



Full wwPDB X-ray Structure Validation Report ⓘ

Feb 3, 2024 – 03:41 PM EST

PDB ID : 1M2V
Title : Crystal Structure of the yeast Sec23/24 heterodimer
Authors : Bi, X.; Corpina, R.A.; Goldberg, J.
Deposited on : 2002-06-25
Resolution : 2.75 Å(reported)

This is a Full wwPDB X-ray Structure Validation Report for a publicly released PDB entry.

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<https://www.wwpdb.org/validation/2017/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

<http://www.wwpdb.org/validation/2017/FAQs#types>.

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

MolProbity : 4.02b-467
Xtrriage (Phenix) : **NOT EXECUTED**
EDS : **NOT EXECUTED**
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.36

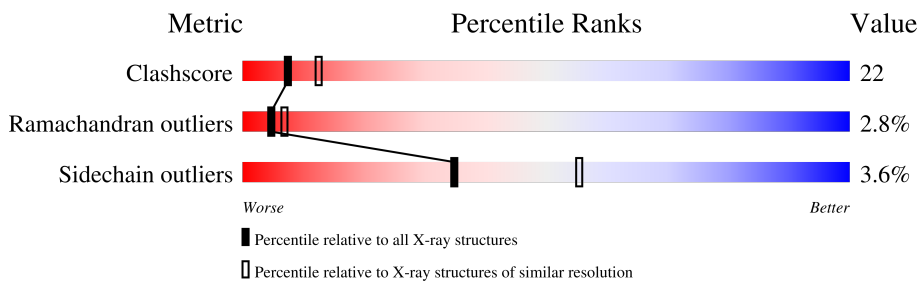
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.75 Å.

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



Metric	Whole archive (#Entries)	Similar resolution (#Entries, resolution range(Å))
Clashscore	141614	1277 (2.78-2.74)
Ramachandran outliers	138981	1257 (2.78-2.74)
Sidechain outliers	138945	1257 (2.78-2.74)

The table below summarises the geometric issues observed across the polymeric chains and their fit to the electron density. The red, orange, yellow and green segments of the lower bar indicate the fraction of residues that contain outliers for ≥ 3 , 2, 1 and 0 types of geometric quality criteria respectively. A grey segment represents the fraction of residues that are not modelled. The numeric value for each fraction is indicated below the corresponding segment, with a dot representing fractions $\leq 5\%$.

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	768	 55% 34% 8%
2	B	926	 46% 32% 19%

2 Entry composition [i](#)

There are 4 unique types of molecules in this entry. The entry contains 11577 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called protein transport protein SEC23.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	705	5574	3560	933	1059	22	0	0	0

- Molecule 2 is a protein called protein transport protein SEC24.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
2	B	748	5932	3772	1018	1104	38	0	0	0

- Molecule 3 is ZINC ION (three-letter code: ZN) (formula: Zn).

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

- Molecule 4 is water.

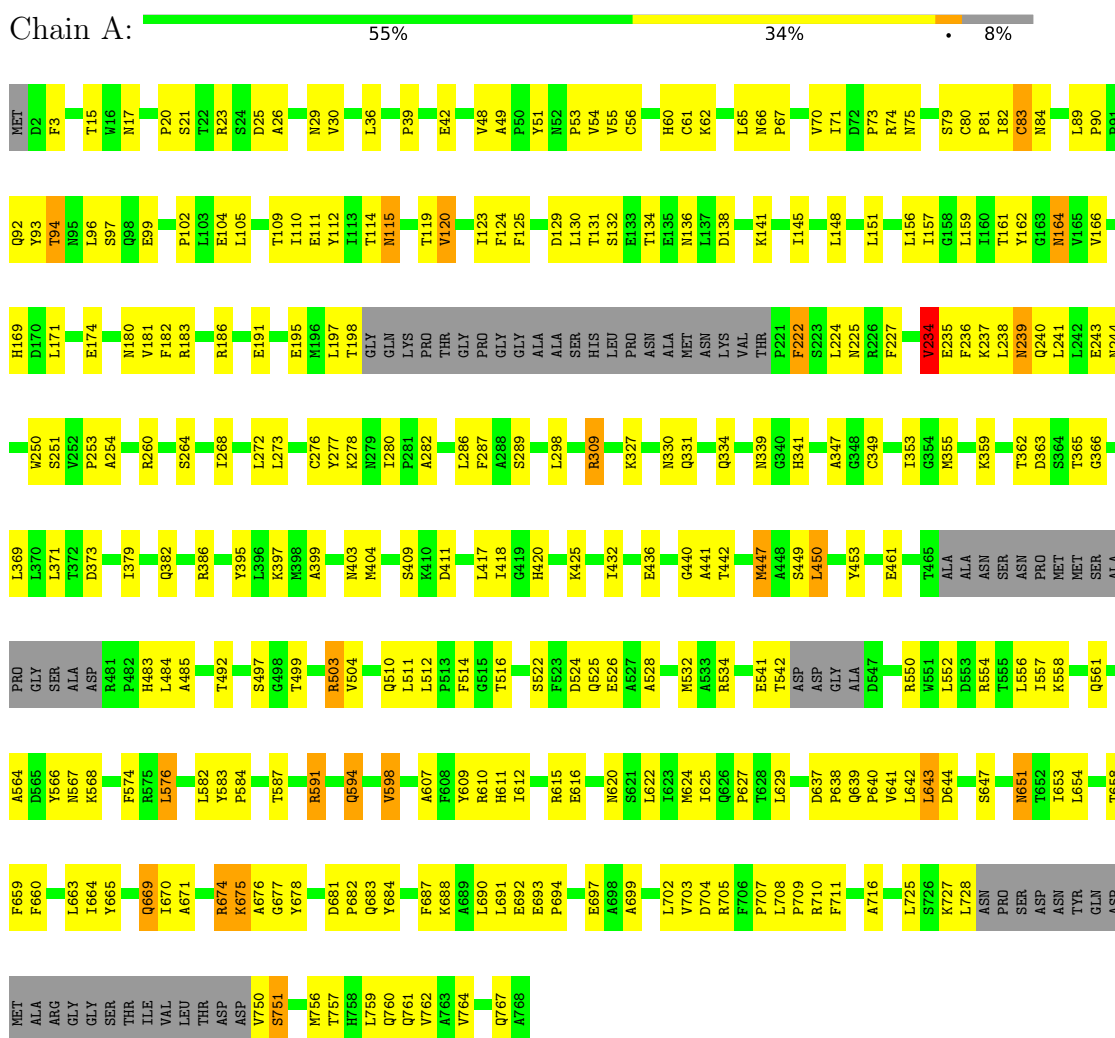
Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
4	A	34	Total	O	0	0
			34	34		
4	B	35	Total	O	0	0
			35	35		

3 Residue-property plots

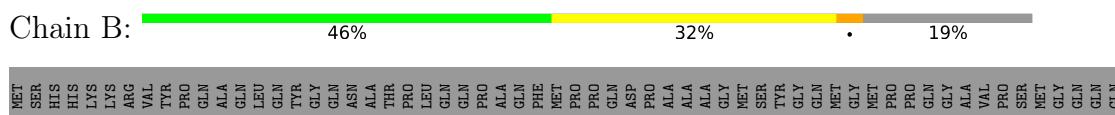
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry. Residues are color-coded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

Note EDS was not executed.

