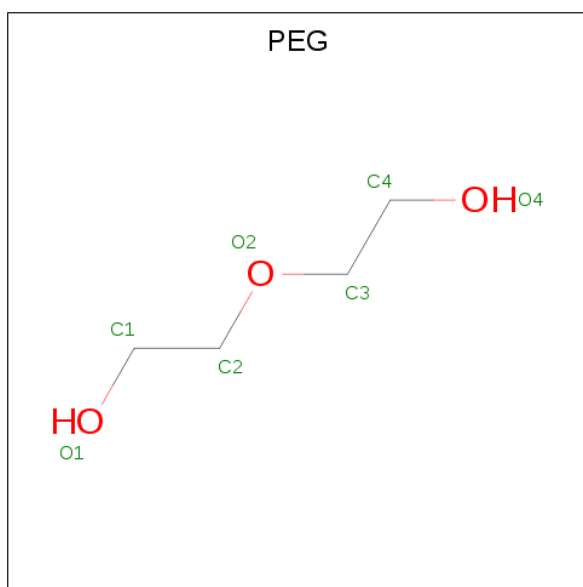
- Molecule 1 is a protein called Phenolic acid decarboxylase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	476	Total 3758	C 2406	N 628	O 709	S 15	0	0	0
1	B	476	Total 3737	C 2393	N 625	O 704	S 15	0	0	0
1	C	476	Total 3709	C 2373	N 621	O 700	S 15	0	0	0
1	D	476	Total 3751	C 2403	N 628	O 705	S 15	0	0	0
1	E	475	Total 3753	C 2403	N 627	O 708	S 15	0	0	0
1	F	476	Total 3748	C 2399	N 627	O 707	S 15	0	0	0

- Molecule 2 is a protein called Protein ShdD.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	a	67	Total 522	C 329	N 90	O 94	S 9	0	0	0
2	b	67	Total 522	C 329	N 90	O 94	S 9	0	0	0
2	c	67	Total 522	C 329	N 90	O 94	S 9	0	0	0
2	d	67	Total 522	C 329	N 90	O 94	S 9	0	0	0
2	e	67	Total 522	C 329	N 90	O 94	S 9	0	0	0
2	f	67	Total 522	C 329	N 90	O 94	S 9	0	0	0

- Molecule 3 is DI(HYDROXYETHYL)ETHER (three-letter code: PEG) (formula: C₄H₁₀O₃).

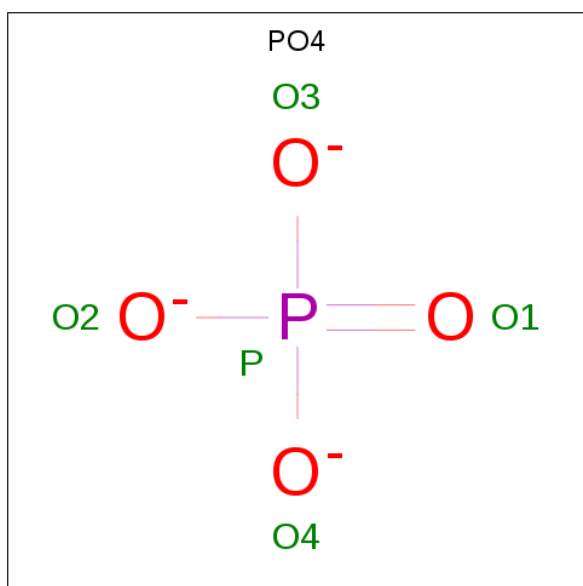


Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
			Total	C	H	O		
3	A	1	17	4	10	3	0	0
3	C	1	17	4	10	3	0	0
3	D	1	17	4	10	3	0	0
3	E	1	17	4	10	3	0	0
3	E	1	17	4	10	3	0	0
3	F	1	17	4	10	3	0	0

- Molecule 4 is SODIUM ION (three-letter code: NA) (formula: Na).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
			Total	Na		
4	A	3	3	3	0	0
4	B	3	3	3	0	0
4	C	2	2	2	0	0
4	D	2	2	2	0	0
4	E	3	3	3	0	0
4	F	2	2	2	0	0

- Molecule 5 is PHOSPHATE ION (three-letter code: PO4) (formula: O₄P).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	1	Total O P 5 4 1	0	0
5	B	1	Total O P 5 4 1	0	0
5	C	1	Total O P 5 4 1	0	0
5	D	1	Total O P 5 4 1	0	0
5	E	1	Total O P 5 4 1	0	0
5	F	1	Total O P 5 4 1	0	0

