



## Full wwPDB EM Validation Report ⓘ

Dec 17, 2024 – 12:30 AM JST

PDB ID : 8XKM  
EMDB ID : EMD-38420  
Title : Cryo-EM structure of human insulin receptor bound to 4 IGF-I, conformation 3  
Authors : Xi, Z.  
Deposited on : 2023-12-23  
Resolution : 5.00 Å(reported)

This is a Full wwPDB EM Validation Report for a publicly released PDB entry.

We welcome your comments at [validation@mail.wwpdb.org](mailto: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>.

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

EMDB validation analysis : 0.0.1.dev113  
MolProbity : 4.02b-467  
Percentile statistics : 20231227.v01 (using entries in the PDB archive December 27th 2023)  
MapQ : 1.9.13  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.40

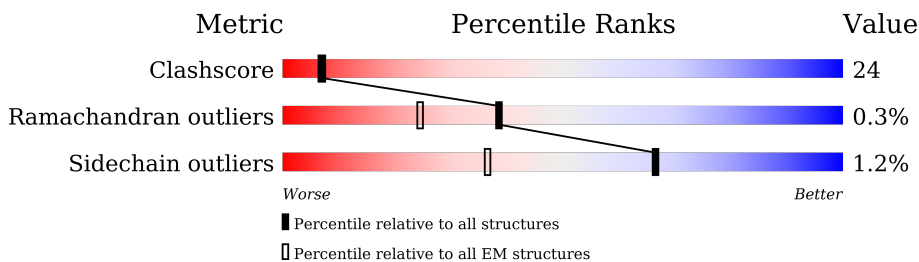
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 5.00 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)	EM structures (#Entries)
Clashscore	210492	15764
Ramachandran outliers	207382	16835
Sidechain outliers	206894	16415

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  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions  $\leq 5\%$ . The upper red bar (where present) indicates the fraction of residues that have poor fit to the EM map (all-atom inclusion  $< 40\%$ ). The numeric value is given above the bar.

Mol	Chain	Length	Quality of chain
1	A	1370	
1	B	1370	
2	C	195	
2	D	195	
2	E	195	
2	F	195	

## 2 Entry composition [i](#)

There are 2 unique types of molecules in this entry. The entry contains 13866 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 Isoform Short of Insulin receptor.

Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
1	A	809	Total	C	N	O	S	0	0
			6509	4122	1119	1219	49		
1	B	737	Total	C	N	O	S	0	0
			5971	3792	1034	1100	45		

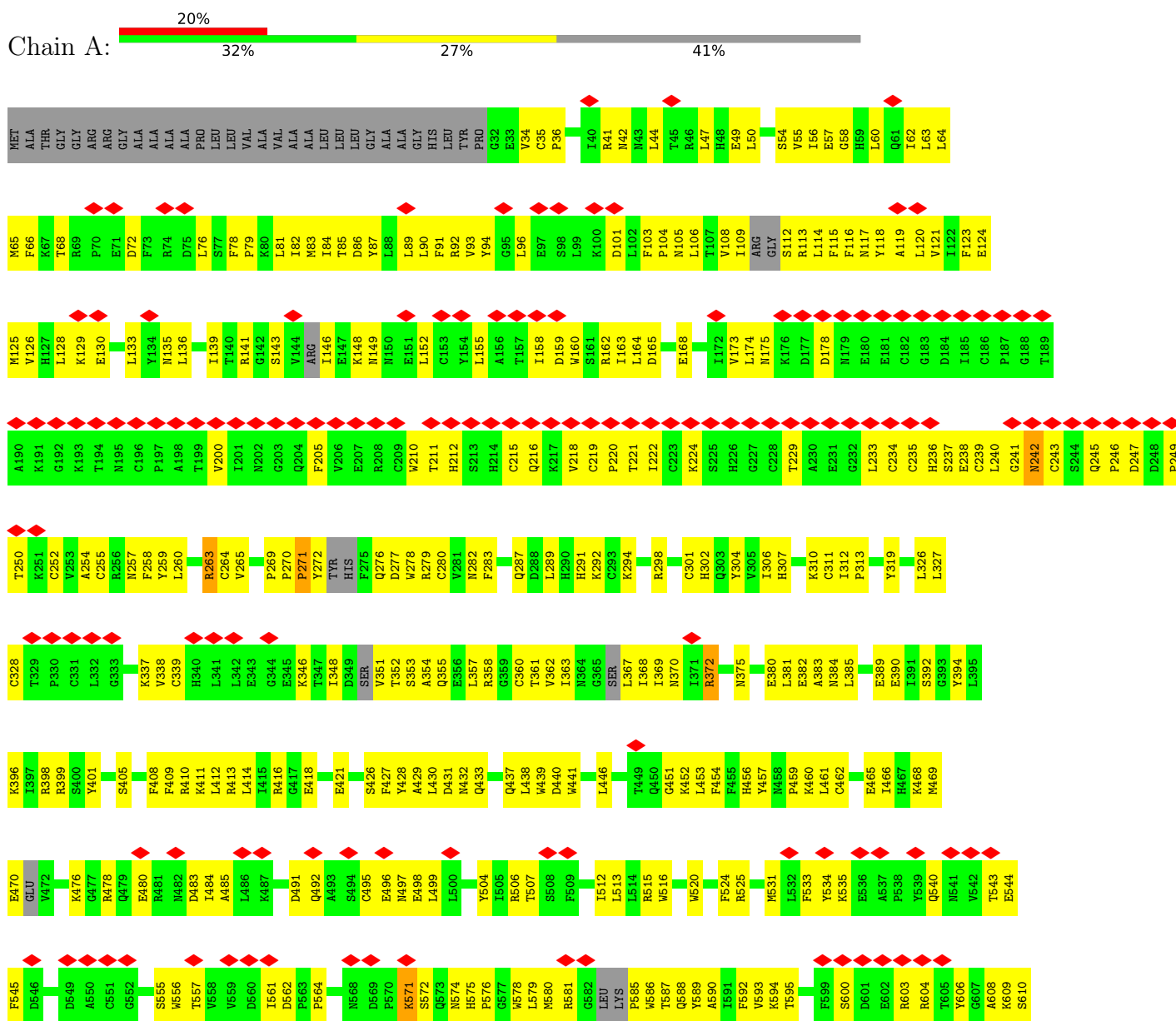
- Molecule 2 is a protein called Insulin-like growth factor I.

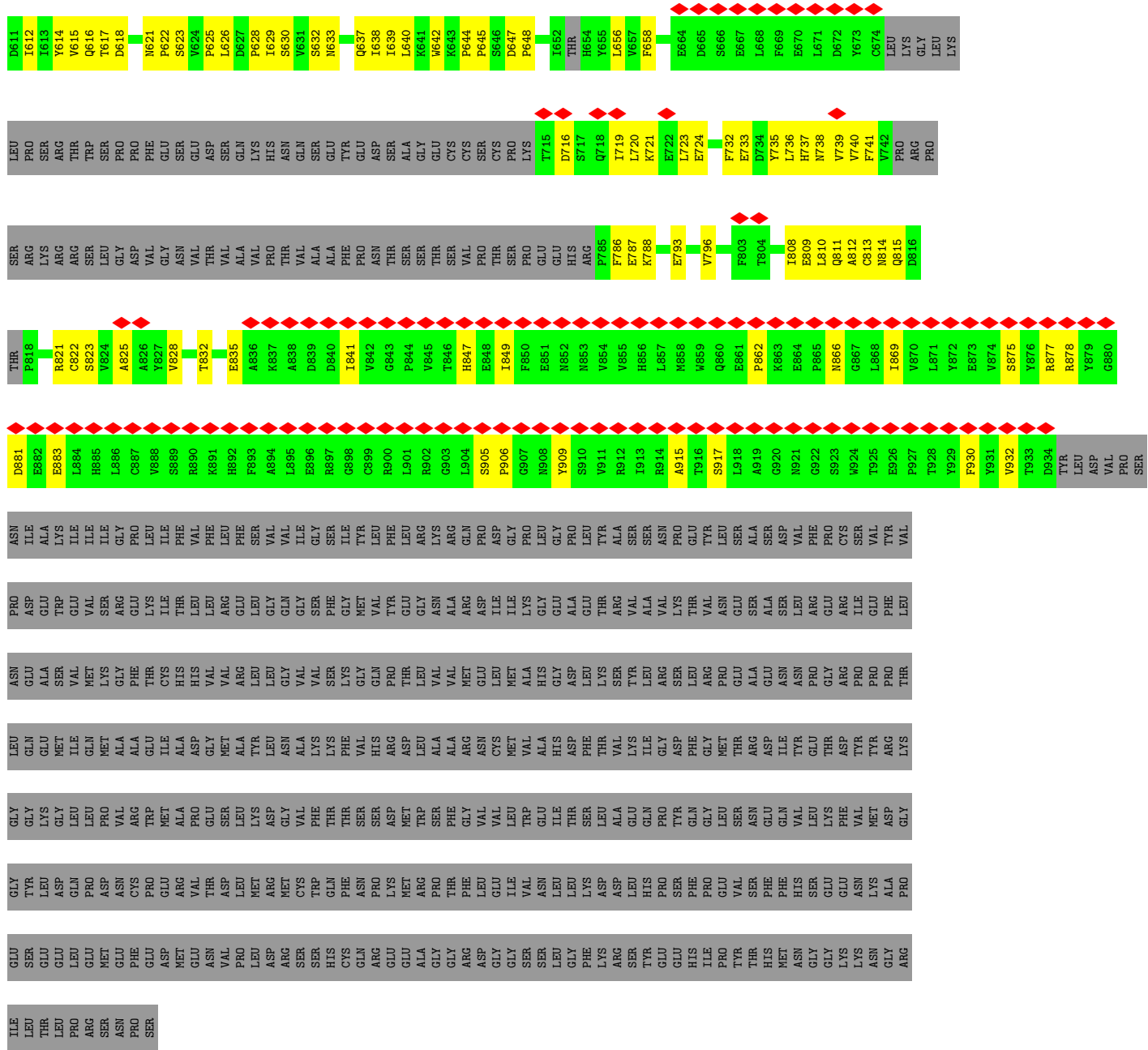
Mol	Chain	Residues	Atoms					AltConf	Trace
			Total	C	N	O	S		
2	C	46	Total	C	N	O	S	0	0
			359	225	60	67	7		
2	E	46	Total	C	N	O	S	0	0
			359	225	60	67	7		
2	F	38	Total	C	N	O	S	0	0
			293	183	49	55	6		
2	D	48	Total	C	N	O	S	0	0
			375	235	63	70	7		

### 3 Residue-property plots

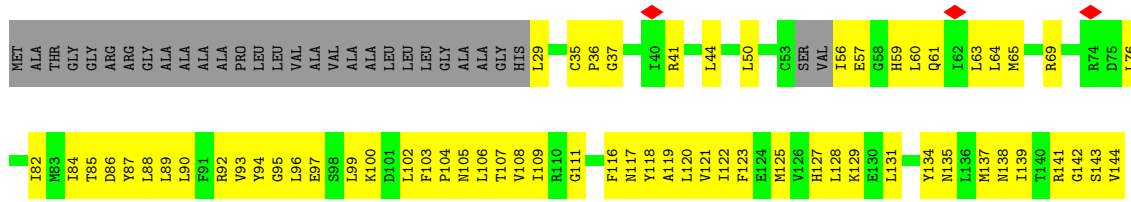
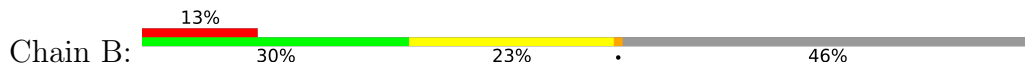
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion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



