WORLDWIDE wwPDB

PROTEIN DATA BANK

wwPDB EM Validation Summary Report ⓘ

Dec 10, 2025 – 08:41 pm GMT

PDB ID	:	7QV7 / pdb_00007qv7
EMDB ID	:	EMD-14169
Title	:	Cryo-EM structure of Hydrogen-dependent CO2 reductase.
Authors	:	Dietrich, H.M.; Righetto, R.D.; Kumar, A.; Wietrzynski, W.; Schuller, S.K.; Trischler, R.; Wagner, J.; Schwarz, F.M.; Engel, B.D.; Mueller, V.; Schuller, J.M.
Deposited on	:	2022-01-19
Resolution	:	3.40 Å(reported)

This is a wwPDB EM Validation Summary 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/EMValidationReportHelp
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.

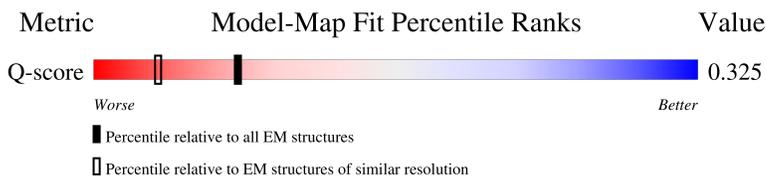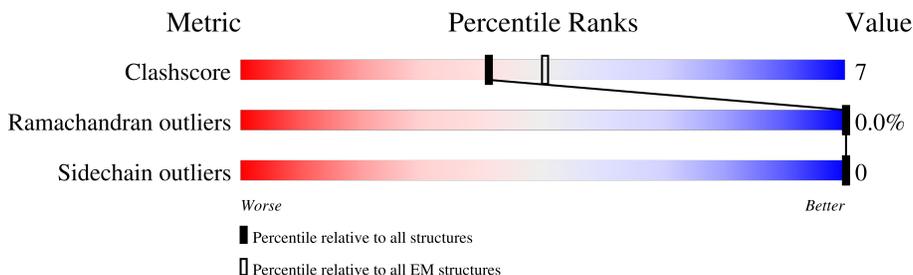The following versions of software and data (see references ⓘ) were used in the production of this report:

EMDB validation analysis	:	0.0.1.dev129
Mogul	:	1.8.4, CSD as541be (2020)
MolProbity	:	4-5-2 with Phenix2.0
buster-report	:	1.1.7 (2018)
Percentile statistics	:	20231227.v01 (using entries in the PDB archive December 27th 2023)
EM percentile statistics	:	202505.v01 (Using data in the EMDB archive up until May 2025)
MapQ	:	1.9.13
Ideal geometry (proteins)	:	Engh & Huber (2001)
Ideal geometry (DNA, RNA)	:	Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP)	:	2.47

1 Overall quality at a glance ⓘ

The following experimental techniques were used to determine the structure:
ELECTRON MICROSCOPY

The reported resolution of this entry is 3.40 Å.

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

Metric	Percentile Ranks	Value
Clashscore		7
Ramachandran outliers		0.0%
Sidechain outliers		0

Worse   *Better*

▮ Percentile relative to all structures

▯ Percentile relative to all EM structures

Metric	Model-Map Fit Percentile Ranks	Value
Q-score		0.325

Worse   *Better*

▮ Percentile relative to all EM structures

▯ Percentile relative to EM structures of similar resolution

Metric	Whole archive (#Entries)	EM structures (#Entries)	Similar EM resolution (#Entries, resolution range(Å))
Clashscore	210492	15764	-
Ramachandran outliers	207382	16835	-
Sidechain outliers	206894	16415	-
Q-score	-	25397	14717 (2.90 - 3.90)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the 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 EM map (all-atom inclusion < 40%). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	184	80%　　　　14%　　5%
1	G	184	77%　　　　17%　　· 5%
2	B	210	78%　　　　9%　　13%
2	C	210	75%　　　　12%　　13%

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Mol	Chain	Length	Quality of chain
2	J	210	78% 9% 13%
2	N	210	70% 17% 13%
2	P	210	72% 15% 13%
2	X	210	74% 13% 13%
3	D	461	81% 16%
3	K	461	10% 82% 15%
3	Q	461	13% 79% 18%
3	R	461	82% 16%
3	V	461	81% 16%
3	Z	461	78% 19%
4	S	743	63% 14% 23%
4	Y	743	61% 16% 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
5	SF4	C	304	-	-	X	-
5	SF4	S	801	-	-	X	-
5	SF4	V	504	-	-	X	-

2 Entry composition ⓘ

There are 6 unique types of molecules in this entry. The entry contains 41236 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 Hydrogen dependent carbon dioxide reductase subunit HycB3.

Mol	Chain	Residues	Atoms					AltConf	Trace
1	A	174	Total	C	N	O	S	0	0
			1338	844	225	250	19		
1	G	174	Total	C	N	O	S	0	0
			1338	844	225	250	19		

- Molecule 2 is a protein called Hydrogen dependent carbon dioxide reductase subunit HycB4.

Mol	Chain	Residues	Atoms					AltConf	Trace
2	B	183	Total	C	N	O	S	0	0
			1378	866	245	248	19		
2	C	183	Total	C	N	O	S	0	0
			1378	866	245	248	19		
2	J	183	Total	C	N	O	S	0	0
			1378	866	245	248	19		
2	N	183	Total	C	N	O	S	0	0
			1378	866	245	248	19		
2	P	183	Total	C	N	O	S	0	0
			1378	866	245	248	19		
2	X	183	Total	C	N	O	S	0	0
			1378	866	245	248	19		

- Molecule 3 is a protein called Hydrogen dependent carbon dioxide reductase subunit HydA2.

Mol	Chain	Residues	Atoms					AltConf	Trace
3	D	448	Total	C	N	O	S	0	0
			3486	2208	592	660	26		
3	K	448	Total	C	N	O	S	0	0
			3486	2208	592	660	26		
3	Q	448	Total	C	N	O	S	0	0
			3486	2208	592	660	26		
3	R	448	Total	C	N	O	S	0	0
			3486	2208	592	660	26		
3	V	448	Total	C	N	O	S	0	0
			3486	2208	592	660	26		

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Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
3	Z	448	3486	2208	592	660	26	0	0

- Molecule 4 is a protein called Hydrogen dependent carbon dioxide reductase subunit FdhF.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
4	S	571	4429	2819	768	818	24	0	0
4	Y	571	4429	2819	768	818	24	0	0

- Molecule 5 is IRON/SULFUR CLUSTER (CCD ID: SF4) (formula: Fe_4S_4) (labeled as "Ligand of Interest" by depositor).
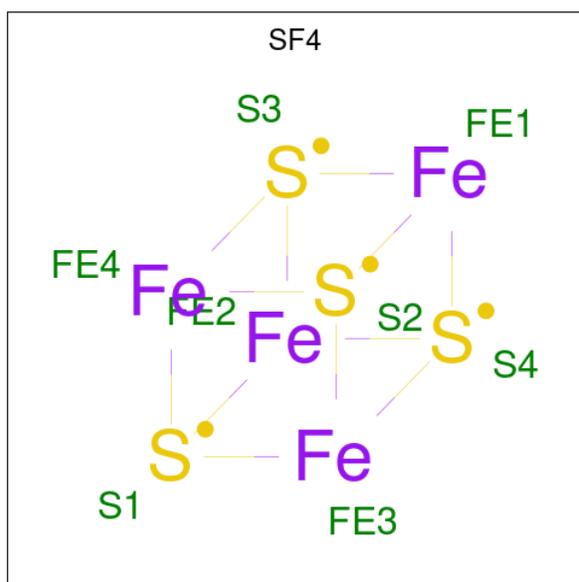
Mol	Chain	Residues	Atoms			AltConf
			Total	Fe	S	
5	A	1	8	4	4	0
5	A	1	8	4	4	0
5	A	1	8	4	4	0
5	A	1	8	4	4	0
5	B	1	8	4	4	0
5	B	1	8	4	4	0

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Mol	Chain	Residues	Atoms			AltConf
5	B	1	Total 8	Fe 4	S 4	0
5	B	1	Total 8	Fe 4	S 4	0
5	C	1	Total 8	Fe 4	S 4	0
5	C	1	Total 8	Fe 4	S 4	0
5	C	1	Total 8	Fe 4	S 4	0
5	C	1	Total 8	Fe 4	S 4	0
5	D	1	Total 8	Fe 4	S 4	0
5	D	1	Total 8	Fe 4	S 4	0
5	D	1	Total 8	Fe 4	S 4	0
5	G	1	Total 8	Fe 4	S 4	0
5	G	1	Total 8	Fe 4	S 4	0
5	G	1	Total 8	Fe 4	S 4	0
5	G	1	Total 8	Fe 4	S 4	0
5	J	1	Total 8	Fe 4	S 4	0
5	J	1	Total 8	Fe 4	S 4	0
5	J	1	Total 8	Fe 4	S 4	0
5	J	1	Total 8	Fe 4	S 4	0
5	K	1	Total 8	Fe 4	S 4	0
5	K	1	Total 8	Fe 4	S 4	0
5	K	1	Total 8	Fe 4	S 4	0
5	N	1	Total 8	Fe 4	S 4	0

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Mol	Chain	Residues	Atoms			AltConf
5	N	1	Total 8	Fe 4	S 4	0
5	N	1	Total 8	Fe 4	S 4	0
5	N	1	Total 8	Fe 4	S 4	0
5	P	1	Total 8	Fe 4	S 4	0
5	P	1	Total 8	Fe 4	S 4	0
5	P	1	Total 8	Fe 4	S 4	0
5	P	1	Total 8	Fe 4	S 4	0
5	Q	1	Total 8	Fe 4	S 4	0
5	Q	1	Total 8	Fe 4	S 4	0
5	Q	1	Total 8	Fe 4	S 4	0
5	R	1	Total 8	Fe 4	S 4	0
5	R	1	Total 8	Fe 4	S 4	0
5	R	1	Total 8	Fe 4	S 4	0
5	S	1	Total 8	Fe 4	S 4	0
5	V	1	Total 8	Fe 4	S 4	0
5	V	1	Total 8	Fe 4	S 4	0
5	V	1	Total 8	Fe 4	S 4	0
5	X	1	Total 8	Fe 4	S 4	0
5	X	1	Total 8	Fe 4	S 4	0
5	X	1	Total 8	Fe 4	S 4	0
5	X	1	Total 8	Fe 4	S 4	0

