



# Full wwPDB X-ray Structure Validation Report ⓘ

May 29, 2020 – 02:23 am BST

PDB ID : 3BG9  
Title : Crystal Structure of Human Pyruvate Carboxylase (missing the biotin carboxylase domain at the N-terminus) F1077A Mutant  
Authors : Xiang, S.; Tong, L.  
Deposited on : 2007-11-26  
Resolution : 3.00 Å(reported)

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

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

A user guide is available at

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

with specific help available everywhere you see the ⓘ symbol.

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

MolProbity : 4.02b-467  
Xtriage (Phenix) : 1.13  
EDS : 2.11  
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) : 2.11

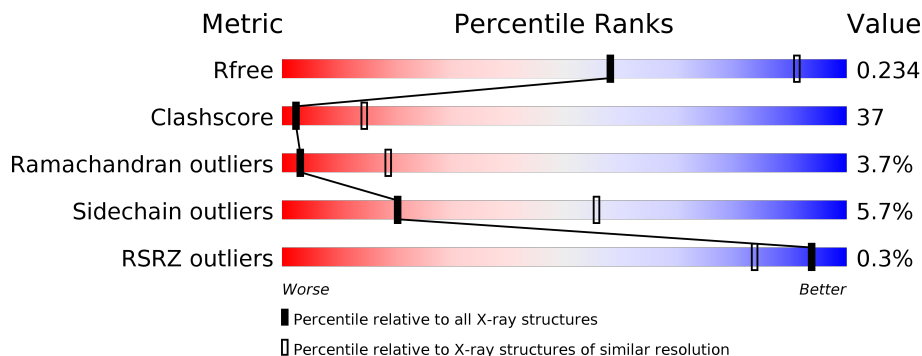
# 1 Overall quality at a glance i

The following experimental techniques were used to determine the structure:

*X-RAY DIFFRACTION*

The reported resolution of this entry is 3.00 Å.

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



| Metric                | Whole archive<br>(#Entries) | Similar resolution<br>(#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|---|
| $R_{free}$            | 130704                      | 2092 (3.00-3.00)                                      |
| Clashscore            | 141614                      | 2416 (3.00-3.00)                                      |
| Ramachandran outliers | 138981                      | 2333 (3.00-3.00)                                      |
| Sidechain outliers    | 138945                      | 2336 (3.00-3.00)                                      |
| RSRZ outliers         | 127900                      | 1990 (3.00-3.00)                                      |

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

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1   | A     | 718    |                  |
| 1   | B     | 718    |                  |
| 1   | C     | 718    |                  |
| 1   | D     | 718    |                  |

## 2 Entry composition i

There are 2 unique types of molecules in this entry. The entry contains 18516 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 Pyruvate carboxylase, mitochondrial.

| Mol | Chain | Residues | Atoms |      |     |     |    | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|----|---------|---------|-------|
|     |       |          | Total | C    | N   | O   | S  |         |         |       |
| 1   | A     | 601      | 4628  | 2937 | 798 | 865 | 28 | 0       | 0       | 0     |
| 1   | B     | 601      | 4628  | 2937 | 798 | 865 | 28 | 0       | 0       | 0     |
| 1   | C     | 601      | 4628  | 2937 | 798 | 865 | 28 | 0       | 0       | 0     |
| 1   | D     | 601      | 4628  | 2937 | 798 | 865 | 28 | 0       | 0       | 0     |

There are 88 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment        | Reference  |
|-------|---------|----------|--------|----------------|------------|
| A     | 461     | MET      | -      | EXPRESSION TAG | UNP P11498 |
| A     | 462     | GLY      | -      | EXPRESSION TAG | UNP P11498 |
| A     | 463     | SER      | -      | EXPRESSION TAG | UNP P11498 |
| A     | 464     | SER      | -      | EXPRESSION TAG | UNP P11498 |
| A     | 465     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| A     | 466     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| A     | 467     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| A     | 468     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| A     | 469     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| A     | 470     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| A     | 471     | SER      | -      | EXPRESSION TAG | UNP P11498 |
| A     | 472     | SER      | -      | EXPRESSION TAG | UNP P11498 |
| A     | 473     | GLY      | -      | EXPRESSION TAG | UNP P11498 |
| A     | 474     | LEU      | -      | EXPRESSION TAG | UNP P11498 |
| A     | 475     | VAL      | -      | EXPRESSION TAG | UNP P11498 |
| A     | 476     | PRO      | -      | EXPRESSION TAG | UNP P11498 |
| A     | 477     | ARG      | -      | EXPRESSION TAG | UNP P11498 |
| A     | 478     | GLY      | -      | EXPRESSION TAG | UNP P11498 |
| A     | 479     | SER      | -      | EXPRESSION TAG | UNP P11498 |
| A     | 480     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| A     | 481     | MET      | -      | EXPRESSION TAG | UNP P11498 |

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| Chain | Residue | Modelled | Actual | Comment        | Reference  |
|-------|---------|----------|--------|----------------|------------|
| A     | 1077    | ALA      | PHE    | ENGINEERED     | UNP P11498 |
| B     | 461     | MET      | -      | EXPRESSION TAG | UNP P11498 |
| B     | 462     | GLY      | -      | EXPRESSION TAG | UNP P11498 |
| B     | 463     | SER      | -      | EXPRESSION TAG | UNP P11498 |
| B     | 464     | SER      | -      | EXPRESSION TAG | UNP P11498 |
| B     | 465     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| B     | 466     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| B     | 467     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| B     | 468     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| B     | 469     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| B     | 470     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| B     | 471     | SER      | -      | EXPRESSION TAG | UNP P11498 |
| B     | 472     | SER      | -      | EXPRESSION TAG | UNP P11498 |
| B     | 473     | GLY      | -      | EXPRESSION TAG | UNP P11498 |
| B     | 474     | LEU      | -      | EXPRESSION TAG | UNP P11498 |
| B     | 475     | VAL      | -      | EXPRESSION TAG | UNP P11498 |
| B     | 476     | PRO      | -      | EXPRESSION TAG | UNP P11498 |
| B     | 477     | ARG      | -      | EXPRESSION TAG | UNP P11498 |
| B     | 478     | GLY      | -      | EXPRESSION TAG | UNP P11498 |
| B     | 479     | SER      | -      | EXPRESSION TAG | UNP P11498 |
| B     | 480     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| B     | 481     | MET      | -      | EXPRESSION TAG | UNP P11498 |
| B     | 1077    | ALA      | PHE    | ENGINEERED     | UNP P11498 |
| C     | 461     | MET      | -      | EXPRESSION TAG | UNP P11498 |
| C     | 462     | GLY      | -      | EXPRESSION TAG | UNP P11498 |
| C     | 463     | SER      | -      | EXPRESSION TAG | UNP P11498 |
| C     | 464     | SER      | -      | EXPRESSION TAG | UNP P11498 |
| C     | 465     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| C     | 466     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| C     | 467     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| C     | 468     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| C     | 469     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| C     | 470     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| C     | 471     | SER      | -      | EXPRESSION TAG | UNP P11498 |
| C     | 472     | SER      | -      | EXPRESSION TAG | UNP P11498 |
| C     | 473     | GLY      | -      | EXPRESSION TAG | UNP P11498 |
| C     | 474     | LEU      | -      | EXPRESSION TAG | UNP P11498 |
| C     | 475     | VAL      | -      | EXPRESSION TAG | UNP P11498 |
| C     | 476     | PRO      | -      | EXPRESSION TAG | UNP P11498 |
| C     | 477     | ARG      | -      | EXPRESSION TAG | UNP P11498 |
| C     | 478     | GLY      | -      | EXPRESSION TAG | UNP P11498 |
| C     | 479     | SER      | -      | EXPRESSION TAG | UNP P11498 |

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| Chain | Residue | Modelled | Actual | Comment        | Reference  |
|-------|---------|----------|--------|----------------|------------|
| C     | 480     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| C     | 481     | MET      | -      | EXPRESSION TAG | UNP P11498 |
| C     | 1077    | ALA      | PHE    | ENGINEERED     | UNP P11498 |
| D     | 461     | MET      | -      | EXPRESSION TAG | UNP P11498 |
| D     | 462     | GLY      | -      | EXPRESSION TAG | UNP P11498 |
| D     | 463     | SER      | -      | EXPRESSION TAG | UNP P11498 |
| D     | 464     | SER      | -      | EXPRESSION TAG | UNP P11498 |
| D     | 465     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| D     | 466     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| D     | 467     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| D     | 468     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| D     | 469     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| D     | 470     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| D     | 471     | SER      | -      | EXPRESSION TAG | UNP P11498 |
| D     | 472     | SER      | -      | EXPRESSION TAG | UNP P11498 |
| D     | 473     | GLY      | -      | EXPRESSION TAG | UNP P11498 |
| D     | 474     | LEU      | -      | EXPRESSION TAG | UNP P11498 |
| D     | 475     | VAL      | -      | EXPRESSION TAG | UNP P11498 |
| D     | 476     | PRO      | -      | EXPRESSION TAG | UNP P11498 |
| D     | 477     | ARG      | -      | EXPRESSION TAG | UNP P11498 |
| D     | 478     | GLY      | -      | EXPRESSION TAG | UNP P11498 |
| D     | 479     | SER      | -      | EXPRESSION TAG | UNP P11498 |
| D     | 480     | HIS      | -      | EXPRESSION TAG | UNP P11498 |
| D     | 481     | MET      | -      | EXPRESSION TAG | UNP P11498 |
| D     | 1077    | ALA      | PHE    | ENGINEERED     | UNP P11498 |

- Molecule 2 is MANGANESE (II) ION (three-letter code: MN) (formula: Mn).

| Mol | Chain | Residues | Atoms           | ZeroOcc | AltConf |
|-----|-------|----------|-----------------|---------|---------|
| 2   | B     | 1        | Total Mn<br>1 1 | 0       | 0       |
| 2   | A     | 1        | Total Mn<br>1 1 | 0       | 0       |
| 2   | D     | 1        | Total Mn<br>1 1 | 0       | 0       |
| 2   | C     | 1        | Total Mn<br>1 1 | 0       | 0       |





|      |      |      |       |       |     |
|------|------|------|-------|-------|-----|
| L759 | T851 | N921 | D996  | A1064 | VAL |
| R997 | K855 | V922 | R997  | V1065 | ALA |
| R762 | K855 | V922 | R997  | S1066 | GLY |
| F763 | N858 | N924 | H998  | D1067 | ALA |
| P764 | N858 | N924 | H998  | L1068 | VAL |
| D765 | S859 | R928 | E1000 | L1069 | VAL |
| L766 | D860 | E932 | E1001 | R1070 | ALA |
| P767 | N864 | E932 | E1002 | A1071 | LYS |
| L768 | E865 | A933 | T1003 | I1072 | GLY |
| F769 | E865 | A933 | P1004 | L1073 | GLN |
| H770 | I866 | Q934 | E1005 | Q1073 | GLN |
| H771 | P867 | A935 | D1006 | R1074 | PRO |
| A778 | Q870 | E936 | V1007 | Q1075 | LEU |
| G779 | Q870 | L936 | L1008 | V1076 | CYS |
| V780 | L874 | R942 | A1010 | E1079 | VAL |
| M783 | H875 | R942 | A1011 | L1080 | SER |
| L784 | F876 | V945 | M1012 | L1080 | LEU |
| A787 | H879 | F946 | M1013 | Q1083 | ALA |
| Q788 | S880 | F947 | P1014 | L1084 | LYS |
| A789 | M881 | L948 | D1015 | R1085 | MET |
| V793 | G882 | Q949 | V1016 | S1086 | GLU |
| V794 | L883 | I952 | A1018 | L1087 | THR |
| D795 | G884 | F953 | H1019 | L1088 | VAL |
| D799 | S885 | R954 | F1020 | V1089 | VAL |
| Q807 | K886 | R954 | K1021 | D1091 | THR |
| P808 | F887 | H956 | D1022 | N1092 | SER |
| S809 | K888 | F887 | F1023 | Q1093 | PRO |
| M810 | G889 | H956 | T1024 | T1093 | MET |
| L813 | V890 | F959 | A1025 | I1094 | GLU |
| V814 | K891 | P960 | T1026 | MET   | THR |
| A815 | K892 | E961 | L1027 | GLY   | VAL |
| T817 | M810 | E961 | L1030 | VAL   | ARG |
| T820 | V894 | F963 | L1033 | HIS   | LYS |
| P821 | S895 | R964 | L1034 | PHE   | ASP |
| L822 | N898 | S965 | N1034 | HIS   | THR |
| D823 | Q899 | K966 | T1035 | PRO   | LYS |
| D823 | M900 | L968 | P1042 | ALA   | LYS |
| T824 | L901 | K969 | P1042 | LEU   | ASP |
| R825 | G902 | L988 | K1043 | LEU   | ASP |
| M828 | D903 | L988 | I1044 | MET   | ASP |
| E829 | L904 | L988 | A1045 | THR   | ILE |
| R830 | I905 | L987 | E1046 | VAL   | GLY |
| V831 | K906 | R973 | E1049 | GLY   | GLY |
| F832 | V907 | R977 | V1050 | ASP   | ASP |
| L832 | T908 | A980 | V1050 | ILE   | ASP |
| R837 | P909 | S981 | E1051 | GLY   | LEU |
| G915 | S910 | L982 | L1052 | ALA   | ILE |
| G915 | S911 | P983 | E1053 | ALA   | ILE |
| D916 | S911 | P984 | R1054 | PRO   | LEU |
| L917 | K912 | Q988 | G1055 | MET   | GLU |
| A918 | V914 | Q988 | K1056 | PRO   | ILE |
| F848 | G915 | A989 | L1056 | GLY   | GLU |
| D849 | G915 | A989 | T1057 | LYS   | ASP |
| C850 | D916 | E991 | L1058 | VAL   | ASP |
|      | L917 | K992 | H1059 | ILE   | ILE |
|      | Q919 | E993 | L1060 | ASP   | GLU |
|      | A918 | E993 | K1061 | ILE   | GLU |
|      | Q919 | E993 | A1062 | LYS   |     |
|      | F920 | V995 | L1063 | VAL   |     |

Molecule 1: Pyruvate carboxylase, mitochondrial



|     |      |      |      |      |      |       |
|-----|------|------|------|------|------|-------|
| MET | B543 | N636 | A711 | Q788 | S885 | B956  |
| GLY | L544 | L637 | D712 | A789 | K886 | F959  |
| SER | L545 | P638 | P713 | V793 | F887 | P960  |
| ALA | L546 | F639 | S714 | V794 | K888 | E961  |
| HIS | E549 | Q640 | R716 | D795 | H890 | P962  |
| HIS | G549 | L642 | K717 | D799 | K891 | F963  |
| HIS | P550 | L643 | V716 | D799 | K892 | R964  |
| HIS | E551 | R644 | S719 | Q807 | R893 | S965  |
| GLN | V557 | N647 | Q721 | M810 | H895 | K966  |
| PRO | R558 | U649 | V722 | M810 | V895 | V967  |
| LEU | H560 | G650 | V723 | L813 | E896 | L968  |
| VAL | P561 | T651 | M724 | L814 | A897 | L971  |
| SER | L564 | T652 | A727 | H814 | K899 | P972  |
| ALA | L565 | N653 | A727 | H817 | N900 | R973  |
| LYS | T569 | G654 | L730 | T817 | G902 | R977  |
| MET | F970 | P655 | W731 | T820 | D903 | S981  |
| THR | D572 | L656 | A732 | P821 | L904 | P984  |
| GLU | H574 | D658 | G734 | L822 | K906 | K1056 |
| ASN | H573 | V659 | V735 | D823 | V907 | T1057 |
| PRO | A574 | T660 | L736 | T824 | L985 | T1057 |
| GLU | Q575 | H661 | H737 | E825 | W908 | D986  |
| THR | T580 | B664 | L738 | M828 | P909 | L987  |
| ARG | R581 | V665 | I740 | E829 | S910 | Q988  |
| LYS | T584 | E668 | M743 | R830 | S911 | A989  |
| LYS | K588 | N669 | A744 | H831 | G912 | L990  |
| LEU | A591 | H670 | P749 | F832 | I913 | K991  |
| PHE | P592 | L671 | F750 | A847 | L917 | E993  |
| HIS | R496 | G672 | D872 | F848 | Q919 | V995  |
| HIS | A497 | V676 | A751 | R848 | R921 | D996  |
| THR | Q498 | H677 | C752 | D849 | N921 | F920  |
| LYS | R499 | L678 | V753 | D851 | V922 | H998  |
| ASP | L500 | S679 | M754 | T851 | G923 | G999  |
| MET | L501 | S679 | H754 | K855 | R924 | E1000 |
| LEU | H503 | F598 | V756 | A847 | L918 | E1001 |
| LEU | L504 | S599 | L759 | F848 | Q919 | V1002 |
| GLY | G505 | H502 | L759 | R848 | R919 | T1003 |
| ASP | H506 | K600 | D765 | D860 | E932 | P1004 |
| ASP | M508 | L601 | L766 | H861 | E936 | E1005 |
| ASP | P517 | F602 | P767 | H862 | E937 | V1007 |
| GLY | P517 | S603 | L687 | H862 | L938 | L1008 |
| ASP | P530 | H606 | V607 | E865 |      | S1009 |
| ASP | P530 | M607 | M508 | R865 |      | A1010 |
| ASP | P530 | N607 | P508 | P867 |      | A1011 |
| ASP | P530 | F612 | M516 | Q870 |      | M1012 |
| ASP | P530 | R617 | P517 | Q870 |      | Y1013 |
| ASP | P530 | E701 | P530 | H873 |      | P1014 |
| ASP | P530 | M624 | P536 | L874 |      | D1015 |
| ASP | P536 | Q628 | P537 | V780 |      | V1016 |
| ASP | P538 | T707 | P538 | H879 |      | F1017 |
| ASP | A539 | L634 | P537 | M783 |      | A1018 |
| ASP | R542 | P635 | P537 | L784 |      | K1019 |
|     |      |      | P537 | H881 |      | H1019 |
|     |      |      | P537 | L882 |      | F1020 |
|     |      |      | P537 | C786 |      | K1021 |
|     |      |      | P537 | A787 |      | Q1093 |
|     |      |      | P537 |      |      | T1092 |
|     |      |      | P537 |      |      | A1094 |
|     |      |      | P537 |      |      |       |



MET  
LYS  
GLU  
MET  
HIS  
PHE  
HIS  
PRO  
LYS  
ALA  
LEU  
LYS  
ASP  
THR  
VAL  
LYS  
GLY  
GLN  
ILE  
GLY  
ALA  
PRO  
MET  
PRO  
GLY  
LYS  
VAL  
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ASP  
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ALA  
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ALA  
LYS  
VAL  
VAL  
LYS  
GLY  
GLN  
PRO  
LEU  
CYS  
VAL  
LEU  
SER  
SER  
MET  
LYS  
MET  
GLU  
THR  
VAL  
VAL  
THR  
SER  
PRO  
MET  
GLU

GLY  
THR  
VAL  
ARG  
LYS  
VAL  
HIS  
VAL  
THR  
LYS  
ASP  
MET  
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LEU  
GLU  
GLY  
ASP  
ASP  
LEU  
ILE  
LEU  
GLU  
ILE  
GLU

## 4 Data and refinement statistics

| Property  | Value   | Source           |
|---|---|------------------|
| Space group   | P 31 2 1  | Depositor        |
| Cell constants<br>a, b, c, $\alpha$ , $\beta$ , $\gamma$                | 107.54Å 107.54Å 524.47Å<br>90.00° 90.00° 120.00°            | Depositor        |
| Resolution (Å)  | 30.00 – 3.00<br>29.77 – 3.01                                | Depositor<br>EDS |
| % Data completeness<br>(in resolution range)                            | 80.8 (30.00-3.00)<br>88.9 (29.77-3.01)                      | Depositor<br>EDS |
| $R_{merge}$   | 0.12  | Depositor        |
| $R_{sym}$   | 0.12  | Depositor        |
| $\langle I/\sigma(I) \rangle$ <sup>1</sup>                              | 3.38 (at 3.00Å)   | Xtriage          |
| Refinement program  | CNS   | Depositor        |
| R, $R_{free}$   | 0.189 , 0.236<br>0.193 , 0.234                              | Depositor<br>DCC |
| $R_{free}$ test set   | 2799 reflections (4.42%)                                    | wwPDB-VP         |
| Wilson B-factor (Å <sup>2</sup> )                                       | 58.6  | Xtriage          |
| Anisotropy  | 0.258   | Xtriage          |
| Bulk solvent $k_{sol}$ (e/Å <sup>3</sup> ), $B_{sol}$ (Å <sup>2</sup> ) | 0.32 , 26.5   | EDS              |
| L-test for twinning <sup>2</sup>  | $\langle  L  \rangle = 0.38$ , $\langle L^2 \rangle = 0.21$ | Xtriage          |
| Estimated twinning fraction   | 0.370 for -h,-k,l   | Xtriage          |
| Reported twinning fraction  | 0.366 for -h,-k,l   | Depositor        |
| Outliers  | 0 of 63285 reflections                                      | Xtriage          |
| $F_o, F_c$ correlation  | 0.91  | EDS              |
| Total number of atoms   | 18516   | wwPDB-VP         |
| Average B, all atoms (Å <sup>2</sup> )                                  | 47.0  | wwPDB-VP         |

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 2.14% of the height of the origin peak. No significant pseudotranslation is detected.*

<sup>1</sup> Intensities estimated from amplitudes.

<sup>2</sup> Theoretical 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: MN

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     | 0.47         | 0/4736  | 0.68        | 0/6428         |
| 1   | B     | 0.49         | 0/4736  | 0.68        | 0/6428         |
| 1   | C     | 0.48         | 0/4736  | 0.68        | 0/6428         |
| 1   | D     | 0.49         | 0/4736  | 0.68        | 1/6428 (0.0%)  |
| All | All   | 0.48         | 0/18944 | 0.68        | 1/25712 (0.0%) |

There are no bond length outliers.

All (1) bond angle outliers are listed below:

| Mol | Chain | Res  | Type | Atoms    | Z    | Observed(°) | Ideal(°) |
|-----|-------|------|------|----------|------|-------------|----------|
| 1   | D     | 1068 | LEU  | CA-CB-CG | 5.03 | 126.86      | 115.30   |

There are no chirality outliers.

There are no planarity outliers.

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

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

| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 1   | A     | 4628  | 0        | 4579     | 349     | 1            |
| 1   | B     | 4628  | 0        | 4579     | 354     | 0            |
| 1   | C     | 4628  | 0        | 4579     | 363     | 1            |
| 1   | D     | 4628  | 0        | 4579     | 328     | 0            |
| 2   | A     | 1     | 0        | 0        | 0       | 0            |
| 2   | B     | 1     | 0        | 0        | 0       | 0            |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 2   | C     | 1     | 0        | 0        | 0       | 0            |
| 2   | D     | 1     | 0        | 0        | 0       | 0            |
| All | All   | 18516 | 0        | 18316    | 1380    | 1            |

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 37.

