

Curriculum Vitae

Dusanka S. Skundric, M.D., Ph.D.

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EDUCATION:

1975 - 1980, Belgrade University School of Medicine - M.D.

1981 - 1985, Belgrade University School of Medicine, Immunology - M.Sci.

1985 - 1989, Belgrade University School of Medicine, Immunology - Ph.D.

TRAINING:

1987 - Fellowship of Science Foundation of Serbia – Visiting Research Fellow – Dept. of Immunology, Rayne Institute, St.Thomas’s Hospital, London, UK

1989 - Fellowship from British Council – Visiting Research Fellow – Dept. of Physiology, St. Thomas’s Hospital, London, UK

1991 - 1993 - Fogarty International Fellowship – Postdoctoral Research Fellow – Department of Neuropathology Albert Einstein College of Medicine, Bronx, NY

1994 - 1997 - Javits Award – Javits Research Fellow - Department of Neurology, WayneState University, Detroit, MI

FACULTY APPOINTMENTS:

1981 - 1982 - Resident - Belgrade University School of Medicine

1982 - 1990 - Assistant Professor of Pathophysiology - Belgrade University School of Medicine

1990 - 1993 - Associate Professor of Pathophysiology - Belgrade University School of Medicine

1991 - 1993 - Research Fellow - Fogarty International Fellow - Albert Einstein College of Medicine, Dept. of Neuropathology

1994 - 1997 - Research Fellow - Javits Fellow - Wayne State University, Dept. of Neurology

1998 - current - Assistant Professor of Neurology (Research), Wayne State University, Detroit MI

2001- current - Assistant Professor of Immunology and Microbiology, Wayne State University School of Medicine, Detroit MI

2007- current - Assistant Professor of Neurology and Internal Medicine (research), Wayne State University School of Medicine, Detroit MI

MAJOR PROFESSIONAL SOCIETIES:

American Association of Immunologists
New York Academy of Sciences
American Diabetes Association
Yugoslav Society for Immunology
Yugoslav Society for Physiology
Serbian Medical Association

HONORS/AWARDS:

1977, 1979 - Belgrade University Year Award
1978, 1979 - Belgrade School of Medicine Year Award
1979 - Award from Foundation of Prof.Lj. Mihailovic for Pathophysiology
1980 - Award from Foundation of Prof.A.Radosavljevic for Internal medicine
1987 - Fellowship of Republic Science Foundation of Serbia - Visiting Research Fellow
Dept.of Immunology, St.Thomas'sHospital, London, England
1989 - Fellowship from British Council - Visiting Research Fellow – Dept.of
Immunology and Physiology, St. Thomas's Hospital, London
1991 – 1993 - Fogarty International Fellow - Department of Neuropathology Albert
Einstein College of Medicine, Bronx, NY
1994-1997 – Javits Fellow - Wayne State University, Dept. of Neurology
1999 – 2003 - Career Development Award - American Diabetes Association
2003 - AAI Junior Faculty Travel Award

TEACHING:

1982 – 1991 - Belgrade University School of Medicine
Courses in Pathophysiology for Medical students and graduate students
2000 - 2006 - Wayne State University School of Medicine
Course in Immunology and Microbiology for Medical students

REVIEW:

Ad hoc reviews

Societies

Neurological Society of New Zeland, Diabetes UK

Journals

J. Immunol, American J Pathol, J Cell Immunol, J Neuroimmunol, J Neurosci Res,
Neurosci Lett, Europ J Neurosci, J Neurosci Meth, J Neurological Sci

GRANT SUPPORT:**Completed Grants**

American Diabetes Association (ADA): Career Development Award
Modulation of Schwann Cell-Axonal Communication by Cytokines in Diabetic
Neuropathy
PI - Skundric DS
1999 to 2003, \$400,000

National Multiple Sclerosis Society (NMSS), Pilot Project
Role of MCP-1 in Relapsing Form of EAE,
PI - Skundric DS
2000 - 2001, \$40,000

National Multiple Sclerosis Society (NMSS), Pilot Project
Molecular mechanisms of oligodendrocyte damage by MOG₃₅₋₅₅ specific T cells,
PI - Skundric DS
Co-PI – Miller R, PhD.
2003 - 2004, \$44,000

Current Grant Support

National Multiple Sclerosis Society (NMSS)
Protection of Oligodendroglia by Metabotropic Glutamate Receptors
PI: Benjamins J, Ph.D.
Co-Investigator: Skundric DS, M.D., Ph.D.
10/1/05 - 9/30/08, \$472,463

Pending Grant Applications

National Institutes of Health (NIH), (RO1)
PI: Skundric, DS
Immunotherapy of relapsing EAE
\$1,250,000 – *from 2/10/2006 to date this grant is pending at NIH. It was reviewed by CNBT study section on 10/20/2005, and received a priority score of 194 (24 percentile).*

National Multiple Sclerosis Society (NMSS), Pilot Project
PI: Skundric, DS
Levels of IL-16 in sera and CSF of MS patients: biomarker for disease activity and axonal damage – *submitted July 18, 2007; September 2007-October 2008, \$44,000*