- Molecule 6 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	1	Total Mg 1 1	0	0
6	B	1	Total Mg 1 1	0	0
6	C	1	Total Mg 1 1	0	0
6	D	1	Total Mg 1 1	0	0
6	E	1	Total Mg 1 1	0	0

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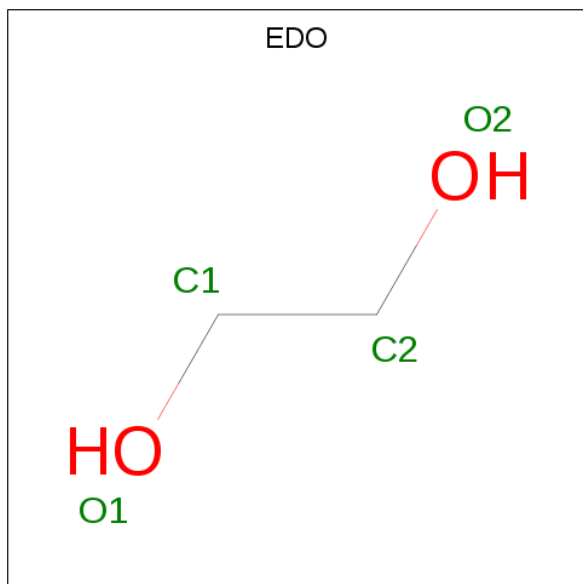
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	F	1	Total	Mg	0	0
			1	1		

- Molecule 7 is CHLORIDE ION (three-letter code: CL) (formula: Cl).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	A	2	Total	Cl	0	0
			2	2		
7	B	1	Total	Cl	0	0
			1	1		
7	C	1	Total	Cl	0	0
			1	1		
7	D	2	Total	Cl	0	0
			2	2		

- Molecule 8 is 1,2-ETHANEDIOL (three-letter code: EDO) (formula: C₂H₆O₂).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
8	E	1	Total	C	H	O	0	0
			10	2	6	2		

- Molecule 9 is ZINC ION (three-letter code: ZN) (formula: Zn).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
9	a	1	Total	Zn	0	0
			1	1		

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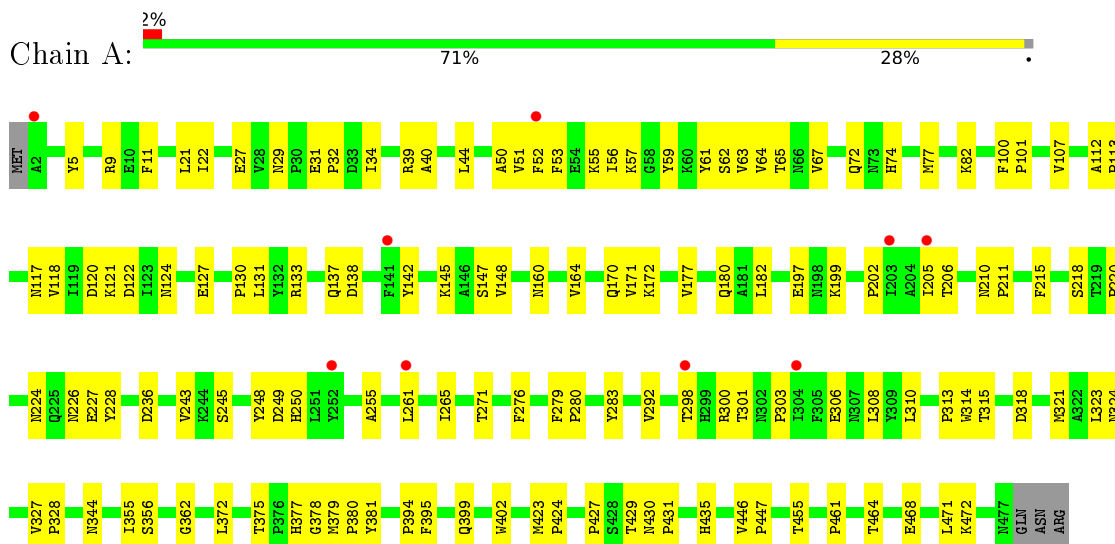
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Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
9	b	1	Total 1	Zn 1	0	0
9	c	1	Total 1	Zn 1	0	0
9	d	1	Total 1	Zn 1	0	0
9	e	1	Total 1	Zn 1	0	0
9	f	1	Total 1	Zn 1	0	0

