



# Christmas Lecture

## Deciphering the secrets of Imsety

### Malu Martínez Chantar, PhD

The relevance of the liver as a key component of the human body has been recognized since the dawn of civilization. Egyptians believed that, before mummifying the body, the storage of the liver in a Canopic jar under the custody of Imsety, one of the four sons of Horus and Isis, would protect the deceased. Similarly, the ancient Greeks considered the liver as the repository of the soul and intelligence. The immortality of the soul dovetails the liver prodigious recuperative powers. In fact, the myth of Prometheus revealed that the ancient Greeks knew about the phenomenon of hepatic regrowth. Indeed, one of the oldest and most widespread methods of predicting the future, from primitive cultures through several early civilizations, consisted on omen readings within the marks present in the liver of animals offered as a sacrifice to the gods.

The importance given to this organ throughout civilizations is a reflection of its critical function as a commander of your entire body. It participates in food digestion, nutrient absorption, and the neutralization and removal of toxic compounds from the body. Admittedly, if you are reading this is because your liver has the capacity to function properly and recover after damage.

On the flip side, the ability of the liver to regenerate may also be linked to the development of liver cancers. The most common form of primary liver cancer (cancer that starts in the liver) in adults is hepatocellular carcinoma (HCC), which is responsible for around 90% of all liver cancers. HCC is the fifth most common cancer in the world and the third cause of cancer-related death after lung and gastric cancer. On the other hand, different common risk factors may also predispose to the development of liver cancer in developed countries, such as obesity, type 2 diabetes mellitus (T2DM) and non-alcoholic fatty liver disease (NAFLD). The incidence of these age-related risk factors has increased dramatically over the last several years, and is considered a potential epidemic for the new millennium.

The clinical course of HCC is greatly dependent on the underlying liver function. Although curative therapies are possible when HCCs are diagnosed at early stages, the majority of patients are detected in an advanced symptomatic stage, which present limited treatment options. Liver transplantation represents a cornerstone in the management in pre-neoplastic lesions (cirrhosis, biliary fibrosis), but is limited by stringent selection criteria, high costs and donor graft shortage. On the other hand, pharmacological therapies that can halt the progression of fibrosis/cirrhosis or even reverse these processes are still in an early developmental stage.

This cancer is unique in oncology as there is no effective therapy available despite its high incidence and poor prognosis. During HCC development multiple signaling pathways can be activated, generating an intense molecular crosstalk that can either synergize, antagonize and in some cases, induce new types of responses.

This lecture will focus on introducing this essential organ, its features and its functions. It will explore, as well, the factors and mechanisms that determine the difference between the traditional dichotomy 'friend' and 'foe' that liver regrowth represents, overall considering HCC as a result of an alteration of this equilibrium.

*December 17, 2015*

*12.30 H*

*Parque Científico y Tecnológico  
de Gipuzkoa, San Sebastián.*

*Paseo de Mikeletegi, 53.*

*Edificio central (Salón de actos)*

