



wwPDB X-ray Structure Validation Summary Report ⓘ

Feb 15, 2017 – 06:09 am GMT

PDB ID : 4FAO
Title : Specificity and Structure of a high affinity Activin-like 1 (ALK1) signaling complex
Authors : Townson, S.A.; Martinez-Hackert, E.; Greppi, C.; Lowden, P.; Sako, D.; Liu, J.; Ucran, J.A.; Liharska, K.; Underwood, K.W.; Seehra, J.; Kumar, R.; Grinberg, A.V.
Deposited on : 2012-05-22
Resolution : 3.36 Å(reported)

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

We welcome your comments at validation@mail.wwpdb.org

A user guide is available at

<http://wwpdb.org/validation/2016/XrayValidationReportHelp>

with specific help available everywhere you see the ⓘ symbol.

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

| | | |
|--------------------------------|---|--|
| MolProbity | : | 4.02b-467 |
| Mogul | : | 1.7.2 (RC1), CSD as538be (2017) |
| Xtriage (Phenix) | : | 1.9-1692 |
| EDS | : | trunk28620 |
| Percentile statistics | : | 20161228.v01 (using entries in the PDB archive December 28th 2016) |
| Refmac | : | 5.8.0135 |
| CCP4 | : | 6.5.0 |
| Ideal geometry (proteins) | : | Engh & Huber (2001) |
| Ideal geometry (DNA, RNA) | : | Parkinson et al. (1996) |
| Validation Pipeline (wwPDB-VP) | : | recalc28949 |

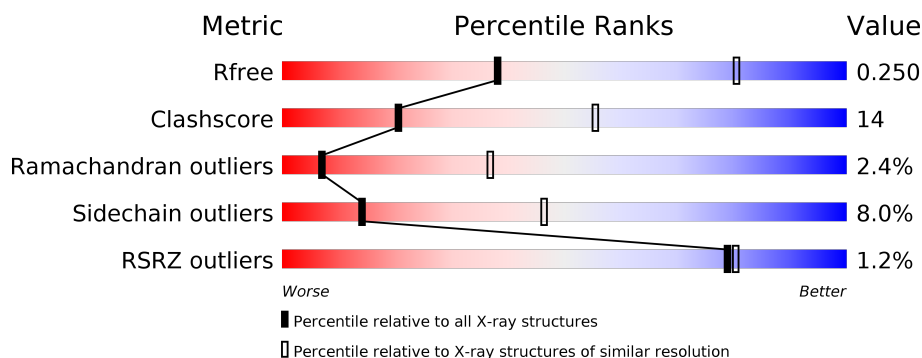
1 Overall quality at a glance

The following experimental techniques were used to determine the structure:

X-RAY DIFFRACTION

The reported resolution of this entry is 3.36 Å.

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









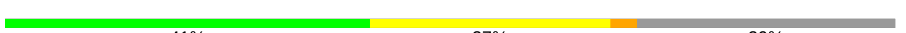




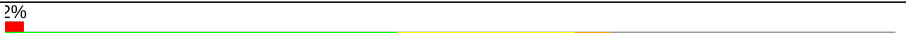


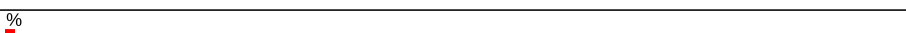




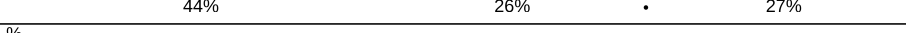

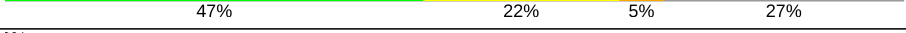



| Metric | Whole archive (#Entries) | Similar resolution (#Entries, resolution range(Å)) |
|-----------------------|-----------------------------|---|
| R_{free} | 100719 | 1156 (3.42-3.30) |
| Clashscore | 112137 | 1231 (3.42-3.30) |
| Ramachandran outliers | 110173 | 1212 (3.42-3.30) |
| Sidechain outliers | 110143 | 1211 (3.42-3.30) |
| RSRZ outliers | 101464 | 1165 (3.42-3.30) |

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

| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 1 | A | 110 | |
| 1 | B | 110 | |
| 1 | G | 110 | |
| 1 | H | 110 | |
| 1 | M | 110 | |
| 1 | N | 110 | |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|--|
| 1 | S | 110 |  |
| 1 | T | 110 |  |
| 1 | a | 110 |  |
| 1 | b | 110 |  |
| 1 | g | 110 |  |
| 1 | h | 110 |  |
| 2 | C | 106 |  |
| 2 | D | 106 |  |
| 2 | I | 106 |  |
| 2 | J | 106 |  |
| 2 | O | 106 |  |
| 2 | P | 106 |  |
| 2 | U | 106 |  |
| 2 | V | 106 |  |
| 2 | c | 106 |  |
| 2 | d | 106 |  |
| 2 | i | 106 |  |
| 2 | j | 106 |  |
| 3 | E | 124 |  |
| 3 | F | 124 |  |
| 3 | K | 124 |  |
| 3 | L | 124 |  |
| 3 | Q | 124 |  |
| 3 | R | 124 |  |
| 3 | W | 124 |  |

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| Mol | Chain | Length | Quality of chain |
|-----|-------|--------|------------------|
| 3 | X | 124 | |
| 3 | e | 124 | |
| 3 | f | 124 | |
| 3 | k | 124 | |
| 3 | l | 124 | |

The following table lists non-polymeric compounds, carbohydrate monomers and non-standard residues in protein, DNA, RNA chains that are outliers for geometric or electron-density-fit criteria:

| Mol | Type | Chain | Res | Chirality | Geometry | Clashes | Electron density |
|-----|------|-------|-----|-----------|----------|---------|------------------|
| 4 | NAG | F | 202 | X | - | - | - |
| 4 | NAG | K | 202 | X | - | - | - |
| 4 | NAG | L | 202 | X | - | - | - |
| 4 | NAG | X | 202 | X | - | - | - |
| 4 | NAG | k | 202 | X | - | - | - |
| 4 | NAG | l | 202 | X | - | - | - |
| 5 | NA | e | 203 | - | - | - | X |

2 Entry composition

There are 5 unique types of molecules in this entry. The entry contains 25411 atoms, of which 0 are hydrogens and 0 are deuteriums.

In the tables below, the ZeroOcc column contains the number of atoms modelled with zero occupancy, the AltConf column contains the number of residues with at least one atom in alternate conformation and the Trace column contains the number of residues modelled with at most 2 atoms.

- Molecule 1 is a protein called Growth/differentiation factor 2.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|---|---------|---------|-------|
| 1 | A | 105 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 821 | 528 | 134 | 150 | 9 | | | |
| 1 | B | 105 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 814 | 523 | 133 | 150 | 8 | | | |
| 1 | G | 105 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 810 | 520 | 132 | 150 | 8 | | | |
| 1 | H | 105 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 821 | 528 | 134 | 150 | 9 | | | |
| 1 | M | 105 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 817 | 525 | 133 | 150 | 9 | | | |
| 1 | N | 104 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 801 | 515 | 128 | 149 | 9 | | | |
| 1 | S | 105 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 821 | 528 | 134 | 150 | 9 | | | |
| 1 | T | 105 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 813 | 522 | 132 | 150 | 9 | | | |
| 1 | a | 105 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 806 | 518 | 129 | 150 | 9 | | | |
| 1 | b | 105 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 821 | 528 | 134 | 150 | 9 | | | |
| 1 | g | 105 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 820 | 528 | 133 | 150 | 9 | | | |
| 1 | h | 105 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 821 | 528 | 134 | 150 | 9 | | | |

- Molecule 2 is a protein called Serine/threonine-protein kinase receptor R3.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|---------|-------|
| 2 | C | 75 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 567 | 344 | 111 | 102 | 10 | | | |
| 2 | D | 72 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 553 | 333 | 110 | 100 | 10 | | | |

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| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|---------|-------|
| 2 | I | 75 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 556 | 338 | 110 | 98 | 10 | | | |
| 2 | J | 72 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 539 | 327 | 104 | 98 | 10 | | | |
| 2 | O | 75 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 531 | 325 | 99 | 97 | 10 | | | |
| 2 | P | 72 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 549 | 333 | 110 | 96 | 10 | | | |
| 2 | U | 75 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 572 | 346 | 112 | 104 | 10 | | | |
| 2 | V | 72 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 553 | 333 | 111 | 99 | 10 | | | |
| 2 | c | 75 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 561 | 340 | 113 | 98 | 10 | | | |
| 2 | d | 72 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 539 | 328 | 104 | 97 | 10 | | | |
| 2 | i | 75 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 559 | 339 | 109 | 101 | 10 | | | |
| 2 | j | 72 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 559 | 336 | 113 | 100 | 10 | | | |