All (1380) 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:C:496:ARG:HB3   | 1:C:1052:LEU:HD11 | 1.27                     | 1.12              |
| 1:D:1044:ILE:H    | 1:D:1044:ILE:HD12 | 1.18                     | 1.07              |
| 1:D:496:ARG:HB3   | 1:D:1052:LEU:HD11 | 1.37                     | 1.06              |
| 1:A:496:ARG:HB3   | 1:A:1052:LEU:HD11 | 1.38                     | 1.02              |
| 1:A:700:VAL:H     | 1:A:736:HIS:HD2   | 1.11                     | 0.98              |
| 1:B:665:VAL:HG21  | 1:B:1008:LEU:HD11 | 1.45                     | 0.96              |
| 1:B:1044:ILE:HD12 | 1:B:1044:ILE:H    | 1.28                     | 0.95              |
| 1:B:700:VAL:H     | 1:B:736:HIS:HD2   | 1.14                     | 0.94              |
| 1:B:496:ARG:HB3   | 1:B:1052:LEU:HD11 | 1.49                     | 0.94              |
| 1:A:732:ARG:HB2   | 1:A:732:ARG:HH11  | 1.33                     | 0.93              |
| 1:A:1044:ILE:HD12 | 1:A:1044:ILE:H    | 1.32                     | 0.92              |
| 1:A:752:CYS:O     | 1:A:756:VAL:HG12  | 1.71                     | 0.91              |
| 1:A:1068:LEU:HD13 | 1:A:1074:ARG:NH2  | 1.85                     | 0.91              |
| 1:D:700:VAL:H     | 1:D:736:HIS:HD2   | 1.15                     | 0.91              |
| 1:B:1068:LEU:HD13 | 1:B:1074:ARG:NH2  | 1.85                     | 0.90              |
| 1:C:913:ILE:HD13  | 1:C:947:PHE:HB2   | 1.54                     | 0.89              |
| 1:A:571:ARG:HH11  | 1:A:575:GLN:NE2   | 1.70                     | 0.88              |
| 1:A:913:ILE:HD13  | 1:A:947:PHE:HB2   | 1.56                     | 0.88              |
| 1:D:1068:LEU:HD13 | 1:D:1074:ARG:NH2  | 1.89                     | 0.88              |
| 1:C:1065:VAL:HG13 | 1:C:1076:VAL:HG12 | 1.56                     | 0.88              |
| 1:D:991:GLU:O     | 1:D:995:VAL:HG23  | 1.74                     | 0.88              |
| 1:B:913:ILE:HD13  | 1:B:947:PHE:HB2   | 1.56                     | 0.87              |
| 1:D:732:ARG:HB2   | 1:D:732:ARG:HH11  | 1.40                     | 0.87              |
| 1:C:679:SER:HB3   | 1:C:909:PRO:HD2   | 1.59                     | 0.85              |
| 1:B:870:GLN:O     | 1:B:874:LEU:HD13  | 1.77                     | 0.85              |
| 1:A:571:ARG:HH11  | 1:A:575:GLN:HE22  | 1.24                     | 0.84              |
| 1:C:665:VAL:HG21  | 1:C:1008:LEU:HD11 | 1.57                     | 0.84              |
| 1:B:624:TRP:O     | 1:B:628:GLN:HG3   | 1.77                     | 0.84              |
| 1:B:732:ARG:HH11  | 1:B:732:ARG:HB2   | 1.42                     | 0.84              |
| 1:C:1068:LEU:HD13 | 1:C:1074:ARG:NH2  | 1.92                     | 0.84              |
| 1:C:564:LEU:HB2   | 1:C:793:VAL:HG22  | 1.60                     | 0.84              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:D:679:SER:HB3   | 1:D:909:PRO:HD2   | 1.60                     | 0.83              |
| 1:C:1044:ILE:HD12 | 1:C:1044:ILE:H    | 1.44                     | 0.83              |
| 1:D:665:VAL:HG21  | 1:D:1008:LEU:HD11 | 1.60                     | 0.83              |
| 1:A:649:VAL:H     | 1:A:1012:MET:HE1  | 1.44                     | 0.82              |
| 1:D:496:ARG:CB    | 1:D:1052:LEU:HD11 | 2.09                     | 0.82              |
| 1:D:870:GLN:O     | 1:D:874:LEU:HD13  | 1.79                     | 0.82              |
| 1:A:991:GLU:O     | 1:A:995:VAL:HG23  | 1.80                     | 0.82              |
| 1:C:989:ALA:O     | 1:C:993:GLU:HB2   | 1.80                     | 0.82              |
| 1:B:571:ARG:HH11  | 1:B:575:GLN:HE22  | 1.27                     | 0.82              |
| 1:C:870:GLN:O     | 1:C:874:LEU:HD13  | 1.80                     | 0.82              |
| 1:C:1066:SER:O    | 1:C:1068:LEU:HD23 | 1.80                     | 0.82              |
| 1:D:752:CYS:O     | 1:D:756:VAL:HG12  | 1.80                     | 0.81              |
| 1:A:989:ALA:O     | 1:A:993:GLU:HB2   | 1.79                     | 0.81              |
| 1:C:601:LEU:HD22  | 1:C:603:SER:O     | 1.81                     | 0.81              |
| 1:B:571:ARG:HH11  | 1:B:575:GLN:NE2   | 1.78                     | 0.81              |
| 1:B:900:MET:HE2   | 1:B:928:ARG:HG3   | 1.62                     | 0.81              |
| 1:B:539:ALA:HA    | 1:B:636:ASN:HB2   | 1.63                     | 0.80              |
| 1:C:995:VAL:HG22  | 1:C:1002:VAL:CG2  | 2.11                     | 0.80              |
| 1:C:700:VAL:H     | 1:C:736:HIS:HD2   | 1.28                     | 0.80              |
| 1:A:900:MET:HE2   | 1:A:928:ARG:HG3   | 1.64                     | 0.80              |
| 1:C:612:PHE:CB    | 1:C:649:VAL:HG11  | 2.12                     | 0.80              |
| 1:C:571:ARG:HH11  | 1:C:575:GLN:HE22  | 1.29                     | 0.79              |
| 1:D:913:ILE:HD13  | 1:D:947:PHE:HB2   | 1.62                     | 0.79              |
| 1:C:942:ARG:O     | 1:C:945:VAL:HG22  | 1.82                     | 0.79              |
| 1:A:732:ARG:HB2   | 1:A:732:ARG:NH1   | 1.97                     | 0.79              |
| 1:C:571:ARG:HH11  | 1:C:575:GLN:NE2   | 1.80                     | 0.79              |
| 1:D:649:VAL:H     | 1:D:1012:MET:HE1  | 1.46                     | 0.79              |
| 1:A:496:ARG:CB    | 1:A:1052:LEU:HD11 | 2.11                     | 0.78              |
| 1:C:624:TRP:O     | 1:C:628:GLN:HG3   | 1.83                     | 0.78              |
| 1:C:504:LEU:HD22  | 1:C:1042:PRO:HD3  | 1.63                     | 0.78              |
| 1:B:1066:SER:O    | 1:B:1068:LEU:HD23 | 1.84                     | 0.78              |
| 1:C:900:MET:HE2   | 1:C:928:ARG:HG3   | 1.66                     | 0.78              |
| 1:C:991:GLU:O     | 1:C:995:VAL:HG23  | 1.84                     | 0.78              |
| 1:B:595:ALA:HB2   | 1:B:634:ILE:HG23  | 1.64                     | 0.77              |
| 1:B:989:ALA:O     | 1:B:993:GLU:HB2   | 1.84                     | 0.77              |
| 1:B:849:ASP:HB3   | 1:B:851:THR:HG22  | 1.65                     | 0.77              |
| 1:D:992:LYS:O     | 1:D:996:ASP:HB3   | 1.84                     | 0.77              |
| 1:D:989:ALA:O     | 1:D:993:GLU:HB2   | 1.84                     | 0.77              |
| 1:B:991:GLU:O     | 1:B:995:VAL:HG23  | 1.85                     | 0.77              |
| 1:C:591:ALA:HB3   | 1:C:592:PRO:HD3   | 1.65                     | 0.77              |
| 1:A:1051:GLU:OE1  | 1:A:1057:THR:HG23 | 1.85                     | 0.77              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:D:571:ARG:HH11 | 1:D:575:GLN:NE2   | 1.83                     | 0.77              |
| 1:A:679:SER:HB3  | 1:A:909:PRO:HD2   | 1.67                     | 0.76              |
| 1:B:564:LEU:HB2  | 1:B:793:VAL:HG22  | 1.67                     | 0.76              |
| 1:C:977:ARG:HB3  | 1:C:977:ARG:HH11  | 1.50                     | 0.76              |
| 1:D:612:PHE:CB   | 1:D:649:VAL:HG11  | 2.15                     | 0.76              |
| 1:A:655:PRO:O    | 1:A:658:VAL:HG22  | 1.84                     | 0.76              |
| 1:D:1022:ASP:O   | 1:D:1025:ALA:HB3  | 1.85                     | 0.76              |
| 1:A:995:VAL:HG22 | 1:A:1002:VAL:CG2  | 2.16                     | 0.76              |
| 1:B:898:ASN:HD21 | 1:B:904:LEU:H     | 1.34                     | 0.76              |
| 1:A:992:LYS:O    | 1:A:996:ASP:HB3   | 1.86                     | 0.76              |
| 1:C:995:VAL:HG22 | 1:C:1002:VAL:HG21 | 1.66                     | 0.76              |
| 1:B:649:VAL:H    | 1:B:1012:MET:HE1  | 1.50                     | 0.76              |
| 1:A:665:VAL:HG21 | 1:A:1008:LEU:HD11 | 1.67                     | 0.75              |
| 1:C:498:GLN:HA   | 1:C:501:LEU:HD12  | 1.67                     | 0.75              |
| 1:D:732:ARG:NH1  | 1:D:732:ARG:HB2   | 2.01                     | 0.75              |
| 1:A:849:ASP:HB3  | 1:A:851:THR:HG22  | 1.66                     | 0.75              |
| 1:C:687:LEU:O    | 1:C:691:GLU:HG2   | 1.87                     | 0.75              |
| 1:D:784:LEU:O    | 1:D:788:GLN:HG2   | 1.86                     | 0.75              |
| 1:B:752:CYS:O    | 1:B:756:VAL:HG12  | 1.87                     | 0.75              |
| 1:D:655:PRO:O    | 1:D:658:VAL:HG22  | 1.85                     | 0.74              |
| 1:A:908:THR:HB   | 1:A:909:PRO:HD3   | 1.68                     | 0.74              |
| 1:C:641:MET:HB3  | 1:C:671:MET:CE    | 2.17                     | 0.74              |
| 1:A:995:VAL:HG22 | 1:A:1002:VAL:HG21 | 1.68                     | 0.74              |
| 1:B:1054:ARG:HD3 | 1:B:1054:ARG:O    | 1.87                     | 0.74              |
| 1:C:977:ARG:HB3  | 1:C:977:ARG:NH1   | 2.02                     | 0.74              |
| 1:B:886:LYS:HA   | 1:B:889:GLU:OE1   | 1.87                     | 0.74              |
| 1:C:496:ARG:CB   | 1:C:1052:LEU:HD11 | 2.11                     | 0.74              |
| 1:D:719:SER:O    | 1:D:722:TYR:HB3   | 1.88                     | 0.73              |
| 1:B:732:ARG:NH1  | 1:B:732:ARG:HB2   | 2.03                     | 0.73              |
| 1:B:898:ASN:ND2  | 1:B:904:LEU:H     | 1.85                     | 0.73              |
| 1:D:886:LYS:HA   | 1:D:889:GLU:OE1   | 1.87                     | 0.73              |
| 1:B:612:PHE:CB   | 1:B:649:VAL:HG11  | 2.17                     | 0.73              |
| 1:B:711:ALA:O    | 1:B:713:PRO:HD3   | 1.88                     | 0.73              |
| 1:C:883:LEU:O    | 1:C:886:LYS:HB2   | 1.88                     | 0.73              |
| 1:A:687:LEU:O    | 1:A:691:GLU:HG2   | 1.88                     | 0.73              |
| 1:D:624:TRP:O    | 1:D:628:GLN:HG3   | 1.88                     | 0.73              |
| 1:D:498:GLN:HA   | 1:D:501:LEU:HD12  | 1.69                     | 0.73              |
| 1:A:883:LEU:O    | 1:A:886:LYS:HB2   | 1.89                     | 0.72              |
| 1:A:899:GLN:HA   | 1:A:899:GLN:NE2   | 2.04                     | 0.72              |
| 1:C:1045:ALA:CA  | 1:C:1063:LEU:HG   | 2.19                     | 0.72              |
| 1:C:539:ALA:HA   | 1:C:636:ASN:HB2   | 1.71                     | 0.72              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:D:571:ARG:HH11  | 1:D:575:GLN:HE22  | 1.35                     | 0.72              |
| 1:D:1065:VAL:HG13 | 1:D:1076:VAL:HG12 | 1.70                     | 0.72              |
| 1:B:1045:ALA:CA   | 1:B:1063:LEU:HG   | 2.19                     | 0.72              |
| 1:D:504:LEU:O     | 1:D:508:MET:HG3   | 1.90                     | 0.72              |
| 1:D:1044:ILE:H    | 1:D:1044:ILE:CD1  | 1.91                     | 0.72              |
| 1:B:995:VAL:HG22  | 1:B:1002:VAL:CG2  | 2.20                     | 0.72              |
| 1:B:601:LEU:HD22  | 1:B:603:SER:O     | 1.89                     | 0.72              |
| 1:D:936:GLU:HB3   | 1:D:966:LYS:NZ    | 2.04                     | 0.72              |
| 1:A:898:ASN:ND2   | 1:A:904:LEU:H     | 1.87                     | 0.72              |
| 1:B:784:LEU:O     | 1:B:788:GLN:HG2   | 1.90                     | 0.71              |
| 1:A:612:PHE:CB    | 1:A:649:VAL:HG11  | 2.20                     | 0.71              |
| 1:B:923:GLN:O     | 1:B:923:GLN:HG2   | 1.89                     | 0.71              |
| 1:C:1051:GLU:OE1  | 1:C:1057:THR:HG23 | 1.90                     | 0.71              |
| 1:A:601:LEU:HD22  | 1:A:603:SER:O     | 1.90                     | 0.71              |
| 1:C:1003:THR:O    | 1:C:1007:VAL:HG23 | 1.91                     | 0.71              |
| 1:D:883:LEU:O     | 1:D:886:LYS:HB2   | 1.90                     | 0.71              |
| 1:A:539:ALA:HA    | 1:A:636:ASN:HB2   | 1.72                     | 0.71              |
| 1:B:687:LEU:O     | 1:B:691:GLU:HG2   | 1.89                     | 0.71              |
| 1:B:988:GLN:N     | 1:B:988:GLN:CD    | 2.43                     | 0.71              |
| 1:A:575:GLN:HG3   | 1:A:580:THR:OG1   | 1.90                     | 0.71              |
| 1:A:612:PHE:HB2   | 1:A:649:VAL:HG11  | 1.72                     | 0.71              |
| 1:C:817:THR:HG21  | 1:C:824:THR:HG23  | 1.73                     | 0.71              |
| 1:A:1065:VAL:HG13 | 1:A:1076:VAL:HG12 | 1.72                     | 0.71              |
| 1:D:538:PRO:HG2   | 1:D:599:SER:HB3   | 1.73                     | 0.70              |
| 1:A:644:ARG:HD2   | 1:A:647:ASN:OD1   | 1.91                     | 0.70              |
| 1:C:992:LYS:O     | 1:C:996:ASP:HB3   | 1.92                     | 0.70              |
| 1:C:906:LYS:C     | 1:C:911:SER:HB3   | 2.11                     | 0.70              |
| 1:D:942:ARG:O     | 1:D:945:VAL:HG22  | 1.91                     | 0.70              |
| 1:D:505:GLY:O     | 1:D:508:MET:HB2   | 1.91                     | 0.70              |
| 1:C:643:LEU:CD1   | 1:C:648:ALA:HA    | 2.21                     | 0.70              |
| 1:B:897:ALA:HB2   | 1:B:921:MET:HE2   | 1.72                     | 0.70              |
| 1:D:1067:ASP:OD2  | 1:D:1067:ASP:N    | 2.22                     | 0.70              |
| 1:A:569:THR:HA    | 1:A:573:ALA:HB3   | 1.74                     | 0.70              |
| 1:B:1065:VAL:HG22 | 1:B:1076:VAL:HG12 | 1.74                     | 0.70              |
| 1:A:988:GLN:N     | 1:A:988:GLN:CD    | 2.46                     | 0.70              |
| 1:A:886:LYS:HA    | 1:A:889:GLU:OE1   | 1.92                     | 0.69              |
| 1:A:498:GLN:HA    | 1:A:501:LEU:HD12  | 1.72                     | 0.69              |
| 1:B:591:ALA:HB3   | 1:B:592:PRO:HD3   | 1.73                     | 0.69              |
| 1:C:810:MET:O     | 1:C:814:VAL:HG23  | 1.91                     | 0.69              |
| 1:A:494:GLN:HG2   | 1:A:1056:LYS:NZ   | 2.08                     | 0.69              |
| 1:A:591:ALA:HB3   | 1:A:592:PRO:HD3   | 1.74                     | 0.69              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:B:904:LEU:HD12  | 1:B:904:LEU:N     | 2.07                     | 0.69              |
| 1:C:1089:VAL:HG12 | 1:C:1090:LYS:H    | 1.58                     | 0.69              |
| 1:D:641:MET:HB3   | 1:D:671:MET:CE    | 2.22                     | 0.69              |
| 1:C:936:GLU:HB3   | 1:C:966:LYS:NZ    | 2.05                     | 0.69              |
| 1:C:1089:VAL:HG12 | 1:C:1090:LYS:N    | 2.07                     | 0.69              |
| 1:A:564:LEU:HB2   | 1:A:793:VAL:HG22  | 1.73                     | 0.69              |
| 1:B:496:ARG:CB    | 1:B:1052:LEU:HD11 | 2.22                     | 0.69              |
| 1:C:617:ARG:HH21  | 1:C:1016:VAL:HG21 | 1.57                     | 0.69              |
| 1:C:550:PRO:HB3   | 1:C:699:VAL:HG22  | 1.74                     | 0.69              |
| 1:A:898:ASN:HD21  | 1:A:904:LEU:H     | 1.40                     | 0.69              |
| 1:C:1027:PHE:HB3  | 1:C:1030:LEU:HD21 | 1.75                     | 0.69              |
| 1:C:598:PHE:O     | 1:C:601:LEU:HB2   | 1.93                     | 0.68              |
| 1:D:664:GLU:O     | 1:D:668:GLU:HG3   | 1.92                     | 0.68              |
| 1:A:682:TYR:CE1   | 1:A:684:PRO:HB2   | 2.27                     | 0.68              |
| 1:B:679:SER:HB3   | 1:B:909:PRO:HD2   | 1.74                     | 0.68              |
| 1:C:649:VAL:HG12  | 1:C:649:VAL:O     | 1.93                     | 0.68              |
| 1:C:1083:GLN:CD   | 1:C:1085:ARG:HH21 | 1.97                     | 0.68              |
| 1:B:906:LYS:C     | 1:B:911:SER:HB3   | 2.14                     | 0.68              |
| 1:A:1076:VAL:O    | 1:A:1086:SER:HB2  | 1.94                     | 0.68              |
| 1:B:612:PHE:HB3   | 1:B:649:VAL:HG11  | 1.73                     | 0.68              |
| 1:C:649:VAL:H     | 1:C:1012:MET:HE1  | 1.59                     | 0.68              |
| 1:A:649:VAL:HG12  | 1:A:649:VAL:O     | 1.94                     | 0.68              |
| 1:A:995:VAL:HA    | 1:A:999:GLY:O     | 1.94                     | 0.68              |
| 1:C:597:ASN:HB3   | 1:C:830:ARG:HD3   | 1.76                     | 0.68              |
| 1:A:1067:ASP:N    | 1:A:1067:ASP:OD2  | 2.27                     | 0.68              |
| 1:B:1003:THR:O    | 1:B:1007:VAL:HG23 | 1.93                     | 0.68              |
| 1:B:899:GLN:NE2   | 1:B:899:GLN:HA    | 2.06                     | 0.68              |
| 1:C:977:ARG:NH1   | 1:C:980:ALA:HB2   | 2.07                     | 0.68              |
| 1:B:1073:GLN:HB3  | 1:B:1089:VAL:O    | 1.94                     | 0.67              |
| 1:C:737:ILE:HG23  | 1:C:767:PRO:HB2   | 1.75                     | 0.67              |
| 1:C:977:ARG:HH12  | 1:C:980:ALA:HB2   | 1.58                     | 0.67              |
| 1:D:810:MET:O     | 1:D:814:VAL:HG23  | 1.94                     | 0.67              |
| 1:A:504:LEU:HD22  | 1:A:1042:PRO:HD3  | 1.76                     | 0.67              |
| 1:A:538:PRO:HG2   | 1:A:599:SER:HB3   | 1.76                     | 0.67              |
| 1:A:906:LYS:C     | 1:A:911:SER:HB3   | 2.14                     | 0.67              |
| 1:D:1065:VAL:O    | 1:D:1066:SER:HB3  | 1.94                     | 0.67              |
| 1:D:601:LEU:HD22  | 1:D:603:SER:O     | 1.93                     | 0.67              |
| 1:A:717:LYS:NZ    | 1:A:956:HIS:O     | 2.27                     | 0.67              |
| 1:B:499:LYS:NZ    | 1:B:1025:ALA:O    | 2.22                     | 0.67              |
| 1:C:612:PHE:HB2   | 1:C:649:VAL:HG11  | 1.76                     | 0.67              |
| 1:B:1089:VAL:HG12 | 1:B:1090:LYS:N    | 2.09                     | 0.67              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:D:612:PHE:HB2   | 1:D:649:VAL:HG11  | 1.76                     | 0.67              |
| 1:D:737:ILE:HG23  | 1:D:767:PRO:HB2   | 1.75                     | 0.66              |
| 1:D:988:GLN:CD    | 1:D:988:GLN:N     | 2.48                     | 0.66              |
| 1:D:1003:THR:O    | 1:D:1007:VAL:HG23 | 1.96                     | 0.66              |
| 1:C:1045:ALA:HA   | 1:C:1063:LEU:HG   | 1.77                     | 0.66              |
| 1:C:595:ALA:HB2   | 1:C:634:ILE:HG23  | 1.77                     | 0.66              |
| 1:C:752:CYS:O     | 1:C:756:VAL:HG12  | 1.95                     | 0.66              |
| 1:A:569:THR:HA    | 1:A:573:ALA:CB    | 2.25                     | 0.66              |
| 1:B:504:LEU:HD22  | 1:B:1042:PRO:HD3  | 1.76                     | 0.66              |
| 1:D:591:ALA:HB3   | 1:D:592:PRO:HD3   | 1.76                     | 0.66              |
| 1:C:784:LEU:O     | 1:C:788:GLN:HG2   | 1.96                     | 0.66              |
| 1:A:1066:SER:C    | 1:A:1068:LEU:H    | 1.99                     | 0.66              |
| 1:B:936:GLU:HB3   | 1:B:966:LYS:NZ    | 2.11                     | 0.66              |
| 1:A:1089:VAL:HG12 | 1:A:1090:LYS:N    | 2.10                     | 0.66              |
| 1:B:1065:VAL:HG22 | 1:B:1076:VAL:CG1  | 2.26                     | 0.66              |
| 1:B:737:ILE:HG23  | 1:B:767:PRO:HB2   | 1.77                     | 0.66              |
| 1:B:922:VAL:HG23  | 1:B:923:GLN:N     | 2.11                     | 0.66              |
| 1:C:612:PHE:HB3   | 1:C:649:VAL:HG11  | 1.76                     | 0.66              |
| 1:D:1090:LYS:H    | 1:D:1090:LYS:HD2  | 1.59                     | 0.66              |
| 1:B:644:ARG:HD2   | 1:B:647:ASN:OD1   | 1.95                     | 0.66              |
| 1:B:550:PRO:HB3   | 1:B:699:VAL:HG22  | 1.78                     | 0.66              |
| 1:B:992:LYS:O     | 1:B:996:ASP:HB3   | 1.95                     | 0.66              |
| 1:D:612:PHE:HB3   | 1:D:649:VAL:HG11  | 1.77                     | 0.66              |
| 1:D:901:LEU:HB2   | 1:D:904:LEU:HD11  | 1.78                     | 0.66              |
| 1:A:683:LEU:O     | 1:A:687:LEU:HG    | 1.96                     | 0.66              |
| 1:C:908:THR:HB    | 1:C:909:PRO:HD3   | 1.76                     | 0.65              |
| 1:B:995:VAL:HG22  | 1:B:1002:VAL:HG21 | 1.77                     | 0.65              |
| 1:C:901:LEU:HB2   | 1:C:904:LEU:HD11  | 1.78                     | 0.65              |
| 1:A:1044:ILE:HA   | 1:A:1062:ALA:HB3  | 1.78                     | 0.65              |
| 1:A:700:VAL:H     | 1:A:736:HIS:CD2   | 2.03                     | 0.65              |
| 1:B:1089:VAL:HG12 | 1:B:1090:LYS:H    | 1.60                     | 0.65              |
| 1:B:649:VAL:HG12  | 1:B:649:VAL:O     | 1.97                     | 0.65              |
| 1:B:641:MET:HB3   | 1:B:671:MET:CE    | 2.27                     | 0.65              |
| 1:C:1065:VAL:O    | 1:C:1066:SER:HB3  | 1.97                     | 0.65              |
| 1:C:849:ASP:HB3   | 1:C:851:THR:HG22  | 1.78                     | 0.65              |
| 1:A:624:TRP:O     | 1:A:628:GLN:HG3   | 1.97                     | 0.65              |
| 1:A:963:PHE:O     | 1:A:967:VAL:HG23  | 1.96                     | 0.65              |
| 1:B:1022:ASP:O    | 1:B:1025:ALA:HB3  | 1.97                     | 0.65              |
| 1:D:687:LEU:O     | 1:D:691:GLU:HG2   | 1.96                     | 0.65              |
| 1:C:1044:ILE:HG22 | 1:C:1063:LEU:HD23 | 1.77                     | 0.65              |
| 1:C:612:PHE:HB3   | 1:C:649:VAL:CG1   | 2.27                     | 0.65              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:B:1051:GLU:OE1  | 1:B:1057:THR:HG23 | 1.97                     | 0.65              |
| 1:D:1060:ILE:HD12 | 1:D:1060:ILE:N    | 2.11                     | 0.65              |
| 1:B:1045:ALA:HA   | 1:B:1063:LEU:HG   | 1.76                     | 0.65              |
| 1:D:995:VAL:HA    | 1:D:999:GLY:O     | 1.97                     | 0.65              |
| 1:D:1051:GLU:OE1  | 1:D:1057:THR:HG23 | 1.97                     | 0.64              |
| 1:D:1065:VAL:HG22 | 1:D:1076:VAL:HG12 | 1.78                     | 0.64              |
| 1:C:1066:SER:C    | 1:C:1068:LEU:H    | 2.00                     | 0.64              |
| 1:A:784:LEU:O     | 1:A:788:GLN:HG2   | 1.96                     | 0.64              |
| 1:B:538:PRO:HG2   | 1:B:599:SER:HB3   | 1.78                     | 0.64              |
| 1:A:1003:THR:O    | 1:A:1007:VAL:HG23 | 1.97                     | 0.64              |
| 1:B:908:THR:HB    | 1:B:909:PRO:HD3   | 1.80                     | 0.64              |
| 1:D:900:MET:HE2   | 1:D:928:ARG:HG3   | 1.80                     | 0.64              |
| 1:A:1054:ARG:O    | 1:A:1054:ARG:HD3  | 1.98                     | 0.64              |
| 1:A:719:SER:O     | 1:A:722:TYR:HB3   | 1.97                     | 0.64              |
| 1:B:643:LEU:O     | 1:B:676:VAL:HA    | 1.97                     | 0.64              |
| 1:D:923:GLN:O     | 1:D:923:GLN:HG2   | 1.96                     | 0.64              |
| 1:B:1044:ILE:H    | 1:B:1044:ILE:CD1  | 1.98                     | 0.64              |
| 1:B:1060:ILE:HD12 | 1:B:1060:ILE:N    | 2.13                     | 0.64              |
| 1:B:617:ARG:HH21  | 1:B:1016:VAL:HG21 | 1.63                     | 0.64              |
| 1:C:886:LYS:HA    | 1:C:889:GLU:OE1   | 1.97                     | 0.64              |
| 1:D:1065:VAL:O    | 1:D:1066:SER:CB   | 2.45                     | 0.64              |
| 1:D:682:TYR:CE1   | 1:D:684:PRO:HB2   | 2.33                     | 0.64              |
| 1:A:1066:SER:O    | 1:A:1068:LEU:HD23 | 1.97                     | 0.64              |
| 1:A:1065:VAL:O    | 1:A:1066:SER:CB   | 2.45                     | 0.63              |
| 1:A:922:VAL:HG23  | 1:A:923:GLN:N     | 2.12                     | 0.63              |
| 1:A:947:PHE:HD1   | 1:A:952:ILE:HD11  | 1.61                     | 0.63              |
| 1:B:942:ARG:O     | 1:B:945:VAL:HG22  | 1.97                     | 0.63              |
| 1:C:899:GLN:HA    | 1:C:899:GLN:NE2   | 2.12                     | 0.63              |
| 1:C:923:GLN:HG2   | 1:C:923:GLN:O     | 1.98                     | 0.63              |
| 1:A:947:PHE:CD1   | 1:A:952:ILE:HD11  | 2.34                     | 0.63              |
| 1:A:1067:ASP:OD1  | 1:A:1075:GLN:HB3  | 1.98                     | 0.63              |
| 1:A:1065:VAL:O    | 1:A:1066:SER:HB3  | 1.99                     | 0.63              |
| 1:B:1058:LEU:HB3  | 1:B:1060:ILE:HD11 | 1.81                     | 0.63              |
| 1:B:707:THR:HG22  | 1:B:708:GLY:N     | 2.14                     | 0.63              |
| 1:C:494:GLN:HG2   | 1:C:1056:LYS:NZ   | 2.14                     | 0.63              |
| 1:D:995:VAL:HG22  | 1:D:1002:VAL:CG2  | 2.28                     | 0.63              |
| 1:A:595:ALA:HB2   | 1:A:634:ILE:HG23  | 1.80                     | 0.63              |
| 1:C:569:THR:HA    | 1:C:573:ALA:HB3   | 1.80                     | 0.63              |
| 1:D:550:PRO:HB3   | 1:D:699:VAL:HG22  | 1.79                     | 0.63              |
| 1:B:883:LEU:O     | 1:B:886:LYS:HB2   | 1.98                     | 0.63              |
| 1:D:1044:ILE:O    | 1:D:1045:ALA:HB3  | 1.97                     | 0.63              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:D:1066:SER:C    | 1:D:1068:LEU:H    | 2.01                     | 0.63              |
| 1:A:1027:PHE:HB3  | 1:A:1030:LEU:HD21 | 1.80                     | 0.62              |
| 1:B:1073:GLN:O    | 1:B:1074:ARG:HB2  | 1.98                     | 0.62              |
| 1:C:643:LEU:HD12  | 1:C:648:ALA:HA    | 1.81                     | 0.62              |
| 1:C:988:GLN:CD    | 1:C:988:GLN:N     | 2.52                     | 0.62              |
| 1:D:678:ASP:HB2   | 1:D:686:MET:HG3   | 1.80                     | 0.62              |
| 1:B:506:HIS:HD2   | 1:B:1090:LYS:HE2  | 1.62                     | 0.62              |
| 1:B:990:LEU:O     | 1:B:994:LEU:HG    | 2.00                     | 0.62              |
| 1:A:558:ARG:NH1   | 1:A:558:ARG:O     | 2.31                     | 0.62              |
| 1:B:963:PHE:O     | 1:B:967:VAL:HG23  | 1.98                     | 0.62              |
| 1:B:865:GLU:HB2   | 1:B:906:LYS:NZ    | 2.14                     | 0.62              |
| 1:C:778:ALA:O     | 1:C:780:VAL:N     | 2.32                     | 0.62              |
| 1:A:711:ALA:O     | 1:A:713:PRO:HD3   | 2.00                     | 0.62              |
| 1:D:1073:GLN:HB3  | 1:D:1089:VAL:O    | 1.99                     | 0.62              |
| 1:D:496:ARG:NH1   | 1:D:1056:LYS:NZ   | 2.47                     | 0.62              |
| 1:D:539:ALA:HA    | 1:D:636:ASN:HB2   | 1.82                     | 0.62              |
| 1:B:1044:ILE:HG22 | 1:B:1063:LEU:HD23 | 1.80                     | 0.62              |
| 1:B:1083:GLN:CD   | 1:B:1085:ARG:HH21 | 2.03                     | 0.62              |
| 1:C:780:VAL:HG13  | 1:C:813:LEU:HD22  | 1.82                     | 0.62              |
| 1:A:900:MET:CE    | 1:A:928:ARG:HG3   | 2.29                     | 0.61              |
| 1:C:1067:ASP:N    | 1:C:1067:ASP:OD2  | 2.32                     | 0.61              |
| 1:D:569:THR:HA    | 1:D:573:ALA:HB3   | 1.82                     | 0.61              |
| 1:D:778:ALA:O     | 1:D:780:VAL:N     | 2.33                     | 0.61              |
| 1:C:1062:ALA:O    | 1:C:1063:LEU:HB2  | 1.99                     | 0.61              |
| 1:D:711:ALA:O     | 1:D:713:PRO:HD3   | 2.01                     | 0.61              |
| 1:A:778:ALA:O     | 1:A:780:VAL:N     | 2.33                     | 0.61              |
| 1:B:1067:ASP:N    | 1:B:1067:ASP:OD2  | 2.33                     | 0.61              |
| 1:C:1060:ILE:N    | 1:C:1060:ILE:HD12 | 2.15                     | 0.61              |
| 1:B:766:LEU:HD12  | 1:B:767:PRO:HD2   | 1.82                     | 0.61              |
| 1:C:1065:VAL:O    | 1:C:1066:SER:CB   | 2.48                     | 0.61              |
| 1:C:907:VAL:N     | 1:C:911:SER:HB3   | 2.16                     | 0.61              |
| 1:D:820:THR:HB    | 1:D:821:PRO:HD2   | 1.83                     | 0.61              |
| 1:B:1065:VAL:O    | 1:B:1066:SER:CB   | 2.49                     | 0.61              |
| 1:C:1022:ASP:O    | 1:C:1025:ALA:HB3  | 2.01                     | 0.61              |
| 1:A:1065:VAL:HG22 | 1:A:1076:VAL:HG12 | 1.82                     | 0.61              |
| 1:B:644:ARG:HH11  | 1:B:644:ARG:HB3   | 1.65                     | 0.61              |
| 1:D:1092:THR:HG22 | 1:D:1092:THR:O    | 2.00                     | 0.61              |
| 1:D:574:HIS:CD2   | 1:D:580:THR:HA    | 2.36                     | 0.61              |
| 1:C:1044:ILE:O    | 1:C:1045:ALA:HB3  | 2.01                     | 0.61              |
| 1:A:1060:ILE:HD12 | 1:A:1060:ILE:N    | 2.16                     | 0.61              |
| 1:B:575:GLN:HG3   | 1:B:580:THR:OG1   | 2.00                     | 0.61              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:C:644:ARG:HH11  | 1:C:644:ARG:HB3   | 1.65                     | 0.60              |
| 1:D:1045:ALA:CA   | 1:D:1063:LEU:HG   | 2.30                     | 0.60              |
| 1:D:644:ARG:HH11  | 1:D:644:ARG:HB3   | 1.64                     | 0.60              |
| 1:C:732:ARG:HB2   | 1:C:732:ARG:HH11  | 1.66                     | 0.60              |
| 1:C:738:LEU:HD12  | 1:C:739:CYS:N     | 2.16                     | 0.60              |
| 1:C:1044:ILE:HA   | 1:C:1062:ALA:HB3  | 1.81                     | 0.60              |
| 1:D:564:LEU:HB2   | 1:D:793:VAL:HG22  | 1.83                     | 0.60              |
| 1:A:1045:ALA:CA   | 1:A:1063:LEU:HG   | 2.32                     | 0.60              |
| 1:A:1044:ILE:O    | 1:A:1045:ALA:HB3  | 2.01                     | 0.60              |
| 1:D:612:PHE:HB3   | 1:D:649:VAL:CG1   | 2.32                     | 0.60              |
| 1:D:922:VAL:HG23  | 1:D:923:GLN:N     | 2.16                     | 0.60              |
| 1:D:717:LYS:NZ    | 1:D:956:HIS:O     | 2.28                     | 0.60              |
| 1:A:494:GLN:HA    | 1:A:496:ARG:NH2   | 2.17                     | 0.60              |
| 1:A:560:HIS:CD2   | 1:A:564:LEU:HD21  | 2.37                     | 0.60              |
| 1:B:1044:ILE:HA   | 1:B:1062:ALA:HB3  | 1.82                     | 0.60              |
| 1:C:538:PRO:HG2   | 1:C:599:SER:HB3   | 1.84                     | 0.60              |
| 1:D:977:ARG:HB3   | 1:D:977:ARG:NH1   | 2.17                     | 0.60              |
| 1:A:860:ASP:HA    | 1:B:832:PHE:CZ    | 2.36                     | 0.60              |
| 1:D:1083:GLN:CD   | 1:D:1085:ARG:HH21 | 2.05                     | 0.60              |
| 1:D:849:ASP:HB3   | 1:D:851:THR:HG22  | 1.82                     | 0.60              |
| 1:B:1065:VAL:HG13 | 1:B:1076:VAL:HG12 | 1.84                     | 0.60              |
| 1:B:508:MET:SD    | 1:B:1042:PRO:HG2  | 2.42                     | 0.60              |
| 1:C:1076:VAL:O    | 1:C:1086:SER:HB2  | 2.01                     | 0.60              |
| 1:C:502:HIS:HE1   | 1:C:1090:LYS:NZ   | 2.00                     | 0.60              |
| 1:C:709:ASP:OD1   | 1:C:751:ALA:HB2   | 2.01                     | 0.60              |
| 1:D:1008:LEU:O    | 1:D:1011:ALA:HB3  | 2.02                     | 0.60              |
| 1:A:828:MET:O     | 1:A:831:VAL:HG22  | 2.01                     | 0.59              |
| 1:D:683:LEU:O     | 1:D:687:LEU:HG    | 2.02                     | 0.59              |
| 1:C:655:PRO:O     | 1:C:658:VAL:HG22  | 2.02                     | 0.59              |
| 1:C:711:ALA:O     | 1:C:713:PRO:HD3   | 2.01                     | 0.59              |
| 1:D:1089:VAL:HG12 | 1:D:1090:LYS:N    | 2.17                     | 0.59              |
| 1:B:595:ALA:CB    | 1:B:634:ILE:HG23  | 2.33                     | 0.59              |
| 1:B:612:PHE:HB2   | 1:B:649:VAL:HG11  | 1.83                     | 0.59              |
| 1:B:743:MET:SD    | 1:B:907:VAL:HG22  | 2.43                     | 0.59              |
| 1:A:516:ILE:HG13  | 1:A:516:ILE:O     | 2.03                     | 0.59              |
| 1:B:665:VAL:HG12  | 1:B:669:ASN:ND2   | 2.17                     | 0.59              |
| 1:D:947:PHE:CD1   | 1:D:952:ILE:HD11  | 2.37                     | 0.59              |
| 1:A:1083:GLN:CD   | 1:A:1085:ARG:HH21 | 2.05                     | 0.59              |
| 1:B:787:ALA:HB1   | 1:B:822:LEU:HD13  | 1.83                     | 0.59              |
| 1:C:766:LEU:HD12  | 1:C:767:PRO:HD2   | 1.84                     | 0.59              |
| 1:D:1069:ASN:O    | 1:D:1071:ALA:N    | 2.35                     | 0.59              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:D:947:PHE:HD1   | 1:D:952:ILE:HD11  | 1.65                     | 0.59              |
| 1:D:990:LEU:O     | 1:D:994:LEU:HG    | 2.01                     | 0.59              |
| 1:C:642:LEU:HD11  | 1:C:677:PHE:CD2   | 2.38                     | 0.59              |
| 1:C:977:ARG:HH11  | 1:C:977:ARG:CB    | 2.16                     | 0.59              |
| 1:A:1089:VAL:HG12 | 1:A:1090:LYS:H    | 1.67                     | 0.59              |
| 1:B:1067:ASP:OD1  | 1:B:1075:GLN:HB3  | 2.03                     | 0.59              |
| 1:C:539:ALA:HB1   | 1:C:543:ASP:OD2   | 2.01                     | 0.59              |
| 1:C:560:HIS:CD2   | 1:C:564:LEU:HD21  | 2.38                     | 0.59              |
| 1:D:495:ASN:OD1   | 1:D:499:LYS:HE3   | 2.02                     | 0.59              |
| 1:D:707:THR:HG22  | 1:D:708:GLY:N     | 2.17                     | 0.59              |
| 1:A:1069:ASN:O    | 1:A:1071:ALA:N    | 2.35                     | 0.59              |
| 1:A:1065:VAL:HG22 | 1:A:1076:VAL:CG1  | 2.32                     | 0.59              |
| 1:B:612:PHE:HB3   | 1:B:649:VAL:CG1   | 2.32                     | 0.59              |
| 1:C:719:SER:O     | 1:C:722:TYR:HB3   | 2.02                     | 0.59              |
| 1:A:1015:ASP:HB3  | 1:A:1019:HIS:NE2  | 2.18                     | 0.59              |
| 1:A:550:PRO:HB3   | 1:A:699:VAL:HG22  | 1.84                     | 0.59              |
| 1:D:780:VAL:HG13  | 1:D:813:LEU:HD22  | 1.85                     | 0.59              |
| 1:D:952:ILE:HG13  | 1:D:953:GLY:N     | 2.18                     | 0.59              |
| 1:A:1058:LEU:HB3  | 1:A:1060:ILE:HD11 | 1.85                     | 0.58              |
| 1:C:678:ASP:HB2   | 1:C:686:MET:HG3   | 1.85                     | 0.58              |
| 1:C:865:GLU:HB2   | 1:C:906:LYS:HZ2   | 1.66                     | 0.58              |
| 1:C:565:LEU:O     | 1:C:602:PHE:HB3   | 2.02                     | 0.58              |
| 1:A:952:ILE:HG13  | 1:A:953:GLY:N     | 2.19                     | 0.58              |
| 1:B:574:HIS:CD2   | 1:B:580:THR:HA    | 2.38                     | 0.58              |
| 1:C:936:GLU:OE2   | 1:C:937:GLU:N     | 2.36                     | 0.58              |
| 1:A:664:GLU:O     | 1:A:668:GLU:HG3   | 2.03                     | 0.58              |
| 1:A:936:GLU:HB3   | 1:A:966:LYS:NZ    | 2.17                     | 0.58              |
| 1:B:498:GLN:HA    | 1:B:501:LEU:HD12  | 1.84                     | 0.58              |
| 1:B:807:GLN:NE2   | 1:B:807:GLN:H     | 2.01                     | 0.58              |
| 1:C:1069:ASN:O    | 1:C:1071:ALA:N    | 2.37                     | 0.58              |
| 1:D:756:VAL:HG11  | 1:D:789:ALA:HB3   | 1.85                     | 0.58              |
| 1:D:907:VAL:N     | 1:D:911:SER:HB3   | 2.17                     | 0.58              |
| 1:A:499:LYS:NZ    | 1:A:1025:ALA:O    | 2.27                     | 0.58              |
| 1:A:917:LEU:O     | 1:A:921:MET:HG3   | 2.03                     | 0.58              |
| 1:B:590:ILE:O     | 1:B:594:VAL:HG23  | 2.03                     | 0.58              |
| 1:D:814:VAL:O     | 1:D:817:THR:HG22  | 2.03                     | 0.58              |
| 1:A:1045:ALA:HA   | 1:A:1063:LEU:HG   | 1.85                     | 0.58              |
| 1:A:949:GLN:HG3   | 1:A:968:LEU:CD2   | 2.34                     | 0.58              |
| 1:B:749:PRO:O     | 1:B:752:CYS:HB2   | 2.04                     | 0.58              |
| 1:D:644:ARG:HB3   | 1:D:644:ARG:NH1   | 2.19                     | 0.58              |
| 1:D:1045:ALA:HA   | 1:D:1063:LEU:HG   | 1.86                     | 0.58              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1065:VAL:HG22 | 1:A:1076:VAL:HB   | 1.85                     | 0.58              |
| 1:B:955:PRO:HD2   | 1:B:959:PHE:CE1   | 2.39                     | 0.58              |
| 1:D:917:LEU:O     | 1:D:921:MET:HG3   | 2.03                     | 0.58              |
| 1:A:650:GLY:HA3   | 1:A:654:TYR:OH    | 2.04                     | 0.58              |
| 1:A:832:PHE:CZ    | 1:B:860:ASP:HA    | 2.39                     | 0.58              |
| 1:A:977:ARG:HB3   | 1:A:977:ARG:NH1   | 2.18                     | 0.58              |
| 1:B:597:ASN:HB3   | 1:B:830:ARG:HD3   | 1.86                     | 0.57              |
| 1:D:498:GLN:NE2   | 1:D:498:GLN:C     | 2.57                     | 0.57              |
| 1:B:570:PHE:CD2   | 1:B:587:LEU:HD22  | 2.38                     | 0.57              |
| 1:D:498:GLN:HE21  | 1:D:498:GLN:C     | 2.07                     | 0.57              |
| 1:D:597:ASN:HB3   | 1:D:830:ARG:HD3   | 1.85                     | 0.57              |
| 1:A:1022:ASP:O    | 1:A:1025:ALA:HB3  | 2.03                     | 0.57              |
| 1:B:1068:LEU:HA   | 1:B:1074:ARG:HE   | 1.68                     | 0.57              |
| 1:B:661:LYS:O     | 1:B:665:VAL:HG23  | 2.04                     | 0.57              |
| 1:B:996:ASP:OD1   | 1:B:997:ARG:N     | 2.38                     | 0.57              |
| 1:A:665:VAL:HG12  | 1:A:669:ASN:ND2   | 2.18                     | 0.57              |
| 1:C:570:PHE:CD2   | 1:C:587:LEU:HD22  | 2.40                     | 0.57              |
| 1:C:655:PRO:HB2   | 1:C:984:PRO:HA    | 1.87                     | 0.57              |
| 1:D:494:GLN:HA    | 1:D:496:ARG:NH2   | 2.18                     | 0.57              |
| 1:D:649:VAL:HG12  | 1:D:649:VAL:O     | 2.04                     | 0.57              |
| 1:A:495:ASN:OD1   | 1:A:499:LYS:HE3   | 2.04                     | 0.57              |
| 1:B:1044:ILE:CG2  | 1:B:1063:LEU:HA   | 2.34                     | 0.57              |
| 1:B:678:ASP:OD1   | 1:B:682:TYR:HB3   | 2.04                     | 0.57              |
| 1:C:807:GLN:NE2   | 1:C:807:GLN:H     | 2.02                     | 0.57              |
| 1:D:1027:PHE:HB3  | 1:D:1030:LEU:HD21 | 1.86                     | 0.57              |
| 1:B:1044:ILE:N    | 1:B:1044:ILE:HD12 | 2.09                     | 0.57              |
| 1:B:762:ARG:HG3   | 1:B:763:PHE:CE1   | 2.40                     | 0.57              |
| 1:B:1044:ILE:O    | 1:B:1045:ALA:HB3  | 2.04                     | 0.57              |
| 1:B:711:ALA:HA    | 1:B:754:MET:CE    | 2.35                     | 0.57              |
| 1:C:641:MET:HB3   | 1:C:671:MET:HE3   | 1.86                     | 0.57              |
| 1:A:899:GLN:HA    | 1:A:899:GLN:HE21  | 1.68                     | 0.57              |
| 1:B:949:GLN:HG3   | 1:B:968:LEU:CD2   | 2.35                     | 0.57              |
| 1:C:575:GLN:HG3   | 1:C:580:THR:OG1   | 2.05                     | 0.57              |
| 1:C:711:ALA:HA    | 1:C:754:MET:CE    | 2.35                     | 0.57              |
| 1:C:963:PHE:O     | 1:C:967:VAL:HG23  | 2.05                     | 0.57              |
| 1:D:504:LEU:HD22  | 1:D:1042:PRO:HD3  | 1.86                     | 0.57              |
| 1:D:904:LEU:N     | 1:D:904:LEU:HD12  | 2.20                     | 0.57              |
| 1:C:1080:LEU:HD23 | 1:C:1085:ARG:CZ   | 2.35                     | 0.57              |
| 1:C:820:THR:HB    | 1:C:821:PRO:HD2   | 1.87                     | 0.57              |
| 1:C:898:ASN:HD22  | 1:C:906:LYS:HD3   | 1.70                     | 0.57              |
| 1:D:908:THR:HB    | 1:D:909:PRO:HD3   | 1.86                     | 0.57              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:C:961:GLU:OE1   | 1:C:964:ARG:HD3   | 2.05                     | 0.56              |
| 1:D:1065:VAL:HG22 | 1:D:1076:VAL:CG1  | 2.35                     | 0.56              |
| 1:B:1065:VAL:O    | 1:B:1066:SER:HB3  | 2.05                     | 0.56              |
| 1:B:700:VAL:H     | 1:B:736:HIS:CD2   | 2.06                     | 0.56              |
| 1:D:617:ARG:HH21  | 1:D:1016:VAL:HG21 | 1.70                     | 0.56              |
| 1:B:952:ILE:HG13  | 1:B:953:GLY:N     | 2.21                     | 0.56              |
| 1:A:1044:ILE:CD1  | 1:A:1044:ILE:H    | 2.01                     | 0.56              |
| 1:C:504:LEU:O     | 1:C:508:MET:HG3   | 2.05                     | 0.56              |
| 1:D:995:VAL:HG22  | 1:D:1002:VAL:HG21 | 1.86                     | 0.56              |
| 1:D:1044:ILE:N    | 1:D:1044:ILE:HD12 | 2.03                     | 0.56              |
| 1:D:644:ARG:CB    | 1:D:644:ARG:NH1   | 2.68                     | 0.56              |
| 1:C:707:THR:HG22  | 1:C:708:GLY:N     | 2.21                     | 0.56              |
| 1:C:952:ILE:HG13  | 1:C:953:GLY:N     | 2.20                     | 0.56              |
| 1:D:1067:ASP:O    | 1:D:1069:ASN:N    | 2.39                     | 0.56              |
| 1:B:817:THR:HG21  | 1:B:824:THR:HG23  | 1.87                     | 0.56              |
| 1:C:701:GLU:HG3   | 1:C:737:ILE:HB    | 1.85                     | 0.56              |
| 1:C:653:ASN:HB3   | 1:C:982:LEU:HD11  | 1.87                     | 0.56              |
| 1:A:1065:VAL:HG22 | 1:A:1076:VAL:CB   | 2.36                     | 0.56              |
| 1:B:1044:ILE:HG22 | 1:B:1063:LEU:HA   | 1.86                     | 0.56              |
| 1:B:919:GLN:HA    | 1:B:922:VAL:HG22  | 1.86                     | 0.56              |
| 1:D:743:MET:SD    | 1:D:907:VAL:HG22  | 2.46                     | 0.56              |
| 1:C:1058:LEU:HB3  | 1:C:1060:ILE:HD11 | 1.88                     | 0.56              |
| 1:C:1060:ILE:HG22 | 1:C:1061:LYS:N    | 2.20                     | 0.56              |
| 1:C:1065:VAL:CG1  | 1:C:1076:VAL:HG12 | 2.33                     | 0.56              |
| 1:D:600:LYS:HE3   | 1:D:825:GLU:HB3   | 1.88                     | 0.56              |
| 1:A:1090:LYS:HD2  | 1:A:1090:LYS:H    | 1.70                     | 0.56              |
| 1:A:907:VAL:HG12  | 1:A:908:THR:H     | 1.70                     | 0.56              |
| 1:B:778:ALA:O     | 1:B:780:VAL:N     | 2.39                     | 0.56              |
| 1:C:1044:ILE:CG2  | 1:C:1063:LEU:HA   | 2.36                     | 0.56              |
| 1:C:644:ARG:HD2   | 1:C:647:ASN:OD1   | 2.05                     | 0.56              |
| 1:D:558:ARG:O     | 1:D:558:ARG:NH1   | 2.38                     | 0.56              |
| 1:D:542:ARG:H     | 1:D:638:PRO:HD3   | 1.71                     | 0.56              |
| 1:C:500:LEU:O     | 1:C:503:TYR:HB3   | 2.06                     | 0.56              |
| 1:C:647:ASN:ND2   | 1:C:650:GLY:O     | 2.39                     | 0.56              |
| 1:D:649:VAL:N     | 1:D:1012:MET:HE1  | 2.17                     | 0.56              |
| 1:D:1063:LEU:O    | 1:D:1064:ALA:CB   | 2.53                     | 0.56              |
| 1:D:727:ALA:O     | 1:D:731:VAL:HG23  | 2.05                     | 0.56              |
| 1:D:766:LEU:HD12  | 1:D:767:PRO:HD2   | 1.88                     | 0.56              |
| 1:A:881:MET:O     | 1:A:883:LEU:HG    | 2.05                     | 0.56              |
| 1:C:1068:LEU:HA   | 1:C:1074:ARG:HE   | 1.70                     | 0.56              |
| 1:D:1068:LEU:HA   | 1:D:1074:ARG:HE   | 1.71                     | 0.56              |

