

<b>Title</b>	Summary: Teicoplanin antibiotic usage in suspected or confirmed covid-19 patients.
<b>Identification Code</b>	03232020IH
<b>Applicant Area</b>	COVID-191. Keralty Public Health Crisis Committee
<b>Name</b>	COVID-191. Keralty Public Health Crisis Committee
<b>Response date</b>	23 03 2020

### Questions:

1. Is there a potential use of teicoplanin in suspected or confirmed covid-19 patients?

### Methodology:

A fast-systematic search was performed. (Fast Systematic Search Manual. Institute of Clinical Global Excellence. 2019)

**Terms of search:** COVID 19, Teicoplanin, Coronavirus, SARS-CoV2, SARS-CoV.

**Study Types:** Scientific societies consensus, clinical practice guidelines (CPG), systematic reviews, meta analysis, clinical trials and other primary studies.

**Information Sources:** Pubmed y Scopus.

**Background:** It was found that, teicoplanin, a glycopéptide antibiotic commonly used to treat bacterial infections, was found to be active in vitro, against SARS-CoV (1,3).

### Summary of evidence:

**Question 1.** There is an evidence that teicoplanin may be useful in patients with coronavirus disease (1,3,5). There are no experimental or clinical data that show beneficial or adverse outcomes with the previous use of these agents in COVID 19 patients. "According to Zhou and colleagues, in coronaviruses, teicoplanin acts in the first stage of the virus life cycle by inhibiting the breakdown of the virus spike protein by the cathepsin L in late endosomes, thus preventing the release of the viral genomic RNA and the viral replication cycle. A recent study by the same authors showed that this activity was kept in SARS-Cov-2 (the target sequence that serves as the division site of the cathepsin L is maintained in the spike protein of SARS-CoV).The teicoplanin concentration necessary to inhibit 50% of the virus (IC50) in vitro was 1,66 µM, which much less than the concentration reached in human blood (8,78 µM for a daily dose of 400 mg)." (3 )There is evidence of in vitro effectiveness of teicoplanin in the management of SARS-CoV infections(1,4).

**Comment:** There is evidence for the use of cathepsin L, as a potential pharmacological target to treat SARS-CoV-2 (2,3,4).

### Recommendations:

1. At this time there is no evidence that supports the use of Teicoplanin in the routine treatment of COVID-19

2. Teicoplanin use is not approved for COVID-19 treatment, but it's use is approved for the management of staphylococcal infections.
3. Teicoplanin can be used according to the criteria of the treating physician as part of COVID-19 treatment.
4. Teicoplanin has a known safety profile.
5. The evidence of the use of Teicoplanin for the treatment of Covid-19 patients is in the process of change and evolution, and it must be monitored as another potential alternative for treatment of these patients.

### Recommendations for patients:

1. Treatment of COVID-19 infection is evolving, Teicoplanin is not yet a routine treatment, but it can be used by your physician according to the patient's specific assessment.
2. If you have or doubts please consult your physician or Keralty's orientation lines.

### Bibliography:

1. Zhou, N., Pan, T., Zhang, J., Li, Q., Zhang, X., Bai, C., Huang, F., Peng, T., Zhang, J., Liu, C., Tao, L., & Zhang, H. (2016). Glycopeptide Antibiotics Potently Inhibit Cathepsin L in the Late Endosome/Lysosome and Block the Entry of Ebola Virus, Middle East Respiratory Syndrome Coronavirus (MERS-CoV), and Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV). *The Journal of biological chemistry*, 291(17), 9218–9232. <https://doi.org/10.1074/jbc.M116.716100>
2. Szűcs, Z., Kelemen, V., Le Thai, S., Csávás, M., Róth, E., Batta, G., Stevaert, A., Vanderlinden, E., Naesens, L., Herczegh, P., & Borbás, A. (2018). Structure-activity relationship studies of lipophilic teicoplanin pseudoaglycon derivatives as new anti-influenza virus agents. *European journal of medicinal chemistry*, 157, 1017–1030. <https://doi.org/10.1016/j.ejmech.2018.08.058>
3. Baron, S. A., Devaux, C., Colson, P., Raoult, D., & Rolain, J. M. (2020). Teicoplanin: an alternative drug for the treatment of coronavirus COVID-19?. *International journal of antimicrobial agents*, 105944. Advance online publication. <https://doi.org/10.1016/j.ijantimicag.2020.105944>
4. Junsong Zhang, Xiancai Ma, Fei Yu, Jun Liu, Fan Zou, Ting Pan, Hui Zhang. bioRxiv 2020.02.05.935387; doi: <https://doi.org/10.1101/2020.02.05.935387>
5. Balzarini, J., Keyaerts, E., Vijgen, L., Egberink, H., De Clercq, E., Van Ranst, M., Printsevskaya, S. S., Olsufyeva, E. N., Solovieva, S. E., & Preobrazhenskaya, M. N. (2006). Inhibition of feline (FIPV) and human (SARS) coronavirus by semisynthetic derivatives of glycopeptide antibiotics. *Antiviral research*, 72(1), 20–33. <https://doi.org/10.1016/j.antiviral.2006.03.00>