



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 8, 2018 – 11:49 pm GMT

PDB ID : 3QFT
Title : Crystal Structure of NADPH-Cytochrome P450 Reductase (FAD/NADPH domain and R457H Mutant)
Authors : Xia, C.; Marohnic, C.; Panda, S.P.; Masters, B.S.; Kim, J.-J.P.
Deposited on : 2011-01-22
Resolution : 1.40 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 following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Mogul : 1.7.3 (157068), CSD as539be (2018)
Xtriage (Phenix) : 1.13
EDS : trunk30967
Percentile statistics : 20171227.v01 (using entries in the PDB archive December 27th 2017)
Refmac : 5.8.0158
CCP4 : 7.0 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : trunk30967

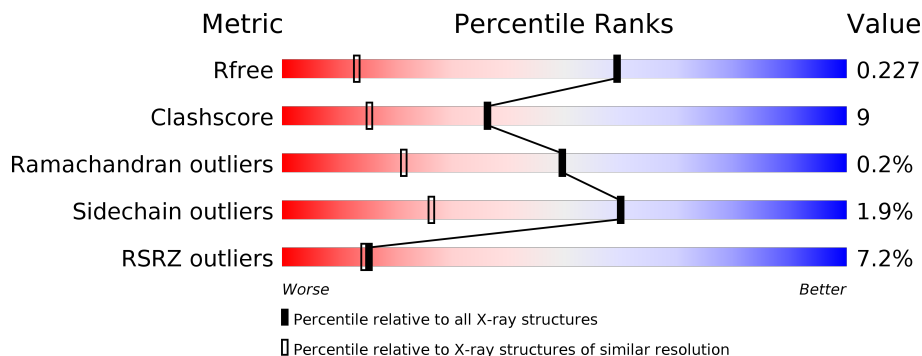
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.40 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
R_{free}	111664	1450 (1.40-1.40)
Clashscore	122126	1541 (1.40-1.40)
Ramachandran outliers	120053	1500 (1.40-1.40)
Sidechain outliers	120020	1499 (1.40-1.40)
RSRZ outliers	108989	1412 (1.40-1.40)

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. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$. The upper red bar (where present) indicates the fraction of residues that have poor fit to the electron density. The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	458	

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 3985 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.

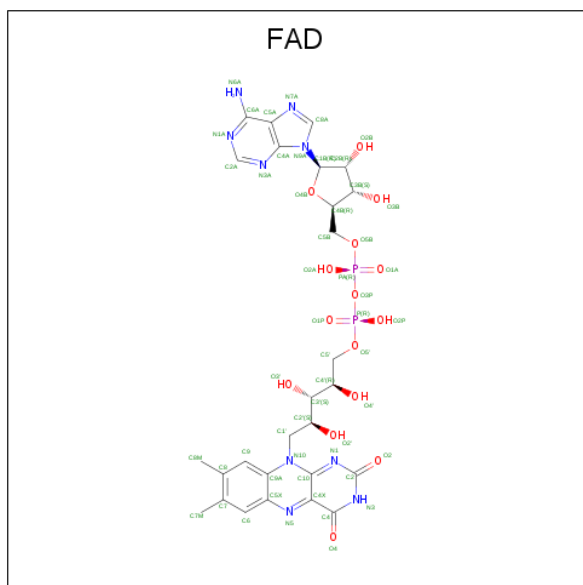
- Molecule 1 is a protein called NADPH–cytochrome P450 reductase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	433	3465	2194	614	641	16	0	0	0

There are 23 discrepancies between the modelled and reference sequences:

