



# Full wwPDB NMR Structure Validation Report ⓘ

May 28, 2020 – 10:40 pm BST

PDB ID : 2KSA  
Title : Substance P in DMPC/CHAPS isotropic q=0.25 bicelles as a ligand for NK1R  
Authors : Gayen, A.; Mukhopadhyay, C.  
Deposited on : 2009-12-31

This is a Full wwPDB NMR 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

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

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:

Cyrange : Kirchner and Güntert (2011)  
NmrClust : Kelley et al. (1996)  
MolProbity : 4.02b-467  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
RCI : v\_1n\_11\_5\_13\_A (Berjanski et al., 2005)  
PANAV : Wang et al. (2010)  
ShiftChecker : 2.11  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.11

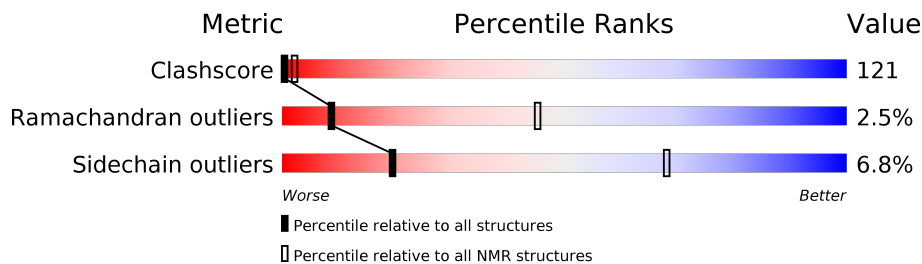
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*SOLUTION NMR*

The overall completeness of chemical shifts assignment is 1%.

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<br>(#Entries) | NMR archive<br>(#Entries) |
|-----------------------|-----------------------------|---------------------------|
| Clashscore            | 158937                      | 12864                     |
| Ramachandran outliers | 154571                      | 11451                     |
| Sidechain outliers    | 154315                      | 11428                     |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the experimental data. The red, orange, yellow and green segments indicate the fraction of residues that contain outliers for  $\geq 3$ , 2, 1 and 0 types of geometric quality criteria. A cyan segment indicates the fraction of residues that are not part of the well-defined cores, and 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     | 364    |                  |
| 2   | B     | 11     |                  |

## 2 Ensemble composition and analysis i

This entry contains 5 models. Model 1 is the overall representative, medoid model (most similar to other models).

The following residues are included in the computation of the global validation metrics.

| Well-defined (core) protein residues |                                  |                   |              |
|--------------------------------------|----------------------------------|-------------------|--------------|
| Well-defined core                    | Residue range (total)            | Backbone RMSD (Å) | Medoid model |
| 1                                    | A:2-A:361 (360)                  | 0.00              | 1            |
| 2                                    | A:362-A:364, B:365-B:373<br>(12) | 1.92              | 1            |

Ill-defined regions of proteins are excluded from the global statistics.

Ligands and non-protein polymers are included in the analysis.

The models can be grouped into 1 clusters and 1 single-model cluster was found.

| Cluster number        | Models     |
|-----------------------|------------|
| 1                     | 1, 2, 3, 5 |
| Single-model clusters | 4          |

### 3 Entry composition

There are 2 unique types of molecules in this entry. The entry contains 6061 atoms, of which 3038 are hydrogens and 0 are deuteriums.

- Molecule 1 is a protein called Substance-P receptor.

| Mol | Chain | Residues | Atoms |      |      |     |     | Trace |   |
|-----|-------|----------|-------|------|------|-----|-----|-------|---|
|     |       |          | Total | C    | H    | N   | O   |       | S |
| 1   | A     | 363      | 5867  | 1940 | 2939 | 464 | 501 | 23    | 0 |

- Molecule 2 is a protein called Substance P.

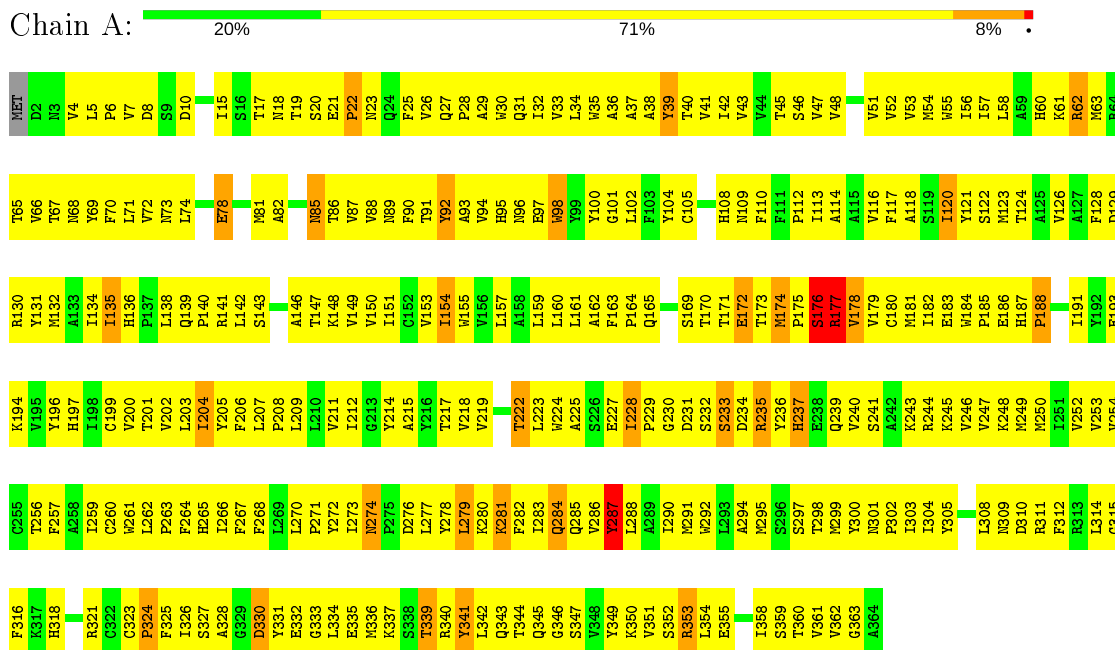
| Mol | Chain | Residues | Atoms |    |    |    |    | Trace |   |
|-----|-------|----------|-------|----|----|----|----|-------|---|
|     |       |          | Total | C  | H  | N  | O  |       | S |
| 2   | B     | 11       | 194   | 63 | 99 | 17 | 14 | 1     | 0 |

## 4 Residue-property plots [i](#)

### 4.1 Average score per residue in the NMR ensemble

These plots are provided for all protein, RNA and DNA chains in the entry. The first graphic is the same as shown in the summary in section 1 of this report. The second graphic shows the sequence where residues are colour-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 outliers are shown as green connectors. Residues which are classified as ill-defined in the NMR ensemble, are shown in cyan with an underline colour-coded according to the previous scheme. Residues which were present in the experimental sample, but not modelled in the final structure are shown in grey.

- Molecule 1: Substance-P receptor



- Molecule 2: Substance P

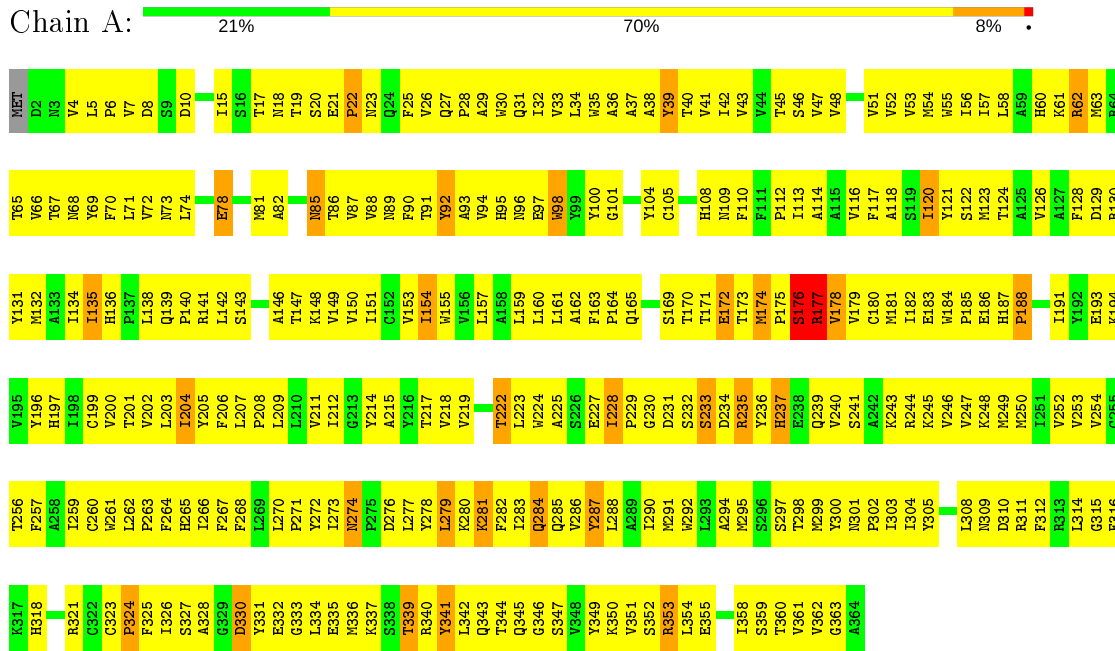


### 4.2 Scores per residue for each member of the ensemble

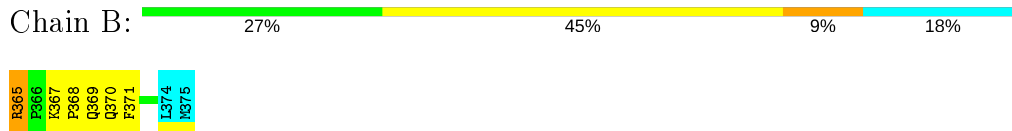
Colouring as in section 4.1 above.

