Application Brief

Agilent
Trusted Answers

Agilent Seahorse XF Technology Provides Powerful Functional Measurements for Norovirus Research

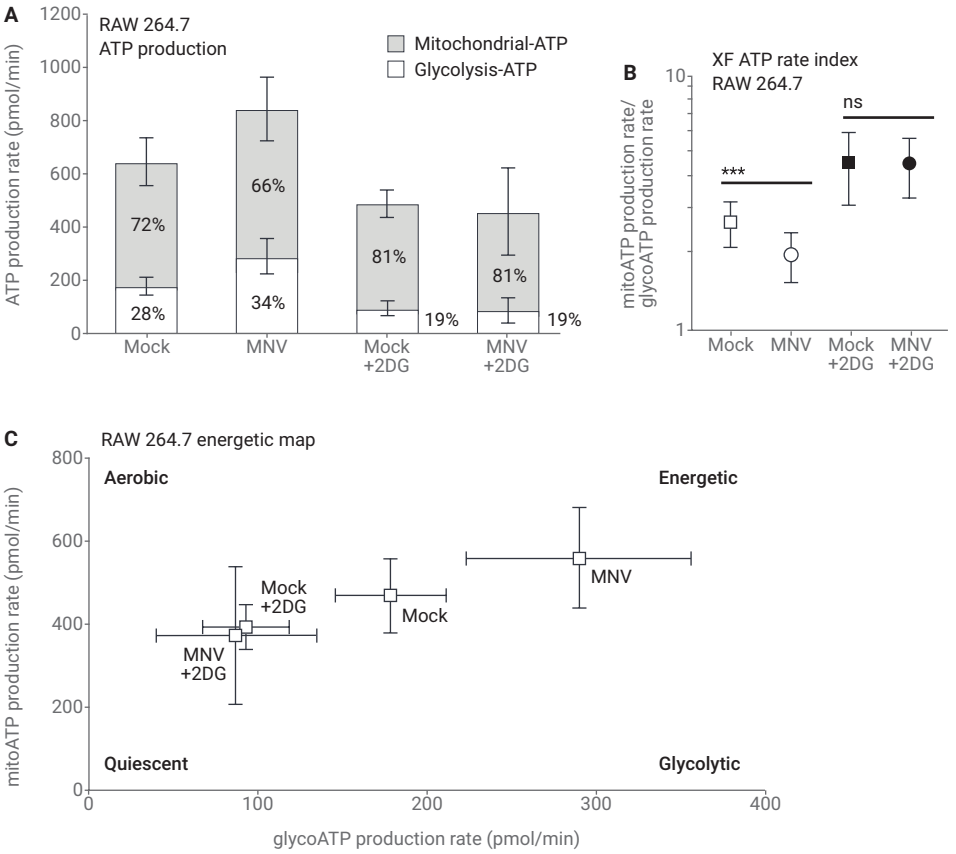
Pathogenic viruses commonly target and manipulate host mitochondria and cellular metabolic pathways to establish optimal conditions for infection.[1]

Different viruses have unique strategies for establishing a niche in the host organism, and the mechanisms and effect on host metabolism will depend on the type of virus.

Research that identifies how specific viruses alter host metabolic pathways and intermediates represents a promising area of opportunity for developing effective therapies to combat viral infection.

Agilent Seahorse XF technology provides critical functional measurements for live cells in real time to monitor host-pathogen response, and reveals mechanisms of viral invasion, providing insight into potential therapeutic targets.

The Agilent Real-Time ATP Rate Assay was used to reveal that norovirus infection of murine macrophage cells results in an increase in overall ATP production rate, with increases in both glycolysis and OXPHOS.[2] However, a higher proportion of ATP derived from glycolysis occurred for infected cells. Inhibiting glycolysis with 2-deoxyglucose (2DG) reduced the proportion of glycolysis-derived ATP in both mock-infected and infected cells. Results demonstrate that, although both glycolysis and OXPHOS are increased during norovirus infection, glycolysis seems to play a more prominent role during infection than does OXPHOS.



References

1. Tiku, V. *et al.* Mitochondrial Functions in Infection and Immunity. *Trends Cell Biol*. **2020**, *30(4)*, 263–275. DOI: 10.1016/j.tcb.2020.01.006.
2. Passalacqua, K. D. *et al.* Glycolysis Is an Intrinsic Factor for Optimal Replication of a Norovirus. *mBio*, **2019**, *10(2)*. DOI: 10.1128/mBio.02175-18. Used with permission. Copyright © 2019, American Society for Microbiology. https://mbio.asm.org/content/10/2/e02175-18.long

www.agilent.com/chem

DE.3875

Printed in the USA, April 13, 2020
5994-1868EN

Agilent
Trusted Answers