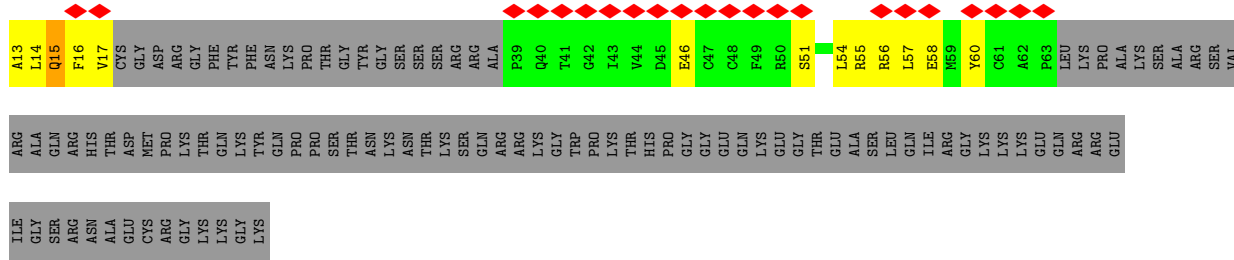


• Molecule 1: Isoform Short of Insulin receptor

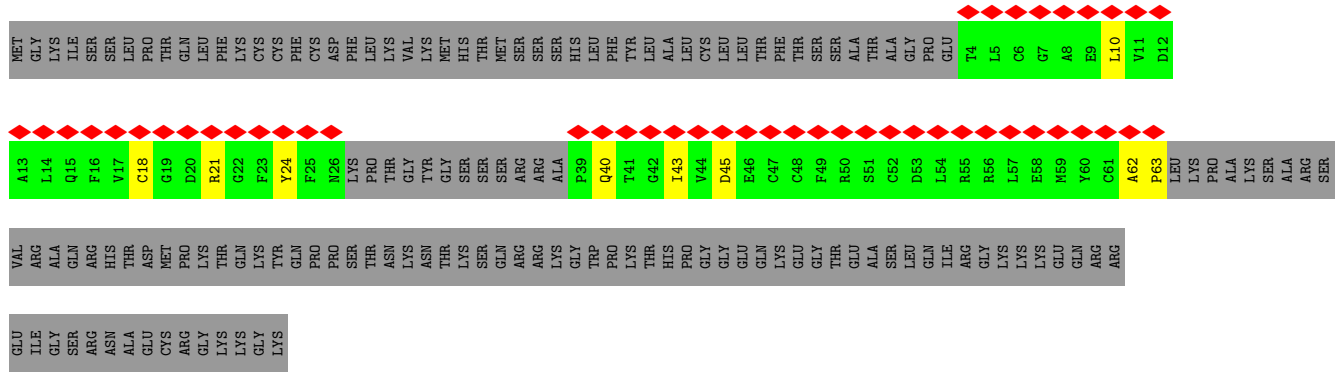


R146 I146 E147 K148 A156	C219 P220 I222 C228	R162 I163 L164 ASP SER VAL GLU SER ASP ASP ASN TYR ILE VAL LEU ASN LYS LYS ASP ASP ASN GLU GLU CYS GLY ASP ILE CYS PRO VAL THR VAL ILE ASN GLN PHE VAL VAL GLU R208 C209 W210 H214 C215 Q216	R294 N295 S296 R297 R298	Q303 N308 N309 K310	E314 C315 P316 S317 G318 Y319 T320 M321	D248 P249 T250 K251 C252 V253 A254 C255 R256 N257 F258 Y259 L260 D261 G262 R263 C264	C268 P269 P270 P271 Y272 Y273 H274 F275	R279 C280 V281 F282 S284 C286 Q287 Q288 L289	K292 C293
L367 I368 N370 I371 R372 G373 G374 N375 N376 L377 A378 A379 P380 HIS L381 E382 ASN PRG LYS LEU C462 L463 S464	H467 K468 M469 E471 V472 T475 G477 Q479 E480 N481 D483 ILE ALA LEU LYS THR M489 G490 D491 Q492 A493 C495 S496 E496 M497 L499 L500 K501 F502	H444 M445 L446 T447 T448 Q450 G451 LYS PHE PHE HIS TYR ASN ASN LYS LEU L463 S464	H467 K468 M469 E471 V472 T475 G477 Q479 E480 N481 D483 ILE ALA LEU LYS THR M489 G490 D491 Q492 A493 C495 S496 E496 M497 L499 L500 K501 F502	S503 Y504 E505 R506 T507 D510 K511 L512 L513 L514 R515 W516 Y519 M520 P521 P522 D523 F524 R525 L528 M531 L532 F533 Y534 K535 E536 W539 ASN VAL THR PHE ASP GLY GLN ALA CYS ALA CYS GLY SER ASN TRP T557 V558 V559 D560 L561 R566 S567 M568 D569 P570	S503 Y504 E505 R506 T507 D510 K511 L512 L513 L514 R515 W516 Y519 M520 P521 P522 D523 F524 R525 L528 M531 L532 F533 Y534 K535 E536 W539 ASN VAL THR PHE ASP GLY GLN ALA CYS ALA CYS GLY SER ASN TRP T557 V558 V559 D560 L561 R566 S567 M568 D569 P570	M603 L604 G607 A608 S610 D611 L612 L613 Y614 T620 N621 P622 S623 L626 D627 P628 L629 S632 M633 S634 S635 S636 Q637 L639	M603 L604 G607 A608 S610 D611 L612 L613 Y614 T620 N621 P622 S623 L626 D627 P628 L629 S632 M633 S634 S635 S636 Q637 L639	L640 K641 W642 P645 S646 D647 P648 M649 S650 N651 L652 THR H654 W655 M659 R661 Q662 E664 D665 S666 L666 P669 E670 D672 W673 C674	L640 K641 W642 P645 S646 D647 P648 M649 S650 N651 L652 THR H654 W655 M659 R661 Q662 E664 D665 S666 L666 P669 E670 D672 W673 C674
GLU ASP SER ALA GLY GLY CYS CYS SER VAL PRO LYS THR D716 S717 Q718 I719 L720 E722 L723 E724 SER SER R728 K730 Y735 L736 H737 V740 P741 W742 PRO ARG PRO SER ARG LYS LYS VAL ARG ARG THR P818 E819 E820 R821 C822 S823 W824 A825 R831 R832 M833 P834 E835 A836 K837	GLU ASP SER ALA GLY GLY CYS CYS SER VAL PRO LYS THR D716 S717 Q718 I719 L720 E722 L723 E724 SER SER R728 K730 Y735 L736 H737 V740 P741 W742 PRO ARG PRO SER ARG LYS LYS VAL ARG ARG THR P818 E819 E820 R821 C822 S823 W824 A825 R831 R832 M833 P834 E835 A836 K837	ALA PHE PRO ASN THR SER THR VAL VAL PRO THR SER PRO GLU GLU HIS ARG F785 F786 E787 K788 V789 E793 V796 R801 H802 F803 R804 L808 E809 L810 Q811 A812 N814 Q815 D816 THR P818 E819 E820 R821 C822 S823 W824 A825 R831 R832 M833 P834 E835 A836 K837	ALA PHE PRO ASN THR SER THR VAL VAL PRO THR SER PRO GLU GLU HIS ARG F785 F786 E787 K788 V789 E793 V796 R801 H802 F803 R804 L808 E809 L810 Q811 A812 N814 Q815 D816 THR P818 E819 E820 R821 C822 S823 W824 A825 R831 R832 M833 P834 E835 A836 K837						
A838 D839 D840 T841 R842 G843 P844 W845 R846 H847 E848 T849 F850 E851 R852 R853 W854 R855 L857 R858 A859 Q860 E861 P862 K863 E864 P865 R866 G867 L868 I869 W870 R871 R872 E873 W874 S875 Y876 R877 R878 W879 G880 D881 E882 L884 H885 L886 C887 W888 S889 R890 K891 H892 F893 A894 L895 E896 R897	A838 D839 D840 T841 R842 G843 P844 W845 R846 H847 E848 T849 F850 E851 R852 R853 W854 R855 L857 R858 A859 Q860 E861 P862 K863 E864 P865 R866 G867 L868 I869 W870 R871 R872 E873 W874 S875 Y876 R877 R878 W879 G880 D881 E882 L884 H885 L886 C887 W888 S889 R890 K891 H892 F893 A894 L895 E896 R897	ALA PHE PRO ASN THR SER THR VAL VAL PRO THR SER PRO GLU GLU HIS ARG F785 F786 E787 K788 V789 E793 V796 R801 H802 F803 R804 L808 E809 L810 Q811 A812 N814 Q815 D816 THR P818 E819 E820 R821 C822 S823 W824 A825 R831 R832 M833 P834 E835 A836 K837	ALA PHE PRO ASN THR SER THR VAL VAL PRO THR SER PRO GLU GLU HIS ARG F785 F786 E787 K788 V789 E793 V796 R801 H802 F803 R804 L808 E809 L810 Q811 A812 N814 Q815 D816 THR P818 E819 E820 R821 C822 S823 W824 A825 R831 R832 M833 P834 E835 A836 K837						
G898 C899 R900 L901 R902 G903 L904 S905 P906 G907 N908 Y909 S910 V911 R912 I913 R914 A915 T916 S917 L918 R919 G920 N921 G922 S923 W924 T925 E926 P927 T928 Y929 F930 Y931 Y932 T933 D934 TYR LEU ASP VAL PRO SER SER ASN ASN ALA VAL PHE PRO CYS SER ILE VAL PHE THR THR LEU THR TRP GLU VAL VAL SER ARG GLY PHE THR CYS ILE ASN HIS VAL ARG GLU LEU	G898 C899 R900 L901 R902 G903 L904 S905 P906 G907 N908 Y909 S910 V911 R912 I913 R914 A915 T916 S917 L918 R919 G920 N921 G922 S923 W924 T925 E926 P927 T928 Y929 F930 Y931 Y932 T933 D934 TYR LEU ASP VAL PRO SER SER ASN ASN ALA VAL PHE PRO CYS SER ILE VAL PHE THR THR LEU THR TRP GLU VAL VAL SER ARG GLY PHE THR CYS ILE ASN HIS VAL ARG GLU LEU	ALA PHE PRO ASN THR SER THR VAL VAL PRO THR SER PRO GLU GLU HIS ARG F785 F786 E787 K788 V789 E793 V796 R801 H802 F803 R804 L808 E809 L810 Q811 A812 N814 Q815 D816 THR P818 E819 E820 R821 C822 S823 W824 A825 R831 R832 M833 P834 E835 A836 K837	ALA PHE PRO ASN THR SER THR VAL VAL PRO THR SER PRO GLU GLU HIS ARG F785 F786 E787 K788 V789 E793 V796 R801 H802 F803 R804 L808 E809 L810 Q811 A812 N814 Q815 D816 THR P818 E819 E820 R821 C822 S823 W824 A825 R831 R832 M833 P834 E835 A836 K837						
VAL VAL ILE GLY SER PHE GLY MET VAL TYR GLU THR VAL ASN VAL ARG GLN ASP PHE ILE LYS ALA HIS GLY ASP LEU LYS SER TYR LEU ARG SER LYS THR VAL ALA VAL ASN GLU SER ALA SER ASN ASN PRO PRO GLY ARG PRO PRO PRO THR THR LEU GLN MET GLM ALA GLY MET LYS PHE THR THR THR MET MET VAL LEU TYR	VAL VAL ILE GLY SER PHE GLY MET VAL TYR GLU THR VAL ASN VAL ARG GLN ASP PHE ILE LYS ALA HIS GLY ASP LEU LYS SER TYR LEU ARG SER LYS THR VAL ALA VAL ASN GLU SER ALA SER ASN ASN PRO PRO GLY ARG PRO PRO PRO THR THR LEU GLN MET GLM ALA GLY MET LYS PHE THR THR THR MET MET VAL LEU TYR	ALA PHE PRO ASN THR SER THR VAL VAL PRO THR SER PRO GLU GLU HIS ARG F785 F786 E787 K788 V789 E793 V796 R801 H802 F803 R804 L808 E809 L810 Q811 A812 N814 Q815 D816 THR P818 E819 E820 R821 C822 S823 W824 A825 R831 R832 M833 P834 E835 A836 K837	ALA PHE PRO ASN THR SER THR VAL VAL PRO THR SER PRO GLU GLU HIS ARG F785 F786 E787 K788 V789 E793 V796 R801 H802 F803 R804 L808 E809 L810 Q811 A812 N814 Q815 D816 THR P818 E819 E820 R821 C822 S823 W824 A825 R831 R832 M833 P834 E835 A836 K837						





● Molecule 2: Insulin-like growth factor I





## 4 Experimental information

Property	Value	Source
EM reconstruction method	SINGLE PARTICLE	Depositor
Imposed symmetry	POINT, Not provided	
Number of particles used	82568	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 ( $e^-/\text{\AA}^2$ )	50	Depositor
Minimum defocus (nm)	1200	Depositor
Maximum defocus (nm)	5000	Depositor
Magnification	Not provided	
Image detector	GATAN K3 (6k x 4k)	Depositor
Maximum map value	0.238	Depositor
Minimum map value	-0.104	Depositor
Average map value	0.000	Depositor
Map value standard deviation	0.005	Depositor
Recommended contour level	0.035	Depositor
Map size (Å)	337.92, 337.92, 337.92	wwPDB
Map dimensions	512, 512, 512	wwPDB
Map angles (°)	90.0, 90.0, 90.0	wwPDB
Pixel spacing (Å)	0.66, 0.66, 0.66	Depositor

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

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	0.27	0/6658	0.53	0/9014
1	B	0.28	0/6109	0.54	0/8262
2	C	0.27	0/364	0.54	0/488
2	D	0.25	0/381	0.53	0/511
2	E	0.29	0/364	0.53	0/488
2	F	0.27	0/296	0.50	0/397
All	All	0.27	0/14172	0.53	0/19160

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

### 5.2 Too-close contacts [i](#)

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	6509	0	6302	331	0
1	B	5971	0	5802	289	0
2	C	359	0	335	27	0
2	D	375	0	353	5	0
2	E	359	0	335	19	0
2	F	293	0	285	19	0
All	All	13866	0	13412	651	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 24.

All (651) 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:C:4:THR:N	2:C:52:CYS:HG	1.38	1.19
2:F:17:VAL:HB	2:F:57:LEU:HB3	1.33	1.09
1:B:498:GLU:HG3	1:B:608:ALA:HA	1.50	0.93
1:B:470:GLU:HG2	1:B:476:LYS:HG3	1.59	0.84
1:A:93:VAL:H	1:A:125:MET:HE1	1.42	0.84
1:A:466:ILE:HG21	1:A:484:ILE:HD12	1.61	0.82
1:B:534:TYR:CE2	1:B:557:THR:HB	2.15	0.81
1:A:348:ILE:HD11	1:A:367:LEU:HD12	1.63	0.80
1:B:139:ILE:HG12	1:B:163:ILE:HG22	1.64	0.80
2:F:17:VAL:HG12	2:F:58:GLU:HG2	1.63	0.79
1:B:533:PHE:HE2	1:B:594:LYS:HB3	1.48	0.79
1:A:462:CYS:HB3	1:A:495:CYS:HB3	1.64	0.79
1:A:441:TRP:HD1	1:A:468:LYS:HG2	1.46	0.79
1:A:260:LEU:HD22	1:A:269:PRO:HG2	1.65	0.78
2:D:18:CYS:HB3	2:D:21:ARG:HB2	1.66	0.77
1:A:625:PRO:HG2	1:A:810:LEU:HB3	1.65	0.77
1:B:381:LEU:HA	1:B:384:ASN:HD22	1.51	0.75
1:B:37:GLY:HA2	1:B:56:ILE:HD11	1.69	0.75
1:A:63:LEU:HG	1:A:91:PHE:HB3	1.67	0.74
1:A:362:VAL:HG22	1:A:390:GLU:HB2	1.69	0.74
1:A:639:ILE:HG12	1:A:796:VAL:HG22	1.70	0.74
1:A:234:CYS:SG	1:A:235:CYS:N	2.60	0.74
1:A:173:VAL:HG11	1:B:728:PHE:HE2	1.52	0.73
1:B:497:ASN:HD22	1:B:594:LYS:HG3	1.53	0.73
1:B:272:TYR:HB3	1:B:280:CYS:HB3	1.71	0.72
1:B:525:ARG:NH1	2:C:47:CYS:O	2.22	0.72
1:B:520:TRP:HB3	1:B:524:PHE:HB3	1.71	0.72
1:B:628:PRO:HA	1:B:641:LYS:O	1.89	0.72
1:A:441:TRP:CD1	1:A:468:LYS:HG2	2.24	0.72
1:B:905:SER:HG	1:B:909:TYR:HH	1.37	0.72
2:C:4:THR:N	2:C:52:CYS:SG	2.57	0.72
1:A:307:HIS:HB2	1:A:328:CYS:HB2	1.70	0.72
1:A:431:ASP:OD1	1:A:433:GLN:NE2	2.22	0.71
1:A:272:TYR:HA	1:A:282:ASN:HA	1.72	0.71
1:A:588:GLN:NE2	1:A:589:TYR:O	2.23	0.71
1:B:534:TYR:CD2	1:B:557:THR:HB	2.25	0.71
1:A:55:VAL:HG13	1:A:83:MET:HB3	1.72	0.70
1:A:720:LEU:HD13	1:B:433:GLN:HE21	1.57	0.70
1:A:380:GLU:O	1:A:384:ASN:ND2	2.25	0.70
1:A:117:ASN:OD1	1:A:351:VAL:N	2.25	0.70

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:622:PRO:HB2	1:A:823:SER:HB3	1.72	0.70
1:B:524:PHE:HD1	2:C:6:CYS:HG	1.40	0.70
1:A:401:TYR:CE2	1:B:720:LEU:HG	2.27	0.69
1:A:431:ASP:HA	1:A:457:TYR:HD2	1.57	0.69
1:B:238:GLU:HG3	1:B:264:CYS:HB3	1.74	0.69
1:A:603:ARG:NH2	2:E:48:CYS:SG	2.66	0.69
1:B:41:ARG:HG2	1:B:63:LEU:HB2	1.73	0.69
1:B:337:LYS:N	1:B:361:THR:OG1	2.27	0.68
1:A:609:LYS:NZ	1:A:610:SER:O	2.21	0.68
1:A:588:GLN:HE22	1:A:615:VAL:N	1.91	0.68
1:B:500:LEU:HG	1:B:608:ALA:HB1	1.75	0.68
1:A:289:LEU:HD13	1:A:304:TYR:HD2	1.58	0.67
1:A:545:PHE:O	1:A:556:TRP:NE1	2.27	0.67
1:A:105:ASN:OD1	1:A:135:ASN:ND2	2.28	0.67
1:A:737:HIS:HA	1:A:740:VAL:HG12	1.76	0.67
1:A:496:GLU:HG3	1:A:609:LYS:HB2	1.76	0.67
2:C:15:GLN:O	2:C:19:GLY:N	2.27	0.67
1:A:84:ILE:HB	1:A:109:ILE:HG12	1.77	0.66
1:A:590:ALA:HB1	1:A:612:ILE:HD11	1.75	0.66
1:A:354:ALA:O	1:A:358:ARG:N	2.28	0.66
1:A:413:ARG:NH1	1:A:413:ARG:O	2.29	0.66
2:D:10:LEU:HD21	2:D:43:ILE:HG12	1.77	0.66
1:B:125:MET:HB3	1:B:128:LEU:HB2	1.78	0.66
1:A:368:ILE:HG12	1:A:396:LYS:HB3	1.77	0.65
1:A:462:CYS:HB2	1:A:465:GLU:HG2	1.77	0.65
1:A:506:ARG:O	1:A:512:ILE:HA	1.96	0.65
1:A:724:GLU:OE2	1:B:372:ARG:NE	2.27	0.65
1:B:503:SER:H	1:B:516:TRP:HA	1.61	0.65
1:B:118:TYR:HD1	1:B:143:SER:HB2	1.60	0.65
1:A:120:LEU:HD22	1:A:133:LEU:HD12	1.79	0.65
1:A:259:TYR:HD2	1:A:279:ARG:HG3	1.61	0.65
1:A:470:GLU:HB3	1:A:476:LYS:HD3	1.77	0.65
1:B:274:HIS:ND1	1:B:309:ASN:O	2.29	0.64
1:B:238:GLU:O	1:B:256:ARG:N	2.29	0.64
1:B:105:ASN:HA	1:B:135:ASN:HD22	1.61	0.64
1:B:89:LEU:HA	1:B:121:VAL:O	1.97	0.64
1:A:44:LEU:HD13	1:A:72:ASP:HB3	1.79	0.64
1:B:378:ALA:O	1:B:382:GLU:N	2.31	0.64
1:A:428:TYR:HA	1:A:454:PHE:HB3	1.79	0.64
1:B:470:GLU:HA	1:B:475:THR:HG22	1.78	0.64
1:A:130:GLU:HB3	1:A:211:THR:HG22	1.80	0.63

