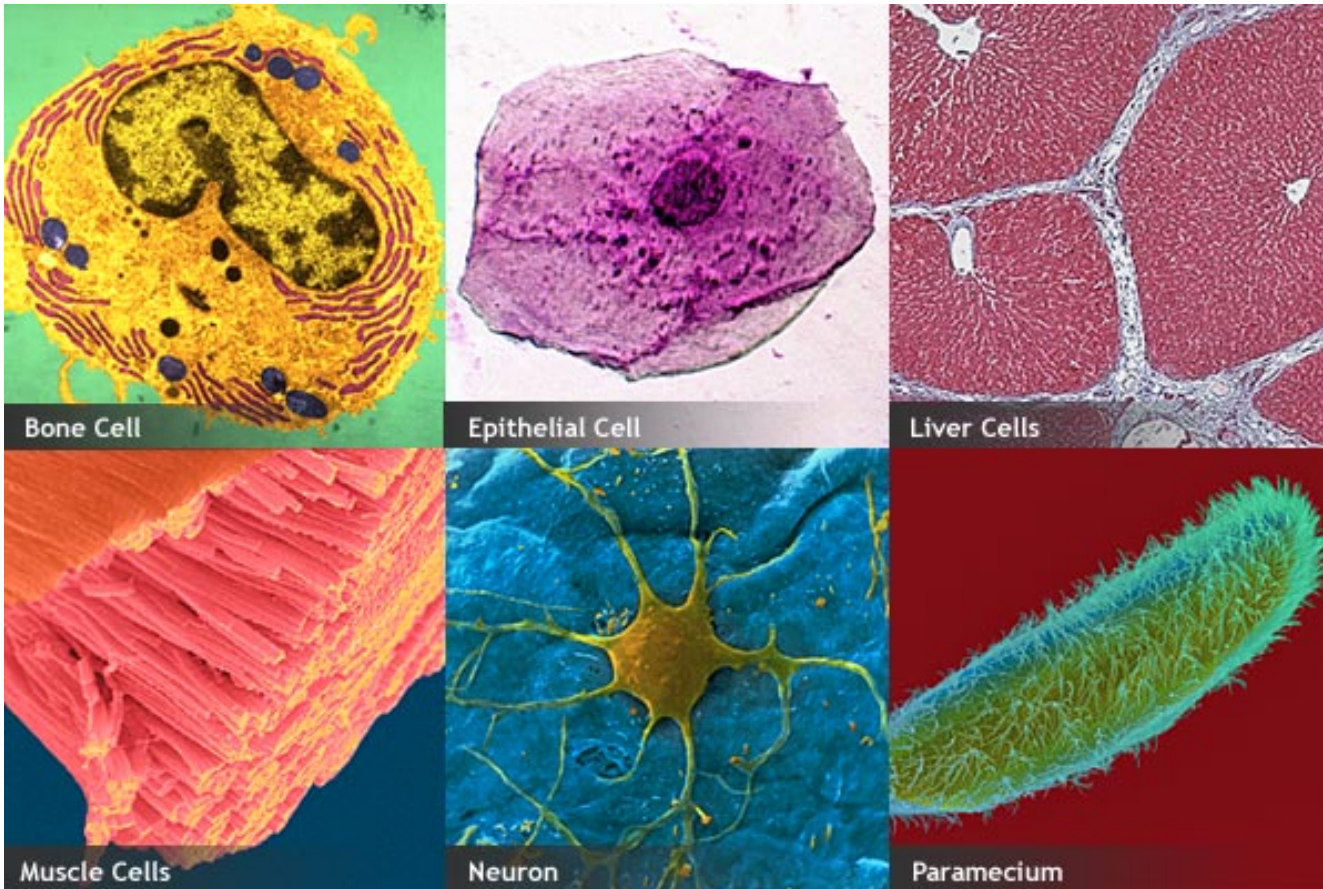


Variety is the Spice of Life – A Brief but Close Look at Eukaryotes



Description

Phase contrast movie demonstrating how paramecia contractile vacuoles regulate water pressure within the protozoan's body. Water enters through the cell wall by osmosis and then passes through the cytoplasm to the vacuole's canals. When filled, the vacuole expels the water from the cell's body. This movie won Fourth Prize, 2011 Olympus BioScapes Digital Imaging Competition®.



