



wwPDB X-ray Structure Validation Summary Report ⓘ

May 15, 2020 – 09:46 am BST

PDB ID : 9GPB
Title : THE ALLOSTERIC TRANSITION OF GLYCOGEN PHOSPHORYLASE
Authors : Barford, D.; Johnson, L.N.
Deposited on : 1990-12-17
Resolution : 2.90 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)
Xtrriage (Phenix) : **NOT EXECUTED**
EDS : **NOT EXECUTED**
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.11

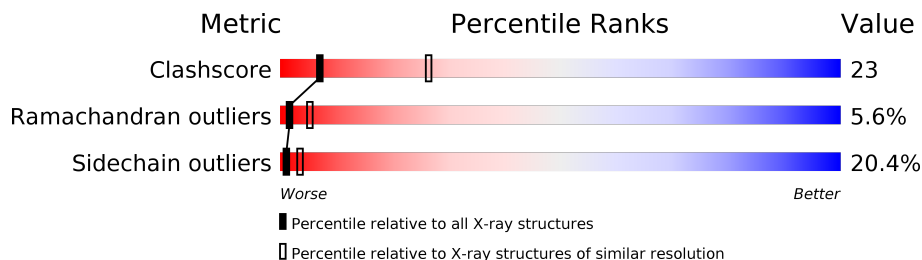
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.90 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))
Clashscore	141614	2172 (2.90-2.90)
Ramachandran outliers	138981	2115 (2.90-2.90)
Sidechain outliers	138945	2117 (2.90-2.90)

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 $\leq 5\%$.

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	842	
1	B	842	
1	C	842	
1	D	842	

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

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
2	SO4	C	900	-	-	X	-

2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 26873 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 GLYCOGEN PHOSPHORYLASE B.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	823	6688	4264	1184	1210	30	0	0	0
1	B	823	6688	4264	1184	1210	30	0	0	0
1	C	823	6688	4263	1184	1211	30	0	0	0
1	D	823	6689	4264	1184	1211	30	0	0	0

There are 4 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	380	ILE	LEU	CONFLICT	UNP P00489
B	380	ILE	LEU	CONFLICT	UNP P00489
C	380	ILE	LEU	CONFLICT	UNP P00489
D	380	ILE	LEU	CONFLICT	UNP P00489

- Molecule 2 is SULFATE ION (three-letter code: SO4) (formula: O₄S).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total O S 5 4 1	0	0
2	A	1	Total O S 5 4 1	0	0
2	A	1	Total O S 5 4 1	0	0
2	B	1	Total O S 5 4 1	0	0
2	B	1	Total O S 5 4 1	0	0
2	B	1	Total O S 5 4 1	0	0
2	C	1	Total O S 5 4 1	0	0
2	C	1	Total O S 5 4 1	0	0
2	C	1	Total O S 5 4 1	0	0
2	D	1	Total O S 5 4 1	0	0
2	D	1	Total O S 5 4 1	0	0
2	D	1	Total O S 5 4 1	0	0

- Molecule 3 is PYRIDOXAL-5'-PHOSPHATE (three-letter code: PLP) (formula: C₈H₁₀NO₆P).



