



# Full wwPDB X-ray Structure Validation Report ⓘ

Feb 15, 2017 – 02:13 am GMT

PDB ID : 1XF1  
Title : Structure of C5a peptidase- a key virulence factor from Streptococcus  
Authors : Brown, C.K.; Gu, Z.Y.; Cleary, P.P.; Matsuka, Y.; Olmstead, S.; Ohlendorf, D.H.; Earhart, C.A.  
Deposited on : 2004-09-13  
Resolution : 1.90 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](mailto:validation@mail.wwpdb.org)

A user guide is available at

<http://wwpdb.org/validation/2016/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467  
Mogul : 1.7.2 (RC1), CSD as538be (2017)  
Xtriage (Phenix) : **NOT EXECUTED**  
EDS : **NOT EXECUTED**  
Percentile statistics : 20161228.v01 (using entries in the PDB archive December 28th 2016)  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : recalc28949

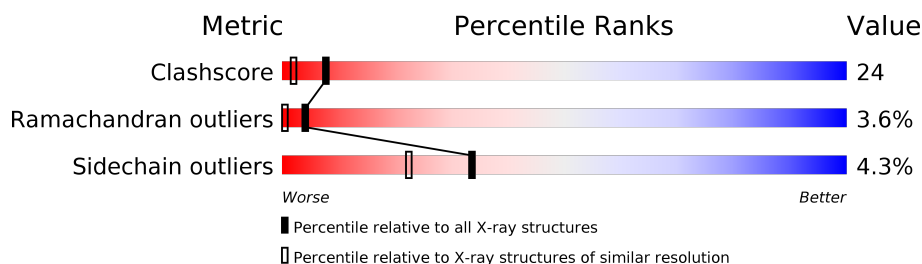
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 1.90 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	112137	5731 (1.90-1.90)
Ramachandran outliers	110173	5669 (1.90-1.90)
Sidechain outliers	110143	5670 (1.90-1.90)

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 on the lower bar indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria. 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 electron density. The numeric value is given above the bar.

Note EDS was not executed.

Mol	Chain	Length	Quality of chain
1	A	926	
1	B	926	

## 2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 15509 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 C5a peptidase.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
1	A	926	Total	C	N	O	Se	0	0	0
			7182	4510	1211	1445	16			
1	B	926	Total	C	N	O	Se	4	0	0
			7182	4510	1211	1445	16			

There are 38 discrepancies between the modelled and reference sequences:

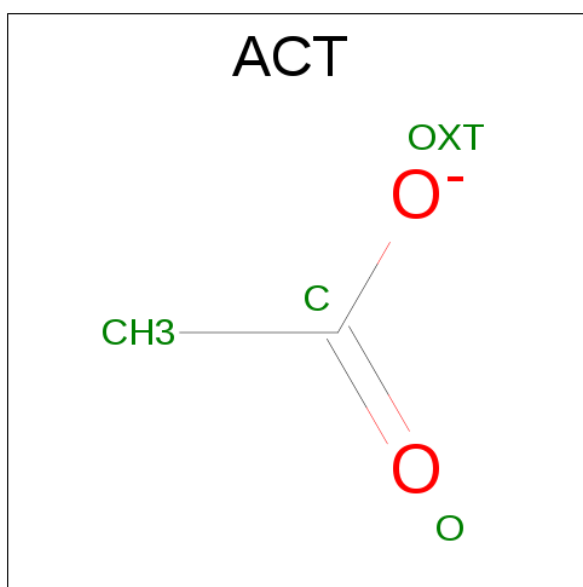
Chain	Residue	Modelled	Actual	Comment	Reference
A	219	MSE	MET	MODIFIED RESIDUE	UNP P15926
A	227	MSE	MET	MODIFIED RESIDUE	UNP P15926
A	259	MSE	MET	MODIFIED RESIDUE	UNP P15926
A	353	MSE	MET	MODIFIED RESIDUE	UNP P15926
A	433	MSE	MET	MODIFIED RESIDUE	UNP P15926
A	513	MSE	MET	MODIFIED RESIDUE	UNP P15926
A	522	MSE	MET	MODIFIED RESIDUE	UNP P15926
A	536	MSE	MET	MODIFIED RESIDUE	UNP P15926
A	550	MSE	MET	MODIFIED RESIDUE	UNP P15926
A	585	MSE	MET	MODIFIED RESIDUE	UNP P15926
A	648	THR	ALA	SEE REMARK 999	UNP P15926
A	680	MSE	MET	MODIFIED RESIDUE	UNP P15926
A	697	THR	LYS	SEE REMARK 999	UNP P15926
A	702	MSE	MET	MODIFIED RESIDUE	UNP P15926
A	794	PHE	LEU	SEE REMARK 999	UNP P15926
A	969	MSE	MET	MODIFIED RESIDUE	UNP P15926
A	996	MSE	THR	ENGINEERED	UNP P15926
A	1005	MSE	MET	MODIFIED RESIDUE	UNP P15926
A	1015	MSE	MET	MODIFIED RESIDUE	UNP P15926
B	219	MSE	MET	MODIFIED RESIDUE	UNP P15926
B	227	MSE	MET	MODIFIED RESIDUE	UNP P15926
B	259	MSE	MET	MODIFIED RESIDUE	UNP P15926
B	353	MSE	MET	MODIFIED RESIDUE	UNP P15926
B	433	MSE	MET	MODIFIED RESIDUE	UNP P15926
B	513	MSE	MET	MODIFIED RESIDUE	UNP P15926

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Chain	Residue	Modelled	Actual	Comment	Reference
B	522	MSE	MET	MODIFIED RESIDUE	UNP P15926
B	536	MSE	MET	MODIFIED RESIDUE	UNP P15926
B	550	MSE	MET	MODIFIED RESIDUE	UNP P15926
B	585	MSE	MET	MODIFIED RESIDUE	UNP P15926
B	648	THR	ALA	SEE REMARK 999	UNP P15926
B	680	MSE	MET	MODIFIED RESIDUE	UNP P15926
B	697	THR	LYS	SEE REMARK 999	UNP P15926
B	702	MSE	MET	MODIFIED RESIDUE	UNP P15926
B	794	PHE	LEU	SEE REMARK 999	UNP P15926
B	969	MSE	MET	MODIFIED RESIDUE	UNP P15926
B	996	MSE	THR	ENGINEERED	UNP P15926
B	1005	MSE	MET	MODIFIED RESIDUE	UNP P15926
B	1015	MSE	MET	MODIFIED RESIDUE	UNP P15926

- Molecule 2 is ACETATE ION (three-letter code: ACT) (formula:  $C_2H_3O_2$ ).

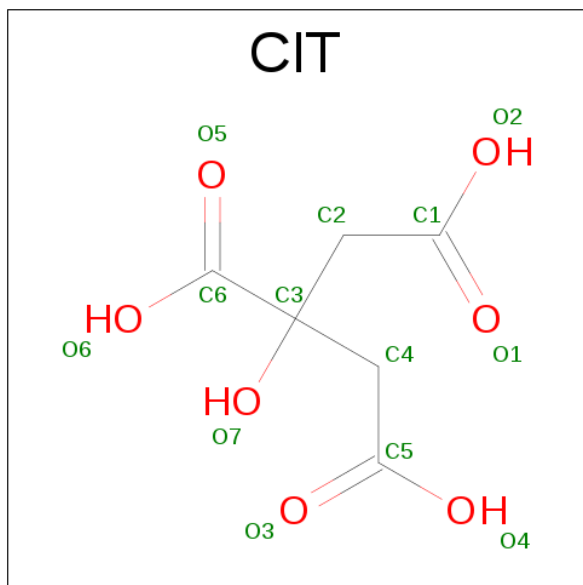


Mol	Chain	Residues	Atoms			ZeroOcc	AltConf
2	A	1	Total	C	O	0	0
			4	2	2		
2	B	1	Total	C	O	0	0
			4	2	2		

- Molecule 3 is CALCIUM ION (three-letter code: CA) (formula: Ca).

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

- Molecule 4 is CITRIC ACID (three-letter code: CIT) (formula:  $C_6H_8O_7$ ).



Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
4	A	1	Total C O 13 6 7	0	0
4	A	1	Total C O 13 6 7	0	0
4	A	1	Total C O 13 6 7	0	0
4	B	1	Total C O 13 6 7	0	0
4	B	1	Total C O 13 6 7	0	0
4	B	1	Total C O 13 6 7	0	0

- Molecule 5 is water.

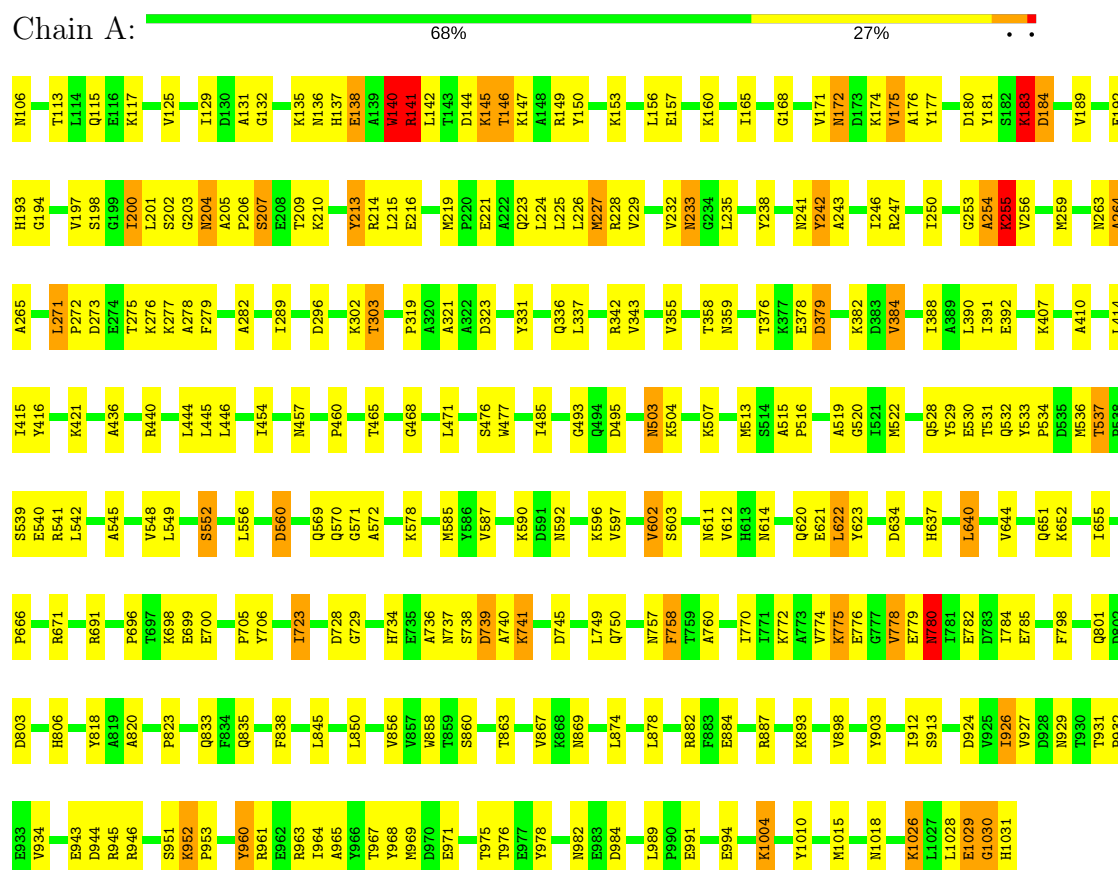
Mol	Chain	Residues	Atoms	ZeroOcc	AltConf
5	A	544	Total O 544 544	0	0
5	B	513	Total O 513 513	0	0