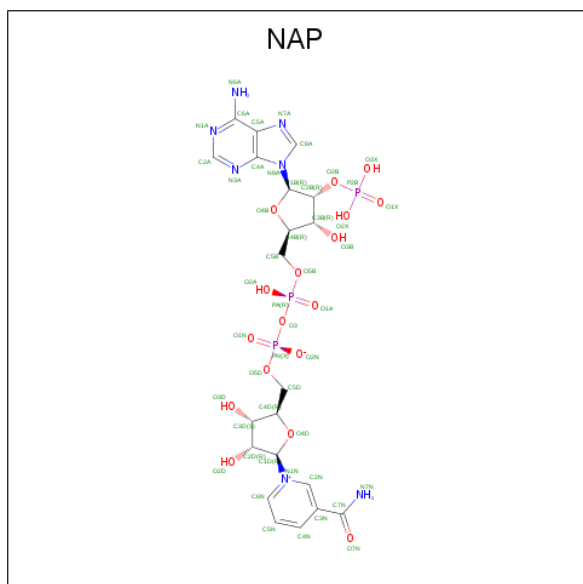
Chain	Residue	Modelled	Actual	Comment	Reference
A	223	MET	-	EXPRESSION TAG	UNP P16435
A	224	GLY	-	EXPRESSION TAG	UNP P16435
A	225	SER	-	EXPRESSION TAG	UNP P16435
A	226	SER	-	EXPRESSION TAG	UNP P16435
A	227	HIS	-	EXPRESSION TAG	UNP P16435
A	228	HIS	-	EXPRESSION TAG	UNP P16435
A	229	HIS	-	EXPRESSION TAG	UNP P16435
A	230	HIS	-	EXPRESSION TAG	UNP P16435
A	231	HIS	-	EXPRESSION TAG	UNP P16435
A	232	HIS	-	EXPRESSION TAG	UNP P16435
A	233	SER	-	EXPRESSION TAG	UNP P16435
A	234	SER	-	EXPRESSION TAG	UNP P16435
A	235	GLY	-	EXPRESSION TAG	UNP P16435
A	236	LEU	-	EXPRESSION TAG	UNP P16435
A	237	VAL	-	EXPRESSION TAG	UNP P16435
A	238	PRO	-	EXPRESSION TAG	UNP P16435
A	239	ARG	-	EXPRESSION TAG	UNP P16435
A	240	GLY	-	EXPRESSION TAG	UNP P16435
A	241	SER	-	EXPRESSION TAG	UNP P16435
A	242	HIS	-	EXPRESSION TAG	UNP P16435
A	243	MET	-	EXPRESSION TAG	UNP P16435
A	457	HIS	ARG	ENGINEERED MUTATION	UNP P16435
A	503	VAL	ALA	SEE REMARK 999	UNP P16435

- Molecule 2 is FLAVIN-ADENINE DINUCLEOTIDE (three-letter code: FAD) (formula: $C_{27}H_{33}N_9O_{15}P_2$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
2	A	1	53	27	9	15	2	0	0

- Molecule 3 is NADP NICOTINAMIDE-ADENINE-DINUCLEOTIDE PHOSPHATE (three-letter code: NAP) (formula: $C_{21}H_{28}N_7O_{17}P_3$).



Mol	Chain	Residues	Atoms					ZeroOcc	AltConf
			Total	C	N	O	P		
3	A	1	31	10	5	13	3	0	0

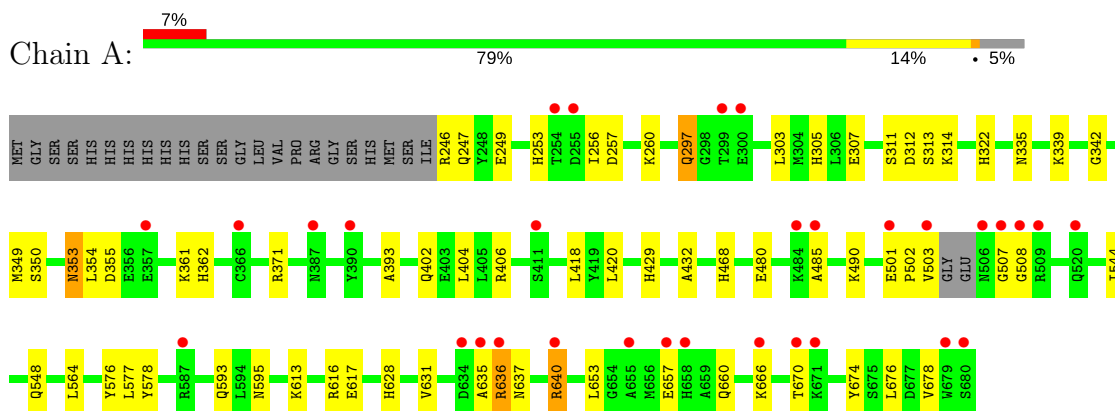
- Molecule 4 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	436	Total 436	O 436	0	0

3 Residue-property plots [i](#)

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 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: NADPH-cytochrome P450 reductase



