



## Full wwPDB EM Validation Report ⓘ

Dec 17, 2022 – 05:22 pm GMT

PDB ID : 6ZH8  
EMDB ID : EMD-11216  
Title : Cryo-EM structure of DNA-PKcs:DNA  
Authors : Chaplin, A.K.; Hardwick, S.W.; Chirgadze, D.Y.; Blundell, T.L.  
Deposited on : 2020-06-21  
Resolution : 4.14 Å (reported)

This is a Full wwPDB EM 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/EMValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

The types of validation reports are described at

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

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

EMDB validation analysis : 0.0.1.dev43  
MolProbity : 4.02b-467  
Percentile statistics : 20191225.v01 (using entries in the PDB archive December 25th 2019)  
MapQ : 1.9.9  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.31.3

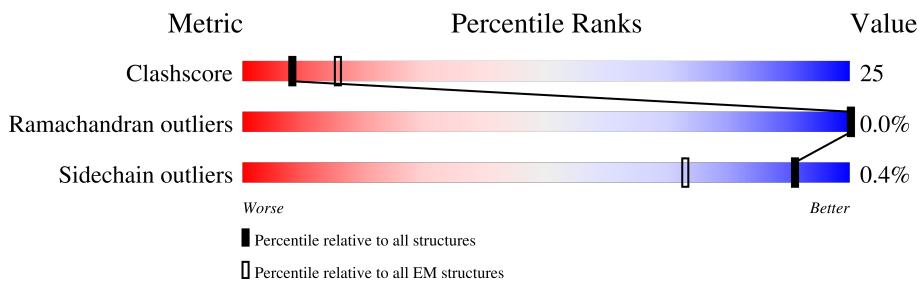
# 1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

*ELECTRON MICROSCOPY*

The reported resolution of this entry is 4.14 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) | EM structures<br>(#Entries) |
|-----------------------|-----------------------------|-----------------------------|
| Clashscore            | 158937                      | 4297                        |
| Ramachandran outliers | 154571                      | 4023                        |
| Sidechain outliers    | 154315                      | 3826                        |

The table below summarises the geometric issues observed across the polymeric chains and their fit to the map. The red, orange, yellow and green segments of the 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 EM map (all-atom inclusion  $< 40\%$ ). The numeric value is given above the bar.

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1   | A     | 4156   |                  |
| 2   | B     | 11     |                  |
| 3   | C     | 8      |                  |

## 2 Entry composition

There are 3 unique types of molecules in this entry. The entry contains 29506 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, 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 DNA-dependent protein kinase catalytic subunit,DNA-PKcs.

| Mol | Chain | Residues | Atoms |       |      |      |     | AltConf | Trace |
|-----|-------|----------|-------|-------|------|------|-----|---------|-------|
|     |       |          | Total | C     | N    | O    | S   |         |       |
| 1   | A     | 3694     | 29120 | 18668 | 4926 | 5333 | 193 | 0       | 0     |

- Molecule 2 is a DNA chain called DNA (5'-D(P\*AP\*GP\*TP\*TP\*TP\*TP\*TP\*AP\*GP\*TP\*T)-3').

| Mol | Chain | Residues | Atoms |     |    |    |    | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|----|---------|-------|
|     |       |          | Total | C   | N  | O  | P  |         |       |
| 2   | B     | 11       | 222   | 106 | 34 | 71 | 11 | 0       | 0     |

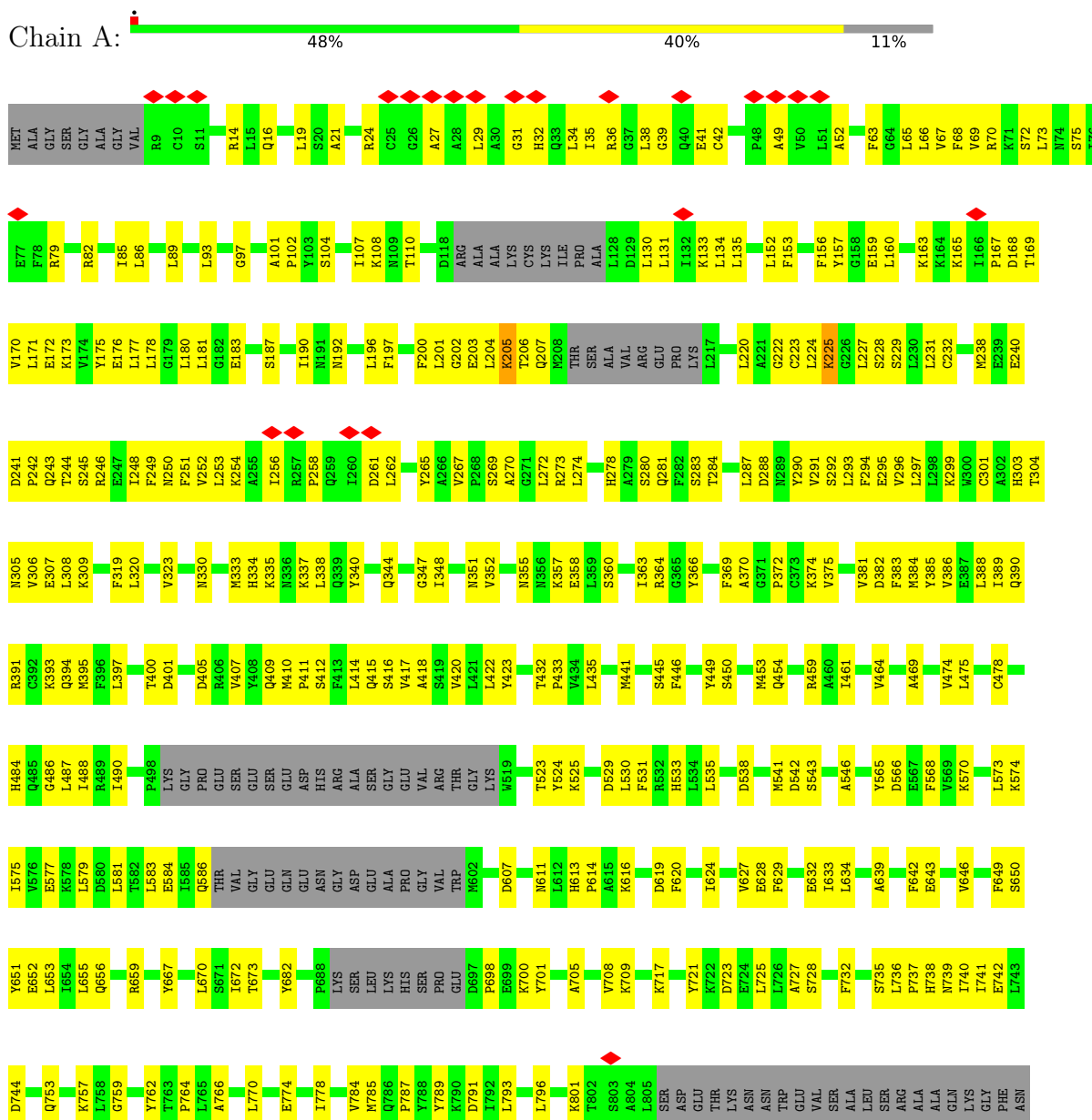
- Molecule 3 is a DNA chain called DNA (5'-D(P\*AP\*CP\*TP\*AP\*AP\*AP\*AP\*A)-3').

| Mol | Chain | Residues | Atoms |    |    |    |   | AltConf | Trace |
|-----|-------|----------|-------|----|----|----|---|---------|-------|
|     |       |          | Total | C  | N  | O  | P |         |       |
| 3   | C     | 8        | 164   | 78 | 35 | 43 | 8 | 0       | 0     |

### 3 Residue-property plots

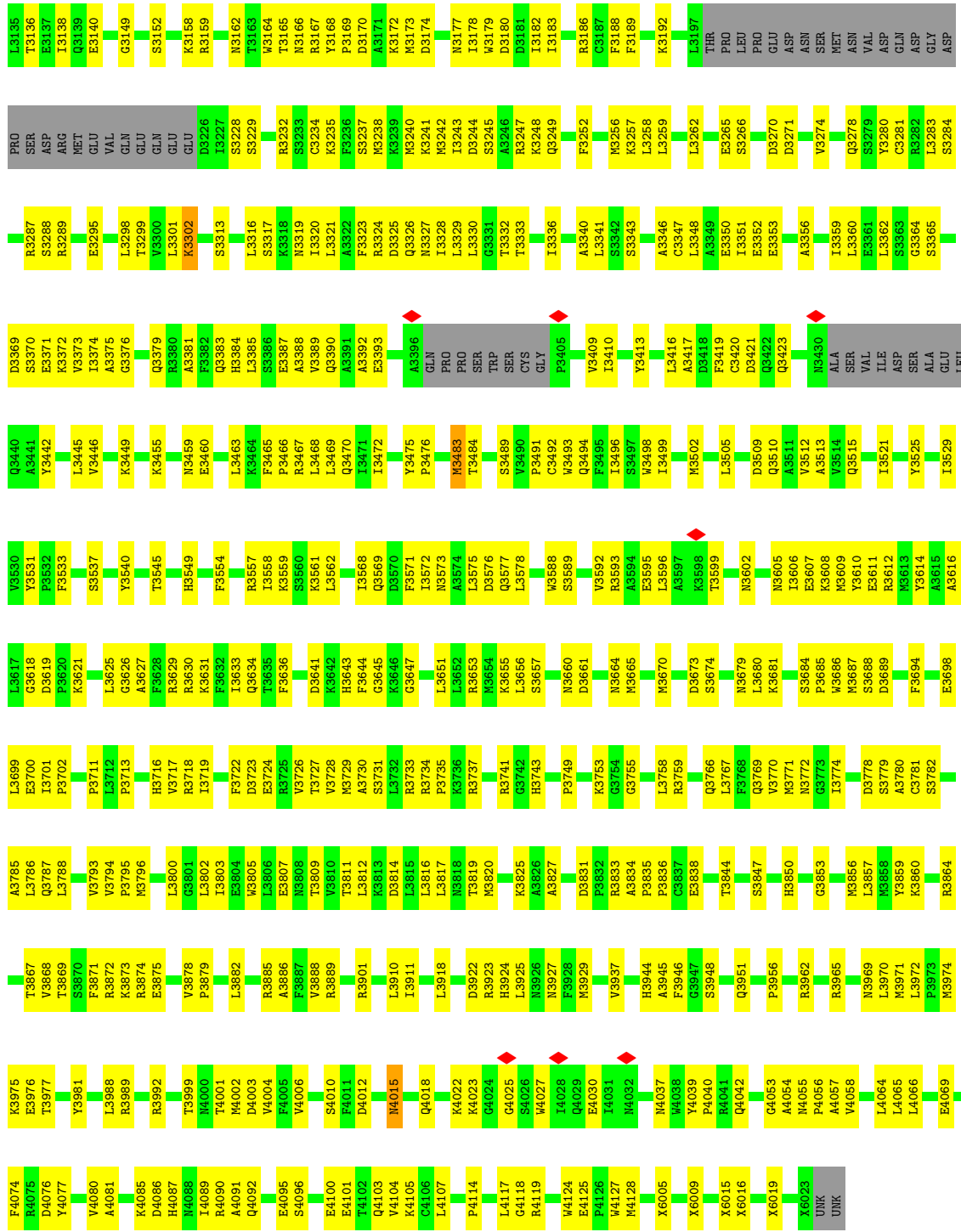
These plots are drawn for all protein, RNA, DNA and oligosaccharide chains in the entry. The first graphic for a chain summarises the proportions of the various outlier classes displayed in the second graphic. The second graphic shows the sequence view annotated by issues in geometry and atom inclusion in map density. Residues are color-coded according to the number of geometric quality criteria for which they contain at least one outlier: green = 0, yellow = 1, orange = 2 and red = 3 or more. A red diamond above a residue indicates a poor fit to the EM map for this residue (all-atom inclusion < 40%). Stretches of 2 or more consecutive residues without any outlier are shown as a green connector. Residues present in the sample, but not in the model, are shown in grey.

- Molecule 1: DNA-dependent protein kinase catalytic subunit,DNA-PKCs

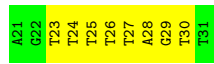


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| T1865 | Q1866 | L1797 | L1798 | T1868 | F1722 | P1723 | K1870 | M1871 | G1872 | R1806 | K1807 | R1811 | L1812 | T1815 | R1816 | Q1817 | R1818 | F1819 | V1820 | D1821 | R1822 | S1823 | L1824 | L1825 | T1826 | L1827 | L1828 | C1831 | S1832 | E1833 | D1834 | A1835 | L1836 | R1837 | E1838 | F1839 | F1840 | R1843 | V1844 | D1845 | A1846 | L1847 | D1848 | V1849 | L1851 | F1855 | T1856 | L1857 | L1858 | R1859 | E1860 | S1861 | P1871 | L1862 | L1863 | L1864 | V1719 | A1720 | H1721 | F1722 | P1723 | F1729 | P1730 | L1731 | R1735 | F1736 | M1737 | M1738 | F1746 | L1747 | D1748 | A1749 | L1750 | E1751 | Q1754 | S1755 | I1756 | P1756 | M1757 | L1758 | L1761 | M1762 | E1763 | E1764 | V1765 | R1768 | E1769 | Q1770 | Q1771 | H1772 | L1773 | M1774 | E1775 | E1776 | L1777 | F1778 | Q1779 | S1780 | S1781 | R1784 | L1785 | A1786 | R1787 | R1788 | G1789 | S1790 | T1793 | Q1794 | F1863 | L1864 | M1568 | T1569 | E1570 | L1571 | L1575 | V1579 | L1580 | E1581 | L1582 | M1583 | Q1584 | S1585 | D1588 | M1589 | T1590 | K1591 | M1592 | S1594 | A1595 | V1596 | L1597 | M1598 | G1599 | M1600 | L1601 | D1602 | Q1603 | R1606 | Q1611 | K1612 | H1613 | Q1614 | K1617 | L1618 | T1621 | I1622 | L1623 | Q1624 | H1625 | V1626 | K1627 | W1632 | W1633 | A1634 | S1637 | L1638 | L1639 | E1640 | T1641 | K1642 | M1643 | L1649 | A1650 | K1651 | I1652 | L1653 | Q1654 | L1655 | S1660 | F1661 | M1662 | T1663 | M1664 | H1665 | G1666 | S1667 | F1668 | P1669 | E1670 | Y1675 | I1676 | S1677 | L1678 | L1679 | A1680 | D1681 | L1684 | D1685 | L1686 | K1689 | G1690 | H1613 | V1693 | T1694 | L1695 | L1696 | F1699 | L1702 | T1703 | G1704 | G1705 | S1706 | L1707 | E1708 | E1709 | L1710 | R1711 | R1712 | G1713 | L1714 | L1717 | I1718 | M1643 | L1649 | A1650 | K1651 | I1652 | L1653 | Q1654 | L1655 | S1660 | F1661 | M1662 | T1663 | M1664 | H1665 | G1666 | S1667 | F1668 | P1669 | E1670 | Y1675 | I1676 | S1677 | L1678 | L1679 | A1680 | D1681 | L1684 | D1685 | L1686 | K1689 | G1690 | H1613 | V1693 | T1694 | L1695 | L1696 | F1699 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|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-----|-----|-----|-----|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-----|-----|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-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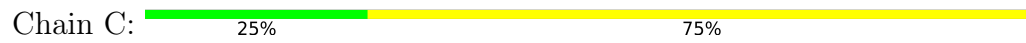




• Molecule 2: DNA (5'-D(P\*AP\*GP\*TP\*TP\*TP\*TP\*TP\*AP\*GP\*TP\*T)-3')



• Molecule 3: DNA (5'-D(P\*AP\*CP\*TP\*AP\*AP\*AP\*AP\*A)-3')



|     |
|-----|
| A26 |
| C27 |
| T28 |
| A29 |
| A30 |
| A31 |
| A32 |
| A33 |



## 4 Experimental information

| Property                             | Value                                   | Source    |
|--------------------------------------|---|-----------|
| EM reconstruction method             | SINGLE PARTICLE                         | Depositor |
| Imposed symmetry                     | POINT, C1                               | Depositor |
| Number of particles used             | 31881                                   | Depositor |
| Resolution determination method      | FSC 0.143 CUT-OFF                       | Depositor |
| CTF correction method                | PHASE FLIPPING AND AMPLITUDE CORRECTION | Depositor |
| Microscope                           | FEI TITAN KRIOS                         | Depositor |
| Voltage (kV)                         | 300                                     | Depositor |
| Electron dose ( $e^-/\text{\AA}^2$ ) | 52.97                                   | Depositor |
| Minimum defocus (nm)                 | Not provided                            |           |
| Maximum defocus (nm)                 | Not provided                            |           |
| Magnification                        | Not provided                            |           |
| Image detector                       | GATAN K2 SUMMIT (4k x 4k)               | Depositor |
| Maximum map value                    | 0.445                                   | Depositor |
| Minimum map value                    | -0.076                                  | Depositor |
| Average map value                    | 0.002                                   | Depositor |
| Map value standard deviation         | 0.022                                   | Depositor |
| Recommended contour level            | 0.125                                   | Depositor |
| Map size (Å)                         | 356.99997, 356.99997, 356.99997         | wwPDB     |
| Map dimensions                       | 340, 340, 340                           | wwPDB     |
| Map angles (°)                       | 90.0, 90.0, 90.0                        | wwPDB     |
| Pixel spacing (Å)                    | 1.05, 1.05, 1.05                        | Depositor |

## 5 Model quality [i](#)

### 5.1 Standard geometry [i](#)

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     | 0.32         | 0/29582 | 0.47        | 0/40029 |
| 2   | B     | 0.60         | 0/247   | 1.15        | 0/378   |
| 3   | C     | 0.64         | 0/185   | 0.87        | 0/282   |
| All | All   | 0.33         | 0/30014 | 0.49        | 0/40689 |

There are no bond length outliers.

There are no bond angle outliers.

There are no chirality outliers.

There are no planarity outliers.

### 5.2 Too-close contacts [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     | 29120 | 0        | 29078    | 1353    | 0            |
| 2   | B     | 222   | 0        | 117      | 10      | 0            |
| 3   | C     | 164   | 0        | 87       | 6       | 0            |
| All | All   | 29506 | 0        | 29282    | 1369    | 0            |

The all-atom clashscore is defined as the number of clashes found per 1000 atoms (including hydrogen atoms). The all-atom clashscore for this structure is 25.

All (1369) close contacts within the same asymmetric unit are listed below, sorted by their clash magnitude.

