

Aleksandra Inic-Kanada

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LANGUAGES English, Serbo-Croatian, German

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CHILDREN Three

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MAIN AREA OF RESEARCH

chlamydial infection; vaccine against Chlamydia; innate and acquired resistance to infection; mucosal immunity; tolerance and mucosal vaccination; development of novel needle-free vaccine strategies; vaccine development

EDUCATION

2019 **HABILITATION IN IMMUNOLOGY AND VACCINOLOGY**
Medical University of Vienna, Vienna, Austria

2009 **PHD IN BIOCHEMISTRY, FIELD OF IMMUNOLOGY**
Belgrade University – Faculty of Chemistry, Belgrade, Serbia

1999 **MSc IN BIOCHEMISTRY, FIELD OF IMMUNOCHEMISTRY**
Belgrade University – Faculty of Chemistry, Belgrade, Serbia

1996 **DIPL. BIOCHEMIST (EQUIVALENT TO MAGISTRA DER NATURWISSENSCHAFTEN IN AUSTRIA),**
Belgrade University – Faculty of Chemistry, Belgrade, Serbia

CAREER HISTORY

since 2019 **SENIOR LECTURER AND PRINCIPAL INVESTIGATOR** at the Institute of Specific Prophylaxis and Tropical Medicine at MedUni Vienna (full-time permanent position)

2016–2019 **LECTURER**, Institute of Specific Prophylaxis and Tropical Medicine at MedUni Vienna (half-time position)

2014–2019 **UNIV.-ASS. POSTDOC (Ersatzkraft)**, Institute of Specific Prophylaxis and Tropical Medicine at MedUni Vienna (half-time position)

2014–2018 **TEAM LEADER AND DEPUTY SCIENTIFIC DIRECTOR**, Laura Bassi Centre of Expertise OCUVAC, Institute of Specific Prophylaxis and Tropical Medicine, Center of Pathophysiology, Infectiology & Immunology, Medical University of Vienna (half-time position)

2011–2013 **POSTDOC/SENIOR SCIENTIST**, LBCE OCUVAC, Institute of Specific Prophylaxis and Tropical Medicine, Center of Pathophysiology, Infectiology & Immunology, Medical University of Vienna (half-time position)

2010–2011 **ASSISTANT PROFESSOR/DOZENT**, Ministry of Science, University of Belgrade, at the Institute of Virology, Vaccines and Sera, Belgrade, Serbia (full-time permanent position)

09/2008–12/2010 **MATERNITY LEAVE** (Konstantin Kanada, born 30.09.2008)

10/2005–10/2006 **MATERNITY LEAVE** (Lara Kanada, born 05.10.2005)

12/2001–12/2002 **MATERNITY LEAVE** (Lucija Kanada, born 25.12.2001)

05/2001–12/2009 **SENIOR SCIENTIST**, Institute of Virology, Vaccines and Sera, Belgrade, Serbia (full-time permanent position)

10/1999–04/2001 **ADMIN ASSISTANT**, The Organization for Security and Co-operation in Europe (OSCE), Priština, Kosovo (non-scientific position)

07/1996–09/1999 **RESEARCH ASSOCIATE**, Immunology Research Center “Branislav Janković”, Belgrade, Yugoslavia (full-time permanent position)

PATENT

Vaccine formulation for ocular immunization

EU Patent Office, patent number: 10709778, US Patent Office, patent number: 2988777 (shared)

FELLOWSHIPS

September 2004

Environment and Immunology: from allergic to infectious diseases in Eastern Europe, University of Rome "Tor Vergata", Frascati, Italy

March 2004

In vitro production of Monoclonal Antibodies, Bilthoven, The Netherlands, European Centre for the validation of alternative methods and The Netherlands Vaccine Institute, Bilthoven, The Netherlands

February 2004

New Approaches of QC of Vaccines, Bilthoven, The Netherlands
European Centre for the validation of alternative methods and The Netherlands Vaccine Institute, Bilthoven, The Netherlands