- Molecule 1: protein transport protein SEC23



- Molecule 2: protein transport protein SEC24



F61	F62	Q66	E67	Q68	Q72	R133	P134	M135	L138	D142	L143	L144	T145	E146	L147	P148	R149	P149	P150	V151	T152	D153	L154	V162	I163	P164	E165	E166	R167	M168	L169	V170	S175	N176	A177	L182	M187	K191	N192	L205	R208	P209	H212	L213	Y214	D215	D216	I217		
SER	ALA	ALA	MET	GLY	GLN	ASN	MET	R133	P134	M135	L138	D142	L143	L144	T145	E146	L147	P148	R149	P149	P150	V151	T152	D153	L154	V162	I163	P164	E165	E166	R167	M168	L169	V170	S175	N176	A177	L182	M187	K191	N192	L205	R208	P209	H212	L213	Y214	D215	D216	I217
P218	P219	N223	E224	D225	G226	L227	L228	V229	R230	R235	S236	Y237	F241	V242	T243	G248	R249	R250	R250	W251	R252	C253	R254	F255	C256	R257	N260	D261	V262	D270	P271	N272	D273	P274	R277	Y278	D279	K284	Y290	M291	A292	P293	Y296	T297	Q300	P301	P302	P303		
L309	V312	S313	Q314	I317	K318	T325	L329	L333	I336	P337	N338	E341	R342	T343	R344	I345	S346	M352	A353	Y356	I359	P360	L361	D362	SER	GLU	ASN	ASN	GLU	GLU	SER	ALA	ASP	Q372	I373	N374	M375	M376	D377	I378	F385	L386	P387	R388	P389	V393	V394			
A386	C399	R400	Q401	N402	I403	L406	I410	P411	Q412	I413	P414	Q415	S416	N417	I418	I419	T420	N421	F422	R424	A423	L424	L428	K429	A353	S430	K441	V445	T448	L449	P450	N451	L452	G453	I454	R459	E462	SER	GLY	VAL	VAL	N467	T468	S469	Q479	D581	I488	V493	Q494	I495
T496	V497	D498	L499	E504	D505	Y506	M507	D508	S516	T519	A520	G521	Q522	T523	H524	F525	Y526	P527	R624	R625	S530	N533	P534	M535	K429	S430	I637	V538	K539	E543	K546	F552	C553	V557	M558	R559	A560	S563	R567	G697	F571	R578	S579	S580	D581	L582	T587	M588	P589	
R590	F711	L712	H715	S716	L717	K718	R719	A722	F723	R724	S725	V728	P729	S618	I619	M620	Q623	R624	R625	M633	P634	T635	P744	E641	V660	S667	L668	D670	A671	R672	K677	Q680	D681	R687	A696	G697	G698	A699	P700	L701	R702	L703	C704	L707	R708	M709				
F710	F711	L712	H715	S716	L717	K718	R719	A722	F723	R724	S725	V728	P729	S618	I619	M620	Q623	R624	R625	M633	P634	T635	P744	E641	V660	S667	L668	D670	A671	R672	K677	Q680	D681	R687	A696	G697	G698	A699	P700	L701	R702	L703	C704	L707	R708	M709				
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F710	F711	L712	H715	S716	L717	K718	R719	A722	F723	R724	S725	V728	P729	S618	I619	M620	Q623	R624	R625	M633	P634	T635	P744	E641	V660	S667	L668	D670	A671	R672	K677	Q680	D681	R687	A696	G697	G698	A699	P700	L701	R702	L703	C704	L707	R708	M709				
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F710	F711	L712	H715	S716	L717	K718	R719	A722	F723	R724	S725	V728	P729	S618	I619	M620	Q623	R624	R625	M633	P634	T635	P744	E641	V660	S667	L668	D670	A671	R672	K677	Q680	D681	R687	A696	G697	G698	A699	P700	L701	R702	L703	C704	L707	R708	M709				
F710	F711	L712	H715	S716	L717	K718	R719	A722	F723	R724	S725	V728	P729	S618	I619	M620	Q623	R624	R625	M633	P634	T635	P744	E641	V660	S667	L668	D670	A671	R672	K677	Q680	D681	R687	A696	G697	G698	A699	P700	L701	R702	L703	C704	L707	R708	M709				
F710	F711	L712	H715	S716	L717	K718	R719	A722	F723	R724	S725	V728	P729	S618	I619	M620	Q623	R624	R625	M633	P634	T635	P744	E641	V660	S667	L668	D670	A671	R672	K677	Q680	D681	R687	A696	G697	G698	A699	P700	L701	R702	L703	C704	L707	R708	M709				
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F710	F711	L712	H715	S716	L717	K718	R719	A722	F723	R724	S725	V728	P729	S618	I619	M620	Q623	R624	R625	M633	P634	T635	P744	E641	V660	S667	L668	D670	A671	R672	K677	Q680	D681	R687	A696	G697	G698	A699	P700	L701	R702	L703	C704	L707	R708	M709				
F710	F711	L712	H715	S716	L717	K718	R719	A722	F723	R724	S725	V728	P729	S618	I619	M620	Q623	R624	R625	M633	P634	T635	P744	E641	V660	S667	L668	D670	A671	R672	K677	Q680	D681	R687	A696	G697	G698	A699	P700	L701	R702	L703	C704	L707	R708	M709				
F710	F711	L712	H715	S716	L717	K718	R719	A722	F723	R724	S725	V728	P729	S618	I619	M620	Q623	R624	R625	M633	P634	T635	P744	E641	V660	S667	L668	D670	A671	R672	K677	Q680	D681	R687	A696	G697	G698	A699	P700	L701	R702	L703	C704	L707	R708	M709				
F710	F711	L712	H715	S716	L717	K718	R719	A722	F723	R724	S725	V728	P729	S618	I619	M620	Q623	R624	R625	M633	P634	T635	P744	E641	V660	S667	L668	D670	A671	R672	K677	Q680	D681	R687	A696	G697	G698	A699	P700	L701	R702	L703	C704	L707	R708	M709				
F710	F711	L712	H715	S716	L717	K718	R719	A722	F723	R724	S725	V728	P729	S618	I619	M620	Q623	R624	R625	M633	P634	T635	P744	E641	V660	S667	L668	D670	A671	R672	K677	Q680	D681	R687	A696	G697	G698	A699	P700	L701	R702	L703	C704	L707	R708	M709				
F710	F711	L712	H715	S716	L717	K718	R719	A722	F723	R724	S725	V728	P729	S618	I619	M620	Q623	R624	R625	M633	P634	T635	P744	E641	V660	S667	L668	D670	A671	R672	K677	Q680	D681	R687	A696	G697	G698	A699	P700	L701	R702	L703	C704	L707	R708	M709				
F710	F711	L712	H715	S716	L717	K718	R719	A722	F723	R724	S725	V728	P729	S618	I619	M620	Q623	R624	R625	M633	P634	T635	P744	E641	V660	S667	L668	D670	A671	R672	K677	Q680	D681	R687	A696	G697	G698	A699	P700	L701	R702	L703	C704	L707	R708	M709				
F710	F711	L712	H715	S716	L717	K718	R719	A722	F723	R724	S725	V728	P729	S618	I619	M620	Q623	R624	R625	M633	P634	T635	P744	E641	V660	S667	L668	D670	A671	R672	K677	Q680	D681	R687	A696	G697	G698	A699	P700	L701	R702	L703	C704	L707	R708	M709				
F710	F711	L712	H715	S716	L717	K718	R719	A722	F723	R724	S725	V728	P729	S618	I619	M620	Q623	R624	R625	M633	P634	T635	P744	E641	V660	S667	L668	D670	A671	R672	K677	Q680	D681	R687	A696	G697	G698	A699	P700	L701	R702	L703	C704	L707	R708	M709				
F710																																																		

4 Data and refinement statistics

Xtrriage (Phenix) and EDS were not executed - this section is therefore incomplete.

Property	Value	Source
Space group	P 21 21 21	Depositor
Cell constants a, b, c, α , β , γ	90.31Å 126.37Å 180.20Å 90.00° 90.00° 90.00°	Depositor
Resolution (Å)	19.96 – 2.75	Depositor
% Data completeness (in resolution range)	91.2 (19.96-2.75)	Depositor
R_{merge}	0.06	Depositor
R_{sym}	(Not available)	Depositor
Refinement program	CNS 1.0	Depositor
R, R_{free}	0.210 , 0.257	Depositor
Estimated twinning fraction	No twinning to report.	Xtrriage
Total number of atoms	11577	wwPDB-VP
Average B, all atoms (Å ²)	52.0	wwPDB-VP

5 Model quality [i](#)

5.1 Standard geometry [i](#)

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

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	0.40	0/5706	0.66	1/7765 (0.0%)
2	B	0.39	0/6054	0.67	1/8214 (0.0%)
All	All	0.39	0/11760	0.66	2/15979 (0.0%)

There are no bond length outliers.

