



Plymouth marine biologists awarded £3million for studies of plankton 'nerve impulses'

Two marine biologists working at the Marine Biological Association (MBA) laboratory in Plymouth have been awarded funds totalling almost £3million to study how tiny algae in the sea sense and respond to their environment using mechanisms that are very similar to sophisticated nerve activity in animals and humans. Their studies will also shed light on the evolution of nervous systems and improve our understanding of certain human diseases.



A scanning electron micrograph of a phytoplankton cell. The example shown is a coccolithophore (*Coccolithus pelagicus*) which surrounds itself with plates made from chalk (calcium carbonate).

Professor Colin Brownlee, Director of the MBA, has been awarded a prestigious European Research Council (ERC) Advanced Grant for studies into marine phytoplankton. This award of €2.7 million over 5 years will be used to develop new microscopy technologies to help us study phytoplankton in their

natural environment. Professor Brownlee said "The tiny single-celled phytoplankton are responsible for half of all photosynthesis on Earth and form the basis of marine food webs. However, we know very little about phytoplankton biology, compared with plants, animals and humans. The research will investigate how phytoplankton can sense their environment using electrical impulses very similar to our own nerve impulses. Understanding how the phytoplankton use this electrical excitability to regulate their growth will help us to understand their role in marine ecosystems and also the evolution of the nervous system in animals".

In addition, Dr Glen Wheeler, a Senior Research Fellow at the MBA, has been awarded a grant from the UK Biotechnology and Biological Sciences Research Council (BBSRC) of almost £500,000 to study how cells use tiny hair-like protrusions known as cilia to sense their environment. Dr Wheeler said "Cilia are the sensory antennae of the cell, but we are only just beginning to understand just how important they are. This grant will use algae as model organisms to examine how cilia and flagella sense the environment around a cell and will provide a better general understanding of human diseases associated with defects in cilia."

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The Marine Biological Association

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The Marine Biological Association (MBA) is a professional body for marine scientists with some 1,400 members world-wide. Since 1884 the MBA has established itself as a leading marine biological research organization contributing to the work of several Nobel Laureates and over 170 Fellows of the Royal Society. In 2013, the MBA was awarded a Royal Charter in recognition of its long and eminent history and its status within the field of marine biology. The award strengthens the Association's role in promoting marine biology as a discipline and in representing the interests of the marine biological community.

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