| Atom-1            | Atom-2          | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-----------------|--------------------------|-------------------|
| 1:A:3472:ILE:HG21 | 1:A:3483:MET:CE | 1.65                     | 1.25              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:3472:ILE:HG21 | 1:A:3483:MET:HE1  | 1.25                     | 1.11              |
| 1:A:3472:ILE:CG2  | 1:A:3483:MET:CE   | 2.32                     | 1.06              |
| 1:A:3472:ILE:CG2  | 1:A:3483:MET:HE1  | 1.91                     | 0.98              |
| 1:A:1351:THR:HG22 | 1:A:1353:PRO:HD2  | 1.48                     | 0.95              |
| 1:A:3472:ILE:CG2  | 1:A:3483:MET:HE3  | 2.02                     | 0.88              |
| 1:A:2452:ARG:HD2  | 1:A:2494:ASP:HB2  | 1.55                     | 0.87              |
| 1:A:1662:ASN:H    | 1:A:1665:HIS:HE1  | 1.23                     | 0.86              |
| 1:A:2999:LEU:HD21 | 1:A:3016:THR:HB   | 1.58                     | 0.84              |
| 1:A:175:TYR:O     | 1:A:178:LEU:HB3   | 1.79                     | 0.83              |
| 1:A:3284:SER:HB2  | 1:A:3301:LEU:HD12 | 1.60                     | 0.83              |
| 1:A:3298:LEU:HD12 | 1:A:3333:THR:HG23 | 1.61                     | 0.82              |
| 1:A:3679:ASN:HB3  | 1:A:3684:SER:HB2  | 1.61                     | 0.81              |
| 1:A:1603:GLN:HG2  | 1:A:1606:ARG:HH12 | 1.47                     | 0.80              |
| 1:A:3872:ARG:HH22 | 1:A:4114:PRO:HG3  | 1.47                     | 0.80              |
| 1:A:2350:LYS:HA   | 1:A:2353:GLN:HB3  | 1.66                     | 0.78              |
| 1:A:2589:TYR:HB2  | 1:A:2777:HIS:HB2  | 1.64                     | 0.78              |
| 1:A:238:MET:HE1   | 1:A:284:THR:H     | 1.49                     | 0.77              |
| 1:A:652:GLU:O     | 1:A:655:LEU:HB2   | 1.83                     | 0.77              |
| 1:A:3180:ASP:HA   | 1:A:3242:MET:HE1  | 1.65                     | 0.77              |
| 1:A:265:TYR:HB3   | 1:A:308:LEU:HD11  | 1.66                     | 0.76              |
| 1:A:86:LEU:HD13   | 1:A:89:LEU:HD21   | 1.67                     | 0.76              |
| 1:A:909:VAL:HG13  | 1:A:2807:GLN:HE21 | 1.50                     | 0.76              |
| 1:A:1021:VAL:O    | 1:A:1026:ARG:NH2  | 2.20                     | 0.75              |
| 1:A:2425:ARG:HE   | 1:A:2457:PRO:HB3  | 1.52                     | 0.75              |
| 1:A:980:THR:HA    | 1:A:983:LEU:HD12  | 1.70                     | 0.74              |
| 1:A:1007:VAL:HG23 | 1:A:1010:LEU:HD12 | 1.70                     | 0.74              |
| 1:A:1664:SER:H    | 1:A:1668:PHE:HB3  | 1.52                     | 0.74              |
| 1:A:1828:LEU:O    | 1:A:1883:ARG:NH1  | 2.21                     | 0.74              |
| 1:A:1539:SER:HA   | 1:A:1552:HIS:HA   | 1.68                     | 0.74              |
| 1:A:1662:ASN:H    | 1:A:1665:HIS:CE1  | 2.05                     | 0.74              |
| 1:A:2123:PRO:HD2  | 1:A:2126:MET:HE2  | 1.69                     | 0.74              |
| 1:A:1419:LEU:HB3  | 1:A:1467:ILE:HD12 | 1.70                     | 0.73              |
| 1:A:2327:LEU:HA   | 1:A:2330:VAL:HG12 | 1.70                     | 0.73              |
| 1:A:2542:LEU:HD21 | 1:A:2558:ALA:HB1  | 1.70                     | 0.73              |
| 1:A:347:GLY:O     | 1:A:351:ASN:ND2   | 2.22                     | 0.73              |
| 1:A:988:VAL:HA    | 1:A:991:LEU:HD12  | 1.71                     | 0.72              |
| 1:A:3376:GLY:O    | 1:A:3379:GLN:NE2  | 2.22                     | 0.72              |
| 1:A:240:GLU:O     | 1:A:243:GLN:NE2   | 2.23                     | 0.72              |
| 1:A:1932:GLN:H    | 1:A:1937:ARG:HH22 | 1.35                     | 0.72              |
| 1:A:3465:PHE:HA   | 1:A:3468:LEU:HD13 | 1.71                     | 0.71              |
| 1:A:3729:MET:O    | 1:A:3734:ARG:NH2  | 2.23                     | 0.71              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:2962:ARG:HG2  | 1:A:3989:ARG:HH22 | 1.54                     | 0.71              |
| 1:A:2258:GLU:HA   | 1:A:2261:SER:HB2  | 1.72                     | 0.71              |
| 1:A:2519:LEU:O    | 1:A:2523:ASN:ND2  | 2.23                     | 0.71              |
| 1:A:4085:LYS:O    | 1:A:4092:GLN:NE2  | 2.23                     | 0.71              |
| 1:A:3631:LYS:O    | 1:A:3634:GLN:NE2  | 2.23                     | 0.71              |
| 1:A:3545:THR:OG1  | 1:A:3549:HIS:NE2  | 2.21                     | 0.71              |
| 1:A:3922:ASP:O    | 1:A:3923:ARG:NH1  | 2.24                     | 0.71              |
| 1:A:1834:ASP:OD1  | 1:A:1835:ALA:N    | 2.24                     | 0.70              |
| 1:A:4006:VAL:HG12 | 1:A:4040:PRO:HB3  | 1.73                     | 0.70              |
| 1:A:2429:ASP:O    | 1:A:2433:LYS:N    | 2.23                     | 0.70              |
| 1:A:407:VAL:HA    | 1:A:410:MET:HG2   | 1.74                     | 0.70              |
| 1:A:393:LYS:HG3   | 1:A:397:LEU:HD12  | 1.74                     | 0.70              |
| 1:A:1479:VAL:HA   | 1:A:1482:GLU:HB3  | 1.73                     | 0.70              |
| 1:A:1164:CYS:SG   | 1:A:1165:LEU:N    | 2.65                     | 0.69              |
| 1:A:2155:GLU:HA   | 1:A:2158:ARG:HE   | 1.56                     | 0.69              |
| 1:A:1660:SER:O    | 1:A:1665:HIS:NE2  | 2.25                     | 0.69              |
| 1:A:6015:UNK:O    | 1:A:6019:UNK:N    | 2.25                     | 0.69              |
| 1:A:1639:LEU:HA   | 1:A:1642:LYS:HG2  | 1.74                     | 0.69              |
| 1:A:2393:LEU:HD13 | 1:A:2396:LEU:HD12 | 1.73                     | 0.69              |
| 1:A:1751:GLU:O    | 1:A:1788:ARG:NH2  | 2.26                     | 0.69              |
| 1:A:2307:MET:HA   | 1:A:2316:TYR:HB2  | 1.73                     | 0.69              |
| 1:A:3379:GLN:OE1  | 1:A:3383:GLN:NE2  | 2.26                     | 0.69              |
| 1:A:227:LEU:O     | 1:A:231:LEU:N     | 2.26                     | 0.69              |
| 1:A:1583:MET:HE1  | 1:A:1626:TRP:HA   | 1.74                     | 0.69              |
| 1:A:1653:LEU:HD12 | 1:A:1695:LEU:HD12 | 1.74                     | 0.68              |
| 1:A:245:SER:HA    | 1:A:248:ILE:HD12  | 1.75                     | 0.68              |
| 1:A:849:GLU:OE1   | 1:A:849:GLU:N     | 2.22                     | 0.68              |
| 1:A:370:ALA:O     | 1:A:374:LYS:N     | 2.27                     | 0.68              |
| 1:A:2455:LEU:HD11 | 1:A:2498:ILE:HG23 | 1.76                     | 0.68              |
| 1:A:2919:ASP:O    | 1:A:2923:TRP:N    | 2.23                     | 0.68              |
| 1:A:3360:LEU:O    | 1:A:3364:GLY:N    | 2.26                     | 0.68              |
| 1:A:3529:ILE:HG22 | 1:A:3533:PHE:HB2  | 1.76                     | 0.68              |
| 1:A:3731:SER:O    | 1:A:3734:ARG:NH1  | 2.27                     | 0.68              |
| 1:A:1014:LEU:HD21 | 1:A:1025:LEU:HD21 | 1.76                     | 0.68              |
| 1:A:1640:GLU:HA   | 1:A:1643:MET:SD   | 2.34                     | 0.68              |
| 1:A:3911:ILE:HD12 | 1:A:3937:VAL:HG13 | 1.75                     | 0.68              |
| 1:A:918:ALA:O     | 1:A:927:LYS:NZ    | 2.21                     | 0.68              |
| 1:A:355:ASN:HB3   | 1:A:358:GLU:HG3   | 1.74                     | 0.67              |
| 1:A:374:LYS:HD2   | 1:A:423:TYR:HB3   | 1.75                     | 0.67              |
| 1:A:1377:CYS:SG   | 1:A:1422:LYS:NZ   | 2.68                     | 0.67              |
| 1:A:1565:GLU:N    | 1:A:1565:GLU:OE1  | 2.24                     | 0.67              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:2243:GLU:O    | 1:A:2246:LYS:NZ   | 2.22                     | 0.67              |
| 1:A:3168:TYR:HD2  | 1:A:3241:LYS:HZ2  | 1.40                     | 0.67              |
| 1:A:3702:PRO:HB2  | 1:A:3794:VAL:HG11 | 1.74                     | 0.67              |
| 1:A:853:ILE:HG22  | 1:A:857:GLN:HE21  | 1.59                     | 0.67              |
| 1:A:1812:LEU:O    | 1:A:1815:THR:N    | 2.27                     | 0.67              |
| 1:A:2168:LEU:O    | 1:A:2171:LEU:HB3  | 1.94                     | 0.67              |
| 1:A:4054:ALA:HA   | 1:A:4096:SER:HA   | 1.76                     | 0.67              |
| 1:A:1202:ARG:NE   | 1:A:1210:ASP:OD2  | 2.27                     | 0.67              |
| 1:A:3772:ASN:ND2  | 1:A:3787:GLN:OE1  | 2.27                     | 0.67              |
| 1:A:3114:TYR:OH   | 1:A:3125:ARG:NH2  | 2.28                     | 0.67              |
| 1:A:172:GLU:N     | 1:A:172:GLU:OE1   | 2.26                     | 0.67              |
| 1:A:1225:GLU:OE2  | 1:A:1236:LEU:N    | 2.25                     | 0.67              |
| 1:A:2803:ILE:HA   | 1:A:2806:LYS:HE3  | 1.74                     | 0.67              |
| 1:A:1075:ARG:NH2  | 1:A:1117:ASP:OD2  | 2.28                     | 0.67              |
| 1:A:1139:GLU:O    | 1:A:1142:HIS:ND1  | 2.28                     | 0.67              |
| 1:A:3484:THR:HG22 | 1:A:3513:ALA:HA   | 1.76                     | 0.67              |
| 1:A:2167:PRO:HA   | 1:A:2170:GLN:HB3  | 1.75                     | 0.66              |
| 1:A:24:ARG:HH21   | 1:A:66:LEU:HD21   | 1.58                     | 0.66              |
| 1:A:169:THR:HG22  | 1:A:170:VAL:H     | 1.59                     | 0.66              |
| 1:A:130:LEU:HG    | 1:A:173:LYS:HZ3   | 1.61                     | 0.66              |
| 1:A:996:THR:HG21  | 1:A:1039:TRP:HB3  | 1.77                     | 0.66              |
| 1:A:3699:LEU:HB2  | 1:A:3719:ILE:HD12 | 1.76                     | 0.66              |
| 1:A:3730:ALA:HA   | 1:A:3734:ARG:HH22 | 1.59                     | 0.66              |
| 1:A:1588:ASP:OD1  | 1:A:1589:ASN:N    | 2.26                     | 0.66              |
| 1:A:1151:ARG:NH1  | 1:A:1163:LEU:O    | 2.29                     | 0.66              |
| 1:A:2103:HIS:O    | 1:A:2107:SER:N    | 2.29                     | 0.66              |
| 1:A:901:MET:HG2   | 1:A:903:PRO:HD3   | 1.77                     | 0.65              |
| 1:A:4037:ASN:HB2  | 1:A:4039:TYR:CE2  | 2.31                     | 0.65              |
| 1:A:1071:ASN:OD1  | 1:A:1073:PHE:N    | 2.28                     | 0.65              |
| 1:A:197:PHE:HD1   | 1:A:227:LEU:HD22  | 1.62                     | 0.65              |
| 1:A:2126:MET:HA   | 1:A:2129:LEU:HB2  | 1.77                     | 0.65              |
| 1:A:1435:ASN:ND2  | 1:A:1444:ASP:OD2  | 2.28                     | 0.65              |
| 1:A:1050:GLU:N    | 1:A:1050:GLU:OE1  | 2.30                     | 0.65              |
| 1:A:1650:ALA:HA   | 1:A:1695:LEU:HD11 | 1.78                     | 0.65              |
| 1:A:1775:GLU:HB3  | 1:A:1779:GLN:HE22 | 1.62                     | 0.65              |
| 1:A:3134:ALA:HB2  | 1:A:3182:ILE:HG22 | 1.79                     | 0.65              |
| 1:A:3321:LEU:HD13 | 1:A:3324:ARG:HH22 | 1.60                     | 0.65              |
| 1:A:997:ASN:HB3   | 1:A:1000:LYS:HG2  | 1.77                     | 0.65              |
| 1:A:2587:GLN:O    | 1:A:2777:HIS:N    | 2.30                     | 0.65              |
| 1:A:75:SER:O      | 1:A:79:ARG:N      | 2.22                     | 0.65              |
| 1:A:1398:VAL:HA   | 1:A:1401:ASN:HD22 | 1.62                     | 0.65              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1935:GLU:OE1  | 1:A:1935:GLU:N    | 2.29                     | 0.65              |
| 1:A:542:ASP:O     | 1:A:546:ALA:N     | 2.30                     | 0.65              |
| 1:A:1936:ARG:HA   | 1:A:1939:LEU:HD12 | 1.77                     | 0.65              |
| 1:A:2973:ASP:OD1  | 1:A:2974:GLU:N    | 2.30                     | 0.65              |
| 1:A:163:LYS:NZ    | 1:A:168:ASP:OD2   | 2.22                     | 0.64              |
| 1:A:3847:SER:HA   | 1:A:3857:LEU:HD22 | 1.79                     | 0.64              |
| 1:A:1011:GLU:OE1  | 1:A:1011:GLU:N    | 2.29                     | 0.64              |
| 1:A:2298:GLU:N    | 1:A:2298:GLU:OE1  | 2.26                     | 0.64              |
| 1:A:4081:ALA:O    | 1:A:4090:ARG:NE   | 2.30                     | 0.64              |
| 1:A:3569:GLN:NE2  | 1:A:3573:ASN:OD1  | 2.30                     | 0.64              |
| 1:A:708:VAL:HG22  | 1:A:740:ILE:HG23  | 1.79                     | 0.64              |
| 1:A:1511:ALA:HA   | 1:A:1514:LEU:HD12 | 1.80                     | 0.64              |
| 1:A:3944:HIS:HB3  | 1:A:3948:SER:HB3  | 1.79                     | 0.64              |
| 1:A:3353:GLU:HG3  | 1:A:3356:ALA:H    | 1.63                     | 0.64              |
| 1:A:1634:ALA:H    | 1:A:1642:LYS:NZ   | 1.96                     | 0.64              |
| 1:A:1594:SER:O    | 1:A:1598:ASN:ND2  | 2.31                     | 0.64              |
| 1:A:19:LEU:HD11   | 1:A:38:LEU:HD22   | 1.79                     | 0.64              |
| 1:A:295:GLU:O     | 1:A:299:LYS:HG2   | 1.98                     | 0.64              |
| 1:A:319:PHE:HD2   | 1:A:320:LEU:HD22  | 1.63                     | 0.63              |
| 1:A:2287:PRO:HG3  | 1:A:2326:ILE:HD12 | 1.80                     | 0.63              |
| 1:A:529:ASP:O     | 1:A:533:HIS:ND1   | 2.31                     | 0.63              |
| 1:A:566:ASP:HB3   | 1:A:570:LYS:HZ1   | 1.62                     | 0.63              |
| 1:A:1676:ILE:O    | 1:A:1680:ALA:N    | 2.31                     | 0.63              |
| 1:A:1681:ASP:HB2  | 1:A:1684:LEU:HD23 | 1.80                     | 0.63              |
| 1:A:2162:LYS:HA   | 1:A:2165:LEU:HD23 | 1.81                     | 0.63              |
| 1:A:2572:TYR:CE2  | 1:A:2788:SER:HB3  | 2.34                     | 0.63              |
| 1:A:135:LEU:HA    | 1:A:177:LEU:HD21  | 1.79                     | 0.63              |
| 1:A:1355:GLY:HA2  | 1:A:1358:LEU:HG   | 1.81                     | 0.63              |
| 1:A:1949:ILE:HD11 | 1:A:2100:LEU:HB2  | 1.79                     | 0.63              |
| 1:A:2522:ARG:O    | 1:A:2526:SER:N    | 2.23                     | 0.63              |
| 1:A:251:PHE:HA    | 1:A:254:LYS:HG2   | 1.79                     | 0.63              |
| 1:A:1248:PHE:O    | 1:A:1251:GLN:NE2  | 2.32                     | 0.63              |
| 1:A:2123:PRO:HB2  | 1:A:2125:TRP:CD1  | 2.33                     | 0.63              |
| 1:A:3244:ASP:OD1  | 1:A:3247:ARG:NH1  | 2.25                     | 0.63              |
| 1:A:3491:PRO:HB2  | 1:A:3494:GLN:HE22 | 1.63                     | 0.63              |
| 1:A:3686:TRP:O    | 1:A:3689:ASP:N    | 2.31                     | 0.63              |
| 1:A:2547:SER:HB3  | 1:A:2550:ILE:HG23 | 1.79                     | 0.63              |
| 1:A:632:GLU:N     | 1:A:632:GLU:OE1   | 2.31                     | 0.63              |
| 1:A:1248:PHE:HB2  | 1:A:1309:ALA:HA   | 1.80                     | 0.63              |
| 1:A:1439:PRO:HA   | 1:A:1442:GLN:HE22 | 1.62                     | 0.63              |
| 1:A:2167:PRO:O    | 1:A:2171:LEU:N    | 2.31                     | 0.63              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:2485:ARG:HH22 | 1:A:2530:ARG:HA   | 1.64                     | 0.63              |
| 1:A:2098:THR:O    | 1:A:2102:LYS:HG2  | 1.98                     | 0.63              |
| 1:A:2950:LYS:O    | 1:A:2954:GLN:NE2  | 2.29                     | 0.63              |
| 1:A:1018:VAL:HB   | 1:A:1021:VAL:HB   | 1.81                     | 0.62              |
| 1:A:3728:VAL:HG12 | 1:A:3734:ARG:HH21 | 1.63                     | 0.62              |
| 1:A:3981:TYR:OH   | 1:A:4105:LYS:NZ   | 2.32                     | 0.62              |
| 1:A:229:SER:O     | 1:A:278:HIS:NE2   | 2.31                     | 0.62              |
| 1:A:1581:GLU:O    | 1:A:1584:GLN:NE2  | 2.31                     | 0.62              |
| 1:A:2245:TRP:HB3  | 1:A:2248:CYS:HB2  | 1.80                     | 0.62              |
| 1:A:2338:GLU:OE1  | 1:A:2338:GLU:N    | 2.32                     | 0.62              |
| 1:A:4080:VAL:O    | 1:A:4090:ARG:NH2  | 2.32                     | 0.62              |
| 1:A:4039:TYR:HB2  | 1:A:4042:GLN:OE1  | 1.98                     | 0.62              |
| 1:A:1118:GLU:HG2  | 1:A:1120:SER:H    | 1.63                     | 0.62              |
| 1:A:2190:VAL:HA   | 1:A:2193:ILE:HG22 | 1.82                     | 0.62              |
| 1:A:3365:SER:OG   | 1:A:3379:GLN:NE2  | 2.32                     | 0.62              |
| 1:A:2523:ASN:HA   | 1:A:2526:SER:HB3  | 1.82                     | 0.62              |
| 1:A:3608:LYS:O    | 1:A:3612:ARG:HG2  | 2.00                     | 0.62              |
| 1:A:2213:ASN:OD1  | 1:A:2214:ARG:NH1  | 2.29                     | 0.62              |
| 1:A:2234:ASN:HA   | 1:A:2237:ILE:HD12 | 1.82                     | 0.62              |
| 1:A:2524:PHE:O    | 1:A:2530:ARG:NH1  | 2.31                     | 0.62              |
| 1:A:3392:ALA:HB1  | 1:A:3409:VAL:HG13 | 1.81                     | 0.62              |
| 1:A:320:LEU:HD12  | 1:A:369:PHE:HE2   | 1.64                     | 0.61              |
| 1:A:1840:PHE:HA   | 1:A:1843:ILE:HG12 | 1.81                     | 0.61              |
| 1:A:4012:ASP:OD1  | 1:A:4015:ASN:N    | 2.30                     | 0.61              |
| 1:A:3087:SER:HB2  | 1:A:3102:TYR:HB2  | 1.82                     | 0.61              |
| 1:A:3455:LYS:NZ   | 1:A:3489:SER:O    | 2.30                     | 0.61              |
| 1:A:793:LEU:HA    | 1:A:796:LEU:HD23  | 1.82                     | 0.61              |
| 1:A:2575:PRO:HA   | 1:A:2785:ILE:O    | 2.00                     | 0.61              |
| 1:A:2806:LYS:HB2  | 1:A:2857:CYS:HB2  | 1.83                     | 0.61              |
| 1:A:3491:PRO:O    | 1:A:3494:GLN:NE2  | 2.33                     | 0.61              |
| 1:A:21:ALA:HA     | 1:A:24:ARG:HB2    | 1.82                     | 0.61              |
| 1:A:698:PRO:HA    | 1:A:701:TYR:HD2   | 1.64                     | 0.61              |
| 1:A:1372:LEU:HD21 | 1:A:1403:MET:HE1  | 1.80                     | 0.61              |
| 1:A:1851:LEU:HD21 | 1:A:1870:LYS:HA   | 1.82                     | 0.61              |
| 1:A:4092:GLN:N    | 1:A:4092:GLN:OE1  | 2.34                     | 0.61              |
| 1:A:860:GLY:HA3   | 1:A:3136:THR:HG21 | 1.82                     | 0.61              |
| 1:A:1082:PHE:HA   | 1:A:1085:ILE:HG12 | 1.82                     | 0.61              |
| 1:A:1221:ILE:O    | 1:A:1225:GLU:N    | 2.33                     | 0.61              |
| 1:A:2830:ASN:O    | 1:A:2834:GLN:HG2  | 2.01                     | 0.61              |
| 1:A:3807:GLU:OE1  | 1:A:3807:GLU:N    | 2.33                     | 0.61              |
| 1:A:2555:LEU:HD11 | 1:A:2854:PHE:HD1  | 1.66                     | 0.60              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:3390:GLN:HA   | 1:A:3393:GLU:HG2  | 1.83                     | 0.60              |
| 1:A:997:ASN:HD21  | 1:A:999:LYS:HE2   | 1.65                     | 0.60              |
| 1:A:3472:ILE:HG21 | 1:A:3483:MET:SD   | 2.41                     | 0.60              |
| 1:A:1362:ASP:O    | 1:A:1365:ASN:ND2  | 2.34                     | 0.60              |
| 1:A:3727:THR:HG23 | 1:A:3737:ARG:HB3  | 1.82                     | 0.60              |
| 1:A:388:LEU:HD21  | 1:A:417:VAL:HG22  | 1.84                     | 0.60              |
| 1:A:1083:ASN:ND2  | 1:A:1126:GLN:OE1  | 2.34                     | 0.60              |
| 1:A:1290:LEU:HD22 | 1:A:1291:LEU:HD12 | 1.81                     | 0.60              |
| 1:A:3313:SER:HA   | 1:A:3316:LEU:HB2  | 1.82                     | 0.60              |
| 1:A:1181:THR:O    | 1:A:1185:HIS:ND1  | 2.33                     | 0.60              |
| 1:A:3630:ARG:HA   | 1:A:3633:ILE:HG12 | 1.83                     | 0.60              |
| 1:A:2298:GLU:HA   | 1:A:2301:GLN:HG2  | 1.83                     | 0.60              |
| 1:A:2930:TYR:O    | 1:A:2934:GLY:N    | 2.34                     | 0.60              |
| 1:A:2969:ALA:HB1  | 1:A:3002:TYR:HE1  | 1.66                     | 0.60              |
| 1:A:449:TYR:O     | 1:A:454:GLN:NE2   | 2.34                     | 0.60              |
| 1:A:1047:GLN:OE1  | 1:A:1047:GLN:N    | 2.30                     | 0.60              |
| 1:A:1506:SER:O    | 1:A:1509:GLN:NE2  | 2.35                     | 0.60              |
| 1:A:1803:GLU:O    | 1:A:1807:LYS:N    | 2.35                     | 0.60              |
| 1:A:3975:LYS:HG3  | 1:A:3976:GLU:H    | 1.65                     | 0.60              |
| 1:A:192:ASN:O     | 1:A:196:LEU:HG    | 2.02                     | 0.59              |
| 1:A:1444:ASP:HA   | 1:A:1447:ARG:NE   | 2.17                     | 0.59              |
| 1:A:3992:ARG:HH12 | 1:A:4053:GLY:HA2  | 1.66                     | 0.59              |
| 1:A:220:LEU:HA    | 1:A:223:CYS:HB3   | 1.83                     | 0.59              |
| 1:A:412:SER:O     | 1:A:415:GLN:HB3   | 2.02                     | 0.59              |
| 1:A:1595:ALA:HA   | 1:A:1598:ASN:HD22 | 1.66                     | 0.59              |
| 1:A:2991:LYS:HA   | 1:A:2994:TRP:CE3  | 2.37                     | 0.59              |
| 1:A:242:PRO:HB2   | 1:A:246:ARG:HH12  | 1.67                     | 0.59              |
| 1:A:990:GLN:HB3   | 1:A:2781:PRO:HD3  | 1.84                     | 0.59              |
| 1:A:1624:GLN:O    | 1:A:1627:LYS:NZ   | 2.33                     | 0.59              |
| 1:A:3173:MET:SD   | 1:A:3782:SER:OG   | 2.59                     | 0.59              |
| 1:A:3878:VAL:O    | 1:A:3965:ARG:NH2  | 2.31                     | 0.59              |
| 1:A:204:LEU:HB3   | 1:A:224:LEU:HD11  | 1.84                     | 0.59              |
| 1:A:1071:ASN:HB3  | 1:A:1074:LYS:HG3  | 1.85                     | 0.59              |
| 1:A:1826:THR:O    | 1:A:1830:HIS:ND1  | 2.30                     | 0.59              |
| 1:A:256:ILE:H     | 1:A:258:PRO:HD2   | 1.66                     | 0.59              |
| 1:A:3466:PRO:HB2  | 1:A:4004:VAL:HG21 | 1.85                     | 0.59              |
| 1:A:1458:LEU:O    | 1:A:1462:GLY:N    | 2.36                     | 0.59              |
| 1:A:1589:ASN:HD21 | 1:A:1592:MET:HG2  | 1.67                     | 0.59              |
| 1:A:975:ASP:OD1   | 1:A:976:VAL:N     | 2.35                     | 0.59              |
| 1:A:1202:ARG:HH21 | 1:A:1207:TRP:HA   | 1.67                     | 0.59              |
| 1:A:2579:HIS:ND1  | 1:A:2580:PRO:O    | 2.36                     | 0.59              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 3:C:31:DA:H2''    | 3:C:32:DA:C8      | 2.38                     | 0.59              |
| 1:A:1649:LEU:HA   | 1:A:1652:ILE:HD12 | 1.84                     | 0.59              |
| 1:A:1373:VAL:HG21 | 1:A:1418:HIS:HB3  | 1.84                     | 0.59              |
| 1:A:2583:GLU:N    | 1:A:2583:GLU:OE1  | 2.33                     | 0.59              |
| 1:A:330:ASN:HB3   | 1:A:333:MET:HG3   | 1.85                     | 0.58              |
| 1:A:1803:GLU:HA   | 1:A:1806:ARG:HB3  | 1.85                     | 0.58              |
| 1:A:3118:ASP:OD1  | 1:A:3119:VAL:N    | 2.36                     | 0.58              |
| 1:A:873:VAL:O     | 1:A:877:ASP:N     | 2.37                     | 0.58              |
| 1:A:3032:SER:HB3  | 1:A:3074:GLN:HG3  | 1.84                     | 0.58              |
| 1:A:374:LYS:NZ    | 1:A:423:TYR:O     | 2.35                     | 0.58              |
| 1:A:1476:HIS:CG   | 1:A:1521:PHE:HD2  | 2.22                     | 0.58              |
| 1:A:2276:LEU:O    | 1:A:2279:ILE:HG22 | 2.03                     | 0.58              |
| 1:A:2339:GLU:OE1  | 1:A:2339:GLU:N    | 2.29                     | 0.58              |
| 1:A:3091:LEU:O    | 1:A:3192:LYS:NZ   | 2.33                     | 0.58              |
| 1:A:1009:LEU:O    | 1:A:1013:ILE:N    | 2.29                     | 0.58              |
| 1:A:1205:ASN:OD1  | 1:A:1275:THR:HA   | 2.04                     | 0.58              |
| 1:A:1802:TYR:OH   | 1:A:1846:ASP:OD2  | 2.21                     | 0.58              |
| 1:A:2175:GLU:HG3  | 1:A:2176:ASN:H    | 1.69                     | 0.58              |
| 1:A:2269:ASP:OD1  | 1:A:2269:ASP:N    | 2.36                     | 0.58              |
| 1:A:3164:TRP:HB3  | 1:A:3186:ARG:NH2  | 2.19                     | 0.58              |
| 1:A:3313:SER:O    | 1:A:3317:SER:N    | 2.33                     | 0.58              |
| 1:A:3420:CYS:SG   | 1:A:3446:VAL:HG22 | 2.44                     | 0.58              |
| 1:A:1369:MET:HA   | 1:A:1372:LEU:HB3  | 1.86                     | 0.58              |
| 1:A:2261:SER:O    | 1:A:2270:ASN:ND2  | 2.33                     | 0.58              |
| 1:A:19:LEU:HD21   | 1:A:38:LEU:HD13   | 1.86                     | 0.58              |
| 1:A:753:GLN:NE2   | 1:A:791:ASP:O     | 2.35                     | 0.58              |
| 1:A:3228:SER:O    | 1:A:3232:ARG:NE   | 2.33                     | 0.58              |
| 1:A:3686:TRP:CD1  | 1:A:3689:ASP:HB2  | 2.39                     | 0.58              |
| 1:A:1506:SER:HA   | 1:A:1509:GLN:HE21 | 1.69                     | 0.58              |
| 1:A:295:GLU:OE2   | 1:A:340:TYR:OH    | 2.21                     | 0.57              |
| 1:A:1772:HIS:N    | 1:A:1775:GLU:OE2  | 2.37                     | 0.57              |
| 1:A:3369:ASP:OD1  | 1:A:3370:SER:N    | 2.36                     | 0.57              |
| 1:A:3965:ARG:HG2  | 1:A:3969:ASN:ND2  | 2.19                     | 0.57              |
| 1:A:639:ALA:HB1   | 1:A:642:PHE:HB3   | 1.86                     | 0.57              |
| 1:A:1092:GLU:OE1  | 1:A:1095:LEU:N    | 2.27                     | 0.57              |
| 1:A:2183:HIS:HE1  | 1:A:2186:VAL:HG23 | 1.69                     | 0.57              |
| 1:A:542:ASP:OD1   | 1:A:543:SER:N     | 2.38                     | 0.57              |
| 1:A:2274:ILE:HA   | 1:A:2277:LEU:HD12 | 1.86                     | 0.57              |
| 1:A:2540:LEU:HD21 | 1:A:2832:ILE:HD11 | 1.84                     | 0.57              |
| 1:A:2824:LYS:O    | 1:A:2829:LYS:NZ   | 2.35                     | 0.57              |
| 1:A:2860:ASP:OD1  | 1:A:2864:GLN:NE2  | 2.37                     | 0.57              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:3759:ARG:NH2  | 1:A:4010:SER:O    | 2.36                     | 0.57              |
| 1:A:180:LEU:O     | 1:A:183:GLU:HB3   | 2.04                     | 0.57              |
| 1:A:888:ARG:HB3   | 1:A:3889:ARG:HH21 | 1.69                     | 0.57              |
| 1:A:1467:ILE:HG12 | 1:A:1468:LEU:HG   | 1.86                     | 0.57              |
| 1:A:1935:GLU:HB2  | 1:A:1938:ARG:HH21 | 1.69                     | 0.57              |
| 1:A:2243:GLU:N    | 1:A:2243:GLU:OE1  | 2.37                     | 0.57              |
| 1:A:3384:HIS:O    | 1:A:3387:GLU:HG2  | 2.04                     | 0.57              |
| 1:A:2517:LEU:HA   | 1:A:2520:ILE:HD12 | 1.86                     | 0.57              |
| 1:A:3384:HIS:ND1  | 1:A:3387:GLU:OE2  | 2.37                     | 0.57              |
| 1:A:3945:ALA:H    | 1:A:3948:SER:HB3  | 1.70                     | 0.57              |
| 1:A:1873:TYR:HA   | 1:A:1876:ILE:HD12 | 1.87                     | 0.57              |
| 1:A:2205:VAL:HG12 | 1:A:2207:LYS:H    | 1.68                     | 0.57              |
| 1:A:1382:ILE:HD11 | 1:A:1384:PHE:HE1  | 1.69                     | 0.57              |
| 1:A:1388:ASP:HA   | 1:A:1391:VAL:HG12 | 1.85                     | 0.57              |
| 1:A:2269:ASP:O    | 1:A:2272:VAL:HG22 | 2.05                     | 0.57              |
| 1:A:861:SER:O     | 1:A:3167:ARG:NH1  | 2.37                     | 0.57              |
| 1:A:3636:PHE:HZ   | 1:A:3673:ASP:HB2  | 1.69                     | 0.57              |
| 1:A:2130:HIS:CE1  | 1:A:2167:PRO:HG3  | 2.39                     | 0.57              |
| 1:A:93:LEU:HA     | 1:A:97:GLY:HA3    | 1.86                     | 0.56              |
| 1:A:484:HIS:O     | 1:A:488:ILE:HG12  | 2.04                     | 0.56              |
| 1:A:1049:GLN:HE21 | 1:A:1056:THR:H    | 1.53                     | 0.56              |
| 1:A:3809:THR:HB   | 1:A:3929:MET:SD   | 2.44                     | 0.56              |
| 1:A:386:VAL:O     | 1:A:390:GLN:HG2   | 2.04                     | 0.56              |
| 1:A:2406:GLU:OE1  | 1:A:2406:GLU:N    | 2.32                     | 0.56              |
| 1:A:3062:LEU:HA   | 1:A:3065:ILE:HG22 | 1.86                     | 0.56              |
| 1:A:3174:ASP:O    | 1:A:3249:GLN:NE2  | 2.38                     | 0.56              |
| 1:A:290:TYR:CZ    | 1:A:337:LYS:HG3   | 2.39                     | 0.56              |
| 1:A:355:ASN:HD21  | 1:A:357:LYS:HB2   | 1.68                     | 0.56              |
| 1:A:1175:HIS:HB3  | 1:A:1178:ARG:HD2  | 1.86                     | 0.56              |
| 1:A:1444:ASP:OD1  | 1:A:1445:ARG:N    | 2.38                     | 0.56              |
| 1:A:3281:CYS:HB2  | 1:A:3329:LEU:HD23 | 1.86                     | 0.56              |
| 1:A:3758:LEU:HB2  | 1:A:3795:PRO:HB3  | 1.87                     | 0.56              |
| 1:A:6005:UNK:O    | 1:A:6009:UNK:N    | 2.38                     | 0.56              |
| 1:A:1980:ASN:HB3  | 1:A:1982:ILE:HG12 | 1.87                     | 0.56              |
| 1:A:2185:MET:O    | 1:A:2189:ILE:HG12 | 2.06                     | 0.56              |
| 1:A:2348:GLN:HE21 | 1:A:2352:HIS:CE1  | 2.23                     | 0.56              |
| 1:A:3370:SER:HA   | 1:A:3373:VAL:HG22 | 1.88                     | 0.56              |
| 1:A:3627:ALA:HB3  | 1:A:3684:SER:HA   | 1.88                     | 0.56              |
| 1:A:975:ASP:O     | 1:A:981:ARG:NH2   | 2.38                     | 0.56              |
| 1:A:1686:LEU:HA   | 1:A:1689:LYS:HZ2  | 1.70                     | 0.56              |
| 1:A:134:LEU:HD12  | 1:A:173:LYS:NZ    | 2.21                     | 0.56              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1971:PRO:O    | 1:A:1975:LEU:N    | 2.26                     | 0.56              |
| 1:A:2159:PRO:O    | 1:A:2162:LYS:NZ   | 2.38                     | 0.56              |
| 1:A:3875:GLU:O    | 1:A:3965:ARG:NH1  | 2.39                     | 0.56              |
| 1:A:287:LEU:HD13  | 1:A:290:TYR:HB3   | 1.88                     | 0.56              |
| 1:A:304:THR:HA    | 1:A:309:LYS:HE2   | 1.87                     | 0.56              |
| 1:A:1793:THR:O    | 1:A:1797:LEU:HG   | 2.06                     | 0.56              |
| 1:A:3723:ASP:OD1  | 1:A:3724:GLU:N    | 2.39                     | 0.56              |
