Full wwPDB X-ray Structure Validation Report (i)

May 20, 2025 – 04:16 AM EDT

PDB ID	:	3F3T / pdb_00003f3t
Title	:	Kinase domain of cSrc in complex with inhibitor RL38 (Type III)
Authors	:	Gruetter, C.; Klueter, S.; Getlik, M.; Rauh, D.
Deposited on	:	2008-10-31
Resolution	:	2.50 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 (i) 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 (i)) were used in the production of this report:

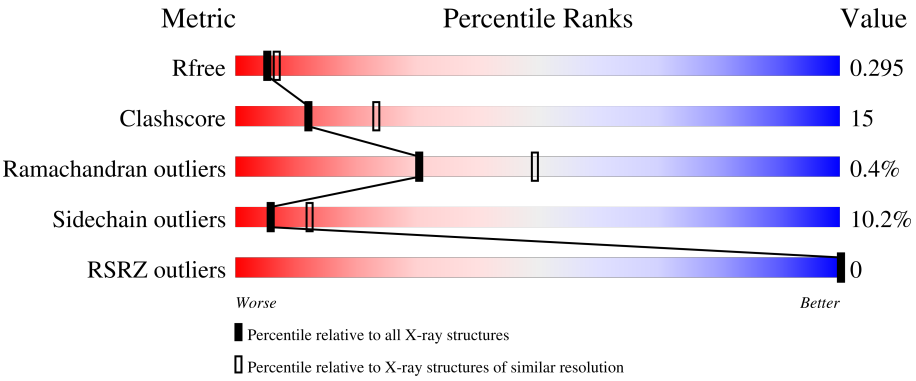
MolProbity	:	4-5-2 with Phenix2.0rc1
Mogul	:	2022.3.0, CSD as543be (2022)
Xtriage (Phenix)	:	2.0rc1
EDS	:	3.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
CCP4	:	9.0.006 (Gargrove)
Density-Fitness	:	1.0.12
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.43.1

1 Overall quality at a glance (i)

The following experimental techniques were used to determine the structure:
X-RAY DIFFRACTION

The reported resolution of this entry is 2.50 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}	164625	5504 (2.50-2.50)
Clashscore	180529	6282 (2.50-2.50)
Ramachandran outliers	177936	6191 (2.50-2.50)
Sidechain outliers	177891	6193 (2.50-2.50)
RSRZ outliers	164620	5504 (2.50-2.50)

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	A	286	64% 24% · 9%
1	B	286	60% 26% 5% 9%

2 Entry composition (i)

There are 3 unique types of molecules in this entry. The entry contains 4347 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.

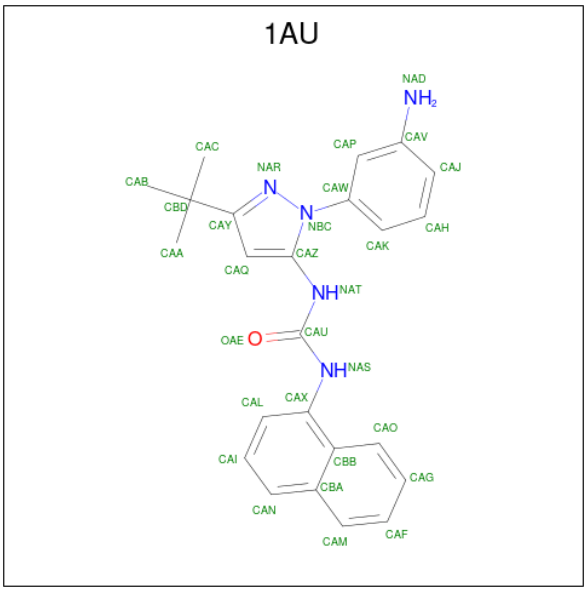
- Molecule 1 is a protein called Proto-oncogene tyrosine-protein kinase Src.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	261	Total	C	N	O	S	0	0	0
			2097	1345	350	384	18			
1	B	259	Total	C	N	O	S	0	0	0
			2092	1344	351	381	16			

There are 8 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	248	GLY	-	expression tag	UNP P00523
A	249	HIS	-	expression tag	UNP P00523
A	250	MET	-	expression tag	UNP P00523
A	345	CYS	SER	engineered mutation	UNP P00523
B	248	GLY	-	expression tag	UNP P00523
B	249	HIS	-	expression tag	UNP P00523
B	250	MET	-	expression tag	UNP P00523
B	345	CYS	SER	engineered mutation	UNP P00523

- Molecule 2 is 1-[1-(3-aminophenyl)-3-tert-butyl-1H-pyrazol-5-yl]-3-naphthalen-1-ylurea (CCD ID: 1AU) (formula: $C_{24}H_{25}N_5O$).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
2	A	1	Total C N O 30 24 5 1	0	0
2	A	1	Total C N O 30 24 5 1	0	0

- Molecule 3 is water.

