



Full wwPDB X-ray Structure Validation Report ⓘ

Mar 10, 2026 – 04:23 AM UTC

PDB ID : 2FYP / pdb_00002fyp
Title : GRP94 in complex with the novel HSP90 Inhibitor Radester amine
Authors : Immormino, R.M.; Gewirth, D.T.
Deposited on : 2006-02-08
Resolution : 1.95 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 : 2022.3.0, CSD as543be (2022)
Xtriage (Phenix) : 2.0
EDS : 3.0
Buster-report : wwPDB partial adaption of 1.1.7 (2018)
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)
CCP4 : 9.0.010 (Gargrove)
Density-Fitness : 1.0.12
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.49

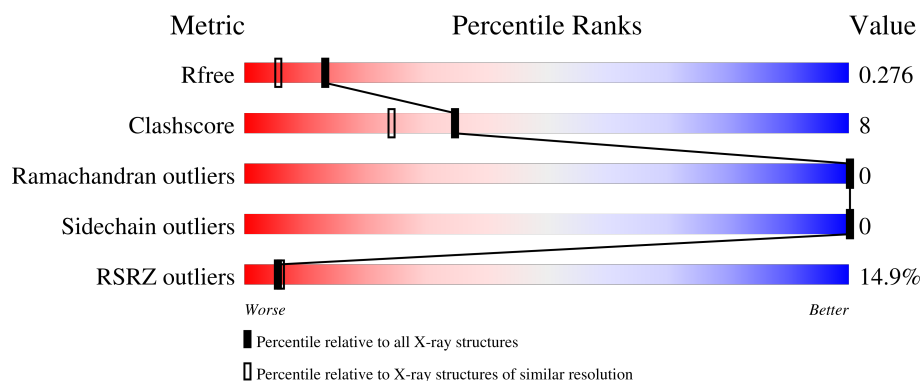
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 1.95 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}	180053	3494 (1.96-1.96)
Clashscore	190562	3612 (1.96-1.96)
Ramachandran outliers	187476	3587 (1.96-1.96)
Sidechain outliers	187428	3587 (1.96-1.96)
RSRZ outliers	180081	3495 (1.96-1.96)

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 $\leq 5\%$. 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	236	15% 81% 17% ..
1	B	236	14% 82% 16% .

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 4141 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.

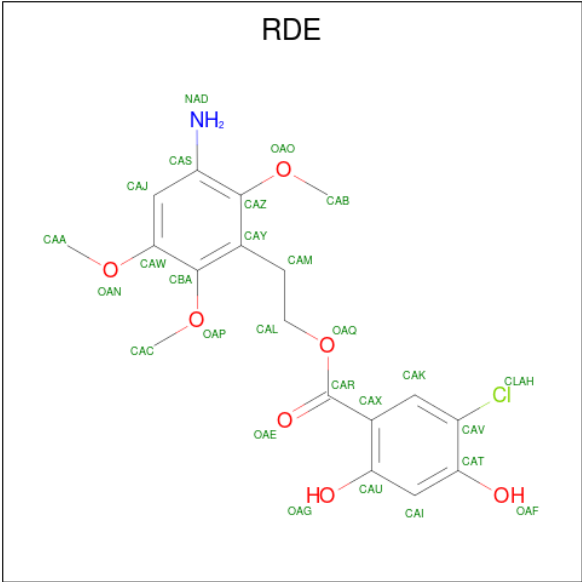
- Molecule 1 is a protein called Endoplasmin.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	232	Total	C	N	O	S	0	6	0
			1810	1139	309	354	8			
1	B	232	Total	C	N	O	S	0	8	0
			1840	1160	310	360	10			

There are 16 discrepancies between the modelled and reference sequences:

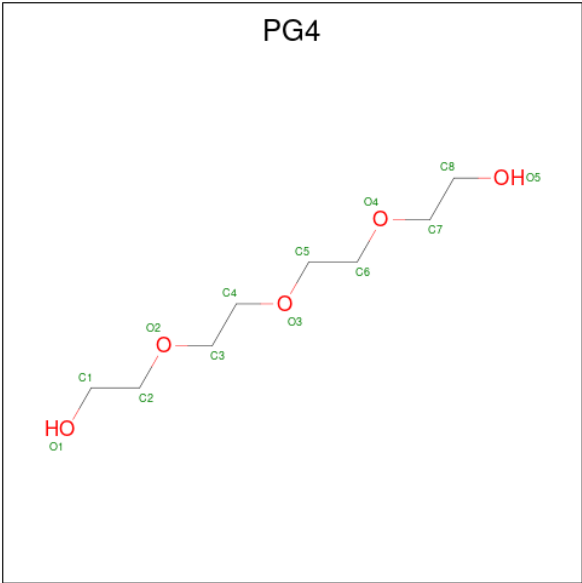
Chain	Residue	Modelled	Actual	Comment	Reference
A	65	GLY	-	cloning artifact	UNP P41148
A	66	SER	-	cloning artifact	UNP P41148
A	67	HIS	-	cloning artifact	UNP P41148
A	68	MET	-	cloning artifact	UNP P41148
A	324	GLY	-	SEE REMARK 999	UNP P41148
A	325	GLY	-	SEE REMARK 999	UNP P41148
A	326	GLY	-	SEE REMARK 999	UNP P41148
A	327	GLY	-	SEE REMARK 999	UNP P41148
B	65	GLY	-	cloning artifact	UNP P41148
B	66	SER	-	cloning artifact	UNP P41148
B	67	HIS	-	cloning artifact	UNP P41148
B	68	MET	-	cloning artifact	UNP P41148
B	324	GLY	-	SEE REMARK 999	UNP P41148
B	325	GLY	-	SEE REMARK 999	UNP P41148
B	326	GLY	-	SEE REMARK 999	UNP P41148
B	327	GLY	-	SEE REMARK 999	UNP P41148

