Full wwPDB X-ray Structure Validation Report (i)

Aug 20, 2023 – 06:20 PM EDT

PDB ID : 2O8E
Title : human MutSalpha (MSH2/MSH6) bound to a G T mispair, with ADP bound to MSH2 only
Authors : Warren, J.J.; Pohlhaus, T.J.; Changela, A.; Modrich, P.L.; Beese, L.S.
Deposited on : 2006-12-12
Resolution : 3.30 Å(reported)

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

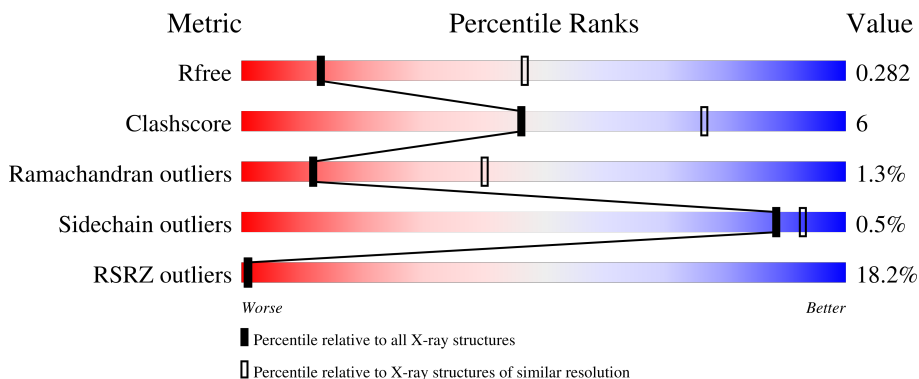|		
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.35
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.35

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 3.30 Å.

Percentile scores (ranging between 0-100) for global validation metrics of the entry are shown in the following graphic. The table shows the number of entries on which the scores are based.

Metric	Percentile Ranks	Value
Rfree		0.282
Clashscore		6
Ramachandran outliers		1.3%
Sidechain outliers		0.5%
RSRZ outliers		18.2%

Worse   *Better*

▌ Percentile relative to all X-ray structures

▯ Percentile relative to X-ray structures of similar resolution

Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R$_{free}$	130704	1149 (3.34-3.26)
Clashscore	141614	1205 (3.34-3.26)
Ramachandran outliers	138981	1183 (3.34-3.26)
Sidechain outliers	138945	1182 (3.34-3.26)
RSRZ outliers	127900	1115 (3.34-3.26)

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 <=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	E	15	7% 33% 60% 7%
2	F	15	7% 73% 20% 7%
3	A	934	24% 77% 11% 12%
4	B	1022	10% 73% 18% 9%

WORLDWIDE wwPDB PROTEIN DATA BANK

2 Entry composition ⓘ

There are 7 unique types of molecules in this entry. The entry contains 14587 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 DNA chain called 5'-D(*GP*AP*AP*CP*CP*GP*CP*GP*GP*GP*CP*TP*AP*GP*G)-3'.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	E	15	Total 310	C 146	N 64	O 86	P 14	0	0	0

- Molecule 2 is a DNA chain called 5'-D(*CP*CP*TP*AP*GP*CP*CP*TP*GP*CP*GP*GP*TP*TP*C)-3'.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
2	F	15	Total 300	C 144	N 51	O 91	P 14	0	0	0

- Molecule 3 is a protein called DNA mismatch repair protein Msh2.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
3	A	824	Total 6474	C 4105	N 1102	O 1233	S 34	0	0	0

There is a discrepancy between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	42	ALA	PHE	engineered mutation	UNP P43246

- Molecule 4 is a protein called DNA mismatch repair protein MSH6.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
4	B	935	Total 7465	C 4736	N 1281	O 1397	S 51	0	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
B	339	MET	-	initiating methionine	UNP P52701

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Chain	Residue	Modelled	Actual	Comment	Reference
B	340	GLY	-	cloning artifact	UNP P52701

- Molecule 5 is MAGNESIUM ION (three-letter code: MG) (formula: Mg).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	1	Total	Mg	0	0
			1	1		

- Molecule 6 is ADENOSINE-5'-DIPHOSPHATE (three-letter code: ADP) (formula: $C_{10}H_{15}N_5O_{10}P_2$).

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

- Molecule 7 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
7	B	10	Total	O	0	0
			10	10		

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: 5'-D(*GP*AP*AP*CP*CP*GP*CP*GP*GP*GP*CP*TP*AP*GP*G)-3'

Chain E:

- Molecule 2: 5'-D(*CP*CP*TP*AP*GP*CP*CP*TP*GP*CP*GP*GP*TP*TP*C)-3'

Chain F:

- Molecule 3: DNA mismatch repair protein Msh2

Chain A:

R524 V525 T526 C527 V532 L533 R534 N535 N538 F539 S540 T541 V542 D543 I544 Q545 K546 V549 K550 F551 T552 L556 N560 E580 I581 I584 S585 S586 G587 Y588 V589 E590 P591 M592 Q593 T594 L595 V598 Q601 L602 V605 V606 S607 F608 V611 P622 K627

