



Full wwPDB X-ray Structure Validation Report ⓘ

Oct 23, 2021 – 10:23 AM EDT

PDB ID : 1TCM
Title : CYCLODEXTRIN GLYCOSYLTRANSFERASE W616A MUTANT FROM
BACILLUS CIRCULANS STRAIN 251
Authors : Knegtel, R.M.A.; Dijkstra, B.W.
Deposited on : 1996-10-07
Resolution : 2.20 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 following versions of software and data (see [references ⓘ](#)) were used in the production of this report:

MolProbity : 4.02b-467
Xtriage (Phenix) : 1.13
EDS : 2.23.2
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)
Refmac : 5.8.0158
CCP4 : 7.0.044 (Gargrove)
Ideal geometry (proteins) : Engh & Huber (2001)
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)
Validation Pipeline (wwPDB-VP) : 2.23.2

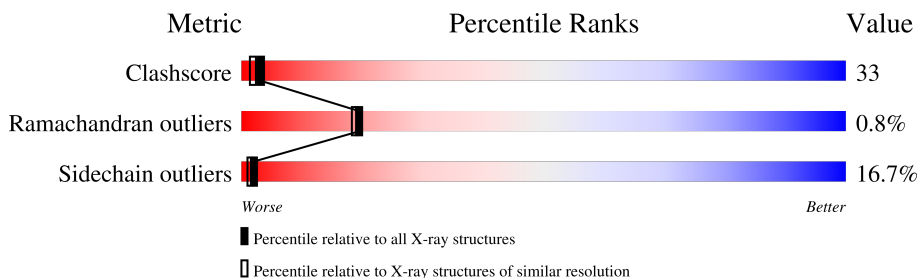
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 2.20 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	5594 (2.20-2.20)
Ramachandran outliers	138981	5503 (2.20-2.20)
Sidechain outliers	138945	5504 (2.20-2.20)

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 $\leq 5\%$.

Mol	Chain	Length	Quality of chain
1	A	686	 41% 47% 11% .
1	B	686	 46% 45% 9% .

2 Entry composition [i](#)

There are 3 unique types of molecules in this entry. The entry contains 10779 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 CYCLODEXTRIN GLYCOSYLTRANSFERASE.

Mol	Chain	Residues	Atoms					ZeroOcc	AltConf	Trace
			Total	C	N	O	S			
1	A	686	5255	3313	899	1027	16	0	0	0
1	B	686	5255	3313	899	1027	16	0	0	0

There are 2 discrepancies between the modelled and reference sequences:

Chain	Residue	Modelled	Actual	Comment	Reference
A	616	ALA	TRP	engineered mutation	UNP P43379
B	616	ALA	TRP	engineered mutation	UNP P43379

- Molecule 2 is CALCIUM ION (three-letter code: CA) (formula: Ca).

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
2	A	2	Total 2	Ca 2	0	0
2	B	2	Total 2	Ca 2	0	0

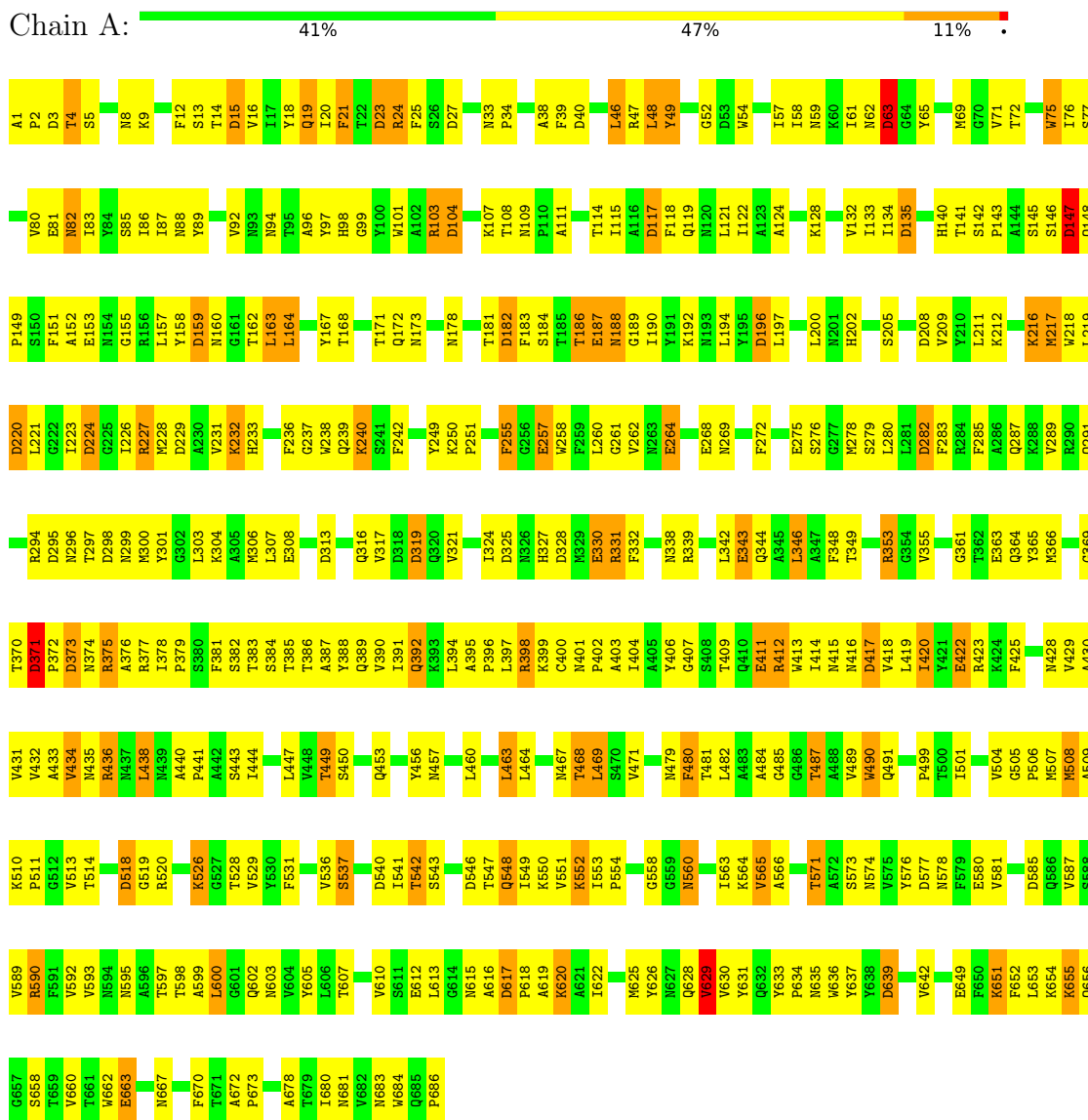
- Molecule 3 is water.

Mol	Chain	Residues	Atoms		ZeroOcc	AltConf
3	A	119	Total 119	O 119	0	0
3	B	146	Total 146	O 146	0	0

3 Residue-property plots

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

- Molecule 1: CYCLODEXTRIN GLYCOSYLTRANSFERASE



- Molecule 1: CYCLODEXTRIN GLYCOSYLTRANSFERASE



N627	A555	P396	T322	H233	Y158	I86	A1
Q628	V556	L387	F323	M234	D159	I87	P2
V629	N662	R398	I324	P235	L163	N88	D3
V630	I563	K399	D325	F236	T168	Y89	T4
Y631	K564	C400	E330	G237	N169	S90	S5
Q632	V565	N401	R331	Q239	D170	N83	V6
V633	A566	E402	F332	K240	T171	M94	S7
P634	N567	A403	H333	M243	Q172	N95	M8
N635	A405	A406	A334	Q243	N173	A96	F12
V636	A568	G407	S335	N248	L174	H98	D15
Y637	A569	S408	N336	Y249	H175	G99	W16
V638	G570	T409	A337	K250	H176	Y100	I17
D639	T571	Q410	N338	P251	H177	W101	Y18
V640	A572	E411	R339	P252	N178	A102	Y19
S641	V575	R412	K341	F253	G179	R103	I20
V642	Y576	W413	L342	T254	G180	D104	I21
P643	G502	I414	E343	F255	T181	F105	T22
K646	H503	M415	T351	G256	D182	K106	D23
T647	V504	N416	S352	E257	F183	R107	R24
I648	G505	D417	R353	E264	S184	T108	F25
E649	V506	V418	S354	E264	T185	N109	S26
F650	L582	L419	G354	E268	P110	G27	D27
K651	M508	I420	V355	M268	E187	A111	G28
F652	D585	Y421	F356	M269	N188	Y112	G28
L653	Q586	E422	A357	H270	K192	P34	G28
L654	V587	R423	I358	K271	N193	I115	G28
K655	V588	F424	Y359	E275	L194	A116	A38
G658	V589	G425	Y360	E275	F39	F39	A38
T659	F591	G426	G361	M278	Y195	F118	D40
V660	V592	S427	G365	S279	D196	L121	L46
T661	V593	M428	M366	S279	L197	I122	R47
V662	N594	V429	V366	L280	A198	L48	R48
E663	G520	A430	G369	L281	D199	Y49	Y49
S666	T597	V431	T370	D282	L200	I130	Y49
F670	V598	V432	D371	K288	N201	K131	G52
P673	A599	A433	P372	V288	H202	Y132	G52
A678	L600	V434	D373	R289	N203	I133	D53
V679	N603	N435	N374	R290	N204	I134	W54
I680	V604	R436	R375	R294	S205	D135	Q55
N681	Y605	N437	A376	D295	T206	G56	G56
V684	L606	L438	R377	D298	Y210	I57	I57
V685	T607	N439	I378	N299	L211	M38	K60
P686	G608	A440	P379	M300	K212	M139	K60
V688	S609	S443	S382	N300	D213	H140	M69
V689	V610	I444	T383	M300	A214	T141	G70
V690	E611	S445	S384	L303	I215	S142	G70
N691	L612	G446	T385	E308	K216	P143	V71
V694	G614	L447	T385	D313	M217	A144	T72
V695	N615	S450	Y388	D313	W218	S145	A73
V696	A616	L451	Q389	Q316	L219	S146	I74
V697	D617	P452	V390	Q316	I223	D147	I76
V698	P618	I549	I391	V317	D224	Q148	I76
V699	A619	R552	Q392	D318	G225	S77	S77
V700	R620	I553	K393	D319	R227	P149	Q78
V701	Y626	P554	A395	Q320	L157	A152	P79
V702				L394		E153	
V703				V321		L157	

4 Data and refinement statistics i

Property	Value	Source
Space group	P 1 21 1	Depositor
Cell constants a, b, c, α , β , γ	73.70Å 84.80Å 118.30Å 90.00° 107.00° 90.00°	Depositor
Resolution (Å)	6.50 – 2.20 6.50 – 2.20	Depositor EDS
% Data completeness (in resolution range)	(Not available) (6.50-2.20) 70.7 (6.50-2.20)	Depositor EDS
R_{merge}	0.08	Depositor
R_{sym}	(Not available)	Depositor
$\langle I/\sigma(I) \rangle$ ¹	1.92 (at 2.21Å)	Xtrriage
Refinement program	TNT	Depositor
R, R_{free}	0.193 , 0.250 0.240 , (Not available)	Depositor DCC
R_{free} test set	No test flags present.	wwPDB-VP
Wilson B-factor (Å ²)	15.3	Xtrriage
Anisotropy	0.244	Xtrriage
Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²)	0.35 , 30.9	EDS
L-test for twinning ²	$\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$	Xtrriage
Estimated twinning fraction	0.000 for h,-k,-h-l	Xtrriage
F_o, F_c correlation	0.87	EDS
Total number of atoms	10779	wwPDB-VP
Average B, all atoms (Å ²)	19.0	wwPDB-VP

Xtrriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 5.01% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

²Theoretical values of $\langle |L| \rangle$, $\langle L^2 \rangle$ for acentric reflections are 0.5, 0.333 respectively for untwinned datasets, and 0.375, 0.2 for perfectly twinned datasets.