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Mol	Chain	Residues	Atoms			AltConf
5	Y	1	Total 8	Fe 4	S 4	0
5	Z	1	Total 8	Fe 4	S 4	0
5	Z	1	Total 8	Fe 4	S 4	0
5	Z	1	Total 8	Fe 4	S 4	0

- Molecule 6 is dicarbonyl[bis(cyanide-kappaC)]-mu-(iminodimethanethiolatato-1kappaS:2kappaS)-mu-(oxomethylidene)diiron(2+) (CCD ID: 402) (formula: $C_7H_5Fe_2N_3O_3S_2$) (labeled as "Ligand of Interest" by depositor).
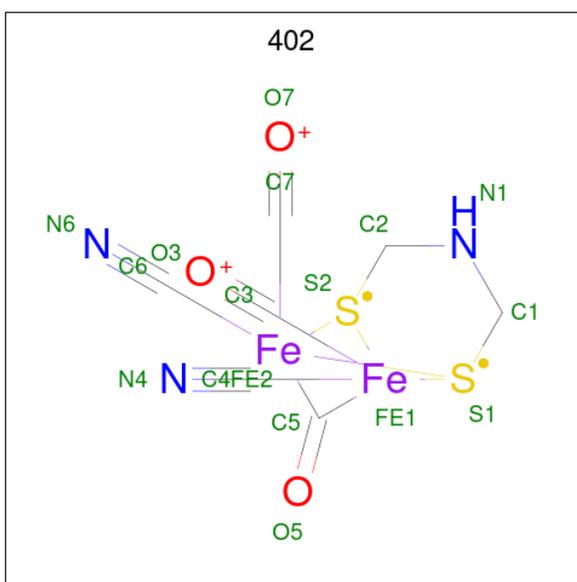
Mol	Chain	Residues	Atoms						AltConf
6	D	1	Total 17	C 7	Fe 2	N 3	O 3	S 2	0
6	K	1	Total 17	C 7	Fe 2	N 3	O 3	S 2	0
6	Q	1	Total 17	C 7	Fe 2	N 3	O 3	S 2	0
6	R	1	Total 17	C 7	Fe 2	N 3	O 3	S 2	0
6	V	1	Total 17	C 7	Fe 2	N 3	O 3	S 2	0
6	Z	1	Total 17	C 7	Fe 2	N 3	O 3	S 2	0

3   Residue-property plots ⓘ

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 atom inclusion in map 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 diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). 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: Hydrogen dependent carbon dioxide reductase subunit HycB3
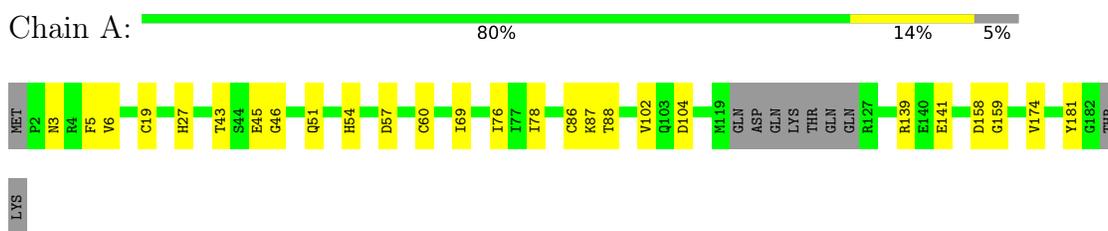
Chain A:

● Molecule 1: Hydrogen dependent carbon dioxide reductase subunit HycB3

Chain G:

● Molecule 2: Hydrogen dependent carbon dioxide reductase subunit HycB4

Chain B:

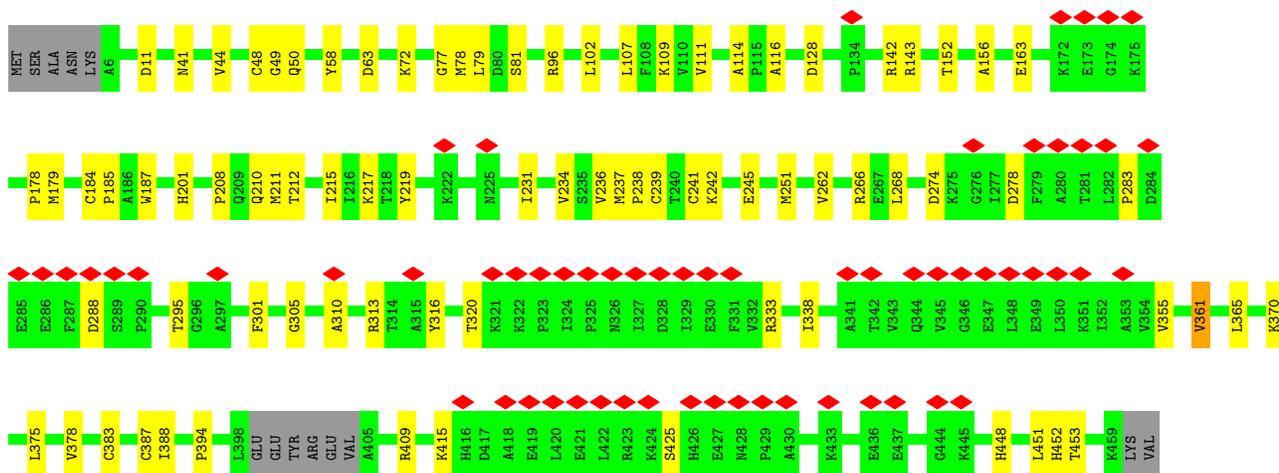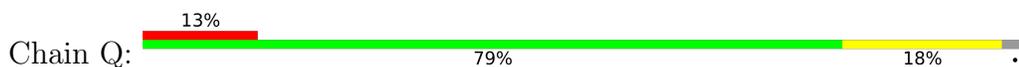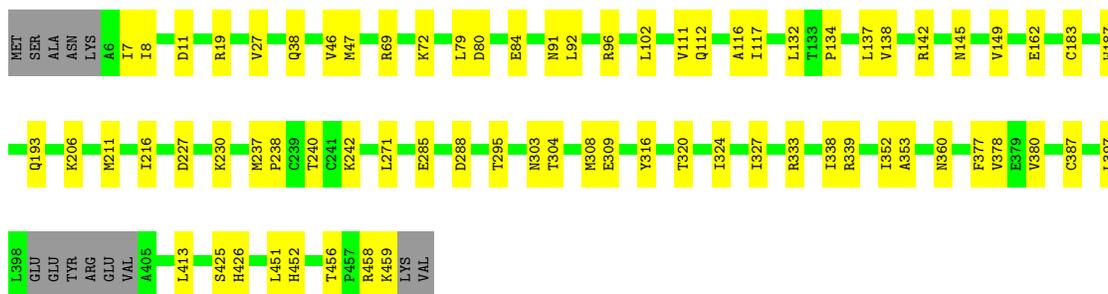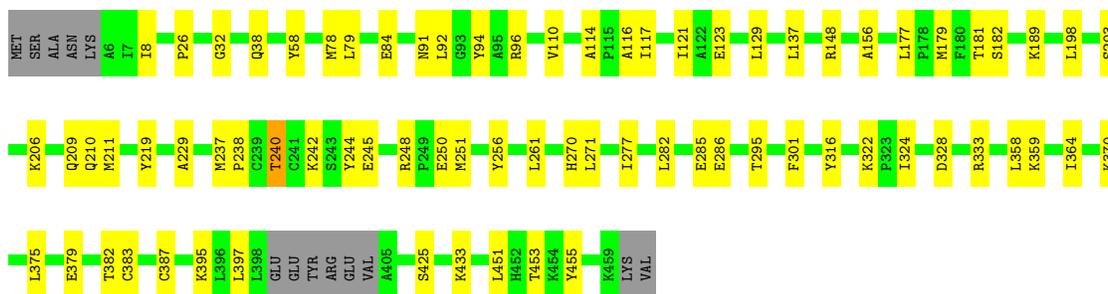● Molecule 2: Hydrogen dependent carbon dioxide reductase subunit HycB4

Chain C:

L154 R159 L167 D170 V177 K178 M189 P190 T191 E192 M193 R197 R207 V208 V209 ARG
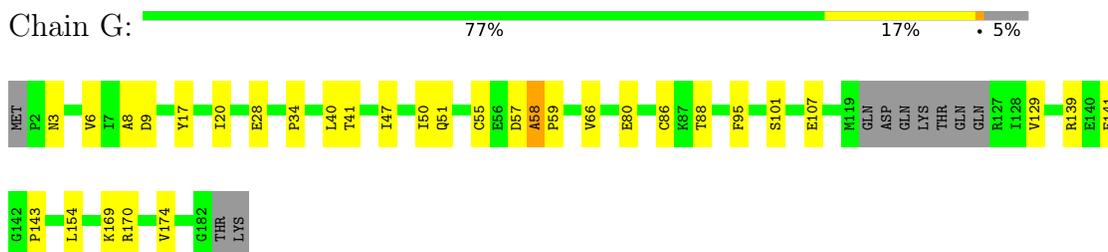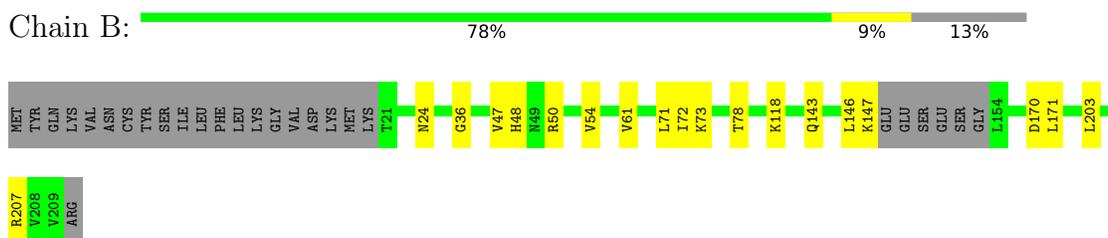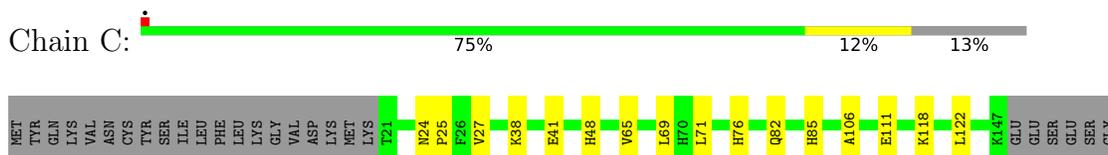
• Molecule 2: Hydrogen dependent carbon dioxide reductase subunit HycB4