Video by Edwin Lee
2011 Olympus BioScapes Digital Imaging Competition®
Text and video captured from <http://cellimagelibrary.org/images/40986>

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Description

Phase contrast micrograph of spore formation and release in *Aspergillus*, an ascomycete, using a semi-thin stained section stained blue. Chains of asexual spores (conidia) bud off from the projections (phialides) on special hyphae called conidiophores, one of which is shown here, which in *Aspergillus* terminate in a characteristic 'mop head'. Most *Aspergillus* species are saprophytes, feeding on decaying organic matter. Some species produce mycotoxins that can build up in livestock or humans that eat infected foodstuffs. Some are respiratory tract pathogens, causing lung diseases in humans, poultry and other animals when the spores are inhaled, for example, farmer's lung or aspergillosis. Fermentation by certain *Aspergillus* species is involved in the production of soy sauce.

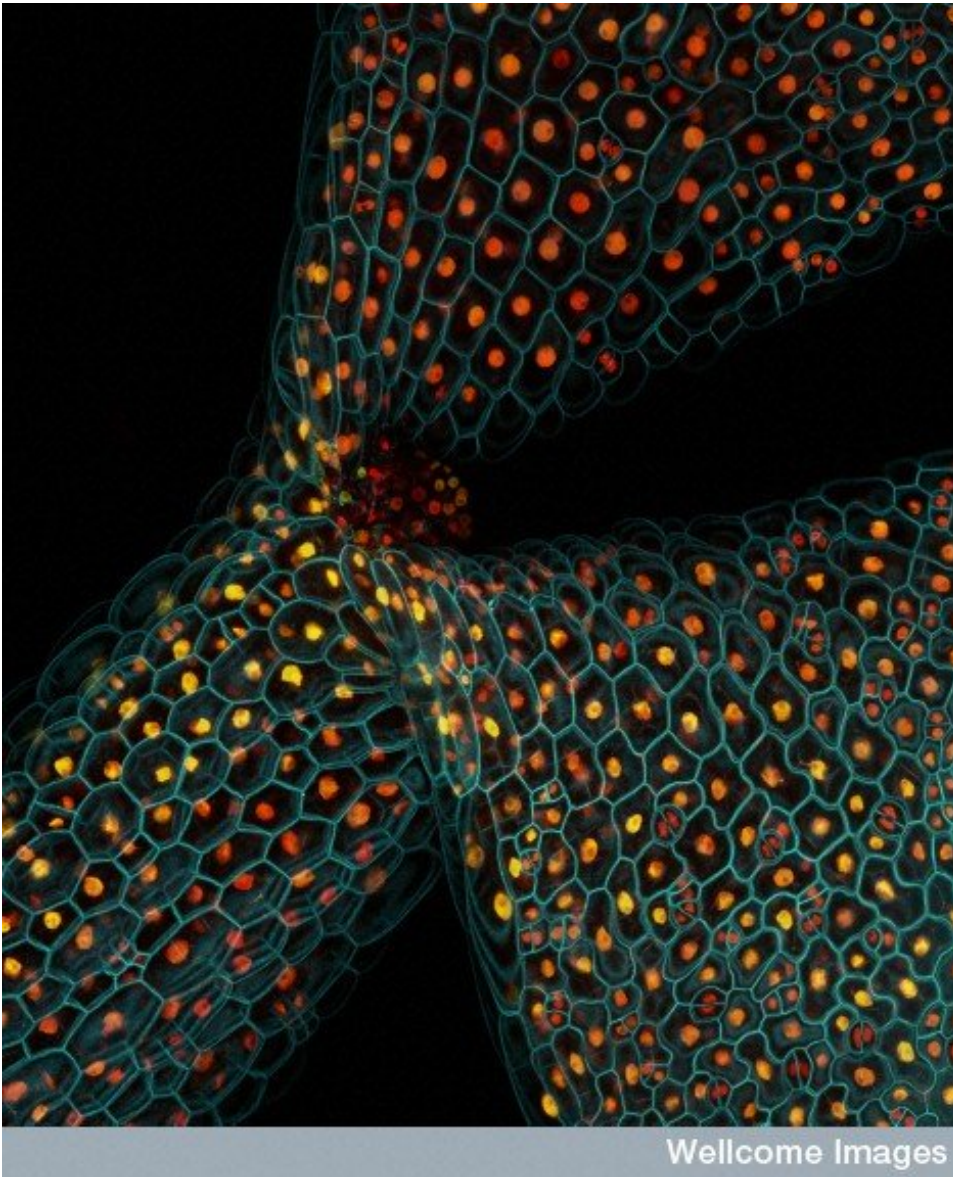


Wellcome Images

Image by Spike Walker

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Wellcome Images

Image by Fernan Federici and Jim Haseloff

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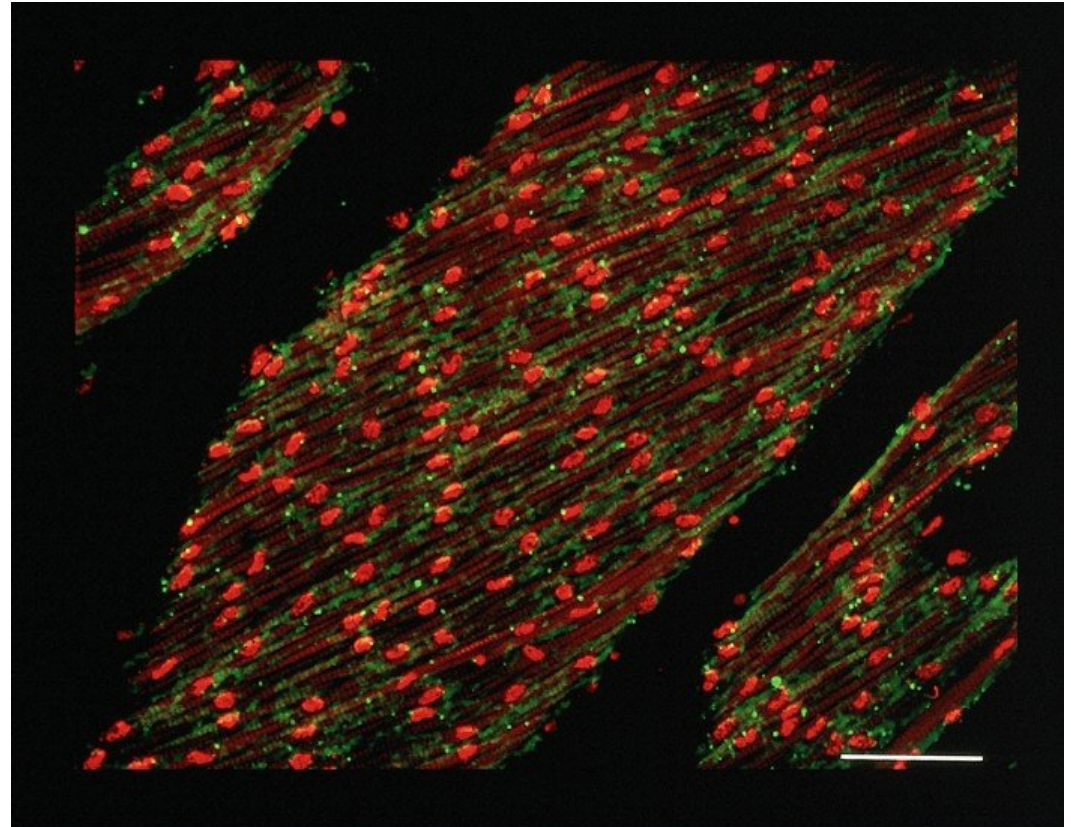
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Description

