Full wwPDB X-ray Structure Validation Report ⓘ

Nov 6, 2023 – 06:18 AM EST

PDB ID	:	8EPZ
Title	:	Crystal structure of Fe-S cluster-dependent dehydratase from Paralcaligenes ureilyticus in complex with Mn
Authors	:	Bayaraa, T.; Lonhienne, T.; Guddat, L.W.
Deposited on	:	2022-10-07
Resolution	:	2.60 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:

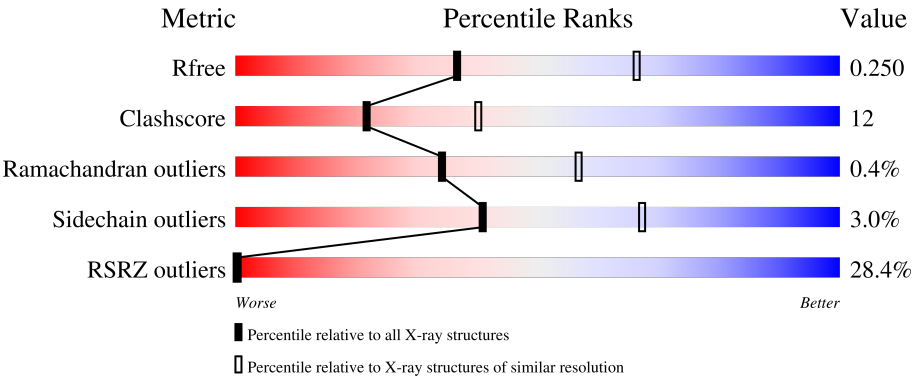
MolProbity	:	4.02b-467
Mogul	:	1.8.5 (274361), CSD as541be (2020)
Xtriage (Phenix)	:	1.13
EDS	:	2.36
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac	:	5.8.0158
CCP4	:	7.0.044 (Gargrove)
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.36

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 2.60 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}	130704	3163 (2.60-2.60)
Clashscore	141614	3518 (2.60-2.60)
Ramachandran outliers	138981	3455 (2.60-2.60)
Sidechain outliers	138945	3455 (2.60-2.60)
RSRZ outliers	127900	3104 (2.60-2.60)

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	575	25% 72% 26% ··
1	B	575	31% 75% 23% ··

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

Mol	Type	Chain	Res	Chirality	Geometry	Clashes	Electron density
1	KCX	A	127	-	-	X	-
1	KCX	B	127	-	-	X	X
4	CO2	A	603	-	-	-	X
4	CO2	B	704	-	-	X	-

2 Entry composition

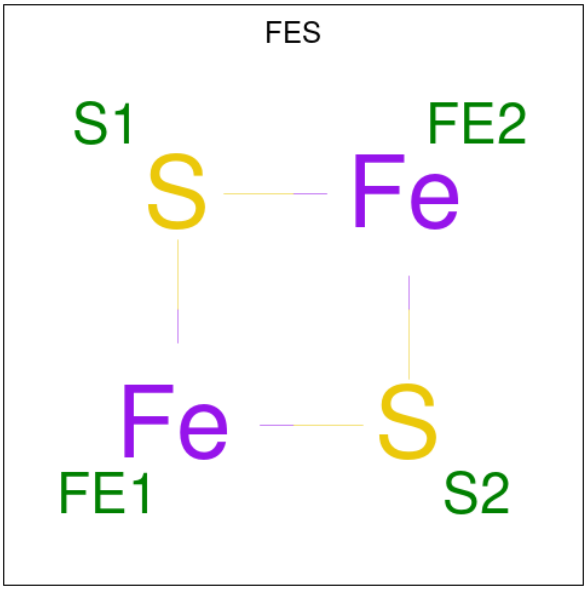
There are 6 unique types of molecules in this entry. The entry contains 8706 atoms, of which 0 are hydrogens and 0 are deuteriums.

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 Dihydroxyacid dehydratase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	569	Total	C	N	O	S	0	1	0
			4309	2691	781	799	38			
1	B	568	Total	C	N	O	S	0	0	0
			4304	2688	781	797	38			

- Molecule 2 is FE2/S2 (INORGANIC) CLUSTER (three-letter code: FES) (formula: Fe_2S_2) (labeled as "Ligand of Interest" by depositor).

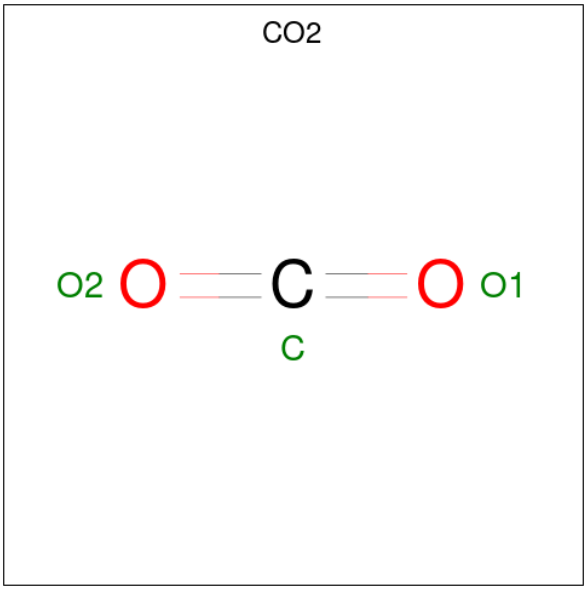


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	Fe	S	0	0
			4	2	2		
2	B	1	Total	Fe	S	0	0
			4	2	2		

- Molecule 3 is MANGANESE (II) ION (three-letter code: MN) (formula: Mn) (labeled as "Ligand of Interest" by depositor).

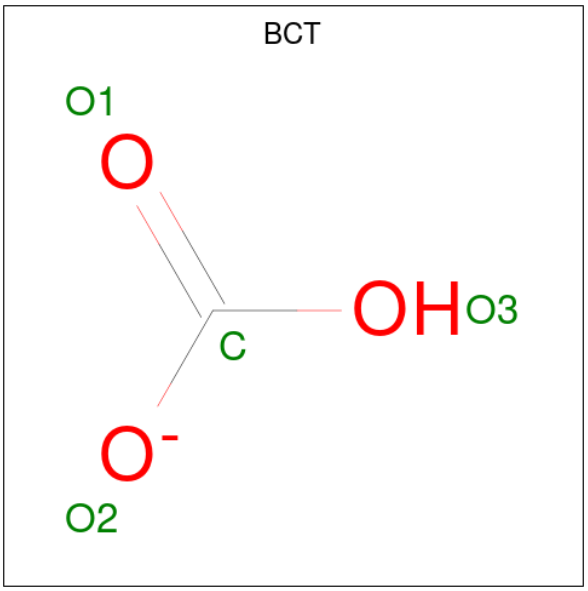
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
3	A	1	Total Mn 1 1	0	0
3	B	1	Total Mn 1 1	0	0

- Molecule 4 is CARBON DIOXIDE (three-letter code: CO2) (formula: CO_2) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total C O 3 1 2	0	0
4	A	1	Total C O 3 1 2	0	0
4	B	1	Total C O 3 1 2	0	0

- Molecule 5 is BICARBONATE ION (three-letter code: BCT) (formula: CHO_3) (labeled as "Ligand of Interest" by depositor).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	B	1	Total C O 4 1 3	0	0

- Molecule 6 is water.

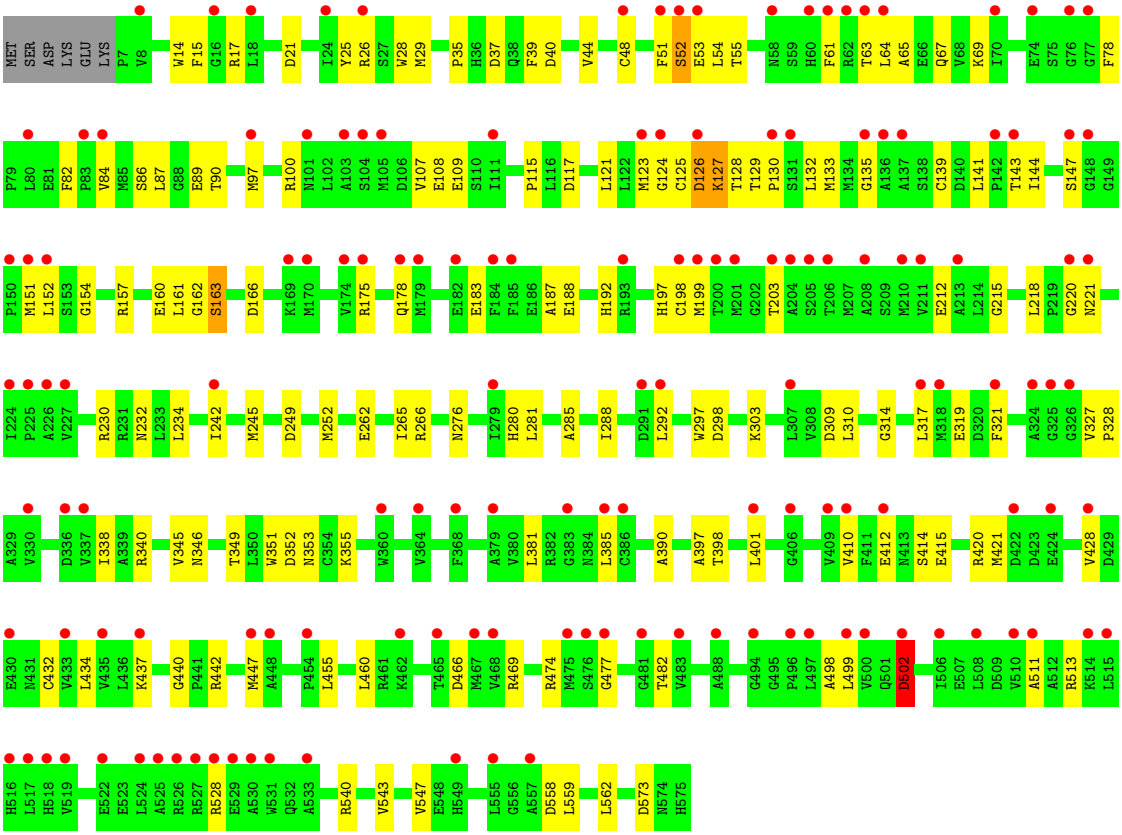
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
6	A	36	Total O 36 36	0	0
6	B	34	Total O 34 34	0	0

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.