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	54.80Å 58.62Å 130.20Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	19.74 – 1.40 19.74 – 1.40	Depositor EDS
% Data completeness (in resolution range)	93.9 (19.74-1.40) 94.1 (19.74-1.40)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.05	Depositor
$\langle I/\sigma(I) \rangle$ ¹	5.50 (at 1.40Å)	Xtrriage
Refinement program	CNS 1.2	Depositor
R, R_{free}	0.205 , 0.227 0.204 , 0.227	Depositor DCC
R_{free} test set	3953 reflections (5.08%)	wwPDB-VP
Wilson B-factor (Å ²)	14.0	Xtrriage
Anisotropy	0.495	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.42 , 46.1	EDS
L-test for twinning ²	$\langle L \rangle = 0.50$, $\langle L^2 \rangle = 0.33$	Xtrriage
Estimated twinning fraction	No twinning to report.	Xtrriage
F_o, F_c correlation	0.96	EDS
Total number of atoms	3985	wwPDB-VP
Average B, all atoms (Å ²)	19.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.77% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

5 Model quality [i](#)

5.1 Standard geometry [i](#)

Bond lengths and bond angles in the following residue types are not validated in this section: NAP, FAD

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

Mol	Chain	Bond lengths		Bond angles	
		RMSZ	# Z >5	RMSZ	# Z >5
1	A	0.28	0/3544	0.57	0/4800

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	3465	0	3429	60	0
2	A	53	0	31	0	0
3	A	31	0	11	0	0
4	A	436	0	0	7	0
All	All	3985	0	3471	60	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 9.

All (60) 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:257:ASP:HB2	1:A:260:LYS:HE2	1.46	0.98
1:A:640:ARG:HB3	1:A:640:ARG:HH11	1.35	0.90
1:A:247:GLN:HE21	1:A:353:ASN:HD21	1.31	0.78
1:A:640:ARG:HB3	1:A:640:ARG:NH1	1.98	0.77
1:A:297:GLN:H	1:A:297:GLN:NE2	1.85	0.74
1:A:635:ALA:HB2	1:A:678:VAL:HB	1.69	0.73
1:A:247:GLN:HE21	1:A:353:ASN:ND2	1.88	0.71
1:A:303:LEU:HD22	1:A:577:LEU:HD21	1.72	0.69
1:A:353:ASN:HD22	1:A:355:ASP:H	1.39	0.67
1:A:480:GLU:HG3	1:A:490:LYS:HD3	1.75	0.66
1:A:247:GLN:NE2	1:A:353:ASN:HD21	1.94	0.65
1:A:305:HIS:HD2	1:A:578:TYR:OH	1.80	0.65
1:A:353:ASN:ND2	1:A:355:ASP:H	1.95	0.63
1:A:503:VAL:HG23	1:A:508:GLY:O	1.98	0.62
1:A:361:LYS:HB3	1:A:361:LYS:NZ	2.16	0.61
1:A:253:HIS:HE1	1:A:350:SER:OG	1.83	0.60
1:A:256:ILE:HG13	1:A:260:LYS:HE3	1.85	0.59
1:A:501:GLU:HB3	1:A:503:VAL:HG13	1.85	0.58
1:A:322:HIS:HD2	4:A:58:HOH:O	1.85	0.58
1:A:631:VAL:HB	1:A:676:LEU:CD2	2.36	0.56
1:A:429:HIS:CD2	1:A:432:ALA:H	2.24	0.56
1:A:501:GLU:O	1:A:503:VAL:HG22	2.05	0.56
1:A:613:LYS:HG3	1:A:616:ARG:NH2	2.21	0.56
1:A:593:GLN:HE21	1:A:595:ASN:HD21	1.54	0.55
1:A:429:HIS:HD2	1:A:432:ALA:H	1.54	0.55
1:A:257:ASP:CB	1:A:260:LYS:HE2	2.29	0.54
1:A:249:GLU:HB3	1:A:354:LEU:HD21	1.88	0.54
1:A:353:ASN:HD22	1:A:354:LEU:N	2.04	0.53
1:A:246:ARG:O	1:A:354:LEU:HD12	2.08	0.53
1:A:406:ARG:HH11	1:A:406:ARG:HG2	1.73	0.53
1:A:297:GLN:H	1:A:297:GLN:HE21	1.54	0.51
1:A:653:LEU:HD12	1:A:653:LEU:N	2.26	0.51
1:A:485:ALA:HB3	4:A:114:HOH:O	2.13	0.49
1:A:628:HIS:HE1	4:A:712:HOH:O	1.96	0.49
1:A:404:LEU:CD1	1:A:418:LEU:HD21	2.44	0.48
1:A:613:LYS:HE2	1:A:616:ARG:CZ	2.44	0.48
1:A:674:TYR:HE2	1:A:676:LEU:HD21	1.79	0.48
1:A:256:ILE:CG1	1:A:260:LYS:HE3	2.44	0.47
1:A:362:HIS:HE1	4:A:191:HOH:O	1.97	0.47
1:A:305:HIS:HE1	1:A:307:GLU:OE1	1.98	0.47
1:A:404:LEU:HD11	1:A:418:LEU:HD21	1.97	0.46
1:A:311:SER:O	1:A:312:ASP:HB2	2.16	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:468:HIS:HE1	4:A:110:HOH:O	1.98	0.45
1:A:393:ALA:O	1:A:402:GLN:HG3	2.16	0.45
1:A:502:PRO:O	1:A:503:VAL:C	2.55	0.45
1:A:335:ASN:ND2	1:A:371:ARG:HH12	2.14	0.45
1:A:313:SER:O	1:A:314:LYS:HB2	2.17	0.45
1:A:636:ARG:NE	1:A:637:ASN:OD1	2.48	0.45
1:A:339:LYS:HD2	4:A:60:HOH:O	2.17	0.44
1:A:617:GLU:HA	1:A:653:LEU:CD2	2.47	0.44
1:A:617:GLU:HA	1:A:653:LEU:HD21	2.00	0.44
1:A:631:VAL:HB	1:A:676:LEU:HD23	1.98	0.44
1:A:657:GLU:H	1:A:660:GLN:HE21	1.66	0.43
1:A:544:ILE:O	1:A:548:GLN:HG3	2.19	0.43
1:A:342:GLY:HA2	4:A:806:HOH:O	2.17	0.43
1:A:406:ARG:HG2	1:A:406:ARG:NH1	2.34	0.43
1:A:666:LYS:O	1:A:670:THR:HG23	2.19	0.43
1:A:635:ALA:HB2	1:A:678:VAL:CB	2.43	0.42
1:A:361:LYS:HZ2	1:A:361:LYS:HB3	1.85	0.41
1:A:564:LEU:HD12	1:A:564:LEU:N	2.36	0.41