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:719:ILE:HA	1:B:722:GLU:HG3	1.79	0.63
1:A:358:ARG:NH1	1:A:384:ASN:OD1	2.31	0.63
1:B:248:ASP:HB3	1:B:251:LYS:HB2	1.81	0.63
1:A:173:VAL:HG22	1:A:174:LEU:H	1.63	0.63
1:A:62:ILE:HB	1:A:90:LEU:HG	1.80	0.63
1:A:115:PHE:O	1:A:352:THR:HG21	1.99	0.63
1:A:600:SER:HB2	1:A:603:ARG:HB2	1.80	0.63
1:A:168:GLU:O	1:A:375:ASN:ND2	2.32	0.62
1:A:531:MET:N	1:A:594:LYS:O	2.32	0.62
1:A:733:GLU:OE2	1:A:737:HIS:NE2	2.32	0.62
1:A:809:GLU:OE2	1:A:811:GLN:NE2	2.32	0.62
1:A:117:ASN:HB2	1:A:118:TYR:CE2	2.34	0.62
1:A:392:SER:HA	1:A:416:ARG:HB2	1.80	0.62
1:A:466:ILE:O	1:A:469:MET:HG3	2.00	0.62
1:B:515:ARG:HD3	1:B:577:GLY:HA3	1.82	0.62
1:A:41:ARG:HH11	2:C:23:PHE:HB3	1.64	0.62
1:A:239:CYS:HA	1:A:255:CYS:HA	1.81	0.62
1:B:139:ILE:N	1:B:163:ILE:O	2.28	0.62
1:B:156:ALA:O	1:B:208:ARG:NH1	2.33	0.62
1:B:275:PHE:HB3	1:B:279:ARG:HB3	1.82	0.62
1:B:468:LYS:O	1:B:472:VAL:HB	2.00	0.62
1:A:36:PRO:HA	1:A:57:GLU:HB3	1.82	0.62
1:A:809:GLU:HG3	1:A:825:ALA:HB1	1.81	0.62
1:B:514:LEU:O	1:B:515:ARG:NH1	2.29	0.62
1:A:221:THR:HG22	1:A:222:ILE:HD12	1.81	0.62
1:A:119:ALA:HB3	1:A:139:ILE:HD13	1.81	0.61
1:B:95:GLY:H	1:B:127:HIS:CG	2.18	0.61
1:A:291:HIS:HA	1:A:294:LYS:HB2	1.82	0.61
1:B:394:TYR:HE2	1:B:396:LYS:HD3	1.64	0.61
2:F:17:VAL:CG1	2:F:58:GLU:HG2	2.29	0.61
1:A:478:ARG:NH1	1:A:480:GLU:O	2.33	0.61
1:A:813:CYS:HA	1:A:822:CYS:HA	1.82	0.61
1:A:640:LEU:HD22	1:A:808:ILE:HG21	1.82	0.61
1:B:120:LEU:HB3	1:B:144:VAL:HG13	1.83	0.61
1:A:54:SER:O	1:A:82:ILE:N	2.31	0.61
1:B:268:CYS:HB3	1:B:272:TYR:O	2.01	0.61
1:A:810:LEU:O	1:A:825:ALA:HA	2.00	0.61
1:B:104:PRO:O	1:B:135:ASN:ND2	2.33	0.61
1:B:439:TRP:HE3	1:B:441:TRP:HE1	1.47	0.61
1:A:586:TRP:O	1:A:616:GLN:NE2	2.34	0.61
1:B:289:LEU:HA	1:B:292:LYS:HD2	1.81	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:462:CYS:HB2	1:B:493:ALA:HB1	1.81	0.61
2:F:17:VAL:CB	2:F:57:LEU:HB3	2.21	0.61
1:A:240:LEU:HD23	1:A:241:GLY:H	1.66	0.61
1:B:341:LEU:HD22	1:B:346:LYS:HE2	1.83	0.61
1:B:528:LEU:HD22	1:B:596:LEU:HD23	1.83	0.60
2:C:5:LEU:HD23	2:C:10:LEU:HA	1.83	0.60
1:A:36:PRO:HB2	1:A:298:ARG:HD3	1.83	0.60
1:A:117:ASN:HA	1:A:351:VAL:HG22	1.82	0.60
1:B:29:LEU:N	1:B:252:CYS:O	2.34	0.60
1:B:143:SER:HA	1:B:164:LEU:HD13	1.82	0.60
1:A:504:TYR:HB2	1:A:515:ARG:HB2	1.84	0.60
1:B:65:MET:HB3	1:B:93:VAL:HA	1.84	0.60
1:B:97:GLU:OE2	1:B:129:LYS:NZ	2.27	0.60
2:C:21:ARG:NH1	2:C:58:GLU:OE1	2.34	0.60
1:B:369:ILE:HG21	1:B:403:LEU:HD11	1.84	0.60
1:B:533:PHE:CE2	1:B:594:LYS:HB3	2.35	0.60
1:A:640:LEU:HD21	1:A:810:LEU:HD11	1.84	0.59
1:A:401:TYR:HE2	1:B:720:LEU:HG	1.64	0.59
1:B:523:ASP:HA	2:C:4:THR:HA	1.83	0.59
1:B:571:LYS:NZ	1:B:572:SER:O	2.35	0.59
2:E:12:ASP:O	2:E:15:GLN:HG2	2.01	0.59
1:B:65:MET:N	1:B:92:ARG:O	2.35	0.59
1:A:441:TRP:CH2	1:A:446:LEU:HB2	2.37	0.59
1:B:250:THR:HA	1:B:263:ARG:HA	1.84	0.59
1:A:34:VAL:HG12	1:A:57:GLU:HB2	1.85	0.59
1:A:84:ILE:HG12	1:A:106:LEU:HD11	1.85	0.59
1:B:363:ILE:HG12	1:B:388:ILE:HD11	1.85	0.59
2:F:17:VAL:HG11	2:F:54:LEU:HG	1.83	0.59
1:A:459:PRO:O	1:A:491:ASP:N	2.35	0.58
1:A:877:ARG:NH1	1:A:883:GLU:OE1	2.36	0.58
1:B:358:ARG:HG3	1:B:384:ASN:HA	1.84	0.58
1:B:413:ARG:NH1	1:B:445:ASN:O	2.36	0.58
1:B:497:ASN:CB	1:B:609:LYS:HB3	2.33	0.58
1:A:47:LEU:HD23	1:A:76:LEU:HD23	1.83	0.58
1:A:878:ARG:NE	1:A:881:ASP:OD2	2.36	0.58
1:B:639:ILE:HG12	1:B:796:VAL:HG22	1.86	0.58
1:B:87:TYR:HA	1:B:119:ALA:O	2.04	0.58
1:B:219:CYS:SG	1:B:228:CYS:N	2.77	0.58
1:B:521:PRO:HG2	1:B:524:PHE:HA	1.85	0.58
1:B:878:ARG:NE	1:B:881:ASP:OD2	2.34	0.58
1:A:63:LEU:HD11	1:A:89:LEU:HD22	1.86	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:143:SER:HA	1:A:164:LEU:HD22	1.86	0.57
1:A:430:LEU:HD23	1:A:431:ASP:HB2	1.86	0.57
1:B:268:CYS:O	1:B:269:PRO:C	2.41	0.57
1:B:283:PHE:O	1:B:287:GLN:HB3	2.04	0.57
2:D:24:TYR:HB2	2:D:62:ALA:HA	1.85	0.57
1:A:869:ILE:HA	1:A:917:SER:HA	1.85	0.57
1:A:162:ARG:HB3	1:A:218:VAL:HB	1.85	0.57
1:A:531:MET:HB3	1:A:533:PHE:HE1	1.68	0.57
1:A:595:THR:HG1	1:A:608:ALA:H	1.52	0.57
1:A:337:LYS:N	1:A:361:THR:OG1	2.37	0.57
1:A:588:GLN:HE22	1:A:615:VAL:H	1.53	0.57
1:B:620:THR:O	1:B:814:ASN:ND2	2.37	0.57
2:F:56:ARG:HG3	2:F:60:TYR:CE2	2.38	0.57
1:A:628:PRO:HB3	1:A:642:TRP:HB3	1.87	0.57
1:A:630:SER:HB3	1:A:640:LEU:HD13	1.86	0.57
2:E:21:ARG:HH21	2:E:63:PRO:HA	1.70	0.57
1:A:92:ARG:HE	1:A:124:GLU:HB3	1.70	0.57
1:A:152:LEU:HG	1:A:155:LEU:HD21	1.86	0.56
1:A:270:PRO:HB2	1:A:271:PRO:HD3	1.87	0.56
1:A:525:ARG:HH12	2:E:8:ALA:H	1.51	0.56
1:A:512:ILE:HG22	1:A:580:MET:HB2	1.87	0.56
1:A:358:ARG:HG3	1:A:384:ASN:HA	1.86	0.56
1:A:380:GLU:HG3	1:A:384:ASN:HD21	1.69	0.56
1:B:85:THR:O	1:B:111:GLY:N	2.35	0.56
1:B:463:LEU:HB3	1:B:467:HIS:CE1	2.41	0.56
1:A:81:LEU:HD21	1:A:84:ILE:HD11	1.86	0.56
1:B:121:VAL:HG22	1:B:145:ARG:HB3	1.87	0.56
2:F:10:LEU:O	2:F:14:LEU:HG	2.04	0.56
1:A:136:LEU:HD21	1:A:139:ILE:HD11	1.87	0.56
1:A:460:LYS:NZ	1:B:716:ASP:OD2	2.25	0.56
1:B:647:ASP:N	1:B:648:PRO:HD2	2.21	0.56
1:A:515:ARG:HD2	1:A:575:HIS:CE1	2.41	0.56
1:B:84:ILE:HG13	1:B:109:ILE:HG13	1.87	0.56
1:B:531:MET:HE3	1:B:596:LEU:HB2	1.86	0.56
1:A:42:ASN:ND2	1:A:64:LEU:O	2.39	0.56
1:B:585:PRO:HD2	1:B:649:ASN:HB2	1.88	0.56
1:B:815:GLN:OE1	1:B:821:ARG:NH1	2.39	0.55
1:A:158:ILE:HG23	1:A:216:GLN:HE22	1.71	0.55
1:A:363:ILE:HG21	1:A:367:LEU:HD21	1.87	0.55
1:A:124:GLU:OE2	1:A:148:LYS:NZ	2.37	0.55
1:A:835:GLU:O	1:A:866:ASN:ND2	2.31	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:162:ARG:HH21	1:B:216:GLN:HG2	1.72	0.55
1:B:481:ARG:HG3	1:B:482:ASN:H	1.71	0.55
1:B:439:TRP:HB2	1:B:441:TRP:CD1	2.42	0.55
1:B:620:THR:OG1	1:B:649:ASN:OD1	2.23	0.55
1:A:245:GLN:HE22	1:A:247:ASP:HB3	1.71	0.55
1:A:740:VAL:HG23	1:B:63:LEU:HD13	1.89	0.55
1:A:621:ASN:HA	1:A:821:ARG:HD3	1.89	0.55
1:A:426:SER:N	1:A:452:LYS:O	2.40	0.55
1:B:84:ILE:HG12	1:B:106:LEU:HD11	1.88	0.55
1:B:97:GLU:O	1:B:129:LYS:N	2.28	0.55
1:B:497:ASN:HB2	1:B:609:LYS:HB3	1.89	0.55
1:A:259:TYR:HA	1:A:264:CYS:HA	1.89	0.55
1:B:449:THR:HG22	1:B:450:GLN:HG3	1.89	0.54
1:B:512:ILE:HD11	1:B:583:LEU:HD21	1.89	0.54
1:A:236:HIS:HE1	1:A:249:PRO:HA	1.72	0.54
1:A:390:GLU:HG2	1:A:414:LEU:HD23	1.89	0.54
1:A:409:PHE:HB3	1:A:412:LEU:HB2	1.89	0.54
1:A:849:ILE:HD11	1:A:930:PHE:HB2	1.89	0.54
1:B:379:ALA:O	1:B:382:GLU:HB3	2.06	0.54
1:B:501:LYS:HA	1:B:501:LYS:HZ3	1.73	0.54
1:B:661:ARG:HH12	1:B:785:PRO:HG3	1.72	0.54
1:A:139:ILE:O	1:A:164:LEU:HA	2.08	0.54
1:B:504:TYR:HB3	1:B:515:ARG:HB2	1.88	0.54
2:F:13:ALA:O	2:F:17:VAL:HG23	2.07	0.54
1:B:210:TRP:NE1	1:B:216:GLN:HA	2.23	0.54
1:B:535:LYS:NZ	1:B:536:GLU:O	2.34	0.54
1:B:597:VAL:HG21	1:B:605:THR:HG22	1.90	0.54
1:B:413:ARG:NH1	1:B:447:THR:OG1	2.41	0.54
1:A:85:THR:O	1:A:112:SER:N	2.41	0.54
1:A:574:ASN:HB3	2:F:55:ARG:CZ	2.38	0.54
1:A:640:LEU:HD21	1:A:810:LEU:HD21	1.90	0.54
1:A:658:PHE:HB2	1:A:809:GLU:HB3	1.88	0.54
2:E:14:LEU:HD11	2:E:60:TYR:HD2	1.73	0.54
1:A:625:PRO:HD3	1:A:812:ALA:H	1.71	0.54
1:A:338:VAL:HG22	1:A:362:VAL:HB	1.89	0.53
1:A:441:TRP:HH2	1:A:446:LEU:HB2	1.74	0.53
1:B:240:LEU:HB2	1:B:256:ARG:HA	1.90	0.53
1:B:634:SER:HB2	1:B:637:GLN:HB2	1.89	0.53
1:A:658:PHE:O	1:A:808:ILE:HA	2.08	0.53
1:A:741:PHE:HD2	2:E:43:ILE:HG21	1.74	0.53
1:B:495:CYS:HB3	1:B:594:LYS:NZ	2.22	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:525:ARG:HH11	2:C:48:CYS:HA	1.72	0.53
1:B:812:ALA:O	1:B:823:SER:N	2.34	0.53
1:A:141:ARG:HH22	1:A:358:ARG:CZ	2.21	0.53
1:B:566:ARG:HA	1:B:573:GLN:HE21	1.72	0.53
2:F:46:GLU:OE1	2:F:60:TYR:OH	2.24	0.53
1:B:243:CYS:HA	1:B:253:VAL:H	1.72	0.53
1:A:113:ARG:NH2	1:A:302:HIS:CD2	2.77	0.53
1:A:642:TRP:CE2	1:A:793:GLU:HA	2.43	0.53
1:B:420:LEU:HD22	1:B:426:SER:HB2	1.90	0.53
1:B:506:ARG:O	1:B:512:ILE:HA	2.08	0.53
1:B:559:VAL:HG11	1:B:578:TRP:CD1	2.44	0.53
1:B:654:HIS:NE2	1:B:816:ASP:OD1	2.42	0.53
1:A:34:VAL:HG22	1:A:55:VAL:HB	1.91	0.53
1:A:392:SER:O	1:A:418:GLU:N	2.35	0.53
1:B:118:TYR:CD1	1:B:143:SER:HB2	2.43	0.53
1:A:119:ALA:N	1:A:143:SER:O	2.37	0.53
1:A:96:LEU:HB3	1:A:128:LEU:HD11	1.91	0.53
1:B:451:GLY:O	1:B:479:GLN:NE2	2.39	0.52
2:C:5:LEU:HD21	2:C:13:ALA:HB3	1.91	0.52
2:C:13:ALA:O	2:C:16:PHE:HB3	2.09	0.52
2:C:21:ARG:HH21	2:C:63:PRO:HA	1.74	0.52
1:A:381:LEU:HD12	1:A:385:LEU:HD11	1.92	0.52
1:B:647:ASP:O	1:B:649:ASN:ND2	2.42	0.52
1:A:459:PRO:HB2	1:A:492:GLN:OE1	2.09	0.52
1:A:506:ARG:HH12	1:A:515:ARG:HG3	1.75	0.52
1:B:622:PRO:HD2	1:B:821:ARG:O	2.10	0.52
1:B:421:GLU:HG2	1:B:422:ILE:H	1.74	0.52
2:E:43:ILE:HD12	2:E:60:TYR:CZ	2.45	0.52
2:F:51:SER:O	2:F:56:ARG:NH1	2.43	0.52
1:A:346:LYS:HG3	1:A:353:SER:HB2	1.92	0.51
1:B:877:ARG:NH1	1:B:883:GLU:OE1	2.43	0.51
1:A:398:ARG:HG2	1:A:399:ARG:HG3	1.92	0.51
1:A:815:GLN:OE1	1:A:821:ARG:NH1	2.44	0.51
1:A:146:ILE:HG23	1:A:149:ASN:HD22	1.75	0.51
1:B:240:LEU:HD13	1:B:256:ARG:HG3	1.92	0.51
1:B:655:TYR:O	1:B:788:LYS:HA	2.09	0.51
1:A:125:MET:HA	1:A:125:MET:HE3	1.93	0.51
1:A:125:MET:HB2	1:A:149:ASN:HB3	1.93	0.51
2:F:11:VAL:HA	2:F:14:LEU:HD12	1.92	0.51
1:A:276:GLN:HG3	1:A:313:PRO:HD3	1.93	0.51
1:A:229:THR:HB	1:A:242:ASN:HA	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:108:VAL:HG11	1:A:278:TRP:CD1	2.46	0.51
1:A:905:SER:OG	1:A:909:TYR:OH	2.27	0.51
1:A:139:ILE:N	1:A:163:ILE:O	2.30	0.51
1:A:372:ARG:HH12	1:A:399:ARG:NH1	2.10	0.50
1:B:629:ILE:O	1:B:640:LEU:HA	2.11	0.50
1:B:878:ARG:HB3	1:B:881:ASP:HB2	1.93	0.50
1:B:86:ASP:HA	1:B:111:GLY:HA2	1.92	0.50
2:F:12:ASP:HA	2:F:15:GLN:NE2	2.25	0.50
1:A:250:THR:HG22	1:A:263:ARG:HB3	1.93	0.50
1:B:593:VAL:O	1:B:610:SER:N	2.37	0.50
1:A:287:GLN:HA	1:A:326:LEU:HD12	1.92	0.50
1:A:453:LEU:O	1:A:483:ASP:HA	2.12	0.50
1:B:500:LEU:N	1:B:609:LYS:O	2.45	0.50
1:B:632:SER:HA	1:B:638:ILE:HG12	1.93	0.50
1:B:337:LYS:NZ	1:B:339:CYS:SG	2.68	0.50
1:A:260:LEU:HD13	1:A:269:PRO:HD2	1.94	0.50
1:A:632:SER:HA	1:A:638:ILE:HA	1.93	0.49
1:A:738:ASN:OD1	2:E:43:ILE:N	2.45	0.49
1:B:321:MET:HA	1:B:321:MET:HE3	1.93	0.49
1:A:34:VAL:HG21	1:A:289:LEU:HD21	1.93	0.49
1:A:124:GLU:N	1:A:149:ASN:OD1	2.45	0.49
1:B:269:PRO:O	1:B:270:PRO:C	2.50	0.49
1:B:809:GLU:HG3	1:B:825:ALA:HB1	1.93	0.49
1:B:811:GLN:HG3	1:B:822:CYS:HB3	1.94	0.49
1:A:441:TRP:CD1	1:A:468:LYS:HE3	2.47	0.49
1:B:120:LEU:HB3	1:B:144:VAL:HG22	1.95	0.49
2:C:14:LEU:O	2:C:18:CYS:N	2.43	0.49
1:A:724:GLU:HG2	1:B:401:TYR:CD1	2.48	0.49
1:A:724:GLU:HG2	1:B:401:TYR:CG	2.48	0.49
1:A:875:SER:OG	1:A:883:GLU:OE2	2.30	0.49
1:B:107:THR:O	1:B:137:MET:N	2.39	0.49
1:B:439:TRP:HB2	1:B:441:TRP:NE1	2.27	0.49
1:B:583:LEU:HA	1:B:589:TYR:CZ	2.48	0.49
2:F:12:ASP:O	2:F:15:GLN:HG2	2.13	0.49
1:A:405:SER:HB3	1:A:408:PHE:HE1	1.77	0.49
1:A:561:ILE:HD11	1:A:578:TRP:HD1	1.78	0.49
1:A:44:LEU:HB2	1:A:65:MET:HE1	1.95	0.49
1:A:94:TYR:CE2	1:A:126:VAL:HG21	2.48	0.49
1:B:82:ILE:HD11	1:B:253:VAL:HG13	1.93	0.49
1:A:382:GLU:OE1	1:A:410:ARG:NH2	2.45	0.49
1:A:862:PRO:HD2	1:A:869:ILE:HD13	1.94	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:240:LEU:HD23	1:A:241:GLY:N	2.27	0.48
1:A:260:LEU:HD23	1:A:263:ARG:CZ	2.43	0.48
1:B:88:LEU:HB3	1:B:120:LEU:HD12	1.95	0.48
1:B:497:ASN:HB3	1:B:609:LYS:HB3	1.95	0.48
1:B:737:HIS:HA	1:B:740:VAL:HG12	1.95	0.48
1:A:622:PRO:HG3	1:A:814:ASN:CG	2.33	0.48
1:B:629:ILE:O	1:B:640:LEU:HD12	2.13	0.48
1:A:380:GLU:O	1:A:383:ALA:HB3	2.14	0.48
1:A:506:ARG:NH1	1:A:515:ARG:HE	2.11	0.48
1:A:200:VAL:HB	1:A:205:PHE:HD1	1.77	0.48
1:A:426:SER:HB3	1:A:451:GLY:HA3	1.95	0.48
2:C:11:VAL:HA	2:C:14:LEU:HB3	1.96	0.48
1:A:319:TYR:HD2	1:A:328:CYS:HB3	1.79	0.48
1:A:581:ARG:HD2	1:A:581:ARG:O	2.14	0.48
1:B:88:LEU:HD21	1:B:103:PHE:CE1	2.48	0.48
1:B:90:LEU:HD22	1:B:99:LEU:HD21	1.95	0.48
1:A:35:CYS:O	1:A:56:ILE:HA	2.13	0.48
1:A:348:ILE:HD12	1:A:369:ILE:HG13	1.96	0.48
1:B:441:TRP:HA	1:B:444:HIS:HB2	1.94	0.48
1:A:507:THR:OG1	1:A:617:THR:HA	2.13	0.48
1:B:137:MET:HA	1:B:162:ARG:NH1	2.29	0.48
1:B:381:LEU:HG	1:B:385:LEU:HD23	1.94	0.48
1:A:721:LYS:HD3	1:B:401:TYR:OH	2.14	0.48
1:B:497:ASN:N	1:B:609:LYS:HD3	2.29	0.48
1:B:524:PHE:HD1	2:C:6:CYS:SG	2.37	0.48
1:A:34:VAL:HG13	1:A:55:VAL:HG12	1.95	0.47
1:A:60:LEU:HD21	1:A:103:PHE:CZ	2.49	0.47
1:A:160:TRP:O	1:A:164:LEU:HG	2.14	0.47
1:A:260:LEU:HD11	1:A:272:TYR:CD2	2.49	0.47
1:B:117:ASN:O	1:B:143:SER:N	2.46	0.47
1:B:308:ASN:O	1:B:310:LYS:HG3	2.14	0.47
1:B:814:ASN:HD21	1:B:821:ARG:HH11	1.60	0.47
1:A:116:PHE:CZ	1:B:735:TYR:HB3	2.50	0.47
1:A:233:LEU:HB3	1:A:246:PRO:HD3	1.96	0.47
1:A:437:GLN:HG2	1:A:438:LEU:O	2.14	0.47
1:A:507:THR:HB	1:A:512:ILE:HD12	1.96	0.47
1:B:593:VAL:N	1:B:610:SER:OG	2.30	0.47
1:B:875:SER:OG	1:B:883:GLU:OE2	2.30	0.47
2:C:13:ALA:O	2:C:17:VAL:N	2.44	0.47
1:A:162:ARG:O	1:A:162:ARG:NE	2.47	0.47
1:B:532:LEU:HG	1:B:534:TYR:CD1	2.49	0.47