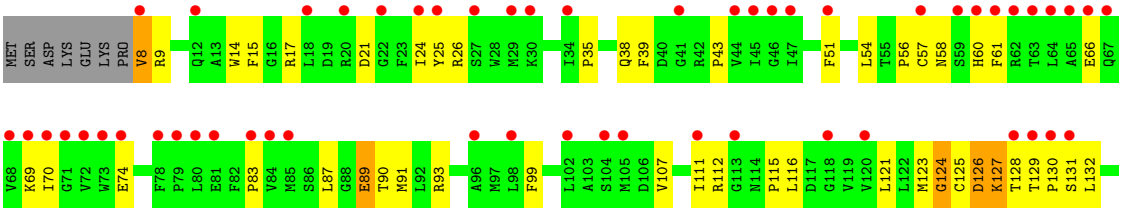
• Molecule 1: Dihydroxyacid dehydratase

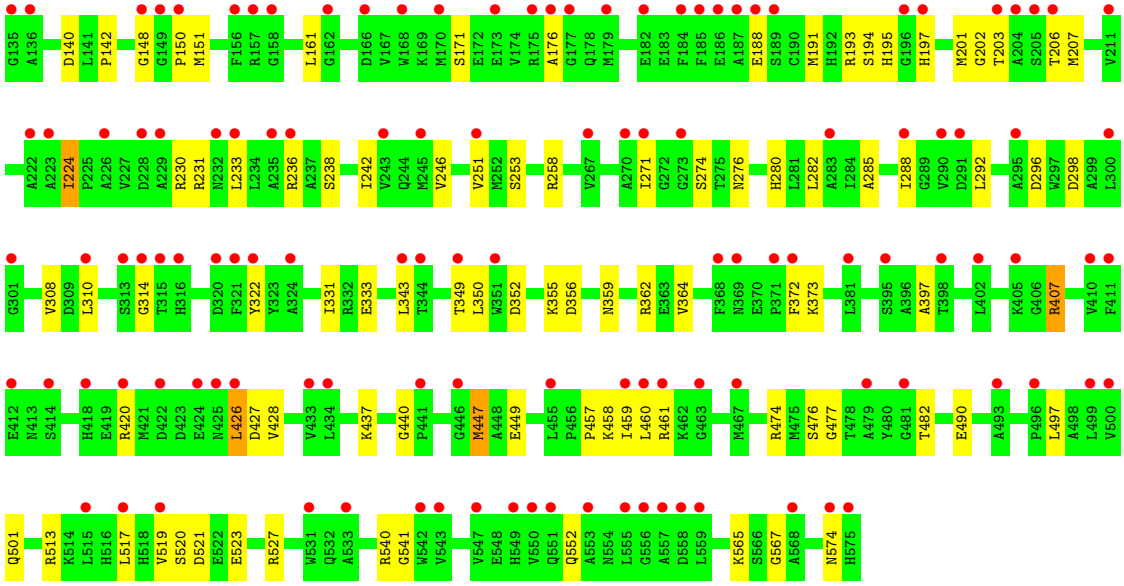
Chain A:



• Molecule 1: Dihydroxyacid dehydratase

Chain B:




G135 A136 D140 L141 P142 G148 G149 P150 M151 F156 R157 G158 L161 G162 D166 V167 W168 K169 M170 S171 E172 E173 V174 R175 A176 G177 Q178 M179 E182 E183 F184 F185 E186 A187 E188 S189 C190 M191 H192 R193 S194 H195 G196 H197 M201 G202 T203 A204 S205 T206 M207 V211
A222 A223 I224 P225 A226 V227 D228 A229 R230 R231 N232 L233 L234 A235 R236 A237 S238 I242 V243 Q244 M245 V246 V251 M252 S253 R258 V267 A270 I271 G272 G273 S274 T275 N276 H280 L281 L282 A283 I284 A285 I288 G289 V290 D291 L292 A295 D296 W297 D298 A299 L300
G301 V308 D309 L310 S313 G314 T315 H316 D320 F321 Y322 Y323 A324 I331 R332 E333 L343 T344 T349 L350 W351 D352 K355 D356 N359 R362 E363 V364 F368 N369 E370 P371 F372 K373 L381 S395 A396 A397 T398 L402 K405 G406 R407 V410 F411
E412 N413 S414 H418 E419 R420 M421 D422 D423 E424 N425 L426 D427 V428 V433 L434 K437 G440 P441 G446 M447 A448 E449 L455 P456 P457 K458 I459 L460 R461 K462 G463 M467 R474 M475 S476 G477 T478 A479 Y480 G481 T482 E490 A493 P496 L497 A498 L499 V500
Q501 R513 K514 L515 H516 L517 H518 V519 S520 D521 E522 E523 R527 W531 Q532 A533 R540 G541 W542 V543 V547 E548 H549 V550 Q551 Q552 A553 N554 L555 G556 A557 D558 L559 K565 S566 G567 A568 N574 H575

4 Data and refinement statistics (i)

Property	Value	Source
Space group	C 2 2 21	Depositor
Cell constants a, b, c, α, β, γ	96.64Å 113.14Å 182.89Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	48.11 – 2.60 48.11 – 2.60	Depositor EDS
% Data completeness (in resolution range)	99.3 (48.11-2.60) 99.3 (48.11-2.60)	Depositor EDS
R_{merge}	0.11	Depositor
R_{sym}	(Not available)	Depositor
$< I/\sigma(I) >$ [1]	3.19 (at 2.61Å)	Xtriage
Refinement program	PHENIX 1.10.1_2155	Depositor
R, R_{free}	0.210 , 0.251 0.210 , 0.250	Depositor DCC
R_{free} test set	1390 reflections (4.48%)	wwPDB-VP
Wilson B-factor (Å^2)	43.4	Xtriage
Anisotropy	0.900	Xtriage
Bulk solvent k_{sol}(e/Å^3), B_{sol}(Å^2)	0.36 , 49.0	EDS
L-test for twinning[2]	$< \|L\| > = 0.48$, $< L^2 > = 0.31$	Xtriage
Estimated twinning fraction	No twinning to report.	Xtriage
F_o,F_c correlation	0.94	EDS
Total number of atoms	8706	wwPDB-VP
Average B, all atoms (Å^2)	61.0	wwPDB-VP

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 3.59% 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: FES, CO2, BCT, KCX, MN

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	0/4388	0.46	0/5946
1	B	0.31	0/4379	0.47	0/5931
All	All	0.29	0/8767	0.47	0/11877

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

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	4309	0	4253	119	0
1	B	4304	0	4256	107	0
2	A	4	0	0	0	0
2	B	4	0	0	1	0
3	A	1	0	0	0	0
3	B	1	0	0	1	0
4	A	6	0	0	1	0
4	B	3	0	0	5	0
5	B	4	0	0	0	0
6	A	36	0	0	4	0
6	B	34	0	0	0	0
All	All	8706	0	8509	204	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 12.