### 4.2.1 Score per residue for model 1 (medoid)

- Molecule 1: Substance-P receptor

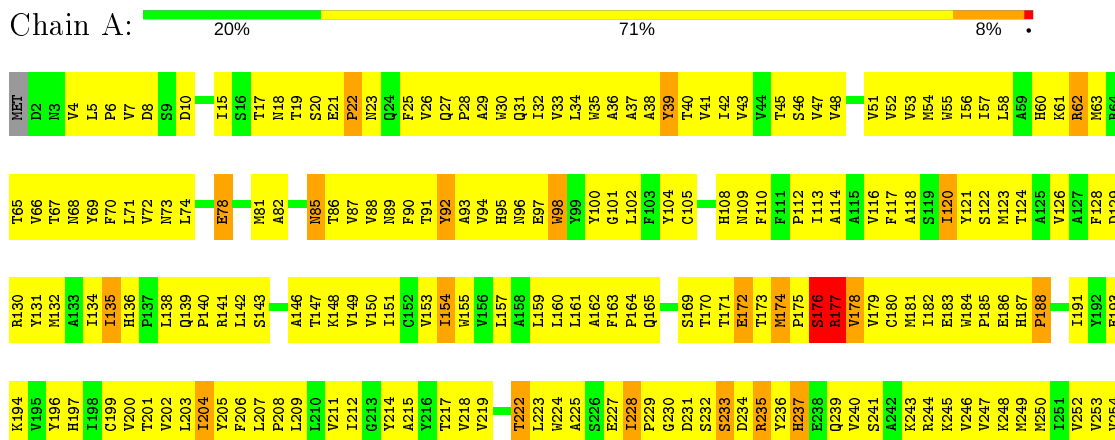


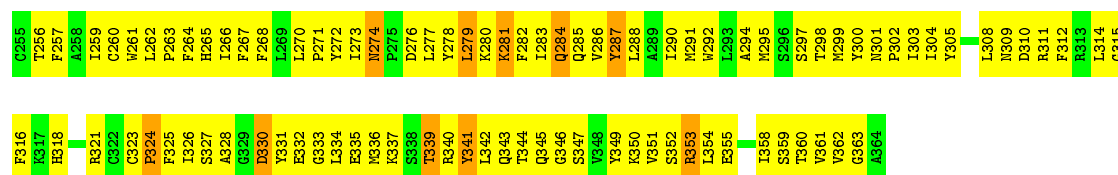
- Molecule 2: Substance P



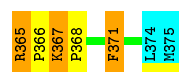
### 4.2.2 Score per residue for model 2

- Molecule 1: Substance-P receptor



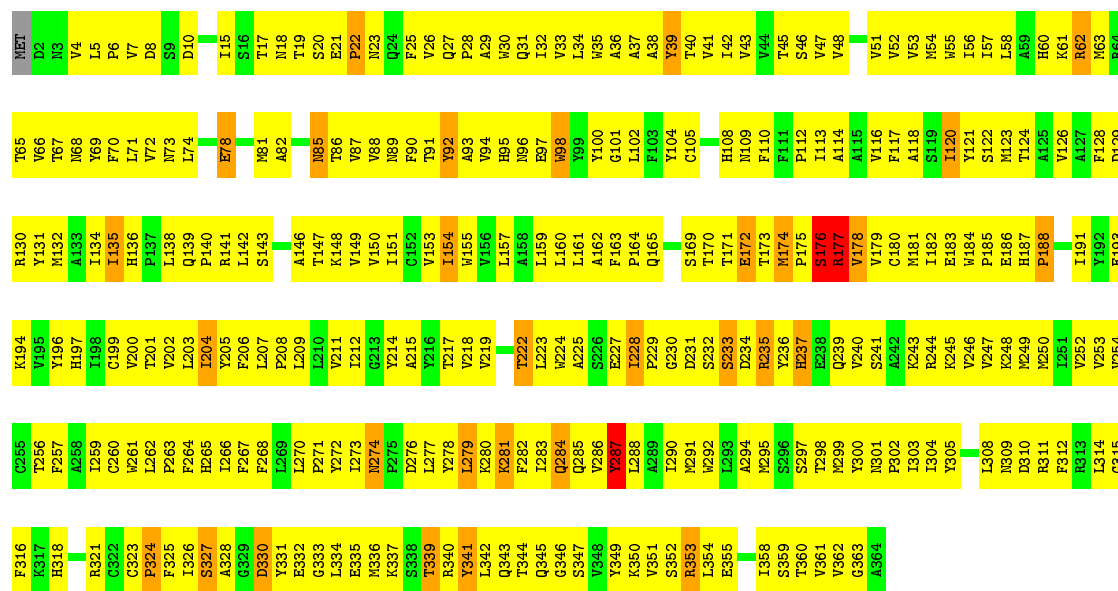


- Molecule 2: Substance P



### 4.2.3 Score per residue for model 3

- Molecule 1: Substance-P receptor



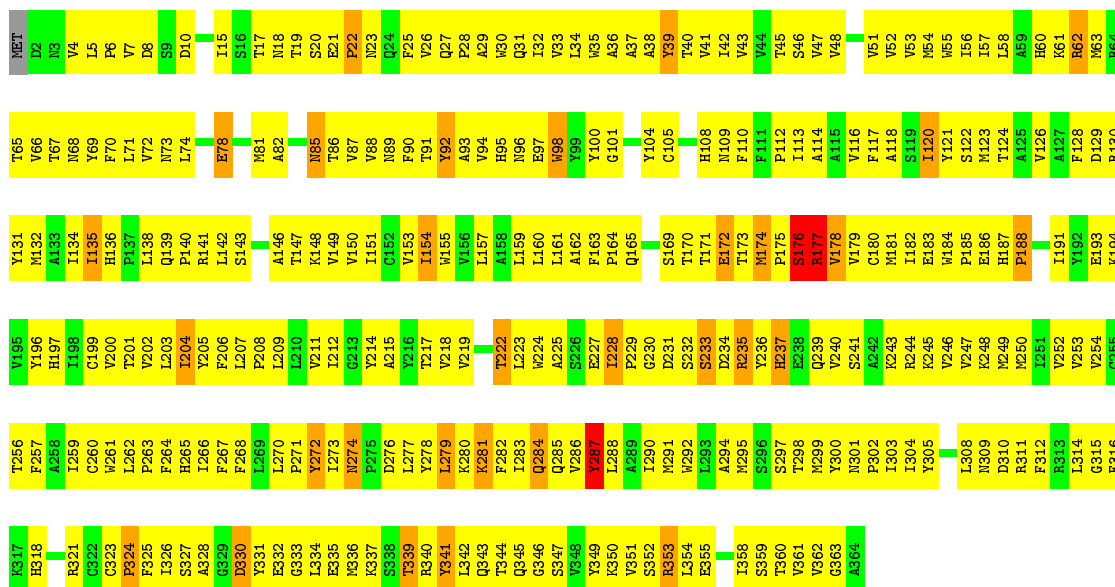
- Molecule 2: Substance P



### 4.2.4 Score per residue for model 4

- Molecule 1: Substance-P receptor



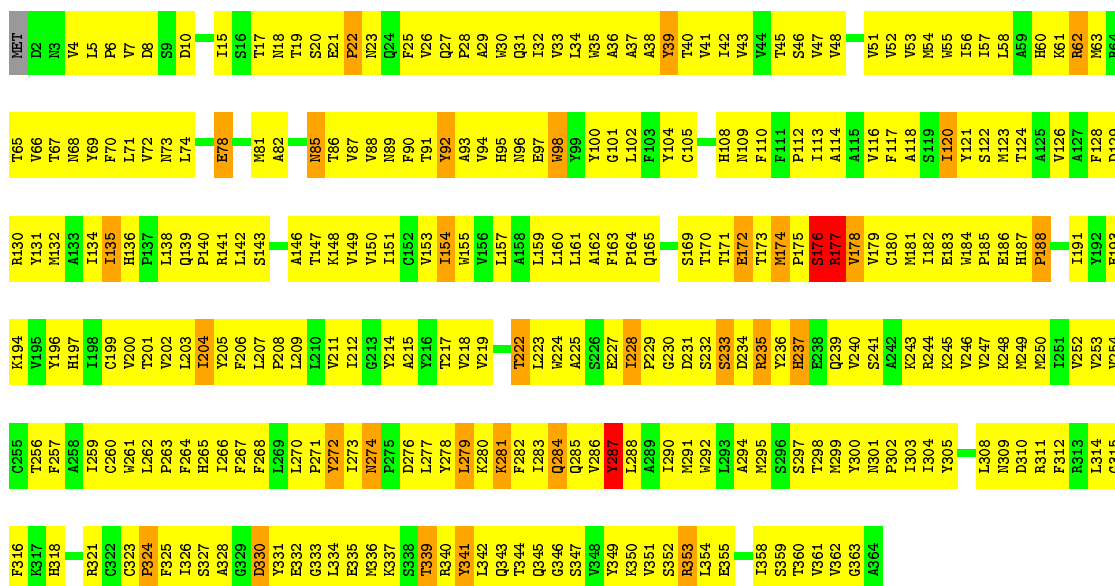


- Molecule 2: Substance P



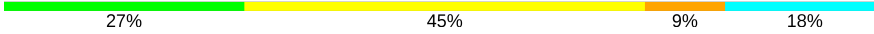
#### 4.2.5 Score per residue for model 5

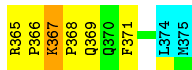
- Molecule 1: Substance-P receptor



- Molecule 2: Substance P



Chain B:  27% 45% 9% 18%



## 5 Refinement protocol and experimental data overview

The models were refined using the following method: *molecular dynamics, simulated annealing*.

Of the 20 calculated structures, 5 were deposited, based on the following criterion: *highest binding energy*.

The following table shows the software used for structure solution, optimisation and refinement.

| Software name | Classification        | Version |
|---------------|-----------------------|---------|
| XPLOR-NIH     | structure solution    | 2.17.0  |
| AutoDock      | structure solution    | 4.0     |
| XPLOR-NIH     | geometry optimization | 2.17.0  |
| AutoDock      | geometry optimization | 4.0     |
| AutoDock      | refinement            | 4.0     |

The following table shows chemical shift validation statistics as aggregates over all chemical shift files. Detailed validation can be found in section 6 of this report.

|  |              |
|--|--------------|
| Chemical shift file(s)                       | input_cs.cif |
| Number of chemical shift lists               | 1            |
| Total number of shifts                       | 88           |
| Number of shifts mapped to atoms             | 88           |
| Number of unparsed shifts                    | 0            |
| Number of shifts with mapping errors         | 0            |
| Number of shifts with mapping warnings       | 0            |
| Assignment completeness (well-defined parts) | 1%           |

No validations of the models with respect to experimental NMR restraints is performed at this time.

COVALENT-GEOMETRY INFOmissingINFO

### 5.1 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 each 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 averaged over the ensemble.

| Mol | Chain | Non-H | H(model) | H(added) | Clashes |
|-----|-------|-------|----------|----------|---------|
| 1   | A     | 2928  | 2939     | 2937     | 726±2   |
| 2   | B     | 78    | 79       | 76       | 4±2     |
| All | All   | 15030 | 15090    | 15065    | 3639    |

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 121.

All unique clashes are listed below, sorted by their clash magnitude.

| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:334:LEU:HD22 | 1:A:337:LYS:HA   | 1.02     | 1.26        | 3      | 5     |
| 1:A:17:THR:HG23  | 1:A:20:SER:H     | 1.00     | 1.17        | 1      | 5     |
| 1:A:161:LEU:HD13 | 1:A:200:VAL:HG13 | 0.99     | 1.28        | 4      | 5     |
| 1:A:161:LEU:HD12 | 1:A:204:ILE:HB   | 0.96     | 1.30        | 1      | 5     |
| 1:A:188:PRO:HB2  | 1:A:191:ILE:HD12 | 0.96     | 1.32        | 3      | 5     |
| 1:A:92:TYR:CD1   | 1:A:178:VAL:HB   | 0.95     | 1.97        | 3      | 5     |
| 1:A:170:THR:HG22 | 1:A:193:GLU:HA   | 0.94     | 1.34        | 1      | 5     |
| 1:A:62:ARG:HG3   | 1:A:336:MET:HA   | 0.94     | 1.37        | 1      | 5     |
| 1:A:335:GLU:HG3  | 1:A:340:ARG:HA   | 0.92     | 1.42        | 5      | 5     |
| 1:A:182:ILE:HD11 | 1:A:196:TYR:CD2  | 0.92     | 1.99        | 4      | 5     |
| 1:A:175:PRO:HB2  | 1:A:284:GLN:HA   | 0.92     | 1.39        | 4      | 5     |
| 1:A:121:TYR:HB2  | 1:A:154:ILE:HD11 | 0.91     | 1.41        | 1      | 5     |
| 1:A:92:TYR:CG    | 1:A:178:VAL:HB   | 0.90     | 2.01        | 3      | 5     |
| 1:A:278:TYR:HA   | 1:A:282:PHE:HB2  | 0.90     | 1.44        | 4      | 5     |
| 1:A:278:TYR:HA   | 1:A:282:PHE:CB   | 0.89     | 1.98        | 2      | 5     |
| 1:A:56:ILE:HD12  | 1:A:316:PHE:HA   | 0.89     | 1.44        | 2      | 5     |
| 1:A:253:VAL:HG22 | 1:A:304:ILE:CD1  | 0.88     | 1.98        | 3      | 5     |
| 1:A:63:MET:HG3   | 1:A:341:TYR:CE2  | 0.88     | 2.03        | 3      | 5     |
| 1:A:174:MET:HB3  | 1:A:175:PRO:HD2  | 0.87     | 1.44        | 3      | 5     |
| 1:A:182:ILE:HG22 | 1:A:184:TRP:CZ3  | 0.86     | 2.06        | 4      | 5     |
| 1:A:354:LEU:CD1  | 1:A:355:GLU:HG2  | 0.86     | 2.00        | 1      | 5     |
| 1:A:85:ASN:HB3   | 1:A:112:PRO:HG3  | 0.85     | 1.48        | 4      | 5     |
| 1:A:184:TRP:CD1  | 1:A:185:PRO:HD3  | 0.85     | 2.06        | 2      | 5     |
| 1:A:188:PRO:HB3  | 2:B:365:ARG:HD2  | 0.85     | 1.46        | 5      | 1     |
| 1:A:334:LEU:HD22 | 1:A:337:LYS:CA   | 0.84     | 2.02        | 4      | 5     |
| 1:A:312:PHE:HB3  | 1:A:316:PHE:CE2  | 0.84     | 2.07        | 4      | 5     |
| 1:A:5:LEU:HD21   | 2:B:366:PRO:HG3  | 0.84     | 1.46        | 5      | 1     |
| 1:A:62:ARG:CG    | 1:A:336:MET:HA   | 0.83     | 2.04        | 2      | 5     |
| 1:A:253:VAL:HG22 | 1:A:304:ILE:HD12 | 0.83     | 1.48        | 3      | 5     |
| 1:A:74:LEU:HD21  | 1:A:123:MET:HE1  | 0.83     | 1.49        | 1      | 5     |
| 1:A:63:MET:HG3   | 1:A:341:TYR:HE2  | 0.82     | 1.30        | 3      | 5     |
| 1:A:228:ILE:HD13 | 1:A:229:PRO:N    | 0.82     | 1.89        | 1      | 5     |
| 1:A:57:ILE:HD11  | 1:A:72:VAL:HG12  | 0.82     | 1.52        | 3      | 5     |
| 1:A:165:GLN:HE21 | 1:A:182:ILE:HG13 | 0.82     | 1.35        | 1      | 5     |
| 1:A:39:TYR:CE2   | 1:A:89:ASN:HB2   | 0.82     | 2.10        | 3      | 5     |
| 1:A:60:HIS:HB3   | 1:A:341:TYR:CD2  | 0.82     | 2.09        | 4      | 5     |
| 1:A:134:ILE:CD1  | 1:A:219:VAL:HG13 | 0.81     | 2.05        | 1      | 5     |
| 1:A:117:PHE:CE1  | 1:A:204:ILE:HG21 | 0.81     | 2.10        | 4      | 5     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:71:LEU:HD23  | 1:A:305:TYR:CE1  | 0.81     | 2.10        | 3      | 5     |
| 1:A:182:ILE:HG21 | 1:A:268:PHE:CZ   | 0.81     | 2.10        | 2      | 5     |
| 1:A:161:LEU:CD1  | 1:A:204:ILE:HB   | 0.81     | 2.06        | 2      | 5     |
| 1:A:102:LEU:HD21 | 2:B:367:LYS:NZ   | 0.81     | 1.91        | 3      | 1     |
| 1:A:43:VAL:HG22  | 1:A:86:THR:HG21  | 0.81     | 1.51        | 2      | 5     |
| 1:A:235:ARG:HG3  | 1:A:244:ARG:NH1  | 0.80     | 1.92        | 1      | 5     |
| 1:A:354:LEU:HD13 | 1:A:355:GLU:N    | 0.80     | 1.91        | 5      | 5     |
| 1:A:170:THR:CG2  | 1:A:193:GLU:HA   | 0.80     | 2.04        | 4      | 5     |
| 1:A:7:VAL:HG13   | 1:A:282:PHE:CE2  | 0.80     | 2.11        | 3      | 5     |
| 1:A:336:MET:HB2  | 1:A:341:TYR:HB3  | 0.80     | 1.52        | 3      | 5     |
| 1:A:151:ILE:O    | 1:A:154:ILE:HG22 | 0.80     | 1.77        | 3      | 5     |
| 1:A:335:GLU:CG   | 1:A:340:ARG:HA   | 0.80     | 2.05        | 5      | 5     |
| 1:A:39:TYR:CE2   | 1:A:86:THR:HA    | 0.80     | 2.12        | 4      | 5     |
| 1:A:113:ILE:HG13 | 1:A:117:PHE:CE2  | 0.79     | 2.12        | 1      | 5     |
| 1:A:85:ASN:CB    | 1:A:112:PRO:HG3  | 0.79     | 2.07        | 5      | 5     |
| 1:A:188:PRO:CB   | 1:A:191:ILE:HD12 | 0.79     | 2.07        | 2      | 5     |
| 1:A:223:LEU:HD22 | 1:A:244:ARG:NE   | 0.79     | 1.93        | 2      | 5     |
| 1:A:69:TYR:O     | 1:A:72:VAL:HG22  | 0.79     | 1.78        | 1      | 5     |
| 1:A:174:MET:HE1  | 1:A:181:MET:HB2  | 0.79     | 1.53        | 4      | 5     |
| 1:A:66:VAL:HG22  | 1:A:70:PHE:CE2   | 0.78     | 2.12        | 3      | 5     |
| 1:A:10:ASP:HB3   | 1:A:15:ILE:HD13  | 0.78     | 1.55        | 3      | 5     |
| 1:A:175:PRO:HD3  | 1:A:287:TYR:HB3  | 0.78     | 1.54        | 4      | 5     |
| 1:A:161:LEU:HD12 | 1:A:204:ILE:CB   | 0.78     | 2.09        | 1      | 5     |
| 1:A:27:GLN:HB2   | 1:A:31:GLN:OE1   | 0.78     | 1.79        | 2      | 5     |
| 1:A:71:LEU:HD23  | 1:A:305:TYR:HE1  | 0.78     | 1.38        | 4      | 5     |
| 1:A:142:LEU:HD13 | 1:A:143:SER:N    | 0.77     | 1.93        | 1      | 5     |
| 1:A:278:TYR:HB2  | 1:A:282:PHE:H    | 0.77     | 1.40        | 4      | 5     |
| 1:A:124:THR:HG22 | 1:A:212:ILE:CG1  | 0.77     | 2.08        | 4      | 5     |
| 1:A:200:VAL:O    | 1:A:204:ILE:HG22 | 0.77     | 1.79        | 1      | 5     |
| 1:A:139:GLN:HE22 | 1:A:360:THR:HA   | 0.77     | 1.39        | 1      | 5     |
| 1:A:74:LEU:HD21  | 1:A:123:MET:CE   | 0.77     | 2.09        | 2      | 5     |
| 1:A:214:TYR:O    | 1:A:217:THR:HG22 | 0.77     | 1.78        | 3      | 5     |
| 1:A:231:ASP:O    | 1:A:235:ARG:HB2  | 0.77     | 1.80        | 1      | 5     |
| 1:A:335:GLU:HG2  | 1:A:339:THR:O    | 0.77     | 1.79        | 3      | 5     |
| 1:A:10:ASP:HB3   | 1:A:15:ILE:CD1   | 0.77     | 2.09        | 3      | 5     |
| 1:A:123:MET:HE2  | 1:A:123:MET:HA   | 0.77     | 1.53        | 3      | 2     |
| 1:A:188:PRO:HD2  | 1:A:193:GLU:CB   | 0.77     | 2.10        | 4      | 5     |
| 1:A:334:LEU:CD2  | 1:A:337:LYS:HA   | 0.77     | 2.09        | 4      | 5     |
| 1:A:123:MET:HA   | 1:A:123:MET:HE2  | 0.77     | 1.53        | 2      | 3     |
| 1:A:342:LEU:HG   | 1:A:343:GLN:H    | 0.77     | 1.40        | 5      | 5     |
| 1:A:182:ILE:HD11 | 1:A:196:TYR:HD2  | 0.77     | 1.35        | 2      | 5     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:26:VAL:HG12  | 1:A:284:GLN:OE1  | 0.76     | 1.79        | 4      | 5     |
| 1:A:124:THR:HG22 | 1:A:212:ILE:HG13 | 0.76     | 1.56        | 1      | 5     |
| 1:A:276:ASP:O    | 1:A:277:LEU:HD23 | 0.76     | 1.81        | 4      | 5     |
| 1:A:264:PHE:N    | 1:A:290:ILE:HG21 | 0.76     | 1.96        | 2      | 5     |
| 1:A:264:PHE:CA   | 1:A:290:ILE:HG21 | 0.76     | 2.10        | 3      | 5     |
| 1:A:28:PRO:HG2   | 1:A:31:GLN:HG3   | 0.76     | 1.57        | 3      | 5     |
| 1:A:161:LEU:CD1  | 1:A:200:VAL:HG13 | 0.76     | 2.11        | 1      | 5     |
| 1:A:315:GLY:HA3  | 1:A:341:TYR:OH   | 0.75     | 1.81        | 2      | 5     |
| 1:A:139:GLN:NE2  | 1:A:360:THR:HA   | 0.75     | 1.96        | 1      | 5     |
| 1:A:5:LEU:HB2    | 1:A:6:PRO:HD3    | 0.75     | 1.56        | 2      | 5     |
| 1:A:48:VAL:O     | 1:A:52:VAL:HG23  | 0.75     | 1.81        | 1      | 5     |
| 1:A:88:VAL:HG21  | 1:A:108:HIS:NE2  | 0.75     | 1.97        | 1      | 5     |
| 1:A:340:ARG:HB2  | 1:A:346:GLY:HA3  | 0.75     | 1.56        | 3      | 5     |
| 1:A:19:THR:HG23  | 1:A:101:GLY:HA2  | 0.75     | 1.58        | 4      | 5     |
| 1:A:207:LEU:HB3  | 1:A:208:PRO:HD3  | 0.75     | 1.56        | 4      | 5     |
| 1:A:27:GLN:HB3   | 1:A:284:GLN:OE1  | 0.75     | 1.82        | 3      | 5     |
| 1:A:336:MET:HB2  | 1:A:341:TYR:CB   | 0.75     | 2.11        | 4      | 5     |
| 1:A:110:PHE:O    | 1:A:113:ILE:HG22 | 0.74     | 1.81        | 4      | 5     |
| 1:A:284:GLN:HE21 | 1:A:285:GLN:HG2  | 0.74     | 1.42        | 3      | 5     |
| 1:A:88:VAL:HG21  | 1:A:108:HIS:CD2  | 0.74     | 2.18        | 2      | 5     |
| 1:A:56:ILE:HG21  | 1:A:316:PHE:CE1  | 0.74     | 2.18        | 4      | 5     |
| 1:A:100:TYR:HB3  | 1:A:104:TYR:CD2  | 0.74     | 2.18        | 1      | 5     |
| 1:A:17:THR:HG23  | 1:A:20:SER:N     | 0.73     | 1.97        | 1      | 5     |
| 1:A:336:MET:CE   | 1:A:351:VAL:HB   | 0.73     | 2.12        | 2      | 5     |
| 1:A:261:TRP:CH2  | 1:A:294:ALA:HB1  | 0.73     | 2.18        | 2      | 5     |
| 1:A:134:ILE:HG21 | 1:A:222:THR:CB   | 0.73     | 2.13        | 3      | 5     |
| 1:A:70:PHE:CZ    | 1:A:147:THR:HG23 | 0.73     | 2.18        | 1      | 5     |
| 1:A:187:HIS:HA   | 1:A:193:GLU:OE1  | 0.73     | 1.84        | 3      | 5     |
| 1:A:311:ARG:HA   | 1:A:331:TYR:CD1  | 0.73     | 2.18        | 4      | 5     |
| 1:A:204:ILE:HD13 | 1:A:204:ILE:O    | 0.73     | 1.83        | 3      | 3     |
| 1:A:204:ILE:O    | 1:A:204:ILE:HD13 | 0.73     | 1.84        | 2      | 2     |
| 1:A:197:HIS:CE1  | 1:A:272:TYR:HB2  | 0.73     | 2.18        | 4      | 5     |
| 1:A:336:MET:SD   | 1:A:347:SER:HA   | 0.73     | 2.24        | 5      | 5     |
| 1:A:318:HIS:NE2  | 1:A:326:ILE:HG21 | 0.73     | 1.99        | 4      | 5     |
| 1:A:235:ARG:HG2  | 1:A:241:SER:CB   | 0.72     | 2.14        | 4      | 5     |
| 1:A:123:MET:CE   | 1:A:123:MET:HA   | 0.72     | 2.14        | 1      | 3     |
| 1:A:270:LEU:O    | 1:A:273:ILE:HG13 | 0.72     | 1.84        | 3      | 5     |
| 1:A:5:LEU:HD21   | 2:B:366:PRO:CG   | 0.72     | 2.14        | 5      | 1     |
| 1:A:215:ALA:O    | 1:A:218:VAL:HG12 | 0.72     | 1.84        | 2      | 5     |
| 1:A:62:ARG:HG3   | 1:A:336:MET:CA   | 0.72     | 2.14        | 2      | 5     |
| 1:A:165:GLN:HA   | 1:A:169:SER:HB2  | 0.72     | 1.62        | 2      | 5     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:22:PRO:O     | 1:A:96:ASN:HB3   | 0.72     | 1.85        | 2      | 5     |
| 1:A:4:VAL:HG11   | 1:A:15:ILE:HD13  | 0.72     | 1.59        | 1      | 5     |
| 1:A:174:MET:HB3  | 1:A:175:PRO:CD   | 0.72     | 2.14        | 4      | 5     |
| 1:A:175:PRO:HB2  | 1:A:284:GLN:CA   | 0.72     | 2.14        | 4      | 5     |
| 1:A:175:PRO:HG3  | 1:A:288:LEU:N    | 0.72     | 2.00        | 2      | 5     |
| 1:A:126:VAL:HA   | 1:A:129:ASP:OD2  | 0.72     | 1.85        | 2      | 5     |
| 1:A:233:SER:O    | 1:A:235:ARG:HD2  | 0.72     | 1.84        | 1      | 5     |
| 1:A:30:TRP:CZ3   | 1:A:34:LEU:HB2   | 0.71     | 2.20        | 1      | 5     |
| 1:A:81:MET:SD    | 1:A:298:THR:HB   | 0.71     | 2.25        | 3      | 5     |
| 1:A:98:TRP:HA    | 1:A:98:TRP:CE3   | 0.71     | 2.20        | 4      | 3     |
| 1:A:98:TRP:CE3   | 1:A:98:TRP:HA    | 0.71     | 2.20        | 1      | 2     |
| 1:A:249:MET:O    | 1:A:252:VAL:HG12 | 0.71     | 1.85        | 2      | 5     |
| 1:A:123:MET:HA   | 1:A:123:MET:CE   | 0.71     | 2.14        | 4      | 2     |
| 1:A:175:PRO:CD   | 1:A:287:TYR:HB3  | 0.71     | 2.16        | 3      | 5     |
| 1:A:98:TRP:CE3   | 1:A:178:VAL:HG11 | 0.71     | 2.21        | 4      | 5     |
| 2:B:368:PRO:O    | 2:B:371:PHE:HB2  | 0.71     | 1.84        | 3      | 5     |
| 1:A:154:ILE:HD13 | 1:A:154:ILE:O    | 0.70     | 1.86        | 1      | 4     |
| 1:A:154:ILE:O    | 1:A:154:ILE:HD13 | 0.70     | 1.86        | 2      | 1     |
| 1:A:4:VAL:HG23   | 1:A:6:PRO:CD     | 0.70     | 2.16        | 1      | 5     |
| 1:A:37:ALA:O     | 1:A:40:THR:HG22  | 0.70     | 1.86        | 2      | 5     |
| 1:A:54:MET:O     | 1:A:58:LEU:HD13  | 0.70     | 1.85        | 2      | 5     |
| 1:A:311:ARG:HA   | 1:A:331:TYR:HD1  | 0.70     | 1.47        | 5      | 5     |
| 1:A:273:ILE:HD12 | 1:A:274:ASN:N    | 0.70     | 2.01        | 1      | 5     |
| 1:A:98:TRP:CZ2   | 1:A:105:CYS:HA   | 0.69     | 2.22        | 1      | 5     |
| 1:A:113:ILE:HG13 | 1:A:117:PHE:CZ   | 0.69     | 2.23        | 1      | 5     |
| 1:A:201:THR:HG22 | 1:A:206:PHE:CD1  | 0.69     | 2.22        | 4      | 5     |
| 1:A:336:MET:CB   | 1:A:341:TYR:HB3  | 0.69     | 2.18        | 5      | 5     |
| 1:A:314:LEU:HB3  | 1:A:326:ILE:HD11 | 0.69     | 1.64        | 1      | 5     |
| 1:A:100:TYR:HB3  | 1:A:104:TYR:CG   | 0.69     | 2.23        | 1      | 5     |
| 1:A:171:THR:O    | 1:A:183:GLU:HB2  | 0.69     | 1.88        | 2      | 5     |
| 1:A:43:VAL:HG22  | 1:A:86:THR:CG2   | 0.69     | 2.18        | 2      | 5     |
| 1:A:297:SER:HA   | 1:A:300:TYR:CD2  | 0.69     | 2.22        | 4      | 5     |
| 1:A:67:THR:CG2   | 1:A:250:MET:HE2  | 0.69     | 2.17        | 2      | 5     |
| 1:A:244:ARG:O    | 1:A:247:VAL:HG12 | 0.69     | 1.88        | 1      | 5     |
| 1:A:170:THR:HA   | 1:A:191:ILE:HG21 | 0.69     | 1.64        | 4      | 5     |
| 1:A:139:GLN:HB3  | 1:A:140:PRO:HD3  | 0.69     | 1.64        | 3      | 5     |
| 1:A:63:MET:HE2   | 1:A:312:PHE:CZ   | 0.69     | 2.23        | 4      | 5     |
| 1:A:176:SER:OG   | 1:A:284:GLN:HG3  | 0.68     | 1.89        | 4      | 5     |
| 1:A:30:TRP:O     | 1:A:33:VAL:HG22  | 0.68     | 1.88        | 2      | 5     |
| 1:A:337:LYS:HB3  | 1:A:351:VAL:HG21 | 0.68     | 1.65        | 1      | 5     |
| 1:A:4:VAL:HG23   | 1:A:6:PRO:HD2    | 0.68     | 1.66        | 4      | 5     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:56:ILE:HD12  | 1:A:316:PHE:CA   | 0.68     | 2.18        | 3      | 5     |
| 1:A:295:MET:O    | 1:A:298:THR:HG22 | 0.68     | 1.89        | 1      | 5     |
| 1:A:18:ASN:O     | 1:A:97:GLU:HB3   | 0.68     | 1.89        | 1      | 5     |
| 1:A:132:MET:HE2  | 1:A:132:MET:HA   | 0.68     | 1.64        | 5      | 5     |
| 1:A:67:THR:HG21  | 1:A:250:MET:HE2  | 0.68     | 1.65        | 4      | 5     |
| 1:A:67:THR:HG21  | 1:A:250:MET:CE   | 0.68     | 2.19        | 4      | 5     |
| 1:A:4:VAL:HG22   | 1:A:8:ASP:O      | 0.67     | 1.88        | 1      | 5     |
| 1:A:342:LEU:HG   | 1:A:343:GLN:N    | 0.67     | 2.03        | 2      | 5     |
| 1:A:280:LYS:HG2  | 1:A:281:LYS:HE2  | 0.67     | 1.66        | 4      | 5     |
| 1:A:57:ILE:HD11  | 1:A:72:VAL:CG1   | 0.67     | 2.19        | 4      | 5     |
| 1:A:280:LYS:O    | 1:A:281:LYS:HD3  | 0.67     | 1.89        | 1      | 5     |
| 1:A:196:TYR:O    | 1:A:200:VAL:HG23 | 0.67     | 1.88        | 3      | 5     |
| 1:A:67:THR:HG22  | 1:A:71:LEU:HD13  | 0.67     | 1.66        | 4      | 5     |
| 1:A:36:ALA:CB    | 1:A:94:VAL:HG13  | 0.67     | 2.20        | 4      | 5     |
| 1:A:132:MET:HA   | 1:A:135:ILE:CD1  | 0.67     | 2.20        | 1      | 5     |
| 1:A:297:SER:HB3  | 1:A:300:TYR:CE2  | 0.67     | 2.24        | 2      | 5     |
| 1:A:136:HIS:ND1  | 1:A:141:ARG:HD2  | 0.67     | 2.04        | 3      | 5     |
| 1:A:353:ARG:H    | 1:A:353:ARG:HD3  | 0.67     | 1.47        | 3      | 1     |
| 1:A:45:THR:HG21  | 1:A:299:MET:SD   | 0.67     | 2.30        | 1      | 5     |
| 1:A:173:THR:HG22 | 1:A:180:CYS:SG   | 0.67     | 2.29        | 4      | 5     |
| 1:A:353:ARG:HD3  | 1:A:353:ARG:H    | 0.67     | 1.47        | 2      | 4     |
| 1:A:161:LEU:HD13 | 1:A:200:VAL:CG1  | 0.67     | 2.14        | 4      | 5     |
| 1:A:228:ILE:HG22 | 1:A:235:ARG:HD2  | 0.67     | 1.67        | 2      | 5     |
| 1:A:110:PHE:HZ   | 1:A:159:LEU:CD1  | 0.66     | 2.04        | 1      | 5     |
| 1:A:228:ILE:HG23 | 1:A:230:GLY:O    | 0.66     | 1.91        | 2      | 5     |
| 1:A:174:MET:O    | 1:A:177:ARG:HB2  | 0.66     | 1.91        | 3      | 5     |
| 1:A:315:GLY:HA2  | 1:A:318:HIS:ND1  | 0.66     | 2.06        | 3      | 5     |
| 1:A:249:MET:O    | 1:A:253:VAL:HG23 | 0.66     | 1.90        | 3      | 5     |
| 1:A:342:LEU:HB3  | 1:A:344:THR:O    | 0.66     | 1.91        | 4      | 5     |
| 1:A:174:MET:HB2  | 1:A:179:VAL:CG1  | 0.66     | 2.21        | 1      | 5     |
| 1:A:336:MET:HE1  | 1:A:351:VAL:HB   | 0.66     | 1.68        | 1      | 5     |
| 1:A:48:VAL:O     | 1:A:51:VAL:HG12  | 0.66     | 1.91        | 2      | 5     |
| 1:A:18:ASN:HB3   | 1:A:97:GLU:OE1   | 0.66     | 1.91        | 3      | 5     |
