



wwPDB X-ray Structure Validation Summary Report ⓘ

Feb 4, 2024 – 05:15 AM EST

PDB ID : 1NKT
Title : CRYSTAL STRUCTURE OF THE SECA PROTEIN TRANSLOCATION
ATPASE FROM MYCOBACTERIUM TUBERCULOSIS COMPLEX WITH
ADPBS
Authors : Sharma, V.; Arockiasamy, A.; Ronning, D.R.; Savva, C.G.; Holzenburg, A.;
Braunstein, M.; Jacobs Jr., W.R.; Sacchettini, J.C.; TB Structural Genomics
Consortium (TBSGC)
Deposited on : 2003-01-03
Resolution : 2.60 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 types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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**
buster-report : 1.1.7 (2018)
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) : 2.36

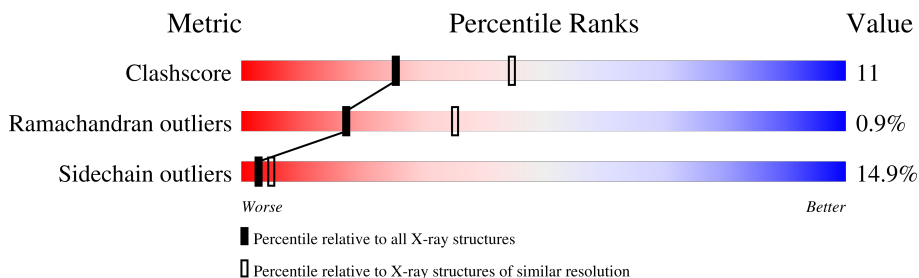
1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.60 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	3518 (2.60-2.60)
Ramachandran outliers	138981	3455 (2.60-2.60)
Sidechain outliers	138945	3455 (2.60-2.60)

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 $\leq 5\%$

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	922	
1	B	922	

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 13862 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 Preprotein translocase secA 1 subunit.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	836	6630	4151	1169	1285	25	0	0	0
1	B	836	6630	4151	1169	1285	25	0	0	0

There are 62 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	-29	MET	-	cloning artifact	UNP P0A5Y8
A	-28	LYS	-	cloning artifact	UNP P0A5Y8
A	-27	GLU	-	cloning artifact	UNP P0A5Y8
A	-26	THR	-	cloning artifact	UNP P0A5Y8
A	-25	ALA	-	cloning artifact	UNP P0A5Y8
A	-24	ALA	-	cloning artifact	UNP P0A5Y8
A	-23	ALA	-	cloning artifact	UNP P0A5Y8
A	-22	LYS	-	cloning artifact	UNP P0A5Y8
A	-21	PHE	-	cloning artifact	UNP P0A5Y8
A	-20	GLU	-	cloning artifact	UNP P0A5Y8
A	-19	ARG	-	cloning artifact	UNP P0A5Y8
A	-18	GLN	-	cloning artifact	UNP P0A5Y8
A	-17	HIS	-	cloning artifact	UNP P0A5Y8
A	-16	MET	-	cloning artifact	UNP P0A5Y8
A	-15	ASP	-	cloning artifact	UNP P0A5Y8
A	-14	SER	-	cloning artifact	UNP P0A5Y8
A	-13	PRO	-	cloning artifact	UNP P0A5Y8
A	-12	ASP	-	cloning artifact	UNP P0A5Y8
A	-11	LEU	-	cloning artifact	UNP P0A5Y8
A	-10	GLY	-	cloning artifact	UNP P0A5Y8
A	-9	THR	-	cloning artifact	UNP P0A5Y8
A	-8	LEU	-	cloning artifact	UNP P0A5Y8
A	-7	VAL	-	cloning artifact	UNP P0A5Y8
A	-6	PRO	-	cloning artifact	UNP P0A5Y8
A	-5	ARG	-	cloning artifact	UNP P0A5Y8