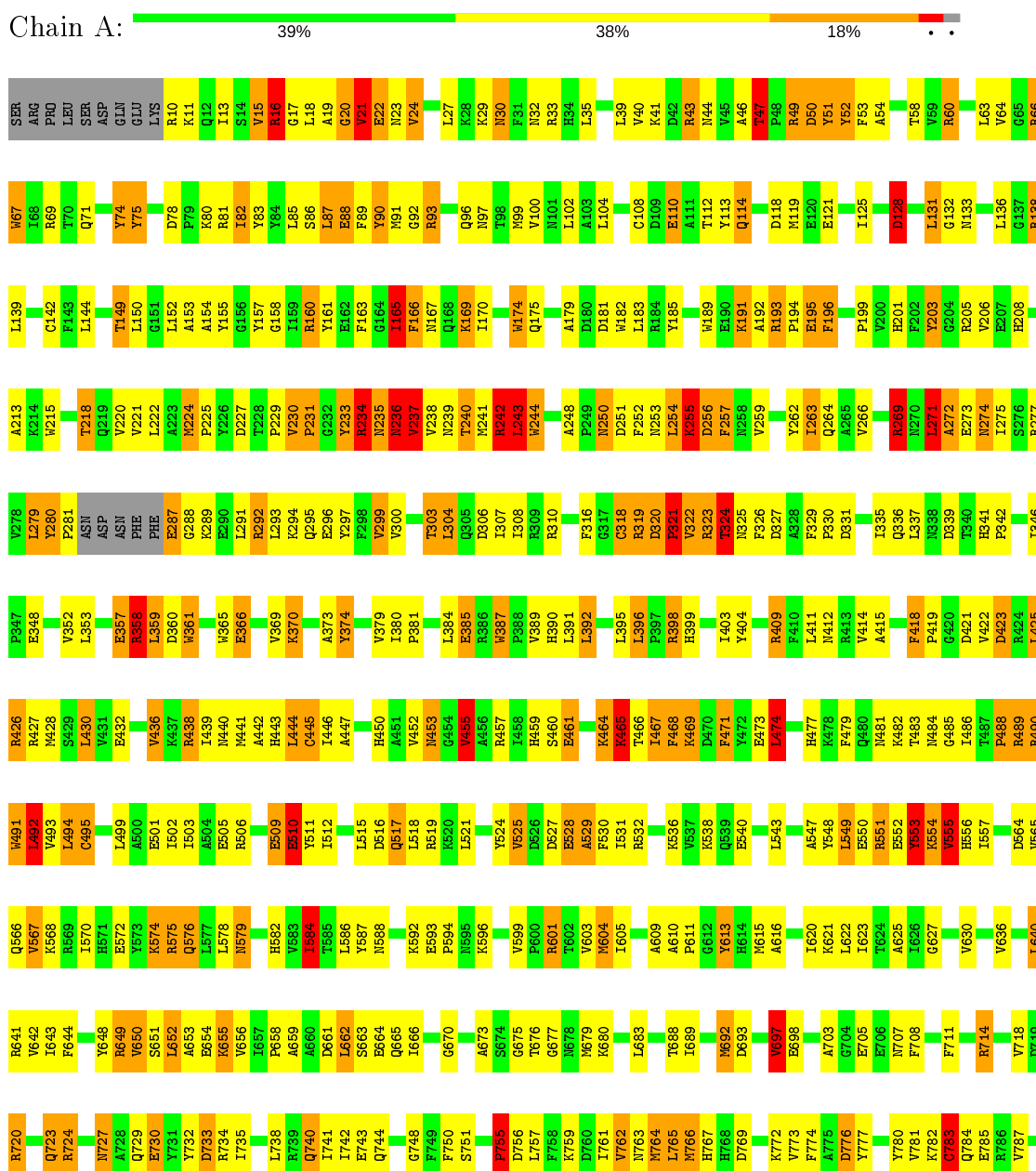
Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
3	A	1	Total 15	8	1	5	1	0	0
3	B	1	Total 15	8	1	5	1	0	0
3	C	1	Total 15	8	1	5	1	0	0
3	D	1	Total 15	8	1	5	1	0	0

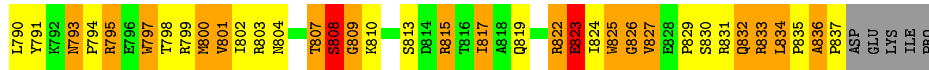
3 Residue-property plots

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. 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. 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.