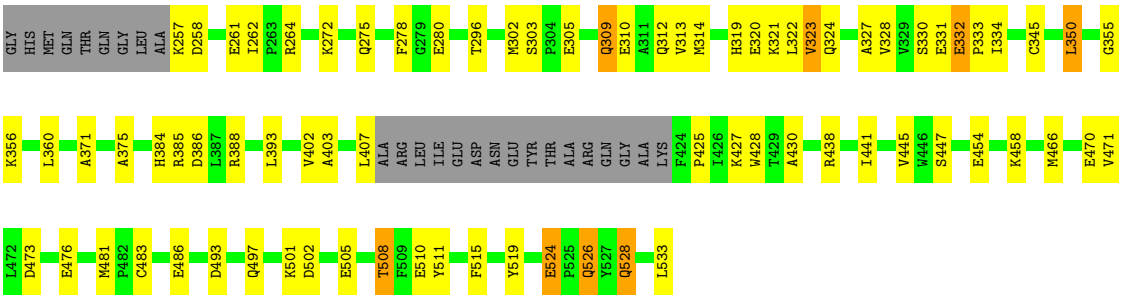
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	55	Total O 55 55	0	0
3	B	43	Total O 43 43	0	0

3 Residue-property plots (i)

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

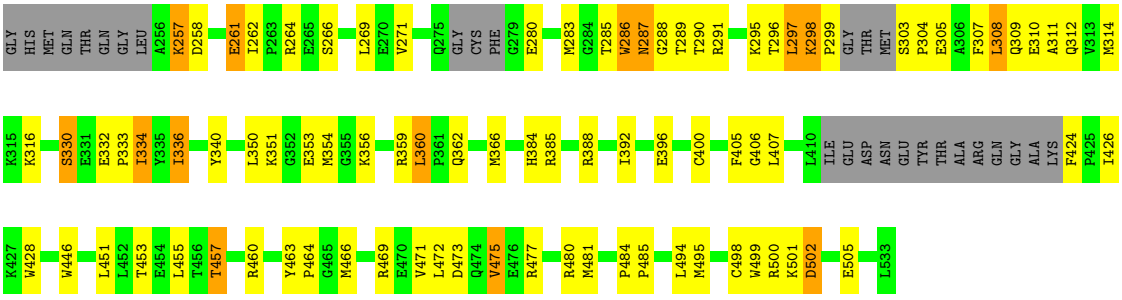
• Molecule 1: Proto-oncogene tyrosine-protein kinase Src

Chain A:



• Molecule 1: Proto-oncogene tyrosine-protein kinase Src

Chain B:



4 Data and refinement statistics (i)

Property	Value	Source
Space group	P 1	Depositor
Cell constants a, b, c, α, β, γ	42.01Å 63.49Å 74.99Å 78.71° 89.71° 89.91°	Depositor
Resolution (Å)	36.71 – 2.50 36.71 – 2.50	Depositor EDS
% Data completeness (in resolution range)	100.0 (36.71-2.50) 94.5 (36.71-2.50)	Depositor EDS
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	7.33 (at 2.48Å)	Xtriage
Refinement program	REFMAC	Depositor
R, R_{free}	0.244 , 0.295 0.265 , 0.295	Depositor DCC
R_{free} test set	872 reflections (3.51%)	wwPDB-VP
Wilson B-factor (Å^2)	36.4	Xtriage
Anisotropy	0.289	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.33 , 24.6	EDS
L-test for twinning[2]	$< \|L\| > = 0.49$, $< L^2 > = 0.33$	Xtriage
Estimated twinning fraction	0.030 for h,-k,-l	Xtriage
F_o,F_c correlation	0.88	EDS
Total number of atoms	4347	wwPDB-VP
Average B, all atoms (Å^2)	12.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 12.69% of the height of the origin peak. No significant pseudotranslation is detected.*

[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

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: 1AU

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	0.94	0/2148	1.13	9/2908 (0.3%)
1	B	0.96	1/2141 (0.0%)	1.11	4/2896 (0.1%)
All	All	0.95	1/4289 (0.0%)	1.12	13/5804 (0.2%)

All (1) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	392	ILE	CA-CB	-5.55	1.47	1.54

All (13) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	A	430	ALA	CA-C-N	7.52	127.06	119.24
1	A	430	ALA	C-N-CA	7.52	127.06	119.24
1	A	528	GLN	CA-C-N	6.87	126.91	119.90
1	A	528	GLN	C-N-CA	6.87	126.91	119.90
1	B	502	ASP	CA-C-N	6.81	127.08	119.32
1	B	502	ASP	C-N-CA	6.81	127.08	119.32
1	A	483	CYS	CA-C-N	6.53	124.43	119.66
1	A	483	CYS	C-N-CA	6.53	124.43	119.66
1	A	481	MET	CA-C-N	6.29	126.47	120.31
1	A	481	MET	C-N-CA	6.29	126.47	120.31
1	B	481	MET	CA-C-N	6.24	126.70	120.52
1	B	481	MET	C-N-CA	6.24	126.70	120.52
1	A	519	TYR	N-CA-C	5.56	117.79	111.11

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	2097	0	2082	52	0
1	B	2092	0	2085	75	0
2	A	60	0	50	5	0
3	A	55	0	0	4	0
3	B	43	0	0	1	0
All	All	4347	0	4217	130	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 15.