All (204) 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:449:GLU:OE2	1:B:476:SER:HB3	1.58	1.01
1:B:449:GLU:OE2	1:B:476:SER:CB	2.19	0.89
1:A:108:GLU:OE2	1:B:540:ARG:NH2	2.07	0.87
1:A:52:SER:HB2	1:B:83:PRO:HD3	1.56	0.85
1:B:206:THR:HG21	1:B:274:SER:H	1.43	0.83
1:A:447:MET:O	1:A:474:ARG:NH1	2.12	0.81
1:A:139:CYS:SG	6:A:714:HOH:O	2.44	0.76
1:A:144:ILE:HD13	1:A:345:VAL:HG11	1.69	0.74
1:B:58:ASN:HD21	1:B:128:THR:HG21	1.51	0.74
1:B:127:KCX:OQ2	1:B:276:ASN:HB3	1.89	0.72
1:A:65:ALA:O	1:A:69:LYS:HG3	1.91	0.71
1:A:28:TRP:CD2	1:B:90:THR:HG21	2.26	0.70
1:B:449:GLU:OE2	1:B:476:SER:CA	2.39	0.70
1:B:17:ARG:O	1:B:26:ARG:NH2	2.26	0.68
1:A:398:THR:H	1:A:482:THR:HG22	1.58	0.68
1:A:573:ASP:OD2	1:B:93:ARG:NH2	2.27	0.68
1:B:397:ALA:HB1	1:B:482:THR:HG22	1.77	0.65
1:A:562:LEU:HD23	1:B:541:GLY:HA2	1.78	0.65
1:B:125:CYS:O	1:B:128:THR:HG22	1.97	0.65
1:A:152:LEU:HD22	1:A:319:GLU:OE2	1.97	0.64
1:A:499:LEU:HD11	1:A:528:ARG:HG3	1.80	0.64
1:A:89:GLU:OE2	1:A:126:ASP:CG	2.37	0.62
1:A:28:TRP:CG	1:B:90:THR:HG21	2.34	0.62
1:A:199:MET:HG3	1:A:317:LEU:HD22	1.82	0.62
1:A:310:LEU:HD11	1:A:321:PHE:HB2	1.81	0.61
1:B:126:ASP:OD1	3:B:703:MN:MN	1.56	0.60
1:A:90:THR:HG22	1:B:24:ILE:HG23	1.84	0.59
1:A:121:LEU:HD22	1:A:132:LEU:HD22	1.85	0.59
1:B:87:LEU:HD12	1:B:127:KCX:HB2	1.85	0.59
1:B:203:THR:HB	4:B:704:CO2:O1	2.03	0.59
1:A:310:LEU:O	1:A:314:GLY:N	2.31	0.59
1:A:558:ASP:OD2	1:A:559:LEU:N	2.36	0.58
1:B:161:LEU:HD23	1:B:191:MET:HB2	1.85	0.58
1:A:100:ARG:HH11	1:A:280:HIS:HD2	1.50	0.58
1:A:44:VAL:HA	1:A:78:PHE:HB3	1.85	0.58
1:A:129:THR:OG1	1:A:130:PRO:HD3	2.03	0.58
1:A:440:GLY:HA2	1:A:447:MET:HG3	1.85	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:15:PHE:HB3	1:A:39:PHE:HB3	1.85	0.57
1:B:124:GLY:H	1:B:128:THR:CG2	2.17	0.57
1:A:54:LEU:HD11	1:B:116:LEU:HD21	1.86	0.57
1:A:466:ASP:OD2	1:A:482:THR:HG23	2.05	0.57
1:B:14:TRP:CD2	1:B:115:PRO:HB3	2.39	0.57
1:A:420:ARG:NH2	1:A:502:ASP:OD1	2.26	0.56
1:A:14:TRP:CE2	1:B:93:ARG:HD2	2.41	0.56
1:B:21:ASP:HB3	1:B:25:TYR:CE2	2.40	0.56
1:A:53:GLU:OE1	1:B:69:LYS:HE2	2.06	0.56
1:A:127:KCX:HZ	1:A:474:ARG:NH2	2.04	0.55
1:A:61:PHE:HA	1:A:64:LEU:HB2	1.88	0.55
1:B:519:VAL:HG21	1:B:527:ARG:NH1	2.22	0.55
1:B:428:VAL:HG13	1:B:459:ILE:HD11	1.89	0.55
1:B:15:PHE:HB3	1:B:39:PHE:HB3	1.88	0.55
1:A:84:VAL:HG11	1:A:107:VAL:HG12	1.88	0.54
1:B:420:ARG:HE	1:B:426:LEU:HD11	1.70	0.54
1:B:519:VAL:HG21	1:B:527:ARG:HH12	1.71	0.54
1:A:437:LYS:HD3	1:A:498:ALA:HA	1.88	0.54
1:B:121:LEU:HD22	1:B:132:LEU:HB3	1.88	0.54
1:A:44:VAL:HG12	1:A:117:ASP:OD2	2.07	0.54
1:B:176:ALA:HB2	1:B:460:LEU:HB3	1.90	0.54
1:B:127:KCX:O	1:B:130:PRO:HD2	2.08	0.54
1:A:48:CYS:SG	1:A:132:LEU:HD21	2.48	0.53
1:A:397:ALA:HB1	1:A:482:THR:HG22	1.90	0.53
1:A:28:TRP:NE1	2:B:702:FES:S2	2.81	0.53
1:B:35:PRO:HG2	1:B:38:GLN:HG2	1.90	0.53
1:A:188:GLU:OE1	1:B:26:ARG:NH1	2.42	0.53
1:B:224:ILE:HG22	1:B:322:TYR:CE2	2.42	0.53
1:A:455:LEU:HB2	1:A:460:LEU:HD21	1.90	0.53
1:A:381:LEU:N	1:A:390:ALA:O	2.39	0.53
1:A:221:ASN:HA	1:A:234:LEU:HD21	1.91	0.53
1:B:89:GLU:CD	1:B:126:ASP:OD1	2.47	0.53
1:A:15:PHE:O	1:A:26:ARG:NH1	2.40	0.52
1:A:29:MET:HG2	1:B:91:MET:HE1	1.91	0.52
1:B:201:MET:HE2	1:B:271:ILE:HD12	1.91	0.52
1:B:126:ASP:OD1	4:B:704:CO2:C	2.57	0.52
1:B:74:GLU:OE2	1:B:236:ARG:NH2	2.35	0.52
1:B:310:LEU:O	1:B:314:GLY:N	2.42	0.52
1:A:100:ARG:HH11	1:A:280:HIS:CD2	2.26	0.51
1:B:202:GLY:O	1:B:206:THR:HG23	2.10	0.51
1:A:51:PHE:HB2	1:A:61:PHE:HB2	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:14:TRP:CG	1:B:115:PRO:HB3	2.46	0.51
1:B:282:LEU:HD23	1:B:292:LEU:HD23	1.93	0.51
1:B:449:GLU:OE2	1:B:476:SER:HA	2.11	0.51
1:B:127:KCX:OQ2	1:B:276:ASN:CB	2.59	0.50
1:A:126:ASP:OD2	1:A:203:THR:HB	2.12	0.50
1:B:447:MET:HG2	1:B:474:ARG:HG3	1.93	0.50
1:B:87:LEU:CD1	1:B:127:KCX:HB2	2.40	0.50
1:B:298:ASP:OD1	1:B:513:ARG:NE	2.34	0.50
1:B:437:LYS:HD3	1:B:497:LEU:O	2.12	0.50
1:B:343:LEU:HA	1:B:349:THR:HA	1.93	0.50
1:B:43:PRO:HB3	1:B:246:VAL:HG11	1.93	0.50
1:B:288:ILE:O	1:B:565:LYS:NZ	2.45	0.49
1:A:29:MET:HG2	1:B:91:MET:CE	2.42	0.49
1:B:333:GLU:OE2	1:B:362:ARG:NH1	2.40	0.49
1:A:215:GLY:O	1:A:345:VAL:HG23	2.12	0.49
1:A:151:MET:HG2	1:A:197:HIS:O	2.13	0.49
1:A:37:ASP:O	1:A:40:ASP:HB2	2.13	0.48
1:A:309:ASP:OD2	6:A:701:HOH:O	2.20	0.48
1:A:89:GLU:OE2	1:A:126:ASP:CB	2.62	0.48
1:A:428:VAL:HG23	1:A:432:CYS:HB2	1.95	0.48
1:A:125:CYS:O	1:A:128:THR:OG1	2.26	0.48
1:A:17:ARG:NH2	1:A:573:ASP:OD2	2.45	0.47
1:A:349:THR:HG22	1:A:352:ASP:OD2	2.15	0.47
1:A:434:LEU:HB2	1:A:469:ARG:HG2	1.97	0.47
1:A:82:PHE:HB3	1:B:54:LEU:HD12	1.97	0.47
1:A:298:ASP:O	1:A:303:LYS:NZ	2.44	0.47
1:B:57:CYS:SG	1:B:197:HIS:HA	2.55	0.46
1:B:66:GLU:O	1:B:70:ILE:HG13	2.14	0.46
1:B:127:KCX:C	1:B:130:PRO:HD2	2.46	0.46
1:B:203:THR:CB	4:B:704:CO2:O1	2.62	0.46
1:B:331:ILE:HD13	1:B:350:LEU:HD21	1.98	0.46
1:A:162:GLY:N	1:A:166:ASP:OD1	2.41	0.46
1:A:109:GLU:HB3	1:B:99:PHE:CE2	2.51	0.46
1:A:144:ILE:HG22	1:A:242:ILE:HD13	1.98	0.46
1:A:127:KCX:N	1:A:127:KCX:HD3	2.30	0.46
1:A:17:ARG:NH1	1:B:93:ARG:HH22	2.14	0.46
1:A:161:LEU:HD11	1:A:187:ALA:HB1	1.97	0.46
1:B:140:ASP:OD1	1:B:253:SER:OG	2.27	0.46
1:B:285:ALA:HA	1:B:288:ILE:HG22	1.98	0.45
1:A:477:GLY:H	4:A:603:CO2:C	2.30	0.45
1:B:501:GLN:HB2	1:B:527:ARG:HH21	1.81	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:112:ARG:NH1	1:B:567:GLY:O	2.49	0.45
1:A:90:THR:HG22	1:B:24:ILE:CG2	2.46	0.45
1:A:123:MET:O	1:A:147:SER:HA	2.17	0.45
1:A:127:KCX:OQ2	1:A:276:ASN:ND2	2.49	0.45
1:A:327:VAL:HG22	1:A:328:PRO:HD3	1.98	0.45
1:A:26:ARG:NH2	1:B:188:GLU:OE1	2.45	0.45
1:A:163:SER:HB3	1:A:198:CYS:SG	2.56	0.45
1:B:224:ILE:HG12	1:B:231:ARG:NH2	2.32	0.45
1:B:440:GLY:HA2	1:B:447:MET:HG3	1.97	0.45
1:A:55:THR:HG21	1:A:86:SER:OG	2.17	0.45
1:B:476:SER:HA	4:B:704:CO2:O2	2.17	0.44
1:A:340:ARG:O	1:A:349:THR:OG1	2.28	0.44
1:B:308:VAL:HA	1:B:364:VAL:O	2.17	0.44
1:A:67:GLN:HG3	1:A:232:ASN:HB3	1.98	0.44
1:A:35:PRO:HB2	1:A:37:ASP:OD1	2.17	0.44
1:A:123:MET:SD	1:A:129:THR:HG22	2.57	0.44
1:A:265:ILE:HD11	1:A:292:LEU:HD11	2.00	0.44
1:A:285:ALA:HA	1:A:288:ILE:HG22	2.00	0.43
1:B:477:GLY:H	4:B:704:CO2:C	2.32	0.43
1:A:14:TRP:CD2	1:A:115:PRO:HB3	2.53	0.43
1:A:52:SER:CB	1:B:83:PRO:HD3	2.39	0.43
1:A:351:TRP:O	1:A:355:LYS:N	2.50	0.43
1:A:21:ASP:OD1	6:A:702:HOH:O	2.21	0.43
1:A:442:ARG:HD3	1:A:547:VAL:O	2.18	0.43
1:A:21:ASP:HB3	1:A:25:TYR:CE1	2.53	0.43
1:A:123:MET:HB2	1:A:129:THR:HG22	2.00	0.43
1:B:520:SER:OG	1:B:523:GLU:N	2.43	0.43
1:A:511:ALA:O	1:A:513:ARG:NH1	2.52	0.43
1:B:123:MET:HB3	1:B:129:THR:HA	2.01	0.43
1:B:356:ASP:OD2	1:B:356:ASP:N	2.48	0.43
1:B:517:LEU:HG	1:B:519:VAL:HG12	2.00	0.43
1:A:29:MET:SD	1:B:56:PRO:HG3	2.59	0.43
1:A:212:GLU:OE2	1:A:220:GLY:N	2.41	0.43
1:A:15:PHE:CG	1:A:39:PHE:HD1	2.37	0.43
1:A:415:GLU:OE2	1:A:415:GLU:N	2.35	0.43
1:B:206:THR:HG21	1:B:274:SER:N	2.22	0.43
1:B:574:ASN:OD1	1:B:574:ASN:N	2.40	0.43
1:A:127:KCX:HG2	6:A:718:HOH:O	2.19	0.42
1:A:154:GLY:O	1:A:160:GLU:HA	2.19	0.42
1:B:8:VAL:HG23	1:B:9:ARG:H	1.83	0.42
1:B:258:ARG:HH22	1:B:296:ASP:CG	2.23	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:352:ASP:HA	1:B:355:LYS:HD3	2.01	0.42
1:B:148:GLY:O	1:B:231:ARG:HD3	2.19	0.42
1:A:127:KCX:C	1:A:130:PRO:HD2	2.49	0.42
1:A:410:VAL:O	1:A:420:ARG:NH1	2.52	0.42
1:A:87:LEU:HD13	1:A:127:KCX:HB2	2.02	0.42
1:A:133:MET:HB3	1:A:133:MET:HE2	1.93	0.42
1:B:129:THR:HG21	1:B:207:MET:HB3	2.02	0.42
1:A:44:VAL:HG13	1:A:117:ASP:H	1.85	0.42
1:A:346:ASN:HD21	1:A:353:ASN:CG	2.23	0.42
1:B:51:PHE:HB2	1:B:61:PHE:HB2	2.02	0.42
1:B:130:PRO:HB3	1:B:280:HIS:HB3	2.02	0.42
1:A:218:LEU:HB2	1:A:234:LEU:HD11	2.00	0.42
1:A:281:LEU:HB2	1:A:297:TRP:HZ2	1.85	0.41
1:A:434:LEU:HD22	1:A:469:ARG:HG2	2.01	0.41
1:B:142:PRO:HD3	1:B:251:VAL:HG12	2.01	0.41
1:B:407:ARG:NH2	1:B:427:ASP:O	2.38	0.41
1:B:238:SER:O	1:B:242:ILE:HG22	2.20	0.41
1:A:303:LYS:HB2	1:A:303:LYS:HE2	1.80	0.41
1:A:63:THR:O	1:A:67:GLN:HG2	2.20	0.41
1:B:150:PRO:HD2	1:B:224:ILE:O	2.20	0.41
1:A:157:ARG:HH12	1:A:183:GLU:HG3	1.85	0.41
1:B:107:VAL:HG21	1:B:132:LEU:HA	2.02	0.41
1:A:51:PHE:O	1:B:83:PRO:HG3	2.21	0.41
1:B:151:MET:HG3	1:B:197:HIS:O	2.20	0.41
1:A:123:MET:HB2	1:A:129:THR:CG2	2.51	0.41
1:A:421:MET:HE2	1:A:421:MET:HB2	1.92	0.41
1:A:107:VAL:HG23	1:A:135:GLY:HA3	2.03	0.41
1:B:420:ARG:HE	1:B:426:LEU:CD1	2.33	0.41
1:A:14:TRP:NE1	1:B:93:ARG:HD2	2.36	0.41
1:B:60:HIS:HB3	1:B:195:HIS:CG	2.56	0.41
1:A:151:MET:SD	1:A:192:HIS:HD2	2.44	0.40
1:B:111:ILE:HA	1:B:116:LEU:HD12	2.03	0.40
1:B:89:GLU:OE2	1:B:126:ASP:OD1	2.38	0.40
1:B:490:GLU:HG2	1:B:552:GLN:HE22	1.87	0.40
1:A:141:LEU:HD12	1:A:141:LEU:HA	1.93	0.40
1:A:143:THR:HB	1:A:252:MET:HG2	2.03	0.40
1:A:543:VAL:O	1:A:547:VAL:HG23	2.20	0.40
1:B:359:ASN:ND2	1:B:362:ARG:HG2	2.36	0.40
1:B:457:PRO:O	1:B:461:ARG:HG3	2.21	0.40
1:A:64:LEU:HD23	1:A:64:LEU:HA	1.89	0.40
1:B:372:PHE:CZ	1:B:373:LYS:HE2	2.56	0.40

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:87:LEU:CD1	1:A:127:KCX:HB2	2.51	0.40
1:A:245:MET:O	1:A:249:ASP:N	2.54	0.40
1:A:262:GLU:O	1:A:266:ARG:HG3	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	567/575 (99%)	530 (94%)	34 (6%)	3 (0%)	29	52
1	B	565/575 (98%)	535 (95%)	28 (5%)	2 (0%)	34	57
All	All	1132/1150 (98%)	1065 (94%)	62 (6%)	5 (0%)	34	57

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	502	ASP
1	B	126	ASP
1	A	126	ASP
1	B	124	GLY
1	A	124	GLY

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	450/461 (98%)	437 (97%)	13 (3%)	42	68
1	B	450/461 (98%)	436 (97%)	14 (3%)	40	66
All	All	900/922 (98%)	873 (97%)	27 (3%)	41	67

All (27) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	52	SER
1	A	97	MET
1	A	163	SER
1	A	175	ARG
1	A	178	GLN
1	A	230	ARG
1	A	338	ILE
1	A	385	LEU
1	A	401	LEU
1	A	412	GLU
1	A	414	SER
1	A	502	ASP
1	A	540	ARG
1	B	8	VAL
1	B	89	GLU
1	B	131	SER
1	B	171	SER
1	B	193	ARG
1	B	194	SER
1	B	224	ILE
1	B	230	ARG
1	B	233	LEU
1	B	407	ARG
1	B	426	LEU
1	B	447	MET
1	B	458	LYS
1	B	521	ASP

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (2) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	280	HIS
1	B	359	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)

2 non-standard protein/DNA/RNA residues 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	$\#\|Z\| > 2$
1	KCX	B	127	1,3	9,11,12	1.99	1 (11%)	5,12,14	5.01	1 (20%)
1	KCX	A	127	1,3	9,11,12	1.77	1 (11%)	5,12,14	3.12	1 (20%)

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
1	KCX	B	127	1,3	-	5/9/10/12	-
1	KCX	A	127	1,3	-	6/9/10/12	-

All (2) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	127	KCX	OQ1-CX	5.62	1.32	1.21
1	A	127	KCX	OQ1-CX	5.14	1.31	1.21

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
1	B	127	KCX	OQ1-CX-NZ	-11.20	107.60	124.96
1	A	127	KCX	OQ1-CX-NZ	-6.86	114.32	124.96

There are no chirality outliers.