| 1:A:1531:LEU:HA   | 1:A:1534:ASN:ND2  | 2.21                     | 0.56              |
| 1:A:1575:LEU:HD11 | 1:A:1617:LYS:HG3  | 1.87                     | 0.56              |
| 1:A:1597:LEU:O    | 1:A:1601:LEU:HG   | 2.06                     | 0.56              |
| 1:A:2350:LYS:NZ   | 1:A:2353:GLN:O    | 2.38                     | 0.56              |
| 1:A:3643:HIS:CE1  | 1:A:3644:PHE:CE1  | 2.94                     | 0.56              |
| 1:A:1652:ILE:O    | 1:A:1655:ILE:HG22 | 2.06                     | 0.56              |
| 1:A:2494:ASP:OD1  | 1:A:2495:SER:N    | 2.38                     | 0.56              |
| 1:A:1059:LEU:O    | 1:A:1063:LEU:HG   | 2.06                     | 0.55              |
| 1:A:1204:PRO:O    | 1:A:1208:LEU:HB3  | 2.06                     | 0.55              |
| 1:A:1816:ARG:HA   | 1:A:1819:PHE:CD2  | 2.40                     | 0.55              |
| 1:A:614:PRO:HG3   | 1:A:620:PHE:CE2   | 2.42                     | 0.55              |
| 1:A:1441:ALA:H    | 1:A:1445:ARG:HH21 | 1.55                     | 0.55              |
| 1:A:2349:LEU:HA   | 1:A:2352:HIS:NE2  | 2.21                     | 0.55              |
| 1:A:2537:ASP:HA   | 1:A:2540:LEU:HG   | 1.88                     | 0.55              |
| 1:A:3499:ILE:HA   | 1:A:3502:MET:HE2  | 1.88                     | 0.55              |
| 1:A:1914:THR:O    | 1:A:1918:LEU:HG   | 2.07                     | 0.55              |
| 1:A:2337:LEU:HD23 | 1:A:2341:LEU:HB2  | 1.87                     | 0.55              |
| 1:A:3722:PHE:O    | 1:A:3741:ARG:NH1  | 2.40                     | 0.55              |
| 1:A:3962:ARG:NH2  | 1:A:4125:GLU:O    | 2.39                     | 0.55              |
| 1:A:3969:ASN:O    | 1:A:3972:LEU:HG   | 2.07                     | 0.55              |
| 1:A:1816:ARG:HA   | 1:A:1819:PHE:CE2  | 2.41                     | 0.55              |
| 1:A:3616:ALA:O    | 1:A:3629:ARG:NH2  | 2.39                     | 0.55              |
| 1:A:4057:ALA:HB2  | 1:A:4090:ARG:HD2  | 1.88                     | 0.55              |
| 1:A:2140:LEU:O    | 1:A:2144:LEU:HD23 | 2.07                     | 0.55              |
| 1:A:3170:ASP:OD2  | 1:A:3173:MET:N    | 2.39                     | 0.55              |
| 1:A:3772:ASN:HD21 | 1:A:3788:LEU:HB2  | 1.71                     | 0.55              |
| 1:A:1238:GLN:OE1  | 1:A:1238:GLN:N    | 2.39                     | 0.55              |
| 1:A:1920:TYR:HA   | 1:A:1923:PHE:CE1  | 2.42                     | 0.55              |
| 1:A:2196:TRP:HB2  | 1:A:2200:ALA:HB2  | 1.88                     | 0.55              |
| 1:A:2859:GLN:O    | 1:A:2862:SER:OG   | 2.22                     | 0.55              |
| 1:A:299:LYS:O     | 1:A:303:HIS:N     | 2.39                     | 0.55              |
| 1:A:1093:GLU:OE1  | 1:A:1093:GLU:N    | 2.30                     | 0.55              |
| 1:A:1386:ILE:HG23 | 1:A:1387:GLY:H    | 1.72                     | 0.55              |
| 1:A:1412:LYS:HA   | 1:A:1415:LEU:HB3  | 1.89                     | 0.55              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:2310:VAL:HG12 | 1:A:2311:ARG:H    | 1.71                     | 0.55              |
| 1:A:2376:ASP:HA   | 1:A:2379:MET:HG2  | 1.88                     | 0.55              |
| 1:A:2919:ASP:OD1  | 1:A:2920:VAL:N    | 2.40                     | 0.55              |
| 1:A:1251:GLN:OE1  | 1:A:1253:THR:OG1  | 2.24                     | 0.55              |
| 1:A:2202:PRO:HB2  | 1:A:2208:ASP:HB3  | 1.89                     | 0.55              |
| 1:A:3713:PRO:O    | 1:A:3716:HIS:NE2  | 2.40                     | 0.55              |
| 1:A:723:ASP:O     | 1:A:727:ALA:HB2   | 2.07                     | 0.55              |
| 1:A:1568:ASN:OD1  | 1:A:1569:THR:N    | 2.40                     | 0.55              |
| 1:A:2353:GLN:HB2  | 1:A:2360:PHE:CE1  | 2.42                     | 0.55              |
| 1:A:2357:GLU:O    | 1:A:2361:ILE:HG13 | 2.07                     | 0.55              |
| 1:A:4023:LYS:HG3  | 1:A:4025:GLY:HA3  | 1.89                     | 0.55              |
| 1:A:538:ASP:N     | 1:A:538:ASP:OD1   | 2.40                     | 0.54              |
| 1:A:907:LEU:HA    | 1:A:910:PHE:HD2   | 1.71                     | 0.54              |
| 1:A:2587:GLN:N    | 1:A:2777:HIS:O    | 2.39                     | 0.54              |
| 1:A:3319:ASN:OD1  | 1:A:3320:ILE:N    | 2.39                     | 0.54              |
| 1:A:69:VAL:O      | 1:A:72:SER:OG     | 2.25                     | 0.54              |
| 1:A:1239:PRO:HD2  | 1:A:1243:TYR:OH   | 2.07                     | 0.54              |
| 1:A:2365:ASN:HD22 | 1:A:2396:LEU:HB3  | 1.70                     | 0.54              |
| 1:A:2569:SER:OG   | 1:A:2571:ASP:OD1  | 2.22                     | 0.54              |
| 1:A:2851:PHE:HB3  | 1:A:2854:PHE:HB3  | 1.89                     | 0.54              |
| 1:A:4054:ALA:O    | 1:A:4103:GLN:NE2  | 2.40                     | 0.54              |
| 1:A:3162:ASN:HA   | 1:A:3165:THR:HG22 | 1.88                     | 0.54              |
| 1:A:3946:PHE:HE2  | 1:A:4006:VAL:HG22 | 1.72                     | 0.54              |
| 1:A:1790:SER:HB3  | 1:A:1793:THR:HG23 | 1.89                     | 0.54              |
| 1:A:1933:LEU:H    | 1:A:1937:ARG:NH1  | 2.05                     | 0.54              |
| 1:A:3188:PHE:CZ   | 1:A:3192:LYS:HD2  | 2.42                     | 0.54              |
| 1:A:2271:SER:HA   | 1:A:2274:ILE:HD12 | 1.90                     | 0.54              |
| 1:A:3493:TRP:NE1  | 1:A:3494:GLN:OE1  | 2.41                     | 0.54              |
| 1:A:3641:ASP:OD1  | 1:A:3641:ASP:N    | 2.41                     | 0.54              |
| 1:A:3923:ARG:O    | 1:A:3962:ARG:NH1  | 2.40                     | 0.54              |
| 1:A:1404:LYS:HA   | 1:A:1407:LYS:HG2  | 1.89                     | 0.54              |
| 1:A:1711:ARG:NH2  | 1:A:1757:MET:O    | 2.38                     | 0.54              |
| 1:A:1769:GLU:O    | 1:A:1822:ARG:NH2  | 2.37                     | 0.54              |
| 1:A:2364:LEU:HD11 | 1:A:2375:ALA:HB2  | 1.89                     | 0.54              |
| 1:A:2796:ALA:O    | 1:A:2800:ARG:NH2  | 2.32                     | 0.54              |
| 1:A:3619:ASP:O    | 1:A:3621:LYS:N    | 2.40                     | 0.54              |
| 1:A:306:VAL:HG22  | 1:A:307:GLU:HG2   | 1.89                     | 0.54              |
| 1:A:997:ASN:OD1   | 1:A:998:ASN:N     | 2.41                     | 0.54              |
| 1:A:1952:ILE:HA   | 1:A:1955:VAL:HG12 | 1.90                     | 0.54              |
| 1:A:2273:GLY:HA2  | 1:A:2276:LEU:HD12 | 1.90                     | 0.54              |
| 1:A:2436:LEU:HD21 | 1:A:2461:PHE:HE2  | 1.72                     | 0.54              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:3039:THR:O    | 1:A:3042:PRO:HD2  | 2.08                     | 0.54              |
| 1:A:3988:LEU:HD23 | 1:A:4100:GLU:HB2  | 1.90                     | 0.54              |
| 1:A:232:CYS:HB2   | 1:A:278:HIS:CD2   | 2.43                     | 0.54              |
| 1:A:249:PHE:O     | 1:A:252:VAL:HG22  | 2.08                     | 0.54              |
| 1:A:197:PHE:CD1   | 1:A:227:LEU:HD22  | 2.43                     | 0.54              |
| 1:A:1476:HIS:HB2  | 1:A:1479:VAL:HG22 | 1.90                     | 0.54              |
| 1:A:3660:ASN:O    | 1:A:3664:ASN:ND2  | 2.40                     | 0.54              |
| 1:A:1049:GLN:HG2  | 1:A:1055:ASN:HB2  | 1.90                     | 0.53              |
| 1:A:1069:HIS:CG   | 1:A:1074:LYS:HD2  | 2.43                     | 0.53              |
| 1:A:3834:ALA:O    | 1:A:3838:GLU:N    | 2.29                     | 0.53              |
| 1:A:4089:ILE:HA   | 1:A:4092:GLN:NE2  | 2.23                     | 0.53              |
| 1:A:290:TYR:CE2   | 1:A:337:LYS:HG3   | 2.42                     | 0.53              |
| 1:A:524:TYR:CZ    | 1:A:525:LYS:HG3   | 2.43                     | 0.53              |
| 1:A:1764:GLU:OE2  | 1:A:1768:ARG:NH2  | 2.42                     | 0.53              |
| 1:A:2279:ILE:O    | 1:A:2282:ALA:HB3  | 2.07                     | 0.53              |
| 1:A:3168:TYR:HE1  | 1:A:3186:ARG:HH22 | 1.56                     | 0.53              |
| 1:A:3455:LYS:HZ3  | 1:A:3491:PRO:HD3  | 1.73                     | 0.53              |
| 3:C:30:DA:H2''    | 3:C:31:DA:N7      | 2.24                     | 0.53              |
| 1:A:1493:PRO:HD2  | 1:A:1500:LEU:HB3  | 1.90                     | 0.53              |
| 1:A:2547:SER:O    | 1:A:2550:ILE:HG12 | 2.07                     | 0.53              |
| 1:A:3680:LEU:HD12 | 1:A:3726:VAL:HG23 | 1.90                     | 0.53              |
| 1:A:135:LEU:HD11  | 1:A:176:GLU:HB2   | 1.88                     | 0.53              |
| 1:A:3661:ASP:HA   | 1:A:3664:ASN:HD21 | 1.73                     | 0.53              |
| 1:A:3820:MET:HA   | 1:A:3885:ARG:HH21 | 1.72                     | 0.53              |
| 1:A:744:ASP:OD1   | 1:A:744:ASP:N     | 2.42                     | 0.53              |
| 1:A:774:GLU:O     | 1:A:778:ILE:HG12  | 2.09                     | 0.53              |
| 1:A:3243:ILE:HD11 | 1:A:3258:LEU:HB3  | 1.91                     | 0.53              |
| 1:A:16:GLN:NE2    | 1:A:41:GLU:OE1    | 2.41                     | 0.53              |
| 1:A:2273:GLY:O    | 1:A:2276:LEU:HB2  | 2.08                     | 0.53              |
| 1:A:2872:ASP:OD2  | 1:A:2875:ALA:N    | 2.34                     | 0.53              |
| 1:A:3158:LYS:O    | 1:A:3162:ASN:ND2  | 2.41                     | 0.53              |
| 1:A:3643:HIS:HE1  | 1:A:3644:PHE:CE1  | 2.27                     | 0.53              |
| 1:A:3685:PRO:HB2  | 1:A:3687:MET:H    | 1.74                     | 0.53              |
| 1:A:4055:ASN:HB3  | 1:A:4058:VAL:HG23 | 1.90                     | 0.53              |
| 1:A:287:LEU:HG    | 1:A:334:HIS:CD2   | 2.44                     | 0.53              |
| 1:A:394:GLN:OE1   | 1:A:1738:ASN:ND2  | 2.42                     | 0.53              |
| 1:A:652:GLU:HA    | 1:A:655:LEU:HD22  | 1.89                     | 0.53              |
| 1:A:2987:THR:HG23 | 1:A:2989:ALA:H    | 1.72                     | 0.53              |
| 1:A:3347:CYS:HA   | 1:A:3350:GLU:HB3  | 1.90                     | 0.53              |
| 1:A:14:ARG:HD3    | 1:A:2390:HIS:HB3  | 1.90                     | 0.53              |
| 1:A:1100:VAL:O    | 1:A:1104:LEU:HD23 | 2.09                     | 0.53              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1297:PHE:CZ   | 1:A:1301:ILE:HD13 | 2.44                     | 0.53              |
| 1:A:3113:ASN:O    | 1:A:3116:SER:OG   | 2.22                     | 0.53              |
| 1:A:3159:ARG:HA   | 1:A:3162:ASN:HD21 | 1.73                     | 0.53              |
| 1:A:3577:GLN:OE1  | 1:A:3629:ARG:NH1  | 2.42                     | 0.53              |
| 1:A:1215:GLU:OE1  | 1:A:1219:PHE:HB3  | 2.09                     | 0.53              |
| 1:A:1416:GLU:HA   | 1:A:1419:LEU:HB2  | 1.91                     | 0.53              |
| 1:A:1426:GLN:NE2  | 1:A:1429:GLU:OE1  | 2.43                     | 0.53              |
| 1:A:1473:THR:OG1  | 1:A:1474:ASP:N    | 2.42                     | 0.53              |
| 1:A:2534:ASN:O    | 1:A:2538:ARG:N    | 2.37                     | 0.53              |
| 1:A:3295:GLU:H    | 1:A:3295:GLU:CD   | 2.12                     | 0.53              |
| 1:A:1396:PRO:HA   | 1:A:1399:CYS:HB2  | 1.90                     | 0.52              |
| 1:A:2158:ARG:HA   | 1:A:2196:TRP:CZ3  | 2.45                     | 0.52              |
| 1:A:3901:ARG:HG3  | 1:A:3970:LEU:HD11 | 1.90                     | 0.52              |
| 3:C:30:DA:H2"     | 3:C:31:DA:C8      | 2.43                     | 0.52              |
| 1:A:168:ASP:OD2   | 1:A:171:LEU:HD13  | 2.10                     | 0.52              |
| 1:A:171:LEU:H     | 1:A:171:LEU:HD23  | 1.74                     | 0.52              |
| 1:A:1565:GLU:HA   | 1:A:1568:ASN:HD21 | 1.74                     | 0.52              |
| 1:A:1703:THR:N    | 1:A:1706:SER:OG   | 2.42                     | 0.52              |
| 1:A:1711:ARG:NH2  | 1:A:1761:LEU:HB2  | 2.24                     | 0.52              |
| 1:A:1775:GLU:HA   | 1:A:1778:PHE:CD2  | 2.44                     | 0.52              |
| 1:A:3786:LEU:HD12 | 1:A:3910:LEU:HD22 | 1.89                     | 0.52              |
| 1:A:240:GLU:HB2   | 1:A:243:GLN:HE22  | 1.73                     | 0.52              |
| 1:A:1537:VAL:HA   | 1:A:1554:SER:HA   | 1.91                     | 0.52              |
| 1:A:3149:GLY:O    | 1:A:3152:SER:OG   | 2.26                     | 0.52              |
| 3:C:28:DT:H2"     | 3:C:29:DA:C8      | 2.45                     | 0.52              |
| 1:A:629:PHE:CZ    | 1:A:633:ILE:HG13  | 2.44                     | 0.52              |
| 1:A:2391:GLY:O    | 1:A:2431:ARG:NH2  | 2.42                     | 0.52              |
| 1:A:248:ILE:HA    | 1:A:251:PHE:CE2   | 2.45                     | 0.52              |
| 1:A:850:GLU:HA    | 1:A:853:ILE:HD12  | 1.92                     | 0.52              |
| 1:A:1662:ASN:N    | 1:A:1665:HIS:HE1  | 2.01                     | 0.52              |
| 1:A:4003:ASP:OD1  | 1:A:4004:VAL:N    | 2.43                     | 0.52              |
| 1:A:1590:THR:HG23 | 1:A:1632:TRP:CE2  | 2.44                     | 0.52              |
| 1:A:2897:LEU:HD21 | 1:A:2923:TRP:CE2  | 2.44                     | 0.52              |
| 1:A:261:ASP:OD1   | 1:A:262:LEU:N     | 2.42                     | 0.52              |
| 1:A:390:GLN:O     | 1:A:394:GLN:HG3   | 2.10                     | 0.52              |
| 1:A:1404:LYS:HA   | 1:A:1407:LYS:HE3  | 1.92                     | 0.52              |
| 1:A:2452:ARG:NH1  | 1:A:2497:GLU:OE1  | 2.43                     | 0.52              |
| 1:A:3182:ILE:HG13 | 1:A:3183:ILE:N    | 2.25                     | 0.52              |
| 1:A:3340:ALA:O    | 1:A:3343:SER:OG   | 2.21                     | 0.52              |
| 1:A:3684:SER:HB3  | 1:A:3685:PRO:HD3  | 1.91                     | 0.52              |
| 1:A:86:LEU:O      | 1:A:89:LEU:HG     | 2.10                     | 0.52              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:643:GLU:HA    | 1:A:646:VAL:HG23  | 1.91                     | 0.52              |
| 1:A:895:ALA:HA    | 1:A:904:VAL:HG12  | 1.91                     | 0.52              |
| 1:A:1754:GLN:HA   | 1:A:1785:ILE:HD11 | 1.91                     | 0.52              |
| 1:A:2121:ASP:OD1  | 1:A:2121:ASP:N    | 2.41                     | 0.52              |
| 1:A:2485:ARG:NH1  | 1:A:2529:THR:HG22 | 2.25                     | 0.52              |
| 1:A:2183:HIS:HB2  | 1:A:2185:MET:HE1  | 1.92                     | 0.52              |
| 1:A:3605:ASN:OD1  | 1:A:3606:ILE:N    | 2.43                     | 0.52              |
| 1:A:3962:ARG:NH2  | 1:A:4124:TRP:O    | 2.27                     | 0.52              |
| 1:A:4074:PHE:HA   | 1:A:4077:TYR:HD2  | 1.75                     | 0.52              |
| 1:A:171:LEU:N     | 1:A:172:GLU:OE1   | 2.42                     | 0.51              |
| 1:A:1932:GLN:N    | 1:A:1937:ARG:HH22 | 2.05                     | 0.51              |
| 1:A:2439:ILE:HG23 | 1:A:2454:LEU:HD21 | 1.91                     | 0.51              |
| 1:A:3492:CYS:SG   | 1:A:3521:ILE:HB   | 2.50                     | 0.51              |
| 1:A:3593:ARG:HH12 | 1:A:3656:LEU:HA   | 1.75                     | 0.51              |
| 1:A:3685:PRO:HG2  | 1:A:3687:MET:HB3  | 1.92                     | 0.51              |
| 2:B:23:DT:H1'     | 2:B:24:DT:C2      | 2.46                     | 0.51              |
| 1:A:382:ASP:OD1   | 1:A:383:PHE:N     | 2.43                     | 0.51              |
| 1:A:1516:GLU:O    | 1:A:1520:ALA:N    | 2.43                     | 0.51              |
| 1:A:2842:ARG:O    | 1:A:2846:THR:HG22 | 2.10                     | 0.51              |
| 1:A:958:MET:HE2   | 1:A:962:TYR:CE1   | 2.46                     | 0.51              |
| 1:A:1442:GLN:O    | 1:A:1446:SER:N    | 2.40                     | 0.51              |
| 1:A:1454:ALA:O    | 1:A:1458:LEU:HG   | 2.11                     | 0.51              |
| 1:A:3512:VAL:HA   | 1:A:3515:GLN:HG3  | 1.92                     | 0.51              |
| 1:A:391:ARG:HD3   | 1:A:394:GLN:NE2   | 2.25                     | 0.51              |
| 1:A:759:GLY:HA3   | 1:A:766:ALA:HB2   | 1.93                     | 0.51              |
| 1:A:1086:TYR:CE2  | 1:A:1087:ARG:HG3  | 2.46                     | 0.51              |
| 1:A:1219:PHE:HA   | 1:A:1222:ASN:HD21 | 1.75                     | 0.51              |
| 1:A:1933:LEU:HD12 | 1:A:1933:LEU:O    | 2.11                     | 0.51              |
| 1:A:2404:ARG:O    | 1:A:2408:MET:N    | 2.42                     | 0.51              |
| 1:A:4114:PRO:HA   | 1:A:4117:LEU:HB2  | 1.93                     | 0.51              |
| 1:A:202:GLY:O     | 1:A:206:THR:HG23  | 2.11                     | 0.51              |
| 1:A:573:LEU:HD21  | 1:A:649:PHE:HD1   | 1.74                     | 0.51              |
| 1:A:656:GLN:OE1   | 1:A:659:ARG:NH1   | 2.44                     | 0.51              |
| 1:A:2485:ARG:NH2  | 1:A:2530:ARG:HA   | 2.26                     | 0.51              |
| 1:A:2801:ASP:HB3  | 1:A:2804:ILE:HB   | 1.91                     | 0.51              |
| 1:A:3008:TRP:HB2  | 1:A:3051:LEU:HG   | 1.92                     | 0.51              |
| 1:A:3835:PRO:HA   | 1:A:3838:GLU:HB2  | 1.93                     | 0.51              |
| 1:A:1705:GLY:HA2  | 1:A:1708:GLU:OE2  | 2.11                     | 0.51              |
| 1:A:3118:ASP:HB3  | 1:A:3121:LEU:HG   | 1.93                     | 0.51              |
| 1:A:3235:LYS:HA   | 1:A:3238:MET:SD   | 2.51                     | 0.51              |
| 1:A:3332:THR:O    | 1:A:3336:ILE:HG12 | 2.11                     | 0.51              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:3593:ARG:O    | 1:A:3593:ARG:NE   | 2.44                     | 0.51              |
| 1:A:4085:LYS:NZ   | 1:A:4091:ALA:O    | 2.43                     | 0.51              |
| 1:A:1142:HIS:CE1  | 1:A:1143:VAL:HG13 | 2.46                     | 0.51              |
| 1:A:1591:LYS:O    | 1:A:1594:SER:OG   | 2.20                     | 0.51              |
| 1:A:1772:HIS:HE1  | 1:A:1774:MET:HB3  | 1.74                     | 0.51              |
| 1:A:2104:MET:HA   | 1:A:2107:SER:HB2  | 1.93                     | 0.51              |
| 1:A:450:SER:O     | 1:A:454:GLN:HG3   | 2.10                     | 0.51              |
| 1:A:966:PHE:HA    | 1:A:969:LEU:HD13  | 1.93                     | 0.51              |
| 1:A:1476:HIS:HD2  | 1:A:1522:GLY:H    | 1.58                     | 0.51              |
| 1:A:1693:VAL:HA   | 1:A:1696:LEU:HD23 | 1.93                     | 0.51              |
| 1:A:1850:VAL:HG13 | 1:A:1851:LEU:HD23 | 1.93                     | 0.51              |
| 1:A:287:LEU:HD11  | 1:A:337:LYS:HG2   | 1.93                     | 0.51              |
| 1:A:1332:TYR:HB2  | 1:A:1386:ILE:HD13 | 1.92                     | 0.51              |
| 1:A:1442:GLN:HA   | 1:A:1445:ARG:HB2  | 1.93                     | 0.51              |
| 1:A:1485:SER:O    | 1:A:1490:GLY:N    | 2.44                     | 0.51              |
| 1:A:2227:LYS:HB3  | 1:A:2230:VAL:HG12 | 1.93                     | 0.51              |
| 1:A:2999:LEU:HB3  | 1:A:3043:TYR:CE2  | 2.45                     | 0.51              |
| 1:A:3811:THR:HG23 | 1:A:3814:ASP:H    | 1.74                     | 0.51              |
| 1:A:372:PRO:HA    | 1:A:375:VAL:HG22  | 1.94                     | 0.50              |
| 1:A:1504:ASP:N    | 1:A:1504:ASP:OD1  | 2.45                     | 0.50              |
| 1:A:1690:GLY:O    | 1:A:1693:VAL:HG12 | 2.10                     | 0.50              |
| 1:A:2411:LEU:HG   | 1:A:2412:TYR:N    | 2.26                     | 0.50              |
| 1:A:2578:GLU:HG3  | 1:A:2579:HIS:HD2  | 1.76                     | 0.50              |
| 1:A:3384:HIS:HA   | 1:A:3387:GLU:CD   | 2.32                     | 0.50              |
| 1:A:1148:ALA:HB2  | 1:A:1164:CYS:HB2  | 1.94                     | 0.50              |
| 1:A:1225:GLU:OE2  | 1:A:1235:ILE:N    | 2.45                     | 0.50              |
| 1:A:2364:LEU:HG   | 1:A:2400:VAL:HG21 | 1.92                     | 0.50              |
| 1:A:3419:PHE:O    | 1:A:3423:GLN:HG2  | 2.12                     | 0.50              |
| 1:A:738:HIS:HA    | 1:A:741:ILE:HD12  | 1.93                     | 0.50              |
| 1:A:2159:PRO:HG2  | 1:A:2160:TYR:CE2  | 2.46                     | 0.50              |
| 1:A:3781:CYS:O    | 1:A:3785:ALA:N    | 2.45                     | 0.50              |
| 1:A:291:VAL:O     | 1:A:294:PHE:N     | 2.44                     | 0.50              |
| 1:A:912:PRO:O     | 1:A:915:THR:OG1   | 2.26                     | 0.50              |
| 1:A:1115:HIS:CG   | 1:A:1180:GLN:HA   | 2.47                     | 0.50              |
| 1:A:2847:THR:HG23 | 1:A:2850:PHE:CE1  | 2.47                     | 0.50              |
| 1:A:3063:THR:HA   | 1:A:3066:ASP:OD2  | 2.11                     | 0.50              |
| 1:A:3859:TYR:HD2  | 1:A:4077:TYR:CE1  | 2.30                     | 0.50              |
| 1:A:739:ASN:HA    | 1:A:742:GLU:CD    | 2.31                     | 0.50              |
| 1:A:1515:LEU:HG   | 1:A:1519:PHE:CE2  | 2.46                     | 0.50              |
| 1:A:163:LYS:HZ3   | 1:A:165:LYS:HB2   | 1.76                     | 0.50              |
| 1:A:187:SER:HA    | 1:A:190:ILE:HD11  | 1.94                     | 0.50              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:202:GLY:O     | 1:A:205:LYS:HG3   | 2.12                     | 0.50              |
| 1:A:290:TYR:CZ    | 1:A:291:VAL:HG13  | 2.47                     | 0.50              |
| 1:A:2231:PHE:CZ   | 1:A:2272:VAL:HG12 | 2.46                     | 0.50              |
| 1:A:2432:GLN:O    | 1:A:2436:LEU:HG   | 2.11                     | 0.50              |
| 1:A:2930:TYR:HA   | 1:A:2933:ILE:HG22 | 1.94                     | 0.50              |
| 1:A:2950:LYS:O    | 1:A:2953:THR:HG22 | 2.11                     | 0.50              |
| 1:A:207:GLN:HE21  | 1:A:220:LEU:HG    | 1.77                     | 0.50              |
| 1:A:305:ASN:OD1   | 1:A:306:VAL:N     | 2.44                     | 0.50              |
| 1:A:400:THR:HG23  | 1:A:401:ASP:H     | 1.76                     | 0.50              |
| 1:A:529:ASP:OD1   | 1:A:529:ASP:N     | 2.43                     | 0.50              |
| 1:A:705:ALA:O     | 1:A:709:LYS:HG3   | 2.11                     | 0.50              |
| 1:A:860:GLY:CA    | 1:A:3136:THR:HG21 | 2.42                     | 0.50              |
| 1:A:869:ASN:O     | 1:A:872:THR:HG22  | 2.11                     | 0.50              |
| 1:A:1274:ARG:HH22 | 1:A:1351:THR:HA   | 1.76                     | 0.50              |
| 1:A:1488:TYR:CD2  | 1:A:1531:LEU:HD11 | 2.46                     | 0.50              |
| 1:A:1846:ASP:HA   | 1:A:1849:ASP:HB2  | 1.94                     | 0.50              |
| 1:A:2298:GLU:H    | 1:A:2298:GLU:CD   | 2.13                     | 0.50              |
| 1:A:3288:SER:C    | 1:A:3289:ARG:HD2  | 2.31                     | 0.50              |
| 1:A:3496:ILE:HA   | 1:A:3499:ILE:HG12 | 1.93                     | 0.50              |
| 2:B:24:DT:H2''    | 2:B:25:DT:C5      | 2.46                     | 0.50              |
| 1:A:1150:LYS:NZ   | 1:A:1161:ALA:O    | 2.27                     | 0.50              |
| 1:A:1794:GLN:O    | 1:A:1798:LEU:HG   | 2.11                     | 0.50              |
| 1:A:2148:LYS:HA   | 1:A:2151:ILE:HG22 | 1.93                     | 0.50              |
| 1:A:2159:PRO:HG2  | 1:A:2160:TYR:CD2  | 2.46                     | 0.50              |
| 1:A:2452:ARG:HG3  | 1:A:2498:ILE:HD11 | 1.94                     | 0.50              |
| 1:A:2945:SER:OG   | 1:A:3977:THR:OG1  | 2.27                     | 0.50              |
| 1:A:1189:GLU:O    | 1:A:1193:LYS:HG2  | 2.12                     | 0.50              |
| 1:A:3011:LEU:O    | 1:A:3016:THR:HG22 | 2.12                     | 0.50              |
| 1:A:3100:LYS:O    | 1:A:3103:ILE:HG22 | 2.11                     | 0.50              |
| 1:A:1115:HIS:ND1  | 1:A:1180:GLN:HA   | 2.27                     | 0.49              |
| 1:A:1218:SER:O    | 1:A:1222:ASN:ND2  | 2.45                     | 0.49              |
| 1:A:1596:VAL:O    | 1:A:1600:MET:HG2  | 2.12                     | 0.49              |
| 1:A:2386:LEU:HB3  | 1:A:2387:PRO:HD3  | 1.94                     | 0.49              |
| 1:A:2987:THR:HG23 | 1:A:2989:ALA:N    | 2.27                     | 0.49              |
| 1:A:3256:MET:HB3  | 1:A:3283:LEU:HD21 | 1.93                     | 0.49              |
| 1:A:3767:LEU:O    | 1:A:3771:MET:HG2  | 2.12                     | 0.49              |
| 1:A:1153:LEU:HD12 | 1:A:1153:LEU:H    | 1.77                     | 0.49              |
| 1:A:1978:PHE:CG   | 1:A:1979:GLU:N    | 2.80                     | 0.49              |
| 1:A:2527:HIS:HB3  | 1:A:2530:ARG:NH1  | 2.28                     | 0.49              |
| 1:A:3229:SER:N    | 1:A:3232:ARG:HH21 | 2.10                     | 0.49              |
| 1:A:3717:VAL:HA   | 1:A:3743:HIS:CE1  | 2.47                     | 0.49              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:108:LYS:HE3   | 1:A:156:PHE:CZ    | 2.47                     | 0.49              |
| 1:A:538:ASP:HA    | 1:A:541:MET:HG3   | 1.95                     | 0.49              |
| 1:A:762:TYR:CD2   | 1:A:764:PRO:HD2   | 2.47                     | 0.49              |
| 1:A:1444:ASP:O    | 1:A:1447:ARG:HG2  | 2.12                     | 0.49              |
| 1:A:2239:LYS:N    | 1:A:2279:ILE:HD11 | 2.27                     | 0.49              |
| 1:A:2834:GLN:O    | 1:A:2838:GLN:HG2  | 2.12                     | 0.49              |
| 2:B:24:DT:H1'     | 2:B:25:DT:C2      | 2.47                     | 0.49              |
| 1:A:39:GLY:HA2    | 1:A:42:CYS:HB2    | 1.94                     | 0.49              |
| 1:A:1568:ASN:OD1  | 1:A:1603:GLN:HG3  | 2.12                     | 0.49              |
| 1:A:1575:LEU:O    | 1:A:1579:VAL:HG12 | 2.12                     | 0.49              |
| 1:A:1820:VAL:HG23 | 1:A:1824:LEU:HB3  | 1.94                     | 0.49              |
| 1:A:3097:ASP:N    | 1:A:3097:ASP:OD1  | 2.44                     | 0.49              |
| 1:A:1181:THR:HG22 | 1:A:1184:ARG:HH22 | 1.77                     | 0.49              |
| 1:A:1934:LEU:HD22 | 1:A:1937:ARG:NH2  | 2.27                     | 0.49              |
| 1:A:2897:LEU:HD21 | 1:A:2923:TRP:CZ2  | 2.47                     | 0.49              |
| 1:A:3670:MET:O    | 1:A:3674:SER:N    | 2.45                     | 0.49              |
| 1:A:3737:ARG:HD2  | 1:A:3805:TRP:CD1  | 2.48                     | 0.49              |
| 1:A:281:GLN:OE1   | 1:A:281:GLN:N     | 2.28                     | 0.49              |
| 1:A:1255:CYS:SG   | 1:A:3694:PHE:HB3  | 2.52                     | 0.49              |
| 1:A:1910:GLU:O    | 1:A:1914:THR:HG23 | 2.12                     | 0.49              |
| 1:A:2232:ARG:O    | 1:A:2235:LEU:HG   | 2.12                     | 0.49              |
| 1:A:3348:LEU:O    | 1:A:3352:GLU:N    | 2.42                     | 0.49              |
| 1:A:201:LEU:O     | 1:A:204:LEU:HG    | 2.13                     | 0.49              |
| 1:A:1068:LEU:HD11 | 1:A:1106:ILE:HD12 | 1.95                     | 0.49              |
| 1:A:2478:MET:O    | 1:A:2482:ASP:N    | 2.40                     | 0.49              |
| 1:A:3027:LEU:O    | 1:A:3031:TRP:HB2  | 2.11                     | 0.49              |
| 1:A:3611:GLU:HA   | 1:A:3614:TYR:HB3  | 1.94                     | 0.49              |
| 1:A:3626:GLY:HA3  | 1:A:3684:SER:O    | 2.13                     | 0.49              |
| 1:A:238:MET:HE1   | 1:A:283:SER:HB2   | 1.95                     | 0.49              |
| 1:A:1675:TYR:O    | 1:A:1679:LEU:N    | 2.36                     | 0.49              |
| 1:A:2352:HIS:HD2  | 1:A:2360:PHE:HB2  | 1.78                     | 0.49              |
| 1:A:3007:GLU:HG2  | 1:A:3010:SER:HB3  | 1.94                     | 0.49              |
| 1:A:3835:PRO:HB2  | 1:A:4127:TRP:CE2  | 2.47                     | 0.49              |
| 1:A:3871:PHE:HA   | 1:A:3874:ARG:HG2  | 1.95                     | 0.49              |
| 1:A:245:SER:O     | 1:A:248:ILE:HB    | 2.13                     | 0.49              |
| 1:A:363:ILE:HD12  | 1:A:366:TYR:HB2   | 1.95                     | 0.49              |
| 1:A:721:TYR:CD1   | 1:A:725:LEU:HD23  | 2.47                     | 0.49              |
| 1:A:2392:VAL:O    | 1:A:2396:LEU:HG   | 2.12                     | 0.49              |
| 1:A:2436:LEU:HD21 | 1:A:2461:PHE:CE2  | 2.47                     | 0.49              |
| 1:A:3771:MET:HA   | 1:A:3774:ILE:HD12 | 1.95                     | 0.49              |
| 1:A:27:ALA:HB2    | 1:A:73:LEU:HD21   | 1.94                     | 0.49              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1611:GLN:HE22 | 1:A:1613:HIS:CE1  | 2.30                     | 0.49              |
| 1:A:1771:GLN:H    | 1:A:1822:ARG:HH12 | 1.60                     | 0.49              |
| 1:A:2105:HIS:NE2  | 1:A:2155:GLU:OE2  | 2.45                     | 0.49              |
| 1:A:2873:PRO:HB2  | 1:A:2925:GLU:HG3  | 1.95                     | 0.49              |
| 1:A:1568:ASN:HA   | 1:A:1600:MET:HE1  | 1.94                     | 0.48              |
| 1:A:1811:ARG:O    | 1:A:1815:THR:OG1  | 2.31                     | 0.48              |
| 1:A:2434:VAL:O    | 1:A:2438:ILE:HG12 | 2.12                     | 0.48              |
| 1:A:3416:LEU:HD21 | 1:A:3445:LEU:HD21 | 1.93                     | 0.48              |
| 1:A:3475:TYR:N    | 1:A:3476:PRO:HD3  | 2.27                     | 0.48              |
| 1:A:3502:MET:O    | 1:A:3505:LEU:HG   | 2.13                     | 0.48              |
| 1:A:29:LEU:HA     | 1:A:32:HIS:HB2    | 1.96                     | 0.48              |
| 1:A:108:LYS:NZ    | 1:A:152:LEU:HG    | 2.28                     | 0.48              |
| 1:A:2466:SER:C    | 1:A:2468:THR:H    | 2.15                     | 0.48              |
| 1:A:3059:GLN:HA   | 1:A:3062:LEU:HG   | 1.95                     | 0.48              |
| 1:A:3327:ASN:HB2  | 1:A:3388:ALA:HB2  | 1.94                     | 0.48              |
| 1:A:3370:SER:OG   | 1:A:3371:GLU:OE2  | 2.30                     | 0.48              |
| 1:A:3571:PHE:CE2  | 1:A:3575:LEU:HD11 | 2.48                     | 0.48              |
| 1:A:3729:MET:HB2  | 1:A:3735:PRO:HG2  | 1.95                     | 0.48              |
