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)
Prof. M. Helena Vasconcelos – WG 3 Leader (Portugal)
Dr. Simona Saponara – WG 4 Leader (Italy)
Dr. José M. Padrón - Science Communications Manager (Spain)
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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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New pyrazolo[3,4-d]pyrimidine derivatives reverse multidrug resistance in cancer cells by inhibiting P-glycoprotein activity

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Multidrug resistance (MDR) represents the leading cause of cancer treatment failure. One of the main causes of MDR is overexpression of P-glycoprotein (P-gp). As a member of the ATP-binding cassette (ABC) transporter family, P-gp is responsible for reduced intracellular accumulation of both targeted therapies and classic chemotherapeutics. Tyrosine kinase inhibitors (TKIs) have been reported to interact with ABC transporters either as their substrates or inhibitors depending on the concentration range applied. We have investigated the anticancer potential of novel TKIs pyrazolo[3,4-d]pyrimidines and their prodrugs against two pairs of sensitive and MDR cancer cell lines with P-gp overexpression: non-small cell lung carcinoma (NCI-H460 and NCI-H460/R) and colorectal carcinoma (DLD1 and DLD1-TxR). The tested compounds displayed significant cell growth inhibition that was not compromised by the MDR phenotype. Treatment with the compounds inhibited P-gp activity in concentration- and time-dependent manneras revealed by the increase in accumulation of the P-gp substrate rhodamine 123. TKIs directly interacted with P-gp and inhibited its ATPase activity. The investigated pyrazolo[3,4-d]pyrimidines enhanced the efficacy of doxorubicin and paclitaxel in MDR cancer cells. The potential for reversing P-gp-mediated MDR makes investigated TKIs prospective candidates for further development regarding the treatment of resistant cancers.