Chain J:

78%   9%   13%

MET TYR GLN LYS VAL ASN CYS TYR SER ILE LEU PHE LEU LYS GLY VAL ASP LYS MET LYS T21 P25 A29 G36 A46 V47 R50 A56 L71 H76 M79 K101 K118 L121 I129 K147 GLU GLU SER GLU GLY L154 K164

L167 L171 N198 A202 V209 ARG

• Molecule 2: Hydrogen dependent carbon dioxide reductase subunit HycB4

Chain N:

70%   17%   13%

MET TYR GLN LYS VAL ASN CYS TYR SER ILE LEU PHE LEU LYS GLY VAL ASP LYS MET LYS T21 V27 P31 A32 K33 G36 C37 K38 A43 C44 F45 H48 A56 V65 R68 L69 H70 L71 I72 K73 M79 Q82 C83 R84 H85 E103 A106

E111 I129 P133 Q134 Y135 L146 K147 GLU SER GLU SER GLY L154 P158 R159 K164 C165 D166 L167 A175 E182 K194 N198 A202 V209 ARG

• Molecule 2: Hydrogen dependent carbon dioxide reductase subunit HycB4

Chain P:

72%   15%   13%

MET TYR GLN LYS VAL ASN CYS TYR SER ILE LEU PHE LEU LYS GLY VAL ASP LYS MET LYS T21 N24 P25 F26 V27 G36 C37 K38 E41 A56 T57 V58 V65 L71 I72 E75 H76 M79 Q82 C83 P90 V94 C95 A106 K118 A123

I129 Q143 K147 GLU GLU SER GLU GLY L154 A162 Y163 K164 L167 E173 K178 P190 L206 V209 ARG

• Molecule 2: Hydrogen dependent carbon dioxide reductase subunit HycB4

Chain X:

74%   13%   13%

MET TYR GLN LYS VAL ASN CYS TYR SER ILE LEU PHE LEU LYS GLY VAL ASP LYS MET LYS T21 N24 V27 G36 C40 A56 T57 V58 P64 V65 L69 H70 L71 I72 M79 P80 I81 Q82 C83 V94 K118 A123 C124 P125 F126 G127 Q143

K147 GLU GLU SER GLU SER GLY L154 K164 C176 L185 M193 L206 V209 ARG
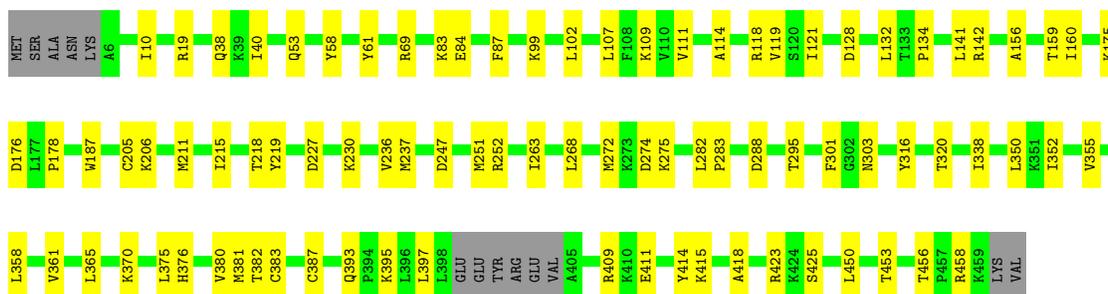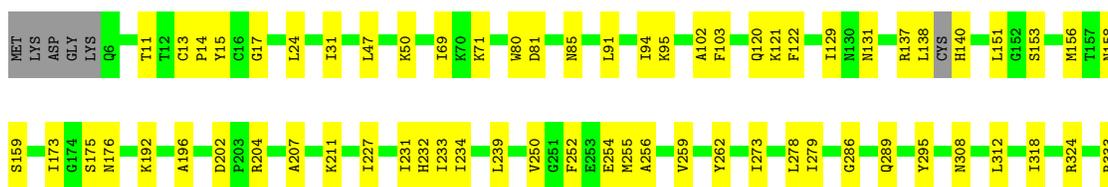
• Molecule 3: Hydrogen dependent carbon dioxide reductase subunit HydA2

Chain D:

81%   16%

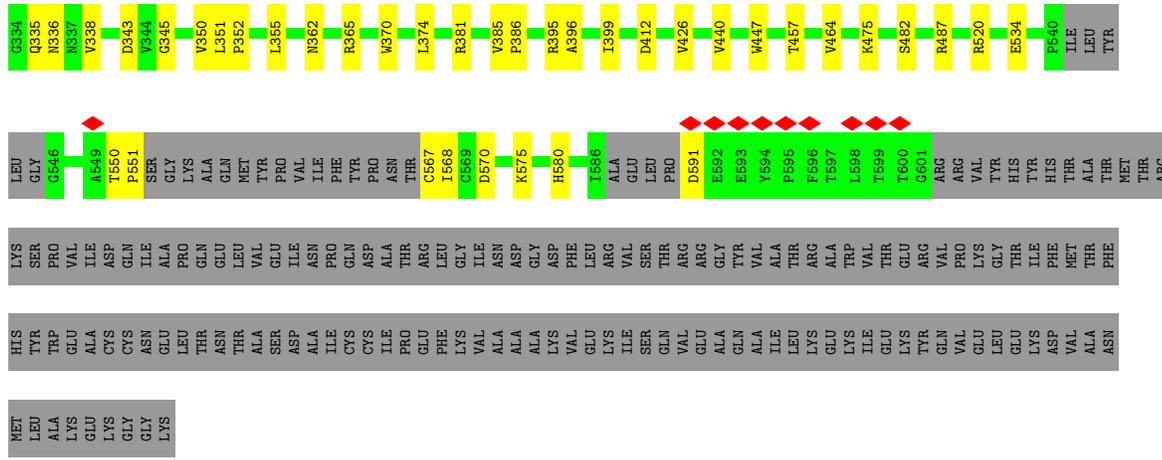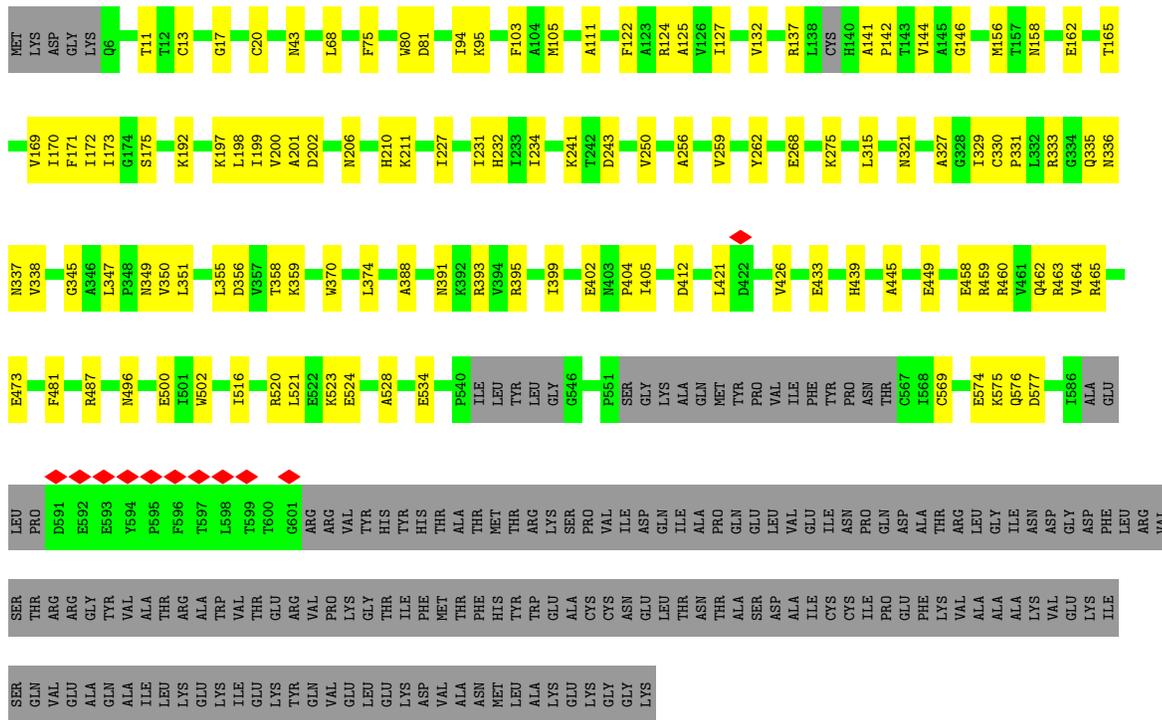• Molecule 3: Hydrogen dependent carbon dioxide reductase subunit HydA2

Chain K:

• Molecule 3: Hydrogen dependent carbon dioxide reductase subunit HydA2

Chain Q:

• Molecule 3: Hydrogen dependent carbon dioxide reductase subunit HydA2

Chain R:

82%　　　16%　　　•

MET SER ALA ASN LYS A6 I7 I8 D11 R19 V27 Q38 V46 M47 R69 K72 L79 D80 E84 N91 L92 R96 L102 V111 Q112 A116 I117 L132 T133 P134 L137 V138 R142 N145 V149 E162 C183 W187

Q193 K206 M211 I216 D227 K230 M237 P238 C239 T240 C241 K242 L271 E285 D288 T295 N303 T304 M308 E309 Y316 T320 I324 I327 R333 I338 R339 I352 A353 N360 F377 V378 E379 V380 C387 L397

L398 GLU GLU TYR ARG GLU VAL A405 L413 S425 H426 L451 H452 T456 P457 R458 K459 LYS VAL

• Molecule 3: Hydrogen dependent carbon dioxide reductase subunit HydA2

Chain V:

81%　　　16%　　　•

MET SER ALA ASN LYS A6 I7 I8 P26 G32 Q38 Y58 M78 L79 E84 N91 L92 G93 Y94 A95 R96 V110 A114 P115 A116 I117 I121 A122 E123 L129 L137 L148 A156 L177 P178 M179 F180 T181 S182 K189 L198 S203