### 3 Residue-property plots

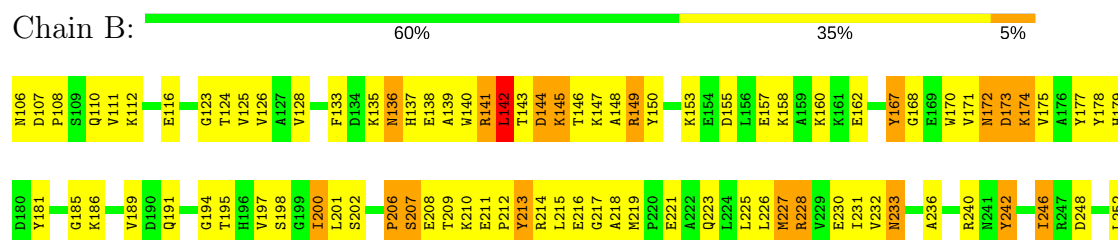
These plots are drawn for all protein, RNA and DNA chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and electron density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red dot above a residue indicates a poor fit to the electron density ( $RSRZ > 2$ ). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

Note EDS was not executed.

#### • Molecule 1: C5a peptidase



#### • Molecule 1: C5a peptidase



M1015	R887	A760	T653	L542	N449	Y369	G253
N1018	W888	K772	T654	A545	N449	A370	A254
I1019	K893	K775	P656	K546	P450	Y371	K255
T1020	D894	E776	A657	K547	K452	A372	V256
V898	V898	E777	K658	V543	T453	N373	
		G777	S659	L549			W259
		W778				K377	
Y903	Y903	E779	Q662	T554	T454		N263
E1029	W780	N780	K663	A555	A456	D380	A264
H1031	T910	I781	T664	L556	N457	F381	A265
	P911	E782	P665	V557		K382	L266
	P912	D783	P666		P460	D383	L271
	S913	I784	T667		K461	N384	P272
		E785		K562	V462	G385	D273
	P932	S786	R671	Q570	T465	K387	E274
	E933			G571		I388	T275
	F940	G796	Q679	A572	G468	K389	F279
	S941	F798	F685	G573	L471	L391	
	E942			T584		E392	K283
	E943	Q801	R691	M585	S476	D397	V287
	D944				W477	F398	A308
	R945	H806	Q694	D589	I485	D400	
	R946	I809	D695	K590			A321
	K952		K698	N592	P492	K406	
	P953	Y818	D699	T593	G493	A407	V328
	K954		E700		Q494	A408	
	T955	R829		K596	D495	G409	Y331
			I704		I496	A410	
P958		Q833	P705	N601		V411	L337
Y959	Y959	F834	Y706	F606	V500	G412	T338
Y960	R361	Q835	I707				
E962					N503	V413	
R963		F838	F713	T609	K504	L414	V341
I964		N844	V610	V610		L415	R342
A965			N611	N611	M513	Y416	V343
		V849	N614	N614	S514		K344
			V615	V615	A515	Q419	T345
M969		K852	S616	S616	P516		A346
P974			H734	D617	M522	T425	D347
	W858	A785	K618	G523	G523	E426	Q348
Y978	R785	P736	P619	L524	L524	L427	
	T980	N737	Q620		K527	D431	M353
D984		F861	E621		Q528	N432	P354
		V862	L622			M433	V355
E991			Y623		T529	P434	L356
		N869	K741		E530		
E994			T742	A626	T531	A436	T358
T995		L874	Q743		Q532	F437	N359
M996			F638		Y533	I438	R360
E997		L878	A639				F361
G998			L640		M536	S439	E362
A999		R882	V644		K440	R440	P363
		F883			T537	K441	N364
	Y1010	K885			P538	D442	K365
		T886			E540		A366
	D1014		Q651		P541	L445	Y367
			K652			L446	D369

## 4 Data and refinement statistics

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

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, $\alpha$ , $\beta$ , $\gamma$	114.70Å 75.11Å 132.39Å 90.00° 104.95° 90.00°	Depositor
Resolution (Å)	50.00 – 1.90	Depositor
% Data completeness (in resolution range)	(Not available) (50.00-1.90)	Depositor
$R_{merge}$	(Not available)	Depositor
$R_{sym}$	(Not available)	Depositor
Refinement program	CNS	Depositor
R, $R_{free}$	0.229 , 0.269	Depositor
Estimated twinning fraction	No twinning to report.	Xtriage
Total number of atoms	15509	wwPDB-VP
Average B, all atoms (Å <sup>2</sup> )	51.0	wwPDB-VP



## 5 Model quality

### 5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: CA, ACT, CIT

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	0.34	0/7312	0.63	0/9884
1	B	0.33	0/7312	0.61	0/9884
All	All	0.33	0/14624	0.62	0/19768

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

### 5.2 Too-close contacts

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

Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
1	A	7182	0	7004	319	0
1	B	7182	0	7005	384	0
2	A	4	0	3	0	0
2	B	4	0	3	0	0
3	A	1	0	0	0	0
3	B	1	0	0	0	0
4	A	39	0	15	0	0
4	B	39	0	15	2	0
5	A	544	0	0	34	0
5	B	513	0	0	23	0
All	All	15509	0	14045	688	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 (688) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:778:VAL:HG21	1:A:784:ILE:HD11	1.40	1.03
1:A:210:LYS:HA	1:A:337:LEU:HD12	1.40	1.03
1:B:343:VAL:HG12	1:B:454:ILE:HG22	1.41	1.02
1:A:465:THR:HG23	1:A:468:GLY:H	1.23	1.01
1:B:465:THR:HG23	1:B:468:GLY:H	1.25	1.00
1:A:271:LEU:HD23	1:A:271:LEU:H	1.26	1.00
1:B:271:LEU:HD23	1:B:271:LEU:H	1.27	1.00
1:A:952:LYS:HB3	1:A:953:PRO:HA	1.43	1.00
1:A:343:VAL:HG12	1:A:454:ILE:HG22	1.41	0.99
1:B:536:MSE:HE2	1:B:540:GLU:HB3	1.41	0.99
1:B:958:PRO:HG2	1:B:1015:MSE:HG3	1.43	0.99
1:A:440:ARG:NH1	1:A:444:LEU:HD11	1.78	0.99
1:A:219:MSE:HE2	1:A:520:GLY:HA2	1.44	0.98
1:A:246:ILE:HD11	1:A:278:ALA:HB1	1.48	0.96
1:B:995:THR:HG23	1:B:997:GLU:H	1.31	0.95
1:B:360:ARG:HB3	1:B:360:ARG:HH11	1.31	0.95
1:B:556:LEU:H	1:B:570:GLN:HE22	1.05	0.93
1:A:556:LEU:H	1:A:570:GLN:HE22	1.04	0.93
1:A:216:GLU:HG2	1:A:224:LEU:HD21	1.51	0.92
1:A:141:ARG:HE	1:A:141:ARG:HA	1.37	0.90
1:B:835:GLN:HE21	1:B:882:ARG:HE	1.20	0.89
1:B:522:MSE:HG3	1:B:549:LEU:HD22	1.54	0.89
1:B:749:LEU:HD23	1:B:749:LEU:H	1.37	0.89
1:A:160:LYS:HB2	1:A:165:ILE:HB	1.54	0.88
1:B:528:GLN:HE21	1:B:532:GLN:HE22	1.23	0.87
1:A:960:TYR:HA	1:A:1015:MSE:HE3	1.56	0.87
1:B:139:ALA:HB1	1:B:206:PRO:HA	1.56	0.87
1:B:838:PHE:H	1:B:869:ASN:HD22	1.19	0.87
1:B:944:ASP:OD2	1:B:946:ARG:HD3	1.76	0.86
1:B:611:ASN:ND2	1:B:662:GLN:HG2	1.91	0.85
1:A:522:MSE:HG3	1:A:549:LEU:HD22	1.57	0.85
1:A:622:LEU:HD21	1:A:655:ILE:HD13	1.60	0.84
1:B:749:LEU:CD2	1:B:749:LEU:H	1.90	0.84
1:A:835:GLN:NE2	1:A:882:ARG:HE	1.76	0.82
1:A:991:GLU:OE2	1:B:263:ASN:HB3	1.80	0.82
1:A:536:MSE:O	1:A:537:THR:HB	1.79	0.81
1:A:150:TYR:H	1:A:223:GLN:HE22	1.29	0.81