There are 108 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------------|------------|
| C | 20 | GLY | - | EXPRESSION TAG | UNP P37023 |
| C | 21 | ALA | - | EXPRESSION TAG | UNP P37023 |
| C | 119 | SER | - | EXPRESSION TAG | UNP P37023 |
| C | 120 | GLY | - | EXPRESSION TAG | UNP P37023 |
| C | 121 | ASP | - | EXPRESSION TAG | UNP P37023 |
| C | 122 | ASP | - | EXPRESSION TAG | UNP P37023 |
| C | 123 | ASP | - | EXPRESSION TAG | UNP P37023 |
| C | 124 | ASP | - | EXPRESSION TAG | UNP P37023 |
| C | 125 | LYS | - | EXPRESSION TAG | UNP P37023 |
| D | 20 | GLY | - | EXPRESSION TAG | UNP P37023 |
| D | 21 | ALA | - | EXPRESSION TAG | UNP P37023 |
| D | 119 | SER | - | EXPRESSION TAG | UNP P37023 |
| D | 120 | GLY | - | EXPRESSION TAG | UNP P37023 |
| D | 121 | ASP | - | EXPRESSION TAG | UNP P37023 |
| D | 122 | ASP | - | EXPRESSION TAG | UNP P37023 |
| D | 123 | ASP | - | EXPRESSION TAG | UNP P37023 |
| D | 124 | ASP | - | EXPRESSION TAG | UNP P37023 |
| D | 125 | LYS | - | EXPRESSION TAG | UNP P37023 |
| I | 20 | GLY | - | EXPRESSION TAG | UNP P37023 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------------|------------|
| I | 21 | ALA | - | EXPRESSION TAG | UNP P37023 |
| I | 119 | SER | - | EXPRESSION TAG | UNP P37023 |
| I | 120 | GLY | - | EXPRESSION TAG | UNP P37023 |
| I | 121 | ASP | - | EXPRESSION TAG | UNP P37023 |
| I | 122 | ASP | - | EXPRESSION TAG | UNP P37023 |
| I | 123 | ASP | - | EXPRESSION TAG | UNP P37023 |
| I | 124 | ASP | - | EXPRESSION TAG | UNP P37023 |
| I | 125 | LYS | - | EXPRESSION TAG | UNP P37023 |
| J | 20 | GLY | - | EXPRESSION TAG | UNP P37023 |
| J | 21 | ALA | - | EXPRESSION TAG | UNP P37023 |
| J | 119 | SER | - | EXPRESSION TAG | UNP P37023 |
| J | 120 | GLY | - | EXPRESSION TAG | UNP P37023 |
| J | 121 | ASP | - | EXPRESSION TAG | UNP P37023 |
| J | 122 | ASP | - | EXPRESSION TAG | UNP P37023 |
| J | 123 | ASP | - | EXPRESSION TAG | UNP P37023 |
| J | 124 | ASP | - | EXPRESSION TAG | UNP P37023 |
| J | 125 | LYS | - | EXPRESSION TAG | UNP P37023 |
| O | 20 | GLY | - | EXPRESSION TAG | UNP P37023 |
| O | 21 | ALA | - | EXPRESSION TAG | UNP P37023 |
| O | 119 | SER | - | EXPRESSION TAG | UNP P37023 |
| O | 120 | GLY | - | EXPRESSION TAG | UNP P37023 |
| O | 121 | ASP | - | EXPRESSION TAG | UNP P37023 |
| O | 122 | ASP | - | EXPRESSION TAG | UNP P37023 |
| O | 123 | ASP | - | EXPRESSION TAG | UNP P37023 |
| O | 124 | ASP | - | EXPRESSION TAG | UNP P37023 |
| O | 125 | LYS | - | EXPRESSION TAG | UNP P37023 |
| P | 20 | GLY | - | EXPRESSION TAG | UNP P37023 |
| P | 21 | ALA | - | EXPRESSION TAG | UNP P37023 |
| P | 119 | SER | - | EXPRESSION TAG | UNP P37023 |
| P | 120 | GLY | - | EXPRESSION TAG | UNP P37023 |
| P | 121 | ASP | - | EXPRESSION TAG | UNP P37023 |
| P | 122 | ASP | - | EXPRESSION TAG | UNP P37023 |
| P | 123 | ASP | - | EXPRESSION TAG | UNP P37023 |
| P | 124 | ASP | - | EXPRESSION TAG | UNP P37023 |
| P | 125 | LYS | - | EXPRESSION TAG | UNP P37023 |
| U | 20 | GLY | - | EXPRESSION TAG | UNP P37023 |
| U | 21 | ALA | - | EXPRESSION TAG | UNP P37023 |
| U | 119 | SER | - | EXPRESSION TAG | UNP P37023 |
| U | 120 | GLY | - | EXPRESSION TAG | UNP P37023 |
| U | 121 | ASP | - | EXPRESSION TAG | UNP P37023 |
| U | 122 | ASP | - | EXPRESSION TAG | UNP P37023 |
| U | 123 | ASP | - | EXPRESSION TAG | UNP P37023 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------------|------------|
| U | 124 | ASP | - | EXPRESSION TAG | UNP P37023 |
| U | 125 | LYS | - | EXPRESSION TAG | UNP P37023 |
| V | 20 | GLY | - | EXPRESSION TAG | UNP P37023 |
| V | 21 | ALA | - | EXPRESSION TAG | UNP P37023 |
| V | 119 | SER | - | EXPRESSION TAG | UNP P37023 |
| V | 120 | GLY | - | EXPRESSION TAG | UNP P37023 |
| V | 121 | ASP | - | EXPRESSION TAG | UNP P37023 |
| V | 122 | ASP | - | EXPRESSION TAG | UNP P37023 |
| V | 123 | ASP | - | EXPRESSION TAG | UNP P37023 |
| V | 124 | ASP | - | EXPRESSION TAG | UNP P37023 |
| V | 125 | LYS | - | EXPRESSION TAG | UNP P37023 |
| c | 20 | GLY | - | EXPRESSION TAG | UNP P37023 |
| c | 21 | ALA | - | EXPRESSION TAG | UNP P37023 |
| c | 119 | SER | - | EXPRESSION TAG | UNP P37023 |
| c | 120 | GLY | - | EXPRESSION TAG | UNP P37023 |
| c | 121 | ASP | - | EXPRESSION TAG | UNP P37023 |
| c | 122 | ASP | - | EXPRESSION TAG | UNP P37023 |
| c | 123 | ASP | - | EXPRESSION TAG | UNP P37023 |
| c | 124 | ASP | - | EXPRESSION TAG | UNP P37023 |
| c | 125 | LYS | - | EXPRESSION TAG | UNP P37023 |
| d | 20 | GLY | - | EXPRESSION TAG | UNP P37023 |
| d | 21 | ALA | - | EXPRESSION TAG | UNP P37023 |
| d | 119 | SER | - | EXPRESSION TAG | UNP P37023 |
| d | 120 | GLY | - | EXPRESSION TAG | UNP P37023 |
| d | 121 | ASP | - | EXPRESSION TAG | UNP P37023 |
| d | 122 | ASP | - | EXPRESSION TAG | UNP P37023 |
| d | 123 | ASP | - | EXPRESSION TAG | UNP P37023 |
| d | 124 | ASP | - | EXPRESSION TAG | UNP P37023 |
| d | 125 | LYS | - | EXPRESSION TAG | UNP P37023 |
| i | 20 | GLY | - | EXPRESSION TAG | UNP P37023 |
| i | 21 | ALA | - | EXPRESSION TAG | UNP P37023 |
| i | 119 | SER | - | EXPRESSION TAG | UNP P37023 |
| i | 120 | GLY | - | EXPRESSION TAG | UNP P37023 |
| i | 121 | ASP | - | EXPRESSION TAG | UNP P37023 |
| i | 122 | ASP | - | EXPRESSION TAG | UNP P37023 |
| i | 123 | ASP | - | EXPRESSION TAG | UNP P37023 |
| i | 124 | ASP | - | EXPRESSION TAG | UNP P37023 |
| i | 125 | LYS | - | EXPRESSION TAG | UNP P37023 |
| j | 20 | GLY | - | EXPRESSION TAG | UNP P37023 |
| j | 21 | ALA | - | EXPRESSION TAG | UNP P37023 |
| j | 119 | SER | - | EXPRESSION TAG | UNP P37023 |
| j | 120 | GLY | - | EXPRESSION TAG | UNP P37023 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------------|------------|
| j | 121 | ASP | - | EXPRESSION TAG | UNP P37023 |
| j | 122 | ASP | - | EXPRESSION TAG | UNP P37023 |
| j | 123 | ASP | - | EXPRESSION TAG | UNP P37023 |
| j | 124 | ASP | - | EXPRESSION TAG | UNP P37023 |
| j | 125 | LYS | - | EXPRESSION TAG | UNP P37023 |

- Molecule 3 is a protein called Activin receptor type-2B.

| Mol | Chain | Residues | Atoms | | | | | ZeroOcc | AltConf | Trace |
|-----|-------|----------|-------|-----|-----|-----|----|---------|---------|-------|
| 3 | E | 91 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 739 | 457 | 132 | 140 | 10 | | | |
| 3 | F | 91 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 716 | 445 | 127 | 134 | 10 | | | |
| 3 | K | 91 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 709 | 441 | 125 | 133 | 10 | | | |
| 3 | L | 91 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 725 | 448 | 129 | 138 | 10 | | | |
| 3 | Q | 91 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 736 | 455 | 129 | 142 | 10 | | | |
| 3 | R | 91 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 718 | 445 | 126 | 137 | 10 | | | |
| 3 | W | 91 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 726 | 449 | 129 | 138 | 10 | | | |
| 3 | X | 91 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 711 | 440 | 126 | 135 | 10 | | | |
| 3 | e | 91 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 718 | 444 | 123 | 141 | 10 | | | |
| 3 | f | 91 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 725 | 448 | 127 | 140 | 10 | | | |
| 3 | k | 91 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 710 | 441 | 122 | 137 | 10 | | | |
| 3 | l | 91 | Total | C | N | O | S | 0 | 0 | 0 |
| | | | 712 | 442 | 125 | 135 | 10 | | | |

There are 96 discrepancies between the modelled and reference sequences:

| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------------|------------|
| E | -1 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| E | 0 | ALA | - | EXPRESSION TAG | UNP Q13705 |
| E | 117 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| E | 118 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| E | 119 | ASP | - | EXPRESSION TAG | UNP Q13705 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------------|------------|
| E | 120 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| E | 121 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| E | 122 | LYS | - | EXPRESSION TAG | UNP Q13705 |
| F | -1 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| F | 0 | ALA | - | EXPRESSION TAG | UNP Q13705 |
| F | 117 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| F | 118 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| F | 119 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| F | 120 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| F | 121 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| F | 122 | LYS | - | EXPRESSION TAG | UNP Q13705 |
| K | -1 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| K | 0 | ALA | - | EXPRESSION TAG | UNP Q13705 |
| K | 117 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| K | 118 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| K | 119 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| K | 120 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| K | 121 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| K | 122 | LYS | - | EXPRESSION TAG | UNP Q13705 |
| L | -1 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| L | 0 | ALA | - | EXPRESSION TAG | UNP Q13705 |
| L | 117 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| L | 118 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| L | 119 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| L | 120 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| L | 121 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| L | 122 | LYS | - | EXPRESSION TAG | UNP Q13705 |
| Q | -1 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| Q | 0 | ALA | - | EXPRESSION TAG | UNP Q13705 |
| Q | 117 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| Q | 118 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| Q | 119 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| Q | 120 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| Q | 121 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| Q | 122 | LYS | - | EXPRESSION TAG | UNP Q13705 |
| R | -1 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| R | 0 | ALA | - | EXPRESSION TAG | UNP Q13705 |
| R | 117 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| R | 118 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| R | 119 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| R | 120 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| R | 121 | ASP | - | EXPRESSION TAG | UNP Q13705 |