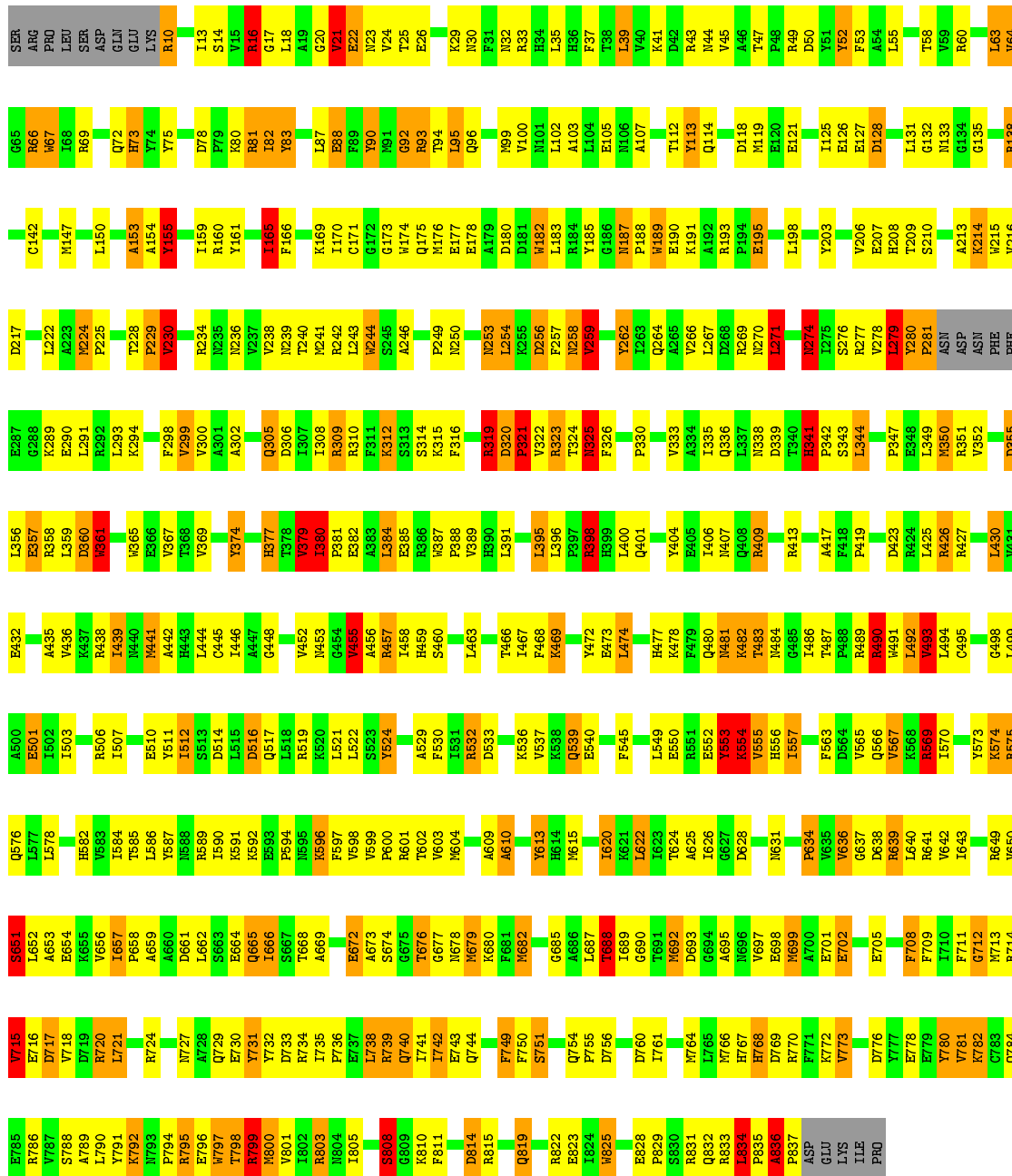
Note EDS was not executed.