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| Atom-1            | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|------------------|--------------------------|-------------------|
| 1:B:1066:SER:C    | 1:B:1068:LEU:H   | 2.09                     | 0.55              |
| 1:C:922:VAL:HG23  | 1:C:923:GLN:N    | 2.22                     | 0.55              |
| 1:D:565:LEU:O     | 1:D:602:PHE:HB3  | 2.06                     | 0.55              |
| 1:A:961:GLU:OE1   | 1:A:964:ARG:HD3  | 2.06                     | 0.55              |
| 1:B:569:THR:HA    | 1:B:573:ALA:HB3  | 1.87                     | 0.55              |
| 1:B:655:PRO:O     | 1:B:658:VAL:HG22 | 2.06                     | 0.55              |
| 1:D:547:ARG:C     | 1:D:548:GLU:HG3  | 2.26                     | 0.55              |
| 1:D:936:GLU:HB3   | 1:D:966:LYS:HZ1  | 1.69                     | 0.55              |
| 1:A:990:LEU:O     | 1:A:994:LEU:HG   | 2.07                     | 0.55              |
| 1:B:539:ALA:HA    | 1:B:636:ASN:CB   | 2.34                     | 0.55              |
| 1:B:995:VAL:HA    | 1:B:999:GLY:O    | 2.07                     | 0.55              |
| 1:A:707:THR:HG22  | 1:A:708:GLY:N    | 2.21                     | 0.55              |
| 1:A:949:GLN:HG3   | 1:A:968:LEU:HD22 | 1.89                     | 0.55              |
| 1:D:700:VAL:H     | 1:D:736:HIS:CD2  | 2.08                     | 0.55              |
| 1:D:968:LEU:O     | 1:D:971:LEU:HD12 | 2.06                     | 0.55              |
| 1:A:649:VAL:N     | 1:A:1012:MET:HE1 | 2.16                     | 0.55              |
| 1:A:502:HIS:HE1   | 1:A:1090:LYS:NZ  | 2.04                     | 0.55              |
| 1:B:649:VAL:N     | 1:B:1012:MET:HE1 | 2.21                     | 0.55              |
| 1:C:1065:VAL:HG22 | 1:C:1076:VAL:HB  | 1.87                     | 0.55              |
| 1:A:502:HIS:CE1   | 1:A:1090:LYS:NZ  | 2.75                     | 0.55              |
| 1:B:1065:VAL:HG22 | 1:B:1076:VAL:CB  | 2.37                     | 0.55              |
| 1:B:665:VAL:HG21  | 1:B:1008:LEU:CD1 | 2.27                     | 0.55              |
| 1:B:908:THR:HG22  | 1:B:909:PRO:N    | 2.21                     | 0.55              |
| 1:C:558:ARG:O     | 1:C:558:ARG:NH1  | 2.36                     | 0.55              |
| 1:D:949:GLN:HG3   | 1:D:968:LEU:CD2  | 2.36                     | 0.55              |
| 1:A:995:VAL:HG13  | 1:A:1000:GLU:HA  | 1.87                     | 0.55              |
| 1:A:1068:LEU:HA   | 1:A:1074:ARG:HE  | 1.71                     | 0.55              |
| 1:C:961:GLU:OE2   | 1:C:965:SER:HB3  | 2.07                     | 0.55              |
| 1:D:917:LEU:HB2   | 1:D:944:VAL:HG21 | 1.88                     | 0.55              |
| 1:A:665:VAL:HG12  | 1:A:669:ASN:HD22 | 1.72                     | 0.55              |
| 1:A:907:VAL:N     | 1:A:911:SER:HB3  | 2.21                     | 0.55              |
| 1:B:1065:VAL:HG22 | 1:B:1076:VAL:HB  | 1.89                     | 0.55              |
| 1:B:494:GLN:HG2   | 1:B:1056:LYS:NZ  | 2.22                     | 0.55              |
| 1:B:644:ARG:HB3   | 1:B:644:ARG:NH1  | 2.22                     | 0.55              |
| 1:B:917:LEU:O     | 1:B:921:MET:HG3  | 2.07                     | 0.55              |
| 1:C:494:GLN:HA    | 1:C:496:ARG:NH2  | 2.21                     | 0.55              |
| 1:C:983:PRO:O     | 1:C:984:PRO:O    | 2.25                     | 0.55              |
| 1:D:898:ASN:ND2   | 1:D:904:LEU:H    | 2.04                     | 0.55              |
| 1:A:780:VAL:HG13  | 1:A:813:LEU:HD22 | 1.88                     | 0.55              |
| 1:A:810:MET:O     | 1:A:814:VAL:HG23 | 2.07                     | 0.55              |
| 1:B:907:VAL:N     | 1:B:911:SER:HB3  | 2.22                     | 0.55              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:C:643:LEU:HD11  | 1:C:648:ALA:HA    | 1.89                     | 0.55              |
| 1:B:900:MET:HE1   | 1:B:921:MET:SD    | 2.46                     | 0.54              |
| 1:B:682:TYR:CE1   | 1:B:684:PRO:HB2   | 2.42                     | 0.54              |
| 1:B:945:VAL:HG23  | 1:B:946:GLU:N     | 2.22                     | 0.54              |
| 1:C:1052:LEU:HD23 | 1:C:1053:GLU:HB2  | 1.89                     | 0.54              |
| 1:C:569:THR:HA    | 1:C:573:ALA:CB    | 2.37                     | 0.54              |
| 1:A:1092:THR:O    | 1:A:1092:THR:HG22 | 2.07                     | 0.54              |
| 1:A:644:ARG:HH11  | 1:A:644:ARG:HB3   | 1.72                     | 0.54              |
| 1:B:569:THR:HA    | 1:B:573:ALA:CB    | 2.37                     | 0.54              |
| 1:C:1008:LEU:O    | 1:C:1011:ALA:HB3  | 2.08                     | 0.54              |
| 1:C:1044:ILE:HG22 | 1:C:1063:LEU:HA   | 1.89                     | 0.54              |
| 1:D:678:ASP:HB2   | 1:D:686:MET:CG    | 2.38                     | 0.54              |
| 1:A:787:ALA:HB1   | 1:A:822:LEU:HD13  | 1.90                     | 0.54              |
| 1:C:894:TYR:CE2   | 1:C:906:LYS:HD2   | 2.42                     | 0.54              |
| 1:C:945:VAL:HG23  | 1:C:946:GLU:N     | 2.22                     | 0.54              |
| 1:A:571:ARG:NH1   | 1:A:575:GLN:NE2   | 2.50                     | 0.54              |
| 1:A:817:THR:HG21  | 1:A:824:THR:HG23  | 1.90                     | 0.54              |
| 1:A:899:GLN:HE22  | 1:A:903:ASP:HB2   | 1.72                     | 0.54              |
| 1:A:952:ILE:HG13  | 1:A:953:GLY:H     | 1.73                     | 0.54              |
| 1:B:558:ARG:O     | 1:B:558:ARG:NH1   | 2.37                     | 0.54              |
| 1:C:1090:LYS:H    | 1:C:1090:LYS:HD2  | 1.72                     | 0.54              |
| 1:C:502:HIS:CE1   | 1:C:1090:LYS:NZ   | 2.75                     | 0.54              |
| 1:C:919:GLN:HA    | 1:C:922:VAL:HG22  | 1.89                     | 0.54              |
| 1:A:1049:GLU:HA   | 1:A:1058:LEU:O    | 2.08                     | 0.54              |
| 1:A:612:PHE:HB3   | 1:A:649:VAL:HG11  | 1.89                     | 0.54              |
| 1:B:1020:PHE:O    | 1:B:1024:THR:HG23 | 2.08                     | 0.54              |
| 1:B:974:VAL:HG11  | 1:B:978:PRO:HG3   | 1.88                     | 0.54              |
| 1:C:955:PRO:HD2   | 1:C:959:PHE:CE1   | 2.42                     | 0.54              |
| 1:D:595:ALA:HB2   | 1:D:634:ILE:HG23  | 1.89                     | 0.54              |
| 1:B:719:SER:O     | 1:B:722:TYR:HB3   | 2.08                     | 0.54              |
| 1:C:887:PHE:CE2   | 1:C:891:LYS:HE3   | 2.43                     | 0.54              |
| 1:A:1063:LEU:O    | 1:A:1064:ALA:CB   | 2.55                     | 0.54              |
| 1:D:494:GLN:HG2   | 1:D:1056:LYS:NZ   | 2.23                     | 0.54              |
| 1:D:516:ILE:O     | 1:D:516:ILE:HG13  | 2.08                     | 0.54              |
| 1:A:598:PHE:O     | 1:A:601:LEU:HB2   | 2.08                     | 0.54              |
| 1:A:678:ASP:HB2   | 1:A:686:MET:HG3   | 1.90                     | 0.54              |
| 1:B:502:HIS:HE1   | 1:B:1090:LYS:NZ   | 2.05                     | 0.54              |
| 1:B:686:MET:O     | 1:B:690:MET:HG3   | 2.08                     | 0.54              |
| 1:D:901:LEU:HA    | 1:D:960:PRO:HG3   | 1.90                     | 0.54              |
| 1:A:643:LEU:CD1   | 1:A:648:ALA:HA    | 2.38                     | 0.53              |
| 1:B:849:ASP:CB    | 1:B:851:THR:HG22  | 2.36                     | 0.53              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:C:595:ALA:CB    | 1:C:634:ILE:HG23  | 2.37                     | 0.53              |
| 1:C:902:GLY:O     | 1:C:903:ASP:O     | 2.24                     | 0.53              |
| 1:D:749:PRO:O     | 1:D:752:CYS:HB2   | 2.08                     | 0.53              |
| 1:A:621:GLU:HG2   | 1:A:1031:ASP:HB3  | 1.90                     | 0.53              |
| 1:A:942:ARG:O     | 1:A:945:VAL:HG22  | 2.09                     | 0.53              |
| 1:C:1073:GLN:HB3  | 1:C:1089:VAL:O    | 2.08                     | 0.53              |
| 1:A:917:LEU:HB2   | 1:A:944:VAL:HG21  | 1.90                     | 0.53              |
| 1:C:865:GLU:HB2   | 1:C:906:LYS:NZ    | 2.23                     | 0.53              |
| 1:C:717:LYS:NZ    | 1:C:956:HIS:O     | 2.36                     | 0.53              |
| 1:A:1066:SER:O    | 1:A:1068:LEU:N    | 2.35                     | 0.53              |
| 1:A:766:LEU:HD12  | 1:A:767:PRO:HD2   | 1.90                     | 0.53              |
| 1:A:907:VAL:HG12  | 1:A:908:THR:N     | 2.24                     | 0.53              |
| 1:B:1062:ALA:O    | 1:B:1063:LEU:HB2  | 2.08                     | 0.53              |
| 1:B:1092:THR:O    | 1:B:1092:THR:HG22 | 2.08                     | 0.53              |
| 1:C:678:ASP:OD1   | 1:C:682:TYR:HB3   | 2.08                     | 0.53              |
| 1:C:832:PHE:CZ    | 1:D:860:ASP:HA    | 2.43                     | 0.53              |
| 1:D:496:ARG:NH1   | 1:D:1056:LYS:HZ2  | 2.07                     | 0.53              |
| 1:A:771:HIS:HB2   | 1:A:795:ASP:OD2   | 2.09                     | 0.53              |
| 1:B:1027:PHE:HB3  | 1:B:1030:LEU:HD21 | 1.91                     | 0.53              |
| 1:B:1063:LEU:O    | 1:B:1064:ALA:CB   | 2.56                     | 0.53              |
| 1:B:701:GLU:OE2   | 1:B:769:HIS:ND1   | 2.35                     | 0.53              |
| 1:D:569:THR:HA    | 1:D:573:ALA:CB    | 2.38                     | 0.53              |
| 1:B:1015:ASP:HB3  | 1:B:1019:HIS:NE2  | 2.24                     | 0.53              |
| 1:B:807:GLN:NE2   | 1:B:807:GLN:N     | 2.57                     | 0.53              |
| 1:C:1049:GLU:HA   | 1:C:1058:LEU:O    | 2.09                     | 0.53              |
| 1:C:711:ALA:HA    | 1:C:754:MET:HE1   | 1.91                     | 0.53              |
| 1:D:919:GLN:HA    | 1:D:922:VAL:HG22  | 1.90                     | 0.53              |
| 1:B:678:ASP:HB2   | 1:B:686:MET:CG    | 2.39                     | 0.53              |
| 1:B:678:ASP:HB2   | 1:B:686:MET:HG3   | 1.91                     | 0.53              |
| 1:C:732:ARG:HB2   | 1:C:732:ARG:NH1   | 2.24                     | 0.53              |
| 1:D:906:LYS:C     | 1:D:911:SER:HB3   | 2.29                     | 0.53              |
| 1:A:737:ILE:HG23  | 1:A:767:PRO:HB2   | 1.89                     | 0.53              |
| 1:B:565:LEU:O     | 1:B:602:PHE:HB3   | 2.08                     | 0.53              |
| 1:C:915:GLY:O     | 1:C:919:GLN:HG3   | 2.08                     | 0.53              |
| 1:D:817:THR:HG21  | 1:D:824:THR:HG23  | 1.91                     | 0.53              |
| 1:A:612:PHE:HB3   | 1:A:649:VAL:CG1   | 2.40                     | 0.53              |
| 1:C:1005:GLU:CD   | 1:C:1005:GLU:H    | 2.12                     | 0.53              |
| 1:C:1044:ILE:H    | 1:C:1044:ILE:CD1  | 2.11                     | 0.53              |
| 1:A:907:VAL:O     | 1:A:908:THR:C     | 2.47                     | 0.52              |
| 1:B:1088:LEU:HD23 | 1:B:1089:VAL:N    | 2.23                     | 0.52              |
| 1:B:642:LEU:HD11  | 1:B:677:PHE:CD2   | 2.44                     | 0.52              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:A:1044:ILE:N   | 1:A:1044:ILE:HD12 | 2.15                     | 0.52              |
| 1:A:701:GLU:HG3  | 1:A:737:ILE:HB    | 1.92                     | 0.52              |
| 1:C:829:GLU:O    | 1:C:832:PHE:HB2   | 2.08                     | 0.52              |
| 1:C:738:LEU:HD12 | 1:C:739:CYS:H     | 1.74                     | 0.52              |
| 1:D:899:GLN:HA   | 1:D:899:GLN:NE2   | 2.24                     | 0.52              |
| 1:D:655:PRO:HB2  | 1:D:657:ASN:OD1   | 2.09                     | 0.52              |
| 1:D:922:VAL:HG23 | 1:D:923:GLN:H     | 1.75                     | 0.52              |
| 1:C:506:HIS:HD2  | 1:C:1090:LYS:HE2  | 1.73                     | 0.52              |
| 1:C:887:PHE:O    | 1:C:890:VAL:HG22  | 2.09                     | 0.52              |
| 1:A:820:THR:HB   | 1:A:821:PRO:HD2   | 1.92                     | 0.52              |
| 1:B:879:HIS:CE1  | 1:B:884:GLY:HA3   | 2.45                     | 0.52              |
| 1:B:977:ARG:NH1  | 1:B:977:ARG:HB3   | 2.25                     | 0.52              |
| 1:C:641:MET:HB3  | 1:C:671:MET:HE1   | 1.90                     | 0.52              |
| 1:C:766:LEU:HD12 | 1:C:767:PRO:CD    | 2.39                     | 0.52              |
| 1:C:898:ASN:ND2  | 1:C:904:LEU:H     | 2.08                     | 0.52              |
| 1:A:504:LEU:O    | 1:A:508:MET:HG3   | 2.10                     | 0.52              |
| 1:B:736:HIS:O    | 1:B:737:ILE:HD13  | 2.09                     | 0.52              |
| 1:C:601:LEU:CD2  | 1:C:603:SER:O     | 2.56                     | 0.52              |
| 1:C:936:GLU:HB3  | 1:C:966:LYS:HZ1   | 1.75                     | 0.52              |
| 1:D:793:VAL:HG12 | 1:D:794:VAL:N     | 2.24                     | 0.52              |
| 1:C:644:ARG:NH1  | 1:C:644:ARG:CB    | 2.73                     | 0.52              |
| 1:A:1073:GLN:HB3 | 1:A:1089:VAL:O    | 2.10                     | 0.52              |
| 1:C:1045:ALA:N   | 1:C:1063:LEU:HG   | 2.25                     | 0.52              |
| 1:C:683:LEU:O    | 1:C:687:LEU:HG    | 2.10                     | 0.52              |
| 1:D:928:ARG:O    | 1:D:932:GLU:HG3   | 2.09                     | 0.52              |
| 1:A:500:LEU:O    | 1:A:503:TYR:HB3   | 2.09                     | 0.51              |
| 1:C:1066:SER:O   | 1:C:1068:LEU:N    | 2.34                     | 0.51              |
| 1:D:648:ALA:HB3  | 1:D:1012:MET:CE   | 2.39                     | 0.51              |
| 1:B:644:ARG:CB   | 1:B:644:ARG:NH1   | 2.73                     | 0.51              |
| 1:B:704:ILE:HG23 | 1:B:726:LEU:HD23  | 1.91                     | 0.51              |
| 1:D:1066:SER:O   | 1:D:1068:LEU:N    | 2.37                     | 0.51              |
| 1:D:898:ASN:HD21 | 1:D:904:LEU:H     | 1.56                     | 0.51              |
| 1:A:897:ALA:HB2  | 1:A:921:MET:HE2   | 1.91                     | 0.51              |
| 1:B:810:MET:O    | 1:B:814:VAL:HG23  | 2.10                     | 0.51              |
| 1:A:1008:LEU:O   | 1:A:1011:ALA:HB3  | 2.09                     | 0.51              |
| 1:A:900:MET:HE2  | 1:A:928:ARG:CG    | 2.38                     | 0.51              |
| 1:C:643:LEU:O    | 1:C:676:VAL:HA    | 2.10                     | 0.51              |
| 1:D:641:MET:HB3  | 1:D:671:MET:HE1   | 1.92                     | 0.51              |
| 1:A:923:GLN:O    | 1:A:923:GLN:HG2   | 2.10                     | 0.51              |
| 1:B:756:VAL:O    | 1:B:759:LEU:HB2   | 2.11                     | 0.51              |
| 1:C:644:ARG:NH1  | 1:C:644:ARG:HB3   | 2.26                     | 0.51              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:C:1089:VAL:CG1  | 1:C:1090:LYS:H    | 2.22                     | 0.51              |
| 1:D:1060:ILE:HG22 | 1:D:1061:LYS:N    | 2.26                     | 0.51              |
| 1:D:907:VAL:HG12  | 1:D:908:THR:H     | 1.76                     | 0.51              |
| 1:A:1052:LEU:HD22 | 1:A:1056:LYS:HD2  | 1.92                     | 0.51              |
| 1:A:1068:LEU:HD13 | 1:A:1074:ARG:HH22 | 1.72                     | 0.51              |
| 1:C:1065:VAL:HG22 | 1:C:1076:VAL:CB   | 2.41                     | 0.51              |
| 1:C:553:PHE:O     | 1:C:557:VAL:HG23  | 2.10                     | 0.51              |
| 1:D:1017:PHE:CZ   | 1:D:1021:LYS:HD3  | 2.45                     | 0.51              |
| 1:D:502:HIS:HA    | 1:D:1087:ILE:HG21 | 1.91                     | 0.51              |
| 1:A:999:GLY:C     | 1:A:1001:GLU:H    | 2.14                     | 0.51              |
| 1:A:1001:GLU:HA   | 1:A:1001:GLU:OE1  | 2.11                     | 0.51              |
| 1:A:1001:GLU:O    | 1:A:1002:VAL:C    | 2.49                     | 0.51              |
| 1:A:641:MET:HB3   | 1:A:671:MET:CE    | 2.41                     | 0.51              |
| 1:A:887:PHE:HA    | 1:A:890:VAL:HG22  | 1.93                     | 0.51              |
| 1:B:1076:VAL:O    | 1:B:1086:SER:HB2  | 2.11                     | 0.51              |
| 1:B:899:GLN:HE21  | 1:B:899:GLN:HA    | 1.75                     | 0.51              |
| 1:C:654:TYR:CE1   | 1:C:1012:MET:HE2  | 2.46                     | 0.51              |
| 1:C:574:HIS:CD2   | 1:C:580:THR:HA    | 2.46                     | 0.51              |
| 1:D:720:LEU:HD22  | 1:D:754:MET:SD    | 2.50                     | 0.51              |
| 1:D:867:PRO:HG2   | 1:D:870:GLN:HB3   | 1.93                     | 0.51              |
| 1:A:1062:ALA:O    | 1:A:1063:LEU:HB2  | 2.11                     | 0.51              |
| 1:C:1054:ARG:HD3  | 1:C:1054:ARG:O    | 2.10                     | 0.51              |
| 1:D:787:ALA:HB1   | 1:D:822:LEU:HD13  | 1.92                     | 0.51              |
| 1:C:561:PRO:HG2   | 1:C:562:GLY:H     | 1.76                     | 0.51              |
| 1:D:1073:GLN:O    | 1:D:1074:ARG:HB2  | 2.09                     | 0.51              |
| 1:A:1080:LEU:HD23 | 1:A:1085:ARG:CZ   | 2.41                     | 0.50              |
| 1:B:1069:ASN:O    | 1:B:1071:ALA:N    | 2.44                     | 0.50              |
| 1:B:653:ASN:HB3   | 1:B:982:LEU:HD11  | 1.92                     | 0.50              |
| 1:C:665:VAL:HG12  | 1:C:669:ASN:ND2   | 2.26                     | 0.50              |
| 1:A:1068:LEU:HA   | 1:A:1074:ARG:NE   | 2.26                     | 0.50              |
| 1:B:506:HIS:CD2   | 1:B:1090:LYS:HE2  | 2.45                     | 0.50              |
| 1:A:749:PRO:HD3   | 1:B:816:CYS:SG    | 2.51                     | 0.50              |
| 1:C:928:ARG:O     | 1:C:932:GLU:HG3   | 2.11                     | 0.50              |
| 1:D:496:ARG:HH11  | 1:D:1056:LYS:HZ2  | 1.59                     | 0.50              |
| 1:D:547:ARG:NH1   | 1:D:548:GLU:OE1   | 2.43                     | 0.50              |
| 1:D:651:TYR:CD1   | 1:D:652:THR:HG23  | 2.46                     | 0.50              |
| 1:D:686:MET:O     | 1:D:690:MET:HG3   | 2.11                     | 0.50              |
| 1:D:881:MET:O     | 1:D:883:LEU:HG    | 2.11                     | 0.50              |
| 1:D:900:MET:CE    | 1:D:928:ARG:HG3   | 2.41                     | 0.50              |
| 1:A:1092:THR:O    | 1:A:1093:GLN:C    | 2.50                     | 0.50              |
| 1:A:648:ALA:HB3   | 1:A:1012:MET:CE   | 2.42                     | 0.50              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:961:GLU:O     | 1:A:962:PRO:C     | 2.47                     | 0.50              |
| 1:B:665:VAL:CG2   | 1:B:1008:LEU:HD11 | 2.30                     | 0.50              |
| 1:C:678:ASP:HB2   | 1:C:686:MET:CG    | 2.41                     | 0.50              |
| 1:C:887:PHE:CD2   | 1:C:891:LYS:HE3   | 2.46                     | 0.50              |
| 1:C:949:GLN:HG3   | 1:C:968:LEU:CD2   | 2.41                     | 0.50              |
| 1:A:1073:GLN:O    | 1:A:1074:ARG:HB2  | 2.10                     | 0.50              |
| 1:B:502:HIS:CE1   | 1:B:1090:LYS:NZ   | 2.79                     | 0.50              |
| 1:C:1015:ASP:HB3  | 1:C:1019:HIS:NE2  | 2.27                     | 0.50              |
| 1:C:527:PRO:HB2   | 1:C:837:TYR:CE1   | 2.47                     | 0.50              |
| 1:A:655:PRO:HB2   | 1:A:984:PRO:HA    | 1.92                     | 0.50              |
| 1:B:833:ASP:O     | 1:B:836:GLU:HB3   | 2.11                     | 0.50              |
| 1:B:898:ASN:HD21  | 1:B:904:LEU:N     | 2.06                     | 0.50              |
| 1:B:965:SER:C     | 1:B:967:VAL:N     | 2.65                     | 0.50              |
| 1:D:1078:PHE:C    | 1:D:1079:GLU:OE1  | 2.50                     | 0.50              |
| 1:D:506:HIS:HD2   | 1:D:1090:LYS:HE2  | 1.77                     | 0.50              |
| 1:A:1067:ASP:O    | 1:A:1069:ASN:N    | 2.45                     | 0.50              |
| 1:B:683:LEU:O     | 1:B:687:LEU:HG    | 2.11                     | 0.50              |
| 1:C:879:HIS:CE1   | 1:C:884:GLY:HA3   | 2.46                     | 0.50              |
| 1:D:779:GLY:O     | 1:D:783:MET:HG2   | 2.11                     | 0.50              |
| 1:D:894:TYR:CE2   | 1:D:906:LYS:HD2   | 2.46                     | 0.50              |
| 1:B:807:GLN:HE21  | 1:B:807:GLN:H     | 1.59                     | 0.50              |
| 1:C:505:GLY:O     | 1:C:508:MET:HB2   | 2.11                     | 0.50              |
| 1:C:552:GLY:HA2   | 1:C:555:ARG:HD2   | 1.93                     | 0.50              |
| 1:C:590:ILE:O     | 1:C:594:VAL:HG23  | 2.11                     | 0.50              |
| 1:C:749:PRO:O     | 1:C:752:CYS:HB2   | 2.12                     | 0.50              |
| 1:C:995:VAL:HA    | 1:C:999:GLY:O     | 2.12                     | 0.50              |
| 1:D:995:VAL:HG13  | 1:D:1000:GLU:HA   | 1.93                     | 0.50              |
| 1:D:641:MET:HB3   | 1:D:671:MET:HE3   | 1.93                     | 0.50              |
| 1:D:936:GLU:HB3   | 1:D:966:LYS:HZ2   | 1.77                     | 0.50              |
| 1:D:977:ARG:HB3   | 1:D:977:ARG:HH11  | 1.77                     | 0.50              |
| 1:B:1090:LYS:HD2  | 1:B:1090:LYS:H    | 1.76                     | 0.50              |
| 1:B:738:LEU:HD12  | 1:B:739:CYS:N     | 2.27                     | 0.50              |
| 1:B:922:VAL:HG23  | 1:B:923:GLN:H     | 1.77                     | 0.50              |
| 1:C:665:VAL:CG2   | 1:C:1008:LEU:HD11 | 2.36                     | 0.50              |
| 1:C:1089:VAL:CG1  | 1:C:1090:LYS:N    | 2.74                     | 0.50              |
| 1:C:495:ASN:OD1   | 1:C:499:LYS:HE3   | 2.12                     | 0.50              |
| 1:A:1060:ILE:HG22 | 1:A:1061:LYS:N    | 2.28                     | 0.49              |
| 1:A:1063:LEU:O    | 1:A:1064:ALA:HB3  | 2.11                     | 0.49              |
| 1:A:655:PRO:HG3   | 1:A:985:LEU:HB2   | 1.93                     | 0.49              |
| 1:D:865:GLU:HB2   | 1:D:906:LYS:NZ    | 2.27                     | 0.49              |
| 1:B:598:PHE:O     | 1:B:601:LEU:HB2   | 2.11                     | 0.49              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:B:664:GLU:O    | 1:B:668:GLU:HG3   | 2.11                     | 0.49              |
| 1:B:802:SER:HB2  | 1:B:807:GLN:O     | 2.12                     | 0.49              |
| 1:C:828:MET:O    | 1:C:831:VAL:HG22  | 2.11                     | 0.49              |
| 1:D:1044:ILE:HA  | 1:D:1062:ALA:HB3  | 1.94                     | 0.49              |
| 1:D:874:LEU:N    | 1:D:874:LEU:CD1   | 2.75                     | 0.49              |
| 1:A:922:VAL:HG23 | 1:A:923:GLN:H     | 1.78                     | 0.49              |
| 1:B:650:GLY:HA3  | 1:B:654:TYR:CE1   | 2.48                     | 0.49              |
| 1:B:965:SER:C    | 1:B:967:VAL:H     | 2.15                     | 0.49              |
| 1:C:762:ARG:HG3  | 1:C:763:PHE:CE1   | 2.47                     | 0.49              |
| 1:C:934:GLN:O    | 1:C:938:LEU:HG    | 2.12                     | 0.49              |
| 1:C:949:GLN:HG3  | 1:C:968:LEU:HD22  | 1.94                     | 0.49              |
| 1:C:996:ASP:OD1  | 1:C:997:ARG:N     | 2.45                     | 0.49              |