| 1:A:3859:TYR:HA   | 1:A:4119:ARG:HH21 | 1.77                     | 0.48              |
| 1:A:3951:GLN:HE22 | 1:A:4066:LEU:HD23 | 1.79                     | 0.48              |
| 1:A:994:TRP:CD2   | 1:A:2581:LEU:HD13 | 2.48                     | 0.48              |
| 1:A:2165:LEU:HD12 | 1:A:2166:SER:N    | 2.28                     | 0.48              |
| 1:A:3496:ILE:O    | 1:A:3499:ILE:HG12 | 2.14                     | 0.48              |
| 1:A:3625:LEU:HD11 | 1:A:3633:ILE:HD13 | 1.94                     | 0.48              |
| 1:A:293:LEU:HA    | 1:A:296:VAL:HG12  | 1.95                     | 0.48              |
| 1:A:1476:HIS:CD2  | 1:A:1521:PHE:HB3  | 2.48                     | 0.48              |
| 1:A:1825:LEU:HD23 | 1:A:1828:LEU:HD12 | 1.95                     | 0.48              |
| 1:A:1932:GLN:H    | 1:A:1937:ARG:NH2  | 2.09                     | 0.48              |
| 1:A:344:GLN:O     | 1:A:348:ILE:HG12  | 2.13                     | 0.48              |
| 1:A:624:ILE:O     | 1:A:627:VAL:N     | 2.46                     | 0.48              |
| 1:A:667:TYR:HB2   | 1:A:728:SER:HB3   | 1.95                     | 0.48              |
| 1:A:3002:TYR:HD2  | 1:A:3011:LEU:HA   | 1.78                     | 0.48              |
| 1:A:3568:ILE:O    | 1:A:3572:ILE:HG12 | 2.14                     | 0.48              |
| 1:A:4065:LEU:HD12 | 1:A:4069:GLU:HB3  | 1.96                     | 0.48              |
| 1:A:381:VAL:O     | 1:A:384:MET:HB3   | 2.14                     | 0.48              |
| 1:A:584:GLU:OE2   | 1:A:613:HIS:HB2   | 2.12                     | 0.48              |
| 1:A:1060:PHE:HB3  | 1:A:1064:TYR:CZ   | 2.48                     | 0.48              |
| 1:A:2378:PHE:O    | 1:A:2382:VAL:N    | 2.34                     | 0.48              |
| 1:A:2539:LEU:O    | 1:A:2542:LEU:HB3  | 2.14                     | 0.48              |
| 1:A:2788:SER:O    | 1:A:2792:THR:HG22 | 2.13                     | 0.48              |
| 1:A:3606:ILE:HD11 | 1:A:3608:LYS:HB3  | 1.96                     | 0.48              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:3701:ILE:HD12 | 1:A:3717:VAL:HB   | 1.94                     | 0.48              |
| 1:A:607:ASP:HB3   | 1:A:1023:SER:HB2  | 1.95                     | 0.48              |
| 1:A:1949:ILE:HG13 | 1:A:2100:LEU:HD12 | 1.96                     | 0.48              |
| 1:A:2799:GLN:HG3  | 1:A:2800:ARG:NE   | 2.28                     | 0.48              |
| 1:A:3029:LYS:H    | 1:A:3032:SER:HB2  | 1.79                     | 0.48              |
| 1:A:3442:TYR:O    | 1:A:3446:VAL:HG23 | 2.14                     | 0.48              |
| 1:A:3588:TRP:NE1  | 1:A:3609:MET:O    | 2.47                     | 0.48              |
| 1:A:3844:THR:HA   | 1:A:3847:SER:O    | 2.13                     | 0.48              |
| 3:C:29:DA:C4      | 3:C:30:DA:N7      | 2.81                     | 0.48              |
| 1:A:352:VAL:HG11  | 1:A:1735:ARG:HD3  | 1.95                     | 0.48              |
| 1:A:1248:PHE:HB3  | 1:A:1320:ASN:HA   | 1.95                     | 0.48              |
| 1:A:1685:ASP:O    | 1:A:1689:LYS:HG2  | 2.14                     | 0.48              |
| 1:A:2886:GLN:O    | 1:A:2889:GLY:N    | 2.47                     | 0.48              |
| 1:A:3028:ASN:C    | 1:A:3030:ILE:H    | 2.16                     | 0.48              |
| 1:A:82:ARG:O      | 1:A:86:LEU:HD23   | 2.14                     | 0.48              |
| 1:A:586:GLN:N     | 1:A:611:ASN:O     | 2.31                     | 0.48              |
| 1:A:2525:TRP:HA   | 1:A:2530:ARG:HD2  | 1.96                     | 0.48              |
| 1:A:2801:ASP:OD1  | 1:A:2803:ILE:N    | 2.47                     | 0.48              |
| 1:A:3369:ASP:HB3  | 1:A:3372:LYS:HE2  | 1.96                     | 0.48              |
| 1:A:31:GLY:HA2    | 1:A:34:LEU:HD23   | 1.96                     | 0.48              |
| 1:A:335:LYS:O     | 1:A:338:LEU:HG    | 2.13                     | 0.48              |
| 1:A:1334:LYS:O    | 1:A:1338:VAL:HG23 | 2.14                     | 0.48              |
| 1:A:1696:LEU:HD11 | 1:A:1710:LEU:HD11 | 1.95                     | 0.48              |
| 1:A:1871:MET:O    | 1:A:1875:LYS:HG2  | 2.14                     | 0.48              |
| 1:A:2473:MET:HA   | 1:A:2476:ILE:HD12 | 1.96                     | 0.48              |
| 1:A:2821:ASP:HA   | 1:A:2829:LYS:HE3  | 1.96                     | 0.48              |
| 1:A:3571:PHE:O    | 1:A:3575:LEU:HG   | 2.14                     | 0.48              |
| 1:A:3770:VAL:HG11 | 1:A:4001:THR:HG21 | 1.96                     | 0.48              |
| 1:A:1274:ARG:HH12 | 1:A:1351:THR:HA   | 1.79                     | 0.47              |
| 1:A:2923:TRP:CE2  | 1:A:2946:GLU:HG2  | 2.49                     | 0.47              |
| 1:A:3956:PRO:HB3  | 1:A:4064:LEU:HD21 | 1.95                     | 0.47              |
| 1:A:4101:GLU:OE1  | 1:A:4101:GLU:N    | 2.28                     | 0.47              |
| 1:A:225:LYS:HG2   | 1:A:270:ALA:HB1   | 1.96                     | 0.47              |
| 1:A:717:LYS:HB3   | 1:A:721:TYR:OH    | 2.14                     | 0.47              |
| 1:A:994:TRP:CZ2   | 1:A:2581:LEU:HD22 | 2.49                     | 0.47              |
| 1:A:1131:ILE:HD13 | 1:A:1134:LEU:HD12 | 1.96                     | 0.47              |
| 1:A:1133:HIS:N    | 1:A:1136:ARG:HH21 | 2.12                     | 0.47              |
| 1:A:1264:LEU:HD11 | 1:A:1341:ILE:HA   | 1.96                     | 0.47              |
| 1:A:1365:ASN:O    | 1:A:1368:LEU:HB3  | 2.14                     | 0.47              |
| 1:A:2886:GLN:O    | 1:A:2890:ILE:HD12 | 2.14                     | 0.47              |
| 1:A:3078:LEU:HA   | 1:A:3082:TYR:HD2  | 1.80                     | 0.47              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:3531:TYR:CD1  | 1:A:3796:MET:HG3  | 2.49                     | 0.47              |
| 1:A:3589:SER:HA   | 1:A:3592:VAL:HG22 | 1.96                     | 0.47              |
| 1:A:63:PHE:HZ     | 1:A:89:LEU:HD23   | 1.78                     | 0.47              |
| 1:A:607:ASP:N     | 1:A:607:ASP:OD1   | 2.47                     | 0.47              |
| 1:A:1441:ALA:H    | 1:A:1445:ARG:NH2  | 2.12                     | 0.47              |
| 1:A:1564:SER:O    | 1:A:1568:ASN:ND2  | 2.47                     | 0.47              |
| 1:A:1622:ILE:O    | 1:A:1626:TRP:N    | 2.47                     | 0.47              |
| 1:A:2234:ASN:O    | 1:A:2238:ILE:HG13 | 2.14                     | 0.47              |
| 1:A:2466:SER:O    | 1:A:2467:THR:HG22 | 2.14                     | 0.47              |
| 1:A:3321:LEU:HD13 | 1:A:3324:ARG:NH2  | 2.28                     | 0.47              |
| 1:A:131:LEU:HA    | 1:A:173:LYS:HD3   | 1.95                     | 0.47              |
| 1:A:933:LEU:HD22  | 1:A:2797:VAL:HG11 | 1.95                     | 0.47              |
| 1:A:1580:LEU:O    | 1:A:1584:GLN:HG3  | 2.15                     | 0.47              |
| 1:A:4002:MET:O    | 1:A:4006:VAL:HG23 | 2.14                     | 0.47              |
| 1:A:469:ALA:HA    | 1:A:475:LEU:HG    | 1.97                     | 0.47              |
| 1:A:1366:THR:HA   | 1:A:1369:MET:SD   | 2.55                     | 0.47              |
| 1:A:1623:LEU:HA   | 1:A:1626:TRP:HB2  | 1.96                     | 0.47              |
| 1:A:2481:HIS:CE1  | 1:A:2485:ARG:HD2  | 2.50                     | 0.47              |
| 1:A:3421:ASP:OD2  | 1:A:3467:ARG:HG2  | 2.13                     | 0.47              |
| 1:A:3576:ASP:HB3  | 1:A:3800:LEU:HD22 | 1.96                     | 0.47              |
| 3:C:32:DA:H1'     | 3:C:33:DA:C4      | 2.49                     | 0.47              |
| 1:A:293:LEU:O     | 1:A:297:LEU:HG    | 2.14                     | 0.47              |
| 1:A:887:ASP:OD1   | 1:A:888:ARG:N     | 2.48                     | 0.47              |
| 1:A:1191:PHE:O    | 1:A:1195:VAL:HG23 | 2.14                     | 0.47              |
| 1:A:3595:GLU:OE1  | 1:A:3595:GLU:N    | 2.48                     | 0.47              |
| 1:A:3859:TYR:HD1  | 1:A:4119:ARG:HH21 | 1.61                     | 0.47              |
| 1:A:4027:TRP:CE3  | 1:A:4030:GLU:HB3  | 2.50                     | 0.47              |
| 1:A:200:PHE:CD2   | 1:A:224:LEU:HB2   | 2.49                     | 0.47              |
| 1:A:432:THR:OG1   | 1:A:433:PRO:HD3   | 2.13                     | 0.47              |
| 1:A:784:VAL:O     | 1:A:787:PRO:HD2   | 2.14                     | 0.47              |
| 1:A:785:MET:HB3   | 1:A:789:TYR:CZ    | 2.50                     | 0.47              |
| 1:A:873:VAL:HA    | 1:A:876:SER:OG    | 2.14                     | 0.47              |
| 1:A:1765:VAL:HA   | 1:A:1768:ARG:HH21 | 1.80                     | 0.47              |
| 1:A:1802:TYR:CZ   | 1:A:1806:ARG:HD2  | 2.50                     | 0.47              |
| 1:A:1833:LEU:HA   | 1:A:1836:LEU:HD13 | 1.96                     | 0.47              |
| 1:A:2093:CYS:HA   | 1:A:2096:PRO:HG2  | 1.96                     | 0.47              |
| 1:A:2142:ILE:HD12 | 1:A:2142:ILE:H    | 1.80                     | 0.47              |
| 1:A:2215:LEU:O    | 1:A:2219:LEU:HD23 | 2.14                     | 0.47              |
| 1:A:2387:PRO:HA   | 1:A:2394:LYS:NZ   | 2.30                     | 0.47              |
| 1:A:3647:GLY:O    | 1:A:3651:LEU:N    | 2.48                     | 0.47              |
| 1:A:3853:GLY:O    | 1:A:3856:MET:HB3  | 2.15                     | 0.47              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:3962:ARG:HG3  | 1:A:4124:TRP:CH2  | 2.49                     | 0.47              |
| 1:A:801:LYS:O     | 1:A:3115:SER:HB3  | 2.15                     | 0.47              |
| 1:A:1042:LYS:HZ2  | 1:A:1043:GLN:HG2  | 1.80                     | 0.47              |
| 1:A:1203:SER:OG   | 1:A:1205:ASN:HB2  | 2.15                     | 0.47              |
| 1:A:1707:LEU:HD23 | 1:A:1757:MET:HG2  | 1.97                     | 0.47              |
| 1:A:1770:GLN:NE2  | 1:A:1771:GLN:HG2  | 2.30                     | 0.47              |
| 1:A:1820:VAL:HG23 | 1:A:1824:LEU:HD23 | 1.97                     | 0.47              |
| 1:A:2571:ASP:OD1  | 1:A:2571:ASP:N    | 2.48                     | 0.47              |
| 1:A:3596:LEU:HD13 | 1:A:3599:THR:O    | 2.15                     | 0.47              |
| 1:A:3807:GLU:O    | 1:A:3809:THR:HG23 | 2.14                     | 0.47              |
| 2:B:29:DG:H2''    | 2:B:30:DT:C6      | 2.50                     | 0.47              |
| 1:A:35:ILE:HG13   | 1:A:36:ARG:N      | 2.30                     | 0.47              |
| 1:A:581:LEU:HD22  | 1:A:620:PHE:CE1   | 2.50                     | 0.47              |
| 1:A:880:MET:HE1   | 1:A:883:TYR:HD2   | 1.80                     | 0.47              |
| 1:A:1399:CYS:O    | 1:A:1403:MET:HG2  | 2.14                     | 0.47              |
| 1:A:1818:SER:HA   | 1:A:1821:ASP:HB2  | 1.96                     | 0.47              |
| 1:A:3445:LEU:O    | 1:A:3449:LYS:HG2  | 2.15                     | 0.47              |
| 1:A:3749:PRO:HB2  | 1:A:3805:TRP:HB3  | 1.96                     | 0.47              |
| 1:A:740:ILE:HD12  | 1:A:740:ILE:H     | 1.79                     | 0.47              |
| 1:A:1864:ASP:HA   | 1:A:1867:ILE:HG12 | 1.96                     | 0.47              |
| 1:A:3410:ILE:HD12 | 1:A:3410:ILE:H    | 1.80                     | 0.47              |
| 1:A:169:THR:HG22  | 1:A:170:VAL:N     | 2.27                     | 0.46              |
| 1:A:474:VAL:O     | 1:A:478:CYS:HB2   | 2.15                     | 0.46              |
| 1:A:2316:TYR:HE2  | 1:A:2359:LYS:HD2  | 1.81                     | 0.46              |
| 1:A:2796:ALA:O    | 1:A:2799:GLN:HG2  | 2.15                     | 0.46              |
| 1:A:3321:LEU:HD22 | 1:A:3324:ARG:HH12 | 1.80                     | 0.46              |
| 1:A:3918:LEU:HD22 | 1:A:3946:PHE:HE1  | 1.81                     | 0.46              |
| 1:A:1147:LYS:O    | 1:A:1151:ARG:NH2  | 2.43                     | 0.46              |
| 1:A:1585:SER:O    | 1:A:1585:SER:OG   | 2.30                     | 0.46              |
| 1:A:2239:LYS:HA   | 1:A:2242:VAL:HG12 | 1.96                     | 0.46              |
| 1:A:3698:GLU:HG3  | 1:A:3718:ARG:HD2  | 1.96                     | 0.46              |
| 1:A:3869:THR:O    | 1:A:3873:LYS:HG2  | 2.15                     | 0.46              |
| 1:A:3971:MET:HB3  | 1:A:3974:MET:O    | 2.14                     | 0.46              |
| 1:A:4018:GLN:HG3  | 1:A:4022:LYS:HZ1  | 1.80                     | 0.46              |
| 1:A:642:PHE:CE2   | 1:A:646:VAL:HG22  | 2.50                     | 0.46              |
| 1:A:2125:TRP:CZ3  | 1:A:2126:MET:HB3  | 2.51                     | 0.46              |
| 1:A:3278:GLN:NE2  | 1:A:3326:GLN:OE1  | 2.33                     | 0.46              |
| 1:A:207:GLN:NE2   | 1:A:220:LEU:HG    | 2.31                     | 0.46              |
| 1:A:565:TYR:OH    | 1:A:642:PHE:HB2   | 2.16                     | 0.46              |
| 1:A:1101:PHE:HD1  | 1:A:1168:LEU:HD22 | 1.80                     | 0.46              |
| 1:A:1873:TYR:O    | 1:A:1877:LEU:HG   | 2.15                     | 0.46              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:3067:LYS:O    | 1:A:3070:HIS:HB3  | 2.15                     | 0.46              |
| 1:A:3177:ASN:OD1  | 1:A:3178:ILE:N    | 2.48                     | 0.46              |
| 1:A:3417:ALA:HA   | 1:A:3420:CYS:SG   | 2.55                     | 0.46              |
| 1:A:3467:ARG:HA   | 1:A:3470:GLN:HE21 | 1.81                     | 0.46              |
| 1:A:3515:GLN:HB3  | 1:A:3554:PHE:CE2  | 2.51                     | 0.46              |
| 1:A:933:LEU:O     | 1:A:937:MET:HG2   | 2.15                     | 0.46              |
| 1:A:3859:TYR:HE1  | 1:A:4119:ARG:HE   | 1.61                     | 0.46              |
| 1:A:450:SER:HB3   | 1:A:453:MET:SD    | 2.55                     | 0.46              |
| 1:A:2214:ARG:CZ   | 1:A:2214:ARG:HA   | 2.45                     | 0.46              |
| 1:A:3014:CYS:O    | 1:A:3015:SER:OG   | 2.32                     | 0.46              |
| 1:A:3537:SER:HA   | 1:A:3540:TYR:CE2  | 2.51                     | 0.46              |
| 1:A:584:GLU:HG3   | 1:A:613:HIS:O     | 2.16                     | 0.46              |
| 1:A:1589:ASN:HD21 | 1:A:1592:MET:CG   | 2.28                     | 0.46              |
| 1:A:1850:VAL:HG11 | 1:A:1873:TYR:CE1  | 2.50                     | 0.46              |
| 1:A:1933:LEU:H    | 1:A:1937:ARG:HH12 | 1.63                     | 0.46              |
| 1:A:2348:GLN:HA   | 1:A:2351:GLN:HG2  | 1.97                     | 0.46              |
| 1:A:3359:ILE:O    | 1:A:3362:LEU:HB3  | 2.16                     | 0.46              |
| 1:A:1470:SER:HB2  | 1:A:1476:HIS:HA   | 1.97                     | 0.46              |
| 1:A:1663:THR:H    | 1:A:1665:HIS:CE1  | 2.34                     | 0.46              |
| 1:A:1690:GLY:HA2  | 1:A:1693:VAL:HG12 | 1.98                     | 0.46              |
| 1:A:2397:CYS:O    | 1:A:2400:VAL:HG12 | 2.15                     | 0.46              |
| 1:A:3766:GLN:O    | 1:A:3769:GLN:HG2  | 2.16                     | 0.46              |
| 1:A:3794:VAL:O    | 1:A:3802:LEU:N    | 2.41                     | 0.46              |
| 1:A:3812:LEU:HD23 | 1:A:3925:LEU:HD22 | 1.98                     | 0.46              |
| 1:A:1115:HIS:NE2  | 1:A:1181:THR:HG23 | 2.31                     | 0.46              |
| 1:A:1795:VAL:HG23 | 1:A:1839:PHE:HB2  | 1.98                     | 0.46              |
| 1:A:2183:HIS:CE1  | 1:A:2186:VAL:HG23 | 2.49                     | 0.46              |
| 1:A:3924:HIS:ND1  | 1:A:3927:ASN:OD1  | 2.43                     | 0.46              |
| 1:A:241:ASP:N     | 1:A:242:PRO:HD3   | 2.30                     | 0.46              |
| 1:A:682:TYR:CZ    | 1:A:700:LYS:HG2   | 2.51                     | 0.46              |
| 1:A:1618:LEU:O    | 1:A:1621:THR:OG1  | 2.32                     | 0.46              |
| 1:A:2322:VAL:O    | 1:A:2326:ILE:HG12 | 2.15                     | 0.46              |
| 1:A:2919:ASP:HA   | 1:A:2922:ARG:HB2  | 1.98                     | 0.46              |
| 1:A:2962:ARG:HD2  | 1:A:3989:ARG:HH12 | 1.81                     | 0.46              |
| 1:A:4058:VAL:HG21 | 1:A:4095:GLU:HB3  | 1.98                     | 0.46              |
| 1:A:853:ILE:HG22  | 1:A:857:GLN:NE2   | 2.27                     | 0.45              |
| 1:A:868:LYS:HE2   | 1:A:3173:MET:HG3  | 1.97                     | 0.45              |
| 1:A:1638:PRO:HB2  | 1:A:1640:GLU:OE2  | 2.16                     | 0.45              |
| 1:A:2094:MET:HG3  | 1:A:2095:ALA:N    | 2.32                     | 0.45              |
| 1:A:2390:HIS:HA   | 1:A:2394:LYS:HG3  | 1.98                     | 0.45              |
| 1:A:3595:GLU:HG3  | 1:A:3602:ASN:HB3  | 1.98                     | 0.45              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:67:VAL:HA     | 1:A:70:ARG:HG2    | 1.97                     | 0.45              |
| 1:A:293:LEU:HD12  | 1:A:294:PHE:N     | 2.30                     | 0.45              |
| 1:A:1442:GLN:OE1  | 1:A:1442:GLN:N    | 2.47                     | 0.45              |
| 1:A:3136:THR:O    | 1:A:3140:GLU:HG2  | 2.16                     | 0.45              |
| 1:A:849:GLU:O     | 1:A:853:ILE:HG13  | 2.16                     | 0.45              |
| 1:A:1328:GLU:HA   | 1:A:1331:ASN:ND2  | 2.31                     | 0.45              |
| 1:A:1497:ARG:HA   | 1:A:1541:ALA:H    | 1.81                     | 0.45              |
| 1:A:1633:TRP:HB2  | 1:A:1678:LEU:HD21 | 1.99                     | 0.45              |
| 1:A:1748:ASP:O    | 1:A:1751:GLU:HG2  | 2.15                     | 0.45              |
| 1:A:1764:GLU:O    | 1:A:1768:ARG:NH2  | 2.50                     | 0.45              |
| 1:A:1781:SER:HA   | 1:A:1784:ARG:HG2  | 1.99                     | 0.45              |
| 1:A:1971:PRO:HB2  | 1:A:1975:LEU:HD23 | 1.97                     | 0.45              |
| 1:A:2551:GLU:OE2  | 1:A:2849:SER:OG   | 2.24                     | 0.45              |
| 1:A:2563:LEU:HD12 | 1:A:2791:ILE:HG23 | 1.99                     | 0.45              |
| 1:A:3592:VAL:HG12 | 1:A:3609:MET:HG3  | 1.99                     | 0.45              |
| 1:A:3929:MET:HA   | 1:A:3929:MET:HE2  | 1.98                     | 0.45              |
| 1:A:385:TYR:O     | 1:A:389:ILE:HG12  | 2.17                     | 0.45              |
| 1:A:1275:THR:HG23 | 1:A:1276:VAL:HG23 | 1.99                     | 0.45              |
| 1:A:2343:GLU:OE1  | 1:A:2344:LEU:HD22 | 2.16                     | 0.45              |
| 1:A:2959:ALA:O    | 1:A:2963:SER:N    | 2.49                     | 0.45              |
| 1:A:3374:ILE:HG13 | 1:A:3375:ALA:H    | 1.81                     | 0.45              |
| 1:A:3965:ARG:HG2  | 1:A:3969:ASN:HD21 | 1.80                     | 0.45              |
| 1:A:291:VAL:HG23  | 1:A:292:SER:N     | 2.31                     | 0.45              |
| 1:A:395:MET:HE1   | 1:A:1738:ASN:HD21 | 1.82                     | 0.45              |
| 1:A:1379:PRO:O    | 1:A:1382:ILE:HG12 | 2.16                     | 0.45              |
| 1:A:1731:PRO:HA   | 1:A:1736:PHE:CE2  | 2.52                     | 0.45              |
| 1:A:1863:PHE:HA   | 1:A:1866:GLN:HB3  | 1.98                     | 0.45              |
| 1:A:2578:GLU:HG3  | 1:A:2579:HIS:CD2  | 2.51                     | 0.45              |
| 1:A:3271:ASP:O    | 1:A:3274:VAL:HG22 | 2.17                     | 0.45              |
| 1:A:486:GLY:O     | 1:A:490:ILE:HG23  | 2.17                     | 0.45              |
| 1:A:1247:PRO:HD2  | 1:A:1250:LEU:HD13 | 1.99                     | 0.45              |
| 1:A:1377:CYS:SG   | 1:A:1378:GLU:N    | 2.89                     | 0.45              |
| 1:A:1580:LEU:HD13 | 1:A:1625:HIS:HE1  | 1.80                     | 0.45              |
| 1:A:2787:HIS:O    | 1:A:2791:ILE:N    | 2.39                     | 0.45              |
| 1:A:3602:ASN:HA   | 1:A:3605:ASN:HD21 | 1.82                     | 0.45              |
| 1:A:3879:PRO:HB2  | 1:A:3882:LEU:HD21 | 1.99                     | 0.45              |
| 1:A:4015:ASN:O    | 1:A:4018:GLN:HG2  | 2.17                     | 0.45              |
| 1:A:108:LYS:HE3   | 1:A:156:PHE:HZ    | 1.82                     | 0.45              |
| 1:A:583:LEU:HD21  | 1:A:620:PHE:HZ    | 1.82                     | 0.45              |
| 1:A:923:ASP:C     | 1:A:925:GLN:H     | 2.20                     | 0.45              |
| 1:A:1718:ILE:HG13 | 1:A:1719:VAL:N    | 2.32                     | 0.45              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:3262:LEU:HD12 | 1:A:3265:GLU:HB3  | 1.98                     | 0.45              |
| 1:A:3816:LEU:O    | 1:A:3819:THR:OG1  | 2.27                     | 0.45              |
| 1:A:3999:THR:HA   | 1:A:4002:MET:CE   | 2.47                     | 0.45              |
| 1:A:524:TYR:CZ    | 1:A:628:GLU:HG3   | 2.52                     | 0.45              |
| 1:A:670:LEU:HD12  | 1:A:673:THR:HG21  | 1.98                     | 0.45              |
| 1:A:682:TYR:OH    | 1:A:700:LYS:HG2   | 2.17                     | 0.45              |
| 1:A:1980:ASN:HD22 | 1:A:1982:ILE:HD13 | 1.82                     | 0.45              |
| 1:A:2987:THR:N    | 1:A:2990:GLU:OE2  | 2.42                     | 0.45              |
| 1:A:3463:LEU:HA   | 1:A:3498:TRP:HZ2  | 1.82                     | 0.45              |
| 1:A:3827:ALA:O    | 1:A:3831:ASP:HB2  | 2.17                     | 0.45              |
| 2:B:26:DT:H2''    | 2:B:27:DT:C6      | 2.51                     | 0.45              |
| 1:A:330:ASN:HB3   | 1:A:333:MET:CG    | 2.46                     | 0.45              |
| 1:A:1102:GLU:O    | 1:A:1106:ILE:HG12 | 2.17                     | 0.45              |
| 1:A:1686:LEU:HD12 | 1:A:1689:LYS:NZ   | 2.32                     | 0.45              |
| 1:A:1772:HIS:CE1  | 1:A:1774:MET:HB3  | 2.50                     | 0.45              |
| 1:A:2310:VAL:HG12 | 1:A:2311:ARG:N    | 2.31                     | 0.45              |
| 1:A:2542:LEU:O    | 1:A:2545:LEU:HG   | 2.17                     | 0.45              |
| 1:A:3681:LYS:O    | 1:A:3685:PRO:HD2  | 2.16                     | 0.45              |
| 2:B:25:DT:H2''    | 2:B:26:DT:N3      | 2.32                     | 0.45              |
| 1:A:157:TYR:O     | 1:A:160:LEU:HB3   | 2.17                     | 0.45              |
| 1:A:417:VAL:O     | 1:A:420:VAL:HB    | 2.17                     | 0.45              |
| 1:A:1166:LEU:HD12 | 1:A:1169:VAL:HB   | 1.99                     | 0.45              |
| 1:A:2587:GLN:HG3  | 1:A:2588:GLU:O    | 2.17                     | 0.45              |
| 1:A:2880:CYS:HB3  | 1:A:2886:GLN:HA   | 2.00                     | 0.45              |
| 1:A:3607:GLU:N    | 1:A:3607:GLU:OE1  | 2.49                     | 0.45              |
| 2:B:23:DT:H2''    | 2:B:24:DT:C5      | 2.51                     | 0.45              |
| 1:A:446:PHE:CG    | 1:A:530:LEU:HD22  | 2.52                     | 0.44              |
| 1:A:1567:ILE:O    | 1:A:1571:LEU:HG   | 2.18                     | 0.44              |
| 1:A:1603:GLN:HG2  | 1:A:1606:ARG:NH1  | 2.24                     | 0.44              |
| 1:A:1634:ALA:H    | 1:A:1642:LYS:HZ3  | 1.64                     | 0.44              |
| 1:A:2386:LEU:HD23 | 1:A:2394:LYS:HZ3  | 1.83                     | 0.44              |
| 1:A:3835:PRO:N    | 1:A:3836:PRO:HD2  | 2.32                     | 0.44              |
| 1:A:274:LEU:O     | 1:A:278:HIS:HB2   | 2.17                     | 0.44              |
| 1:A:1487:VAL:HG12 | 1:A:1559:PHE:HE1  | 1.81                     | 0.44              |
| 1:A:1708:GLU:HG2  | 1:A:1712:ARG:HH22 | 1.82                     | 0.44              |
| 1:A:2536:LEU:O    | 1:A:2540:LEU:HG   | 2.16                     | 0.44              |
| 1:A:3288:SER:HB2  | 1:A:3298:LEU:HD21 | 1.99                     | 0.44              |
| 1:A:3347:CYS:O    | 1:A:3351:ILE:N    | 2.35                     | 0.44              |
| 1:A:3844:THR:HB   | 1:A:3850:HIS:HB3  | 1.99                     | 0.44              |
| 1:A:732:PHE:O     | 1:A:735:SER:OG    | 2.30                     | 0.44              |
| 1:A:753:GLN:HB3   | 1:A:757:LYS:NZ    | 2.32                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1699:PHE:HB3  | 1:A:1702:LEU:HD11 | 1.99                     | 0.44              |
| 1:A:2183:HIS:O    | 1:A:2187:VAL:HG23 | 2.17                     | 0.44              |
| 1:A:3138:ILE:HG12 | 1:A:3189:PHE:HZ   | 1.81                     | 0.44              |
| 1:A:3252:PHE:CE2  | 1:A:3287:ARG:HA   | 2.53                     | 0.44              |
| 1:A:3733:ARG:HD3  | 1:A:3753:LYS:NZ   | 2.31                     | 0.44              |
| 1:A:288:ASP:OD1   | 1:A:288:ASP:N     | 2.49                     | 0.44              |
| 1:A:871:LEU:HD23  | 1:A:871:LEU:HA    | 1.85                     | 0.44              |
| 1:A:2929:LEU:HD23 | 1:A:2929:LEU:HA   | 1.85                     | 0.44              |
| 1:A:243:GLN:HG3   | 1:A:246:ARG:HH21  | 1.82                     | 0.44              |
| 1:A:487:LEU:HD12  | 1:A:490:ILE:HD11  | 2.00                     | 0.44              |
| 1:A:2415:LEU:HB3  | 1:A:2420:PHE:HB2  | 2.00                     | 0.44              |
| 1:A:3048:LYS:HB3  | 1:A:3061:LEU:HD22 | 1.99                     | 0.44              |
| 1:A:3165:THR:HA   | 1:A:3168:TYR:CE1  | 2.53                     | 0.44              |
| 1:A:3577:GLN:OE1  | 1:A:3629:ARG:HG3  | 2.17                     | 0.44              |
| 2:B:28:DA:H2''    | 2:B:29:DG:C8      | 2.52                     | 0.44              |
| 1:A:178:LEU:HD11  | 1:A:196:LEU:HD13  | 1.98                     | 0.44              |
| 1:A:244:THR:O     | 1:A:248:ILE:N     | 2.51                     | 0.44              |
| 1:A:737:PRO:HD2   | 1:A:740:ILE:HD13  | 1.98                     | 0.44              |
| 1:A:1101:PHE:CE2  | 1:A:1145:LEU:HD12 | 2.53                     | 0.44              |
| 1:A:1711:ARG:NH1  | 1:A:1757:MET:HB3  | 2.32                     | 0.44              |
| 1:A:1714:LEU:O    | 1:A:1718:ILE:HG12 | 2.18                     | 0.44              |
| 1:A:2183:HIS:CE1  | 1:A:2185:MET:HB2  | 2.52                     | 0.44              |
| 1:A:2257:PHE:HA   | 1:A:2260:PHE:CE1  | 2.52                     | 0.44              |
| 1:A:2954:GLN:O    | 1:A:2958:LEU:HG   | 2.18                     | 0.44              |
| 1:A:303:HIS:NE2   | 1:A:308:LEU:HD12  | 2.33                     | 0.44              |
| 1:A:1019:ASP:HB2  | 1:A:1020:PRO:HD3  | 2.00                     | 0.44              |
| 1:A:1361:LYS:HD2  | 1:A:1361:LYS:HA   | 1.63                     | 0.44              |
| 1:A:1385:ASN:HA   | 1:A:1388:ASP:OD2  | 2.18                     | 0.44              |
| 1:A:1925:GLU:HB3  | 1:A:1927:MET:SD   | 2.57                     | 0.44              |
| 1:A:2101:VAL:O    | 1:A:2105:HIS:HB3  | 2.18                     | 0.44              |
| 1:A:2531:LEU:HD12 | 1:A:2531:LEU:HA   | 1.80                     | 0.44              |
| 1:A:3872:ARG:HD3  | 1:A:3872:ARG:HA   | 1.75                     | 0.44              |
| 1:A:334:HIS:HA    | 1:A:337:LYS:HE2   | 2.00                     | 0.44              |
| 1:A:432:THR:O     | 1:A:435:LEU:HG    | 2.18                     | 0.44              |
| 1:A:1092:GLU:OE1  | 1:A:1094:SER:N    | 2.51                     | 0.44              |
| 1:A:1115:HIS:CD2  | 1:A:1181:THR:H    | 2.36                     | 0.44              |
| 1:A:1714:LEU:HD12 | 1:A:1717:LEU:HD23 | 2.00                     | 0.44              |
| 1:A:1859:ASN:OD1  | 1:A:1860:GLU:N    | 2.44                     | 0.44              |
| 1:A:1937:ARG:O    | 1:A:1940:TYR:HB3  | 2.18                     | 0.44              |
| 1:A:2175:GLU:CG   | 1:A:2176:ASN:H    | 2.31                     | 0.44              |
| 1:A:3270:ASP:OD1  | 1:A:3270:ASP:N    | 2.49                     | 0.44              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:3733:ARG:NH2  | 1:A:3755:GLY:O    | 2.51                     | 0.44              |
| 1:A:958:MET:HE3   | 1:A:958:MET:O     | 2.17                     | 0.44              |
| 1:A:1069:HIS:CD2  | 1:A:3741:ARG:HE   | 2.36                     | 0.44              |
| 1:A:2825:THR:O    | 1:A:2829:LYS:HG3  | 2.18                     | 0.44              |
| 1:A:3262:LEU:O    | 1:A:3266:SER:N    | 2.50                     | 0.44              |
| 1:A:248:ILE:O     | 1:A:252:VAL:HG13  | 2.18                     | 0.43              |
| 1:A:943:GLY:O     | 1:A:947:GLN:HG2   | 2.17                     | 0.43              |
| 1:A:1253:THR:O    | 1:A:1257:LEU:HG   | 2.18                     | 0.43              |
| 1:A:1496:GLU:O    | 1:A:1498:GLN:HG2  | 2.17                     | 0.43              |
| 1:A:2210:VAL:O    | 1:A:2214:ARG:HG2  | 2.17                     | 0.43              |
| 1:A:2273:GLY:O    | 1:A:2277:LEU:HG   | 2.19                     | 0.43              |
| 1:A:2372:PRO:HB3  | 1:A:2403:CYS:HB2  | 1.99                     | 0.43              |
| 1:A:2826:LEU:HA   | 1:A:2829:LYS:HD2  | 1.99                     | 0.43              |
| 1:A:2950:LYS:HZ3  | 1:A:2951:GLN:HE21 | 1.66                     | 0.43              |
| 1:A:3079:GLU:O    | 1:A:3083:SER:OG   | 2.29                     | 0.43              |
| 1:A:3625:LEU:HD21 | 1:A:3630:ARG:HB2  | 1.99                     | 0.43              |
| 1:A:3759:ARG:CZ   | 1:A:4010:SER:HB3  | 2.48                     | 0.43              |
| 2:B:25:DT:H2'     | 2:B:26:DT:C2      | 2.53                     | 0.43              |
| 1:A:177:LEU:O     | 1:A:181:LEU:N     | 2.50                     | 0.43              |
| 1:A:197:PHE:HZ    | 1:A:246:ARG:HG2   | 1.83                     | 0.43              |
| 1:A:766:ALA:O     | 1:A:770:LEU:HD23  | 2.18                     | 0.43              |
| 1:A:1127:CYS:O    | 1:A:1131:ILE:HG12 | 2.18                     | 0.43              |
| 1:A:1504:ASP:O    | 1:A:1506:SER:N    | 2.50                     | 0.43              |
| 1:A:1676:ILE:HA   | 1:A:1679:LEU:HB3  | 2.00                     | 0.43              |
| 1:A:1824:LEU:O    | 1:A:1828:LEU:HG   | 2.18                     | 0.43              |
| 1:A:2148:LYS:O    | 1:A:2151:ILE:HG22 | 2.18                     | 0.43              |
| 1:A:2177:ASN:O    | 1:A:2183:HIS:NE2  | 2.51                     | 0.43              |
| 1:A:2372:PRO:HB2  | 1:A:2404:ARG:HH21 | 1.83                     | 0.43              |
| 1:A:2890:ILE:HG23 | 1:A:2926:LEU:HD11 | 2.00                     | 0.43              |
