BIOGRAPHICAL SKETCH

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NAME: **Stanic Kostic, Aleksandar**

eRA COMMONS USER NAME (credential, e.g., agency login): **stanickostic**

POSITION TITLE: **Assistant Professor, Department of Obstetrics and Gynecology, Divisions of Reproductive Sciences and Reproductive Endocrinology and Infertility. University of Wisconsin-Madison**

EDUCATION/TRAINING *(Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.)*

INSTITUTION AND LOCATION	DEGREE *(if applicable)*	Completion Date MM/YYYY	FIELD OF STUDY
University of Novi Sad, Novi Sad, Serbia	B.S. eqv	04/98	Medicine
Vanderbilt University School of Medicine	Ph.D.	08/03	Immunology
Vanderbilt University School of Medicine	M.D.	05/06	Medicine
Massachusetts General and Brigham and Women's Hospitals, Harvard Medical School		06/10	Resident, Obstetrics, Gynecology and Reproductive Biology
Massachusetts General Hospital, Harvard Medical School		06/14	Fellow, Reproductive Endocrinology and Infertility

A. Personal Statement

Dr. Stanic studies the immunology underlying reproductive disorders, with a special interest in the decidual immunobiology underlying normal placental development/function, with the aim of preventing adverse maternal/neonatal outcomes. Dr. Stanic has extensive basic research experience in molecular and cellular immunology necessary for elucidation of innate and adaptive immune-regulatory mechanisms at the maternal-fetal interface. He has initially applied his insight into immunological processes to mechanisms governing endometriosis establishment, as well as inflammatory bias of the Toll-like receptor system in preeclampsia. These studies led him to a dedicated interest into the immunoregulation of decidual biology as a fundamental organizing principle of placentation. Clinically, Dr. Stanic is a board-certified Obstetrician and Gynecologist, subspecializing in Reproductive Endocrinology and Infertility. Dr. Stanic's clinical training greatly informs his research endeavor towards questions of critical importance to deciphering the modifiable pathobiology underlying pregnancy pathology.

1. Young BC, **Stanic AK**, Panda B, Rueda BR, Panda A: Longitudinal expression of Toll-like receptors on dendritic cells in uncomplicated pregnancy and postpartum. American Journal of Obstetrics and *Gynecology. 2014; 72(4):392-402. PMCID: PMC4374641*
2. **Stanic AK**, Kim M, Styer AK, Rueda BR: Dendritic Cells Attenuate the Early Establishment of Endometriosis-Like Lesions in a Murine Model. *Reproductive Sciences* 2014; 21(10):1228-36. PMID: 24594835
3. Attaman JA*****, **Stanic AK***, Kim M, Lynch MP, Rueda BR, Styer AK: The Anti-Inflammatory Impact of Omega-3 Polyunsaturated Fatty Acids During the Establishment of Endometriosis-Like Lesions. *American Journal of Reproductive Immunology.* 2014; 72(4):392-402. PMID: 24898804 ***Joint 1st Author**

4. Vazquez, J, Li, Y, **Stanic, AK**. Accepted Abstract: Unbiased High-Dimensional Identification of Lymphocytes in Human Decidua. Society for Reproductive Investigation. (2016) Montreal, Canada

B. Positions and Honors

Positions and Employment

2000 – 2006 Fellow, Medical Scientist Training Program (MSTP), Vanderbilt University School of Medicine
2006 – 2010 Clinical Fellow in Obstetrics, Gynecology and Reproductive Biology [Resident]. Massachusetts
General Hospital and Brigham and Women's Hospital, Harvard Medical School, Boston, MA
2010-2011 Assistant in Gynecology and Obstetrics, Massachusetts General Hospital, Boston, MA
2010-2014 Instructor in Obstetrics, Gynecology and Reproductive Biology, Harvard Medical School
2011-2014 Reproductive Endocrinology and Infertility Fellow, Massachusetts General Hospital, Boston, MA
2014-Present Assistant Professor, Department of Obstetrics and Gynecology, Division of Reproductive Sciences, Division of Reproductive Endocrinology and Infertility, University of Wisconsin-Madison, Madison, WI

Honors

2003 Sidney P. Colowick Award (Outstanding Graduate Student Award), Vanderbilt University School of Medicine, Nashville, TN
2006 Dean's Award for Research, Vanderbilt University School of Medicine, Nashville, TN
2008,2009 Ob/Gyn Clerkship Teaching Award, Brigham and Women's Hospital, Boston, MA
2012 Best New Investigator Poster Award, Society for Gynecological Investigation
2013 North American Menopause Society, TEVA Excellence Award
2015 NIH / Mead Johnson Nutrition Early Career Investigator Award, Perinatal Research Society Meeting, Denver, CO