| 1:D:893:ALA:CB   | 1:D:922:VAL:HG13  | 2.42                     | 0.49              |
| 1:A:590:ILE:O    | 1:A:594:VAL:HG23  | 2.12                     | 0.49              |
| 1:A:919:GLN:HA   | 1:A:922:VAL:HG22  | 1.93                     | 0.49              |
| 1:B:1010:ALA:HB2 | 1:B:1017:PHE:CD2  | 2.47                     | 0.49              |
| 1:B:860:ASP:OD2  | 1:B:860:ASP:C     | 2.50                     | 0.49              |
| 1:C:516:ILE:O    | 1:C:516:ILE:HG13  | 2.12                     | 0.49              |
| 1:D:1066:SER:O   | 1:D:1068:LEU:HD23 | 2.12                     | 0.49              |
| 1:D:538:PRO:O    | 1:D:539:ALA:HB3   | 2.11                     | 0.49              |
| 1:D:661:LYS:O    | 1:D:665:VAL:HG23  | 2.12                     | 0.49              |
| 1:A:650:GLY:HA3  | 1:A:654:TYR:CE1   | 2.47                     | 0.49              |
| 1:C:656:ASP:CG   | 1:C:977:ARG:HH21  | 2.15                     | 0.49              |
| 1:D:887:PHE:HA   | 1:D:890:VAL:HG22  | 1.95                     | 0.49              |
| 1:C:779:GLY:O    | 1:C:783:MET:HG2   | 2.13                     | 0.49              |
| 1:C:867:PRO:HD2  | 1:C:870:GLN:OE1   | 2.12                     | 0.49              |
| 1:C:887:PHE:HA   | 1:C:890:VAL:HG22  | 1.95                     | 0.49              |
| 1:C:893:ALA:HB2  | 1:C:922:VAL:CG1   | 2.41                     | 0.49              |
| 1:D:496:ARG:NH1  | 1:D:1056:LYS:HZ1  | 2.11                     | 0.49              |
| 1:A:617:ARG:HH21 | 1:A:1016:VAL:HG21 | 1.77                     | 0.49              |
| 1:A:643:LEU:O    | 1:A:676:VAL:HA    | 2.12                     | 0.49              |
| 1:C:591:ALA:HB3  | 1:C:633:LEU:HD13  | 1.94                     | 0.49              |
| 1:D:1002:VAL:O   | 1:D:1002:VAL:HG23 | 2.12                     | 0.49              |
| 1:D:807:GLN:H    | 1:D:807:GLN:NE2   | 2.11                     | 0.49              |
| 1:D:945:VAL:HG23 | 1:D:946:GLU:N     | 2.28                     | 0.49              |
| 1:D:997:ARG:HD2  | 1:D:998:HIS:CD2   | 2.47                     | 0.49              |
| 1:A:1057:THR:HB  | 1:A:1059:HIS:CE1  | 2.48                     | 0.49              |
| 1:B:539:ALA:HB1  | 1:B:543:ASP:OD2   | 2.12                     | 0.49              |
| 1:C:995:VAL:CG2  | 1:C:1002:VAL:HG21 | 2.38                     | 0.49              |
| 1:C:650:GLY:HA3  | 1:C:654:TYR:CE1   | 2.48                     | 0.49              |
| 1:C:942:ARG:O    | 1:C:945:VAL:CG2   | 2.55                     | 0.49              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:D:996:ASP:OD1   | 1:D:997:ARG:N     | 2.46                     | 0.49              |
| 1:A:1044:ILE:O    | 1:A:1045:ALA:CB   | 2.61                     | 0.49              |
| 1:A:824:THR:O     | 1:A:825:GLU:HB2   | 2.12                     | 0.49              |
| 1:A:860:ASP:C     | 1:A:860:ASP:OD2   | 2.51                     | 0.49              |
| 1:B:498:GLN:HE21  | 1:B:498:GLN:C     | 2.16                     | 0.49              |
| 1:B:766:LEU:HD12  | 1:B:767:PRO:CD    | 2.43                     | 0.49              |
| 1:C:1079:GLU:HA   | 1:C:1084:LEU:HB3  | 1.94                     | 0.49              |
| 1:D:736:HIS:O     | 1:D:737:ILE:HD13  | 2.13                     | 0.49              |
| 1:D:701:GLU:HG3   | 1:D:737:ILE:HB    | 1.94                     | 0.49              |
| 1:D:828:MET:O     | 1:D:831:VAL:HG22  | 2.12                     | 0.49              |
| 1:A:1058:LEU:HD22 | 1:A:1080:LEU:HD11 | 1.95                     | 0.49              |
| 1:A:1044:ILE:HG22 | 1:A:1063:LEU:HA   | 1.95                     | 0.49              |
| 1:A:1076:VAL:HG23 | 1:A:1078:PHE:CE1  | 2.48                     | 0.49              |
| 1:A:887:PHE:CE2   | 1:A:891:LYS:HE3   | 2.48                     | 0.49              |
| 1:A:904:LEU:HD12  | 1:A:904:LEU:N     | 2.27                     | 0.49              |
| 1:B:1063:LEU:O    | 1:B:1064:ALA:HB3  | 2.13                     | 0.49              |
| 1:B:780:VAL:HG13  | 1:B:813:LEU:HD22  | 1.94                     | 0.49              |
| 1:B:903:ASP:C     | 1:B:904:LEU:HD12  | 2.32                     | 0.49              |
| 1:C:961:GLU:HA    | 1:C:964:ARG:HB3   | 1.95                     | 0.49              |
| 1:D:1044:ILE:O    | 1:D:1045:ALA:CB   | 2.61                     | 0.49              |
| 1:A:673:VAL:HA    | 1:A:699:VAL:HB    | 1.94                     | 0.48              |
| 1:A:701:GLU:HA    | 1:A:737:ILE:O     | 2.12                     | 0.48              |
| 1:B:873:ASN:O     | 1:B:877:GLN:HG2   | 2.13                     | 0.48              |
| 1:D:879:HIS:CE1   | 1:D:884:GLY:HA3   | 2.48                     | 0.48              |
| 1:D:886:LYS:HD3   | 1:D:889:GLU:OE1   | 2.12                     | 0.48              |
| 1:A:552:GLY:HA2   | 1:A:555:ARG:HD2   | 1.96                     | 0.48              |
| 1:B:498:GLN:NE2   | 1:B:498:GLN:C     | 2.66                     | 0.48              |
| 1:B:865:GLU:HB2   | 1:B:906:LYS:HZ2   | 1.78                     | 0.48              |
| 1:D:1063:LEU:O    | 1:D:1064:ALA:HB3  | 2.12                     | 0.48              |
| 1:D:771:HIS:HE1   | 1:D:807:GLN:OE1   | 1.97                     | 0.48              |
| 1:D:952:ILE:HG13  | 1:D:953:GLY:H     | 1.77                     | 0.48              |
| 1:C:1065:VAL:HG22 | 1:C:1076:VAL:HG12 | 1.95                     | 0.48              |
| 1:C:965:SER:C     | 1:C:967:VAL:N     | 2.67                     | 0.48              |
| 1:D:756:VAL:O     | 1:D:759:LEU:HB2   | 2.13                     | 0.48              |
| 1:D:517:PRO:HG2   | 1:D:847:ALA:O     | 2.12                     | 0.48              |
| 1:A:494:GLN:HG2   | 1:A:1056:LYS:HZ3  | 1.79                     | 0.48              |
| 1:B:1001:GLU:OE1  | 1:B:1001:GLU:HA   | 2.13                     | 0.48              |
| 1:B:1089:VAL:CG1  | 1:B:1090:LYS:H    | 2.26                     | 0.48              |
| 1:B:896:GLU:O     | 1:B:900:MET:HB2   | 2.13                     | 0.48              |
| 1:C:1088:LEU:HD23 | 1:C:1089:VAL:N    | 2.29                     | 0.48              |
| 1:C:644:ARG:O     | 1:C:645:GLY:C     | 2.52                     | 0.48              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:D:1074:ARG:O    | 1:D:1088:LEU:HD23 | 2.14                     | 0.48              |
| 1:D:942:ARG:O     | 1:D:945:VAL:CG2   | 2.60                     | 0.48              |
| 1:A:899:GLN:CA    | 1:A:899:GLN:HE21  | 2.24                     | 0.48              |
| 1:B:829:GLU:O     | 1:B:832:PHE:HB2   | 2.13                     | 0.48              |
| 1:C:1065:VAL:HG22 | 1:C:1076:VAL:CG1  | 2.44                     | 0.48              |
| 1:C:566:MET:CE    | 1:C:605:GLU:HB2   | 2.42                     | 0.48              |
| 1:C:900:MET:CE    | 1:C:928:ARG:HG3   | 2.41                     | 0.48              |
| 1:D:711:ALA:HA    | 1:D:754:MET:CE    | 2.44                     | 0.48              |
| 1:A:711:ALA:HA    | 1:A:754:MET:CE    | 2.43                     | 0.48              |
| 1:A:793:VAL:HG12  | 1:A:794:VAL:N     | 2.28                     | 0.48              |
| 1:A:870:GLN:O     | 1:A:874:LEU:HD13  | 2.14                     | 0.48              |
| 1:A:677:PHE:CE1   | 1:A:907:VAL:HG11  | 2.48                     | 0.48              |
| 1:A:743:MET:SD    | 1:A:907:VAL:HG22  | 2.54                     | 0.48              |
| 1:C:1092:THR:HG22 | 1:C:1092:THR:O    | 2.13                     | 0.48              |
| 1:C:883:LEU:HD22  | 1:C:886:LYS:HG3   | 1.95                     | 0.48              |
| 1:A:959:PHE:HB2   | 1:A:964:ARG:HD2   | 1.96                     | 0.48              |
| 1:C:502:HIS:HE1   | 1:C:1090:LYS:HZ3  | 1.61                     | 0.48              |
| 1:C:860:ASP:C     | 1:C:860:ASP:OD2   | 2.52                     | 0.48              |
| 1:B:1049:GLU:HA   | 1:B:1058:LEU:O    | 2.13                     | 0.48              |
| 1:C:700:VAL:H     | 1:C:736:HIS:CD2   | 2.19                     | 0.48              |
| 1:C:901:LEU:HA    | 1:C:960:PRO:HG3   | 1.94                     | 0.48              |
| 1:D:1068:LEU:HA   | 1:D:1074:ARG:NE   | 2.29                     | 0.48              |
| 1:D:1080:LEU:HD23 | 1:D:1085:ARG:CZ   | 2.44                     | 0.48              |
| 1:D:756:VAL:CG1   | 1:D:789:ALA:HB3   | 2.43                     | 0.48              |
| 1:D:581:ARG:HG3   | 1:D:848:PHE:CD2   | 2.49                     | 0.48              |
| 1:D:887:PHE:O     | 1:D:890:VAL:HG22  | 2.13                     | 0.48              |
| 1:A:865:GLU:HB2   | 1:A:906:LYS:NZ    | 2.29                     | 0.48              |
| 1:B:665:VAL:HG12  | 1:B:669:ASN:HD22  | 1.79                     | 0.48              |
| 1:B:893:ALA:HB2   | 1:B:922:VAL:CG1   | 2.43                     | 0.48              |
| 1:C:517:PRO:HG2   | 1:C:847:ALA:O     | 2.13                     | 0.48              |
| 1:B:1079:GLU:HA   | 1:B:1084:LEU:HB3  | 1.95                     | 0.47              |
| 1:B:643:LEU:CD1   | 1:B:648:ALA:HA    | 2.43                     | 0.47              |
| 1:B:961:GLU:OE1   | 1:B:964:ARG:HD3   | 2.13                     | 0.47              |
| 1:C:1001:GLU:OE1  | 1:C:1001:GLU:HA   | 2.14                     | 0.47              |
| 1:C:936:GLU:HB3   | 1:C:966:LYS:HZ2   | 1.77                     | 0.47              |
| 1:D:679:SER:HB2   | 1:D:910:SER:OG    | 2.14                     | 0.47              |
| 1:B:538:PRO:O     | 1:B:539:ALA:HB3   | 2.14                     | 0.47              |
| 1:B:530:PRO:HB2   | 1:B:593:TYR:CD1   | 2.49                     | 0.47              |
| 1:B:709:ASP:OD1   | 1:B:751:ALA:HB2   | 2.14                     | 0.47              |
| 1:B:820:THR:HB    | 1:B:821:PRO:HD2   | 1.96                     | 0.47              |
| 1:C:771:HIS:HB2   | 1:C:795:ASP:OD2   | 2.13                     | 0.47              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:D:1058:LEU:HB3  | 1:D:1060:ILE:HD11 | 1.96                     | 0.47              |
| 1:D:870:GLN:HA    | 1:D:873:ASN:HD22  | 1.79                     | 0.47              |
| 1:B:922:VAL:CG2   | 1:B:923:GLN:N     | 2.76                     | 0.47              |
| 1:A:738:LEU:HD12  | 1:A:739:CYS:H     | 1.78                     | 0.47              |
| 1:B:712:ASP:OD1   | 1:B:714:SER:HB2   | 2.15                     | 0.47              |
| 1:C:494:GLN:HG2   | 1:C:1056:LYS:HZ3  | 1.79                     | 0.47              |
| 1:A:1079:GLU:N    | 1:A:1079:GLU:OE1  | 2.47                     | 0.47              |
| 1:C:864:ASN:HA    | 1:C:895:VAL:HG22  | 1.96                     | 0.47              |
| 1:D:947:PHE:O     | 1:D:959:PHE:HE2   | 1.98                     | 0.47              |
| 1:A:571:ARG:HG3   | 1:A:607:TRP:O     | 2.15                     | 0.47              |
| 1:C:876:PHE:O     | 1:C:880:SER:HB3   | 2.14                     | 0.47              |
| 1:D:1054:ARG:O    | 1:D:1054:ARG:HD3  | 2.15                     | 0.47              |
| 1:A:779:GLY:O     | 1:A:783:MET:HG2   | 2.15                     | 0.47              |
| 1:A:679:SER:HB2   | 1:A:910:SER:OG    | 2.14                     | 0.47              |
| 1:A:988:GLN:CD    | 1:A:988:GLN:H     | 2.17                     | 0.47              |
| 1:B:680:LEU:HD11  | 1:B:952:ILE:HD12  | 1.96                     | 0.47              |
| 1:B:904:LEU:CD1   | 1:B:904:LEU:N     | 2.77                     | 0.47              |
| 1:C:965:SER:HA    | 1:C:973:ARG:NH2   | 2.29                     | 0.47              |
| 1:D:503:TYR:O     | 1:D:507:VAL:HG23  | 2.14                     | 0.47              |
| 1:D:890:VAL:HG23  | 1:D:891:LYS:N     | 2.30                     | 0.47              |
| 1:A:502:HIS:HA    | 1:A:1087:ILE:HG21 | 1.96                     | 0.47              |
| 1:A:565:LEU:O     | 1:A:602:PHE:HB3   | 2.14                     | 0.47              |
| 1:C:682:TYR:CE1   | 1:C:684:PRO:HB2   | 2.50                     | 0.47              |
| 1:D:923:GLN:HE21  | 1:D:924:ASN:ND2   | 2.13                     | 0.47              |
| 1:A:624:TRP:CG    | 1:A:1005:GLU:HB3  | 2.49                     | 0.47              |
| 1:B:1074:ARG:O    | 1:B:1088:LEU:HD23 | 2.14                     | 0.47              |
| 1:B:641:MET:HB3   | 1:B:671:MET:HE3   | 1.96                     | 0.47              |
| 1:B:679:SER:OG    | 1:B:680:LEU:HD12  | 2.13                     | 0.47              |
| 1:C:1013:TYR:HB3  | 1:C:1016:VAL:HB   | 1.96                     | 0.47              |
| 1:C:1063:LEU:O    | 1:C:1064:ALA:HB3  | 2.14                     | 0.47              |
| 1:C:641:MET:HG3   | 1:C:641:MET:O     | 2.15                     | 0.47              |
| 1:D:560:HIS:CD2   | 1:D:564:LEU:HD21  | 2.50                     | 0.47              |
| 1:A:686:MET:O     | 1:A:690:MET:HG3   | 2.15                     | 0.47              |
| 1:B:711:ALA:HA    | 1:B:754:MET:HE1   | 1.97                     | 0.47              |
| 1:C:1043:LYS:O    | 1:C:1046:GLU:HB2  | 2.15                     | 0.47              |
| 1:C:1044:ILE:O    | 1:C:1045:ALA:CB   | 2.63                     | 0.47              |
| 1:C:580:THR:O     | 1:C:614:VAL:HG11  | 2.14                     | 0.47              |
| 1:D:1089:VAL:HG12 | 1:D:1090:LYS:H    | 1.79                     | 0.47              |
| 1:B:739:CYS:HA    | 1:B:769:HIS:O     | 2.15                     | 0.47              |
| 1:D:1003:THR:HB   | 1:D:1004:PRO:HD2  | 1.96                     | 0.47              |
| 1:D:648:ALA:HB3   | 1:D:1012:MET:HE1  | 1.96                     | 0.47              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:494:GLN:CG    | 1:A:1056:LYS:NZ   | 2.76                     | 0.46              |
| 1:A:738:LEU:HD12  | 1:A:739:CYS:N     | 2.31                     | 0.46              |
| 1:A:755:LEU:HD22  | 1:A:759:LEU:CD1   | 2.45                     | 0.46              |
| 1:B:517:PRO:HG2   | 1:B:847:ALA:O     | 2.16                     | 0.46              |
| 1:B:988:GLN:H     | 1:B:988:GLN:CD    | 2.16                     | 0.46              |
| 1:C:904:LEU:HD12  | 1:C:904:LEU:N     | 2.30                     | 0.46              |
| 1:D:1079:GLU:N    | 1:D:1079:GLU:OE1  | 2.47                     | 0.46              |
| 1:D:824:THR:O     | 1:D:825:GLU:HB2   | 2.14                     | 0.46              |
| 1:A:1078:PHE:C    | 1:A:1079:GLU:OE1  | 2.53                     | 0.46              |
| 1:A:502:HIS:CE1   | 1:A:1090:LYS:HZ1  | 2.32                     | 0.46              |
| 1:A:583:ARG:NH1   | 1:A:1033:LEU:O    | 2.48                     | 0.46              |
| 1:A:704:ILE:HB    | 1:A:740:ILE:HD13  | 1.97                     | 0.46              |
| 1:B:997:ARG:HD2   | 1:B:998:HIS:CD2   | 2.50                     | 0.46              |
| 1:C:547:ARG:C     | 1:C:548:GLU:HG3   | 2.35                     | 0.46              |
| 1:D:644:ARG:HD2   | 1:D:647:ASN:OD1   | 2.15                     | 0.46              |
| 1:D:656:ASP:OD2   | 1:D:977:ARG:NH2   | 2.49                     | 0.46              |
| 1:A:785:ALA:O     | 1:A:788:GLN:HB2   | 2.15                     | 0.46              |
| 1:A:922:VAL:CG2   | 1:A:923:GLN:N     | 2.78                     | 0.46              |
| 1:A:965:SER:C     | 1:A:967:VAL:H     | 2.19                     | 0.46              |
| 1:C:664:GLU:O     | 1:C:668:GLU:HG3   | 2.14                     | 0.46              |
| 1:A:1066:SER:C    | 1:A:1068:LEU:N    | 2.67                     | 0.46              |
| 1:A:900:MET:HE1   | 1:A:921:MET:SD    | 2.56                     | 0.46              |
| 1:A:977:ARG:HH11  | 1:A:977:ARG:HB3   | 1.78                     | 0.46              |
| 1:C:997:ARG:HG2   | 1:C:998:HIS:N     | 2.31                     | 0.46              |
| 1:D:1044:ILE:N    | 1:D:1044:ILE:CD1  | 2.71                     | 0.46              |
| 1:D:1076:VAL:HG23 | 1:D:1078:PHE:CE1  | 2.50                     | 0.46              |
| 1:D:961:GLU:OE1   | 1:D:964:ARG:HD3   | 2.15                     | 0.46              |
| 1:A:779:GLY:O     | 1:A:782:ALA:HB3   | 2.15                     | 0.46              |
| 1:B:1029:PRO:C    | 1:B:1031:ASP:H    | 2.18                     | 0.46              |
| 1:B:507:VAL:O     | 1:B:511:GLY:N     | 2.48                     | 0.46              |
| 1:B:743:MET:HE2   | 1:B:744:ALA:N     | 2.30                     | 0.46              |
| 1:B:891:LYS:O     | 1:B:895:VAL:HG23  | 2.16                     | 0.46              |
| 1:B:995:VAL:HG13  | 1:B:1000:GLU:HA   | 1.98                     | 0.46              |
| 1:A:644:ARG:NH1   | 1:A:644:ARG:CB    | 2.78                     | 0.46              |
| 1:A:701:GLU:OE2   | 1:A:769:HIS:ND1   | 2.36                     | 0.46              |
| 1:A:704:ILE:HD11  | 1:A:730:LEU:HD12  | 1.97                     | 0.46              |
| 1:C:1020:PHE:O    | 1:C:1024:THR:HG23 | 2.15                     | 0.46              |
| 1:C:965:SER:C     | 1:C:967:VAL:H     | 2.19                     | 0.46              |
| 1:C:656:ASP:OD2   | 1:C:977:ARG:NH2   | 2.48                     | 0.46              |
| 1:D:1049:GLU:HA   | 1:D:1058:LEU:O    | 2.16                     | 0.46              |
| 1:D:640:GLN:HG3   | 1:D:673:VAL:HG12  | 1.96                     | 0.46              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:D:887:PHE:HD1  | 1:D:890:VAL:CG2   | 2.29                     | 0.46              |
| 1:D:656:ASP:CG   | 1:D:977:ARG:HH21  | 2.19                     | 0.46              |
| 1:A:1089:VAL:CG1 | 1:A:1090:LYS:N    | 2.77                     | 0.46              |
| 1:A:862:TYR:CE1  | 1:B:815:ALA:HB1   | 2.51                     | 0.46              |
| 1:B:631:ARG:NH2  | 1:B:639:PHE:CE1   | 2.84                     | 0.46              |
| 1:B:899:GLN:CA   | 1:B:899:GLN:HE21  | 2.27                     | 0.46              |
| 1:C:536:PRO:HA   | 1:C:537:PRO:HD3   | 1.75                     | 0.46              |
| 1:C:894:TYR:HA   | 1:C:918:ALA:HB2   | 1.97                     | 0.46              |
| 1:C:898:ASN:HD21 | 1:C:904:LEU:H     | 1.62                     | 0.46              |
| 1:D:644:ARG:CZ   | 1:D:644:ARG:HB2   | 2.46                     | 0.46              |
| 1:D:739:CYS:SG   | 1:D:740:ILE:N     | 2.88                     | 0.46              |
| 1:A:625:ARG:HH21 | 1:A:629:GLU:CD    | 2.19                     | 0.46              |
| 1:C:965:SER:HA   | 1:C:973:ARG:HH22  | 1.81                     | 0.46              |
| 1:D:502:HIS:HE1  | 1:D:1090:LYS:NZ   | 2.14                     | 0.46              |
| 1:D:650:GLY:HA3  | 1:D:654:TYR:CE1   | 2.51                     | 0.46              |
| 1:B:1017:PHE:CZ  | 1:B:1021:LYS:HD3  | 2.50                     | 0.46              |
| 1:B:1044:ILE:O   | 1:B:1045:ALA:CB   | 2.64                     | 0.46              |
| 1:C:499:LYS:NZ   | 1:C:1025:ALA:O    | 2.32                     | 0.46              |
| 1:C:667:LYS:HG2  | 1:C:696:ALA:O     | 2.16                     | 0.46              |
| 1:C:780:VAL:HG22 | 1:C:808:PRO:HB2   | 1.98                     | 0.46              |
| 1:C:807:GLN:HB3  | 1:C:808:PRO:HD2   | 1.98                     | 0.46              |
| 1:D:1065:VAL:CG1 | 1:D:1076:VAL:HG12 | 2.44                     | 0.46              |
| 1:A:538:PRO:O    | 1:A:539:ALA:HB3   | 2.16                     | 0.45              |
| 1:B:894:TYR:HA   | 1:B:918:ALA:HB2   | 1.97                     | 0.45              |
| 1:C:539:ALA:HA   | 1:C:636:ASN:CB    | 2.44                     | 0.45              |
| 1:C:651:TYR:CD1  | 1:C:652:THR:HG23  | 2.51                     | 0.45              |
| 1:B:502:HIS:HD2  | 1:B:1087:ILE:HD11 | 1.81                     | 0.45              |
| 1:B:961:GLU:N    | 1:B:962:PRO:HD2   | 2.31                     | 0.45              |
| 1:D:707:THR:OG1  | 1:D:905:ILE:HG12  | 2.15                     | 0.45              |
| 1:B:644:ARG:O    | 1:B:645:GLY:C     | 2.53                     | 0.45              |
| 1:C:502:HIS:CE1  | 1:C:1090:LYS:HZ3  | 2.35                     | 0.45              |
| 1:C:814:VAL:O    | 1:C:817:THR:HG22  | 2.15                     | 0.45              |
| 1:D:965:SER:C    | 1:D:967:VAL:N     | 2.69                     | 0.45              |
| 1:A:498:GLN:NE2  | 1:A:498:GLN:C     | 2.70                     | 0.45              |
| 1:A:571:ARG:NH2  | 1:A:642:LEU:HD22  | 2.32                     | 0.45              |
| 1:A:707:THR:OG1  | 1:A:905:ILE:HG12  | 2.15                     | 0.45              |
| 1:B:864:ASN:HA   | 1:B:895:VAL:HG22  | 1.99                     | 0.45              |
| 1:C:1066:SER:C   | 1:C:1068:LEU:N    | 2.68                     | 0.45              |
| 1:C:899:GLN:CA   | 1:C:899:GLN:HE21  | 2.30                     | 0.45              |
| 1:C:899:GLN:HA   | 1:C:899:GLN:HE21  | 1.79                     | 0.45              |
| 1:D:977:ARG:HH11 | 1:D:977:ARG:CB    | 2.30                     | 0.45              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:814:VAL:O    | 1:B:817:THR:HG22 | 2.16                     | 0.45              |
| 1:B:717:LYS:NZ   | 1:B:956:HIS:O    | 2.36                     | 0.45              |
| 1:C:583:ARG:NH2  | 1:C:1033:LEU:O   | 2.49                     | 0.45              |
| 1:D:500:LEU:O    | 1:D:503:TYR:HB3  | 2.16                     | 0.45              |
| 1:D:937:GLU:O    | 1:D:938:LEU:HG   | 2.17                     | 0.45              |
| 1:A:1054:ARG:C   | 1:A:1054:ARG:HD3 | 2.36                     | 0.45              |
| 1:A:644:ARG:NH1  | 1:A:644:ARG:HB3  | 2.31                     | 0.45              |
| 1:B:1001:GLU:O   | 1:B:1002:VAL:C   | 2.53                     | 0.45              |
| 1:B:1008:LEU:O   | 1:B:1011:ALA:HB3 | 2.17                     | 0.45              |
| 1:B:1045:ALA:HB2 | 1:B:1063:LEU:HG  | 1.99                     | 0.45              |
| 1:B:641:MET:HB3  | 1:B:671:MET:HE1  | 1.97                     | 0.45              |
| 1:B:865:GLU:HB2  | 1:B:906:LYS:HZ1  | 1.79                     | 0.45              |
| 1:B:936:GLU:OE2  | 1:B:937:GLU:N    | 2.50                     | 0.45              |
| 1:C:617:ARG:HH21 | 1:C:1016:VAL:CG2 | 2.28                     | 0.45              |
| 1:D:654:TYR:CB   | 1:D:658:VAL:HG21 | 2.46                     | 0.45              |
| 1:D:704:ILE:HD11 | 1:D:730:LEU:HD12 | 1.98                     | 0.45              |
| 1:D:965:SER:HA   | 1:D:973:ARG:HH22 | 1.82                     | 0.45              |
| 1:A:648:ALA:HB3  | 1:A:1012:MET:HE1 | 1.97                     | 0.45              |
| 1:A:762:ARG:HG3  | 1:A:763:PHE:CE1  | 2.52                     | 0.45              |
| 1:A:901:LEU:O    | 1:A:904:LEU:HD11 | 2.16                     | 0.45              |
| 1:A:950:GLY:O    | 1:A:952:ILE:N    | 2.50                     | 0.45              |
| 1:B:516:ILE:O    | 1:B:516:ILE:HG13 | 2.16                     | 0.45              |
| 1:B:711:ALA:HA   | 1:B:754:MET:HE3  | 1.99                     | 0.45              |
| 1:B:855:LYS:O    | 1:B:856:SER:HB3  | 2.15                     | 0.45              |
| 1:C:1001:GLU:O   | 1:C:1002:VAL:C   | 2.54                     | 0.45              |
| 1:C:1067:ASP:O   | 1:C:1069:ASN:N   | 2.50                     | 0.45              |
