



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 5, 2026 – 07:22 AM UTC

PDB ID : 7JXP / pdb_00007jxp
Title : EGFR kinase (T790M/V948R) in complex with osimertinib and JBJ-04-125-02
Authors : Beyett, T.S.; Eck, M.J.
Deposited on : 2020-08-27
Resolution : 2.16 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

The 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	:	4-5-2 with Phenix2.0
Mogul	:	NOT EXECUTED
Xtriage (Phenix)	:	2.0
EDS	:	NOT EXECUTED
Buster-report	:	NOT EXECUTED
Percentile statistics	:	20250101.v01 (using entries in the PDB archive January 1st 2025)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.49

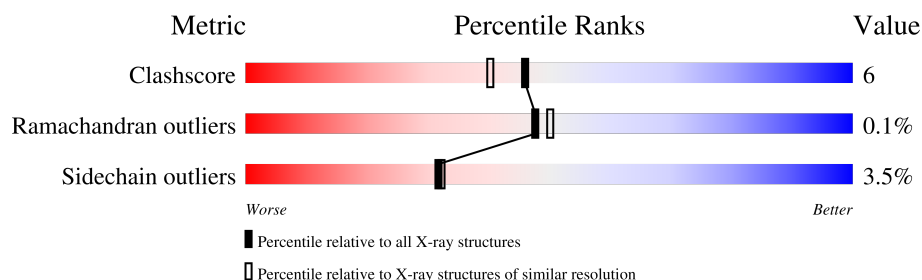
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.16 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	190562	2159 (2.16-2.16)
Ramachandran outliers	187476	2134 (2.16-2.16)
Sidechain outliers	187428	2133 (2.16-2.16)

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	331	
1	B	331	
1	C	331	
1	D	331	
1	E	331	
1	F	331	

2 Entry composition

There are 6 unique types of molecules in this entry. The entry contains 15137 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 Epidermal growth factor receptor.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	D	294	Total	C	N	O	S	0	1	0
			2377	1528	404	425	20			
1	A	308	Total	C	N	O	S	0	1	0
			2483	1593	422	448	20			
1	C	292	Total	C	N	O	S	0	2	0
			2368	1521	402	424	21			
1	F	294	Total	C	N	O	S	0	1	0
			2377	1528	404	425	20			
1	B	308	Total	C	N	O	S	0	1	0
			2483	1593	422	448	20			
1	E	287	Total	C	N	O	S	0	1	0
			2314	1488	391	416	19			

There are 30 discrepancies between the modelled and reference sequences:

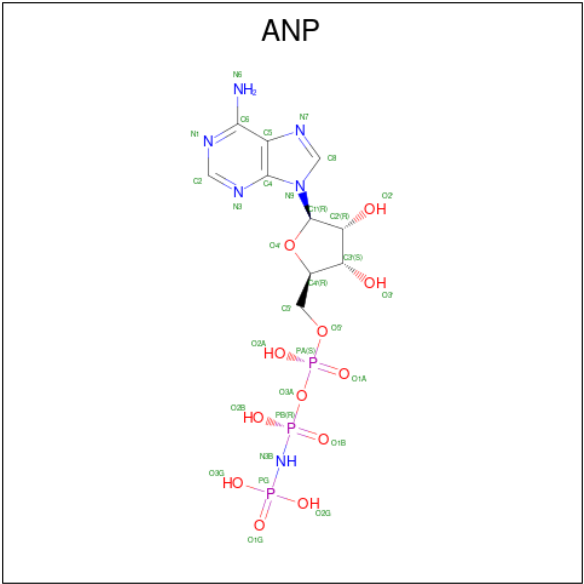
Chain	Residue	Modelled	Actual	Comment	Reference
D	692	GLY	-	expression tag	UNP P00533
D	693	SER	-	expression tag	UNP P00533
D	694	THR	-	expression tag	UNP P00533
D	790	MET	THR	engineered mutation	UNP P00533
D	948	ARG	VAL	engineered mutation	UNP P00533
A	692	GLY	-	expression tag	UNP P00533
A	693	SER	-	expression tag	UNP P00533
A	694	THR	-	expression tag	UNP P00533
A	790	MET	THR	engineered mutation	UNP P00533
A	948	ARG	VAL	engineered mutation	UNP P00533
C	692	GLY	-	expression tag	UNP P00533
C	693	SER	-	expression tag	UNP P00533
C	694	THR	-	expression tag	UNP P00533
C	790	MET	THR	engineered mutation	UNP P00533
C	948	ARG	VAL	engineered mutation	UNP P00533
F	692	GLY	-	expression tag	UNP P00533
F	693	SER	-	expression tag	UNP P00533

Continued on next page...

Continued from previous page...

Chain	Residue	Modelled	Actual	Comment	Reference
F	694	THR	-	expression tag	UNP P00533
F	790	MET	THR	engineered mutation	UNP P00533
F	948	ARG	VAL	engineered mutation	UNP P00533
B	692	GLY	-	expression tag	UNP P00533
B	693	SER	-	expression tag	UNP P00533
B	694	THR	-	expression tag	UNP P00533
B	790	MET	THR	engineered mutation	UNP P00533
B	948	ARG	VAL	engineered mutation	UNP P00533
E	692	GLY	-	expression tag	UNP P00533
E	693	SER	-	expression tag	UNP P00533
E	694	THR	-	expression tag	UNP P00533
E	790	MET	THR	engineered mutation	UNP P00533
E	948	ARG	VAL	engineered mutation	UNP P00533

- Molecule 2 is PHOSPHOAMINOPHOSPHONIC ACID-ADENYLATE ESTER (CCD ID: ANP) (formula: C₁₀H₁₇N₆O₁₂P₃).

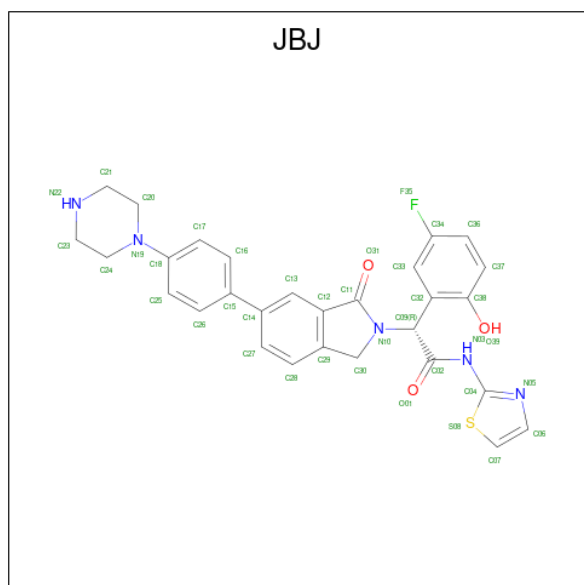


Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
2	D	1	Total	C	N	O	P	0	0
			31	10	6	12	3		
2	A	1	Total	C	N	O	P	0	0
			31	10	6	12	3		
2	F	1	Total	C	N	O	P	0	0
			31	10	6	12	3		
2	B	1	Total	C	N	O	P	0	0
			31	10	6	12	3		

- Molecule 3 is MAGNESIUM ION (CCD ID: MG) (formula: Mg).