All (2) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	677	GLY	N-CA-C	6.93	130.42	113.10
2	B	768	LEU	CA-CB-CG	5.33	127.57	115.30

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	5574	0	5475	230	0
2	B	5932	0	5958	282	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0
4	A	34	0	0	5	0
4	B	35	0	0	3	0
All	All	11577	0	11433	510	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 22.

All (510) 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:B:907:ILE:HG22	2:B:908:LEU:HG	1.35	1.08
2:B:147:LEU:HB3	2:B:148:PRO:HD2	1.16	1.08
2:B:147:LEU:CB	2:B:148:PRO:HD2	1.97	0.95
1:A:651:ASN:H	1:A:651:ASN:HD22	0.96	0.94
1:A:359:LYS:HD2	1:A:607:ALA:HB1	1.49	0.92
1:A:669:GLN:HE21	1:A:669:GLN:HA	1.33	0.92
1:A:399:ALA:HB3	1:A:450:LEU:HD13	1.52	0.90
2:B:441:LYS:HE2	2:B:498:ASP:OD2	1.72	0.89
2:B:147:LEU:HB3	2:B:148:PRO:CD	2.02	0.88
2:B:459:ARG:HH11	2:B:459:ARG:HG2	1.39	0.87
2:B:375:MET:HE1	2:B:413:ILE:HG21	1.57	0.86
1:A:379:ILE:HD12	1:A:379:ILE:H	1.42	0.84
2:B:333:LEU:HB2	2:B:400:ARG:NH2	1.93	0.83
2:B:352:ASN:HD22	2:B:353:ALA:N	1.75	0.82
1:A:651:ASN:H	1:A:651:ASN:ND2	1.75	0.82
1:A:70:VAL:HB	1:A:79:SER:HB2	1.59	0.82
1:A:485:ALA:HB2	1:A:511:LEU:HD11	1.60	0.81
1:A:119:THR:HG21	1:A:280:ILE:HD12	1.61	0.80
2:B:147:LEU:HD13	2:B:914:ARG:NH1	1.97	0.79
1:A:157:ILE:HG21	1:A:238:LEU:HD11	1.65	0.79
2:B:147:LEU:O	2:B:148:PRO:C	2.21	0.79
1:A:550:ARG:CD	1:A:554:ARG:HH21	1.95	0.79
2:B:680:GLN:HG3	2:B:920:MET:HE1	1.65	0.78
1:A:96:LEU:HD22	1:A:102:PRO:HD3	1.65	0.77
2:B:919:ILE:O	2:B:923:ARG:HG3	1.83	0.77
2:B:296:TYR:O	2:B:624:ARG:NH1	2.19	0.76
1:A:703:VAL:O	1:A:704:ASP:HB2	1.85	0.76
1:A:651:ASN:HD22	1:A:651:ASN:N	1.78	0.76
1:A:750:VAL:HG12	1:A:751:SER:H	1.49	0.76
1:A:15:THR:HG22	1:A:528:ALA:HA	1.68	0.75
1:A:239:ASN:O	1:A:243:GLU:HG3	1.87	0.75
2:B:660:VAL:HG11	2:B:741:GLU:HB3	1.68	0.74
2:B:709:MET:HE1	2:B:712:LEU:HD23	1.69	0.74
2:B:142:ASP:CG	2:B:700:PRO:HB3	2.08	0.73
1:A:432:ILE:HD13	1:A:442:THR:HA	1.69	0.73
2:B:567:ARG:HH21	2:B:599:ASN:HD22	1.36	0.72
1:A:665:TYR:OH	1:A:716:ALA:HB2	1.90	0.72

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:226:GLY:O	2:B:293:PRO:HG3	1.90	0.72
2:B:557:VAL:HG13	2:B:582:LEU:HD11	1.70	0.71
2:B:225:ASP:OD1	2:B:227:LEU:HB3	1.90	0.71
1:A:688:LYS:O	1:A:692:GLU:HG2	1.91	0.71
2:B:142:ASP:O	2:B:146:GLU:HG2	1.91	0.70
1:A:403:ASN:HB3	1:A:492:THR:HG23	1.74	0.70
2:B:696:ALA:HB2	2:B:702:ARG:HH21	1.57	0.70
2:B:801:LEU:HD11	2:B:808:LEU:HD22	1.74	0.70
2:B:493:VAL:HG23	2:B:495:ILE:HG13	1.73	0.70
1:A:557:ILE:O	1:A:561:GLN:HG3	1.92	0.69
1:A:681:ASP:HB3	1:A:684:TYR:HD1	1.55	0.69
2:B:154:LEU:HG	2:B:709:MET:HE2	1.74	0.69
1:A:669:GLN:HE21	1:A:669:GLN:CA	2.04	0.69
2:B:699:ALA:HB1	2:B:921:LYS:NZ	2.08	0.69
1:A:80:CYS:O	1:A:84:ASN:HA	1.93	0.69
2:B:279:ASP:HA	2:B:284:LYS:HE3	1.74	0.69
1:A:30:VAL:HG22	1:A:558:LYS:HD3	1.74	0.68
2:B:768:LEU:HG	2:B:769:PRO:HD2	1.73	0.68
1:A:550:ARG:CG	1:A:554:ARG:HH21	2.07	0.68
1:A:102:PRO:HD2	1:A:105:LEU:HD12	1.75	0.68
2:B:459:ARG:HG2	2:B:459:ARG:NH1	2.07	0.67
1:A:395:TYR:CD2	1:A:497:SER:HA	2.29	0.67
2:B:764:ASP:HA	2:B:851:ARG:HH22	1.60	0.67
2:B:766:ALA:O	2:B:768:LEU:N	2.26	0.67
1:A:669:GLN:HA	1:A:669:GLN:NE2	2.09	0.67
2:B:312:VAL:HG11	2:B:414:PHE:CD2	2.30	0.67
1:A:359:LYS:HD2	1:A:607:ALA:CB	2.25	0.66
1:A:512:LEU:HD13	1:A:516:THR:HG21	1.77	0.66
2:B:303:PRO:HG3	2:B:342:ARG:CZ	2.25	0.66
1:A:74:ARG:HG3	1:A:75:ASN:H	1.61	0.66
2:B:312:VAL:HG11	2:B:414:PHE:CG	2.31	0.66
2:B:362:ASP:OD1	2:B:401:GLN:HB2	1.95	0.65
2:B:812:MET:SD	2:B:820:LEU:HD22	2.36	0.65
2:B:750:LYS:HE3	2:B:805:GLY:HA2	1.77	0.65
2:B:399:CYS:O	2:B:403:ILE:HG13	1.97	0.65
2:B:672:ARG:HH11	2:B:725:SER:HB3	1.62	0.65
2:B:297:THR:HG22	2:B:624:ARG:HD3	1.79	0.65
2:B:422:PHE:H	2:B:451:ASN:HB3	1.61	0.65
2:B:525:PHE:CE2	2:B:527:PRO:HG3	2.33	0.64
1:A:616:GLU:HG3	1:A:620:ASN:HB2	1.79	0.64
2:B:920:MET:HE3	2:B:920:MET:HA	1.79	0.64