| 1:A:3374:ILE:HG13 | 1:A:3375:ALA:N    | 2.34                     | 0.43              |
| 1:A:3468:LEU:O    | 1:A:3472:ILE:HG23 | 2.17                     | 0.43              |
| 1:A:3472:ILE:HG23 | 1:A:3483:MET:HE1  | 1.90                     | 0.43              |
| 1:A:1204:PRO:O    | 1:A:1208:LEU:CB   | 2.67                     | 0.43              |
| 1:A:1424:THR:O    | 1:A:1427:SER:OG   | 2.31                     | 0.43              |
| 1:A:1565:GLU:HA   | 1:A:1568:ASN:ND2  | 2.32                     | 0.43              |
| 1:A:2387:PRO:HA   | 1:A:2394:LYS:HZ3  | 1.83                     | 0.43              |
| 1:A:250:ASN:OD1   | 1:A:251:PHE:N     | 2.51                     | 0.43              |
| 1:A:441:MET:O     | 1:A:445:SER:N     | 2.51                     | 0.43              |
| 1:A:1095:LEU:O    | 1:A:1099:PHE:HD1  | 2.01                     | 0.43              |
| 1:A:1104:LEU:HD21 | 1:A:1138:ILE:HD11 | 2.00                     | 0.43              |
| 1:A:1171:TRP:CE3  | 1:A:1172:LEU:HD23 | 2.53                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1893:GLU:O    | 1:A:1895:LYS:N    | 2.44                     | 0.43              |
| 1:A:2214:ARG:NH1  | 1:A:2214:ARG:HA   | 2.34                     | 0.43              |
| 1:A:3008:TRP:CZ3  | 1:A:3050:LYS:HG3  | 2.53                     | 0.43              |
| 1:A:3086:LEU:HB3  | 1:A:3102:TYR:CD2  | 2.54                     | 0.43              |
| 1:A:3698:GLU:CD   | 1:A:3698:GLU:H    | 2.22                     | 0.43              |
| 1:A:4100:GLU:O    | 1:A:4104:VAL:N    | 2.43                     | 0.43              |
| 1:A:104:SER:O     | 1:A:107:ILE:HG12  | 2.18                     | 0.43              |
| 1:A:575:ILE:O     | 1:A:579:LEU:HG    | 2.18                     | 0.43              |
| 1:A:583:LEU:HD21  | 1:A:620:PHE:CZ    | 2.53                     | 0.43              |
| 1:A:1202:ARG:HB3  | 1:A:1206:LEU:HB3  | 2.00                     | 0.43              |
| 1:A:2254:ARG:O    | 1:A:2257:PHE:HB3  | 2.18                     | 0.43              |
| 1:A:2255:LEU:O    | 1:A:2259:LYS:HG2  | 2.18                     | 0.43              |
| 1:A:2493:ASN:C    | 1:A:2496:GLN:HE21 | 2.20                     | 0.43              |
| 1:A:3588:TRP:HE1  | 1:A:3609:MET:C    | 2.21                     | 0.43              |
| 1:A:197:PHE:HE1   | 1:A:228:SER:HB3   | 1.83                     | 0.43              |
| 1:A:391:ARG:O     | 1:A:395:MET:HG2   | 2.18                     | 0.43              |
| 1:A:651:TYR:CE1   | 1:A:655:LEU:HD11  | 2.53                     | 0.43              |
| 1:A:1362:ASP:HA   | 1:A:1365:ASN:HB3  | 2.00                     | 0.43              |
| 1:A:1771:GLN:H    | 1:A:1822:ARG:NH1  | 2.15                     | 0.43              |
| 1:A:2462:VAL:O    | 1:A:2463:SER:OG   | 2.30                     | 0.43              |
| 1:A:2514:ASN:HB3  | 1:A:2517:LEU:HB3  | 2.00                     | 0.43              |
| 1:A:2931:ARG:NH2  | 1:A:3000:ASP:OD2  | 2.48                     | 0.43              |
| 1:A:3006:ALA:O    | 1:A:3008:TRP:N    | 2.51                     | 0.43              |
| 1:A:3172:LYS:HG2  | 1:A:3779:SER:HB3  | 2.00                     | 0.43              |
| 1:A:3256:MET:HB3  | 1:A:3287:ARG:HH22 | 1.83                     | 0.43              |
| 1:A:3533:PHE:CE2  | 1:A:3562:LEU:HD21 | 2.54                     | 0.43              |
| 1:A:523:THR:HG23  | 1:A:525:LYS:H     | 1.84                     | 0.43              |
| 1:A:574:LYS:O     | 1:A:577:GLU:HG2   | 2.18                     | 0.43              |
| 1:A:3059:GLN:OE1  | 1:A:3062:LEU:HD21 | 2.19                     | 0.43              |
| 1:A:3259:LEU:HD21 | 1:A:3280:TYR:HB2  | 2.01                     | 0.43              |
| 1:A:3681:LYS:HB3  | 1:A:3688:SER:HB3  | 1.99                     | 0.43              |
| 1:A:3833:ARG:HA   | 1:A:3838:GLU:OE2  | 2.17                     | 0.43              |
| 1:A:4125:GLU:HB3  | 1:A:4128:MET:SD   | 2.58                     | 0.43              |
| 1:A:1150:LYS:HD2  | 1:A:1150:LYS:HA   | 1.89                     | 0.43              |
| 1:A:1397:ASP:O    | 1:A:1401:ASN:ND2  | 2.51                     | 0.43              |
| 1:A:1632:TRP:CD1  | 1:A:1632:TRP:N    | 2.87                     | 0.43              |
| 1:A:3033:GLU:CD   | 1:A:3034:PRO:HD3  | 2.38                     | 0.43              |
| 1:A:3575:LEU:O    | 1:A:3578:LEU:HG   | 2.19                     | 0.43              |
| 1:A:3629:ARG:O    | 1:A:3633:ILE:HG23 | 2.19                     | 0.43              |
| 2:B:26:DT:H1'     | 2:B:27:DT:C2      | 2.54                     | 0.43              |
| 1:A:63:PHE:O      | 1:A:67:VAL:HG13   | 2.19                     | 0.43              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:163:LYS:HD2   | 1:A:163:LYS:HA    | 1.72                     | 0.43              |
| 1:A:254:LYS:NZ    | 1:A:272:LEU:HG    | 2.33                     | 0.43              |
| 1:A:531:PHE:O     | 1:A:535:LEU:HG    | 2.19                     | 0.43              |
| 1:A:892:LEU:H     | 1:A:908:ASP:CG    | 2.21                     | 0.43              |
| 1:A:1667:SER:OG   | 1:A:1670:GLU:HB2  | 2.19                     | 0.43              |
| 1:A:1746:PHE:O    | 1:A:1762:MET:HE1  | 2.19                     | 0.43              |
| 1:A:1786:ALA:HB2  | 1:A:1827:LEU:HD13 | 2.01                     | 0.43              |
| 1:A:2561:PHE:O    | 1:A:2565:MET:HG2  | 2.19                     | 0.43              |
| 1:A:2877:SER:O    | 1:A:2881:LEU:HG   | 2.19                     | 0.43              |
| 1:A:879:MET:SD    | 1:A:879:MET:N     | 2.91                     | 0.43              |
| 1:A:994:TRP:CZ3   | 1:A:2581:LEU:HB3  | 2.54                     | 0.43              |
| 1:A:1063:LEU:O    | 1:A:1067:ALA:N    | 2.46                     | 0.43              |
| 1:A:1101:PHE:CD1  | 1:A:1168:LEU:HD22 | 2.54                     | 0.43              |
| 1:A:1135:CYS:HB2  | 1:A:1190:LEU:HD11 | 2.01                     | 0.43              |
| 1:A:1181:THR:HA   | 1:A:1184:ARG:NH2  | 2.33                     | 0.43              |
| 1:A:1268:ASN:HB2  | 1:A:1344:PHE:HD1  | 1.83                     | 0.43              |
| 1:A:1344:PHE:O    | 1:A:1348:LEU:HG   | 2.19                     | 0.43              |
| 1:A:1729:PHE:HB2  | 1:A:1736:PHE:HB2  | 2.01                     | 0.43              |
| 1:A:1881:TYR:CE2  | 1:A:1951:VAL:HG22 | 2.53                     | 0.43              |
| 1:A:2184:TYR:HA   | 1:A:2187:VAL:HB   | 2.01                     | 0.43              |
| 1:A:2792:THR:N    | 1:A:2793:PRO:HD2  | 2.34                     | 0.43              |
| 1:A:2933:ILE:HG23 | 1:A:2935:GLU:OE1  | 2.18                     | 0.43              |
| 1:A:3348:LEU:O    | 1:A:3352:GLU:HG2  | 2.18                     | 0.43              |
| 1:A:153:PHE:HA    | 1:A:156:PHE:HD2   | 1.83                     | 0.42              |
| 1:A:222:GLY:HA3   | 1:A:267:VAL:HG22  | 2.00                     | 0.42              |
| 1:A:391:ARG:HA    | 1:A:394:GLN:HE21  | 1.83                     | 0.42              |
| 1:A:1069:HIS:CG   | 1:A:1070:PRO:HD2  | 2.54                     | 0.42              |
| 1:A:1090:ARG:HB3  | 1:A:1091:GLU:OE2  | 2.19                     | 0.42              |
| 1:A:3389:VAL:HG21 | 1:A:3449:LYS:HE2  | 2.00                     | 0.42              |
| 1:A:3493:TRP:CD1  | 1:A:3711:PRO:HA   | 2.54                     | 0.42              |
| 1:A:3860:LYS:HA   | 1:A:4076:ASP:OD2  | 2.19                     | 0.42              |
| 1:A:4065:LEU:HA   | 1:A:4074:PHE:CE1  | 2.54                     | 0.42              |
| 1:A:390:GLN:HA    | 1:A:393:LYS:HE2   | 2.01                     | 0.42              |
| 1:A:405:ASP:OD1   | 1:A:405:ASP:N     | 2.51                     | 0.42              |
| 1:A:864:GLY:HA2   | 1:A:867:ASN:ND2   | 2.35                     | 0.42              |
| 1:A:958:MET:CE    | 1:A:961:LEU:HB2   | 2.49                     | 0.42              |
| 1:A:1219:PHE:HA   | 1:A:1222:ASN:ND2  | 2.34                     | 0.42              |
| 1:A:1470:SER:HB2  | 1:A:1476:HIS:ND1  | 2.34                     | 0.42              |
| 1:A:1959:LEU:H    | 1:A:2108:LEU:HD12 | 1.84                     | 0.42              |
| 1:A:2313:LYS:HB3  | 1:A:2359:LYS:HE3  | 2.01                     | 0.42              |
| 1:A:2378:PHE:O    | 1:A:2382:VAL:HG13 | 2.19                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:3299:THR:O    | 1:A:3302:LYS:HG3  | 2.19                     | 0.42              |
| 1:A:3864:ARG:O    | 1:A:3867:THR:OG1  | 2.29                     | 0.42              |
| 1:A:38:LEU:HD11   | 1:A:85:ILE:HD12   | 2.01                     | 0.42              |
| 1:A:243:GLN:OE1   | 1:A:246:ARG:NH2   | 2.52                     | 0.42              |
| 1:A:1061:LYS:HA   | 1:A:1064:TYR:CD2  | 2.54                     | 0.42              |
| 1:A:1718:ILE:O    | 1:A:1722:PHE:N    | 2.39                     | 0.42              |
| 1:A:1776:GLU:H    | 1:A:1776:GLU:CD   | 2.18                     | 0.42              |
| 1:A:1820:VAL:HA   | 1:A:1824:LEU:HB3  | 2.00                     | 0.42              |
| 1:A:2181:GLY:HA2  | 1:A:2222:HIS:ND1  | 2.35                     | 0.42              |
| 1:A:2193:ILE:HG23 | 1:A:2194:LEU:HD22 | 2.02                     | 0.42              |
| 1:A:2379:MET:HA   | 1:A:2382:VAL:HG22 | 2.01                     | 0.42              |
| 1:A:2493:ASN:O    | 1:A:2496:GLN:NE2  | 2.41                     | 0.42              |
| 1:A:4056:PRO:HG3  | 1:A:4107:LEU:HG   | 2.00                     | 0.42              |
| 1:A:253:LEU:O     | 1:A:258:PRO:HG3   | 2.19                     | 0.42              |
| 1:A:977:ASP:OD2   | 1:A:980:THR:HG23  | 2.20                     | 0.42              |
| 1:A:1651:LYS:NZ   | 1:A:6016:UNK:O    | 2.39                     | 0.42              |
| 1:A:2187:VAL:O    | 1:A:2190:VAL:HG22 | 2.19                     | 0.42              |
| 1:A:3389:VAL:HG23 | 1:A:3413:TYR:CE1  | 2.55                     | 0.42              |
| 1:A:3509:ASP:O    | 1:A:3510:GLN:HG2  | 2.19                     | 0.42              |
| 1:A:3618:GLY:HA2  | 1:A:3633:ILE:HB   | 2.02                     | 0.42              |
| 1:A:3661:ASP:HA   | 1:A:3664:ASN:ND2  | 2.34                     | 0.42              |
| 1:A:4064:LEU:HD13 | 1:A:4077:TYR:HB3  | 2.01                     | 0.42              |
| 1:A:320:LEU:HD12  | 1:A:369:PHE:CE2   | 2.50                     | 0.42              |
| 1:A:672:ILE:HG13  | 1:A:673:THR:N     | 2.35                     | 0.42              |
| 1:A:2183:HIS:ND1  | 1:A:2185:MET:HB2  | 2.34                     | 0.42              |
| 1:A:2397:CYS:HA   | 1:A:2400:VAL:HG12 | 2.01                     | 0.42              |
| 1:A:2816:ILE:O    | 1:A:2820:MET:N    | 2.52                     | 0.42              |
| 1:A:2868:LEU:O    | 1:A:2871:LEU:HD12 | 2.19                     | 0.42              |
| 1:A:3472:ILE:HG22 | 1:A:3483:MET:HE3  | 1.95                     | 0.42              |
| 1:A:524:TYR:CE1   | 1:A:525:LYS:HG3   | 2.54                     | 0.42              |
| 1:A:566:ASP:HB3   | 1:A:570:LYS:NZ    | 2.33                     | 0.42              |
| 1:A:581:LEU:HD22  | 1:A:620:PHE:CD1   | 2.54                     | 0.42              |
| 1:A:1121:LEU:C    | 1:A:1123:THR:H    | 2.23                     | 0.42              |
| 1:A:1638:PRO:O    | 1:A:1641:THR:OG1  | 2.31                     | 0.42              |
| 1:A:1686:LEU:HD21 | 1:A:1721:HIS:NE2  | 2.34                     | 0.42              |
| 1:A:1708:GLU:OE1  | 1:A:1708:GLU:N    | 2.27                     | 0.42              |
| 1:A:1756:PRO:HG2  | 1:A:1757:MET:SD   | 2.59                     | 0.42              |
| 1:A:2091:HIS:HB3  | 1:A:2094:MET:HE2  | 2.02                     | 0.42              |
| 1:A:2950:LYS:HG3  | 1:A:2952:ILE:H    | 1.85                     | 0.42              |
| 1:A:3252:PHE:HB3  | 1:A:3287:ARG:HH21 | 1.84                     | 0.42              |
| 1:A:3610:TYR:OH   | 1:A:3645:GLY:O    | 2.23                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:3733:ARG:HH21 | 1:A:3755:GLY:HA3  | 1.85                     | 0.42              |
| 1:A:3945:ALA:H    | 1:A:3948:SER:CB   | 2.32                     | 0.42              |
| 1:A:165:LYS:HD2   | 1:A:165:LYS:HA    | 1.92                     | 0.42              |
| 1:A:1007:VAL:O    | 1:A:1010:LEU:N    | 2.52                     | 0.42              |
| 1:A:1015:ASP:OD1  | 1:A:1016:GLY:N    | 2.53                     | 0.42              |
| 1:A:1270:PHE:HB3  | 1:A:1276:VAL:HG21 | 2.01                     | 0.42              |
| 1:A:1869:LYS:O    | 1:A:1873:TYR:HD1  | 2.02                     | 0.42              |
| 1:A:2202:PRO:HD2  | 1:A:2245:TRP:NE1  | 2.34                     | 0.42              |
| 1:A:2358:ASP:O    | 1:A:2362:VAL:HG23 | 2.20                     | 0.42              |
| 1:A:2394:LYS:O    | 1:A:2398:LEU:HD23 | 2.20                     | 0.42              |
| 1:A:2443:MET:SD   | 1:A:2476:ILE:HG23 | 2.59                     | 0.42              |
| 1:A:2522:ARG:HG2  | 1:A:2561:PHE:HE1  | 1.85                     | 0.42              |
| 1:A:3033:GLU:OE1  | 1:A:3033:GLU:N    | 2.38                     | 0.42              |
| 1:A:3472:ILE:HG23 | 1:A:3483:MET:CE   | 2.43                     | 0.42              |
| 1:A:3885:ARG:HA   | 1:A:3888:VAL:HG12 | 2.02                     | 0.42              |
| 1:A:156:PHE:HA    | 1:A:159:GLU:HG2   | 2.02                     | 0.42              |
| 1:A:459:ARG:NH1   | 1:A:543:SER:OG    | 2.49                     | 0.42              |
| 1:A:1153:LEU:HD23 | 1:A:1160:SER:HB2  | 2.02                     | 0.42              |
| 1:A:1832:SER:O    | 1:A:1834:ASP:N    | 2.52                     | 0.42              |
| 1:A:2101:VAL:O    | 1:A:2105:HIS:CB   | 2.68                     | 0.42              |
| 1:A:2343:GLU:O    | 1:A:2347:LYS:HG2  | 2.19                     | 0.42              |
| 1:A:3459:ASN:OD1  | 1:A:3460:GLU:N    | 2.51                     | 0.42              |
| 1:A:360:SER:O     | 1:A:364:ARG:HG2   | 2.20                     | 0.42              |
| 1:A:461:ILE:O     | 1:A:464:VAL:HG12  | 2.19                     | 0.42              |
| 1:A:736:LEU:HA    | 1:A:736:LEU:HD23  | 1.87                     | 0.42              |
| 1:A:1378:GLU:OE1  | 1:A:1381:SER:HB2  | 2.20                     | 0.42              |
| 1:A:1855:PHE:O    | 1:A:1857:LYS:N    | 2.51                     | 0.42              |
| 1:A:1933:LEU:H    | 1:A:1937:ARG:CZ   | 2.32                     | 0.42              |
| 1:A:2193:ILE:HA   | 1:A:2196:TRP:CD1  | 2.55                     | 0.42              |
| 1:A:2225:HIS:CG   | 1:A:2226:PRO:HD2  | 2.55                     | 0.42              |
| 1:A:2384:PHE:O    | 1:A:2387:PRO:HD2  | 2.20                     | 0.42              |
| 1:A:2451:LEU:O    | 1:A:2455:LEU:HG   | 2.20                     | 0.42              |
| 1:A:2971:GLN:HA   | 1:A:2974:GLU:OE2  | 2.20                     | 0.42              |
| 1:A:3122:HIS:NE2  | 1:A:3126:LEU:HD11 | 2.35                     | 0.42              |
| 1:A:101:ALA:HB3   | 1:A:102:PRO:HD3   | 2.01                     | 0.42              |
| 1:A:227:LEU:HD23  | 1:A:231:LEU:HB2   | 2.02                     | 0.42              |
| 1:A:291:VAL:HG23  | 1:A:292:SER:H     | 1.84                     | 0.42              |
| 1:A:1437:TYR:CD1  | 1:A:1507:CYS:HB3  | 2.55                     | 0.42              |
| 1:A:1860:GLU:O    | 1:A:1862:THR:OG1  | 2.28                     | 0.42              |
| 1:A:1983:ASP:OD1  | 1:A:2185:MET:HE3  | 2.20                     | 0.42              |
| 1:A:2891:ARG:HD2  | 1:A:2891:ARG:HA   | 1.88                     | 0.42              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:3170:ASP:CG   | 1:A:3172:LYS:H    | 2.24                     | 0.42              |
| 1:A:3633:ILE:HG13 | 1:A:3634:GLN:N    | 2.35                     | 0.42              |
| 1:A:3819:THR:HG21 | 1:A:3886:ALA:HB2  | 2.02                     | 0.42              |
| 1:A:4064:LEU:HD23 | 1:A:4064:LEU:HA   | 1.85                     | 0.42              |
| 1:A:667:TYR:HE2   | 1:A:725:LEU:HD11  | 1.84                     | 0.41              |
| 1:A:1133:HIS:O    | 1:A:1137:ILE:HG23 | 2.20                     | 0.41              |
| 1:A:1407:LYS:HA   | 1:A:1412:LYS:HB3  | 2.02                     | 0.41              |
| 1:A:1415:LEU:O    | 1:A:1419:LEU:HD23 | 2.20                     | 0.41              |
| 1:A:1637:SER:HB3  | 1:A:1642:LYS:HE2  | 2.02                     | 0.41              |
| 1:A:1637:SER:HB3  | 1:A:1642:LYS:HZ3  | 1.85                     | 0.41              |
| 1:A:2350:LYS:HA   | 1:A:2350:LYS:HD2  | 1.88                     | 0.41              |
| 1:A:2453:GLU:HA   | 1:A:2456:ASN:OD1  | 2.20                     | 0.41              |
| 1:A:3655:LYS:C    | 1:A:3657:SER:H    | 2.23                     | 0.41              |
| 1:A:293:LEU:O     | 1:A:296:VAL:HG12  | 2.20                     | 0.41              |
| 1:A:753:GLN:O     | 1:A:757:LYS:HG3   | 2.20                     | 0.41              |
| 1:A:1484:LEU:HD21 | 1:A:1527:ARG:HH21 | 1.85                     | 0.41              |
| 1:A:1625:HIS:HA   | 1:A:1627:LYS:HZ3  | 1.85                     | 0.41              |
| 1:A:1803:GLU:OE1  | 1:A:1806:ARG:HD3  | 2.20                     | 0.41              |
| 1:A:1947:CYS:O    | 1:A:1951:VAL:HG23 | 2.20                     | 0.41              |
| 1:A:3319:ASN:O    | 1:A:3323:PHE:N    | 2.47                     | 0.41              |
| 1:A:3493:TRP:CZ2  | 1:A:3711:PRO:HG3  | 2.54                     | 0.41              |
| 1:A:1638:PRO:HB2  | 1:A:1640:GLU:OE1  | 2.19                     | 0.41              |
| 1:A:3370:SER:O    | 1:A:3374:ILE:HG12 | 2.20                     | 0.41              |
| 1:A:3557:ARG:HB2  | 1:A:3561:LYS:HZ3  | 1.85                     | 0.41              |
| 1:A:3817:LEU:O    | 1:A:3825:LYS:HD2  | 2.21                     | 0.41              |
| 1:A:4065:LEU:HA   | 1:A:4074:PHE:HE1  | 1.85                     | 0.41              |
| 1:A:63:PHE:HA     | 1:A:66:LEU:HB2    | 2.03                     | 0.41              |
| 1:A:134:LEU:HB3   | 1:A:177:LEU:HD11  | 2.01                     | 0.41              |
| 1:A:568:PHE:HE2   | 1:A:634:LEU:HD21  | 1.85                     | 0.41              |
| 1:A:1186:LYS:O    | 1:A:1190:LEU:HD23 | 2.19                     | 0.41              |
| 1:A:1366:THR:HG23 | 1:A:1367:HIS:N    | 2.36                     | 0.41              |
| 1:A:1613:HIS:CE1  | 1:A:1614:GLN:HG3  | 2.56                     | 0.41              |
| 1:A:1933:LEU:H    | 1:A:1937:ARG:NH2  | 2.19                     | 0.41              |
| 1:A:2485:ARG:HH12 | 1:A:2529:THR:HG22 | 1.85                     | 0.41              |
| 1:A:2979:GLN:N    | 1:A:2979:GLN:OE1  | 2.53                     | 0.41              |
| 1:A:2999:LEU:HD22 | 1:A:3043:TYR:CD2  | 2.56                     | 0.41              |
| 1:A:3119:VAL:HA   | 1:A:3125:ARG:HD2  | 2.02                     | 0.41              |
| 1:A:3170:ASP:N    | 1:A:3174:ASP:OD2  | 2.53                     | 0.41              |
| 1:A:3465:PHE:CZ   | 1:A:3469:LEU:HD21 | 2.56                     | 0.41              |
| 1:A:3700:GLU:HA   | 1:A:3718:ARG:HA   | 2.01                     | 0.41              |
| 1:A:3871:PHE:CD1  | 1:A:4118:GLY:HA2  | 2.55                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:49:ALA:HB3    | 1:A:52:ALA:HB3    | 2.03                     | 0.41              |
| 1:A:293:LEU:HD11  | 1:A:319:PHE:CZ    | 2.55                     | 0.41              |
| 1:A:319:PHE:O     | 1:A:323:VAL:HG23  | 2.20                     | 0.41              |
| 1:A:364:ARG:HA    | 1:A:364:ARG:NH1   | 2.35                     | 0.41              |
| 1:A:574:LYS:HA    | 1:A:577:GLU:CD    | 2.41                     | 0.41              |
| 1:A:899:ARG:HH21  | 1:A:2569:SER:N    | 2.18                     | 0.41              |
| 1:A:2140:LEU:HD12 | 1:A:2140:LEU:HA   | 1.75                     | 0.41              |
| 1:A:2372:PRO:O    | 1:A:2374:LEU:N    | 2.54                     | 0.41              |
| 1:A:2481:HIS:CD2  | 1:A:2499:PHE:HE1  | 2.39                     | 0.41              |
| 1:A:2987:THR:HG22 | 1:A:2990:GLU:HG2  | 2.02                     | 0.41              |
| 1:A:3559:LYS:HA   | 1:A:3562:LEU:HG   | 2.03                     | 0.41              |
| 1:A:153:PHE:HA    | 1:A:156:PHE:CD2   | 2.55                     | 0.41              |
| 1:A:301:CYS:O     | 1:A:309:LYS:NZ    | 2.45                     | 0.41              |
| 1:A:1049:GLN:HE21 | 1:A:1056:THR:N    | 2.18                     | 0.41              |
| 1:A:1153:LEU:HA   | 1:A:1154:PRO:HD3  | 1.92                     | 0.41              |
| 1:A:1824:LEU:HD11 | 1:A:1828:LEU:HD21 | 2.01                     | 0.41              |
| 1:A:2478:MET:SD   | 1:A:2479:TRP:N    | 2.93                     | 0.41              |
| 1:A:2533:SER:HA   | 1:A:2538:ARG:NH2  | 2.36                     | 0.41              |
| 1:A:3068:ALA:O    | 1:A:3075:LYS:HB3  | 2.21                     | 0.41              |
| 1:A:3169:PRO:HD2  | 1:A:3179:TRP:CZ3  | 2.55                     | 0.41              |
| 1:A:3521:ILE:HD11 | 1:A:3525:TYR:HB2  | 2.02                     | 0.41              |
| 1:A:4101:GLU:H    | 1:A:4101:GLU:CD   | 2.17                     | 0.41              |
| 1:A:131:LEU:O     | 1:A:135:LEU:HD23  | 2.20                     | 0.41              |
| 1:A:416:SER:O     | 1:A:420:VAL:HG23  | 2.21                     | 0.41              |
| 1:A:616:LYS:O     | 1:A:619:ASP:HB2   | 2.20                     | 0.41              |
| 1:A:1217:VAL:O    | 1:A:1221:ILE:HG22 | 2.20                     | 0.41              |
| 1:A:1470:SER:CB   | 1:A:1476:HIS:HA   | 2.51                     | 0.41              |
| 1:A:1686:LEU:HD11 | 1:A:1721:HIS:CD2  | 2.55                     | 0.41              |
| 1:A:1747:LEU:HD22 | 1:A:1778:PHE:HD1  | 1.86                     | 0.41              |
| 1:A:1774:MET:O    | 1:A:1774:MET:HG3  | 2.21                     | 0.41              |
| 1:A:2167:PRO:O    | 1:A:2170:GLN:HB3  | 2.20                     | 0.41              |
| 1:A:3588:TRP:CZ2  | 1:A:3592:VAL:HG11 | 2.55                     | 0.41              |
| 1:A:242:PRO:HB2   | 1:A:246:ARG:NH1   | 2.33                     | 0.41              |
| 1:A:269:SER:HB3   | 1:A:308:LEU:HD22  | 2.03                     | 0.41              |
| 1:A:270:ALA:O     | 1:A:273:ARG:HG2   | 2.20                     | 0.41              |
| 1:A:409:GLN:N     | 1:A:409:GLN:OE1   | 2.53                     | 0.41              |
| 1:A:1039:TRP:HA   | 1:A:1042:LYS:HE3  | 2.02                     | 0.41              |
| 1:A:1100:VAL:HG13 | 1:A:1101:PHE:N    | 2.36                     | 0.41              |
| 1:A:2587:GLN:HG2  | 1:A:2777:HIS:O    | 2.20                     | 0.41              |
| 1:A:2860:ASP:O    | 1:A:2864:GLN:NE2  | 2.54                     | 0.41              |
| 1:A:2971:GLN:O    | 1:A:2974:GLU:HG2  | 2.21                     | 0.41              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:3576:ASP:OD1  | 1:A:3577:GLN:N    | 2.54                     | 0.41              |
| 1:A:3778:ASP:OD1  | 1:A:3780:ALA:N    | 2.51                     | 0.41              |
| 1:A:131:LEU:HA    | 1:A:173:LYS:CE    | 2.51                     | 0.41              |
| 1:A:203:GLU:O     | 1:A:206:THR:OG1   | 2.28                     | 0.41              |
| 1:A:280:SER:O     | 1:A:283:SER:OG    | 2.37                     | 0.41              |
| 1:A:291:VAL:HG12  | 1:A:340:TYR:CE2   | 2.56                     | 0.41              |
| 1:A:418:ALA:O     | 1:A:422:LEU:HG    | 2.21                     | 0.41              |
| 1:A:847:SER:O     | 1:A:851:ILE:N     | 2.41                     | 0.41              |
| 1:A:1112:ALA:HB1  | 1:A:1180:GLN:HG2  | 2.03                     | 0.41              |
| 1:A:1115:HIS:CE1  | 1:A:1180:GLN:HA   | 2.55                     | 0.41              |
| 1:A:1723:PRO:HG3  | 1:A:1729:PHE:CE2  | 2.56                     | 0.41              |
| 1:A:1729:PHE:CB   | 1:A:1736:PHE:HB2  | 2.51                     | 0.41              |
| 1:A:1776:GLU:HG2  | 1:A:1777:LEU:H    | 1.85                     | 0.41              |
| 1:A:2158:ARG:C    | 1:A:2160:TYR:H    | 2.24                     | 0.41              |
| 1:A:2363:CYS:O    | 1:A:2367:VAL:HG12 | 2.21                     | 0.41              |
| 1:A:2368:THR:HA   | 1:A:2371:PHE:O    | 2.20                     | 0.41              |
| 1:A:2825:THR:HG22 | 1:A:2828:GLU:CD   | 2.41                     | 0.41              |
| 1:A:3341:LEU:HD11 | 1:A:3346:ALA:HB2  | 2.03                     | 0.41              |
| 1:A:3800:LEU:HD12 | 1:A:3800:LEU:HA   | 1.86                     | 0.41              |
| 1:A:165:LYS:HB3   | 1:A:167:PRO:HD2   | 2.03                     | 0.41              |
| 1:A:864:GLY:HA2   | 1:A:867:ASN:HD21  | 1.84                     | 0.41              |
| 1:A:1156:GLY:O    | 1:A:1171:TRP:NE1  | 2.54                     | 0.41              |
| 1:A:1171:TRP:HE3  | 1:A:1172:LEU:HD23 | 1.86                     | 0.41              |
| 1:A:1179:PRO:HB3  | 1:A:1259:LEU:HD23 | 2.03                     | 0.41              |
| 1:A:1298:LEU:HD23 | 1:A:1298:LEU:HA   | 1.91                     | 0.41              |
| 1:A:1750:LEU:HD13 | 1:A:1758:LEU:HB2  | 2.04                     | 0.41              |
| 1:A:1825:LEU:H    | 1:A:1825:LEU:HG   | 1.72                     | 0.41              |
| 1:A:1835:ALA:HA   | 1:A:1838:GLU:OE2  | 2.20                     | 0.41              |
| 1:A:1981:LEU:O    | 1:A:1981:LEU:HD23 | 2.21                     | 0.41              |
| 1:A:2402:LEU:O    | 1:A:2405:VAL:HG12 | 2.21                     | 0.41              |
| 1:A:3010:SER:HA   | 1:A:3013:TYR:CE2  | 2.56                     | 0.41              |
| 1:A:3066:ASP:OD1  | 1:A:3067:LYS:N    | 2.54                     | 0.41              |
| 1:A:3237:SER:O    | 1:A:3240:MET:HG3  | 2.21                     | 0.41              |
| 1:A:3245:SER:HA   | 1:A:3248:LYS:HE3  | 2.03                     | 0.41              |
| 1:A:3330:LEU:HD23 | 1:A:3384:HIS:CE1  | 2.56                     | 0.41              |
| 1:A:3558:ILE:HG22 | 1:A:3562:LEU:HD23 | 2.03                     | 0.41              |
| 1:A:68:PHE:CE1    | 1:A:110:THR:HG22  | 2.56                     | 0.40              |
| 1:A:395:MET:CE    | 1:A:1738:ASN:HD21 | 2.34                     | 0.40              |
| 1:A:411:PRO:O     | 1:A:414:LEU:HG    | 2.20                     | 0.40              |
| 1:A:1251:GLN:HB3  | 1:A:1254:LEU:HD23 | 2.03                     | 0.40              |
| 1:A:1301:ILE:HG13 | 1:A:1302:ALA:N    | 2.35                     | 0.40              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:1342:MET:O    | 1:A:1345:THR:OG1  | 2.34                     | 0.40              |
| 1:A:1424:THR:HG1  | 1:A:1427:SER:H    | 1.69                     | 0.40              |
| 1:A:1699:PHE:O    | 1:A:1702:LEU:HG   | 2.21                     | 0.40              |
| 1:A:2265:PRO:HG2  | 1:A:2269:ASP:OD2  | 2.21                     | 0.40              |
| 1:A:2481:HIS:ND1  | 1:A:2481:HIS:O    | 2.54                     | 0.40              |
| 1:A:3234:CYS:O    | 1:A:3237:SER:HB3  | 2.21                     | 0.40              |
| 1:A:3321:LEU:HA   | 1:A:3324:ARG:NH2  | 2.36                     | 0.40              |
| 1:A:220:LEU:H     | 1:A:220:LEU:HD23  | 1.86                     | 0.40              |
| 1:A:246:ARG:HA    | 1:A:249:PHE:CD2   | 2.56                     | 0.40              |
| 1:A:352:VAL:HG21  | 1:A:1735:ARG:CZ   | 2.50                     | 0.40              |
| 1:A:1181:THR:HA   | 1:A:1184:ARG:CZ   | 2.50                     | 0.40              |
| 1:A:1345:THR:O    | 1:A:1348:LEU:HB2  | 2.21                     | 0.40              |
| 1:A:1463:LEU:HD23 | 1:A:1463:LEU:H    | 1.86                     | 0.40              |
| 1:A:1770:GLN:CD   | 1:A:1771:GLN:HG2  | 2.41                     | 0.40              |
| 1:A:2085:MET:O    | 1:A:2089:ASN:HB3  | 2.21                     | 0.40              |
| 1:A:2531:LEU:HG   | 1:A:2538:ARG:HG3  | 2.03                     | 0.40              |
| 1:A:2829:LYS:HA   | 1:A:2832:ILE:HG22 | 2.03                     | 0.40              |
| 1:A:3078:LEU:HA   | 1:A:3082:TYR:CD2  | 2.56                     | 0.40              |
| 1:A:3664:ASN:OD1  | 1:A:3665:MET:N    | 2.54                     | 0.40              |
| 1:A:3737:ARG:HD2  | 1:A:3805:TRP:CG   | 2.56                     | 0.40              |
| 1:A:65:LEU:O      | 1:A:69:VAL:HG23   | 2.22                     | 0.40              |
| 1:A:1069:HIS:HD2  | 1:A:3741:ARG:HH21 | 1.70                     | 0.40              |
| 1:A:1104:LEU:HD22 | 1:A:1134:LEU:HD13 | 2.02                     | 0.40              |
| 1:A:1558:TYR:CZ   | 1:A:1562:LEU:HD11 | 2.56                     | 0.40              |
| 1:A:1686:LEU:HD11 | 1:A:1721:HIS:NE2  | 2.35                     | 0.40              |
| 1:A:1812:LEU:O    | 1:A:1815:THR:OG1  | 2.26                     | 0.40              |
| 1:A:2094:MET:HG3  | 1:A:2095:ALA:H    | 1.86                     | 0.40              |
| 1:A:2339:GLU:HG2  | 1:A:2340:SER:N    | 2.36                     | 0.40              |
| 1:A:2940:ARG:NH2  | 1:A:2960:GLU:HB3  | 2.37                     | 0.40              |
| 1:A:3381:ALA:O    | 1:A:3385:LEU:HD23 | 2.21                     | 0.40              |
| 1:A:3718:ARG:HE   | 1:A:3718:ARG:HB2  | 1.69                     | 0.40              |
| 1:A:3753:LYS:HB3  | 1:A:3753:LYS:HE3  | 1.90                     | 0.40              |
| 1:A:3864:ARG:O    | 1:A:3868:VAL:HG23 | 2.22                     | 0.40              |
| 1:A:872:THR:O     | 1:A:876:SER:N     | 2.54                     | 0.40              |
| 1:A:972:LEU:HB3   | 1:A:984:TYR:CE2   | 2.57                     | 0.40              |
| 1:A:1072:ALA:HA   | 1:A:1075:ARG:CZ   | 2.52                     | 0.40              |
| 1:A:2105:HIS:CE1  | 1:A:2156:VAL:HA   | 2.57                     | 0.40              |
| 1:A:2207:LYS:HA   | 1:A:2210:VAL:HB   | 2.04                     | 0.40              |
| 1:A:2300:PHE:HA   | 1:A:2303:LEU:HB3  | 2.04                     | 0.40              |
| 1:A:2440:TYR:HA   | 1:A:2443:MET:SD   | 2.61                     | 0.40              |
| 1:A:2448:PRO:HA   | 1:A:2451:LEU:HB3  | 2.03                     | 0.40              |

