

Top 10 reasons for the Oroboros Ecosystem

Oroboros Instruments

High-Resolution Respirometry - HRR

Schoepfstrasse 18, A-6020 Innsbruck, Austria

instruments@orooboros.at | www.orooboros.at



Oroboros O2k
High-Resolution Respirometry

Mitochondria and Cell Research

www.orooboros.at

Explore	mitochondria and cells	Find solutions
<ul style="list-style-type: none">• O₂ consumption• H₂O₂ production• mt-Membrane potential• ATP production• pH, Ca²⁺, NO	<ul style="list-style-type: none">• Isolated mitochondria• Tissue homogenate• Permeabilized muscle fibers• Permeabilized cells• Living cells	<ul style="list-style-type: none">• Aging• Exercise physiology• Neurodegeneration• Diabetes• Cancer



10 compelling reasons for the Oroboros O2k, and for collaborating in the Oroboros Ecosystem - our O2k-Top10 corporate committment.

Mitochondrial energy metabolism is studied with the O2k in exercise physiology, aging, cancer, diabetes, neurodegeneration, oxidative stress and mitochondrial medicine in general. [📁](#)



High-resolution respirometry (HRR) combines measurement and control of oxygen concentration and respiratory oxygen flux with monitoring ROS production, mitochondrial membrane potential, ATP production, Ca²⁺, pH, and NO: all-in-one chamber. The technical features make the O2k a 'sole source' instrument. [📁](#)

- 1. High-resolution.** Only the best is good for science. 
- 2. Long-term experience.** Applications of >1,100 O2k instruments transform worldwide bioenergetics to mitochondrial and cell physiology. By design, the O2k is most economical, with **minimum running costs**. 



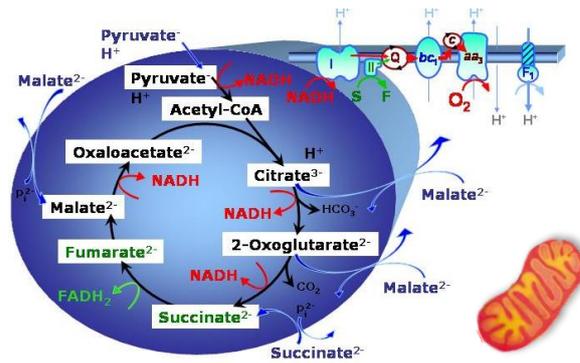
- 3. Meet the experts** at the outstanding O2k-Workshops for training in HRR.



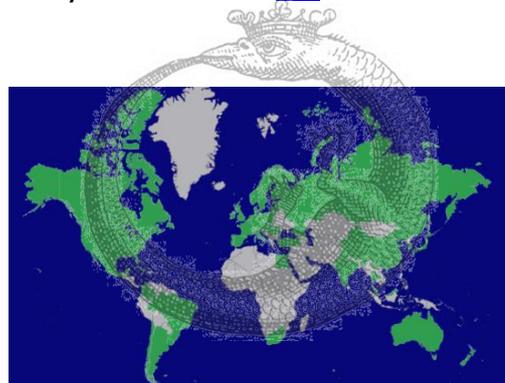
O2k-Workshops are special scientific events for open exchange of practical and theoretical information and international networking. O2k-Workshops provide an introduction into HRR and mitochondrial physiology, complementary to training schools of the Mitochondrial Physiology Society and the COST Action MitoEAGLE. 



- 4. O2k-Procedures.** The user-friendly O2k software DatLab supplies instrumental protocols for quality control. **Substrate-uncoupler-inhibitor titration (SUIT) protocols** guide the user step-by-step through experiments which provide **bioenergetic snapshots of mitochondrial fitness**. The flexibility of the O2k and SUIT protocols allows for any type of mitochondrial preparation to be measured: isolated mitochondria, permeabilized tissues, tissue homogenates, permeabilized cells, and living cells. Our open information strategy is appreciated equally by beginners and experienced users, promoting a new quality in science. 

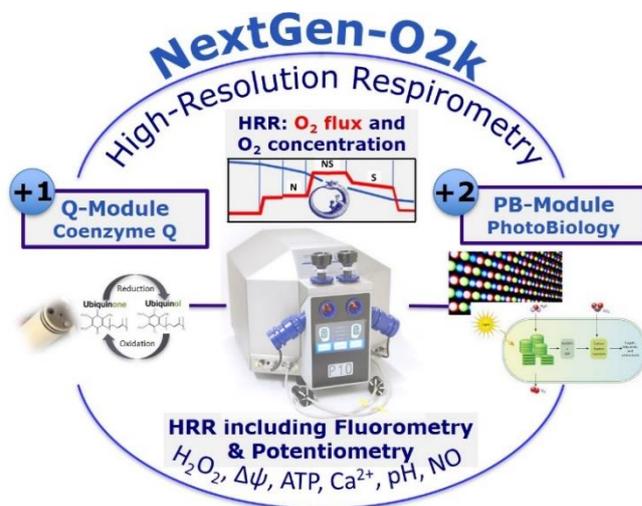


- 5. Worldwide O2k-Network.** Based on its outstanding quality, the O2k has spread worldwide and is applied in internationally leading laboratories in **49 countries**. The O2k-Network lists **663 experienced labs**, open for direct contact between scientists in the expanding field of cell respiration, for immediate exchange of experience, transfer of user-innovation, and continuous optimization of Quality Control. 