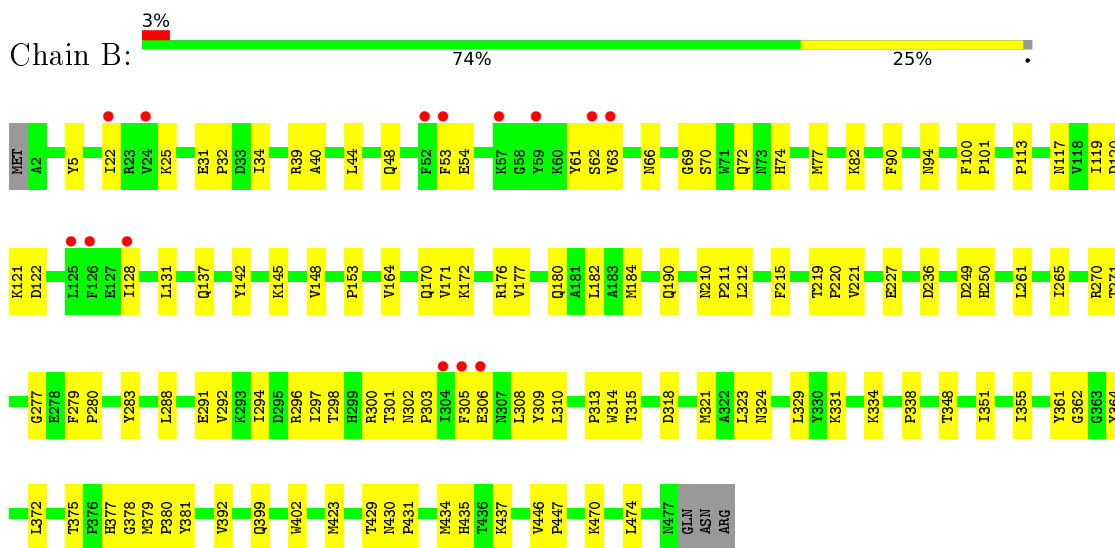
3 Residue-property plots

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.

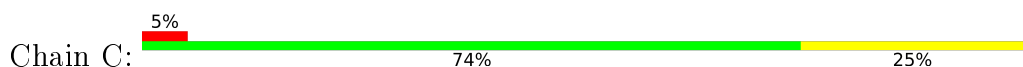
- Molecule 1: Phenolic acid decarboxylase