Professional Memberships

2006-2010 Junior Fellow, American College of Obstetrics and Gynecology
2002-Present American Association of Immunologists
2010-Present American Society for Reproductive Medicine
2010-2011 American Medical Association
2012-Present Society for Gynecologic Investigation – now Society for Reproductive Investigation
2015-Present Perinatal Research Society (Associate Member)

Board Certification

2015 American Boards of Obstetrics and Gynecology – General Ob/Gyn

Licensure

2010-2014 Medical License – State of Massachusetts
2014-Current Medical License – State of Wisconsin

C. Contribution to Science

1. Invariant Natural Killer T (iNKT) cell development

iNKT cells are CD1d-restricted, glycolipid-sensing, innate T cells at the cross-roads of innate and adaptive immunity. They have been implicated in immune surveillance and autoimmunity, and are capable of rapid and profound trans-activation of all major arms of adaptive immune system. As lymphocyte function is specified by stochastic and instructive events during development I set out to determine the molecular checkpoints governing iNKT cell development. I demonstrated a pivotal role for NF-κB in signaling iNKT survival, differentiation and acquisition of effector competency.

a. **Stanic AK**, Bezbradica JS, Park JJ, Matsuki N, Mora AL, Van Kaer L, Boothby MR, Joyce S: NF-κB controls cell fate specification, survival, and molecular differentiation of immunoregulatory natural T lymphocytes. *J Immunol* 2004*;**172**:2265-2273 PMID: 14764695*

b. **Stanic AK**, Bezbradica JS, Park JJ, Van Kaer L, Boothby MR, Joyce S: Cutting edge: the ontogeny and function of Vα14Jα18 natural T lymphocytes require signal processing by protein kinase Cθ and NF-κB. *J Immunol 2004;**172**:4667-4671 PMID: 15067039*
c. Bezbradica JS, Hill T, **Stanic AK**, Van Kaer L, Joyce S: Commitment toward the natural T (iNKT) cell lineage occurs at the CD4+8+ stage of thymic ontogeny. *Proceedings of the National Academy of Sciences of the United States of America* 2005;**102**:5114-5119. PMID: 15792999
d. Bezbradica JS, Gordy LE, **Stanic AK**, Dragovic S, Hill T, Hawiger J, Unutmaz D, Van Kaer L, Joyce S: Granulocyte-macrophage colony-stimulating factor regulates effector differentiation of invariant natural killer T cells during thymic ontogeny. *Immunity* 2006;**25**:487-497. PMID: 16949316

2. <u>iNKT cell antigen recognition and development of a novel flow cytometry platform for investigation of cellular receptor trafficking</u>

How iNKT cells recognize antigen presented by CD1d in the context of their unusual rapid-activation phenotype was a key question in iNKT biology. To determine the structural features of iNKT T-cell receptor (Tcr) – antigen interaction and probe quaternary features of iNKT Tcr organization I synthesized antigen-loaded CD1d molecules and probed the biochemistry of Tcr-CD1d interactions. As a result of this investigation I have developed a number of flow cytometry approaches for investigating receptor trafficking that have since been applied to studies of $GABA_A$ receptor trafficking.

a. **Stanic AK**, Shashidharamurthy R, Bezbradica JS, Matsuki N, Yoshimura Y, Miyake S, Choi EY, Schell TD, Van Kaer L, Tevethia SS, Roopenian DC, Yamamura T, Joyce S: Another view of T cell antigen recognition: cooperative engagement of glycolipid antigens by Vα14Jα18 natural T(iNKT) cell receptor. *Journal of Immunology* 2003;**171**:4539-4551 PMID: 14568927
b. **Stanic AK**, De Silva AD, Park JJ, Sriram V, Ichikawa S, Hirabyashi Y, Hayakawa K, Van Kaer L, Brutkiewicz RR, Joyce S: Defective presentation of the CD1d1-restricted natural Vα14Jα18 NKT lymphocyte antigen caused by β-D-glucosylceramide synthase deficiency. *Proceedings of the National Academy of Sciences of the United States of America* 2003;**100**:1849-1854 PMID: 12576547
c. Todd E, Gurba KN, Botzolakis EJ, **Stanic AK**, Macdonald RL: GABAA receptor biogenesis is impaired by the γ2 subunit febrile seizure-associated mutation, GABRG2(R177G). *Neurobiology of disease* 2014; **69**:215-224 PMID: 24874541
d. Botzolakis EJ, Gurba KN, Lagrange AH, Feng HJ, **Stanic AK**, Hu N, Macdonald RL. Comparison of GABA-A Receptor αβγ and αβδ Expression Using Flow Cytometry and Electrophysiology: Evidence for Alternate Subunit Stoichiometries and Arrangements*. J Biol Chem. 2016 Aug 4. pii: jbc.M115.698860.*

