

13th EUROPEAN MULTICOLLOQUIUM OF PARASITOLOGY

emop 20^{XIII}
21

changing climate
changing parasites

Programme
& Abstract
Book

Belgrade, Serbia
October
12-16, 2021



13th European Multicolloquium of Parasitology
Belgrade, Serbia
October 12-16, 2021

PROGRAMME & ABSTRACT BOOK

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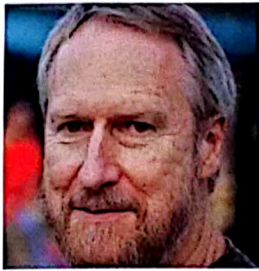
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Parasitologists



**Olgica Djurkovic-
Djakovic**
President of the
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Parasitology

Dear colleagues,

On behalf of the Organizing Committee, the Serbian Society for Parasitology and the European Federation of Parasitologists (EFP), it is our great pleasure to welcome you to the 13th European Multicolloquium of Parasitology (EMOP XIII, Belgrade, Serbia, 12-16 October 2021). Here, you will find the programme and the abstracts of all communications to be presented.

At the heart of this edition of the EMOP is CHANGE. Changes that the world is currently going through, including climate change, migrations of both people and animals, and changes in food habits, favour the persistence and contribute to the re-emergence of parasitic infections at the global level. We tried to capture this in the motto of EMOP 2021, back when it was supposed to be EMOP 2020. The mere fact that this is the first time in its 50-year long tradition that an EMOP has had to be postponed (for more than a year after the originally set dates), speaks even louder about the changes that we are living through. In this case, of course, changes caused by the covid-19 pandemic that has claimed more lives and disrupted life like no other peacetime event in a hundred years.

So, we should all be proud that there will be an EMOP at this time, and that we are meeting, whether on-site or online, to exchange knowledge and ideas, and even share some hugs, or smiles at least. And there is an exciting programme to benefit from, on the latest discoveries and technological developments, tackling major current global issues such as Climate change and parasite re-emergence, Migrations and parasites, Food and Water-borne parasitology, the One Health approach to combatting parasitic diseases, to mention just a few. In addition, because of the geographical position of the host country, developments in the field in the region of South East Europe are under the spotlight.

The number of papers submitted to EMOP 2021 that you can find in this volume may not be as large as would have been expected before the “new normal”. But it has been an endeavour to reach this point, both from us as organizers and from you as participants. Moreover, whatever the programme has lost in quantity may have been made up in quality, since the structure of the conference consists largely of symposia on particular topics organized by leaders in the field, with invited talks by top experts. This means our programme represents not only a rich learning experience, but also an excellent cross-section of current developments and perspectives in the broad field of parasitology in Europe and beyond.

We wish you all a stimulating and fulfilling congress.

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PROGRAMME AT A GLANCE

Tuesday, October 12, 2021

	Room Pacific
14:00-19:00	REGISTRATION
17:30-18:15	Opening Ceremony
18:15-19:00	Opening Talk Plenary Lecture
19:00-20:30	Welcome Reception

Wednesday, October 13, 2021

	Room Pacific	Room Atlantic	Room Mediterranean	Room Baltic
07:30	REGISTRATION			
9:00-9:45	Plenary Lecture			
10:00-11:30	Cryptosporidium	Diversity of Echinococcus and other taeniids	Parasite taxonomy, systematics and phylogeny in the molecular - Part I	6 th KE Mott Symposium I
11:30-12:00	Coffee Break			
12:00-13:30	Trichinella	Giardia	Parasite taxonomy, systematics and phylogeny in the molecular - Part II	6 th KE Mott Symposium II
13:30-14:30	Lunch Break & POSTER VIEWING			
14:30-16:00	Protozoan infections in livestock and their control – zoonotic and animal health aspects	Clinical and Tropical Parasitology	bioMérieux Symposium 	Host-parasite interactions
16:00-16:30	Coffee Break			
16:30-18:00	Workshop: Publishing in parasitology	Protozoa in food & environment – methods used in different environmental matrices	Combating anthelmintic resistance in ruminants (COMBAR) – COST Action CA16230	

