

CheckMyMetal(CMM) report for PDB code: 7c7p

PDB title: [Crystal structure of the sars-cov-2 main protease in complex with telaprevir](#) (1.7Å)

| ID      | Res. | Metal | Occupancy      | B factor (env.) <sup>1</sup> | Ligands    | Valence <sup>2</sup> | nVECSUM <sup>3</sup> | Geometry <sup>1,4</sup> | gRMSD(°) <sup>1</sup> | Vacancy <sup>1</sup> | Bidentate | Alt. metal |
|---------|------|-------|----------------|------------------------------|------------|----------------------|----------------------|-------------------------|-----------------------|----------------------|-----------|------------|
| A:402   | CL   | Cl    | 1              | 21.8 (32)                    |            | N/A                  | N/A                  | Free                    | N/A                   | N/A                  | N/A       |            |
| B:402   | CL   | Cl    | 1              | 41.8 (32.3)                  |            | N/A                  | N/A                  | Free                    | N/A                   | N/A                  | N/A       |            |
| Legend: |      |       | Not applicable | Outlier                      | Borderline | Acceptable           |                      |                         |                       |                      |           |            |

| Column                       | Description   |
|------------------------------|---|
| Occupancy                    | Occupancy of ion under consideration  |
| B factor (env.) <sup>1</sup> | Metal ion B factor, with valence-weighted environmental average B factor in parenthesis   |
| Ligands                      | Elemental composition of the coordination sphere  |
| Valence <sup>2</sup>         | Summation of bond valence values for an ion binding site. <i>Valence</i> accounts for metal-ligand distances  |
| nVECSUM <sup>3</sup>         | Summation of ligand vectors, weighted by bond valence values and normalized by overall valence. Increase when the coordination sphere is not symmetrical due to incompleteness.   |
| Geometry <sup>1,4</sup>      | Arrangement of ligands around the ion, as defined by the <i>NEIGHBORHOOD</i> algorithm  |
| gRMSD(°) <sup>1</sup>        | R.M.S. Deviation of observed geometry angles (L-M-L angles) compared to ideal geometry, in degrees  |
| Vacancy <sup>1</sup>         | Percentage of unoccupied sites in the coordination sphere for the given geometry  |
| Bidentate                    | Number of residues that form a bidentate interaction instead of being considered as multiple ligands  |
| Alt. metal                   | A list of alternative metal(s) is proposed in descending order of confidency, assuming metal environment is accurately determined. This feature is still experimental. It requires user discrimination and cannot be blindly accepted |

(1) Zheng H, Chordia MD, Cooper DR, Chruszcz M, Müller P, Sheldrick GM, Minor W (2014) *Nature Protocols*, 9(1), 156-70.

(2) Brown ID (2009) *Chem. Rev.*, 109, 6858-6919.

(3) Müller P, Köpke S, Sheldrick GM (2003) *Acta Crystallogr. D Biol. Crystallogr.*, 59, 32-37.

(4) Kuppuraj G, Dudev M, Lim C (2009) *J. Phys. Chem. B*, 113, 2952-2960.

(5) *CSD: Cambridge Structural Database*

Maintained by: Heping Zheng <[dust@iwonka.med.virginia.edu](mailto:dust@iwonka.med.virginia.edu)>

**Citing CheckMyMetal (CMM):**  
**Validation of metal-binding sites in macromolecular structures with the CheckMyMetal web server.** Zheng,H., Chordia,M.D., Cooper,D.R., Chruszcz,M., Müller,P., Sheldrick,G.M., Minor,W. (2014) *Nature Protocols*, 9(1), 156-70.