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:522:MSE:HE1	1:B:542:LEU:HD12	1.63	0.81
1:B:200:ILE:HG22	1:B:201:LEU:HG	1.63	0.81
1:B:585:MSE:HG2	1:B:614:ASN:HA	1.64	0.80
1:A:835:GLN:HE21	1:A:882:ARG:HE	1.26	0.79
1:A:421:LYS:HG3	1:A:560:ASP:OD2	1.82	0.79
1:B:160:LYS:HE3	1:B:168:GLY:H	1.47	0.79
1:A:644:VAL:HG12	5:A:1124:HOH:O	1.83	0.79
1:B:835:GLN:NE2	1:B:882:ARG:HE	1.80	0.79
1:B:145:LYS:N	1:B:145:LYS:HD2	2.00	0.77
1:B:139:ALA:HB2	1:B:208:GLU:HG3	1.66	0.77
1:B:209:THR:HG22	1:B:210:LYS:HG3	1.67	0.77
1:B:219:MSE:HE3	1:B:527:LYS:HZ1	1.48	0.77
1:B:780:ASN:ND2	1:B:783:ASP:H	1.83	0.77
1:B:621:GLU:HG2	1:B:654:THR:HG22	1.65	0.77
1:A:644:VAL:HG23	5:A:1332:HOH:O	1.83	0.77
1:B:353:MSE:HE1	1:B:446:LEU:HD11	1.66	0.76
1:A:823:PRO:HG2	1:A:929:ASN:HD21	1.50	0.76
1:B:271:LEU:HD21	1:B:321:ALA:HB3	1.67	0.76
1:B:656:PRO:HG2	1:B:659:SER:OG	1.86	0.75
1:B:137:HIS:HD1	1:B:513:MSE:HE3	1.52	0.75
1:A:698:LYS:HG2	1:A:699:GLU:H	1.50	0.75
1:B:995:THR:HG22	1:B:999:ALA:H	1.51	0.75
1:A:838:PHE:H	1:A:869:ASN:HD22	1.31	0.75
1:B:124:THR:HG21	1:B:219:MSE:HE1	1.69	0.75
1:A:226:LEU:C	1:A:227:MSE:HE3	2.06	0.75
1:A:952:LYS:CB	1:A:953:PRO:HA	2.16	0.75
1:A:952:LYS:HB3	1:A:953:PRO:CA	2.17	0.75
1:B:337:LEU:HD21	1:B:460:PRO:HB2	1.65	0.75
1:B:503:ASN:HD22	1:B:504:LYS:HD2	1.52	0.74
1:A:898:VAL:HG12	1:A:903:TYR:OH	1.86	0.74
1:A:343:VAL:CG1	1:A:454:ILE:HG22	2.15	0.74
1:A:271:LEU:CD2	1:A:271:LEU:H	1.99	0.74
1:B:781:ILE:HA	1:B:784:ILE:HG23	1.69	0.74
1:B:147:LYS:HB2	1:B:147:LYS:NZ	2.03	0.74
1:B:271:LEU:HB2	1:B:272:PRO:HD2	1.69	0.74
1:B:838:PHE:H	1:B:869:ASN:ND2	1.85	0.74
1:B:691:ARG:HD2	1:B:700:GLU:OE2	1.88	0.73
1:A:246:ILE:HD11	1:A:278:ALA:CB	2.19	0.73
1:A:378:GLU:O	1:A:379:ASP:HB2	1.88	0.72
1:A:780:ASN:HD21	1:A:782:GLU:HG3	1.54	0.72
1:A:379:ASP:HA	1:A:382:LYS:HG3	1.70	0.71

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:355:VAL:HG12	1:B:438:ILE:HG22	1.71	0.71
1:B:171:VAL:O	1:B:172:ASN:HB3	1.90	0.71
1:A:303:THR:HB	5:A:1144:HOH:O	1.90	0.71
1:A:536:MSE:O	1:A:540:GLU:HB2	1.89	0.71
1:A:967:THR:HG23	5:A:1535:HOH:O	1.91	0.71
1:B:742:ASP:HB3	1:B:809:ILE:HB	1.73	0.71
1:B:167:TYR:HB2	1:B:179:HIS:CD2	2.26	0.70
1:A:388:ILE:HD12	1:A:454:ILE:HD11	1.73	0.70
1:A:254:ALA:O	1:A:255:LYS:HB2	1.91	0.70
1:B:671:ARG:HG2	5:B:1162:HOH:O	1.90	0.70
5:A:1173:HOH:O	1:B:996:MSE:HE3	1.91	0.70
1:A:168:GLY:HA3	1:A:177:TYR:CE1	2.27	0.69
1:B:342:ARG:HG3	1:B:457:ASN:HD21	1.58	0.69
1:A:440:ARG:HH12	1:A:444:LEU:HD11	1.54	0.69
1:A:465:THR:HG23	1:A:468:GLY:N	2.03	0.69
1:B:337:LEU:CD2	1:B:460:PRO:HB2	2.22	0.69
1:A:384:VAL:HG13	1:A:410:ALA:HB2	1.75	0.68
1:B:123:GLY:HA2	1:B:148:ALA:HB3	1.75	0.68
1:B:528:GLN:HE21	1:B:532:GLN:NE2	1.91	0.68
1:B:932:PRO:HD2	1:B:1020:THR:HG23	1.76	0.68
1:A:622:LEU:N	1:A:622:LEU:HD23	2.09	0.68
1:B:242:TYR:O	1:B:246:ILE:HG23	1.93	0.68
1:A:205:ALA:N	1:A:206:PRO:HD3	2.09	0.68
1:A:150:TYR:H	1:A:223:GLN:NE2	1.90	0.68
1:A:838:PHE:H	1:A:869:ASN:ND2	1.91	0.68
1:B:522:MSE:CE	1:B:542:LEU:HD12	2.23	0.68
1:B:264:ALA:HB1	5:B:1395:HOH:O	1.93	0.67
1:B:271:LEU:CD2	1:B:271:LEU:H	2.04	0.67
1:B:610:VAL:C	1:B:611:ASN:HD22	1.97	0.67
1:A:440:ARG:HH11	1:A:444:LEU:HD11	1.55	0.67
1:B:644:VAL:HG12	5:B:1128:HOH:O	1.95	0.67
1:B:1020:THR:HG22	5:B:1251:HOH:O	1.95	0.66
1:A:172:ASN:HB2	1:A:174:LYS:O	1.96	0.66
1:B:173:ASP:O	1:B:175:VAL:N	2.28	0.66
1:B:522:MSE:HG3	1:B:549:LEU:CD2	2.25	0.66
1:B:556:LEU:H	1:B:570:GLN:NE2	1.88	0.66
1:B:745:ASP:OD2	1:B:806:HIS:HD2	1.78	0.66
1:A:140:TRP:O	1:A:141:ARG:HB2	1.95	0.66
1:B:433:MSE:HA	1:B:433:MSE:HE2	1.77	0.66
1:A:960:TYR:CA	1:A:1015:MSE:HE3	2.24	0.66
1:B:232:VAL:O	1:B:233:ASN:HB2	1.96	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:958:PRO:HG2	1:B:1015:MSE:CG	2.21	0.65
1:A:749:LEU:HD12	1:B:749:LEU:HG	1.77	0.65
1:A:931:THR:HG22	5:A:1249:HOH:O	1.95	0.65
1:B:515:ALA:HB3	1:B:516:PRO:HD3	1.77	0.65
1:B:844:ASN:HB3	5:B:1610:HOH:O	1.96	0.65
1:A:200:ILE:HG22	1:A:201:LEU:HG	1.77	0.65
1:A:503:ASN:HD22	1:A:503:ASN:H	1.45	0.65
1:B:590:LYS:HD3	1:B:609:THR:HG21	1.77	0.65
1:B:644:VAL:HG23	5:B:1347:HOH:O	1.97	0.65
1:A:209:THR:HG22	1:A:210:LYS:HG3	1.78	0.64
1:B:384:VAL:C	1:B:409:GLY:HA3	2.17	0.64
1:B:213:TYR:HA	5:B:1416:HOH:O	1.96	0.64
1:B:360:ARG:NH1	1:B:360:ARG:HB3	2.09	0.64
1:A:556:LEU:H	1:A:570:GLN:NE2	1.87	0.64
1:B:153:LYS:O	1:B:157:GLU:HG2	1.97	0.64
1:B:671:ARG:HH11	1:B:671:ARG:HG2	1.63	0.64
1:B:137:HIS:ND1	1:B:513:MSE:HE3	2.13	0.64
1:B:601:ASN:HD21	1:B:713:PHE:H	1.45	0.64
1:A:140:TRP:HA	1:A:174:LYS:HD2	1.79	0.64
1:A:528:GLN:HE21	1:A:532:GLN:NE2	1.95	0.63
1:B:562:LYS:HA	1:B:562:LYS:HE2	1.80	0.63
1:A:135:LYS:HB2	1:B:943:GLU:OE1	1.99	0.63
1:B:384:VAL:O	1:B:409:GLY:HA3	1.98	0.63
1:B:124:THR:HG22	1:B:125:VAL:N	2.14	0.63
1:B:359:ASN:HB2	1:B:434:PRO:HA	1.80	0.63
1:A:174:LYS:O	1:A:175:VAL:HB	1.99	0.63
1:B:389:ALA:HB3	1:B:413:VAL:HG12	1.81	0.63
1:A:149:ARG:HH12	1:A:253:GLY:HA3	1.63	0.63
1:B:427:LEU:CD2	1:B:437:PHE:HB2	2.29	0.62
1:B:995:THR:HG21	5:B:1345:HOH:O	1.99	0.62
1:A:485:ILE:HD12	1:A:571:GLY:HA2	1.82	0.62
1:B:219:MSE:HE3	1:B:527:LYS:NZ	2.13	0.62
1:B:898:VAL:HG22	1:B:903:TYR:OH	2.00	0.62
1:B:144:ASP:C	1:B:145:LYS:HD2	2.19	0.62
1:B:112:LYS:O	1:B:116:GLU:HG3	1.99	0.62
1:B:749:LEU:N	1:B:749:LEU:HD23	2.12	0.62
1:B:829:ARG:NH1	5:B:1173:HOH:O	2.31	0.62
1:A:530:GLU:HA	1:A:541:ARG:HE	1.65	0.62
1:B:433:MSE:HE2	1:B:434:PRO:HD2	1.82	0.62
1:A:193:HIS:HB2	1:A:197:VAL:HA	1.82	0.61
1:A:522:MSE:HE3	1:A:545:ALA:HB3	1.82	0.61