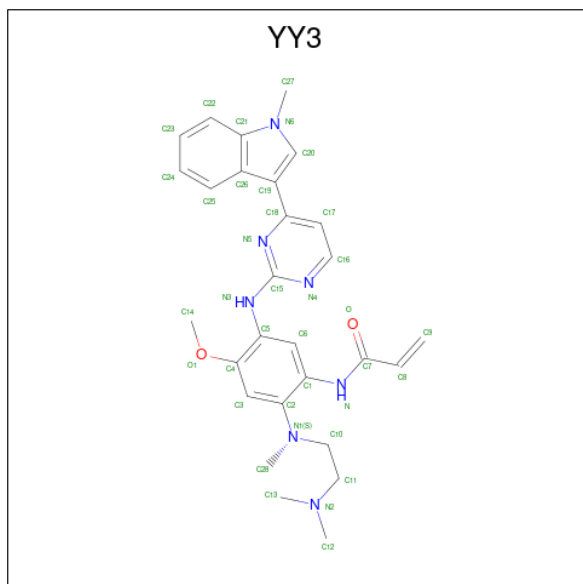
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	D	1	Total	Mg	0	0
			1	1		
3	A	1	Total	Mg	0	0
			1	1		
3	F	1	Total	Mg	0	0
			1	1		
3	B	1	Total	Mg	0	0
			1	1		

- Molecule 4 is (2R)-2-(5-fluoro-2-hydroxyphenyl)-2-{1-oxo-6-[4-(piperazin-1-yl)phenyl]-1,3-dihydro-2H-isoindol-2-yl}-N-(1,3-thiazol-2-yl)acetamide (CCD ID: JBJ) (formula: C₂₉H₂₆FN₅O₃S) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms						ZeroOcc	AltConf
4	D	1	Total 39	C 29	F 1	N 5	O 3	S 1	0	0
4	A	1	Total 39	C 29	F 1	N 5	O 3	S 1	0	0
4	C	1	Total 39	C 29	F 1	N 5	O 3	S 1	0	0
4	F	1	Total 39	C 29	F 1	N 5	O 3	S 1	0	0
4	B	1	Total 39	C 29	F 1	N 5	O 3	S 1	0	0
4	E	1	Total 39	C 29	F 1	N 5	O 3	S 1	0	0

- Molecule 5 is N-(2-{[2-(dimethylamino)ethyl](methyl)amino}-4-methoxy-5-{[4-(1-methyl-1H-indol-3-yl)pyrimidin-2-yl]amino}phenyl)prop-2-enamide (CCD ID: YY3) (formula: C₂₈H₃₃N₇O₂) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
5	C	1	Total	C	N	O	0	0
			37	28	7	2		
5	E	1	Total	C	N	O	0	0
			37	28	7	2		

- Molecule 6 is water.

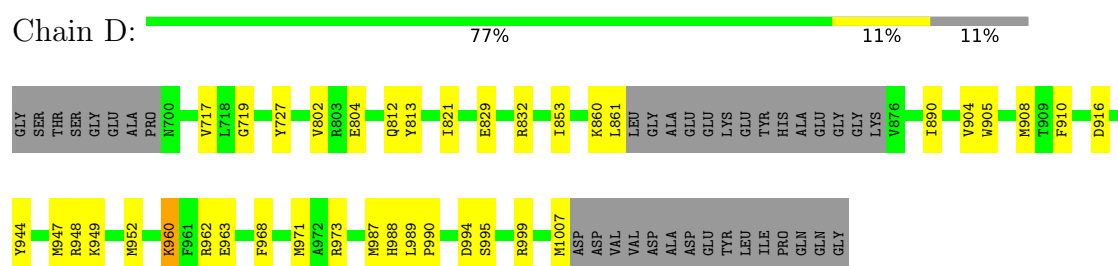
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
6	D	68	Total	O	0	0
			68	68		
6	A	91	Total	O	0	0
			91	91		
6	C	43	Total	O	0	0
			43	43		
6	F	40	Total	O	0	0
			40	40		
6	B	41	Total	O	0	0
			41	41		
6	E	16	Total	O	0	0
			16	16		

3 Residue-property plots [i](#)

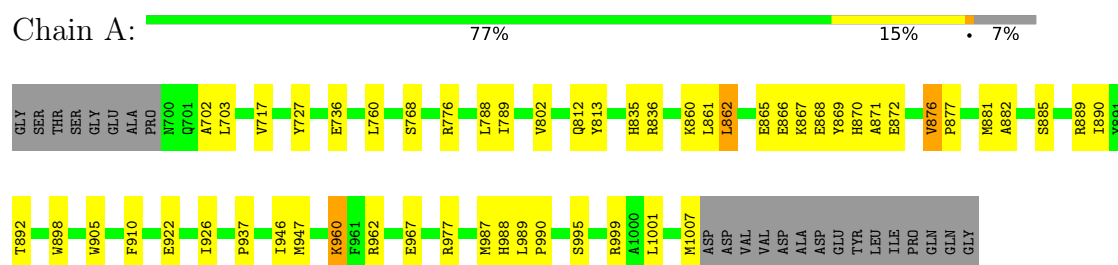
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded 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.

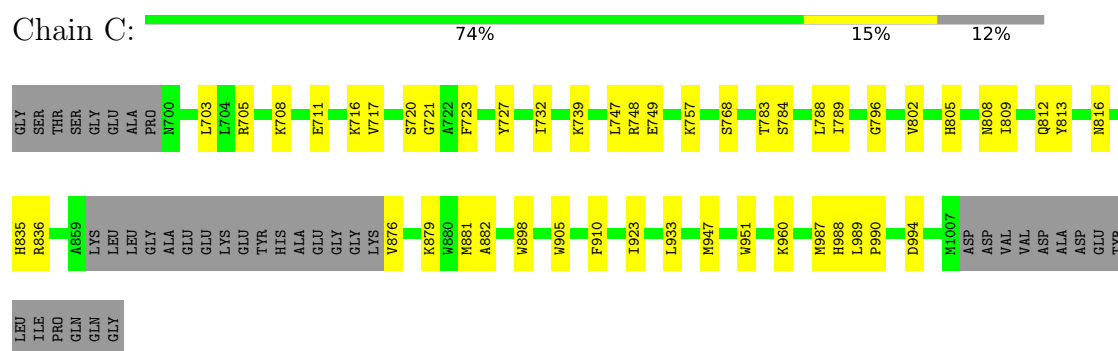
• Molecule 1: Epidermal growth factor receptor



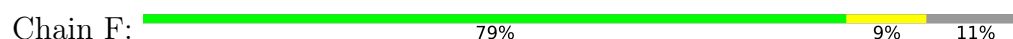
• Molecule 1: Epidermal growth factor receptor

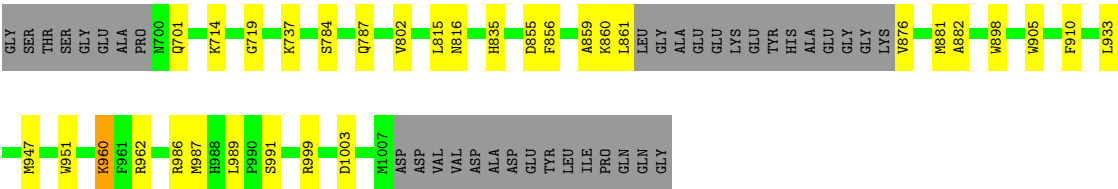


• Molecule 1: Epidermal growth factor receptor

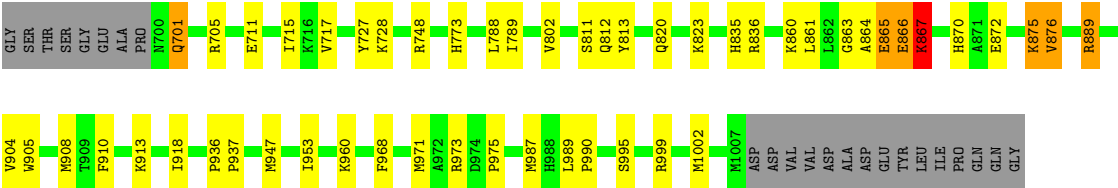
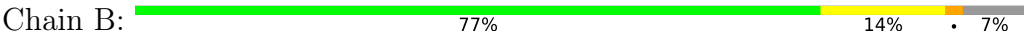


