

PROMISING NATURAL ALTERNATIVES FOR THE CULTURAL HERITAGE SAFEGUARD: A FORCE OF NATURE (PROTECTA)

Funded by: Science Fund of the Republic of Serbia: Program for excellent projects of young researchers (PROMIS) (2020-2022).

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The principal aim of the project PROTECTA is to study the causes of the decay of several selected cultural heritage objects in Serbia, and development of novel non-invasive, eco-friendly and safe natural biocontrol method to combat deteriogenic microorganisms responsible for the observed damages, all in order to achieve a sustainable restoration and conservation of deteriorated artwork in Serbia. This will be achieved in cooperation with a team of experts from various cultural institutions via implementation of traditional (sterile swabs, adhesive tape method, etc.) and contemporary (*in situ* microscopy, ATP bioluminescence method, etc.) methods to study biodeterioration phenomena on investigated works of art, and through screening for novel antimicrobial agents of plant and bacterial origin *in vitro*, their chemical and molecular characterization, isolation of target compounds of interest and testing potential *in situ* applicability of new biocide formulations on artificially prepared “mock models” that emulate “real life scenarios”. Additional aim of the project will be the development and implementation of new study protocol to be used in conservation practices and its dissemination to relevant cultural institutions, scientific community involved in “biodeterioration science” and conservation science, as well as general public, with aim of improvement of cultural heritage safeguard and increasing awareness of this still neglected aspect of the “trade”. As such, project PROTECTA fits perfectly with the Program for Excellent Projects of Young Researchers since it promotes science that is neglected in Serbia but very trendy worldwide, which will result in a formation of new research groups, involvement of numerous young researchers into multidisciplinary teams trained in collaboration with the experts in the field, and their preparation to apply for and lead big European projects. For a country rich in cultural heritage, such as Serbia, this is of utmost importance.

SURVIVORS OF COVID19: VARIETY OF IMMUNE RESPONSES TO SARS-CoV-2 IN CORRELATION WITH CLINICAL MANIFESTATION. LONG TERM FOLLOW UP (V.I.R.U.S.)

Funded by: Science Fund of the Republic of Serbia: **Special research program on COVID-19**

Duration: 18 months

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Abstract: By measuring the quantitative level of IgM and IgG antibodies in SARS-CoV-2 survivors, and follow-up patients who survived acute respiratory distress syndrome, it will be possible to realize for how long the antibodies persist after infection, and establish the possible correlations of the primary clinical manifestation and post-infection fibrotic tissue development. By measuring serum oxidative stress and indicators of erythrocytes hemolysis, the project will test the hypothesis that SARS-CoV-2 attacks heme, causing early hypoxia that leads to respiratory distress and blood coagulation disorder. Projects results will gain new understanding of disease transmission patterns, giving recommendations on the future Covid-19 vaccination need, and criteria for assessing whether a person with an antibody response may serve as convalescent plasma donors. If the hypothesis about the effect of the virus on hemoglobin proves to be correct, project results will lead to the recommendations to change the current clinical practice in treatment of future Covid-19 patients.