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	429/458 (94%)	416 (97%)	12 (3%)	1 (0%)	49 21

All (1) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	507	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
1	A	372/394 (94%)	365 (98%)	7 (2%)	60 26

All (7) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	297	GLN
1	A	349	MET
1	A	353	ASN
1	A	420	LEU
1	A	576	TYR
1	A	636	ARG
1	A	640	ARG

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (20) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	253	HIS
1	A	274	ASN
1	A	283	ASN
1	A	297	GLN
1	A	305	HIS
1	A	322	HIS
1	A	335	ASN
1	A	353	ASN
1	A	362	HIS
1	A	394	GLN
1	A	429	HIS
1	A	468	HIS
1	A	470	ASN
1	A	489	ASN
1	A	584	GLN
1	A	586	HIS
1	A	593	GLN
1	A	628	HIS

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Mol	Chain	Res	Type
1	A	643	GLN
1	A	660	GLN

5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

5.6 Ligand geometry [i](#)

2 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	FAD	A	752	-	51,58,58	2.77	23 (45%)	57,89,89	3.05	14 (24%)
3	NAP	A	753	-	29,33,52	2.41	7 (24%)	34,52,80	1.55	5 (14%)

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
2	FAD	A	752	-	-	0/28/50/50	0/6/6/6
3	NAP	A	753	-	-	0/17/37/67	0/3/3/5