• Molecule 1: Epidermal growth factor receptor

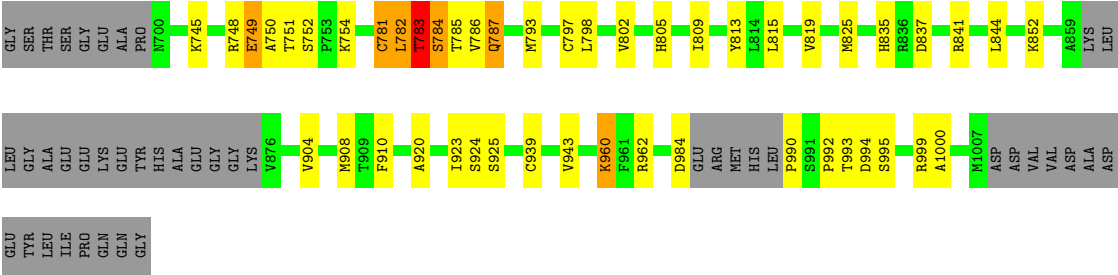




● Molecule 1: Epidermal growth factor receptor



● Molecule 1: Epidermal growth factor receptor



4 Data and refinement statistics

EDS was not executed - this section is therefore incomplete.

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α , β , γ	57.11Å 94.74Å 95.57Å 70.56° 78.40° 79.18°	Depositor
Resolution (Å)	89.11 – 2.16	Depositor
% Data completeness (in resolution range)	83.1 (89.11-2.16)	Depositor
R_{merge}	(Not available)	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.41 (at 2.16Å)	Xtriage
Refinement program	PHENIX 1.18.2_3874	Depositor
R, R_{free}	0.212 , 0.247	Depositor
Wilson B-factor (Å ²)	39.1	Xtriage
Anisotropy	0.307	Xtriage
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtriage
Estimated twinning fraction	0.169 for -h,-l,-k	Xtriage
Total number of atoms	15137	wwPDB-VP
Average B, all atoms (Å ²)	57.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The analyses of the Patterson function reveals a significant off-origin peak that is 41.15 % of the origin peak, indicating pseudo-translational symmetry. The chance of finding a peak of this or larger height randomly in a structure without pseudo-translational symmetry is equal to 2.4646e-04. The detected translational NCS is most likely also responsible for the elevated intensity ratio.*

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

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: ANP, MG, JBJ, YY3

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	0.46	0/2541	0.72	1/3433 (0.0%)
1	B	0.46	1/2541 (0.0%)	0.68	1/3433 (0.0%)
1	C	0.40	0/2423	0.65	0/3275
1	D	0.42	0/2432	0.65	0/3287
1	E	0.45	0/2367	0.75	2/3199 (0.1%)
1	F	0.43	0/2432	0.65	0/3287
All	All	0.44	1/14736 (0.0%)	0.69	4/19914 (0.0%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	876	VAL	N-CA	5.34	1.53	1.46

All (4) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	871	ALA	N-CA-C	-10.20	99.14	114.64
1	B	875	LYS	N-CA-C	-6.64	105.33	113.50
1	E	783	THR	N-CA-C	-5.23	102.27	110.17
1	E	781	CYS	O-C-N	5.12	129.26	123.27

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	A	2483	0	2527	42	0
1	B	2483	0	2527	31	0
1	C	2368	0	2413	29	0
1	D	2377	0	2430	31	0
1	E	2314	0	2359	28	0
1	F	2377	0	2430	17	0
2	A	31	0	13	0	0
2	B	31	0	13	1	0
2	D	31	0	13	1	0
2	F	31	0	13	1	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0
3	D	1	0	0	0	0
3	F	1	0	0	0	0
4	A	39	0	0	1	0
4	B	39	0	0	0	0
4	C	39	0	0	0	0
4	D	39	0	0	0	0
4	E	39	0	0	0	0
4	F	39	0	0	2	0
5	C	37	0	32	2	0
5	E	37	0	32	0	0
6	A	91	0	0	6	0
6	B	41	0	0	3	0
6	C	43	0	0	4	0
6	D	68	0	0	6	0
6	E	16	0	0	0	0
6	F	40	0	0	2	0
All	All	15137	0	14802	172	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 (172) 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:D:832:ARG:HD3	1:B:748:ARG:HH22	1.22	1.00
1:D:717:VAL:HG22	1:D:727:TYR:CE2	2.17	0.79
1:D:1007:MET:SD	6:D:1265:HOH:O	2.40	0.79
1:C:802:VAL:HG12	1:C:910:PHE:HA	1.68	0.74

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:812:GLN:HG2	1:C:989:LEU:HG	1.68	0.74
1:C:990:PRO:HB2	1:C:994:ASP:HB2	1.67	0.74
1:D:812:GLN:HG2	1:D:989:LEU:HG	1.71	0.72
1:F:905:TRP:HD1	1:F:947:MET:HE1	1.55	0.70
1:D:832:ARG:CD	1:B:748:ARG:HH22	2.04	0.69
1:C:716:LYS:NZ	6:C:1205:HOH:O	2.27	0.67
1:B:867:LYS:HB2	1:B:889:ARG:NH1	2.09	0.66
1:E:990:PRO:HB2	1:E:994:ASP:HB2	1.78	0.66
1:A:812:GLN:HG2	1:A:989:LEU:HG	1.78	0.65
1:E:802:VAL:HG12	1:E:910:PHE:HA	1.79	0.65
1:C:802:VAL:CG1	1:C:910:PHE:HA	2.28	0.63
1:D:802:VAL:HG12	1:D:910:PHE:HA	1.81	0.62
1:A:702:ALA:O	1:E:993:THR:HA	2.00	0.62
1:B:812:GLN:HG2	1:B:989:LEU:HG	1.83	0.61
1:A:905:TRP:HD1	1:A:947:MET:HE1	1.64	0.61
1:D:802:VAL:CG1	1:D:910:PHE:HA	2.31	0.60
1:B:705:ARG:NH2	1:B:711:GLU:OE2	2.33	0.60
1:C:813:TYR:OH	1:C:990:PRO:HD3	2.01	0.59
1:E:908[B]:MET:SD	1:E:939:CYS:SG	3.00	0.59
1:A:988:HIS:CD2	6:A:1208:HOH:O	2.56	0.58
1:C:723:PHE:HB2	1:C:747:LEU:HD22	1.84	0.58
1:A:813:TYR:OH	1:A:990:PRO:HD3	2.04	0.58
1:D:821:ILE:HG23	1:D:853:ILE:HD11	1.86	0.58
1:B:968:PHE:HA	1:B:971:MET:HE3	1.85	0.57
1:D:905:TRP:HD1	1:D:947:MET:HE1	1.69	0.57
1:F:876:VAL:HG12	1:F:881:MET:SD	2.45	0.57
1:A:1007:MET:SD	6:A:1288:HOH:O	2.58	0.56
1:D:804:GLU:HG3	6:D:1206:HOH:O	2.06	0.56
1:D:829:GLU:OE2	1:D:960:LYS:NZ	2.39	0.56
1:C:708:LYS:O	1:C:711:GLU:HG2	2.04	0.56
1:D:990:PRO:HB2	1:D:994:ASP:HB2	1.87	0.56
1:C:717:VAL:HG22	1:C:727:TYR:CE2	2.41	0.56
1:F:802:VAL:HG12	1:F:910:PHE:HA	1.88	0.56
1:B:867:LYS:HB2	1:B:889:ARG:HH11	1.70	0.56
1:D:813:TYR:OH	1:D:990:PRO:HD3	2.05	0.55
1:A:702:ALA:HB1	1:E:992:PRO:HB2	1.87	0.55
1:B:717:VAL:HG22	1:B:727:TYR:CE2	2.41	0.55
1:B:823:LYS:NZ	6:B:1205:HOH:O	2.33	0.55
1:E:920:ALA:HA	1:E:923:ILE:HG12	1.90	0.54
1:A:960:LYS:NZ	1:A:962:ARG:HH12	2.06	0.54
1:D:719:GLY:HA3	2:D:1101:ANP:H4'	1.88	0.54

