

## BIO1403: "Molecular organization of life" 2020

### SEMINAR 1 FORTH/ POTONTA Γ

#### A. Origin and diversification of life

**Δευτέρα, 19 Οκτώβριος 2020**

10:00-12:00

**POTONTA Γ**

**When and how did the life originate? E.Ladoukakis**

- Probiotic synthesis*
- Methods for looking for the Last Universal Common Ancestor (LUCA)*
- How did LUCA look like?*
- How many times did life originate?*
- What are the evolutionary relationships of the three domain of life (bacteria-archaea-eukaryotes)*

#### B. Transcriptional, Post-transcriptional and Epigenetic regulation of gene expression

**Τρίτη, 20 Οκτώβριος 2020**

10:00-12:00

**SEMINAR 1 FORTH**

**Genome instability, transcription and replication G.Garinis**

- Genome Instability and replicative stress*
- Genome Instability and transcriptional blockage*

13:00-15:00

**POTONTA Γ**

**RNA mediated gene regulation K.Kalantidis**

- RNA mediated phenomena in the cell: prokaryots vs eukaryots*
- RNA silencing pathways in fungi, plants and animals*
- miRNA mediated gene regulation*

**Τετάρτη, 21 Οκτώβριος 2020**

10:00-12:00

**POTONTA Γ**

**Eukaryotic transcription D.Tzamaris**

- Eukaryotic promoter structure: core promoters and enhancers*
- Sequence specific DNA-binding proteins: Structural motifs, DNA binding domains and activation domains*

13:00-15:00

**Epigenetic regulation J.Papamatheakis**

- Nucleosomes and histone tail modifications. Histone variants, chromatin & gene expression*
- Co-activators and co-repressors: Subunit composition and enzymatic activities*
- Epigenetic pathology.*
- Epigenetic Evolution. Epigenetics of the Non coding Genome*

**Πέμπτη, 22 Οκτώβριος 2020**

13:00-15:00

**POTONTA Γ**

**Eukaryotic transcription D.Tzamaris**

The Mediator complex, structure and function

**Παρασκευή, 23 Οκτώβριος 2020**

10:00-12:00

**POTONTA Γ**

**Nuclear dynamics. C.Spilianakis**

- Chromosome packaging and structure.*
- Trans-allelic phenomena. (Transvection, Paramutation, Repeat-induced point mutation, Parental Imprinting, X-chromosome inactivation, interchromosomal interactions).*
- Chromosome territories, Sub-nuclear compartments.*

	d. Imaging techniques to study gene localization and expression.
13:00-15:00	papers Tzamarias
<b>Δευτέρα, 26 Οκτώβριος 2020</b>	<b>Seminar 1 FORTH</b>
10:00-13:00	Papers Garinis
	<b>POTONTA Γ</b>
13:00-16:00	Papers Kalantidis
<b>C. Signal-dependent gene expression in development, differentiation and pathogenesis</b>	
<b>Τρίτη, 27 Οκτώβριος 2020</b>	<b>SEMINAR 1 FORTH</b>
10:00-12:00	Signal transduction mechanisms. A.Kretsovali a. Cytokine signaling: Jak-Stat pathway b. Ser/Thr kinase receptors the TGFbeta pathway and SMAD factors c. The wnt pathway
13:00-15:00	Papers Papamatheakis
<b>Πέμπτη, 29 Οκτώβριος 2020</b>	<b>POTONTA Γ</b>
10:00-12:00	The TRK/Ras/Erk pathway.G.Mavrothalassitis a. Ligands and receptors b. Diversity of signaling outcomes c. Quantitative and qualitative transcriptional control by signaling pathways
13:00-15:00	Genetic and epigenetic regulation of stem cell fate A. Kretsovali a. Embryonic stem cells. Self renewal versus differentiation. b. Transcription factors of pluripotency and reprogramming. c. Signaling pathways d. Epigenetic regulation of the differentiation status.
<b>Παρασκευή, 30 Οκτώβριος 2020</b>	<b>POTONTA Γ</b>
15:00-17:00	Signaling network integration. The MEK hub. G.Mavrothalassitis
18:00-20:00	The Notch pathway-communication by touch. C.Delidakis
<b>Δευτέρα, 2 Νοέμβριος 2020</b>	
10:00-12:00	Deregulation of signal transduction in cancer Γ. Μόσιαλος ΑΠΘ
13:00-15:00	Tsagri E.
<b>Τρίτη, 3 Νοέμβριος 2020</b>	<b>SEMINAR 1 FORTH</b>
10:00-12:00	Papers Kretsovali
<b>Wednesday , November 4, 2020</b>	<b>POTONTA Γ</b>

10:00-12:00	Papers Mavrothalassitis
Πέμπτη, 5 Νοέμβριος 2020 15:00-17:00	ΡΟΤΟΝΤΑ Γ Papers Delidakis
Παρασκευή, 13 Νοέμβριος 2020	SEMINAR 1 FORTH EXAMS