Thursday, October 14, 2021

	Room Pacific	Room Atlantic	Room Mediterranean	Room Baltic
07:30	REGISTRATION			
9:00-9:45	Plenary Lecture			
10:00-11:30	Malaria	The microbiome of parasites and role in diseases	6 th International Workshop on Arctic Parasitology – IWAP 6.0e	6 th KE Mott Symposium III
11:30-12:00	Coffee Break			
12:00-13:30	Wildlife parasitology	Migrants and migrating parasites	EVPC – European Veterinary Parasitology College Symposium	Novel perspectives for diagnosis and treatment
13:30-14:30	Lunch Break & POSTER VIEWING			
14:30-16:00	Malaria: Selected abstracts	Toxoplasma genetic diversity	International projects in parasitology	Paleoparasitology
16:00-16:30	Coffee Break			
16:30-18:00	EFP General Assembly	Helminth immunomodulation and interactions with the microbiome	OIE Collaborative Centre on Foodborne Zoonotic Parasites Symposium	

Friday, October 15, 2021

	Room Pacific	Room Atlantic	Room Mediterranean	Room Baltic
07:30	REGISTRATION			
9:00-9:45	Plenary Lecture			
10:00-11:30	Foodborne and waterborne parasites: changing climate, changing trends, changing parasites - Part I	Dirofilariasis in Europe today	SEE Toxoplasmosis	Fish parasitology: Anisakis & anisakiasis
11:30-12:00	Coffee Break			
12:00-13:30	Foodborne and waterborne parasites: changing climate, changing trends, changing parasites - Part II	Other ectoparasites: from biology to control	Trichinellosis and Trichinella infection in SEE: current status	Fish parasitology: Ecology and adaptation of fish parasites
13:30-14:30	Lunch Break & POSTER VIEWING			
14:30-16:00	Foodborne and waterborne parasites: Panel Discussion & Selected abstracts	Diagnosis and epidemiology of visceral leishmaniasis	SEE Dirofilariasis & other emerging vector-borne zoonoses	Young Scientist Award Session
16:00-16:30	Coffee Break			
16:30-18:00	Hot clinical topics in toxoplasmosis	Leishmaniasis: Selected abstracts	COMBAR Management Committee Meeting (by invitation only)	
20:30	Farewell Party			

Saturday, October 16, 2021

	Room Pacific	Room Atlantic	Room Mediterranean
08:00	REGISTRATION		
9:00-10:30	A One Health approach to manage parasitic infections	14 th International Symposium of Geospatial Health – GnosisGIS - Part I	SEE Vectors and vector-borne pathogens
10:30-11:00	Coffee Break		
11:00-12:30	Wildlife parasitology: Selected abstracts	14 th International Symposium of Geospatial Health – GnosisGIS - Part II	SEE One Health
12:30-13:15	Closing Talk Plenary Lecture		
13:15-14:00	Farewell ceremony		

IN SILICO CHARACTERIZATION OF THE *Ixodes ricinus* AV422 SALIVARY PROTEIN IMMUNOGENICITY

Jelena REPAC¹, Darko MIHALJICA², Bojan BOŽIĆ¹, Biljana BOŽIĆ NEDELJKOVIĆ¹, Snežana TOMANOVIĆ²

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Background. *Ixodes ricinus* AV422 is a well-conserved salivary protein, secreted during the early stage of tick feeding. Immunogenicity of AV422 was demonstrated by serological testing, so it represents a good candidate for tick bite confirmation and new generation anti-tick vaccine design. To further validate AV422 immunogenic properties, a detailed *in silico* characterization of AV422 antigenic determinants (T and B cell epitopes prediction) was performed, together with modelling the predicted epitope:top-binding MHC II molecules interactions by molecular docking.

Material and Methods. AV422 immunogenicity was assessed by predicting T-cell epitopes in TepiTool (with allele MHC class II and Human host restriction parameters) and linear B-cell epitopes by available methods on IEDB server. For T-cell epitopes, cross-reactivity and conservancy was analyzed by blasting against the human proteome and the top-scoring homologues from other tick species, respectively. Globally-blind docking of the AV422 T-cell epitopes to the top-binding MHC II molecules was performed in MDockPeP, which samples flexible peptide conformers over the whole protein surface. Visualization of docked interactions was performed in BIOVIA Discovery Studio Visualizer.

Results. *In silico* analysis of AV422 sequence identified the most probable antigenic AV422 determinants in the regions between ~ 15 – 30 AA and ~ 180 – 205 AA of the mature protein sequence, which are highly conserved across different tick genera and display no cross-reactivity with human proteins. Docking analysis positioned predicted T-cell peptides exactly within the MHC II binding-grooves, in accordance with the common geometry of MHC II-epitope presentation.

Conclusion. *Ixodes ricinus* AV422 protein sequence *in silico* analysis enabled the prediction of highly-immunogenic, highly-conserved and non-toxic AV422 regions, prompting this salivary protein as a good candidate for tick bite confirmation and also in new generation anti-tick vaccine design.

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