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:
CA

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	0.61	13/5383 (0.2%)	0.89	54/7336 (0.7%)
1	B	0.63	15/5383 (0.3%)	0.87	45/7336 (0.6%)
All	All	0.62	28/10766 (0.3%)	0.88	99/14672 (0.7%)

All (28) bond length outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	B	411	GLU	CD-OE2	5.76	1.31	1.25
1	A	363	GLU	CD-OE2	5.74	1.31	1.25
1	B	649	GLU	CD-OE2	5.55	1.31	1.25
1	A	343	GLU	CD-OE2	5.53	1.31	1.25
1	B	663	GLU	CD-OE2	5.48	1.31	1.25
1	A	330	GLU	CD-OE2	5.48	1.31	1.25
1	B	612	GLU	CD-OE2	5.48	1.31	1.25
1	B	275	GLU	CD-OE2	5.40	1.31	1.25
1	B	580	GLU	CD-OE2	5.38	1.31	1.25
1	A	268	GLU	CD-OE1	5.37	1.31	1.25
1	A	275	GLU	CD-OE2	5.37	1.31	1.25
1	A	580	GLU	CD-OE1	5.33	1.31	1.25
1	B	422	GLU	CD-OE2	5.31	1.31	1.25
1	A	153	GLU	CD-OE2	5.30	1.31	1.25
1	B	308	GLU	CD-OE2	5.26	1.31	1.25
1	B	264	GLU	CD-OE2	5.25	1.31	1.25
1	B	330	GLU	CD-OE1	5.25	1.31	1.25
1	B	545	GLU	CD-OE2	5.25	1.31	1.25
1	A	663	GLU	CD-OE2	5.23	1.31	1.25
1	A	411	GLU	CD-OE2	5.18	1.31	1.25
1	B	268	GLU	CD-OE2	5.17	1.31	1.25
1	A	649	GLU	CD-OE2	5.16	1.31	1.25
1	A	187	GLU	CD-OE2	5.13	1.31	1.25
1	A	264	GLU	CD-OE2	5.11	1.31	1.25

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Mol	Chain	Res	Type	Atoms	Z	Observed(Å)	Ideal(Å)
1	A	612	GLU	CD-OE2	5.10	1.31	1.25
1	B	187	GLU	CD-OE2	5.10	1.31	1.25
1	B	257	GLU	CD-OE2	5.09	1.31	1.25
1	B	153	GLU	CD-OE2	5.01	1.31	1.25

All (99) bond angle outliers are listed below:

Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	B	135	ASP	CB-CG-OD2	-7.07	111.94	118.30
1	A	24	ARG	NE-CZ-NH1	6.52	123.56	120.30
1	A	313	ASP	CB-CG-OD2	-6.50	112.45	118.30
1	A	282	ASP	CB-CG-OD2	-6.44	112.50	118.30
1	B	53	ASP	CB-CG-OD2	-6.30	112.63	118.30
1	B	282	ASP	CB-CG-OD2	-6.22	112.70	118.30
1	A	325	ASP	CB-CG-OD2	-6.18	112.74	118.30
1	B	325	ASP	CB-CG-OD2	-6.17	112.75	118.30
1	B	371	ASP	CB-CG-OD2	-6.16	112.76	118.30
1	A	23	ASP	CB-CG-OD2	-6.12	112.79	118.30
1	A	147	ASP	CB-CG-OD2	-6.11	112.80	118.30
1	A	313	ASP	CB-CG-OD1	6.06	123.75	118.30
1	A	220	ASP	CB-CG-OD2	-6.05	112.86	118.30
1	B	135	ASP	CB-CG-OD1	6.01	123.71	118.30
1	A	182	ASP	CB-CG-OD2	-6.01	112.89	118.30
1	B	318	ASP	CB-CG-OD2	-6.01	112.89	118.30
1	A	325	ASP	CB-CG-OD1	5.99	123.69	118.30
1	A	208	ASP	CB-CG-OD2	-5.97	112.93	118.30
1	B	313	ASP	CB-CG-OD2	-5.94	112.95	118.30
1	A	63	ASP	CB-CG-OD2	-5.93	112.96	118.30
1	A	518	ASP	CB-CG-OD2	-5.93	112.96	118.30
1	A	373	ASP	CB-CG-OD2	-5.93	112.97	118.30
1	A	617	ASP	CB-CG-OD2	-5.89	113.00	118.30
1	A	23	ASP	CB-CG-OD1	5.88	123.59	118.30
1	B	540	ASP	CB-CG-OD2	-5.88	113.01	118.30
1	B	295	ASP	CB-CG-OD2	-5.87	113.02	118.30
1	B	117	ASP	CB-CG-OD2	-5.84	113.04	118.30
1	A	159	ASP	CB-CG-OD2	-5.84	113.05	118.30
1	B	182	ASP	CB-CG-OD2	-5.84	113.05	118.30
1	B	546	ASP	CB-CG-OD2	-5.82	113.06	118.30
1	A	371	ASP	CB-CG-OD2	-5.80	113.08	118.30
1	A	540	ASP	CB-CG-OD2	-5.80	113.08	118.30
1	B	639	ASP	CB-CG-OD2	-5.80	113.08	118.30
1	A	417	ASP	CB-CG-OD2	-5.77	113.10	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	585	ASP	CB-CG-OD2	-5.72	113.16	118.30
1	A	147	ASP	CB-CG-OD1	5.68	123.41	118.30
1	B	458	ASP	CB-CG-OD2	-5.68	113.19	118.30
1	B	458	ASP	CB-CG-OD1	5.65	123.39	118.30
1	B	147	ASP	CB-CG-OD2	-5.63	113.24	118.30
1	B	199	ASP	CB-CG-OD2	-5.60	113.26	118.30
1	A	319	ASP	CB-CG-OD1	5.58	123.32	118.30
1	B	417	ASP	CB-CG-OD1	-5.55	113.31	118.30
1	B	313	ASP	CB-CG-OD1	5.52	123.27	118.30
1	A	208	ASP	CB-CG-OD1	5.50	123.25	118.30
1	A	117	ASP	CB-CG-OD1	-5.49	113.36	118.30
1	A	24	ARG	NE-CZ-NH2	-5.47	117.56	120.30
1	B	373	ASP	CB-CG-OD2	-5.47	113.37	118.30
1	B	298	ASP	CB-CG-OD2	-5.47	113.38	118.30
1	B	40	ASP	CB-CG-OD2	-5.46	113.39	118.30
1	B	331	ARG	NE-CZ-NH1	5.46	123.03	120.30
1	A	295	ASP	CB-CG-OD2	-5.46	113.39	118.30
1	A	104	ASP	CB-CG-OD2	-5.43	113.41	118.30
1	B	53	ASP	CB-CG-OD1	5.42	123.17	118.30
1	A	639	ASP	CB-CG-OD2	-5.41	113.43	118.30
1	A	328	ASP	CB-CG-OD1	5.41	123.17	118.30
1	A	282	ASP	CB-CG-OD1	5.40	123.16	118.30
1	B	170	ASP	CB-CG-OD2	-5.40	113.44	118.30
1	A	15	ASP	CB-CG-OD2	-5.39	113.45	118.30
1	B	319	ASP	CB-CG-OD2	-5.39	113.45	118.30
1	A	182	ASP	CB-CG-OD1	5.38	123.14	118.30
1	A	373	ASP	CB-CG-OD1	5.37	123.14	118.30
1	A	546	ASP	CB-CG-OD2	-5.37	113.47	118.30
1	A	117	ASP	CB-CG-OD2	5.36	123.12	118.30
1	A	229	ASP	CB-CG-OD2	-5.34	113.50	118.30
1	B	518	ASP	CB-CG-OD2	-5.32	113.52	118.30
1	A	417	ASP	CB-CG-OD1	5.32	123.08	118.30
1	B	546	ASP	CB-CG-OD1	5.31	123.08	118.30
1	B	117	ASP	CB-CG-OD1	5.31	123.08	118.30
1	A	319	ASP	CB-CG-OD2	-5.31	113.52	118.30
1	A	159	ASP	CB-CG-OD1	5.30	123.07	118.30
1	B	325	ASP	CB-CG-OD1	5.29	123.06	118.30
1	B	318	ASP	CB-CG-OD1	5.29	123.06	118.30
1	B	577	ASP	CB-CG-OD2	5.27	123.05	118.30
1	B	23	ASP	CB-CG-OD1	5.27	123.04	118.30
1	A	617	ASP	CB-CG-OD1	5.25	123.03	118.30
1	A	585	ASP	CB-CG-OD1	5.25	123.03	118.30

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Mol	Chain	Res	Type	Atoms	Z	Observed(°)	Ideal(°)
1	A	371	ASP	CB-CG-OD1	5.25	123.03	118.30
1	B	104	ASP	CB-CG-OD2	-5.25	113.58	118.30
1	A	196	ASP	CB-CG-OD2	-5.24	113.58	118.30
1	B	371	ASP	CB-CG-OD1	5.24	123.02	118.30
1	A	540	ASP	CB-CG-OD1	5.21	122.99	118.30
1	A	27	ASP	CB-CG-OD1	5.20	122.98	118.30
1	A	63	ASP	CB-CG-OD1	5.20	122.98	118.30
1	B	295	ASP	CB-CG-OD1	5.20	122.98	118.30
1	B	196	ASP	CB-CG-OD2	-5.20	113.62	118.30
1	A	3	ASP	CB-CG-OD1	5.14	122.92	118.30
1	A	196	ASP	CB-CG-OD1	5.13	122.91	118.30
1	B	540	ASP	CB-CG-OD1	5.12	122.91	118.30
1	A	298	ASP	CB-CG-OD2	-5.11	113.70	118.30
1	B	298	ASP	CB-CG-OD1	5.11	122.90	118.30
1	A	639	ASP	CB-CG-OD1	5.10	122.89	118.30
1	B	182	ASP	CB-CG-OD1	5.10	122.89	118.30
1	A	40	ASP	CB-CG-OD2	-5.09	113.72	118.30
1	B	147	ASP	CB-CG-OD1	5.08	122.87	118.30
1	A	298	ASP	CB-CG-OD1	5.07	122.86	118.30
1	B	23	ASP	CB-CG-OD2	-5.02	113.78	118.30
1	B	639	ASP	CB-CG-OD1	5.02	122.82	118.30
1	A	135	ASP	CB-CG-OD2	-5.00	113.80	118.30
1	B	282	ASP	CB-CG-OD1	5.00	122.80	118.30

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	5255	0	5020	364	0
1	B	5255	0	5020	325	0
2	A	2	0	0	0	0
2	B	2	0	0	0	0
3	A	119	0	0	10	0
3	B	146	0	0	14	0

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Mol	Chain	Non-H	H(model)	H(added)	Clashes	Symm-Clashes
All	All	10779	0	10040	685	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 33.