K206 Q209 Q210 M211 Y219 A229 M237 P238 C239 T240 C241 K242 S243 Y244 E245 R248 P249 E250 M251 Y256 L261 H270 L271 I277 L282 E285 E286 T295 F301 Y316 K322 P323 I324 D328 R333 L358 K359 I364 K370

L375 E379 T382 C383 C387 K395 L396 L397 L398 GLU TYR ARG GLU VAL A405 S425 K433 L451 H452 T453 K454 Y455 K459 LYS VAL

• Molecule 3: Hydrogen dependent carbon dioxide reductase subunit HydA2

Chain Z:

78%　　　19%　　　•

MET SER ALA ASN LYS A6 I10 R19 Q38 K39 I40 Q53 Y58 Y61 R69 K83 E84 F87 K99 L102 L107 F108 K109 V110 V111 A114 R118 V119 S120 I121 D128 L132 T133 P134 L141 R142 A156 T159 I160 K175

D176 L177 P178 W187 C205 K206 M211 I215 T218 Y219 D227 K230 V236 M237 D247 M251 R252 I263 L268 M272 K273 D274 K275 L282 P283 D288 T295 F301 G302 N303 Y316 T320 I338 L350 K351 I352 V355

L358 V361 L365 K370 L375 H376 V380 M381 T382 C383 C387 Q393 P394 K395 L396 L397 L398 GLU GLU TYR ARG GLU VAL A405 R409 K410 E411 Y414 K415 A418 R423 K424 S425 L450 T453 T456 P457 R458 K459 LYS VAL

• Molecule 4: Hydrogen dependent carbon dioxide reductase subunit FdhF

Chain S:

63%　　　14%　　　23%

MET LYS ASP GLY LYS Q6 T11 T12 C13 P14 Y15 C16 G17 L24 I31 L47 K50 I69 K70 K71 W80 D81 N85 L91 I94 K95 A102 F103 Q120 F121 F122 I129 N130 N131 R137 L138 CYS H140 L151 G152 S153 M156 T157 N158

S159 I173 G174 S175 N176 K192 A196 D202 P203 R204 A207 K211 I227 I231 H232 I233 I234 L239 V250 G251 F252 E253 E254 M255 A256 V259 Y262 I273 L278 I279 G286 Q289 Y295 N308 L312 I318 R324 R333

G334 Q335 N336 N337 V338 D343 V344 G345 V350 L351 P352 L355 N362 R365 W370 L374 R381 V385 P386 R395 A396 I399 D412 V426 V440 W447 T457 V464 K475 S482 R487 R520 E534 P540 ILE LEU TYR

LEU GLY G546 A649 T550 P551 SER GLY LYS ALA GLN MET TYR PRO VAL ILE PHE TYR PRO ASN THR C567 I668 C569 D570 K575 H580 I586 ALA GLU LEU PRO D591 E592 E593 Y594 P595 F596 T597 L598 T599 T600 G601 ARG ARG VAL TYR HIS TYR HIS THR ALA THR MET THR ARG

LYS SER PRO VAL ILE ASP GLN ILE ALA PRO GLN GLU LEU VAL GLU ILE ASN PRO GLN ASP ALA THR ARG LEU GLY ILE ASN ASP GLY ASP PHE LEU ARG VAL SER THR GLN VAL GLU ALA GLN ILE ALA GLN ILE LEU LEU LYS GLU LYS SER ILE GLU GLU LYS ILE GLU GLU LYS TYR GLN VAL GLU LEU PRO LYS GLY THR ILE PHE MET THR PHE

HIS TYR TRP GLU ALA CYS CYS ASN GLU THR ASN ALA SER ALA ILE CYS ILE PRO GLU PHE LYS VAL ALA ALA LYS VAL GLU LYS ILE GLU LYS TYR VAL GLU LEU GLU LYS ASP VAL ALA ASN MET LEU ALA ALA LYS GLU LYS ILE VAL GLU LYS ILE

MET LEU ALA LYS GLU LYS GLY LYS

• Molecule 4: Hydrogen dependent carbon dioxide reductase subunit FdhF

Chain Y:

61%　　　16%　　　23%

MET LYS ASP GLY LYS Q6 T11 T12 C13 G17 C20 N43 L68 F75 W80 D81 I94 K95 F103 A104 M105 A111 F122 A123 R124 A125 V126 I127 V132 R137 L138 CYS H140 A141 P142 T143 V144 A145 G146 M156 T157 N158 E162 T165

V169 I170 F171 I172 I173 G174 S175 K192 K197 L198 I199 V200 A201 D202 N206 H210 K211 I227 I231 H232 I233 I234 K241 T242 D243 V250 A256 V259 Y262 E268 K275 L315 N321 A327 G328 C330 P331 L332 R333 G334 Q335 N336

N337 V338 G345 A346 L347 P348 N349 V350 L351 L355 D356 V357 T358 K359 W370 L374 A388 N391 K392 R393 V394 R395 I399 E402 N403 P404 I405 D412 L421 D422 V426 E433 H439 A445 E449 E458 R459 R460 V461 Q462 R463 V464 R465

E473 F481 R487 N496 E500 I501 W502 I516 R520 L521 E522 K523 E524 A528 E534 P540 ILE LEU TYR LEU GLY G546 P551 SER GLY LYS ALA GLN MET TYR PRO VAL ILE PHE TYR PRO ASN THR C567 I568 C569 E574 K575 Q576 D577 I586 ALA GLU

LEU PRO D591 E592 E593 Y594 P595 F596 T597 L598 T599 T600 G601 ARG ARG VAL TYR HIS TYR HIS THR ALA THR MET THR ARG LYS SER PRO VAL ILE ASP GLN ILE ALA PRO GLN GLU LEU VAL GLU ILE ASN PRO GLN ASP ALA THR ARG LEU GLY ILE ASN ASP GLY ASP PHE LEU LYS VAL ALA ALA LYS VAL GLU LYS ILE GLU LYS TYR VAL GLU LEU GLU LYS ASP VAL ALA ASN MET LEU ALA LYS GLU LYS ILE VAL GLU LYS ILE

SER THR ARG ARG GLY TYR VAL ALA THR ARG ALA TRP VAL THR GLU GLU ARG VAL PRO LYS GLY THR ILE PHE MET THR PHE HIS TYR TRP GLU ALA CYS CYS ASN GLU THR ASN ALA SER ALA ILE CYS ILE PRO GLU PHE LYS VAL ALA ALA LYS VAL GLU LYS ILE

SER GLN VAL GLU ALA GLN ILE ALA GLN ILE LEU LEU LYS GLU LYS SER ILE GLU GLU LYS ILE GLU GLU LYS TYR GLN VAL GLU LEU GLU GLU LYS ASP VAL ALA ASN MET LEU ALA LYS GLU LYS GLY LYS

4 Experimental information ⓘ

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	719937	Depositor
Resolution determination method	FSC 0.143 CUT-OFF	Depositor
CTF correction method	PHASE FLIPPING AND AMPLITUDE CORRECTION	Depositor
Microscope	FEI TITAN KRIOS	Depositor
Voltage (kV)	300	Depositor
Electron dose $(e^-/\text{Å}^2)$	52	Depositor
Minimum defocus (nm)	500	Depositor
Maximum defocus (nm)	5500	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	2.398	Depositor
Minimum map value	-0.780	Depositor
Average map value	0.001	Depositor
Map value standard deviation	0.029	Depositor
Recommended contour level	0.07	Depositor
Map size (Å)	383.68002, 383.68002, 383.68002	wwPDB
Map dimensions	352, 352, 352	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	1.09, 1.09, 1.09	Depositor

5 Model quality ⓘ

5.1 Standard geometry ⓘ

Bond lengths and bond angles in the following residue types are not validated in this section: 402, SF4

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	0.16	0/1359	0.39	0/1832
1	G	0.16	0/1359	0.42	0/1832
2	B	0.13	0/1400	0.35	0/1898
2	C	0.14	0/1400	0.40	0/1898
2	J	0.16	0/1400	0.36	0/1898
2	N	0.14	0/1400	0.37	0/1898
2	P	0.16	0/1400	0.38	0/1898
2	X	0.14	0/1400	0.35	0/1898
3	D	0.15	0/3548	0.43	4/4788 (0.1%)
3	K	0.13	0/3548	0.35	0/4788
3	Q	0.13	0/3548	0.40	2/4788 (0.0%)
3	R	0.14	0/3548	0.38	0/4788
3	V	0.17	0/3548	0.43	1/4788 (0.0%)
3	Z	0.14	0/3548	0.40	0/4788
4	S	0.15	0/4526	0.41	1/6136 (0.0%)
4	Y	0.13	0/4526	0.37	0/6136
All	All	0.14	0/41458	0.39	8/56052 (0.0%)

Chiral center outliers are detected by calculating the chiral volume of a chiral center and verifying if the center is modelled as a planar moiety or with the opposite hand.A planarity outlier is detected by checking planarity of atoms in a peptide group, atoms in a mainchain group or atoms of a sidechain that are expected to be planar.

Mol	Chain	#Chirality outliers	#Planarity outliers
3	D	0	1

There are no bond length outliers.

The worst 5 of 8 bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(^{o})	Ideal(^{o})
3	Q	361	VAL	CA-C-N	6.66	124.43	120.24
3	Q	361	VAL	C-N-CA	6.66	124.43	120.24
3	D	361	VAL	CA-C-N	6.38	124.26	120.24
3	D	361	VAL	C-N-CA	6.38	124.26	120.24
3	D	209	GLN	CB-CA-C	6.00	120.79	110.23

There are no chirality outliers.