| 1:A:149:VAL:O    | 1:A:153:VAL:HG23 | 0.66     | 1.90        | 2      | 5     |
| 1:A:323:CYS:HB2  | 1:A:325:PHE:CD1  | 0.66     | 2.26        | 2      | 5     |
| 1:A:228:ILE:HG22 | 1:A:235:ARG:CD   | 0.65     | 2.21        | 1      | 5     |
| 1:A:66:VAL:HG22  | 1:A:70:PHE:HE2   | 0.65     | 1.51        | 2      | 5     |
| 1:A:342:LEU:H    | 1:A:347:SER:HB2  | 0.65     | 1.52        | 1      | 5     |
| 1:A:135:ILE:HD11 | 1:A:136:HIS:CD2  | 0.65     | 2.26        | 2      | 5     |
| 1:A:263:PRO:O    | 1:A:266:ILE:HG22 | 0.65     | 1.91        | 2      | 5     |
| 1:A:358:ILE:HG22 | 1:A:360:THR:O    | 0.65     | 1.91        | 4      | 5     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:62:ARG:HB3   | 1:A:341:TYR:CD2  | 0.65     | 2.27        | 1      | 5     |
| 1:A:174:MET:HB2  | 1:A:179:VAL:HG13 | 0.65     | 1.68        | 3      | 5     |
| 1:A:4:VAL:HG23   | 1:A:6:PRO:N      | 0.65     | 2.06        | 3      | 5     |
| 1:A:38:ALA:O     | 1:A:42:ILE:HG13  | 0.65     | 1.91        | 4      | 5     |
| 1:A:175:PRO:CG   | 1:A:287:TYR:HB3  | 0.65     | 2.21        | 1      | 5     |
| 1:A:256:THR:O    | 1:A:259:ILE:HG22 | 0.65     | 1.92        | 5      | 5     |
| 1:A:98:TRP:NE1   | 1:A:105:CYS:HB2  | 0.65     | 2.06        | 1      | 5     |
| 1:A:267:PHE:O    | 1:A:271:PRO:HD2  | 0.65     | 1.92        | 1      | 5     |
| 1:A:132:MET:O    | 1:A:135:ILE:HD13 | 0.65     | 1.92        | 2      | 5     |
| 1:A:175:PRO:CB   | 1:A:284:GLN:HA   | 0.64     | 2.19        | 3      | 5     |
| 1:A:228:ILE:HG21 | 1:A:232:SER:O    | 0.64     | 1.92        | 3      | 5     |
| 1:A:4:VAL:HG11   | 1:A:10:ASP:HB3   | 0.64     | 1.68        | 1      | 5     |
| 1:A:300:TYR:O    | 1:A:303:ILE:HG12 | 0.64     | 1.93        | 2      | 5     |
| 1:A:199:CYS:O    | 1:A:203:LEU:HD13 | 0.64     | 1.93        | 1      | 5     |
| 1:A:29:ALA:O     | 1:A:32:ILE:HB    | 0.64     | 1.93        | 1      | 5     |
| 1:A:176:SER:OG   | 1:A:288:LEU:HD12 | 0.64     | 1.93        | 3      | 5     |
| 1:A:30:TRP:CH2   | 1:A:34:LEU:HD22  | 0.64     | 2.27        | 1      | 5     |
| 1:A:120:ILE:HD13 | 1:A:120:ILE:O    | 0.64     | 1.93        | 3      | 3     |
| 1:A:174:MET:CE   | 1:A:181:MET:HB2  | 0.64     | 2.23        | 5      | 5     |
| 1:A:340:ARG:CB   | 1:A:346:GLY:HA3  | 0.64     | 2.23        | 3      | 5     |
| 1:A:132:MET:HA   | 1:A:132:MET:CE   | 0.64     | 2.23        | 5      | 2     |
| 1:A:132:MET:CE   | 1:A:132:MET:HA   | 0.64     | 2.23        | 1      | 3     |
| 1:A:102:LEU:HD21 | 2:B:371:PHE:CE1  | 0.64     | 2.28        | 2      | 1     |
| 1:A:120:ILE:O    | 1:A:120:ILE:HD13 | 0.64     | 1.93        | 5      | 2     |
| 1:A:337:LYS:HB3  | 1:A:351:VAL:CG2  | 0.64     | 2.22        | 2      | 5     |
| 1:A:28:PRO:HG2   | 1:A:31:GLN:CG    | 0.64     | 2.23        | 4      | 5     |
| 1:A:39:TYR:HE2   | 1:A:89:ASN:HB2   | 0.64     | 1.50        | 3      | 5     |
| 1:A:177:ARG:O    | 1:A:178:VAL:HG23 | 0.63     | 1.93        | 1      | 5     |
| 1:A:81:MET:HA    | 1:A:85:ASN:OD1   | 0.63     | 1.92        | 3      | 5     |
| 1:A:7:VAL:HG13   | 1:A:282:PHE:CD2  | 0.63     | 2.28        | 4      | 5     |
| 1:A:278:TYR:CB   | 1:A:282:PHE:H    | 0.63     | 2.04        | 3      | 5     |
| 1:A:32:ILE:HG23  | 1:A:93:ALA:O     | 0.63     | 1.93        | 4      | 5     |
| 1:A:102:LEU:HD21 | 2:B:367:LYS:HZ2  | 0.63     | 1.49        | 3      | 1     |
| 1:A:132:MET:HE2  | 1:A:132:MET:CA   | 0.63     | 2.24        | 1      | 3     |
| 1:A:301:ASN:CG   | 1:A:302:PRO:HD3  | 0.63     | 2.14        | 2      | 5     |
| 1:A:184:TRP:HZ3  | 1:A:268:PHE:CE2  | 0.63     | 2.11        | 3      | 5     |
| 1:A:132:MET:CA   | 1:A:132:MET:HE2  | 0.63     | 2.24        | 5      | 2     |
| 1:A:98:TRP:HE3   | 1:A:98:TRP:HA    | 0.63     | 1.54        | 4      | 3     |
| 1:A:130:ARG:HD2  | 1:A:250:MET:SD   | 0.63     | 2.34        | 1      | 5     |
| 1:A:228:ILE:HG21 | 1:A:233:SER:HB2  | 0.63     | 1.69        | 4      | 5     |
| 1:A:98:TRP:HA    | 1:A:98:TRP:HE3   | 0.63     | 1.54        | 2      | 2     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:52:VAL:HG12  | 1:A:316:PHE:CE1  | 0.62     | 2.29        | 1      | 5     |
| 1:A:235:ARG:HG2  | 1:A:241:SER:HB3  | 0.62     | 1.71        | 4      | 5     |
| 1:A:262:LEU:HB3  | 1:A:263:PRO:HD3  | 0.62     | 1.70        | 2      | 5     |
| 1:A:240:VAL:HG12 | 1:A:244:ARG:NH1  | 0.62     | 2.09        | 1      | 5     |
| 1:A:4:VAL:CG1    | 1:A:15:ILE:HD13  | 0.62     | 2.24        | 1      | 5     |
| 1:A:110:PHE:HZ   | 1:A:159:LEU:HD13 | 0.62     | 1.54        | 4      | 5     |
| 1:A:304:ILE:O    | 1:A:308:LEU:HD23 | 0.62     | 1.95        | 2      | 5     |
| 1:A:354:LEU:HD13 | 1:A:355:GLU:HG2  | 0.62     | 1.71        | 3      | 5     |
| 1:A:98:TRP:CZ3   | 1:A:178:VAL:HG11 | 0.62     | 2.28        | 4      | 5     |
| 1:A:239:GLN:O    | 1:A:243:LYS:HG2  | 0.62     | 1.95        | 1      | 5     |
| 1:A:342:LEU:HD22 | 1:A:345:GLN:CD   | 0.61     | 2.16        | 1      | 5     |
| 1:A:81:MET:HG3   | 1:A:85:ASN:OD1   | 0.61     | 1.95        | 1      | 5     |
| 1:A:170:THR:HG22 | 1:A:193:GLU:CA   | 0.61     | 2.19        | 2      | 5     |
| 1:A:234:ASP:HB2  | 1:A:235:ARG:NH1  | 0.61     | 2.10        | 2      | 5     |
| 1:A:138:LEU:HD13 | 1:A:140:PRO:N    | 0.61     | 2.10        | 1      | 5     |
| 1:A:174:MET:C    | 1:A:177:ARG:HB2  | 0.61     | 2.16        | 1      | 5     |
| 1:A:39:TYR:HD1   | 1:A:42:ILE:HD12  | 0.61     | 1.55        | 3      | 5     |
| 1:A:70:PHE:CD1   | 1:A:151:ILE:HD11 | 0.61     | 2.31        | 3      | 5     |
| 1:A:281:LYS:N    | 1:A:281:LYS:HE3  | 0.61     | 2.11        | 1      | 2     |
| 1:A:283:ILE:HG13 | 1:A:284:GLN:H    | 0.61     | 1.54        | 1      | 5     |
| 1:A:91:THR:HG22  | 1:A:95:HIS:HD2   | 0.61     | 1.54        | 1      | 5     |
| 1:A:281:LYS:HE3  | 1:A:281:LYS:N    | 0.61     | 2.11        | 4      | 3     |
| 1:A:155:TRP:O    | 1:A:159:LEU:HD23 | 0.61     | 1.95        | 4      | 5     |
| 1:A:318:HIS:HE2  | 1:A:326:ILE:HG21 | 0.61     | 1.55        | 5      | 5     |
| 1:A:284:GLN:HG2  | 1:A:285:GLN:N    | 0.61     | 2.07        | 5      | 5     |
| 1:A:278:TYR:HB2  | 1:A:282:PHE:N    | 0.60     | 2.10        | 2      | 5     |
| 1:A:209:LEU:HD23 | 1:A:209:LEU:O    | 0.60     | 1.96        | 3      | 4     |
| 1:A:182:ILE:HD11 | 1:A:196:TYR:CE2  | 0.60     | 2.31        | 3      | 5     |
| 1:A:342:LEU:O    | 1:A:347:SER:HB3  | 0.60     | 1.96        | 4      | 5     |
| 1:A:188:PRO:O    | 1:A:191:ILE:HB   | 0.60     | 1.96        | 4      | 5     |
| 1:A:32:ILE:HG12  | 1:A:96:ASN:OD1   | 0.60     | 1.96        | 4      | 5     |
| 1:A:209:LEU:O    | 1:A:209:LEU:HD23 | 0.60     | 1.96        | 4      | 1     |
| 1:A:117:PHE:HD1  | 1:A:204:ILE:HD12 | 0.60     | 1.56        | 1      | 5     |
| 1:A:169:SER:C    | 1:A:191:ILE:HG23 | 0.60     | 2.17        | 1      | 5     |
| 1:A:228:ILE:HD13 | 1:A:229:PRO:CD   | 0.60     | 2.26        | 4      | 5     |
| 1:A:66:VAL:HG23  | 1:A:147:THR:OG1  | 0.60     | 1.96        | 1      | 5     |
| 1:A:66:VAL:HA    | 1:A:69:TYR:HD2   | 0.60     | 1.57        | 5      | 5     |
| 1:A:134:ILE:HG21 | 1:A:222:THR:HB   | 0.60     | 1.74        | 1      | 5     |
| 1:A:92:TYR:CG    | 1:A:178:VAL:CB   | 0.60     | 2.83        | 5      | 5     |
| 1:A:5:LEU:HD13   | 2:B:366:PRO:HG2  | 0.60     | 1.71        | 2      | 1     |
| 1:A:130:ARG:NH1  | 1:A:250:MET:HE1  | 0.60     | 2.12        | 3      | 5     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:71:LEU:CD2   | 1:A:305:TYR:HE1  | 0.59     | 2.09        | 1      | 5     |
| 1:A:283:ILE:HG13 | 1:A:284:GLN:N    | 0.59     | 2.11        | 5      | 5     |
| 1:A:314:LEU:HG   | 1:A:330:ASP:C    | 0.59     | 2.18        | 1      | 5     |
| 1:A:38:ALA:O     | 1:A:41:VAL:HG22  | 0.59     | 1.97        | 5      | 5     |
| 1:A:175:PRO:HG2  | 1:A:288:LEU:HB2  | 0.59     | 1.75        | 3      | 5     |
| 1:A:184:TRP:CZ2  | 1:A:287:TYR:HE1  | 0.59     | 2.16        | 3      | 4     |
| 1:A:181:MET:HB3  | 1:A:184:TRP:CH2  | 0.59     | 2.33        | 4      | 5     |
| 1:A:301:ASN:O    | 1:A:304:ILE:HG12 | 0.59     | 1.98        | 4      | 5     |
| 1:A:165:GLN:NE2  | 1:A:182:ILE:HG13 | 0.59     | 2.10        | 4      | 5     |
| 1:A:184:TRP:CZ2  | 1:A:287:TYR:HE2  | 0.59     | 2.16        | 4      | 1     |
| 1:A:309:ASN:OD1  | 1:A:312:PHE:HB2  | 0.59     | 1.98        | 1      | 5     |
| 1:A:100:TYR:HB3  | 1:A:104:TYR:CB   | 0.59     | 2.28        | 4      | 5     |
| 1:A:261:TRP:CZ2  | 1:A:294:ALA:HB1  | 0.59     | 2.33        | 1      | 5     |
| 1:A:283:ILE:HG23 | 1:A:285:GLN:N    | 0.59     | 2.13        | 2      | 5     |
| 1:A:297:SER:HB3  | 1:A:300:TYR:HE2  | 0.59     | 1.56        | 4      | 5     |
| 1:A:188:PRO:CB   | 2:B:365:ARG:HD2  | 0.58     | 2.26        | 5      | 1     |
| 1:A:157:LEU:HA   | 1:A:160:LEU:HD23 | 0.58     | 1.75        | 2      | 5     |
| 1:A:263:PRO:O    | 1:A:267:PHE:HD1  | 0.58     | 1.81        | 4      | 5     |
| 1:A:139:GLN:OE1  | 1:A:360:THR:HA   | 0.58     | 1.97        | 5      | 5     |
| 1:A:120:ILE:HD12 | 1:A:208:PRO:HB2  | 0.58     | 1.74        | 4      | 5     |
| 1:A:280:LYS:HB3  | 1:A:281:LYS:HE3  | 0.58     | 1.74        | 5      | 5     |
| 1:A:336:MET:HG2  | 1:A:337:LYS:N    | 0.58     | 2.14        | 2      | 5     |
| 1:A:117:PHE:CD1  | 1:A:204:ILE:HG13 | 0.58     | 2.33        | 1      | 5     |
| 1:A:60:HIS:HB3   | 1:A:341:TYR:CE2  | 0.58     | 2.34        | 4      | 5     |
| 1:A:5:LEU:CD1    | 2:B:366:PRO:HG2  | 0.58     | 2.29        | 2      | 1     |
| 1:A:336:MET:CA   | 1:A:341:TYR:HB3  | 0.58     | 2.28        | 1      | 5     |
| 1:A:92:TYR:HE2   | 1:A:177:ARG:CZ   | 0.58     | 2.11        | 4      | 5     |
| 1:A:91:THR:HG22  | 1:A:95:HIS:CD2   | 0.58     | 2.33        | 1      | 5     |
| 1:A:204:ILE:O    | 1:A:208:PRO:HG2  | 0.58     | 1.98        | 2      | 5     |
| 1:A:54:MET:HG3   | 1:A:55:TRP:N     | 0.58     | 2.14        | 4      | 5     |
| 1:A:56:ILE:HG23  | 1:A:57:ILE:N     | 0.58     | 2.14        | 2      | 5     |
| 1:A:100:TYR:CB   | 1:A:104:TYR:HB2  | 0.58     | 2.29        | 2      | 5     |
| 1:A:315:GLY:HA3  | 1:A:341:TYR:CZ   | 0.57     | 2.33        | 4      | 5     |
| 1:A:273:ILE:HD12 | 1:A:274:ASN:HB2  | 0.57     | 1.75        | 4      | 5     |
| 1:A:228:ILE:CD1  | 1:A:230:GLY:H    | 0.57     | 2.12        | 5      | 5     |
| 1:A:116:VAL:HG22 | 1:A:261:TRP:CZ2  | 0.57     | 2.34        | 5      | 5     |
| 1:A:36:ALA:HB1   | 1:A:90:PHE:CE1   | 0.57     | 2.34        | 3      | 5     |
| 1:A:5:LEU:HD13   | 2:B:371:PHE:CD1  | 0.57     | 2.35        | 4      | 1     |
| 1:A:36:ALA:HB2   | 1:A:94:VAL:HG13  | 0.57     | 1.76        | 2      | 5     |
| 1:A:314:LEU:O    | 1:A:326:ILE:HD12 | 0.57     | 1.99        | 4      | 5     |
| 1:A:121:TYR:HB3  | 1:A:154:ILE:HG12 | 0.56     | 1.75        | 4      | 5     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:170:THR:HA   | 1:A:191:ILE:CG2  | 0.56     | 2.30        | 3      | 5     |
| 1:A:270:LEU:HD13 | 1:A:279:LEU:HD21 | 0.56     | 1.76        | 4      | 5     |
| 1:A:223:LEU:HD22 | 1:A:244:ARG:CZ   | 0.56     | 2.28        | 4      | 5     |
| 1:A:342:LEU:H    | 1:A:347:SER:CB   | 0.56     | 2.14        | 4      | 5     |
| 1:A:121:TYR:CB   | 1:A:154:ILE:HD11 | 0.56     | 2.25        | 3      | 5     |
| 1:A:274:ASN:OD1  | 1:A:277:LEU:HD12 | 0.56     | 2.00        | 1      | 5     |
| 1:A:67:THR:HG22  | 1:A:71:LEU:CD1   | 0.56     | 2.31        | 1      | 5     |
| 1:A:184:TRP:CZ2  | 1:A:287:TYR:CE1  | 0.56     | 2.93        | 3      | 4     |
| 1:A:336:MET:HE1  | 1:A:351:VAL:CB   | 0.56     | 2.30        | 1      | 5     |
| 1:A:32:ILE:HG21  | 1:A:96:ASN:OD1   | 0.56     | 2.01        | 5      | 5     |
| 1:A:56:ILE:HD12  | 1:A:316:PHE:CD1  | 0.56     | 2.35        | 4      | 5     |
| 1:A:265:HIS:O    | 1:A:268:PHE:HB3  | 0.56     | 2.00        | 4      | 5     |
| 1:A:184:TRP:CZ2  | 1:A:287:TYR:CE2  | 0.56     | 2.93        | 4      | 1     |
| 1:A:273:ILE:HD12 | 1:A:274:ASN:CB   | 0.56     | 2.31        | 4      | 5     |
| 1:A:62:ARG:HD2   | 1:A:335:GLU:O    | 0.56     | 2.01        | 4      | 5     |
| 1:A:280:LYS:CG   | 1:A:281:LYS:HE2  | 0.56     | 2.30        | 1      | 5     |
| 1:A:169:SER:O    | 1:A:191:ILE:HG23 | 0.56     | 2.01        | 2      | 5     |
| 1:A:146:ALA:O    | 1:A:150:VAL:HG23 | 0.55     | 2.02        | 1      | 5     |
| 1:A:264:PHE:HB2  | 1:A:290:ILE:HG22 | 0.55     | 1.77        | 4      | 5     |
| 1:A:188:PRO:HD2  | 1:A:193:GLU:HB2  | 0.55     | 1.75        | 5      | 5     |
| 1:A:134:ILE:HG21 | 1:A:222:THR:OG1  | 0.55     | 2.01        | 3      | 5     |
| 1:A:121:TYR:HB3  | 1:A:154:ILE:CG1  | 0.55     | 2.32        | 1      | 5     |
| 1:A:184:TRP:CZ3  | 1:A:268:PHE:CE2  | 0.55     | 2.94        | 2      | 5     |
| 1:A:82:ALA:O     | 1:A:86:THR:HG22  | 0.55     | 2.02        | 4      | 5     |
| 1:A:184:TRP:CH2  | 1:A:264:PHE:CZ   | 0.55     | 2.95        | 4      | 5     |
| 1:A:336:MET:HB2  | 1:A:341:TYR:CA   | 0.55     | 2.31        | 1      | 5     |
| 1:A:4:VAL:HG11   | 1:A:10:ASP:CB    | 0.55     | 2.32        | 1      | 5     |
| 1:A:131:TYR:CD1  | 1:A:218:VAL:HG11 | 0.55     | 2.36        | 1      | 5     |
| 1:A:39:TYR:CD1   | 1:A:292:TRP:CZ3  | 0.55     | 2.94        | 4      | 5     |
| 1:A:39:TYR:CG    | 1:A:292:TRP:CZ3  | 0.55     | 2.94        | 4      | 5     |
| 1:A:35:TRP:CD1   | 1:A:288:LEU:HD21 | 0.55     | 2.37        | 1      | 5     |
| 1:A:194:LYS:HE3  | 1:A:272:TYR:OH   | 0.55     | 2.02        | 3      | 5     |
| 1:A:174:MET:CB   | 1:A:179:VAL:HG13 | 0.54     | 2.32        | 2      | 5     |
| 1:A:310:ASP:O    | 1:A:314:LEU:HD23 | 0.54     | 2.02        | 1      | 5     |
| 1:A:274:ASN:ND2  | 1:A:277:LEU:HD12 | 0.54     | 2.17        | 3      | 5     |
| 1:A:121:TYR:HE1  | 1:A:204:ILE:CD1  | 0.54     | 2.14        | 3      | 5     |
| 1:A:62:ARG:CB    | 1:A:336:MET:HA   | 0.54     | 2.31        | 4      | 5     |
| 1:A:261:TRP:CZ3  | 1:A:294:ALA:HB1  | 0.54     | 2.37        | 2      | 5     |
| 1:A:31:GLN:O     | 1:A:35:TRP:HE3   | 0.54     | 1.86        | 3      | 5     |
| 1:A:256:THR:HG21 | 1:A:300:TYR:CE1  | 0.54     | 2.37        | 1      | 5     |
| 1:A:184:TRP:CE2  | 1:A:287:TYR:CE2  | 0.54     | 2.95        | 4      | 1     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:139:GLN:CD   | 1:A:360:THR:HA   | 0.54     | 2.21        | 4      | 5     |
| 1:A:184:TRP:CE2  | 1:A:287:TYR:CE1  | 0.54     | 2.95        | 1      | 4     |
| 1:A:311:ARG:HB2  | 1:A:331:TYR:CE1  | 0.54     | 2.38        | 3      | 5     |
| 1:A:43:VAL:O     | 1:A:47:VAL:HG23  | 0.54     | 2.02        | 5      | 5     |
| 1:A:170:THR:HB   | 1:A:183:GLU:HB3  | 0.54     | 1.79        | 5      | 5     |
| 1:A:301:ASN:OD1  | 1:A:302:PRO:HD3  | 0.54     | 2.03        | 5      | 5     |
| 1:A:201:THR:HG22 | 1:A:206:PHE:CE1  | 0.54     | 2.38        | 1      | 5     |
| 1:A:175:PRO:HG3  | 1:A:287:TYR:HB3  | 0.54     | 1.79        | 1      | 5     |
| 1:A:96:ASN:O     | 1:A:97:GLU:HG2   | 0.53     | 2.02        | 3      | 5     |
| 1:A:45:THR:HG23  | 1:A:46:SER:N     | 0.53     | 2.19        | 4      | 5     |
| 1:A:98:TRP:CZ2   | 1:A:105:CYS:CA   | 0.53     | 2.91        | 1      | 5     |
| 1:A:362:VAL:HG12 | 1:A:363:GLY:N    | 0.53     | 2.18        | 1      | 5     |
| 1:A:184:TRP:CH2  | 1:A:264:PHE:HZ   | 0.53     | 2.22        | 3      | 5     |
| 1:A:228:ILE:H    | 1:A:235:ARG:HD3  | 0.53     | 1.63        | 3      | 5     |
| 1:A:208:PRO:O    | 1:A:211:VAL:HG12 | 0.53     | 2.01        | 3      | 5     |
| 1:A:354:LEU:O    | 1:A:355:GLU:HB2  | 0.53     | 2.04        | 1      | 5     |
| 1:A:344:THR:HG23 | 1:A:345:GLN:N    | 0.53     | 2.17        | 4      | 5     |
| 1:A:138:LEU:CD1  | 1:A:141:ARG:H    | 0.53     | 2.16        | 2      | 5     |
| 1:A:181:MET:HE2  | 1:A:184:TRP:HH2  | 0.53     | 1.63        | 5      | 5     |
| 1:A:5:LEU:HG     | 2:B:365:ARG:NH2  | 0.53     | 2.19        | 2      | 1     |
| 1:A:314:LEU:CB   | 1:A:326:ILE:HD11 | 0.53     | 2.34        | 1      | 5     |
| 1:A:98:TRP:HZ2   | 1:A:104:TYR:C    | 0.53     | 2.07        | 2      | 5     |