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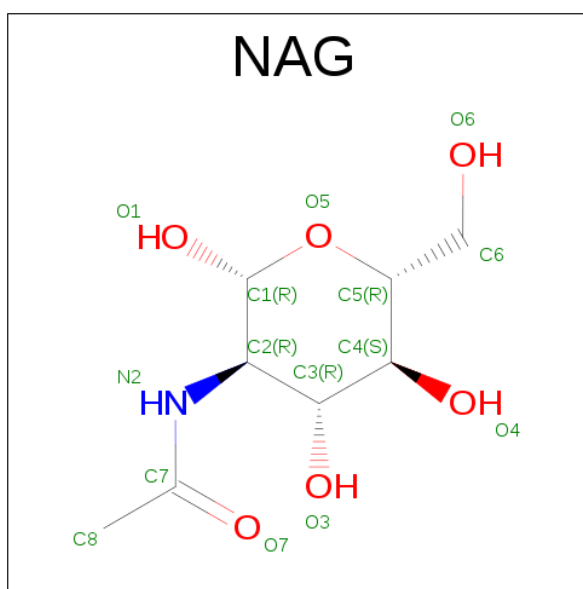
| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------------|------------|
| R | 122 | LYS | - | EXPRESSION TAG | UNP Q13705 |
| W | -1 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| W | 0 | ALA | - | EXPRESSION TAG | UNP Q13705 |
| W | 117 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| W | 118 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| W | 119 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| W | 120 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| W | 121 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| W | 122 | LYS | - | EXPRESSION TAG | UNP Q13705 |
| X | -1 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| X | 0 | ALA | - | EXPRESSION TAG | UNP Q13705 |
| X | 117 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| X | 118 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| X | 119 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| X | 120 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| X | 121 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| X | 122 | LYS | - | EXPRESSION TAG | UNP Q13705 |
| e | -1 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| e | 0 | ALA | - | EXPRESSION TAG | UNP Q13705 |
| e | 117 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| e | 118 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| e | 119 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| e | 120 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| e | 121 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| e | 122 | LYS | - | EXPRESSION TAG | UNP Q13705 |
| f | -1 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| f | 0 | ALA | - | EXPRESSION TAG | UNP Q13705 |
| f | 117 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| f | 118 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| f | 119 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| f | 120 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| f | 121 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| f | 122 | LYS | - | EXPRESSION TAG | UNP Q13705 |
| k | -1 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| k | 0 | ALA | - | EXPRESSION TAG | UNP Q13705 |
| k | 117 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| k | 118 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| k | 119 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| k | 120 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| k | 121 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| k | 122 | LYS | - | EXPRESSION TAG | UNP Q13705 |
| l | -1 | GLY | - | EXPRESSION TAG | UNP Q13705 |

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| Chain | Residue | Modelled | Actual | Comment | Reference |
|-------|---------|----------|--------|----------------|------------|
| 1 | 0 | ALA | - | EXPRESSION TAG | UNP Q13705 |
| 1 | 117 | GLY | - | EXPRESSION TAG | UNP Q13705 |
| 1 | 118 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| 1 | 119 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| 1 | 120 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| 1 | 121 | ASP | - | EXPRESSION TAG | UNP Q13705 |
| 1 | 122 | LYS | - | EXPRESSION TAG | UNP Q13705 |

- Molecule 4 is SUGAR (N-ACETYL-D-GLUCOSAMINE) (three-letter code: NAG) (formula: $C_8H_{15}NO_6$).



| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf |
|-----|-------|----------|-------|---|---|---|---------|---------|
| 4 | E | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |
| 4 | E | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |
| 4 | F | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |
| 4 | F | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |
| 4 | K | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |
| 4 | K | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |
| 4 | L | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |

Continued on next page...

Continued from previous page...

| Mol | Chain | Residues | Atoms | | | | ZeroOcc | AltConf |
|-----|-------|----------|-------|---|---|---|---------|---------|
| 4 | L | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |
| 4 | Q | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |
| 4 | Q | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |
| 4 | R | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |
| 4 | R | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |
| 4 | W | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |
| 4 | W | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |
| 4 | X | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |
| 4 | X | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |
| 4 | e | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |
| 4 | e | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |
| 4 | f | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |
| 4 | f | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |
| 4 | k | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |
| 4 | k | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |
| 4 | l | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |
| 4 | l | 1 | Total | C | N | O | 0 | 0 |
| | | | 14 | 8 | 1 | 5 | | |

- Molecule 5 is SODIUM ION (three-letter code: NA) (formula: Na).

| Mol | Chain | Residues | Atoms | | ZeroOcc | AltConf |
|-----|-------|----------|-------|----|---------|---------|
| 5 | k | 1 | Total | Na | 0 | 0 |
| | | | 1 | 1 | | |
| 5 | e | 1 | Total | Na | 0 | 0 |
| | | | 1 | 1 | | |

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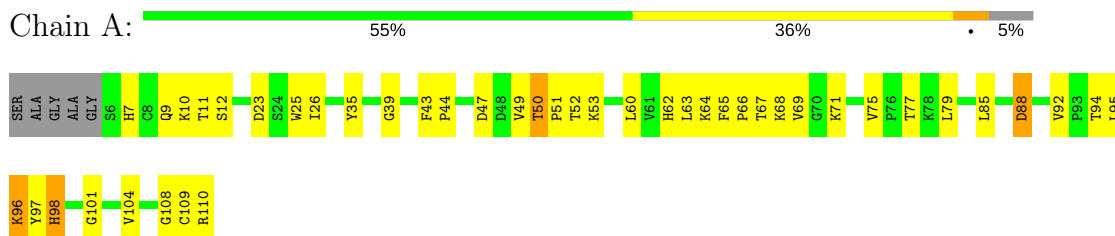
Continued from previous page...

| Mol | Chain | Residues | Atoms | | ZeroOcc | AltConf |
|-----|-------|----------|------------|---------|---------|---------|
| 5 | X | 1 | Total 1 | Na 1 | 0 | 0 |
| 5 | R | 1 | Total 1 | Na 1 | 0 | 0 |
| 5 | F | 1 | Total 1 | Na 1 | 0 | 0 |
| 5 | K | 1 | Total 1 | Na 1 | 0 | 0 |

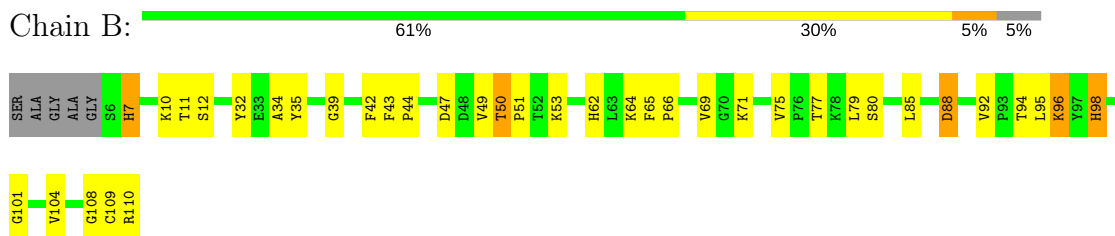
3 Residue-property plots [i](#)

These plots are drawn for all protein, RNA and DNA 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 electron 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 dot above a residue indicates a poor fit to the electron density ($RSRZ > 2$). 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.

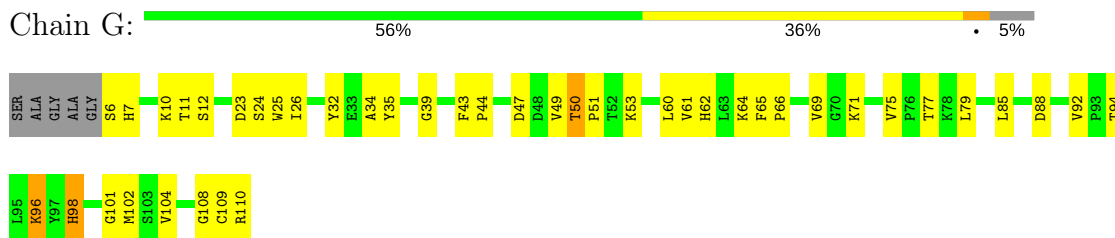
- Molecule 1: Growth/differentiation factor 2



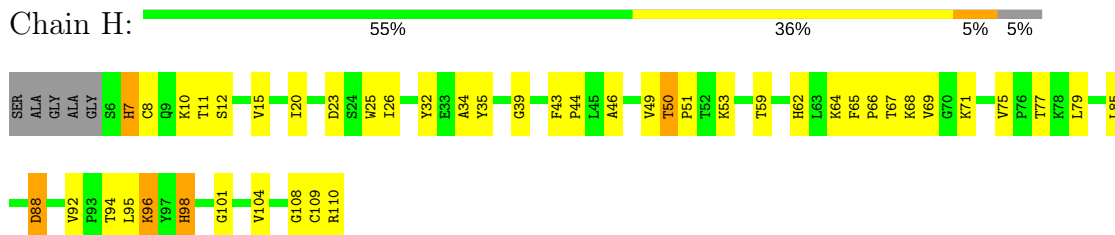
- Molecule 1: Growth/differentiation factor 2



- Molecule 1: Growth/differentiation factor 2

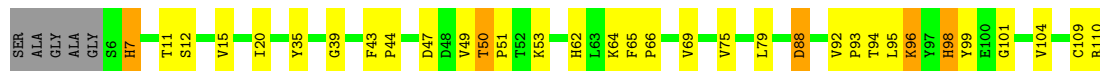


- Molecule 1: Growth/differentiation factor 2



- Molecule 1: Growth/differentiation factor 2

Chain M: 



- Molecule 1: Growth/differentiation factor 2

Chain N: 



- Molecule 1: Growth/differentiation factor 2

Chain S: 




- Molecule 1: Growth/differentiation factor 2

Chain T: 




- Molecule 1: Growth/differentiation factor 2

Chain a: 




- Molecule 1: Growth/differentiation factor 2

Chain b: 



- Molecule 1: Growth/differentiation factor 2

Chain g:  92% 5%



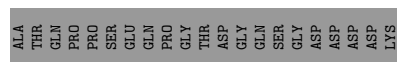
- Molecule 1: Growth/differentiation factor 2

Chain h:  92% 5%



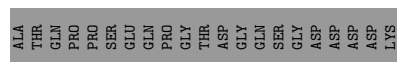
- Molecule 2: Serine/threonine-protein kinase receptor R3

Chain C:  41% 27% 29%



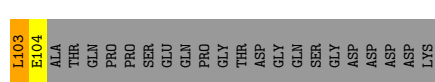
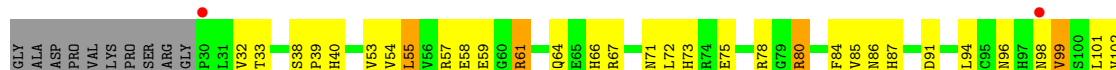
- Molecule 2: Serine/threonine-protein kinase receptor R3

