

**Naslov: *Reinvention of the diagnostic algorithm and treatment options for reactivated toxoplasmosis***

**Akronim:** ToxoReTREAT

Budžet: 265.000,00 eura (31.270.000,00 dinara)

**Sastav konzorcijuma odnosno projektnog tima ispred FFUB:** prof. dr Vladimir Dobričić

**Apstrakt projekta:**

*Toxoplasma gondii* is a protozoan parasite infecting nearly one third of the global population. Severe immunosuppression in chronically infected individuals results in reactivated toxoplasmosis (RT), a devastating complication following hematopoietic stem cell transplantation (HSCT), particularly in allogeneic (allo-) recipients. In spite of the staggering annual rise in the number of HSCT across Europe, there are still no guidelines on the monitoring and treatment of RT. Moreover, limited treatment options for RT are inadequate for HSCT patients due to side myelotoxicity and ineffective since they act only on circulating parasites. Our aim is to resolve the problem of RT in allo-HSCT recipients by using multidisciplinary approach to provide efficient novel treatment options and cost-benefit improvements in the management of RT. The results of molecular monitoring of RT, *T. gondii* isolation and characterization, identification of host-related risk factors and effectiveness of standard treatment options, will lead to the National guidelines for the management and treatment of toxoplasmosis in HSCT patients. Acridine and acridone derivatives, newly synthetized and modified throughout this project, will be tested in both *in vitro* and *in vivo* experimental models of RT, using *T. gondii* strains isolated from allo-HSCT recipients. Our achievement will be embodied in at least one drug candidate for RT with reduced toxicity  and increased overall efficacy on *T. gondii* tachyzoites and bradyzoites, in comparison to standard treatment. This research should instigate an increased interest of the pharmaceutical industry to engage in development of better new drugs for the treatment of toxoplasmosis. Applying a freely available ImageJ software to advance automated image scoring for chemotherapy results, both straightforward and cost-effective mathematically quantifiable approach, will contribute to more feasible transfer of knowledge gained through chemotherapy experiments.