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Chain	Residue	Modelled	Actual	Comment	Reference
A	-4	GLY	-	cloning artifact	UNP P0A5Y8
A	-3	SER	-	cloning artifact	UNP P0A5Y8
A	-2	MET	-	cloning artifact	UNP P0A5Y8
A	-1	ALA	-	cloning artifact	UNP P0A5Y8
A	0	ASP	-	cloning artifact	UNP P0A5Y8
A	1	ILE	-	cloning artifact	UNP P0A5Y8
B	-29	MET	-	cloning artifact	UNP P0A5Y8
B	-28	LYS	-	cloning artifact	UNP P0A5Y8
B	-27	GLU	-	cloning artifact	UNP P0A5Y8
B	-26	THR	-	cloning artifact	UNP P0A5Y8
B	-25	ALA	-	cloning artifact	UNP P0A5Y8
B	-24	ALA	-	cloning artifact	UNP P0A5Y8
B	-23	ALA	-	cloning artifact	UNP P0A5Y8
B	-22	LYS	-	cloning artifact	UNP P0A5Y8
B	-21	PHE	-	cloning artifact	UNP P0A5Y8
B	-20	GLU	-	cloning artifact	UNP P0A5Y8
B	-19	ARG	-	cloning artifact	UNP P0A5Y8
B	-18	GLN	-	cloning artifact	UNP P0A5Y8
B	-17	HIS	-	cloning artifact	UNP P0A5Y8
B	-16	MET	-	cloning artifact	UNP P0A5Y8
B	-15	ASP	-	cloning artifact	UNP P0A5Y8
B	-14	SER	-	cloning artifact	UNP P0A5Y8
B	-13	PRO	-	cloning artifact	UNP P0A5Y8
B	-12	ASP	-	cloning artifact	UNP P0A5Y8
B	-11	LEU	-	cloning artifact	UNP P0A5Y8
B	-10	GLY	-	cloning artifact	UNP P0A5Y8
B	-9	THR	-	cloning artifact	UNP P0A5Y8
B	-8	LEU	-	cloning artifact	UNP P0A5Y8
B	-7	VAL	-	cloning artifact	UNP P0A5Y8
B	-6	PRO	-	cloning artifact	UNP P0A5Y8
B	-5	ARG	-	cloning artifact	UNP P0A5Y8
B	-4	GLY	-	cloning artifact	UNP P0A5Y8
B	-3	SER	-	cloning artifact	UNP P0A5Y8
B	-2	MET	-	cloning artifact	UNP P0A5Y8
B	-1	ALA	-	cloning artifact	UNP P0A5Y8
B	0	ASP	-	cloning artifact	UNP P0A5Y8
B	1	ILE	-	cloning artifact	UNP P0A5Y8

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

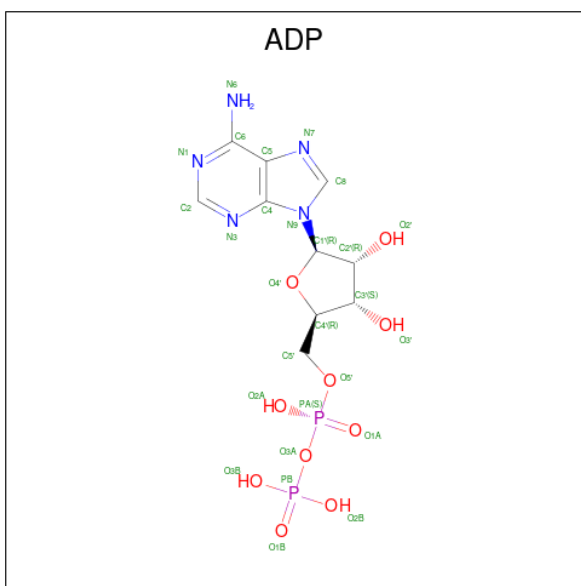
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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
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Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total Mg 1 1	0	0
2	B	1	Total Mg 1 1	0	0

- Molecule 3 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total C N O P 27 10 5 10 2	0	0
3	B	1	Total C N O P 27 10 5 10 2	0	0

- Molecule 4 is water.

Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	246	Total O 246 246	0	0
4	B	300	Total O 300 300	0	0