All (130) 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:296:THR:O	1:B:307:PHE:CZ	1.72	1.42
1:B:257:LYS:HD2	1:B:257:LYS:C	1.64	1.21
1:B:280:GLU:HB3	1:B:296:THR:OG1	1.50	1.10
1:B:257:LYS:HD2	1:B:257:LYS:O	1.53	1.09
1:B:296:THR:O	1:B:307:PHE:HZ	1.43	1.02
1:A:508:THR:HG22	1:A:511:TYR:H	1.22	1.01
1:B:266:SER:HB3	1:B:287:ASN:OD1	1.59	0.99
1:B:297:LEU:H	1:B:297:LEU:HD12	1.28	0.96
1:B:280:GLU:HB3	1:B:296:THR:HG1	1.23	0.95
1:B:257:LYS:C	1:B:257:LYS:CD	2.42	0.90
1:B:287:ASN:ND2	1:B:287:ASN:O	2.09	0.85
1:B:257:LYS:HD3	1:B:258:ASP:O	1.81	0.80
1:B:457:THR:HG23	1:B:460:ARG:H	1.46	0.79
1:A:526:GLN:OE1	3:A:128:HOH:O	2.01	0.78
1:B:457:THR:CG2	1:B:460:ARG:H	1.99	0.75
1:B:463:TYR:HB3	1:B:466:MET:HE3	1.72	0.72
1:A:508:THR:CG2	1:A:511:TYR:H	1.99	0.72
1:B:296:THR:O	1:B:307:PHE:CE2	2.43	0.71
1:B:286:TRP:HD1	1:B:290:THR:HB	1.56	0.70
1:A:526:GLN:HE21	1:A:526:GLN:H	1.38	0.69
1:A:384:HIS:O	1:A:385:ARG:HB2	1.91	0.69
2:A:1:1AU:NAD	3:A:132:HOH:O	2.26	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:262:ILE:HD13	1:B:286:TRP:HZ3	1.57	0.69
1:B:471:VAL:O	1:B:475:VAL:HG13	1.93	0.68
1:B:297:LEU:HD23	1:B:334:ILE:HG23	1.75	0.68
1:B:297:LEU:HD12	1:B:297:LEU:N	2.02	0.67
1:A:262:ILE:HG12	1:A:327:ALA:HB1	1.74	0.67
1:B:310:GLU:HB2	1:B:406:GLY:HA2	1.77	0.67
1:B:262:ILE:HD13	1:B:286:TRP:CZ3	2.30	0.66
1:A:319:HIS:HD2	1:A:321:LYS:H	1.43	0.66
1:B:298:LYS:HB2	1:B:299:PRO:HD3	1.77	0.66
1:A:526:GLN:H	1:A:526:GLN:NE2	1.93	0.66
1:B:286:TRP:CD1	1:B:286:TRP:C	2.74	0.65
1:B:366:MET:HE2	1:B:400:CYS:SG	2.36	0.65
1:B:264:ARG:NH2	1:B:333:PRO:O	2.31	0.63
1:B:298:LYS:HB2	1:B:299:PRO:CD	2.28	0.63
1:B:453:THR:O	1:B:457:THR:HB	1.98	0.63
1:A:275:GLN:HG3	1:A:280:GLU:HG2	1.81	0.62
1:A:476:GLU:OE2	1:A:501:LYS:NZ	2.31	0.62
1:B:384:HIS:O	1:B:385:ARG:HB2	2.00	0.61
1:A:272:LYS:HE3	1:A:280:GLU:OE2	2.01	0.60
1:A:493:ASP:O	1:A:497:GLN:HG3	2.02	0.58
1:B:295:LYS:HB3	1:B:336:ILE:HG23	1.86	0.58
1:A:345:CYS:SG	2:A:534:1AU:NAD	2.77	0.57
1:B:303:SER:HB2	1:B:304:PRO:HA	1.87	0.57
1:B:303:SER:HA	1:B:304:PRO:C	2.28	0.57
1:A:355:GLY:O	1:A:458:LYS:HD2	2.05	0.57
1:A:319:HIS:CD2	1:A:321:LYS:H	2.21	0.56
1:B:473:ASP:HB3	1:B:477:ARG:NH2	2.21	0.56
1:B:257:LYS:HB2	1:B:261:GLU:HG3	1.88	0.56
1:A:323:VAL:HG21	1:A:393:LEU:HD12	1.87	0.55
1:A:386:ASP:OD1	1:A:388:ARG:NE	2.35	0.55
1:B:262:ILE:CD1	1:B:286:TRP:HZ3	2.20	0.55
1:A:350:LEU:O	1:A:355:GLY:HA3	2.07	0.55
1:B:426:ILE:HD12	1:B:426:ILE:C	2.32	0.55
1:B:464:PRO:HB3	3:B:125:HOH:O	2.07	0.54
1:B:286:TRP:CD1	1:B:290:THR:HB	2.40	0.53
1:A:275:GLN:HG3	1:A:280:GLU:CG	2.39	0.53
1:A:388:ARG:HB3	1:A:428:TRP:CD1	2.43	0.52
1:B:362:GLN:O	1:B:366:MET:HG3	2.09	0.52
1:A:264:ARG:NH2	1:A:331:GLU:O	2.42	0.52
1:B:308:LEU:HG	1:B:312:GLN:HE21	1.73	0.52
1:B:287:ASN:C	1:B:287:ASN:HD22	2.17	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:428:TRP:HE1	1:A:454:GLU:CD	2.19	0.51
2:A:534:1AU:OAE	2:A:534:1AU:HAL	2.10	0.51
1:A:427:LYS:NZ	3:A:114:HOH:O	2.43	0.51