Chain D:  35% 28% 5% 32%



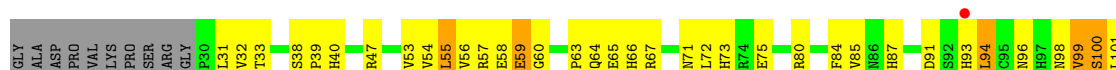
- Molecule 2: Serine/threonine-protein kinase receptor R3

Chain I:  2% 39% 27% 5% 29%



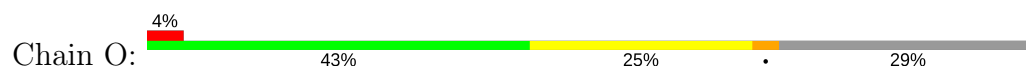
- Molecule 2: Serine/threonine-protein kinase receptor R3

Chain J:  34% 29% 5% 32%



VAL
LEU
GLU
ALA
THR
GLN
PRO
PRO
SER
SER
GLN
GLY
THR
ASP
GLY
GLN
SER
GLY
ASP
ASP
ASP
LYS

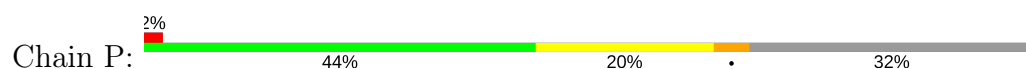
• Molecule 2: Serine/threonine-protein kinase receptor R3



GLY
ALA
ASP
PRO
VAL
LYS
PRO
SER
ARG
GLY
P30
L31
V32
T33
P44
G48
A49
V53
V54
L55
V56
R57
E58
E59
G60
R61
R62
P63
H66
R67
N71
L72
H73
R80
E83
F84
V85
N86
H87
D91
S92
H93
L94
N96
H97
N98
V99
V102
L103
E104

ALA
THR
GLN
PRO
PRO
SER
GLU
GLN
PRO
ARG
GLY
THR
GLY
ASP
GLY
GLN
SER
GLY
ASP
ASP
LYS

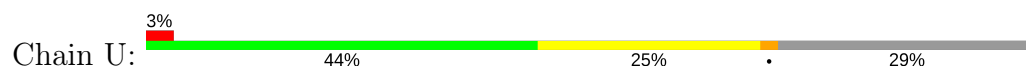
• Molecule 2: Serine/threonine-protein kinase receptor R3



GLY
ALA
ASP
PRO
VAL
LYS
PRO
SER
ARG
GLY
P30
L31
V32
T33
V53
L54
L55
E59
Q64
E65
H66
R67
N71
L72
H73
R74
E75
L76
R80
F84
V85
N86
H87
D91
S92
H93
L94
N98
V99
S100
L101
VAL
LEU
GLU
ALA
THR
GLN
PRO
PRO
SER
GLN

PRO
GLY
THR
ASP
GLY
GLN
SER
GLY
THR
GLY
ASP
ASP
LYS

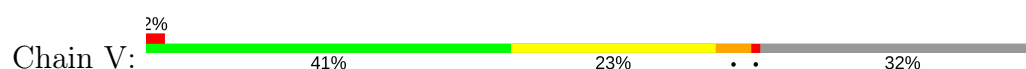
• Molecule 2: Serine/threonine-protein kinase receptor R3



GLY
ALA
ASP
PRO
VAL
LYS
PRO
SER
ARG
GLY
P30
L31
V32
T33
S38
P39
L42
V53
V54
L55
V56
R61
H62
P63
Q64
E65
H66
R67
N71
L72
H73
R74
E75
R80
F84
V85
N86
H87
D91
L94
N98
V99
S100
L101
V102
L103
E104
ALA
THR
GLN

PRO
PRO
GLY
THR
GLU
GLN
GLY
THR
GLY
GLN
ASP
GLY
SER
GLY
ASP
ASP
LYS

• Molecule 2: Serine/threonine-protein kinase receptor R3



GLY
ALA
ASP
PRO
VAL
LYS
PRO
SER
ARG
GLY
P30
L31
V32
T33
S38
P39
V53
V54
L55
E58
E59
G60
R61
Q64
E65
H66
R67
N71
L72
H73
R74
E75
R80
F84
V85
N86
H87
D91
S92
H93
L94
C95
N96
H97
N98
V99
S100
L101
VAL
LEU
GLU
ALA

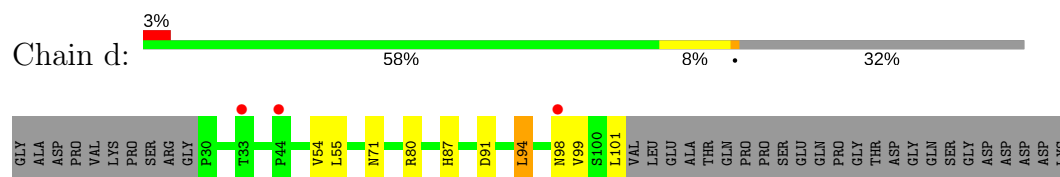
THR
GLN
PRO
PRO
SER
GLU
GLN
PRO
GLY
THR
GLY
ASP
GLY
GLN
SER
GLY
ASP
ASP
LYS

• Molecule 2: Serine/threonine-protein kinase receptor R3

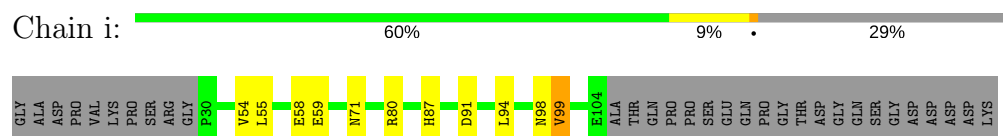


GLY
ALA
ASP
PRO
VAL
LYS
PRO
SER
ARG
GLY
P30
V54
L55
E58
N71
R80
H87
D91
L94
H97
N98
V99
E104
ALA
THR
GLN
PRO
PRO
SER
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THR
ASP
GLY
GLN
SER
GLY
ASP
ASP
ASP
LYS

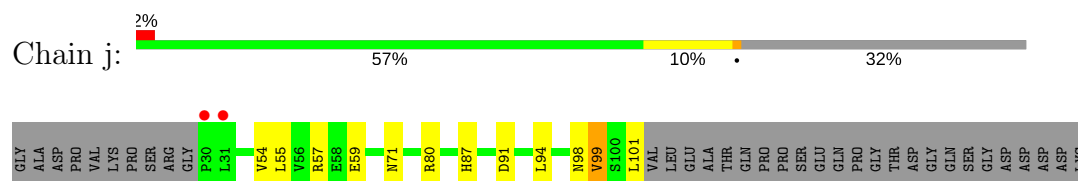
- Molecule 2: Serine/threonine-protein kinase receptor R3



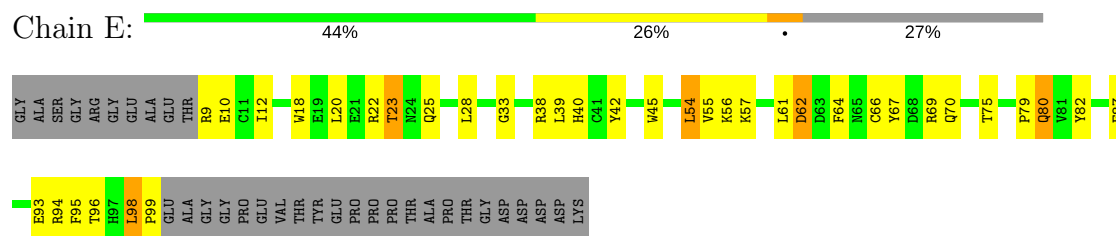
- Molecule 2: Serine/threonine-protein kinase receptor R3



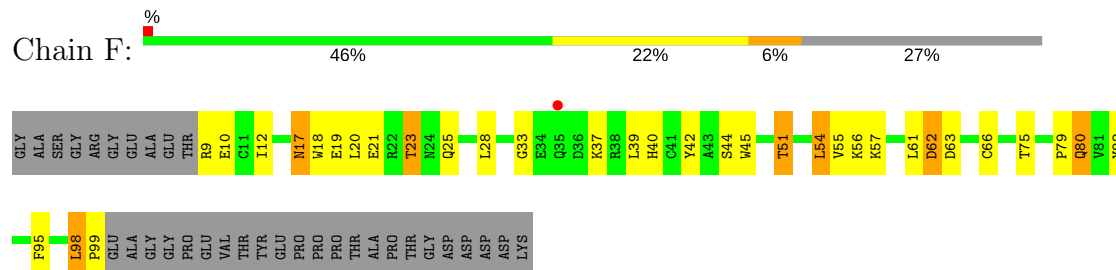
- Molecule 2: Serine/threonine-protein kinase receptor R3



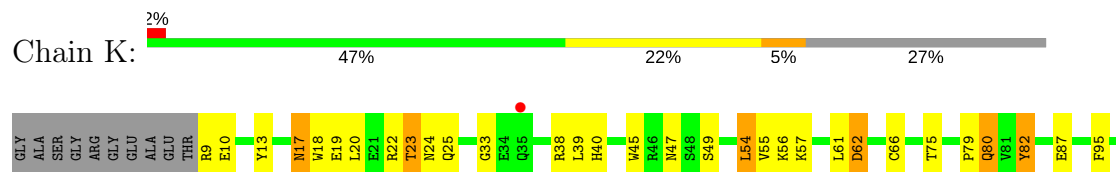
- Molecule 3: Activin receptor type-2B

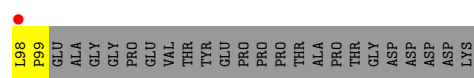


- Molecule 3: Activin receptor type-2B

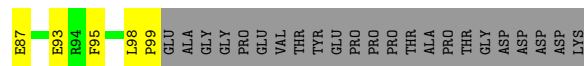


- Molecule 3: Activin receptor type-2B

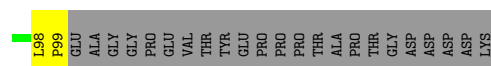
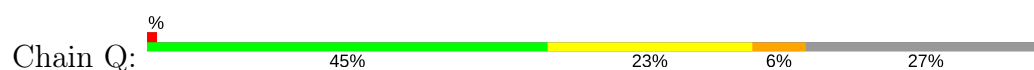