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:149:PRO:O	2:B:151:ILE:HG12	1.97	0.64
1:A:171:LEU:HA	1:A:237:LYS:HE2	1.80	0.64
1:A:541:GLU:OE1	1:A:610:ARG:HD3	1.98	0.64
1:A:671:ALA:O	1:A:675:LYS:HB2	1.96	0.64
2:B:856:ILE:HD13	2:B:871:LEU:HD22	1.79	0.64
1:A:699:ALA:O	1:A:703:VAL:HG23	1.98	0.64
2:B:817:VAL:C	2:B:819:ALA:H	2.01	0.64
2:B:818:PRO:C	2:B:820:LEU:H	2.00	0.64
1:A:612:ILE:HG12	4:A:826:HOH:O	1.97	0.64
2:B:914:ARG:O	2:B:918:GLN:HG2	1.98	0.64
2:B:789:ALA:O	2:B:904:GLU:HB2	1.98	0.64
1:A:450:LEU:N	1:A:450:LEU:HD12	2.12	0.63
2:B:147:LEU:HD13	2:B:914:ARG:HH12	1.61	0.63
2:B:255:PHE:CZ	2:B:612:GLN:HB2	2.33	0.63
1:A:379:ILE:HD12	1:A:379:ILE:N	2.10	0.63
2:B:312:VAL:HG12	2:B:312:VAL:O	1.99	0.63
1:A:278:LYS:HE3	1:A:339:ASN:ND2	2.14	0.62
2:B:680:GLN:CG	2:B:920:MET:HE1	2.28	0.62
2:B:750:LYS:HD2	2:B:803:ASP:OD2	1.98	0.62
2:B:352:ASN:HD22	2:B:353:ALA:H	1.47	0.62
1:A:132:SER:HB3	1:A:289:SER:OG	2.00	0.62
1:A:379:ILE:H	1:A:379:ILE:CD1	2.10	0.62
2:B:808:LEU:O	2:B:871:LEU:HD12	1.98	0.61
2:B:449:LEU:HD12	2:B:450:PRO:HD2	1.81	0.61
2:B:539:LYS:HA	2:B:868:TYR:CD2	2.34	0.61
1:A:550:ARG:HG2	1:A:554:ARG:HH21	1.66	0.61
1:A:767:GLN:HB3	4:A:815:HOH:O	2.01	0.61
1:A:225:ASN:OD1	1:A:276:CYS:HB2	2.00	0.61
2:B:424:LEU:HG	2:B:428:LEU:HD22	1.81	0.61
1:A:250:TRP:CE3	2:B:389:PRO:HB3	2.36	0.60
2:B:209:PRO:HG3	2:B:558:MET:HE1	1.82	0.60
2:B:668:LEU:HG	2:B:672:ARG:HH21	1.67	0.60
2:B:539:LYS:HE3	2:B:543:GLU:OE2	2.02	0.60
2:B:687:LYS:NZ	2:B:925:SER:HA	2.15	0.60
2:B:524:HIS:CE1	2:B:866:ILE:HD11	2.37	0.60
2:B:209:PRO:HG3	2:B:558:MET:CE	2.32	0.60
1:A:182:PHE:HZ	1:A:197:LEU:HD21	1.67	0.59
1:A:653:ILE:HD11	1:A:691:LEU:HD23	1.83	0.59
1:A:114:THR:O	1:A:115:ASN:O	2.21	0.59
2:B:270:ASP:HB2	2:B:273:ASP:HB3	1.83	0.59
2:B:205:LEU:HD13	2:B:611:VAL:HG11	1.83	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:133:ARG:NH2	2:B:635:THR:O	2.36	0.59
2:B:333:LEU:HB2	2:B:400:ARG:CZ	2.32	0.59
2:B:352:ASN:ND2	2:B:353:ALA:N	2.49	0.59
2:B:711:PRO:HD2	4:B:976:HOH:O	2.00	0.59
2:B:915:GLU:O	2:B:919:ILE:HG13	2.02	0.59
1:A:157:ILE:HG21	1:A:238:LEU:CD1	2.32	0.59
1:A:417:LEU:HD23	1:A:418:ILE:N	2.18	0.59
2:B:667:SER:HB3	2:B:670:ASP:HB2	1.85	0.59
1:A:525:GLN:OE1	1:A:582:LEU:HB2	2.03	0.59
2:B:764:ASP:HA	2:B:851:ARG:NH2	2.17	0.59
1:A:330:ASN:O	1:A:334:GLN:HG3	2.03	0.58
1:A:74:ARG:HG3	1:A:75:ASN:N	2.16	0.58
2:B:272:ASN:O	2:B:274:PRO:HD3	2.04	0.58
2:B:228:ILE:HD13	2:B:290:TYR:CD2	2.38	0.58
2:B:728:VAL:HG21	2:B:733:ARG:NH2	2.18	0.58
2:B:147:LEU:CB	2:B:148:PRO:CD	2.74	0.58
2:B:135:MET:HE2	2:B:641:GLU:OE1	2.03	0.58
2:B:729:PRO:HB2	2:B:732:HIS:HD2	1.68	0.58
2:B:378:ILE:HD11	2:B:387:PRO:HG3	1.86	0.58
1:A:703:VAL:O	1:A:704:ASP:CB	2.50	0.57
2:B:593:SER:HB2	2:B:744:PRO:HA	1.86	0.57
2:B:872:TYR:CE2	2:B:897:TRP:HZ3	2.23	0.57
2:B:849:ASN:OD1	2:B:853:ARG:HD3	2.04	0.57
1:A:557:ILE:HD13	1:A:762:VAL:HG11	1.86	0.57
2:B:563:SER:HB3	2:B:610:TYR:H	1.68	0.57
1:A:129:ASP:OD2	1:A:260:ARG:HD3	2.05	0.57
2:B:138:LEU:HD22	2:B:704:CYS:HB3	1.85	0.57
2:B:672:ARG:NH1	2:B:725:SER:HB3	2.19	0.57
2:B:303:PRO:HG3	2:B:342:ARG:NH1	2.19	0.57
1:A:25:ASP:OD1	1:A:514:PHE:HB2	2.05	0.57
1:A:159:LEU:HG	1:A:169:HIS:HD2	1.69	0.57
2:B:147:LEU:HD13	2:B:914:ARG:CZ	2.34	0.57
2:B:696:ALA:CB	2:B:702:ARG:HH21	2.18	0.57
1:A:61:CYS:SG	1:A:83:CYS:HB3	2.45	0.56
1:A:616:GLU:CG	1:A:620:ASN:HB2	2.35	0.56
2:B:802:ILE:O	2:B:808:LEU:HD23	2.05	0.56
1:A:132:SER:HB3	1:A:289:SER:CB	2.35	0.56
1:A:347:ALA:HB2	1:A:353:ILE:HD13	1.87	0.56
1:A:659:PHE:O	1:A:709:PRO:HB3	2.06	0.56
2:B:225:ASP:HB3	4:B:984:HOH:O	2.06	0.56
1:A:166:VAL:HG22	1:A:182:PHE:HB2	1.87	0.55

