



## wwPDB EM Validation Summary Report ⓘ

Mar 28, 2026 – 02:17 AM UTC

PDB ID : 8TO0 / pdb\_00008to0  
EMDB ID : EMD-41431  
Title : 48-nm repeating structure of doublets from mouse sperm flagella  
Authors : Chen, Z.; Shiozak, M.; Hass, K.M.; Skinner, W.; Zhao, S.; Guo, C.; Polacco, B.J.; Yu, Z.; Krogan, N.J.; Kaake, R.M.; Vale, R.D.; Agard, D.A.  
Deposited on : 2023-08-02  
Resolution : 7.70 Å(reported)

This is a wwPDB EM Validation Summary 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.dev132  
MolProbity : **FAILED**  
Percentile statistics : 20250101.v01 (using entries in the PDB archive January 1st 2025)  
EM percentile statistics : **NOT EXECUTED**  
MapQ : **FAILED**  
Ideal geometry (proteins) : Engh & Huber (2001)  
Ideal geometry (DNA, RNA) : Parkinson et al. (1996)  
Validation Pipeline (wwPDB-VP) : 2.49

## 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 7.70 Å.

There are no overall percentile quality scores available for this entry.

MolProbity failed to run properly - the sequence quality summary graphics cannot be shown.

## 2 Entry composition

There are 35 unique types of molecules in this entry. The entry contains 673884 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 Cilia- and flagella-associated protein 95.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 1   | 0     | 40       | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 160   | 80  | 40  | 40  |         |       |
| 1   | 7     | 113      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 452   | 226 | 113 | 113 |         |       |

- Molecule 2 is a protein called Tektin-1.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 2   | L     | 334      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1336  | 668 | 334 | 334 |         |       |
| 2   | M     | 32       | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 128   | 64  | 32  | 32  |         |       |
| 2   | I     | 222      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 888   | 444 | 222 | 222 |         |       |
| 2   | J     | 396      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1584  | 792 | 396 | 396 |         |       |
| 2   | K     | 393      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1572  | 786 | 393 | 393 |         |       |

- Molecule 3 is a protein called Detyrosinated tubulin alpha-1A chain.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 3   | N     | 438      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1752  | 876 | 438 | 438 |         |       |
| 3   | P     | 440      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1760  | 880 | 440 | 440 |         |       |
| 3   | R     | 435      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1740  | 870 | 435 | 435 |         |       |
| 3   | T     | 440      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1760  | 880 | 440 | 440 |         |       |
| 3   | V     | 440      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1760  | 880 | 440 | 440 |         |       |
| 3   | X     | 440      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1760  | 880 | 440 | 440 |         |       |

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| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 3   | Z     | 439      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1756  | 878 | 439 | 439 |         |       |
| 3   | n     | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | p     | 440      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1760  | 880 | 440 | 440 |         |       |
| 3   | r     | 433      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1732  | 866 | 433 | 433 |         |       |
| 3   | t     | 440      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1760  | 880 | 440 | 440 |         |       |
| 3   | v     | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | x     | 439      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1756  | 878 | 439 | 439 |         |       |
| 3   | z     | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | BQ    | 425      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1700  | 850 | 425 | 425 |         |       |
| 3   | BS    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 3   | BU    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 3   | BW    | 424      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1696  | 848 | 424 | 424 |         |       |
| 3   | BY    | 429      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1716  | 858 | 429 | 429 |         |       |
| 3   | AW    | 439      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1756  | 878 | 439 | 439 |         |       |
| 3   | AY    | 439      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1756  | 878 | 439 | 439 |         |       |
| 3   | Aj    | 399      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1596  | 798 | 399 | 399 |         |       |
| 3   | Al    | 429      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1716  | 858 | 429 | 429 |         |       |
| 3   | An    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | Ap    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |
| 3   | Ar    | 429      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1716  | 858 | 429 | 429 |         |       |
| 3   | At    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |

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| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 3   | Av    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | A5    | 439      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1756  | 878 | 439 | 439 |         |       |
| 3   | A7    | 441      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1764  | 882 | 441 | 441 |         |       |
| 3   | A9    | 437      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1748  | 874 | 437 | 437 |         |       |
| 3   | BA    | 436      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1744  | 872 | 436 | 436 |         |       |
| 3   | BC    | 440      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1760  | 880 | 440 | 440 |         |       |
| 3   | BE    | 428      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1712  | 856 | 428 | 428 |         |       |
| 3   | BO    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |
| 3   | CX    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | Cc    | 432      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1728  | 864 | 432 | 432 |         |       |
| 3   | Ce    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |
| 3   | Cg    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | Ci    | 428      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1712  | 856 | 428 | 428 |         |       |
| 3   | Bc    | 440      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1760  | 880 | 440 | 440 |         |       |
| 3   | Be    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | Bg    | 440      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1760  | 880 | 440 | 440 |         |       |
| 3   | Bi    | 429      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1716  | 858 | 429 | 429 |         |       |
| 3   | Bk    | 429      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1716  | 858 | 429 | 429 |         |       |
| 3   | Bm    | 439      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1756  | 878 | 439 | 439 |         |       |
| 3   | Br    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 3   | Bt    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |