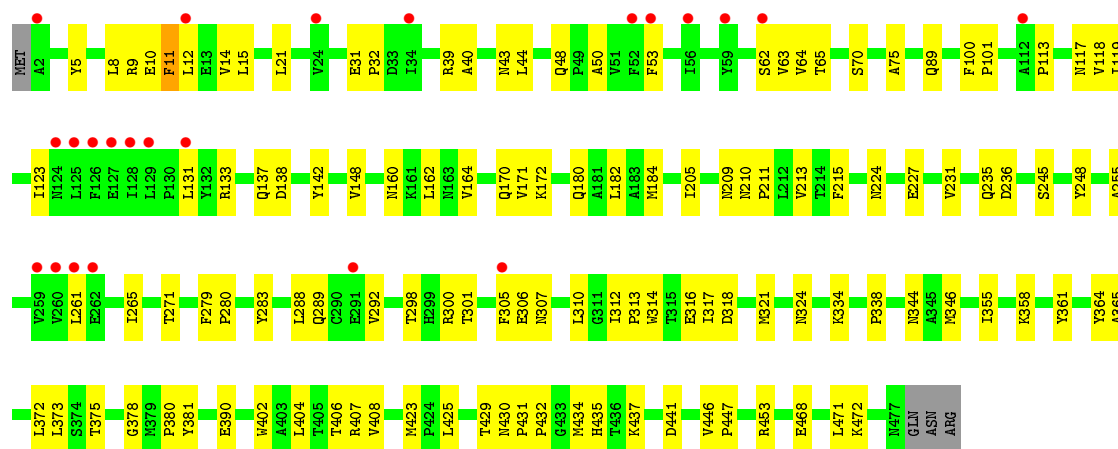


- Molecule 1: Phenolic acid decarboxylase

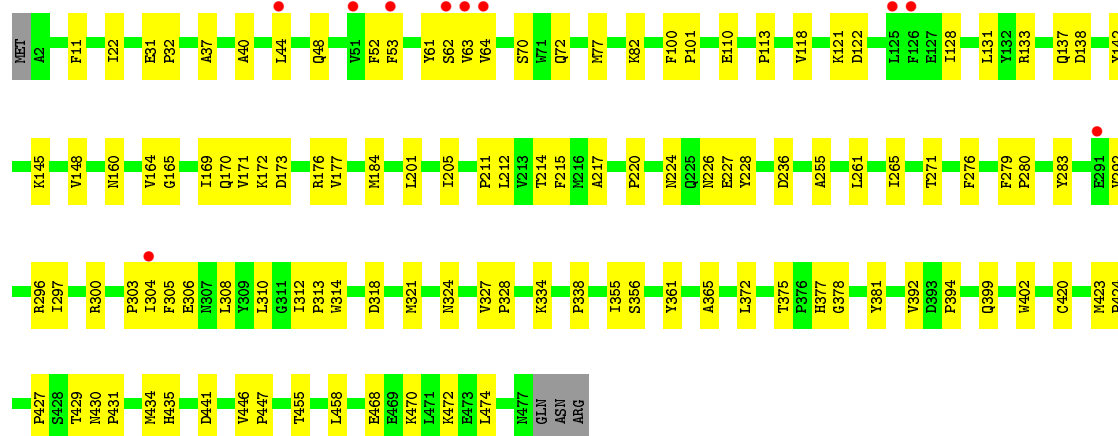
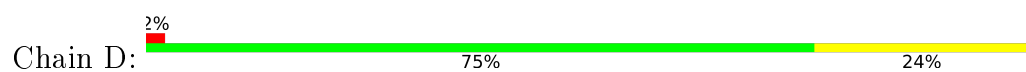


- Molecule 1: Phenolic acid decarboxylase

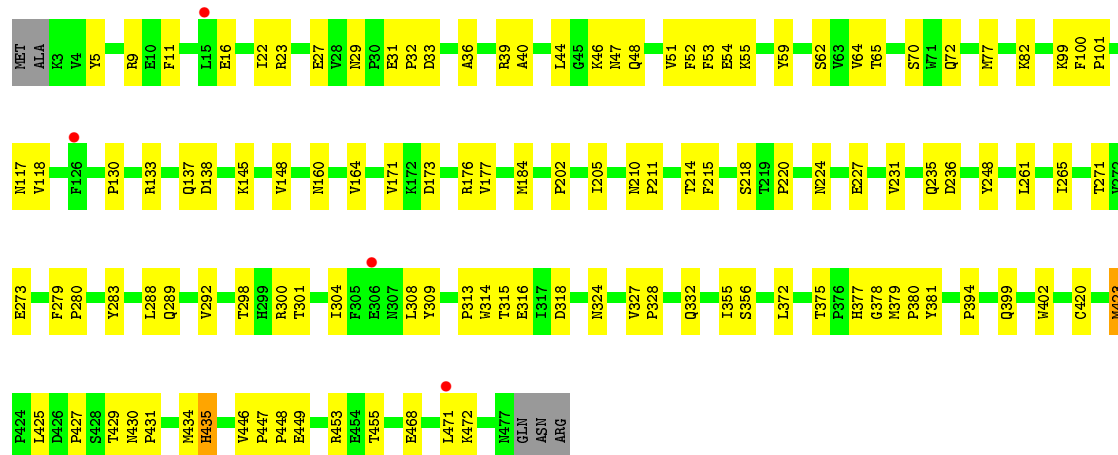
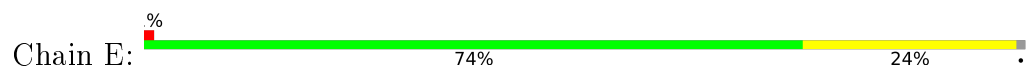




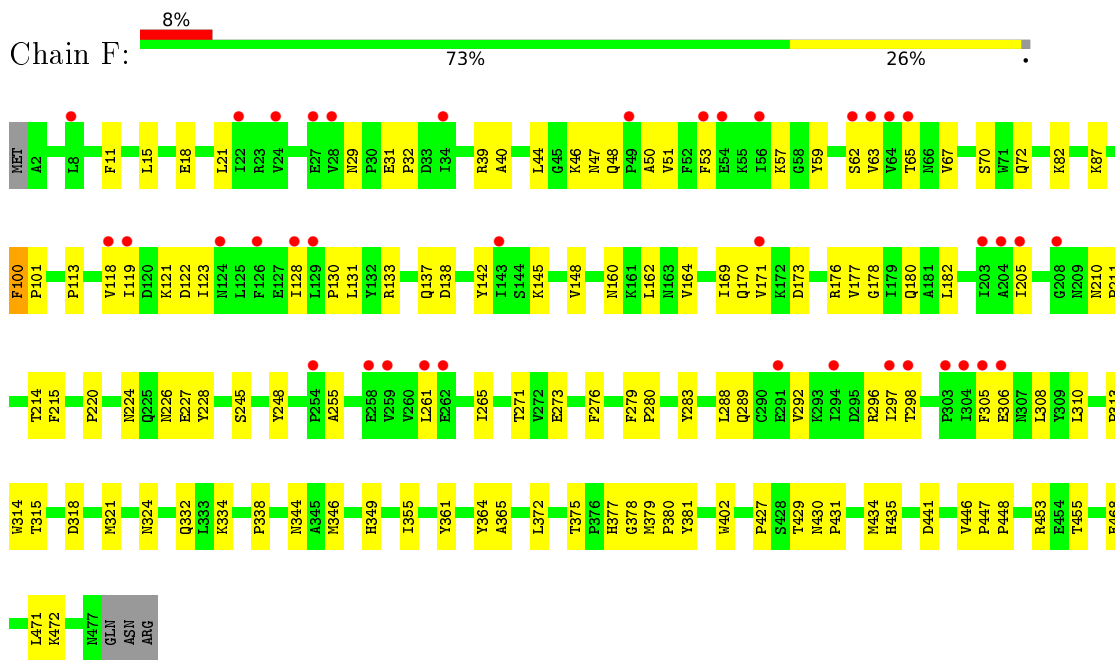
- Molecule 1: Phenolic acid decarboxylase