| 1:C:534:ILE:CG2  | 1:C:535:GLY:N    | 2.80                     | 0.45              |
| 1:D:545:LEU:O    | 1:D:549:GLY:N    | 2.49                     | 0.45              |
| 1:D:907:VAL:HG12 | 1:D:908:THR:N    | 2.31                     | 0.45              |
| 1:B:701:GLU:HG3  | 1:B:737:ILE:HB   | 1.99                     | 0.45              |
| 1:C:815:ALA:HB1  | 1:D:862:TYR:CE1  | 2.52                     | 0.45              |
| 1:C:967:VAL:O    | 1:C:969:LYS:HG3  | 2.16                     | 0.45              |
| 1:D:1010:ALA:HB2 | 1:D:1017:PHE:CD2 | 2.51                     | 0.45              |
| 1:D:536:PRO:HA   | 1:D:537:PRO:HD3  | 1.76                     | 0.45              |
| 1:D:547:ARG:O    | 1:D:548:GLU:HG3  | 2.17                     | 0.45              |
| 1:D:907:VAL:O    | 1:D:908:THR:C    | 2.54                     | 0.45              |
| 1:D:893:ALA:HB2  | 1:D:922:VAL:CG1  | 2.47                     | 0.45              |
| 1:A:1003:THR:HB  | 1:A:1004:PRO:HD2 | 1.99                     | 0.45              |
| 1:A:678:ASP:HB2  | 1:A:686:MET:CG   | 2.47                     | 0.45              |
| 1:A:894:TYR:CE2  | 1:A:906:LYS:HD2  | 2.52                     | 0.45              |
| 1:A:965:SER:C    | 1:A:967:VAL:N    | 2.70                     | 0.45              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:B:1002:VAL:O    | 1:B:1002:VAL:HG23 | 2.17                     | 0.45              |
| 1:B:1060:ILE:HG22 | 1:B:1061:LYS:N    | 2.31                     | 0.45              |
| 1:B:1089:VAL:CG1  | 1:B:1090:LYS:N    | 2.77                     | 0.45              |
| 1:B:1092:THR:O    | 1:B:1093:GLN:HG2  | 2.17                     | 0.45              |
| 1:B:894:TYR:CE2   | 1:B:906:LYS:HD2   | 2.52                     | 0.45              |
| 1:C:1010:ALA:HB2  | 1:C:1017:PHE:CD2  | 2.52                     | 0.45              |
| 1:D:1001:GLU:O    | 1:D:1002:VAL:C    | 2.54                     | 0.45              |
| 1:D:1066:SER:C    | 1:D:1068:LEU:N    | 2.69                     | 0.45              |
| 1:D:506:HIS:HA    | 1:D:1089:VAL:HG11 | 1.98                     | 0.45              |
| 1:D:657:ASN:ND2   | 1:D:985:LEU:H     | 2.15                     | 0.45              |
| 1:A:597:ASN:HB3   | 1:A:830:ARG:HD3   | 1.99                     | 0.45              |
| 1:A:599:SER:C     | 1:A:601:LEU:H     | 2.19                     | 0.45              |
| 1:A:756:VAL:CG1   | 1:A:789:ALA:HB3   | 2.47                     | 0.45              |
| 1:A:815:ALA:HB2   | 1:A:828:MET:CE    | 2.47                     | 0.45              |
| 1:B:828:MET:O     | 1:B:831:VAL:HG22  | 2.17                     | 0.45              |
| 1:C:1015:ASP:O    | 1:C:1016:VAL:C    | 2.54                     | 0.45              |
| 1:C:1063:LEU:O    | 1:C:1064:ALA:CB   | 2.63                     | 0.45              |
| 1:C:1068:LEU:HA   | 1:C:1074:ARG:NE   | 2.31                     | 0.45              |
| 1:C:549:GLY:C     | 1:C:551:GLU:H     | 2.20                     | 0.45              |
| 1:C:769:HIS:NE2   | 1:C:795:ASP:OD1   | 2.50                     | 0.45              |
| 1:D:551:GLU:OE2   | 1:D:551:GLU:HA    | 2.17                     | 0.45              |
| 1:D:650:GLY:HA3   | 1:D:654:TYR:OH    | 2.17                     | 0.45              |
| 1:D:679:SER:OG    | 1:D:909:PRO:HB2   | 2.17                     | 0.45              |
| 1:A:860:ASP:OD1   | 1:A:891:LYS:NZ    | 2.50                     | 0.44              |
| 1:A:655:PRO:HB3   | 1:A:983:PRO:O     | 2.17                     | 0.44              |
| 1:C:496:ARG:NH1   | 1:C:1056:LYS:NZ   | 2.64                     | 0.44              |
| 1:C:807:GLN:HE21  | 1:C:807:GLN:H     | 1.64                     | 0.44              |
| 1:D:1052:LEU:HD22 | 1:D:1056:LYS:HD2  | 1.99                     | 0.44              |
| 1:D:711:ALA:HB2   | 1:D:751:ALA:HA    | 1.99                     | 0.44              |
| 1:D:788:GLN:HA    | 1:D:788:GLN:OE1   | 2.17                     | 0.44              |
| 1:D:893:ALA:HB2   | 1:D:922:VAL:HG13  | 1.99                     | 0.44              |
| 1:A:987:LEU:O     | 1:A:991:GLU:N     | 2.45                     | 0.44              |
| 1:B:552:GLY:HA2   | 1:B:555:ARG:HD2   | 1.99                     | 0.44              |
| 1:C:1073:GLN:NE2  | 1:C:1088:LEU:HD22 | 2.32                     | 0.44              |
| 1:C:947:PHE:HD1   | 1:C:952:ILE:HD11  | 1.83                     | 0.44              |
| 1:D:1065:VAL:HG22 | 1:D:1076:VAL:CB   | 2.47                     | 0.44              |
| 1:D:1079:GLU:HA   | 1:D:1084:LEU:HB3  | 1.99                     | 0.44              |
| 1:D:948:LEU:HD22  | 1:D:964:ARG:HG3   | 2.00                     | 0.44              |
| 1:A:643:LEU:HD12  | 1:A:648:ALA:HA    | 1.98                     | 0.44              |
| 1:A:766:LEU:HD12  | 1:A:767:PRO:CD    | 2.46                     | 0.44              |
| 1:B:534:ILE:CG2   | 1:B:535:GLY:N     | 2.79                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:B:964:ARG:HG2   | 1:B:968:LEU:HD12  | 1.99                     | 0.44              |
| 1:D:908:THR:HG22  | 1:D:909:PRO:N     | 2.32                     | 0.44              |
| 1:A:660:PHE:HA    | 1:A:692:ALA:HB1   | 1.98                     | 0.44              |
| 1:B:1052:LEU:HD23 | 1:B:1053:GLU:HB2  | 1.98                     | 0.44              |
| 1:B:591:ALA:HB3   | 1:B:633:LEU:HD13  | 2.00                     | 0.44              |
| 1:C:1073:GLN:O    | 1:C:1074:ARG:HB2  | 2.17                     | 0.44              |
| 1:C:961:GLU:N     | 1:C:962:PRO:HD2   | 2.33                     | 0.44              |
| 1:C:959:PHE:CB    | 1:C:964:ARG:HD2   | 2.47                     | 0.44              |
| 1:A:1089:VAL:CG1  | 1:A:1090:LYS:H    | 2.30                     | 0.44              |
| 1:A:997:ARG:HD2   | 1:A:998:HIS:CD2   | 2.52                     | 0.44              |
| 1:B:883:LEU:HD22  | 1:B:886:LYS:HG3   | 2.00                     | 0.44              |
| 1:D:1068:LEU:HD13 | 1:D:1074:ARG:CZ   | 2.47                     | 0.44              |
| 1:D:606:ASN:C     | 1:D:606:ASN:OD1   | 2.56                     | 0.44              |
| 1:D:643:LEU:O     | 1:D:676:VAL:HA    | 2.18                     | 0.44              |
| 1:D:891:LYS:O     | 1:D:895:VAL:HG23  | 2.17                     | 0.44              |
| 1:A:539:ALA:HA    | 1:A:636:ASN:CB    | 2.42                     | 0.44              |
| 1:B:1045:ALA:CB   | 1:B:1063:LEU:HG   | 2.47                     | 0.44              |
| 1:B:657:ASN:ND2   | 1:B:985:LEU:H     | 2.16                     | 0.44              |
| 1:B:645:GLY:HA2   | 1:B:689:GLY:HA3   | 2.00                     | 0.44              |
| 1:B:743:MET:HE2   | 1:B:744:ALA:H     | 1.82                     | 0.44              |
| 1:C:571:ARG:NH1   | 1:C:575:GLN:NE2   | 2.58                     | 0.44              |
| 1:C:661:LYS:O     | 1:C:665:VAL:HG23  | 2.17                     | 0.44              |
| 1:D:665:VAL:HG12  | 1:D:669:ASN:ND2   | 2.32                     | 0.44              |
| 1:A:590:ILE:O     | 1:A:590:ILE:HG13  | 2.17                     | 0.44              |
| 1:A:756:VAL:HG11  | 1:A:789:ALA:HB3   | 2.00                     | 0.44              |
| 1:A:814:VAL:O     | 1:A:817:THR:HG22  | 2.18                     | 0.44              |
| 1:B:859:SER:C     | 1:B:861:VAL:H     | 2.20                     | 0.44              |
| 1:B:908:THR:CB    | 1:B:909:PRO:HD3   | 2.46                     | 0.44              |
| 1:B:971:LEU:HA    | 1:B:972:PRO:HD3   | 1.71                     | 0.44              |
| 1:D:708:GLY:HA2   | 1:D:715:ARG:NH1   | 2.32                     | 0.44              |
| 1:A:995:VAL:CG1   | 1:A:1000:GLU:HA   | 2.48                     | 0.44              |
| 1:A:656:ASP:OD2   | 1:A:977:ARG:NH2   | 2.51                     | 0.44              |
| 1:A:961:GLU:N     | 1:A:962:PRO:HD2   | 2.33                     | 0.44              |
| 1:B:949:GLN:HG3   | 1:B:968:LEU:HD22  | 1.99                     | 0.44              |
| 1:C:1057:THR:HB   | 1:C:1059:HIS:CE1  | 2.53                     | 0.44              |
| 1:D:1029:PRO:C    | 1:D:1031:ASP:H    | 2.21                     | 0.44              |
| 1:A:1020:PHE:CE1  | 1:A:1024:THR:HG21 | 2.53                     | 0.44              |
| 1:A:1052:LEU:HD23 | 1:A:1053:GLU:HB2  | 2.00                     | 0.44              |
| 1:A:1074:ARG:O    | 1:A:1088:LEU:HD23 | 2.17                     | 0.44              |
| 1:B:1050:VAL:O    | 1:B:1050:VAL:CG2  | 2.66                     | 0.44              |
| 1:B:738:LEU:HD12  | 1:B:739:CYS:H     | 1.83                     | 0.44              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:C:807:GLN:N    | 1:C:807:GLN:NE2  | 2.65                     | 0.44              |
| 1:D:849:ASP:CB   | 1:D:851:THR:HG22 | 2.48                     | 0.44              |
| 1:D:971:LEU:HA   | 1:D:972:PRO:HD3  | 1.85                     | 0.44              |
| 1:A:876:PHE:O    | 1:A:880:SER:HB3  | 2.18                     | 0.43              |
| 1:A:961:GLU:HA   | 1:A:964:ARG:HB3  | 2.00                     | 0.43              |
| 1:B:987:LEU:O    | 1:B:991:GLU:N    | 2.49                     | 0.43              |
| 1:D:785:ALA:O    | 1:D:788:GLN:HB2  | 2.18                     | 0.43              |
| 1:B:502:HIS:HE1  | 1:B:1090:LYS:HZ3 | 1.66                     | 0.43              |
| 1:C:824:THR:O    | 1:C:825:GLU:HB2  | 2.17                     | 0.43              |
| 1:C:849:ASP:CB   | 1:C:851:THR:HG22 | 2.46                     | 0.43              |
| 1:C:964:ARG:HE   | 1:C:968:LEU:HD11 | 1.83                     | 0.43              |
| 1:B:532:VAL:HG23 | 1:B:532:VAL:O    | 2.18                     | 0.43              |
| 1:B:827:PRO:HD2  | 1:B:830:ARG:HD2  | 2.00                     | 0.43              |
| 1:C:658:VAL:HG23 | 1:C:659:VAL:N    | 2.32                     | 0.43              |
| 1:C:743:MET:SD   | 1:C:907:VAL:HG22 | 2.58                     | 0.43              |
| 1:D:829:GLU:O    | 1:D:832:PHE:HB2  | 2.19                     | 0.43              |
| 1:D:883:LEU:HD22 | 1:D:886:LYS:HG3  | 2.00                     | 0.43              |
| 1:A:593:TYR:CE1  | 1:A:597:ASN:ND2  | 2.86                     | 0.43              |
| 1:A:624:TRP:CD1  | 1:A:1005:GLU:HB3 | 2.54                     | 0.43              |
| 1:A:898:ASN:HD21 | 1:A:904:LEU:N    | 2.11                     | 0.43              |
| 1:B:571:ARG:NH1  | 1:B:575:GLN:NE2  | 2.56                     | 0.43              |
| 1:B:938:LEU:HB2  | 1:B:940:PHE:CE1  | 2.53                     | 0.43              |
| 1:B:936:GLU:O    | 1:B:969:LYS:HE3  | 2.17                     | 0.43              |
| 1:C:860:ASP:HA   | 1:D:832:PHE:CZ   | 2.54                     | 0.43              |
| 1:C:907:VAL:HG12 | 1:C:908:THR:N    | 2.33                     | 0.43              |
| 1:D:1067:ASP:OD1 | 1:D:1075:GLN:HB3 | 2.18                     | 0.43              |
| 1:A:827:PRO:HD2  | 1:A:830:ARG:HD2  | 2.00                     | 0.43              |
| 1:B:500:LEU:O    | 1:B:503:TYR:HB3  | 2.19                     | 0.43              |
| 1:B:707:THR:CG2  | 1:B:708:GLY:N    | 2.81                     | 0.43              |
| 1:C:756:VAL:O    | 1:C:759:LEU:HB2  | 2.18                     | 0.43              |
| 1:A:948:LEU:HA   | 1:A:959:PHE:CE2  | 2.54                     | 0.43              |
| 1:C:679:SER:HB2  | 1:C:910:SER:OG   | 2.17                     | 0.43              |
| 1:C:564:LEU:O    | 1:C:793:VAL:HA   | 2.19                     | 0.43              |
| 1:C:917:LEU:O    | 1:C:921:MET:HG3  | 2.18                     | 0.43              |
| 1:A:1005:GLU:CD  | 1:A:1005:GLU:H   | 2.22                     | 0.43              |
| 1:A:899:GLN:CA   | 1:A:899:GLN:NE2  | 2.75                     | 0.43              |
| 1:A:977:ARG:HH11 | 1:A:977:ARG:CB   | 2.31                     | 0.43              |
| 1:B:655:PRO:HB2  | 1:B:984:PRO:HA   | 2.01                     | 0.43              |
| 1:C:743:MET:HE2  | 1:C:744:ALA:N    | 2.34                     | 0.43              |
| 1:D:1015:ASP:HB3 | 1:D:1019:HIS:NE2 | 2.33                     | 0.43              |
| 1:D:959:PHE:HB2  | 1:D:964:ARG:HD2  | 2.01                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:574:HIS:CD2   | 1:A:580:THR:HA    | 2.54                     | 0.43              |
| 1:A:660:PHE:CD2   | 1:A:692:ALA:HA    | 2.54                     | 0.43              |
| 1:A:849:ASP:CB    | 1:A:851:THR:HG22  | 2.43                     | 0.43              |
| 1:A:893:ALA:HB2   | 1:A:922:VAL:CG1   | 2.48                     | 0.43              |
| 1:B:901:LEU:HB2   | 1:B:904:LEU:HD11  | 2.00                     | 0.43              |
| 1:B:677:PHE:CE1   | 1:B:907:VAL:HG11  | 2.53                     | 0.43              |
| 1:B:952:ILE:HG13  | 1:B:953:GLY:H     | 1.84                     | 0.43              |
| 1:C:528:VAL:O     | 1:C:530:PRO:HD3   | 2.19                     | 0.43              |
| 1:C:562:GLY:HA3   | 1:C:823:ASP:O     | 2.19                     | 0.43              |
| 1:C:793:VAL:HG12  | 1:C:794:VAL:N     | 2.33                     | 0.43              |
| 1:D:1065:VAL:HG22 | 1:D:1076:VAL:HB   | 2.00                     | 0.43              |
| 1:D:494:GLN:HB2   | 1:D:494:GLN:HE21  | 1.69                     | 0.43              |
| 1:D:865:GLU:HB2   | 1:D:906:LYS:HZ2   | 1.83                     | 0.43              |
| 1:A:860:ASP:HA    | 1:B:832:PHE:CE2   | 2.54                     | 0.43              |
| 1:A:908:THR:HG22  | 1:A:909:PRO:N     | 2.33                     | 0.43              |
| 1:B:680:LEU:N     | 1:B:680:LEU:HD12  | 2.34                     | 0.43              |
| 1:B:977:ARG:NH1   | 1:B:980:ALA:HB2   | 2.33                     | 0.43              |
| 1:C:1063:LEU:HA   | 1:C:1063:LEU:HD23 | 1.89                     | 0.43              |
| 1:C:948:LEU:HA    | 1:C:959:PHE:CE2   | 2.54                     | 0.43              |
| 1:D:624:TRP:CZ3   | 1:D:665:VAL:HG12  | 2.53                     | 0.43              |
| 1:D:860:ASP:OD2   | 1:D:860:ASP:C     | 2.56                     | 0.43              |
| 1:A:995:VAL:CG2   | 1:A:1002:VAL:HG21 | 2.45                     | 0.43              |
| 1:A:1015:ASP:O    | 1:A:1018:ALA:N    | 2.51                     | 0.43              |
| 1:C:997:ARG:HD2   | 1:C:998:HIS:CD2   | 2.54                     | 0.43              |
| 1:D:544:ILE:O     | 1:D:545:LEU:C     | 2.57                     | 0.43              |
| 1:D:961:GLU:OE2   | 1:D:965:SER:HB3   | 2.19                     | 0.43              |
| 1:D:743:MET:HE2   | 1:D:744:ALA:N     | 2.34                     | 0.42              |
| 1:A:547:ARG:C     | 1:A:548:GLU:HG3   | 2.39                     | 0.42              |
| 1:A:919:GLN:O     | 1:A:922:VAL:HG22  | 2.19                     | 0.42              |
| 1:A:988:GLN:N     | 1:A:988:GLN:OE1   | 2.51                     | 0.42              |
| 1:B:1068:LEU:HA   | 1:B:1074:ARG:NE   | 2.32                     | 0.42              |
| 1:B:590:ILE:O     | 1:B:590:ILE:HG13  | 2.19                     | 0.42              |
| 1:B:564:LEU:O     | 1:B:793:VAL:HA    | 2.19                     | 0.42              |
| 1:C:1074:ARG:O    | 1:C:1088:LEU:HD23 | 2.19                     | 0.42              |
| 1:A:571:ARG:HD2   | 1:A:571:ARG:C     | 2.39                     | 0.42              |
| 1:B:935:ALA:C     | 1:B:937:GLU:N     | 2.73                     | 0.42              |
| 1:B:947:PHE:HD1   | 1:B:952:ILE:HD11  | 1.84                     | 0.42              |
| 1:C:566:MET:HE1   | 1:C:605:GLU:HB2   | 2.01                     | 0.42              |
| 1:C:907:VAL:O     | 1:C:908:THR:C     | 2.57                     | 0.42              |
| 1:C:964:ARG:O     | 1:C:967:VAL:HB    | 2.19                     | 0.42              |
| 1:D:897:ALA:HB2   | 1:D:921:MET:CE    | 2.50                     | 0.42              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:A:523:SER:O    | 1:A:1036:ARG:NH2  | 2.48                     | 0.42              |
| 1:A:967:VAL:O    | 1:A:969:LYS:HG3   | 2.19                     | 0.42              |
| 1:B:762:ARG:CG   | 1:B:763:PHE:CE1   | 3.02                     | 0.42              |
| 1:C:650:GLY:HA3  | 1:C:654:TYR:HE1   | 1.84                     | 0.42              |
| 1:D:1003:THR:HB  | 1:D:1004:PRO:CD   | 2.48                     | 0.42              |
| 1:A:1017:PHE:CZ  | 1:A:1021:LYS:HD3  | 2.55                     | 0.42              |
| 1:A:901:LEU:HA   | 1:A:960:PRO:HG3   | 2.01                     | 0.42              |
| 1:B:762:ARG:HG3  | 1:B:763:PHE:CZ    | 2.54                     | 0.42              |
| 1:B:983:PRO:O    | 1:B:984:PRO:O     | 2.38                     | 0.42              |
| 1:C:712:ASP:OD1  | 1:C:714:SER:HB2   | 2.19                     | 0.42              |
| 1:C:881:MET:O    | 1:C:883:LEU:HG    | 2.20                     | 0.42              |
| 1:C:947:PHE:CD1  | 1:C:952:ILE:HD11  | 2.55                     | 0.42              |
| 1:D:502:HIS:CE1  | 1:D:1090:LYS:NZ   | 2.87                     | 0.42              |
| 1:D:581:ARG:NH1  | 1:D:848:PHE:CE2   | 2.87                     | 0.42              |
| 1:A:498:GLN:HE21 | 1:A:498:GLN:C     | 2.23                     | 0.42              |
| 1:A:595:ALA:CB   | 1:A:634:ILE:HG23  | 2.48                     | 0.42              |
| 1:B:1045:ALA:N   | 1:B:1063:LEU:HG   | 2.35                     | 0.42              |
| 1:B:502:HIS:CE1  | 1:B:1090:LYS:HZ3  | 2.38                     | 0.42              |
| 1:B:601:LEU:CD2  | 1:B:603:SER:O     | 2.64                     | 0.42              |
| 1:C:990:LEU:O    | 1:C:994:LEU:HG    | 2.20                     | 0.42              |
| 1:D:1001:GLU:HA  | 1:D:1001:GLU:OE1  | 2.20                     | 0.42              |
| 1:A:656:ASP:CG   | 1:A:977:ARG:HH21  | 2.22                     | 0.42              |
| 1:B:1057:THR:HB  | 1:B:1059:HIS:CE1  | 2.55                     | 0.42              |
| 1:C:907:VAL:HG12 | 1:C:908:THR:H     | 1.85                     | 0.42              |
| 1:A:1065:VAL:CG1 | 1:A:1076:VAL:HG12 | 2.44                     | 0.42              |
| 1:A:494:GLN:HG2  | 1:A:1056:LYS:CE   | 2.49                     | 0.42              |
| 1:B:900:MET:CE   | 1:B:921:MET:SD    | 3.08                     | 0.42              |
| 1:B:954:VAL:HA   | 1:B:955:PRO:HD2   | 1.90                     | 0.42              |
| 1:C:682:TYR:HD1  | 1:C:685:ASN:ND2   | 2.18                     | 0.42              |
| 1:C:893:ALA:CB   | 1:C:922:VAL:HG13  | 2.50                     | 0.42              |
| 1:C:968:LEU:HB2  | 1:C:973:ARG:HH21  | 1.85                     | 0.42              |
| 1:A:1067:ASP:HB2 | 1:A:1074:ARG:HA   | 2.02                     | 0.42              |
| 1:A:551:GLU:HA   | 1:A:551:GLU:OE2   | 2.20                     | 0.42              |
| 1:A:732:ARG:C    | 1:A:734:GLY:N     | 2.72                     | 0.42              |
| 1:A:562:GLY:HA3  | 1:A:823:ASP:O     | 2.19                     | 0.42              |
| 1:A:934:GLN:O    | 1:A:938:LEU:HG    | 2.20                     | 0.42              |
| 1:A:945:VAL:HG23 | 1:A:946:GLU:N     | 2.35                     | 0.42              |
| 1:B:1029:PRO:C   | 1:B:1031:ASP:N    | 2.73                     | 0.42              |
| 1:B:494:GLN:HB2  | 1:B:497:ALA:HB3   | 2.01                     | 0.42              |
| 1:B:654:TYR:CB   | 1:B:658:VAL:HG21  | 2.49                     | 0.42              |
| 1:B:785:ALA:O    | 1:B:788:GLN:HB2   | 2.19                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:C:603:SER:HA    | 1:C:638:PRO:HB2   | 2.00                     | 0.42              |
| 1:C:901:LEU:HB2   | 1:C:904:LEU:CD1   | 2.48                     | 0.42              |
| 1:C:918:ALA:O     | 1:C:922:VAL:HG13  | 2.20                     | 0.42              |
| 1:C:959:PHE:HB2   | 1:C:964:ARG:HD2   | 2.02                     | 0.42              |
| 1:D:658:VAL:HG23  | 1:D:659:VAL:N     | 2.34                     | 0.42              |
| 1:D:597:ASN:O     | 1:D:830:ARG:NH1   | 2.53                     | 0.42              |
| 1:D:987:LEU:O     | 1:D:991:GLU:N     | 2.45                     | 0.42              |
| 1:A:1065:VAL:HA   | 1:A:1075:GLN:O    | 2.19                     | 0.42              |
| 1:A:614:VAL:HG13  | 1:A:618:PHE:HD1   | 1.84                     | 0.42              |
| 1:A:893:ALA:CB    | 1:A:922:VAL:HG13  | 2.49                     | 0.42              |
| 1:C:570:PHE:HB3   | 1:C:606:ASN:CB    | 2.50                     | 0.42              |
| 1:C:964:ARG:HG2   | 1:C:968:LEU:HD12  | 2.02                     | 0.42              |
| 1:D:657:ASN:HD21  | 1:D:985:LEU:H     | 1.67                     | 0.42              |
| 1:A:1092:THR:O    | 1:A:1093:GLN:HG2  | 2.20                     | 0.41              |
| 1:A:545:LEU:O     | 1:A:549:GLY:N     | 2.47                     | 0.41              |
| 1:B:502:HIS:HA    | 1:B:1087:ILE:HG12 | 2.01                     | 0.41              |
| 1:C:763:PHE:HA    | 1:C:764:PRO:HD2   | 1.81                     | 0.41              |
| 1:A:621:GLU:HG2   | 1:A:1031:ASP:CB   | 2.49                     | 0.41              |
| 1:A:643:LEU:HD11  | 1:A:648:ALA:HA    | 2.01                     | 0.41              |
| 1:B:502:HIS:HA    | 1:B:1087:ILE:HG21 | 2.02                     | 0.41              |
| 1:B:599:SER:C     | 1:B:601:LEU:H     | 2.22                     | 0.41              |
| 1:C:737:ILE:HD12  | 1:C:767:PRO:CB    | 2.51                     | 0.41              |
| 1:A:1067:ASP:HA   | 1:D:1082:GLY:O    | 2.20                     | 0.41              |
| 1:D:732:ARG:C     | 1:D:734:GLY:N     | 2.74                     | 0.41              |
| 1:A:1002:VAL:HG23 | 1:A:1002:VAL:O    | 2.20                     | 0.41              |
| 1:B:536:PRO:HA    | 1:B:537:PRO:HD3   | 1.84                     | 0.41              |
| 1:B:742:ASP:HB2   | 1:B:747:LEU:CD1   | 2.50                     | 0.41              |
| 1:C:560:HIS:CG    | 1:C:564:LEU:HD21  | 2.55                     | 0.41              |
| 1:C:704:ILE:HB    | 1:C:740:ILE:HD13  | 2.02                     | 0.41              |
| 1:C:739:CYS:SG    | 1:C:740:ILE:N     | 2.93                     | 0.41              |
| 1:C:737:ILE:HD12  | 1:C:767:PRO:HB2   | 2.02                     | 0.41              |
| 1:A:496:ARG:NH1   | 1:A:1056:LYS:NZ   | 2.69                     | 0.41              |
| 1:A:749:PRO:O     | 1:A:752:CYS:HB2   | 2.20                     | 0.41              |
| 1:A:788:GLN:OE1   | 1:A:788:GLN:HA    | 2.20                     | 0.41              |
| 1:A:822:LEU:O     | 1:A:823:ASP:C     | 2.59                     | 0.41              |
| 1:A:908:THR:CB    | 1:A:909:PRO:HD3   | 2.43                     | 0.41              |
| 1:A:980:ALA:C     | 1:A:982:LEU:H     | 2.23                     | 0.41              |
| 1:B:648:ALA:HB3   | 1:B:1012:MET:HE1  | 2.02                     | 0.41              |
| 1:B:1065:VAL:CG2  | 1:B:1076:VAL:HG12 | 2.48                     | 0.41              |
| 1:B:1058:LEU:HD22 | 1:B:1080:LEU:HD11 | 2.01                     | 0.41              |
| 1:B:809:SER:O     | 1:B:813:LEU:HD23  | 2.20                     | 0.41              |