All (1) planarity outliers are listed below:

Mol	Chain	Res	Type	Group
3	D	208	PRO	Peptide

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	1338	0	1333	23	0
1	G	1338	0	1333	27	0
2	B	1378	0	1401	15	0
2	C	1378	0	1401	19	0
2	J	1378	0	1401	15	0
2	N	1378	0	1401	25	0
2	P	1378	0	1401	27	0
2	X	1378	0	1401	22	0
3	D	3486	0	3527	48	0
3	K	3486	0	3527	44	0
3	Q	3486	0	3527	50	0
3	R	3486	0	3527	42	0
3	V	3486	0	3527	49	0
3	Z	3486	0	3526	57	0
4	S	4429	0	4414	65	0
4	Y	4429	0	4414	71	0
5	A	32	0	0	2	0
5	B	32	0	0	1	0
5	C	32	0	0	2	0
5	D	24	0	0	1	0
5	G	32	0	0	1	0
5	J	32	0	0	0	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
5	K	24	0	0	1	0
5	N	32	0	0	1	0
5	P	32	0	0	2	0
5	Q	24	0	0	0	0
5	R	24	0	0	1	0
5	S	8	0	0	2	0
5	V	24	0	0	2	0
5	X	32	0	0	1	0
5	Y	8	0	0	1	0
5	Z	24	0	0	1	0
6	D	17	0	5	3	0
6	K	17	0	5	1	0
6	Q	17	0	5	2	0
6	R	17	0	5	2	0
6	V	17	0	5	3	0
6	Z	17	0	3	4	0
All	All	41236	0	41089	552	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 7.

The worst 5 of 552 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)
2:J:118:LYS:NZ	2:P:24:ASN:O	2.14	0.81
3:K:239:CYS:HB2	5:K:504:SF4:S3	2.26	0.74
4:Y:137:ARG:O	4:Y:141:ALA:HB2	1.89	0.71
3:Z:206:LYS:HB2	3:Z:211:MET:HE3	1.75	0.68
2:N:27:VAL:HG23	2:N:82:GLN:HE21	1.60	0.67

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 PDB entries followed by that with respect to all EM entries.

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	170/184 (92%)	162 (95%)	8 (5%)	0	100	100
1	G	170/184 (92%)	159 (94%)	9 (5%)	2 (1%)	11	35
2	B	179/210 (85%)	169 (94%)	10 (6%)	0	100	100
2	C	179/210 (85%)	166 (93%)	13 (7%)	0	100	100
2	J	179/210 (85%)	171 (96%)	8 (4%)	0	100	100
2	N	179/210 (85%)	172 (96%)	7 (4%)	0	100	100
2	P	179/210 (85%)	173 (97%)	6 (3%)	0	100	100
2	X	179/210 (85%)	172 (96%)	7 (4%)	0	100	100
3	D	444/461 (96%)	419 (94%)	25 (6%)	0	100	100
3	K	444/461 (96%)	420 (95%)	24 (5%)	0	100	100
3	Q	444/461 (96%)	420 (95%)	24 (5%)	0	100	100
3	R	444/461 (96%)	419 (94%)	25 (6%)	0	100	100
3	V	444/461 (96%)	413 (93%)	31 (7%)	0	100	100
3	Z	444/461 (96%)	420 (95%)	24 (5%)	0	100	100
4	S	561/743 (76%)	527 (94%)	34 (6%)	0	100	100
4	Y	561/743 (76%)	534 (95%)	27 (5%)	0	100	100
All	All	5200/5880 (88%)	4916 (94%)	282 (5%)	2 (0%)	100	100

All (2) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	G	58	ALA
1	G	59	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 PDB entries followed by that with respect to all EM entries.

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	151/161 (94%)	151 (100%)	0	100	100
1	G	151/161 (94%)	151 (100%)	0	100	100
2	B	154/179 (86%)	154 (100%)	0	100	100
2	C	154/179 (86%)	154 (100%)	0	100	100
2	J	154/179 (86%)	154 (100%)	0	100	100
2	N	154/179 (86%)	154 (100%)	0	100	100
2	P	154/179 (86%)	154 (100%)	0	100	100
2	X	154/179 (86%)	154 (100%)	0	100	100
3	D	384/396 (97%)	384 (100%)	0	100	100
3	K	384/396 (97%)	384 (100%)	0	100	100
3	Q	384/396 (97%)	384 (100%)	0	100	100
3	R	384/396 (97%)	384 (100%)	0	100	100
3	V	384/396 (97%)	384 (100%)	0	100	100
3	Z	384/396 (97%)	384 (100%)	0	100	100
4	S	470/616 (76%)	470 (100%)	0	100	100
4	Y	470/616 (76%)	470 (100%)	0	100	100
All	All	4470/5004 (89%)	4470 (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. 5 of 44 such sidechains are listed below:

Mol	Chain	Res	Type
3	V	326	ASN
4	Y	206	ASN
3	V	344	GLN
2	X	198	ASN
4	Y	248	HIS

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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

5.5 Carbohydrates ⓘ

There are no oligosaccharides in this entry.

5.6 Ligand geometry ⓘ

58 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	$\#\|Z\| > 2$
5	SF4	R	501	3	0,12,12	-	-	-		
5	SF4	J	303	2	0,12,12	-	-	-		
5	SF4	K	501	3	0,12,12	-	-	-		
5	SF4	C	301	2	0,12,12	-	-	-		
5	SF4	P	302	2	0,12,12	-	-	-		
5	SF4	B	303	2	0,12,12	-	-	-		
5	SF4	G	201	1	0,12,12	-	-	-		
5	SF4	A	201	1	0,12,12	-	-	-		
5	SF4	J	301	2	0,12,12	-	-	-		
5	SF4	N	304	2	0,12,12	-	-	-		
5	SF4	R	502	3	0,12,12	-	-	-		
5	SF4	Z	503	3	0,12,12	-	-	-		
6	402	R	503	3	13,19,19	2.50	9 (69%)	2,36,36	0.88	0
5	SF4	R	504	3	0,12,12	-	-	-		
5	SF4	Q	502	3	0,12,12	-	-	-		
5	SF4	X	301	2	0,12,12	-	-	-		
6	402	Z	504	3	13,19,19	2.52	9 (69%)	2,36,36	0.79	0
5	SF4	J	302	2	0,12,12	-	-	-		
5	SF4	V	501	3	0,12,12	-	-	-		
5	SF4	N	301	2	0,12,12	-	-	-		
5	SF4	C	304	2	0,12,12	-	-	-		
5	SF4	B	302	2	0,12,12	-	-	-		
5	SF4	G	203	1	0,12,12	-	-	-		
5	SF4	V	502	3	0,12,12	-	-	-		
5	SF4	Q	501	3	0,12,12	-	-	-		
5	SF4	X	302	2	0,12,12	-	-	-		
6	402	V	503	3,5	13,19,19	2.51	9 (69%)	2,36,36	1.00	0

WORLDWIDE
wwPDB
PROTEIN DATA BANK

Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	$\#\|Z\|>2$	Counts	RMSZ	$\#\|Z\|>2$
5	SF4	S	801	4	0,12,12	-	-	-		
5	SF4	G	202	1	0,12,12	-	-	-		
5	SF4	B	304	2	0,12,12	-	-	-		
5	SF4	V	504	3,6	0,12,12	-	-	-		
5	SF4	A	204	1	0,12,12	-	-	-		
5	SF4	G	204	1	0,12,12	-	-	-		
5	SF4	P	301	2	0,12,12	-	-	-		
5	SF4	Y	801	4	0,12,12	-	-	-		
6	402	K	503	3	13,19,19	2.55	10 (76%)	2,36,36	0.79	0
5	SF4	D	501	3	0,12,12	-	-	-		
5	SF4	D	502	3	0,12,12	-	-	-		
5	SF4	J	304	2	0,12,12	-	-	-		
6	402	Q	504	3	13,19,19	2.53	9 (69%)	2,36,36	0.69	0
5	SF4	B	301	2	0,12,12	-	-	-		
5	SF4	Z	502	3	0,12,12	-	-	-		
5	SF4	N	303	2	0,12,12	-	-	-		
5	SF4	Z	501	3	0,12,12	-	-	-		
5	SF4	Q	503	3	0,12,12	-	-	-		
5	SF4	K	504	3	0,12,12	-	-	-		
5	SF4	C	303	2	0,12,12	-	-	-		
5	SF4	P	303	2	0,12,12	-	-	-		
5	SF4	C	302	2	0,12,12	-	-	-		
5	SF4	P	304	2	0,12,12	-	-	-		
5	SF4	X	304	2	0,12,12	-	-	-		
5	SF4	A	202	1	0,12,12	-	-	-		
5	SF4	X	303	2	0,12,12	-	-	-		
6	402	D	503	3	13,19,19	2.38	8 (61%)	2,36,36	0.72	0
5	SF4	K	502	3	0,12,12	-	-	-		
5	SF4	D	504	3	0,12,12	-	-	-		
5	SF4	A	203	1	0,12,12	-	-	-		
5	SF4	N	302	2	0,12,12	-	-	-		

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
5	SF4	R	501	3	-	-	0/6/5/5
5	SF4	J	303	2	-	-	0/6/5/5
5	SF4	K	501	3	-	-	0/6/5/5
5	SF4	C	301	2	-	-	0/6/5/5

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	SF4	P	302	2	-	-	0/6/5/5
5	SF4	B	303	2	-	-	0/6/5/5
5	SF4	G	201	1	-	-	0/6/5/5
5	SF4	A	201	1	-	-	0/6/5/5
5	SF4	J	301	2	-	-	0/6/5/5
5	SF4	N	304	2	-	-	0/6/5/5
5	SF4	R	502	3	-	-	0/6/5/5
5	SF4	Z	503	3	-	-	0/6/5/5
6	402	R	503	3	-	-	0/5/3/3
5	SF4	R	504	3	-	-	0/6/5/5
5	SF4	Q	502	3	-	-	0/6/5/5
5	SF4	X	301	2	-	-	0/6/5/5
6	402	Z	504	3	-	-	0/5/3/3
5	SF4	J	302	2	-	-	0/6/5/5
5	SF4	V	501	3	-	-	0/6/5/5
5	SF4	N	301	2	-	-	0/6/5/5
5	SF4	C	304	2	-	-	0/6/5/5
5	SF4	B	302	2	-	-	0/6/5/5
5	SF4	G	203	1	-	-	0/6/5/5
5	SF4	V	502	3	-	-	0/6/5/5
5	SF4	Q	501	3	-	-	0/6/5/5
5	SF4	X	302	2	-	-	0/6/5/5
6	402	V	503	3,5	-	-	0/5/3/3
5	SF4	S	801	4	-	-	0/6/5/5
5	SF4	G	202	1	-	-	0/6/5/5
5	SF4	B	304	2	-	-	0/6/5/5
5	SF4	V	504	3,6	-	-	0/6/5/5
5	SF4	A	204	1	-	-	0/6/5/5
5	SF4	G	204	1	-	-	0/6/5/5
5	SF4	P	301	2	-	-	0/6/5/5
5	SF4	Y	801	4	-	-	0/6/5/5
6	402	K	503	3	-	-	0/5/3/3
5	SF4	D	501	3	-	-	0/6/5/5
5	SF4	D	502	3	-	-	0/6/5/5
5	SF4	J	304	2	-	-	0/6/5/5
6	402	Q	504	3	-	-	0/5/3/3
5	SF4	B	301	2	-	-	0/6/5/5
5	SF4	Z	502	3	-	-	0/6/5/5
5	SF4	N	303	2	-	-	0/6/5/5
5	SF4	Z	501	3	-	-	0/6/5/5
5	SF4	Q	503	3	-	-	0/6/5/5
5	SF4	K	504	3	-	-	0/6/5/5