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:C:905:TRP:HD1	1:C:947:MET:HE1	1.73	0.53
1:B:905:TRP:HD1	1:B:947:MET:HE1	1.71	0.53
2:B:1101:ANP:O2G	2:B:1101:ANP:O1B	2.27	0.53
1:C:732:ILE:HG13	1:C:739:LYS:HG2	1.91	0.53
1:D:963:GLU:OE2	1:B:913:LYS:HD2	2.09	0.52
1:B:836:ARG:O	1:B:836:ARG:HG2	2.09	0.52
1:D:890:ILE:HD11	1:A:865:GLU:CD	2.34	0.52
1:C:812:GLN:CG	1:C:989:LEU:HG	2.38	0.52
1:A:882:ALA:HA	1:A:898:TRP:CD2	2.43	0.52
1:E:990:PRO:HG2	1:E:995:SER:OG	2.10	0.51
1:F:835:HIS:CD2	1:F:856:PHE:HB3	2.45	0.51
1:A:802:VAL:CG1	1:A:910:PHE:HA	2.40	0.51
1:C:988:HIS:O	6:C:1201:HOH:O	2.20	0.51
1:A:862:LEU:HD11	4:A:1103:JBJ:C24	2.42	0.50
1:E:802:VAL:CG1	1:E:910:PHE:HA	2.41	0.50
1:E:995:SER:O	1:E:999:ARG:HG3	2.11	0.50
1:A:995:SER:O	1:A:999:ARG:HG3	2.12	0.50
1:F:802:VAL:CG1	1:F:910:PHE:HA	2.42	0.50
1:E:837:ASP:OD1	1:E:841:ARG:NH1	2.44	0.50
1:D:995:SER:O	1:D:999:ARG:HG3	2.12	0.50
1:D:812:GLN:CG	1:D:989:LEU:HG	2.41	0.49
1:F:905:TRP:CD1	1:F:947:MET:HE1	2.43	0.49
1:F:960:LYS:NZ	1:F:962:ARG:HH12	2.10	0.49
1:B:995:SER:O	1:B:999:ARG:HG3	2.12	0.49
1:E:960:LYS:NZ	1:E:962:ARG:HH12	2.10	0.49
1:B:973:ARG:NH2	6:B:1203:HOH:O	2.25	0.49
1:D:960:LYS:HE3	1:D:962:ARG:HH12	1.78	0.49
1:E:797:CYS:HA	1:E:844:LEU:HA	1.95	0.49
1:C:882:ALA:HA	1:C:898:TRP:CD2	2.48	0.49
1:C:989:LEU:HB3	1:C:990:PRO:HD2	1.94	0.48
1:A:717:VAL:HG22	1:A:727:TYR:CE2	2.48	0.48
1:B:835:HIS:O	1:B:836:ARG:HB3	2.14	0.48
1:D:988:HIS:N	6:D:1201:HOH:O	2.46	0.47
1:F:816:ASN:ND2	6:F:1201:HOH:O	2.22	0.47
1:A:960:LYS:HZ1	1:A:962:ARG:HH12	1.62	0.47
1:A:905:TRP:CD1	1:A:947:MET:HE1	2.47	0.47
1:E:783:THR:O	1:E:784:SER:C	2.57	0.47
1:E:813:TYR:OH	1:E:990:PRO:HD3	2.14	0.47
1:A:890:ILE:HG22	1:A:892:THR:HG23	1.97	0.47
1:A:922:GLU:O	1:A:926:ILE:HG23	2.14	0.47
1:C:876:VAL:HG12	1:C:881:MET:SD	2.54	0.47

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:736:GLU:OE1	6:A:1201:HOH:O	2.20	0.47
1:C:748:ARG:HG3	1:C:749:GLU:HG3	1.96	0.46
1:B:715:ILE:HG12	1:B:728:LYS:O	2.15	0.46
1:A:802:VAL:HG12	1:A:910:PHE:HA	1.97	0.46
1:E:815:LEU:O	1:E:819:VAL:HG23	2.15	0.46
1:E:783:THR:HG21	1:E:787:GLN:HE21	1.81	0.46
1:C:796:GLY:HA2	5:C:1102:YY3:C6	2.45	0.46
1:E:990:PRO:CB	1:E:994:ASP:HB2	2.44	0.46
1:D:812:GLN:NE2	6:D:1208:HOH:O	2.49	0.46
1:C:705:ARG:NH2	1:C:711:GLU:OE2	2.48	0.46
1:A:905:TRP:HB2	1:A:947:MET:HE3	1.98	0.46
1:C:990:PRO:CB	1:C:994:ASP:HB2	2.40	0.46
1:C:816:ASN:ND2	6:C:1210:HOH:O	2.43	0.45
1:E:782:LEU:HA	1:E:786:VAL:HG22	1.97	0.45
1:F:714:LYS:NZ	1:F:787:GLN:OE1	2.34	0.45
1:B:811:SER:OG	1:B:975:PRO:HB2	2.16	0.45
1:F:882:ALA:HA	1:F:898:TRP:CD2	2.52	0.45
1:A:868:GLU:C	1:A:870:HIS:H	2.24	0.45
1:C:808:ASN:ND2	6:C:1211:HOH:O	2.49	0.45
4:F:1103:JBJ:S08	4:F:1103:JBJ:O01	2.75	0.45
1:B:863:GLY:O	1:B:864:ALA:HB3	2.17	0.45
1:B:876:VAL:HG23	1:B:876:VAL:O	2.15	0.45
1:D:905:TRP:CD1	1:D:947:MET:HE1	2.50	0.44
1:F:933:LEU:HB2	1:F:951:TRP:CH2	2.52	0.44
1:E:793:MET:HE1	1:E:852:LYS:HD3	1.98	0.44
1:D:904:VAL:HG13	1:D:908[B]:MET:HE3	2.00	0.44
1:A:869:TYR:HB3	1:A:876:VAL:HG22	2.00	0.44
1:A:835:HIS:O	1:A:836:ARG:HB3	2.17	0.44
1:B:802:VAL:CG1	1:B:910:PHE:HA	2.47	0.44
1:A:860:LYS:HB3	1:A:860:LYS:HE2	1.60	0.44
1:B:866:GLU:O	1:B:889:ARG:NH1	2.51	0.44
1:A:865:GLU:C	1:A:867:LYS:H	2.25	0.44
1:B:865:GLU:H	1:B:865:GLU:HG2	1.49	0.43
1:A:867:LYS:HA	1:A:889:ARG:NH1	2.34	0.43
1:A:885:SER:OG	1:A:890:ILE:O	2.35	0.43
1:D:916:ASP:HA	6:D:1202:HOH:O	2.17	0.43
1:D:968:PHE:HA	1:D:971:MET:HE3	2.00	0.43
1:B:701:GLN:H	1:B:701:GLN:HG2	1.53	0.43
1:F:737:LYS:HG2	1:F:737:LYS:O	2.18	0.43
1:A:702:ALA:CB	1:E:992:PRO:HB2	2.49	0.43
1:A:776:ARG:HH21	1:E:1000:ALA:HB2	1.83	0.43