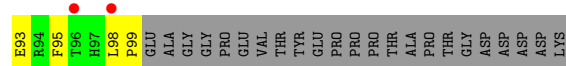
• Molecule 3: Activin receptor type-2B



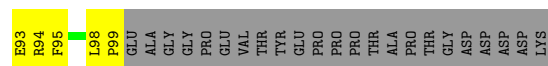
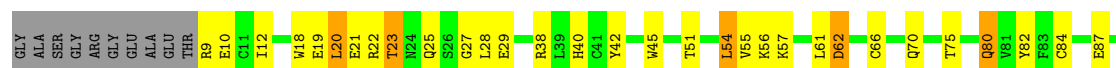
• Molecule 3: Activin receptor type-2B



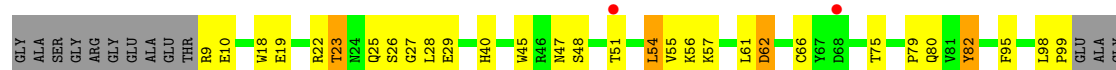
• Molecule 3: Activin receptor type-2B

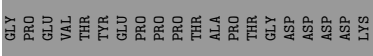


• Molecule 3: Activin receptor type-2B

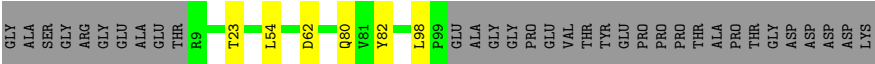


• Molecule 3: Activin receptor type-2B





• Molecule 3: Activin receptor type-2B



• Molecule 3: Activin receptor type-2B



• Molecule 3: Activin receptor type-2B



• Molecule 3: Activin receptor type-2B



4 Data and refinement statistics

| Property | Value | Source |
|---|---|------------------|
| Space group | P 31 1 2 | Depositor |
| Cell constants a, b, c, α , β , γ | 216.45Å 216.45Å 216.95Å 90.00° 90.00° 120.00° | Depositor |
| Resolution (Å) | 26.85 – 3.36 26.85 – 3.36 | Depositor EDS |
| % Data completeness (in resolution range) | 84.0 (26.85-3.36) 83.0 (26.85-3.36) | Depositor EDS |
| R_{merge} | 0.14 | Depositor |
| R_{sym} | (Not available) | Depositor |
| $\langle I/\sigma(I) \rangle$ ¹ | 5.47 (at 3.38Å) | Xtriage |
| Refinement program | PHENIX (phenix.refine: 1.6.4_486) | Depositor |
| R, R_{free} | 0.219 , 0.261 0.208 , 0.250 | Depositor DCC |
| R_{free} test set | 1682 reflections (2.42%) | DCC |
| Wilson B-factor (Å ²) | 60.8 | Xtriage |
| Anisotropy | 0.530 | Xtriage |
| Bulk solvent k_{sol} (e/Å ³), B_{sol} (Å ²) | 0.29 , 66.7 | EDS |
| L-test for twinning ² | $\langle L \rangle = 0.49$, $\langle L^2 \rangle = 0.32$ | Xtriage |
| Estimated twinning fraction | 0.025 for -h,-k,l | Xtriage |
| F_o, F_c correlation | 0.91 | EDS |
| Total number of atoms | 25411 | wwPDB-VP |
| Average B, all atoms (Å ²) | 80.0 | wwPDB-VP |

Xtriage's analysis on translational NCS is as follows: *The largest off-origin peak in the Patterson function is 18.54% of the height of the origin peak. No significant pseudotranslation is detected.*

¹Intensities estimated from amplitudes.

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

5 Model quality

5.1 Standard geometry

Bond lengths and bond angles in the following residue types are not validated in this section: NA, NAG

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 | 0.56 | 0/844 | 0.63 | 0/1144 |
| 1 | B | 0.54 | 0/837 | 0.64 | 0/1137 |
| 1 | G | 0.54 | 0/833 | 0.65 | 0/1133 |
| 1 | H | 0.53 | 0/844 | 0.63 | 0/1144 |
| 1 | M | 0.56 | 0/840 | 0.62 | 0/1140 |
| 1 | N | 0.54 | 0/823 | 0.64 | 0/1119 |
| 1 | S | 0.56 | 0/844 | 0.62 | 0/1144 |
| 1 | T | 0.54 | 0/836 | 0.64 | 0/1136 |
| 1 | a | 0.53 | 0/828 | 0.65 | 0/1126 |
| 1 | b | 0.55 | 0/844 | 0.62 | 0/1144 |
| 1 | g | 0.54 | 0/843 | 0.63 | 0/1142 |
| 1 | h | 0.53 | 0/844 | 0.62 | 0/1144 |
| 2 | C | 0.48 | 0/582 | 0.60 | 0/792 |
| 2 | D | 0.45 | 0/568 | 0.64 | 0/772 |
| 2 | I | 0.46 | 0/571 | 0.60 | 0/778 |
| 2 | J | 0.41 | 0/553 | 0.63 | 0/753 |
| 2 | O | 0.38 | 0/545 | 0.57 | 0/748 |
| 2 | P | 0.41 | 0/564 | 0.61 | 0/767 |
| 2 | U | 0.46 | 0/587 | 0.60 | 0/798 |
| 2 | V | 0.44 | 0/567 | 0.65 | 0/770 |
| 2 | c | 0.40 | 0/576 | 0.58 | 0/785 |
| 2 | d | 0.40 | 0/554 | 0.61 | 0/755 |
| 2 | i | 0.40 | 0/573 | 0.60 | 0/780 |
| 2 | j | 0.40 | 0/574 | 0.60 | 0/779 |
| 3 | E | 0.54 | 0/757 | 0.60 | 0/1024 |
| 3 | F | 0.46 | 0/734 | 0.57 | 0/996 |
| 3 | K | 0.50 | 0/727 | 0.61 | 0/988 |
| 3 | L | 0.52 | 0/743 | 0.58 | 0/1008 |
| 3 | Q | 0.54 | 0/754 | 0.59 | 0/1021 |
| 3 | R | 0.56 | 0/736 | 0.60 | 0/1000 |
| 3 | W | 0.53 | 0/744 | 0.60 | 0/1009 |
| 3 | X | 0.44 | 0/729 | 0.57 | 0/990 |

| Mol | Chain | Bond lengths | | Bond angles | |
|-----|-------|--------------|---------|-------------|---------|
| | | RMSZ | # Z >5 | RMSZ | # Z >5 |
| 3 | e | 0.47 | 0/736 | 0.58 | 0/1000 |
| 3 | f | 0.48 | 0/743 | 0.58 | 0/1008 |
| 3 | k | 0.47 | 0/728 | 0.57 | 0/990 |
| 3 | l | 0.51 | 0/730 | 0.58 | 0/992 |
| All | All | 0.50 | 0/25735 | 0.61 | 0/34956 |

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 | 821 | 0 | 801 | 47 | 0 |
| 1 | B | 814 | 0 | 783 | 53 | 0 |
| 1 | G | 810 | 0 | 772 | 50 | 0 |
| 1 | H | 821 | 0 | 801 | 49 | 0 |
| 1 | M | 817 | 0 | 790 | 40 | 0 |
| 1 | N | 801 | 0 | 765 | 47 | 0 |
| 1 | S | 821 | 0 | 801 | 38 | 0 |
| 1 | T | 813 | 0 | 779 | 40 | 0 |
| 1 | a | 806 | 0 | 767 | 0 | 0 |
| 1 | b | 821 | 0 | 801 | 0 | 0 |
| 1 | g | 820 | 0 | 800 | 0 | 0 |
| 1 | h | 821 | 0 | 801 | 0 | 0 |
| 2 | C | 567 | 0 | 509 | 28 | 0 |
| 2 | D | 553 | 0 | 499 | 36 | 0 |
| 2 | I | 556 | 0 | 483 | 31 | 0 |
| 2 | J | 539 | 0 | 478 | 32 | 0 |
| 2 | O | 531 | 0 | 449 | 22 | 0 |
| 2 | P | 549 | 0 | 493 | 18 | 0 |
| 2 | U | 572 | 0 | 514 | 14 | 0 |
| 2 | V | 553 | 0 | 502 | 20 | 0 |
| 2 | c | 561 | 0 | 501 | 0 | 0 |

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| Mol | Chain | Non-H | H(model) | H(added) | Clashes | Symm-Clashes |
|-----|-------|-------|----------|----------|---------|--------------|
| 2 | d | 539 | 0 | 476 | 0 | 0 |
| 2 | i | 559 | 0 | 503 | 0 | 0 |
| 2 | j | 559 | 0 | 510 | 0 | 0 |
| 3 | E | 739 | 0 | 637 | 37 | 0 |
| 3 | F | 716 | 0 | 614 | 27 | 0 |
| 3 | K | 709 | 0 | 599 | 24 | 0 |
| 3 | L | 725 | 0 | 620 | 27 | 0 |
| 3 | Q | 736 | 0 | 634 | 34 | 0 |
| 3 | R | 718 | 0 | 606 | 21 | 0 |
| 3 | W | 726 | 0 | 622 | 33 | 0 |
| 3 | X | 711 | 0 | 599 | 21 | 0 |
| 3 | e | 718 | 0 | 596 | 0 | 0 |
| 3 | f | 725 | 0 | 619 | 0 | 0 |
| 3 | k | 710 | 0 | 594 | 0 | 0 |
| 3 | l | 712 | 0 | 601 | 0 | 0 |
| 4 | E | 28 | 0 | 26 | 0 | 0 |
| 4 | F | 28 | 0 | 26 | 0 | 0 |
| 4 | K | 28 | 0 | 26 | 6 | 0 |
| 4 | L | 28 | 0 | 26 | 3 | 0 |
| 4 | Q | 28 | 0 | 26 | 1 | 0 |
| 4 | R | 28 | 0 | 26 | 0 | 0 |
| 4 | W | 28 | 0 | 26 | 1 | 0 |
| 4 | X | 28 | 0 | 26 | 7 | 0 |
| 4 | e | 28 | 0 | 26 | 0 | 0 |
| 4 | f | 28 | 0 | 26 | 0 | 0 |
| 4 | k | 28 | 0 | 26 | 0 | 0 |
| 4 | l | 28 | 0 | 26 | 0 | 0 |
| 5 | F | 1 | 0 | 0 | 0 | 0 |
| 5 | K | 1 | 0 | 0 | 0 | 0 |
| 5 | R | 1 | 0 | 0 | 0 | 0 |
| 5 | X | 1 | 0 | 0 | 0 | 0 |
| 5 | e | 1 | 0 | 0 | 0 | 0 |
| 5 | k | 1 | 0 | 0 | 0 | 0 |
| All | All | 25411 | 0 | 23031 | 669 | 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 14.