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Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
5	SF4	C	303	2	-	-	0/6/5/5
5	SF4	P	303	2	-	-	0/6/5/5
5	SF4	C	302	2	-	-	0/6/5/5
5	SF4	P	304	2	-	-	0/6/5/5
5	SF4	X	304	2	-	-	0/6/5/5
5	SF4	A	202	1	-	-	0/6/5/5
5	SF4	X	303	2	-	-	0/6/5/5
6	402	D	503	3	-	-	0/5/3/3
5	SF4	K	502	3	-	-	0/6/5/5
5	SF4	D	504	3	-	-	0/6/5/5
5	SF4	A	203	1	-	-	0/6/5/5
5	SF4	N	302	2	-	-	0/6/5/5

The worst 5 of 54 bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
6	D	503	402	S1-FE2	3.21	2.30	2.26
6	V	503	402	C4-N4	3.14	1.20	1.15
6	R	503	402	C4-N4	3.08	1.20	1.15
6	Q	504	402	C4-N4	3.06	1.20	1.15
6	Z	504	402	C4-N4	3.03	1.20	1.15

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

22 monomers are involved in 34 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	P	302	SF4	1	0
5	A	201	SF4	1	0
5	N	304	SF4	1	0
5	R	502	SF4	1	0
5	Z	503	SF4	1	0
6	R	503	402	2	0
5	X	301	SF4	1	0
6	Z	504	402	4	0
5	C	304	SF4	2	0
6	V	503	402	3	0
5	S	801	SF4	2	0

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Mol	Chain	Res	Type	Clashes	Symm-Clashes
5	B	304	SF4	1	0
5	V	504	SF4	2	0
5	A	204	SF4	1	0
5	G	204	SF4	1	0
5	Y	801	SF4	1	0
6	K	503	402	1	0
5	D	502	SF4	1	0
6	Q	504	402	2	0
5	K	504	SF4	1	0
5	P	303	SF4	1	0
6	D	503	402	3	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 SF4 R 501

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 J 303

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 K 501

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 C 301

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 P 302

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 B 303

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 G 201

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 A 201

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 J 301

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 N 304

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 R 502

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 Z 503

Bond lengths

Bond angles

Torsions

Rings

Ligand 402 R 503

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 R 504

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 Q 502

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 X 301

Bond lengths

Bond angles

Torsions

Rings

Ligand 402 Z 504

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 J 302

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 V 501

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 N 301

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 C 304

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 B 302

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 G 203

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 V 502

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 Q 501

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 X 302

Bond lengths

Bond angles

Torsions

Rings

Ligand 402 V 503

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 S 801

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 G 202

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 B 304

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 V 504

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 A 204

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 G 204

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 P 301

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 Y 801

Bond lengths

Bond angles

Torsions

Rings

Ligand 402 K 503

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 D 501

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 D 502

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 J 304

Bond lengths

Bond angles

Torsions

Rings

Ligand 402 Q 504

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 B 301

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 Z 502

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 N 303

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 Z 501

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 Q 503

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 K 504

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 C 303

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 P 303

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 C 302

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 P 304

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 X 304

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 A 202

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 X 303

Bond lengths

Bond angles

Torsions

Rings

Ligand 402 D 503

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 K 502

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 D 504

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 A 203

Bond lengths

Bond angles

Torsions

Rings

Ligand SF4 N 302

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   Map visualisation ⓘ

This section contains visualisations of the EMDB entry EMD-14169. These allow visual inspection of the internal detail of the map and identification of artifacts.

No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

6.1   Orthogonal projections ⓘ

6.1.1   Primary map

| X | Y | Z |
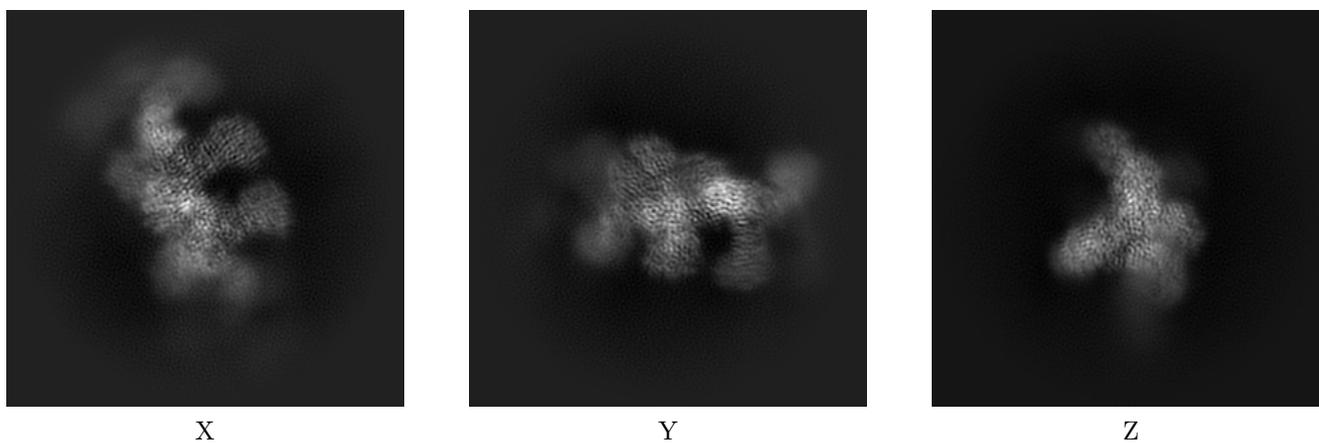
The images above show the map projected in three orthogonal directions.

6.2   Central slices ⓘ

6.2.1   Primary map

X Index: 176   Y Index: 176   Z Index: 176
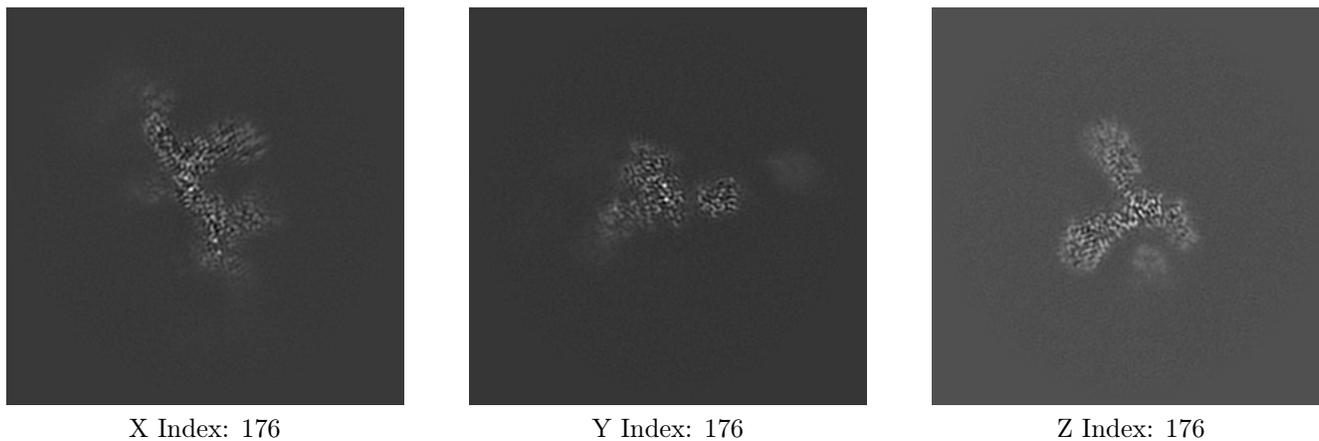
The images above show central slices of the map in three orthogonal directions.

6.3 Largest variance slices (i)

6.3.1 Primary map
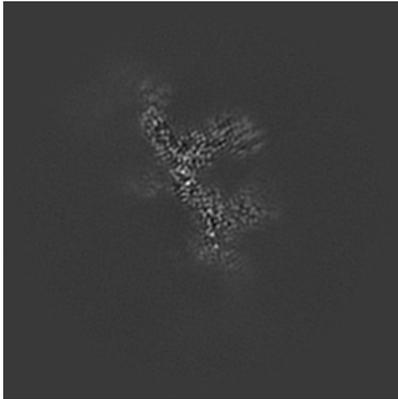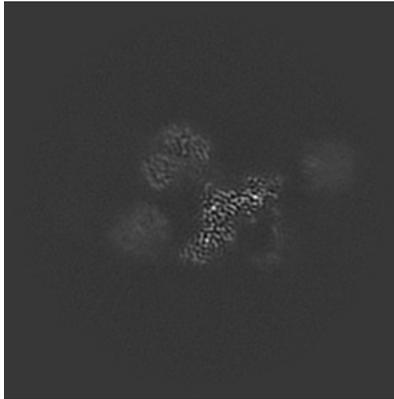
| X Index: 176 | Y Index: 155 | Z Index: 178 |
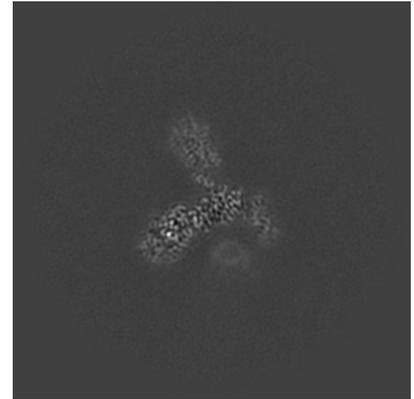
The images above show the largest variance slices of the map in three orthogonal directions.