All (685) 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:413:TRP:HB3	1:A:420:ILE:HG13	1.19	1.14
1:A:38:ALA:HB2	1:A:86:ILE:HD11	1.35	1.07
1:A:285:PHE:HA	1:A:306:MET:HE1	1.40	1.04
1:A:618:PRO:HG3	1:A:662:TRP:HZ2	1.28	0.98
1:B:409:THR:HG23	1:B:423:ARG:HD3	1.48	0.95
1:B:299:ASN:HA	1:B:436:ARG:NH2	1.84	0.93
1:B:300:MET:HG3	1:B:419:LEU:HB2	1.51	0.91
1:B:383:THR:HG22	1:B:388:TYR:CZ	2.06	0.90
1:A:432:VAL:HG13	1:A:489:VAL:HG22	1.53	0.89
1:B:517:ILE:HD13	1:B:563:ILE:HD11	1.54	0.89
1:B:526:LYS:HE2	1:B:541:ILE:HB	1.56	0.86
1:B:25:PHE:CE2	1:B:60:LYS:HG3	2.10	0.86
1:B:25:PHE:HE2	1:B:60:LYS:HG3	1.37	0.86
1:B:48:LEU:HD12	1:B:95:THR:HG23	1.56	0.86
1:B:194:LEU:HB3	1:B:197:LEU:HD12	1.58	0.85
1:B:395:ALA:HB3	1:B:396:PRO:HD3	1.56	0.85
1:A:140:HIS:CD2	1:A:197:LEU:HD13	2.12	0.85
1:B:517:ILE:CD1	1:B:563:ILE:HD11	2.06	0.85
1:A:12:PHE:CE2	1:A:133:ILE:HD11	2.12	0.84
1:B:12:PHE:CE2	1:B:133:ILE:HD11	2.14	0.83
1:B:249:TYR:CE2	1:B:250:LYS:HD2	2.13	0.83
1:B:409:THR:HG23	1:B:423:ARG:CD	2.07	0.83
1:A:432:VAL:HG13	1:A:489:VAL:CG2	2.07	0.83
1:A:501:ILE:HD11	1:A:565:VAL:HG22	1.62	0.81
1:B:423:ARG:HG3	1:B:423:ARG:HH11	1.45	0.81
1:B:633:TYR:CD1	1:B:634:PRO:HA	2.16	0.80
1:A:395:ALA:HB3	1:A:396:PRO:HD3	1.62	0.80
1:A:260:LEU:HD22	1:A:264:GLU:HG2	1.63	0.79
1:A:38:ALA:CB	1:A:86:ILE:HD11	2.12	0.79
1:A:285:PHE:HA	1:A:306:MET:CE	2.11	0.79
1:A:633:TYR:CD2	1:A:634:PRO:HA	2.17	0.79
1:B:633:TYR:HA	1:B:635:ASN:H	1.46	0.79
1:B:317:VAL:HG21	1:B:353:ARG:HD2	1.63	0.79

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:618:PRO:HG3	1:A:662:TRP:CZ2	2.16	0.79
1:B:317:VAL:HG22	1:B:353:ARG:HG3	1.65	0.78
1:A:251:PRO:HB3	1:A:506:PRO:HG3	1.63	0.78
1:B:17:ILE:HB	1:B:357:ALA:HA	1.64	0.78
1:A:389:GLN:HA	1:A:392:GLN:HG2	1.66	0.77
1:B:554:PRO:HB2	1:B:556:VAL:HG13	1.66	0.77
1:B:299:ASN:HA	1:B:436:ARG:HH22	1.48	0.77
1:A:240:LYS:HE3	1:A:508:MET:SD	2.26	0.76
1:B:300:MET:HB3	1:B:414:ILE:HD11	1.66	0.76
1:A:361:GLY:O	1:A:366:MET:HG3	1.86	0.76
1:B:351:THR:HG22	3:B:768:HOH:O	1.86	0.75
1:B:248:ASN:OD1	1:B:510:LYS:HG2	1.86	0.75
1:B:438:LEU:HD12	1:B:485:GLY:HA3	1.68	0.75
1:A:262:VAL:HG13	1:A:291:GLN:OE1	1.86	0.75
1:B:69:MET:HG3	1:B:388:TYR:CE2	2.21	0.75
1:A:598:THR:HG22	1:A:654:LYS:HE2	1.67	0.74
1:A:183:PHE:HA	3:A:711:HOH:O	1.86	0.74
1:A:589:VAL:HG22	1:A:678:ALA:HB3	1.69	0.74
1:A:536:VAL:HG11	1:A:551:VAL:HG21	1.68	0.74
1:B:289:VAL:HG11	1:B:324:ILE:HG22	1.69	0.74
1:A:331:ARG:NH1	1:A:366:MET:HE2	2.03	0.73
1:B:251:PRO:HB3	1:B:506:PRO:HG3	1.69	0.73
1:A:386:THR:O	1:A:390:VAL:HG23	1.89	0.73
1:A:536:VAL:HG11	1:A:551:VAL:CG2	2.17	0.73
1:B:142:SER:HB2	1:B:143:PRO:HD2	1.69	0.73
1:A:520:ARG:HH11	1:A:520:ARG:HG2	1.53	0.73
1:A:38:ALA:O	1:A:49:TYR:HB2	1.89	0.72
1:A:673:PRO:HG2	1:A:678:ALA:HB2	1.71	0.72
1:B:140:HIS:CD2	1:B:197:LEU:HD22	2.25	0.72
1:B:251:PRO:HB3	1:B:506:PRO:CG	2.20	0.72
1:B:108:THR:HG23	1:B:115:ILE:HD13	1.71	0.72
1:B:108:THR:CG2	1:B:115:ILE:HD13	2.19	0.71
1:B:642:VAL:HG12	1:B:643:PRO:HD2	1.73	0.71
1:B:4:THR:HG22	1:B:399:LYS:HD2	1.70	0.71
1:B:564:LYS:HG2	1:B:565:VAL:N	2.05	0.71
1:A:543:SER:OG	1:A:550:LYS:HB2	1.91	0.71
1:A:157:LEU:O	1:A:164:LEU:HB2	1.91	0.71
1:B:594:ASN:HA	1:B:635:ASN:HD22	1.55	0.70
1:B:590:ARG:HG3	1:B:639:ASP:OD1	1.92	0.70
1:A:220:ASP:OD1	1:A:250:LYS:HE2	1.92	0.69
1:B:250:LYS:O	1:B:252:VAL:HG13	1.91	0.69

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:108:THR:HG22	1:A:218:TRP:HH2	1.58	0.69
1:A:143:PRO:HB3	1:A:196:ASP:OD2	1.93	0.69
1:B:24:ARG:HG3	1:B:375:ARG:O	1.93	0.69
1:B:8:ASN:O	1:B:131:LYS:HE2	1.92	0.69
1:A:216:LYS:HG3	1:A:249:TYR:CE2	2.26	0.69
1:A:374:ASN:OD1	1:A:375:ARG:HD2	1.93	0.69
1:A:520:ARG:HD3	1:A:547:THR:HG22	1.74	0.68
1:B:226:ILE:HD12	1:B:252:VAL:CG2	2.22	0.68
1:B:594:ASN:HA	1:B:635:ASN:ND2	2.08	0.68
1:A:590:ARG:HB2	1:A:639:ASP:OD1	1.94	0.68
1:B:389:GLN:O	1:B:393:LYS:HG2	1.94	0.68
1:A:397:LEU:HD23	1:A:400:CYS:SG	2.34	0.68
1:B:317:VAL:HG21	1:B:353:ARG:HH11	1.58	0.67
1:B:46:LEU:HD22	1:B:376:ALA:HA	1.76	0.67
1:A:75:TRP:HA	1:A:133:ILE:O	1.95	0.67
1:B:592:VAL:HG22	1:B:637:TYR:HB3	1.76	0.67
1:A:108:THR:CG2	1:A:115:ILE:HD13	2.24	0.67
1:B:633:TYR:HA	1:B:635:ASN:N	2.09	0.67
1:A:21:PHE:HE2	1:A:327:HIS:HB3	1.60	0.67
1:A:460:LEU:CD1	1:A:464:LEU:HD12	2.24	0.67
1:B:654:LYS:HE2	1:B:684:TRP:CZ2	2.30	0.67
1:B:24:ARG:HH12	1:B:46:LEU:HB3	1.58	0.67
1:B:331:ARG:HD3	3:B:790:HOH:O	1.95	0.67
1:B:394:LEU:HD21	1:B:489:VAL:HG21	1.76	0.67
1:A:518:ASP:OD1	1:A:548:GLN:HB2	1.95	0.66
1:A:12:PHE:HA	1:A:15:ASP:OD2	1.95	0.66
1:B:331:ARG:CZ	1:B:366:MET:HE2	2.26	0.66
1:B:563:ILE:HG23	1:B:576:TYR:HB3	1.76	0.66
1:A:299:ASN:OD1	1:A:301:TYR:HB2	1.94	0.66
1:A:316:GLN:HB2	3:A:696:HOH:O	1.95	0.66
1:B:414:ILE:HG13	1:B:415:ASN:N	2.09	0.66
1:A:261:GLY:O	1:A:264:GLU:HB3	1.96	0.66
1:A:12:PHE:O	1:A:355:VAL:HG13	1.96	0.66
1:B:4:THR:CG2	1:B:399:LYS:HD2	2.25	0.66
1:B:106:LYS:HB3	1:B:217:MET:HE1	1.78	0.66
1:A:304:LYS:HG2	1:A:308:GLU:OE2	1.96	0.66
1:B:26:SER:O	1:B:52:GLY:HA2	1.96	0.65
1:B:227:ARG:HG2	1:B:255:PHE:CE2	2.30	0.65
1:B:575:VAL:HG12	1:B:577:ASP:OD1	1.96	0.65
1:B:149:PRO:HG3	1:B:168:THR:HG21	1.78	0.65
1:A:308:GLU:HA	3:A:803:HOH:O	1.97	0.65