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| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 3   | Bv    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | Bx    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | Bz    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |
| 3   | B2    | 429      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1716  | 858 | 429 | 429 |         |       |
| 3   | B4    | 386      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1544  | 772 | 386 | 386 |         |       |
| 3   | B8    | 429      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1716  | 858 | 429 | 429 |         |       |
| 3   | B0    | 432      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1728  | 864 | 432 | 432 |         |       |
| 3   | CB    | 440      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1760  | 880 | 440 | 440 |         |       |
| 3   | CD    | 432      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1728  | 864 | 432 | 432 |         |       |
| 3   | CF    | 440      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1760  | 880 | 440 | 440 |         |       |
| 3   | CH    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |
| 3   | CJ    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 3   | CN    | 432      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1728  | 864 | 432 | 432 |         |       |
| 3   | CP    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | CR    | 428      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1712  | 856 | 428 | 428 |         |       |
| 3   | CT    | 429      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1716  | 858 | 429 | 429 |         |       |
| 3   | CV    | 440      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1760  | 880 | 440 | 440 |         |       |
| 3   | Dj    | 432      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1728  | 864 | 432 | 432 |         |       |
| 3   | Dl    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |
| 3   | Dp    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | Dr    | 432      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1728  | 864 | 432 | 432 |         |       |

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| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 3   | Ck    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | Cm    | 432      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1728  | 864 | 432 | 432 |         |       |
| 3   | Co    | 408      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1632  | 816 | 408 | 408 |         |       |
| 3   | Cs    | 440      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1760  | 880 | 440 | 440 |         |       |
| 3   | Cu    | 440      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1760  | 880 | 440 | 440 |         |       |
| 3   | Cw    | 440      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1760  | 880 | 440 | 440 |         |       |
| 3   | Cy    | 440      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1760  | 880 | 440 | 440 |         |       |
| 3   | C1    | 440      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1760  | 880 | 440 | 440 |         |       |
| 3   | C3    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |
| 3   | C8    | 439      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1756  | 878 | 439 | 439 |         |       |
| 3   | C0    | 429      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1716  | 858 | 429 | 429 |         |       |
| 3   | DB    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | DD    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |
| 3   | DF    | 440      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1760  | 880 | 440 | 440 |         |       |
| 3   | DH    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |
| 3   | DM    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | DO    | 429      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1716  | 858 | 429 | 429 |         |       |
| 3   | DQ    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | DS    | 432      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1728  | 864 | 432 | 432 |         |       |
| 3   | DU    | 432      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1728  | 864 | 432 | 432 |         |       |
| 3   | DW    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |

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| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 3   | Db    | 428      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1712  | 856 | 428 | 428 |         |       |
| 3   | Dd    | 429      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1716  | 858 | 429 | 429 |         |       |
| 3   | Df    | 433      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1732  | 866 | 433 | 433 |         |       |
| 3   | Dh    | 433      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1732  | 866 | 433 | 433 |         |       |
| 3   | Es    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | Eu    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | Ew    | 432      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1728  | 864 | 432 | 432 |         |       |
| 3   | Ey    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | E3    | 433      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1732  | 866 | 433 | 433 |         |       |
| 3   | Dt    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |
| 3   | Dv    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | Dx    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 3   | Dz    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | D2    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | D5    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |
| 3   | D7    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | D9    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | EA    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |
| 3   | EC    | 429      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1716  | 858 | 429 | 429 |         |       |
| 3   | EE    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |
| 3   | EG    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |