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:462:VAL:O	1:B:462:VAL:HG23	2.00	0.61
1:A:515:ALA:HB3	1:A:516:PRO:HD3	1.83	0.61
1:B:485:ILE:CG1	1:B:596:LYS:HD2	2.30	0.61
1:A:738:SER:O	1:A:739:ASP:HB2	1.99	0.61
1:A:964:ILE:HD13	1:A:1010:TYR:HA	1.81	0.61
1:B:365:LYS:H	1:B:455:THR:HG23	1.65	0.61
1:B:737:ASN:HD22	1:B:743:GLN:NE2	1.99	0.61
1:A:343:VAL:HG11	1:A:446:LEU:CD2	2.30	0.61
1:A:548:VAL:O	1:A:552:SER:HB2	2.00	0.61
1:A:271:LEU:CD2	1:A:321:ALA:HB3	2.31	0.61
1:A:216:GLU:CG	1:A:224:LEU:HD21	2.28	0.60
1:A:507:LYS:HD3	5:A:1436:HOH:O	2.01	0.60
1:B:215:LEU:O	1:B:216:GLU:HG3	2.01	0.60
1:A:882:ARG:NH1	1:B:996:MSE:HE1	2.17	0.60
1:B:343:VAL:CG1	1:B:454:ILE:HG22	2.26	0.60
1:A:331:TYR:HB2	1:A:471:LEU:HD22	1.83	0.60
1:A:867:VAL:HG13	5:A:1115:HOH:O	2.02	0.60
1:B:522:MSE:HE3	1:B:545:ALA:HB3	1.82	0.60
1:B:780:ASN:HD21	1:B:783:ASP:H	1.50	0.60
1:B:958:PRO:O	1:B:1015:MSE:HG2	2.02	0.60
1:A:144:ASP:O	1:A:145:LYS:HB2	2.02	0.60
1:B:136:ASN:O	1:B:137:HIS:HB3	2.02	0.59
1:B:780:ASN:C	1:B:782:GLU:H	2.04	0.59
1:B:893:LYS:O	1:B:894:ASP:C	2.40	0.59
1:A:384:VAL:CG1	1:A:410:ALA:HB2	2.31	0.59
1:A:379:ASP:OD2	1:A:382:LYS:HE3	2.01	0.59
1:B:852:LYS:HE3	5:B:1324:HOH:O	2.00	0.59
1:B:126:VAL:HG22	1:B:256:VAL:HG11	1.84	0.59
1:A:180:ASP:O	1:A:183:LYS:HD2	2.03	0.59
1:B:124:THR:HG21	1:B:219:MSE:CE	2.32	0.59
1:B:465:THR:HG23	1:B:468:GLY:N	2.08	0.59
1:A:214:ARG:HG2	5:A:1578:HOH:O	2.03	0.59
1:A:536:MSE:HE2	1:A:540:GLU:HB3	1.85	0.59
1:B:414:LEU:HD23	1:B:436:ALA:HB3	1.86	0.58
1:B:952:LYS:C	1:B:952:LYS:HD2	2.22	0.58
1:A:723:ILE:HD11	1:A:760:ALA:HB2	1.86	0.58
1:B:107:ASP:OD2	1:B:110:GLN:HA	2.02	0.58
1:B:338:THR:HG21	1:B:354:PRO:HB3	1.85	0.58
1:B:454:ILE:HD12	1:B:454:ILE:O	2.02	0.58
1:B:838:PHE:N	1:B:869:ASN:HD22	1.96	0.58
1:A:960:TYR:CB	1:A:1015:MSE:HE3	2.33	0.58

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:533:TYR:N	1:A:534:PRO:HD3	2.18	0.58
1:B:655:ILE:N	1:B:655:ILE:HD12	2.18	0.58
1:A:585:MSE:HG3	5:A:1620:HOH:O	2.04	0.58
1:A:602:VAL:HG13	1:A:603:SER:O	2.03	0.58
1:B:590:LYS:HD3	1:B:609:THR:CG2	2.34	0.58
1:B:557:TYR:OH	1:B:562:LYS:HE2	2.03	0.58
1:B:995:THR:HG23	1:B:997:GLU:N	2.11	0.58
1:A:273:ASP:HA	1:A:276:LYS:NZ	2.19	0.57
1:A:379:ASP:CG	1:A:382:LYS:HE3	2.25	0.57
1:B:171:VAL:O	1:B:172:ASN:CB	2.51	0.57
1:A:183:LYS:HD3	1:A:183:LYS:H	1.69	0.57
1:B:367:TYR:HB2	1:B:454:ILE:CD1	2.34	0.57
1:A:355:VAL:CG2	1:A:436:ALA:HB1	2.33	0.57
1:B:932:PRO:HB3	1:B:955:THR:HG22	1.86	0.57
1:B:228:ARG:HG3	1:B:228:ARG:HH11	1.69	0.57
1:B:148:ALA:O	1:B:149:ARG:O	2.22	0.57
1:B:440:ARG:HH11	1:B:440:ARG:HG3	1.69	0.57
1:A:536:MSE:O	1:A:537:THR:CB	2.52	0.57
1:A:729:GLY:C	1:A:736:ALA:HB2	2.24	0.57
1:B:723:ILE:HD11	1:B:760:ALA:HB2	1.85	0.57
1:A:775:LYS:N	1:A:775:LYS:HE3	2.19	0.57
1:A:833:GLN:HE22	1:A:887:ARG:HH21	1.52	0.57
1:B:427:LEU:HD21	1:B:437:PHE:HB2	1.87	0.57
1:A:376:THR:HG22	5:A:1342:HOH:O	2.04	0.57
1:A:302:LYS:NZ	1:A:302:LYS:HB3	2.20	0.57
1:B:945:ARG:CZ	1:B:991:GLU:HG2	2.35	0.57
1:A:691:ARG:HD2	1:A:700:GLU:OE2	2.05	0.56
1:A:850:LEU:CD2	1:A:856:VAL:HG22	2.36	0.56
1:B:153:LYS:HB2	5:B:1253:HOH:O	2.03	0.56
1:B:150:TYR:HB2	1:B:223:GLN:HE22	1.70	0.56
1:B:272:PRO:HB2	1:B:274:GLU:OE1	2.05	0.56
1:B:160:LYS:CE	1:B:168:GLY:H	2.18	0.56
1:B:388:ILE:HD12	1:B:454:ILE:HD11	1.88	0.56
1:B:738:SER:O	1:B:739:ASP:HB2	2.06	0.56
1:B:933:GLU:OE2	1:B:954:LYS:HE3	2.06	0.56
1:A:146:THR:O	1:A:146:THR:HG22	2.06	0.56
1:B:168:GLY:HA2	1:B:177:TYR:CE1	2.40	0.56
1:B:137:HIS:HD1	1:B:513:MSE:CE	2.18	0.56
1:A:254:ALA:O	1:A:255:LYS:CB	2.54	0.56
1:B:410:ALA:O	1:B:411:VAL:HB	2.06	0.56
1:B:621:GLU:HG2	1:B:654:THR:CG2	2.35	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:271:LEU:HD21	1:A:321:ALA:HB3	1.87	0.56
1:A:634:ASP:HB2	5:A:1583:HOH:O	2.05	0.56
1:A:734:HIS:HD2	5:A:1116:HOH:O	1.88	0.56
1:A:912:ILE:HD12	1:A:913:SER:N	2.21	0.56
1:A:177:TYR:CD2	1:A:227:MSE:HE2	2.41	0.56
1:B:893:LYS:HD2	5:B:1550:HOH:O	2.06	0.56
1:A:637:HIS:HD2	5:A:1250:HOH:O	1.88	0.55
1:B:137:HIS:NE2	1:B:211:GLU:HG2	2.21	0.55
1:A:264:ALA:O	1:A:265:ALA:HB3	2.07	0.55
1:A:171:VAL:O	1:A:172:ASN:O	2.23	0.55
1:B:611:ASN:N	1:B:611:ASN:HD22	2.03	0.55
1:A:738:SER:O	1:A:739:ASP:CB	2.54	0.55
1:A:343:VAL:HG11	1:A:446:LEU:HD21	1.88	0.55
1:B:206:PRO:O	1:B:207:SER:HB3	2.07	0.55
1:A:210:LYS:HA	1:A:337:LEU:CD1	2.26	0.55
1:A:263:ASN:HB2	1:B:991:GLU:OE1	2.06	0.55
1:A:503:ASN:H	1:A:503:ASN:ND2	2.04	0.55
1:B:353:MSE:SE	1:B:442:ASP:HB3	2.57	0.55
1:A:132:GLY:HA3	1:B:942:THR:HG23	1.88	0.54
1:A:944:ASP:OD1	1:A:946:ARG:HD2	2.08	0.54
1:B:454:ILE:HD13	1:B:456:PHE:HE1	1.72	0.54
1:A:141:ARG:CA	1:A:141:ARG:HE	2.14	0.54
1:A:113:THR:HG21	1:A:578:LYS:HG3	1.89	0.54
1:A:181:TYR:O	1:A:241:ASN:ND2	2.41	0.54
1:A:602:VAL:HG22	5:A:1453:HOH:O	2.06	0.54
1:A:912:ILE:C	1:A:912:ILE:HD12	2.27	0.54
1:A:587:VAL:HG22	1:A:612:VAL:HG22	1.90	0.54
1:A:171:VAL:HG12	1:A:172:ASN:OD1	2.08	0.54
1:A:737:ASN:ND2	1:A:740:ALA:HB3	2.23	0.54
1:A:772:LYS:O	1:A:776:GLU:HG3	2.07	0.54
1:A:838:PHE:N	1:A:869:ASN:HD22	2.03	0.54
1:A:926:ILE:HD12	1:A:927:VAL:N	2.22	0.54
1:A:537:THR:HG22	1:A:539:SER:H	1.71	0.54
1:B:216:GLU:O	1:B:218:ALA:N	2.39	0.54
1:B:537:THR:HG23	1:B:540:GLU:H	1.72	0.54
1:A:932:PRO:HD3	1:A:1018:ASN:HB3	1.88	0.54
1:A:833:GLN:NE2	1:A:887:ARG:HH21	2.06	0.54
1:A:655:ILE:HD12	1:A:655:ILE:N	2.23	0.53
1:A:296:ASP:OD2	1:A:302:LYS:HG3	2.07	0.53
1:B:213:TYR:CD1	1:B:513:MSE:HB3	2.43	0.53
1:A:823:PRO:HG2	1:A:929:ASN:ND2	2.22	0.53