1:B:457:THR:CG2	1:B:460:ARG:N	2.73	0.51
1:B:473:ASP:HB3	1:B:477:ARG:HH21	1.76	0.51
1:B:388:ARG:HB3	1:B:428:TRP:CD1	2.46	0.50
1:B:297:LEU:CD1	1:B:297:LEU:C	2.85	0.50
1:A:441:ILE:O	1:A:445:VAL:HG23	2.12	0.49
1:A:323:VAL:HG23	1:A:402:VAL:O	2.13	0.49
1:B:457:THR:HG23	1:B:457:THR:O	2.12	0.49
1:B:385:ARG:HD2	1:B:407:LEU:O	2.13	0.49
1:A:466:MET:HE2	1:A:471:VAL:HA	1.95	0.49
1:A:508:THR:HG23	1:A:510:GLU:H	1.78	0.49
1:A:322:LEU:HD13	2:A:1:1AU:HAB	1.95	0.48
1:B:310:GLU:HG3	1:B:405:PHE:C	2.38	0.48
1:A:261:GLU:HA	1:A:328:VAL:O	2.13	0.48
1:B:314:MET:SD	1:B:336:ILE:HD11	2.53	0.48
1:B:289:THR:O	1:B:289:THR:HG23	2.14	0.48
1:B:297:LEU:C	1:B:297:LEU:HD13	2.39	0.48
1:B:305:GLU:HB2	1:B:308:LEU:HD22	1.96	0.47
1:A:332:GLU:HA	1:A:333:PRO:C	2.40	0.47
1:B:354:MET:CA	1:B:354:MET:HE3	2.44	0.47
1:B:283:MET:HG3	1:B:340:TYR:CE1	2.50	0.47
1:A:502:ASP:HB3	1:A:505:GLU:HG3	1.96	0.46
1:A:257:LYS:HB3	1:A:261:GLU:HG3	1.96	0.46
1:B:297:LEU:HD22	1:B:299:PRO:HD2	1.98	0.46
1:A:407:LEU:H	1:A:407:LEU:HD12	1.80	0.46
1:A:428:TRP:O	1:A:447:SER:OG	2.28	0.46
1:B:287:ASN:ND2	1:B:287:ASN:C	2.73	0.46
1:A:508:THR:HG22	1:A:511:TYR:N	2.07	0.46
1:A:466:MET:HA	1:A:470:GLU:OE1	2.16	0.45
1:A:476:GLU:OE2	1:A:476:GLU:HA	2.16	0.45
1:A:309:GLN:HE21	1:A:309:GLN:HB2	1.61	0.45
1:B:297:LEU:HD21	1:B:333:PRO:HA	1.97	0.45
1:B:500:ARG:HD3	1:B:505:GLU:HB3	1.98	0.45
1:B:285:THR:HG22	1:B:289:THR:HA	1.99	0.45
1:B:495:MET:O	1:B:498:CYS:N	2.49	0.45
1:B:286:TRP:CD1	1:B:286:TRP:O	2.70	0.44
1:A:502:ASP:HB3	1:A:505:GLU:CD	2.43	0.44
1:A:310:GLU:O	1:A:314:MET:HG3	2.18	0.43
1:B:332:GLU:H	1:B:332:GLU:HG3	1.68	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:311:ALA:HB2	1:B:336:ILE:HD12	1.99	0.43
1:B:480:ARG:NH2	1:B:499:TRP:O	2.44	0.43
1:A:278:PHE:CD2	1:A:302:MET:HE2	2.54	0.43
1:B:385:ARG:HH11	1:B:424:PHE:HZ	1.64	0.43
1:A:508:THR:CG2	1:A:510:GLU:HB3	2.49	0.43
1:B:494:LEU:O	1:B:495:MET:C	2.60	0.43
1:B:287:ASN:HA	1:B:288:GLY:HA2	1.57	0.43
1:A:515:PHE:C	1:A:515:PHE:CD1	2.97	0.43
1:A:323:VAL:HG21	1:A:403:ALA:HB2	2.00	0.42
1:B:502:ASP:OD1	1:B:502:ASP:C	2.62	0.42
1:B:446:TRP:C	1:B:446:TRP:CD1	2.97	0.42
1:B:297:LEU:HG	1:B:334:ILE:H	1.85	0.42
1:B:484:PRO:O	1:B:485:PRO:C	2.63	0.42
1:A:384:HIS:O	1:A:385:ARG:CB	2.62	0.42
1:B:298:LYS:H	1:B:299:PRO:HD2	1.85	0.42
1:B:311:ALA:HA	1:B:314:MET:HB2	2.02	0.41
1:A:524:GLU:HA	1:A:526:GLN:NE2	2.36	0.41
1:A:371:ALA:O	1:A:375:ALA:N	2.53	0.41
1:A:330:SER:HA	1:A:334:ILE:HG22	2.03	0.41
1:A:508:THR:HG23	1:A:510:GLU:N	2.36	0.41
1:A:486:GLU:HB2	1:A:533:LEU:HD12	2.03	0.41
1:B:359:ARG:O	1:B:360:LEU:C	2.64	0.41
1:B:261:GLU:OE1	1:B:330:SER:HB3	2.21	0.40
1:A:324:GLN:NE2	3:A:3:HOH:O	2.55	0.40
1:A:501:LYS:HD2	1:A:501:LYS:HA	1.76	0.40
2:A:1:1AU:OAE	2:A:1:1AU:CAL	2.67	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	257/286 (90%)	246 (96%)	10 (4%)	1 (0%)	30 49
1	B	251/286 (88%)	237 (94%)	13 (5%)	1 (0%)	30 49
All	All	508/572 (89%)	483 (95%)	23 (4%)	2 (0%)	30 49