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| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 3   | EJ    | 429      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1716  | 858 | 429 | 429 |         |       |
| 3   | EL    | 432      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1728  | 864 | 432 | 432 |         |       |
| 3   | EN    | 428      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1712  | 856 | 428 | 428 |         |       |
| 3   | EP    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | ER    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |
| 3   | ET    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |
| 3   | EV    | 428      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1712  | 856 | 428 | 428 |         |       |
| 3   | EY    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | Ea    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | Ec    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |
| 3   | Ee    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |
| 3   | Eg    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 3   | Ei    | 432      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1728  | 864 | 432 | 432 |         |       |
| 3   | Ek    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |
| 3   | Eo    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | Eq    | 432      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1728  | 864 | 432 | 432 |         |       |
| 3   | E5    | 432      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1728  | 864 | 432 | 432 |         |       |
| 3   | AM    | 438      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1752  | 876 | 438 | 438 |         |       |
| 3   | E7    | 433      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1732  | 866 | 433 | 433 |         |       |
| 3   | E9    | 433      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1732  | 866 | 433 | 433 |         |       |
| 3   | FA    | 433      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1732  | 866 | 433 | 433 |         |       |

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| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 3   | FC    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |
| 3   | FG    | 440      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1760  | 880 | 440 | 440 |         |       |
| 3   | FI    | 433      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1732  | 866 | 433 | 433 |         |       |
| 3   | FK    | 440      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1760  | 880 | 440 | 440 |         |       |
| 3   | FM    | 433      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1732  | 866 | 433 | 433 |         |       |
| 3   | FO    | 440      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1760  | 880 | 440 | 440 |         |       |
| 3   | FQ    | 430      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1720  | 860 | 430 | 430 |         |       |
| 3   | FU    | 440      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1760  | 880 | 440 | 440 |         |       |
| 3   | FW    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |
| 3   | FY    | 439      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1756  | 878 | 439 | 439 |         |       |
| 3   | Fa    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |
| 3   | Fc    | 438      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1752  | 876 | 438 | 438 |         |       |
| 3   | Fe    | 431      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1724  | 862 | 431 | 431 |         |       |
| 3   | AO    | 438      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1752  | 876 | 438 | 438 |         |       |
| 3   | AQ    | 438      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1752  | 876 | 438 | 438 |         |       |
| 3   | AS    | 439      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1756  | 878 | 439 | 439 |         |       |
| 3   | AU    | 439      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1756  | 878 | 439 | 439 |         |       |

- Molecule 4 is a protein called Tubulin beta-4B chain.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 4   | O     | 436      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1744  | 872 | 436 | 436 |         |       |
| 4   | Q     | 436      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1744  | 872 | 436 | 436 |         |       |

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| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 4   | S     | 436      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1744  | 872 | 436 | 436 |         |       |
| 4   | U     | 436      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1744  | 872 | 436 | 436 |         |       |
| 4   | W     | 436      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1744  | 872 | 436 | 436 |         |       |
| 4   | Y     | 435      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1740  | 870 | 435 | 435 |         |       |
| 4   | o     | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | q     | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | s     | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | u     | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | w     | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | y     | 425      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1700  | 850 | 425 | 425 |         |       |
| 4   | BR    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | BT    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | BV    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | BX    | 425      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1700  | 850 | 425 | 425 |         |       |
| 4   | BZ    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | AV    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | AX    | 425      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1700  | 850 | 425 | 425 |         |       |
| 4   | Ak    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | Am    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | Ao    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | Aq    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |

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| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 4   | As    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | Au    | 425      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1700  | 850 | 425 | 425 |         |       |
| 4   | Aw    | 387      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1548  | 774 | 387 | 387 |         |       |
| 4   | A4    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | A6    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | A8    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | A0    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | BB    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | BD    | 425      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1700  | 850 | 425 | 425 |         |       |
| 4   | BF    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | BN    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | BP    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | CY    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | Cb    | 403      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1612  | 806 | 403 | 403 |         |       |
| 4   | Cd    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Cf    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Ch    | 429      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1716  | 858 | 429 | 429 |         |       |
| 4   | Bb    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Bd    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Bf    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Bh    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |

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| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 4   | Bj    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Bl    | 425      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1700  | 850 | 425 | 425 |         |       |
| 4   | Bn    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Bs    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Bu    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Bw    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | By    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | B1    | 425      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1700  | 850 | 425 | 425 |         |       |
| 4   | B3    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | B7    | 369      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1476  | 738 | 369 | 369 |         |       |
| 4   | B9    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | CA    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | CC    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | CE    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | CG    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | CI    | 428      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1712  | 856 | 428 | 428 |         |       |
| 4   | CM    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | CO    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | CQ    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | CS    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | CU    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |

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| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 4   | CW    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | Di    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Dk    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Dm    | 424      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1696  | 848 | 424 | 424 |         |       |
| 4   | Dq    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Ds    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Cj    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | Cl    | 429      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1716  | 858 | 429 | 429 |         |       |
| 4   | Cn    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Cr    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Ct    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Cv    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Cx    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Cz    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | C2    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | C4    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | C7    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | C9    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | DA    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | DC    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | DE    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |

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| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 4   | DG    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | DI    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | DL    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | DN    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | DP    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | DR    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | DT    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | DV    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | DX    | 425      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1700  | 850 | 425 | 425 |         |       |
| 4   | Dc    | 425      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1700  | 850 | 425 | 425 |         |       |
| 4   | De    | 424      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1696  | 848 | 424 | 424 |         |       |
| 4   | Dg    | 425      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1700  | 850 | 425 | 425 |         |       |
| 4   | Er    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Et    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Ev    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Ex    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | Du    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Dw    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Dy    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | D1    | 425      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1700  | 850 | 425 | 425 |         |       |
| 4   | D6    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |

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| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 4   | D8    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | D0    | 428      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1712  | 856 | 428 | 428 |         |       |
| 4   | EB    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | ED    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | EF    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | EK    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | EM    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | EO    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | EQ    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | ES    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | EU    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | EZ    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Eb    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Ed    | 428      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1712  | 856 | 428 | 428 |         |       |
| 4   | Ef    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Eh    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | Ej    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | Ep    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | E4    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | E6    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | E8    | 428      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1712  | 856 | 428 | 428 |         |       |

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| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 4   | E0    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | FB    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | FD    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | FH    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | FJ    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | FL    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | FN    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | FP    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | FR    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | FV    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | FX    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | AN    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | FZ    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | Fb    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | Fd    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | Ff    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | AP    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | Bq    | 426      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1704  | 852 | 426 | 426 |         |       |
| 4   | Da    | 411      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1644  | 822 | 411 | 411 |         |       |
| 4   | En    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | E2    | 428      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1712  | 856 | 428 | 428 |         |       |

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| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 4   | FF    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | FT    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | AR    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |
| 4   | AT    | 427      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1708  | 854 | 427 | 427 |         |       |

- Molecule 5 is a protein called Tektin-2.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 5   | b     | 191      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 764   | 382 | 191 | 191 |         |       |
| 5   | e     | 416      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1664  | 832 | 416 | 416 |         |       |
| 5   | f     | 416      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1664  | 832 | 416 | 416 |         |       |
| 5   | g     | 383      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1532  | 766 | 383 | 383 |         |       |
| 5   | h     | 48       | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 192   | 96  | 48  | 48  |         |       |
| 5   | i     | 51       | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 204   | 102 | 51  | 51  |         |       |
| 5   | j     | 358      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1432  | 716 | 358 | 358 |         |       |
| 5   | k     | 414      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1656  | 828 | 414 | 414 |         |       |
| 5   | l     | 403      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1612  | 806 | 403 | 403 |         |       |
| 5   | m     | 191      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 764   | 382 | 191 | 191 |         |       |

- Molecule 6 is a protein called EF-hand domain-containing family member B.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 6   | 1     | 141      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 564   | 282 | 141 | 141 |         |       |
| 6   | 2     | 190      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 760   | 380 | 190 | 190 |         |       |

- Molecule 7 is a protein called Tektin-3.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 7   | AC    | 31       | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 124   | 62  | 31  | 31  |         |       |
| 7   | AD    | 334      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1336  | 668 | 334 | 334 |         |       |
| 7   | AE    | 394      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1576  | 788 | 394 | 394 |         |       |
| 7   | AF    | 394      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1576  | 788 | 394 | 394 |         |       |
| 7   | AG    | 215      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 860   | 430 | 215 | 215 |         |       |
| 7   | AH    | 113      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 452   | 226 | 113 | 113 |         |       |
| 7   | AI    | 385      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1540  | 770 | 385 | 385 |         |       |
| 7   | AJ    | 413      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1652  | 826 | 413 | 413 |         |       |
| 7   | AK    | 407      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1628  | 814 | 407 | 407 |         |       |
| 7   | BI    | 139      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 556   | 278 | 139 | 139 |         |       |
| 7   | BJ    | 421      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1684  | 842 | 421 | 421 |         |       |
| 7   | BK    | 421      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1684  | 842 | 421 | 421 |         |       |
| 7   | BL    | 378      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1512  | 756 | 378 | 378 |         |       |
| 7   | BM    | 99       | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 396   | 198 | 99  | 99  |         |       |
| 7   | AL    | 112      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 448   | 224 | 112 | 112 |         |       |

- Molecule 8 is a protein called Meiosis-specific nuclear structural protein 1.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 8   | a     | 354      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1416  | 708 | 354 | 354 |         |       |
| 8   | A     | 170      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 680   | 340 | 170 | 170 |         |       |

- Molecule 9 is a protein called Tektin-4.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 9   | Aa    | 292      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1168  | 584 | 292 | 292 |         |       |