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| Atom-1            | Atom-2            | Interatomic distance (Å) | Clash overlap (Å) |
|-------------------|-------------------|--------------------------|-------------------|
| 1:A:3793:VAL:HG22 | 1:A:3803:ILE:HG22 | 2.02                     | 0.40              |
| 1:A:4086:ASP:OD1  | 1:A:4087:HIS:N    | 2.51                     | 0.40              |
| 1:A:400:THR:HG23  | 1:A:401:ASP:N     | 2.36                     | 0.40              |
| 1:A:650:SER:O     | 1:A:653:LEU:HB2   | 2.21                     | 0.40              |
| 1:A:1014:LEU:HD22 | 1:A:1029:CYS:SG   | 2.62                     | 0.40              |
| 1:A:1390:GLN:HA   | 1:A:1393:ALA:HB3  | 2.04                     | 0.40              |
| 1:A:1452:VAL:HG11 | 1:A:1514:LEU:HD23 | 2.04                     | 0.40              |
| 1:A:1845:VAL:O    | 1:A:1848:ILE:HG12 | 2.21                     | 0.40              |
| 1:A:2100:LEU:O    | 1:A:2104:MET:HG3  | 2.21                     | 0.40              |
| 1:A:2205:VAL:HG12 | 1:A:2207:LYS:N    | 2.33                     | 0.40              |
| 1:A:2366:LYS:HD3  | 1:A:2366:LYS:HA   | 1.95                     | 0.40              |
| 1:A:2950:LYS:HZ1  | 1:A:2952:ILE:HB   | 1.87                     | 0.40              |
| 1:A:3013:TYR:O    | 1:A:3017:ALA:HB3  | 2.22                     | 0.40              |
| 1:A:3046:ARG:HH22 | 1:A:3177:ASN:HB2  | 1.87                     | 0.40              |
| 1:A:3325:ASP:HA   | 1:A:3328:ILE:HG22 | 2.04                     | 0.40              |

