STRATAGEM
CA17104

New Diagnostic and Therapeutic Tools against Multidrug Resistant Tumours

ABSTRACT BOOK

STRATAGEM CA17104
Annual Conference
3rd MC meeting and 4th WGs meeting
Belgrade, Serbia
27th - 28th February, 2020

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EUROPEAN COOPERATION IN SCIENCE & TECHNOLOGY

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Welcome to Belgrade

The COST Action CA17104 STRATAGEM Annual Conference – 3rd MC meeting and 4th WGs meetings will take place in Belgrade, at the 88 Rooms Hotel in Belgrade, from 27th to 28th February, 2020. In line with the Action title "New diagnostic and therapeutic tools against multidrug resistant tumours", this meeting will provide an excellent scientific program led by international experts. Invited speakers with different expertize in cancer research, therapy, chemistry, toxicology, and bioinformatics will widen our knowledge from tumor microenvironment to tumor therapy. A talk dedicated to the memory of our honorable colleague Prof. Maurizio Botta will remind us of his work and achievements. His work inspired fruitful collaborations within our COST Action. Besides, special attention will be given to the education of young scientists through the round tables "Meet the invited speakers", "MDR research towards therapy" and "MDR research towards diagnostics". Information on how to apply for the STSM and ITCCG will also be provided during our Annual Conference. ECIs will be given a chance to present their successful STSM stories and compete for the Best Poster Award.
Belgrade – a historic capital full of beauty, history of destruction and reconstruction, famous for its traditional hospitality, food and the best time in Europe – is the perfect place to go for new ideas and collaborations.
We look forward to welcoming you at the STRATAGEM Meeting!

Scientific Committee

Dr. Chiara Riganti – Action Chair (Italy)
Prof. Roberta Fruttero– Former Action Chair (Italy)
Dr. Javier De Las Rivas – Action Vice Chair (Spain)
Mr. Thomas Mohr – WG 1 Leader (Austria)
Prof. Catherine Passirani – WG 2 Leader (France)
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Dr. Milica Pešić - STSM Coordinator (Serbia)
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Local Organizing Committee

Department of Neurobiology
Institute for Biological Research "Siniša Stanković" - National Institute of Republic of Serbia
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Presentation of STSM: Investigation of inhibitory properties of Michael acceptors on thioredoxin reductase 1 inhibition *in vitro*

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Cancer cells have increased level of reactive oxygen species (ROS), due to metabolic changes following their growth and development; they have adapted to increase in ROS by different mechanism, in part by increasing activity of antioxidant systems. Main antioxidant systems in a living cell are thioredoxin and glutharedoxin systems. Thioredoxin system is mainly comprised of thioredoxin and thioredoxin reductase. It has been reported that cytosolic thioredoxin reductase, TrxR1, has increased activity in cancer cells. Inhibition of TrxR1 could have a detrimental effect on cancer cell survival, due to further increase of ROS. Development of new TrxR1 inhibitors gives possibilities in new therapeutic approaches in treating cancer, as an accompanying treatment to conventional treatment strategies. STSM was realized in collaboration between home institution, Institute for Biological Research "Siniša Stanković" - National Institute of Republic of Serbia, University of Belgrade and host institution, Latvian Institute of Organic Synthesis (Riga, Latvia). Purpose of the STSM was to evaluate inhibitory properties of 6 potential inhibitors of thioredoxin reductase 1 on neuroblastoma cell line SHSY5Y. This particular cell line was chosen as it proved to be a good model for studying Trx system. Potential inhibitors were tested for inhibitory properties of TrxR on crude protein cell lysate of SHY5Y, rat TrxR1 enzyme and on insulin assay. Main result of this STSM is selection of the best candidate for further expansion series in studying Michael acceptors as inhibitors of TrxR1 and possible applications in anti-cancer therapy. The results obtained during STSM were published in a peer-reviewed journal [1]. This STSM is a perspective start to further investigation of importance of thioredoxin reductase 1 in cancer cell survival and inhibition of TrxR1 in cancer therapy. The candidate-inhibitors will in future be tested on cancer cell lines and multidrug resistant cancer cell models, with different antioxidant capacities.

References

[1]. Jovanovic M, Zhukovsky D, Podolski-Renic A, Domraceva I, Zalubovskis R, Sencanski M, Glisic S, Sharoyko V, Tennikova T, Dar'in D, Pesic M, Krasavin M. Eur J Med Chem (2019) 181:111580.