Confocal micrograph showing the expression of different fluorescent proteins in the stem of a thale cress seedling (*Arabidopsis thaliana*) used to study in vivo gene expression. *Arabidopsis* was the first plant to have its entire genome sequenced and is an important model for studying plant biology. These genetically modified plants have fluorescent proteins associated with different gene promoters. In these plants, when a promoter switches a gene on, a corresponding fluorescent protein is produced, allowing expression of these genes to be viewed. In this image green fluorescence (GFP) shows the expression of the gene under investigation and the red fluorescence corresponds to the expression of a known gene and thus acts as a reference. Cells that are yellow express both genes. A third fluorescent protein is attached to the plasma membrane to show the outline of each cell. Small red cells that don't have the gene active and do not express GFP are precursors of stomata.

Description

Confocal image of a sea squirt heart. The sea squirt heart is a tube made of a single layer of muscle cells. The contractile elements are the long striations stained red and the nuclei are also red. The green spots indicate gap junctions between the cells, which facilitate the conduction of electrical impulses through the heart, thus coordinating its contraction.



Wellcome Images

Image by David Becker

Text and image captured from <http://cellimagelibrary.org/images/39011>

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Description

A scanning electron microscope image of the sensory hair bundle of an inner hair cell from a guinea pig's hearing organ in the inner ear. Vibrations made by sound cause the hairs to be moved back and forth, alternately stimulating and inhibiting the cell. When the cell is stimulated it causes nerve impulses to form in the auditory nerve, sending messages to the brain.

