



## Mitochondrial Physiology Network

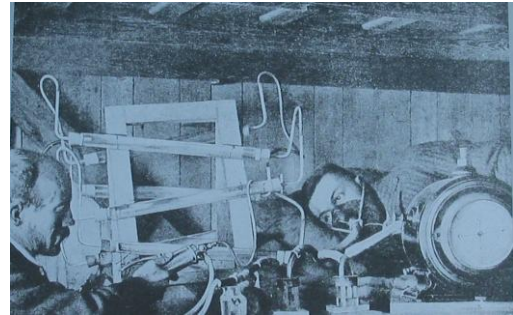
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## Monte Rosa Project 2004

High-altitude studies on Capanna  
Regina Margherita in 2004 and 1904



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instruments of the OROBOROS Oxygraph-2k were applied at high altitude, to perform high-resolution respirometric experiments under the extreme conditions close to the peak of the second-highest mountain of the Alps after Mont Blanc. Biopsies were taken by Jose Calbet (Las Palmas, ES) and Kirsten Moller (Copenhagen, DK). The expedition started on 21 August 2004 and returned on 4 September 2004.

100 years ago (Durig and Zunz, 1904), **Arnold Durig** (studies of medicine in Innsbruck, collaboration with N. Zuntz in Berlin, professor of physiology in Vienna, Austria) and Nathan Zuntz (Berlin, Germany) describe how they "ascended to the Col d'Olen (2900 meters), and, having remained there for a week, passed upward to a hut (4560 meters) constructed near the summit of Monte Rosa ... They lived in this hut two weeks and a half. The height of the barometer was 443 millimeters, which indicates a quantity of oxygen amounting to 12.2 per cent. of an atmosphere. On



Arnold Durig (1872-1961)

the Col d'Olen there was no increase in their metabolism when they were resting, and there was no increase in the requirement of energy necessary to accomplish one kilogrammeter of work. ... At the higher level, ... the resting metabolism increased at once and permanently to the extent of 15 per cent. ... The increased metabolism was not due to cold, for it was present when the individual was in a warm bed in the hut." (Lusk, 1928).



The hut near the summit of Monte Rosa is the famous **Capanna Regina Margherita** constructed in 1893 (left) at an altitude of 4559 m on the Punta Gnifetti by the Club Alpino Italiano. The CRM was officially opened on 18. August 1893 (below) in the presence of the Italian Queen

who supported and sponsored a scientific laboratory at this hut which bears her name. It was declared as an international laboratory in 1901 at the Physiological Conference in Turino. After years of limited use and deterioration, the new Capanna Regina Margherita was built at the same location in 1979.



## Literature

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