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| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 9   | Ab    | 425      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1700  | 850 | 425 | 425 |         |       |
| 9   | Ac    | 425      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1700  | 850 | 425 | 425 |         |       |
| 9   | Ad    | 316      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1264  | 632 | 316 | 316 |         |       |
| 9   | Af    | 314      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1256  | 628 | 314 | 314 |         |       |
| 9   | Ag    | 414      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1656  | 828 | 414 | 414 |         |       |
| 9   | Ah    | 413      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1652  | 826 | 413 | 413 |         |       |
| 9   | Ai    | 291      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1164  | 582 | 291 | 291 |         |       |

- Molecule 10 is a protein called Cilia- and flagella-associated protein 53.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 10  | 3     | 306      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1224  | 612 | 306 | 306 |         |       |
| 10  | 4     | 201      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 804   | 402 | 201 | 201 |         |       |

- Molecule 11 is a protein called Tektin bundle-interacting protein 1.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 11  | Az    | 68       | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 272   | 136 | 68  | 68  |         |       |
| 11  | A1    | 127      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 508   | 254 | 127 | 127 |         |       |
| 11  | A2    | 144      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 576   | 288 | 144 | 144 |         |       |
| 11  | A3    | 144      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 576   | 288 | 144 | 144 |         |       |

- Molecule 12 is a protein called Cilia- and flagella-associated protein 141.

| Mol | Chain | Residues | Atoms |     |    |    | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---------|-------|
| 12  | AB    | 87       | Total | C   | N  | O  | 0       | 0     |
|     |       |          | 348   | 174 | 87 | 87 |         |       |

- Molecule 13 is a protein called Nucleoside diphosphate kinase 7.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 13  | 5     | 358      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1432  | 716 | 358 | 358 |         |       |
| 13  | 6     | 358      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1432  | 716 | 358 | 358 |         |       |

- Molecule 14 is a protein called Protein FAM166B.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 14  | B6    | 152      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 608   | 304 | 152 | 152 |         |       |
| 14  | CL    | 152      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 608   | 304 | 152 | 152 |         |       |
| 14  | Ca    | 152      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 608   | 304 | 152 | 152 |         |       |
| 14  | Cq    | 152      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 608   | 304 | 152 | 152 |         |       |
| 14  | C6    | 152      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 608   | 304 | 152 | 152 |         |       |
| 14  | DK    | 155      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 620   | 310 | 155 | 155 |         |       |

- Molecule 15 is a protein called Sperm-associated antigen 8.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 15  | AZ    | 147      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 588   | 294 | 147 | 147 |         |       |

- Molecule 16 is a protein called RIB43A-like with coiled-coils protein 2.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 16  | Do    | 373      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1492  | 746 | 373 | 373 |         |       |
| 16  | DZ    | 33       | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 132   | 66  | 33  | 33  |         |       |
| 16  | D4    | 39       | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 156   | 78  | 39  | 39  |         |       |
| 16  | EI    | 222      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 888   | 444 | 222 | 222 |         |       |
| 16  | EX    | 170      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 680   | 340 | 170 | 170 |         |       |

- Molecule 17 is a protein called Cilia- and flagella-associated protein 107.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 17  | 8     | 188      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 752   | 376 | 188 | 188 |         |       |
| 17  | 9     | 32       | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 128   | 64  | 32  | 32  |         |       |

- Molecule 18 is a protein called Cilia- and flagella-associated protein 161.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 18  | Ay    | 251      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1004  | 502 | 251 | 251 |         |       |
| 18  | BH    | 251      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1004  | 502 | 251 | 251 |         |       |

- Molecule 19 is a protein called EF-hand domain-containing protein 1.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 19  | E1    | 442      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1768  | 884 | 442 | 442 |         |       |
| 19  | Em    | 442      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1768  | 884 | 442 | 442 |         |       |
| 19  | FE    | 442      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1768  | 884 | 442 | 442 |         |       |

- Molecule 20 is a protein called Sperm acrosome-associated protein 9.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 20  | F1    | 150      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 600   | 300 | 150 | 150 |         |       |
| 20  | F2    | 150      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 600   | 300 | 150 | 150 |         |       |
| 20  | F3    | 150      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 600   | 300 | 150 | 150 |         |       |
| 20  | F4    | 150      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 600   | 300 | 150 | 150 |         |       |
| 20  | F5    | 150      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 600   | 300 | 150 | 150 |         |       |
| 20  | F6    | 150      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 600   | 300 | 150 | 150 |         |       |
| 20  | F7    | 149      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 596   | 298 | 149 | 149 |         |       |
| 20  | F8    | 150      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 600   | 300 | 150 | 150 |         |       |