| 1:A:98:TRP:CE3   | 1:A:178:VAL:CG1  | 0.53     | 2.92        | 3      | 5     |
| 1:A:22:PRO:HB3   | 1:A:96:ASN:HB2   | 0.53     | 1.80        | 1      | 5     |
| 1:A:184:TRP:CZ3  | 1:A:268:PHE:CD2  | 0.53     | 2.96        | 1      | 5     |
| 1:A:10:ASP:OD2   | 2:B:365:ARG:N    | 0.53     | 2.40        | 1      | 1     |
| 1:A:131:TYR:CE1  | 1:A:218:VAL:HG21 | 0.53     | 2.39        | 4      | 5     |
| 1:A:315:GLY:HA3  | 1:A:341:TYR:CE1  | 0.53     | 2.39        | 4      | 5     |
| 1:A:121:TYR:HB2  | 1:A:154:ILE:CD1  | 0.52     | 2.26        | 1      | 5     |
| 1:A:361:VAL:HG23 | 1:A:361:VAL:O    | 0.52     | 2.04        | 4      | 4     |
| 1:A:174:MET:CG   | 1:A:179:VAL:HG13 | 0.52     | 2.35        | 2      | 5     |
| 1:A:60:HIS:CB    | 1:A:341:TYR:CE2  | 0.52     | 2.92        | 4      | 5     |
| 1:A:351:VAL:HG22 | 1:A:352:SER:N    | 0.52     | 2.19        | 4      | 5     |
| 1:A:81:MET:CG    | 1:A:85:ASN:HD21  | 0.52     | 2.18        | 2      | 5     |
| 1:A:228:ILE:HD12 | 1:A:230:GLY:H    | 0.52     | 1.63        | 4      | 5     |
| 1:A:274:ASN:HD21 | 1:A:277:LEU:CD1  | 0.52     | 2.18        | 3      | 5     |
| 1:A:121:TYR:HE1  | 1:A:204:ILE:HG12 | 0.52     | 1.64        | 5      | 5     |
| 1:A:361:VAL:O    | 1:A:361:VAL:HG23 | 0.52     | 2.04        | 3      | 1     |
| 1:A:120:ILE:HD13 | 1:A:212:ILE:HD11 | 0.52     | 1.81        | 5      | 5     |
| 1:A:131:TYR:O    | 1:A:135:ILE:HD12 | 0.52     | 2.04        | 1      | 5     |
| 1:A:92:TYR:CD2   | 1:A:93:ALA:N     | 0.52     | 2.78        | 1      | 5     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:182:ILE:HG22 | 1:A:184:TRP:CE3  | 0.52     | 2.40        | 4      | 5     |
| 1:A:108:HIS:O    | 1:A:112:PRO:HD2  | 0.52     | 2.05        | 3      | 5     |
| 1:A:194:LYS:HG3  | 1:A:272:TYR:CE1  | 0.52     | 2.40        | 4      | 5     |
| 1:A:331:TYR:HD2  | 1:A:333:GLY:CA   | 0.52     | 2.17        | 3      | 5     |
| 1:A:201:THR:HG22 | 1:A:206:PHE:HD1  | 0.52     | 1.64        | 3      | 5     |
| 1:A:67:THR:O     | 1:A:71:LEU:HD13  | 0.52     | 2.03        | 4      | 5     |
| 1:A:5:LEU:CB     | 1:A:6:PRO:HD3    | 0.52     | 2.33        | 1      | 5     |
| 1:A:17:THR:HG22  | 1:A:20:SER:HB2   | 0.52     | 1.82        | 2      | 5     |
| 1:A:56:ILE:CD1   | 1:A:316:PHE:HA   | 0.52     | 2.30        | 2      | 5     |
| 1:A:237:HIS:HB3  | 1:A:239:GLN:CD   | 0.51     | 2.26        | 2      | 5     |
| 1:A:339:THR:HG22 | 1:A:340:ARG:N    | 0.51     | 2.20        | 2      | 5     |
| 1:A:39:TYR:O     | 1:A:43:VAL:HG23  | 0.51     | 2.05        | 4      | 5     |
| 1:A:117:PHE:CD1  | 1:A:204:ILE:CD1  | 0.51     | 2.93        | 2      | 5     |
| 1:A:264:PHE:HB2  | 1:A:290:ILE:CG2  | 0.51     | 2.34        | 3      | 5     |
| 1:A:249:MET:HE3  | 1:A:305:TYR:CD1  | 0.51     | 2.40        | 3      | 5     |
| 1:A:236:TYR:CE2  | 1:A:237:HIS:CD2  | 0.51     | 2.99        | 1      | 5     |
| 1:A:61:LYS:HB3   | 1:A:347:SER:OG   | 0.51     | 2.05        | 1      | 5     |
| 1:A:188:PRO:HD2  | 1:A:193:GLU:HB3  | 0.51     | 1.79        | 3      | 5     |
| 1:A:237:HIS:HB3  | 1:A:239:GLN:OE1  | 0.51     | 2.06        | 1      | 5     |
| 1:A:134:ILE:HD13 | 1:A:219:VAL:HG13 | 0.51     | 1.81        | 4      | 5     |
| 1:A:92:TYR:HE2   | 1:A:177:ARG:NH1  | 0.51     | 2.04        | 4      | 5     |
| 1:A:311:ARG:CA   | 1:A:331:TYR:CD1  | 0.51     | 2.94        | 1      | 5     |
| 1:A:181:MET:CB   | 1:A:184:TRP:CH2  | 0.51     | 2.94        | 4      | 5     |
| 1:A:34:LEU:HD23  | 1:A:35:TRP:CZ3   | 0.51     | 2.41        | 4      | 5     |
| 1:A:131:TYR:CD1  | 1:A:218:VAL:CG1  | 0.51     | 2.94        | 1      | 5     |
| 1:A:201:THR:CG2  | 1:A:206:PHE:CE1  | 0.51     | 2.94        | 1      | 5     |
| 1:A:18:ASN:ND2   | 1:A:23:ASN:HD21  | 0.51     | 2.04        | 1      | 5     |
| 1:A:303:ILE:HG13 | 1:A:304:ILE:N    | 0.51     | 2.21        | 1      | 5     |
| 1:A:30:TRP:CZ3   | 1:A:34:LEU:HD22  | 0.51     | 2.41        | 1      | 5     |
| 1:A:178:VAL:HG12 | 1:A:178:VAL:O    | 0.51     | 2.06        | 5      | 2     |
| 1:A:98:TRP:CZ3   | 1:A:178:VAL:CG1  | 0.51     | 2.93        | 3      | 5     |
| 1:A:25:PHE:CE1   | 1:A:26:VAL:HG22  | 0.50     | 2.41        | 1      | 5     |
| 1:A:66:VAL:HG13  | 1:A:67:THR:N     | 0.50     | 2.21        | 1      | 5     |
| 1:A:174:MET:HE2  | 1:A:174:MET:HA   | 0.50     | 1.82        | 2      | 3     |
| 1:A:178:VAL:O    | 1:A:178:VAL:HG12 | 0.50     | 2.06        | 3      | 3     |
| 1:A:124:THR:HA   | 1:A:212:ILE:HG12 | 0.50     | 1.81        | 1      | 5     |
| 1:A:141:ARG:HG3  | 1:A:141:ARG:O    | 0.50     | 2.06        | 1      | 2     |
| 1:A:117:PHE:CD1  | 1:A:204:ILE:CG1  | 0.50     | 2.95        | 1      | 5     |
| 1:A:211:VAL:HG13 | 1:A:212:ILE:N    | 0.50     | 2.21        | 1      | 5     |
| 1:A:177:ARG:HB3  | 1:A:179:VAL:H    | 0.50     | 1.66        | 4      | 5     |
| 1:A:25:PHE:CE1   | 1:A:26:VAL:CG2   | 0.50     | 2.95        | 1      | 5     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:35:TRP:NE1   | 1:A:288:LEU:HD21 | 0.50     | 2.20        | 1      | 5     |
| 1:A:323:CYS:HB2  | 1:A:325:PHE:CE1  | 0.50     | 2.41        | 3      | 5     |
| 1:A:132:MET:HA   | 1:A:135:ILE:HD11 | 0.50     | 1.82        | 2      | 5     |
| 1:A:141:ARG:O    | 1:A:141:ARG:HG3  | 0.50     | 2.06        | 3      | 3     |
| 1:A:204:ILE:HG23 | 1:A:205:TYR:N    | 0.50     | 2.22        | 1      | 5     |
| 1:A:207:LEU:HD13 | 1:A:207:LEU:C    | 0.50     | 2.26        | 1      | 5     |
| 1:A:131:TYR:CD2  | 1:A:132:MET:CE   | 0.50     | 2.95        | 3      | 5     |
| 1:A:331:TYR:CD2  | 1:A:333:GLY:CA   | 0.50     | 2.95        | 3      | 5     |
| 1:A:32:ILE:HG22  | 1:A:33:VAL:N     | 0.50     | 2.21        | 3      | 5     |
| 1:A:66:VAL:HA    | 1:A:69:TYR:CD2   | 0.50     | 2.40        | 4      | 5     |
| 1:A:340:ARG:HB2  | 1:A:346:GLY:CA   | 0.50     | 2.31        | 4      | 5     |
| 1:A:63:MET:CE    | 1:A:312:PHE:CZ   | 0.50     | 2.94        | 1      | 5     |
| 1:A:92:TYR:CE1   | 1:A:97:GLU:HA    | 0.50     | 2.41        | 1      | 5     |
| 1:A:121:TYR:CE1  | 1:A:204:ILE:CD1  | 0.50     | 2.94        | 4      | 5     |
| 1:A:134:ILE:CG2  | 1:A:222:THR:HB   | 0.50     | 2.37        | 1      | 5     |
| 1:A:240:VAL:HG12 | 1:A:244:ARG:HH12 | 0.50     | 1.67        | 1      | 5     |
| 1:A:39:TYR:CD1   | 1:A:42:ILE:HD12  | 0.50     | 2.39        | 1      | 5     |
| 1:A:249:MET:CE   | 1:A:305:TYR:CD1  | 0.50     | 2.95        | 2      | 5     |
| 1:A:297:SER:HA   | 1:A:300:TYR:HD2  | 0.50     | 1.65        | 4      | 5     |
| 1:A:117:PHE:CD1  | 1:A:204:ILE:HD12 | 0.50     | 2.41        | 1      | 5     |
| 1:A:56:ILE:CD1   | 1:A:316:PHE:CD1  | 0.50     | 2.95        | 1      | 5     |
| 1:A:92:TYR:CD1   | 1:A:97:GLU:CA    | 0.50     | 2.95        | 1      | 5     |
| 1:A:261:TRP:CZ3  | 1:A:294:ALA:CB   | 0.50     | 2.95        | 4      | 5     |
| 1:A:135:ILE:HD13 | 1:A:136:HIS:H    | 0.50     | 1.67        | 1      | 5     |
| 1:A:290:ILE:HD12 | 1:A:290:ILE:N    | 0.50     | 2.22        | 2      | 4     |
| 1:A:227:GLU:HG3  | 1:A:244:ARG:HB2  | 0.49     | 1.83        | 4      | 5     |
| 1:A:290:ILE:N    | 1:A:290:ILE:HD12 | 0.49     | 2.22        | 3      | 1     |
| 1:A:286:VAL:O    | 1:A:290:ILE:HD13 | 0.49     | 2.06        | 1      | 5     |
| 1:A:314:LEU:HB3  | 1:A:326:ILE:CD1  | 0.49     | 2.36        | 1      | 5     |
| 1:A:110:PHE:CZ   | 1:A:159:LEU:HD13 | 0.49     | 2.39        | 1      | 5     |
| 1:A:256:THR:CG2  | 1:A:300:TYR:CE1  | 0.49     | 2.94        | 1      | 5     |
| 1:A:139:GLN:HE22 | 1:A:360:THR:CA   | 0.49     | 2.17        | 4      | 5     |
| 1:A:102:LEU:HD21 | 2:B:367:LYS:HZ1  | 0.49     | 1.67        | 3      | 1     |
| 1:A:116:VAL:CG2  | 1:A:261:TRP:CH2  | 0.49     | 2.95        | 1      | 5     |
| 1:A:98:TRP:HE1   | 1:A:105:CYS:N    | 0.49     | 2.03        | 3      | 5     |
| 1:A:239:GLN:HG2  | 1:A:240:VAL:N    | 0.49     | 2.23        | 2      | 5     |
| 1:A:92:TYR:CE2   | 1:A:177:ARG:CZ   | 0.49     | 2.95        | 3      | 5     |
| 1:A:264:PHE:HA   | 1:A:290:ILE:HG21 | 0.49     | 1.81        | 4      | 5     |
| 1:A:182:ILE:CG2  | 1:A:184:TRP:CE3  | 0.49     | 2.96        | 2      | 5     |
| 1:A:297:SER:CA   | 1:A:300:TYR:CD2  | 0.49     | 2.95        | 4      | 5     |
| 1:A:274:ASN:HD21 | 1:A:277:LEU:HD12 | 0.49     | 1.68        | 3      | 5     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:138:LEU:HD13 | 1:A:138:LEU:C    | 0.49     | 2.28        | 1      | 3     |
| 1:A:138:LEU:C    | 1:A:138:LEU:HD13 | 0.49     | 2.28        | 5      | 2     |
| 1:A:121:TYR:HE1  | 1:A:204:ILE:CG1  | 0.48     | 2.21        | 4      | 5     |
| 1:A:142:LEU:C    | 1:A:142:LEU:HD13 | 0.48     | 2.28        | 1      | 4     |
| 1:A:315:GLY:CA   | 1:A:341:TYR:CE1  | 0.48     | 2.95        | 1      | 5     |
| 1:A:98:TRP:CZ2   | 1:A:105:CYS:N    | 0.48     | 2.81        | 2      | 5     |
| 1:A:165:GLN:NE2  | 1:A:182:ILE:HA   | 0.48     | 2.23        | 4      | 5     |
| 1:A:331:TYR:O    | 1:A:332:GLU:HG2  | 0.48     | 2.07        | 2      | 5     |
| 1:A:142:LEU:HD13 | 1:A:142:LEU:C    | 0.48     | 2.28        | 3      | 1     |
| 1:A:280:LYS:HG2  | 1:A:281:LYS:CE   | 0.48     | 2.38        | 1      | 5     |
| 1:A:331:TYR:HB3  | 1:A:335:GLU:OE1  | 0.48     | 2.07        | 4      | 5     |
| 1:A:113:ILE:CG1  | 1:A:117:PHE:CZ   | 0.48     | 2.94        | 1      | 5     |
| 1:A:318:HIS:CD2  | 1:A:326:ILE:HG21 | 0.48     | 2.42        | 1      | 5     |
| 1:A:331:TYR:HD2  | 1:A:333:GLY:C    | 0.48     | 2.12        | 3      | 5     |
| 1:A:28:PRO:HD2   | 1:A:31:GLN:OE1   | 0.48     | 2.08        | 2      | 5     |
| 1:A:274:ASN:OD1  | 1:A:277:LEU:HB2  | 0.48     | 2.09        | 4      | 5     |
| 1:A:7:VAL:HG13   | 1:A:282:PHE:HE2  | 0.48     | 1.65        | 2      | 5     |
| 1:A:63:MET:HE1   | 1:A:312:PHE:CD1  | 0.48     | 2.44        | 3      | 5     |
| 1:A:174:MET:HA   | 1:A:174:MET:HE2  | 0.48     | 1.86        | 4      | 2     |
| 1:A:100:TYR:CB   | 1:A:104:TYR:CB   | 0.48     | 2.92        | 1      | 5     |
| 1:A:266:ILE:HG23 | 1:A:267:PHE:N    | 0.48     | 2.24        | 4      | 5     |
| 1:A:284:GLN:HE21 | 1:A:285:GLN:CG   | 0.48     | 2.18        | 1      | 5     |
| 1:A:63:MET:CE    | 1:A:312:PHE:CE1  | 0.48     | 2.97        | 3      | 5     |
| 1:A:40:THR:HG23  | 1:A:41:VAL:N     | 0.48     | 2.23        | 2      | 5     |
| 1:A:246:VAL:CG1  | 1:A:250:MET:HE1  | 0.48     | 2.38        | 2      | 2     |
| 1:A:300:TYR:CD1  | 1:A:301:ASN:N    | 0.47     | 2.82        | 1      | 5     |
| 1:A:176:SER:HB2  | 1:A:177:ARG:HE   | 0.47     | 1.69        | 4      | 5     |
| 1:A:297:SER:CB   | 1:A:300:TYR:CE2  | 0.47     | 2.96        | 1      | 5     |
| 1:A:35:TRP:NE1   | 1:A:288:LEU:CD2  | 0.47     | 2.78        | 2      | 5     |
| 1:A:354:LEU:C    | 1:A:354:LEU:HD13 | 0.47     | 2.30        | 5      | 2     |
| 1:A:41:VAL:HG23  | 1:A:42:ILE:N     | 0.47     | 2.24        | 2      | 5     |
| 1:A:53:VAL:O     | 1:A:56:ILE:HG22  | 0.47     | 2.08        | 4      | 5     |
| 1:A:15:ILE:HG13  | 1:A:15:ILE:O     | 0.47     | 2.10        | 1      | 2     |
| 1:A:98:TRP:NE1   | 1:A:105:CYS:CB   | 0.47     | 2.78        | 1      | 5     |
| 1:A:177:ARG:CG   | 1:A:179:VAL:HG12 | 0.47     | 2.40        | 2      | 5     |
| 1:A:354:LEU:HD13 | 1:A:354:LEU:C    | 0.47     | 2.30        | 2      | 3     |
| 1:A:253:VAL:HG22 | 1:A:304:ILE:HD11 | 0.47     | 1.85        | 4      | 4     |
| 1:A:15:ILE:O     | 1:A:15:ILE:HG13  | 0.47     | 2.10        | 5      | 3     |
| 1:A:321:ARG:HD2  | 1:A:325:PHE:CB   | 0.47     | 2.40        | 4      | 5     |
| 1:A:288:LEU:O    | 1:A:288:LEU:HD23 | 0.47     | 2.09        | 2      | 3     |
| 1:A:353:ARG:HD3  | 1:A:353:ARG:N    | 0.47     | 2.23        | 4      | 4     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:353:ARG:N    | 1:A:353:ARG:HD3  | 0.47     | 2.23        | 1      | 1     |
| 1:A:288:LEU:HD23 | 1:A:288:LEU:O    | 0.47     | 2.09        | 5      | 2     |
| 1:A:334:LEU:HA   | 1:A:336:MET:O    | 0.47     | 2.09        | 5      | 5     |
| 1:A:128:PHE:CE2  | 1:A:132:MET:SD   | 0.47     | 3.07        | 2      | 5     |
| 1:A:56:ILE:CG2   | 1:A:316:PHE:CE1  | 0.47     | 2.95        | 3      | 5     |
| 1:A:173:THR:C    | 1:A:174:MET:HE3  | 0.47     | 2.30        | 1      | 4     |
| 1:A:174:MET:SD   | 1:A:181:MET:HB2  | 0.47     | 2.50        | 1      | 5     |
| 1:A:280:LYS:HB3  | 1:A:281:LYS:CE   | 0.47     | 2.39        | 5      | 5     |
| 1:A:344:THR:O    | 1:A:345:GLN:HB2  | 0.47     | 2.09        | 1      | 5     |
| 1:A:318:HIS:CE1  | 1:A:326:ILE:HD13 | 0.47     | 2.45        | 1      | 5     |
| 1:A:326:ILE:HG23 | 1:A:326:ILE:O    | 0.47     | 2.09        | 1      | 2     |
| 1:A:4:VAL:CG2    | 1:A:6:PRO:HD2    | 0.47     | 2.37        | 1      | 5     |
| 1:A:351:VAL:CG1  | 1:A:362:VAL:HG11 | 0.47     | 2.40        | 3      | 5     |
| 1:A:132:MET:HE1  | 1:A:135:ILE:HD11 | 0.47     | 1.86        | 4      | 5     |
| 1:A:259:ILE:HG23 | 1:A:260:CYS:N    | 0.47     | 2.25        | 4      | 5     |
| 1:A:261:TRP:CH2  | 1:A:294:ALA:CB   | 0.47     | 2.95        | 4      | 5     |
| 1:A:326:ILE:O    | 1:A:326:ILE:HG23 | 0.47     | 2.09        | 5      | 3     |
| 1:A:5:LEU:HD12   | 1:A:5:LEU:N      | 0.47     | 2.25        | 4      | 2     |
| 1:A:121:TYR:CE1  | 1:A:204:ILE:HG12 | 0.47     | 2.44        | 1      | 5     |
| 1:A:5:LEU:N      | 1:A:5:LEU:HD12   | 0.47     | 2.25        | 2      | 3     |
| 1:A:138:LEU:HD12 | 1:A:141:ARG:H    | 0.47     | 1.69        | 2      | 5     |
| 1:A:92:TYR:CB    | 1:A:178:VAL:CG1  | 0.47     | 2.93        | 1      | 5     |
| 1:A:39:TYR:CD2   | 1:A:89:ASN:HB2   | 0.46     | 2.45        | 1      | 5     |
| 1:A:270:LEU:HB2  | 1:A:271:PRO:CD   | 0.46     | 2.40        | 4      | 5     |
| 1:A:312:PHE:HB3  | 1:A:316:PHE:HE2  | 0.46     | 1.66        | 3      | 5     |
| 1:A:197:HIS:CE1  | 1:A:268:PHE:CD1  | 0.46     | 3.03        | 3      | 5     |
| 1:A:224:TRP:CG   | 1:A:225:ALA:N    | 0.46     | 2.83        | 1      | 5     |
| 1:A:234:ASP:HB2  | 1:A:235:ARG:CZ   | 0.46     | 2.40        | 2      | 5     |
| 1:A:57:ILE:CD1   | 1:A:72:VAL:CG1   | 0.46     | 2.93        | 3      | 5     |
| 1:A:247:VAL:HG13 | 1:A:248:LYS:N    | 0.46     | 2.26        | 1      | 5     |
| 1:A:109:ASN:ND2  | 1:A:181:MET:HA   | 0.46     | 2.26        | 1      | 5     |
| 1:A:57:ILE:CD1   | 1:A:72:VAL:HG12  | 0.46     | 2.36        | 2      | 3     |
| 1:A:113:ILE:CG1  | 1:A:117:PHE:CE2  | 0.46     | 2.94        | 1      | 5     |
| 1:A:336:MET:HE2  | 1:A:351:VAL:HB   | 0.46     | 1.84        | 3      | 5     |
| 1:A:321:ARG:HD2  | 1:A:325:PHE:HB3  | 0.46     | 1.86        | 3      | 5     |
| 1:A:224:TRP:CD1  | 1:A:225:ALA:N    | 0.46     | 2.82        | 3      | 5     |
| 1:A:318:HIS:CD2  | 1:A:326:ILE:CG2  | 0.46     | 2.99        | 1      | 5     |
| 1:A:117:PHE:HD1  | 1:A:204:ILE:CD1  | 0.45     | 2.24        | 1      | 3     |
| 1:A:70:PHE:CE1   | 1:A:147:THR:HG23 | 0.45     | 2.46        | 1      | 5     |
| 1:A:121:TYR:CB   | 1:A:154:ILE:CG1  | 0.45     | 2.94        | 1      | 5     |
| 1:A:235:ARG:CG   | 1:A:241:SER:HB3  | 0.45     | 2.41        | 1      | 5     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:27:GLN:HG3   | 1:A:32:ILE:CD1   | 0.45     | 2.41        | 4      | 5     |
| 1:A:274:ASN:HD21 | 1:A:277:LEU:CG   | 0.45     | 2.24        | 2      | 5     |
| 1:A:118:ALA:HA   | 1:A:154:ILE:CD1  | 0.45     | 2.41        | 2      | 5     |
| 1:A:88:VAL:HG11  | 1:A:108:HIS:CG   | 0.45     | 2.46        | 1      | 5     |
| 1:A:253:VAL:O    | 1:A:256:THR:HG22 | 0.45     | 2.11        | 1      | 5     |
| 1:A:339:THR:HG22 | 1:A:340:ARG:H    | 0.45     | 1.70        | 4      | 5     |
| 1:A:336:MET:HB3  | 1:A:339:THR:O    | 0.45     | 2.12        | 4      | 5     |
| 1:A:18:ASN:HA    | 1:A:97:GLU:HG3   | 0.45     | 1.88        | 2      | 5     |
| 1:A:234:ASP:CB   | 1:A:235:ARG:CZ   | 0.45     | 2.95        | 1      | 5     |
| 1:A:39:TYR:CE2   | 1:A:89:ASN:CB    | 0.45     | 2.94        | 3      | 5     |
| 1:A:63:MET:HE1   | 1:A:312:PHE:CE1  | 0.45     | 2.46        | 3      | 5     |