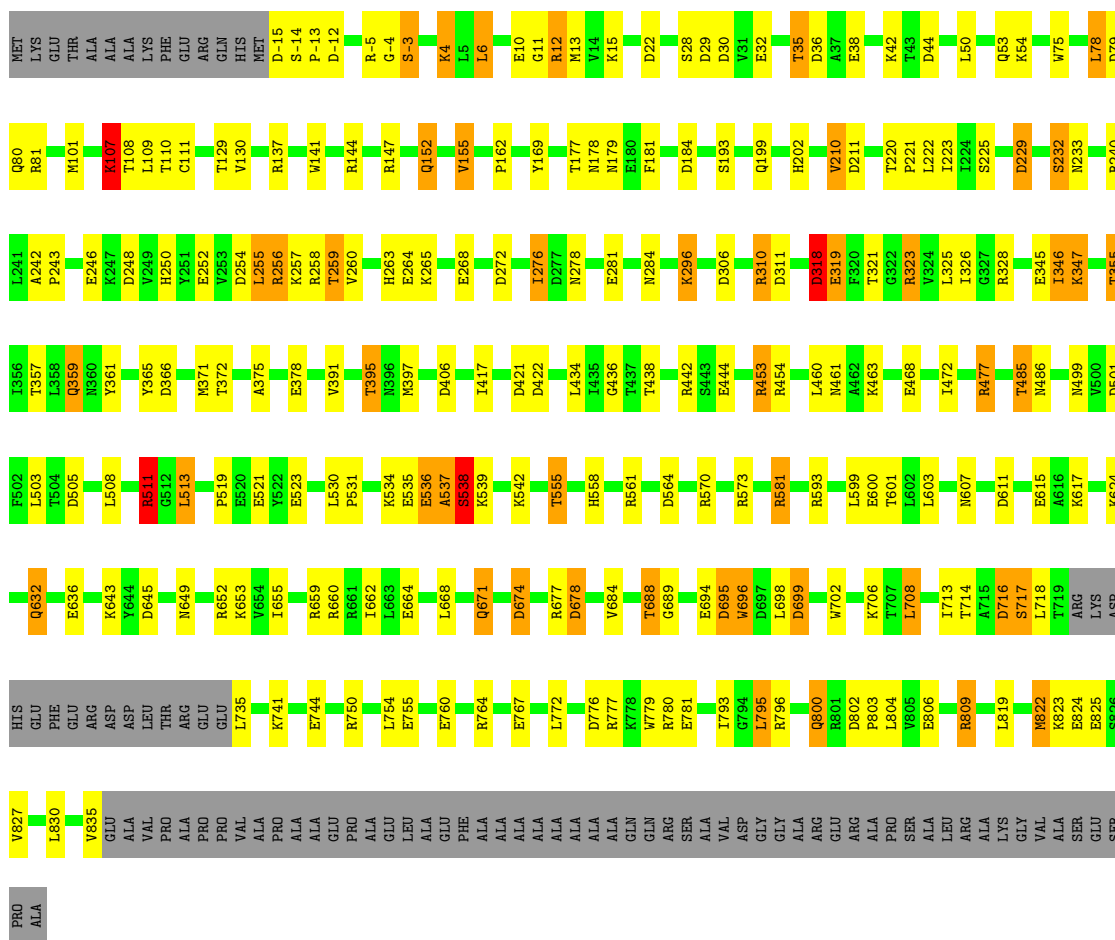
3 Residue-property plots i

These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. 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: Preprotein translocase secA 1 subunit

Chain A: 



- Molecule 1: Preprotein translocase secA 1 subunit

Chain B: 



