

First Laureate Fundamental Research



- **Research Work Title:** Cell death in pathophysiology: inexorable, avoidable and desirable
- **Researcher:** Prof. Guido Kroemer
- **Country:** France
- **Field:** Medicine, Immunology, Molecular Biology
- **Scientific Affiliation:** University of Paris Descarte, Paris, France



Abstract:

Kroemer has contributed three major discoveries to biomedical research. First, Kroemer's team discovered that, in mammalian cell death, mitochondrial membrane permeabilization constitutes the point-of-no-return of the lethal process and thus defines the lethal checkpoint rendering cell death inexorable. Second, Kroemer has characterized autophagy as an antiaging mechanism that allows cells to adapt to stress and hence to avoid unwarranted cell death. Third, Kroemer has launched and then proven the hypothesis that the immune response against stressed and dying tumor cells dictates the therapeutic success of anticancer chemotherapy, both in mouse models and in cancer patients. This immunogenic cell death affecting cancer cells is highly desirable from the therapeutic view. Kroemer postulates that classical and targeted anticancer therapies require an active contribution of the immune system to be optimally efficient. He obtained clinical evidence that this hypothesis holds true for several commonly used chemotherapeutic regimens.

Biography:

Prof. Guido Kroemer is currently Professor at the Faculty of Medicine of the University of Paris Descartes, Director of the research team "Apoptosis, Cancer and Immunity" of the French Medical Research Council (INSERM). Guido Kroemer did his post-doctoral training in the Collège de France, Nogent-sur-Marne (-1988 1989) and at the University of Innsbruck, Austria, after receiving his PhD/MD degree at the same University in 1985. Kroemer has explored the fine mechanisms of mitochondrial cell death control, the molecular pathways that explain the inhibition of cell death in cancer cells, upstream of or at the level of mitochondria, and the mechanisms that make cancer cell death immunogenic. Guido Kroemer's contributions have been recognized with numerous awards.