All (11) torsion outliers are listed below:

Mol	Chain	Res	Type	Atoms
1	A	127	KCX	OQ1-CX-NZ-CE
1	A	127	KCX	OQ2-CX-NZ-CE
1	B	127	KCX	C-CA-CB-CG
1	B	127	KCX	OQ1-CX-NZ-CE
1	B	127	KCX	OQ2-CX-NZ-CE
1	B	127	KCX	CE-CD-CG-CB
1	A	127	KCX	CA-CB-CG-CD
1	A	127	KCX	CE-CD-CG-CB
1	A	127	KCX	C-CA-CB-CG
1	A	127	KCX	CG-CD-CE-NZ
1	B	127	KCX	N-CA-CB-CG

There are no ring outliers.

2 monomers are involved in 13 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
1	B	127	KCX	6	0
1	A	127	KCX	7	0

5.5 Carbohydrates (i)

There are no monosaccharides in this entry.

5.6 Ligand geometry (i)

Of 8 ligands modelled in this entry, 2 are monoatomic - leaving 6 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the Chemical Component Dictionary. The Link column lists molecule types, if any, to which the group is linked. The Z score for a bond length (or angle) is the number of standard deviations the observed value is removed from the expected value. A bond length (or angle) with $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\| > 2$	Counts	RMSZ	$\#\|Z\| > 2$
4	CO2	A	603	3	2,2,2	1.04	0	1,1,1	0.53	0
4	CO2	B	704	3	2,2,2	0.80	0	1,1,1	0.55	0
2	FES	A	601	-	0,4,4	-	-	-		
5	BCT	B	701	-	2,3,3	0.96	0	2,3,3	0.17	0

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
2	FES	B	702	1	0,4,4	-	-	-		
4	CO2	A	604	-	2,2,2	1.04	0	1,1,1	0.55	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
2	FES	A	601	-	-	-	0/1/1/1
2	FES	B	702	1	-	-	0/1/1/1

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

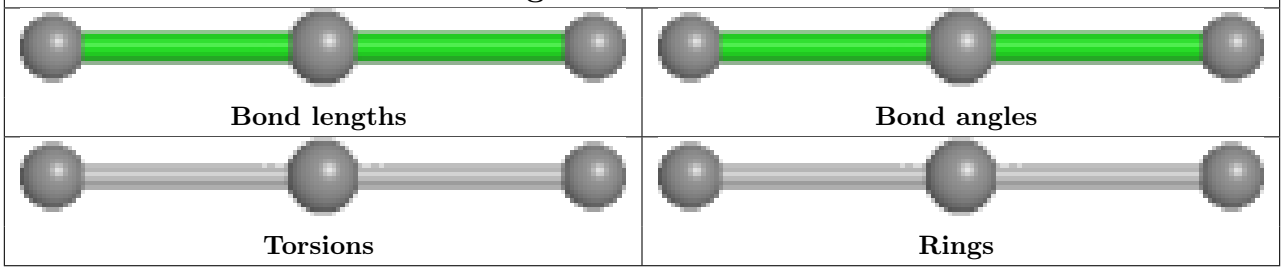
There are no ring outliers.

3 monomers are involved in 7 short contacts:

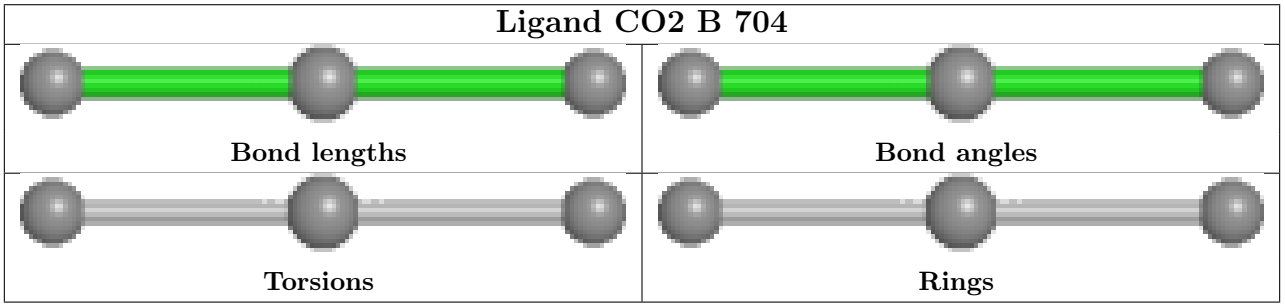
Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	A	603	CO2	1	0
4	B	704	CO2	5	0
2	B	702	FES	1	0

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 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.