3. <u>iNKT and T cell regulation of cardiovascular disease, autoimmunity, HIV</u>

Having created a platform for iNKT cell investigation using highly sensitive probes, I have collaborated with numerous laboratories in the study of the role iNKT cells play in disease. I have played a major role in determining their role in cardiovascular disease, experimental autoimmune encephalomyelitis (multiple sclerosis model), non-obese diabetic model of type I diabetes, and HIV (see ref's below and full bibliography).

a. **Stanic AK**, Stein CM, Morgan AC, Fazio S, Linton MF, Wakeland EK, Olsen NJ, Major AS: Immune dysregulation accelerates atherosclerosis and modulates plaque composition in systemic lupus erythematosus. *Proceedings of the National Academy of Sciences of the United States of America* 2006;**103**:7018-7023. PMID: 16636270
b. Matsuki N, **Stanic AK**, Embers ME, Van Kaer L, Morel L, Joyce S: Genetic dissection of Vα14Jα18 natural T cell number and function in autoimmune-prone mice. *Journal of Immunology* 2003;**170**:5429-5437. PMID: 12759418
c. Singh AK, Wilson MT, Hong S, Olivares-Villagomez D, Du C, **Stanic AK**, Joyce S, Sriram S, Koezuka Y, Van Kaer L: Natural killer T cell activation protects mice against experimental autoimmune encephalomyelitis. *The Journal of Experimental Medicine* 2001;**194**:1801-1811. PMID: 11748281
d. Yang JQ, Singh AK, Wilson MT, Satoh M, **Stanic AK**, Park JJ, Hong S, Gadola SD, Mizutani A, Kakumanu SR, Reeves WH, Cerundolo V, Joyce S, Van Kaer L, Singh RR: Immunoregulatory role of

CD1d in the hydrocarbon oil-induced model of lupus nephritis. *Journal of Immunology* 2003;**171**:2142-2153. PMID: 12902521

Complete List of Published Works in My Bibliography (32 published works):
http://www.ncbi.nlm.nih.gov/sites/myncbi/1D_d-8aFTsT/bibliography/47219318/public/?sort=date&direction=ascending

D. Research Support

Ongoing Research Support

5 K12 HD 000849-28 (Program PI: K. Moley) 07/01/2013 – 06/30/2018
NIH/NICHD Reproductive Scientist Development Program (RSDP)
Project Role: Scholar 07/01/2016-06/30/2018
Title: *The role of Innate Lymphoid Cells in Decidual Function* $125,000/yr
The goal of this project is to determine the role Innate Lymphoid Cells play in decidual vascular remodeling necessary for healthy placenta and pregnancy.
Phase I – current – 2 years, Phase 2 – renewal – 3 years.

RSDP Research Support 07/01/2016 – 06/30/2018
Burroughs Wellcome Fund (BWF) $25,000/yr
Funding associated with Dr. Stanic's role as a Phase I RSDP Scholar

RSDP Research Supplement 07/01/2016 – 06/30/2017
March of Dimes (MOD) $10,000
Supplement to funding associated with Dr. Stanic's role as a Phase I RSDP Scholar

AAI Careers in Immunology Fellowship 09/01/2016 – 08/31/2017
American Association of Immunologists $45,444
Project Role: PI (Stanic) Funded fellow: Dr. Yan Li
*Funding for AAI Trainee member (Dr. Li) postdoctoral salary in the laboratory of AAI Regular Member (Dr. Stanic).
Title: *Innate Lymphoid Cell – Dendritic Cell Axis Regulates Vascular Remodeling at the Maternal-Fetal Interface.*

Completed Research Support

BAY 98-7196/15832 07/15/2015-12/31/2016
Bayer $25,600/annual direct $20,000
Project Role: **Site PI (Stanic)**
A phase II dose finding placebo and comparator controlled study to assess the efficacy and safety of combinations of an aromatase inhibitor and a progestin via intravaginal ring in women with symptomatic endometriosis