**List of possible labs in Padova for French Double Diploma students**

During their stay in the research lab, up to two French students would receive an integration to the ERASMUS+ bursary on specific University of Padova funds (approx. 400 €/month for a 6 month period).

PhD position: we are unable to offer a full guarantee on the likelihood that French students would have a greater chance than local students of obtaining a PhD position in a lab in Padova, following their graduation. PhD positions are assigned following a competitive selection based on the marks obtained following examination of the candidate's curriculum and an interview by a panel of examiners.

FRANCESCO ARGENTON:

**Unit of developmental genetics and dynamics**

*http://www.bio.unipd.it/~development/UNIT/HOME.html*

GIORGIO VALLE:

**Unit of genomics and bioinformatics**

*http://genomics.cribi.unipd.it/main/*

The CRIBI genomics group is headed by Giorgio Valle and is working on several aspects of genomic research, ranging from bioinformatics to large scale genome analysis. Our labs are located at the CRIBI Biotechnology Center and at the Department of Biology in the Interdepartmental Biological Building of the University of Padua, Italy.

As a part of CRIBI, we are open to collaborations and we offer advanced services for Next Generation Sequencing (NGS) and Bioinformatics.

ELISA GREGGIO:

**Unit of biophysics and molecular and cellular physiology**

*http://www.bio.unipd.it/~bubacco/research.html*

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| The research activity of the laboratory aims at understanding the structure-function relationship of several  proteins involved in central physiological or pathological processes.  The main lines of research are:  1) [Metalloproteins](http://www.bio.unipd.it/~bubacco/metalloproteins.html)  a) Tyrosine hydroxylase, which is involved in the rating-limited step of dopamine synthesis   b) Superoxide dismutase 2, a mitochondrial protein which exerts a protective role against oxidative stress  c) Hemocianins, which mediate the oxygen transport in molluscs and arthropods d) Tyrosinase, which is of  central importance to the biosynthesis of melanin  2) [α-Synuclein and Parkinson disease](http://www.bio.unipd.it/~bubacco/synuclein.html)  a) Conformational distribution of monomers   b) Membrane-bound conformation  c) Aggregation processes  3) [LRRK2 and Parkinson disease](http://www.bio.unipd.it/~bubacco/html/lrrk2.html)  a) Mitochondrial function and axonal transport in LRRK2 and alpha-synuclein models  b) Biochemical characterization of LRRK2 and identification of LRRK2 cellular pathways  4) [Oxidative stress and Parkinson disease](http://www.bio.unipd.it/~bubacco/oxidative_stress.html)  a) Dopamine-derived quinones interactions with target proteins  b) Dopamine-derived quinones toxicity toward mitochondria |

LUCA SCORRANO:

**Unit of mitochondrial biochemistry, biology and physiopathology**

*http://www.vimm.it/research/group.php?PI=13*

Mitochondrial dynamics in cell life and death

Mitochondria are central organelles for the life and death of the cell. They provide most of the ATP required for endoergonic processes, participate in crucial biosynthetic pathways, shape Ca2+ signalling and regulate cell death. The functional versatility of mitochondria is paralleled by their morphological complexity. In certain cell types mitochondria are organized in networks of interconnected organelles. Ultrastructurally, the inner membrane (IM) can be further subdivided in an inner boundary membrane and in the cristae compartment, bag-like folds of the IM connected to it via narrow tubular junctions. "Mitochondria-shaping" proteins impinge on the equilibrium between fusion and fission, which ultimately determines the ultrastructural and cellular morphology of the organelle. Changes in mitochondrial shape appear to regulate crucial mitochondrial and cellular functions. Our initial contribution changed the general consensus that mitochondria remain untouched during apoptosis, when we described that during programmed cell death they remodel their inner structure to allow the bulk of cytochrome *c* to be released from the cristae stores. Since then, we use an integrated approach of genetics, advanced imaging, biochemistry, physiology and electron tomography to unravel the role of mitochondria-shaping in cell life and death.

STEFANIA BORTOLUZZI:

**Unit of human molecular genetics**

*http://compgen.bio.unipd.it/~stefania/*

Transcript maps and transcriptional profiles of the human genome in differentiated tissues.

Analysis of differential expression of genes.

Comparison between rhabdomyosarcoma and normal skeletal muscle for the identification of novel tumour markers by computational analysis of gene expression.

Genetic diseases and intracellular networks.

Pattern discovery on human promoters for the discovery of novel regulatory elements.

Genome organisation: identification of clusters of co-expressed genes and/or tissue-specific genes.

Systems biology of genome expression regulation.

microRNAs-based regulation.

Regulatory networks analysis.

Assembly and annotation of non model species transcriptomes.

RODOLFO COSTA:

**Unit of neurogenetics and chronobiology**

The neurogenetics and chronobiology unit has an international reputation in the field of circadian chronobiology. The group's research activity has concentrated, in particular, on the genetic, molecular and behavioural analysis of the circadian clock in *Drosophila* *melanogaster* and other organisms, such as the antarctic krill and man. More recently the unit's interest was extended to the field of functional genomics, using Drosophila as a model organism to study orthologues of human genes mainly involved in mitochondrial disease. The research unit is characterized by complementary and synergic competences, which include: Drosophila genetics, behavioural analysis, cell/molecular biology and recombinant DNA techniques, gene silencing and genomic technology for the analysis of gene expression (microarray and RNA-Seq).

**Links to current research projects**

* [INsecTIME seeks to train the next generation of ESRs in the intellectual, technological, complementary and commercial skills required for future European competitiveness in the area of biological timing, an area with considerable commercial potential.](http://www.biologia.unipd.it/ricerca/progetti-di-eccellenza/progetto-insectime/)
* [Fly cryptochrome and the visual system: a link with the mammalian eye?](http://www.biologia.unipd.it/ricerca/progetti-di-eccellenza/progetto-cryineye/)
* [Chronic disruption of the circadian rhythmicity and chromatin epigenetic modifications in the model organism Drosophila melanogaster](http://www.biologia.unipd.it/ricerca/progetti-di-eccellenza/progetto-epigen/)
* [Search for new genes involved in the circadian clock of Drosophila melanogaster: molecular and behavioural analysis of putative](http://www.biologia.unipd.it/ricerca/progetti-di-eccellenza/progetto-cryptochrome/)
* [Road: back to Italy - A new approach to sericulture to enhance silkworm natural strategies against pathogenic microorganisms](http://www.biologia.unipd.it/ricerca/progetti-di-eccellenza/progetto-biosilk/)
* [Biological timing in a changing marine environment: Clocks and rhythms in polar pelagic organisms](http://www.biologia.unipd.it/ricerca/progetti-di-eccellenza/progetto-polartime/)