- Molecule 2 is 2-(3-AMINO-2,5,6-TRIMETHOXYPHENYL)ETHYL 5-CHLORO-2,4-DIHYDROXYBENZOATE (CCD ID: RDE) (formula: C₁₈H₂₀ClNO₇).



Mol	Chain	Residues	Atoms				ZeroOcc	AltConf
2	A	1	Total	C	Cl	O	0	0
			12	7	1	4		
2	B	1	Total	C	Cl	O	0	0
			12	7	1	4		

- Molecule 3 is TETRAETHYLENE GLYCOL (CCD ID: PG4) (formula: C₈H₁₈O₅).



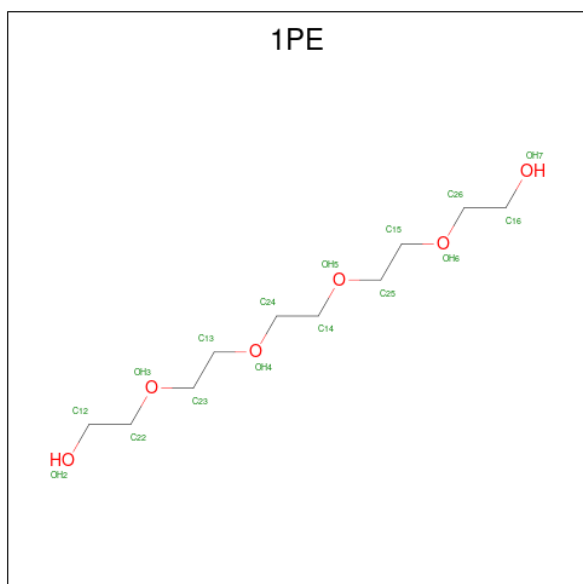
Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			10	6	4		
3	A	1	Total	C	O	0	0
			13	8	5		

Continued on next page...

Continued from previous page...

Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
3	A	1	Total	C	O	0	0
			10	6	4		
3	A	1	Total	C	O	0	0
			7	4	3		
3	B	1	Total	C	O	0	0
			13	8	5		
3	B	1	Total	C	O	0	0
			13	8	5		
3	B	1	Total	C	O	0	0
			7	4	3		
3	B	1	Total	C	O	0	0
			13	8	5		

- Molecule 4 is PENTAETHYLENE GLYCOL (CCD ID: 1PE) (formula: $C_{10}H_{22}O_6$).



Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
4	B	1	Total	C	O	0	0
			16	10	6		

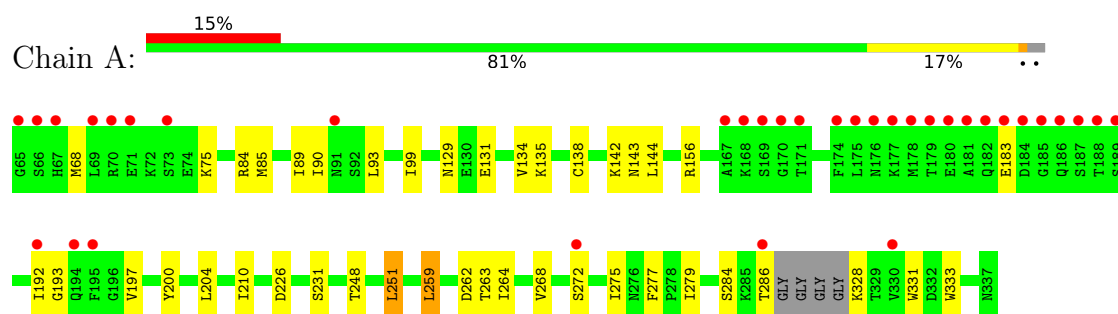
- Molecule 5 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
5	A	185	Total	O	0	0
			185	185		
5	B	180	Total	O	0	0
			180	180		