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:926:ILE:C	1:A:926:ILE:HD12	2.29	0.53
1:A:952:LYS:CB	1:A:953:PRO:CA	2.81	0.53
1:B:213:TYR:C	1:B:214:ARG:HD2	2.28	0.53
1:B:785:GLU:HG3	1:B:969:MSE:CE	2.39	0.53
1:B:158:LYS:O	1:B:162:GLU:HG3	2.09	0.53
1:B:362:GLU:OE1	1:B:365:LYS:HE3	2.08	0.53
1:B:178:TYR:HA	1:B:226:LEU:O	2.08	0.53
1:B:749:LEU:N	1:B:749:LEU:CD2	2.67	0.53
1:A:271:LEU:CD2	1:A:319:PRO:HB2	2.39	0.53
1:A:150:TYR:N	1:A:223:GLN:HE22	2.03	0.53
1:A:798:PHE:HB3	1:A:960:TYR:CE1	2.44	0.53
1:A:882:ARG:CZ	1:B:996:MSE:HE1	2.38	0.53
1:A:585:MSE:HG2	1:A:614:ASN:HA	1.91	0.53
1:B:360:ARG:CB	1:B:360:ARG:HH11	2.15	0.53
1:A:503:ASN:HD22	1:A:503:ASN:N	2.05	0.53
1:A:698:LYS:HG2	1:A:699:GLU:N	2.22	0.53
1:A:779:GLU:O	1:A:780:ASN:HB3	2.07	0.53
1:A:801:GLN:NE2	1:A:963:ARG:HG2	2.23	0.53
1:B:231:ILE:HD11	1:B:266:LEU:HD21	1.89	0.53
1:B:775:LYS:HE3	5:B:1431:HOH:O	2.07	0.53
1:B:652:LYS:NZ	1:B:654:THR:HG23	2.23	0.53
1:B:801:GLN:NE2	1:B:963:ARG:HG2	2.24	0.53
1:A:273:ASP:HA	1:A:276:LYS:HZ3	1.73	0.52
1:B:912:ILE:HD12	1:B:913:SER:N	2.23	0.52
1:A:738:SER:HA	1:A:741:LYS:HE3	1.90	0.52
1:A:440:ARG:CZ	5:A:1614:HOH:O	2.57	0.52
1:B:358:THR:O	1:B:359:ASN:HB2	2.10	0.52
1:A:145:LYS:CD	1:A:147:LYS:HB2	2.40	0.52
1:A:168:GLY:HA3	1:A:177:TYR:HE1	1.74	0.52
1:A:867:VAL:HG12	5:A:1229:HOH:O	2.08	0.52
1:B:530:GLU:HA	1:B:541:ARG:NE	2.25	0.52
1:B:801:GLN:HE22	1:B:963:ARG:HG2	1.74	0.52
1:A:129:ILE:HG21	1:A:242:TYR:CE2	2.45	0.52
1:A:597:VAL:O	1:A:706:TYR:HA	2.08	0.52
1:B:995:THR:CG2	1:B:999:ALA:H	2.21	0.52
1:A:858:TRP:CH2	1:A:860:SER:HB3	2.45	0.52
1:B:123:GLY:CA	1:B:148:ALA:HB3	2.38	0.52
1:A:140:TRP:HZ2	1:A:205:ALA:HB3	1.75	0.52
1:B:223:GLN:HG3	5:B:1314:HOH:O	2.09	0.52
1:A:414:LEU:HD11	1:A:454:ILE:HD13	1.92	0.51
1:A:271:LEU:HB2	1:A:272:PRO:HD2	1.92	0.51

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:271:LEU:HG	1:A:321:ALA:HB3	1.92	0.51
1:B:123:GLY:HA2	1:B:148:ALA:CB	2.40	0.51
1:B:383:ASP:C	1:B:385:LYS:H	2.11	0.51
1:B:414:LEU:CD2	1:B:436:ALA:HB3	2.40	0.51
1:A:943:GLU:OE2	1:B:135:LYS:HB2	2.10	0.51
1:B:781:ILE:HA	1:B:784:ILE:CG2	2.38	0.51
1:B:419:GLN:HE22	4:B:1104:CIT:H41	1.75	0.51
1:B:964:ILE:HD13	1:B:1010:TYR:HA	1.93	0.51
1:A:246:ILE:CD1	1:A:278:ALA:HB1	2.31	0.51
1:A:666:PRO:HG2	5:A:1324:HOH:O	2.11	0.51
1:B:242:TYR:OH	1:B:259:MSE:HB3	2.10	0.51
1:B:618:LYS:NZ	1:B:620:GLN:HE22	2.09	0.51
1:B:125:VAL:HB	1:B:253:GLY:O	2.11	0.51
1:B:368:ASP:CB	1:B:387:LYS:HD3	2.41	0.51
1:A:503:ASN:ND2	1:A:504:LYS:HD3	2.26	0.51
1:A:145:LYS:C	1:A:147:LYS:H	2.15	0.50
1:B:1026:LYS:O	1:B:1029:GLU:HG2	2.12	0.50
1:B:371:TYR:HD1	1:B:390:LEU:HD22	1.76	0.50
1:B:653:ILE:HD13	1:B:663:VAL:HG22	1.93	0.50
1:B:361:PHE:CE1	1:B:434:PRO:HB2	2.46	0.50
5:A:1173:HOH:O	1:B:996:MSE:HG2	2.10	0.50
1:B:112:LYS:HG2	1:B:116:GLU:OE2	2.10	0.50
1:B:138:GLU:C	1:B:140:TRP:H	2.13	0.50
1:B:181:TYR:HE2	1:B:227:MSE:HG2	1.76	0.50
1:B:271:LEU:HD11	1:B:275:THR:HG21	1.94	0.50
1:B:345:THR:HG22	1:B:346:ALA:N	2.26	0.50
1:B:860:SER:HB2	1:B:885:LYS:O	2.12	0.50
1:A:528:GLN:HE21	1:A:532:GLN:HE22	1.56	0.50
1:B:213:TYR:H	1:B:213:TYR:HD2	1.58	0.50
1:B:367:TYR:HB2	1:B:454:ILE:HD11	1.93	0.50
1:B:371:TYR:CZ	1:B:373:ASN:HA	2.46	0.50
1:B:147:LYS:HB2	1:B:147:LYS:HZ2	1.74	0.50
1:A:271:LEU:HD22	1:A:319:PRO:HB2	1.94	0.50
1:A:358:THR:O	1:A:359:ASN:HB2	2.12	0.50
1:A:590:LYS:HA	1:A:611:ASN:OD1	2.12	0.50
1:B:584:THR:OG1	1:B:616:SER:HB3	2.11	0.50
1:B:213:TYR:N	1:B:213:TYR:CD2	2.79	0.49
1:B:849:VAL:HG23	1:B:858:TRP:HE3	1.77	0.49
1:B:178:TYR:CG	1:B:178:TYR:O	2.65	0.49
1:B:440:ARG:NH1	1:B:440:ARG:HG3	2.27	0.49
1:A:532:GLN:O	1:A:533:TYR:HB2	2.13	0.49