The worst 5 of 669 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) |
|-----------------|------------------|--------------------------|-------------------|
| 2:J:100:SER:O | 2:J:101:LEU:HD23 | 1.62 | 0.99 |
| 1:M:64:LYS:HB2 | 2:P:84:PHE:CE1 | 2.00 | 0.97 |
| 1:N:35:TYR:HB2 | 1:N:104:VAL:HB | 1.50 | 0.93 |
| 2:U:55:LEU:HD13 | 2:U:103:LEU:HD13 | 1.52 | 0.92 |
| 2:D:57:ARG:HD3 | 2:D:63:PRO:HD3 | 1.52 | 0.91 |

There are no symmetry-related clashes.

5.3 Torsion angles [i](#)

5.3.1 Protein backbone [i](#)

In the following table, the Percentiles column shows the percent Ramachandran outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar resolution.

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

| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|---------------|----------|----------|----------|-------------|-----|
| 1 | A | 103/110 (94%) | 95 (92%) | 7 (7%) | 1 (1%) | 18 | 56 |
| 1 | B | 103/110 (94%) | 95 (92%) | 7 (7%) | 1 (1%) | 18 | 56 |
| 1 | G | 103/110 (94%) | 94 (91%) | 9 (9%) | 0 | 100 | 100 |
| 1 | H | 103/110 (94%) | 95 (92%) | 6 (6%) | 2 (2%) | 9 | 42 |
| 1 | M | 103/110 (94%) | 95 (92%) | 6 (6%) | 2 (2%) | 9 | 42 |
| 1 | N | 102/110 (93%) | 93 (91%) | 8 (8%) | 1 (1%) | 18 | 56 |
| 1 | S | 103/110 (94%) | 94 (91%) | 8 (8%) | 1 (1%) | 18 | 56 |
| 1 | T | 103/110 (94%) | 95 (92%) | 7 (7%) | 1 (1%) | 18 | 56 |
| 1 | a | 103/110 (94%) | 95 (92%) | 6 (6%) | 2 (2%) | 9 | 42 |
| 1 | b | 103/110 (94%) | 95 (92%) | 7 (7%) | 1 (1%) | 18 | 56 |
| 1 | g | 103/110 (94%) | 95 (92%) | 7 (7%) | 1 (1%) | 18 | 56 |
| 1 | h | 103/110 (94%) | 95 (92%) | 7 (7%) | 1 (1%) | 18 | 56 |
| 2 | C | 73/106 (69%) | 57 (78%) | 12 (16%) | 4 (6%) | 2 | 16 |
| 2 | D | 70/106 (66%) | 55 (79%) | 11 (16%) | 4 (6%) | 2 | 16 |
| 2 | I | 73/106 (69%) | 54 (74%) | 15 (20%) | 4 (6%) | 2 | 16 |
| 2 | J | 70/106 (66%) | 54 (77%) | 12 (17%) | 4 (6%) | 2 | 16 |

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| Mol | Chain | Analysed | Favoured | Allowed | Outliers | Percentiles | |
|-----|-------|-----------------|------------|-----------|----------|-------------|----|
| 2 | O | 73/106 (69%) | 57 (78%) | 12 (16%) | 4 (6%) | 2 | 16 |
| 2 | P | 70/106 (66%) | 56 (80%) | 10 (14%) | 4 (6%) | 2 | 16 |
| 2 | U | 73/106 (69%) | 57 (78%) | 13 (18%) | 3 (4%) | 3 | 25 |
| 2 | V | 70/106 (66%) | 56 (80%) | 10 (14%) | 4 (6%) | 2 | 16 |
| 2 | c | 73/106 (69%) | 54 (74%) | 15 (20%) | 4 (6%) | 2 | 16 |
| 2 | d | 70/106 (66%) | 56 (80%) | 11 (16%) | 3 (4%) | 3 | 23 |
| 2 | i | 73/106 (69%) | 56 (77%) | 13 (18%) | 4 (6%) | 2 | 16 |
| 2 | j | 70/106 (66%) | 55 (79%) | 11 (16%) | 4 (6%) | 2 | 16 |
| 3 | E | 89/124 (72%) | 78 (88%) | 10 (11%) | 1 (1%) | 17 | 54 |
| 3 | F | 89/124 (72%) | 77 (86%) | 10 (11%) | 2 (2%) | 8 | 39 |
| 3 | K | 89/124 (72%) | 76 (85%) | 11 (12%) | 2 (2%) | 8 | 39 |
| 3 | L | 89/124 (72%) | 79 (89%) | 9 (10%) | 1 (1%) | 17 | 54 |
| 3 | Q | 89/124 (72%) | 79 (89%) | 9 (10%) | 1 (1%) | 17 | 54 |
| 3 | R | 89/124 (72%) | 77 (86%) | 11 (12%) | 1 (1%) | 17 | 54 |
| 3 | W | 89/124 (72%) | 78 (88%) | 10 (11%) | 1 (1%) | 17 | 54 |
| 3 | X | 89/124 (72%) | 77 (86%) | 11 (12%) | 1 (1%) | 17 | 54 |
| 3 | e | 89/124 (72%) | 78 (88%) | 10 (11%) | 1 (1%) | 17 | 54 |
| 3 | f | 89/124 (72%) | 79 (89%) | 8 (9%) | 2 (2%) | 8 | 39 |
| 3 | k | 89/124 (72%) | 76 (85%) | 11 (12%) | 2 (2%) | 8 | 39 |
| 3 | l | 89/124 (72%) | 79 (89%) | 8 (9%) | 2 (2%) | 8 | 39 |
| All | All | 3161/4080 (78%) | 2736 (87%) | 348 (11%) | 77 (2%) | 7 | 37 |

5 of 77 Ramachandran outliers are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3 | E | 62 | ASP |
| 3 | F | 62 | ASP |
| 1 | H | 88 | ASP |
| 3 | K | 62 | ASP |
| 3 | L | 62 | ASP |

5.3.2 Protein sidechains ⓘ

In the following table, the Percentiles column shows the percent sidechain outliers of the chain as a percentile score with respect to all X-ray entries followed by that with respect to entries of similar

resolution.

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

| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|--------------|-----------|----------|-------------|----|
| 1 | A | 91/93 (98%) | 88 (97%) | 3 (3%) | 43 | 75 |
| 1 | B | 89/93 (96%) | 85 (96%) | 4 (4%) | 32 | 68 |
| 1 | G | 88/93 (95%) | 85 (97%) | 3 (3%) | 42 | 74 |
| 1 | H | 91/93 (98%) | 88 (97%) | 3 (3%) | 43 | 75 |
| 1 | M | 90/93 (97%) | 87 (97%) | 3 (3%) | 43 | 75 |
| 1 | N | 87/93 (94%) | 84 (97%) | 3 (3%) | 42 | 74 |
| 1 | S | 91/93 (98%) | 88 (97%) | 3 (3%) | 43 | 75 |
| 1 | T | 89/93 (96%) | 85 (96%) | 4 (4%) | 32 | 68 |
| 1 | a | 87/93 (94%) | 84 (97%) | 3 (3%) | 42 | 74 |
| 1 | b | 91/93 (98%) | 88 (97%) | 3 (3%) | 43 | 75 |
| 1 | g | 91/93 (98%) | 88 (97%) | 3 (3%) | 43 | 75 |
| 1 | h | 91/93 (98%) | 88 (97%) | 3 (3%) | 43 | 75 |
| 2 | C | 63/92 (68%) | 56 (89%) | 7 (11%) | 7 | 28 |
| 2 | D | 63/92 (68%) | 54 (86%) | 9 (14%) | 4 | 18 |
| 2 | I | 58/92 (63%) | 49 (84%) | 9 (16%) | 3 | 15 |
| 2 | J | 59/92 (64%) | 51 (86%) | 8 (14%) | 4 | 19 |
| 2 | O | 55/92 (60%) | 48 (87%) | 7 (13%) | 5 | 22 |
| 2 | P | 60/92 (65%) | 53 (88%) | 7 (12%) | 6 | 26 |
| 2 | U | 64/92 (70%) | 55 (86%) | 9 (14%) | 4 | 18 |
| 2 | V | 62/92 (67%) | 53 (86%) | 9 (14%) | 4 | 17 |
| 2 | c | 61/92 (66%) | 54 (88%) | 7 (12%) | 6 | 27 |
| 2 | d | 59/92 (64%) | 51 (86%) | 8 (14%) | 4 | 19 |
| 2 | i | 62/92 (67%) | 54 (87%) | 8 (13%) | 5 | 21 |
| 2 | j | 64/92 (70%) | 55 (86%) | 9 (14%) | 4 | 18 |
| 3 | E | 76/106 (72%) | 70 (92%) | 6 (8%) | 14 | 47 |
| 3 | F | 73/106 (69%) | 68 (93%) | 5 (7%) | 18 | 55 |
| 3 | K | 71/106 (67%) | 66 (93%) | 5 (7%) | 18 | 54 |
| 3 | L | 75/106 (71%) | 69 (92%) | 6 (8%) | 14 | 46 |
| 3 | Q | 77/106 (73%) | 67 (87%) | 10 (13%) | 5 | 21 |

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| Mol | Chain | Analysed | Rotameric | Outliers | Percentiles | |
|-----|-------|-----------------|------------|----------|-------------|----|
| 3 | R | 73/106 (69%) | 66 (90%) | 7 (10%) | 10 | 35 |
| 3 | W | 75/106 (71%) | 66 (88%) | 9 (12%) | 6 | 25 |
| 3 | X | 72/106 (68%) | 64 (89%) | 8 (11%) | 7 | 28 |
| 3 | e | 73/106 (69%) | 68 (93%) | 5 (7%) | 18 | 55 |
| 3 | f | 76/106 (72%) | 70 (92%) | 6 (8%) | 14 | 47 |
| 3 | k | 72/106 (68%) | 66 (92%) | 6 (8%) | 13 | 44 |
| 3 | l | 72/106 (68%) | 65 (90%) | 7 (10%) | 9 | 35 |
| All | All | 2691/3492 (77%) | 2476 (92%) | 215 (8%) | 14 | 46 |

5 of 215 residues with a non-rotameric sidechain are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 3 | Q | 98 | LEU |
| 2 | U | 102 | VAL |
| 2 | j | 87 | HIS |
| 3 | R | 36 | ASP |
| 1 | T | 50 | THR |

Some sidechains can be flipped to improve hydrogen bonding and reduce clashes. 5 of 30 such sidechains are listed below:

| Mol | Chain | Res | Type |
|-----|-------|-----|------|
| 1 | S | 62 | HIS |
| 2 | V | 66 | HIS |
| 1 | h | 62 | HIS |
| 2 | U | 66 | HIS |
| 2 | V | 93 | HIS |

5.3.3 RNA ⓘ

There are no RNA molecules in this entry.