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:E:805:HIS:O	1:E:809:ILE:HG13	2.19	0.43
1:D:989:LEU:HB3	1:D:990:PRO:HD2	2.00	0.43
1:A:703:LEU:HD13	1:A:768:SER:HA	1.99	0.43
1:A:867:LYS:HA	1:A:889:ARG:CZ	2.48	0.43
1:A:946:ILE:HD11	1:A:967:GLU:HG2	2.00	0.43
1:C:721:GLY:HA3	5:C:1102:YY3:H32	2.01	0.43
1:B:788:LEU:C	1:B:789:ILE:HD12	2.44	0.43
1:B:918:ILE:N	1:B:918:ILE:HD13	2.33	0.43
1:B:953:ILE:HG22	6:B:1232:HOH:O	2.19	0.43
1:D:973:ARG:NH2	6:D:1209:HOH:O	2.49	0.43
1:D:905:TRP:HB2	1:D:947:MET:HE3	2.01	0.42
1:E:749:GLU:HB3	1:E:750:ALA:H	1.53	0.42
1:E:781:CYS:SG	1:E:783:THR:HG22	2.59	0.42
1:E:825:MET:HE1	1:E:835:HIS:HB2	2.02	0.42
1:C:703:LEU:HD13	1:C:768:SER:HA	2.00	0.42
1:C:835:HIS:O	1:C:836:ARG:HB2	2.18	0.42
1:A:988:HIS:O	6:A:1202:HOH:O	2.21	0.42
1:F:999:ARG:HA	1:F:1003:ASP:HB3	2.00	0.42
1:A:868:GLU:C	1:A:870:HIS:N	2.78	0.42
1:C:879:LYS:HE2	1:C:923:ILE:HD11	2.01	0.42
1:B:773:HIS:CD2	1:B:820:GLN:HB3	2.55	0.42
1:A:877:PRO:O	1:A:881:MET:HG3	2.20	0.41
1:E:904:VAL:HG13	1:E:908[B]:MET:HE3	2.02	0.41
1:E:751:THR:CG2	1:E:784:SER:HA	2.50	0.41
1:A:1001:LEU:HD23	1:A:1001:LEU:HA	1.92	0.41
1:C:788:LEU:C	1:C:789:ILE:HD12	2.45	0.41
1:C:933:LEU:HB2	1:C:951:TRP:CH2	2.55	0.41
1:B:936:PRO:HA	1:B:937:PRO:HD3	1.98	0.41
1:A:988:HIS:N	6:A:1202:HOH:O	2.53	0.41
1:C:805:HIS:O	1:C:809:ILE:HG13	2.21	0.41
1:F:815:LEU:HA	1:F:815:LEU:HD23	1.79	0.41
1:D:949:LYS:HG2	1:D:952:MET:CE	2.51	0.41
1:F:719:GLY:HA3	2:F:1101:ANP:H4'	2.02	0.41
1:F:876:VAL:N	6:F:1210:HOH:O	2.54	0.41
1:A:788:LEU:C	1:A:789:ILE:HD12	2.46	0.40
1:B:904:VAL:O	1:B:908[B]:MET:HG3	2.22	0.40
1:A:937:PRO:HD2	6:A:1232:HOH:O	2.21	0.40
1:D:802:VAL:HG11	1:D:910:PHE:HA	2.04	0.40
1:D:944:TYR:CZ	1:D:948:ARG:HD3	2.56	0.40
1:A:760:LEU:HD23	1:A:760:LEU:HA	1.88	0.40
1:F:855:ASP:OD1	4:F:1103:JBJ:N03	2.54	0.40

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:812:GLN:CG	1:A:989:LEU:HG	2.48	0.40
1:B:866:GLU:O	1:B:867:LYS:HB2	2.22	0.40
1:B:813:TYR:OH	1:B:990:PRO:HD3	2.22	0.40
1:E:798:LEU:O	1:E:802:VAL:HG23	2.21	0.40

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	307/331 (93%)	294 (96%)	13 (4%)	0	100	100
1	B	307/331 (93%)	300 (98%)	6 (2%)	1 (0%)	36	34
1	C	290/331 (88%)	283 (98%)	7 (2%)	0	100	100
1	D	291/331 (88%)	283 (97%)	8 (3%)	0	100	100
1	E	282/331 (85%)	271 (96%)	11 (4%)	0	100	100
1	F	291/331 (88%)	284 (98%)	6 (2%)	1 (0%)	36	34
All	All	1768/1986 (89%)	1715 (97%)	51 (3%)	2 (0%)	48	50

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	F	859	ALA
1	B	867	LYS

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	273/290 (94%)	265 (97%)	8 (3%)	37	39
1	B	273/290 (94%)	260 (95%)	13 (5%)	23	20
1	C	263/290 (91%)	257 (98%)	6 (2%)	44	49
1	D	264/290 (91%)	260 (98%)	4 (2%)	57	64
1	E	257/290 (89%)	242 (94%)	15 (6%)	18	14
1	F	264/290 (91%)	255 (97%)	9 (3%)	32	33
All	All	1594/1740 (92%)	1539 (96%)	55 (4%)	32	32

All (55) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	D	860	LYS
1	D	861	LEU
1	D	960	LYS
1	D	987	MET
1	A	861	LEU
1	A	862	LEU
1	A	866	GLU
1	A	872	GLU
1	A	876	VAL
1	A	960	LYS
1	A	977	ARG
1	A	987	MET
1	C	720	SER
1	C	757	LYS
1	C	783	THR
1	C	784	SER
1	C	960	LYS
1	C	987	MET
1	F	701	GLN
1	F	784	SER
1	F	860	LYS
1	F	861	LEU
1	F	960	LYS
1	F	986	ARG
1	F	987	MET
1	F	989	LEU
1	F	991	SER

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	701	GLN
1	B	860	LYS
1	B	861	LEU
1	B	865	GLU
1	B	866	GLU
1	B	867	LYS
1	B	870	HIS
1	B	872	GLU
1	B	875	LYS
1	B	889	ARG
1	B	960	LYS
1	B	987	MET
1	B	1002	MET
1	E	745	LYS
1	E	748	ARG
1	E	749	GLU
1	E	752	SER
1	E	754	LYS
1	E	782	LEU
1	E	783	THR
1	E	784	SER
1	E	785	THR
1	E	787	GLN
1	E	924	SER
1	E	925	SER
1	E	943	VAL
1	E	960	LYS
1	E	984	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (14) such sidechains are listed below:

Mol	Chain	Res	Type
1	D	791	GLN
1	D	812	GLN
1	D	894	GLN
1	A	812	GLN
1	A	816	ASN
1	C	812	GLN
1	C	816	ASN
1	F	812	GLN
1	F	816	ASN
1	B	791	GLN

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type
1	B	849	GLN
1	B	888	HIS
1	B	988	HIS
1	E	888	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](#)

Mogul was not executed - this section is therefore empty.