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:260:LEU:HB2	1:A:283:PHE:CB	2.26	0.65
1:B:290:ARG:HH11	1:B:290:ARG:HB3	1.61	0.65
1:A:108:THR:HG23	1:A:115:ILE:HD13	1.78	0.65
1:A:19:GLN:HG3	1:A:75:TRP:CE3	2.32	0.65
1:B:106:LYS:HB3	1:B:217:MET:CE	2.27	0.65
1:B:633:TYR:CG	1:B:634:PRO:HA	2.31	0.65
1:A:260:LEU:HB2	1:A:283:PHE:HB3	1.78	0.64
1:B:4:THR:HG22	1:B:399:LYS:CD	2.28	0.64
1:A:285:PHE:O	1:A:289:VAL:HG23	1.97	0.64
1:A:12:PHE:HB3	1:A:355:VAL:HG11	1.78	0.64
1:B:48:LEU:HD12	1:B:95:THR:CG2	2.27	0.64
1:A:134:ILE:CD1	1:A:223:ILE:HG21	2.28	0.64
1:A:272:PHE:CD2	1:A:280:LEU:HD21	2.33	0.64
1:A:420:ILE:HD12	1:A:447:LEU:CD1	2.27	0.64
1:A:134:ILE:HD13	1:A:223:ILE:HG21	1.80	0.64
1:B:178:ASN:HB3	1:B:192:LYS:HE2	1.79	0.64
1:A:509:ALA:HB1	1:A:513:VAL:HG21	1.79	0.63
1:A:192:LYS:HE3	1:A:629:VAL:CG1	2.28	0.63
1:A:413:TRP:HB3	1:A:420:ILE:CG1	2.12	0.63
1:B:540:ASP:O	1:B:552:LYS:HG3	1.98	0.63
1:A:304:LYS:HE3	1:A:411:GLU:HB3	1.81	0.63
1:A:531:PHE:CD2	1:A:554:PRO:HG3	2.33	0.63
1:B:341:LYS:HG2	1:B:438:LEU:HD21	1.79	0.63
1:A:501:ILE:HD11	1:A:565:VAL:CG2	2.29	0.63
1:B:108:THR:HG23	1:B:115:ILE:CD1	2.29	0.63
1:B:226:ILE:HD12	1:B:252:VAL:HG21	1.81	0.63
1:B:410:GLN:HE21	1:B:412:ARG:HD2	1.63	0.63
1:A:8:ASN:HB3	3:A:785:HOH:O	1.99	0.62
1:A:513:VAL:HB	1:A:553:ILE:HD12	1.79	0.62
1:A:87:ILE:HD13	1:A:143:PRO:HG2	1.81	0.62
1:A:670:PHE:CE2	1:A:680:ILE:HD11	2.34	0.62
1:B:447:LEU:HB3	3:B:806:HOH:O	1.98	0.62
1:A:300:MET:SD	1:A:303:LEU:HD23	2.39	0.62
1:A:316:GLN:O	1:A:319:ASP:HB2	1.99	0.62
1:B:204:ASN:OD1	1:B:206:THR:HB	1.99	0.62
1:A:142:SER:HB2	1:A:143:PRO:HD2	1.81	0.62
1:A:560:ASN:ND2	1:A:578:ASN:HA	2.14	0.62
1:A:87:ILE:HD12	1:A:101:TRP:CZ3	2.35	0.62
1:A:192:LYS:HE3	1:A:629:VAL:HG13	1.79	0.62
1:B:585:ASP:C	1:B:586:GLN:HG2	2.20	0.62
1:B:673:PRO:HG3	1:B:678:ALA:HB2	1.80	0.62

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:178:ASN:O	1:A:192:LYS:HE2	1.99	0.62
1:B:507:MET:HE3	1:B:579:PHE:HA	1.82	0.62
1:A:217:MET:HE1	1:A:218:TRP:CE2	2.34	0.62
1:A:633:TYR:CG	1:A:634:PRO:HA	2.35	0.62
1:A:216:LYS:HE3	1:A:219:LEU:HD12	1.81	0.62
1:A:463:LEU:HD12	1:A:463:LEU:O	2.00	0.62
1:B:435:ASN:O	1:B:485:GLY:HA2	1.99	0.61
1:B:300:MET:CG	1:B:419:LEU:HB2	2.29	0.61
1:B:12:PHE:HB3	1:B:355:VAL:HG11	1.83	0.61
1:B:87:ILE:HG21	1:B:89:TYR:CE2	2.35	0.61
1:B:417:ASP:O	1:B:436:ARG:HG3	2.00	0.61
1:A:108:THR:HG23	1:A:115:ILE:CD1	2.30	0.61
1:A:589:VAL:HG11	1:A:680:ILE:CD1	2.30	0.61
1:A:551:VAL:HG22	1:A:552:LYS:N	2.15	0.61
1:A:537:SER:HA	1:A:541:ILE:HD11	1.82	0.61
1:A:304:LYS:HE3	1:A:411:GLU:CB	2.31	0.61
1:B:423:ARG:HG3	1:B:423:ARG:NH1	2.15	0.61
1:A:420:ILE:HG21	1:A:447:LEU:HD11	1.83	0.61
1:B:504:VAL:HB	1:B:576:TYR:CE2	2.35	0.61
1:A:383:THR:HG22	1:A:388:TYR:CZ	2.35	0.60
1:B:182:ASP:OD2	1:B:184:SER:HB3	2.01	0.60
1:B:429:VAL:HG12	1:B:430:ALA:N	2.16	0.60
1:A:457:ASN:HA	1:A:468:THR:HG22	1.82	0.60
1:B:82:ASN:O	1:B:103:ARG:HD2	2.01	0.60
1:B:300:MET:HG3	1:B:419:LEU:CB	2.29	0.60
1:B:390:VAL:HG13	1:B:394:LEU:HD12	1.83	0.60
1:B:609:SER:HA	3:B:812:HOH:O	2.01	0.60
1:A:58:ILE:HG23	1:A:124:ALA:CB	2.31	0.60
1:A:602:GLN:HB2	1:A:656:GLN:HB3	1.84	0.60
1:A:511:PRO:HA	1:A:553:ILE:HG22	1.82	0.60
1:A:285:PHE:HE2	1:A:349:THR:HG1	1.49	0.60
1:B:633:TYR:CA	1:B:635:ASN:H	2.14	0.60
1:B:603:ASN:O	1:B:654:LYS:HA	2.02	0.59
1:B:414:ILE:HG13	1:B:415:ASN:H	1.66	0.59
1:A:469:LEU:HD21	1:A:471:VAL:CG2	2.32	0.59
1:B:142:SER:HB2	1:B:143:PRO:CD	2.32	0.59
1:B:403:ALA:O	1:B:423:ARG:HB3	2.02	0.59
1:A:272:PHE:HD2	1:A:280:LEU:HD21	1.68	0.59
1:A:592:VAL:HB	1:A:681:ASN:HA	1.83	0.59
1:B:136:PHE:O	1:B:138:PRO:HD3	2.03	0.59
1:A:403:ALA:HA	1:A:425:PHE:CB	2.33	0.59

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:589:VAL:HG11	1:A:680:ILE:HD11	1.84	0.59
1:B:28:GLY:O	1:B:55:GLN:HG2	2.02	0.59
1:B:632:GLN:O	1:B:635:ASN:HB2	2.02	0.59
1:B:1:ALA:HB1	1:B:2:PRO:HD2	1.85	0.59
1:B:108:THR:O	1:B:110:PRO:HD3	2.03	0.59
1:B:617:ASP:OD2	1:B:620:LYS:HG3	2.03	0.59
1:A:417:ASP:OD1	1:A:436:ARG:HD2	2.03	0.59
1:B:195:TYR:HA	3:B:732:HOH:O	2.03	0.58
1:B:616:ALA:O	1:B:618:PRO:HD3	2.03	0.58
1:B:444:ILE:HD13	1:B:482:LEU:HB2	1.85	0.58
1:B:235:PRO:O	1:B:239:GLN:HG3	2.03	0.58
1:B:369:GLY:O	1:B:374:ASN:HB3	2.04	0.58
1:B:138:PRO:HB3	1:B:211:LEU:HD13	1.85	0.58
1:B:194:LEU:HD21	1:B:233:HIS:CD2	2.39	0.58
1:B:353:ARG:HG2	1:B:354:GLY:N	2.17	0.58
1:A:291:GLN:O	1:A:296:ASN:HA	2.03	0.57
1:A:364:GLN:OE1	1:A:385:THR:HG21	2.03	0.57
1:A:413:TRP:CZ3	1:A:418:VAL:HG11	2.39	0.57
1:A:653:LEU:CD1	1:A:655:LYS:HG2	2.34	0.57
1:A:435:ASN:O	1:A:485:GLY:HA2	2.03	0.57
1:A:514:THR:HB	3:A:746:HOH:O	2.03	0.57
1:B:57:ILE:HG21	1:B:121:LEU:HD11	1.86	0.57
1:A:260:LEU:CD2	1:A:264:GLU:HG2	2.32	0.57
1:A:499:PRO:O	1:A:573:SER:HB2	2.04	0.57
1:A:422:GLU:HB2	1:A:431:VAL:HG22	1.87	0.57
1:B:417:ASP:HA	1:B:436:ARG:HD2	1.86	0.57
1:A:361:GLY:HA3	1:A:366:MET:SD	2.44	0.57
1:B:517:ILE:HB	1:B:549:ILE:HB	1.87	0.57
1:B:317:VAL:CG2	1:B:353:ARG:HD2	2.34	0.57
1:B:630:VAL:HG23	1:B:637:TYR:OH	2.03	0.57
1:A:511:PRO:HA	1:A:553:ILE:CG2	2.35	0.57
1:B:318:ASP:HB2	3:B:722:HOH:O	2.03	0.57
1:B:403:ALA:O	1:B:407:GLY:HA3	2.04	0.57
1:A:34:PRO:HG2	1:A:49:TYR:CG	2.39	0.57
1:A:307:LEU:HD13	1:A:409:THR:HG21	1.86	0.57
1:A:464:LEU:HD12	1:A:487:THR:HG21	1.87	0.57
1:A:122:ILE:HD13	1:A:132:VAL:HG21	1.85	0.56
1:A:403:ALA:HB2	1:A:428:ASN:O	2.05	0.56
1:B:421:TYR:CZ	1:B:432:VAL:HB	2.40	0.56
1:A:9:LYS:HG2	1:A:224:ASP:HA	1.86	0.56
1:A:566:ALA:HA	1:A:571:THR:O	2.05	0.56