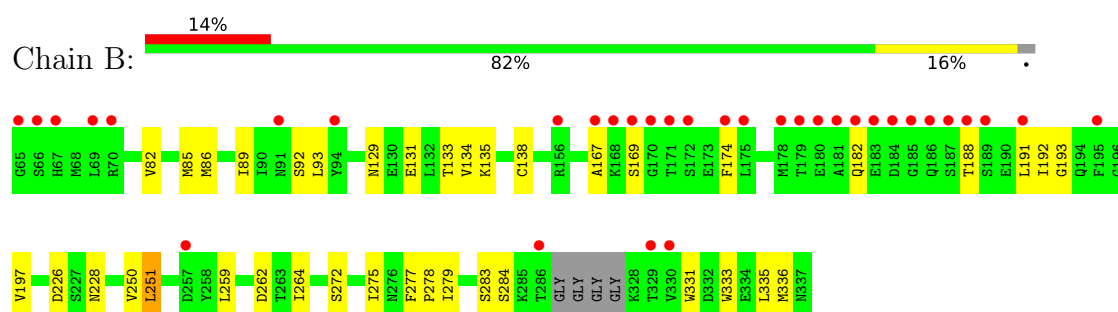
3 Residue-property plots [i](#)

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 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: Endoplasmic



• Molecule 1: Endoplasmic



4 Data and refinement statistics

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	65.61Å 84.74Å 95.08Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	19.87 – 1.95 19.87 – 1.95	Depositor EDS
% Data completeness (in resolution range)	98.3 (19.87-1.95) 98.3 (19.87-1.95)	Depositor EDS
R_{merge}	(Not available)	Depositor
R_{sym}	0.07	Depositor
$\langle I/\sigma(I) \rangle$ ¹	4.17 (at 1.94Å)	Xtriage
Refinement program	CNS 1.1	Depositor
R, R_{free}	0.230 , 0.265 0.244 , 0.276	Depositor DCC
R_{free} test set	3904 reflections (10.09%)	wwPDB-VP
Wilson B-factor (Å ²)	20.5	Xtriage
Anisotropy	0.476	Xtriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.36 , 61.8	EDS
L-test for twinning ²	$\langle L \rangle = 0.45$, $\langle L^2 \rangle = 0.27$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o, F_c correlation	0.93	EDS
Total number of atoms	4141	wwPDB-VP
Average B, all atoms (Å ²)	32.0	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 38.33 % 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 3.7483e-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: PG4, 1PE, RDE

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	0.36	0/1835	0.87	4/2481 (0.2%)
1	B	0.34	0/1867	0.85	3/2525 (0.1%)
All	All	0.35	0/3702	0.86	7/5006 (0.1%)

There are no bond length outliers.

All (7) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	251	LEU	N-CA-C	6.58	119.77	110.23
1	A	183	GLU	N-CA-C	-6.15	106.38	114.31
1	B	226	ASP	N-CA-C	-6.06	105.06	112.88
1	B	251	LEU	N-CA-C	6.01	118.94	110.23
1	A	226	ASP	N-CA-C	-5.71	105.62	112.59
1	A	259	LEU	N-CA-C	-5.70	105.99	113.17
1	B	250	VAL	N-CA-C	-5.00	99.50	107.15

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	1810	0	1743	30	0
1	B	1840	0	1767	27	0

Continued on next page...

Continued from previous page...

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
2	A	12	0	2	0	0
2	B	12	0	2	0	0
3	A	40	0	53	0	0
3	B	46	0	63	1	0
4	B	16	0	22	0	0
5	A	185	0	0	2	0
5	B	180	0	0	1	0
All	All	4141	0	3652	56	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 8.

All (56) 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:B:85[B]:MET:HE1	1:B:174:PHE:CD1	2.03	0.93
1:B:85[B]:MET:HE1	1:B:174:PHE:HD1	1.34	0.92
1:A:85[B]:MET:SD	1:A:197:VAL:HG11	2.27	0.74
1:A:138:CYS:SG	1:A:264:ILE:HG13	2.40	0.62
1:A:93:LEU:HD13	1:A:99:ILE:HD11	1.83	0.61
1:B:284:SER:HB3	1:B:331:TRP:CE2	2.38	0.58
1:B:85[B]:MET:CE	1:B:174:PHE:CD1	2.86	0.56
1:B:188:THR:HA	1:B:191:LEU:HD12	1.89	0.55
1:B:85[B]:MET:SD	1:B:174:PHE:HE1	2.32	0.53
1:B:85[A]:MET:SD	1:B:197:VAL:HG11	2.50	0.52
1:B:85[B]:MET:HE1	1:B:174:PHE:CE1	2.43	0.52
1:A:251:LEU:HD12	1:A:259:LEU:HG	1.93	0.49
1:B:251:LEU:HD12	1:B:259:LEU:HG	1.94	0.49
1:A:68:MET:HE3	5:A:1028:HOH:O	2.11	0.49
1:A:134:VAL:HB	1:A:279:ILE:HG12	1.94	0.49
1:B:138:CYS:SG	1:B:264:ILE:HG13	2.53	0.49
1:B:192:ILE:HG13	1:B:193:GLY:N	2.28	0.49
1:A:75:LYS:HD3	1:A:231[A]:SER:OG	2.13	0.48
1:B:133:THR:HG22	1:B:278:PRO:HG2	1.95	0.48
1:B:262:ASP:HB3	3:B:506:PG4:H32	1.96	0.48
1:A:210:ILE:HB	1:A:248:THR:HB	1.96	0.48
1:B:85[B]:MET:CE	1:B:174:PHE:CE1	2.97	0.47
1:B:335:LEU:O	1:B:336:MET:HE2	2.13	0.47
1:A:93:LEU:HB2	1:A:204:LEU:HD11	1.97	0.47
1:A:84:ARG:HG2	1:B:228:ASN:ND2	2.30	0.46
1:B:129:ASN:OD1	1:B:131:GLU:HG2	2.16	0.46