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| Atom-1           | Atom-2           | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|------------------|--------------------------|-------------------|
| 1:B:897:ALA:O    | 1:B:901:LEU:HG   | 2.20                     | 0.41              |
| 1:B:977:ARG:HH11 | 1:B:977:ARG:HB3  | 1.86                     | 0.41              |
| 1:C:502:HIS:CE1  | 1:C:1090:LYS:HZ1 | 2.37                     | 0.41              |
| 1:C:506:HIS:CE1  | 1:C:510:ASN:HB2  | 2.56                     | 0.41              |
| 1:C:590:ILE:HG13 | 1:C:590:ILE:O    | 2.21                     | 0.41              |
| 1:C:612:PHE:HB3  | 1:C:649:VAL:HG12 | 2.02                     | 0.41              |
| 1:D:1005:GLU:CD  | 1:D:1005:GLU:H   | 2.23                     | 0.41              |
| 1:D:1089:VAL:CG1 | 1:D:1090:LYS:N   | 2.83                     | 0.41              |
| 1:D:571:ARG:NH1  | 1:D:575:GLN:NE2  | 2.62                     | 0.41              |
| 1:D:965:SER:C    | 1:D:967:VAL:H    | 2.22                     | 0.41              |
| 1:A:749:PRO:CD   | 1:B:816:CYS:SG   | 3.08                     | 0.41              |
| 1:B:1067:ASP:O   | 1:B:1074:ARG:HA  | 2.21                     | 0.41              |
| 1:B:625:ARG:HH21 | 1:B:629:GLU:CD   | 2.24                     | 0.41              |
| 1:B:755:LEU:HD22 | 1:B:759:LEU:HD12 | 2.02                     | 0.41              |
| 1:D:624:TRP:CG   | 1:D:1005:GLU:HB3 | 2.55                     | 0.41              |
| 1:D:950:GLY:O    | 1:D:952:ILE:N    | 2.53                     | 0.41              |
| 1:A:1001:GLU:O   | 1:A:1002:VAL:O   | 2.39                     | 0.41              |
| 1:A:1079:GLU:HA  | 1:A:1084:LEU:HB3 | 2.03                     | 0.41              |
| 1:A:879:HIS:CE1  | 1:A:884:GLY:HA3  | 2.56                     | 0.41              |
| 1:B:982:LEU:HA   | 1:B:983:PRO:HD3  | 1.91                     | 0.41              |
| 1:C:545:LEU:O    | 1:C:549:GLY:N    | 2.52                     | 0.41              |
| 1:C:579:ALA:O    | 1:C:581:ARG:HG2  | 2.20                     | 0.41              |
| 1:C:586:ASP:OD2  | 1:C:1035:THR:OG1 | 2.27                     | 0.41              |
| 1:C:680:LEU:HD11 | 1:C:952:ILE:HD12 | 2.02                     | 0.41              |
| 1:C:707:THR:CG2  | 1:C:708:GLY:N    | 2.84                     | 0.41              |
| 1:D:720:LEU:O    | 1:D:724:MET:HG2  | 2.21                     | 0.41              |
| 1:D:923:GLN:HE21 | 1:D:924:ASN:HD21 | 1.67                     | 0.41              |
| 1:A:580:THR:HG21 | 1:A:610:ALA:HB3  | 2.02                     | 0.41              |
| 1:A:565:LEU:O    | 1:A:601:LEU:HD23 | 2.20                     | 0.41              |
| 1:B:604:MET:HE1  | 1:B:634:ILE:HD13 | 2.02                     | 0.41              |
| 1:B:769:HIS:CD2  | 1:B:793:VAL:HB   | 2.56                     | 0.41              |
| 1:B:874:LEU:N    | 1:B:874:LEU:CD1  | 2.83                     | 0.41              |
| 1:B:965:SER:O    | 1:B:967:VAL:N    | 2.54                     | 0.41              |
| 1:C:498:GLN:C    | 1:C:498:GLN:NE2  | 2.74                     | 0.41              |
| 1:C:787:ALA:HB1  | 1:C:822:LEU:HD13 | 2.02                     | 0.41              |
| 1:C:883:LEU:HB3  | 1:C:886:LYS:HB2  | 2.02                     | 0.41              |
| 1:C:945:VAL:CG2  | 1:C:946:GLU:N    | 2.84                     | 0.41              |
| 1:D:949:GLN:HG3  | 1:D:968:LEU:HD22 | 2.02                     | 0.41              |
| 1:A:815:ALA:HB2  | 1:A:828:MET:HE2  | 2.02                     | 0.41              |
| 1:B:651:TYR:CD2  | 1:B:651:TYR:N    | 2.89                     | 0.41              |
| 1:B:893:ALA:CB   | 1:B:922:VAL:HG13 | 2.50                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:D:603:SER:HA    | 1:D:638:PRO:HB2   | 2.01                     | 0.41              |
| 1:D:961:GLU:O     | 1:D:962:PRO:C     | 2.58                     | 0.41              |
| 1:A:506:HIS:HA    | 1:A:1089:VAL:HG11 | 2.02                     | 0.41              |
| 1:A:906:LYS:HB3   | 1:A:911:SER:CB    | 2.51                     | 0.41              |
| 1:B:654:TYR:HB3   | 1:B:658:VAL:HG21  | 2.02                     | 0.41              |
| 1:C:650:GLY:HA3   | 1:C:654:TYR:OH    | 2.21                     | 0.41              |
| 1:C:673:VAL:HA    | 1:C:699:VAL:HB    | 2.03                     | 0.41              |
| 1:D:584:THR:HG22  | 1:D:588:LYS:HG3   | 2.02                     | 0.41              |
| 1:A:502:HIS:HA    | 1:A:1087:ILE:HG12 | 2.03                     | 0.41              |
| 1:B:1013:TYR:HB3  | 1:B:1016:VAL:HB   | 2.03                     | 0.41              |
| 1:B:1013:TYR:O    | 1:B:1017:PHE:CB   | 2.69                     | 0.41              |
| 1:C:1043:LYS:HB2  | 1:C:1046:GLU:OE1  | 2.21                     | 0.41              |
| 1:C:936:GLU:O     | 1:C:969:LYS:HE3   | 2.20                     | 0.41              |
| 1:D:738:LEU:HD12  | 1:D:739:CYS:N     | 2.36                     | 0.41              |
| 1:D:963:PHE:O     | 1:D:964:ARG:C     | 2.59                     | 0.41              |
| 1:A:1067:ASP:CG   | 1:A:1075:GLN:HB3  | 2.42                     | 0.41              |
| 1:A:542:ARG:O     | 1:A:542:ARG:HD3   | 2.21                     | 0.41              |
| 1:A:654:TYR:CB    | 1:A:658:VAL:HG21  | 2.51                     | 0.41              |
| 1:A:867:PRO:HD2   | 1:A:870:GLN:OE1   | 2.21                     | 0.41              |
| 1:B:686:MET:HE3   | 1:B:703:ALA:O     | 2.21                     | 0.41              |
| 1:B:695:SER:C     | 1:B:697:GLY:N     | 2.74                     | 0.41              |
| 1:B:793:VAL:HG12  | 1:B:794:VAL:N     | 2.35                     | 0.41              |
| 1:C:874:LEU:CD1   | 1:C:874:LEU:N     | 2.84                     | 0.41              |
| 1:C:876:PHE:O     | 1:C:880:SER:CB    | 2.69                     | 0.41              |
| 1:D:769:HIS:NE2   | 1:D:795:ASP:OD1   | 2.54                     | 0.41              |
| 1:C:832:PHE:CE2   | 1:D:860:ASP:HA    | 2.55                     | 0.41              |
| 1:D:885:SER:OG    | 1:D:886:LYS:N     | 2.53                     | 0.41              |
| 1:A:1003:THR:HB   | 1:A:1004:PRO:CD   | 2.51                     | 0.40              |
| 1:A:959:PHE:CB    | 1:A:964:ARG:HD2   | 2.51                     | 0.40              |
| 1:B:1088:LEU:HD23 | 1:B:1088:LEU:C    | 2.41                     | 0.40              |
| 1:C:1060:ILE:CG2  | 1:C:1061:LYS:N    | 2.84                     | 0.40              |
| 1:C:494:GLN:HE21  | 1:C:494:GLN:HB2   | 1.71                     | 0.40              |
| 1:D:557:VAL:HG13  | 1:D:564:LEU:HD12  | 2.03                     | 0.40              |
| 1:D:965:SER:HA    | 1:D:973:ARG:NH2   | 2.36                     | 0.40              |
| 1:A:1075:GLN:OE1  | 1:D:1084:LEU:HD11 | 2.21                     | 0.40              |
| 1:A:814:VAL:HG13  | 1:A:824:THR:OG1   | 2.21                     | 0.40              |
| 1:A:849:ASP:C     | 1:A:851:THR:N     | 2.74                     | 0.40              |
| 1:A:862:TYR:CE1   | 1:B:815:ALA:CB    | 3.04                     | 0.40              |
| 1:A:896:GLU:O     | 1:A:900:MET:HB2   | 2.21                     | 0.40              |
| 1:B:496:ARG:NH1   | 1:B:1056:LYS:NZ   | 2.69                     | 0.40              |
| 1:B:643:LEU:HD12  | 1:B:648:ALA:HA    | 2.03                     | 0.40              |