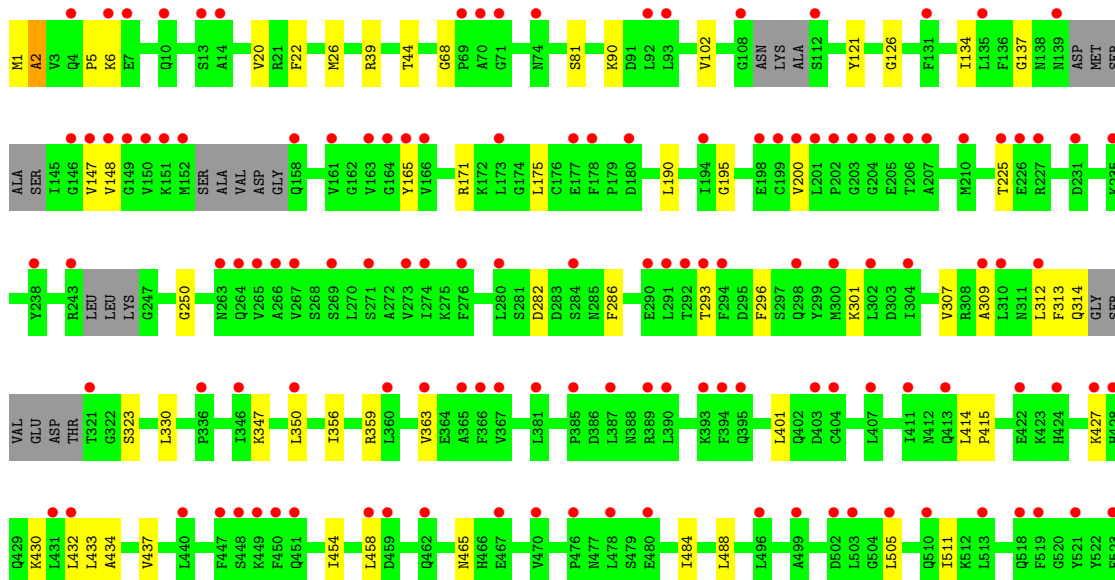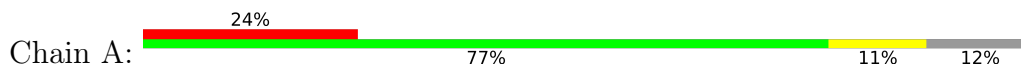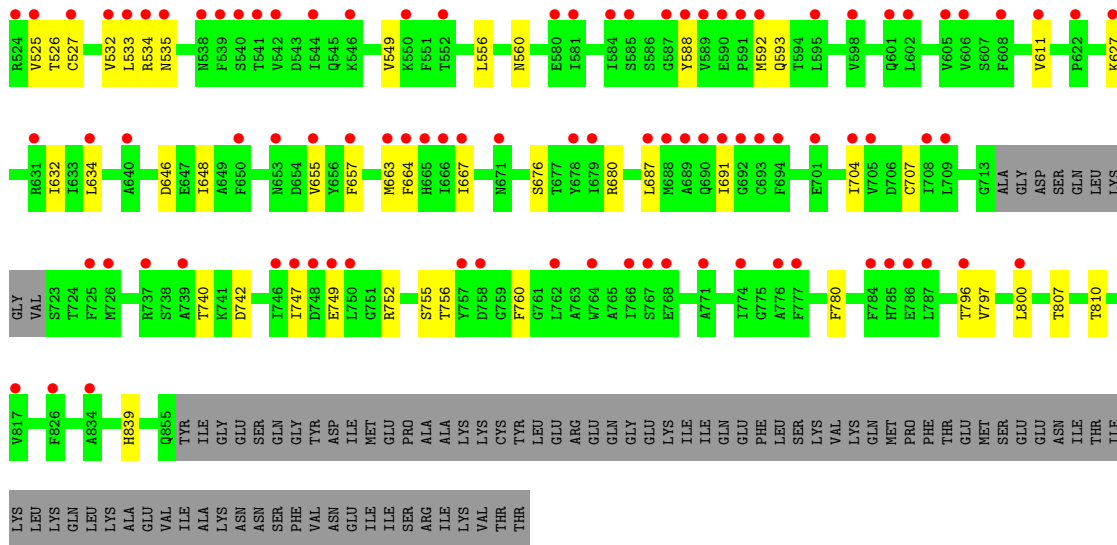R631 I632 I633 L634 A640 D646 E647 I648 A649 F650 N653 D654 V655 Y656 F657 M663 F664 H665 I666 I667 N671 S676 T677 Y678 I679 R680 L687 M688 A689 Q690 I691 G692 C693 F694 E701 I704 V705 D706 C707 I708 L709 G713 ALA GLY ASP SER GLN LEU LYS

GLY VAL S723 T724 F725 M726 R737 S738 A739 T740 K741 D742 I746 I747 D748 E749 L750 G751 R752 S755 T756 Y757 D758 G759 F760 G761 L762 A763 W764 A765 I766 S767 E768 A771 I774 G775 A776 F777 F780 F784 H785 E786 L787 T796 V797 L800 T807 T810

V817 F826 A834 H839 Q856 TYR ILE GLY GLU SER GLN GLY TYR ASP ILE MET GLU PRO ALA ALA LYS LYS CYS TYR LEU GLU ARG GLU GLN GLY GLU LYS ILE ILE GLN GLU PHE LEU SER LYS VAL LYS GLN MET PRO PHE THR GLU MET SER GLU GLU ASN ILE THR ILE

LYS LEU LYS GLN LEU LYS ALA GLU VAL ILE ALA LYS ASN ASN SER PHE VAL ASN GLU ILE ILE SER ARG ILE LYS VAL THR THR

• Molecule 4: DNA mismatch repair protein MSH6

Chain B:

MET GLY SER ALA PRO GLN ASN SER GLU GLN SER GLN ALA HIS VAL SER GLY GLY ASP ASP SER SER ARG P362 E375 E376 K377 R378 R379 D380 E381 H382 R383 R384 R385 P386 T395 L396 Y397 I416 L423 C426 Y427 K428 K431 F432 Y433 M438 D439 M452 K476

A481 E484 Q485 T486 E487 T488 M491 C496 M499 R511 E512 I513 C514 R515 I516 I517 T518 Y524 P531 L542 K543 E544 K545 E546 E547 D548 S549 S550 GLY H552 T553 R554 A555 F569 D575 D576 R577 L585 V586 Q593 E604 T605 L609 K610 S611

S612 L613 L617 Q618 T633 L637 E641 R644 L647 S648 D649 G650 I651 GLY V653 L659 M662 S668 L679 C694 L695 E699 Y709 S714 D715 T716 V717 S718 THR THR ARG SER GLY ALA ILE PHE THR K728 A729 Y730 Q731 R732 M733 I745 F746

L747 N748 G752 S753 T754 E755 G756 T757 L758 F769 L782 C783 I788 L792 I795 E796 D797 L798 V801 L821 L822 I825 H826 N827 V828 G829 S830 P831 S834 Q835 N836 H837 P838 D839 S840 R841 F865 M868 V878 A879 F882 K883 S884 L887 K888

Q889 V890 I891 S892 N897 P898 E899 G900 R901 T924 G925 K930 A931 G932 F933 ASP S935 D936 Y937 Q938 D939 A940 R945 Q949 L952 E953 Y954 L955 E956 K957 Q958 R959 I962 I967 V968 Y969 Y977 Q978 I981 P982 F985 N989 L990 P991 GLU E993 T999

K1000 C1003 K1004 R1005 Y1006 W1007 T1008 K1009 T1010 I1011 L1015 R1024 R1025 D1026 R1034 R1035 W1047 I1054 L1061 A1064 I1079 T1085 P1086 L1091 T1100 LYS THR PHE F1104 F1108 I1109 I1113 L1114 L1115 E123 ASN G1125 K1126 A1127 Y1128 C1129 V1130 L1131 V1132 T1133