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:893:LYS:HE2	5:A:1334:HOH:O	2.12	0.49
1:A:945:ARG:HG3	1:A:989:LEU:O	2.12	0.49
1:B:210:LYS:O	1:B:212:PRO:HD3	2.12	0.49
1:B:331:TYR:HB2	1:B:471:LEU:HD22	1.94	0.49
1:B:496:ILE:HD11	5:B:1350:HOH:O	2.13	0.49
1:B:639:ALA:O	1:B:640:LEU:HB2	2.12	0.49
1:A:770:ILE:O	1:A:774:VAL:HG23	2.13	0.49
1:B:147:LYS:HB2	1:B:147:LYS:HZ3	1.76	0.49
1:A:250:ILE:HD11	1:A:282:ALA:HB2	1.95	0.49
1:A:671:ARG:HB2	5:A:1514:HOH:O	2.13	0.49
1:B:141:ARG:HH12	1:B:216:GLU:CD	2.16	0.49
1:B:606:PHE:CE1	1:B:667:ILE:HD12	2.48	0.49
1:B:149:ARG:O	1:B:223:GLN:NE2	2.46	0.49
1:B:283:LYS:NZ	1:B:283:LYS:HB2	2.28	0.49
1:A:542:LEU:C	1:A:542:LEU:HD23	2.34	0.49
1:A:924:ASP:HB3	5:A:1407:HOH:O	2.12	0.49
1:B:833:GLN:HE21	1:B:887:ARG:HB2	1.78	0.49
1:A:125:VAL:O	1:A:254:ALA:O	2.30	0.49
1:A:141:ARG:HA	1:A:172:ASN:HD22	1.77	0.49
1:A:203:GLY:O	1:A:204:ASN:HB2	2.13	0.49
1:A:898:VAL:HG11	1:A:903:TYR:CE2	2.48	0.49
1:B:128:VAL:HB	1:B:226:LEU:HD23	1.94	0.49
1:A:414:LEU:HD11	1:A:454:ILE:CD1	2.43	0.48
1:A:414:LEU:HD23	1:A:436:ALA:HB3	1.95	0.48
1:B:345:THR:HB	1:B:347:ASP:OD1	2.12	0.48
1:B:887:ARG:HG2	1:B:887:ARG:HH11	1.77	0.48
1:A:213:TYR:CE1	1:A:493:GLY:HA2	2.48	0.48
1:B:391:ILE:O	1:B:415:ILE:HA	2.13	0.48
1:A:215:LEU:O	1:A:216:GLU:CB	2.62	0.48
1:A:623:TYR:CD2	1:A:696:PRO:HD3	2.49	0.48
1:A:745:ASP:OD2	1:A:806:HIS:HD2	1.97	0.48
1:A:129:ILE:CD1	1:A:246:ILE:HG22	2.44	0.48
1:B:124:THR:CG2	1:B:125:VAL:N	2.76	0.48
1:B:503:ASN:ND2	1:B:504:LYS:HD2	2.24	0.48
1:A:1029:GLU:O	1:A:1030:GLY:C	2.52	0.48
1:B:782:GLU:HG3	1:B:783:ASP:OD1	2.13	0.48
1:A:174:LYS:O	1:A:175:VAL:CB	2.61	0.48
1:A:757:ASN:ND2	5:A:1129:HOH:O	2.47	0.48
1:A:845:LEU:HB3	1:A:863:THR:HB	1.96	0.48
1:B:346:ALA:C	1:B:348:GLN:H	2.16	0.48
1:A:1004:LYS:HB3	1:A:1004:LYS:NZ	2.29	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:898:VAL:CG1	1:A:903:TYR:OH	2.61	0.48
1:B:695:ASP:HB3	1:B:698:LYS:HD2	1.96	0.48
1:A:1015:MSE:HE2	1:A:1015:MSE:HA	1.94	0.48
1:A:171:VAL:O	1:A:175:VAL:O	2.31	0.48
1:B:171:VAL:HG12	1:B:171:VAL:O	2.13	0.48
1:A:533:TYR:H	1:A:534:PRO:HD3	1.79	0.48
5:A:1129:HOH:O	1:B:996:MSE:HE3	2.14	0.48
1:A:485:ILE:HG12	1:A:596:LYS:HE3	1.96	0.47
1:B:397:ASP:HB2	4:B:1106:CIT:O3	2.14	0.47
1:B:528:GLN:NE2	1:B:532:GLN:HE22	2.03	0.47
1:B:729:GLY:C	1:B:736:ALA:HB2	2.35	0.47
1:A:115:GLN:C	1:A:117:LYS:H	2.18	0.47
1:A:213:TYR:HE1	1:A:493:GLY:HA2	1.79	0.47
1:B:198:SER:HB2	1:B:202:SER:OG	2.14	0.47
1:B:849:VAL:HG23	1:B:858:TRP:CE3	2.49	0.47
1:B:946:ARG:NH2	1:B:984:ASP:OD2	2.47	0.47
1:A:391:ILE:O	1:A:415:ILE:HA	2.14	0.47
1:B:197:VAL:O	1:B:197:VAL:HG12	2.13	0.47
1:B:213:TYR:CE1	1:B:513:MSE:HB3	2.49	0.47
1:A:882:ARG:CZ	1:B:996:MSE:CE	2.92	0.47
1:B:591:ASP:OD1	1:B:593:THR:N	2.33	0.47
1:B:142:LEU:HD13	1:B:143:THR:H	1.79	0.47
1:B:912:ILE:C	1:B:912:ILE:HD12	2.35	0.47
1:A:180:ASP:OD2	1:A:228:ARG:HD3	2.14	0.47
1:A:445:LEU:HD23	1:A:445:LEU:C	2.35	0.47
1:B:141:ARG:O	1:B:142:LEU:O	2.32	0.47
1:A:226:LEU:O	1:A:227:MSE:HE3	2.14	0.47
1:B:833:GLN:NE2	1:B:884:GLU:HA	2.30	0.47
1:A:750:GLN:HA	5:A:1616:HOH:O	2.14	0.47
1:B:213:TYR:CE1	1:B:493:GLY:HA2	2.50	0.47
1:A:255:LYS:HB3	1:A:255:LYS:HZ2	1.80	0.47
1:B:874:LEU:HD23	1:B:878:LEU:HD21	1.97	0.47
1:A:265:ALA:HB3	5:A:1533:HOH:O	2.14	0.47
1:A:833:GLN:HE21	1:A:887:ARG:HE	1.62	0.47
1:B:398:PHE:CE1	1:B:425:ILE:HG21	2.50	0.47
1:A:198:SER:HB3	1:A:202:SER:OG	2.15	0.47
1:A:778:VAL:CG2	1:A:778:VAL:O	2.62	0.47
1:A:177:TYR:HB3	1:A:225:LEU:HD22	1.97	0.46
1:A:200:ILE:O	1:A:201:LEU:HB2	2.15	0.46
1:A:342:ARG:CD	1:A:457:ASN:HD21	2.28	0.46
1:A:820:ALA:CB	1:A:926:ILE:HG13	2.45	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:611:ASN:HD21	1:B:662:GLN:HG2	1.72	0.46
1:A:149:ARG:HG2	1:A:149:ARG:HH11	1.80	0.46
1:B:200:ILE:O	1:B:201:LEU:HB2	2.16	0.46
1:B:111:VAL:HG11	1:B:218:ALA:HB1	1.98	0.46
1:A:145:LYS:O	1:A:147:LYS:N	2.49	0.46
1:A:392:GLU:HB2	1:A:416:TYR:CZ	2.50	0.46
1:B:341:VAL:HA	1:B:455:THR:O	2.16	0.46
1:B:337:LEU:HA	1:B:462:VAL:HA	1.97	0.46
1:B:228:ARG:HG3	1:B:228:ARG:NH1	2.31	0.46
1:A:183:LYS:NZ	1:A:183:LYS:HB2	2.31	0.46
1:B:141:ARG:HH11	1:B:141:ARG:HG2	1.80	0.46
1:A:137:HIS:O	1:A:138:GLU:O	2.34	0.46
1:A:263:ASN:ND2	1:B:945:ARG:HG2	2.30	0.46
1:A:723:ILE:HG12	1:A:758:PHE:CD2	2.51	0.46
1:B:367:TYR:HB2	1:B:454:ILE:HD12	1.98	0.46
1:A:1026:LYS:HA	1:A:1029:GLU:HG2	1.97	0.45
1:A:215:LEU:O	1:A:216:GLU:HB2	2.16	0.45
1:A:529:TYR:O	1:A:532:GLN:O	2.33	0.45
1:A:960:TYR:CD1	1:A:961:ARG:HG3	2.52	0.45
1:B:139:ALA:C	1:B:141:ARG:N	2.70	0.45
1:B:384:VAL:O	1:B:385:LYS:C	2.55	0.45
1:B:780:ASN:HD21	1:B:783:ASP:N	2.12	0.45
1:B:898:VAL:HG21	1:B:903:TYR:CE2	2.51	0.45
1:A:153:LYS:HE3	5:A:1622:HOH:O	2.17	0.45
1:B:777:GLY:O	1:B:778:VAL:C	2.54	0.45
1:B:780:ASN:HD21	1:B:783:ASP:HB2	1.81	0.45
1:A:213:TYR:CE1	1:A:513:MSE:HB2	2.52	0.45
1:A:729:GLY:O	1:A:736:ALA:HB2	2.17	0.45
1:A:728:ASP:O	1:A:741:LYS:HG3	2.17	0.45
1:A:960:TYR:HB2	1:A:1015:MSE:HE3	1.98	0.45
1:B:125:VAL:CG1	1:B:225:LEU:HG	2.46	0.45
1:B:454:ILE:HD13	1:B:456:PHE:CE1	2.50	0.45
1:B:734:HIS:HE1	5:B:1328:HOH:O	1.98	0.45
1:A:528:GLN:HG2	1:A:532:GLN:NE2	2.32	0.45
1:A:775:LYS:NZ	5:A:1322:HOH:O	2.49	0.45
1:B:368:ASP:HB3	1:B:387:LYS:HD3	1.96	0.45
1:B:601:ASN:ND2	1:B:713:PHE:H	2.13	0.45
1:B:1029:GLU:O	1:B:1030:GLY:C	2.55	0.45
1:B:671:ARG:NH1	1:B:671:ARG:HG2	2.29	0.45
1:A:271:LEU:HD23	1:A:271:LEU:N	2.09	0.45
1:A:302:LYS:HZ3	1:A:302:LYS:HB3	1.80	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:337:LEU:CD1	1:A:460:PRO:HB2	2.46	0.45
1:B:173:ASP:O	1:B:174:LYS:C	2.55	0.45
1:B:254:ALA:C	1:B:256:VAL:H	2.20	0.45
1:A:476:SER:O	1:A:477:TRP:C	2.55	0.45
1:A:803:ASP:HB2	5:A:1141:HOH:O	2.17	0.45
1:A:157:GLU:CD	1:A:160:LYS:HE3	2.37	0.45
1:B:364:ASN:HD22	1:B:364:ASN:C	2.20	0.45
1:A:242:TYR:OH	1:A:259:MSE:HB3	2.17	0.45
1:A:850:LEU:HD21	1:A:856:VAL:HG22	1.99	0.45
1:B:228:ARG:HH21	1:B:230:GLU:CD	2.20	0.45
1:B:626:ALA:CB	1:B:665:VAL:HG11	2.47	0.45
1:A:271:LEU:CG	1:A:321:ALA:HB3	2.46	0.44
1:A:149:ARG:HG2	1:A:149:ARG:NH1	2.33	0.44
1:B:263:ASN:O	1:B:264:ALA:O	2.35	0.44
1:B:265:ALA:HB2	5:B:1597:HOH:O	2.17	0.44
1:A:556:LEU:N	1:A:570:GLN:HE22	1.89	0.44
1:B:172:ASN:OD1	1:B:173:ASP:N	2.50	0.44
1:B:111:VAL:HG11	1:B:218:ALA:CB	2.47	0.44
1:B:108:PRO:HB2	1:B:492:PRO:HG2	1.99	0.44
1:B:965:ALA:HB2	1:B:978:TYR:CE1	2.52	0.44
1:B:138:GLU:C	1:B:140:TRP:N	2.70	0.44
1:B:308:ALA:HA	1:B:638:PHE:CE1	2.53	0.44
1:B:969:MSE:HE1	1:B:974:PRO:HB3	2.00	0.44
1:A:378:GLU:HG2	1:A:379:ASP:N	2.33	0.44
1:A:471:LEU:HD21	1:A:556:LEU:HD13	1.99	0.44
1:A:528:GLN:NE2	1:A:532:GLN:NE2	2.65	0.44
1:B:786:SER:HB2	5:B:1581:HOH:O	2.18	0.44
1:A:125:VAL:CG1	1:A:225:LEU:HG	2.48	0.44
1:B:406:LYS:NZ	1:B:431:ASP:HB3	2.32	0.44
1:B:532:GLN:HG2	1:B:533:TYR:CE1	2.52	0.44
1:B:960:TYR:CD1	1:B:961:ARG:HG3	2.53	0.44
1:A:536:MSE:O	1:A:540:GLU:OE2	2.36	0.44
1:A:898:VAL:CG1	1:A:903:TYR:CZ	3.00	0.44
1:B:136:ASN:C	1:B:138:GLU:H	2.21	0.44
1:B:264:ALA:O	1:B:265:ALA:HB3	2.17	0.44
1:B:377:LYS:HB2	1:B:380:ASP:OD2	2.18	0.44
1:A:131:ALA:HA	1:A:229:VAL:O	2.18	0.44
1:A:378:GLU:O	1:A:379:ASP:CB	2.61	0.44