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	298	LYS
1	A	425	PRO

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	226/245 (92%)	207 (92%)	19 (8%)	9 19
1	B	225/245 (92%)	198 (88%)	27 (12%)	4 8
All	All	451/490 (92%)	405 (90%)	46 (10%)	6 12

All (46) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	258	ASP
1	A	296	THR
1	A	303	SER
1	A	305	GLU
1	A	309	GLN
1	A	312	GLN
1	A	313	VAL
1	A	320	GLU
1	A	323	VAL
1	A	332	GLU
1	A	350	LEU
1	A	356	LYS
1	A	360	LEU
1	A	438	ARG

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Mol	Chain	Res	Type
1	A	473	ASP
1	A	508	THR
1	A	524	GLU
1	A	526	GLN
1	A	528	GLN
1	B	257	LYS
1	B	261	GLU
1	B	269	LEU
1	B	271	VAL
1	B	286	TRP
1	B	287	ASN
1	B	291	ARG
1	B	297	LEU
1	B	308	LEU
1	B	309	GLN
1	B	316	LYS
1	B	330	SER
1	B	334	ILE
1	B	336	ILE
1	B	350	LEU
1	B	351	LYS
1	B	353	GLU
1	B	356	LYS
1	B	360	LEU
1	B	396	GLU
1	B	451	LEU
1	B	455	LEU
1	B	457	THR
1	B	469	ARG
1	B	472	LEU
1	B	475	VAL
1	B	501	LYS

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (9) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	287	ASN
1	A	309	GLN
1	A	312	GLN
1	A	319	HIS
1	A	324	GLN
1	A	397	ASN

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Mol	Chain	Res	Type
1	A	526	GLN
1	B	275	GLN
1	B	312	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 oligosaccharides 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	1AU	A	1	-	30,33,33	1.48	5 (16%)	39,48,48	1.36	4 (10%)
2	1AU	A	534	-	30,33,33	1.50	5 (16%)	39,48,48	0.99	2 (5%)

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	1AU	A	1	-	-	1/14/18/18	0/4/4/4

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
2	1AU	A	534	-	-	0/14/18/18	0/4/4/4

All (10) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
2	A	534	1AU	CBD-CAY	3.79	1.57	1.52
2	A	1	1AU	CAQ-CAY	-3.67	1.34	1.39
2	A	534	1AU	CAQ-CAY	-3.57	1.34	1.39
2	A	1	1AU	CBD-CAY	3.50	1.57	1.52
2	A	1	1AU	CAP-CAW	-2.59	1.38	1.40
2	A	1	1AU	CAH-CAK	2.23	1.41	1.36
2	A	1	1AU	CAZ-NAT	-2.19	1.35	1.39
2	A	534	1AU	CAP-CAV	2.17	1.42	1.39
2	A	534	1AU	CAX-NAS	-2.09	1.35	1.41
2	A	534	1AU	CAZ-NAT	-2.06	1.36	1.39

All (6) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
2	A	1	1AU	CAQ-CAZ-NAT	-3.01	126.95	131.11
2	A	1	1AU	CAH-CAK-CAW	2.46	122.83	121.19
2	A	534	1AU	CAY-CAQ-CAZ	-2.31	104.33	106.53
2	A	1	1AU	NAT-CAU-NAS	2.25	116.79	112.44
2	A	1	1AU	CAY-CAQ-CAZ	-2.21	104.43	106.53
2	A	534	1AU	CBD-CAY-NAR	2.02	122.70	120.56

There are no chirality outliers.

All (1) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
2	A	1	1AU	CAQ-CAY-CBD-CAC

There are no ring outliers.

