



## THERMOVESICULES

### USING MEMBRANE VESICLES TO STUDY THE MECHANICS OF GENE TRANSFER AT MOLECULAR LEVEL

The production of membrane vesicles (MVs) is a universal mechanism of intercellular communication that is still relatively undocumented.

All cells produce membrane vesicles which resemble viruses. These vesicles play a major role in intercellular communication (gene transfer) or in misleading viruses which attach themselves to the vesicles instead of latching on to cells. Vesicles can transport toxins, DNA and chemical messages. The project will study this phenomenon in microbes living at ultra-high temperatures - so-called 'microbes from hell'.

The aim of the Thermovesicules project is to study the MVs produced by different archaeal groups - *Thermococcales* and *Methanococcales* - and hyperthermophile bacteria - *Thermotogales*, which are microbes that live at extremely high temperatures.

The project will focus particularly on how the MVs interact with the viruses that affect these strains and on their potential role in the transfer of genes between different groups of organisms colonising the same environment.

The project will study the mechanisms for exchanging genetic material by MVs and determine whether the MVs can also be used to transfer DNA.

#### Partners

##### Research centers

Institut de Génétique et Microbiologie, Orsay [\[Project Developer\]](#)  
UBO, Laboratoire de Microbiologie des Environnements Extrêmes (LM2E), UMR 6197, Brest

#### Funder

- Agence Nationale de la Recherche

#### Labelisation

31/12/2012

#### Overall budget

1 845 K€