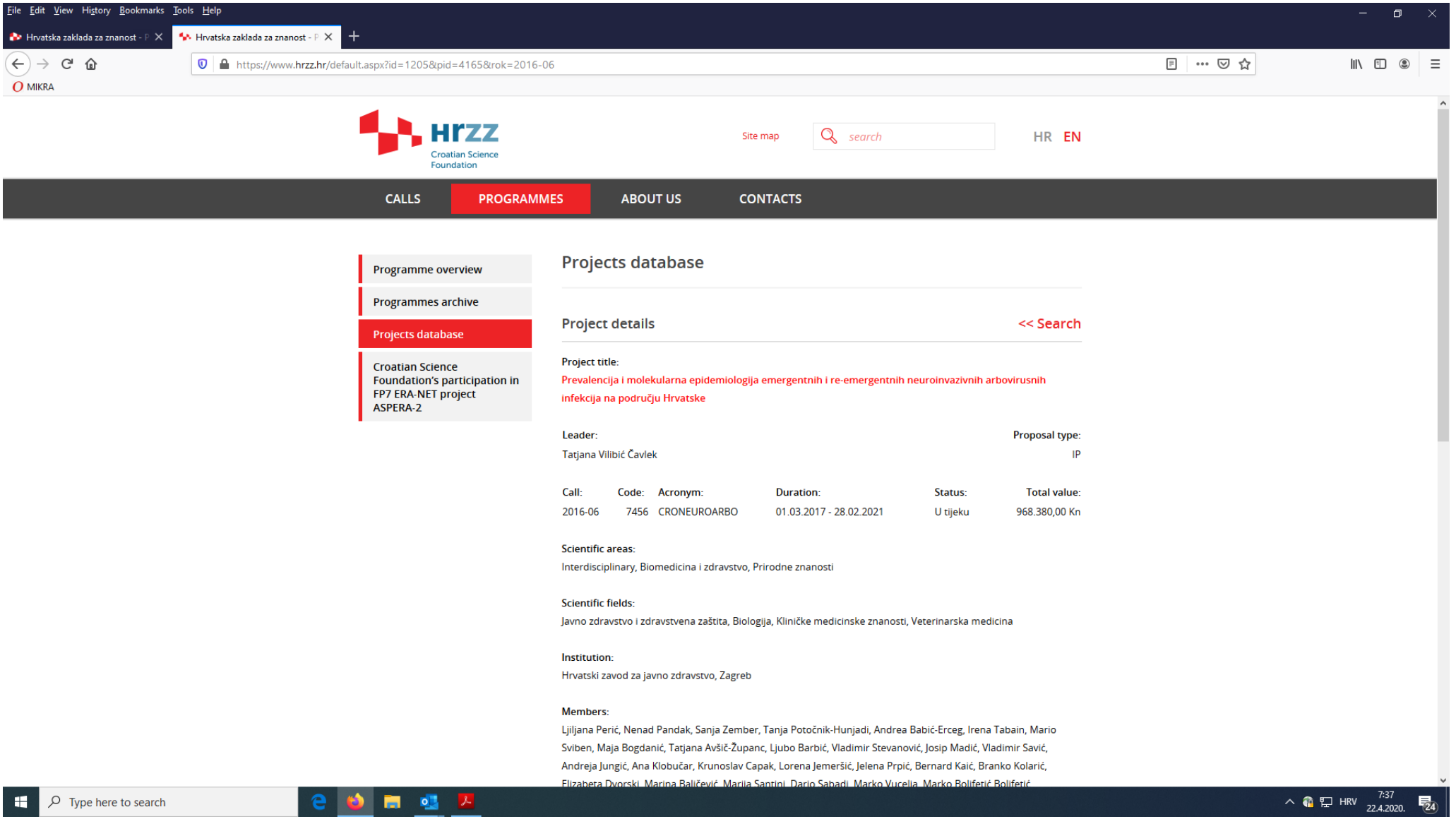
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Project title:
Prevalencija i molekularna epidemiologija emergentnih i re-emergentnih neuroinvazivnih arbovirusnih infekcija na području Hrvatske
Leader:
Tatjana Vilibić Čavlek
Proposal type:
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Call: Code: Acronym: Duration: Status: Total value:
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Scientific areas:
Interdisciplinary, Biomedicina i zdravstvo, Prirodne znanosti
Scientific fields:
Javno zdravstvo i zdravstvena zaštita, Biologija, Kliničke medicinske znanosti, Veterinarska medicina
Institution:
Hrvatski zavod za javno zdravstvo, Zagreb
Members:
Ljiljana Perić, Nenad Pandak, Sanja Zember, Tanja Potočnik-Hunjadi, Andrea Babić-Erceg, Irena Tabain, Mario Sviben, Maja Bogdanić, Tatjana Avšič-Županc, Ljubo Barbić, Vladimir Stevanović, Josip Madić, Vladimir Savić, Andreja Jungić, Ana Klobučar, Krunoslav Capak, Lorena Jemeršić, Jelena Prpić, Bernard Kaić, Branko Kolarić, Elizabeta Dvorski, Marina Baličević, Marija Santini, Dario Sabadi, Marko Vucelja, Marko Bolifarić Bolifarić
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HRZZ Research Projects
(IP-06-2016)

Research project proposal[1]

- Name of the Principal Investigator (PI): **Assist.Prof. Tatjana Vilibić Čavlek, MD, PhD**
- Name of the PI's home institution where the project will be implemented: **Croatian National Institute of Public Health**
- Project proposal full title: **Prevalence and molecular epidemiology of emerging and re-emerging neuroinvasive arboviral infections in Croatia**
- Project proposal duration (in months): **48**

Project proposal summary

Emerging and re-emerging arboviral diseases are important cause of morbidity and mortality in many parts of the world. Although majority infections are asymptomatic or present as a mild febrile disease, some patients develop a severe neuroinvasive disease (meningitis/ encephalitis). While the role of the tick-borne encephalitis virus (TBEV), West Nile virus (WNV) and Toscana virus (TOSV) in the etiology of neuroinvasive diseases is well-known, the role of Usutu virus (USUV), Zika virus (ZIKV), dengue virus (DENV) and chikungunya virus (CHIKV) is rather unknown. In Croatia, autochthonous DENV infection as well as neuroinvasive TBEV, TOSV, WNV and USUV infections were reported. Although autochthonous CHIKV and ZIKV infections were not detected, imported infections were sporadically reported in travelers returning from endemic areas.

According to data of the Reference Center for Epidemiology Ministry of Health, about 200 cases of aseptic meningitis/encephalitis are reported annually in Croatia, of which in 80-90% etiology has remained unknown. It is important to note that emerging viruses are not included in routine diagnostic testing. Moreover, the prevalence and molecular epidemiology of emerging and re-emerging arboviral infections are not fully investigated.

Since many arboviral infections are asymptomatic, seroprevalence determination in humans and animals, as well as detection of viruses in vectors are good indicators of circulation and geographical distribution of arboviruses in a certain area. Horses and poultry are most commonly used as sentinel animals.

This prospective interdisciplinary ("One health") study will include patients with clinical symptoms of neuroinvasive arboviral disease from the continental Croatian regions who developed symptoms during the arbovirus transmission season. The prevalence of neuroinvasive arboviruses (TBEV, WNV, USUV, TOSV, DENV, CHIKV, ZIKV) will be determined by detection of viral RNA in the cerebrospinal fluid and urine and detection of specific antibodies in serum. Clinical characteristics and epidemiology/molecular epidemiology of arboviral infections will be defined. Additionally, the prevalence and geographical distribution of arboviral infections will be analyzed by determination of the seroprevalence in asymptomatic persons and sentinel animals (horses, domestic poultry) as well as detection of viruses in vectors (mosquitoes/ticks).

Possible detection of new arboviruses will clarify the etiology in patients with neuroinvasive diseases. Determination of geographical distribution and molecular epidemiology will provide better understanding of epidemiology of arboviral infections in Croatia and Europe as well as improving the public health measures and control of arboviral diseases.