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:526:GLU:HB3	1:A:622:LEU:HD11	1.87	0.55
2:B:677:LYS:HG2	2:B:681:ASP:OD2	2.07	0.55
1:A:131:THR:OG1	1:A:260:ARG:NH1	2.38	0.55
2:B:375:MET:CE	2:B:413:ILE:HG21	2.31	0.55
2:B:809:PHE:CD2	2:B:898:ALA:HB2	2.42	0.55
1:A:240:GLN:O	1:A:244:ASN:ND2	2.40	0.54
1:A:399:ALA:HB3	1:A:450:LEU:CD1	2.29	0.54
1:A:757:THR:O	1:A:761:GLN:HG3	2.07	0.54
2:B:162:VAL:O	2:B:634:PRO:HG3	2.08	0.54
2:B:488:ILE:HD11	2:B:578:ARG:HH22	1.71	0.54
2:B:801:LEU:HD12	2:B:809:PHE:O	2.07	0.54
2:B:822:PHE:CD1	2:B:822:PHE:N	2.74	0.54
1:A:681:ASP:HB3	1:A:684:TYR:CD1	2.39	0.54
1:A:327:LYS:O	1:A:331:GLN:HG3	2.07	0.54
2:B:216:ASP:O	2:B:219:PRO:HD3	2.07	0.54
2:B:277:ARG:O	2:B:279:ASP:N	2.41	0.54
1:A:120:VAL:HG21	1:A:277:TYR:CE2	2.43	0.54
1:A:420:HIS:CE1	1:A:615:ARG:HB2	2.43	0.54
2:B:410:ILE:HB	2:B:411:PRO:HD3	1.89	0.54
1:A:224:LEU:HD22	1:A:272:LEU:CD1	2.38	0.54
2:B:191:LYS:HE3	2:B:604:ILE:O	2.08	0.54
2:B:352:ASN:HA	2:B:452:LEU:HD23	1.90	0.54
2:B:361:LEU:HD22	2:B:398:ALA:HB1	1.90	0.54
1:A:17:ASN:HB2	1:A:522:SER:HB2	1.90	0.54
1:A:528:ALA:O	1:A:532:MET:HG2	2.08	0.54
2:B:146:GLU:O	2:B:147:LEU:O	2.26	0.54
1:A:132:SER:HB2	1:A:136:ASN:HD22	1.72	0.53
1:A:159:LEU:HG	1:A:169:HIS:CD2	2.43	0.53
1:A:164:ASN:HB2	1:A:250:TRP:CD1	2.43	0.53
1:A:42:GLU:OE2	1:A:397:LYS:HE2	2.09	0.53
1:A:432:ILE:CD1	1:A:442:THR:HA	2.37	0.53
2:B:429:LYS:HD2	2:B:454:ILE:CD1	2.38	0.53
2:B:601:ASP:OD1	2:B:602:GLU:N	2.41	0.53
1:A:612:ILE:HD12	1:A:660:PHE:CE2	2.43	0.53
2:B:496:THR:HA	2:B:519:THR:HB	1.89	0.53
2:B:699:ALA:N	2:B:700:PRO:HD3	2.24	0.53
2:B:250:ARG:HB3	2:B:260:ASN:O	2.09	0.53
2:B:819:ALA:HA	2:B:822:PHE:CE1	2.44	0.53
1:A:90:PRO:HG2	1:A:93:TYR:CD2	2.44	0.53
2:B:346:SER:OG	2:B:393:VAL:HG22	2.09	0.53
2:B:754:PRO:HG3	2:B:901:THR:O	2.09	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:693:GLU:O	1:A:697:GLU:HG2	2.09	0.52
2:B:303:PRO:HG3	2:B:342:ARG:NH2	2.24	0.52
2:B:498:ASP:C	2:B:499:LEU:HD12	2.30	0.52
1:A:71:ILE:O	1:A:73:PRO:HD3	2.09	0.52
2:B:699:ALA:HB1	2:B:921:LYS:HZ1	1.74	0.52
2:B:822:PHE:N	2:B:822:PHE:HD1	2.08	0.52
2:B:142:ASP:OD2	2:B:700:PRO:HB3	2.08	0.52
2:B:406:LEU:O	2:B:410:ILE:HG13	2.10	0.52
1:A:550:ARG:HG3	1:A:550:ARG:HH11	1.74	0.52
1:A:591:ARG:HG3	1:A:591:ARG:HH11	1.75	0.52
2:B:533:ASN:HB3	2:B:536:ASP:OD2	2.10	0.52
1:A:48:VAL:HA	1:A:111:GLU:O	2.10	0.52
1:A:109:THR:HA	1:A:504:VAL:O	2.10	0.52
1:A:417:LEU:HD23	1:A:417:LEU:C	2.30	0.52
1:A:550:ARG:CD	1:A:554:ARG:NH2	2.71	0.52
1:A:574:PHE:CE2	1:A:576:LEU:HD22	2.44	0.52
2:B:715:HIS:HB2	2:B:916:PHE:CE2	2.45	0.52
2:B:722:ALA:HB1	2:B:737:LEU:HD23	1.92	0.52
1:A:403:ASN:HB3	1:A:492:THR:CG2	2.40	0.51
2:B:680:GLN:CB	2:B:920:MET:HE1	2.40	0.51
2:B:817:VAL:O	2:B:819:ALA:N	2.42	0.51
2:B:279:ASP:CA	2:B:284:LYS:HE3	2.39	0.51
2:B:420:THR:HG22	2:B:420:THR:O	2.10	0.51
2:B:906:LYS:O	2:B:907:ILE:HD13	2.10	0.51
1:A:550:ARG:HD3	1:A:554:ARG:HH21	1.74	0.51
1:A:235:GLU:O	1:A:239:ASN:HB2	2.11	0.51
2:B:162:VAL:O	2:B:163:ILE:HD13	2.10	0.51
2:B:519:THR:O	2:B:520:ALA:HB3	2.10	0.51
1:A:273:LEU:HB3	1:A:341:HIS:CE1	2.46	0.51
2:B:817:VAL:C	2:B:819:ALA:N	2.64	0.51
2:B:516:SER:HB2	2:B:521:GLY:C	2.31	0.51
1:A:198:THR:HG22	1:A:222:PHE:O	2.11	0.51
1:A:366:GLY:HA3	1:A:449:SER:O	2.11	0.51
2:B:722:ALA:HB1	2:B:737:LEU:CD2	2.41	0.51
1:A:674:ARG:O	1:A:676:ALA:N	2.44	0.51
2:B:704:CYS:SG	2:B:707:LEU:HD12	2.50	0.51
2:B:417:ASN:OD1	2:B:419:ILE:N	2.41	0.50
2:B:516:SER:HB2	2:B:522:GLN:N	2.26	0.50
2:B:860:ARG:HG2	2:B:869:GLN:HB2	1.93	0.50
2:B:250:ARG:HA	2:B:262:VAL:HG23	1.93	0.50
2:B:372:GLN:HG2	2:B:373:ILE:N	2.26	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:448:THR:HG22	2:B:449:LEU:O	2.11	0.50
2:B:768:LEU:CG	2:B:769:PRO:HD2	2.40	0.50
1:A:3:PHE:CE1	1:A:524:ASP:HA	2.46	0.50
1:A:395:TYR:CE2	1:A:497:SER:HA	2.46	0.50
2:B:710:PHE:HB3	2:B:711:PRO:HD3	1.94	0.50
1:A:707:PRO:HD3	4:A:826:HOH:O	2.12	0.50
1:A:94:THR:HG22	1:A:94:THR:O	2.12	0.50
2:B:248:GLY:O	2:B:277:ARG:NH2	2.33	0.50
2:B:715:HIS:CE1	2:B:719:LYS:HE3	2.46	0.50
1:A:97:SER:OG	1:A:99:GLU:HG2	2.12	0.50
1:A:120:VAL:HG21	1:A:277:TYR:HE2	1.76	0.50
2:B:499:LEU:HD12	2:B:499:LEU:N	2.27	0.49
1:A:264:SER:O	1:A:268:ILE:HG12	2.12	0.49
1:A:550:ARG:HG2	1:A:554:ARG:HE	1.76	0.49
2:B:818:PRO:C	2:B:820:LEU:N	2.66	0.49
1:A:371:LEU:O	1:A:710:ARG:NH2	2.44	0.49
2:B:504:GLU:OE2	2:B:530:SER:HB3	2.12	0.49
1:A:693:GLU:N	1:A:694:PRO:HD2	2.27	0.49
2:B:794:PHE:HA	2:B:800:TYR:CZ	2.48	0.49
1:A:615:ARG:NH1	4:A:826:HOH:O	2.45	0.49
1:A:664:ILE:HD12	1:A:711:PHE:CZ	2.47	0.49
1:A:53:PRO:HG3	1:A:112:TYR:CG	2.48	0.49
1:A:725:LEU:C	1:A:727:LYS:H	2.16	0.49
2:B:855:ILE:O	2:B:858:GLN:HB3	2.12	0.49
2:B:150:PRO:HG2	2:B:708:ARG:HH11	1.77	0.49
2:B:423:ALA:HA	2:B:452:LEU:O	2.13	0.49
2:B:589:PRO:O	2:B:590:ARG:HD3	2.13	0.49
2:B:907:ILE:HG22	2:B:908:LEU:N	2.27	0.49
2:B:911:GLU:HG3	2:B:919:ILE:HD11	1.94	0.49
1:A:23:ARG:HH21	1:A:461:GLU:CD	2.16	0.48
1:A:39:PRO:HG3	1:A:404:MET:HE1	1.94	0.48
2:B:338:ASN:OD1	2:B:341:GLU:HA	2.13	0.48
1:A:54:VAL:HG21	1:A:93:TYR:HE2	1.78	0.48
1:A:659:PHE:HA	1:A:705:ARG:NH1	2.29	0.48
1:A:110:ILE:HG12	1:A:111:GLU:N	2.29	0.48