MEMBERSHIPS

Austrian Society for Vaccinology, Austrian Society for Immunology and Allergology, Chlamydia Basic Research Society, Serbian Society of Immunology, Serbian Proteomics Society, International Society for Extracellular Vesicles

PROJECTS

- Unveiling a local immune response in chlamydial infection, FWF PAT6619324, 2025-2029
- Uncovering vaccine immune response dynamics in obesity, FWF PAT5452224, 2025-2029
- Developing a predictive antibody test for early detection of tubal factor infertility and trachoma OeAD, 2024-2026
- Vaccination efficacy in elderly: a protein-energy malnutrition model in old mice cohort, OeAD, 2023-2024
- Guinea pig infection model: infections with *C. caviae* – treatment with wIRA, Erwin Brown Foundation, 2016

EDITORIAL AND REVIEWER ACTIVITIES

Frontiers in Microbiology, Immunology Letters, Journal of Immunology Research, PLOS One, Vaccine, npj Vaccines, Journal of Infectious Diseases, Frontiers in Immunology, Animals, PeerJ, Immunologic Research, Frontiers in Public Health, PLOS NTD

10 MOST RELEVANT PUBLICATIONS

1. Frohns, A., Stojanovic, M., Barisani-Asenbauer, T., Kuratli, J., Borel, N., **Inic-Kanada, A.** Effects of water-filtered infrared A and visible light (wIRA/VIS) radiation on heat- and stress-responsive proteins in the retina and cornea of guinea pigs. (2021) J Photochem Photobiol B, 224: 112306.
doi:10.1016/j.jphotobiol.2021.112306
2. **Inic-Kanada, A.**, Stojanovic, M., Miljkovic, R., Stein, E., Filipovic, A., Frohns, A., Zöller, N., Kuratli, J., Barisani-Asenbauer, T., Borel, N. Water-filtered Infrared A and visible light (wIRA/VIS) treatment reduces *Chlamydia caviae*-induced ocular inflammation and infectious load in a Guinea pig model of inclusion conjunctivitis. (2020) J Photochem Photobiol B, 209: 111953.
doi:10.1016/j.jphotobiol.2020.111953

In papers 1 and 2, our results indicate that wIRA/VIS is a safe method and shows promising efficacy in reducing chlamydial infectivity in vivo without causing irradiation-related pathologies in the follow-up period.

3. Ghasemian E., **Inic-Kanada A.**, Collingro A., Mejdoubi L., Alchalabi H., Keše D., et al. Comparison of genovars and *Chlamydia trachomatis* infection loads in ocular samples from children in two distinct cohorts in Sudan and Morocco. PLoS Negl Trop Dis. 2021;15(8):e0009655.
doi: 10.1371/journal.pntd.0009655

Here, we provide evidence that geographical differences could contribute to the distribution of different trachoma Ct genovars. Genovars B/Ba may induce higher bacterial loads than genovar A in the eyes of subjects with trachoma.

4. Stojanovic, M., Lukic, I., Marinkovic, E., Kovacevic, A., Miljkovic, R., Tobias, J., Schabussova, I., Zlatović, M., Barisani-Asenbauer, T., Wiedermann, U., **Inic-Kanada, A.** Cross-Reactive Effects of Vaccines: Heterologous Immunity between Tetanus and Chlamydia. (2020) *Vaccines*, 8.
doi: 10.3390/vaccines8040719

Our data provide insights that tetanus immunization generates antibodies that induce heterologous chlamydial immunity and promote protection beyond the intended target pathogen.