| 1:A:92:TYR:CE2   | 1:A:93:ALA:HA    | 0.45     | 2.47        | 2      | 5     |
| 1:A:174:MET:CA   | 1:A:174:MET:HE2  | 0.45     | 2.42        | 2      | 2     |
| 1:A:60:HIS:CE1   | 1:A:342:LEU:HD13 | 0.45     | 2.47        | 2      | 5     |
| 1:A:194:LYS:HG3  | 1:A:272:TYR:OH   | 0.45     | 2.12        | 1      | 5     |
| 1:A:274:ASN:CG   | 1:A:277:LEU:HD12 | 0.45     | 2.33        | 1      | 5     |
| 1:A:110:PHE:CE1  | 1:A:162:ALA:CB   | 0.45     | 3.00        | 2      | 5     |
| 1:A:351:VAL:CG1  | 1:A:362:VAL:CG1  | 0.45     | 2.95        | 4      | 5     |
| 1:A:335:GLU:O    | 1:A:341:TYR:CG   | 0.45     | 2.70        | 1      | 5     |
| 1:A:62:ARG:HB2   | 1:A:336:MET:HG3  | 0.45     | 1.89        | 5      | 5     |
| 1:A:335:GLU:H    | 1:A:335:GLU:CD   | 0.45     | 2.14        | 3      | 2     |
| 1:A:177:ARG:NH1  | 1:A:292:TRP:HE1  | 0.44     | 2.11        | 2      | 5     |
| 1:A:122:SER:O    | 1:A:126:VAL:HG23 | 0.44     | 2.12        | 4      | 5     |
| 1:A:246:VAL:CG1  | 1:A:250:MET:CE   | 0.44     | 2.95        | 4      | 5     |
| 1:A:335:GLU:CD   | 1:A:335:GLU:H    | 0.44     | 2.14        | 2      | 3     |
| 1:A:323:CYS:HB2  | 1:A:325:PHE:HD1  | 0.44     | 1.69        | 2      | 5     |
| 1:A:100:TYR:HB3  | 1:A:104:TYR:HB2  | 0.44     | 1.83        | 1      | 5     |
| 1:A:17:THR:CG2   | 1:A:20:SER:CB    | 0.44     | 2.95        | 2      | 5     |
| 1:A:92:TYR:CD1   | 1:A:97:GLU:N     | 0.44     | 2.85        | 3      | 5     |
| 1:A:120:ILE:CD1  | 1:A:212:ILE:CD1  | 0.44     | 2.95        | 1      | 5     |
| 1:A:283:ILE:HG23 | 1:A:285:GLN:H    | 0.44     | 1.70        | 1      | 5     |
| 1:A:52:VAL:HG12  | 1:A:316:PHE:CD1  | 0.44     | 2.48        | 1      | 5     |
| 1:A:228:ILE:HD13 | 1:A:229:PRO:HD2  | 0.44     | 1.90        | 3      | 5     |
| 1:A:297:SER:CA   | 1:A:300:TYR:CE2  | 0.44     | 3.00        | 2      | 5     |
| 1:A:181:MET:HE2  | 1:A:184:TRP:CH2  | 0.44     | 2.45        | 5      | 5     |
| 1:A:236:TYR:CD2  | 1:A:237:HIS:HD2  | 0.44     | 2.30        | 4      | 5     |
| 1:A:98:TRP:CH2   | 1:A:108:HIS:ND1  | 0.44     | 2.85        | 4      | 5     |
| 1:A:279:LEU:CD1  | 1:A:280:LYS:N    | 0.44     | 2.81        | 1      | 5     |
| 1:A:95:HIS:O     | 1:A:96:ASN:HB2   | 0.44     | 2.12        | 4      | 5     |
| 1:A:98:TRP:HE1   | 1:A:105:CYS:HB2  | 0.44     | 1.73        | 1      | 5     |
| 1:A:98:TRP:HE1   | 1:A:105:CYS:CB   | 0.44     | 2.26        | 2      | 5     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:28:PRO:HG2   | 1:A:31:GLN:CD    | 0.44     | 2.32        | 3      | 5     |
| 1:A:174:MET:CB   | 1:A:175:PRO:CD   | 0.44     | 2.94        | 1      | 5     |
| 1:A:283:ILE:CG1  | 1:A:284:GLN:N    | 0.44     | 2.81        | 4      | 5     |
| 1:A:186:GLU:C    | 1:A:188:PRO:HD3  | 0.44     | 2.33        | 2      | 5     |
| 1:A:256:THR:HG23 | 1:A:257:PHE:N    | 0.44     | 2.28        | 4      | 5     |
| 1:A:174:MET:SD   | 1:A:181:MET:CB   | 0.44     | 3.06        | 1      | 5     |
| 1:A:175:PRO:HG3  | 1:A:287:TYR:CB   | 0.44     | 2.42        | 1      | 5     |
| 1:A:121:TYR:CB   | 1:A:154:ILE:CD1  | 0.44     | 2.95        | 4      | 5     |
| 1:A:98:TRP:NE1   | 1:A:105:CYS:N    | 0.43     | 2.66        | 1      | 5     |
| 1:A:172:GLU:HG3  | 1:A:183:GLU:OE1  | 0.43     | 2.13        | 2      | 5     |
| 1:A:177:ARG:CD   | 1:A:179:VAL:HG12 | 0.43     | 2.43        | 4      | 5     |
| 1:A:135:ILE:CD1  | 1:A:136:HIS:CD2  | 0.43     | 2.99        | 3      | 5     |
| 1:A:326:ILE:O    | 1:A:326:ILE:HG12 | 0.43     | 2.13        | 3      | 3     |
| 1:A:326:ILE:HG12 | 1:A:326:ILE:O    | 0.43     | 2.13        | 1      | 2     |
| 1:A:147:THR:O    | 1:A:151:ILE:HG12 | 0.43     | 2.13        | 2      | 5     |
| 1:A:339:THR:CG2  | 1:A:340:ARG:N    | 0.43     | 2.81        | 4      | 5     |
| 1:A:72:VAL:CG2   | 1:A:73:ASN:N     | 0.43     | 2.81        | 1      | 5     |
| 1:A:174:MET:HG2  | 1:A:291:MET:SD   | 0.43     | 2.53        | 4      | 5     |
| 1:A:161:LEU:HD12 | 1:A:204:ILE:CG2  | 0.43     | 2.42        | 1      | 5     |
| 1:A:204:ILE:CG2  | 1:A:205:TYR:N    | 0.43     | 2.82        | 1      | 5     |
| 1:A:62:ARG:CB    | 1:A:341:TYR:CB   | 0.43     | 2.97        | 1      | 5     |
| 1:A:174:MET:CB   | 1:A:177:ARG:HG3  | 0.43     | 2.43        | 4      | 5     |
| 1:A:174:MET:CB   | 1:A:179:VAL:CG1  | 0.43     | 2.93        | 3      | 5     |
| 1:A:288:LEU:HD23 | 1:A:288:LEU:C    | 0.43     | 2.33        | 2      | 4     |
| 1:A:331:TYR:HB2  | 1:A:335:GLU:HA   | 0.43     | 1.89        | 4      | 5     |
| 1:A:342:LEU:CG   | 1:A:343:GLN:N    | 0.43     | 2.79        | 4      | 5     |
| 1:A:288:LEU:C    | 1:A:288:LEU:HD23 | 0.43     | 2.33        | 3      | 1     |
| 1:A:4:VAL:CB     | 1:A:15:ILE:HD13  | 0.43     | 2.44        | 1      | 5     |
| 1:A:63:MET:HB3   | 1:A:68:ASN:ND2   | 0.43     | 2.28        | 1      | 5     |
| 1:A:154:ILE:CG2  | 1:A:155:TRP:N    | 0.43     | 2.82        | 4      | 5     |
| 1:A:184:TRP:CG   | 1:A:185:PRO:HD3  | 0.43     | 2.48        | 3      | 5     |
| 1:A:10:ASP:HB3   | 1:A:15:ILE:CG1   | 0.43     | 2.43        | 4      | 5     |
| 1:A:174:MET:SD   | 1:A:181:MET:CG   | 0.43     | 3.07        | 1      | 5     |
| 1:A:323:CYS:HB3  | 1:A:324:PRO:HD2  | 0.43     | 1.90        | 1      | 5     |
| 1:A:135:ILE:CG1  | 1:A:136:HIS:N    | 0.43     | 2.82        | 2      | 5     |
| 1:A:241:SER:HA   | 1:A:244:ARG:HH11 | 0.43     | 1.73        | 2      | 5     |
| 1:A:204:ILE:HD13 | 1:A:204:ILE:C    | 0.43     | 2.34        | 4      | 3     |
| 1:A:92:TYR:CE1   | 1:A:97:GLU:N     | 0.43     | 2.87        | 1      | 5     |
| 1:A:130:ARG:CD   | 1:A:250:MET:SD   | 0.43     | 3.07        | 2      | 5     |
| 1:A:45:THR:CG2   | 1:A:46:SER:N     | 0.43     | 2.82        | 4      | 5     |
| 1:A:309:ASN:OD1  | 1:A:312:PHE:HD1  | 0.43     | 1.97        | 3      | 5     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:92:TYR:HD1   | 1:A:97:GLU:C     | 0.43     | 2.16        | 3      | 5     |
| 1:A:204:ILE:C    | 1:A:204:ILE:HD13 | 0.43     | 2.34        | 1      | 2     |
| 1:A:270:LEU:HB2  | 1:A:271:PRO:HD3  | 0.43     | 1.90        | 1      | 5     |
| 1:A:179:VAL:CG2  | 1:A:291:MET:SD   | 0.43     | 3.07        | 1      | 5     |
| 1:A:5:LEU:HD13   | 2:B:366:PRO:CG   | 0.43     | 2.43        | 2      | 1     |
| 1:A:182:ILE:CD1  | 1:A:196:TYR:CE2  | 0.43     | 3.02        | 1      | 5     |
| 1:A:318:HIS:CE1  | 1:A:326:ILE:CD1  | 0.43     | 3.02        | 1      | 5     |
| 1:A:211:VAL:CG1  | 1:A:212:ILE:N    | 0.43     | 2.82        | 2      | 5     |
| 1:A:56:ILE:HG13  | 1:A:60:HIS:CD2   | 0.43     | 2.49        | 5      | 5     |
| 1:A:66:VAL:CG1   | 1:A:67:THR:N     | 0.43     | 2.82        | 2      | 5     |
| 1:A:86:THR:CG2   | 1:A:87:VAL:N     | 0.43     | 2.81        | 2      | 5     |
| 2:B:367:LYS:HE2  | 2:B:367:LYS:HB2  | 0.43     | 1.30        | 5      | 1     |
| 1:A:130:ARG:CG   | 1:A:250:MET:SD   | 0.42     | 3.07        | 4      | 5     |
| 1:A:40:THR:CG2   | 1:A:41:VAL:N     | 0.42     | 2.82        | 2      | 5     |
| 1:A:113:ILE:CG2  | 1:A:114:ALA:N    | 0.42     | 2.82        | 4      | 5     |
| 1:A:182:ILE:CG2  | 1:A:268:PHE:CZ   | 0.42     | 2.94        | 2      | 5     |
| 1:A:7:VAL:O      | 1:A:7:VAL:HG12   | 0.42     | 2.13        | 1      | 4     |
| 1:A:250:MET:O    | 1:A:254:VAL:HG23 | 0.42     | 2.15        | 3      | 5     |
| 1:A:60:HIS:CE1   | 1:A:342:LEU:CD1  | 0.42     | 3.02        | 3      | 5     |
| 1:A:266:ILE:CG2  | 1:A:267:PHE:N    | 0.42     | 2.82        | 5      | 5     |
| 1:A:335:GLU:O    | 1:A:341:TYR:CD1  | 0.42     | 2.72        | 1      | 5     |
| 1:A:98:TRP:NE1   | 1:A:105:CYS:CA   | 0.42     | 2.83        | 4      | 5     |
| 1:A:170:THR:O    | 1:A:171:THR:HG23 | 0.42     | 2.15        | 3      | 5     |
| 1:A:331:TYR:CD2  | 1:A:334:LEU:N    | 0.42     | 2.87        | 4      | 5     |
| 1:A:92:TYR:CE1   | 1:A:96:ASN:C     | 0.42     | 2.93        | 2      | 5     |
| 1:A:341:TYR:CD1  | 1:A:341:TYR:O    | 0.42     | 2.72        | 4      | 3     |
| 1:A:126:VAL:CG1  | 1:A:250:MET:SD   | 0.42     | 3.07        | 3      | 5     |
| 1:A:259:ILE:CG2  | 1:A:260:CYS:N    | 0.42     | 2.82        | 4      | 5     |
| 1:A:201:THR:CG2  | 1:A:206:PHE:HE1  | 0.42     | 2.26        | 4      | 5     |
| 1:A:21:GLU:HB3   | 1:A:22:PRO:HD2   | 0.42     | 1.90        | 5      | 5     |
| 1:A:302:PRO:HA   | 1:A:305:TYR:HD2  | 0.42     | 1.75        | 5      | 5     |
| 1:A:197:HIS:NE2  | 1:A:272:TYR:HB2  | 0.42     | 2.29        | 4      | 5     |
| 1:A:223:LEU:HD22 | 1:A:244:ARG:HE   | 0.42     | 1.68        | 4      | 5     |
| 1:A:7:VAL:HG12   | 1:A:7:VAL:O      | 0.42     | 2.13        | 3      | 1     |
| 1:A:327:SER:O    | 1:A:328:ALA:HB3  | 0.42     | 2.14        | 3      | 5     |
| 1:A:54:MET:CG    | 1:A:55:TRP:N     | 0.42     | 2.83        | 3      | 5     |
| 1:A:274:ASN:HD21 | 1:A:277:LEU:HG   | 0.42     | 1.74        | 2      | 5     |
| 1:A:341:TYR:O    | 1:A:341:TYR:CD1  | 0.42     | 2.72        | 3      | 2     |
| 1:A:61:LYS:NZ    | 1:A:350:LYS:H    | 0.42     | 2.13        | 2      | 5     |
| 1:A:98:TRP:CA    | 1:A:178:VAL:HG21 | 0.42     | 2.44        | 3      | 5     |
| 1:A:362:VAL:CG1  | 1:A:363:GLY:N    | 0.42     | 2.82        | 3      | 5     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:98:TRP:CB    | 1:A:178:VAL:HG21 | 0.42     | 2.44        | 4      | 5     |
| 1:A:51:VAL:HG13  | 1:A:52:VAL:N     | 0.42     | 2.29        | 4      | 5     |
| 1:A:197:HIS:NE2  | 1:A:272:TYR:CB   | 0.42     | 2.83        | 1      | 5     |
| 1:A:249:MET:CE   | 1:A:305:TYR:CE1  | 0.42     | 3.03        | 2      | 5     |
| 1:A:4:VAL:CG1    | 1:A:10:ASP:N     | 0.42     | 2.83        | 3      | 5     |
| 1:A:160:LEU:O    | 1:A:164:PRO:HG2  | 0.42     | 2.14        | 3      | 5     |
| 1:A:92:TYR:CE2   | 1:A:177:ARG:NH1  | 0.42     | 2.87        | 4      | 5     |
| 1:A:174:MET:SD   | 1:A:181:MET:HG2  | 0.42     | 2.55        | 1      | 5     |
| 1:A:51:VAL:CG1   | 1:A:52:VAL:N     | 0.42     | 2.83        | 1      | 5     |
| 1:A:116:VAL:HG21 | 1:A:261:TRP:CH2  | 0.42     | 2.50        | 4      | 5     |
| 1:A:69:TYR:HB2   | 1:A:147:THR:HG21 | 0.42     | 1.90        | 3      | 5     |
| 1:A:39:TYR:CE2   | 1:A:86:THR:CA    | 0.42     | 2.95        | 4      | 5     |
| 1:A:120:ILE:CG2  | 1:A:121:TYR:N    | 0.42     | 2.82        | 1      | 5     |
| 1:A:217:THR:CG2  | 1:A:218:VAL:N    | 0.42     | 2.83        | 2      | 5     |
| 1:A:207:LEU:CB   | 1:A:208:PRO:HD3  | 0.42     | 2.36        | 1      | 5     |
| 1:A:153:VAL:O    | 1:A:157:LEU:HD13 | 0.42     | 2.15        | 4      | 5     |
| 1:A:249:MET:HE1  | 1:A:305:TYR:CE1  | 0.42     | 2.50        | 2      | 5     |
| 1:A:181:MET:CG   | 1:A:291:MET:SD   | 0.42     | 3.08        | 3      | 5     |
| 1:A:41:VAL:CG2   | 1:A:42:ILE:N     | 0.42     | 2.83        | 4      | 5     |
| 1:A:132:MET:CA   | 1:A:135:ILE:CD1  | 0.42     | 2.95        | 2      | 5     |
| 1:A:181:MET:HG2  | 1:A:291:MET:SD   | 0.41     | 2.55        | 2      | 5     |
| 1:A:202:VAL:HA   | 1:A:206:PHE:HB2  | 0.41     | 1.91        | 3      | 5     |
| 1:A:98:TRP:HB2   | 1:A:178:VAL:CG2  | 0.41     | 2.45        | 2      | 5     |
| 1:A:219:VAL:HG12 | 1:A:219:VAL:O    | 0.41     | 2.15        | 2      | 3     |
| 1:A:280:LYS:C    | 1:A:281:LYS:HD3  | 0.41     | 2.34        | 4      | 5     |
| 1:A:56:ILE:CG2   | 1:A:57:ILE:N     | 0.41     | 2.82        | 4      | 5     |
| 1:A:257:PHE:CE1  | 1:A:261:TRP:CD1  | 0.41     | 3.08        | 5      | 5     |
| 1:A:219:VAL:O    | 1:A:219:VAL:HG12 | 0.41     | 2.15        | 4      | 2     |
| 1:A:102:LEU:CD1  | 2:B:368:PRO:HB2  | 0.41     | 2.45        | 5      | 1     |
| 1:A:236:TYR:O    | 1:A:240:VAL:HG21 | 0.41     | 2.14        | 1      | 5     |
| 1:A:51:VAL:O     | 1:A:54:MET:HG2   | 0.41     | 2.15        | 1      | 5     |
| 1:A:131:TYR:CE1  | 1:A:218:VAL:CG2  | 0.41     | 3.03        | 3      | 5     |
| 1:A:297:SER:O    | 1:A:300:TYR:CD2  | 0.41     | 2.73        | 3      | 5     |
| 1:A:98:TRP:HB2   | 1:A:178:VAL:HG21 | 0.41     | 1.91        | 2      | 5     |
| 1:A:120:ILE:CD1  | 1:A:212:ILE:HD11 | 0.41     | 2.45        | 1      | 5     |
| 1:A:60:HIS:NE2   | 1:A:342:LEU:CD1  | 0.41     | 2.83        | 1      | 5     |
| 1:A:355:GLU:HG3  | 1:A:359:SER:OG   | 0.41     | 2.15        | 1      | 5     |
| 1:A:205:TYR:CD1  | 1:A:265:HIS:NE2  | 0.41     | 2.88        | 2      | 5     |
| 1:A:174:MET:SD   | 1:A:179:VAL:HG13 | 0.41     | 2.55        | 3      | 5     |
| 1:A:235:ARG:CG   | 1:A:241:SER:CB   | 0.41     | 2.95        | 4      | 5     |
| 1:A:174:MET:HB3  | 1:A:177:ARG:HG3  | 0.41     | 1.93        | 1      | 5     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:236:TYR:O    | 1:A:237:HIS:HB2  | 0.41     | 2.15        | 1      | 5     |
| 1:A:92:TYR:CD1   | 1:A:92:TYR:O     | 0.41     | 2.74        | 2      | 4     |
| 1:A:247:VAL:CG1  | 1:A:248:LYS:N    | 0.41     | 2.83        | 2      | 5     |
| 1:A:245:LYS:O    | 1:A:248:LYS:HG2  | 0.41     | 2.14        | 2      | 5     |
| 1:A:92:TYR:O     | 1:A:92:TYR:CD1   | 0.41     | 2.74        | 4      | 1     |
| 1:A:273:ILE:CD1  | 1:A:274:ASN:N    | 0.41     | 2.81        | 3      | 5     |
| 1:A:113:ILE:HG23 | 1:A:162:ALA:CB   | 0.41     | 2.45        | 3      | 5     |
| 1:A:339:THR:CG2  | 1:A:340:ARG:H    | 0.41     | 2.28        | 4      | 5     |
| 1:A:174:MET:HE1  | 1:A:181:MET:CB   | 0.41     | 2.38        | 4      | 3     |
| 1:A:196:TYR:CE2  | 1:A:200:VAL:HG21 | 0.41     | 2.51        | 1      | 5     |
| 1:A:351:VAL:CG2  | 1:A:352:SER:N    | 0.41     | 2.84        | 1      | 5     |
| 1:A:227:GLU:HA   | 1:A:235:ARG:CZ   | 0.41     | 2.46        | 5      | 5     |
| 1:A:312:PHE:O    | 1:A:316:PHE:CD2  | 0.41     | 2.73        | 2      | 5     |
| 1:A:72:VAL:HG23  | 1:A:73:ASN:N     | 0.41     | 2.30        | 1      | 5     |
| 1:A:174:MET:SD   | 1:A:181:MET:N    | 0.41     | 2.93        | 4      | 5     |
| 1:A:300:TYR:C    | 1:A:300:TYR:CD1  | 0.41     | 2.94        | 2      | 3     |
| 2:B:367:LYS:HE3  | 2:B:367:LYS:HB3  | 0.41     | 1.59        | 2      | 1     |
| 1:A:30:TRP:HH2   | 1:A:34:LEU:HD22  | 0.41     | 1.75        | 4      | 1     |
| 1:A:203:LEU:HD12 | 1:A:203:LEU:N    | 0.41     | 2.30        | 1      | 4     |
| 1:A:207:LEU:HD13 | 1:A:207:LEU:O    | 0.41     | 2.16        | 1      | 5     |
| 1:A:300:TYR:CD1  | 1:A:300:TYR:C    | 0.41     | 2.94        | 5      | 2     |
| 1:A:309:ASN:OD1  | 1:A:312:PHE:CD1  | 0.41     | 2.74        | 1      | 5     |
| 1:A:124:THR:HG22 | 1:A:212:ILE:CD1  | 0.41     | 2.46        | 4      | 5     |
| 1:A:68:ASN:O     | 1:A:72:VAL:HG13  | 0.41     | 2.16        | 4      | 5     |
| 1:A:98:TRP:HE1   | 1:A:105:CYS:H    | 0.41     | 1.59        | 3      | 5     |
| 1:A:78:GLU:HG3   | 1:A:298:THR:HA   | 0.41     | 1.92        | 3      | 5     |
| 1:A:207:LEU:HB3  | 1:A:208:PRO:CD   | 0.41     | 2.39        | 4      | 5     |
| 1:A:253:VAL:CG2  | 1:A:304:ILE:HD12 | 0.41     | 2.36        | 3      | 1     |
| 1:A:163:PHE:CD1  | 1:A:163:PHE:O    | 0.41     | 2.74        | 4      | 2     |
| 1:A:326:ILE:HG23 | 1:A:330:ASP:OD1  | 0.41     | 2.16        | 2      | 5     |
| 1:A:65:THR:O     | 1:A:69:TYR:CD2   | 0.41     | 2.74        | 5      | 5     |
| 1:A:98:TRP:HZ2   | 1:A:105:CYS:N    | 0.41     | 2.14        | 4      | 5     |
| 1:A:208:PRO:O    | 1:A:212:ILE:HG13 | 0.41     | 2.15        | 2      | 5     |
| 1:A:297:SER:CB   | 1:A:300:TYR:HE2  | 0.41     | 2.27        | 5      | 4     |
| 1:A:163:PHE:O    | 1:A:163:PHE:CD1  | 0.41     | 2.74        | 5      | 3     |
| 1:A:203:LEU:N    | 1:A:203:LEU:HD12 | 0.41     | 2.30        | 5      | 1     |
| 1:A:98:TRP:NE1   | 1:A:101:GLY:O    | 0.40     | 2.54        | 1      | 5     |
| 1:A:174:MET:CE   | 1:A:174:MET:N    | 0.40     | 2.84        | 3      | 2     |
| 1:A:174:MET:SD   | 1:A:291:MET:SD   | 0.40     | 3.19        | 2      | 5     |
| 1:A:331:TYR:CD2  | 1:A:333:GLY:C    | 0.40     | 2.94        | 3      | 5     |
| 1:A:241:SER:HA   | 1:A:244:ARG:NH1  | 0.40     | 2.31        | 2      | 5     |