1:A:484:LEU:HD23	1:A:510:GLN:HA	1.94	0.48
2:B:356:TYR:OH	2:B:430:SER:HB3	2.13	0.48
2:B:667:SER:HB3	2:B:670:ASP:CB	2.44	0.48
2:B:488:ILE:HD11	2:B:578:ARG:NH2	2.28	0.48
2:B:703:LEU:HG	2:B:704:CYS:H	1.78	0.48
2:B:215:ASP:O	2:B:219:PRO:HG3	2.13	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:764:ASP:CA	2:B:851:ARG:HH22	2.24	0.48
1:A:286:LEU:HD12	1:A:287:PHE:N	2.28	0.48
1:A:556:LEU:HD22	1:A:587:THR:HG21	1.95	0.48
1:A:664:ILE:HD12	1:A:711:PHE:HZ	1.78	0.48
2:B:796:ARG:NH1	2:B:815:ASP:OD2	2.47	0.48
1:A:624:MET:HG2	1:A:660:PHE:CE1	2.48	0.48
2:B:192:ASN:HA	2:B:603:SER:HA	1.96	0.48
2:B:312:VAL:O	2:B:312:VAL:CG1	2.61	0.48
2:B:352:ASN:HD22	2:B:352:ASN:N	2.11	0.48
1:A:251:SER:O	1:A:253:PRO:HD3	2.14	0.47
2:B:230:ARG:HD3	2:B:237:TYR:CD2	2.49	0.47
2:B:795:GLU:C	2:B:797:TYR:H	2.17	0.47
2:B:133:ARG:NE	2:B:135:MET:SD	2.87	0.47
2:B:168:MET:SD	2:B:175:SER:OG	2.69	0.47
2:B:534:PRO:O	2:B:538:VAL:HG23	2.13	0.47
1:A:542:THR:HG22	1:A:542:THR:O	2.15	0.47
1:A:612:ILE:HD12	1:A:660:PHE:HE2	1.79	0.47
1:A:759:LEU:O	1:A:759:LEU:HD12	2.15	0.47
2:B:715:HIS:NE2	2:B:719:LYS:HE3	2.30	0.47
2:B:795:GLU:HB3	2:B:797:TYR:CE2	2.49	0.47
2:B:135:MET:HE1	2:B:634:PRO:HB2	1.97	0.47
2:B:177:ALA:HB1	2:B:182:ILE:HG22	1.96	0.47
2:B:378:ILE:CD1	2:B:387:PRO:HG3	2.44	0.47
1:A:61:CYS:O	1:A:62:LYS:HB2	2.15	0.47
1:A:425:LYS:NZ	1:A:441:ALA:HB3	2.29	0.47
2:B:277:ARG:C	2:B:279:ASP:H	2.18	0.47
1:A:222:PHE:CD1	1:A:222:PHE:N	2.82	0.47
1:A:224:LEU:HD22	1:A:272:LEU:HD12	1.95	0.47
2:B:249:ARG:O	2:B:250:ARG:HG2	2.15	0.47
2:B:325:THR:OG1	2:B:445:VAL:HG11	2.15	0.47
2:B:848:PHE:O	2:B:851:ARG:HB2	2.15	0.47
2:B:205:LEU:CD1	2:B:611:VAL:HG11	2.44	0.47
2:B:352:ASN:ND2	2:B:352:ASN:C	2.67	0.47
2:B:699:ALA:HB1	2:B:921:LYS:HZ2	1.80	0.47
2:B:687:LYS:HZ2	2:B:925:SER:HA	1.80	0.46
1:A:702:LEU:CD2	1:A:709:PRO:HD2	2.45	0.46
2:B:388:ARG:HB2	2:B:389:PRO:HD2	1.97	0.46
1:A:362:THR:O	1:A:365:THR:O	2.32	0.46
1:A:485:ALA:HB2	1:A:511:LEU:CD1	2.39	0.46
2:B:224:GLU:HA	2:B:291:MET:HG3	1.96	0.46
2:B:314:GLN:CG	2:B:318:LYS:HE3	2.46	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:411:ASP:OD1	1:A:483:HIS:NE2	2.49	0.46
1:A:440:GLY:O	1:A:442:THR:HG22	2.16	0.46
1:A:566:TYR:CD1	1:A:764:VAL:HG12	2.50	0.46
1:A:681:ASP:O	1:A:684:TYR:N	2.45	0.46
2:B:150:PRO:HG2	2:B:708:ARG:HD3	1.97	0.46
2:B:170:VAL:HG12	2:B:170:VAL:O	2.16	0.46
2:B:580:SER:O	2:B:581:ASP:HB2	2.14	0.46
1:A:180:ASN:HD22	1:A:180:ASN:N	2.14	0.46
2:B:600:VAL:HG13	2:B:604:ILE:HD11	1.96	0.46
1:A:594:GLN:HE21	1:A:594:GLN:HB3	1.65	0.46
2:B:230:ARG:HD2	2:B:235:ARG:O	2.15	0.46
2:B:761:ASP:O	2:B:762:MET:O	2.33	0.46
1:A:93:TYR:O	1:A:96:LEU:HG	2.15	0.46
2:B:795:GLU:O	2:B:797:TYR:N	2.49	0.46
1:A:197:LEU:HD13	1:A:227:PHE:CE1	2.51	0.46
1:A:725:LEU:HD23	1:A:728:LEU:HD12	1.98	0.46
1:A:564:ALA:HB2	1:A:576:LEU:HD13	1.98	0.46
1:A:756:MET:O	1:A:760:GLN:HG3	2.15	0.46
2:B:352:ASN:HD22	2:B:352:ASN:C	2.11	0.46
1:A:134:THR:HG22	1:A:138:ASP:OD2	2.16	0.45
1:A:629:LEU:HG	1:A:641:VAL:CG2	2.46	0.45
2:B:133:ARG:HG3	2:B:135:MET:HG2	1.97	0.45
2:B:378:ILE:HD13	2:B:385:PHE:CZ	2.51	0.45
1:A:450:LEU:HD12	1:A:450:LEU:H	1.80	0.45
1:A:687:PHE:O	1:A:690:LEU:HB3	2.16	0.45
2:B:144:LEU:HD22	2:B:918:GLN:NE2	2.31	0.45
2:B:212:HIS:O	2:B:590:ARG:HB3	2.16	0.45
2:B:292:ALA:HA	2:B:293:PRO:HD3	1.83	0.45
2:B:668:LEU:HD21	2:B:733:ARG:NH1	2.31	0.45
1:A:111:GLU:OE2	1:A:503:ARG:NH1	2.49	0.45
1:A:183:ARG:NH2	1:A:186:ARG:HD2	2.31	0.45
2:B:279:ASP:C	2:B:284:LYS:HE3	2.36	0.45
1:A:20:PRO:HG3	1:A:29:ASN:ND2	2.31	0.45
1:A:241:LEU:HD23	1:A:241:LEU:O	2.16	0.45
1:A:583:TYR:HB3	1:A:584:PRO:HD3	1.97	0.45
2:B:149:PRO:O	2:B:150:PRO:C	2.53	0.45
2:B:822:PHE:HD1	2:B:822:PHE:H	1.63	0.45
1:A:627:PRO:O	1:A:643:LEU:HD11	2.17	0.45
1:A:369:LEU:HD23	1:A:611:HIS:HB2	1.98	0.45
1:A:92:GLN:OE1	1:A:92:GLN:N	2.41	0.45
2:B:62:LEU:HA	2:B:66:GLN:OE1	2.17	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:313:SER:O	2:B:317:ILE:HG12	2.16	0.45
1:A:236:PHE:HB3	4:A:820:HOH:O	2.16	0.45
2:B:417:ASN:HD21	2:B:419:ILE:HD12	1.81	0.45
2:B:756:VAL:O	2:B:786:PRO:HA	2.17	0.45
1:A:119:THR:O	1:A:120:VAL:O	2.34	0.44
1:A:550:ARG:CZ	1:A:550:ARG:HB2	2.47	0.44
1:A:705:ARG:HD2	1:A:709:PRO:HD3	1.99	0.44
2:B:223:ASN:O	2:B:291:MET:HG2	2.17	0.44
2:B:750:LYS:HE3	2:B:805:GLY:CA	2.46	0.44
2:B:424:LEU:O	2:B:428:LEU:HB2	2.17	0.44
1:A:238:LEU:O	1:A:238:LEU:HD23	2.17	0.44
2:B:300:GLN:O	2:B:301:PRO:C	2.56	0.44
2:B:309:LEU:HD12	2:B:309:LEU:C	2.38	0.44
2:B:419:ILE:HG22	2:B:421:ASN:H	1.82	0.44
2:B:571:PHE:HD2	2:B:596:PHE:CE1	2.35	0.44
2:B:672:ARG:NH1	2:B:725:SER:HA	2.32	0.44
2:B:900:SER:HA	2:B:907:ILE:HG21	1.97	0.44
2:B:163:ILE:HD13	2:B:634:PRO:HG3	2.00	0.44
2:B:253:CYS:SG	2:B:255:PHE:HB2	2.58	0.44
2:B:506:TYR:CE2	2:B:508:ASP:HB2	2.52	0.44
2:B:668:LEU:O	2:B:671:ALA:HB3	2.18	0.44
2:B:908:LEU:C	2:B:910:ASN:H	2.21	0.44
1:A:355:MET:O	1:A:359:LYS:HB2	2.17	0.44
1:A:598:VAL:HG23	1:A:598:VAL:O	2.17	0.44
2:B:147:LEU:O	2:B:149:PRO:N	2.50	0.44
2:B:68:GLN:O	2:B:72:GLN:HG3	2.17	0.44
2:B:133:ARG:HH21	2:B:135:MET:HE2	1.83	0.44
2:B:150:PRO:O	2:B:151:ILE:HB	2.18	0.44