- Molecule 1: GLYCOGEN PHOSPHORYLASE B



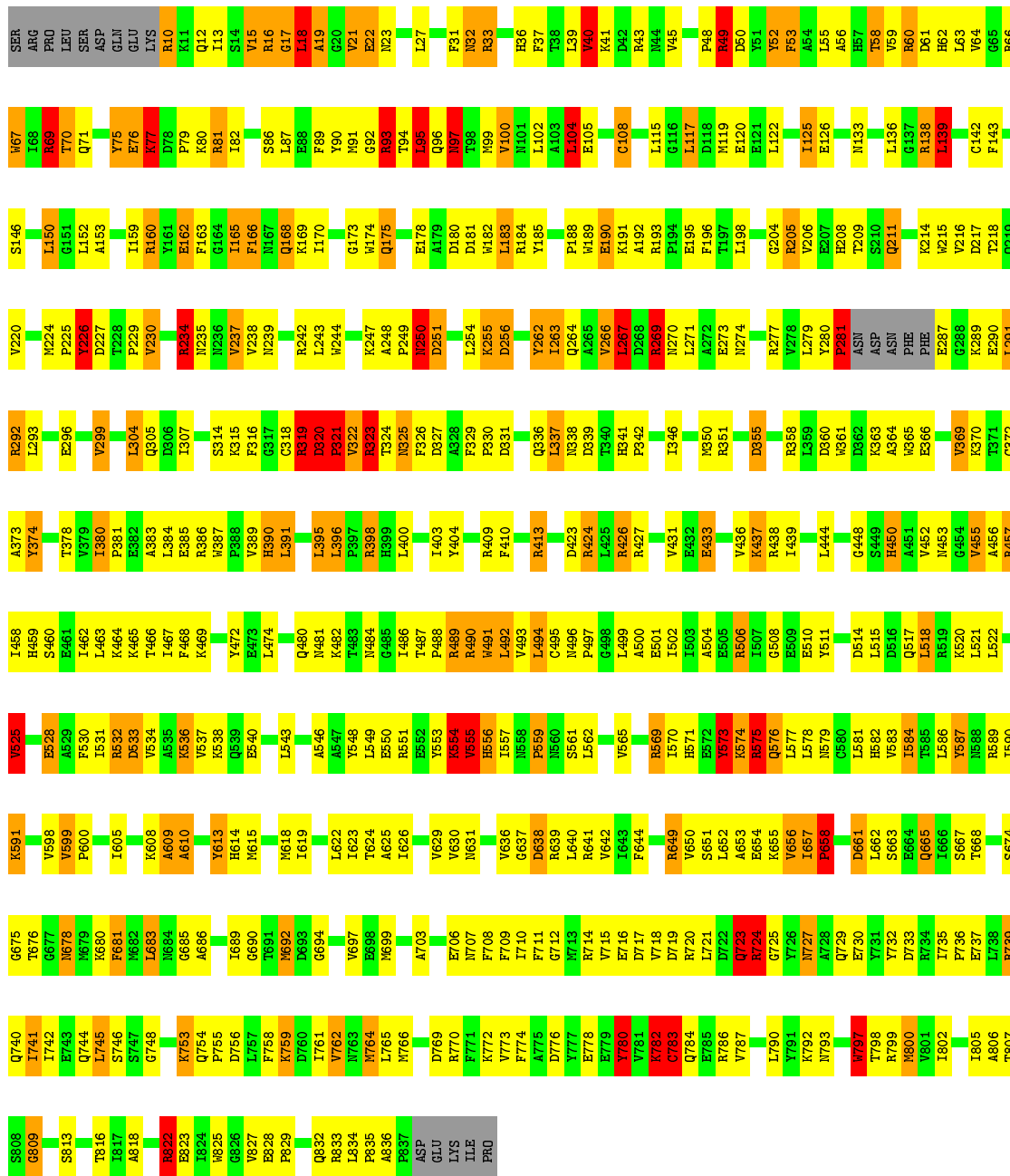


• Molecule 1: GLYCOGEN PHOSPHORYLASE B

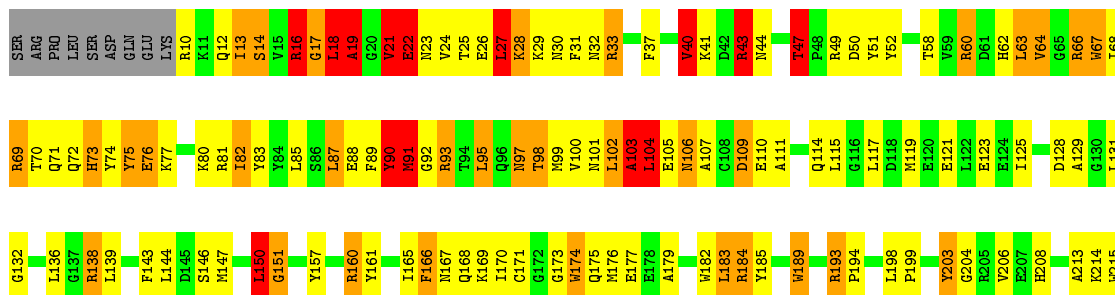
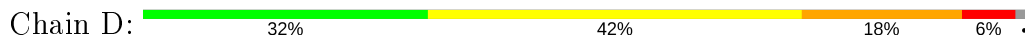