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| Atom-1           | Atom-2           | Clash(Å) | Distance(Å) | Models |       |
|------------------|------------------|----------|-------------|--------|-------|
|                  |                  |          |             | Worst  | Total |
| 1:A:174:MET:N    | 1:A:174:MET:CE   | 0.40     | 2.84        | 2      | 3     |
| 1:A:252:VAL:HG13 | 1:A:253:VAL:N    | 0.40     | 2.31        | 1      | 5     |
| 1:A:310:ASP:CG   | 1:A:331:TYR:CE1  | 0.40     | 2.95        | 1      | 5     |
| 1:A:349:TYR:CD1  | 1:A:349:TYR:O    | 0.40     | 2.75        | 1      | 3     |
| 1:A:218:VAL:HG13 | 1:A:219:VAL:N    | 0.40     | 2.30        | 4      | 3     |
| 1:A:349:TYR:O    | 1:A:349:TYR:CD1  | 0.40     | 2.75        | 3      | 2     |
| 1:A:21:GLU:HB3   | 1:A:22:PRO:CD    | 0.40     | 2.46        | 3      | 4     |
| 1:A:252:VAL:CG1  | 1:A:253:VAL:N    | 0.40     | 2.84        | 4      | 3     |
| 1:A:138:LEU:CD1  | 1:A:141:ARG:N    | 0.40     | 2.84        | 4      | 2     |
| 1:A:264:PHE:CA   | 1:A:290:ILE:CG2  | 0.40     | 2.93        | 1      | 1     |
| 1:A:92:TYR:CD2   | 1:A:93:ALA:HA    | 0.40     | 2.52        | 5      | 2     |
| 1:A:92:TYR:HB2   | 1:A:178:VAL:CG1  | 0.40     | 2.47        | 4      | 5     |
| 1:A:205:TYR:CD1  | 1:A:265:HIS:CE1  | 0.40     | 3.09        | 3      | 3     |
| 1:A:52:VAL:O     | 1:A:56:ILE:HG22  | 0.40     | 2.15        | 4      | 2     |
| 1:A:46:SER:OG    | 1:A:298:THR:HG23 | 0.40     | 2.17        | 2      | 1     |
| 1:A:98:TRP:CA    | 1:A:98:TRP:CE3   | 0.40     | 2.95        | 3      | 1     |
| 1:A:56:ILE:CD1   | 1:A:316:PHE:CA   | 0.40     | 2.95        | 4      | 1     |
| 1:A:35:TRP:HD1   | 1:A:292:TRP:CD2  | 0.40     | 2.35        | 4      | 1     |
| 1:A:176:SER:CB   | 1:A:288:LEU:HD12 | 0.40     | 2.46        | 5      | 1     |