The expanding literature list contains **>3,500 O2k-Publications** and provides a unique source of references in mitochondrial respiratory physiology. [📁](#)

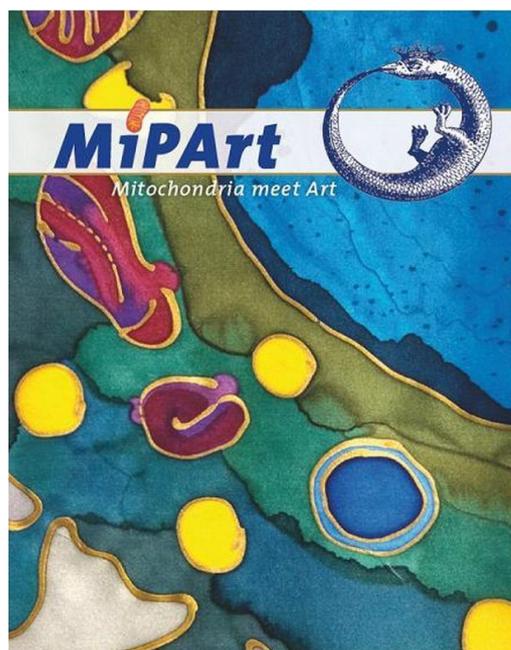


6. Innovation, continuous development and optimization - all-in-one.

Instrumental development is a continuous process advanced by the Oroboros Ecosystem. Long-term cooperation with our partner WGT-Elektronik from the **O2k-FluoRespirometer** to the **NextGen-O2k** (SME instrument phase 2, Grant Agreement No. 859770) makes us a driving force in mitochondrial physiology. [📁](#)

7. Cooperation and feedback in science. Oroboros Instruments is independent of investors. From the start, therefore, our policy has not been dictated by profit orientation, but aims at a best cost-benefit ratio with a commitment to reproducibility. The positive feedback from our customers makes possible a sustained development and steady innovation - symbolized by the logo of Oroboros. [📁](#)

8. Our customers are the Oroboros ambassadors. Our enthusiastic customers provide the most valuable, economic and informative advertisement for our products. We deliberately refrain from expensive advertising campaigns, which add no value to a product yet have to be paid by the end user. Our investment into HRR is expertise and the dedicated high-quality work of the Oroboros O2k-Team and our distribution partners. [📁](#)



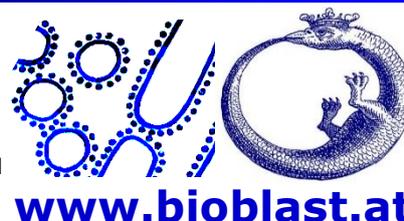
Odra Noel (London)

9. Cooperation and Corporate Social Responsibility (CSR). Cooperation and CSR are integral to our corporate aims and HRR, reflected in the quality and sustainability of our products and services. [📁](#)



10. Bioblast Wiki

Integrating the spirit
of Gentle Science and
Scientific Social
Responsibility



» [MitoPedia](#) – high-resolution terminology. 



» Substrate-uncoupler-inhibitor titration protocols. 



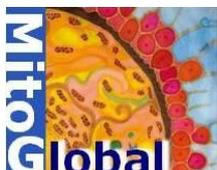
» [Quality Management](#) to tackle the reproducibility crisis with the O2k. Our world-wide technical support is extended to scientific advice directly by the Oroboros-Team of scientists in research and development. 



» [The World as a Laboratory](#) – science and adventure. 



» The [MiPart Gallery](#) – translating mitochondrial research into messages for the public: *Mitochondria are bioblasts – the organisms in our cells* – Science and *Tempo giusto*. 

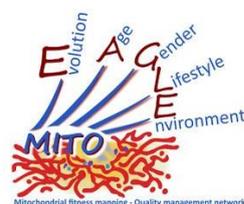


» [MitoGlobal](#) – a worldwide platform for societies and organizations supporting mitochondrial research and medicine. 



» [MitoFit Preprint Archives](#) – the preprint server for mitochondrial physiology and bioenergetics. 

» Gnaiger *et al* (2019) Mitochondrial respiratory states and rates. MitoFit Preprint Arch [doi:10.26124/mitofit:190001.v6](https://doi.org/10.26124/mitofit:190001.v6).



» [MitoEAGLE](#) – The objective of the MitoEAGLE network is to improve our knowledge on mitochondrial function in health and disease related to Evolution, Age, Gender, Lifestyle and Environment.



Funded by the Horizon 2020 Framework Programme of the European Union



» [NextGen-O2k](#)

Supported by the NextGen-O2k project, which has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 859770.