## Project summary

Biochemical parameters should possess a series of specific characteristics in order to meet the requirements for application as biochemical biomarkers that will serve to discover and differentiate one disease from another disease of the same organ. To achieve this goal, i.e. to choose a proper biochemical biomarker of organ damage and dysfunction, complex study of a series of biochemical parameters, in relation to the conditions of physiological functioning, and a set of various diseases in multiple organs is planned. Also, the introduction of any new test should eventually improve health outcomes, such as reducing delays in time to diagnosis which also have direct patient benefits for reducing anxiety and improving treatment outcomes or provide other benefits, e.g. reduce costs, or simplify health care delivery without compromising the well-being of patients.

The current approach to assessing laboratory tests includes five key elements: analytical performance, clinical performance, clinical effectiveness, cost-effectiveness and wider impact. Research within the project primarily covered the first three, in many cases, the most important elements. Such an approach helps reach the aim of investigation – to determine rational profiles for biochemical markers that will provide the best diagnostic accuracy and sensitivity in differentiating the sick from the healthy, as well as to enable their application in monitoring success of treatment. Such research has contributed to the improvement of clinical management, the organization of the treatment of complex diseases, the improvement of patient care, and the optimal and adequate use of laboratory tests in the Republic of Serbia.

The planned results of the research should include the assessment of biomarkers as potential diagnostic, prognostic and predictive indicators of primarily cardiovascular, and the following states and diseases: chronic kidney disease, preeclampsia, primary antiphospholipid syndrome, diseases of the thyroid gland, Gaucher’s diseases, age*-*related macular degeneration *(*AMD),alcoholic liver cirrhosis, disturbances in the hypothalamic-pituitary-adrenal axis, etc.

Keywords: biomarkers, organ damage and dysfunction, analytical and diagnostic evaluation, outcome, diagnostic protocol

## Sažetak projekta OI 175036

Biohemijski parametri moraju posedovati niz specifičnih karakteristika da bi ispunili uslov da se primene kao biohemijski biomarkeri pomoću kojih će se otkriti i razlikovati neko oboljenje od drugog oboljenja datog organa. Da bi se postigao ovaj cilj, odnosno izbor odgovarajućeg biohemijskog biomarkera oštećenja i disfunkcije organa, planirana su neophodna kompleksna istraživanja niza biohemijskih parametara, u odnosu na uslove fiziološkog funkcionisanja i niza različitih oboljenja kod više organa. Takođe, planirano je da uvođenje bilo kog novog testa treba da poboljša zdravstvene ishode kao što su skraćenje potrebnog vremena za postavljanje dijagnoze, kao i prednosti koje imaju direktnu korist za pacijente u smanjenju anksioznosti i poboljšanju ishoda tretmana ili pružanju drugih koristi, kao što je na primer smanjenje troškova ili pojednostavljenje pružanja adekvatne zdravstvene zaštite bez ugrožavanja dobrobiti pacijenata.

Aktuelni pristup procene laboratorijskoh testova obuhvata pet ključnih elemenata: analitičko izvođenje, kliničko izvođenje, kliničku efektivnost, isplativost i širi uticaj. Istraživanja u okviru projekta su prevashodno su obuhvatila prva tri, po mnogima, najznačajnija elementa. Polazeći od ovakvog pristupa, postignut je cilj istraživanja – utvrđivanje racionalnih profila biohemijskih markera pomoću kojih se postiže najveća dijagnostička tačnost i osetljivost pri razlikovanju obolelih od zdravih, kao i njihovo primenjivanje pri praćenju uspešnosti terapije. Ovakva istraživanja su doprinela unapređenju kliničkog rukovođenja, organizaciji lečenja kompleksnih oboljenja, poboljšanja nege pacijenata, kao i u optimalnoj i adekvatnoj upotrebi laboratorijskih testova u Republici Srbiji.

Planirani rezultati istraživanja treba da obuhvate procenu biomarkera kao mogućih dijagnostičkih, prognostičkih i prediktivnih indikatora pre svega kardiovaskularnih, šećerne bolesti, kao i više različitih stanja i oboljenja (hronična bolest bubrega, preeklampsija, primarni antifosfolipidni sindrom, bolesti štitaste žlezde, Gošeova bolest, senilna degeneracija makule, alkoholna ciroza jetre, poremećaji vezani za osovinu hipotalamus-hipofiza-adrenalna žlezda, itd.).

Ključnereči: biomarkeri, oštećenje i disfunkcija organa, analitička i dijagnostička evaluacija, ishod, dijagnostički protokol

## Odabrani rezultati/Selected results

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