5.5 Carbohydrates [i](#)

Mogul was not executed - this section is therefore empty.

5.6 Ligand geometry [i](#)

Mogul was not executed - this section is therefore empty.

5.7 Other polymers [i](#)

Mogul was not executed - this section is therefore empty.

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](#)

EDS was not executed - this section is therefore empty.

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

EDS was not executed - this section is therefore empty.

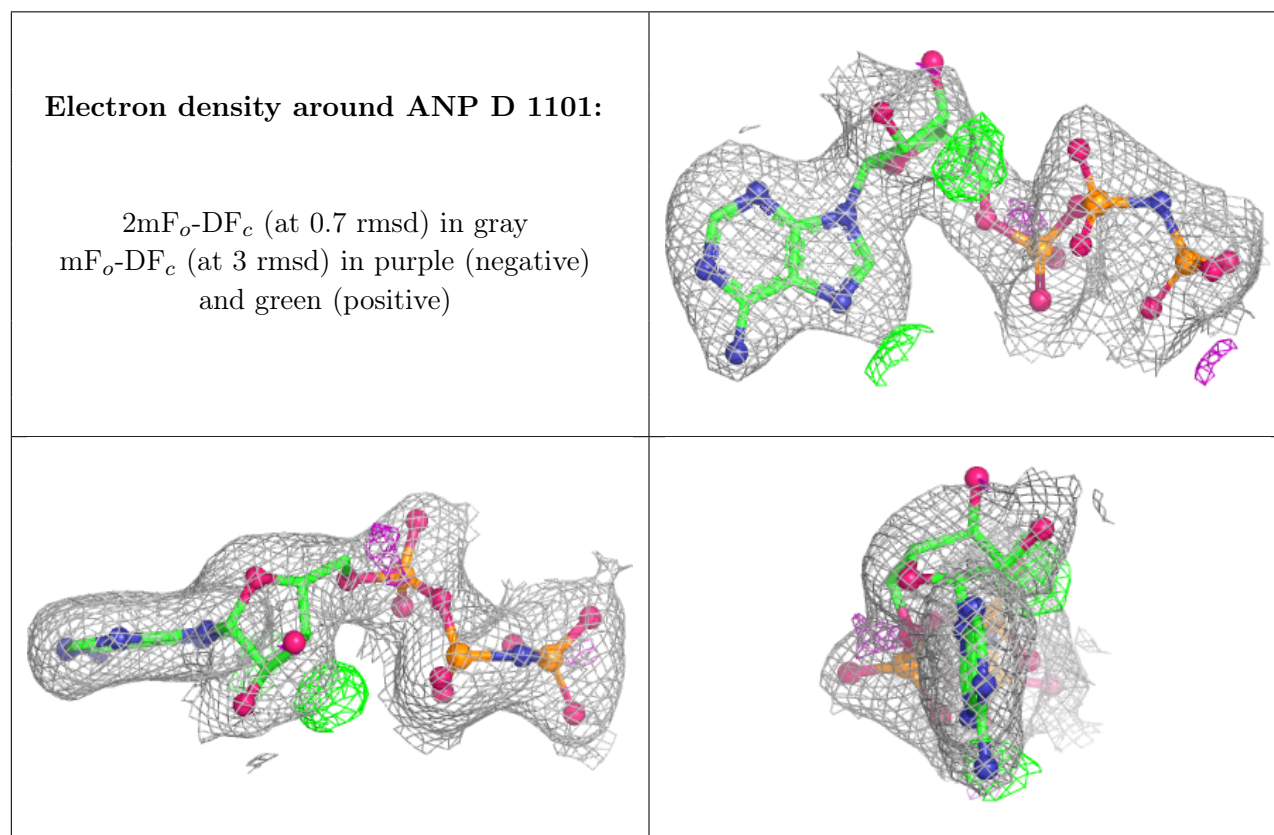
6.3 Carbohydrates [i](#)

EDS was not executed - this section is therefore empty.

6.4 Ligands [i](#)

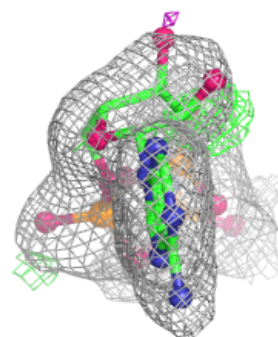
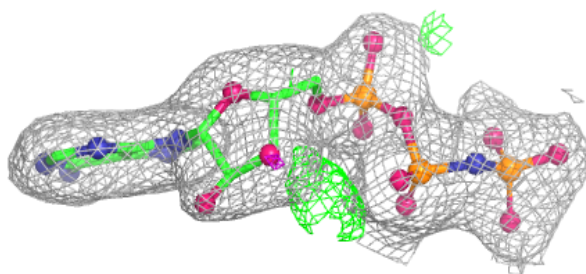
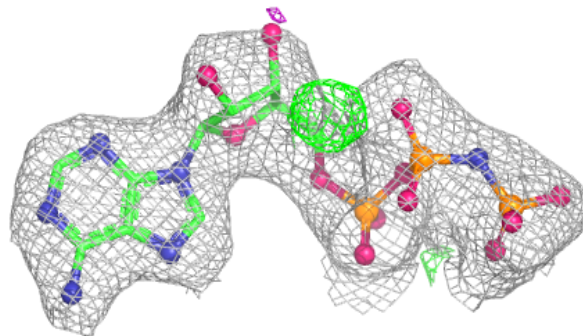
EDS was not executed - this section is therefore empty.

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.

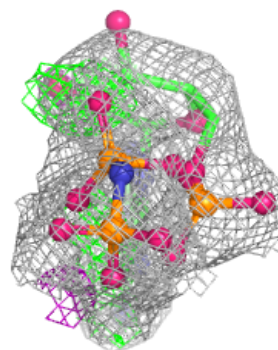
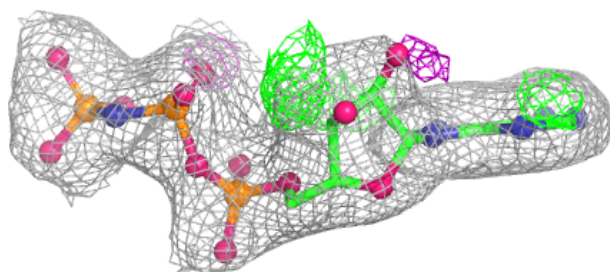
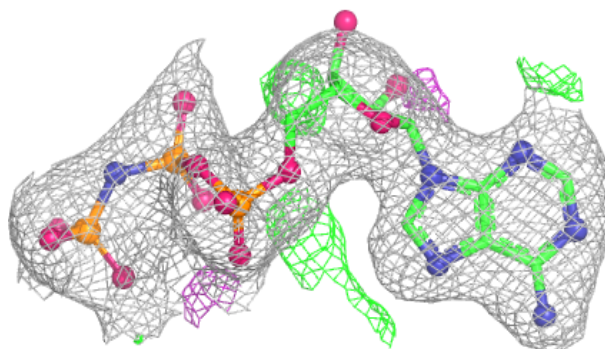


Electron density around ANP A 1101:

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

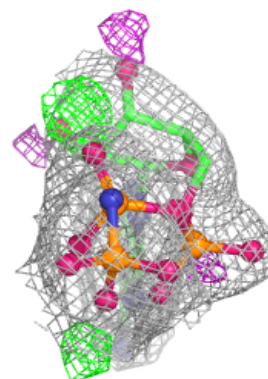
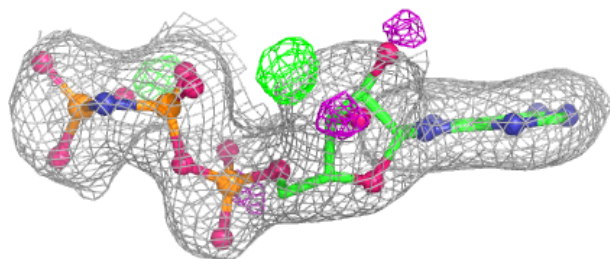
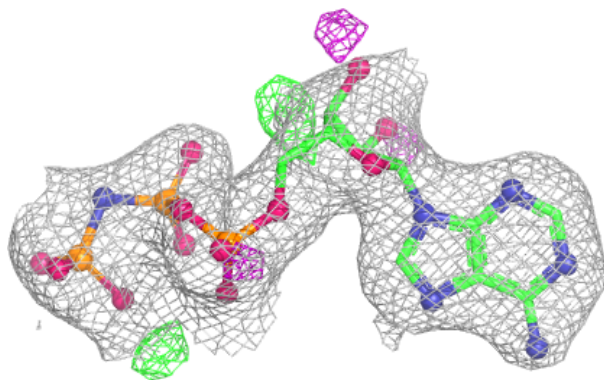
**Electron density around ANP F 1101:**

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

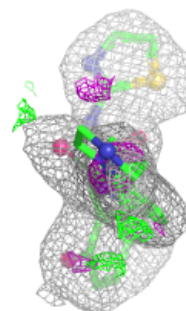
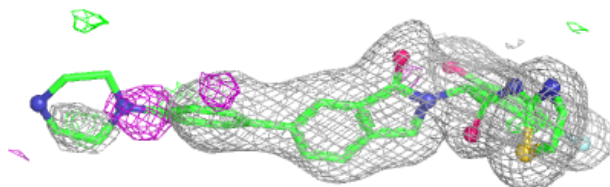
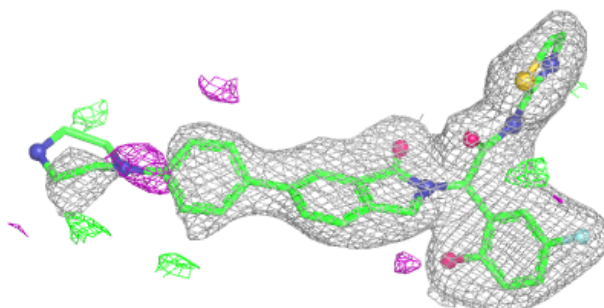


Electron density around ANP B 1101:

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

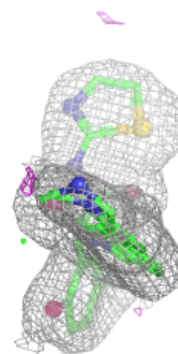
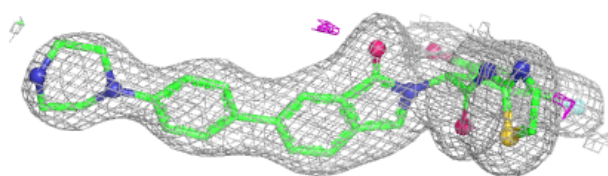
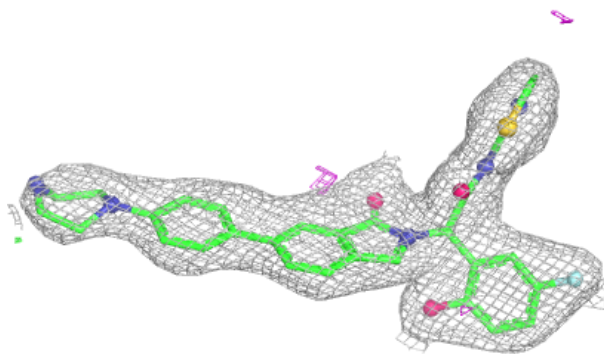
**Electron density around JBJ D 1103:**

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

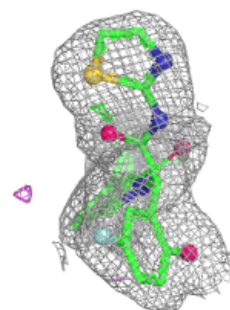
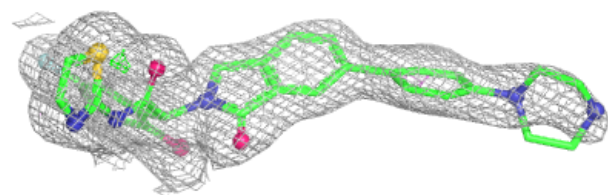
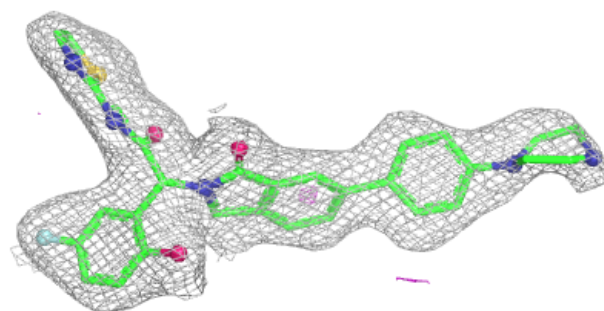


Electron density around JBJ A 1103:

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

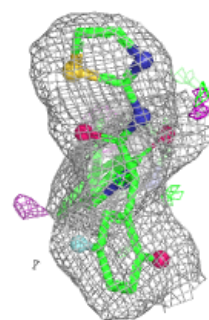
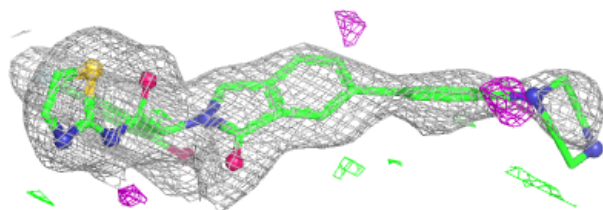
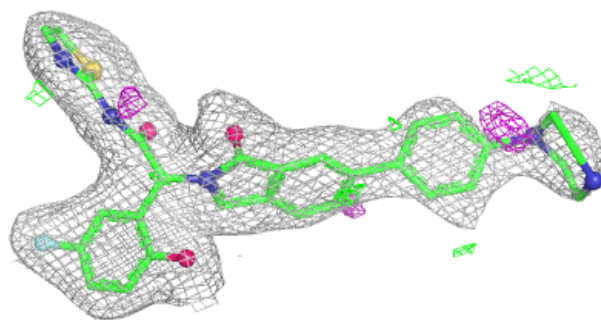
**Electron density around JBJ C 1101:**

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

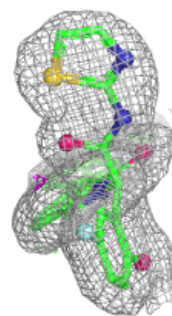
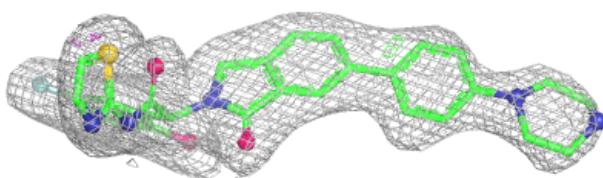
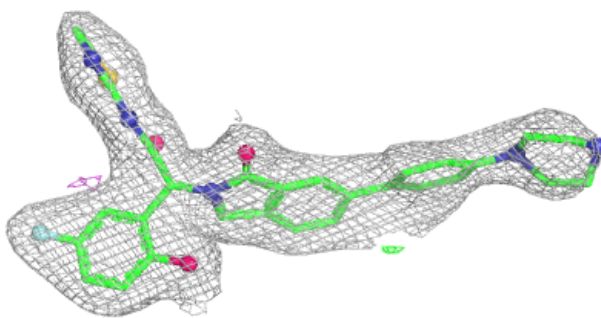