1:A:234:VAL:O	1:A:234:VAL:HG13	2.18	0.43
1:A:359:LYS:HG2	1:A:363:ASP:OD2	2.18	0.43
1:A:145:ILE:HA	1:A:148:LEU:HD12	2.00	0.43
2:B:920:MET:HE3	2:B:920:MET:CA	2.45	0.43
1:A:182:PHE:CZ	1:A:197:LEU:HD21	2.51	0.43
2:B:242:VAL:CG1	2:B:251:TRP:HB2	2.48	0.43
1:A:119:THR:CG2	1:A:120:VAL:N	2.81	0.43
1:A:567:ASN:O	1:A:568:LYS:C	2.57	0.43
2:B:302:PRO:HA	2:B:303:PRO:HD3	1.73	0.43
1:A:55:VAL:HG12	1:A:56:CYS:N	2.33	0.43
2:B:729:PRO:HB2	2:B:732:HIS:CD2	2.52	0.43
2:B:919:ILE:HG22	2:B:923:ARG:HD2	1.99	0.43
1:A:138:ASP:HA	1:A:141:LYS:HD3	2.01	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:382:GLN:HB3	1:A:708:LEU:HD11	1.99	0.43
1:A:587:THR:O	1:A:591:ARG:HG2	2.18	0.43
2:B:791:SER:H	2:B:905:ASP:CG	2.21	0.43
1:A:65:LEU:HD23	1:A:104:GLU:HG3	2.00	0.43
1:A:674:ARG:C	1:A:676:ALA:H	2.22	0.43
2:B:147:LEU:HD23	2:B:147:LEU:HA	1.74	0.43
2:B:224:GLU:HA	2:B:291:MET:CG	2.49	0.43
2:B:459:ARG:NH1	2:B:459:ARG:CG	2.79	0.43
1:A:166:VAL:HG21	1:A:268:ILE:HG13	2.01	0.43
1:A:309:ARG:H	1:A:309:ARG:HD3	1.84	0.43
2:B:783:LEU:HA	2:B:784:PRO:HD3	1.81	0.43
1:A:564:ALA:HB2	1:A:576:LEU:CD1	2.49	0.43
1:A:629:LEU:HD11	1:A:654:LEU:HB3	2.00	0.43
1:A:670:ILE:HD13	1:A:690:LEU:HD21	2.00	0.43
2:B:168:MET:HG2	2:B:241:PHE:CE2	2.53	0.43
1:A:20:PRO:HB3	1:A:25:ASP:CB	2.49	0.42
1:A:674:ARG:C	1:A:676:ALA:N	2.72	0.42
2:B:764:ASP:O	2:B:851:ARG:NH2	2.51	0.42
2:B:789:ALA:HB1	2:B:902:LEU:HA	2.01	0.42
1:A:93:TYR:CE1	1:A:102:PRO:HB3	2.54	0.42
1:A:637:ASP:O	1:A:638:PRO:C	2.56	0.42
1:A:670:ILE:CD1	1:A:690:LEU:HD21	2.49	0.42
2:B:144:LEU:HD22	2:B:918:GLN:HE22	1.84	0.42
1:A:20:PRO:HG2	1:A:26:ALA:HA	2.00	0.42
1:A:80:CYS:HA	1:A:81:PRO:HD3	1.86	0.42
1:A:708:LEU:HD23	1:A:708:LEU:N	2.33	0.42
2:B:209:PRO:CG	2:B:558:MET:HE1	2.47	0.42
2:B:361:LEU:HD23	2:B:399:CYS:SG	2.58	0.42
1:A:665:TYR:C	1:A:665:TYR:CD2	2.92	0.42
2:B:344:ARG:HA	2:B:394:VAL:O	2.18	0.42
2:B:497:VAL:HG12	2:B:499:LEU:HD11	2.01	0.42
2:B:802:ILE:HB	2:B:809:PHE:HB2	2.01	0.42
1:A:39:PRO:O	1:A:503:ARG:HG2	2.20	0.42
1:A:191:GLU:O	1:A:195:GLU:HG3	2.19	0.42
2:B:250:ARG:HD2	2:B:260:ASN:O	2.18	0.42
2:B:864:ASP:OD1	2:B:864:ASP:N	2.53	0.42
1:A:20:PRO:HB3	1:A:25:ASP:HB3	2.02	0.42
1:A:386:ARG:NH1	1:A:705:ARG:O	2.49	0.42
1:A:625:ILE:O	1:A:627:PRO:HD3	2.19	0.42
1:A:663:LEU:C	1:A:663:LEU:HD23	2.40	0.42
2:B:242:VAL:CG1	2:B:243:THR:N	2.83	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
2:B:253:CYS:O	2:B:257:ARG:HA	2.19	0.42
2:B:359:ILE:HD11	2:B:406:LEU:HD23	2.01	0.42
2:B:151:ILE:HD13	2:B:709:MET:CE	2.50	0.42
1:A:129:ASP:HB2	1:A:162:TYR:CZ	2.55	0.42
1:A:671:ALA:O	1:A:675:LYS:N	2.42	0.42
2:B:138:LEU:HB2	4:B:953:HOH:O	2.20	0.42
2:B:546:LYS:NZ	2:B:862:HIS:O	2.52	0.42
1:A:130:LEU:HD11	1:A:161:THR:HB	2.00	0.42
2:B:209:PRO:CG	2:B:558:MET:CE	2.97	0.42
1:A:447:MET:SD	1:A:447:MET:N	2.93	0.42
1:A:669:GLN:CA	1:A:669:GLN:NE2	2.74	0.42
2:B:151:ILE:HD13	2:B:709:MET:HE1	2.02	0.42
2:B:333:LEU:HD12	2:B:400:ARG:NE	2.35	0.42
1:A:49:ALA:HB1	1:A:51:TYR:CZ	2.55	0.41
1:A:66:ASN:HB2	1:A:67:PRO:CD	2.50	0.41
1:A:124:PHE:CE1	1:A:151:LEU:HD22	2.55	0.41
1:A:130:LEU:CD1	1:A:161:THR:HB	2.50	0.41
1:A:587:THR:HG22	1:A:591:ARG:HD2	2.02	0.41
2:B:553:CYS:O	2:B:587:THR:HA	2.19	0.41
2:B:212:HIS:CD2	2:B:217:ILE:HB	2.55	0.41
1:A:750:VAL:HG12	1:A:751:SER:N	2.27	0.41
2:B:187:ASN:O	2:B:634:PRO:HD2	2.20	0.41
2:B:717:LEU:HD12	2:B:717:LEU:HA	1.83	0.41
1:A:238:LEU:HD23	1:A:238:LEU:C	2.41	0.41
1:A:642:LEU:O	1:A:644:ASP:N	2.47	0.41
1:A:89:LEU:HD12	1:A:90:PRO:HD2	2.03	0.41
1:A:349:CYS:HA	1:A:373:ASP:O	2.21	0.41
1:A:609:TYR:HA	1:A:660:PHE:CE2	2.54	0.41
2:B:362:ASP:CG	2:B:401:GLN:HB2	2.41	0.41
2:B:781:ILE:HB	2:B:858:GLN:OE1	2.21	0.41
1:A:21:SER:HA	1:A:511:LEU:HD23	2.02	0.41
1:A:36:LEU:HD12	1:A:36:LEU:HA	1.89	0.41
1:A:594:GLN:OE1	1:A:727:LYS:NZ	2.49	0.41
1:A:658:THR:O	1:A:659:PHE:HB3	2.21	0.41
2:B:277:ARG:C	2:B:279:ASP:N	2.74	0.41
2:B:820:LEU:C	2:B:822:PHE:N	2.74	0.41
2:B:279:ASP:HA	2:B:284:LYS:CE	2.48	0.41
2:B:496:THR:OG1	2:B:587:THR:HG23	2.20	0.41
2:B:799:LEU:HD13	2:B:812:MET:CE	2.50	0.41
2:B:799:LEU:HD13	2:B:812:MET:HE3	2.02	0.41
1:A:93:TYR:CD1	1:A:102:PRO:HG3	2.56	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:574:PHE:CD2	1:A:760:GLN:HG2	2.56	0.41
1:A:639:GLN:HA	1:A:640:PRO:HD3	1.81	0.41
2:B:270:ASP:CB	2:B:273:ASP:HB3	2.50	0.41
1:A:369:LEU:HB3	1:A:611:HIS:CD2	2.56	0.41
2:B:242:VAL:HG12	2:B:243:THR:N	2.34	0.41
2:B:560:ALA:HA	2:B:612:GLN:O	2.21	0.41
1:A:282:ALA:HB3	1:A:341:HIS:CD2	2.56	0.40
2:B:163:ILE:HA	2:B:164:PRO:HD3	1.90	0.40
1:A:123:ILE:HG12	1:A:156:LEU:HB2	2.02	0.40
1:A:591:ARG:HG3	1:A:591:ARG:NH1	2.35	0.40
2:B:633:MET:HA	2:B:634:PRO:HD3	1.89	0.40
1:A:309:ARG:HD3	1:A:309:ARG:N	2.36	0.40
2:B:301:PRO:HA	2:B:302:PRO:HD3	1.68	0.40
2:B:336:ILE:HA	2:B:337:PRO:HD3	1.91	0.40
1:A:453:TYR:CE2	1:A:704:ASP:O	2.75	0.40
1:A:594:GLN:OE1	1:A:658:THR:HG21	2.21	0.40
2:B:217:ILE:C	2:B:219:PRO:HD3	2.41	0.40
2:B:329:LEU:O	2:B:333:LEU:HD23	2.22	0.40
2:B:441:LYS:HD2	2:B:552:PHE:CE2	2.57	0.40
2:B:872:TYR:CE2	2:B:897:TRP:CZ3	3.06	0.40
1:A:181:VAL:HB	2:B:378:ILE:HG12	2.04	0.40
2:B:623:GLN:OE1	2:B:625:ARG:NH2	2.54	0.40