• Molecule 1: GLYCOGEN PHOSPHORYLASE B





● Molecule 1: GLYCOGEN PHOSPHORYLASE B



Q832	R833	A836	P837	ASP	GLU	LYS	ILE	PRO	R770	F771	K772	V773	F774	K777	V778	E779	Y780	V781	K782	G783	Q784	E785	R786	V787	S788	A789	L790	Y791	K792	V793	F794	R795	E796	V797	V798	R799	M800	V801	I802	R803	N804	I805	A806	T807	S808	G809	R810	F811	S812	S813	R814	R815	T816	I817	A818	Q819	Y820	A821	R822	E823	I824	W825	E828	P829	S830	R831	E706	N707	F708	F709	I710	F711	G712	N713	V714	E715	V716	D717	R720	L721	D722	Q723	R724	G725	V726	N727	A728	V729	E730	Y731	V732	D733	R734	V735	F736	L738	R739	Q740	I741	I742	E743	Q744	L745	S746	F747	G748	K753	Q754	F755	D756	L757	F758	K759	G760	V761	V762	N763	M764	I765	N766	H767	H768	D769	V636	G637	D638	R639	L640	R641	V642	L643	E646	R649	V650	S651	A652	G653	E654	K655	V656	L657	P658	D661	L662	S663	E664	Q665	L666	S667	T671	E672	A673	S674	G675	T676	G677	N678	M679	K680	F681	M682	L683	A686	L687	T688	I689	M692	V697	E698	M699	A700	E701	E702	A703	G704	E705	I570	H571	E572	K574	R575	Q576	L577	L578	N579	C580	L581	H582	V583	I584	T585	L586	Y587	H588	K589	I590	K591	K592	E593	K596	F597	V598	R601	T602	V603	M604	I605	G606	G607	K608	A609	A610	Y613	R614	M615	A616	K617	M618	K621	I557	N558	I623	T624	D628	L562	V629	V630	A700	M631	H632	D633	P634	V635	E505	R506	E509	K510	E511	D514	L515	D516	Q517	L518	R519	K520	L521	S522	S523	Y524	V525	D526	D527	K528	A529	F530	I531	R532	D533	K536	V537	K538	Q539	E540	M541	K542	L543	Y548	L549	E550	R551	E552	Y553	K554	V555	H556	I557	M558	P559	M560	S561	L562	F563	D564	V565	Q566	V567	K568	R569	S429	L430	V431	A435	V436	I439	N440	L444	C445	I446	A447	G448	S449	V455	L456	R457	I458	V459	T467	D470	F471	V472	E473	L474	R475	P476	H477	K478	F479	T483	M484	G485	I486	T487	P488	R489	M491	L492	V493	L494	C495	L499	A500	E501	K568	R358	L359	D360	D362	K363	A364	M365	E366	V367	T368	V369	K370	T371	C372	A373	Y374	T375	N376	H377	T378	R386	W387	H390	L391	T394	L395	L396	P397	R398	H399	L400	Q401	I402	I403	Y404	E406	I407	Q408	R409	F410	M413	V414	D421	R424	L425	R426	R427	M428	R358	L359	D360	D362	K363	A364	M365	E366	V367	T368	V369	K370	T371	C372	A373	Y374	T375	N376	H377	T378	R386	W387	H390	L391	T394	L395	L396	P397	R398	H399	L400	Q401	I402	I403	Y404	E406	I407	Q408	R409	F410	M413	V414	D421	R424	L425	R426	R427	M428	P8E	E287	L291	R292	L293	K294	Q295	E296	Y297	F298	V299	V300	G282	Y233	R234	N235	N236	V237	V238	N239	K315	T240	M241	R242	G317	C318	R319	D320	P321	V322	R323	T324	N325	F326	D327	K295	A328	F329	P330	D331	K332	V333	A334	Q336	I335	L337	M338	D339	H341	P342	S343	L344	M350	R351	Y260	V352	L353	V354	D355	L356	E357	R216	D217	T218	V221	P225	Y226	D227	T228	P229	V230	P231	G282	Y233	R234	N235	N236	V237	V238	N239	K315	T240	M241	R242	G317	C318	R319	D320	P321	V322	R323	T324	N325	F326	D327	K295	A328	F329	P330	D331	K332	V333	A334	Q336	I335	L337	M338	D339	H341	P342	S343	L344	M350	R351	Y260	V352	L353	V354	D355	L356	E357	R216	D217	T218	V221	P225	Y226	D227	T228	P229	V230	P231	G282	Y233	R234	N235	N236	V237	V238	N239	K315	T240	M241	R242	G317	C318	R319	D320	P321	V322	R323	T324	N325	F326	D327	K295	A328	F329	P330	D331	K332	V333	A334	Q336	I335	L337	M338	D339	H341	P342	S343	L344	M350	R351	Y260	V352	L353	V354	D355	L356	E357	R216	D217	T218	V221	P225	Y226	D227	T228	P229	V230	P231	G282	Y233	R234	N235	N236	V237	V238	N239	K315	T240	M241	R242	G317	C318	R319	D320	P321	V322	R323	T324	N325	F326	D327	K295	A328	F329	P330	D331	K332	V333	A334	Q336	I335	L337	M338	D339	H341	P342	S343	L344	M350	R351	Y260	V352	L353	V354	D355	L356	E357	R216	D217	T218	V221	P225	