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:801:ARG:O	1:B:832:THR:OG1	2.27	0.47
1:A:62:ILE:C	1:A:63:LEU:HD12	2.34	0.47
1:A:277:ASP:O	1:A:279:ARG:N	2.47	0.47
1:B:463:LEU:HD12	1:B:467:HIS:NE2	2.29	0.47
1:B:99:LEU:HB2	1:B:131:LEU:O	2.14	0.47
1:B:524:PHE:CE1	2:C:5:LEU:HA	2.49	0.47
1:A:113:ARG:HH21	1:A:302:HIS:CD2	2.33	0.47
1:A:656:LEU:HD22	1:A:786:PHE:CE2	2.49	0.47
1:B:94:TYR:CD2	1:B:127:HIS:HE1	2.32	0.47
2:F:15:GLN:HG2	2:F:16:PHE:N	2.30	0.47
1:A:36:PRO:HB3	1:A:301:CYS:HB3	1.97	0.47
1:A:210:TRP:H	1:A:215:CYS:HA	1.80	0.47
1:A:438:LEU:HD11	1:A:461:LEU:HD11	1.97	0.47
1:A:617:THR:HG23	1:A:618:ASP:O	2.14	0.47
1:A:906:PRO:HA	1:A:932:VAL:HB	1.97	0.47
1:B:134:TYR:HA	1:B:210:TRP:CD1	2.49	0.47
1:B:660:GLU:OE1	1:B:662:GLN:NE2	2.42	0.47
1:A:125:MET:HB3	1:A:128:LEU:HB2	1.97	0.47
1:A:236:HIS:HD2	1:A:238:GLU:H	1.63	0.47
1:B:364:ASN:HA	1:B:392:SER:HB3	1.97	0.47
2:C:4:THR:N	2:C:52:CYS:H	2.12	0.47
1:A:337:LYS:HB3	1:A:360:CYS:HA	1.96	0.47
1:B:525:ARG:NH1	2:C:48:CYS:HA	2.30	0.47
1:A:735:TYR:CE2	1:B:116:PHE:HB2	2.50	0.47
1:B:41:ARG:HD2	2:E:25:PHE:CD1	2.49	0.47
1:A:91:PHE:HE2	1:B:740:VAL:HG21	1.80	0.46
1:B:61:GLN:HG2	1:B:89:LEU:HD23	1.96	0.46
2:C:55:ARG:CZ	2:C:55:ARG:HA	2.45	0.46
1:A:382:GLU:HB2	1:A:408:PHE:HB3	1.97	0.46
1:B:501:LYS:HA	1:B:501:LYS:HD3	1.61	0.46
1:B:499:LEU:CD1	1:B:611:ASP:HB2	2.46	0.46
1:A:87:TYR:HD2	1:A:113:ARG:O	1.99	0.46
1:A:141:ARG:HD3	1:A:355:GLN:NE2	2.31	0.46
1:A:352:THR:HA	1:A:355:GLN:HB3	1.97	0.46
1:A:543:THR:OG1	1:A:544:GLU:OE1	2.33	0.46
1:B:397:ILE:HG22	1:B:432:ASN:OD1	2.16	0.46
1:A:736:LEU:HA	1:A:739:VAL:HG12	1.96	0.46
1:B:252:CYS:HB2	1:B:264:CYS:SG	2.56	0.46
1:B:623:SER:H	1:B:648:PRO:HB3	1.81	0.46
1:A:63:LEU:HB3	1:A:64:LEU:HG	1.98	0.46
1:A:265:VAL:HG21	1:A:269:PRO:HD3	1.98	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:165:ASP:N	1:A:165:ASP:OD1	2.49	0.46
1:A:310:LYS:HB2	1:A:312:ILE:HG12	1.98	0.46
2:E:10:LEU:HA	2:E:13:ALA:HB3	1.97	0.46
1:B:121:VAL:HA	1:B:145:ARG:O	2.16	0.46
1:B:399:ARG:O	1:B:401:TYR:N	2.48	0.46
1:B:109:ILE:HB	1:B:139:ILE:HD12	1.98	0.46
1:A:499:LEU:HD23	1:A:499:LEU:H	1.81	0.45
1:A:520:TRP:HB3	1:A:524:PHE:HD1	1.82	0.45
1:B:369:ILE:HG23	1:B:371:ILE:CD1	2.46	0.45
1:B:464:SER:HB2	1:B:496:GLU:N	2.30	0.45
1:B:504:TYR:HE2	1:B:513:LEU:HD23	1.81	0.45
2:C:14:LEU:O	2:C:17:VAL:HB	2.15	0.45
1:B:581:ARG:NH1	2:D:63:PRO:HG2	2.31	0.45
1:B:659:TRP:CZ2	1:B:785:PRO:HB2	2.52	0.45
1:A:41:ARG:NH1	2:C:24:TYR:O	2.50	0.45
1:A:644:PRO:HD3	1:A:793:GLU:OE1	2.17	0.45
1:B:240:LEU:N	1:B:254:ALA:O	2.40	0.45
1:B:506:ARG:HB3	1:B:513:LEU:HB3	1.97	0.45
1:B:801:ARG:NH2	1:B:864:GLU:OE1	2.43	0.45
1:A:63:LEU:HD23	1:B:740:VAL:HG23	1.98	0.45
1:A:141:ARG:HH12	1:A:358:ARG:HH11	1.64	0.45
1:B:392:SER:OG	1:B:418:GLU:HG3	2.17	0.45
2:F:17:VAL:HB	2:F:57:LEU:CB	2.24	0.45
1:A:86:ASP:CG	1:A:113:ARG:HB2	2.37	0.45
1:A:276:GLN:NE2	1:A:311:CYS:O	2.48	0.45
1:B:209:CYS:HA	1:B:215:CYS:HA	1.98	0.45
1:A:115:PHE:HD2	1:A:121:VAL:HG21	1.82	0.45
1:B:88:LEU:HB3	1:B:120:LEU:CD1	2.46	0.45
2:E:24:TYR:HB2	2:E:62:ALA:HA	1.99	0.45
2:F:12:ASP:HB3	2:F:16:PHE:CE1	2.51	0.45
1:A:175:ASN:H	1:A:178:ASP:HB2	1.81	0.45
1:A:389:GLU:HA	1:A:411:LYS:O	2.16	0.45
1:A:439:TRP:CZ3	1:A:446:LEU:HG	2.52	0.45
1:B:139:ILE:HB	1:B:164:LEU:HB3	1.98	0.45
1:B:209:CYS:HA	1:B:216:GLN:H	1.80	0.45
1:B:586:TRP:HB2	1:B:650:GLY:HA2	1.98	0.45
1:A:123:PHE:CE1	1:A:124:GLU:HG3	2.51	0.45
1:A:732:PHE:CZ	1:B:145:ARG:HG2	2.51	0.45
1:B:141:ARG:HG2	1:B:142:GLY:N	2.32	0.45
1:B:642:TRP:CE2	1:B:793:GLU:HA	2.51	0.45
1:A:257:ASN:HB3	1:A:258:PHE:CE2	2.52	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:337:LYS:H	1:A:361:THR:HG1	1.61	0.45
1:B:96:LEU:O	1:B:128:LEU:HD22	2.17	0.45
1:B:500:LEU:HB3	1:B:501:LYS:H	1.57	0.45
1:B:654:HIS:HB3	1:B:790:VAL:HG22	1.98	0.45
1:A:49:GLU:HG3	1:A:50:LEU:HD12	1.99	0.45
1:A:141:ARG:NH1	1:A:355:GLN:OE1	2.41	0.45
1:B:65:MET:HB3	1:B:93:VAL:HG22	1.98	0.45
1:B:340:HIS:HA	1:B:364:ASN:HB3	1.99	0.45
2:E:56:ARG:HA	2:E:56:ARG:NE	2.32	0.45
1:A:62:ILE:O	1:A:90:LEU:HA	2.17	0.44
1:A:604:ARG:HG2	1:A:606:TYR:CE2	2.52	0.44
1:B:100:LYS:HE2	1:B:100:LYS:HB3	1.78	0.44
1:B:536:GLU:HA	1:B:589:TYR:CD2	2.52	0.44
1:A:516:TRP:NE1	1:A:576:PRO:HG2	2.32	0.44
1:B:559:VAL:HG13	1:B:561:ILE:HD11	1.99	0.44
1:A:65:MET:HG3	1:A:68:THR:OG1	2.18	0.44
1:A:129:LYS:HA	1:A:152:LEU:HA	1.98	0.44
1:A:592:PHE:HD2	1:A:609:LYS:HZ1	1.65	0.44
1:B:105:ASN:HA	1:B:135:ASN:ND2	2.28	0.44
1:B:400:SER:HB3	1:B:403:LEU:HG	1.98	0.44
1:A:506:ARG:O	1:A:512:ILE:HG13	2.18	0.44
1:A:593:VAL:H	1:A:610:SER:HB2	1.83	0.44
1:A:278:TRP:CE3	1:A:279:ARG:HB2	2.53	0.44
1:A:283:PHE:O	1:A:287:GLN:HG3	2.17	0.44
1:A:587:THR:HG22	1:A:588:GLN:N	2.33	0.44
1:B:441:TRP:CH2	1:B:446:LEU:HB2	2.52	0.44
1:B:501:LYS:HA	1:B:501:LYS:NZ	2.32	0.44
1:A:220:PRO:O	1:A:224:LYS:N	2.49	0.44
1:A:381:LEU:O	1:A:385:LEU:N	2.39	0.44
1:A:595:THR:OG1	1:A:608:ALA:N	2.34	0.44
1:B:401:TYR:HA	1:B:433:GLN:HB2	2.00	0.44
1:B:464:SER:HB2	1:B:495:CYS:HA	1.99	0.44
1:B:506:ARG:HH21	1:B:513:LEU:HB2	1.83	0.44
1:A:632:SER:HB3	1:A:832:THR:HA	2.00	0.44
1:B:84:ILE:O	1:B:109:ILE:HA	2.18	0.44
1:B:260:LEU:HD12	1:B:261:ASP:H	1.83	0.44
1:B:420:LEU:HD21	1:B:450:GLN:HB2	2.00	0.44
1:A:146:ILE:HG21	1:A:155:LEU:HD13	2.00	0.44
1:A:382:GLU:OE2	1:A:410:ARG:NE	2.37	0.44
1:B:50:LEU:HD11	1:B:60:LEU:HD13	2.00	0.44
1:B:414:LEU:HD13	1:B:447:THR:HB	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:503:SER:N	1:B:515:ARG:O	2.51	0.44
2:F:17:VAL:HG12	2:F:58:GLU:CG	2.43	0.44
1:A:56:ILE:HG13	1:A:81:LEU:HD13	2.00	0.43
1:A:370:ASN:O	1:A:372:ARG:NE	2.51	0.43
1:A:513:LEU:HD23	1:A:579:LEU:HB2	2.00	0.43
1:B:44:LEU:HD21	1:B:76:LEU:HD22	2.00	0.43
1:B:497:ASN:HB3	1:B:609:LYS:N	2.32	0.43
1:A:339:CYS:SG	1:A:357:LEU:HA	2.58	0.43
1:B:36:PRO:HA	1:B:57:GLU:HB3	1.99	0.43
1:B:236:HIS:CD2	1:B:249:PRO:HD3	2.53	0.43
1:A:91:PHE:CE2	1:B:740:VAL:HG21	2.52	0.43
1:A:239:CYS:HB2	1:A:252:CYS:HB3	1.66	0.43
1:A:716:ASP:HA	1:A:719:ILE:HD12	1.99	0.43
1:B:380:GLU:O	1:B:384:ASN:ND2	2.51	0.43
1:A:440:ASP:OD1	1:A:440:ASP:N	2.51	0.43
1:A:507:THR:HG1	1:A:617:THR:HA	1.82	0.43
1:A:562:ASP:OD1	1:A:562:ASP:N	2.50	0.43
1:A:56:ILE:HD12	1:A:84:ILE:CD1	2.49	0.43
1:A:240:LEU:HB3	1:A:254:ALA:HB1	2.00	0.43
1:A:289:LEU:HA	1:A:292:LYS:HD2	1.99	0.43
1:A:302:HIS:HB2	1:A:304:TYR:CE1	2.54	0.43
1:B:99:LEU:O	1:B:102:LEU:HB2	2.18	0.43
1:B:516:TRP:CH2	1:B:577:GLY:HA2	2.53	0.43