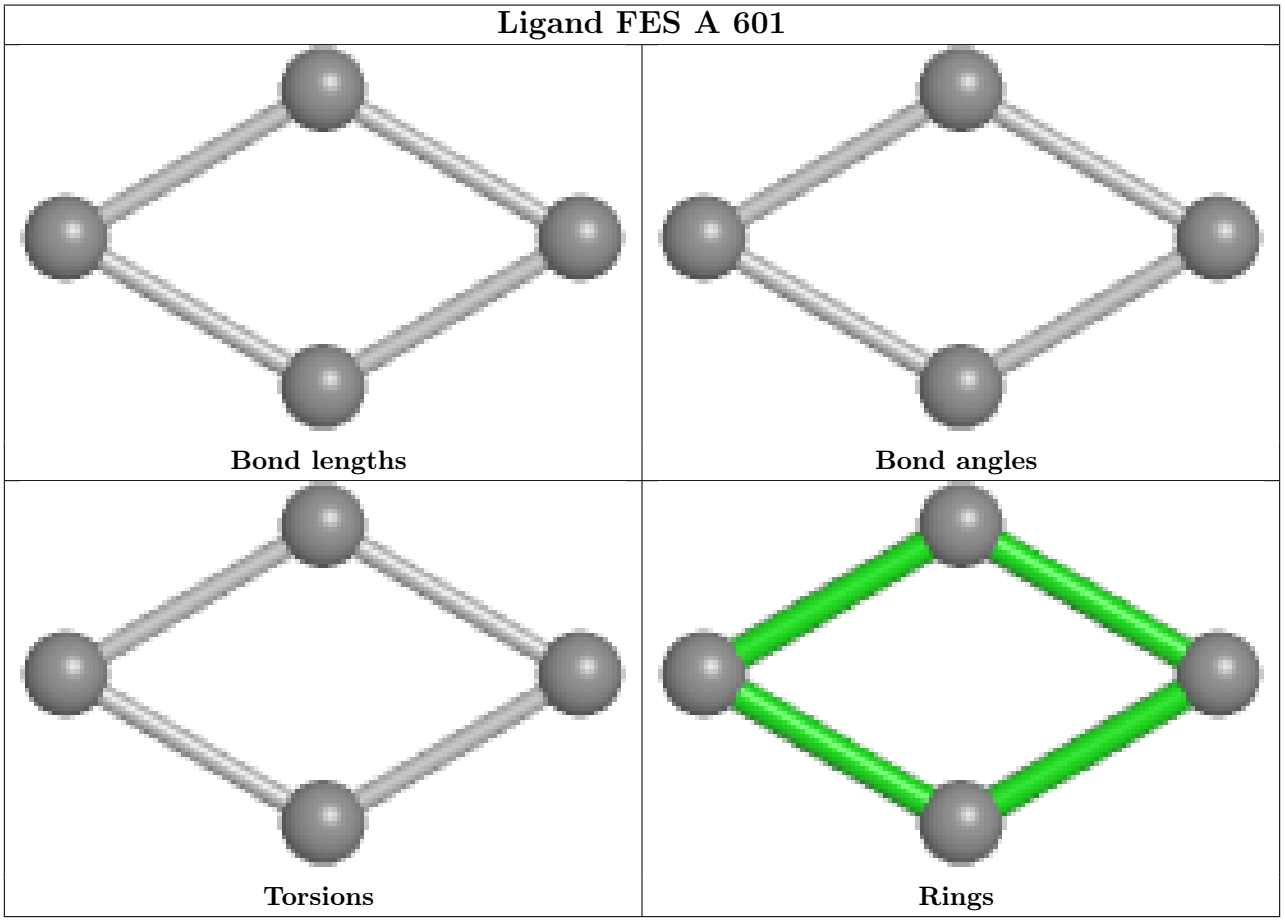
Ligand CO2 A 603



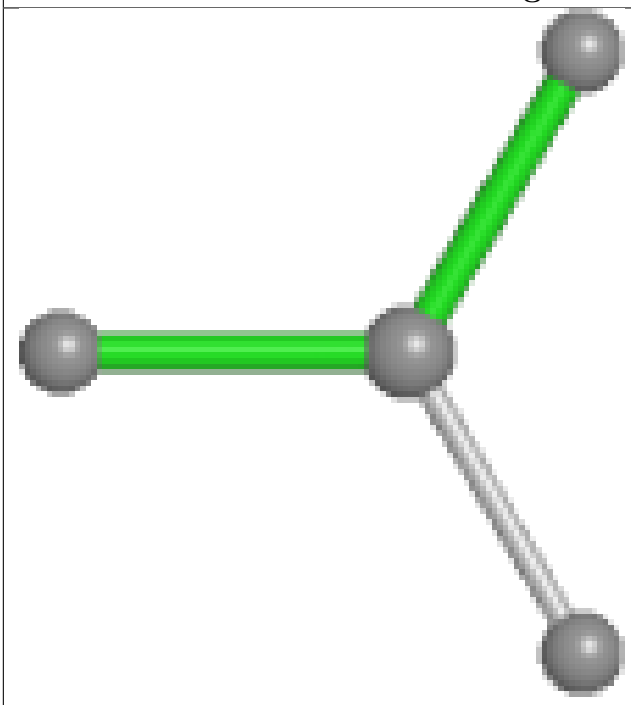
Ligand CO2 B 704



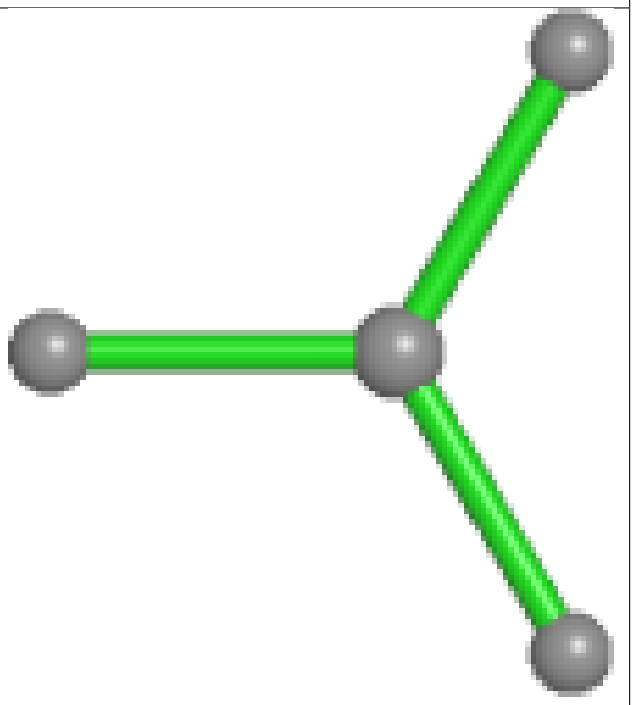
Ligand FES A 601



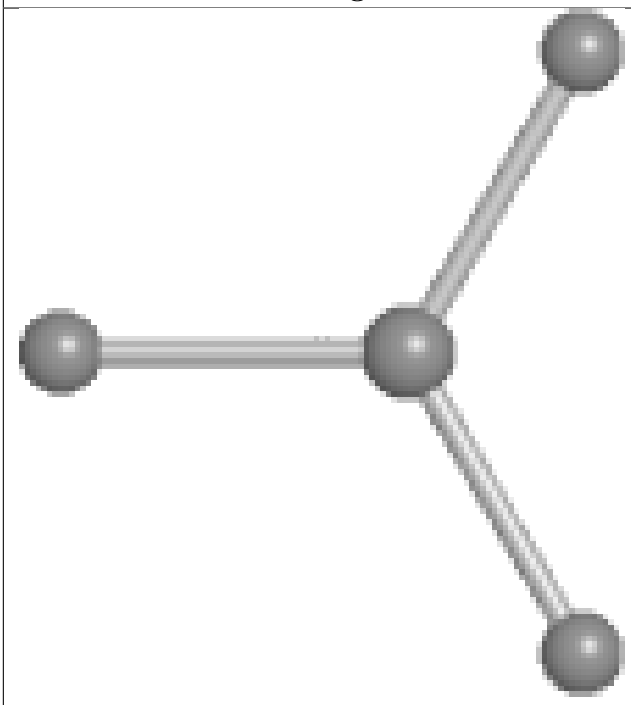
Ligand BCT B 701



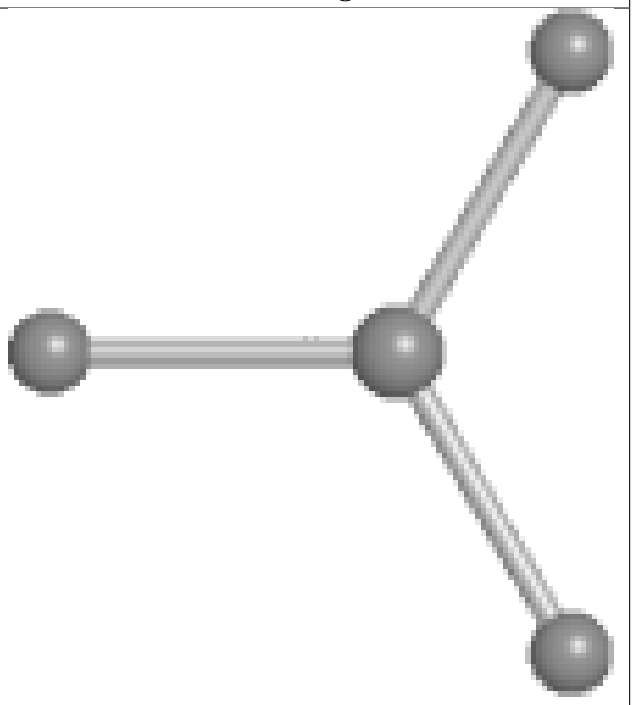
Bond lengths



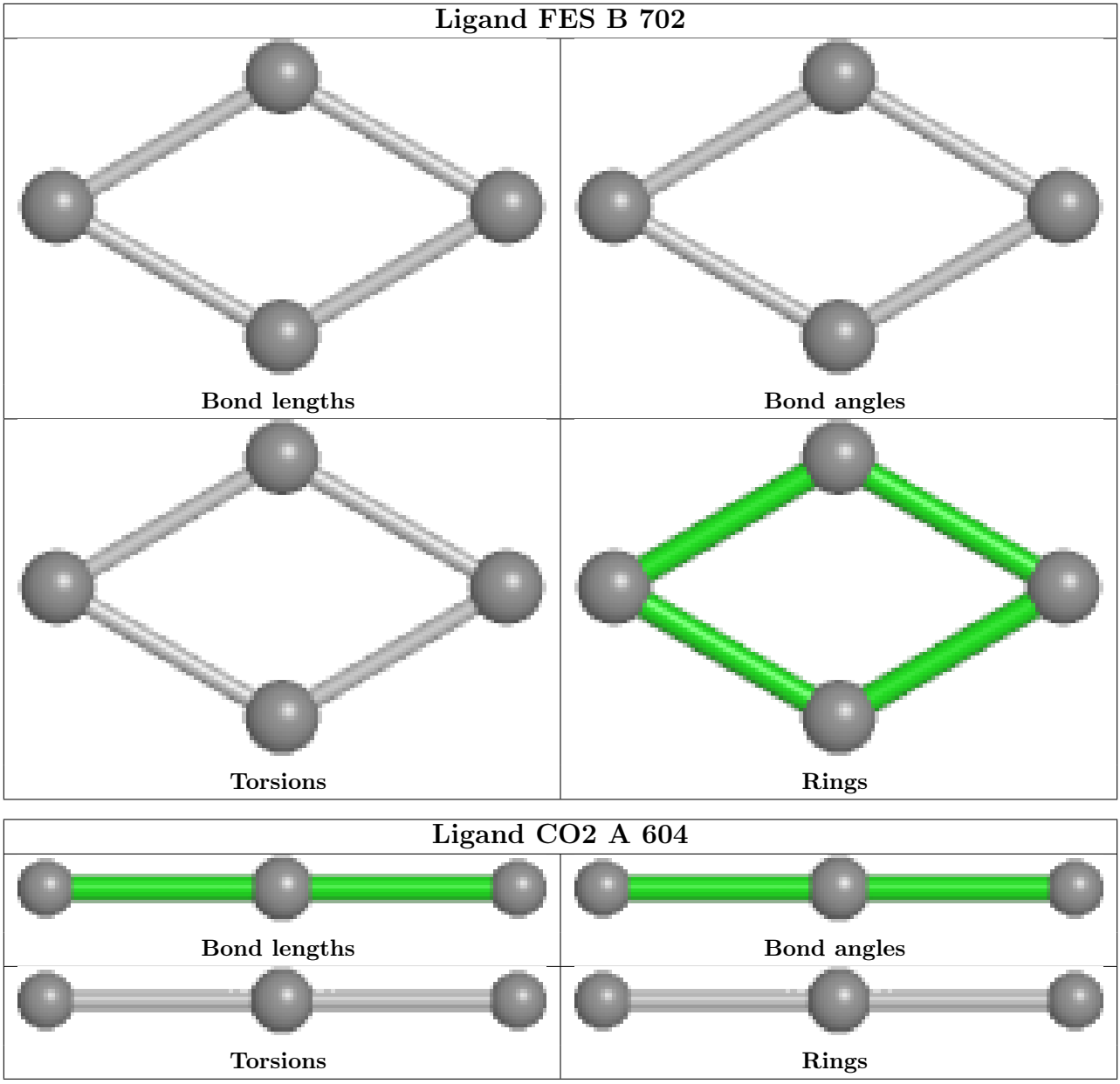
Bond angles



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	568/575 (98%)	1.52	146 (25%)	0	0	41, 62, 83, 95	0
1	B	567/575 (98%)	1.60	176 (31%)	0	0	37, 57, 75, 94	0
All	All	1135/1150 (98%)	1.56	322 (28%)	0	0	37, 59, 80, 95	0

All (322) RSRZ outliers are listed below:

Mol	Chain	Res	Type	RSRZ
1	A	497	LEU	5.3
1	B	499	LEU	4.6
1	A	510	VAL	4.5
1	B	556	GLY	4.5
1	A	211	VAL	4.4
1	A	524	LEU	4.2
1	A	406	GLY	4.2
1	B	148	GLY	4.2
1	A	184	PHE	4.2
1	A	517	LEU	4.1
1	A	435	VAL	4.1
1	A	131	SER	4.0
1	A	8	VAL	4.0
1	A	317	LEU	4.0
1	B	410	VAL	4.0
1	A	530	ALA	4.0
1	B	425	ASN	3.9
1	A	499	LEU	3.9
1	B	128	THR	3.9
1	B	229	ALA	3.9
1	B	70	ILE	3.9
1	B	184	PHE	3.9
1	A	529	GLU	3.8
1	B	179	MET	3.8

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Mol	Chain	Res	Type	RSRZ
1	B	204	ALA	3.8
1	A	514	LYS	3.8
1	A	502	ASP	3.7
1	B	84	VAL	3.7
1	B	533	ALA	3.7
1	B	18	LEU	3.6
1	B	176	ALA	3.6
1	B	185	PHE	3.6
1	A	533	ALA	3.6
1	B	549	HIS	3.6
1	A	494	GLY	3.6
1	B	233	LEU	3.6
1	B	162	GLY	3.5
1	A	175	ARG	3.5
1	B	186	GLU	3.5
1	B	343	LEU	3.5
1	B	66	GLU	3.4
1	B	481	GLY	3.4
1	B	557	ALA	3.4
1	B	197	HIS	3.4
1	A	198	CYS	3.4
1	B	79	PRO	3.4
1	A	409	VAL	3.4
1	B	8	VAL	3.4
1	B	44	VAL	3.4
1	B	568	ALA	3.3
1	A	528	ARG	3.3
1	B	62	ARG	3.3
1	B	69	LYS	3.3
1	B	531	TRP	3.3
1	B	170	MET	3.3
1	B	232	ASN	3.3
1	B	422	ASP	3.3
1	B	63	THR	3.3
1	B	314	GLY	3.3
1	A	63	THR	3.2
1	A	462	LYS	3.2
1	B	156	PHE	3.2
1	A	203	THR	3.2
1	B	226	ALA	3.2
1	A	18	LEU	3.2
1	A	64	LEU	3.2

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Mol	Chain	Res	Type	RSRZ
1	A	383	GLY	3.2
1	A	516	HIS	3.1
1	A	227	VAL	3.1
1	B	344	THR	3.1
1	A	225	PRO	3.1
1	A	97	MET	3.1
1	A	174	VAL	3.1
1	A	62	ARG	3.1
1	B	149	GLY	3.1
1	B	412	GLU	3.1
1	B	433	VAL	3.1
1	B	80	LEU	3.1
1	B	157	ARG	3.1
1	A	410	VAL	3.1
1	A	318	MET	3.1
1	A	527	ARG	3.1
1	A	467	MET	3.0
1	B	310	LEU	3.0
1	A	448	ALA	3.0
1	B	150	PRO	3.0
1	B	73	TRP	3.0
1	B	175	ARG	3.0
1	A	476	SER	3.0
1	B	64	LEU	3.0
1	B	65	ALA	3.0
1	B	67	GLN	3.0
1	A	468	VAL	3.0
1	A	220	GLY	3.0
1	B	463	GLY	3.0
1	B	177	GLY	2.9
1	B	459	ILE	2.9
1	B	129	THR	2.9
1	B	206	THR	2.9
1	A	500	VAL	2.9
1	B	187	ALA	2.9
1	A	557	ALA	2.9
1	A	147	SER	2.9
1	B	41	GLY	2.9
1	A	386	CYS	2.9
1	B	29	MET	2.9
1	A	526	ARG	2.9
1	A	481	GLY	2.9