Y226	D227	T228	P229	V230	P231	G282	Y233	R234	N235	N236	V237	V238	N239	K315	T240	M241	R242	G317	C318	R319	D320	P321	V322	R323	T324	N325	F326	D327	K295	A328	F329	P330	D331	K332	V333	A334	Q336	I335	L337	M338	D339	H341	P342	S343	L344	M350	R351	Y260	V352	L353	V354	D355	L356	E357	R216	D217	T218	V221	P225	Y226	D227	T228	P229	V230	P231	G282	Y233	R234	N235	N236	V237	V238	N239	K315	T240	M241	R242	G317	C318	R319	D320	P321	V322	R323	T324	N325	F326	D327	K295	A328	F329	P330	D331	K332	V333	A334	Q336	I335	L337	M338	D339	H341	P342	S343	L344	M350	R351	Y260	V352	L353	V354	D355	L356	E357	R216	D217	T218	V221	P225	Y226	D227	T228	P229	V230	P231	G282	Y233	R234	N235	N236	V237	V238	N239	K315	T240	M241	R242	G317	C318	R319	D320	P321	V322	R323	T324	N325	F326	D327	K295	A328	F329	P330	D331	K332	V333	A334	Q336	I335	L337	M338	D339	H341	P342	S343	L344	M350	R351	Y260	V352	L353	V354	D355	L356	E357	R216	D217	T218	V221	P225	Y226	D227	T228	P229	V230	P231	G282	Y233	R234	N235	N236	V237	V238	N239	K315	T240	M241	R242	G317	C318	R319	D320	P321	V322	R323	T324	N325	F326	D327	K295	A328	F329	P330	D331	K332	V333	A334	Q336	I335	L337	M338	D339	H341	P342	S343	L344	M350	R351	Y260	V352	L353	V354	D355	L356	E357	R216	D217	T218	V221	P225	Y226	D227	T228	P229	V230	P231	G282	Y233	R234	N235	N236	V237	V238	N239	K315	T240	M241	R242	G317	C318	R319	D320	P321	V322	R323	T324	N325	F326	D327	K295	A328	F329	P330	D331	K332	V333	A334	Q336	I335	L337	M338	D339	H341	P342	S343	L344	M350	R351	Y260	V352	L353	V354	D355	L356	E357	R216	D217	T218	V221	P225	Y226	D227	T228	P229	V230	P231	G282	Y233	R234	N235	N236	V237	V238	N239	K315	T240	M241	R242	G317	C318	R319	D320	P321	V322	R323	T324	N325	F326	D327	K295	A328	F329	P330	D331	K332	V333	A334	Q336	I335	L337	M338	D339	H341	P342	S343	L344	M350	R351	Y260	V352	L353	V354	D355	L356	E357	R216	D217	T218	V221	P225	Y226	D227	T228	P229	V230	P231	G282	Y233	R234	N235	N236	V237	V238	N239	K315	T240	M241	R242	G317	C318	R319	D320	P321	V322	R323	T324	N325	F326	D327	K295	A328	F329	P330	D331	K332	V333	A334	Q336	I335	L337	M338	D339	H341	P342	S343	L344	M350	R351	Y260	V352	L353	V354	D355	L356	E357	R216	D217	T218	V221	P225	Y226	D227	T228	P229	V230	P231	G282	Y233	R234	N235	N236	V237	V238	N239	K315	T240	M241	R242	G317	C318	R319	D320	P321	V322	R323	T324	N325	F326	D327	K295	A328	F329	P330	D331	K332	V333	A334	Q336	I335	L337	M338	D339	H341	P342	S343	L344	M350	R351	Y260	V352	L353	V354	D355	L356	E357	R216	D217	T218	V221	P225	Y226	D227	T228	P229	V230	P231	G282	Y233	R234	N235	N236	V237	V238	N239	K315	T240	M241	R242	G317	C318	R319	D320	P321	V322	R323	T324	N325	F326	D327	K295	A328	F329	P330	D331	K332	V333	A334	Q336	I335	L337	M338	D339	H341	P342	S343	L344	M350	R351	Y260	V352	L353	V354	D355	L356	E357	R216	D217	T218	V221	P225	Y226	D227	T228	P229	V230	P231	G282	Y233	R234	N235	N236	V237	V238	N239	K315	T240	M241	R242	G317	C318	R319	D320	P321	V322	R323	T324	N325	F326	D327	K295	A328	F329	P330	D331	K332	V333	A334	Q336	I335	L337	M338	D339	H341	P342	S343	L344	M350	R351	Y260	V352	L353	V354	D355	L356	E357	R216	D217	T218	V221	P225	Y226	D227	T228	P229	V230	P231	G282	Y233	R234	N235	N236	V237	V238	N239	K315	T240	M241	R242	G317	C318	R319	D320	P321	V322	R323	T324	N325	F326	D327	K295	A328	F329	P330	D331	K332	V333	A334	Q336	I335	L337	M338	D339	H341	P342	S343	L344	M350	R351	Y260	V352	L353	V354	D355	L356	E357	R216	D217	T218	V221	P225	Y226	D227	T228	P229	V230	P231	G282	Y233	R234	N235	N236	V237	V238	N239	K3
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4 Data and refinement statistics

