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Cultivating *C. elegans* in Microaerobic Workstations

C. elegans are utilised as models for the understanding of many human diseases such as congenital heart disease, neurological disorders and kidney disease. An emerging and powerful use of *C. elegans* is its ability to withstand and adapt to low oxygen concentrations, or, as typically referred to: hypoxia. This hypoxia insult is something that many disease states, cells and tissues must overcome. There have been numerous studies that provide important insight focusing on hypoxia signalling and resistance which are controlled by changes in gene expressions by the hypoxia inducible factor (HIF-1). *C. elegans* are well known to adapt and survive in complete lack of oxygen (anoxic) conditions for a couple of days under normal culture conditions by entering a state that is known as suspended animation. Recovery from complete anoxic conditions is often difficult and is independent of HIF-1.

Changchun Chen is an Assistant Professor from the UMEA University (Sweden) whose team utilise *C. elegans* as a model to investigate O_2 adaptation. The M85 workstation allows Dr. Chen to carry out all his essential experiments as this 4-gas system with built in oxygen, CO_2 and hydrogen sensors allows his team to programme precise gas concentrations, perfect for manipulating samples in a sustainable anoxic/anaerobic, microaerobic or hypoxic atmospheres to the desired levels without the need to change incoming gasses.

Utilising the M85 workstation, Dr. Chen is able to carry out:

- High-throughput behavioural screens
- Large scale genetic screens
- Biochemistry

All this is to further enhance our knowledge in understanding how oxygen plays a key role in signalling and survival of mammalian development and disease.

Incubating *C. elegans* under specific environmental conditions using the M range workstations

At Don Whitley Scientific we host a whole range of atmospheric workstations to suit all the different kinds of applications. The microaerobic (M range) workstations will allow the user to carry out experiments under both hypoxic and anoxic conditions. Our innovative O_2 profiling allows users to programme desired O_2 tensions for specific time periods which is all automated.

Changchun Chen
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