Continued on next page...

Continued from previous page...

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:143:ASN:OD1	1:A:259:LEU:HD11	2.16	0.46
1:A:262:ASP:OD1	1:A:263:THR:N	2.48	0.46
1:A:89:ILE:HD12	1:A:200:TYR:HB2	1.97	0.46
1:A:90:ILE:HA	1:A:204:LEU:HD21	1.97	0.46
1:B:92:SER:HB3	1:B:182:GLN:OE1	2.16	0.46
1:B:167:ALA:C	1:B:169:SER:H	2.24	0.46
1:A:286:THR:HA	1:A:328:LYS:O	2.16	0.45
1:A:142[B]:LYS:HB3	1:A:144:LEU:HG	1.98	0.45
1:A:264:ILE:O	1:A:268:VAL:HG23	2.17	0.45
1:A:85[B]:MET:SD	1:A:197:VAL:CG1	3.03	0.45
1:B:82:VAL:HG12	1:B:86[A]:MET:HE2	1.99	0.45
1:A:135:LYS:HB3	1:A:333:TRP:CZ3	2.52	0.44
1:B:283:SER:HB2	5:B:1154:HOH:O	2.17	0.44
1:B:275:ILE:HG22	1:B:277:PHE:H	1.84	0.43
1:B:135:LYS:HB3	1:B:333:TRP:CH2	2.53	0.43
1:A:93:LEU:HD13	1:A:99:ILE:CD1	2.47	0.43
1:B:272:SER:OG	1:B:279:ILE:HD12	2.19	0.43
1:B:134:VAL:HB	1:B:279:ILE:HG12	2.00	0.43
1:A:156[B]:ARG:NE	5:A:1062:HOH:O	2.46	0.43
1:A:284:SER:HB3	1:A:331:TRP:CE2	2.54	0.42
1:A:135:LYS:HB3	1:A:333:TRP:CH2	2.54	0.42
1:A:272:SER:CB	1:A:279:ILE:HD12	2.49	0.42
1:A:99:ILE:C	1:A:99:ILE:HD12	2.45	0.42
1:A:275:ILE:HG22	1:A:277:PHE:H	1.84	0.41
1:A:192:ILE:HG13	1:A:193:GLY:N	2.35	0.41
1:A:93:LEU:HD11	1:A:192:ILE:HD13	2.02	0.41
1:A:129:ASN:OD1	1:A:131:GLU:HG2	2.20	0.41
1:B:135:LYS:HB3	1:B:333:TRP:CZ3	2.57	0.41
1:B:89:ILE:HG23	1:B:93:LEU:HD12	2.03	0.40
1:A:272:SER:OG	1:A:279:ILE:HD12	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	
1	A	234/236 (99%)	222 (95%)	12 (5%)	0	100	100
1	B	236/236 (100%)	226 (96%)	10 (4%)	0	100	100
All	All	470/472 (100%)	448 (95%)	22 (5%)	0	100	100

There are no Ramachandran outliers to report.

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	191/207 (92%)	191 (100%)	0	100	100
1	B	196/207 (95%)	196 (100%)	0	100	100
All	All	387/414 (94%)	387 (100%)	0	100	100

There are no protein residues with a non-rotameric sidechain to report.

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (1) such sidechains are listed below:

Mol	Chain	Res	Type
1	B	276	ASN

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 oligosaccharides in this entry.