1:B:525:ARG:HE	2:C:7:GLY:H	1.66	0.43
1:B:914:ARG:HB2	1:B:924:TRP:CD2	2.54	0.43
2:E:50:ARG:HA	2:E:50:ARG:HD3	1.65	0.43
1:A:47:LEU:HG	1:A:78:PHE:CZ	2.53	0.43
1:A:260:LEU:HD12	1:A:260:LEU:HA	1.79	0.43
1:B:64:LEU:HD22	2:E:23:PHE:CE1	2.53	0.43
1:B:100:LYS:HD3	1:B:214:HIS:HE1	1.84	0.43
2:C:13:ALA:O	2:C:17:VAL:HG23	2.18	0.43
2:C:17:VAL:HG12	2:C:61:CYS:SG	2.59	0.43
2:E:4:THR:HG22	2:E:51:SER:HA	2.01	0.43
1:A:118:TYR:HB2	1:A:121:VAL:HG22	2.00	0.43
1:A:808:ILE:HB	1:A:828:VAL:HG23	2.00	0.43
1:B:109:ILE:O	1:B:139:ILE:HA	2.18	0.43
1:B:532:LEU:HG	1:B:534:TYR:HD1	1.83	0.43
1:A:211:THR:O	1:A:212:HIS:ND1	2.52	0.43
1:A:497:ASN:OD1	1:A:498:GLU:N	2.52	0.43
1:B:406:LEU:HD22	1:B:435:LEU:HD11	2.00	0.43
1:A:561:ILE:HD11	1:A:578:TRP:CD1	2.54	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:90:LEU:HB2	1:B:122:ILE:HG23	2.01	0.43
1:B:220:PRO:HB2	1:B:222:ILE:HG22	2.01	0.43
1:B:404:VAL:HA	1:B:434:ASN:O	2.19	0.43
1:A:159:ASP:OD1	1:A:159:ASP:N	2.46	0.43
1:A:564:PRO:HG3	1:A:576:PRO:HD3	2.01	0.43
1:A:623:SER:O	1:A:812:ALA:HB3	2.19	0.43
1:B:507:THR:HB	1:B:512:ILE:HG12	2.01	0.43
1:B:594:LYS:HA	1:B:609:LYS:HA	2.01	0.43
1:A:506:ARG:HH22	1:A:515:ARG:HG3	1.84	0.42
1:B:125:MET:CB	1:B:128:LEU:HB2	2.47	0.42
1:A:65:MET:HB3	1:A:93:VAL:HA	1.99	0.42
1:A:101:ASP:N	1:A:101:ASP:OD1	2.52	0.42
1:A:394:TYR:CZ	1:A:421:GLU:HB2	2.54	0.42
1:A:401:TYR:HB2	1:B:723:LEU:HD13	2.01	0.42
1:B:93:VAL:H	1:B:125:MET:CE	2.32	0.42
1:B:320:THR:OG1	1:B:321:MET:N	2.52	0.42
1:B:633:ASN:OD1	1:B:639:ILE:HG13	2.19	0.42
1:B:850:PHE:HB2	1:B:854:VAL:HB	2.01	0.42
2:F:15:GLN:HG2	2:F:16:PHE:H	1.84	0.42
1:B:659:TRP:HB3	1:B:808:ILE:HG12	2.01	0.42
1:A:115:PHE:CD2	1:A:121:VAL:HG21	2.55	0.42
1:B:59:HIS:ND1	1:B:61:GLN:HG3	2.34	0.42
1:A:235:CYS:HB3	1:A:239:CYS:SG	2.59	0.42
1:A:626:LEU:HD12	1:A:645:PRO:HA	2.02	0.42
1:A:629:ILE:O	1:A:640:LEU:HD12	2.20	0.42
1:B:478:ARG:HD2	1:B:478:ARG:HA	1.84	0.42
1:A:58:GLY:C	1:A:86:ASP:HB2	2.40	0.42
1:A:163:ILE:HB	1:A:218:VAL:HG11	2.00	0.42
1:A:622:PRO:HG3	1:A:814:ASN:OD1	2.19	0.42
1:B:352:THR:O	1:B:356:GLU:OE1	2.38	0.42
1:B:500:LEU:HD11	1:B:519:TYR:HB2	2.01	0.42
1:A:535:LYS:HG3	1:A:555:SER:O	2.20	0.42
1:A:720:LEU:O	1:A:723:LEU:HG	2.20	0.42
1:B:107:THR:HG22	1:B:108:VAL:HG23	2.01	0.42
1:B:416:ARG:HB3	1:B:418:GLU:HG2	2.02	0.42
1:A:243:CYS:HB2	1:A:252:CYS:HA	2.02	0.42
1:B:59:HIS:CG	1:B:87:TYR:CZ	3.08	0.42
1:B:107:THR:HA	1:B:135:ASN:O	2.20	0.42
1:B:258:PHE:CZ	1:B:274:HIS:HD2	2.38	0.42
1:B:497:ASN:HB3	1:B:498:GLU:H	1.58	0.42
1:B:258:PHE:CE1	1:B:274:HIS:HB3	2.55	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:338:VAL:HA	1:B:362:VAL:HB	2.00	0.42
1:A:79:PRO:HB3	1:A:104:PRO:HG2	2.01	0.41
1:A:306:ILE:HB	1:A:327:LEU:HD22	2.02	0.41
1:A:586:TRP:HA	1:A:617:THR:HG22	2.02	0.41
1:A:86:ASP:OD1	1:A:113:ARG:HB2	2.20	0.41
1:A:105:ASN:C	1:A:135:ASN:HD22	2.23	0.41
1:A:432:ASN:O	1:A:459:PRO:HD2	2.19	0.41
1:A:594:LYS:HG2	1:A:609:LYS:HD2	2.01	0.41
1:A:815:GLN:HB3	1:A:821:ARG:H	1.85	0.41
1:A:841:ILE:HD11	1:A:915:ALA:HB2	2.01	0.41
1:B:89:LEU:HD12	1:B:121:VAL:O	2.21	0.41
1:B:236:HIS:HB3	1:B:239:CYS:SG	2.61	0.41
1:B:270:PRO:O	1:B:271:PRO:C	2.58	0.41
1:B:281:VAL:HB	1:B:285:PHE:CD1	2.55	0.41
1:A:146:ILE:HD13	1:A:155:LEU:HD22	2.03	0.41
1:A:401:TYR:HE1	1:B:719:ILE:HD12	1.86	0.41
1:B:60:LEU:HD23	1:B:103:PHE:HZ	1.86	0.41
1:A:372:ARG:HG2	1:B:723:LEU:HB3	2.01	0.41
1:B:35:CYS:O	1:B:56:ILE:HG13	2.21	0.41
1:B:69:ARG:NH2	1:B:94:TYR:HB3	2.36	0.41
1:B:122:ILE:H	1:B:146:ILE:HD13	1.85	0.41
1:B:164:LEU:H	1:B:164:LEU:HD23	1.85	0.41
1:B:592:PHE:HB3	1:B:612:ILE:HA	2.03	0.41
2:E:17:VAL:HG21	2:E:57:LEU:HB3	2.01	0.41
1:A:259:TYR:HB3	1:A:279:ARG:HA	2.02	0.41
1:A:720:LEU:HD12	1:A:721:LYS:N	2.35	0.41
1:B:600:SER:HB3	1:B:603:ARG:O	2.20	0.41
1:A:259:TYR:O	1:A:280:CYS:N	2.53	0.41
1:A:357:LEU:HD22	1:A:363:ILE:HD12	2.02	0.41
1:B:90:LEU:O	1:B:122:ILE:HA	2.21	0.41
1:B:502:PHE:HB3	1:B:505:ILE:HD11	2.03	0.41
1:B:504:TYR:CE2	1:B:513:LEU:HD23	2.55	0.41
2:E:17:VAL:HG23	2:E:61:CYS:SG	2.60	0.41
1:A:114:LEU:O	1:A:352:THR:OG1	2.33	0.41
1:A:394:TYR:HB2	1:A:426:SER:O	2.21	0.41
1:A:66:PHE:HA	1:A:94:TYR:CD1	2.56	0.41
1:A:456:HIS:CD2	1:A:485:ALA:HB2	2.56	0.41
1:A:633:ASN:ND2	1:A:637:GLN:OE1	2.48	0.41
1:A:847:HIS:CD2	1:A:930:PHE:HB3	2.55	0.41
1:B:369:ILE:HD12	1:B:397:ILE:HG13	2.02	0.41
1:A:101:ASP:O	1:A:104:PRO:HD3	2.20	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:118:TYR:CD1	1:A:143:SER:HB2	2.55	0.41
1:A:427:PHE:HE1	1:A:429:ALA:HB2	1.85	0.41
1:A:525:ARG:NH1	2:E:8:ALA:H	2.15	0.41
1:A:647:ASP:HB3	1:A:648:PRO:HD3	2.03	0.41
1:A:741:PHE:HE1	1:B:92:ARG:NH1	2.19	0.41
1:A:787:GLU:OE1	1:A:788:LYS:N	2.52	0.41
1:B:41:ARG:HA	1:B:63:LEU:O	2.21	0.41
1:B:123:PHE:CE2	1:B:148:LYS:HB3	2.55	0.41
1:B:237:SER:O	1:B:256:ARG:HD2	2.20	0.41
1:B:249:PRO:HA	1:B:252:CYS:SG	2.61	0.41
1:B:378:ALA:HA	1:B:381:LEU:HB3	2.03	0.41
1:B:439:TRP:HB3	1:B:444:HIS:CE1	2.55	0.41
1:B:480:GLU:HG2	1:B:481:ARG:O	2.21	0.41
1:A:540:GLN:HA	1:A:614:TYR:OH	2.22	0.41
1:A:571:LYS:HD2	1:A:572:SER:HB3	2.02	0.41
1:B:380:GLU:CD	1:B:384:ASN:HD21	2.24	0.41
1:B:569:ASP:HB2	1:B:571:LYS:HG2	2.02	0.41
1:B:588:GLN:OE1	1:B:614:TYR:HB3	2.20	0.41
1:B:626:LEU:HG	1:B:645:PRO:HB3	2.02	0.41
1:A:585:PRO:HG2	1:A:617:THR:HG21	2.02	0.40
1:B:493:ALA:O	1:B:494:SER:C	2.58	0.40
1:A:160:TRP:HA	1:A:163:ILE:HG22	2.02	0.40
1:A:258:PHE:HB2	1:A:265:VAL:HG23	2.02	0.40
1:A:721:LYS:H	1:A:721:LYS:HG2	1.75	0.40
2:C:7:GLY:O	2:C:10:LEU:HB3	2.21	0.40
1:A:394:TYR:CE2	1:A:421:GLU:HB2	2.56	0.40
1:A:534:TYR:O	1:A:557:THR:HB	2.21	0.40
1:A:625:PRO:O	1:A:628:PRO:HD3	2.22	0.40
1:B:138:ASN:O	1:B:139:ILE:HD13	2.21	0.40
1:B:272:TYR:HD1	1:B:280:CYS:O	2.04	0.40
1:A:222:ILE:HG23	1:A:237:SER:HB3	2.02	0.40
1:B:622:PRO:HG2	1:B:823:SER:HB3	2.04	0.40
2:D:40:GLN:O	2:D:45:ASP:HB2	2.22	0.40
1:A:394:TYR:CE2	1:A:396:LYS:HB2	2.57	0.40
1:A:623:SER:HB3	1:A:648:PRO:HD3	2.03	0.40
1:B:240:LEU:HD22	1:B:256:ARG:HA	2.04	0.40
2:E:44:VAL:O	2:E:48:CYS:N	2.39	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 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	785/1370 (57%)	708 (90%)	74 (9%)	3 (0%)	30	68
1	B	707/1370 (52%)	643 (91%)	62 (9%)	2 (0%)	37	72
2	C	42/195 (22%)	40 (95%)	2 (5%)	0	100	100
2	D	44/195 (23%)	43 (98%)	1 (2%)	0	100	100
2	E	42/195 (22%)	42 (100%)	0	0	100	100
2	F	34/195 (17%)	32 (94%)	2 (6%)	0	100	100
All	All	1654/3520 (47%)	1508 (91%)	141 (8%)	5 (0%)	38	72