G1134 P1135 N1136 M1137 M1144 R1145 Q1146 L1149 V1152 M1153 A1154 Q1155 M1156 G1157 V1160 P1161 I1170 F1174 T1175 R1176 L1177 G1178 ALA SER ASP ARG ILE MET SER GLY GLU S1188 T1189 F1190 E1193 L1209 V1210 L1211 V1212 D1213 E1214 L1215 G1216 R1217 G1218 I1227 V1231 V1232 K1233 E1234

L1235 A1236 E1237 T1238 C1241 R1242 T1243 L1244 F1245 S1246 T1247 H1248 S1257 Q1258 N1259 V1260 A1261 V1262 R1263 L1264 M1267 M1270 VAL GLU ASN GLU CYS GLU ASP SER PRO SER GLN GLU THR ILE T1284 F1285 L1286 Y1287 K1288 F1289 K1296 S1297 Y1298 L1308 P1309 E1310 E1311 V1312 I1313 S1329 L1330 R1331

L1332 F1333 R1334 E1335 VAL CYS LEU ALA SER GLU ARG SER THR VAL ASP ALA GLU ALA VAL HIS LYS LEU LEU THR LEU ILE LYS GLU LEU

4 Data and refinement statistics ⓘ

Property	Value	Source
Space group	P 43 3 2	Depositor
Cell constants a, b, c, α, β, γ	257.51Å 257.51Å 257.51Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	20.00 – 3.30 91.04 – 3.30	Depositor EDS
% Data completeness (in resolution range)	98.5 (20.00-3.30) 98.4 (91.04-3.30)	Depositor EDS
R_{merge}	0.10	Depositor
R_{sym}	0.10	Depositor
$< I/\sigma(I) >$ [1]	3.22 (at 3.33Å)	Xtriage
Refinement program	REFMAC	Depositor
R, R_{free}	0.253 , 0.291 0.243 , 0.282	Depositor DCC
R_{free} test set	2230 reflections (5.11%)	wwPDB-VP
Wilson B-factor (Å^2)	91.6	Xtriage
Anisotropy	0.000	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.30 , 151.6	EDS
L-test for twinning[2]	$< |L| > = 0.43, < L^2 > = 0.26$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.87	EDS
Total number of atoms	14587	wwPDB-VP
Average B, all atoms (Å^2)	103.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 1.45% of the height of the origin peak. No significant pseudotranslation is detected.*

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[1]Intensities estimated from amplitudes.
[2]Theoretical values of $< |L| >$, $< L^2 >$ 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: 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	E	0.75	0/349	1.61	12/538 (2.2%)
2	F	0.65	0/334	1.40	4/513 (0.8%)
3	A	0.32	0/6575	0.58	0/8866
4	B	0.48	1/7609 (0.0%)	0.71	1/10254 (0.0%)
All	All	0.43	1/14867 (0.0%)	0.72	17/20171 (0.1%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	B	993	GLU	CD-OE2	6.76	1.33	1.25

All (17) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	E	14	DG	O4'-C1'-N9	7.45	113.21	108.00
1	E	1	DG	O4'-C1'-N9	6.80	112.76	108.00
1	E	1	DG	P-O3'-C3'	6.52	127.52	119.70
1	E	4	DC	P-O3'-C3'	6.43	127.42	119.70
4	B	756	GLY	N-CA-C	-6.16	97.70	113.10
1	E	4	DC	O4'-C1'-N1	6.14	112.30	108.00
1	E	14	DG	O4'-C1'-C2'	-5.94	101.15	105.90
1	E	8	DG	O4'-C1'-N9	-5.88	103.89	108.00
1	E	1	DG	C3'-C2'-C1'	-5.72	95.63	102.50
1	E	13	DA	P-O3'-C3'	5.68	126.52	119.70
2	F	21	DC	P-O3'-C3'	5.63	126.46	119.70
2	F	21	DC	O4'-C4'-C3'	-5.63	102.25	104.50
1	E	11	DC	C1'-O4'-C4'	-5.55	104.55	110.10
2	F	16	DC	O4'-C1'-N1	5.38	111.77	108.00
1	E	14	DG	C3'-C2'-C1'	-5.37	96.06	102.50
1	E	12	DT	N3-C4-O4	5.30	123.08	119.90

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Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	F	25	DC	O4'-C1'-C2'	-5.05	101.86	105.90

There are no chirality outliers.

There are no planarity outliers.

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	E	310	0	168	4	0
2	F	300	0	171	2	0
3	A	6474	0	6500	62	0
4	B	7465	0	7444	120	0
5	A	1	0	0	0	0
6	A	27	0	12	0	0
7	B	10	0	0	1	0
All	All	14587	0	14295	182	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 6.

All (182) 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)
4:B:1133:THR:HB	4:B:1134:GLY:HA3	1.36	1.07
4:B:554:ARG:HH22	4:B:604:GLU:HG3	1.39	0.85
4:B:1133:THR:HB	4:B:1134:GLY:CA	2.06	0.84
4:B:945:ARG:HD2	4:B:1024:ARG:HH12	1.44	0.82
4:B:1133:THR:CB	4:B:1134:GLY:HA3	2.10	0.82
4:B:868:MET:HG2	4:B:1054:ILE:HD12	1.66	0.76
4:B:380:ASP:HB3	4:B:382:HIS:H	1.51	0.75
4:B:897:ASN:HB3	4:B:901:ARG:HH21	1.53	0.73
4:B:795:ILE:HG23	4:B:1064:ALA:HA	1.72	0.71
4:B:699:GLU:HB3	4:B:827:ASN:OD1	1.90	0.71
4:B:385:ARG:HD2	4:B:386:PRO:HD2	1.73	0.70
4:B:544:GLU:OE2	4:B:605:THR:OG1	2.08	0.68