5.6 Ligand geometry [i](#)

11 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	$\# Z > 2$
4	1PE	B	601	-	15,15,15	0.47	0	14,14,14	0.80	0
3	PG4	B	507	-	12,12,12	0.56	0	11,11,11	0.76	0
2	RDE	A	1001	-	12,12,28	0.87	0	17,17,39	1.07	1 (5%)
3	PG4	B	505	-	12,12,12	0.51	0	11,11,11	0.79	0
3	PG4	A	503	-	9,9,12	0.53	0	8,8,11	0.71	0
3	PG4	B	506	-	6,6,12	0.51	0	5,5,11	0.73	0
3	PG4	B	504	-	12,12,12	0.49	0	11,11,11	0.76	0
2	RDE	B	1002	-	12,12,28	0.84	0	17,17,39	1.08	1 (5%)
3	PG4	A	508	-	6,6,12	0.47	0	5,5,11	0.72	0
3	PG4	A	501	-	9,9,12	0.47	0	8,8,11	0.74	0
3	PG4	A	502	-	12,12,12	0.55	0	11,11,11	0.76	0

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

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	1PE	B	601	-	-	4/13/13/13	-
3	PG4	B	507	-	-	1/10/10/10	-
2	RDE	A	1001	-	-	2/4/4/16	0/1/1/2
3	PG4	B	505	-	-	1/10/10/10	-
3	PG4	A	503	-	-	0/7/7/10	-
3	PG4	B	506	-	-	1/4/4/10	-
3	PG4	B	504	-	-	0/10/10/10	-
2	RDE	B	1002	-	-	2/4/4/16	0/1/1/2

Continued on next page...

Continued from previous page...

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
3	PG4	A	508	-	-	1/4/4/10	-
3	PG4	A	501	-	-	2/7/7/10	-
3	PG4	A	502	-	-	0/10/10/10	-

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
2	A	1001	RDE	CAI-CAT-CAV	3.09	119.96	118.44
2	B	1002	RDE	CAI-CAT-CAV	2.99	119.91	118.44

There are no chirality outliers.

All (14) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
3	A	501	PG4	O3-C5-C6-O4
4	B	601	1PE	OH7-C16-C26-OH6
3	B	505	PG4	O1-C1-C2-O2
4	B	601	1PE	OH2-C12-C22-OH3
3	B	506	PG4	O2-C3-C4-O3
2	B	1002	RDE	OAQ-CAR-CAX-CAU
2	B	1002	RDE	OAE-CAR-CAX-CAU
2	A	1001	RDE	OAQ-CAR-CAX-CAU
2	A	1001	RDE	OAE-CAR-CAX-CAU
4	B	601	1PE	OH6-C15-C25-OH5
3	A	508	PG4	O2-C3-C4-O3
3	A	501	PG4	O1-C1-C2-O2
3	B	507	PG4	O1-C1-C2-O2
4	B	601	1PE	OH4-C13-C23-OH3

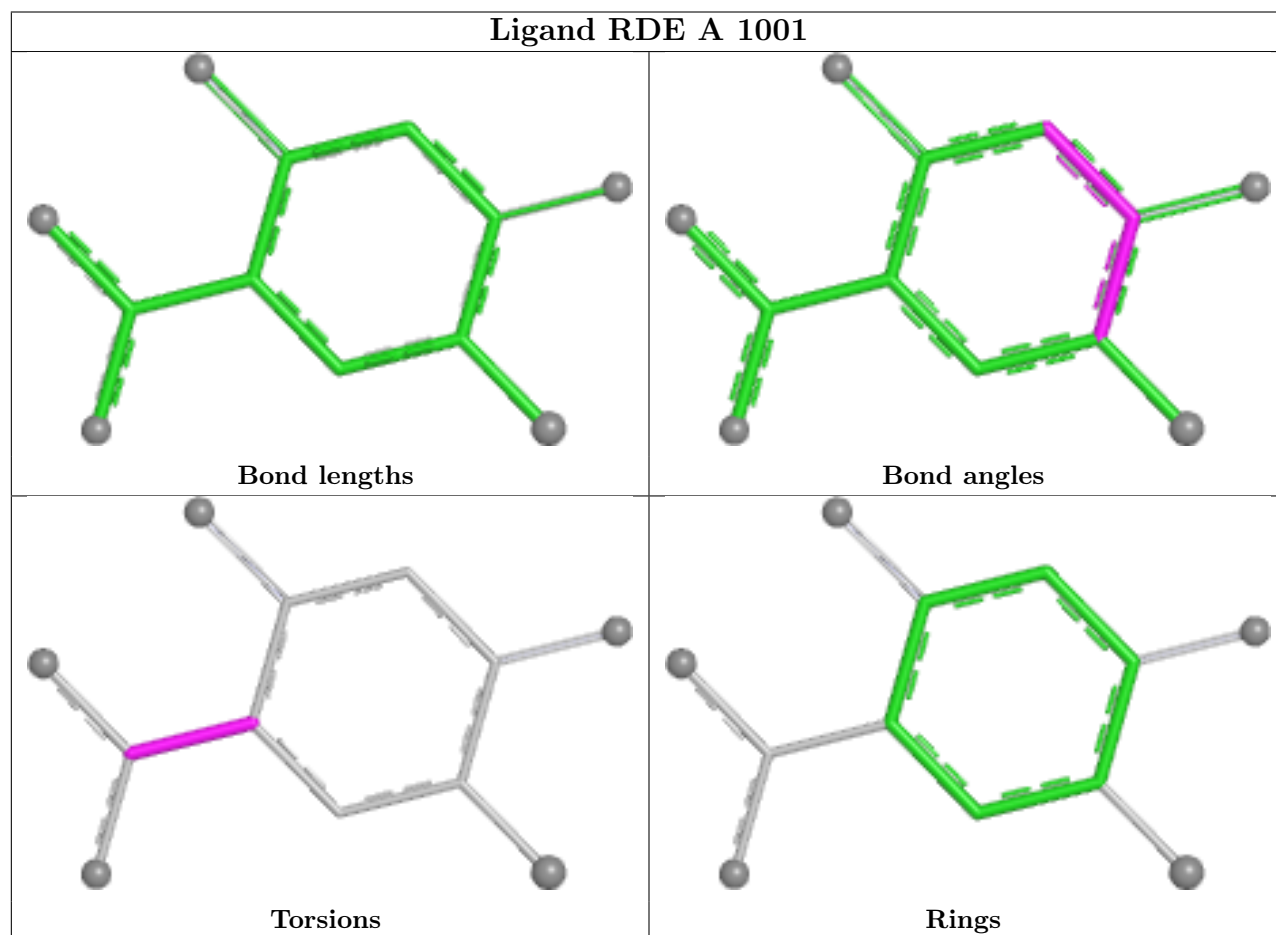
There are no ring outliers.