All (5) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	B	497	ASN
1	A	219	CYS
1	A	271	PRO
1	B	270	PRO
1	A	242	ASN

### 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	733/1215 (60%)	730 (100%)	3 (0%)	89	91
1	B	670/1215 (55%)	658 (98%)	12 (2%)	54	71
2	C	39/167 (23%)	39 (100%)	0	100	100

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
2	D	41/167 (25%)	41 (100%)	0	100	100
2	E	39/167 (23%)	39 (100%)	0	100	100
2	F	33/167 (20%)	29 (88%)	4 (12%)	4	16
All	All	1555/3098 (50%)	1536 (99%)	19 (1%)	66	79

All (19) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	263	ARG
1	A	372	ARG
1	A	571	LYS
1	B	287	GLN
1	B	399	ARG
1	B	436	ARG
1	B	489	ASN
1	B	491	ASP
1	B	494	SER
1	B	496	GLU
1	B	498	GLU
1	B	500	LEU
1	B	501	LYS
1	B	557	THR
1	B	720	LEU
2	F	5	LEU
2	F	6	CYS
2	F	10	LEU
2	F	15	GLN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (7) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	135	ASN
1	A	588	GLN
1	B	135	ASN
1	B	287	GLN
1	B	384	ASN
1	B	433	GLN
1	B	573	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](#)

There are no ligands in this entry.

### 5.7 Other polymers [i](#)

There are no such residues in this entry.

### 5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

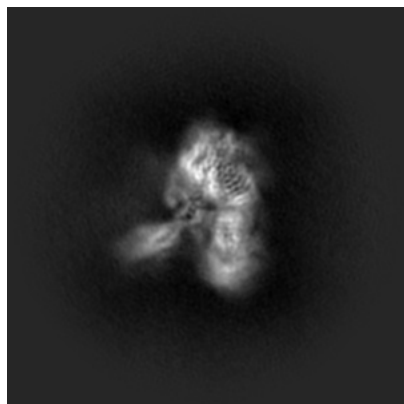
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-38420. These allow visual inspection of the internal detail of the map and identification of artifacts.

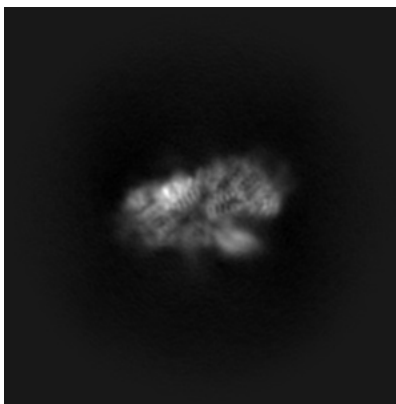
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

### 6.1 Orthogonal projections [i](#)

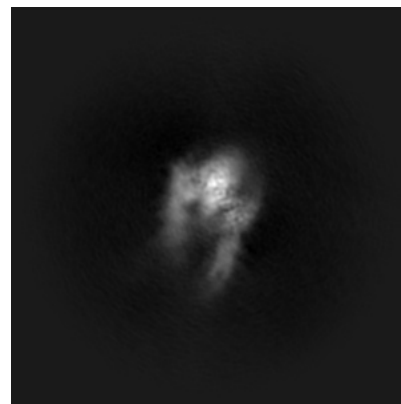
#### 6.1.1 Primary map



X

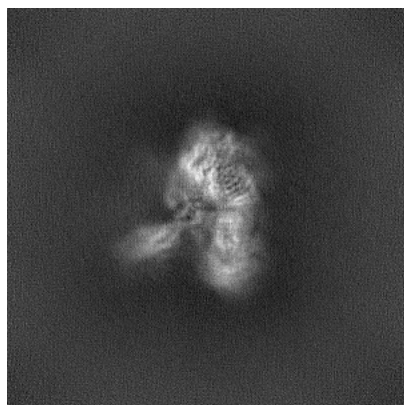


Y

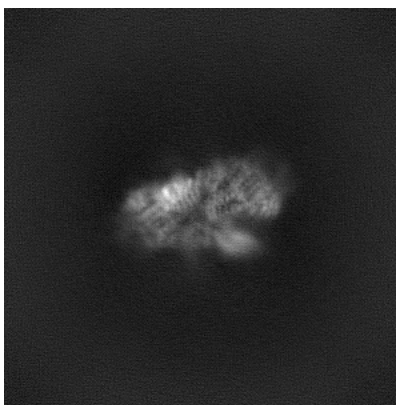


Z

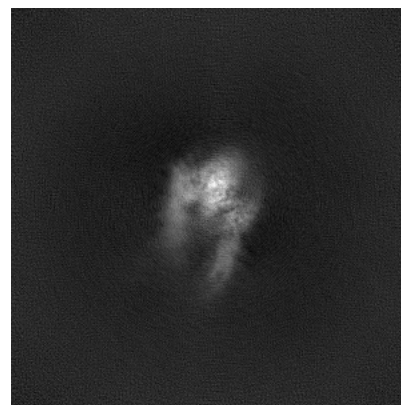
#### 6.1.2 Raw map



X



Y

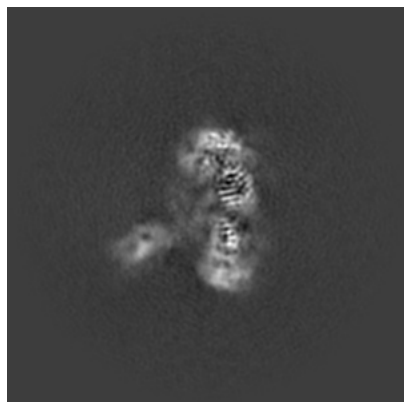


Z

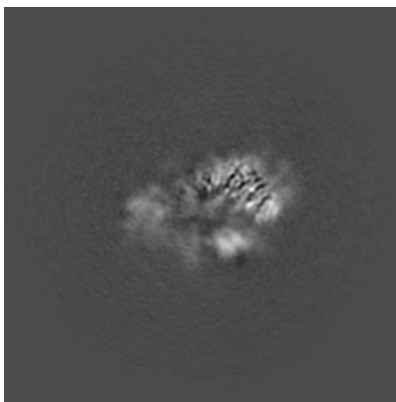
The images above show the map projected in three orthogonal directions.

## 6.2 Central slices [i](#)

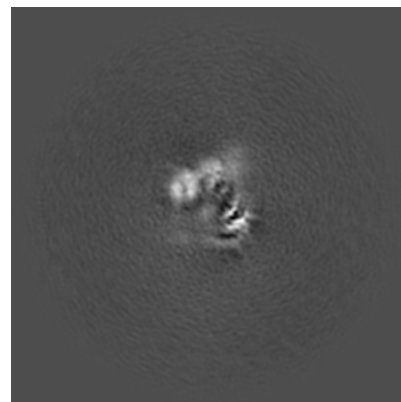
### 6.2.1 Primary map



X Index: 256

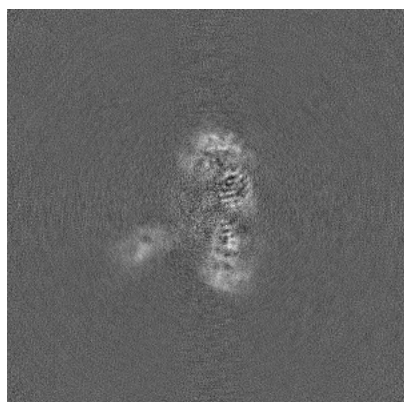


Y Index: 256

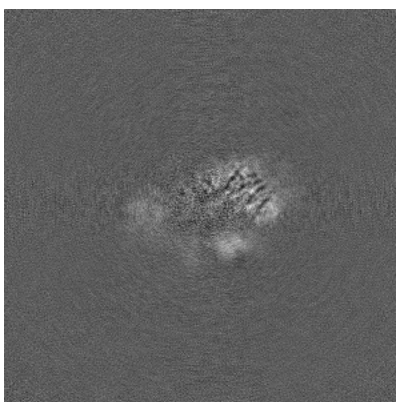


Z Index: 256

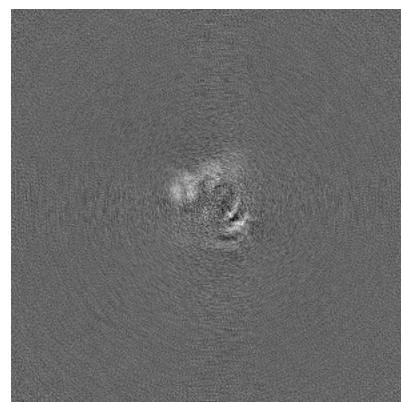
### 6.2.2 Raw map



X Index: 256



Y Index: 256

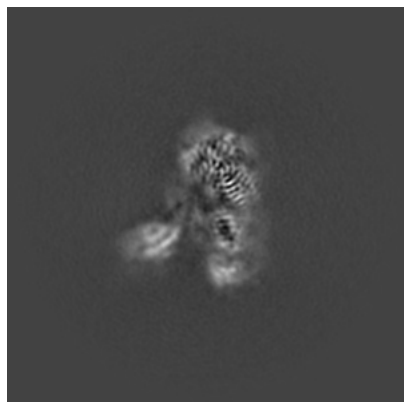


Z Index: 256

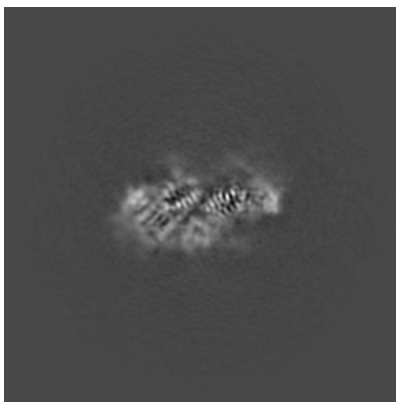
The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

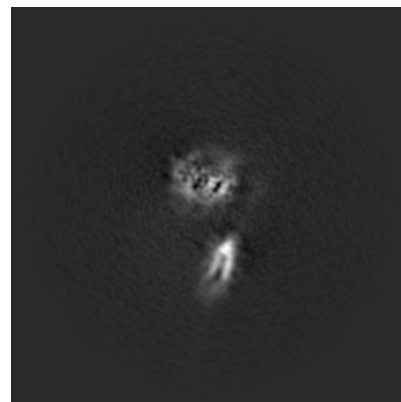
### 6.3.1 Primary map



X Index: 269



Y Index: 283

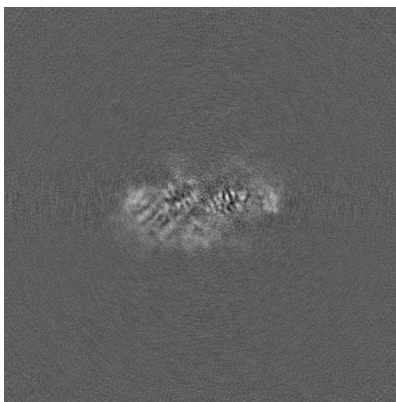


Z Index: 207

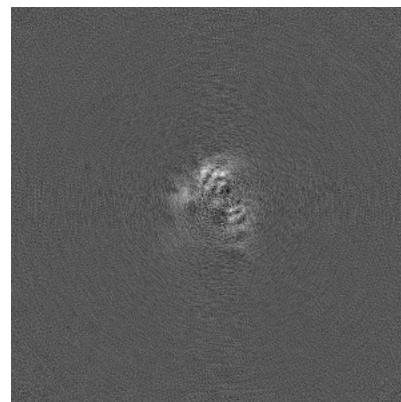
### 6.3.2 Raw map



X Index: 268



Y Index: 282



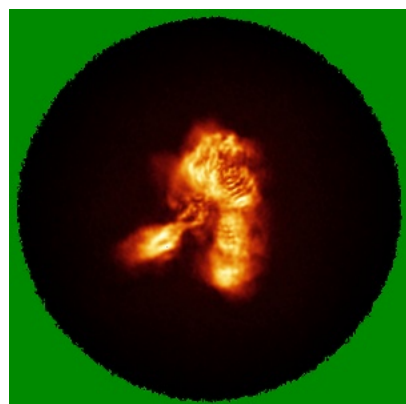
Z Index: 269

The images above show the largest variance slices of the map in three orthogonal directions.

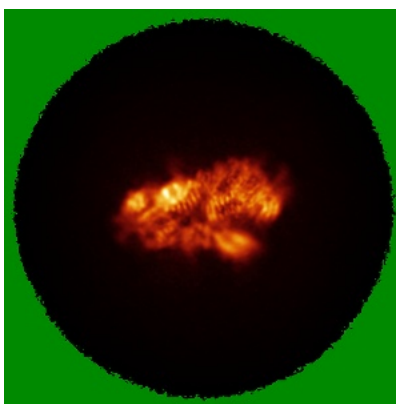


## 6.4 Orthogonal standard-deviation projections (False-color) [i](#)

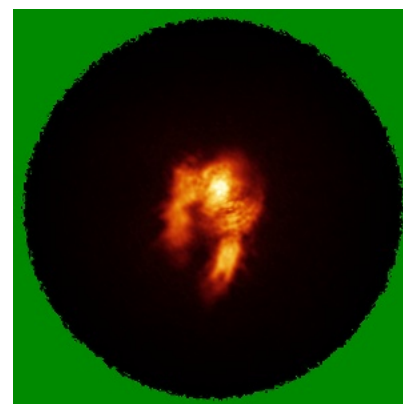
### 6.4.1 Primary map



X

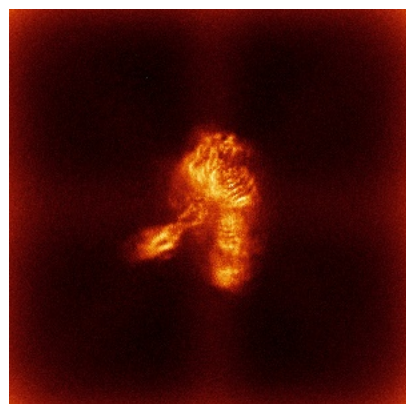


Y

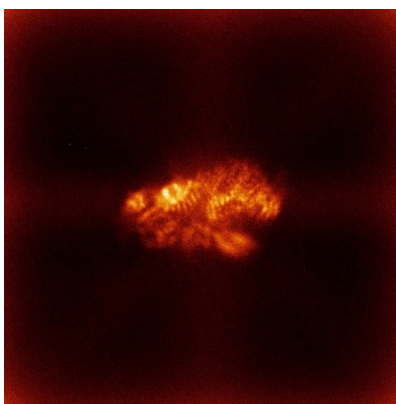


Z

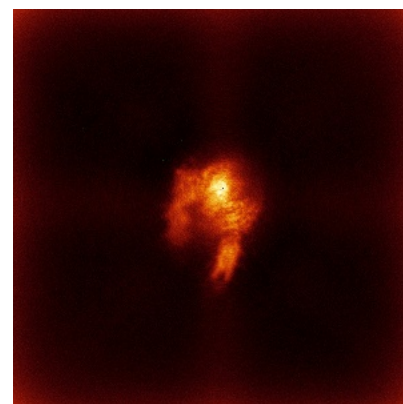
### 6.4.2 Raw map



X



Y

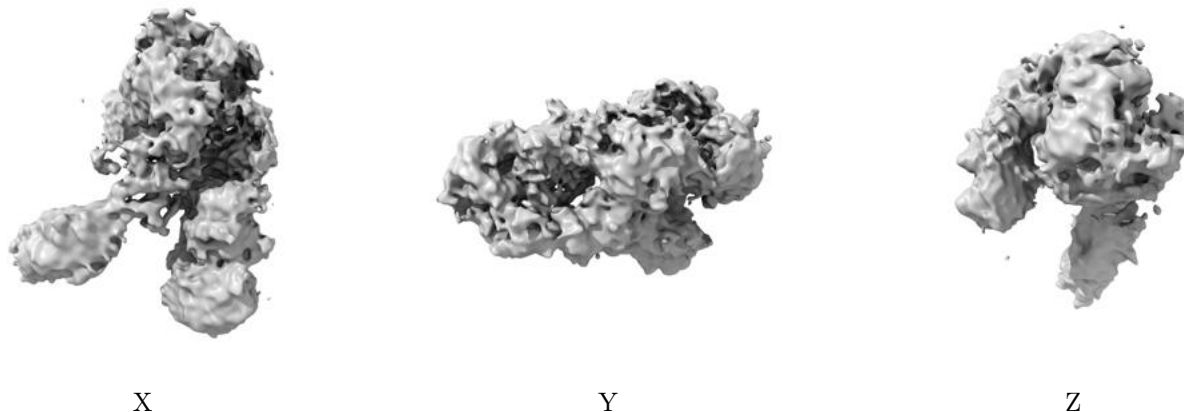


Z

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.