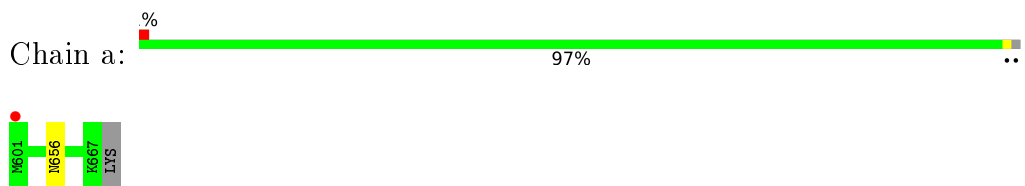
- Molecule 1: Phenolic acid decarboxylase



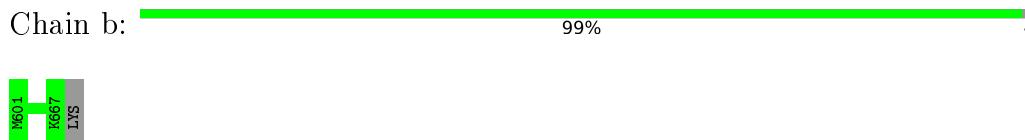
- Molecule 1: Phenolic acid decarboxylase



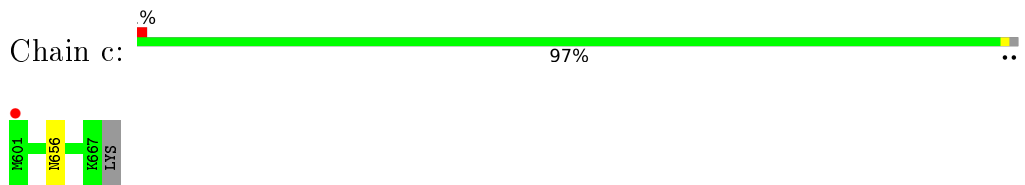
• Molecule 2: Protein ShdD



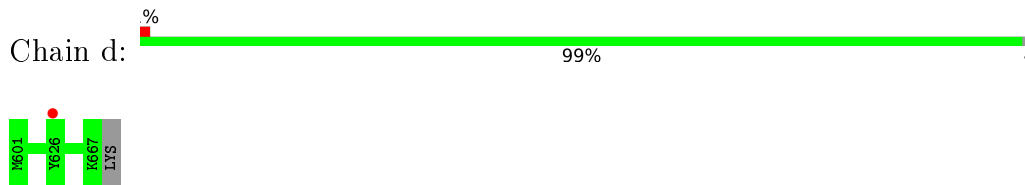
• Molecule 2: Protein ShdD



• Molecule 2: Protein ShdD



• Molecule 2: Protein ShdD



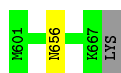
• Molecule 2: Protein ShdD

Chain e:  97% ..



● Molecule 2: Protein ShdD

Chain f:  97% ..