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

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

5.5 Carbohydrates [i](#)

There are no carbohydrates in this entry.

5.6 Ligand geometry [i](#)

Of 30 ligands modelled in this entry, 6 are monoatomic - leaving 24 for Mogul analysis.

In the following table, the Counts columns list the number of bonds (or angles) for which Mogul statistics could be retrieved, the number of bonds (or angles) that are observed in the model and the number of bonds (or angles) that are defined in the chemical component dictionary. The Link column lists molecule types, if any, to which the group is linked. 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 $|Z| > 2$ is considered an outlier worth inspection. RMSZ is the root-mean-square of all Z scores of the bond lengths (or angles).

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|-----|------|-------|-----|------|--------------|------|-------------|-------------|------|-------------|
| | | | | | Counts | RMSZ | $\# Z > 2$ | Counts | RMSZ | $\# Z > 2$ |
| 4 | NAG | E | 201 | 3 | 14,14,15 | 0.67 | 0 | 15,19,21 | 1.45 | 3 (20%) |
| 4 | NAG | E | 202 | 3 | 14,14,15 | 0.66 | 0 | 15,19,21 | 2.31 | 6 (40%) |
| 4 | NAG | F | 201 | 3 | 14,14,15 | 0.46 | 0 | 15,19,21 | 1.51 | 2 (13%) |
| 4 | NAG | F | 202 | 3 | 14,14,15 | 0.59 | 0 | 15,19,21 | 1.22 | 2 (13%) |
| 4 | NAG | K | 201 | 3 | 14,14,15 | 0.49 | 0 | 15,19,21 | 2.10 | 3 (20%) |
| 4 | NAG | K | 202 | 3 | 14,14,15 | 0.78 | 1 (7%) | 15,19,21 | 2.53 | 5 (33%) |
| 4 | NAG | L | 201 | 3 | 14,14,15 | 0.75 | 0 | 15,19,21 | 1.95 | 2 (13%) |
| 4 | NAG | L | 202 | 3 | 14,14,15 | 0.76 | 1 (7%) | 15,19,21 | 1.40 | 3 (20%) |
| 4 | NAG | Q | 201 | 3 | 14,14,15 | 0.67 | 0 | 15,19,21 | 1.06 | 2 (13%) |
| 4 | NAG | Q | 202 | 3 | 14,14,15 | 0.80 | 1 (7%) | 15,19,21 | 2.03 | 4 (26%) |
| 4 | NAG | R | 201 | 3 | 14,14,15 | 0.76 | 0 | 15,19,21 | 1.38 | 3 (20%) |
| 4 | NAG | R | 202 | 3 | 14,14,15 | 0.58 | 0 | 15,19,21 | 1.29 | 2 (13%) |
| 4 | NAG | W | 201 | 3 | 14,14,15 | 0.62 | 0 | 15,19,21 | 2.02 | 3 (20%) |
| 4 | NAG | W | 202 | 3 | 14,14,15 | 0.55 | 0 | 15,19,21 | 2.03 | 5 (33%) |
| 4 | NAG | X | 201 | 3 | 14,14,15 | 0.55 | 0 | 15,19,21 | 1.30 | 2 (13%) |
| 4 | NAG | X | 202 | 3 | 14,14,15 | 0.77 | 0 | 15,19,21 | 1.72 | 7 (46%) |
| 4 | NAG | e | 201 | 3 | 14,14,15 | 0.59 | 0 | 15,19,21 | 1.60 | 3 (20%) |
| 4 | NAG | e | 202 | 3 | 14,14,15 | 0.60 | 0 | 15,19,21 | 1.25 | 1 (6%) |
| 4 | NAG | f | 201 | 3 | 14,14,15 | 0.67 | 0 | 15,19,21 | 1.37 | 1 (6%) |
| 4 | NAG | f | 202 | 3 | 14,14,15 | 0.52 | 0 | 15,19,21 | 1.90 | 4 (26%) |
| 4 | NAG | k | 201 | 3 | 14,14,15 | 0.51 | 0 | 15,19,21 | 2.22 | 4 (26%) |
| 4 | NAG | k | 202 | 3 | 14,14,15 | 0.51 | 0 | 15,19,21 | 0.70 | 0 |

| Mol | Type | Chain | Res | Link | Bond lengths | | | Bond angles | | |
|-----|------|-------|-----|------|--------------|------|----------|-------------|------|----------|
| | | | | | Counts | RMSZ | # Z > 2 | Counts | RMSZ | # Z > 2 |
| 4 | NAG | l | 201 | 3 | 14,14,15 | 0.70 | 0 | 15,19,21 | 1.35 | 2 (13%) |
| 4 | NAG | l | 202 | 3 | 14,14,15 | 0.58 | 0 | 15,19,21 | 1.36 | 2 (13%) |

In the following table, the Chirals column lists the number of chiral outliers, the number of chiral centers analysed, the number of these observed in the model and the number defined in the chemical component dictionary. Similar counts are reported in the Torsion and Rings columns. '-' means no outliers of that kind were identified.

| Mol | Type | Chain | Res | Link | Chirals | Torsions | Rings |
|-----|------|-------|-----|------|---------|-----------|---------|
| 4 | NAG | E | 201 | 3 | - | 0/6/23/26 | 0/1/1/1 |
| 4 | NAG | E | 202 | 3 | - | 1/6/23/26 | 0/1/1/1 |
| 4 | NAG | F | 201 | 3 | - | 0/6/23/26 | 0/1/1/1 |
| 4 | NAG | F | 202 | 3 | 1/1/5/7 | 0/6/23/26 | 0/1/1/1 |
| 4 | NAG | K | 201 | 3 | - | 0/6/23/26 | 0/1/1/1 |
| 4 | NAG | K | 202 | 3 | 1/1/5/7 | 0/6/23/26 | 0/1/1/1 |
| 4 | NAG | L | 201 | 3 | - | 0/6/23/26 | 0/1/1/1 |
| 4 | NAG | L | 202 | 3 | 1/1/5/7 | 0/6/23/26 | 0/1/1/1 |
| 4 | NAG | Q | 201 | 3 | - | 0/6/23/26 | 0/1/1/1 |
| 4 | NAG | Q | 202 | 3 | - | 1/6/23/26 | 0/1/1/1 |
| 4 | NAG | R | 201 | 3 | - | 0/6/23/26 | 0/1/1/1 |
| 4 | NAG | R | 202 | 3 | - | 0/6/23/26 | 0/1/1/1 |
| 4 | NAG | W | 201 | 3 | - | 0/6/23/26 | 0/1/1/1 |
| 4 | NAG | W | 202 | 3 | - | 0/6/23/26 | 0/1/1/1 |
| 4 | NAG | X | 201 | 3 | - | 1/6/23/26 | 0/1/1/1 |
| 4 | NAG | X | 202 | 3 | 1/1/5/7 | 0/6/23/26 | 0/1/1/1 |
| 4 | NAG | e | 201 | 3 | - | 0/6/23/26 | 0/1/1/1 |
| 4 | NAG | e | 202 | 3 | - | 0/6/23/26 | 0/1/1/1 |
| 4 | NAG | f | 201 | 3 | - | 0/6/23/26 | 0/1/1/1 |
| 4 | NAG | f | 202 | 3 | - | 0/6/23/26 | 0/1/1/1 |
| 4 | NAG | k | 201 | 3 | - | 0/6/23/26 | 0/1/1/1 |
| 4 | NAG | k | 202 | 3 | 1/1/5/7 | 0/6/23/26 | 0/1/1/1 |
| 4 | NAG | l | 201 | 3 | - | 0/6/23/26 | 0/1/1/1 |
| 4 | NAG | l | 202 | 3 | 1/1/5/7 | 2/6/23/26 | 0/1/1/1 |

All (3) bond length outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(Å) | Ideal(Å) |
|-----|-------|-----|------|-------|------|-------------|----------|
| 4 | L | 202 | NAG | C1-C2 | 2.02 | 1.55 | 1.52 |
| 4 | K | 202 | NAG | C1-C2 | 2.30 | 1.55 | 1.52 |
| 4 | Q | 202 | NAG | C1-C2 | 2.37 | 1.55 | 1.52 |

The worst 5 of 71 bond angle outliers are listed below:

| Mol | Chain | Res | Type | Atoms | Z | Observed(°) | Ideal(°) |
|-----|-------|-----|------|----------|-------|-------------|----------|
| 4 | W | 201 | NAG | C2-N2-C7 | -6.13 | 114.00 | 122.94 |
| 4 | L | 201 | NAG | O5-C1-C2 | -5.16 | 104.29 | 111.47 |
| 4 | f | 202 | NAG | C4-C3-C2 | -4.38 | 104.60 | 111.02 |
| 4 | k | 201 | NAG | C4-C3-C2 | -4.32 | 104.69 | 111.02 |
| 4 | L | 201 | NAG | C2-N2-C7 | -3.80 | 117.40 | 122.94 |

5 of 6 chirality outliers are listed below:

| Mol | Chain | Res | Type | Atom |
|-----|-------|-----|------|------|
| 4 | K | 202 | NAG | C1 |
| 4 | X | 202 | NAG | C1 |
| 4 | F | 202 | NAG | C1 |
| 4 | l | 202 | NAG | C1 |
| 4 | k | 202 | NAG | C1 |

All (5) torsion outliers are listed below:

| Mol | Chain | Res | Type | Atoms |
|-----|-------|-----|------|-------------|
| 4 | Q | 202 | NAG | O7-C7-N2-C2 |
| 4 | E | 202 | NAG | O7-C7-N2-C2 |
| 4 | X | 201 | NAG | O7-C7-N2-C2 |
| 4 | l | 202 | NAG | O7-C7-N2-C2 |
| 4 | l | 202 | NAG | C8-C7-N2-C2 |

There are no ring outliers.

8 monomers are involved in 16 short contacts:

| Mol | Chain | Res | Type | Clashes | Symm-Clashes |
|-----|-------|-----|------|---------|--------------|
| 4 | K | 201 | NAG | 4 | 0 |
| 4 | K | 202 | NAG | 2 | 0 |
| 4 | L | 201 | NAG | 1 | 0 |
| 4 | L | 202 | NAG | 2 | 0 |
| 4 | Q | 202 | NAG | 1 | 0 |
| 4 | W | 201 | NAG | 1 | 0 |
| 4 | X | 201 | NAG | 4 | 0 |
| 4 | X | 202 | NAG | 3 | 0 |

5.7 Other polymers

There are no such residues in this entry.