VAL	P803	D689	D610	A348	I223	D84
ASP	L804	A700	D611	E349	I224	M101
GLY	V805	L701	P612	M350	S225	
GLY	E806	W702	P613	T355	A228	K107
ALA	Y807	T703	I614	I356	D229	T108
ARG	Q808	L708	E615	T357	G230	L109
GLU	R809		K617	L388		T110
ARG	E810		M618	Q899		
ALA		T714	D501	D366		
PRO	D813	A715	D716	K367		
SER	M818	S717	L718	L241		
LEU	I819	L719	Q692	A242		
ARG	D820	T719	Q633	P243		
ALA	G821	ARG		M871		
ALA	M822	LYS	R638	T372		
GLY	K823	ASP	K639	A375		
VAL	E824	HIS	K643	E381		
ALA	E825	GLU	E646	E384		
SER	S826	PHE	N649	K387		
GLU	V827	ARG	I532	T395		
PRO	L830	ASP	R652	M396		
ALA	V833	LEU	K653	M397		
	T834	THR	R659	M398		
	V835	ARG	R660	M399		
	G836	GLU	R661	D406		
	A837	GLU	E666	E413		
	V838	GLU	M667	I417		
	L839	ARG	L668	I417		
	V840	ASP	K669	E425		
	G841	LEU	D670	K429		
	L842	THR	R671	L434		
	V843	ARG	A672	I435		
	G844	GLU	L673	G436		
	A845	GLU	D674	T437		
	V846	PRO	M675	T438		
	L847	GLU	V676	F320		
	V848	LEU	R677	R323		
	G849	ALA	I680	I326		
	L850	ALA	T681	G327		
	V851	GLU	V684	E209		
	G852	PHE	D685	V210		
	A853	ALA	G686	R329		
	V854	ALA	A687	E342		
	L855	ALA	T688	R219		
	G856	ALA	V689	T220		
	A857	ALA	G690	P221		
	V858	ALA	E691	L346		
	L859	ALA	R694	K347		
	G860	ALA	D695			
	A861	ALA	M696			
	V862	ALA	A797			
	L863	ALA	A799			
	G864	ALA	Q800			
	A865	ALA	D802			
	V866	ALA				
	L867	ALA				
	G868	ALA				
	A869	ALA				
	V870	ALA				
	L871	ALA				
	G872	ALA				
	A873	ALA				
	V874	ALA				
	L875	ALA				
	G876	ALA				
	A877	ALA				
	V878	ALA				
	L879	ALA				
	G880	ALA				
	A881	ALA				
	V882	ALA				
	L883	ALA				
	G884	ALA				
	A885	ALA				
	V886	ALA				
	L887	ALA				
	G888	ALA				
	A889	ALA				
	V890	ALA				
	L891	ALA				
	G892	ALA				
	A893	ALA				
	V894	ALA				
	L895	ALA				
	G896	ALA				
	A897	ALA				
	V898	ALA				
	L899	ALA				
	G900	ALA				
	A901	ALA				
	V902	ALA				
	L903	ALA				
	G904	ALA				
	A905	ALA				
	V906	ALA				
	L907	ALA				
	G908	ALA				
	A909	ALA				
	V910	ALA				
	L911	ALA				
	G912	ALA				
	A913	ALA				
	V914	ALA				
	L915	ALA				
	G916	ALA				
	A917	ALA				
	V918	ALA				
	L919	ALA				
	G920	ALA				
	A921	ALA				
	V922	ALA				
	L923	ALA				
	G924	ALA				
	A925	ALA				
	V926	ALA				
	L927	ALA				
	G928	ALA				
	A929	ALA				
	V930	ALA				
	L931	ALA				
	G932	ALA				
	A933	ALA				
	V934	ALA				
	L935	ALA				
	G936	ALA				
	A937	ALA				
	V938	ALA				
	L939	ALA				
	G940	ALA				
	A941	ALA				
	V942	ALA				
	L943	ALA				
	G944	ALA				
	A945	ALA				
	V946	ALA				
	L947	ALA				
	G948	ALA				
	A949	ALA				
	V950	ALA				
	L951	ALA				
	G952	ALA				
	A953	ALA				
	V954	ALA				
	L955	ALA				
	G956	ALA				
	A957	ALA				
	V958	ALA				
	L959	ALA				
	G960	ALA				
	A961	ALA				
	V962	ALA				
	L963	ALA				
	G964	ALA				
	A965	ALA				
	V966	ALA				
	L967	ALA				
	G968	ALA				
	A969	ALA				
	V970	ALA				
	L971	ALA				
	G972	ALA				
	A973	ALA				
	V974	ALA				
	L975	ALA				
	G976	ALA				
	A977	ALA				
	V978	ALA				
	L979	ALA				
	G980	ALA				
	A981	ALA				
	V982	ALA				
	L983	ALA				
	G984	ALA				
	A985	ALA				
	V986	ALA				
	L987	ALA				
	G988	ALA				
	A989	ALA				
	V990	ALA				
	L991	ALA				
	G992	ALA				
	A993	ALA				
	V994	ALA				
	L995	ALA				
	G996	ALA				
	A997	ALA				
	V998	ALA				
	L999	ALA				
	G1000	ALA				

4 Data and refinement statistics

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

Property	Value	Source
Space group	P 62 2 2	Depositor
Cell constants a, b, c, α , β , γ	206.05Å 206.05Å 292.86Å 90.00° 90.00° 120.00°	Depositor
Resolution (Å)	95.35 – 2.60	Depositor
% Data completeness (in resolution range)	99.0 (95.35-2.60)	Depositor
R_{merge}	(Not available)	Depositor
R_{sym}	0.09	Depositor
Refinement program	REFMAC 5.1.25	Depositor
R, R_{free}	0.213 , 0.265	Depositor
Estimated twinning fraction	No twinning to report.	Xtrriage
Total number of atoms	13862	wwPDB-VP
Average B, all atoms (Å ²)	18.0	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: ADP, MG