4 Data and refinement statistics

Property	Value	Source
Space group	F 2 2 2	Depositor
Cell constants a, b, c, α , β , γ	270.92Å 320.55Å 326.23Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	64.05 – 3.31 72.69 – 3.31	Depositor EDS
% Data completeness (in resolution range)	100.0 (64.05-3.31) 100.0 (72.69-3.31)	Depositor EDS
R_{merge}	0.11	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.67 (at 3.33Å)	Xtriage
Refinement program	PHENIX 1.19.2_4158	Depositor
R, R_{free}	0.163 , 0.198 0.163 , 0.198	Depositor DCC
R_{free} test set	5121 reflections (4.89%)	wwPDB-VP
Wilson B-factor (Å ²)	125.3	Xtriage
Anisotropy	0.195	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.32 , 94.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.48$, $\langle L^2 \rangle = 0.31$	Xtriage
Estimated twinning fraction	0.002 for -h,l,k	Xtriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	25763	wwPDB-VP
Average B, all atoms (Å ²)	130.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.00% 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: PEG, NA, MG, ZN, PO4, EDO, CL

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	0.28	0/3852	0.50	0/5250
1	B	0.29	0/3831	0.51	0/5226
1	C	0.28	0/3802	0.50	0/5190
1	D	0.29	0/3845	0.51	0/5241
1	E	0.29	0/3847	0.50	0/5243
1	F	0.28	0/3842	0.50	0/5238
2	a	0.27	0/535	0.49	0/725
2	b	0.28	0/535	0.52	0/725
2	c	0.26	0/535	0.53	0/725
2	d	0.27	0/535	0.50	0/725
2	e	0.27	0/535	0.50	0/725
2	f	0.26	0/535	0.47	0/725
All	All	0.28	0/26229	0.50	0/35738

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

In the following table, the Non-H and H(model) columns list the number of non-hydrogen atoms and hydrogen atoms in the chain respectively. The H(added) column lists the number of hydrogen atoms added and optimized by MolProbity. The Clashes column lists the number of clashes within the asymmetric unit, whereas Symm-Clashes lists symmetry-related clashes.

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3758	0	3725	100	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	B	3737	0	3681	86	0
1	C	3709	0	3633	105	0
1	D	3751	0	3719	82	0
1	E	3753	0	3720	80	0
1	F	3748	0	3703	87	0
2	a	522	0	508	0	0
2	b	522	0	508	0	0
2	c	522	0	508	0	0
2	d	522	0	508	0	0
2	e	522	0	508	0	0
2	f	522	0	508	0	0
3	A	7	10	10	1	0
3	C	7	10	10	0	0
3	D	7	10	10	1	0
3	E	14	20	20	1	0
3	F	7	10	10	0	0
4	A	3	0	0	0	0
4	B	3	0	0	0	0
4	C	2	0	0	0	0
4	D	2	0	0	0	0
4	E	3	0	0	0	0
4	F	2	0	0	0	0
5	A	5	0	0	0	0
5	B	5	0	0	0	0
5	C	5	0	0	0	0
5	D	5	0	0	0	0
5	E	5	0	0	0	0
5	F	5	0	0	0	0
6	A	1	0	0	0	0
6	B	1	0	0	0	0
6	C	1	0	0	0	0
6	D	1	0	0	0	0
6	E	1	0	0	0	0
6	F	1	0	0	0	0
7	A	2	0	0	0	0
7	B	1	0	0	0	0
7	C	1	0	0	0	0
7	D	2	0	0	0	0
8	E	4	6	6	0	0
9	a	1	0	0	0	0
9	b	1	0	0	0	0
9	c	1	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
9	d	1	0	0	0	0
9	e	1	0	0	0	0
9	f	1	0	0	0	0
All	All	25697	66	25295	515	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 11.

The worst 5 of 515 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:A:429:THR:HG22	1:A:435:HIS:HB3	1.49	0.95
1:A:375:THR:HG23	1:A:378:GLY:H	1.36	0.89
1:C:430:ASN:HB3	1:C:431:PRO:HD3	1.57	0.86
1:D:313:PRO:HG2	1:F:402:TRP:CD1	2.10	0.86
1:B:131:LEU:HD21	1:B:171:VAL:HG21	1.58	0.85

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

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

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

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
1	A	474/480 (99%)	456 (96%)	18 (4%)	0	100	100
1	B	474/480 (99%)	453 (96%)	21 (4%)	0	100	100
1	C	474/480 (99%)	452 (95%)	22 (5%)	0	100	100
1	D	474/480 (99%)	451 (95%)	23 (5%)	0	100	100
1	E	473/480 (98%)	454 (96%)	19 (4%)	0	100	100
1	F	474/480 (99%)	453 (96%)	21 (4%)	0	100	100
2	a	65/68 (96%)	61 (94%)	4 (6%)	0	100	100

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Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles	
2	b	65/68 (96%)	61 (94%)	4 (6%)	0	100	100
2	c	65/68 (96%)	61 (94%)	4 (6%)	0	100	100
2	d	65/68 (96%)	61 (94%)	4 (6%)	0	100	100
2	e	65/68 (96%)	62 (95%)	3 (5%)	0	100	100
2	f	65/68 (96%)	62 (95%)	3 (5%)	0	100	100
All	All	3233/3288 (98%)	3087 (96%)	146 (4%)	0	100	100

There are no Ramachandran outliers to report.