There are no symmetry-related clashes.

## 5.3 Torsion angles [i](#)

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

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all PDB entries followed by that with respect to all EM entries.

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

| Mol | Chain | Analysed        | Favoured   | Allowed   | Outliers | Percentiles             |
|-----|-------|-----------------|------------|-----------|----------|-------------------------|
| 1   | A     | 3634/4156 (87%) | 3246 (89%) | 387 (11%) | 1 (0%)   | <b>100</b>   <b>100</b> |

All (1) Ramachandran outliers are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 1895 | LYS  |

### 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 PDB entries followed by that with respect to all EM entries.

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

| Mol | Chain | Analysed        | Rotameric   | Outliers | Percentiles |
|-----|-------|-----------------|-------------|----------|-------------|
| 1   | A     | 3172/3671 (86%) | 3158 (100%) | 14 (0%)  | 91 94       |

All (14) residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 133  | LYS  |
| 1   | A     | 205  | LYS  |
| 1   | A     | 225  | LYS  |
| 1   | A     | 899  | ARG  |
| 1   | A     | 2522 | ARG  |
| 1   | A     | 2800 | ARG  |
| 1   | A     | 2822 | LYS  |
| 1   | A     | 3075 | LYS  |
| 1   | A     | 3166 | ASN  |
| 1   | A     | 3257 | LYS  |
| 1   | A     | 3302 | LYS  |
| 1   | A     | 3483 | MET  |
| 1   | A     | 3653 | ARG  |
| 1   | A     | 4015 | ASN  |

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

| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 394  | GLN  |
| 1   | A     | 485  | GLN  |
| 1   | A     | 998  | ASN  |
| 1   | A     | 1004 | GLN  |
| 1   | A     | 1049 | GLN  |
| 1   | A     | 1401 | ASN  |
| 1   | A     | 1435 | ASN  |
| 1   | A     | 1465 | HIS  |
| 1   | A     | 1509 | GLN  |
| 1   | A     | 1534 | ASN  |
| 1   | A     | 1589 | ASN  |

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| Mol | Chain | Res  | Type |
|-----|-------|------|------|
| 1   | A     | 1598 | ASN  |
| 1   | A     | 1738 | ASN  |
| 1   | A     | 2348 | GLN  |
| 1   | A     | 2352 | HIS  |
| 1   | A     | 2365 | ASN  |
| 1   | A     | 2807 | GLN  |
| 1   | A     | 2951 | GLN  |
| 1   | A     | 3379 | GLN  |
| 1   | A     | 3383 | GLN  |
| 1   | A     | 3494 | GLN  |
| 1   | A     | 3569 | GLN  |
| 1   | A     | 3573 | ASN  |
| 1   | A     | 3643 | HIS  |
| 1   | A     | 3772 | ASN  |

### 5.3.3 RNA [i](#)

There are no RNA molecules in this entry.

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

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

### 5.5 Carbohydrates [i](#)

There are no monosaccharides in this entry.

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

There are no ligands in this entry.

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

There are no such residues in this entry.

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

The following chains have linkage breaks:

| Mol | Chain | Number of breaks |
|-----|-------|------------------|
| 1   | A     | 2                |

All chain breaks are listed below:

| Model | Chain | Residue-1 | Atom-1 | Residue-2 | Atom-2 | Distance (Å) |
|-------|-------|-----------|--------|-----------|--------|--------------|
| 1     | A     | 4128:MET  | C      | 5011:UNK  | N      | 92.87        |
| 1     | A     | 5016:UNK  | C      | 6004:UNK  | N      | 47.75        |

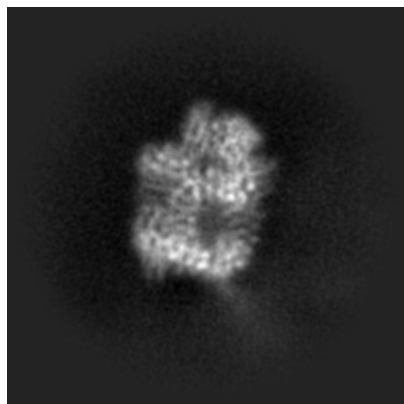
## 6 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-11216. These allow visual inspection of the internal detail of the map and identification of artifacts.

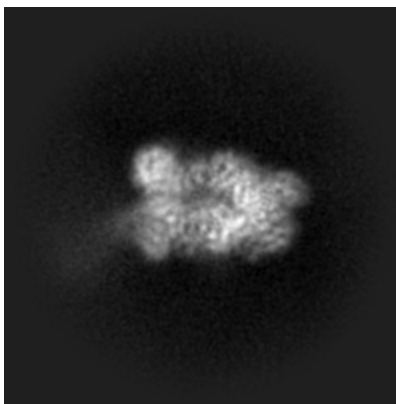
Images derived from a raw map, generated by summing the deposited half-maps, are presented below the corresponding image components of the primary map to allow further visual inspection and comparison with those of the primary map.

### 6.1 Orthogonal projections [i](#)

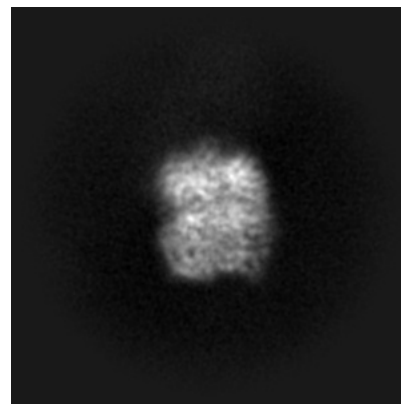
#### 6.1.1 Primary map



X

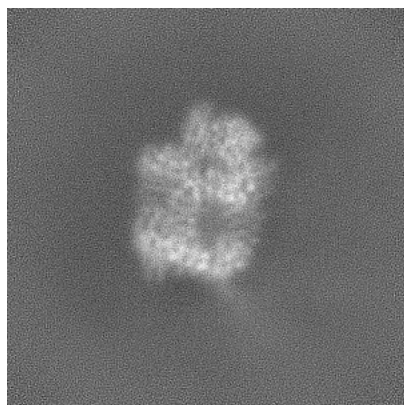


Y

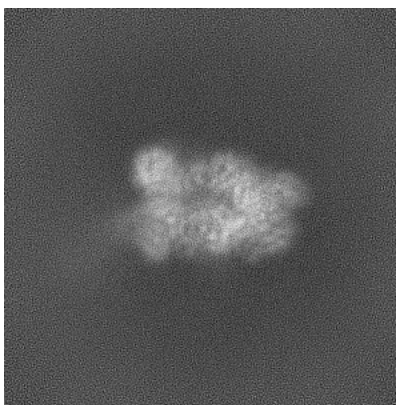


Z

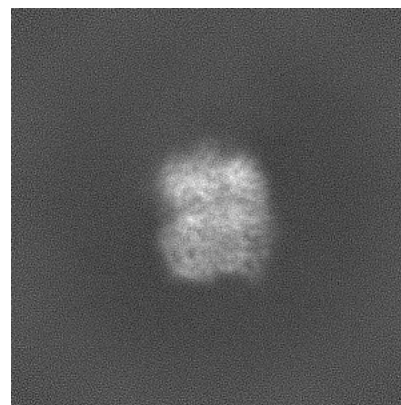
#### 6.1.2 Raw map



X



Y



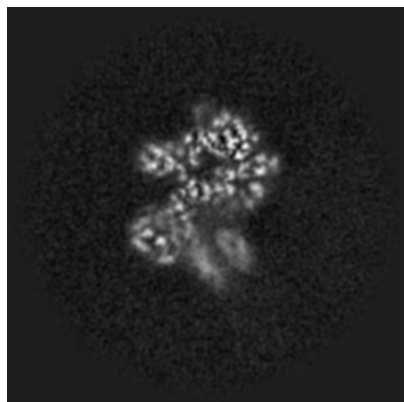
Z

The images above show the map projected in three orthogonal directions.

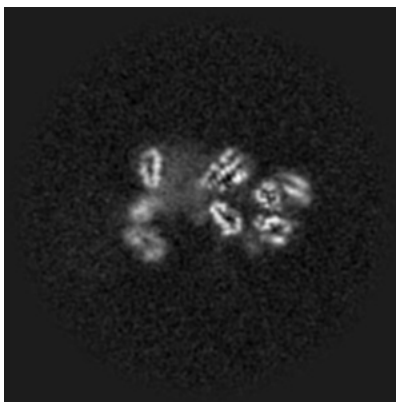


## 6.2 Central slices [i](#)

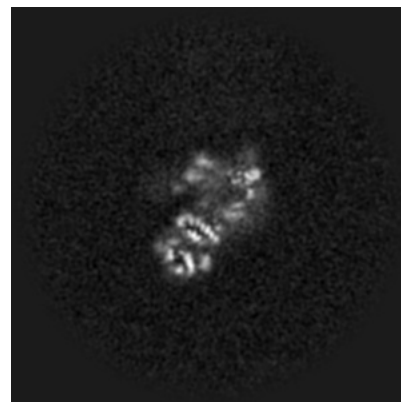
### 6.2.1 Primary map



X Index: 170

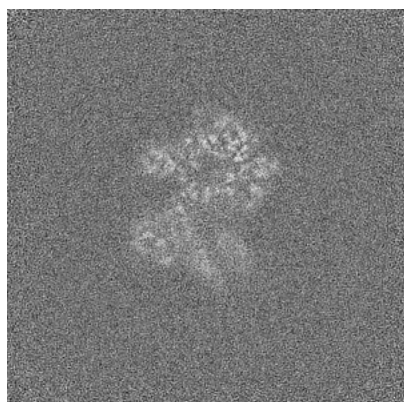


Y Index: 170

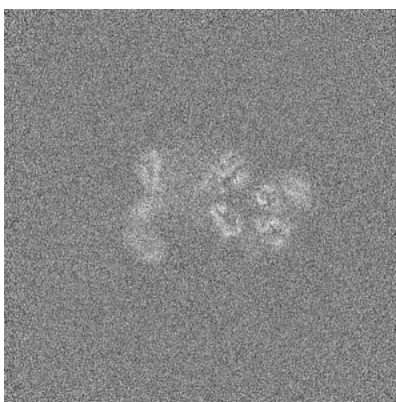


Z Index: 170

### 6.2.2 Raw map



X Index: 170



Y Index: 170

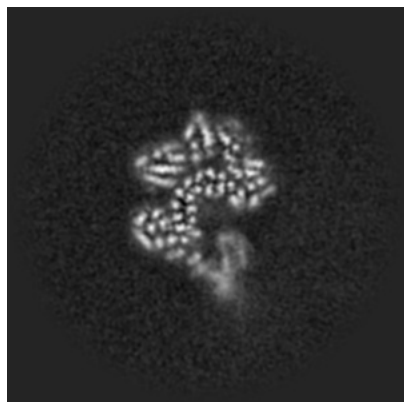


Z Index: 170

The images above show central slices of the map in three orthogonal directions.

## 6.3 Largest variance slices [i](#)

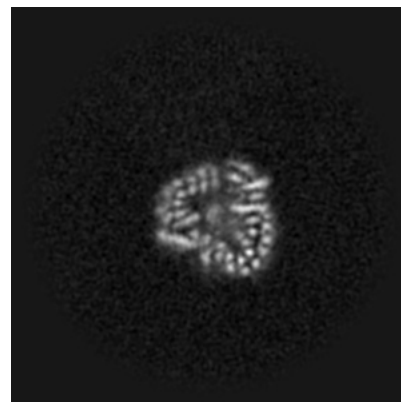
### 6.3.1 Primary map



X Index: 158

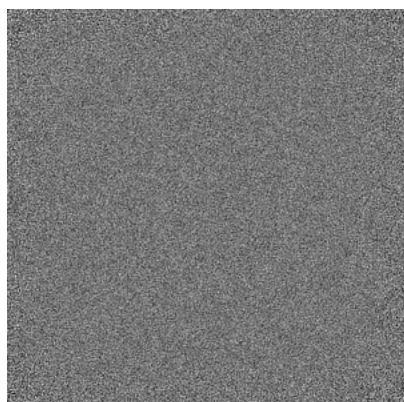


Y Index: 190

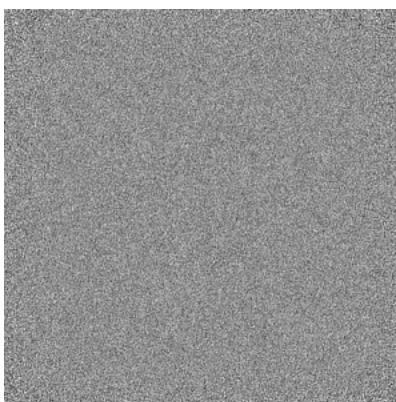


Z Index: 129

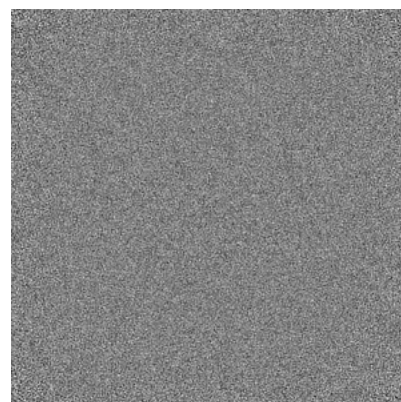
### 6.3.2 Raw map



X Index: 0



Y Index: 0

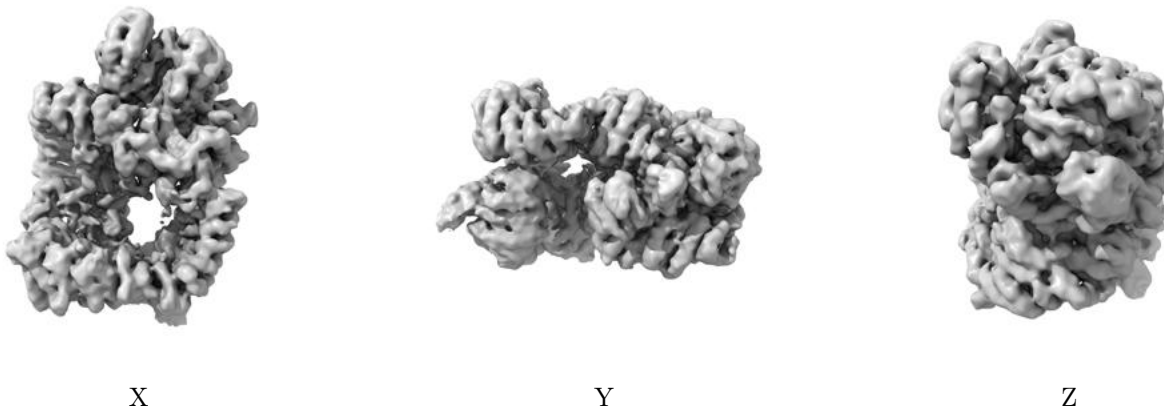


Z Index: 0

The images above show the largest variance slices of the map in three orthogonal directions.

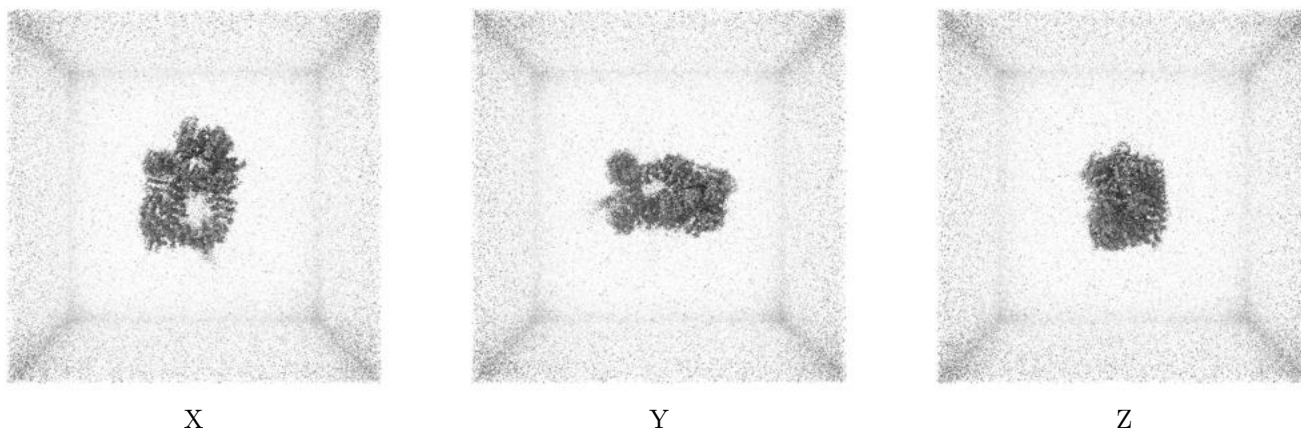
## 6.4 Orthogonal surface views [i](#)

### 6.4.1 Primary map



The images above show the 3D surface view of the map at the recommended contour level 0.125. These images, in conjunction with the slice images, may facilitate assessment of whether an appropriate contour level has been provided.

### 6.4.2 Raw map



These images show the 3D surface of the raw map. The raw map's contour level was selected so that its surface encloses the same volume as the primary map does at its recommended contour level.