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:B:380:ASP:HB2	4:B:384:ARG:H	1.58	0.68
4:B:897:ASN:HB3	4:B:901:ARG:NH2	2.10	0.66
3:A:525:VAL:HG12	3:A:526:THR:H	1.61	0.66
4:B:930:LYS:H	4:B:930:LYS:HD2	1.61	0.65
4:B:932:GLY:HA2	4:B:936:ASP:H	1.62	0.65
3:A:5:PRO:HB3	3:A:81:SER:HB3	1.78	0.65
4:B:930:LYS:HD2	4:B:930:LYS:N	2.12	0.65
4:B:496:CYS:HA	4:B:499:MET:HG2	1.79	0.65
4:B:1176:ARG:HE	4:B:1193:GLU:HG3	1.61	0.64
4:B:385:ARG:CD	4:B:386:PRO:HD2	2.28	0.64
3:A:430:LYS:HA	3:A:433:LEU:HB2	1.80	0.64
3:A:359:ARG:NH2	3:A:691:ILE:O	2.32	0.63
4:B:888:LYS:O	4:B:892:SER:OG	2.17	0.63
3:A:350:LEU:HB2	3:A:356:ILE:HG12	1.80	0.61
4:B:641:GLU:HB3	4:B:644:ARG:HG3	1.82	0.61
4:B:381:GLU:HB2	4:B:395:THR:HB	1.82	0.61
3:A:39:ARG:HE	3:A:44:THR:HG21	1.66	0.60
4:B:1153:MET:HB3	4:B:1160:VAL:HG12	1.84	0.60
4:B:1235:LEU:HD21	4:B:1243:THR:HG21	1.84	0.59
1:E:4:DC:H2'	1:E:5:DC:C6	2.38	0.59
4:B:936:ASP:HA	4:B:939:GLN:HB3	1.85	0.58
4:B:1176:ARG:NE	4:B:1193:GLU:HG3	2.18	0.58
4:B:898:PRO:O	4:B:899:GLU:HG3	2.03	0.58
4:B:518:THR:HG21	4:B:593:GLN:NE2	2.19	0.58
4:B:644:ARG:O	4:B:648:SER:HB3	2.04	0.57
4:B:380:ASP:O	4:B:397:TYR:HB2	2.03	0.57
4:B:798:LEU:HD13	4:B:1061:LEU:HD23	1.87	0.57
4:B:747:LEU:HA	4:B:757:THR:HG21	1.86	0.56
3:A:588:TYR:O	3:A:592:MET:HG2	2.06	0.56
3:A:505:LEU:HD12	3:A:511:ILE:HD11	1.87	0.56
4:B:733:MET:HE1	4:B:1152:VAL:HG22	1.87	0.56
4:B:484:GLU:HB2	4:B:514:CYS:SG	2.46	0.56
3:A:309:ALA:O	3:A:680:ARG:HD2	2.07	0.55
4:B:423:LEU:HD13	4:B:481:ALA:HB2	1.88	0.55
4:B:745:ILE:HD11	4:B:1152:VAL:HG21	1.88	0.55
3:A:430:LYS:C	3:A:432:LEU:H	2.10	0.55
4:B:981:ILE:HD11	4:B:985:PHE:HB2	1.87	0.55
4:B:836:ASN:O	4:B:841:ARG:NH2	2.38	0.55
4:B:1007:TRP:H	4:B:1011:ILE:HD12	1.72	0.55
4:B:585:LEU:HD12	4:B:709:TYR:CE2	2.43	0.54
3:A:414:LEU:N	3:A:415:PRO:HD2	2.23	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:B:380:ASP:HB2	4:B:384:ARG:N	2.24	0.53
4:B:381:GLU:HB2	4:B:395:THR:CB	2.37	0.53
3:A:634:LEU:HB2	3:A:655:VAL:HB	1.90	0.53
4:B:829:GLY:HA2	4:B:1034:ARG:HG2	1.90	0.53
3:A:664:PHE:HB3	3:A:797:VAL:HG22	1.91	0.53
4:B:868:MET:CG	4:B:1054:ILE:HD12	2.38	0.53
4:B:1025:ARG:HG3	4:B:1026:ASP:N	2.22	0.52
4:B:575:ASP:OD1	4:B:576:ASP:N	2.40	0.52
4:B:496:CYS:HA	4:B:499:MET:CG	2.39	0.52
4:B:887:LEU:O	4:B:891:ILE:HG12	2.10	0.51
4:B:890:VAL:HG23	4:B:891:ILE:HG23	1.92	0.51
4:B:1234:GLU:HG3	4:B:1238:THR:HB	1.92	0.51
1:E:7:DC:H2"	4:B:431:LYS:HD2	1.92	0.51
4:B:782:LEU:O	4:B:1155:GLN:NE2	2.40	0.51
4:B:586:VAL:HG11	4:B:613:LEU:HD11	1.93	0.51
4:B:897:ASN:O	4:B:901:ARG:NE	2.44	0.51
3:A:20:VAL:HG21	3:A:68:GLY:HA2	1.93	0.51
3:A:755:SER:HA	4:B:1248:HIS:HB3	1.92	0.51
4:B:899:GLU:O	4:B:901:ARG:NH1	2.44	0.51
4:B:1175:THR:HG22	4:B:1211:LEU:HD12	1.93	0.51
4:B:609:LEU:HB3	4:B:618:GLN:HE21	1.76	0.50
4:B:889:GLN:HA	4:B:901:ARG:HD3	1.92	0.50
4:B:633:THR:O	4:B:637:LEU:HG	2.12	0.50
4:B:488:THR:OG1	4:B:491:MET:HG3	2.12	0.50
4:B:545:LYS:HE3	4:B:679:LEU:HD21	1.93	0.50
4:B:516:ILE:HB	4:B:694:CYS:HA	1.92	0.50
4:B:1085:THR:HB	4:B:1086:PRO:HD2	1.93	0.49
4:B:949:GLN:HA	4:B:952:LEU:HB3	1.94	0.49
3:A:687:LEU:O	3:A:691:ILE:HG13	2.12	0.49
3:A:90:LYS:NZ	3:A:134:ILE:O	2.45	0.49
4:B:1109:ILE:HD12	4:B:1287:TYR:HB2	1.93	0.49
3:A:330:LEU:HA	3:A:611:VAL:HG21	1.93	0.49
3:A:511:ILE:HG12	3:A:525:VAL:HG22	1.95	0.48
2:F:22:DC:H2"	4:B:452:MET:HE3	1.95	0.48
3:A:359:ARG:O	3:A:363:VAL:HG23	2.14	0.48
3:A:740:THR:HG23	3:A:742:ASP:H	1.78	0.48
4:B:428:LYS:HD2	4:B:484:GLU:OE2	2.14	0.48
3:A:454:ILE:HG23	3:A:458:LEU:HD13	1.96	0.48
4:B:585:LEU:C	4:B:585:LEU:HD23	2.34	0.48
3:A:307:VAL:HG22	3:A:312:LEU:HD12	1.97	0.47
4:B:958:GLN:O	4:B:962:ILE:HG13	2.14	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
4:B:1215:LEU:HD21	4:B:1231:VAL:HG21	1.96	0.47
3:A:646:ASP:HB3	3:A:648:ILE:HG13	1.97	0.47