1:A:476:SER:HB2	1:A:569:GLN:HA	1.98	0.44
1:A:850:LEU:HD22	1:A:856:VAL:HA	2.00	0.44
1:A:982:ASN:ND2	5:A:1191:HOH:O	2.50	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:356:LEU:O	1:B:436:ALA:HA	2.17	0.44
1:B:137:HIS:CE1	1:B:513:MSE:HE3	2.53	0.44
1:B:849:VAL:HG21	1:B:888:TRP:CD2	2.53	0.44
1:A:264:ALA:HB3	5:A:1500:HOH:O	2.17	0.44
1:A:623:TYR:CE1	1:A:652:LYS:HG2	2.53	0.44
1:A:723:ILE:HG12	1:A:758:PHE:CE2	2.53	0.44
1:A:965:ALA:HB2	1:A:978:TYR:CE1	2.53	0.44
1:B:1014:ASP:C	1:B:1014:ASP:OD1	2.57	0.44
1:B:126:VAL:HA	1:B:256:VAL:HG13	2.00	0.44
1:B:734:HIS:HD2	5:B:1138:HOH:O	2.00	0.44
1:A:585:MSE:HE2	1:A:620:GLN:NE2	2.33	0.43
1:A:622:LEU:HD21	1:A:655:ILE:CD1	2.40	0.43
1:A:874:LEU:HD23	1:A:878:LEU:HD21	1.99	0.43
1:A:801:GLN:HE22	1:A:963:ARG:HG2	1.83	0.43
1:B:126:VAL:HG22	1:B:256:VAL:CG1	2.48	0.43
1:A:256:VAL:CG1	1:A:519:ALA:HB1	2.48	0.43
1:A:528:GLN:HG2	1:A:532:GLN:HE21	1.82	0.43
1:B:142:LEU:HD13	1:B:143:THR:O	2.18	0.43
1:B:409:GLY:O	1:B:410:ALA:HB3	2.18	0.43
1:B:570:GLN:HE21	1:B:573:GLY:HA2	1.83	0.43
1:B:618:LYS:CE	1:B:620:GLN:HE22	2.31	0.43
1:A:242:TYR:CE2	1:A:259:MSE:SE	3.21	0.43
1:A:337:LEU:HD11	1:A:460:PRO:HB2	2.00	0.43
1:A:946:ARG:NH2	1:A:984:ASP:OD2	2.51	0.43
1:B:344:LYS:HB2	1:B:451:GLN:CD	2.39	0.43
1:B:589:ASP:OD1	1:B:591:ASP:OD1	2.36	0.43
1:A:835:GLN:HE21	1:A:882:ARG:NE	2.04	0.43
1:A:898:VAL:HG11	1:A:903:TYR:CZ	2.54	0.43
1:B:145:LYS:HE3	1:B:221:GLU:OE1	2.17	0.43
1:A:206:PRO:O	1:A:207:SER:HB3	2.19	0.43
1:A:235:LEU:N	1:A:235:LEU:HD22	2.33	0.43
1:A:528:GLN:NE2	1:A:532:GLN:HE22	2.16	0.43
1:B:111:VAL:O	1:B:111:VAL:HG12	2.18	0.43
1:B:410:ALA:O	1:B:411:VAL:CB	2.67	0.43
1:A:749:LEU:CD1	1:B:749:LEU:HG	2.46	0.43
1:B:142:LEU:HD13	1:B:143:THR:N	2.33	0.43
1:B:214:ARG:N	1:B:214:ARG:HD2	2.34	0.43
1:A:485:ILE:CG1	1:A:596:LYS:HE3	2.48	0.43
1:A:728:ASP:HB2	5:A:1636:HOH:O	2.19	0.43
1:A:785:GLU:HG3	1:A:969:MSE:HE1	2.00	0.43
1:A:967:THR:HG22	1:A:976:THR:HA	2.00	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:172:ASN:C	1:B:173:ASP:O	2.57	0.43
1:A:1031:HIS:O	1:B:191:GLN:HG2	2.19	0.43
1:B:392:GLU:HB2	1:B:416:TYR:CZ	2.53	0.43
1:B:353:MSE:CE	1:B:446:LEU:HD11	2.44	0.43
1:B:623:TYR:HA	1:B:651:GLN:O	2.18	0.43
1:B:796:GLY:HA2	1:B:818:TYR:O	2.18	0.43
1:B:1014:ASP:OD2	1:B:1018:ASN:HB2	2.18	0.43
1:B:723:ILE:HG12	1:B:758:PHE:CD2	2.53	0.43
1:A:197:VAL:HG12	1:A:197:VAL:O	2.18	0.43
1:A:232:VAL:O	1:A:233:ASN:HB3	2.19	0.43
1:B:275:THR:O	1:B:279:PHE:HD1	2.01	0.43
1:A:209:THR:HG22	1:A:210:LYS:N	2.33	0.42
1:A:968:TYR:O	1:A:975:THR:HG22	2.19	0.42
1:B:476:SER:O	1:B:477:TRP:C	2.57	0.42
1:A:621:GLU:C	1:A:622:LEU:HD23	2.40	0.42
1:B:194:GLY:O	1:B:198:SER:HA	2.19	0.42
1:B:383:ASP:CG	1:B:384:VAL:H	2.23	0.42
1:B:485:ILE:HD12	1:B:571:GLY:HA2	2.00	0.42
1:B:556:LEU:N	1:B:570:GLN:HE22	1.90	0.42
1:B:610:VAL:HG11	1:B:704:ILE:HG21	2.01	0.42
1:A:205:ALA:N	1:A:206:PRO:CD	2.79	0.42
1:A:934:VAL:C	1:A:952:LYS:HG3	2.39	0.42
1:A:944:ASP:OD2	1:B:135:LYS:HE3	2.19	0.42
1:B:341:VAL:CG1	1:B:454:ILE:HB	2.49	0.42
1:B:384:VAL:O	1:B:384:VAL:HG12	2.19	0.42
1:B:451:GLN:O	1:B:453:THR:N	2.52	0.42
1:A:138:GLU:HG3	1:A:215:LEU:HD12	2.01	0.42
1:A:741:LYS:N	1:A:741:LYS:HE2	2.33	0.42
1:B:494:GLN:O	1:B:496:ILE:HD12	2.18	0.42
1:B:585:MSE:HE1	1:B:622:LEU:HD21	2.00	0.42
1:A:210:LYS:HD2	5:A:1303:HOH:O	2.19	0.42
1:B:369:TYR:CE1	1:B:452:LYS:HD2	2.55	0.42
1:B:554:THR:HA	1:B:700:GLU:OE1	2.19	0.42
1:A:215:LEU:C	1:A:216:GLU:HG3	2.40	0.42
1:A:388:ILE:CD1	1:A:454:ILE:HD11	2.46	0.42
1:A:537:THR:HG22	1:A:539:SER:N	2.35	0.42
1:B:780:ASN:O	1:B:782:GLU:N	2.52	0.42
1:B:858:TRP:CH2	1:B:860:SER:HB3	2.55	0.42
1:B:364:ASN:C	1:B:364:ASN:ND2	2.73	0.42
1:B:369:TYR:O	1:B:452:LYS:HB3	2.18	0.42
1:B:503:ASN:H	1:B:503:ASN:ND2	2.17	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:572:ALA:HA	1:A:705:PRO:HD3	2.00	0.42
1:B:932:PRO:HD3	1:B:1018:ASN:HB3	2.02	0.42
1:B:441:LYS:HE2	5:B:1498:HOH:O	2.19	0.42
1:A:192:GLU:C	1:A:194:GLY:H	2.23	0.42
1:A:229:VAL:HG12	1:A:238:TYR:CE1	2.55	0.42
1:B:137:HIS:CD2	1:B:211:GLU:HG2	2.55	0.42
1:B:218:ALA:O	1:B:524:LEU:HD11	2.20	0.41
1:B:584:THR:HG22	5:B:1386:HOH:O	2.20	0.41
1:A:1028:LEU:O	1:A:1029:GLU:C	2.58	0.41
1:A:175:VAL:HG12	1:A:175:VAL:O	2.21	0.41
1:B:537:THR:HG22	1:B:540:GLU:CG	2.49	0.41
1:B:611:ASN:N	1:B:611:ASN:ND2	2.68	0.41
1:B:740:ALA:HB1	1:B:743:GLN:HE21	1.85	0.41
1:A:833:GLN:NE2	1:A:884:GLU:HA	2.36	0.41
1:B:218:ALA:HB1	1:B:524:LEU:HD12	2.02	0.41
1:B:345:THR:HA	1:B:449:ASN:OD1	2.20	0.41
1:B:738:SER:O	1:B:739:ASP:CB	2.69	0.41
1:B:757:ASN:ND2	5:B:1122:HOH:O	2.53	0.41
1:B:135:LYS:O	1:B:137:HIS:N	2.53	0.41
1:B:331:TYR:HB3	1:B:471:LEU:HD13	2.03	0.41
1:B:398:PHE:HE1	1:B:425:ILE:HG21	1.84	0.41
1:A:833:GLN:NE2	1:A:887:ARG:HE	2.18	0.41
1:A:951:SER:OG	1:A:952:LYS:HG2	2.21	0.41
1:B:390:LEU:C	1:B:390:LEU:HD23	2.41	0.41
1:B:940:PHE:CZ	1:B:945:ARG:HA	2.55	0.41
1:A:156:LEU:C	1:A:156:LEU:HD13	2.41	0.41
1:A:275:THR:O	1:A:279:PHE:HD1	2.02	0.41
1:A:440:ARG:HD3	5:A:1624:HOH:O	2.20	0.41
1:B:780:ASN:C	1:B:782:GLU:N	2.71	0.41
1:B:141:ARG:HA	1:B:141:ARG:HD2	1.83	0.41
1:B:178:TYR:CD2	1:B:178:TYR:O	2.73	0.41
1:B:614:ASN:ND2	1:B:657:ALA:HA	2.36	0.41
1:B:679:GLN:HB2	1:B:679:GLN:HE21	1.67	0.41
1:A:232:VAL:O	1:A:233:ASN:CB	2.69	0.41
1:B:139:ALA:HB1	1:B:206:PRO:CA	2.38	0.41
1:B:255:LYS:HA	1:B:287:VAL:HG22	2.03	0.41
1:B:537:THR:OG1	1:B:538:PRO:HD2	2.21	0.41
1:B:801:GLN:HE22	1:B:963:ARG:CG	2.33	0.41
1:A:221:GLU:HA	1:A:221:GLU:OE2	2.20	0.41
1:A:503:ASN:ND2	1:A:503:ASN:N	2.64	0.41
1:A:174:LYS:NZ	1:A:216:GLU:OE1	2.53	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:248:ASP:O	1:B:252:LEU:HG	2.21	0.41
1:B:685:PHE:CD2	1:B:707:ILE:HD11	2.54	0.41
1:A:1028:LEU:O	1:A:1030:GLY:N	2.54	0.41
1:A:259:MSE:HG3	1:A:289:ILE:HG23	2.02	0.41
1:A:640:LEU:HD12	1:A:640:LEU:HA	1.89	0.41
1:B:133:PHE:N	1:B:133:PHE:CD1	2.89	0.41
1:B:383:ASP:C	1:B:385:LYS:N	2.74	0.41
1:B:416:TYR:HA	1:B:438:ILE:O	2.21	0.41
1:B:442:ASP:O	1:B:445:LEU:HB3	2.21	0.41
1:B:547:LYS:NZ	1:B:593:THR:O	2.54	0.41
1:A:243:ALA:O	1:A:246:ILE:HG12	2.20	0.40
1:A:946:ARG:HH21	1:B:500:VAL:HB	1.86	0.40
1:B:1029:GLU:O	1:B:1031:HIS:N	2.53	0.40
1:B:236:ALA:O	1:B:240:ARG:HG3	2.21	0.40
1:B:355:VAL:HG12	1:B:438:ILE:CG2	2.47	0.40
1:B:365:LYS:HB3	1:B:366:ALA:H	1.60	0.40
1:A:247:ARG:NH2	1:A:277:LYS:NZ	2.69	0.40
1:B:171:VAL:O	1:B:172:ASN:ND2	2.53	0.40
1:B:206:PRO:O	1:B:207:SER:CB	2.68	0.40
1:B:369:TYR:CZ	1:B:452:LYS:HA	2.57	0.40
1:B:527:LYS:HB2	1:B:527:LYS:HE3	1.94	0.40
1:B:772:LYS:O	1:B:776:GLU:HG3	2.21	0.40
1:B:910:THR:HA	1:B:911:PRO:HD3	1.98	0.40
1:A:944:ASP:O	1:A:945:ARG:CB	2.68	0.40
1:A:946:ARG:NH2	1:B:500:VAL:HB	2.36	0.40
1:B:381:PHE:O	1:B:382:LYS:C	2.59	0.40
1:B:572:ALA:HA	1:B:705:PRO:HD3	2.03	0.40
1:B:626:ALA:HB3	1:B:665:VAL:HG11	2.03	0.40
1:B:723:ILE:HD12	1:B:724:TYR:H	1.86	0.40
1:B:737:ASN:ND2	1:B:743:GLN:HE22	2.20	0.40
1:B:798:PHE:HB3	1:B:960:TYR:CE1	2.56	0.40
1:A:156:LEU:HG	1:A:176:ALA:O	2.21	0.40
1:A:850:LEU:HD22	1:A:856:VAL:HG22	2.03	0.40
1:B:264:ALA:HB3	5:B:1406:HOH:O	2.20	0.40
1:B:346:ALA:C	1:B:348:GLN:N	2.74	0.40
1:B:368:ASP:HB2	1:B:387:LYS:HD3	2.03	0.40