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:366:MET:SD	1:B:379:PRO:HD3	2.46	0.56
1:B:398:ARG:NH1	1:B:404:ILE:HG22	2.20	0.56
1:A:188:ASN:O	1:A:192:LYS:HG3	2.06	0.56
1:A:205:SER:O	1:A:209:VAL:HG23	2.05	0.56
1:A:505:GLY:HA2	1:A:506:PRO:C	2.24	0.56
1:A:599:ALA:O	1:A:602:GLN:HB3	2.05	0.56
1:B:219:LEU:HD13	1:B:250:LYS:HB2	1.88	0.56
1:B:517:ILE:HD11	1:B:563:ILE:HD11	1.87	0.56
1:A:285:PHE:CA	1:A:306:MET:HE1	2.24	0.56
1:A:654:LYS:HG3	1:A:684:TRP:CH2	2.41	0.56
1:A:19:GLN:HG3	1:A:75:TRP:CZ3	2.41	0.56
1:B:630:VAL:HG12	1:B:631:TYR:CE1	2.41	0.56
1:A:397:LEU:HA	1:A:400:CYS:SG	2.45	0.56
1:A:403:ALA:HA	1:A:425:PHE:HB3	1.88	0.56
1:A:467:ASN:HD21	1:A:480:PHE:HD2	1.52	0.56
1:A:504:VAL:HG11	1:A:563:ILE:HD12	1.88	0.56
1:B:531:PHE:CE2	1:B:554:PRO:HD3	2.41	0.56
1:A:403:ALA:O	1:A:423:ARG:HB3	2.06	0.56
1:A:520:ARG:HG2	1:A:520:ARG:NH1	2.19	0.55
1:A:670:PHE:CZ	1:A:680:ILE:HD11	2.41	0.55
1:A:499:PRO:HB2	1:A:573:SER:HB3	1.87	0.55
1:B:237:GLY:HA3	1:B:639:ASP:O	2.06	0.55
1:A:218:TRP:CE3	1:A:221:LEU:HD12	2.42	0.55
1:B:243:MET:SD	1:B:254:THR:HG21	2.47	0.55
1:A:81:GLU:CD	1:A:103:ARG:HD3	2.27	0.55
1:A:402:PRO:HG3	1:A:520:ARG:NH2	2.21	0.55
1:A:19:GLN:HG3	1:A:75:TRP:CD2	2.41	0.55
1:A:403:ALA:O	1:A:407:GLY:HA3	2.06	0.55
1:A:414:ILE:HG13	1:A:418:VAL:O	2.06	0.55
1:B:187:GLU:OE2	1:B:626:TYR:HB3	2.07	0.55
1:A:415:ASN:OD1	1:A:418:VAL:HB	2.07	0.54
1:A:460:LEU:O	1:A:463:LEU:HB2	2.07	0.54
1:A:227:ARG:NH1	1:A:257:GLU:HB2	2.22	0.54
1:B:406:TYR:HB2	1:B:425:PHE:CD2	2.42	0.54
1:A:444:ILE:N	1:A:444:ILE:HD12	2.22	0.54
1:A:558:GLY:HA2	1:A:581:VAL:O	2.08	0.54
1:A:605:TYR:CD1	1:A:655:LYS:HG3	2.42	0.54
1:B:147:ASP:C	1:B:149:PRO:HD3	2.28	0.54
1:B:188:ASN:O	1:B:192:LYS:HB2	2.07	0.54
1:A:307:LEU:HD11	3:A:693:HOH:O	2.07	0.54
1:B:290:ARG:HH11	1:B:290:ARG:CB	2.20	0.54

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:514:THR:OG1	1:A:552:LYS:HG3	2.08	0.54
1:B:1:ALA:HB1	1:B:2:PRO:CD	2.38	0.54
1:A:282:ASP:OD2	1:A:285:PHE:HB2	2.08	0.54
1:A:24:ARG:NH1	1:A:46:LEU:HD22	2.22	0.54
1:A:630:VAL:HB	1:A:637:TYR:CE2	2.43	0.54
1:B:511:PRO:HA	1:B:553:ILE:HB	1.89	0.54
1:B:339:ARG:HD3	3:B:781:HOH:O	2.07	0.53
1:B:552:LYS:NZ	1:B:552:LYS:HB3	2.22	0.53
1:A:300:MET:HB3	1:A:414:ILE:HD11	1.90	0.53
1:B:223:ILE:HD12	1:B:225:GLY:O	2.08	0.53
1:B:303:LEU:HD23	1:B:419:LEU:CD2	2.39	0.53
1:B:650:PHE:CE1	1:B:670:PHE:HD1	2.26	0.53
1:A:158:TYR:CE2	1:A:163:LEU:HG	2.44	0.53
1:B:330:GLU:HB3	1:B:369:GLY:HA2	1.89	0.53
1:B:585:ASP:HA	3:B:766:HOH:O	2.07	0.53
1:A:54:TRP:HE1	1:A:76:ILE:HD12	1.73	0.53
1:A:62:ASN:HD22	1:A:128:LYS:HD2	1.73	0.53
1:B:418:VAL:HG13	1:B:434:VAL:O	2.07	0.53
1:A:92:VAL:HG23	1:A:94:ASN:HD21	1.73	0.53
1:B:585:ASP:O	1:B:586:GLN:HG2	2.08	0.53
1:A:223:ILE:HG13	1:A:223:ILE:O	2.07	0.53
1:A:135:ASP:OD1	1:A:227:ARG:HB3	2.09	0.53
1:A:560:ASN:HD21	1:A:578:ASN:HA	1.72	0.53
1:A:429:VAL:HG12	1:A:430:ALA:H	1.73	0.53
1:A:429:VAL:HG12	1:A:430:ALA:N	2.24	0.53
1:B:88:ASN:HB3	3:B:721:HOH:O	2.07	0.53
1:B:414:ILE:HD12	1:B:419:LEU:HD13	1.89	0.53
1:B:290:ARG:HH11	1:B:290:ARG:CG	2.22	0.53
1:B:317:VAL:HG22	1:B:353:ARG:CG	2.37	0.53
1:B:526:LYS:O	1:B:568:ALA:HB2	2.09	0.53
1:B:652:PHE:HB3	1:B:684:TRP:HZ3	1.74	0.53
1:B:317:VAL:CG2	1:B:353:ARG:HH11	2.21	0.52
1:A:324:ILE:HD12	1:A:332:PHE:CD2	2.44	0.52
1:A:383:THR:HG22	1:A:388:TYR:CE2	2.45	0.52
1:A:231:VAL:HG12	1:A:239:GLN:OE1	2.09	0.52
1:A:339:ARG:O	1:A:343:GLU:HG3	2.10	0.52
1:A:653:LEU:HD12	1:A:653:LEU:C	2.29	0.52
1:B:651:LYS:HG3	1:B:652:PHE:H	1.74	0.52
1:A:81:GLU:CG	1:A:103:ARG:HD3	2.40	0.52
1:B:136:PHE:C	1:B:138:PRO:HD3	2.29	0.52
1:A:186:THR:O	1:A:190:ILE:HG13	2.09	0.52

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:513:VAL:O	1:B:553:ILE:HG13	2.09	0.52
1:B:615:ASN:HA	3:B:812:HOH:O	2.09	0.52
1:A:147:ASP:O	1:A:148:GLN:HG2	2.10	0.52
1:A:303:LEU:HD11	1:A:348:PHE:CZ	2.45	0.52
1:B:181:THR:HG22	1:B:193:ASN:O	2.10	0.52
1:B:289:VAL:CG1	1:B:324:ILE:HG22	2.38	0.52
1:A:142:SER:HB2	1:A:143:PRO:CD	2.39	0.52
1:B:506:PRO:HD2	1:B:515:ILE:HG22	1.91	0.52
1:A:371:ASP:HB2	1:A:375:ARG:CZ	2.40	0.52
1:B:243:MET:HE2	1:B:254:THR:HB	1.92	0.52
1:A:61:ILE:HG22	1:A:62:ASN:N	2.24	0.51
1:A:504:VAL:HG11	1:A:563:ILE:CD1	2.40	0.51
1:B:53:ASP:HB2	1:B:112:TYR:O	2.10	0.51
1:A:300:MET:SD	1:A:419:LEU:HB2	2.50	0.51
1:A:187:GLU:OE2	1:A:629:VAL:HG23	2.11	0.51
1:B:562:ASN:OD1	1:B:577:ASP:HB3	2.09	0.51
1:B:339:ARG:HB3	1:B:365:TYR:CE2	2.46	0.51
1:A:5:SER:HA	3:A:801:HOH:O	2.10	0.51
1:B:73:ALA:HA	1:B:130:ILE:HG23	1.93	0.51
1:B:607:THR:OG1	1:B:616:ALA:HA	2.11	0.51
1:B:251:PRO:CB	1:B:506:PRO:HG3	2.40	0.51
1:B:290:ARG:O	1:B:294:ARG:HB3	2.11	0.51
1:B:592:VAL:HG22	1:B:637:TYR:CB	2.39	0.51
1:B:526:LYS:HE2	1:B:541:ILE:CB	2.36	0.50
1:B:652:PHE:HB2	1:B:684:TRP:CZ3	2.46	0.50
1:A:38:ALA:CA	1:A:86:ILE:HD11	2.42	0.50
1:A:87:ILE:CD1	1:A:143:PRO:HG2	2.41	0.50
1:A:260:LEU:HB2	1:A:283:PHE:HB2	1.92	0.50
1:B:361:GLY:O	1:B:366:MET:HG3	2.10	0.50
1:A:1:ALA:HB1	1:A:2:PRO:HD2	1.92	0.50
1:A:16:VAL:HG12	1:A:16:VAL:O	2.11	0.50
1:A:331:ARG:CD	1:A:366:MET:HB2	2.41	0.50
1:B:223:ILE:HD11	1:B:226:ILE:HD11	1.94	0.50
1:A:65:TYR:HB2	3:A:761:HOH:O	2.12	0.50
1:A:236:PHE:CZ	1:A:258:TRP:CZ3	3.00	0.50
1:A:464:LEU:HD12	1:A:487:THR:CG2	2.42	0.50
1:A:553:ILE:HG23	1:A:554:PRO:HD2	1.93	0.50
1:B:19:GLN:NE2	1:B:359:TYR:CD1	2.80	0.50
1:B:653:LEU:HD12	1:B:660:VAL:HB	1.92	0.50
1:A:617:ASP:HB3	1:A:620:LYS:HG3	1.92	0.50
1:A:342:LEU:C	1:A:342:LEU:HD23	2.31	0.50

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:662:TRP:CH2	1:B:662:TRP:CD1	3.00	0.50
1:B:643:PRO:HB2	1:B:646:LYS:HG2	1.93	0.50
1:A:605:TYR:CE1	1:A:655:LYS:HG3	2.47	0.50
1:A:633:TYR:HA	1:A:635:ASN:N	2.26	0.50
1:A:236:PHE:N	1:A:236:PHE:CD1	2.80	0.50
1:A:480:PHE:N	1:A:480:PHE:CD1	2.80	0.49
1:B:251:PRO:HB3	1:B:506:PRO:HG2	1.92	0.49
1:A:378:ILE:HG21	1:A:381:PHE:CZ	2.47	0.49
1:B:395:ALA:HB3	1:B:396:PRO:CD	2.36	0.49
1:B:427:SER:H	1:B:496:THR:HG23	1.77	0.49
1:A:549:ILE:HG22	1:A:550:LYS:N	2.26	0.49
1:A:617:ASP:OD2	1:A:619:ALA:HB3	2.12	0.49
1:B:34:PRO:HG2	1:B:49:TYR:CG	2.46	0.49
1:A:140:HIS:HD2	1:A:197:LEU:HD22	1.76	0.49
1:A:226:ILE:HG22	1:A:227:ARG:N	2.27	0.49
1:B:101:TRP:HB3	1:B:142:SER:CB	2.42	0.49
1:A:172:GLN:O	1:A:173:ASN:HB2	2.12	0.49
1:A:625:MET:HE1	1:A:652:PHE:HE2	1.77	0.49
1:B:564:LYS:HD2	1:B:572:ALA:HB1	1.94	0.49
1:A:411:GLU:C	1:A:412:ARG:HG2	2.33	0.49
1:A:432:VAL:HG13	1:A:489:VAL:HG23	1.94	0.49
1:B:17:ILE:CD1	1:B:133:ILE:HD12	2.42	0.49
1:A:457:ASN:HA	1:A:468:THR:CG2	2.42	0.49
1:B:201:ASN:OD1	1:B:203:ASN:HB3	2.12	0.49
1:B:636:TRP:CD1	1:B:636:TRP:N	2.80	0.49
1:A:4:THR:HG22	1:A:399:LYS:HD2	1.93	0.49
1:A:464:LEU:CD1	1:A:487:THR:HG21	2.43	0.49
1:A:87:ILE:HG21	1:A:89:TYR:CZ	2.48	0.49
1:A:227:ARG:C	1:A:227:ARG:HD2	2.32	0.49
1:A:339:ARG:HB3	1:A:365:TYR:CE2	2.47	0.49
1:B:330:GLU:CB	1:B:369:GLY:HA2	2.43	0.48
1:B:567:ASN:C	1:B:569:ALA:H	2.16	0.48
1:A:82:ASN:OD1	1:A:99:GLY:HA2	2.13	0.48
1:A:602:GLN:HA	1:A:655:LYS:O	2.13	0.48
1:B:139:ASN:HB3	3:B:695:HOH:O	2.12	0.48
1:B:509:ALA:HA	1:B:582:LEU:HD12	1.94	0.48
1:A:610:VAL:CG2	1:A:613:LEU:HB2	2.42	0.48
1:B:383:THR:HG22	1:B:388:TYR:CE2	2.48	0.48
1:A:75:TRP:CE2	1:A:227:ARG:HG3	2.48	0.48
1:A:202:HIS:HB3	1:A:238:TRP:CD1	2.48	0.48
1:A:504:VAL:HB	1:A:576:TYR:CE2	2.48	0.48