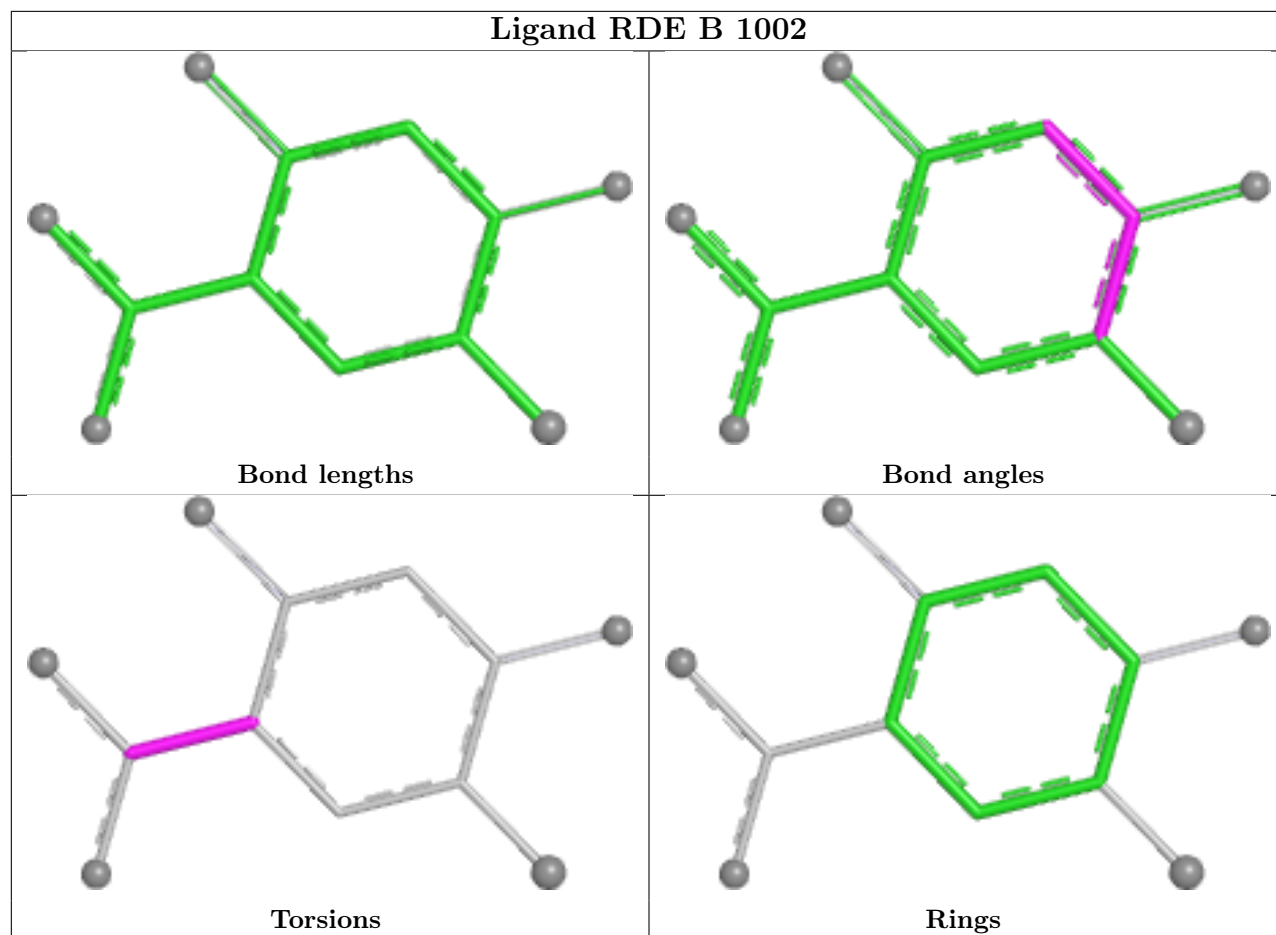
1 monomer is involved in 1 short contact:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
3	B	506	PG4	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 [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	232/236 (98%)	0.72	35 (15%) 5 6	7, 25, 82, 91	6 (2%)
1	B	232/236 (98%)	0.74	34 (14%) 6 6	5, 24, 79, 85	8 (3%)
All	All	464/472 (98%)	0.73	69 (14%) 5 6	5, 25, 80, 91	14 (3%)