The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 5$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.66	2/6734 (0.0%)	0.92	27/9102 (0.3%)
1	B	0.68	1/6734 (0.0%)	0.92	29/9102 (0.3%)
All	All	0.67	3/13468 (0.0%)	0.92	56/18204 (0.3%)

All (3) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	511	ARG	C-N	6.67	1.45	1.33
1	B	511	ARG	NE-CZ	6.06	1.41	1.33
1	A	513	LEU	CB-CG	5.59	1.68	1.52

The worst 5 of 56 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	79	ASP	CB-CG-OD2	7.64	125.18	118.30
1	A	318	ASP	CB-CG-OD2	7.41	124.96	118.30
1	B	79	ASP	CB-CG-OD2	7.12	124.71	118.30
1	A	505	ASP	CB-CG-OD2	7.03	124.63	118.30
1	B	84	ASP	CB-CG-OD2	6.83	124.44	118.30

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	6630	0	6581	136	0
1	B	6630	0	6581	151	0
2	A	1	0	0	0	0
2	B	1	0	0	0	0
3	A	27	0	12	0	0
3	B	27	0	12	1	0
4	A	246	0	0	35	0
4	B	300	0	0	42	0
All	All	13862	0	13186	282	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 282 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:11:GLY:HA2	4:A:1387:HOH:O	1.53	1.08
1:A:809:ARG:HH11	1:A:809:ARG:HB3	1.26	1.00
1:A:107:LYS:HD3	4:A:1370:HOH:O	1.62	0.98
1:A:107:LYS:CD	4:A:1370:HOH:O	2.14	0.95
1:A:660:ARG:HG2	4:A:1349:HOH:O	1.66	0.93

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	832/922 (90%)	781 (94%)	41 (5%)	10 (1%)	13 27
1	B	832/922 (90%)	784 (94%)	43 (5%)	5 (1%)	25 47
All	All	1664/1844 (90%)	1565 (94%)	84 (5%)	15 (1%)	17 35

5 of 15 Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	319	GLU
1	A	486	ASN
1	A	538	SER
1	A	689	GLY
1	A	695	ASP

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	697/755 (92%)	592 (85%)	105 (15%)	3	4
1	B	697/755 (92%)	594 (85%)	103 (15%)	3	5
All	All	1394/1510 (92%)	1186 (85%)	208 (15%)	3	5

5 of 208 residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	B	50	LEU
1	B	347	LYS
1	B	754	LEU
1	B	130	VAL
1	B	258	ARG

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 28 such sidechains are listed below:

Mol	Chain	Res	Type
1	B	80	GLN
1	B	671	GLN
1	B	152	GLN
1	B	558	HIS
1	B	146	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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 4 ligands modelled in this entry, 2 are monoatomic - leaving 2 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
3	ADP	A	900	2	24,29,29	1.34	3 (12%)	29,45,45	1.74	3 (10%)
3	ADP	B	901	2	24,29,29	1.31	3 (12%)	29,45,45	1.69	4 (13%)

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	ADP	A	900	2	-	4/12/32/32	0/3/3/3
3	ADP	B	901	2	-	2/12/32/32	0/3/3/3

The worst 5 of 6 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
3	B	901	ADP	C2-N3	4.26	1.39	1.32
3	A	900	ADP	C2-N3	4.18	1.38	1.32
3	B	901	ADP	C2-N1	2.99	1.39	1.33
3	A	900	ADP	C2-N1	2.65	1.38	1.33
3	B	901	ADP	PB-O3B	2.36	1.63	1.54

The worst 5 of 7 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
3	A	900	ADP	N3-C2-N1	-6.55	118.44	128.68
3	B	901	ADP	N3-C2-N1	-5.50	120.07	128.68
3	B	901	ADP	O3B-PB-O3A	3.48	116.32	104.64
3	A	900	ADP	O3A-PB-O1B	-3.36	92.56	111.19
3	B	901	ADP	O3A-PB-O1B	-3.26	93.11	111.19

There are no chirality outliers.

