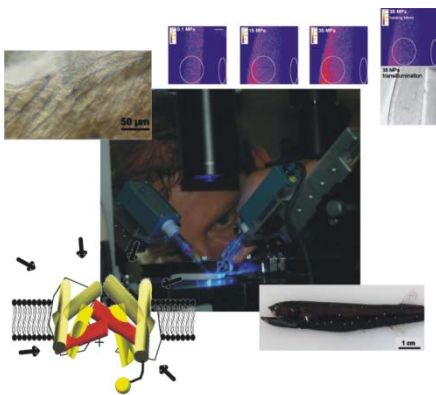


Living under pressure – dances with fish, whales and mice. And why humans are excluded from the deep sea party.

Dr Oliver Friedrich

(ARC International Linkage Fellow, University of Queensland)

Life under high pressure in the deep sea is still a mystery. Cellular impacts of high pressure are particularly poorly understood. How does high pressure affect locomotion and excitability of muscle, for instance? Many fish can cover large pressure ranges during vertical migrations, interestingly the same is true for diving mammals. What are the principle dive limits for mammals, then? And why can whales do it, but not humans? In the past years, we looked into how prolonged high pressure exposures affect contractile properties and membrane excitability in murine muscles as a model for mammalian pressure responses. Pressure was reversibly tolerated up to 20 MPa but irreversible changes occurred for higher pressure, e.g. fibre contractures after half an hour at 30 MPa. Maybe it's no coincidence that these conditions resemble depth limits for diving mammals and that muscle is their limiting abyssal organ. Fish can adapt their muscle function to depth. Ironically, it is the human brain that prevents us from going to the deep.



Wednesday 16 July 2008
12.05 – 1pm

Zoology Seminar Room
Room 350, Biol Sciences 1

All welcome



Oliver graduated from Medicine and Physics at the University of Heidelberg, Germany in '97 and 2000. He gained PhD's in Physiology 2000 and Physical Chemistry 2002. Since 2006 Assistant Professor at Uni HD. Currently ARC Int. Linkage Fellow at UQ, Brisbane. Couldn't really decide on one research subject. Current research interests and projects are: comparative high pressure bioscience of muscle, Pathophysiology and therapy concepts in Duchenne Muscular Dystrophy and Critical illness Myopathies, septal cardiomyopathies, drug resistance in *P. falciparum* and all sorts of fancy microscopy techniques.

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