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| Mol | Chain | Residues | Atoms        |          |          |          | AltConf | Trace |
|-----|-------|----------|--------------|----------|----------|----------|---------|-------|
| 20  | F9    | 150      | Total<br>600 | C<br>300 | N<br>150 | O<br>150 | 0       | 0     |
| 20  | F0    | 150      | Total<br>600 | C<br>300 | N<br>150 | O<br>150 | 0       | 0     |
| 20  | GA    | 148      | Total<br>592 | C<br>296 | N<br>148 | O<br>148 | 0       | 0     |
| 20  | GB    | 150      | Total<br>600 | C<br>300 | N<br>150 | O<br>150 | 0       | 0     |
| 20  | GC    | 150      | Total<br>600 | C<br>300 | N<br>150 | O<br>150 | 0       | 0     |
| 20  | GD    | 148      | Total<br>592 | C<br>296 | N<br>148 | O<br>148 | 0       | 0     |
| 20  | GE    | 150      | Total<br>600 | C<br>300 | N<br>150 | O<br>150 | 0       | 0     |
| 20  | GF    | 146      | Total<br>584 | C<br>292 | N<br>146 | O<br>146 | 0       | 0     |
| 20  | GG    | 145      | Total<br>580 | C<br>290 | N<br>145 | O<br>145 | 0       | 0     |
| 20  | GH    | 150      | Total<br>600 | C<br>300 | N<br>150 | O<br>150 | 0       | 0     |
| 20  | GI    | 150      | Total<br>600 | C<br>300 | N<br>150 | O<br>150 | 0       | 0     |
| 20  | GJ    | 149      | Total<br>596 | C<br>298 | N<br>149 | O<br>149 | 0       | 0     |
| 20  | GK    | 149      | Total<br>596 | C<br>298 | N<br>149 | O<br>149 | 0       | 0     |
| 20  | GL    | 150      | Total<br>600 | C<br>300 | N<br>150 | O<br>150 | 0       | 0     |
| 20  | GM    | 150      | Total<br>600 | C<br>300 | N<br>150 | O<br>150 | 0       | 0     |
| 20  | GN    | 150      | Total<br>600 | C<br>300 | N<br>150 | O<br>150 | 0       | 0     |
| 20  | GO    | 149      | Total<br>596 | C<br>298 | N<br>149 | O<br>149 | 0       | 0     |
| 20  | GP    | 149      | Total<br>596 | C<br>298 | N<br>149 | O<br>149 | 0       | 0     |
| 20  | GQ    | 152      | Total<br>608 | C<br>304 | N<br>152 | O<br>152 | 0       | 0     |

- Molecule 21 is a protein called EF-hand domain-containing family member C2.

| Mol | Chain | Residues | Atoms |      |     |     | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---------|-------|
| 21  | Fg    | 636      | Total | C    | N   | O   | 0       | 0     |
|     |       |          | 2544  | 1272 | 636 | 636 |         |       |
| 21  | FS    | 553      | Total | C    | N   | O   | 0       | 0     |
|     |       |          | 2212  | 1106 | 553 | 553 |         |       |
| 21  | Fo    | 636      | Total | C    | N   | O   | 0       | 0     |
|     |       |          | 2544  | 1272 | 636 | 636 |         |       |
| 21  | Fv    | 449      | Total | C    | N   | O   | 0       | 0     |
|     |       |          | 1796  | 898  | 449 | 449 |         |       |

- Molecule 22 is a protein called Cilia- and flagella-associated protein 20.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 22  | Fh    | 184      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 736   | 368 | 184 | 184 |         |       |
| 22  | Fi    | 184      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 736   | 368 | 184 | 184 |         |       |
| 22  | Fj    | 184      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 736   | 368 | 184 | 184 |         |       |
| 22  | Fk    | 184      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 736   | 368 | 184 | 184 |         |       |
| 22  | Fl    | 184      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 736   | 368 | 184 | 184 |         |       |
| 22  | Fm    | 184      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 736   | 368 | 184 | 184 |         |       |
| 22  | Fn    | 184      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 736   | 368 | 184 | 184 |         |       |

- Molecule 23 is a protein called Parkin coregulated gene protein homolog.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 23  | Fp    | 219      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 876   | 438 | 219 | 219 |         |       |
| 23  | Fq    | 219      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 876   | 438 | 219 | 219 |         |       |
| 23  | Fr    | 219      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 876   | 438 | 219 | 219 |         |       |
| 23  | Fs    | 219      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 876   | 438 | 219 | 219 |         |       |
| 23  | Ft    | 219      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 876   | 438 | 219 | 219 |         |       |