Xtrriage (Phenix) and EDS were not executed - this section is therefore incomplete.

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	119.00Å 190.00Å 88.20Å 90.00° 109.35° 90.00°	Depositor
Resolution (Å)	(Not available) – 2.90	Depositor
% Data completeness (in resolution range)	(Not available) ((Not available)-2.90)	Depositor
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
Refinement program	X-PLOR	Depositor
R, R_{free}	0.177 , (Not available)	Depositor
Estimated twinning fraction	No twinning to report.	Xtrriage
Total number of atoms	26873	wwPDB-VP
Average B, all atoms (Å ²)	20.0	wwPDB-VP

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: SO4, PLP

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	0.98	1/6837 (0.0%)	1.95	202/9250 (2.2%)
1	B	0.98	3/6837 (0.0%)	1.92	190/9250 (2.1%)
1	C	1.00	4/6837 (0.1%)	1.96	208/9251 (2.2%)
1	D	0.99	4/6839 (0.1%)	1.97	231/9254 (2.5%)
All	All	0.99	12/27350 (0.0%)	1.95	831/37005 (2.2%)

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

Mol	Chain	#Chirality outliers	#Planarity outliers
1	A	0	9
1	B	0	8
1	C	0	10
1	D	0	6
All	All	0	33

The worst 5 of 12 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	C	18	LEU	N-CA	-6.78	1.32	1.46
1	B	230	VAL	CA-CB	6.26	1.67	1.54
1	A	565	VAL	CA-CB	6.06	1.67	1.54
1	D	17	GLY	N-CA	-5.95	1.37	1.46
1	B	244	TRP	CG-CD2	-5.53	1.34	1.43

The worst 5 of 831 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	C	17	GLY	O-C-N	19.05	153.18	122.70
1	C	17	GLY	CA-C-N	-14.07	86.25	117.20
1	C	780	TYR	CB-CG-CD2	-13.43	112.94	121.00
1	B	780	TYR	CB-CG-CD2	-13.31	113.02	121.00
1	C	319	ARG	NE-CZ-NH2	-12.42	114.09	120.30

There are no chirality outliers.

5 of 33 planarity outliers are listed below:

Mol	Chain	Res	Type	Group
1	A	113	TYR	Sidechain
1	A	233	TYR	Sidechain
1	A	242	ARG	Sidechain
1	A	256	ASP	Mainchain
1	A	51	TYR	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	6688	0	6652	304	0
1	B	6688	0	6652	285	0
1	C	6688	0	6646	290	0
1	D	6689	0	6653	389	0
2	A	15	0	0	0	0
2	B	15	0	0	1	0
2	C	15	0	0	3	0
2	D	15	0	0	2	0
3	A	15	0	6	1	0
3	B	15	0	7	0	0
3	C	15	0	7	0	0
3	D	15	0	6	2	0
All	All	26873	0	26629	1221	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 23.

The worst 5 of 1221 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:C:37:PHE:CE2	1:D:18:LEU:HB3	1.46	1.51
1:C:37:PHE:HE2	1:D:18:LEU:CB	1.32	1.42
1:C:37:PHE:CE2	1:D:18:LEU:CB	2.06	1.32
1:C:15:VAL:O	1:C:17:GLY:N	1.79	1.14
1:D:16:ARG:HG3	1:D:17:GLY:N	1.64	1.07

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	817/842 (97%)	652 (80%)	112 (14%)	53 (6%)	1	3
1	B	817/842 (97%)	670 (82%)	107 (13%)	40 (5%)	2	8
1	C	819/842 (97%)	679 (83%)	102 (12%)	38 (5%)	2	9
1	D	819/842 (97%)	644 (79%)	124 (15%)	51 (6%)	1	4
All	All	3272/3368 (97%)	2645 (81%)	445 (14%)	182 (6%)	2	5

5 of 182 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	16	ARG
1	A	21	VAL
1	A	152	LEU
1	A	166	PHE
1	A	236	ASN

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	712/731 (97%)	580 (82%)	132 (18%)	1	5
1	B	712/731 (97%)	569 (80%)	143 (20%)	1	4
1	C	711/731 (97%)	580 (82%)	131 (18%)	1	5
1	D	712/731 (97%)	537 (75%)	175 (25%)	0	2
All	All	2847/2924 (97%)	2266 (80%)	581 (20%)	1	3

