Patient	
Date of birth	
Sample taken	04.07.2022
Receipt of sample	05.07.2022
Test completed	08.07.2022
Final result	**08.07.2022**
Validated by	Prof. Dr. Brigitte König
Medical Director	Prof. Dr. Gerhard Jorch

MMD GmbH & Co. KG | Breiter Weg 10 a | 39104 Magdeburg

RESULTS

Sample type: Blood in CPDA vials

Requisition:
RNA

Summary

RNA profile

Test	Unit	Result
PGC-1-alpha	Relative expression (to GAPDH)	0.000057
Nrf-2	Relative expression (to GAPDH)	0.00025

GAPDH: glyceraldehyde-3-phosphate dehydrogenase

Interpretation: "Basic values of the peripheral blood leucocytes“

1. **PGC-1-alpha** expression is barely detectable. This indicates very low/absent new mitochondrial formation. However, the immune cells don`t harbour enough mitochondria for sufficient ATP generation.
2. **Nrf-2** expression is extremely low, indicating only low/absent defence against reactive oxygen metabolites in the cell.

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PGC-1α

PGC-1α (Peroxisome Proliferator-Activated Receptor Gamma Coactivator-1Alpha) is of central importance for the induction of mitochondrial biogenesis: the development of new mitochondria. This makes it a key enzyme for our energy metabolism. PGC-1α is also a transcriptional coactivator, meaning it interacts with many transcription factors that are involved with numerous biological processes: it is a regulator of thermogenesis, gluconeogenesis, the beta-oxidation of fatty acids, of hormone metabolism and our antioxidative system. The level of this in the mitochondria compared to other indicators is therefore very significant and instructive.

Nrf-2

NRF-2, nuclear factor erythroid 2-related factor 2, is the master regulator of our antioxidant system to protect cells from reactive oxygen species. Nrf-2 activates Phase II detoxification – particularly glutathione-S-transferase and other antioxidant enzymes, including SOD-2, catalase and glutathione peroxidase. It is crucial to have adequate levels of this in the mitochondria.