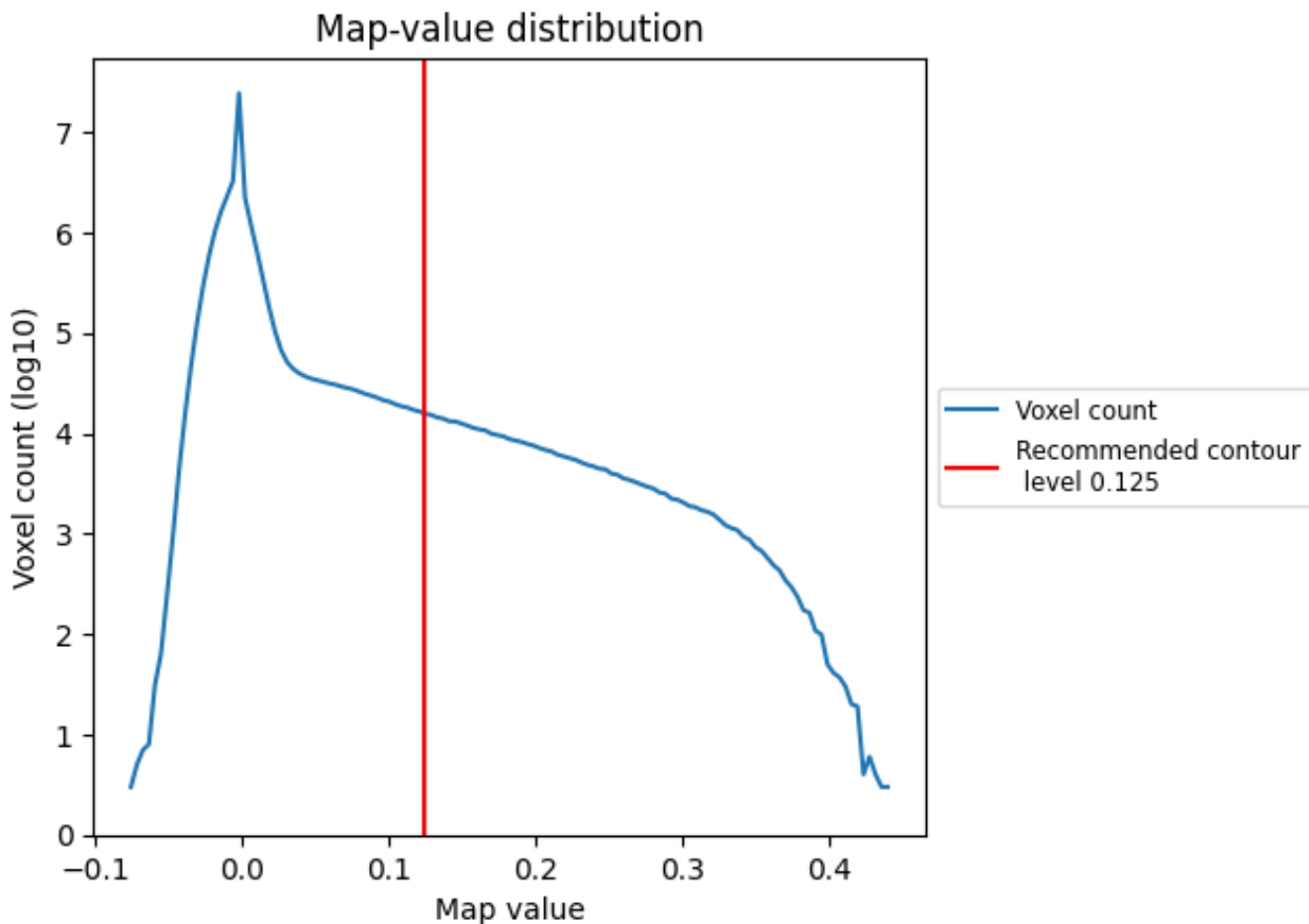
## 6.5 Mask visualisation [i](#)

This section was not generated. No masks/segmentation were deposited.

## 7 Map analysis [i](#)

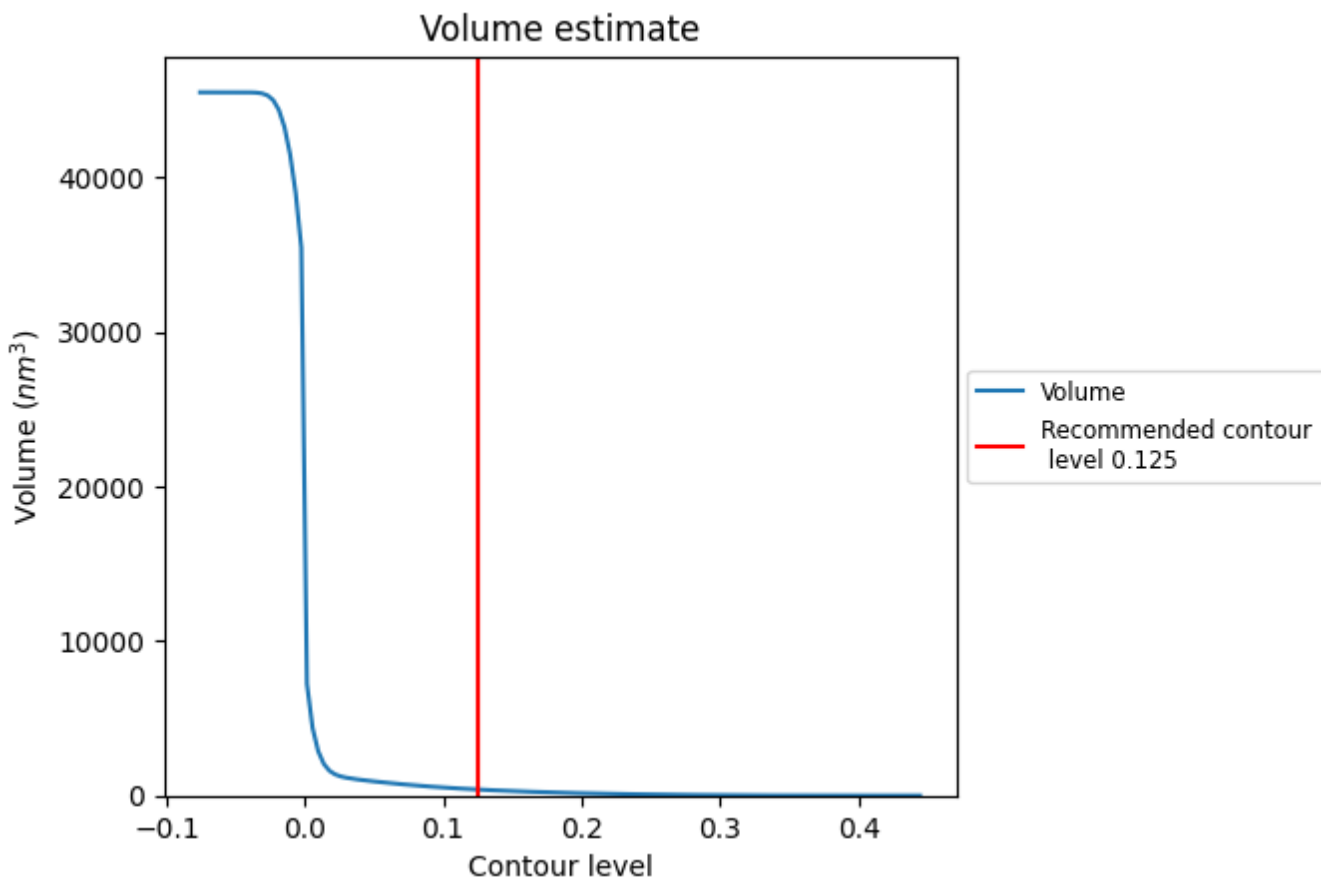
This section contains the results of statistical analysis of the map.

### 7.1 Map-value distribution [i](#)



The map-value distribution is plotted in 128 intervals along the x-axis. The y-axis is logarithmic. A spike in this graph at zero usually indicates that the volume has been masked.

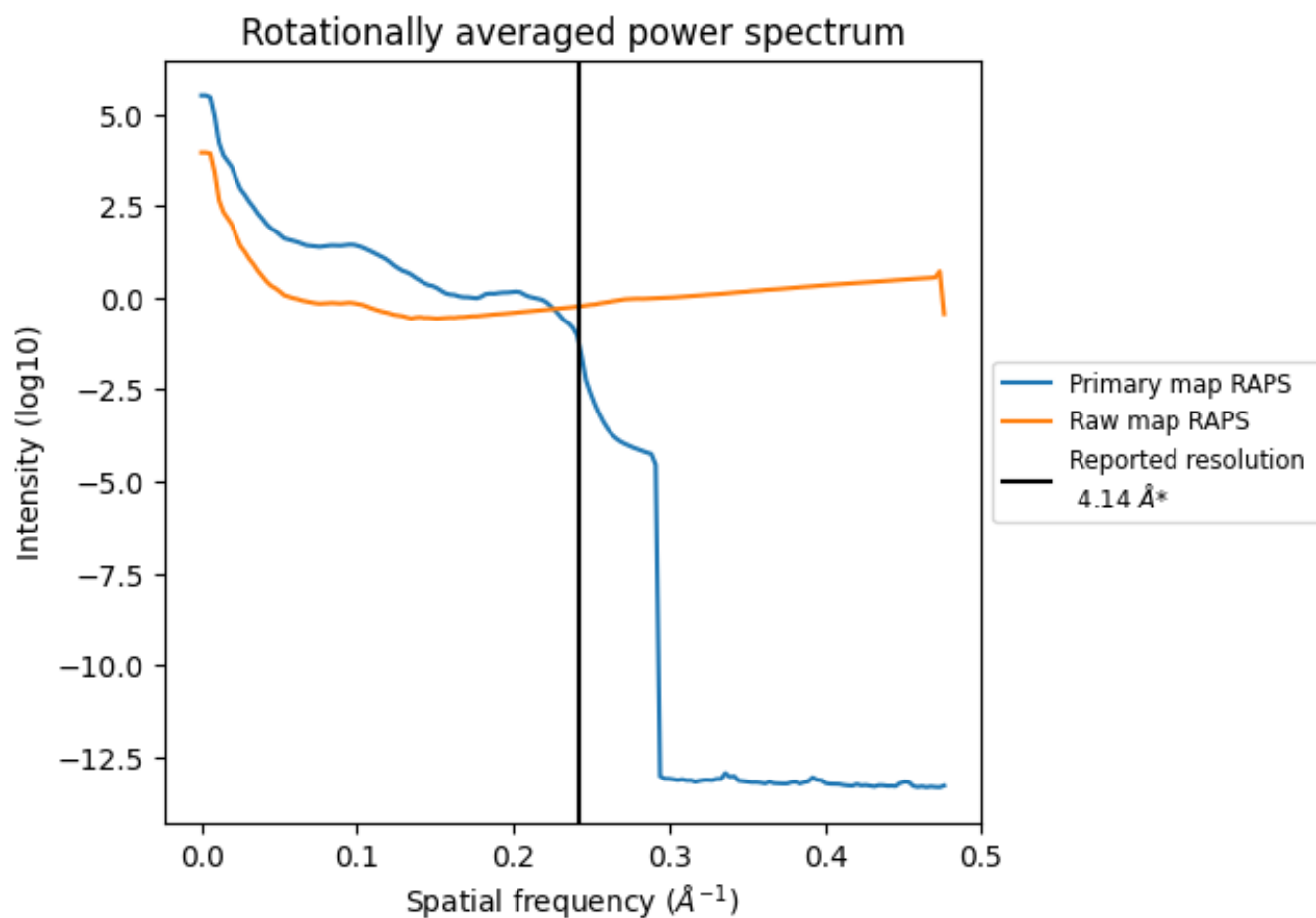
## 7.2 Volume estimate [i](#)



The volume at the recommended contour level is 392  $\text{nm}^3$ ; this corresponds to an approximate mass of 354 kDa.

The volume estimate graph shows how the enclosed volume varies with the contour level. The recommended contour level is shown as a vertical line and the intersection between the line and the curve gives the volume of the enclosed surface at the given level.

### 7.3 Rotationally averaged power spectrum [i](#)

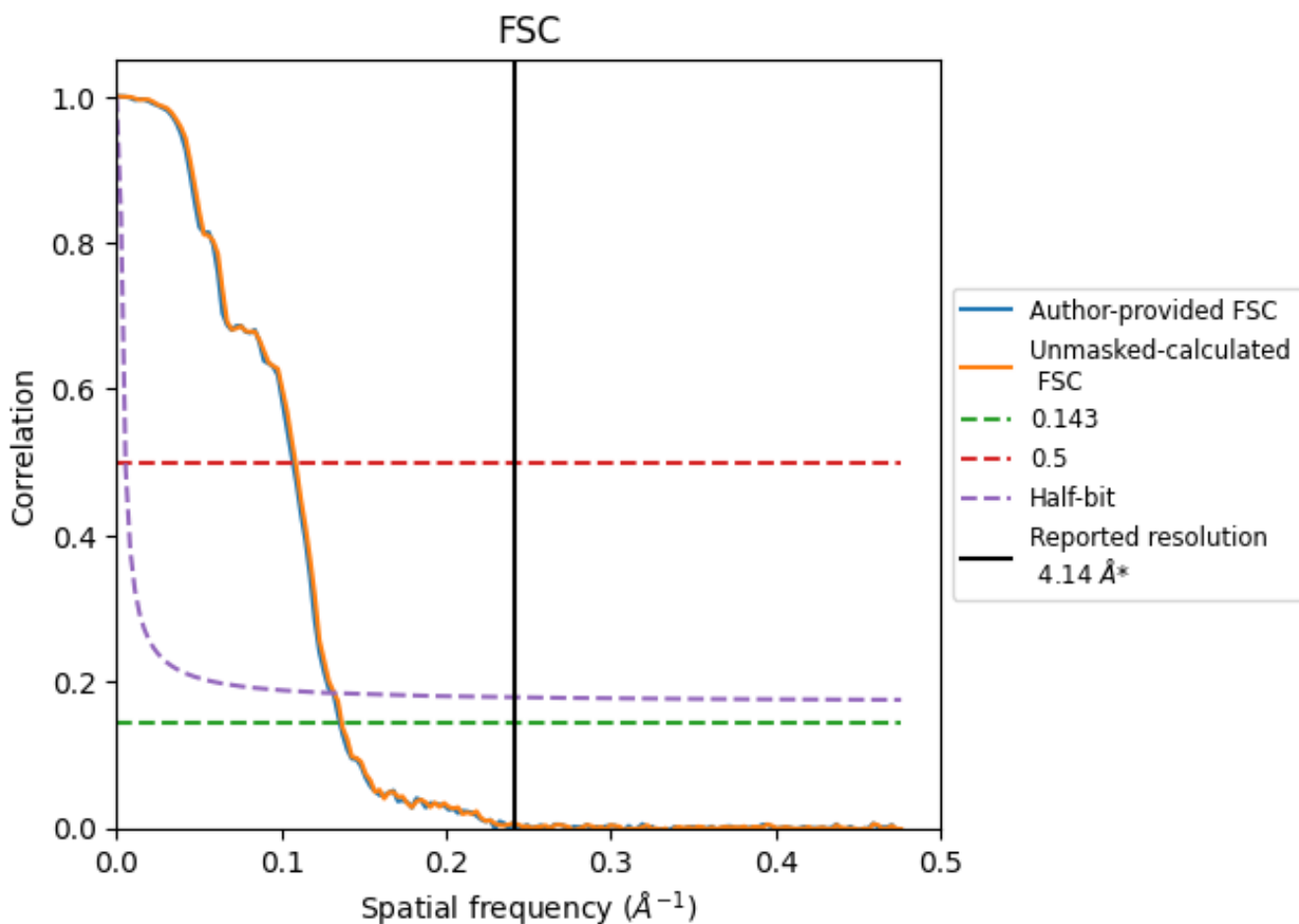


\*Reported resolution corresponds to spatial frequency of 0.242 Å<sup>-1</sup>

## 8 Fourier-Shell correlation [i](#)

Fourier-Shell Correlation (FSC) is the most commonly used method to estimate the resolution of single-particle and subtomogram-averaged maps. The shape of the curve depends on the imposed symmetry, mask and whether or not the two 3D reconstructions used were processed from a common reference. The reported resolution is shown as a black line. A curve is displayed for the half-bit criterion in addition to lines showing the 0.143 gold standard cut-off and 0.5 cut-off.

### 8.1 FSC [i](#)



\*Reported resolution corresponds to spatial frequency of 0.242 Å<sup>-1</sup>



## 8.2 Resolution estimates [i](#)

| Resolution estimate (Å)   | Estimation criterion (FSC cut-off) |      |          |
|---------------------------|------------------------------------|------|----------|
|                           | 0.143                              | 0.5  | Half-bit |
| Reported by author        | 4.14                               | -    | -        |
| Author-provided FSC curve | 7.37                               | 9.34 | 7.59     |
| Unmasked-calculated*      | 7.31                               | 9.20 | 7.56     |

\*Resolution estimate based on FSC curve calculated by comparison of deposited half-maps. The value from author-provided FSC intersecting FSC 0.143 CUT-OFF 7.37 differs from the reported value 4.14 by more than 10 %

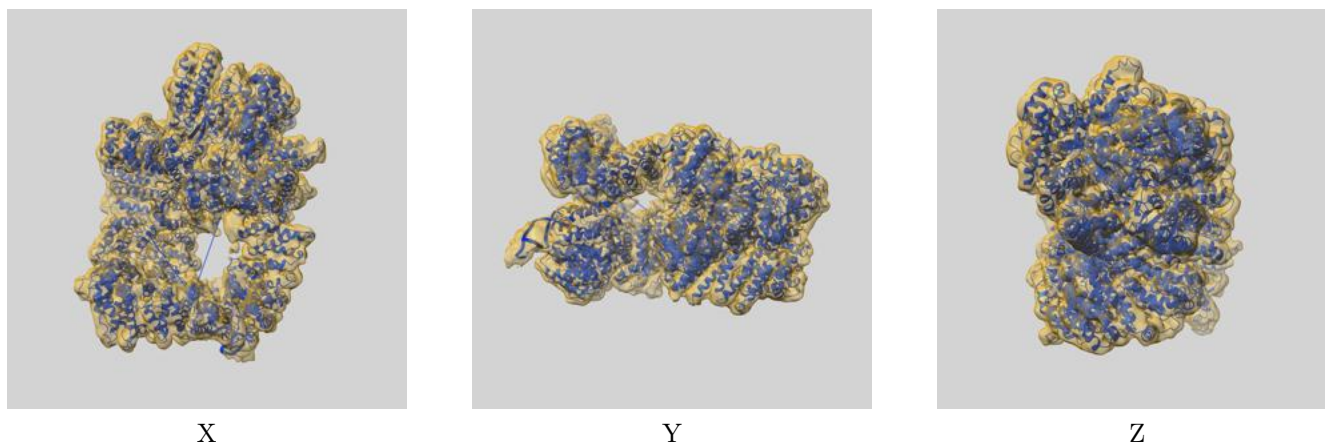
The value from deposited half-maps intersecting FSC 0.143 CUT-OFF 7.31 differs from the reported value 4.14 by more than 10 %



## 9 Map-model fit [i](#)

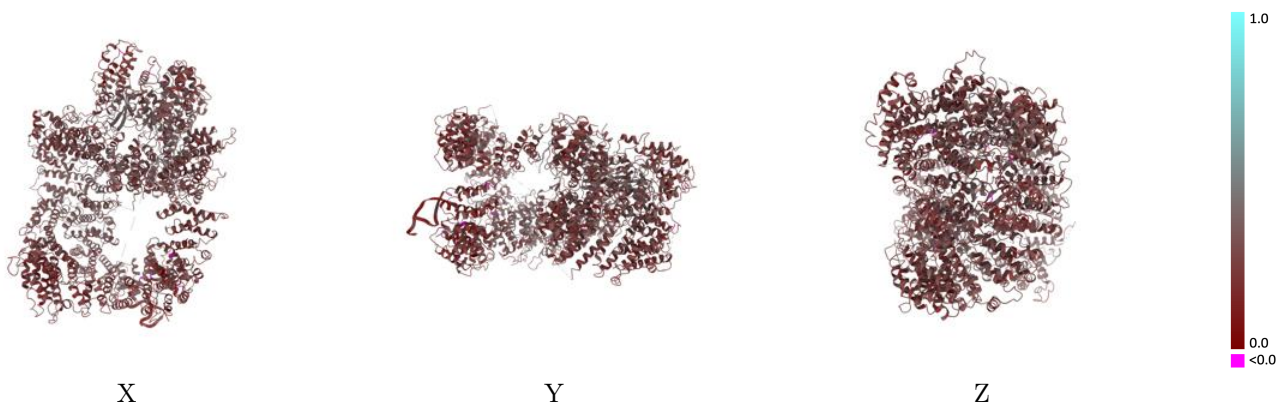
This section contains information regarding the fit between EMDB map EMD-11216 and PDB model 6ZH8. Per-residue inclusion information can be found in section 3 on page 4.

### 9.1 Map-model overlay [i](#)



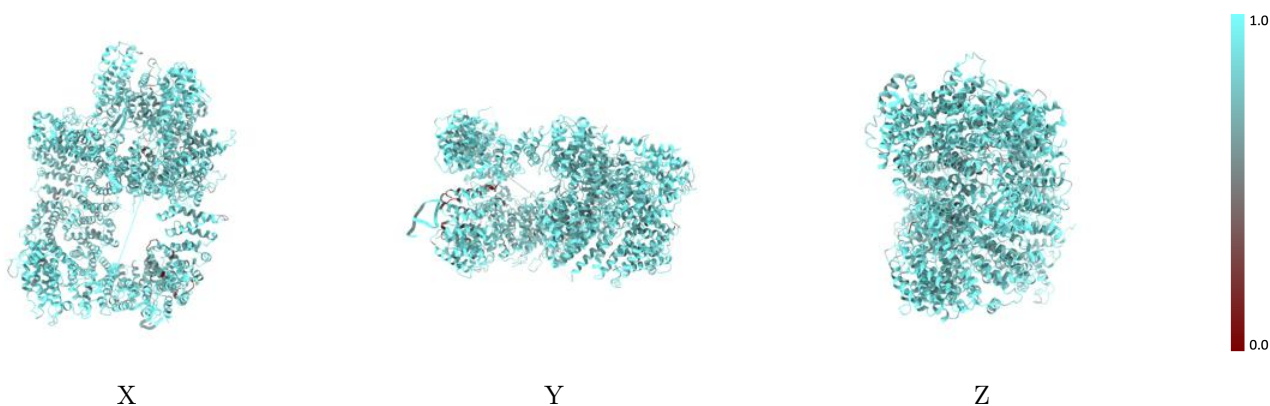
The images above show the 3D surface view of the map at the recommended contour level 0.125 at 50% transparency in yellow overlaid with a ribbon representation of the model coloured in blue. These images allow for the visual assessment of the quality of fit between the atomic model and the map.

## 9.2 Q-score mapped to coordinate model [i](#)



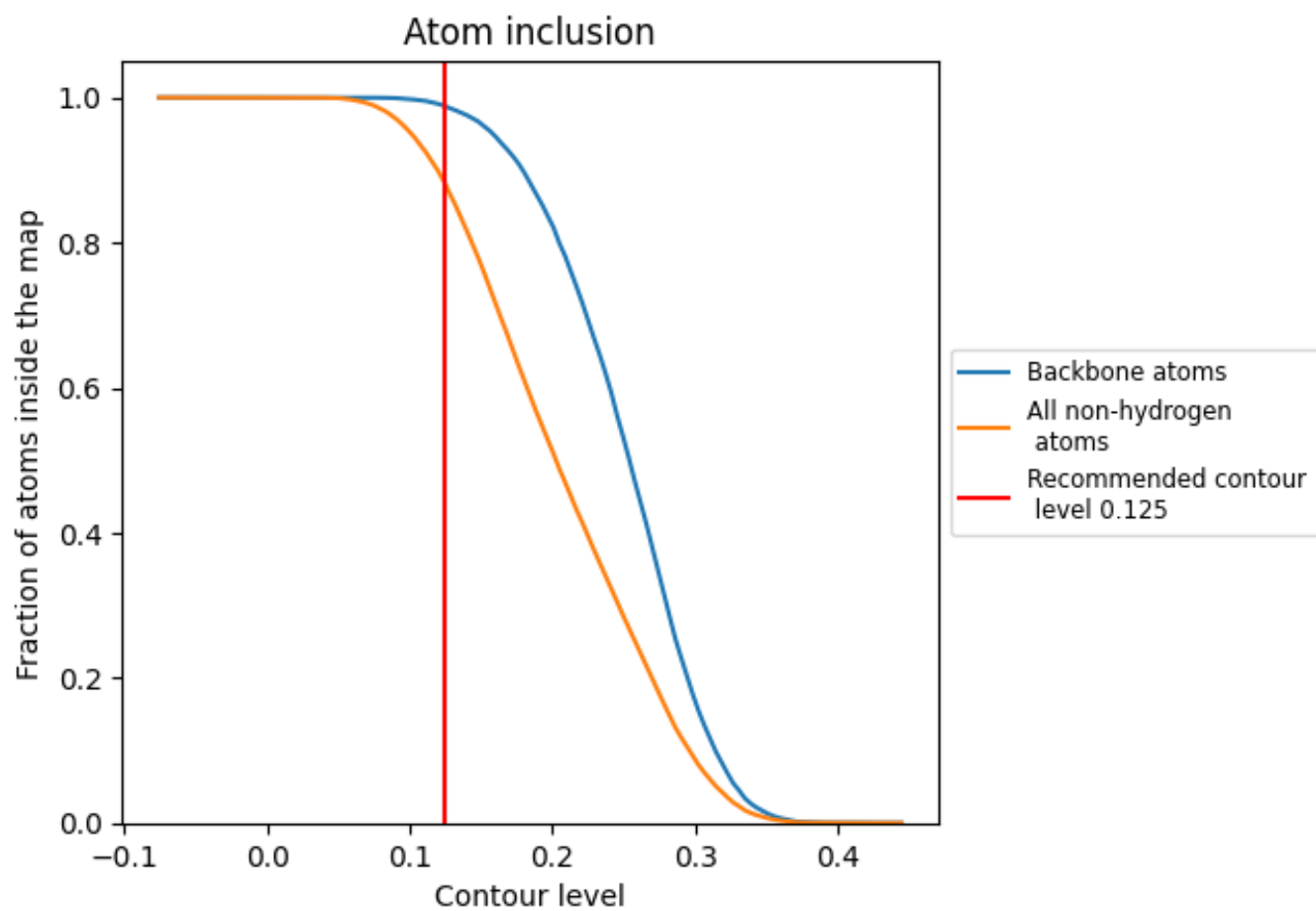
The images above show the model with each residue coloured according to its Q-score. This shows their resolvability in the map with higher Q-score values reflecting better resolvability. Please note: Q-score is calculating the resolvability of atoms, and thus high values are only expected at resolutions at which atoms can be resolved. Low Q-score values may therefore be expected for many entries.

## 9.3 Atom inclusion mapped to coordinate model [i](#)



The images above show the model with each residue coloured according to its atom inclusion. This shows to what extent they are inside the map at the recommended contour level (0.125).


## 9.4 Atom inclusion [i](#)



At the recommended contour level, 99% of all backbone atoms, 88% of all non-hydrogen atoms, are inside the map.

## 9.5 Map-model fit summary

The table lists the average atom inclusion at the recommended contour level (0.125) and Q-score for the entire model and for each chain.

| Chain | Atom inclusion   | Q-score  |
|-------|--|--|
| All   |  0.8802 |  0.2770 |
| A     |  0.8801 |  0.2780 |
| B     |  0.8288 |  0.2110 |
| C     |  0.9756 |  0.2030 |