5 of 581 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	794	PRO
1	C	287	GLU
1	D	649	ARG
1	B	814	ASP
1	C	100	VAL

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 80 such sidechains are listed below:

Mol	Chain	Res	Type
1	B	678	ASN
1	C	336	GLN
1	D	453	ASN
1	B	727	ASN
1	C	36	HIS

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

16 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	SO4	D	902	-	4,4,4	0.36	0	6,6,6	0.31	0
2	SO4	B	902	-	4,4,4	0.20	0	6,6,6	0.51	0
2	SO4	C	902	-	4,4,4	0.18	0	6,6,6	0.67	0
3	PLP	A	999	1	15,15,16	1.69	3 (20%)	20,22,23	1.27	4 (20%)
3	PLP	B	999	1	15,15,16	1.45	4 (26%)	20,22,23	1.64	4 (20%)
2	SO4	A	901	-	4,4,4	0.49	0	6,6,6	0.37	0
3	PLP	C	999	1	15,15,16	1.41	1 (6%)	20,22,23	2.23	2 (10%)
2	SO4	C	901	-	4,4,4	0.30	0	6,6,6	0.31	0
2	SO4	D	900	-	4,4,4	0.46	0	6,6,6	0.42	0
2	SO4	C	900	1	4,4,4	0.55	0	6,6,6	0.31	0
2	SO4	B	900	-	4,4,4	0.24	0	6,6,6	0.61	0
2	SO4	A	900	-	4,4,4	0.19	0	6,6,6	0.49	0
2	SO4	B	901	1	4,4,4	0.62	0	6,6,6	0.26	0
2	SO4	D	901	-	4,4,4	0.54	0	6,6,6	0.51	0
3	PLP	D	999	1	15,15,16	1.86	3 (20%)	20,22,23	1.32	1 (5%)
2	SO4	A	902	-	4,4,4	0.44	0	6,6,6	0.35	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	PLP	B	999	1	-	2/6/6/8	0/1/1/1
3	PLP	D	999	1	-	5/6/6/8	0/1/1/1
3	PLP	A	999	1	-	1/6/6/8	0/1/1/1
3	PLP	C	999	1	-	0/6/6/8	0/1/1/1

The worst 5 of 11 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	D	999	PLP	C3-C2	-5.76	1.35	1.40
3	A	999	PLP	C3-C2	-4.79	1.36	1.40
3	C	999	PLP	C3-C2	-3.35	1.37	1.40
3	A	999	PLP	C5-C4	-2.97	1.37	1.40
3	B	999	PLP	C3-C2	-2.80	1.38	1.40

The worst 5 of 11 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	C	999	PLP	O4P-C5A-C5	8.75	126.03	109.35
3	B	999	PLP	O4P-C5A-C5	5.05	118.98	109.35
3	D	999	PLP	O4P-C5A-C5	4.61	118.14	109.35
3	B	999	PLP	C6-C5-C4	2.91	120.45	118.16
3	A	999	PLP	C6-C5-C4	2.67	120.26	118.16

There are no chirality outliers.

5 of 8 torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	B	999	PLP	C5A-O4P-P-O3P
3	D	999	PLP	C4-C5-C5A-O4P
3	D	999	PLP	C5A-O4P-P-O1P
3	D	999	PLP	C5A-O4P-P-O2P
3	D	999	PLP	C5A-O4P-P-O3P

There are no ring outliers.

6 monomers are involved in 9 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	D	902	SO4	1	0
2	B	902	SO4	1	0
3	A	999	PLP	1	0
2	D	900	SO4	1	0
2	C	900	SO4	3	0
3	D	999	PLP	2	0

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues

The following chains have linkage breaks:

Mol	Chain	Number of breaks
1	B	1
1	A	1

All chain breaks are listed below:

Model	Chain	Residue-1	Atom-1	Residue-2	Atom-2	Distance (Å)
1	A	18:LEU	C	19:ALA	N	22.68
1	B	18:LEU	C	19:ALA	N	19.70

6 Fit of model and data

6.1 Protein, DNA and RNA chains

EDS was not executed - this section is therefore empty.

6.2 Non-standard residues in protein, DNA, RNA chains

EDS was not executed - this section is therefore empty.

6.3 Carbohydrates

EDS was not executed - this section is therefore empty.

6.4 Ligands

EDS was not executed - this section is therefore empty.

6.5 Other polymers

EDS was not executed - this section is therefore empty.