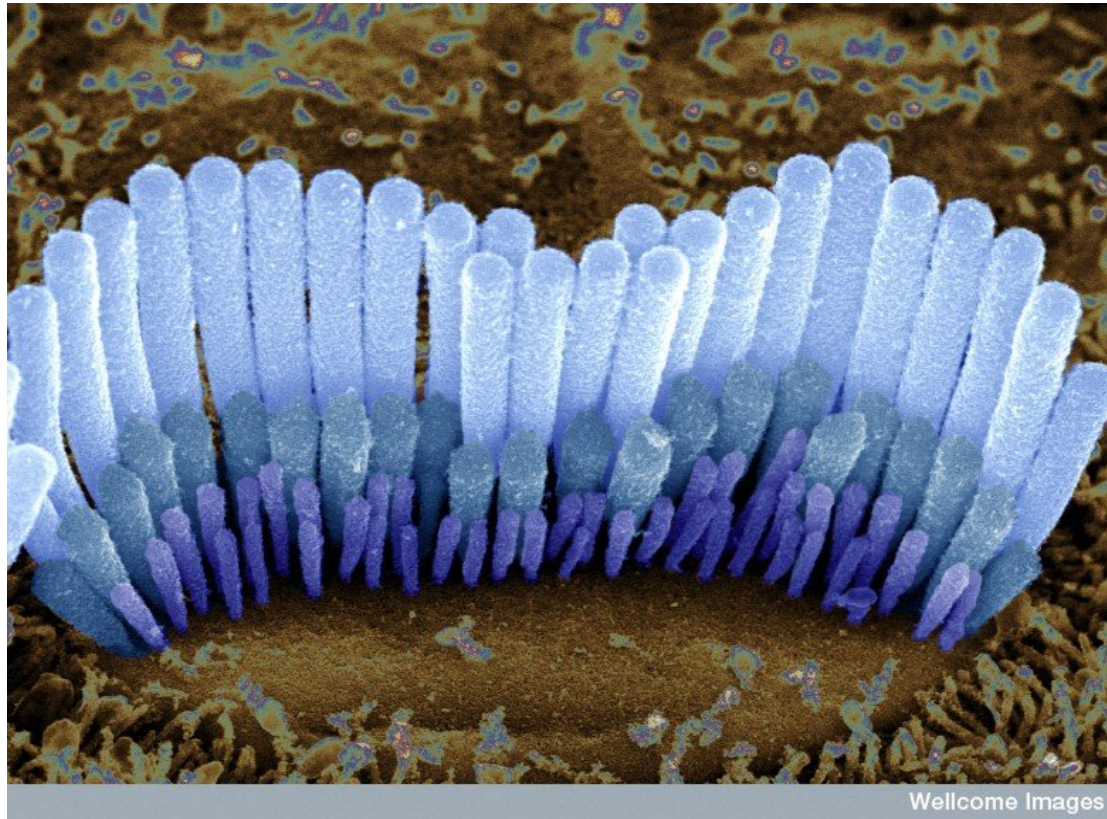


Image by David Furness

Text and image captured from <http://cellimagelibrary.org/images/38816>

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Description

Scanning electron micrograph of two human bone-forming cells (osteoblasts) crawling over crystals of the ceramic material, monetite (CaHPO_4). Monetite crystals are electrochemically deposited onto titanium making the metal more compatible with the body. This can be used in applications such as artificial hip joints and prosthetic tooth-root posts where bone bonding and the stability of the implant are very important. This image demonstrates the coating successfully encouraging cell growth: the cells look normal and are growing well over the surface.

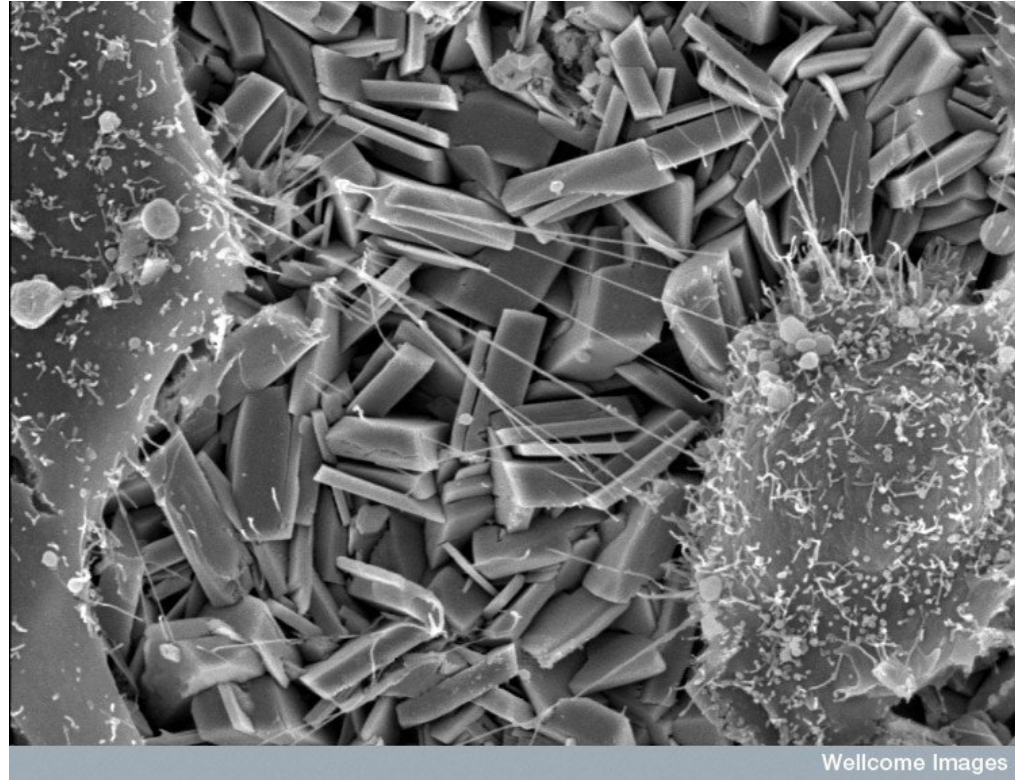


Image by Karen Hing

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