Research Group: CHRONOBIOLOGY

Research Staff

Anastasia Prombona, Researcher B΄

Anastasia Repouskou, Postdoctoral Researcher

Angeliki Galeou, Postgraduate Student (PhD)

Marios Xydous, Postdoctoral Researcher (50% of his time)

K. Koutourlou, Biology Student, Summer practice

Research Interests of the Lab

Investigation of the biological clock function in plants

Study of rhythmically expressed genes in *Phaseolus vulgaris.* Involvement of white and monochromatic light and photoperiodism in the synchronization of the clock. Oscillator function in *Phaseolus vulgaris*.

Interaction of the biological clock with pathological processes

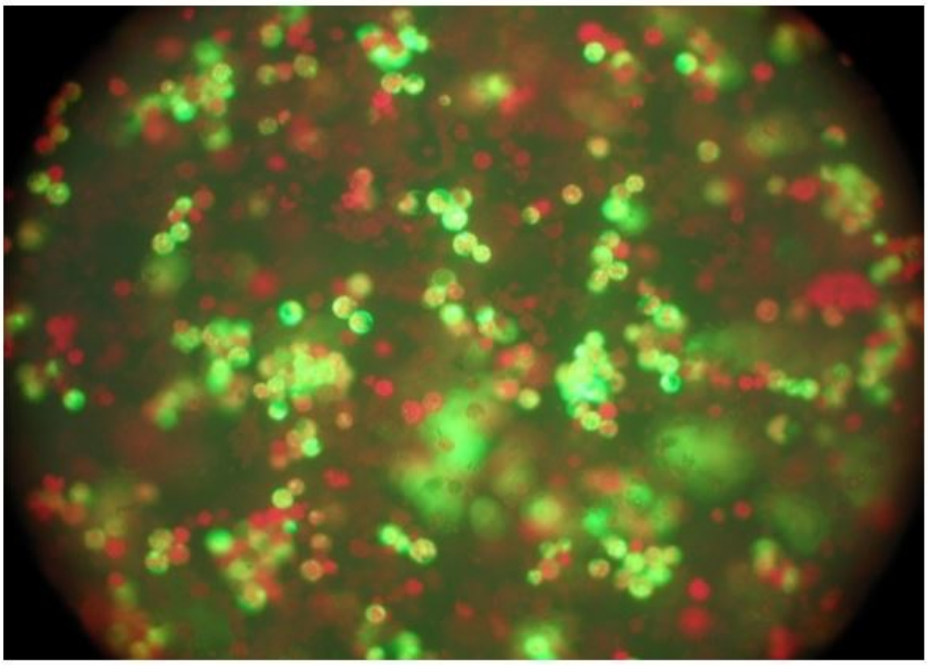
Interaction of circadian clock components with the oncoprotein c-MYC. Regulation of oncoprotein expression by the biological clock, from transcription to protein accumulation level.

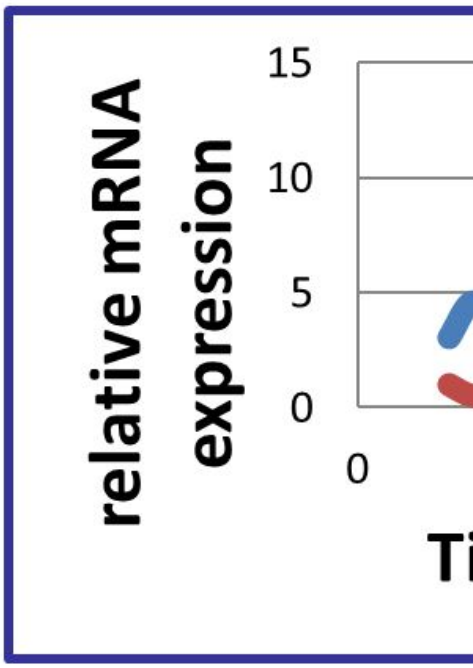
Correlation of gene expression levels with epigenetic changes at the promoter region. Study of biological rhythms in lymphocytes of patients with psychiatric disorders.

2014 Findings

Investigation of the biological clock function in plants

In order to explore the function of central oscillator elements in *P. vulgaris*, we cloned the upstream region ~2000 bases in length of the open reading frame (ORF) of three rhythmically expressed clock genes, namely
PvLHY
,
PvTOC1
and
PvELF4
. Luciferase (Luc) measurements driven by truncated promoter fragments showed that for
PvTOC1
1100 bases of the region upstream of the ATG start codon are sufficient to drive Luc expression. In the case of
PvELF4
the -1450 bases region drives highest levels of Luc expression, while 2000 bases of the
PvLHY
upstream region
constitute a weak promoter. Mutagenesis of putative cis motifs is ongoing in order to identify regulatory elements involved in circadian and light driven expression. Moreover, cloning of PvLHY, PvTOC1 and PvELF4 ORFs in plant expression vectors is in progress in order to explore their role in
P. vulgaris
clock function. The study of all mentioned constructs is accomplished in bean protoplasts (A. Galeou and A. Prombona, unpublished).





Publications 2014

Xydous M, Prombona A, Sourlingas TG. (2014). The role of H3K4me3 and H3K9/14ac in the induction by dexamethasone of Per1 and Sgk1, two glucococorticoid early response genes that mediate the effects of acute stress in mammals.
Biochim Biophys Acta 1839(9):866-72. Impact factor 5.44

Conferences 2014

Anastasia Repouskou and Anastasia Prombona (2014) **Circadian clock regulates c-MYC protein stability via rhythmic acetylation.**
FEBS–EMBO 2014 Conference, 30 August – 4 September 2014, Paris, France FEBS Journal 281 (Suppl. 1) CSII-03 – Circadian Clocks p. 258

Anastasia Repouskou and Anastasia Prombona (2014) **A novel role for c-MYC oncoprotein in the regulation of circadian gene promoters.**
65
th
Congress of the Hellenic Society of Biochemistry and Molecular Biology, 28
th
-30
th

November 2014, Thessaloniki, Poster Session P145

Angeliki Galeou and Anastasia Prombona (2014) **Functional analysis of *Phaseolus vulgaris* putative core clock genes**
. 65
th
Congress of the Hellenic Society of Biochemistry and Molecular Biology, 28
th
-30
th
November 2014, Thessaloniki, Poster Session P32

Education

Supervision of PhD work of graduate student A. Galeou

Member of the scientific committee for the supervision of the PhD thesis of A. Galeou in the Biology Department of the National Kapodistrian University of Athens.

Supervision of the practical exercise of the student K. Koutourlou from the University of Patras.

Other Scientific Activities

Reviewer of Plant Cell Reports article

Other activities in IB-A

Member in charge for the presentation of IB-E to students.

Impact factor (for 1 publication) : 5.44

Citations 2014 (self citations excluded): 8

Citations **2010-2014** (self citations excluded): 40 **h-factor:** 7

Lab equipment (IB-E)

Thermal Cycler 2 blocks (Biorad)

Thermal Cycler (MJ Reasearch)

Electroporator (BTX, ECM 399)

Hybridization Oven (Stuart Scientific)

Spectrophotometer (Hitachi)

French Press (Aminco)

Incubator 37°C (Gallenkamp)

Shaker

External Funding

GSRT SUPPORT OF POSTDOCTORAL RESEARCHERS

Duration:2/2012-06/2015

Funding amount total: 150 000 €

Total funding of the Lab: 60 000 €

Funding for 2014: 60 000 €.