Electron density around JBJ F 1103:

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

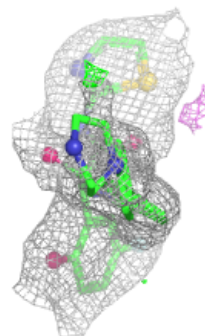
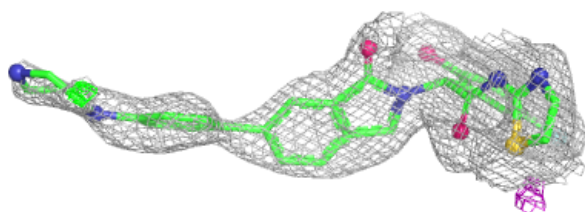
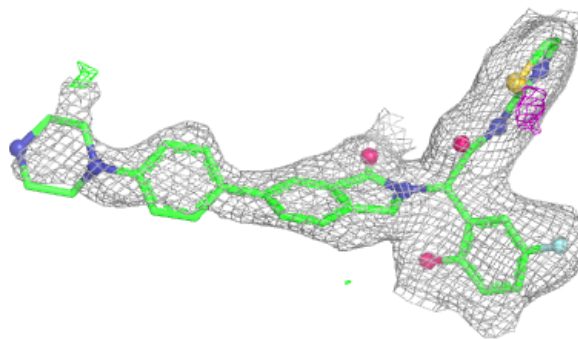
**Electron density around JBJ B 1103:**

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

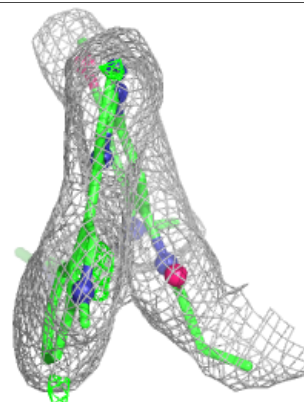
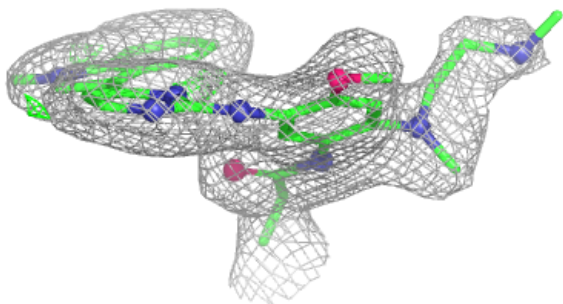
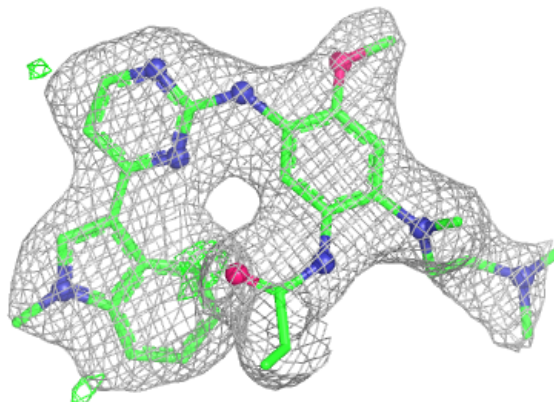


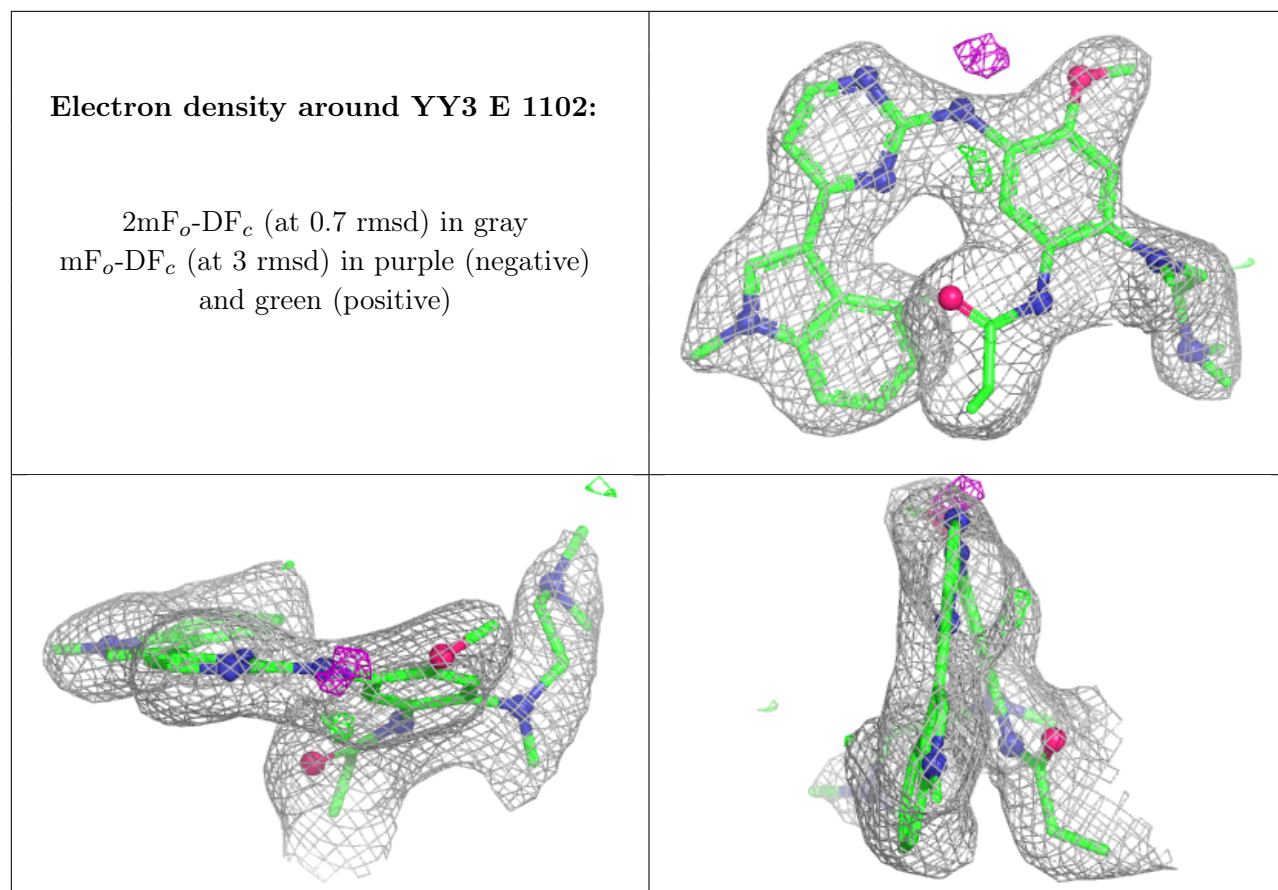
Electron density around JBJ E 1101:

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

**Electron density around YY3 C 1102:**

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





6.5 Other polymers ⓘ

EDS was not executed - this section is therefore empty.