- Molecule 24 is a protein called Dual specificity protein phosphatase 3.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 24  | Fx    | 185      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 740   | 370 | 185 | 185 |         |       |
| 24  | Fy    | 185      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 740   | 370 | 185 | 185 |         |       |
| 24  | Fz    | 185      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 740   | 370 | 185 | 185 |         |       |

- Molecule 25 is a protein called Piercer of microtubule wall 2 protein.

| Mol | Chain | Residues | Atoms |     |    |    | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---------|-------|
| 25  | G     | 71       | Total | C   | N  | O  | 0       | 0     |
|     |       |          | 284   | 142 | 71 | 71 |         |       |

- Molecule 26 is a protein called Tektin-5.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 26  | GR    | 274      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1096  | 548 | 274 | 274 |         |       |
| 26  | GS    | 274      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1096  | 548 | 274 | 274 |         |       |
| 26  | GT    | 274      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1096  | 548 | 274 | 274 |         |       |
| 26  | GU    | 171      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 684   | 342 | 171 | 171 |         |       |
| 26  | GV    | 244      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 976   | 488 | 244 | 244 |         |       |
| 26  | GW    | 349      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1396  | 698 | 349 | 349 |         |       |
| 26  | GX    | 346      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1384  | 692 | 346 | 346 |         |       |
| 26  | GY    | 288      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1152  | 576 | 288 | 288 |         |       |
| 26  | GZ    | 23       | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 92    | 46  | 23  | 23  |         |       |
| 26  | Ga    | 114      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 456   | 228 | 114 | 114 |         |       |
| 26  | Gb    | 342      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1368  | 684 | 342 | 342 |         |       |
| 26  | Gc    | 333      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1332  | 666 | 333 | 333 |         |       |
| 26  | Gd    | 327      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1308  | 654 | 327 | 327 |         |       |
| 26  | Ge    | 58       | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 232   | 116 | 58  | 58  |         |       |

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| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 26  | z0    | 270      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1080  | 540 | 270 | 270 |         |       |
| 26  | z1    | 268      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1072  | 536 | 268 | 268 |         |       |
| 26  | z3    | 254      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1016  | 508 | 254 | 254 |         |       |
| 26  | z4    | 184      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 736   | 368 | 184 | 184 |         |       |
| 26  | Gf    | 29       | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 116   | 58  | 29  | 29  |         |       |
| 26  | Gg    | 292      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1168  | 584 | 292 | 292 |         |       |
| 26  | Gh    | 320      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1280  | 640 | 320 | 320 |         |       |
| 26  | Gi    | 321      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1284  | 642 | 321 | 321 |         |       |
| 26  | Gj    | 190      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 760   | 380 | 190 | 190 |         |       |

- Molecule 27 is a protein called Cilia- and flagella-associated protein 45.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 27  | B     | 57       | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 228   | 114 | 57  | 57  |         |       |
| 27  | AA    | 327      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1308  | 654 | 327 | 327 |         |       |
| 27  | c     | 48       | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 192   | 96  | 48  | 48  |         |       |
| 27  | Ax    | 215      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 860   | 430 | 215 | 215 |         |       |
| 27  | d     | 238      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 952   | 476 | 238 | 238 |         |       |

- Molecule 28 is a protein called Cilia- and flagella-associated protein 52.

| Mol | Chain | Residues | Atoms |      |     |     | AltConf | Trace |
|-----|-------|----------|-------|------|-----|-----|---------|-------|
| 28  | BG    | 605      | Total | C    | N   | O   | 0       | 0     |
|     |       |          | 2420  | 1210 | 605 | 605 |         |       |
| 28  | Ba    | 605      | Total | C    | N   | O   | 0       | 0     |
|     |       |          | 2420  | 1210 | 605 | 605 |         |       |
| 28  | Bo    | 605      | Total | C    | N   | O   | 0       | 0     |
|     |       |          | 2420  | 1210 | 605 | 605 |         |       |

- Molecule 29 is a protein called Enkurin.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 29  | B5    | 142      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 568   | 284 | 142 | 142 |         |       |
| 29  | CK    | 229      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 916   | 458 | 229 | 229 |         |       |
| 29  | CZ    | 229      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 916   | 458 | 229 | 229 |         |       |
| 29  | Cp    | 229      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 916   | 458 | 229 | 229 |         |       |

- Molecule 30 is a protein called Protein Flattop.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 30  | C5    | 114      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 456   | 228 | 114 | 114 |         |       |
| 30  | DJ    | 113      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 452   | 226 | 113 | 113 |         |       |
| 30  | DY    | 118      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 472   | 236 | 118 | 118 |         |       |