6.4 Orthogonal standard-deviation projections (False-color) (i)

6.4.1 Primary map

| X | Y | Z |
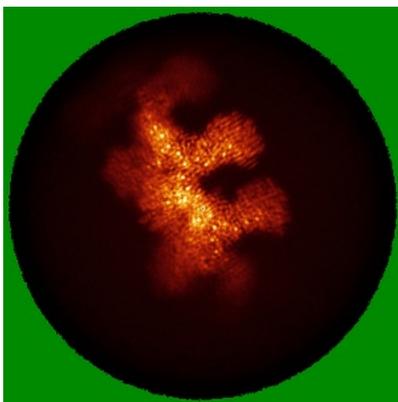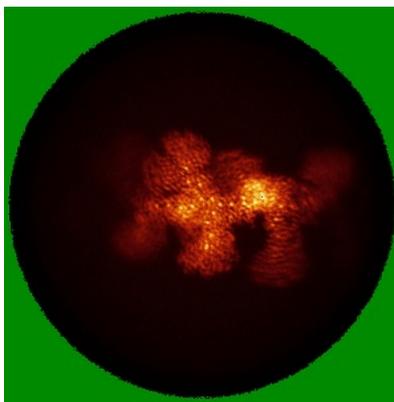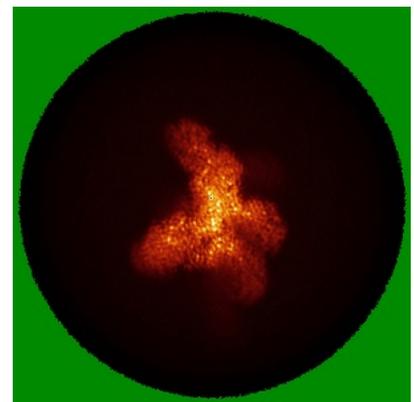
The images above show the map standard deviation projections with false color in three orthogonal directions. Minimum values are shown in green, max in blue, and dark to light orange shades represent small to large values respectively.

6.5 Orthogonal surface views ⓘ

6.5.1 Primary map

X	Y	Z
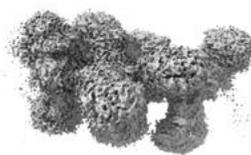
The images above show the 3D surface view of the map at the recommended contour level 0.07. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

6.6 Mask visualisation ⓘ

This section was not generated. No masks/segmentation were deposited.

7 Map analysis ⓘ

This section contains the results of statistical analysis of the map.

7.1 Map-value distribution ⓘ

The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

7.2 Volume estimate ⓘ
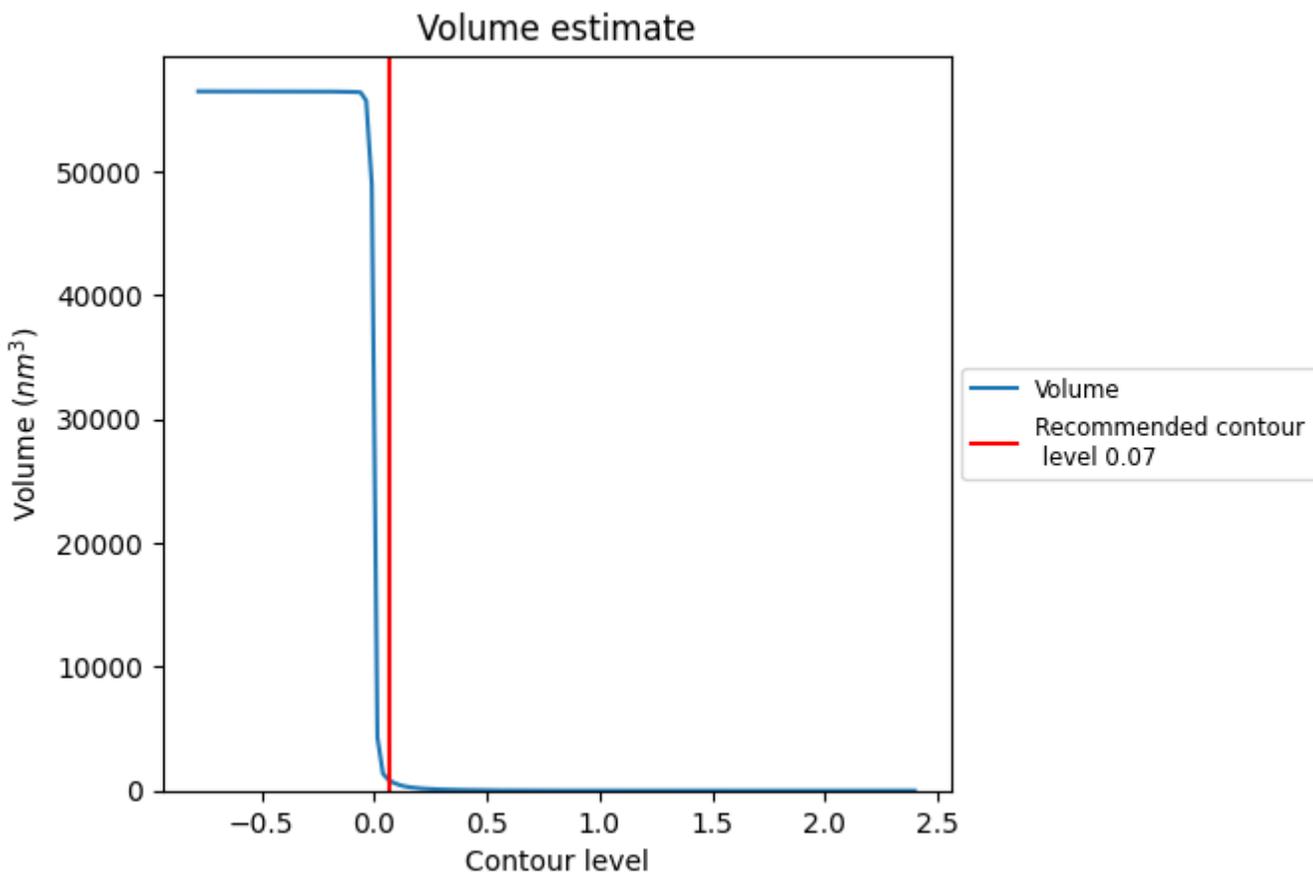
The volume at the recommended contour level is 811 nm^3; this corresponds to an approximate mass of 733 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

7.3   Rotationally averaged power spectrum ⓘ
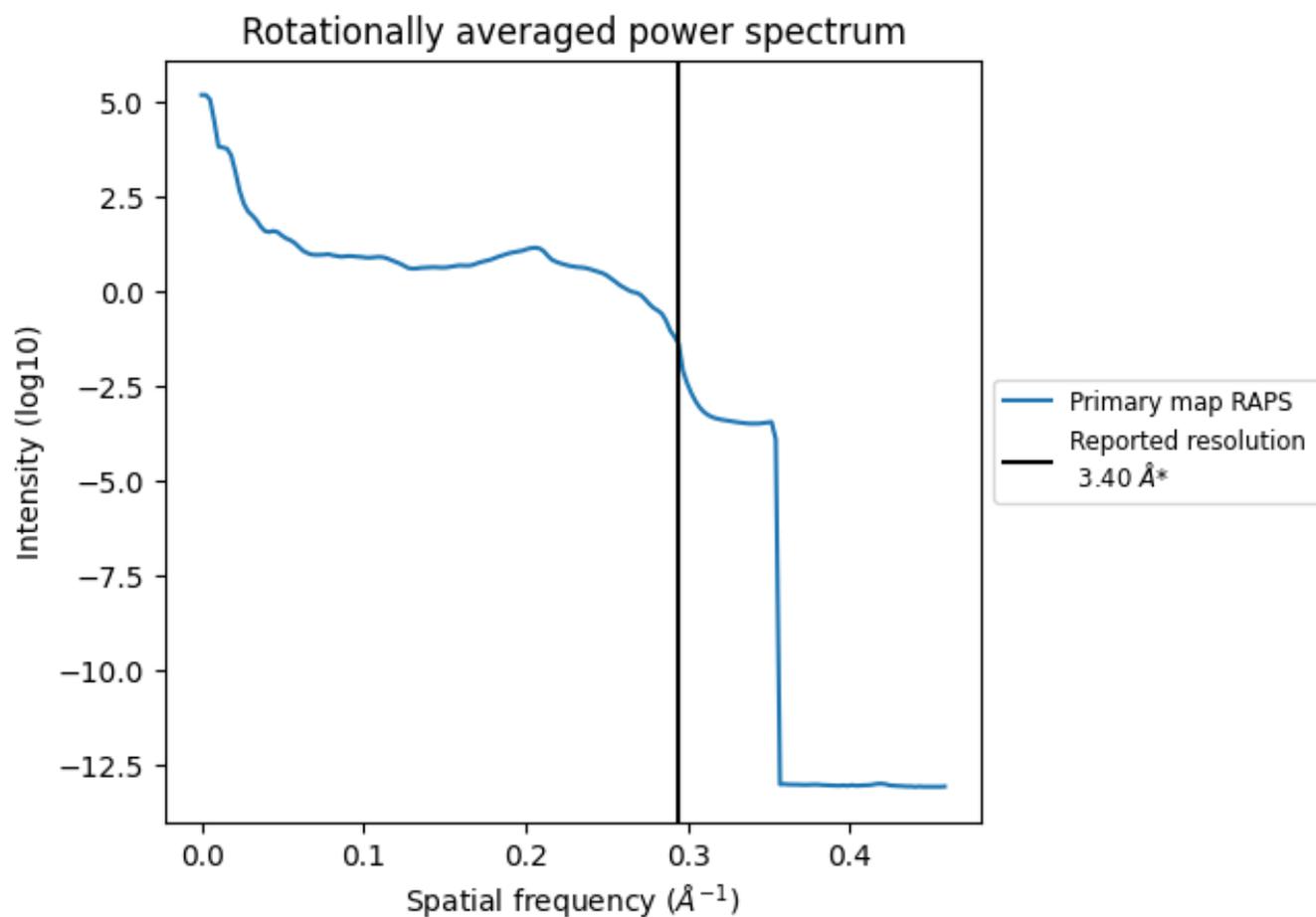

*Reported resolution corresponds to spatial frequency of 0.294 Å^{-1}

8 Fourier-Shell correlation (i)

This section was not generated. No FSC curve or half-maps provided.

