

Workshop of the State Fund for Fundamental Researches of Ukraine: “**INTRACELLULAR LIPID SIGNALING IN HORMONAL METABOLISM REGULATION**”.

On November 26, 2015 SFFR of Ukraine has arranged the international scientific workshop with online presentation too: «Intracellular lipid signaling in hormonal metabolism regulation». The moderator of the workshop was Volodymyr Kravets (IBOPC NAS of Ukraine). More than 50 scientists participated in the workshop, majority of which were young scientists from institutions of NAS of Ukraine and universities of Kyiv. *Online lectures of the following invited lecturers were represented in scientific program of the workshop:* Vladimir Khripach (Minsk, Belarus); Jan Martinec (Prague, Czech Republic); Eric Ruelland (Paris, France) and Tetiana Kalachova (IBOPC NAS of Ukraine).



Photo 1



Photo 2 – skype presentation. Live online broadcast of Jan Martinec lecture from Prague

Workshop was opened by the opening speech of Bogdan Kyyak, who underlined the importance of development of Ukrainian scientist's collaboration with colleagues from European countries and considered the tight intercommunication of research teams of workshop participants.

Scientific part of the workshop was opened by Volodymyr Kravets with the lecture «Intracellular phospholipid signaling in the regulation of cell metabolism of various organization levels» (Photo1). This scientific seminar extends previous symposiums:

<http://bpci.kiev.ua/isabmd/>

http://bpci.kiev.ua/news/Conference_PGSIHS/PGSIHS_official_site.html

<http://bpci.kiev.ua/molcell/symposiums/ispas/INTERNATIONAL%20SYMPOSIUM.htm#anchor1>

based on new results in the field of intracellular signaling research in the living systems of different level organization. Nowadays it is impossible to find a field in biology where lipids are not present as natural and important components of membranes.

They provide formation of intracellular structures and modulate activity of proteins that are incorporated in membranes regulating intensity of cell metabolism. Key differences in intracellular lipid signaling in plant and animal systems were also presented in detail in the lecture of Volodymyr Kravets.

Current advances in structural and functional features of non-specific phospholipases C in plant cells were presented during the skype-lecture of Jan Martinec “The role of non-specific phospholipases C in phospholipids signaling” (Photo 2). Special attention was given to the role of non-specific phospholipases C under heat stress conditions in plants. Results of cellular localization, role in regulation of endogenous hormone and lipid levels, modulation of gene expression and reactive oxygen species accumulation by the enzyme were presented in the lecture, and assumption was made about the participation of the enzyme in protein-protein interactions and membrane turnover. Lecturer also highlighted the novelty and perspective of this class of enzymes in biotechnological aspects of plant stress resistance.

Major problems in investigations of plant resistance mechanisms to different pathogens with participation of phosphatidylinositol kinases were illustrated by Eric



Photo 3 – skype presentation. Live online broadcast of Eric Ruelland lecture from Paris on the background

Ruelland in his lecture «Roles of phosphatidylinositol-4-kinase beta double mutations in the control of innate immunity and hormone responses». In particular, role of phosphatidylinositol-4-kinases was described in modulation of plant immunity and hormonal responses. Phenotypic features of plants mutated in phosphatidylinositol-4-kinases genes indicate the role of the enzymes in plant growth and root morphology regulation, gene expression and sensitivity of specific aspects of root growth and development to hormones – auxins and cytokinins. New genetic approach with utilization of triple and quadruple mutants was presented for investigations of complex interrelations between lipid and hormonal signaling pathways (Photo 3).

The special attention of the workshop was focused on steroid hormones, primary to brassinosteroids as a perspective for the development of new preparations. Much prominence was given to molecular design, synthesis, structure and functions, and also methodology of steroid hormone application basing on mechanisms of their action and hormonal status in cells of different level organization in lecture of Vladimir Khripach «Brassinosteroids: key players in the regulation of lipid metabolism and hormonal status» (Photo 4). A whole number of patented pharmaceuticals were created on the base of these



Photo 4 – skype presentation. Live online broadcast of Vladimir Khripach lecture from Minsk.



substances.

Training abroad is a wide-spread and necessary practice of Ukrainian young scientists. Interesting results of fundamental research conducted in Eric Ruelland's lab in Paris on modern equipment were presented by Tetiana Kalachova in the lecture "Role of



phosphatidylinositol-dependent phospholipase C in fast responses to PAMP flagelline”.

Owing to the lecturers and active discussions, participants of the workshop were able to exchange online their ideas about key questions of the presented subject, and also perspective of prolongation of these investigations including cooperation with foreign partners.