There are no symmetry-related clashes.

## 5.3 Torsion angles

### 5.3.1 Protein backbone

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all 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	924/926 (100%)	830 (90%)	64 (7%)	30 (3%)	5	0
1	B	924/926 (100%)	818 (88%)	70 (8%)	36 (4%)	3	0
All	All	1848/1852 (100%)	1648 (89%)	134 (7%)	66 (4%)	4	0

All (66) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	138	GLU
1	A	140	TRP
1	A	145	LYS
1	A	172	ASN
1	A	184	ASP
1	A	207	SER
1	A	254	ALA
1	A	264	ALA
1	A	592	ASN
1	A	952	LYS
1	A	1029	GLU
1	A	1030	GLY
1	B	141	ARG
1	B	142	LEU
1	B	146	THR
1	B	149	ARG
1	B	172	ASN
1	B	174	LYS
1	B	189	VAL
1	B	217	GLY
1	B	264	ALA
1	B	384	VAL
1	B	741	LYS
1	B	778	VAL
1	B	781	ILE

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Mol	Chain	Res	Type
1	B	1030	GLY
1	A	146	THR
1	A	183	LYS
1	A	233	ASN
1	A	255	LYS
1	A	323	ASP
1	B	136	ASN
1	B	173	ASP
1	B	200	ILE
1	B	364	ASN
1	B	366	ALA
1	B	408	ALA
1	B	894	ASP
1	A	141	ARG
1	A	204	ASN
1	B	144	ASP
1	B	170	TRP
1	B	185	GLY
1	B	186	LYS
1	B	233	ASN
1	B	382	LYS
1	B	385	LYS
1	B	777	GLY
1	A	200	ILE
1	A	531	THR
1	A	739	ASP
1	A	971	GLU
1	B	207	SER
1	B	367	TYR
1	B	476	SER
1	A	136	ASN
1	A	495	ASP
1	A	780	ASN
1	B	206	PRO
1	A	175	VAL
1	A	379	ASP
1	B	195	THR
1	B	495	ASP
1	A	189	VAL
1	A	537	THR
1	B	411	VAL

### 5.3.2 Protein sidechains ⓘ

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	771/760 (101%)	736 (96%)	35 (4%)	32	21
1	B	771/760 (101%)	739 (96%)	32 (4%)	34	23
All	All	1542/1520 (101%)	1475 (96%)	67 (4%)	33	22

All (67) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	106	ASN
1	A	140	TRP
1	A	141	ARG
1	A	142	LEU
1	A	183	LYS
1	A	184	ASP
1	A	213	TYR
1	A	227	MSE
1	A	242	TYR
1	A	255	LYS
1	A	271	LEU
1	A	303	THR
1	A	336	GLN
1	A	384	VAL
1	A	390	LEU
1	A	407	LYS
1	A	503	ASN
1	A	552	SER
1	A	560	ASP
1	A	602	VAL
1	A	622	LEU
1	A	640	LEU
1	A	651	GLN
1	A	723	ILE
1	A	741	LYS
1	A	758	PHE
1	A	775	LYS

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Mol	Chain	Res	Type
1	A	778	VAL
1	A	780	ASN
1	A	818	TYR
1	A	926	ILE
1	A	960	TYR
1	A	994	GLU
1	A	1004	LYS
1	A	1026	LYS
1	B	106	ASN
1	B	142	LEU
1	B	145	LYS
1	B	155	ASP
1	B	167	TYR
1	B	213	TYR
1	B	227	MSE
1	B	228	ARG
1	B	242	TYR
1	B	246	ILE
1	B	271	LEU
1	B	328	VAL
1	B	337	LEU
1	B	360	ARG
1	B	364	ASN
1	B	400	ASP
1	B	503	ASN
1	B	504	LYS
1	B	522	MSE
1	B	554	THR
1	B	640	LEU
1	B	694	GLN
1	B	723	ILE
1	B	749	LEU
1	B	758	PHE
1	B	783	ASP
1	B	785	GLU
1	B	862	VAL
1	B	952	LYS
1	B	960	TYR
1	B	994	GLU
1	B	995	THR

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (60) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	115	GLN
1	A	223	GLN
1	A	233	ASN
1	A	244	GLN
1	A	263	ASN
1	A	336	GLN
1	A	451	GLN
1	A	457	ASN
1	A	484	ASN
1	A	503	ASN
1	A	526	GLN
1	A	532	GLN
1	A	569	GLN
1	A	570	GLN
1	A	651	GLN
1	A	694	GLN
1	A	734	HIS
1	A	756	ASN
1	A	757	ASN
1	A	780	ASN
1	A	806	HIS
1	A	833	GLN
1	A	835	GLN
1	A	844	ASN
1	A	855	ASN
1	A	869	ASN
1	A	929	ASN
1	A	982	ASN
1	A	1018	ASN
1	B	115	GLN
1	B	136	ASN
1	B	204	ASN
1	B	223	GLN
1	B	241	ASN
1	B	263	ASN
1	B	349	GLN
1	B	364	ASN
1	B	419	GLN
1	B	494	GLN
1	B	503	ASN
1	B	526	GLN
1	B	532	GLN
1	B	569	GLN

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Mol	Chain	Res	Type
1	B	570	GLN
1	B	601	ASN
1	B	611	ASN
1	B	620	GLN
1	B	658	ASN
1	B	679	GLN
1	B	743	GLN
1	B	756	ASN
1	B	780	ASN
1	B	801	GLN
1	B	806	HIS
1	B	833	GLN
1	B	835	GLN
1	B	844	ASN
1	B	869	ASN
1	B	982	ASN
1	B	1018	ASN

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

## 5.4 Non-standard residues in protein, DNA, RNA chains [i](#)

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

## 5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

## 5.6 Ligand geometry [i](#)

Of 10 ligands modelled in this entry, 2 are monoatomic - leaving 8 for Mogul analysis.

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



Mol	Type	Chain	Res	Link	Bond lengths			Bond angles		
					Counts	RMSZ	# Z  > 2	Counts	RMSZ	# Z  > 2
4	CIT	A	1101	-	3,12,12	1.82	1 (33%)	3,17,17	5.03	3 (100%)
4	CIT	A	1103	-	3,12,12	1.78	1 (33%)	3,17,17	3.86	2 (66%)
4	CIT	A	1105	-	3,12,12	1.65	0	3,17,17	4.21	2 (66%)
2	ACT	A	1107	-	1,3,3	0.31	0	0,3,3	0.00	-
4	CIT	B	1102	-	3,12,12	1.57	1 (33%)	3,17,17	4.69	3 (100%)
4	CIT	B	1104	-	3,12,12	1.72	1 (33%)	3,17,17	3.95	2 (66%)
4	CIT	B	1106	-	3,12,12	1.62	0	3,17,17	4.51	3 (100%)
2	ACT	B	1108	-	1,3,3	0.56	0	0,3,3	0.00	-

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the chemical component dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

Mol	Type	Chain	Res	Link	Chirals	Torsions	Rings
4	CIT	A	1101	-	-	0/6/16/16	0/0/0/0
4	CIT	A	1103	-	-	0/6/16/16	0/0/0/0
4	CIT	A	1105	-	-	0/6/16/16	0/0/0/0
2	ACT	A	1107	-	-	0/0/0/0	0/0/0/0
4	CIT	B	1102	-	-	0/6/16/16	0/0/0/0
4	CIT	B	1104	-	-	0/6/16/16	0/0/0/0
4	CIT	B	1106	-	-	0/6/16/16	0/0/0/0
2	ACT	B	1108	-	-	0/0/0/0	0/0/0/0

All (4) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
4	A	1103	CIT	C4-C3	-2.31	1.51	1.54
4	B	1104	CIT	C4-C3	-2.17	1.51	1.54
4	B	1102	CIT	O7-C3	2.08	1.46	1.43
4	A	1101	CIT	O7-C3	2.37	1.46	1.43

All (15) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	B	1106	CIT	C3-C4-C5	2.91	119.50	114.95
4	A	1105	CIT	C3-C2-C1	3.24	120.02	114.95
4	B	1106	CIT	C3-C2-C1	3.36	120.20	114.95
4	B	1104	CIT	C3-C2-C1	3.43	120.31	114.95
4	B	1102	CIT	C3-C4-C5	3.85	120.97	114.95
4	B	1102	CIT	C3-C2-C1	4.08	121.33	114.95

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
4	A	1103	CIT	C3-C2-C1	4.09	121.34	114.95
4	A	1101	CIT	C3-C2-C1	4.44	121.89	114.95
4	A	1101	CIT	C3-C4-C5	4.70	122.29	114.95
4	A	1103	CIT	C4-C3-C2	5.29	122.93	109.75
4	B	1104	CIT	C4-C3-C2	5.77	124.11	109.75
4	A	1101	CIT	C4-C3-C2	5.84	124.29	109.75
4	B	1102	CIT	C4-C3-C2	5.87	124.37	109.75
4	A	1105	CIT	C4-C3-C2	6.33	125.52	109.75
4	B	1106	CIT	C4-C3-C2	6.41	125.72	109.75

There are no chirality outliers.

There are no torsion outliers.

There are no ring outliers.

2 monomers are involved in 2 short contacts:

Mol	Chain	Res	Type	Clashes	Symm-Clashes
4	B	1104	CIT	1	0
4	B	1106	CIT	1	0

## 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.