4:B:644:ARG:HG2	4:B:653:VAL:HG11	1.96	0.47
4:B:801:VAL:HG21	4:B:878:VAL:HG21	1.97	0.47
3:A:401:LEU:HD11	3:A:458:LEU:HD11	1.95	0.47
3:A:839:HIS:NE2	4:B:1234:GLU:OE1	2.47	0.47
4:B:1137:MET:SD	4:B:1267:MET:HG2	2.54	0.47
4:B:1176:ARG:O	4:B:1176:ARG:HG3	2.14	0.47
4:B:1233:LYS:O	4:B:1237:GLU:HB3	2.14	0.47
1:E:5:DC:H2'	1:E:6:DG:C8	2.50	0.46
3:A:126:GLY:HA3	3:A:147:VAL:HG23	1.98	0.46
3:A:756:THR:O	3:A:760:PHE:HB3	2.15	0.46
4:B:524:TYR:CE1	4:B:531:PRO:HA	2.50	0.46
3:A:556:LEU:HD23	3:A:560:ASN:HB2	1.98	0.46
4:B:792:LEU:HG	4:B:1157:GLY:HA2	1.96	0.46
4:B:1175:THR:HB	4:B:1177:LEU:HG	1.98	0.46
4:B:611:SER:OG	4:B:612:SER:N	2.45	0.46
4:B:797:ASP:HB3	4:B:882:PHE:CD1	2.51	0.46
3:A:200:VAL:HA	3:A:225:THR:O	2.16	0.46
3:A:667:ILE:HG12	3:A:800:LEU:HB2	1.97	0.45
4:B:1113:ILE:HD11	4:B:1146:GLN:HE21	1.80	0.45
4:B:754:THR:C	4:B:755:GLU:HG3	2.36	0.45
3:A:313:PHE:HZ	3:A:347:LYS:HG3	1.82	0.45
4:B:1214:GLU:OE1	4:B:1217:ARG:HD3	2.16	0.45
3:A:307:VAL:HG13	3:A:312:LEU:HB2	1.99	0.45
4:B:936:ASP:O	4:B:940:ALA:N	2.44	0.45
4:B:830:SER:HA	4:B:831:PRO:HD3	1.83	0.45
4:B:930:LYS:H	4:B:930:LYS:CD	2.27	0.44
4:B:484:GLU:O	4:B:511:ARG:HA	2.17	0.44
3:A:22:PHE:O	3:A:26:MET:HG3	2.18	0.44
3:A:663:MET:HB2	3:A:796:THR:HB	2.00	0.44
3:A:632:ILE:HB	3:A:657:PHE:HB2	1.99	0.44
3:A:175:LEU:H	3:A:293:THR:HG21	1.83	0.44
4:B:967:ILE:HG12	4:B:981:ILE:HB	1.99	0.43
3:A:532:VAL:O	3:A:533:LEU:HB2	2.18	0.43
3:A:484:ILE:O	3:A:488:LEU:HG	2.18	0.43
3:A:1:MET:O	3:A:2:ALA:HB3	2.19	0.43
3:A:301:LYS:HB2	3:A:707:CYS:HB3	2.01	0.43
3:A:427:LYS:HA	3:A:430:LYS:HB2	2.00	0.43
3:A:807:THR:HB	3:A:810:THR:HB	2.01	0.43
4:B:659:LEU:HD23	4:B:662:MET:HG3	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:39:ARG:HE	3:A:44:THR:CG2	2.30	0.43
4:B:822:LEU:HD23	4:B:822:LEU:HA	1.88	0.43
4:B:838:PRO:C	4:B:840:SER:H	2.22	0.43
3:A:313:PHE:CZ	3:A:347:LYS:HG3	2.54	0.43
4:B:865:PHE:CZ	4:B:1047:TRP:HB3	2.54	0.43
3:A:434:ALA:HA	3:A:437:VAL:HB	1.99	0.43
4:B:375:GLU:HG2	4:B:378:ARG:CZ	2.49	0.43
4:B:924:THR:HB	4:B:925:GLY:H	1.59	0.43
4:B:379:ARG:HD3	4:B:383:ARG:O	2.18	0.42
4:B:748:ASN:H	4:B:757:THR:HG21	1.84	0.42
4:B:879:ALA:HA	4:B:882:PHE:CD2	2.54	0.42
4:B:999:THR:OG1	4:B:1000:LYS:N	2.51	0.42
4:B:376:GLU:H	4:B:376:GLU:HG3	1.59	0.42
4:B:438:MET:CG	4:B:439:ASP:H	2.33	0.42
4:B:731:GLN:HB2	4:B:783:CYS:SG	2.59	0.42
4:B:758:LEU:HD22	4:B:1149:LEU:HD22	2.02	0.42
4:B:897:ASN:O	4:B:901:ARG:CZ	2.68	0.42
3:A:747:ILE:HB	3:A:780:PHE:HD1	1.83	0.42
4:B:882:PHE:CE2	4:B:891:ILE:HD11	2.54	0.42
3:A:556:LEU:O	3:A:560:ASN:N	2.50	0.42
4:B:769:PHE:HE1	4:B:1054:ILE:HG22	1.84	0.42
3:A:148:VAL:HG12	3:A:165:TYR:HB3	2.02	0.42
3:A:313:PHE:O	3:A:314:GLN:HG3	2.19	0.42
4:B:695:LEU:HA	4:B:695:LEU:HD23	1.73	0.42
3:A:190:LEU:HD11	3:A:296:PHE:HB2	2.01	0.42
4:B:416:ILE:HG23	4:B:513:ILE:HD11	2.01	0.42
3:A:282:ASP:HB2	3:A:286:PHE:CE2	2.54	0.41
4:B:1177:LEU:HA	4:B:1213:ASP:HB3	2.02	0.41
3:A:102:VAL:HB	3:A:121:TYR:HB2	2.02	0.41
4:B:694:CYS:O	4:B:695:LEU:HB2	2.21	0.41
4:B:378:ARG:HD3	7:B:47:HOH:O	2.19	0.41
4:B:428:LYS:HE3	4:B:433:TYR:CZ	2.55	0.41
3:A:430:LYS:HG2	3:A:433:LEU:HB2	2.02	0.41
3:A:527:CYS:HA	3:A:549:VAL:HG23	2.02	0.41
4:B:1003:CYS:SG	4:B:1005:ARG:NH1	2.93	0.41
4:B:1144:MET:O	4:B:1211:LEU:HD13	2.21	0.41
3:A:1:MET:H2	4:B:476:LYS:HG3	1.85	0.41
4:B:821:LEU:O	4:B:825:ILE:HG13	2.21	0.41
4:B:1008:THR:O	4:B:1010:THR:N	2.54	0.41
3:A:627:LYS:HA	3:A:704:ILE:HB	2.03	0.41
3:A:534:ARG:HG3	3:A:535:ASN:H	1.86	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
3:A:430:LYS:C	3:A:432:LEU:N	2.74	0.40
4:B:593:GLN:HG3	4:B:617:LEU:HB2	2.02	0.40
1:E:5:DC:C2'	1:E:6:DG:C8	3.04	0.40
2:F:25:DC:O5'	3:A:6:LYS:HD3	2.20	0.40
3:A:171:ARG:HE	3:A:593:GLN:HE22	1.68	0.40
3:A:676:SER:O	3:A:680:ARG:HG3	2.22	0.40