5.3.2 Protein sidechains [i](#)

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

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

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	413/419 (99%)	412 (100%)	1 (0%)	93	97
1	B	407/419 (97%)	406 (100%)	1 (0%)	93	97
1	C	401/419 (96%)	398 (99%)	3 (1%)	84	91
1	D	411/419 (98%)	408 (99%)	3 (1%)	84	91
1	E	413/419 (99%)	410 (99%)	3 (1%)	84	91
1	F	410/419 (98%)	409 (100%)	1 (0%)	93	97
2	a	60/63 (95%)	59 (98%)	1 (2%)	60	79
2	b	60/63 (95%)	60 (100%)	0	100	100
2	c	60/63 (95%)	59 (98%)	1 (2%)	60	79
2	d	60/63 (95%)	60 (100%)	0	100	100
2	e	60/63 (95%)	59 (98%)	1 (2%)	60	79
2	f	60/63 (95%)	59 (98%)	1 (2%)	60	79
All	All	2815/2892 (97%)	2799 (99%)	16 (1%)	86	92

5 of 16 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
2	e	656	ASN
2	c	656	ASN
1	E	184	MET
2	a	656	ASN
1	D	361	TYR

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 18 such sidechains are listed below:

Mol	Chain	Res	Type
1	E	235	GLN
1	F	235	GLN
1	F	135	ASN
1	C	435	HIS
1	E	180	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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 46 ligands modelled in this entry, 33 are monoatomic - leaving 13 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
8	EDO	E	502	-	3,3,3	0.60	0	2,2,2	0.15	0
3	PEG	A	501	-	6,6,6	0.20	0	5,5,5	0.09	0
5	PO4	D	504	6,4	4,4,4	0.87	0	6,6,6	0.48	0
3	PEG	E	501	-	6,6,6	0.19	0	5,5,5	0.06	0
5	PO4	B	504	6,4	4,4,4	0.88	0	6,6,6	0.51	0
5	PO4	C	504	6,4	4,4,4	0.90	0	6,6,6	0.50	0
5	PO4	E	507	6,4	4,4,4	0.93	0	6,6,6	0.38	0
3	PEG	E	503	-	6,6,6	0.23	0	5,5,5	0.06	0
3	PEG	F	501	-	6,6,6	0.20	0	5,5,5	0.05	0
3	PEG	D	501	-	6,6,6	0.23	0	5,5,5	0.07	0
5	PO4	A	505	6,4	4,4,4	0.91	0	6,6,6	0.42	0
5	PO4	F	504	6,4	4,4,4	0.86	0	6,6,6	0.61	0
3	PEG	C	501	-	6,6,6	0.22	0	5,5,5	0.10	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
8	EDO	E	502	-	-	0/1/1/1	-
3	PEG	A	501	-	-	3/4/4/4	-
3	PEG	E	501	-	-	0/4/4/4	-
3	PEG	E	503	-	-	2/4/4/4	-
3	PEG	F	501	-	-	1/4/4/4	-
3	PEG	D	501	-	-	3/4/4/4	-
3	PEG	C	501	-	-	0/4/4/4	-

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

5 of 9 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	E	503	PEG	O1-C1-C2-O2
3	F	501	PEG	O1-C1-C2-O2
3	D	501	PEG	O2-C3-C4-O4
3	A	501	PEG	C4-C3-O2-C2
3	A	501	PEG	O1-C1-C2-O2

There are no ring outliers.

3 monomers are involved in 3 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	A	501	PEG	1	0
3	E	503	PEG	1	0
3	D	501	PEG	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, 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	476/480 (99%)	0.29	9 (1%) 66 65	85, 128, 163, 179	0
1	B	476/480 (99%)	0.34	14 (2%) 51 51	86, 114, 152, 195	0
1	C	476/480 (99%)	0.43	23 (4%) 30 30	93, 142, 178, 199	0
1	D	476/480 (99%)	0.30	10 (2%) 63 62	88, 127, 158, 188	0
1	E	475/480 (98%)	0.33	4 (0%) 86 87	82, 114, 150, 172	0
1	F	476/480 (99%)	0.53	39 (8%) 11 11	94, 135, 170, 194	0
2	a	67/68 (98%)	-0.07	1 (1%) 73 72	113, 142, 167, 179	0
2	b	67/68 (98%)	0.29	0 100 100	99, 127, 158, 188	0
2	c	67/68 (98%)	0.06	1 (1%) 73 72	117, 156, 185, 205	0
2	d	67/68 (98%)	0.39	1 (1%) 73 72	116, 142, 174, 193	0
2	e	67/68 (98%)	0.02	0 100 100	108, 128, 167, 179	0
2	f	67/68 (98%)	0.09	0 100 100	119, 148, 174, 193	0
All	All	3257/3288 (99%)	0.34	102 (3%) 49 48	82, 128, 169, 205	0