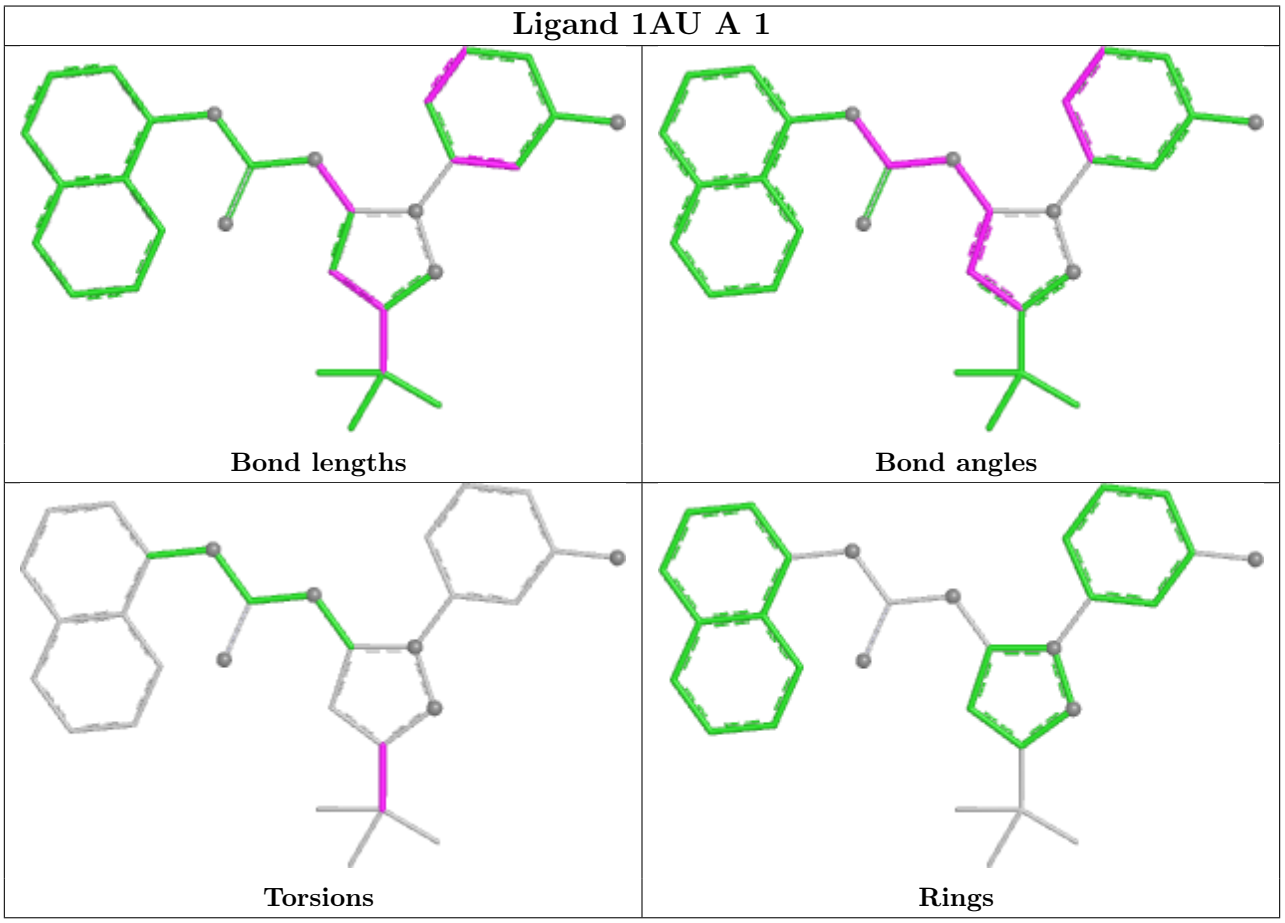
2 monomers are involved in 5 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
2	A	1	1AU	3	0
2	A	534	1AU	2	0

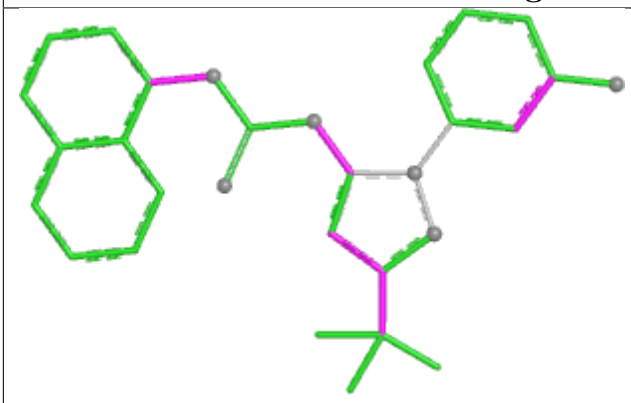
The following is a two-dimensional graphical depiction of Mogul quality analysis of bond lengths, bond angles, torsion angles, and ring geometry for all instances of the Ligand of Interest. In

addition, ligands with molecular weight > 250 and outliers as shown on the validation Tables will also be included. For torsion angles, if less 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.