5. Belij-Rammerstorfer S., **Inic-Kanada A.**, Stojanovic M., Marinkovic E., Lukic I., Stein E., et al. Infectious dose and repeated infections are key factors influencing immune response characteristics in guinea pig ocular chlamydial infection. *Microbes and infection / Institut Pasteur*. 2015.
doi: 10.1016/j.micinf.2015.12.001

Here we have shown for the first time that two different infectious doses shaped protective immunity differently after repeated ocular infections in the ocular guinea pig animal model. The infectious dose altered (i) the level of clearance, affecting the resulting clinical disease course, and (ii) the binding and neutralizing properties of C. caviae-specific IgG antibodies.

6. **Inic-Kanada A.**, Stein E., Stojanovic M., Schuerer N., Ghasemian E., Filipovic A., Marinkovic E., Kosanovic D., Barisani-Asenbauer T. Effects of Iota-Carrageenan on ocular *Chlamydia trachomatis* infection in vitro and in vivo. (2018) *J Appl Phycol*. 2018;30(4):2601-2610.
doi: 10.1007/s10811-018-1435-0

Our results indicate that I-C could be a promising agent to reduce the transmission of ocular chlamydial infection and opens perspectives to develop prophylactic approaches to block C. trachomatis entry into the host cell.

7. Rajić, J.*, **Inic-Kanada, A.***, Stein, E., Dinić, S., Schuerer, N., Uskoković, A., Ghasemian, E., Mihailović, M., Vidaković, M., Grdović, N., Barisani-Asenbauer, T. *Chlamydia trachomatis* infection is associated with E-Cadherin promoter methylation, downregulation of E-Cadherin expression, and increased expression of fibronectin and α -SMA—implications for epithelial-mesenchymal transition. (2017) *Frontiers in Cellular and Infection Microbiology*, 7 (JUN), art. no. 253, p. 253. (*equally contributed first author)
doi: 10.3389/fcimb.2017.00253

Here we showed for the first time that chlamydial infection of conjunctival epithelial cells induces EMT-like changes that go along with modification of the methylation profile of the E-cadherin promoter and could contribute to processes triggering conjunctival scarring.

8. **Inic-Kanada, A.***, Stojanovic, M. *, Marinkovic, E., Becker, E., Stein, E., Lukic, I., Djokic, R., Schuerer, N., Hegemann, J.H., Barisani-Asenbauer, T. A probiotic adjuvant lactobacillus rhamnosus enhances specific immune responses after ocular mucosal immunization with chlamydial polymorphic membrane protein C. (2016) *PLoS ONE*, 11 (9), art. no. e0157875 (*equally contributed first author)
doi: 10.1371/journal.pone.0157875
9. **Inic-Kanada, A.**, Stojanovic, M., Schlacher, S., Stein, E., Belij-Rammerstorfer, S., Marinkovic, E., Lukic, I., Montanaro, J., Schuerer, N., Bintner, N., Kovacevic-Jovanovic, V., Krnjaja, O., Mayr, U.B., Lubitz, W., Barisani-Asenbauer, T. Delivery of a chlamydial adhesin N-PmpC subunit vaccine to the ocular mucosa using particulate carriers. (2015) *PLoS ONE*, 10 (12), art. no. e0144380.
doi: 10.1371/journal.pone.0144380

In papers 8 and 9, we showed that immunization via the conjunctiva may be significant not only for the prevention/treatment of ocular infections but also for infections at other mucosal surfaces, for example, for the prevention of a genital Ct infection.

10. Barisani-Asenbauer, T.*, **Inic-Kanada, A.***, Belij, S. Marinkovic, E., Stojicevic, I., Montanaro, J., Stein, E., Bintner, N., Stojanovic, M. (2013) 'The Ocular Conjunctiva as a Mucosal Immunization Route: A Profile of the Immune Response to the Model Antigen Tetanus Toxoid', *PLOS ONE*, 8: e60682. (*equally contributed first author)
doi: 10.1371/journal.pone.0060682

In this paper, we showed that the conjunctival immunization route, together with an adjuvant that is corpuscular by nature and / or capable to engage innate immunity, could tailor the immune response to fight intracellular bacteria or viruses more effectively.