All (69) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	B	156[A]	ARG	24.5
1	B	184	ASP	8.1
1	A	167	ALA	6.3
1	B	65	GLY	5.9
1	A	174	PHE	5.1
1	B	185	GLY	5.1
1	A	181	ALA	4.9
1	B	69	LEU	4.8
1	A	65	GLY	4.8
1	A	184	ASP	4.6
1	A	180	GLU	4.5
1	B	170	GLY	4.3
1	B	175	LEU	4.3
1	A	182	GLN	4.2
1	A	69	LEU	4.0
1	A	178	MET	4.0
1	B	181	ALA	4.0
1	A	185	GLY	3.9
1	A	169	SER	3.9
1	B	186	GLN	3.8
1	A	168	LYS	3.8
1	A	67	HIS	3.7
1	A	187	SER	3.6
1	B	179	THR	3.6

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	B	183	GLU	3.6
1	A	183	GLU	3.6
1	B	191	LEU	3.6
1	A	66	SER	3.5
1	A	176	ASN	3.4
1	B	67	HIS	3.3
1	B	66	SER	3.3
1	B	174	PHE	3.3
1	B	195	PHE	3.2
1	A	179	THR	3.2
1	B	171	THR	3.2
1	A	91[A]	ASN	3.2
1	B	172	SER	3.2
1	A	186	GLN	3.2
1	B	167	ALA	3.1
1	A	195	PHE	3.1
1	B	169	SER	3.1
1	A	330	VAL	2.9
1	A	171	THR	2.8
1	B	330	VAL	2.8
1	B	94	TYR	2.8
1	A	170	GLY	2.7
1	B	168	LYS	2.7
1	B	180	GLU	2.6
1	A	73	SER	2.6
1	B	187	SER	2.6
1	B	189	SER	2.6
1	B	188	THR	2.6
1	A	194	GLN	2.6
1	A	177	LYS	2.6
1	B	70	ARG	2.5
1	B	178	MET	2.5
1	A	286	THR	2.5
1	A	175	LEU	2.4
1	B	257[A]	ASP	2.4
1	B	329	THR	2.4
1	B	91	ASN	2.3
1	A	192	ILE	2.3
1	B	182	GLN	2.2
1	A	70	ARG	2.2
1	A	188	THR	2.1
1	A	272	SER	2.0

Continued on next page...

Continued from previous page...

Mol	Chain	Res	Type	RSRZ
1	B	286	THR	2.0
1	A	71	GLU	2.0
1	A	189	SER	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 oligosaccharides in this entry.

6.4 Ligands [i](#)

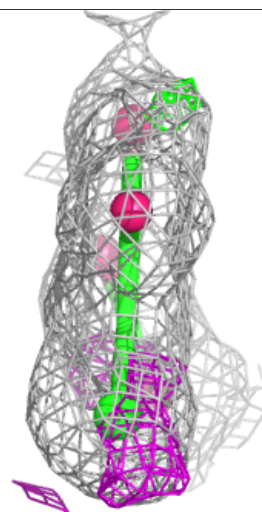
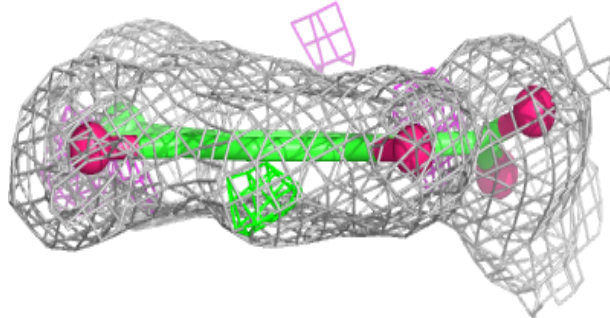
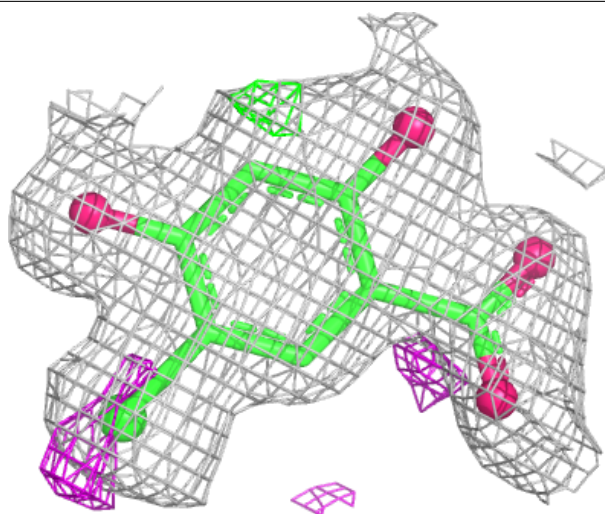
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists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

Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors($\text{\AA}^2$)	Q<0.9
3	PG4	B	507	13/13	0.62	0.24	63,66,68,69	0
3	PG4	A	503	10/13	0.65	0.20	60,61,63,65	0
3	PG4	B	505	13/13	0.71	0.19	52,54,59,60	0
3	PG4	A	508	7/13	0.75	0.21	62,62,63,65	0
3	PG4	A	502	13/13	0.76	0.17	55,56,59,59	0
3	PG4	B	506	7/13	0.80	0.14	37,41,46,47	0
4	1PE	B	601	16/16	0.86	0.14	32,36,43,46	0
2	RDE	A	1001	12/27	0.87	0.10	26,31,36,37	0
3	PG4	A	501	10/13	0.88	0.11	32,36,44,47	0
2	RDE	B	1002	12/27	0.88	0.10	26,30,36,36	0
3	PG4	B	504	13/13	0.90	0.10	25,28,35,39	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.

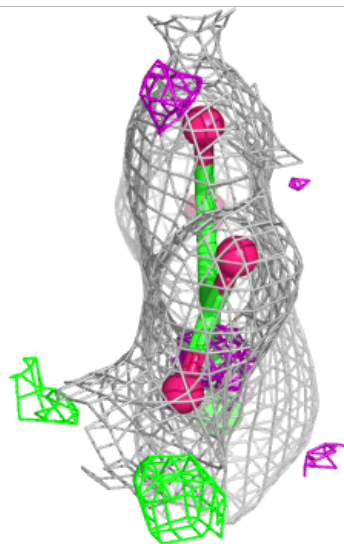
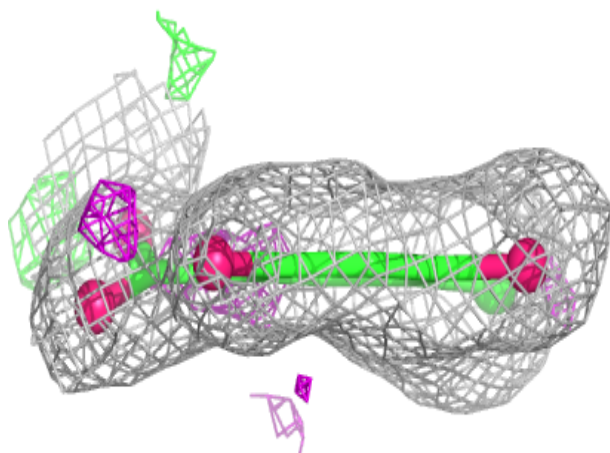
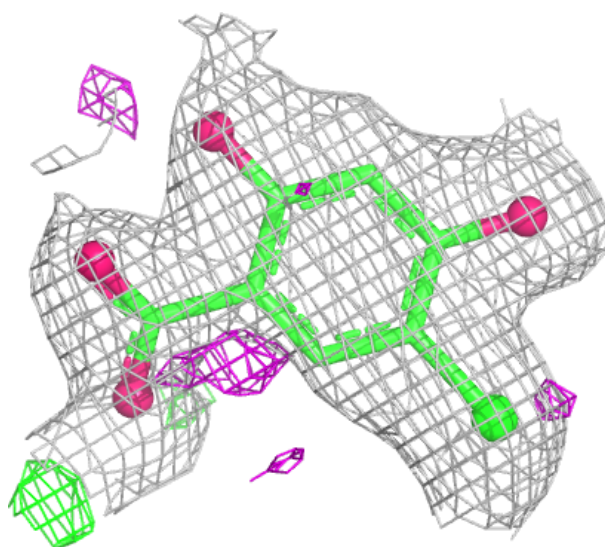
Electron density around RDE A 1001:

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



Electron density around RDE B 1002:

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



6.5 Other polymers ⓘ

There are no such residues in this entry.