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:652:PHE:O	1:A:663:GLU:HB2	2.12	0.48
1:B:101:TRP:HB3	1:B:142:SER:HB3	1.96	0.48
1:B:610:VAL:HG11	1:B:648:ILE:HG13	1.96	0.48
1:A:662:TRP:CZ3	1:B:662:TRP:CD1	3.02	0.48
1:A:118:PHE:O	1:A:121:LEU:HB3	2.14	0.48
1:A:531:PHE:CE2	1:A:554:PRO:HD3	2.48	0.48
1:A:18:TYR:CE1	1:A:20:ILE:HG12	2.48	0.48
1:A:33:ASN:ND2	1:A:39:PHE:CZ	2.81	0.48
1:A:108:THR:HG22	1:A:218:TRP:CH2	2.43	0.48
1:A:420:ILE:HG23	1:A:433:ALA:HB2	1.95	0.48
1:B:642:VAL:HG12	1:B:643:PRO:CD	2.43	0.48
1:B:659:THR:HG22	1:B:659:THR:O	2.14	0.48
1:A:47:ARG:NE	1:A:372:PRO:HG3	2.29	0.48
1:B:598:THR:HG23	1:B:636:TRP:HZ2	1.78	0.48
1:A:287:GLN:HA	1:A:287:GLN:OE1	2.14	0.48
1:B:610:VAL:HG11	1:B:648:ILE:CG1	2.44	0.48
1:B:652:PHE:CB	1:B:684:TRP:HZ3	2.27	0.48
1:B:38:ALA:O	1:B:49:TYR:HB2	2.14	0.47
1:B:288:LYS:HE3	1:B:298:ASP:OD2	2.14	0.47
1:A:181:THR:OG1	1:A:189:GLY:HA2	2.15	0.47
1:A:316:GLN:HE21	1:A:507:MET:HG3	1.79	0.47
1:B:172:GLN:HB3	1:B:174:LEU:HD21	1.95	0.47
1:A:134:ILE:HD11	1:A:223:ILE:HD13	1.95	0.47
1:B:159:ASP:OD1	1:B:210:TYR:HE1	1.97	0.47
1:A:262:VAL:HG13	1:A:291:GLN:CD	2.34	0.47
1:A:440:ALA:O	1:A:484:ALA:HA	2.14	0.47
1:A:519:GLY:O	1:A:547:THR:HA	2.14	0.47
1:B:24:ARG:HA	1:B:24:ARG:HD3	1.55	0.47
1:B:300:MET:CE	1:B:436:ARG:HG2	2.44	0.47
1:A:389:GLN:CA	1:A:392:GLN:HG2	2.42	0.47
1:B:12:PHE:O	1:B:355:VAL:HG13	2.15	0.47
1:A:48:LEU:HD12	1:A:48:LEU:HA	1.80	0.47
1:A:456:TYR:HB3	1:A:490:TRP:HB3	1.96	0.47
1:A:464:LEU:HB3	1:A:487:THR:HB	1.97	0.47
1:B:333:HIS:HE1	1:B:337:ALA:O	1.95	0.47
1:B:502:GLY:O	1:B:503:HIS:HB2	2.13	0.47
1:B:650:PHE:N	1:B:650:PHE:CD1	2.83	0.47
1:B:459:VAL:HG23	1:B:489:VAL:O	2.14	0.47
1:B:504:VAL:HG12	1:B:505:GLY:N	2.30	0.47
1:A:317:VAL:C	1:A:319:ASP:H	2.18	0.46
1:A:651:LYS:HB2	1:A:651:LYS:HE2	1.60	0.46

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:434:VAL:HG12	1:B:435:ASN:N	2.30	0.46
1:A:536:VAL:O	1:A:541:ILE:HD11	2.14	0.46
1:B:219:LEU:HD12	1:B:249:TYR:HD2	1.80	0.46
1:B:506:PRO:O	1:B:579:PHE:HE2	1.98	0.46
1:A:108:THR:HG21	1:A:115:ILE:HD13	1.94	0.46
1:A:413:TRP:CE3	1:A:418:VAL:HG11	2.50	0.46
1:A:236:PHE:N	1:A:236:PHE:HD1	2.13	0.46
1:A:589:VAL:CG1	1:A:680:ILE:HD12	2.45	0.46
1:B:75:TRP:CZ2	1:B:227:ARG:HG3	2.50	0.46
1:B:187:GLU:CD	1:B:626:TYR:HB3	2.36	0.46
1:B:541:ILE:O	1:B:541:ILE:HG22	2.16	0.46
1:B:564:LYS:HG2	1:B:565:VAL:H	1.75	0.46
1:A:14:THR:O	1:A:398:ARG:HB2	2.16	0.46
1:A:447:LEU:HD21	1:A:449:THR:CG2	2.46	0.46
1:B:651:LYS:HE3	1:B:663:GLU:O	2.16	0.46
1:A:369:GLY:H	1:A:373:ASP:HB2	1.79	0.46
1:A:398:ARG:HE	1:A:398:ARG:HB3	1.48	0.46
1:A:600:LEU:C	1:A:602:GLN:H	2.18	0.46
1:B:24:ARG:NH1	1:B:46:LEU:HB3	2.28	0.46
1:A:83:ILE:HD12	1:A:85:SER:OG	2.16	0.46
1:A:140:HIS:CD2	1:A:197:LEU:HD22	2.51	0.46
1:A:285:PHE:CE1	1:A:348:PHE:HE1	2.33	0.46
1:B:19:GLN:HG3	1:B:75:TRP:CE3	2.50	0.46
1:A:417:ASP:O	1:A:436:ARG:HG3	2.16	0.46
1:A:528:THR:OG1	1:A:537:SER:HB3	2.15	0.46
1:A:610:VAL:HG23	1:A:613:LEU:H	1.81	0.46
1:B:146:SER:O	1:B:168:THR:HG23	2.16	0.46
1:A:25:PHE:HD2	1:A:57:ILE:HG13	1.81	0.46
1:A:182:ASP:OD2	1:A:184:SER:HB3	2.15	0.46
1:A:202:HIS:HB3	1:A:238:TRP:NE1	2.31	0.46
1:A:300:MET:CE	1:A:434:VAL:HG12	2.45	0.46
1:B:510:LYS:O	1:B:513:VAL:HG23	2.15	0.46
1:B:600:LEU:HD22	1:B:600:LEU:HA	1.71	0.46
1:B:610:VAL:CG1	1:B:648:ILE:HG13	2.46	0.46
1:B:673:PRO:CG	1:B:678:ALA:HB2	2.44	0.46
1:A:61:ILE:HG22	1:A:62:ASN:ND2	2.30	0.46
1:B:98:HIS:ND1	1:B:100:TYR:HB2	2.31	0.46
1:A:430:ALA:HA	1:A:491:GLN:HA	1.98	0.45
1:A:467:ASN:ND2	1:A:480:PHE:HD2	2.14	0.45
1:B:134:ILE:HD12	1:B:135:ASP:O	2.16	0.45
1:A:285:PHE:CZ	1:A:348:PHE:HE1	2.34	0.45

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:610:VAL:HG22	1:A:613:LEU:HB2	1.98	0.45
1:B:322:THR:O	1:B:323:PHE:HB3	2.16	0.45
1:A:38:ALA:HB2	1:A:86:ILE:CD1	2.25	0.45
1:A:187:GLU:OE1	1:A:626:TYR:HB3	2.16	0.45
1:A:438:LEU:HD12	1:A:438:LEU:HA	1.82	0.45
1:B:236:PHE:CD1	1:B:236:PHE:N	2.80	0.45
1:B:397:LEU:O	1:B:401:ASN:HB3	2.17	0.45
1:A:216:LYS:CE	1:A:219:LEU:HD12	2.44	0.45
1:A:526:LYS:HE2	1:A:541:ILE:HB	1.97	0.45
1:B:336:ASN:N	1:B:336:ASN:HD22	2.14	0.45
1:B:444:ILE:HD12	1:B:444:ILE:N	2.30	0.45
1:A:103:ARG:HG2	1:A:104:ASP:N	2.32	0.45
1:A:593:VAL:HG12	1:A:636:TRP:HB2	1.97	0.45
1:A:630:VAL:HB	1:A:637:TYR:CZ	2.52	0.45
1:B:290:ARG:HH12	1:B:294:ARG:NH1	2.14	0.45
1:A:14:THR:O	1:A:399:LYS:HD3	2.16	0.45
1:A:81:GLU:HB2	1:A:108:THR:O	2.17	0.45
1:A:200:LEU:HD13	1:A:211:LEU:HD11	1.98	0.45
1:A:615:ASN:O	1:A:616:ALA:HB3	2.17	0.45
1:A:653:LEU:HD13	1:A:655:LYS:HG2	1.97	0.45
1:B:215:ILE:O	1:B:219:LEU:HG	2.17	0.45
1:B:57:ILE:HG13	3:B:764:HOH:O	2.17	0.45
1:B:224:ASP:O	1:B:252:VAL:HB	2.17	0.45
1:B:365:TYR:HE1	1:B:385:THR:HB	1.82	0.45
1:A:655:LYS:HB3	1:A:655:LYS:HE2	1.46	0.45
1:B:331:ARG:NH1	1:B:366:MET:CE	2.80	0.45
1:B:452:PRO:HD2	1:B:456:TYR:OH	2.17	0.45
1:B:548:GLN:HG2	1:B:549:ILE:N	2.32	0.45
1:B:652:PHE:CB	1:B:684:TRP:CZ3	3.00	0.45
1:A:101:TRP:HA	1:A:141:THR:O	2.17	0.45
1:A:406:TYR:HB2	1:A:425:PHE:CD2	2.52	0.45
1:B:426:GLY:HA3	1:B:496:THR:HG21	1.99	0.45
1:B:530:TYR:O	1:B:563:ILE:HA	2.17	0.45
1:B:648:ILE:HG22	1:B:649:GLU:N	2.31	0.45
1:A:387:ALA:O	1:A:391:ILE:HG13	2.17	0.44
1:B:317:VAL:CG2	1:B:353:ARG:NH1	2.80	0.44
1:B:397:LEU:HD11	1:B:459:VAL:HG11	1.99	0.44
1:A:15:ASP:HB3	1:A:72:THR:OG1	2.16	0.44
1:A:444:ILE:N	1:A:444:ILE:CD1	2.80	0.44
1:A:662:TRP:CH2	1:B:662:TRP:NE1	2.86	0.44
1:B:520:ARG:HD3	1:B:547:THR:HG22	1.99	0.44

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:A:59:ASN:O	1:A:63:ASP:HB3	2.17	0.44
1:A:610:VAL:HG23	1:A:613:LEU:N	2.32	0.44
1:B:25:PHE:HE2	1:B:60:LYS:CG	2.19	0.44
1:A:58:ILE:HG23	1:A:124:ALA:HB1	2.00	0.44
1:A:420:ILE:HG21	1:A:447:LEU:CD1	2.48	0.44
1:B:98:HIS:HB2	1:B:100:TYR:CD2	2.52	0.44
1:B:240:LYS:HG2	1:B:508:MET:HE3	2.00	0.44
1:B:429:VAL:HG12	1:B:430:ALA:H	1.79	0.44
1:B:648:ILE:CG2	1:B:649:GLU:N	2.80	0.44
1:A:81:GLU:HG2	1:A:103:ARG:HD3	2.00	0.44
1:A:92:VAL:HG23	1:A:94:ASN:ND2	2.32	0.44
1:A:228:MET:CE	1:A:242:PHE:CD2	3.01	0.44
1:A:551:VAL:CG2	1:A:552:LYS:N	2.80	0.44
1:A:407:GLY:HA2	1:A:425:PHE:HB2	1.99	0.44
1:B:269:ASN:C	1:B:269:ASN:HD22	2.21	0.44
1:B:290:ARG:HH12	1:B:294:ARG:HH11	1.66	0.44
1:B:647:THR:HG22	1:B:647:THR:O	2.17	0.44
1:A:440:ALA:HA	1:A:441:PRO:HD3	1.73	0.44
1:B:71:VAL:O	1:B:71:VAL:HG12	2.18	0.44
1:B:78:GLN:HA	1:B:79:PRO:HD3	1.72	0.44
1:B:383:THR:HG22	1:B:388:TYR:CE1	2.51	0.44
1:B:630:VAL:CG2	1:B:637:TYR:CE2	3.01	0.44
1:A:24:ARG:NH2	1:A:97:TYR:CE2	2.85	0.44
1:A:149:PRO:HG3	1:A:168:THR:HG21	2.00	0.44
1:A:481:THR:O	1:A:481:THR:HG22	2.17	0.44
1:A:662:TRP:CD1	1:B:651:LYS:HE2	2.53	0.44
1:B:426:GLY:HA3	1:B:496:THR:CG2	2.47	0.44
1:B:504:VAL:CG1	1:B:505:GLY:N	2.80	0.44
1:A:54:TRP:O	1:A:58:ILE:HG13	2.18	0.44
1:A:520:ARG:CD	1:A:547:THR:HG22	2.47	0.44
1:A:82:ASN:HD22	1:A:82:ASN:N	2.16	0.43
1:A:303:LEU:HD21	1:A:348:PHE:CE2	2.53	0.43
1:A:537:SER:HA	1:A:541:ILE:CD1	2.47	0.43
1:B:87:ILE:CG2	1:B:89:TYR:CE2	3.01	0.43
1:B:201:ASN:C	1:B:203:ASN:H	2.21	0.43
1:A:114:THR:H	1:A:117:ASP:HB2	1.83	0.43
1:A:251:PRO:HB3	1:A:506:PRO:CG	2.42	0.43
1:A:413:TRP:CZ3	1:A:418:VAL:CG1	3.01	0.43
1:B:598:THR:HG23	1:B:636:TRP:CZ2	2.53	0.43
1:A:651:LYS:HB2	3:A:765:HOH:O	2.17	0.43
1:A:232:LYS:HG3	1:A:258:TRP:CE2	2.53	0.43

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:6:VAL:O	1:B:6:VAL:HG22	2.18	0.43
1:B:219:LEU:HD13	1:B:250:LYS:CB	2.47	0.43
1:B:464:LEU:O	1:B:465:ASN:HB2	2.17	0.43
1:A:413:TRP:CE3	1:A:418:VAL:CG1	3.01	0.43
1:B:429:VAL:CG1	1:B:430:ALA:N	2.80	0.43
1:A:403:ALA:HA	1:A:425:PHE:HB2	1.99	0.43
1:B:86:ILE:HG21	1:B:93:ASN:ND2	2.33	0.43
1:A:23:ASP:HA	1:A:52:GLY:HA3	1.99	0.43
1:A:46:LEU:HD11	1:A:376:ALA:HB2	2.01	0.43
1:A:151:PHE:O	1:A:152:ALA:HB3	2.19	0.43
1:A:285:PHE:CD1	1:A:306:MET:HE1	2.54	0.43
1:B:69:MET:HE3	1:B:69:MET:HB3	1.86	0.43
1:B:331:ARG:NH1	1:B:366:MET:HE2	2.34	0.43
1:B:339:ARG:O	1:B:343:GLU:HG3	2.18	0.43
1:B:536:VAL:CG1	1:B:540:ASP:HB2	2.48	0.43
1:B:617:ASP:HB2	1:B:620:LYS:NZ	2.34	0.43
1:B:12:PHE:HA	1:B:15:ASP:OD1	2.19	0.43
1:B:187:GLU:OE1	1:B:628:GLN:HG3	2.19	0.43
1:B:331:ARG:HE	1:B:331:ARG:HB3	1.45	0.43
1:B:554:PRO:HB2	1:B:556:VAL:CG1	2.44	0.43
1:A:115:ILE:O	1:A:119:GLN:HG3	2.19	0.42
1:A:272:PHE:O	1:A:276:SER:HB3	2.19	0.42
1:B:278:MET:O	1:B:278:MET:HG2	2.19	0.42
1:B:684:TRP:O	1:B:686:PRO:HD3	2.19	0.42
1:A:378:ILE:HG21	1:A:381:PHE:CE1	2.53	0.42
1:A:467:ASN:ND2	1:A:480:PHE:CD2	2.81	0.42
1:B:49:TYR:CE1	1:B:97:TYR:HA	2.54	0.42
1:B:185:THR:OG1	1:B:188:ASN:HB2	2.19	0.42
1:B:290:ARG:CG	1:B:290:ARG:NH1	2.81	0.42
1:B:339:ARG:HB3	1:B:365:TYR:CD2	2.54	0.42
1:B:468:THR:CG2	1:B:469:LEU:N	2.82	0.42
1:B:366:MET:HE3	1:B:366:MET:HB3	1.96	0.42
1:B:439:ASN:O	1:B:440:ALA:HB2	2.19	0.42
1:B:680:ILE:H	1:B:680:ILE:HG12	1.53	0.42
1:A:460:LEU:HD11	1:A:464:LEU:HD12	2.00	0.42
1:A:549:ILE:CG2	1:A:550:LYS:N	2.81	0.42
1:A:346:LEU:HD23	1:A:346:LEU:HA	1.77	0.42
1:B:19:GLN:HG3	1:B:75:TRP:CD2	2.54	0.42
1:B:82:ASN:OD1	1:B:99:GLY:HA2	2.18	0.42
1:A:565:VAL:HG23	1:A:573:SER:OG	2.20	0.42
1:B:122:ILE:HD12	1:B:122:ILE:HA	1.74	0.42

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:176:HIS:HB3	1:B:178:ASN:ND2	2.34	0.42
1:B:393:LYS:HG2	1:B:393:LYS:H	1.60	0.42
1:B:526:LYS:HA	1:B:544:TRP:CD2	2.54	0.42
1:A:21:PHE:CE2	1:A:327:HIS:HB3	2.47	0.42
1:A:159:ASP:O	1:A:160:ASN:HB3	2.20	0.42
1:A:397:LEU:HD23	1:A:397:LEU:HA	1.80	0.42
1:A:479:ASN:N	1:A:479:ASN:HD22	2.18	0.42
1:B:257:GLU:HB2	1:B:281:LEU:HD12	2.01	0.42
1:A:300:MET:HE3	1:A:434:VAL:HG12	2.02	0.42
1:A:388:TYR:O	1:A:392:GLN:HB3	2.19	0.42
1:B:548:GLN:O	1:B:549:ILE:HG13	2.20	0.42
1:B:240:LYS:HD3	1:B:641:SER:HB3	2.01	0.42
1:B:507:MET:CE	1:B:579:PHE:HA	2.47	0.42
1:A:1:ALA:HB1	1:A:2:PRO:CD	2.50	0.42
1:A:283:PHE:O	1:A:287:GLN:HG2	2.20	0.42
1:A:371:ASP:HA	1:A:374:ASN:OD1	2.20	0.42
1:A:401:ASN:OD1	1:A:428:ASN:HB3	2.20	0.42
1:B:646:LYS:HA	1:B:646:LYS:HD3	1.39	0.42
1:A:631:TYR:HB2	1:A:637:TYR:CD1	2.55	0.41
1:A:251:PRO:CB	1:A:506:PRO:HG3	2.44	0.41
1:A:667:ASN:HA	3:A:765:HOH:O	2.19	0.41
1:B:17:ILE:HB	1:B:357:ALA:CA	2.43	0.41
1:B:157:LEU:HD11	1:B:210:TYR:CE2	2.54	0.41
1:B:374:ASN:HA	3:B:790:HOH:O	2.21	0.41
1:B:654:LYS:CE	1:B:684:TRP:CZ2	3.00	0.41
1:A:142:SER:OG	1:A:155:GLY:HA2	2.20	0.41
1:A:216:LYS:HA	1:A:219:LEU:HB2	2.02	0.41
1:A:613:LEU:HA	1:A:622:ILE:HD11	2.02	0.41
1:A:69:MET:HB2	1:A:69:MET:HE3	1.88	0.41
1:A:96:ALA:HA	1:A:98:HIS:CE1	2.55	0.41
1:A:226:ILE:CG2	1:A:227:ARG:N	2.84	0.41
1:A:228:MET:HE2	1:A:242:PHE:CD2	2.55	0.41
1:A:285:PHE:CZ	1:A:348:PHE:CE1	3.09	0.41
1:B:255:PHE:CD2	1:B:321:VAL:HG21	2.55	0.41
1:B:548:GLN:HG2	1:B:549:ILE:H	1.84	0.41
1:A:236:PHE:HZ	1:A:258:TRP:CH2	2.38	0.41
1:B:87:ILE:HD11	1:B:152:ALA:HB2	2.01	0.41
1:B:339:ARG:H	1:B:339:ARG:HG3	1.62	0.41
1:B:393:LYS:HE3	1:B:393:LYS:HB3	1.97	0.41
1:A:412:ARG:HE	1:A:412:ARG:HB3	1.45	0.41
1:A:672:ALA:HA	1:A:673:PRO:HD3	1.81	0.41

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Atom-1	Atom-2	Interatomic distance (Å)	Clash overlap (Å)
1:B:417:ASP:CB	1:B:436:ARG:HD2	2.51	0.41
1:A:114:THR:O	1:A:117:ASP:HB2	2.21	0.41
1:A:420:ILE:HD12	1:A:447:LEU:HD13	2.01	0.41
1:B:101:TRP:HA	1:B:141:THR:O	2.21	0.41
1:B:210:TYR:CD2	1:B:211:LEU:HD23	2.55	0.41
1:A:75:TRP:HB2	1:A:133:ILE:HB	2.01	0.41
1:A:228:MET:CE	1:A:242:PHE:CE2	3.03	0.41
1:A:378:ILE:O	1:A:378:ILE:HG23	2.21	0.41
1:A:418:VAL:CG1	1:A:419:LEU:N	2.84	0.41
1:A:617:ASP:CG	1:A:620:LYS:HZ2	2.24	0.41
1:B:409:THR:HG23	1:B:423:ARG:HD2	1.96	0.41
1:B:618:PRO:O	1:B:655:LYS:HE3	2.20	0.41
1:A:378:ILE:HA	1:A:379:PRO:HD3	1.93	0.41
1:A:435:ASN:HB2	1:A:482:LEU:CD2	2.51	0.41
1:B:517:ILE:HD13	1:B:563:ILE:CD1	2.39	0.41
1:A:385:THR:O	1:A:389:GLN:HG3	2.20	0.40
1:A:402:PRO:HG3	1:A:520:ARG:CZ	2.51	0.40
1:B:170:ASP:HB3	1:B:177:HIS:NE2	2.36	0.40
1:B:411:GLU:HA	1:B:421:TYR:HA	2.02	0.40
1:A:236:PHE:CZ	1:A:258:TRP:HZ3	2.39	0.40
1:B:54:TRP:CZ3	1:B:118:PHE:HB2	2.56	0.40
1:B:180:GLY:HA2	1:B:193:ASN:HB2	2.03	0.40
1:B:237:GLY:HA2	3:B:762:HOH:O	2.21	0.40
1:B:605:TYR:CE1	1:B:655:LYS:HB2	2.56	0.40
1:A:237:GLY:HA3	1:A:639:ASP:O	2.22	0.40
1:B:69:MET:O	1:B:391:ILE:HG22	2.22	0.40
1:B:280:LEU:H	1:B:320:GLN:HE21	1.68	0.40
1:A:109:ASN:OD1	1:A:111:ALA:HB3	2.22	0.40
1:A:194:LEU:HD21	1:A:233:HIS:CE1	2.56	0.40
1:A:278:MET:HG3	1:A:279:SER:O	2.22	0.40
1:A:353:ARG:O	1:A:353:ARG:HG2	2.21	0.40
1:B:371:ASP:HA	1:B:372:PRO:HA	1.54	0.40
1:A:219:LEU:HD23	1:A:219:LEU:HA	1.86	0.40
1:A:255:PHE:CD2	1:A:321:VAL:HG21	2.57	0.40
1:A:603:ASN:O	1:A:654:LYS:HA	2.21	0.40
1:B:106:LYS:HB3	1:B:217:MET:HE3	2.02	0.40
1:B:564:LYS:HE2	1:B:564:LYS:HB3	1.78	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	684/686 (100%)	608 (89%)	72 (10%)	4 (1%)	25	26
1	B	684/686 (100%)	602 (88%)	75 (11%)	7 (1%)	15	14
All	All	1368/1372 (100%)	1210 (88%)	147 (11%)	11 (1%)	19	19

All (11) Ramachandran outliers are listed below:

Mol	Chain	Res	Type
1	A	338	ASN
1	B	22	THR
1	B	539	ALA
1	A	46	LEU
1	A	629	VAL
1	B	585	ASP
1	A	542	THR
1	B	46	LEU
1	B	195	TYR
1	B	627	ASN
1	B	629	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	555/555 (100%)	456 (82%)	99 (18%)	2	1
1	B	555/555 (100%)	469 (84%)	86 (16%)	2	2

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Mol	Chain	Analysed	Rotameric	Outliers	Percentiles
All	All	1110/1110 (100%)	925 (83%)	185 (17%)	2 1

All (185) residues with a non-rotameric sidechain are listed below:

Mol	Chain	Res	Type
1	A	4	THR
1	A	13	SER
1	A	19	GLN
1	A	21	PHE
1	A	48	LEU
1	A	49	TYR
1	A	63	ASP
1	A	71	VAL
1	A	75	TRP
1	A	77	SER
1	A	80	VAL
1	A	82	ASN
1	A	88	ASN
1	A	103	ARG
1	A	107	LYS
1	A	145	SER
1	A	146	SER
1	A	147	ASP
1	A	162	THR
1	A	163	LEU
1	A	164	LEU
1	A	167	TYR
1	A	171	THR
1	A	186	THR
1	A	188	ASN
1	A	212	LYS
1	A	216	LYS
1	A	217	MET
1	A	224	ASP
1	A	227	ARG
1	A	232	LYS
1	A	240	LYS
1	A	255	PHE
1	A	257	GLU
1	A	269	ASN
1	A	294	ARG
1	A	297	THR

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Mol	Chain	Res	Type
1	A	330	GLU
1	A	331	ARG
1	A	344	GLN
1	A	346	LEU
1	A	353	ARG
1	A	370	THR
1	A	371	ASP
1	A	375	ARG
1	A	377	ARG
1	A	382	SER
1	A	384	SER
1	A	392	GLN
1	A	394	LEU
1	A	398	ARG
1	A	404	ILE
1	A	412	ARG
1	A	416	ASN
1	A	420	ILE
1	A	422	GLU
1	A	434	VAL
1	A	436	ARG
1	A	438	LEU
1	A	443	SER
1	A	449	THR
1	A	450	SER
1	A	453	GLN
1	A	463	LEU
1	A	468	THR
1	A	469	LEU
1	A	480	PHE
1	A	487	THR
1	A	490	TRP
1	A	508	MET
1	A	510	LYS
1	A	526	LYS
1	A	529	VAL
1	A	537	SER
1	A	542	THR
1	A	548	GLN
1	A	552	LYS
1	A	560	ASN
1	A	564	LYS

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Mol	Chain	Res	Type
1	A	565	VAL
1	A	571	THR
1	A	574	ASN
1	A	577	ASP
1	A	587	VAL
1	A	590	ARG
1	A	595	ASN
1	A	597	THR
1	A	600	LEU
1	A	607	THR
1	A	620	LYS
1	A	628	GLN
1	A	629	VAL
1	A	642	VAL
1	A	651	LYS
1	A	655	LYS
1	A	658	SER
1	A	660	VAL
1	A	683	ASN
1	A	686	PRO
1	B	4	THR
1	B	5	SER
1	B	19	GLN
1	B	21	PHE
1	B	24	ARG
1	B	26	SER
1	B	46	LEU
1	B	48	LEU
1	B	69	MET
1	B	75	TRP
1	B	76	ILE
1	B	78	GLN
1	B	82	ASN
1	B	87	ILE
1	B	90	SER
1	B	122	ILE
1	B	134	ILE
1	B	135	ASP
1	B	145	SER
1	B	147	ASP
1	B	163	LEU
1	B	169	ASN

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Mol	Chain	Res	Type
1	B	173	ASN
1	B	194	LEU
1	B	199	ASP
1	B	200	LEU
1	B	205	SER
1	B	213	ASP
1	B	216	LYS
1	B	234	MET
1	B	257	GLU
1	B	269	ASN
1	B	271	LYS
1	B	278	MET
1	B	279	SER
1	B	288	LYS
1	B	290	ARG
1	B	300	MET
1	B	316	GLN
1	B	331	ARG
1	B	335	SER
1	B	336	ASN
1	B	339	ARG
1	B	341	LYS
1	B	342	LEU
1	B	353	ARG
1	B	375	ARG
1	B	377	ARG
1	B	378	ILE
1	B	382	SER
1	B	383	THR
1	B	393	LYS
1	B	400	CYS
1	B	409	THR
1	B	412	ARG
1	B	414	ILE
1	B	415	ASN
1	B	427	SER
1	B	436	ARG
1	B	438	LEU
1	B	443	SER
1	B	445	SER
1	B	450	SER
1	B	493	THR

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Mol	Chain	Res	Type
1	B	496	THR
1	B	514	THR
1	B	537	SER
1	B	542	THR
1	B	543	SER
1	B	552	LYS
1	B	571	THR
1	B	577	ASP
1	B	588	SER
1	B	597	THR
1	B	600	LEU
1	B	613	LEU
1	B	632	GLN
1	B	642	VAL
1	B	646	LYS
1	B	651	LYS
1	B	658	SER
1	B	660	VAL
1	B	666	SER
1	B	670	PHE
1	B	680	ILE
1	B	681	ASN

Sometimes sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (43) such sidechains are listed below:

Mol	Chain	Res	Type
1	A	19	GLN
1	A	33	ASN
1	A	62	ASN
1	A	88	ASN
1	A	94	ASN
1	A	120	ASN
1	A	173	ASN
1	A	188	ASN
1	A	269	ASN
1	A	333	HIS
1	A	344	GLN
1	A	416	ASN
1	A	439	ASN
1	A	479	ASN
1	A	548	GLN
1	A	560	ASN

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Mol	Chain	Res	Type
1	A	603	ASN
1	B	19	GLN
1	B	32	ASN
1	B	62	ASN
1	B	93	ASN
1	B	94	ASN
1	B	119	GLN
1	B	120	ASN
1	B	169	ASN
1	B	173	ASN
1	B	176	HIS
1	B	178	ASN
1	B	202	HIS
1	B	233	HIS
1	B	269	ASN
1	B	316	GLN
1	B	320	GLN
1	B	336	ASN
1	B	410	GLN
1	B	416	ASN
1	B	479	ASN
1	B	578	ASN
1	B	594	ASN
1	B	632	GLN
1	B	635	ASN
1	B	681	ASN
1	B	685	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

Of 4 ligands modelled in this entry, 4 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

There are no such residues in this entry.

5.8 Polymer linkage issues

There are no chain breaks in this entry.

6 Fit of model and data

6.1 Protein, DNA and RNA chains

Unable to reproduce the depositors R factor - this section is therefore empty.

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

Unable to reproduce the depositors R factor - this section is therefore empty.

6.3 Carbohydrates

Unable to reproduce the depositors R factor - this section is therefore empty.

6.4 Ligands

Unable to reproduce the depositors R factor - this section is therefore empty.

6.5 Other polymers

Unable to reproduce the depositors R factor - this section is therefore empty.