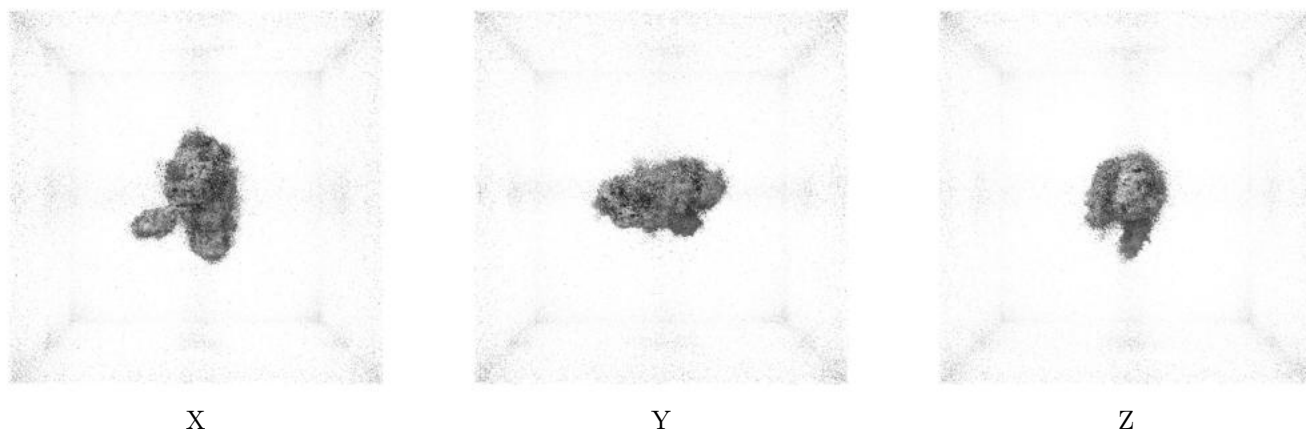
## 6.5 Orthogonal surface views [i](#)

### 6.5.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.035. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

### 6.5.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

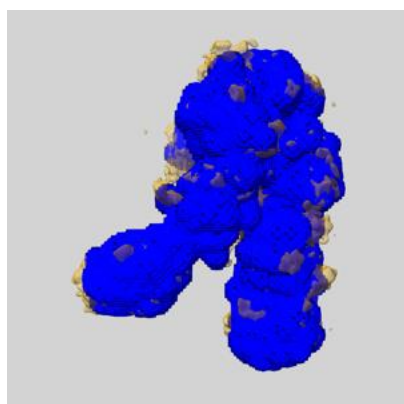
## 6.6 Mask visualisation [i](#)

This section shows the 3D surface view of the primary map at 50% transparency overlaid with the specified mask at 0% transparency

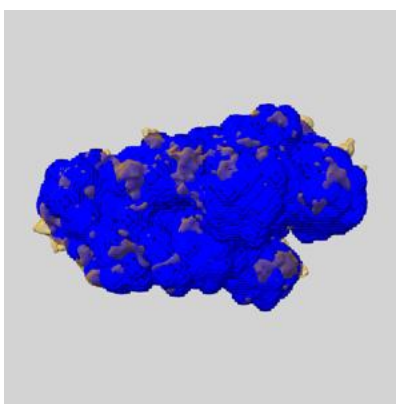
A mask typically either:

- Encompasses the whole structure
- Separates out a domain, a functional unit, a monomer or an area of interest from a larger structure

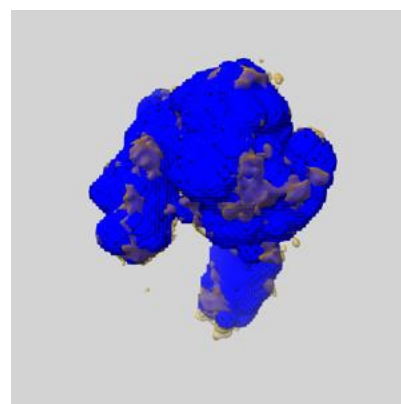
### 6.6.1 emd\_38420\_msk\_1.map [i](#)



X



Y

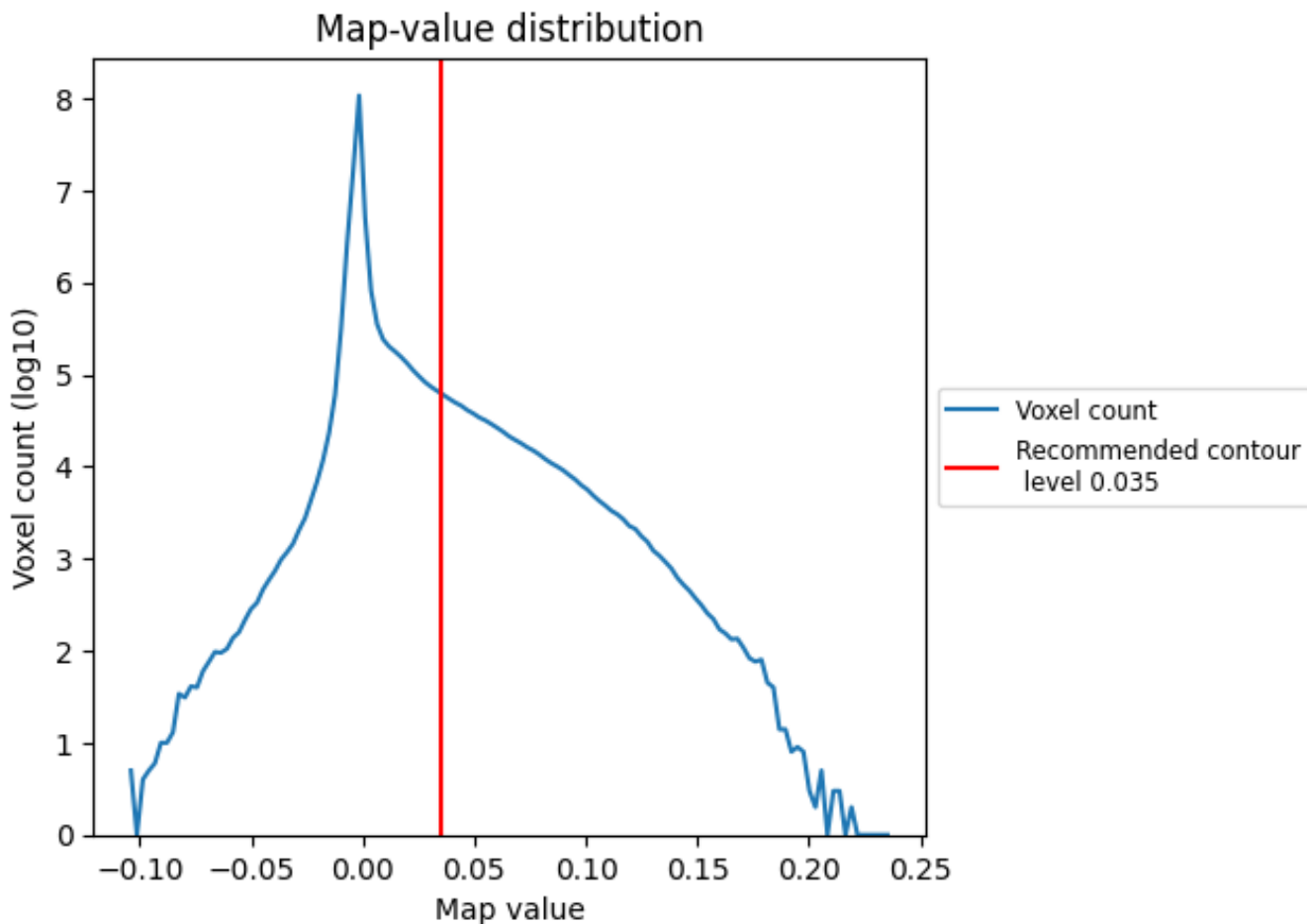


Z

## 7 Map analysis [i](#)

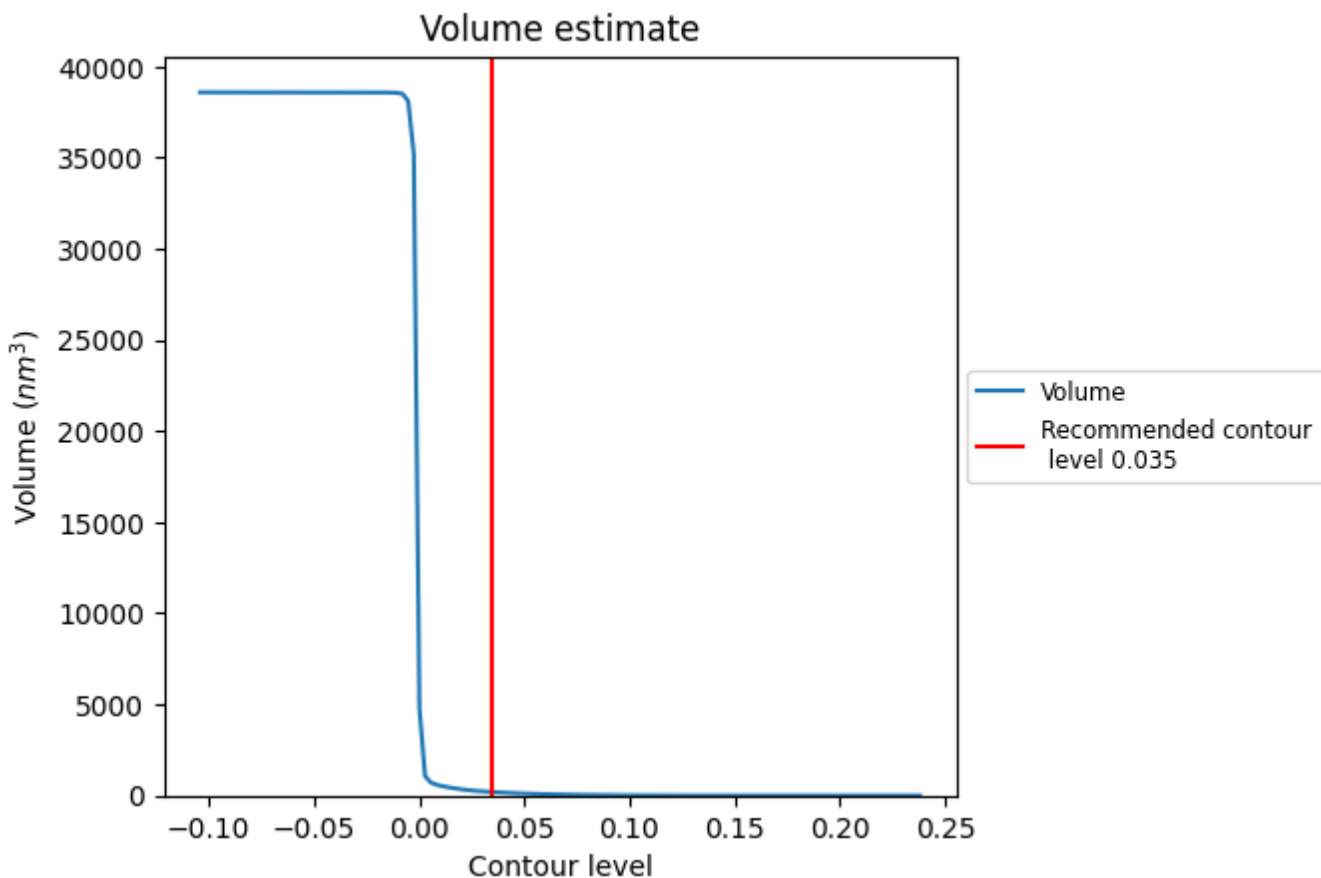
This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution [i](#)



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.