5 of 6 torsion outliers are listed below:

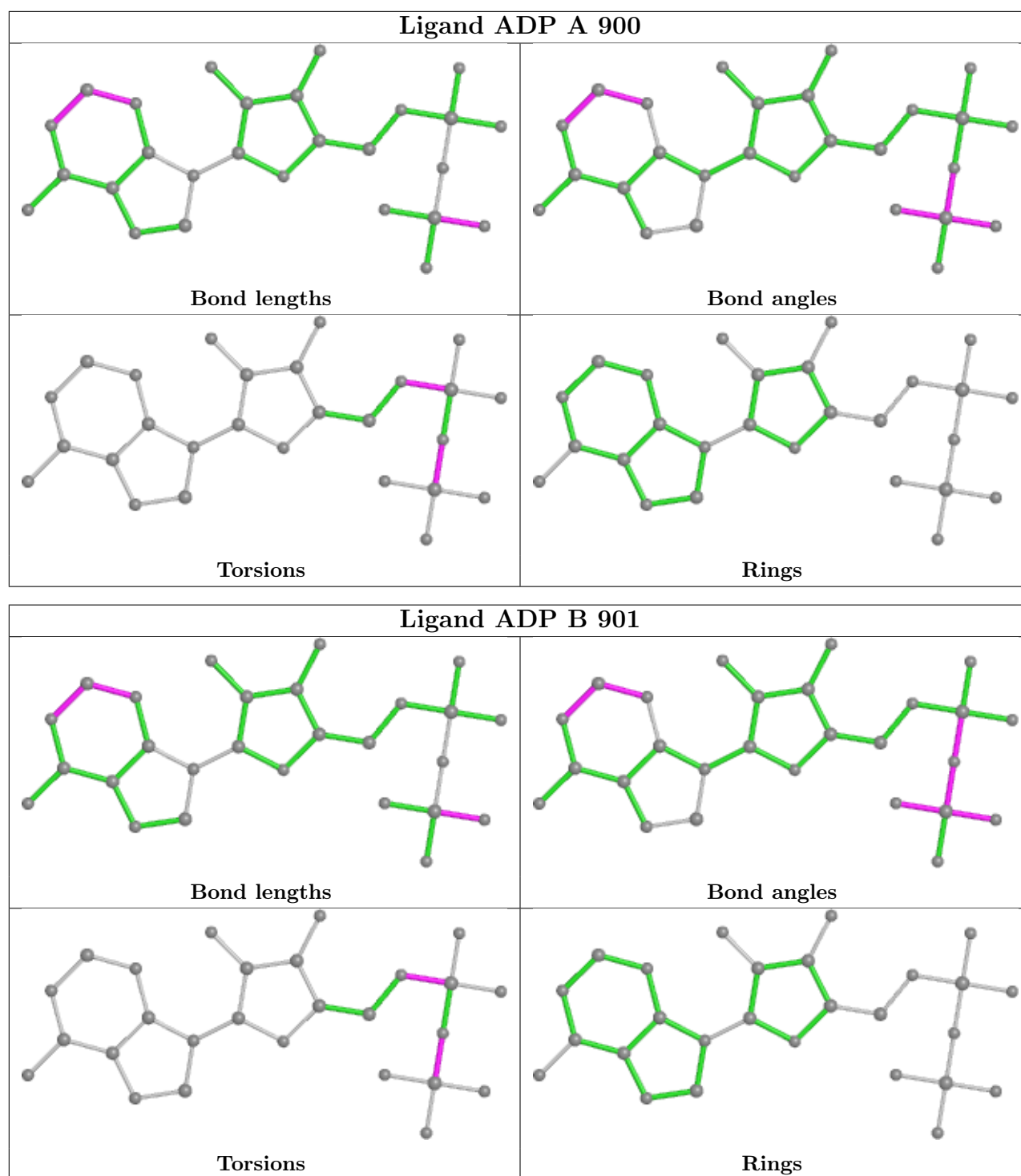
Mol	Chain	Res	Type	Atoms
3	A	900	ADP	PA-O3A-PB-O2B
3	B	901	ADP	PA-O3A-PB-O1B
3	A	900	ADP	PA-O3A-PB-O1B
3	A	900	ADP	PA-O3A-PB-O3B
3	A	900	ADP	C5'-O5'-PA-O1A

There are no ring outliers.

1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	901	ADP	1	0

The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less than 5% of the Mogul distribution of torsion angles is within 10 degrees of the torsion angle in question, then that torsion angle is considered an outlier. Any bond that is central to one or more torsion angles identified as an outlier by Mogul will be highlighted in the graph. For rings, the root-mean-square deviation (RMSD) between the ring in question and similar rings identified by Mogul is calculated over all ring torsion angles. If the average RMSD is greater than 60 degrees and the minimal RMSD between the ring in question and any Mogul-identified rings is also greater than 60 degrees, then that ring is considered an outlier. The outliers are highlighted in purple. The color gray indicates Mogul did not find sufficient equivalents in the CSD to analyse the geometry.



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

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.