

Interrogate COVID-19

with Tecan's

Neopterin ELISA.



Applying Tecan products to research

Neopterin indicates a plethora of infections before the onset of symptoms. In this scientific study, neopterin levels were measured using the Tecan **Neopterin ELISA (RE59321)** to further investigate the relationship between Neopterin and Covid-19.

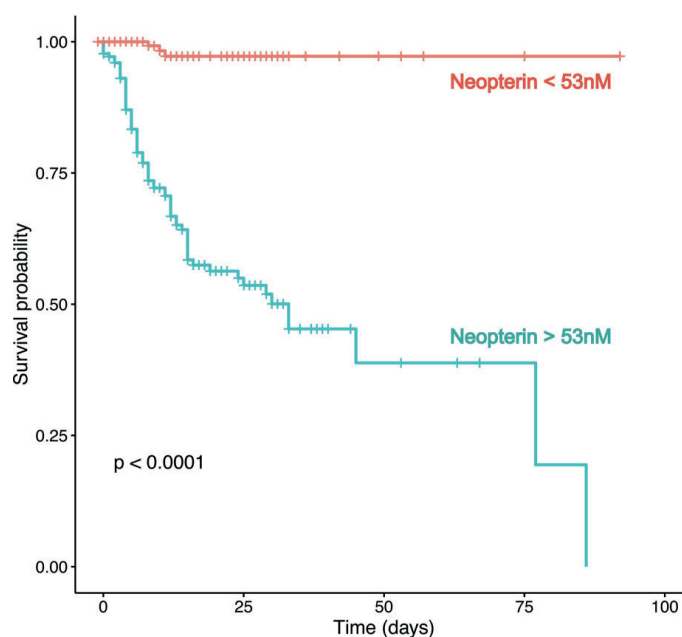
Elevated Neopterin Levels Predict Fatal Outcome in SARS-CoV-2-Infected Patients¹

Key message:

Innate immune activation during Covid-19 infection is associated with pernicious clinical outcome.

Background:

- Coronavirus disease 2019 (Covid-19) became a pandemic.
- Pre-existing comorbidities play a detrimental role in the course of Covid-19.
- Previous coronavirus epidemics, notably SARS-CoV, were associated with increased serum neopterin levels.
- Neopterin serves as a sign of acute innate immunity in response to viral infection. Authors propose neopterin may serve as:
 - a) A biomarker of SARS-CoV-2 viral infection.
 - b) An indicator of Covid-19 disease severity.



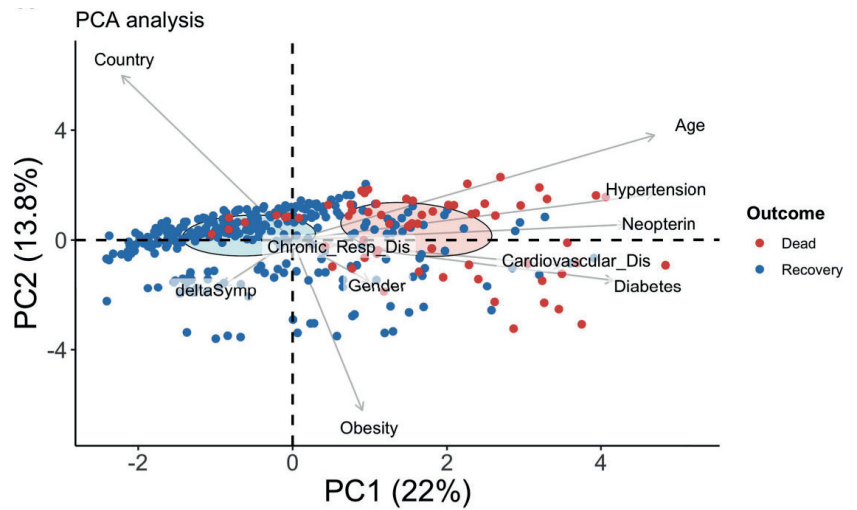
Neopterin levels and survival of patients

Figure 1, right: Neopterin as a biomarker of fatal outcome in SARS-CoV-2 infected patients.

The authors investigated the course of patients from the time symptoms occurred to discharge or death. The survival curves for Covid-19 patients (above) indicate that elevated neopterin levels (>53nM) correlated with a lower probability of survival, while lower levels (<53nM) in serum concentration led to a higher chance of survival.

Figure 2, right: Distinction between healthy and Covid-19 patients. Red symbols represent deceased patients. Blue symbols represent patients who recovered within one month-follow-up (survivors).

A principal component analysis (PCA) was applied and neopterin levels in serum were measured with the Tecan Neopterin ELISA. In order to determine the effect of some combinations of comorbidities the PCA was generated, which would allow for stratification of the patients according to fatal clinical outcome. This principal component analysis allowed to make a clear distinction between Covid-19 patients who recovered from those who died.



Study outcome

- Severe and critically ill SARS-CoV-2 infected patients had elevated neopterin blood levels.
- Neopterin levels >19nM stratified healthy individuals from Covid-19 patients
- Neopterin levels >53nM differentiated non-survivors from survivors

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1. Chauvin, M., Larsen, M., Quirant, B., Quentric, P., Dorgham, K., Royer, L., ... & Sauce, D. (2021). Elevated neopterin levels predict fatal outcome in SARS-CoV-2-infected patients. *Frontiers in cellular and infection microbiology*, 764

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