There are no symmetry-related clashes.

5.3 Torsion angles ⓘ

5.3.1 Protein backbone ⓘ

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	
3	A	810/934 (87%)	725 (90%)	78 (10%)	7 (1%)	17	48
4	B	915/1022 (90%)	813 (89%)	86 (9%)	16 (2%)	9	35
All	All	1725/1956 (88%)	1538 (89%)	164 (10%)	23 (1%)	12	40

All (23) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
4	B	753	SER
3	A	749	GLU
4	B	650	GLY
4	B	834	SER
4	B	931	ALA
4	B	1009	LYS
4	B	1161	PRO
4	B	714	SER
4	B	752	GLY
4	B	1296	LYS
3	A	137	GLY
4	B	745	ILE

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Mol	Chain	Res	Type
3	A	2	ALA
3	A	465	ASN
4	B	898	PRO
4	B	1133	THR
3	A	323	SER
4	B	1135	PRO
4	B	1331	ARG
3	A	250	GLY
4	B	717	VAL
4	B	1260	VAL
3	A	195	GLY

5.3.2 Protein sidechains ⓘ

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	
3	A	707/807 (88%)	706 (100%)	1 (0%)	93	97
4	B	821/899 (91%)	814 (99%)	7 (1%)	78	87
All	All	1528/1706 (90%)	1520 (100%)	8 (0%)	88	93

All (8) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
3	A	752	ARG
4	B	380	ASP
4	B	937	TYR
4	B	1006	TYR
4	B	1007	TRP
4	B	1035	ARG
4	B	1161	PRO
4	B	1235	LEU

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. There are no such sidechains identified.

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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

5.5 Carbohydrates ⓘ

There are no monosaccharides in this entry.

5.6 Ligand geometry ⓘ

Of 2 ligands modelled in this entry, 1 is monoatomic - leaving 1 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	#$|Z| > 2$
6	ADP	A	936	5	24,29,29	0.97	1 (4%)	29,45,45	1.50	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
6	ADP	A	936	5	-	4/12/32/32	0/3/3/3

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	A	936	ADP	C5-C4	2.44	1.47	1.40

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
6	A	936	ADP	PA-O3A-PB	-3.44	121.04	132.83
6	A	936	ADP	N3-C2-N1	-3.41	123.35	128.68
6	A	936	ADP	C3'-C2'-C1'	3.27	105.89	100.98
6	A	936	ADP	C4-C5-N7	-2.70	106.58	109.40

There are no chirality outliers.

All (4) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
6	A	936	ADP	C5'-O5'-PA-O1A
6	A	936	ADP	C5'-O5'-PA-O3A
6	A	936	ADP	O4'-C4'-C5'-O5'
6	A	936	ADP	C3'-C4'-C5'-O5'

There are no ring outliers.

No monomer is involved in short contacts.

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 then 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.

Ligand ADP A 936

Bond lengths

Bond angles

Torsions

Rings

5.7 Other polymers ⓘ

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	E	15/15 (100%)	0.42	1 (6%)	17	17	93, 101, 115, 116	0
2	F	15/15 (100%)	0.63	1 (6%)	17	17	90, 100, 119, 123	0
3	A	824/934 (88%)	1.34	223 (27%)	0	0	95, 103, 108, 113	0
4	B	935/1022 (91%)	0.80	100 (10%)	6	5	37, 102, 116, 122	0
All	All	1789/1986 (90%)	1.05	325 (18%)	1	1	37, 103, 114, 123	0

All (325) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
3	A	206	THR	15.0
3	A	541	THR	12.8
3	A	207	ALA	11.0
3	A	202	PRO	8.9
4	B	549	SER	8.9
3	A	693	CYS	8.4
3	A	776	ALA	7.5
3	A	692	GLY	7.4
3	A	588	TYR	7.3
3	A	534	ARG	7.1
4	B	1128	TYR	6.9
4	B	550	SER	6.9
3	A	231	ASP	6.4
3	A	708	ILE	6.3
3	A	166	VAL	6.3
3	A	292	THR	6.1
4	B	1335	GLU	6.0
3	A	108	GLY	5.9
3	A	538	ASN	5.9
3	A	165	TYR	5.8
3	A	533	LEU	5.8

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Mol	Chain	Res	Type	RSRZ
3	A	585	SER	5.7
3	A	150	VAL	5.7
3	A	394	PHE	5.6
3	A	750	LEU	5.3
3	A	210	MET	5.3
4	B	1298	TYR	5.3
3	A	540	SER	5.3
3	A	200	VAL	5.3
3	A	395	GLN	5.2
3	A	587	GLY	5.2
3	A	432	LEU	5.1
3	A	467	GLU	5.1
3	A	664	PHE	5.0
3	A	273	VAL	4.9
4	B	1126	LYS	4.9
3	A	201	LEU	4.8
3	A	404	CYS	4.8
3	A	363	VAL	4.8
3	A	480	GLU	4.8
3	A	746	ILE	4.7
3	A	590	GLU	4.7
3	A	263	ASN	4.7
3	A	605	VAL	4.7
3	A	584	ILE	4.6
3	A	694	PHE	4.6
3	A	350	LEU	4.6
3	A	447	PHE	4.5
3	A	267	VAL	4.5
3	A	535	ASN	4.5
4	B	552	HIS	4.4
3	A	666	ILE	4.3
4	B	982	PRO	4.3
3	A	462	GLN	4.3
3	A	304	ILE	4.3
3	A	294	PHE	4.3
3	A	7	GLU	4.2
4	B	954	TYR	4.2
4	B	747	LEU	4.2
3	A	151	LYS	4.2
4	B	1308	LEU	4.2
3	A	542	VAL	4.2
3	A	269	SER	4.1