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| Atom-1           | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|------------------|-------------------|--------------------------|-------------------|
| 1:B:657:ASN:HD21 | 1:B:985:LEU:H     | 1.69                     | 0.40              |
| 1:B:655:PRO:HB2  | 1:B:657:ASN:OD1   | 2.21                     | 0.40              |
| 1:B:907:VAL:O    | 1:B:908:THR:C     | 2.58                     | 0.40              |
| 1:B:945:VAL:CG2  | 1:B:946:GLU:N     | 2.85                     | 0.40              |
| 1:C:654:TYR:HB3  | 1:C:658:VAL:HG21  | 2.03                     | 0.40              |
| 1:C:756:VAL:CG1  | 1:C:789:ALA:HB3   | 2.51                     | 0.40              |
| 1:D:506:HIS:ND1  | 1:D:506:HIS:C     | 2.75                     | 0.40              |
| 1:C:815:ALA:CB   | 1:D:862:TYR:CE1   | 3.04                     | 0.40              |
| 1:D:898:ASN:HD22 | 1:D:906:LYS:HD3   | 1.85                     | 0.40              |
| 1:D:997:ARG:NH1  | 1:D:997:ARG:HG3   | 2.37                     | 0.40              |
| 1:A:1045:ALA:HB2 | 1:A:1063:LEU:HG   | 2.02                     | 0.40              |
| 1:B:496:ARG:NH1  | 1:B:1056:LYS:HZ2  | 2.19                     | 0.40              |
| 1:B:707:THR:HG22 | 1:B:708:GLY:H     | 1.86                     | 0.40              |
| 1:B:732:ARG:C    | 1:B:734:GLY:N     | 2.74                     | 0.40              |
| 1:B:767:PRO:HA   | 1:B:792:ASP:OD2   | 2.20                     | 0.40              |
| 1:B:787:ALA:O    | 1:B:788:GLN:C     | 2.60                     | 0.40              |
| 1:B:964:ARG:HG2  | 1:B:968:LEU:CD1   | 2.52                     | 0.40              |
| 1:C:1003:THR:HB  | 1:C:1004:PRO:HD2  | 2.02                     | 0.40              |
| 1:C:649:VAL:N    | 1:C:1012:MET:HE1  | 2.32                     | 0.40              |
| 1:C:507:VAL:O    | 1:C:511:GLY:N     | 2.52                     | 0.40              |
| 1:D:1065:VAL:CG2 | 1:D:1076:VAL:HG12 | 2.50                     | 0.40              |
| 1:D:867:PRO:HD2  | 1:D:870:GLN:OE1   | 2.21                     | 0.40              |
| 1:A:961:GLU:OE2  | 1:A:965:SER:HB3   | 2.20                     | 0.40              |
| 1:B:1043:LYS:HA  | 1:B:1043:LYS:HD3  | 1.93                     | 0.40              |
| 1:B:915:GLY:O    | 1:B:919:GLN:HG3   | 2.22                     | 0.40              |
| 1:B:942:ARG:O    | 1:B:945:VAL:CG2   | 2.69                     | 0.40              |
| 1:C:495:ASN:H    | 1:C:496:ARG:HH21  | 1.70                     | 0.40              |
| 1:C:922:VAL:CG2  | 1:C:923:GLN:N     | 2.85                     | 0.40              |
| 1:D:1045:ALA:HB2 | 1:D:1063:LEU:HG   | 2.03                     | 0.40              |
| 1:D:494:GLN:HB2  | 1:D:497:ALA:CB    | 2.51                     | 0.40              |
| 1:D:771:HIS:CE1  | 1:D:807:GLN:OE1   | 2.74                     | 0.40              |
| 1:A:712:ASP:OD1  | 1:A:714:SER:HB2   | 2.21                     | 0.40              |
| 1:A:971:LEU:HA   | 1:A:972:PRO:HD3   | 1.79                     | 0.40              |
| 1:B:547:ARG:C    | 1:B:548:GLU:HG3   | 2.42                     | 0.40              |
| 1:B:807:GLN:HB3  | 1:B:808:PRO:HD2   | 2.03                     | 0.40              |
| 1:C:1067:ASP:OD1 | 1:C:1075:GLN:HB3  | 2.21                     | 0.40              |
| 1:C:923:GLN:HE21 | 1:C:924:ASN:ND2   | 2.19                     | 0.40              |