All (30) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	752	FAD	C5'-C4'	-4.72	1.44	1.51
3	A	753	NAP	PA-O5B	-2.71	1.48	1.59
2	A	752	FAD	PA-O5B	-2.26	1.50	1.59
2	A	752	FAD	P-O5'	-2.15	1.50	1.59
3	A	753	NAP	C2A-N3A	2.21	1.35	1.32
2	A	752	FAD	C5A-C4A	2.23	1.45	1.40
3	A	753	NAP	C2A-N1A	2.26	1.38	1.33
2	A	752	FAD	C8A-N9A	2.32	1.39	1.36
2	A	752	FAD	C6-C7	2.34	1.43	1.37
2	A	752	FAD	C8A-N7A	2.39	1.39	1.34
2	A	752	FAD	C1'-N10	2.45	1.50	1.48
2	A	752	FAD	C4-C4X	2.55	1.45	1.41
2	A	752	FAD	C6-C5X	2.69	1.46	1.41
2	A	752	FAD	O4B-C1B	2.69	1.45	1.41
2	A	752	FAD	O2'-C2'	2.72	1.49	1.43
2	A	752	FAD	C5X-N5	2.79	1.39	1.35
3	A	753	NAP	C5A-C4A	2.95	1.47	1.40
2	A	752	FAD	C9A-C5X	3.06	1.48	1.42
3	A	753	NAP	P2B-O1X	3.27	1.61	1.50
2	A	752	FAD	C8-C7	3.34	1.49	1.40
2	A	752	FAD	C4X-C10	3.45	1.46	1.41
2	A	752	FAD	C2A-N3A	3.48	1.37	1.32
2	A	752	FAD	C2'-C3'	3.55	1.60	1.53
3	A	753	NAP	C8A-N9A	3.75	1.41	1.36
2	A	752	FAD	C4X-N5	4.76	1.40	1.33
2	A	752	FAD	C10-N1	5.00	1.40	1.33
2	A	752	FAD	C4-N3	5.82	1.43	1.33
2	A	752	FAD	C4A-N3A	7.24	1.46	1.35
2	A	752	FAD	C9A-N10	8.98	1.49	1.38
3	A	753	NAP	C4A-N3A	9.96	1.49	1.35

All (19) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	752	FAD	N3A-C2A-N1A	-8.18	121.86	128.86
2	A	752	FAD	C4X-C4-N3	-6.48	114.26	123.47
3	A	753	NAP	N3A-C2A-N1A	-5.73	123.95	128.86
2	A	752	FAD	C1B-N9A-C4A	-3.16	121.17	126.64
2	A	752	FAD	C1'-N10-C10	-2.96	115.50	118.46
2	A	752	FAD	C4-C4X-C10	-2.88	117.80	119.95
2	A	752	FAD	C5X-C9A-N10	-2.83	115.55	117.71
3	A	753	NAP	C4B-O4B-C1B	-2.82	106.89	109.83

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	752	FAD	C4X-C10-N10	-2.71	117.88	120.40
2	A	752	FAD	P-O3P-PA	-2.47	124.33	132.63
3	A	753	NAP	PA-O3-PN	-2.15	125.40	132.63
2	A	752	FAD	O5'-C5'-C4'	2.03	114.79	109.36
3	A	753	NAP	C2A-N1A-C6A	2.43	122.88	118.75
2	A	752	FAD	O2'-C2'-C1'	2.62	116.08	109.61
3	A	753	NAP	C4A-C5A-N7A	3.66	112.94	109.41
2	A	752	FAD	C10-C4X-N5	4.33	125.57	120.59
2	A	752	FAD	C2A-N1A-C6A	5.46	128.02	118.75
2	A	752	FAD	C1'-N10-C9A	6.20	123.82	118.31
2	A	752	FAD	C4-N3-C2	15.05	127.95	115.14

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

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	A	433/458 (94%)	0.31	31 (7%) 15 14	10, 17, 29, 41	0

All (31) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	506	ASN	10.9
1	A	507	GLY	8.7
1	A	636	ARG	7.8
1	A	680	SER	6.1
1	A	390	TYR	4.6
1	A	503	VAL	4.2
1	A	255	ASP	3.9
1	A	508	GLY	3.6
1	A	658	HIS	3.3
1	A	635	ALA	3.2
1	A	357	GLU	3.1
1	A	679	TRP	3.1
1	A	366	CYS	3.0
1	A	671	LYS	3.0
1	A	509	ARG	2.8
1	A	254	THR	2.8
1	A	484	LYS	2.7
1	A	485	ALA	2.6
1	A	670	THR	2.5
1	A	666	LYS	2.4
1	A	387	ASN	2.3
1	A	640	ARG	2.3
1	A	587	ARG	2.3
1	A	655	ALA	2.3
1	A	634	ASP	2.3
1	A	300	GLU	2.2
1	A	501	GLU	2.2

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Mol	Chain	Res	Type	RSRZ
1	A	520	GLN	2.2
1	A	411	SER	2.1
1	A	299	THR	2.1
1	A	657	GLU	2.0

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

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

6.3 Carbohydrates [i](#)

There are no carbohydrates in this entry.

6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q < 0.9' lists the number of atoms with occupancy less than 0.9.

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å ²)	Q < 0.9
3	NAP	A	753	31/48	0.94	0.09	12,15,26,31	0
2	FAD	A	752	53/53	0.96	0.09	9,12,25,28	0

6.5 Other polymers [i](#)

There are no such residues in this entry.