- Molecule 31 is a protein called Cilia- and flagella- associated protein 210.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 31  | Dn    | 378      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1512  | 756 | 378 | 378 |         |       |
| 31  | D3    | 100      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 400   | 200 | 100 | 100 |         |       |

- Molecule 32 is a protein called Cilia- and flagella-associated protein 276.

| Mol | Chain | Residues | Atoms |     |    |    | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---------|-------|
| 32  | EH    | 77       | Total | C   | N  | O  | 0       | 0     |
|     |       |          | 308   | 154 | 77 | 77 |         |       |
| 32  | EW    | 77       | Total | C   | N  | O  | 0       | 0     |
|     |       |          | 308   | 154 | 77 | 77 |         |       |
| 32  | El    | 79       | Total | C   | N  | O  | 0       | 0     |
|     |       |          | 316   | 158 | 79 | 79 |         |       |

- Molecule 33 is a protein called EF-hand calcium-binding domain-containing protein 6.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 33  | Ez    | 178      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 712   | 356 | 178 | 178 |         |       |

- Molecule 34 is a protein called Coiled-coil domain-containing protein 105.

| Mol | Chain | Residues | Atoms |     |     |     | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---------|-------|
| 34  | C     | 173      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 692   | 346 | 173 | 173 |         |       |
| 34  | D     | 302      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1208  | 604 | 302 | 302 |         |       |
| 34  | E     | 302      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1208  | 604 | 302 | 302 |         |       |
| 34  | F     | 282      | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 1128  | 564 | 282 | 282 |         |       |
| 34  | H     | 9        | Total | C   | N   | O   | 0       | 0     |
|     |       |          | 36    | 18  | 9   | 9   |         |       |

- Molecule 35 is a protein called Piercer of microtubule wall 1 protein.

| Mol | Chain | Residues | Atoms |     |    |    | AltConf | Trace |
|-----|-------|----------|-------|-----|----|----|---------|-------|
| 35  | Fw    | 76       | Total | C   | N  | O  | 0       | 0     |
|     |       |          | 304   | 152 | 76 | 76 |         |       |

MolProbity failed to run properly - this section is therefore empty.

### 3 Experimental information

| Property                             | Value                                   | Source    |
|--------------------------------------|-----------------------------------------|-----------|
| EM reconstruction method             | SUBTOMOGRAM AVERAGING                   | Depositor |
| Imposed symmetry                     | POINT, C1                               | Depositor |
| Number of subtomograms used          | 12848                                   | 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 ( $e^-/\text{\AA}^2$ ) | 100                                     | Depositor |
| Minimum defocus (nm)                 | 2000                                    | Depositor |
| Maximum defocus (nm)                 | 6000                                    | Depositor |
| Magnification                        | Not provided                            |           |
| Image detector                       | GATAN K3 BIOQUANTUM (6k x 4k)           | Depositor |

## 4 Model quality [i](#)

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

MolProbity failed to run properly - this section is therefore empty.

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

MolProbity failed to run properly - this section is therefore empty.

### 4.3 Torsion angles [i](#)

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

MolProbity failed to run properly - this section is therefore empty.

#### 4.3.2 Protein sidechains [i](#)

MolProbity failed to run properly - this section is therefore empty.

#### 4.3.3 RNA [i](#)

MolProbity failed to run properly - this section is therefore empty.

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

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

### 4.5 Carbohydrates [i](#)

There are no oligosaccharides in this entry.

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

There are no ligands in this entry.

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

There are no such residues in this entry.

## 4.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

## 5 Map visualisation [i](#)

This section contains visualisations of the EMDB entry EMD-41431. These allow visual inspection of the internal detail of the map and identification of artifacts.

No raw map or half-maps were deposited for this entry and therefore no images, graphs, etc. pertaining to the raw map can be shown.

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

This section was not generated.

### 5.2 Central slices [i](#)

This section was not generated.

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

This section was not generated.

### 5.4 Orthogonal standard-deviation projections (False-color) [i](#)

This section was not generated.

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

This section was not generated.

### 5.6 Mask visualisation [i](#)

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

## 6 Map analysis ⓘ

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

### 6.1 Map-value distribution ⓘ

This section was not generated.

### 6.2 Volume estimate versus contour level ⓘ

This section was not generated.

### 6.3 Rotationally averaged power spectrum ⓘ

This section was not generated. The rotationally averaged power spectrum had issues being displayed.

## 7 Fourier-Shell correlation

This section was not generated. No FSC curve or half-maps provided.

## 8 Map-model fit

This section was not generated.