5.8 Polymer linkage issues ⓘ

There are no chain breaks in this entry.

6 Fit of model and data ⓘ

6.1 Protein, DNA and RNA chains ⓘ

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

| Mol | Chain | Analysed | <RSRZ> | #RSRZ>2 | OWAB(Å ²) | Q<0.9 |
|-----|-------|---------------|--------|--------------|-----------------------|-------|
| 1 | A | 105/110 (95%) | -0.47 | 0 100 100 | 35, 57, 90, 111 | 0 |
| 1 | B | 105/110 (95%) | -0.56 | 0 100 100 | 31, 60, 89, 111 | 0 |
| 1 | G | 105/110 (95%) | -0.54 | 0 100 100 | 34, 61, 90, 113 | 0 |
| 1 | H | 105/110 (95%) | -0.46 | 0 100 100 | 31, 59, 90, 110 | 0 |
| 1 | M | 105/110 (95%) | -0.47 | 0 100 100 | 39, 59, 90, 110 | 0 |
| 1 | N | 104/110 (94%) | -0.39 | 0 100 100 | 41, 65, 92, 124 | 0 |
| 1 | S | 105/110 (95%) | -0.44 | 0 100 100 | 32, 58, 89, 110 | 0 |
| 1 | T | 105/110 (95%) | -0.47 | 0 100 100 | 32, 59, 91, 112 | 0 |
| 1 | a | 105/110 (95%) | -0.48 | 0 100 100 | 39, 62, 97, 116 | 0 |
| 1 | b | 105/110 (95%) | -0.51 | 0 100 100 | 38, 62, 91, 111 | 0 |
| 1 | g | 105/110 (95%) | -0.44 | 0 100 100 | 36, 62, 92, 111 | 0 |
| 1 | h | 105/110 (95%) | -0.49 | 0 100 100 | 35, 60, 90, 110 | 0 |
| 2 | C | 75/106 (70%) | 0.02 | 0 100 100 | 56, 94, 131, 160 | 0 |
| 2 | D | 72/106 (67%) | 0.01 | 0 100 100 | 56, 96, 131, 161 | 0 |
| 2 | I | 75/106 (70%) | -0.02 | 2 (2%) 55 56 | 59, 95, 131, 159 | 0 |
| 2 | J | 72/106 (67%) | 0.00 | 1 (1%) 75 77 | 55, 95, 131, 161 | 0 |
| 2 | O | 75/106 (70%) | 0.53 | 4 (5%) 27 27 | 64, 101, 141, 167 | 0 |
| 2 | P | 72/106 (67%) | -0.04 | 2 (2%) 53 54 | 58, 96, 130, 164 | 0 |
| 2 | U | 75/106 (70%) | 0.04 | 3 (4%) 39 39 | 57, 95, 130, 160 | 0 |
| 2 | V | 72/106 (67%) | -0.01 | 2 (2%) 53 54 | 60, 94, 131, 162 | 0 |
| 2 | c | 75/106 (70%) | 0.19 | 1 (1%) 77 79 | 63, 99, 131, 159 | 0 |
| 2 | d | 72/106 (67%) | 0.08 | 3 (4%) 37 37 | 58, 97, 131, 159 | 0 |
| 2 | i | 75/106 (70%) | 0.21 | 0 100 100 | 62, 100, 131, 194 | 0 |
| 2 | j | 72/106 (67%) | 0.01 | 2 (2%) 53 54 | 60, 97, 131, 162 | 0 |

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| Mol | Chain | Analysed | <RSRZ> | #RSRZ>2 | OWAB(Å ²) | Q<0.9 |
|-----|-------|-----------------|--------|---|-----------------------|-------|
| 3 | E | 91/124 (73%) | -0.09 | 0 100 100 | 48, 79, 120, 158 | 0 |
| 3 | F | 91/124 (73%) | -0.04 | 1 (1%) 80 82 | 56, 83, 121, 156 | 0 |
| 3 | K | 91/124 (73%) | -0.11 | 2 (2%) 62 63 | 63, 85, 124, 158 | 0 |
| 3 | L | 91/124 (73%) | -0.10 | 2 (2%) 62 63 | 45, 79, 119, 157 | 0 |
| 3 | Q | 91/124 (73%) | 0.02 | 1 (1%) 80 82 | 46, 78, 118, 158 | 0 |
| 3 | R | 91/124 (73%) | 0.30 | 5 (5%) 26 26 | 66, 92, 129, 185 | 0 |
| 3 | W | 91/124 (73%) | -0.08 | 0 100 100 | 45, 78, 119, 158 | 0 |
| 3 | X | 91/124 (73%) | -0.06 | 2 (2%) 62 63 | 57, 82, 122, 158 | 0 |
| 3 | e | 91/124 (73%) | -0.04 | 0 100 100 | 63, 85, 122, 157 | 0 |
| 3 | f | 91/124 (73%) | -0.05 | 1 (1%) 80 82 | 43, 80, 121, 160 | 0 |
| 3 | k | 91/124 (73%) | -0.06 | 3 (3%) 47 47 | 58, 82, 122, 157 | 0 |
| 3 | l | 91/124 (73%) | -0.13 | 2 (2%) 62 63 | 44, 80, 120, 158 | 0 |
| All | All | 3233/4080 (79%) | -0.17 | 39 (1%) 79 80 | 31, 77, 124, 194 | 0 |

The worst 5 of 39 RSRZ outliers are listed below:

| Mol | Chain | Res | Type | RSRZ |
|-----|-------|-----|------|------|
| 2 | j | 30 | PRO | 5.1 |
| 3 | R | 96 | THR | 4.6 |
| 2 | P | 30 | PRO | 3.6 |
| 2 | O | 48 | GLY | 3.4 |
| 3 | L | 34 | GLU | 3.4 |

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

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

6.3 Carbohydrates [i](#)

There are no carbohydrates in this entry.

6.4 Ligands [i](#)

In the following table, the Atoms column lists the number of modelled atoms in the group and the number defined in the chemical component dictionary. LLDF column lists the quality of electron density of the group with respect to its neighbouring residues in protein, DNA or RNA chains.

The B-factors column lists the minimum, median, 95th percentile and maximum values of B factors of atoms in the group. The column labelled 'Q< 0.9' lists the number of atoms with occupancy less than 0.9.

| Mol | Type | Chain | Res | Atoms | RSCC | RSR | LLDF | B-factors(Å ²) | Q<0.9 |
|-----|------|-------|-----|-------|------|------|-------|----------------------------|-------|
| 5 | NA | e | 203 | 1/1 | 0.87 | 0.33 | 2.92 | 52,52,52,52 | 0 |
| 5 | NA | F | 203 | 1/1 | 0.94 | 0.32 | 1.49 | 44,44,44,44 | 0 |
| 4 | NAG | e | 202 | 14/15 | 0.89 | 0.30 | 1.13 | 71,123,143,152 | 0 |
| 5 | NA | K | 203 | 1/1 | 0.93 | 0.27 | 0.60 | 36,36,36,36 | 0 |
| 4 | NAG | W | 202 | 14/15 | 0.92 | 0.25 | 0.10 | 28,84,111,118 | 0 |
| 4 | NAG | E | 202 | 14/15 | 0.90 | 0.23 | 0.06 | 42,101,122,123 | 0 |
| 4 | NAG | X | 202 | 14/15 | 0.93 | 0.24 | -0.00 | 59,83,130,148 | 0 |
| 5 | NA | k | 203 | 1/1 | 0.90 | 0.23 | -0.11 | 62,62,62,62 | 0 |
| 4 | NAG | R | 202 | 14/15 | 0.88 | 0.29 | -0.16 | 69,118,135,152 | 0 |
| 5 | NA | X | 203 | 1/1 | 0.94 | 0.21 | -0.19 | 37,37,37,37 | 0 |
| 4 | NAG | L | 202 | 14/15 | 0.91 | 0.25 | -0.20 | 45,108,116,117 | 0 |
| 4 | NAG | F | 201 | 14/15 | 0.95 | 0.17 | -0.23 | 57,72,98,98 | 0 |
| 4 | NAG | f | 202 | 14/15 | 0.89 | 0.27 | -0.32 | 60,102,144,150 | 0 |
| 4 | NAG | F | 202 | 14/15 | 0.88 | 0.21 | -0.43 | 84,107,120,127 | 0 |
| 4 | NAG | R | 201 | 14/15 | 0.95 | 0.16 | -0.61 | 51,78,96,96 | 0 |
| 4 | NAG | k | 202 | 14/15 | 0.91 | 0.23 | -0.62 | 47,105,157,168 | 0 |
| 4 | NAG | e | 201 | 14/15 | 0.97 | 0.14 | -0.71 | 38,69,83,85 | 0 |
| 4 | NAG | k | 201 | 14/15 | 0.96 | 0.14 | -0.73 | 55,77,95,97 | 0 |
| 4 | NAG | l | 202 | 14/15 | 0.91 | 0.18 | -0.84 | 62,97,108,117 | 0 |
| 4 | NAG | K | 201 | 14/15 | 0.95 | 0.14 | -0.85 | 43,82,92,93 | 0 |
| 4 | NAG | Q | 202 | 14/15 | 0.94 | 0.25 | -0.88 | 29,77,96,102 | 0 |
| 4 | NAG | K | 202 | 14/15 | 0.91 | 0.20 | -0.88 | 56,100,139,142 | 0 |
| 4 | NAG | X | 201 | 14/15 | 0.97 | 0.15 | -0.89 | 30,61,82,92 | 0 |
| 4 | NAG | L | 201 | 14/15 | 0.97 | 0.14 | -1.02 | 30,37,61,63 | 0 |
| 4 | NAG | Q | 201 | 14/15 | 0.97 | 0.14 | -1.04 | 18,34,58,64 | 0 |
| 4 | NAG | l | 201 | 14/15 | 0.97 | 0.13 | -1.15 | 18,36,51,65 | 0 |
| 4 | NAG | f | 201 | 14/15 | 0.98 | 0.14 | -1.16 | 21,41,59,59 | 0 |
| 4 | NAG | E | 201 | 14/15 | 0.97 | 0.13 | -1.28 | 28,41,56,67 | 0 |
| 5 | NA | R | 203 | 1/1 | 0.92 | 0.17 | -1.50 | 58,58,58,58 | 0 |
| 4 | NAG | W | 201 | 14/15 | 0.97 | 0.13 | -1.57 | 35,47,55,62 | 0 |

6.5 Other polymers [i](#)

There are no such residues in this entry.