talent

Thursday, 21 January 2010

News&views

**Biomedicine and Molecular Biology**

# Identification of a new gene for autophagy, the recycling program for cells

**Cell have a recycling program to collect and remove unnecessary components from inside them. By means of autophagy, it kidnaps and digests aged organelles, proteins and other components that are damaged and that if they are not disintegrated and recycled would endanger their life. Researchers at the Institute for Research in Biomedicine (IRB Barcelona) led by Antonio Zorzano, professor of the UB, have identified a new gene that helps cell autophagy. The article was published in 'EMBO Reports'.**

STAFF | 20 JANUARY 2010

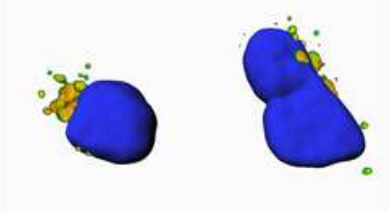

Photo: Representation 3D.
Laboratory A. Zorzano. IRB Barcelona

One of the main challenges of biomedicine is to decipher the complete map of genes that control autophagy in cells. "The attraction here is its link with human disease," says Zorzano. Every day there is more evidence of the relationship between autophagy with the onset and progression of cancer, neurodegenerative diseases, infections and ageing. The pharmacological induction could help clean the protein aggregates that cause cell disease and alleviate the symptoms.

The study reveals that the DOR protein is involved in the initial stages of autophagy, the least known. DOR facilitates the formation of autophagy, the structures that encircles the elements to degrade; they capture and transport them to the lysosomes. The autophagosomes fuse with lysosomes to form the autolisosomes, where several enzymes finally remove the unnecessary or harmful intercellular components.

The researchers have proved that *in vitro* cells and in the drosophila fly, that without *DOR*, the ability of autophagy in the cell decreases. This new gene in the autophagy pathway opens now many possibilities for research, such as whether this is active or silenced in tumour cells. The researchers, however, are cautious in planning further studies: "First we must determine in life mouse models, the precise role of *DOR* in the autophagy pathway to determine its importance and identify all the proteins associated in this context," explains Zorzano.