The worst 5 of 102 RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	F	305	PHE	3.8
1	C	56	ILE	3.8
1	F	304	ILE	3.8
1	C	53	PHE	3.8
1	C	127	GLU	3.7

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

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

6.3 Carbohydrates [i](#)

There are no monosaccharides in this entry.

6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 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	PEG	A	501	7/7	0.68	0.40	124,149,172,172	0
3	PEG	D	501	7/7	0.69	0.40	124,148,177,177	0
3	PEG	E	501	7/7	0.73	0.24	120,150,191,191	0
4	NA	B	503	1/1	0.75	0.11	132,132,132,132	0
7	CL	B	506	1/1	0.75	0.51	88,88,88,88	0
7	CL	D	507	1/1	0.78	0.56	108,108,108,108	0
8	EDO	E	502	4/4	0.79	0.41	134,164,202,202	0
3	PEG	E	503	7/7	0.80	0.37	116,140,167,167	0
3	PEG	C	501	7/7	0.81	0.30	109,132,147,174	0
3	PEG	F	501	7/7	0.83	0.29	131,157,166,188	0
6	MG	D	505	1/1	0.83	0.15	136,136,136,136	0
7	CL	A	508	1/1	0.83	0.54	110,110,110,110	0
4	NA	E	506	1/1	0.84	0.16	139,139,139,139	0
7	CL	C	506	1/1	0.85	0.70	111,111,111,111	0
7	CL	D	506	1/1	0.86	0.47	115,115,115,115	0
4	NA	A	503	1/1	0.89	0.35	89,89,89,89	0
6	MG	F	505	1/1	0.89	0.10	139,139,139,139	0
4	NA	E	505	1/1	0.89	0.13	87,87,87,87	0
4	NA	B	502	1/1	0.89	0.38	85,85,85,85	0
4	NA	C	503	1/1	0.90	0.33	86,86,86,86	0
7	CL	A	507	1/1	0.90	0.61	99,99,99,99	0
4	NA	E	504	1/1	0.91	0.41	81,81,81,81	0
4	NA	A	504	1/1	0.91	0.09	155,155,155,155	0
4	NA	D	502	1/1	0.92	0.14	110,110,110,110	0
5	PO4	C	504	5/5	0.92	0.15	154,155,189,200	0
5	PO4	F	504	5/5	0.92	0.13	158,171,189,200	0
4	NA	F	503	1/1	0.93	0.44	79,79,79,79	0
5	PO4	A	505	5/5	0.93	0.11	164,168,176,190	0
6	MG	A	506	1/1	0.93	0.10	136,136,136,136	0
5	PO4	E	507	5/5	0.94	0.11	151,152,159,175	0
4	NA	D	503	1/1	0.94	0.40	93,93,93,93	0
5	PO4	D	504	5/5	0.95	0.13	142,154,172,174	0

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Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(\AA^2)	Q<0.9
4	NA	C	502	1/1	0.96	0.12	117,117,117,117	0
4	NA	A	502	1/1	0.97	0.07	103,103,103,103	0
6	MG	B	505	1/1	0.97	0.19	118,118,118,118	0
5	PO4	B	504	5/5	0.97	0.15	122,122,152,153	0
6	MG	E	508	1/1	0.97	0.14	127,127,127,127	0
9	ZN	b	701	1/1	0.97	0.08	148,148,148,148	0
6	MG	C	505	1/1	0.98	0.23	151,151,151,151	0
4	NA	F	502	1/1	0.98	0.09	116,116,116,116	0
4	NA	B	501	1/1	0.98	0.14	88,88,88,88	0
9	ZN	c	701	1/1	0.98	0.12	173,173,173,173	0
9	ZN	d	701	1/1	0.98	0.09	176,176,176,176	0
9	ZN	a	701	1/1	0.99	0.15	163,163,163,163	0
9	ZN	e	701	1/1	0.99	0.12	145,145,145,145	0
9	ZN	f	701	1/1	0.99	0.11	151,151,151,151	0

6.5 Other polymers [i](#)

There are no such residues in this entry.