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Mol	Chain	Res	Type	RSRZ
3	A	678	TYR	4.0
4	B	1313	ILE	4.0
4	B	577	ARG	4.0
3	A	496	LEU	3.9
4	B	1174	PHE	3.9
4	B	1218	GLY	3.9
3	A	608	PHE	3.9
3	A	390	LEU	3.9
3	A	527	CYS	3.9
3	A	739	ALA	3.8
3	A	178	PHE	3.8
3	A	163	VAL	3.8
3	A	591	PRO	3.8
3	A	152	MET	3.8
3	A	284	SER	3.8
4	B	1332	LEU	3.8
3	A	785	HIS	3.7
3	A	737	ARG	3.7
3	A	458	LEU	3.7
4	B	981	ILE	3.7
4	B	729	ALA	3.7
3	A	667	ILE	3.7
4	B	1010	THR	3.6
3	A	4	GLN	3.6
4	B	1312	VAL	3.6
3	A	365	ALA	3.6
4	B	1115	ILE	3.6
3	A	225	THR	3.6
3	A	450	PHE	3.5
3	A	459	ASP	3.5
4	B	1210	VAL	3.5
4	B	1129	CYS	3.5
3	A	592	MET	3.5
3	A	173	LEU	3.5
4	B	989	ASN	3.5
3	A	726	MET	3.5
4	B	542	LEU	3.5
4	B	1127	ALA	3.5
3	A	147	VAL	3.4
4	B	1130	VAL	3.4
3	A	595	LEU	3.4
3	A	768	GLU	3.4

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Mol	Chain	Res	Type	RSRZ
3	A	521	TYR	3.4
3	A	70	ALA	3.4
3	A	293	THR	3.4
3	A	238	TYR	3.4
3	A	235	LYS	3.4
3	A	663	MET	3.4
3	A	650	PHE	3.3
3	A	199	CYS	3.3
3	A	149	GLY	3.3
3	A	449	LYS	3.3
4	B	1131	LEU	3.3
3	A	148	VAL	3.3
4	B	716	THR	3.3
3	A	158	GLN	3.3
4	B	1311	GLU	3.3
3	A	539	PHE	3.3
3	A	276	PHE	3.2
3	A	524	ARG	3.2
3	A	387	LEU	3.2
3	A	478	LEU	3.2
3	A	411	ILE	3.2
3	A	787	LEU	3.2
3	A	194	ILE	3.2
3	A	393	LYS	3.2
3	A	226	GLU	3.2
3	A	366	PHE	3.2
3	A	519	PHE	3.2
3	A	689	ALA	3.2
3	A	431	LEU	3.2
3	A	139	ASN	3.1
3	A	671	ASN	3.1
3	A	164	GLY	3.1
3	A	440	LEU	3.1
4	B	1309	PRO	3.1
4	B	1212	VAL	3.1
3	A	291	LEU	3.1
4	B	1257	SER	3.1
4	B	546	GLU	3.0
3	A	767	SER	3.0
3	A	13	SER	3.0
3	A	704	ILE	3.0
4	B	651	ILE	3.0

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Mol	Chain	Res	Type	RSRZ
4	B	553	THR	3.0
4	B	718	SER	2.9
3	A	525	VAL	2.9
3	A	227	ARG	2.9
4	B	959	ARG	2.9
4	B	1243	THR	2.9
3	A	6	LYS	2.9
4	B	933	PHE	2.9
3	A	266	ALA	2.9
3	A	784	PHE	2.9
3	A	640	ALA	2.9
3	A	205	GLU	2.9
3	A	204	GLY	2.8
3	A	428	HIS	2.8
3	A	290	GLU	2.8
3	A	346	ILE	2.8
3	A	550	LYS	2.8
3	A	601	GLN	2.8
3	A	131	PHE	2.8
3	A	589	VAL	2.8
4	B	956	GLU	2.8
4	B	1331	ARG	2.8
3	A	321	THR	2.8
4	B	1005	ARG	2.8
3	A	470	VAL	2.8
3	A	552	THR	2.8
4	B	1329	SER	2.8
3	A	360	LEU	2.8
4	B	1015	LEU	2.8
3	A	71	GLY	2.8
4	B	1170	ILE	2.8
3	A	631	ARG	2.8
3	A	665	HIS	2.8
3	A	764	TRP	2.7
4	B	1244	LEU	2.7
3	A	826	PHE	2.7
4	B	1245	PHE	2.7
4	B	543	LYS	2.7
3	A	762	LEU	2.7
4	B	788	ILE	2.7
4	B	978	GLN	2.7
4	B	1247	THR	2.7

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Mol	Chain	Res	Type	RSRZ
4	B	1227	ILE	2.7
3	A	687	LEU	2.7
4	B	548	ASP	2.7
3	A	657	PHE	2.7
3	A	424	HIS	2.7
4	B	1285	PHE	2.7
3	A	203	GLY	2.7
3	A	427	LYS	2.6
4	B	481	ALA	2.6
4	B	1091	LEU	2.6
3	A	10	GLN	2.6
3	A	518	GLN	2.6
3	A	606	VAL	2.6
3	A	381	LEU	2.6
4	B	1235	LEU	2.6
3	A	622	PRO	2.6
4	B	1209	LEU	2.6
3	A	777	PHE	2.6
3	A	280	LEU	2.6
3	A	93	LEU	2.6
3	A	774	ILE	2.6
3	A	523	PHE	2.6
3	A	611	VAL	2.6
3	A	92	LEU	2.6
3	A	407	LEU	2.6
4	B	426	CYS	2.6
3	A	688	MET	2.5
4	B	969	TYR	2.5
3	A	602	LEU	2.5
3	A	448	SER	2.5
3	A	385	PRO	2.5
3	A	771	ALA	2.5
4	B	1125	GLY	2.5
3	A	403	ASP	2.5
3	A	598	VAL	2.5
3	A	817	VAL	2.5
3	A	310	LEU	2.5
3	A	634	LEU	2.5
4	B	1248	HIS	2.5
3	A	264	GLN	2.5
3	A	180	ASP	2.5
4	B	1108	PHE	2.5

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Mol	Chain	Res	Type	RSRZ
3	A	265	VAL	2.5
3	A	367	VAL	2.5
4	B	1079	ILE	2.5
3	A	758	ASP	2.4
3	A	505	LEU	2.4
4	B	968	VAL	2.4
4	B	555	ALA	2.4
3	A	422	GLU	2.4
3	A	544	ILE	2.4
4	B	1211	LEU	2.4
3	A	796	THR	2.4
3	A	503	LEU	2.4
4	B	1330	LEU	2.4
3	A	513	LEU	2.4
4	B	647	LEU	2.4
4	B	1289	PHE	2.4
3	A	302	LEU	2.4
4	B	955	LEU	2.4
3	A	580	GLU	2.3
3	A	766	ILE	2.3
3	A	476	PRO	2.3
3	A	725	PHE	2.3
4	B	1011	ILE	2.3
3	A	112	SER	2.3
4	B	432	PHE	2.3
3	A	747	ILE	2.3
3	A	627	LYS	2.3
3	A	499	ALA	2.3
4	B	977	TYR	2.3
3	A	135	LEU	2.3
3	A	298	GLN	2.3
3	A	748	ASP	2.3
4	B	1113	ILE	2.3
3	A	69	PRO	2.3
3	A	274	ILE	2.3
4	B	752	GLY	2.2
4	B	1262	VAL	2.2
3	A	413	GLN	2.2
4	B	668	SER	2.2
4	B	545	LYS	2.2
3	A	800	LEU	2.2
4	B	1190	PHE	2.2