All (1) symmetry-related close contacts are listed below. The label for Atom-2 includes the symmetry operator and encoded unit-cell translations to be applied.

| Atom-1         | Atom-2                 | Interatomic distance (Å) | Clash overlap (Å) |
|----------------|------------------------|--------------------------|-------------------|
| 1:A:992:LYS:NZ | 1:C:970:ASP:OD1[1_565] | 2.18                     | 0.02              |

## 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     | 599/718 (83%)   | 505 (84%)  | 72 (12%)  | 22 (4%)  | 3           | 19 |
| 1   | B     | 599/718 (83%)   | 495 (83%)  | 83 (14%)  | 21 (4%)  | 3           | 20 |
| 1   | C     | 599/718 (83%)   | 497 (83%)  | 80 (13%)  | 22 (4%)  | 3           | 19 |
| 1   | D     | 599/718 (83%)   | 499 (83%)  | 76 (13%)  | 24 (4%)  | 3           | 17 |
| All | All   | 2396/2872 (83%) | 1996 (83%) | 311 (13%) | 89 (4%)  | 3           | 19 |

All (89) Ramachandran outliers are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 497  | ALA  |
| 1   | A     | 779  | GLY  |
| 1   | A     | 984  | PRO  |
| 1   | A     | 1002 | VAL  |
| 1   | A     | 1062 | ALA  |
| 1   | A     | 1064 | ALA  |
| 1   | A     | 1066 | SER  |
| 1   | A     | 1068 | LEU  |
| 1   | A     | 1070 | ARG  |
| 1   | B     | 779  | GLY  |
| 1   | B     | 984  | PRO  |
| 1   | B     | 1062 | ALA  |
| 1   | B     | 1064 | ALA  |
| 1   | B     | 1066 | SER  |
| 1   | B     | 1070 | ARG  |
| 1   | C     | 779  | GLY  |
| 1   | C     | 903  | ASP  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | C            | 984        | PRO         |
| 1          | C            | 1062       | ALA         |
| 1          | C            | 1066       | SER         |
| 1          | C            | 1068       | LEU         |
| 1          | C            | 1070       | ARG         |
| 1          | D            | 779        | GLY         |
| 1          | D            | 984        | PRO         |
| 1          | D            | 1062       | ALA         |
| 1          | D            | 1064       | ALA         |
| 1          | D            | 1066       | SER         |
| 1          | D            | 1068       | LEU         |
| 1          | D            | 1070       | ARG         |
| 1          | A            | 648        | ALA         |
| 1          | A            | 903        | ASP         |
| 1          | A            | 951        | TYR         |
| 1          | A            | 981        | SER         |
| 1          | A            | 1058       | LEU         |
| 1          | B            | 497        | ALA         |
| 1          | B            | 648        | ALA         |
| 1          | B            | 909        | PRO         |
| 1          | B            | 1002       | VAL         |
| 1          | B            | 1058       | LEU         |
| 1          | B            | 1068       | LEU         |
| 1          | C            | 539        | ALA         |
| 1          | C            | 648        | ALA         |
| 1          | C            | 1002       | VAL         |
| 1          | C            | 1058       | LEU         |
| 1          | C            | 1064       | ALA         |
| 1          | C            | 1067       | ASP         |
| 1          | D            | 497        | ALA         |
| 1          | D            | 903        | ASP         |
| 1          | D            | 909        | PRO         |
| 1          | D            | 1002       | VAL         |
| 1          | D            | 1058       | LEU         |
| 1          | A            | 908        | THR         |
| 1          | A            | 909        | PRO         |
| 1          | A            | 1067       | ASP         |
| 1          | B            | 903        | ASP         |
| 1          | B            | 908        | THR         |
| 1          | B            | 936        | GLU         |
| 1          | B            | 1074       | ARG         |
| 1          | C            | 497        | ALA         |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | C     | 908  | THR  |
| 1   | C     | 909  | PRO  |
| 1   | C     | 1014 | PRO  |
| 1   | D     | 648  | ALA  |
| 1   | D     | 714  | SER  |
| 1   | D     | 951  | TYR  |
| 1   | D     | 1067 | ASP  |
| 1   | A     | 530  | PRO  |
| 1   | A     | 539  | ALA  |
| 1   | A     | 561  | PRO  |
| 1   | B     | 539  | ALA  |
| 1   | B     | 981  | SER  |
| 1   | D     | 908  | THR  |
| 1   | D     | 1074 | ARG  |
| 1   | B     | 1014 | PRO  |
| 1   | C     | 561  | PRO  |
| 1   | C     | 1074 | ARG  |
| 1   | D     | 981  | SER  |
| 1   | D     | 998  | HIS  |
| 1   | A     | 611  | THR  |
| 1   | B     | 530  | PRO  |
| 1   | B     | 561  | PRO  |
| 1   | C     | 964  | ARG  |
| 1   | C     | 998  | HIS  |
| 1   | D     | 539  | ALA  |
| 1   | D     | 561  | PRO  |
| 1   | D     | 1014 | PRO  |
| 1   | A     | 1014 | PRO  |
| 1   | D     | 530  | PRO  |
| 1   | C     | 530  | PRO  |

### 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     | 493/593 (83%) | 461 (94%) | 32 (6%)  | <span style="border: 1px solid red; padding: 2px;">17</span>   50 |

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| Mol | Chain | Analysed        | Rotameric  | Outliers | Percentiles |    |
|-----|-------|-----------------|------------|----------|-------------|----|
| 1   | B     | 493/593 (83%)   | 465 (94%)  | 28 (6%)  | 20          | 56 |
| 1   | C     | 493/593 (83%)   | 466 (94%)  | 27 (6%)  | 21          | 57 |
| 1   | D     | 493/593 (83%)   | 467 (95%)  | 26 (5%)  | 22          | 58 |
| All | All   | 1972/2372 (83%) | 1859 (94%) | 113 (6%) | 20          | 56 |

All (113) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 494  | GLN  |
| 1   | A     | 496  | ARG  |
| 1   | A     | 498  | GLN  |
| 1   | A     | 542  | ARG  |
| 1   | A     | 601  | LEU  |
| 1   | A     | 607  | TRP  |
| 1   | A     | 632  | GLU  |
| 1   | A     | 712  | ASP  |
| 1   | A     | 729  | GLU  |
| 1   | A     | 732  | ARG  |
| 1   | A     | 739  | CYS  |
| 1   | A     | 743  | MET  |
| 1   | A     | 755  | LEU  |
| 1   | A     | 756  | VAL  |
| 1   | A     | 765  | ASP  |
| 1   | A     | 774  | ASP  |
| 1   | A     | 799  | ASP  |
| 1   | A     | 807  | GLN  |
| 1   | A     | 849  | ASP  |
| 1   | A     | 855  | LYS  |
| 1   | A     | 858  | ASN  |
| 1   | A     | 874  | LEU  |
| 1   | A     | 923  | GLN  |
| 1   | A     | 936  | GLU  |
| 1   | A     | 988  | GLN  |
| 1   | A     | 996  | ASP  |
| 1   | A     | 1044 | ILE  |
| 1   | A     | 1050 | VAL  |
| 1   | A     | 1067 | ASP  |
| 1   | A     | 1079 | GLU  |
| 1   | A     | 1084 | LEU  |
| 1   | A     | 1090 | LYS  |
| 1   | B     | 494  | GLN  |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | B            | 496        | ARG         |
| 1          | B            | 498        | GLN         |
| 1          | B            | 542        | ARG         |
| 1          | B            | 601        | LEU         |
| 1          | B            | 607        | TRP         |
| 1          | B            | 680        | LEU         |
| 1          | B            | 712        | ASP         |
| 1          | B            | 729        | GLU         |
| 1          | B            | 732        | ARG         |
| 1          | B            | 743        | MET         |
| 1          | B            | 755        | LEU         |
| 1          | B            | 756        | VAL         |
| 1          | B            | 765        | ASP         |
| 1          | B            | 799        | ASP         |
| 1          | B            | 807        | GLN         |
| 1          | B            | 849        | ASP         |
| 1          | B            | 855        | LYS         |
| 1          | B            | 858        | ASN         |
| 1          | B            | 923        | GLN         |
| 1          | B            | 936        | GLU         |
| 1          | B            | 988        | GLN         |
| 1          | B            | 996        | ASP         |
| 1          | B            | 1044       | ILE         |
| 1          | B            | 1050       | VAL         |
| 1          | B            | 1067       | ASP         |
| 1          | B            | 1084       | LEU         |
| 1          | B            | 1090       | LYS         |
| 1          | C            | 494        | GLN         |
| 1          | C            | 496        | ARG         |
| 1          | C            | 498        | GLN         |
| 1          | C            | 542        | ARG         |
| 1          | C            | 601        | LEU         |
| 1          | C            | 607        | TRP         |
| 1          | C            | 632        | GLU         |
| 1          | C            | 729        | GLU         |
| 1          | C            | 743        | MET         |
| 1          | C            | 755        | LEU         |
| 1          | C            | 756        | VAL         |
| 1          | C            | 765        | ASP         |
| 1          | C            | 799        | ASP         |
| 1          | C            | 807        | GLN         |
| 1          | C            | 855        | LYS         |

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| <b>Mol</b> | <b>Chain</b> | <b>Res</b> | <b>Type</b> |
|------------|--------------|------------|-------------|
| 1          | C            | 858        | ASN         |
| 1          | C            | 923        | GLN         |
| 1          | C            | 936        | GLU         |
| 1          | C            | 988        | GLN         |
| 1          | C            | 996        | ASP         |
| 1          | C            | 1044       | ILE         |
| 1          | C            | 1050       | VAL         |
| 1          | C            | 1067       | ASP         |
| 1          | C            | 1068       | LEU         |
| 1          | C            | 1079       | GLU         |
| 1          | C            | 1084       | LEU         |
| 1          | C            | 1090       | LYS         |
| 1          | D            | 494        | GLN         |
| 1          | D            | 496        | ARG         |
| 1          | D            | 498        | GLN         |
| 1          | D            | 542        | ARG         |
| 1          | D            | 601        | LEU         |
| 1          | D            | 607        | TRP         |
| 1          | D            | 712        | ASP         |
| 1          | D            | 732        | ARG         |
| 1          | D            | 743        | MET         |
| 1          | D            | 755        | LEU         |
| 1          | D            | 756        | VAL         |
| 1          | D            | 765        | ASP         |
| 1          | D            | 799        | ASP         |
| 1          | D            | 807        | GLN         |
| 1          | D            | 855        | LYS         |
| 1          | D            | 858        | ASN         |
| 1          | D            | 923        | GLN         |
| 1          | D            | 936        | GLU         |
| 1          | D            | 988        | GLN         |
| 1          | D            | 996        | ASP         |
| 1          | D            | 1044       | ILE         |
| 1          | D            | 1050       | VAL         |
| 1          | D            | 1067       | ASP         |
| 1          | D            | 1079       | GLU         |
| 1          | D            | 1084       | LEU         |
| 1          | D            | 1090       | LYS         |

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. All (73) such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1   | A     | 494 | GLN  |
| 1   | A     | 498 | GLN  |
| 1   | A     | 502 | HIS  |
| 1   | A     | 560 | HIS  |
| 1   | A     | 574 | HIS  |
| 1   | A     | 575 | GLN  |
| 1   | A     | 721 | GLN  |
| 1   | A     | 736 | HIS  |
| 1   | A     | 807 | GLN  |
| 1   | A     | 858 | ASN  |
| 1   | A     | 873 | ASN  |
| 1   | A     | 879 | HIS  |
| 1   | A     | 898 | ASN  |
| 1   | A     | 899 | GLN  |
| 1   | A     | 924 | ASN  |
| 1   | A     | 949 | GLN  |
| 1   | A     | 998 | HIS  |
| 1   | B     | 494 | GLN  |
| 1   | B     | 498 | GLN  |
| 1   | B     | 502 | HIS  |
| 1   | B     | 506 | HIS  |
| 1   | B     | 560 | HIS  |
| 1   | B     | 574 | HIS  |
| 1   | B     | 575 | GLN  |
| 1   | B     | 721 | GLN  |
| 1   | B     | 736 | HIS  |
| 1   | B     | 771 | HIS  |
| 1   | B     | 807 | GLN  |
| 1   | B     | 858 | ASN  |
| 1   | B     | 873 | ASN  |
| 1   | B     | 879 | HIS  |
| 1   | B     | 898 | ASN  |
| 1   | B     | 899 | GLN  |
| 1   | B     | 924 | ASN  |
| 1   | B     | 934 | GLN  |
| 1   | B     | 949 | GLN  |
| 1   | B     | 998 | HIS  |
| 1   | C     | 494 | GLN  |
| 1   | C     | 498 | GLN  |
| 1   | C     | 502 | HIS  |
| 1   | C     | 506 | HIS  |
| 1   | C     | 560 | HIS  |
| 1   | C     | 574 | HIS  |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | C     | 575  | GLN  |
| 1   | C     | 721  | GLN  |
| 1   | C     | 736  | HIS  |
| 1   | C     | 807  | GLN  |
| 1   | C     | 858  | ASN  |
| 1   | C     | 873  | ASN  |
| 1   | C     | 879  | HIS  |
| 1   | C     | 898  | ASN  |
| 1   | C     | 899  | GLN  |
| 1   | C     | 924  | ASN  |
| 1   | C     | 998  | HIS  |
| 1   | C     | 1075 | GLN  |
| 1   | D     | 494  | GLN  |
| 1   | D     | 498  | GLN  |
| 1   | D     | 502  | HIS  |
| 1   | D     | 506  | HIS  |
| 1   | D     | 560  | HIS  |
| 1   | D     | 574  | HIS  |
| 1   | D     | 575  | GLN  |
| 1   | D     | 721  | GLN  |
| 1   | D     | 736  | HIS  |
| 1   | D     | 771  | HIS  |
| 1   | D     | 807  | GLN  |
| 1   | D     | 858  | ASN  |
| 1   | D     | 873  | ASN  |
| 1   | D     | 879  | HIS  |
| 1   | D     | 898  | ASN  |
| 1   | D     | 899  | GLN  |
| 1   | D     | 924  | ASN  |
| 1   | D     | 998  | HIS  |

### 5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

### 5.4 Non-standard residues in protein, DNA, RNA chains ⓘ

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

## 5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

## 5.6 Ligand geometry [i](#)

Of 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 [i](#)

There are no such residues in this entry.

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

There are no chain breaks in this entry.

## 6 Fit of model and data [i](#)

### 6.1 Protein, DNA and RNA chains [i](#)

In the following table, the column labelled '#RSRZ > 2' contains the number (and percentage) of RSRZ outliers, followed by percent RSRZ outliers for the chain as percentile scores relative to all X-ray entries and entries of similar resolution. The OWAB column contains the minimum, median, 95<sup>th</sup> percentile and maximum values of the occupancy-weighted average B-factor per residue. The column labelled 'Q < 0.9' lists the number of (and percentage) of residues with an average occupancy less than 0.9.

| Mol | Chain | Analysed        | <RSRZ> | #RSRZ>2      | OWAB(Å <sup>2</sup> ) | Q<0.9 |
|-----|-------|-----------------|--------|--------------|-----------------------|-------|
| 1   | A     | 601/718 (83%)   | -0.07  | 1 (0%) 95 87 | 47, 47, 47, 78        | 0     |
| 1   | B     | 601/718 (83%)   | -0.11  | 1 (0%) 95 87 | 47, 47, 47, 78        | 0     |
| 1   | C     | 601/718 (83%)   | -0.09  | 4 (0%) 87 69 | 1, 47, 47, 78         | 0     |
| 1   | D     | 601/718 (83%)   | -0.07  | 2 (0%) 94 84 | 47, 47, 47, 78        | 0     |
| All | All   | 2404/2872 (83%) | -0.08  | 8 (0%) 94 84 | 1, 47, 47, 78         | 0     |

All (8) RSRZ outliers are listed below:

| Mol | Chain | Res  | Type | RSRZ |
|-----|-------|------|------|------|
| 1   | C     | 1094 | ALA  | 3.4  |
| 1   | A     | 494  | GLN  | 2.6  |
| 1   | D     | 1052 | LEU  | 2.5  |
| 1   | D     | 1055 | GLY  | 2.2  |
| 1   | C     | 960  | PRO  | 2.1  |
| 1   | C     | 1072 | GLY  | 2.1  |
| 1   | B     | 1052 | LEU  | 2.1  |
| 1   | C     | 935  | ALA  | 2.0  |

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

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

### 6.3 Carbohydrates [i](#)

There are no carbohydrates in this entry.

## 6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. The B-factors column lists the minimum, median, 95<sup>th</sup> percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

| Mol | Type | Chain | Res  | Atoms | RSCC | RSR  | B-factors( $\text{\AA}^2$ ) | Q<0.9 |
|-----|------|-------|------|-------|------|------|-----------------------------|-------|
| 2   | MN   | A     | 2001 | 1/1   | 0.93 | 0.21 | 87,87,87,87                 | 0     |
| 2   | MN   | B     | 2001 | 1/1   | 0.95 | 0.24 | 87,87,87,87                 | 0     |
| 2   | MN   | D     | 2001 | 1/1   | 0.97 | 0.23 | 87,87,87,87                 | 0     |
| 2   | MN   | C     | 2001 | 1/1   | 0.99 | 0.21 | 87,87,87,87                 | 0     |

## 6.5 Other polymers [i](#)

There are no such residues in this entry.