## 5.2 Torsion angles [i](#)

### 5.2.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all NMR entries. The Analysed column shows the number of residues for which the backbone conformation was analysed and the total number of residues.

| Mol | Chain | Analysed        | Favoured      | Allowed     | Outliers   | Percentiles |     |
|-----|-------|-----------------|---------------|-------------|------------|-------------|-----|
| 1   | A     | 361/364 (99%)   | 324±0 (90±0%) | 28±0 (8±0%) | 9±0 (3±0%) | 9           | 45  |
| 2   | B     | 8/11 (73%)      | 7±0 (88±0%)   | 1±0 (12±0%) | 0±0 (0±0%) | 100         | 100 |
| All | All   | 1845/1875 (98%) | 1656 (90%)    | 143 (8%)    | 46 (2%)    | 9           | 45  |

All 10 unique Ramachandran outliers are listed below. They are sorted by the frequency of occurrence in the ensemble.

| Mol | Chain | Res | Type | Models (Total) |
|-----|-------|-----|------|----------------|
| 1   | A     | 237 | HIS  | 5              |
| 1   | A     | 339 | THR  | 5              |

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| Mol | Chain | Res | Type | Models (Total) |
|-----|-------|-----|------|----------------|
| 1   | A     | 330 | ASP  | 5              |
| 1   | A     | 172 | GLU  | 5              |
| 1   | A     | 324 | PRO  | 5              |
| 1   | A     | 233 | SER  | 5              |
| 1   | A     | 188 | PRO  | 5              |
| 1   | A     | 222 | THR  | 5              |
| 1   | A     | 279 | LEU  | 5              |
| 1   | A     | 327 | SER  | 1              |

## 5.2.2 Protein sidechains [i](#)

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all NMR entries. The Analysed column shows the number of residues for which the sidechain conformation was analysed and the total number of residues.

| Mol | Chain | Analysed        | Rotameric     | Outliers     | Percentiles |
|-----|-------|-----------------|---------------|--------------|-------------|
| 1   | A     | 322/323 (100%)  | 303±0 (94±0%) | 19±0 (6±0%)  | 23 72       |
| 2   | B     | 8/10 (80%)      | 5±1 (57±13%)  | 3±1 (42±13%) | 0 3         |
| All | All   | 1650/1665 (99%) | 1538 (93%)    | 112 (7%)     | 19 68       |

All 25 unique residues with a non-rotameric sidechain are listed below. They are sorted by the frequency of occurrence in the ensemble.

| Mol | Chain | Res | Type | Models (Total) |
|-----|-------|-----|------|----------------|
| 1   | A     | 174 | MET  | 5              |
| 1   | A     | 204 | ILE  | 5              |
| 1   | A     | 284 | GLN  | 5              |
| 1   | A     | 353 | ARG  | 5              |
| 1   | A     | 148 | LYS  | 5              |
| 1   | A     | 39  | TYR  | 5              |
| 1   | A     | 287 | TYR  | 5              |
| 1   | A     | 85  | ASN  | 5              |
| 1   | A     | 281 | LYS  | 5              |
| 1   | A     | 120 | ILE  | 5              |
| 1   | A     | 154 | ILE  | 5              |
| 1   | A     | 341 | TYR  | 5              |
| 1   | A     | 78  | GLU  | 5              |
| 1   | A     | 274 | ASN  | 5              |
| 1   | A     | 228 | ILE  | 5              |
| 1   | A     | 62  | ARG  | 5              |

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| Mol | Chain | Res | Type | Models (Total) |
|-----|-------|-----|------|----------------|
| 1   | A     | 235 | ARG  | 5              |
| 1   | A     | 92  | TYR  | 5              |
| 1   | A     | 135 | ILE  | 5              |
| 2   | B     | 367 | LYS  | 4              |
| 2   | B     | 369 | GLN  | 4              |
| 2   | B     | 371 | PHE  | 3              |
| 2   | B     | 365 | ARG  | 3              |
| 2   | B     | 372 | PHE  | 2              |
| 2   | B     | 370 | GLN  | 1              |

### 5.2.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

### 5.4 Carbohydrates [i](#)

There are no carbohydrates in this entry.

### 5.5 Ligand geometry [i](#)

There are no ligands in this entry.

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

There are no such molecules in this entry.

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

There are no chain breaks in this entry.



## 6 Chemical shift validation [i](#)

The completeness of assignment taking into account all chemical shift lists is 1% for the well-defined parts and 2% for the entire structure.

### 6.1 Chemical shift list 1

File name: input\_cs.cif

Chemical shift list name: *assigned\_chem\_shift\_list\_1*

#### 6.1.1 Bookkeeping [i](#)

The following table shows the results of parsing the chemical shift list and reports the number of nuclei with statistically unusual chemical shifts.

|   |    |
|---|----|
| Total number of shifts                  | 88 |
| Number of shifts mapped to atoms        | 88 |
| Number of unparsed shifts               | 0  |
| Number of shifts with mapping errors    | 0  |
| Number of shifts with mapping warnings  | 0  |
| Number of shift outliers (ShiftChecker) | 3  |

#### 6.1.2 Chemical shift referencing [i](#)

No chemical shift referencing corrections were calculated (not enough data).

#### 6.1.3 Completeness of resonance assignments [i](#)

The following table shows the completeness of the chemical shift assignments for the well-defined regions of the structure. The overall completeness is 1%, i.e. 67 atoms were assigned a chemical shift out of a possible 4677. 0 out of 72 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

|           | Total        | <sup>1</sup> H | <sup>13</sup> C | <sup>15</sup> N |
|-----------|--------------|----------------|-----------------|-----------------|
| Backbone  | 15/1820 (1%) | 15/724 (2%)    | 0/744 (0%)      | 0/352 (0%)      |
| Sidechain | 42/2269 (2%) | 42/1328 (3%)   | 0/861 (0%)      | 0/80 (0%)       |
| Aromatic  | 10/588 (2%)  | 10/306 (3%)    | 0/255 (0%)      | 0/27 (0%)       |
| Overall   | 67/4677 (1%) | 67/2358 (3%)   | 0/1860 (0%)     | 0/459 (0%)      |

The following table shows the completeness of the chemical shift assignments for the full structure. The overall completeness is 2%, i.e. 81 atoms were assigned a chemical shift out of a possible 4704. 0 out of 73 assigned methyl groups (LEU and VAL) were assigned stereospecifically.

|           | Total        | <sup>1</sup> H | <sup>13</sup> C | <sup>15</sup> N |
|-----------|--------------|----------------|-----------------|-----------------|
| Backbone  | 19/1830 (1%) | 19/728 (3%)    | 0/748 (0%)      | 0/354 (0%)      |
| Sidechain | 52/2286 (2%) | 52/1338 (4%)   | 0/868 (0%)      | 0/80 (0%)       |
| Aromatic  | 10/588 (2%)  | 10/306 (3%)    | 0/255 (0%)      | 0/27 (0%)       |
| Overall   | 81/4704 (2%) | 81/2372 (3%)   | 0/1871 (0%)     | 0/461 (0%)      |

### 6.1.4 Statistically unusual chemical shifts [i](#)

The following table lists the statistically unusual chemical shifts. These are statistical measures, and large deviations from the mean do not necessarily imply incorrect assignments. Molecules containing paramagnetic centres or hemes are expected to give rise to anomalous chemical shifts.

| Mol | Chain | Res | Type | Atom | Shift, ppm | Expected range, ppm | Z-score |
|-----|-------|-----|------|------|------------|---------------------|---------|
| 2   | B     | 375 | MET  | HE3  | 7.07       | 4.28 – -0.52        | 10.8    |
| 2   | B     | 375 | MET  | HE2  | 7.07       | 4.28 – -0.52        | 10.8    |
| 2   | B     | 375 | MET  | HE1  | 7.07       | 4.28 – -0.52        | 10.8    |

### 6.1.5 Random Coil Index (RCI) plots [i](#)

The image below reports *random coil index* values for the protein chains in the structure. The height of each bar gives a probability of a given residue to be disordered, as predicted from the available chemical shifts and the amino acid sequence. A value above 0.2 is an indication of significant predicted disorder. The colour of the bar shows whether the residue is in the well-defined core (black) or in the ill-defined residue ranges (cyan), as described in section 2 on ensemble composition.

Random coil index (RCI) for chain B:

