The Centre was established in 2001 under the guidance of Professor Pozza. In 2009, Professor Pozza resigned, having been appointed Director of the CNR Institute of Neurosciences. Presently the Centre is headed by Lorenzo Pinna. The mission of the Centre is to investigate the molecular mechanisms implicated in the generation and transmission of cellular signals and to dissect signalling pathways whose alterations underlie a variety of human diseases. Instrumental to these goals is the development of advanced technologies for inspecting the mechanisms of cellular activation and their alterations under pathologic conditions.

**ongoing research projects.**

- Identification of modulatory compounds and in vivo translation approaches to explore in the signalling pathways which control skeletal muscle atrophy and hypertrophy, with a focus on autophagy processes, and muscle fibre type profile, with a focus on skeletal muscle atrophy and hypertrophy.

- Usage of genetic approaches to dissect the signalling pathways that control muscle mass with focus on the regulation of the protein synthesis and protein breakdown systems. Several transgenic/knockout mice for critical regulatory factors have been generated and are in effective in vivo translation systems to express in adult muscles wild type or mutant proteins as well as small hairpin ribonucleic acids (shRNA) for siRNA or msiRNA studies has been set up.

- Assessment of the potential of mitochondria as pharmacological targets for therapeutic intervention in cancer and in degenerative diseases, with specific emphasis on muscular dystrophies and on mitochondrial diseases.

- Identification of the pathways involved in: i) the mechanisms accounting for growth and survival of leukemic cell and their interactions with the microenvironment; ii) immunogenic cell invasiveness, migration, trafficking and homing, in order to identify new molecular targets for innovative therapies.

- Dissection of signalling pathways perturbed by abnormally high protein kinase activities, pursued through phosphoproteomics analysis and the generation and exploitation of phosphopeptide specific antibodies.

- Structural biology of the Helicobacter pylori proteomes, the SECMA CAR2+ and enzymes involved in the uric acid degradation pathway.

- Study of bacterial prokaryotes endowed with immune-modulatory properties aimed at the development of new therapeutic strategies whose ability to counteract or prevent the pathologic status will be verified in animal models.

- Macromolecular crystallography studies aimed at: i) Structural characterization of sUAP17 proteins; ii) underling the structure of the pathogenic basis of protein kinases.

**Major funding.**

In addition of the institutional financial support from the Ministry and the University of Padova (2002/1,414,448) the Centre was funded through VIMM Administration on behalf of Plo of the Centre by the European Community (NOE: Neurope 2005/2009 E. Caramelli, CA 1102004-2006 Pre-Progetto, Montepuez 2004/2009 Prof. Pinna, E. Eureavour 2004/2009 Prof. Mammad, IP Exigensio 2005/2009 Prof. Schiaffino, IP Myogene 2009/2012 Prof. Schiaffino) and from other public and private Institutions, totaling altogether an estimated 2,470,737 euros.

**Scientific Qualification.**

During the life-span of the Centre (2001-2010) more than 700 papers were published in international journals, totaling more than 19,000 citations.

**Selected Publications.**