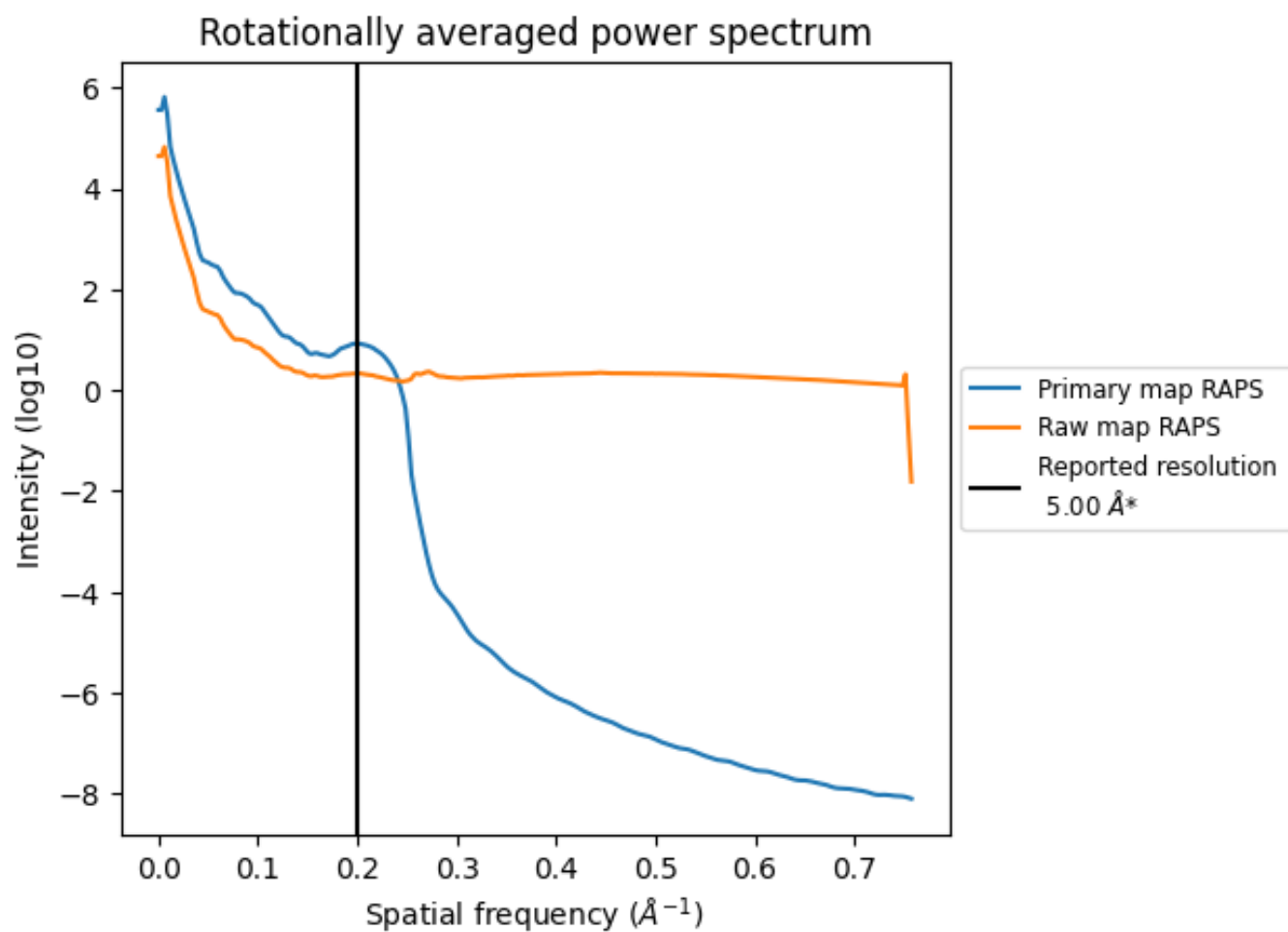
## 7.2 Volume estimate [\(i\)](#)



The volume at the recommended contour level is 192 nm<sup>3</sup>; this corresponds to an approximate mass of 174 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 i

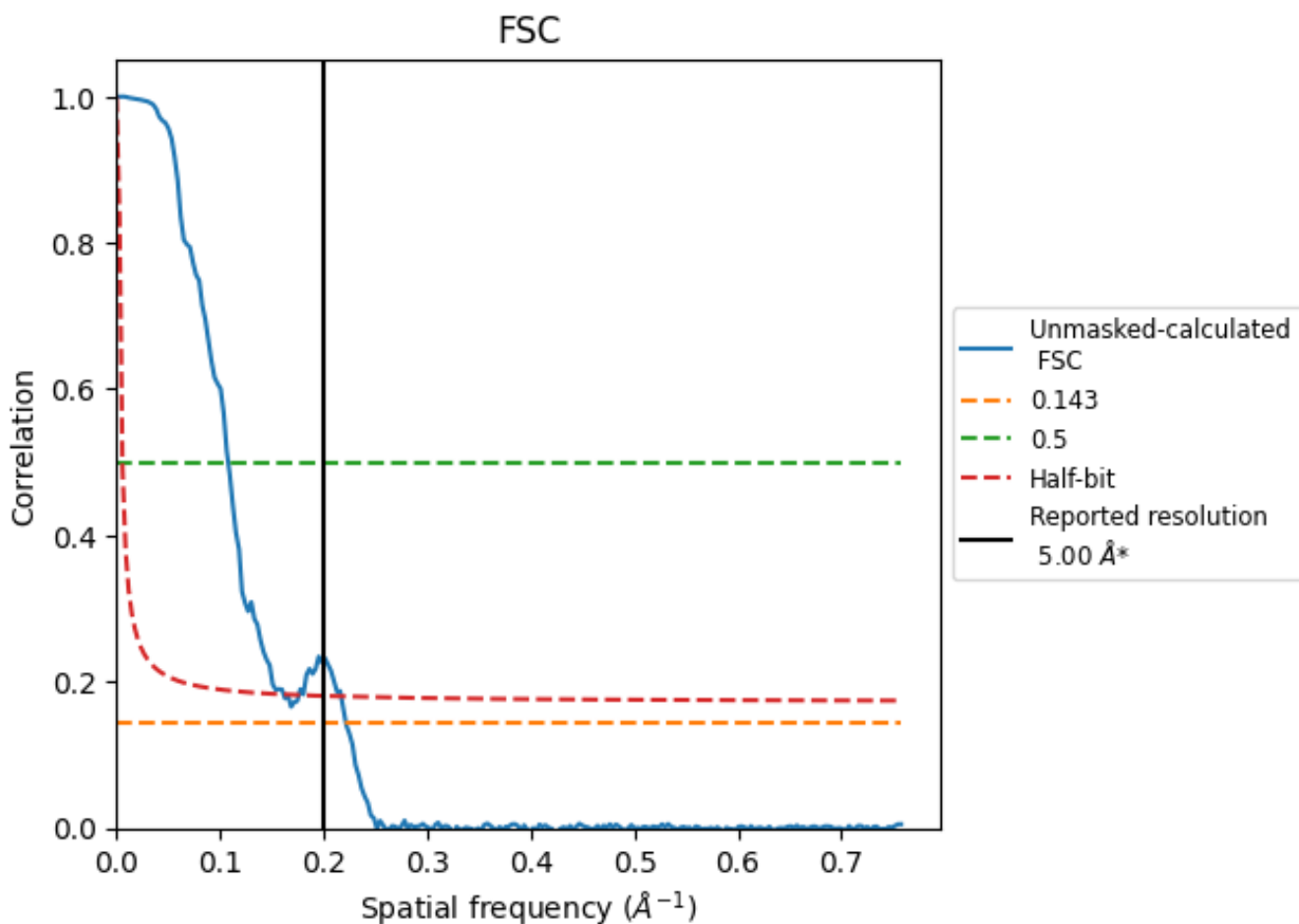


\*Reported resolution corresponds to spatial frequency of 0.200 Å<sup>-1</sup>

## 8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of 0.200 Å<sup>-1</sup>

## 8.2 Resolution estimates [i](#)

Resolution estimate (Å)	Estimation criterion (FSC cut-off)		
	0.143	0.5	Half-bit
Reported by author	5.00	-	-
Author-provided FSC curve	-	-	-
Unmasked-calculated*	4.51	9.27	6.20

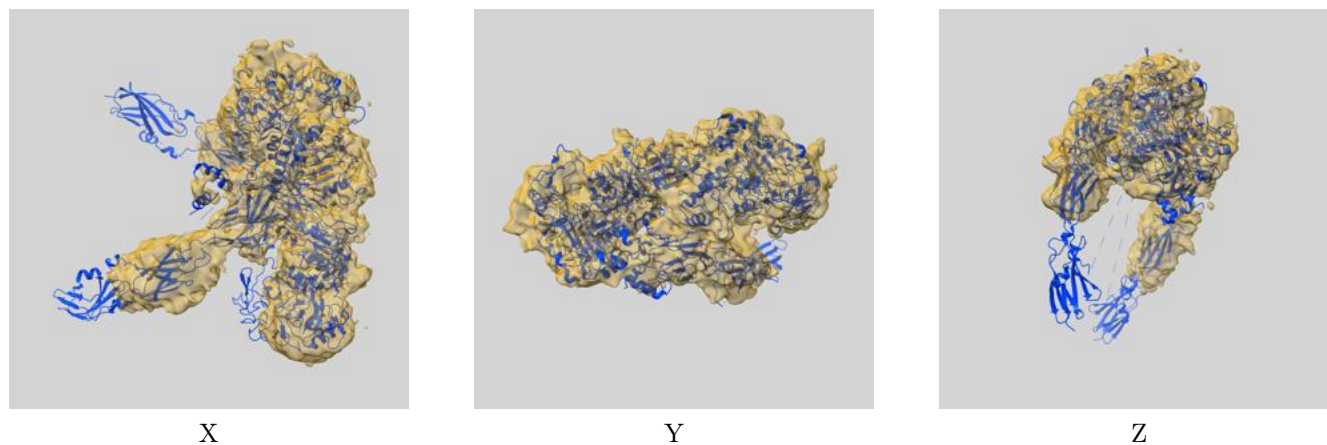
\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps.



## 9 Map-model fit [i](#)

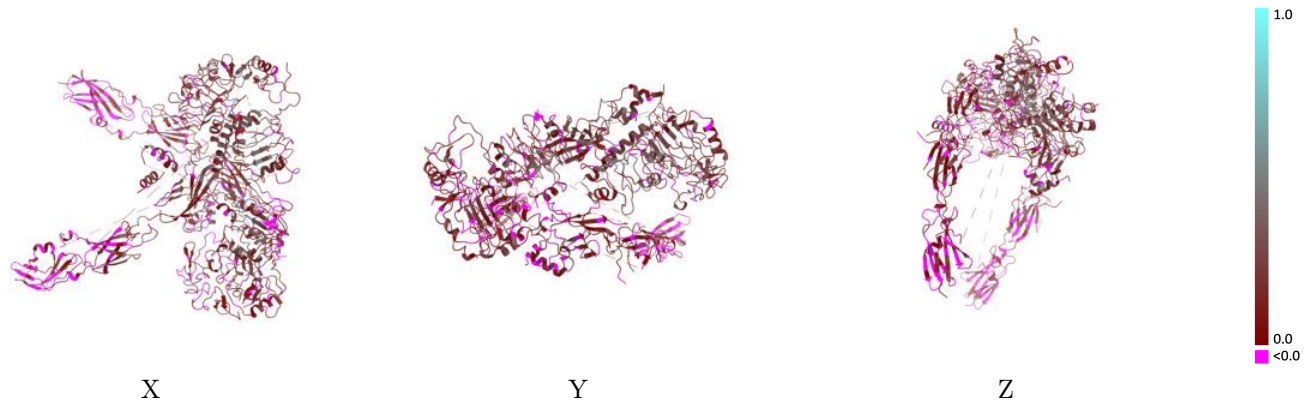
This section contains information regarding the fit between EMDB map EMD-38420 and PDB model 8XKM. Per-residue inclusion information can be found in section [3](#) on page [4](#).

### 9.1 Map-model overlay [i](#)



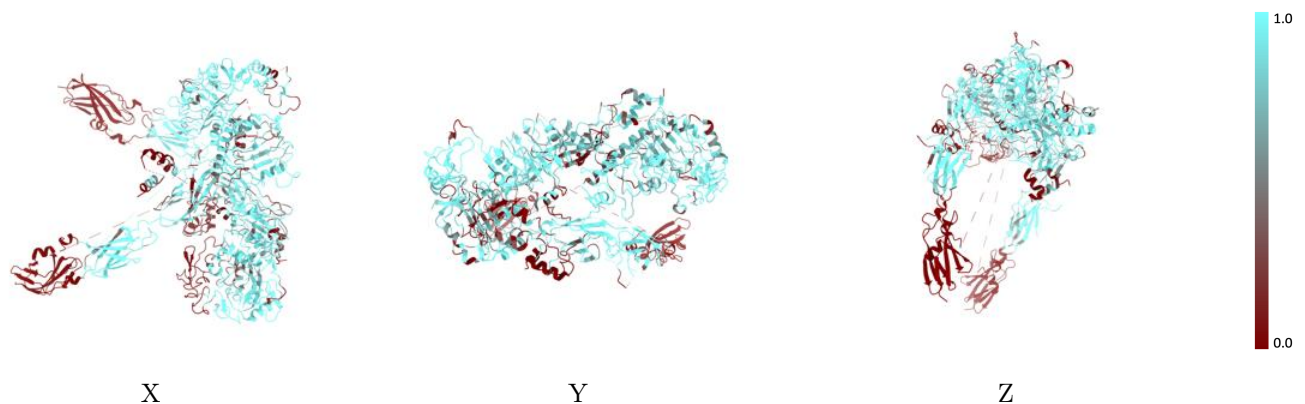
The images above show the 3D surface view of the map at the recommended contour level 0.035 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

## 9.2 Q-score mapped to coordinate model [i](#)



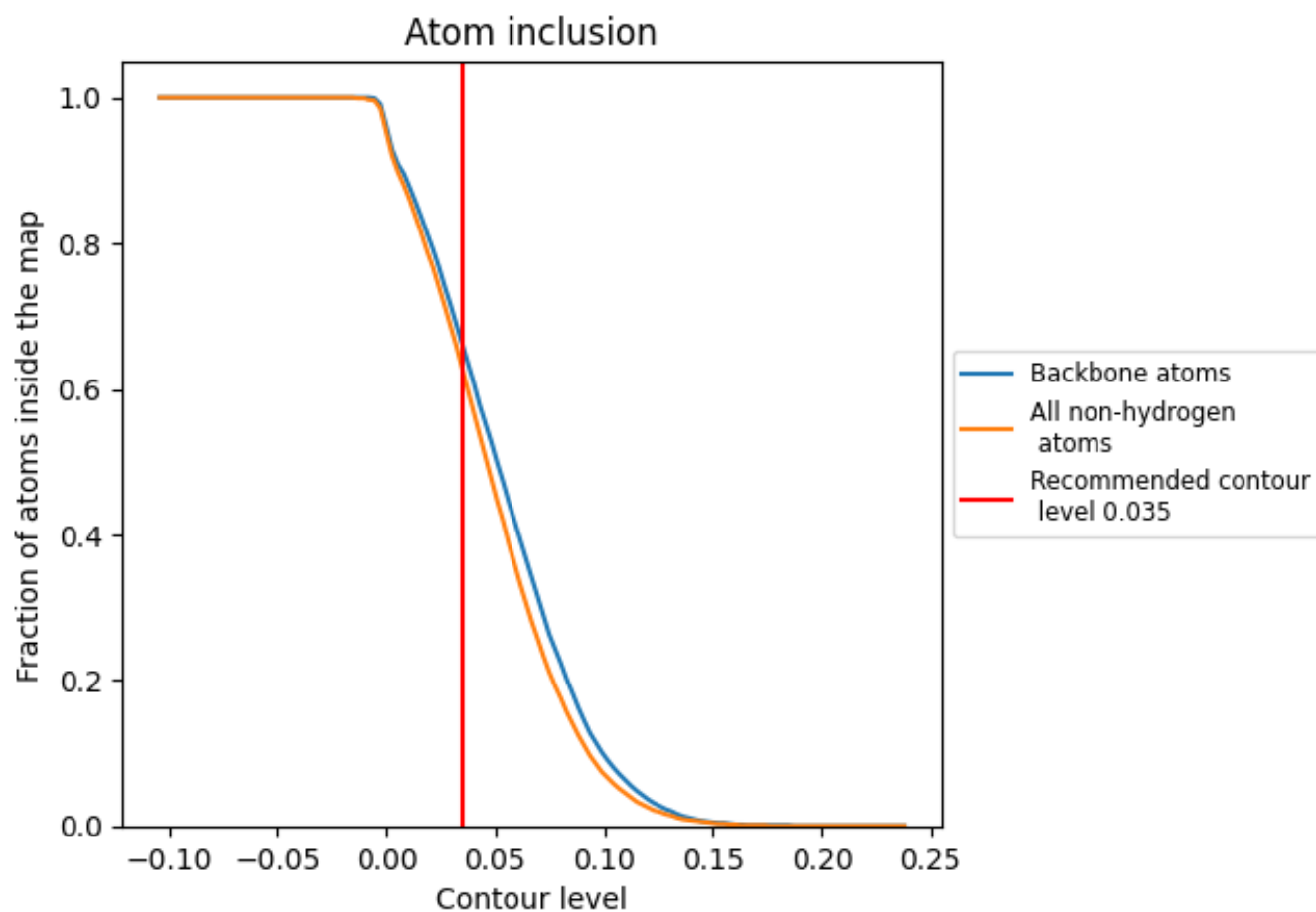
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions 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 [i](#)



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 (0.035).















## 9.4 Atom inclusion [i](#)



At the recommended contour level, 66% of all backbone atoms, 63% 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 (0.035) and Q-score for the entire model and for each chain.

Chain	Atom inclusion	Q-score
All	 0.6270	 0.1490
A	 0.6170	 0.1400
B	 0.6970	 0.1600
C	 0.5620	 0.1160
D	 0.0030	 0.0790
E	 0.6880	 0.2010
F	 0.2480	 0.1740