There are no symmetry-related clashes.

5.3 Torsion angles [\(i\)](#)

5.3.1 Protein backbone [\(i\)](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the backbone conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Favoured	Allowed	Outliers	Percentiles
1	A	695/768 (90%)	631 (91%)	52 (8%)	12 (2%)	9 16
2	B	734/926 (79%)	651 (89%)	55 (8%)	28 (4%)	3 4
All	All	1429/1694 (84%)	1282 (90%)	107 (8%)	40 (3%)	5 7

All (40) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	115	ASN
1	A	120	VAL
1	A	234	VAL
1	A	254	ALA
1	A	678	TYR
2	B	147	LEU
2	B	148	PRO
2	B	151	ILE
2	B	601	ASP
2	B	762	MET
2	B	766	ALA
2	B	767	GLY
2	B	796	ARG
1	A	409	SER
1	A	643	LEU
1	A	675	LYS
2	B	278	TYR
2	B	313	SER
2	B	415	GLN
2	B	469	SER
2	B	580	SER
2	B	697	GLY
2	B	867	THR
2	B	903	VAL
2	B	479	GLN
2	B	530	SER
2	B	620	ASN
2	B	724	ARG
2	B	793	LEU
1	A	751	SER
2	B	149	PRO
1	A	94	THR
2	B	818	PRO
2	B	859	LEU
2	B	146	GLU
2	B	215	ASP
2	B	271	PRO
2	B	763	ALA
1	A	82	ILE
1	A	598	VAL

5.3.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

The Analysed column shows the number of residues for which the sidechain conformation was analysed, and the total number of residues.

Mol	Chain	Analysed	Rotameric	Outliers	Percentiles	
1	A	621/668 (93%)	595 (96%)	26 (4%)	30	49
2	B	672/819 (82%)	652 (97%)	20 (3%)	41	61
All	All	1293/1487 (87%)	1247 (96%)	46 (4%)	35	55

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

Mol	Chain	Res	Type
1	A	60	HIS
1	A	83	CYS
1	A	125	PHE
1	A	164	ASN
1	A	174	GLU
1	A	222	PHE
1	A	234	VAL
1	A	239	ASN
1	A	298	LEU
1	A	309	ARG
1	A	436	GLU
1	A	447	MET
1	A	450	LEU
1	A	499	THR
1	A	503	ARG
1	A	534	ARG
1	A	552	LEU
1	A	576	LEU
1	A	591	ARG
1	A	594	GLN
1	A	647	SER
1	A	651	ASN
1	A	669	GLN
1	A	674	ARG
1	A	682	PRO
1	A	683	GLN
2	B	138	LEU

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Mol	Chain	Res	Type
2	B	150	PRO
2	B	152	THR
2	B	166	GLU
2	B	208	ARG
2	B	213	LEU
2	B	309	LEU
2	B	352	ASN
2	B	377	ASP
2	B	428	LEU
2	B	459	ARG
2	B	557	VAL
2	B	618	SER
2	B	739	ASN
2	B	743	LEU
2	B	751	ASN
2	B	761	ASP
2	B	764	ASP
2	B	822	PHE
2	B	870	SER

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (25) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	180	ASN
1	A	244	ASN
1	A	256	HIS
1	A	301	ASN
1	A	318	HIS
1	A	339	ASN
1	A	382	GLN
1	A	585	GLN
1	A	620	ASN
1	A	651	ASN
1	A	669	GLN
1	A	760	GLN
2	B	72	GLN
2	B	352	ASN
2	B	372	GLN
2	B	374	ASN
2	B	421	ASN
2	B	479	GLN
2	B	485	ASN

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Mol	Chain	Res	Type
2	B	533	ASN
2	B	535	ASN
2	B	599	ASN
2	B	732	HIS
2	B	857	ASN
2	B	918	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 monosaccharides in this entry.

5.6 Ligand geometry [i](#)

Of 2 ligands modelled in this entry, 2 are monoatomic - leaving 0 for Mogul analysis.

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

No monomer is involved in short contacts.

5.7 Other polymers [i](#)

There are no such residues in this entry.

5.8 Polymer linkage issues [i](#)

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

EDS was not executed - this section is therefore empty.

6.2 Non-standard residues in protein, DNA, RNA chains

EDS was not executed - this section is therefore empty.

6.3 Carbohydrates

EDS was not executed - this section is therefore empty.

6.4 Ligands

EDS was not executed - this section is therefore empty.

6.5 Other polymers

EDS was not executed - this section is therefore empty.