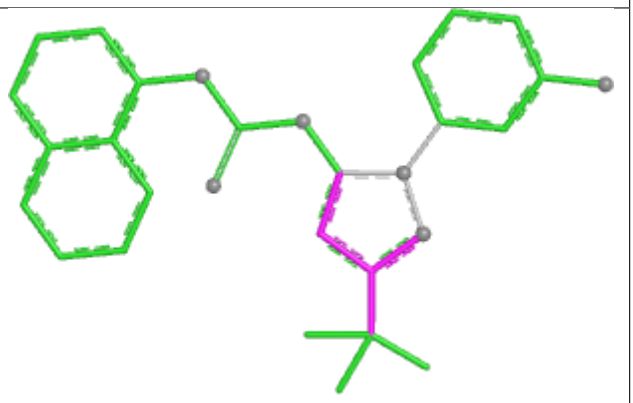
Ligand 1AU A 1



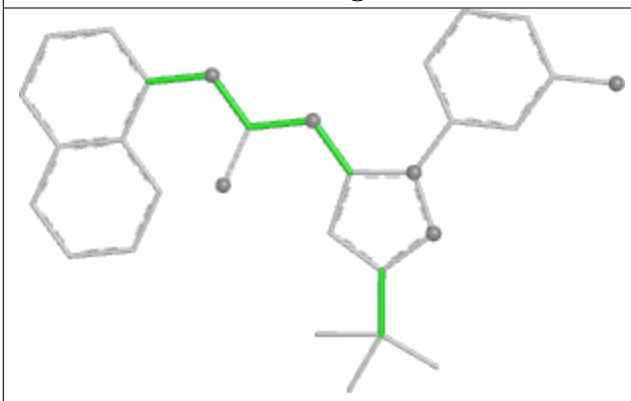
Ligand 1AU A 534



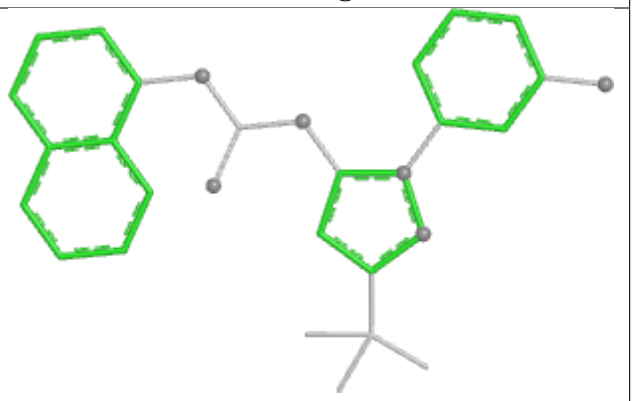
Bond lengths



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, 95^{th} 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	261/286 (91%)	-1.36	0	100	100	2, 8, 26, 35	0
1	B	259/286 (90%)	-1.28	0	100	100	2, 8, 34, 44	0
All	All	520/572 (90%)	-1.32	0	100	100	2, 8, 32, 44	0

There are no RSRZ outliers to report.

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

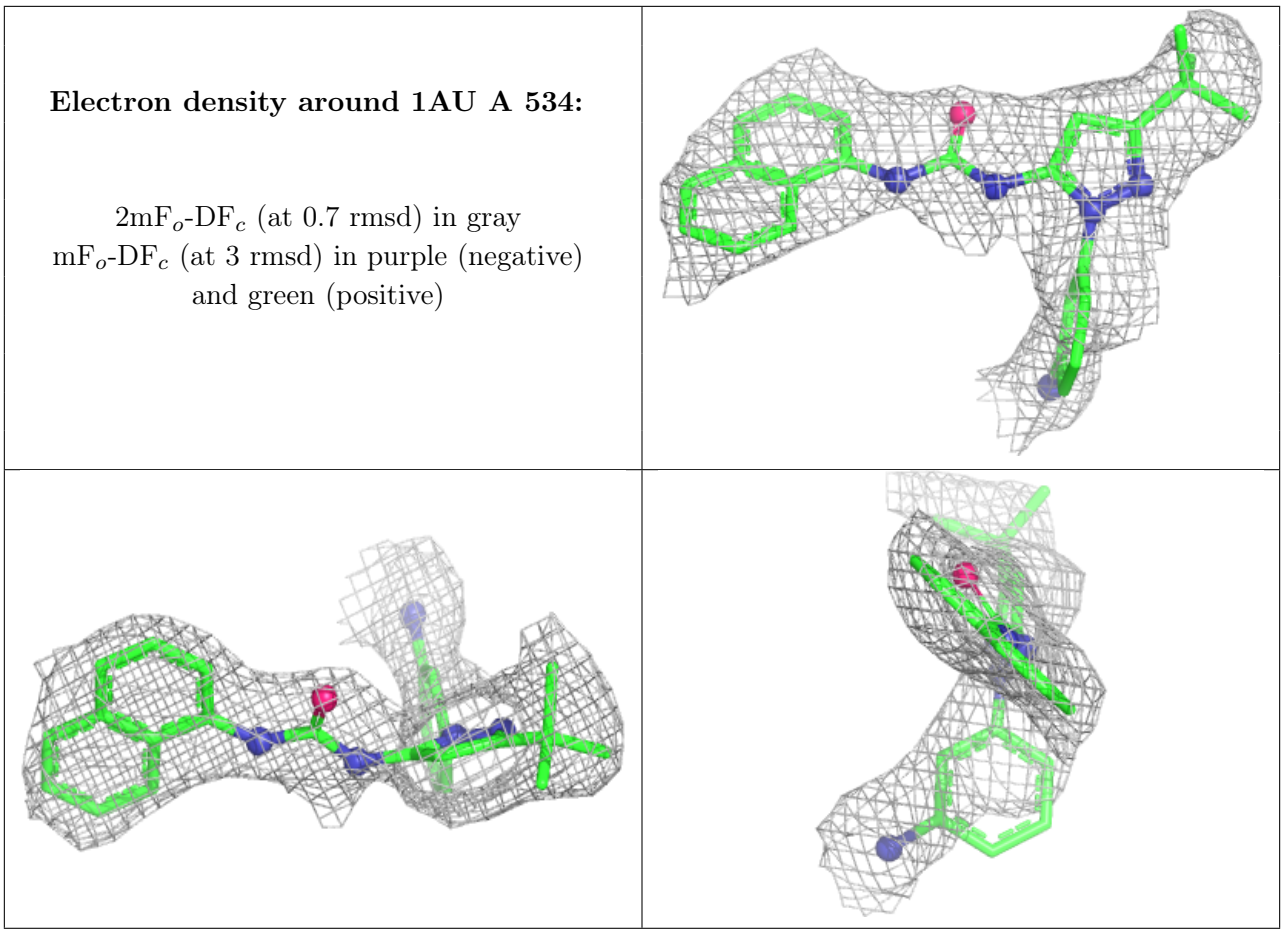
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' 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
2	1AU	A	534	30/30	0.98	0.06	25,27,28,29	0
2	1AU	A	1	30/30	0.99	0.05	15,19,24,24	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.