9   Map-model fit   (i)

This section contains information regarding the fit between EMDB map EMD-14169 and PDB model 7QV7. Per-residue inclusion information can be found in section 3 on page 9.

9.1   Map-model overlay   (i)


X   Y   Z
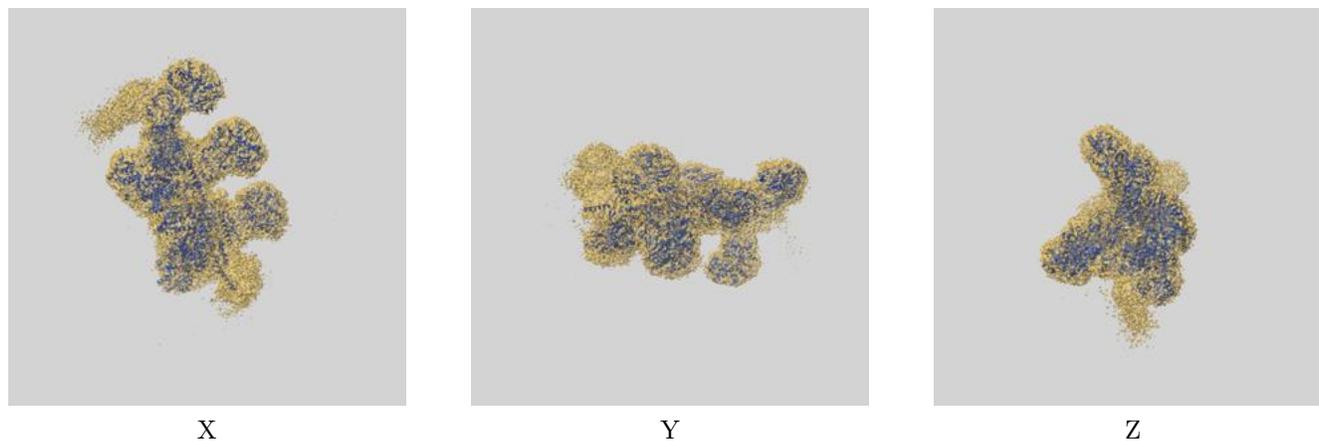
The images above show the 3D surface view of the map at the recommended contour level 0.07 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

9.2　Q-score mapped to coordinate model ⓘ
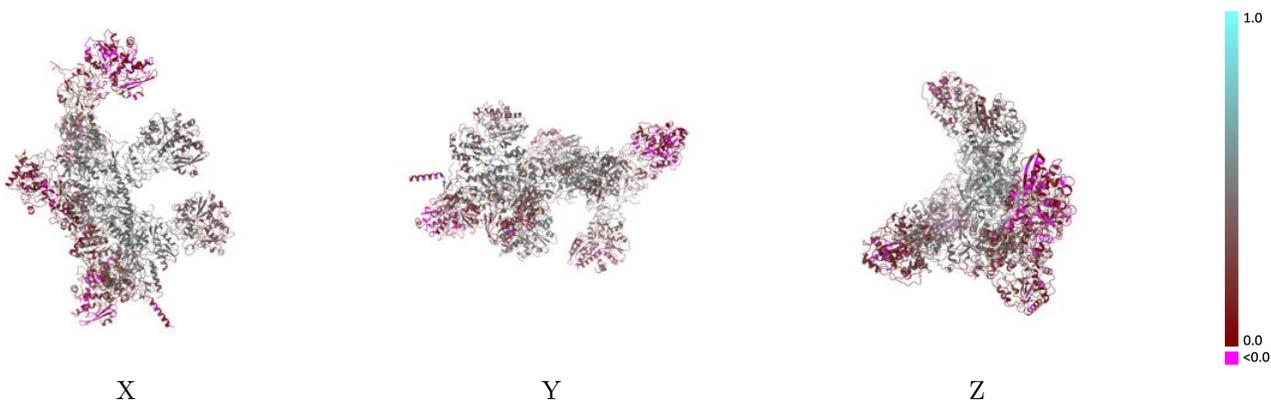
The images above show the model with each residue coloured according its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

9.3　Atom inclusion mapped to coordinate model ⓘ
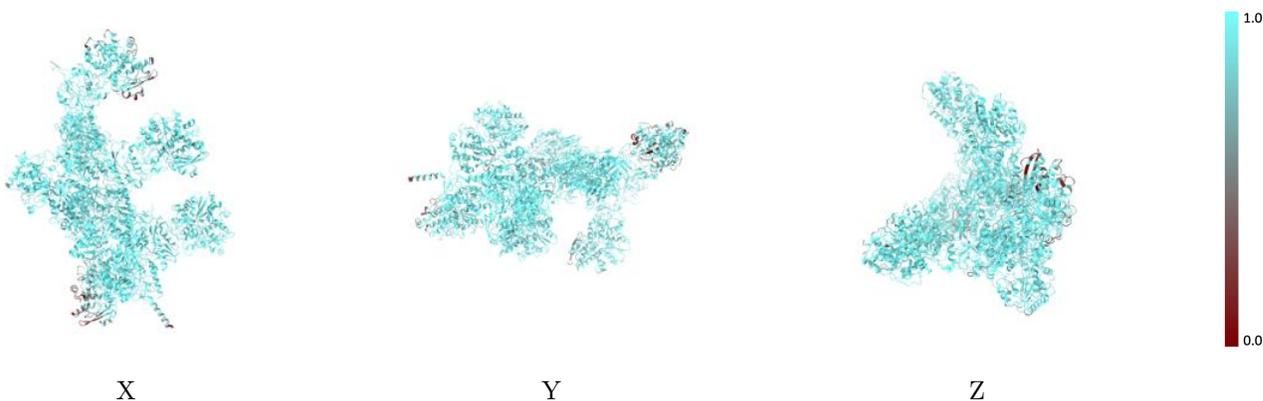
The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.07).

9.4   Atom inclusion ⓘ
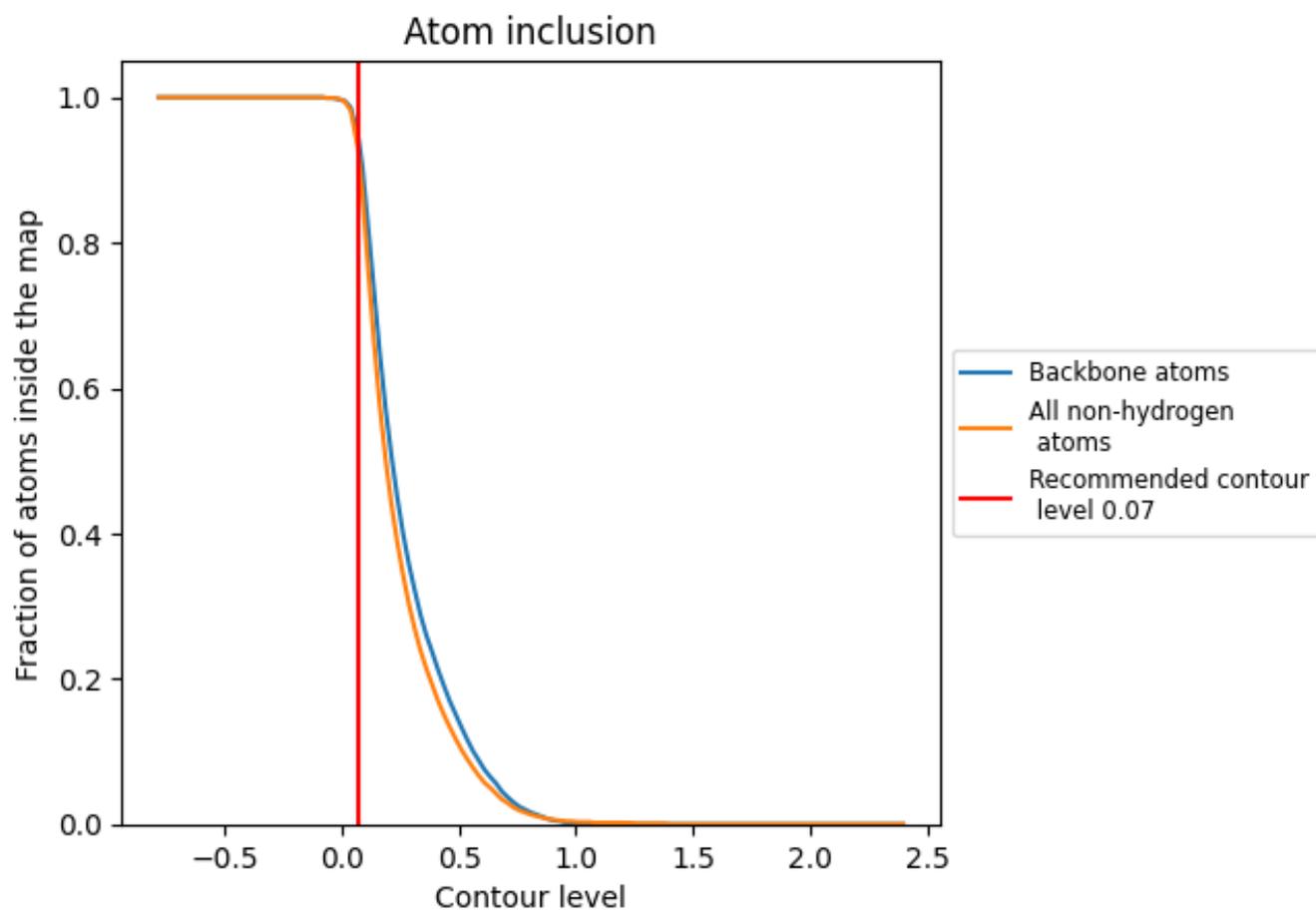
At the recommended contour level, 95% of all backbone atoms, 93% of all non-hydrogen atoms, are inside the map.

9.5 Map-model fit summary ⓘ

The table lists the average atom inclusion at the recommended contour level (0.07) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	0.9310	0.3250
A	0.9870	0.4770
B	0.9800	0.4420
C	0.9450	0.3570
D	0.9070	0.2310
G	0.9920	0.4950
J	0.9870	0.5030
K	0.8170	0.0890
N	0.9380	0.2840
P	0.9850	0.4920
Q	0.8020	0.1520
R	0.9710	0.4300
S	0.9530	0.3500
V	0.9600	0.4220
X	0.9910	0.4700
Y	0.9360	0.2520
Z	0.9580	0.3250

1.0

0.0
<0.0