Water is the basis of all life. If we lose just 2% of our body water we start to become dizzy and disorientated so it is not surprising that while we can survive weeks without food, we can survive only days without water. Water flow in cells is regulated by aquaporin proteins in the membranes of cells in different tissues throughout the body; wherever there is water: Aquaporins are involved in diseases such as diabetes and brain swelling after head injury.

Summary
- Use biological and microscope techniques to look at aquaporins in living cells.
- A fluorescent protein that glows green has been attached to the aquaporin.
- The aquaporin can be followed around the cell using a confocal microscope.

Outcomes of this research
This research on aquaporin 1 has shown that when cells are in a dilute solution more aquaporins are trafficked to the membrane. This is exciting as it means that the trafficking of aquaporins regulates cellular water flow.

Potential Benefits
Aquaporins can be manipulated as a potential therapy for diseases or for the cosmetics industry.

A very exciting prospect is that this research may lead to ways in which the number of aquaporins in the membranes of kidney cells can be increased to help diabetes sufferers.

The number of aquaporins in brain cells could be reduced after a head injury to reduce the swelling that causes brain damage.

Contact: Dr M T Conner (m.t.conner@aston.ac.uk ext: 3964)  Partners: University of Warwick; University of Gothenburg