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Mol	Chain	Res	Type	RSRZ
1	A	179	MET	2.9
1	B	228	ASP	2.9
1	B	130	PRO	2.9
1	B	60	HIS	2.8
1	B	27	SER	2.8
1	B	455	LEU	2.8
1	B	316	HIS	2.8
1	B	420	ARG	2.8
1	A	506	ILE	2.8
1	B	515	LEU	2.8
1	B	113	GLY	2.8
1	B	203	THR	2.8
1	B	270	ALA	2.8
1	B	553	ALA	2.8
1	B	24	ILE	2.8
1	B	61	PHE	2.8
1	B	411	PHE	2.8
1	B	398	THR	2.8
1	B	78	PHE	2.7
1	B	575	HIS	2.7
1	A	16	GLY	2.7
1	B	81	GLU	2.7
1	B	559	LEU	2.7
1	A	137	ALA	2.7
1	B	547	VAL	2.7
1	B	369	ASN	2.7
1	A	150	PRO	2.7
1	B	550	VAL	2.7
1	B	418	HIS	2.7
1	A	103	ALA	2.7
1	A	182	GLU	2.7
1	A	208	ALA	2.7
1	B	315	THR	2.7
1	B	283	ALA	2.7
1	B	71	GLY	2.7
1	B	196	GLY	2.7
1	B	426	LEU	2.7
1	B	25	TYR	2.7
1	A	136	ALA	2.6
1	B	20	ARG	2.6
1	A	279	ILE	2.6
1	B	47	ILE	2.6

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Mol	Chain	Res	Type	RSRZ
1	A	60	HIS	2.6
1	B	467	MET	2.6
1	A	61	PHE	2.6
1	B	574	ASN	2.6
1	A	291	ASP	2.6
1	A	321	PHE	2.6
1	B	558	ASP	2.6
1	A	330	VAL	2.6
1	A	555	LEU	2.6
1	A	242	ILE	2.6
1	A	84	VAL	2.6
1	A	337	VAL	2.6
1	A	205	SER	2.6
1	B	414	SER	2.6
1	A	483	VAL	2.6
1	A	77	GLY	2.6
1	A	385	LEU	2.5
1	A	53	GLU	2.5
1	A	83	PRO	2.5
1	B	45	ILE	2.5
1	B	446	GLY	2.5
1	B	460	LEU	2.5
1	A	201	MET	2.5
1	B	189	SER	2.5
1	B	371	PRO	2.5
1	A	364	VAL	2.5
1	A	142	PRO	2.5
1	A	193	ARG	2.5
1	A	488	ALA	2.5
1	A	178	GLN	2.5
1	A	101	ASN	2.5
1	B	320	ASP	2.5
1	A	465	THR	2.5
1	A	80	LEU	2.5
1	B	235	ALA	2.5
1	B	211	VAL	2.5
1	A	143	THR	2.4
1	B	402	LEU	2.4
1	B	434	LEU	2.4
1	B	322	TYR	2.4
1	B	30	LYS	2.4
1	B	496	PRO	2.4

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Mol	Chain	Res	Type	RSRZ
1	B	555	LEU	2.4
1	A	105	MET	2.4
1	A	447	MET	2.4
1	A	515	LEU	2.4
1	B	111	ILE	2.4
1	B	271	ILE	2.4
1	A	104	SER	2.4
1	A	336	ASP	2.4
1	A	508	LEU	2.4
1	A	200	THR	2.4
1	B	57	CYS	2.4
1	B	104	SER	2.4
1	B	542	TRP	2.4
1	A	401	LEU	2.4
1	A	368	PHE	2.4
1	B	368	PHE	2.4
1	B	500	VAL	2.4
1	A	549	HIS	2.4
1	A	52	SER	2.4
1	A	124	GLY	2.4
1	B	72	VAL	2.4
1	B	182	GLU	2.4
1	B	188	GLU	2.4
1	B	105	MET	2.3
1	B	98	LEU	2.3
1	B	131	SER	2.3
1	B	479	ALA	2.3
1	B	46	GLY	2.3
1	B	59	SER	2.3
1	B	381	LEU	2.3
1	A	412	GLU	2.3
1	B	405	LYS	2.3
1	A	292	LEU	2.3
1	B	118	GLY	2.3
1	B	120	VAL	2.3
1	B	493	ALA	2.3
1	A	496	PRO	2.3
1	B	295	ALA	2.3
1	A	428	VAL	2.3
1	B	543	VAL	2.3
1	B	135	GLY	2.3
1	A	48	CYS	2.3

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Mol	Chain	Res	Type	RSRZ
1	A	424	GLU	2.3
1	B	51	PHE	2.3
1	B	166	ASP	2.3
1	A	477	GLY	2.3
1	B	301	GLY	2.3
1	B	83	PRO	2.3
1	B	551	GLN	2.3
1	B	267	VAL	2.3
1	B	22	GLY	2.2
1	B	223	ALA	2.2
1	B	349	THR	2.2
1	B	321	PHE	2.2
1	B	68	VAL	2.2
1	A	206	THR	2.2
1	A	135	GLY	2.2
1	B	288	ILE	2.2
1	A	437	LYS	2.2
1	B	290	VAL	2.2
1	A	123	MET	2.2
1	A	379	ALA	2.2
1	A	360	TRP	2.2
1	A	213	ALA	2.2
1	B	222	ALA	2.2
1	A	204	ALA	2.2
1	B	168	TRP	2.2
1	B	351	TRP	2.2
1	A	210	MET	2.2
1	B	251	VAL	2.2
1	A	307	LEU	2.2
1	B	245	MET	2.2
1	A	169	LYS	2.1
1	B	173	GLU	2.1
1	B	243	VAL	2.1
1	A	151	MET	2.1
1	A	199	MET	2.1
1	A	531	TRP	2.1
1	B	85	MET	2.1
1	B	519	VAL	2.1
1	A	185	PHE	2.1
1	A	224	ILE	2.1
1	A	326	GLY	2.1
1	A	430	GLU	2.1

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Mol	Chain	Res	Type	RSRZ
1	A	511	ALA	2.1
1	A	525	ALA	2.1
1	A	51	PHE	2.1
1	A	58	ASN	2.1
1	A	111	ILE	2.1
1	B	291	ASP	2.1
1	B	424	GLU	2.1
1	A	226	ALA	2.1
1	B	96	ALA	2.1
1	B	372	PHE	2.1
1	B	102	LEU	2.1
1	B	273	GLY	2.1
1	B	236	ARG	2.1
1	B	313	SER	2.1
1	A	519	VAL	2.1
1	B	324	ALA	2.1
1	A	76	GLY	2.1
1	A	24	ILE	2.1
1	A	433	VAL	2.1
1	A	518	HIS	2.1
1	B	136	ALA	2.1
1	A	475	MET	2.1
1	A	70	ILE	2.0
1	A	74	GLU	2.0
1	B	74	GLU	2.0
1	A	170	MET	2.0
1	A	325	GLY	2.0
1	A	130	PRO	2.0
1	B	34	ILE	2.0
1	B	441	PRO	2.0
1	A	148	GLY	2.0
1	A	422	ASP	2.0
1	B	12	GLN	2.0
1	B	300	LEU	2.0
1	B	517	LEU	2.0
1	B	461	ARG	2.0
1	A	221	ASN	2.0
1	A	126	ASP	2.0
1	A	324	ALA	2.0
1	B	158	GLY	2.0
1	B	205	SER	2.0
1	B	395	SER	2.0

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Mol	Chain	Res	Type	RSRZ
1	A	26	ARG	2.0
1	A	152	LEU	2.0
1	A	522	GLU	2.0
1	A	454	PRO	2.0

6.2 Non-standard residues in protein, DNA, RNA chains (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, 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
1	KCX	B	127	12/13	0.71	0.40	49,56,66,72	0
1	KCX	A	127	12/13	0.80	0.26	54,58,66,66	0

6.3 Carbohydrates (i)

There are no monosaccharides in this entry.

6.4 Ligands (i)

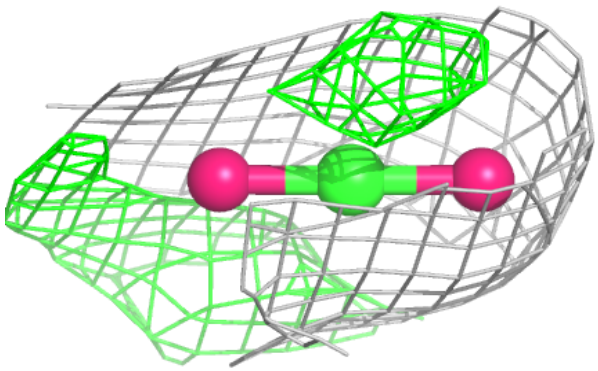
In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95^{th} percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9'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

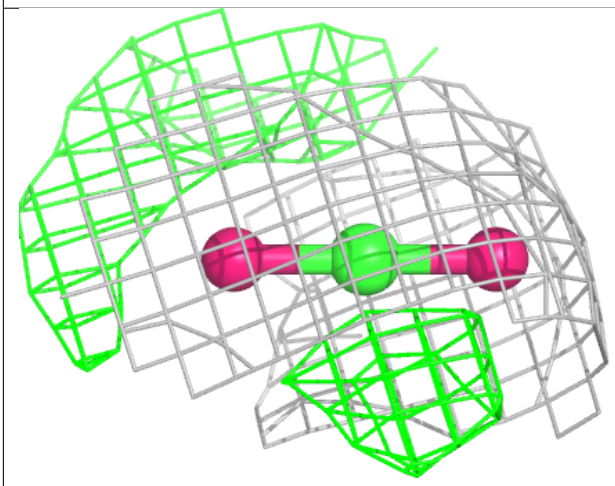
Mol	Type	Chain	Res	Atoms	RSCC	RSR	B-factors(Å^2)	Q<0.9
4	CO2	A	603	3/3	0.62	0.46	56,56,64,65	0
4	CO2	A	604	3/3	0.72	0.30	58,58,64,65	0
5	BCT	B	701	4/4	0.75	0.35	56,66,67,71	0
3	MN	A	602	1/1	0.82	0.07	71,71,71,71	0
4	CO2	B	704	3/3	0.83	0.16	66,66,66,70	0
3	MN	B	703	1/1	0.85	0.04	73,73,73,73	0
2	FES	B	702	4/4	0.90	0.17	59,62,65,72	4
2	FES	A	601	4/4	0.94	0.10	63,67,76,77	0

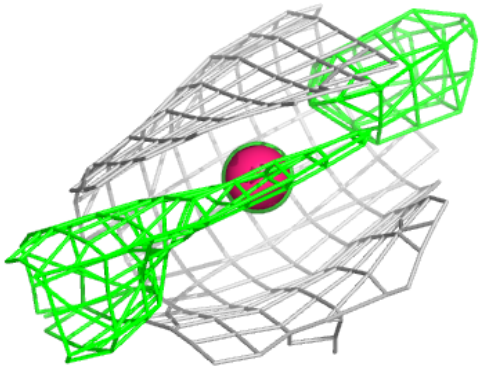
The following is a graphical depiction of the model fit to experimental electron density of all instances of the Ligand of Interest. In addition, ligands with molecular weight > 250 and outliers as shown on the geometry validation Tables will also be included. Each fit is shown from different orientation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

Electron density around CO2 A 603:

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

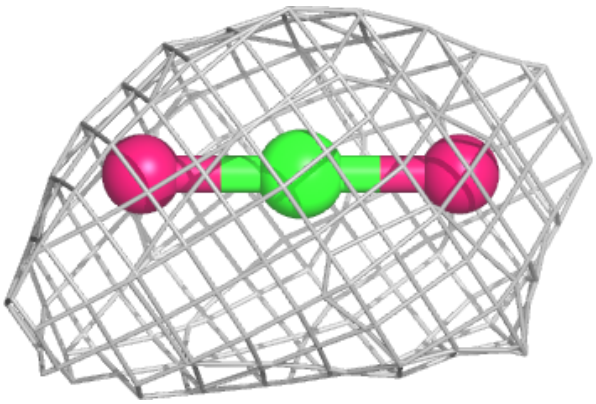


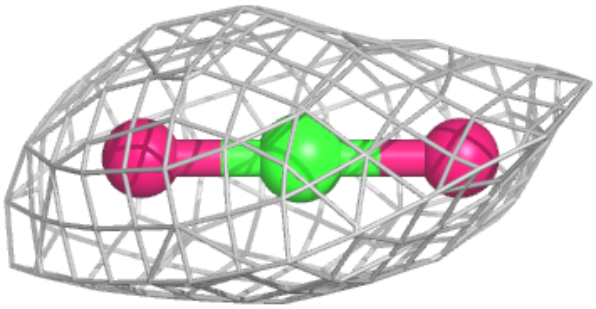


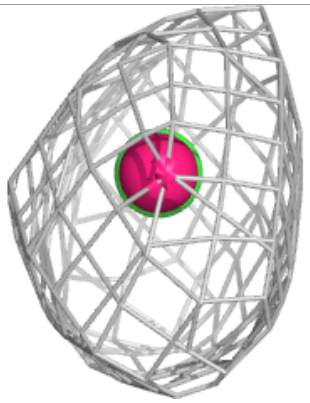


Electron density around CO2 A 604:

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

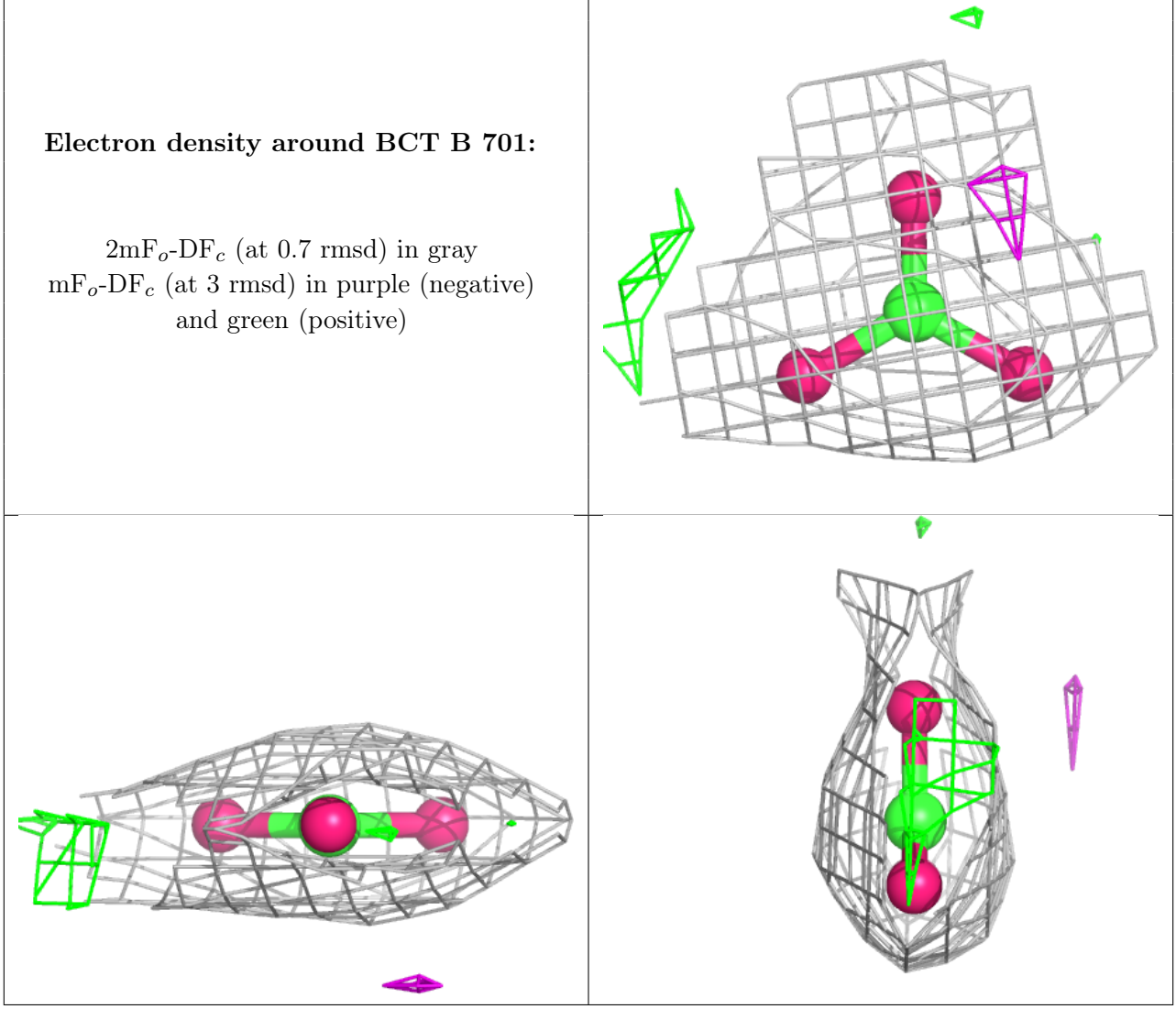






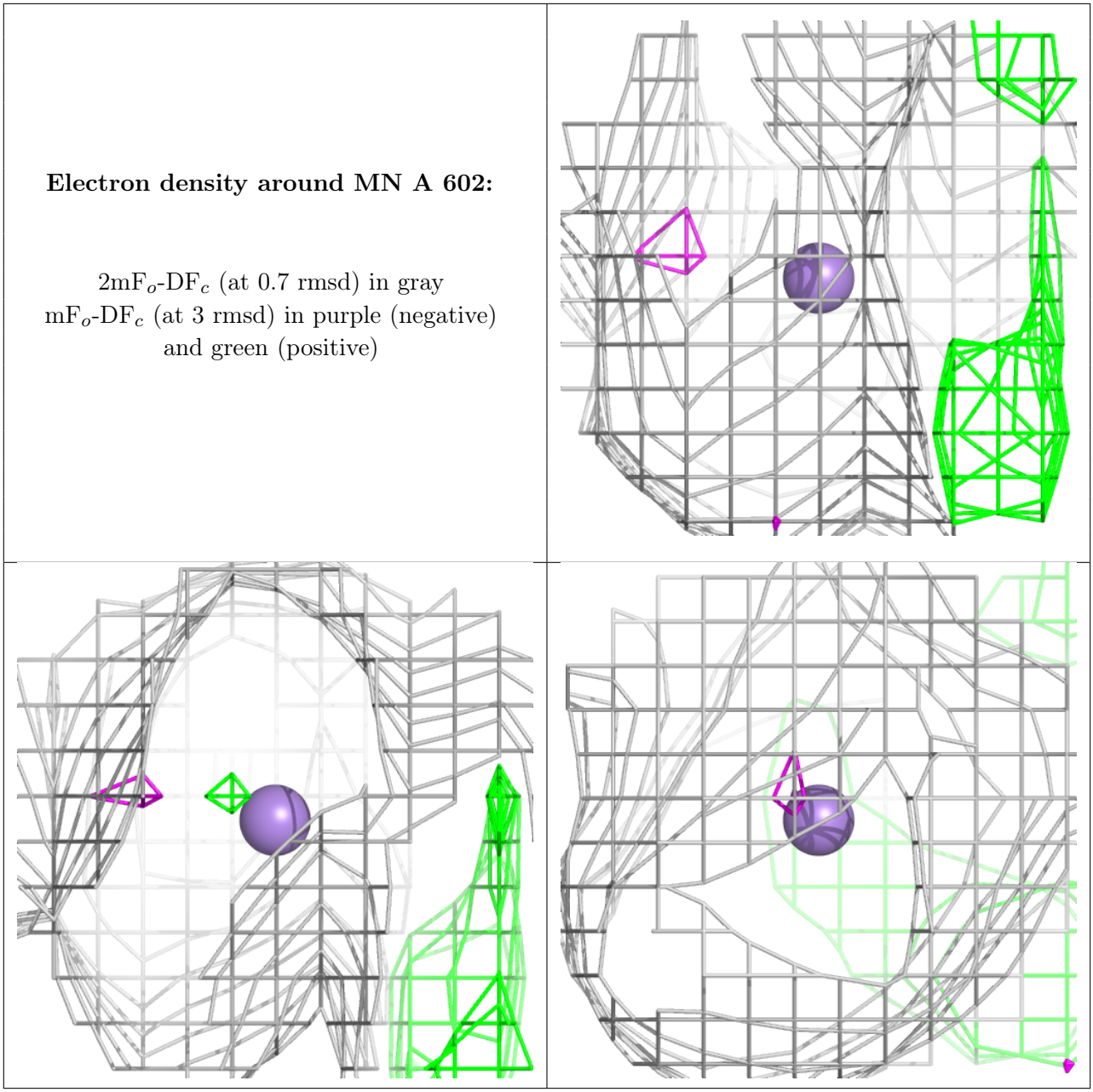
Electron density around BCT B 701:

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



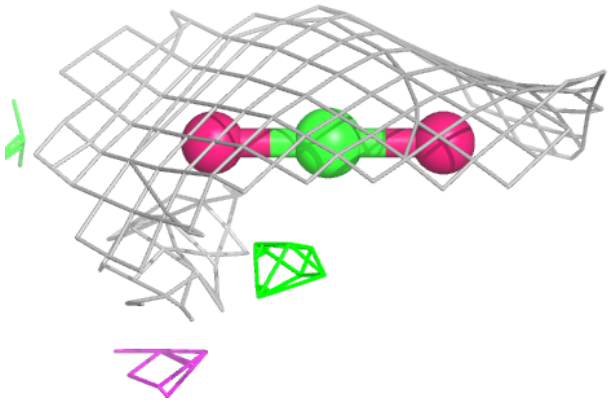
Electron density around MN A 602:

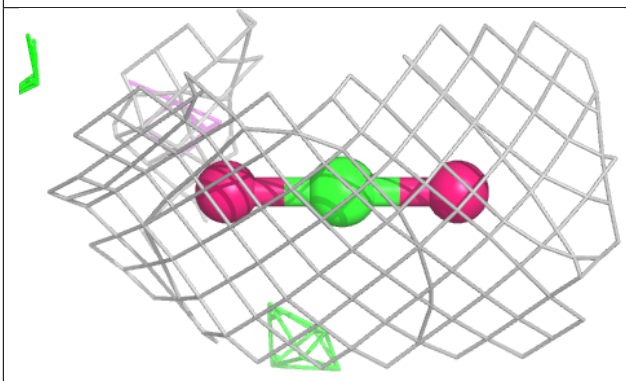
$2mF_o$-DF_c (at 0.7 rmsd) in gray
mF_o-DF_c (at 3 rmsd) in purple (negative) and green (positive)

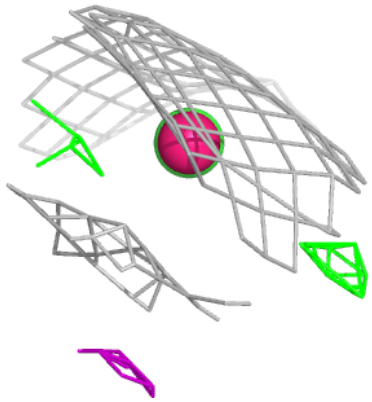


Electron density around CO2 B 704:

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

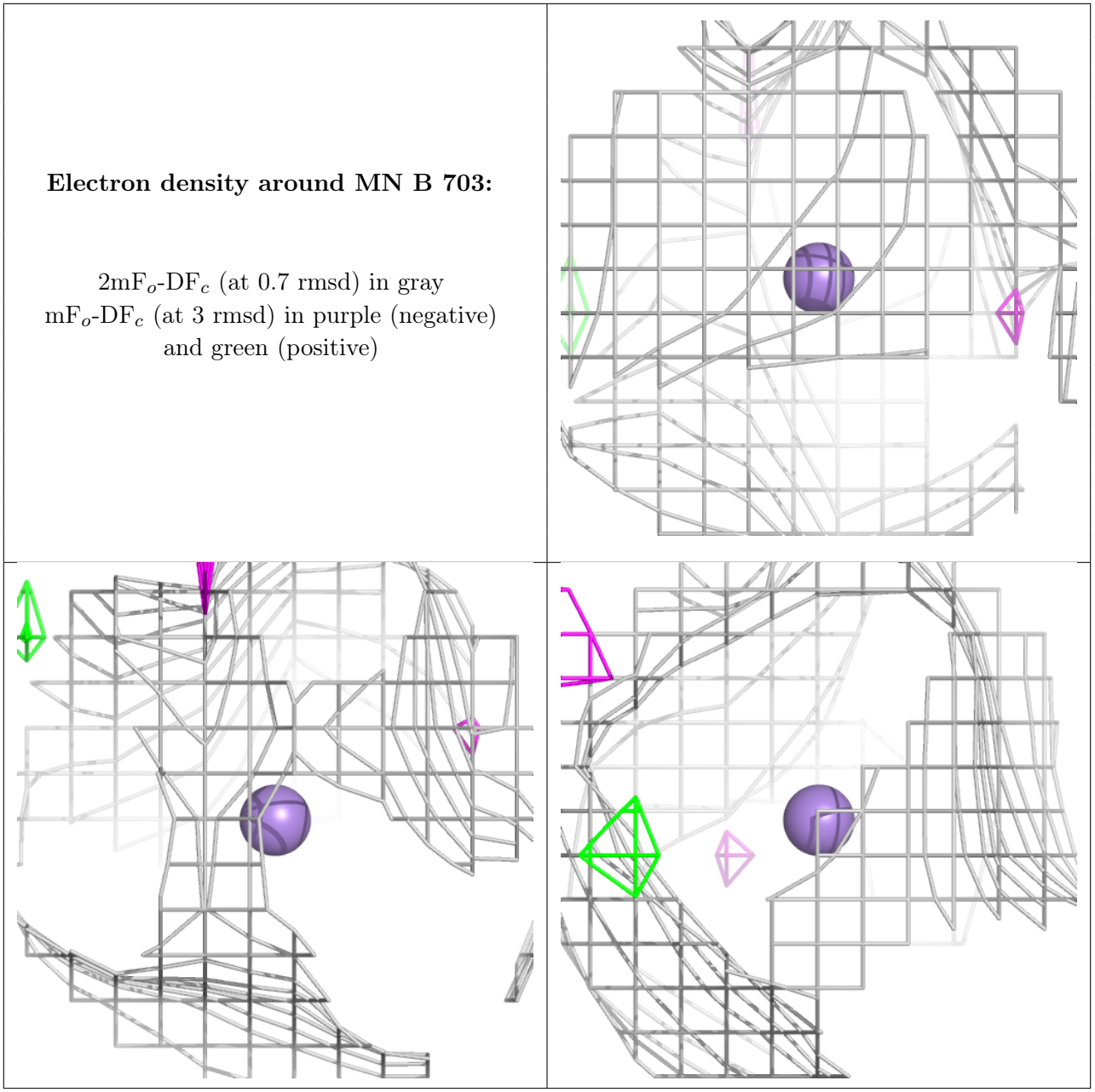






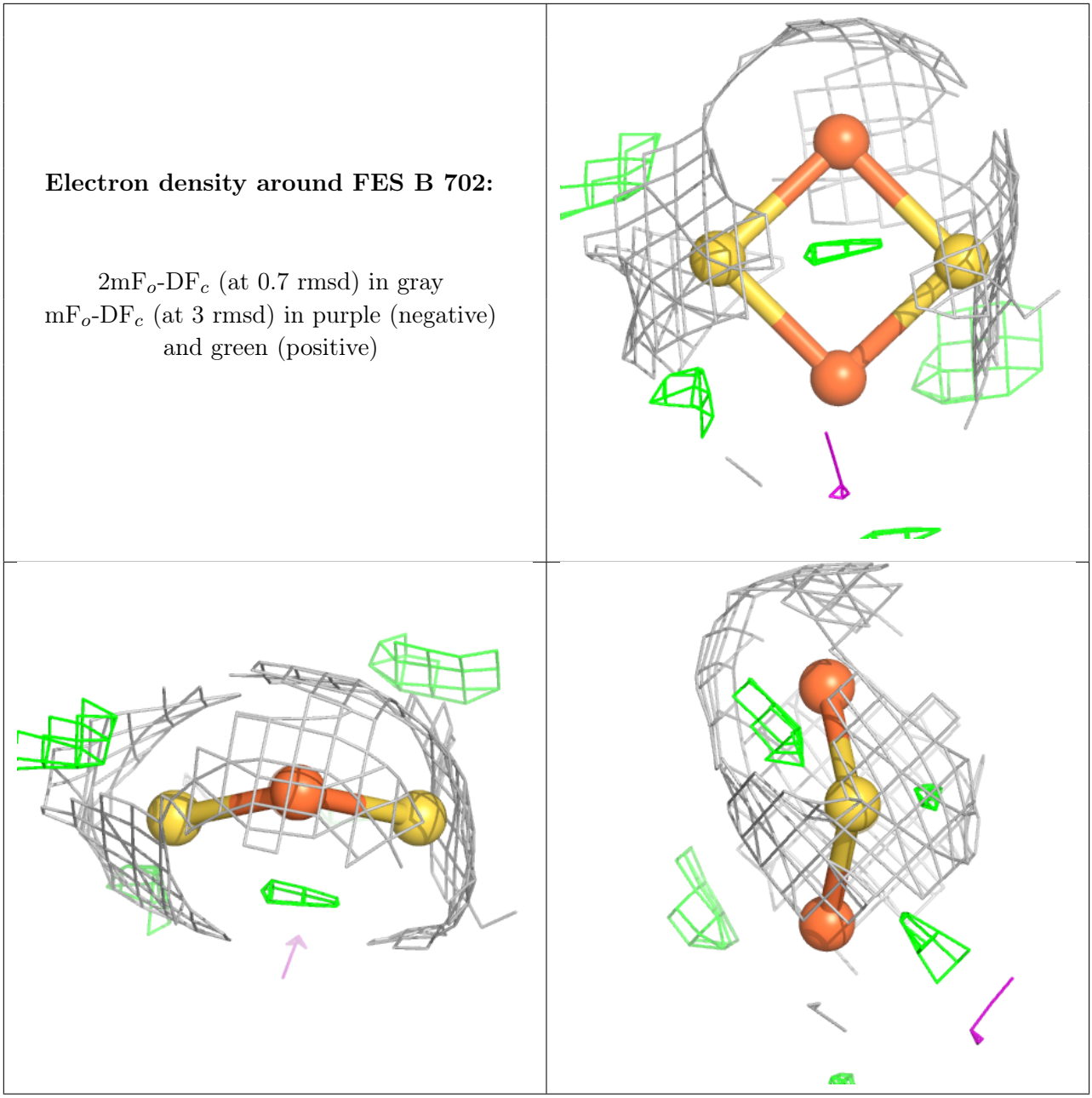
Electron density around MN B 703:

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



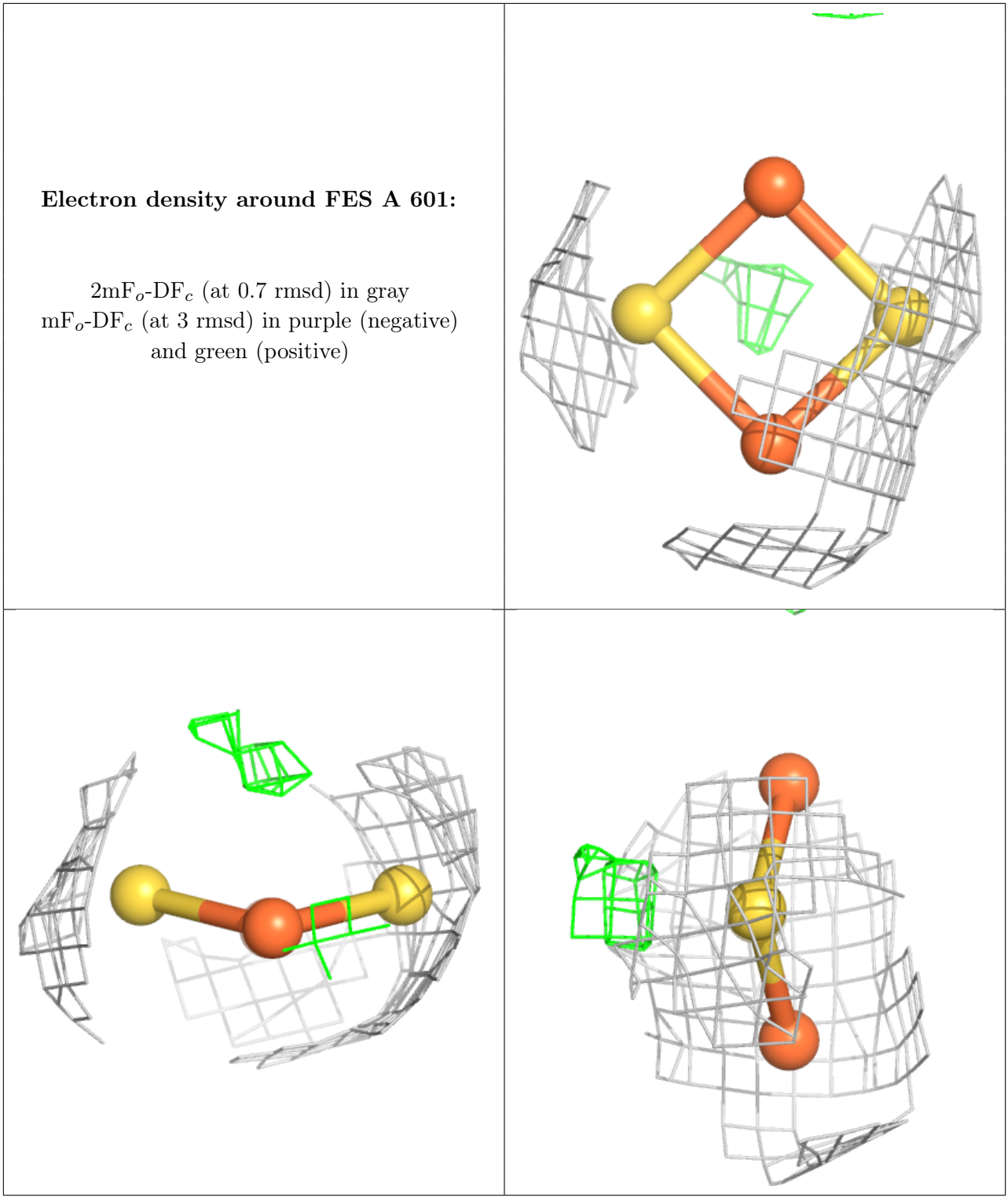
Electron density around FES B 702:

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



Electron density around FES A 601:

$2mF_o$-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.