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Mol	Chain	Res	Type	RSRZ
4	B	1193	GLU	2.2
3	A	309	ALA	2.2
3	A	161	VAL	2.2
4	B	514	CYS	2.2
2	F	16	DC	2.2
3	A	300	MET	2.2
4	B	884	SER	2.2
4	B	728	LYS	2.2
4	B	1333	PHE	2.2
4	B	1264	LEU	2.2
4	B	1144	MET	2.2
3	A	389	ARG	2.2
4	B	900	GLY	2.2
4	B	1061	LEU	2.1
4	B	1137	MET	2.1
1	E	15	DG	2.1
3	A	271	SER	2.1
3	A	679	ILE	2.1
4	B	1241	CYS	2.1
4	B	1215	LEU	2.1
4	B	1217	ARG	2.1
3	A	834	ALA	2.1
4	B	1236	ALA	2.1
3	A	691	ILE	2.1
3	A	146	GLY	2.1
4	B	1258	GLN	2.1
3	A	502	ASP	2.1
3	A	336	PRO	2.1
3	A	655	VAL	2.1
3	A	198	GLU	2.1
3	A	749	GLU	2.1
4	B	1242	ARG	2.1
4	B	1260	VAL	2.1
3	A	581	ILE	2.1
3	A	690	GLN	2.1
3	A	546	LYS	2.1
3	A	705	VAL	2.1
4	B	569	PHE	2.0
3	A	243	ARG	2.0
3	A	14	ALA	2.0
3	A	510	GLN	2.0
3	A	757	TYR	2.0

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Mol	Chain	Res	Type	RSRZ
3	A	653	ASN	2.0
3	A	786	GLU	2.0
3	A	532	VAL	2.0
3	A	709	LEU	2.0
3	A	74	ASN	2.0
4	B	486	THR	2.0
3	A	701	GLU	2.0
3	A	177	GLU	2.0
3	A	312	LEU	2.0
3	A	451	GLN	2.0

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

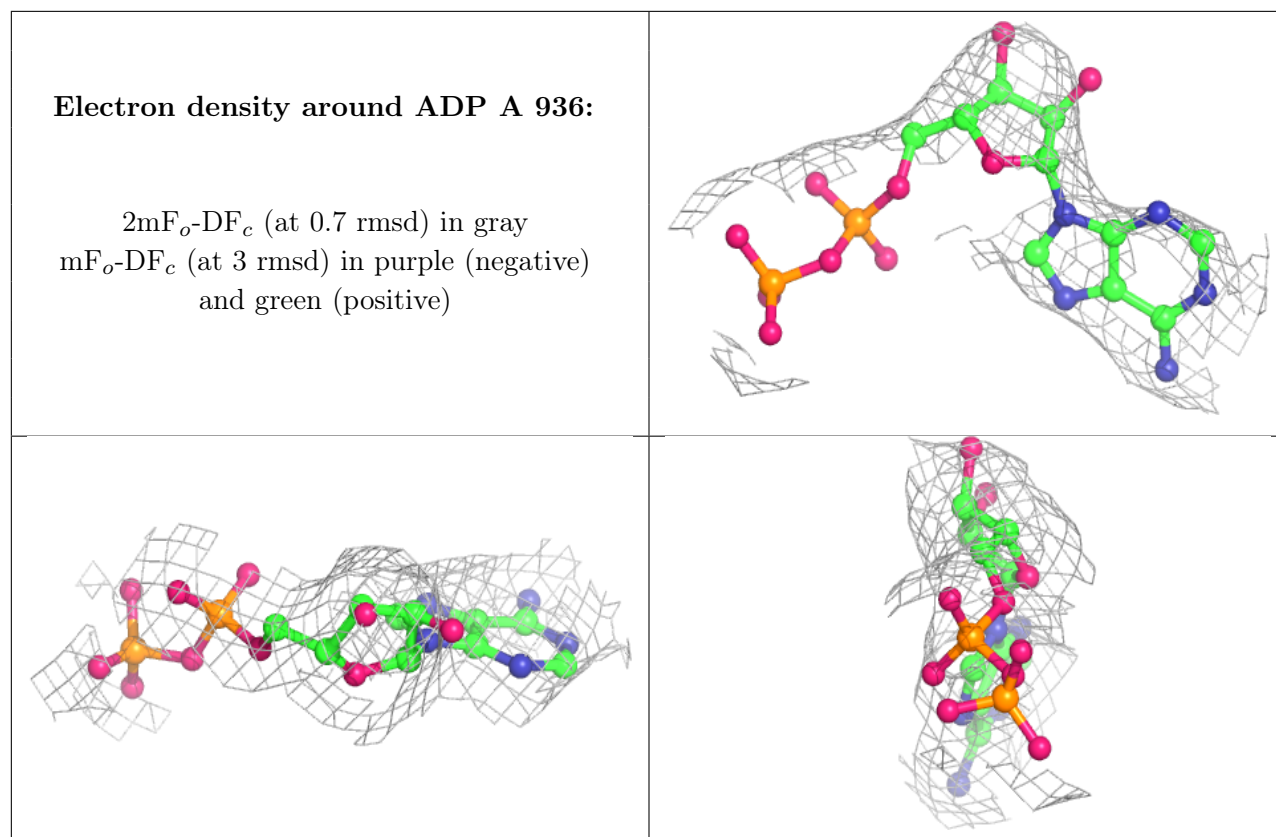There are no non-standard protein/DNA/RNA residues in this entry.

6.3 Carbohydrates ⓘ

There are no monosaccharides in this entry.

6.4 Ligands ⓘ

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
5	MG	A	935	1/1	0.92	0.29	79,79,79,79	0
6	ADP	A	936	27/27	0.93	0.20	97,98,100,100	0

The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation to approximate a three-dimensional view.

Electron density around ADP A 936:

$2mF_o\text{-}DF_c$ (at 0.7 rmsd) in gray
$mF_o\text{-}DF_c$ (at 3 rmsd) in purple (negative)
and green (positive)

6.5 Other polymers ⓘ

There are no such residues in this entry.