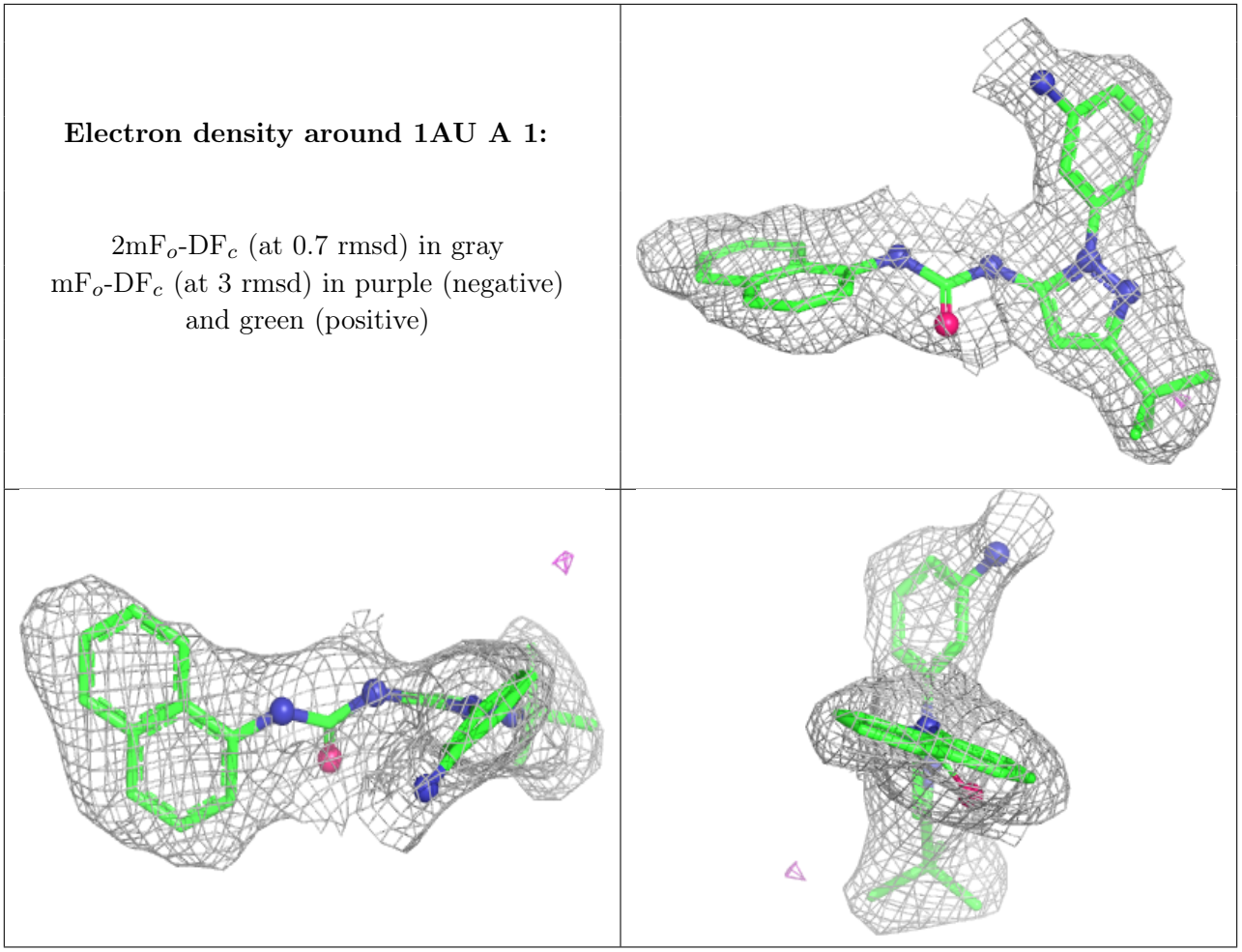
Electron density around 1AU A 534:

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



Electron density around 1AU A 1:

$2mF_o$-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 (i)

There are no such residues in this entry.