Grants in preparation

American Diabetes Association (ADA), Research grant
PI: Skundric, DS
Therapeutic potential of a CD4⁺ T cell specific chemoattractant cytokine IL-16 in prevention of islet inflammation and beta cell destruction – *will submit January 15 2008, July 2008 – June 2010 – \$300,000*

National Institutes of Health (NIH), (RO1)
PI: Skundric, DS
Therapeutic potential of IL-16 neutralization in prevention and reversal of insulinitis and beta cell demise *will submit February 1, 2008 - October 2008 – September 2013 - \$1,250,000*

LIST OF PUBLICATIONS:

Skundric DS, Cai J, Cruikshank WW, Gveric D (2006) Production of IL-16 Correlates with CD4+ Th1 Inflammation and Phosphorylation of Axonal Cytoskeleton in Multiple Sclerosis (MS) Lesions. *J Neuroinflammation* 3(1): 13.

<http://www.jneuroinflammation.com/content/3/1/13>

Lisak RP, Benjamins JA, Bealmear B, Yao B, Land S, Nedelkoska L and **Skundric DS**. (2006) Differential Effects of Th1, Monocyte/Macrophage and Th2 Cytokine Mixtures on Early Gene Expression for Immune-Related Molecules by Central Nervous System Mixed Glial Cell Cultures. *Multiple Sclerosis* 12:149-168,

Skundric DS, Zhou W, Cruikshank WW, Dai R. (2005) Increased levels of bioactive IL-16 correlate with disease activity during relapsing experimental autoimmune encephalomyelitis (EAE). *J Autoimmun* 25 (3): 206-14.

Skundric, DS. (2005) Experimental models of relapsing-remitting multiple sclerosis: Current concepts and perspective. *Curr Neurovasc Res* 2 (4): 349-62. Review

Skundric DS, Dai R, Zakarian VL, Bessert D, Skoff RP, Cruikshank WW, Kurjakovic Z. (2005) Anti-IL-16 therapy reduces CD4+ T-cell infiltration and improves paralysis and histopathology of relapsing EAE. *J Neurosci Res* 79 (5): 680-93.

Skundric DS, and Lisak RP. (2003) Role of Neuropoietic Cytokines in Development and Progression of Diabetic Polyneuropathy: from Glucose Metabolism to Neurodegeneration. *Exp Diabetes Res* 4(4): 303-12. Review

Skundric, D.S., Zakarian V., Dai R., Lisak R., and James J. (2003) Distinct immune regulation of the response to H-2^b restricted epitope of MOG causes relapsing-remitting EAE in H-2^{b/s} mice. *J Neuroimmunol*, 136, 34-45.

Skundric DS, Dai R, and Mataverde P. (2003) IL-6 modulates hyperglycemia induced changes of Na⁺ channel beta-3 subunit expression by Schwann cells. *Ann NY Acad Sci*, 1005: 233-236.

Skundric DS, Dai R, James J and Lisak RP (2002) Activation of IL-1 signaling pathway in Schwann cells during diabetic neuropathy. *Ann NY Acad Sci*, 958: 393-398.

Skundric DS, Lisak RP, Rouhi M, Kieseier B, Jung S, and Hartung, HP (2001) Schwann cell-specific regulation of IL-1 and IL-1Ra during EAN: possible relevance for immune regulation at paranodal regions. *J Neuroimmunol*, 116: 74-82.

Milic-Rasic V. and **Skundric DS** (2000) Prilog klasifikaciji hereditarnih neuropatija. (Revijski clanak) *Klinicka i Eksperimentalna Neurologija*, 5 (7): 399-404.

Lisak, RP, **Skundric, DS**, Bealmear, B. and Ragheb, S (1997) The role of cytokines in Schwann cell damage, protection and repair. *J Infect.Dis*, 176, Suppl. 2, S173-S179.

Skundric, DS, Bealmear, B. and Lisak, R (1997) Induced upregulation of IL-1, IL-1RA and IL-1R type I gene expression by Schwann cells. *J Neuroimmunol*, 74 (1-2): 9-18.

Skundric DS, Huston K, Shaw M, Tse H, and Raine CS (1994) Experimental allergic encephalomyelitis: T cell trafficking to the central nervous system in a resistant Thy-1 congenic mouse strain. *Lab Invest*, 71: 671-679.

Skundric DS, Kim C., Tse HY, and Raine, CS (1993) Homing of T cells to the central nervous system throughout the course of relapsing experimental autoimmune encephalomyelitis in Thy-1 congenic mice. *J Neuroimmunol*, 46, 113-122.

Skundric DS, Zlokovic BV, Segal MB, Rakic Lj and Davson H (1992) Role of the blood-brain barrier in immunopathogenesis of experimentally induced autoimmune demyelination. In: *Barriers and fluids of the eye and brain*. Ed. M.B. Segal. MacMillan Press, London. p. 210-212

Zlokovic, B.V., **Skundric, D.S.**, Segal, M.B., Lipovac, M.N., Mackic, J.B. and Davson, H. (1990) A saturable mechanism for transport of immunoglobulin G across the blood-brain barrier of the guinea pig. *Exp Neurol*, 107, 263-270.

Skundric, DS, Zlokovic, BV and Lackovic, V (1990) Immunohistochemical study of blood-brain barrier permeability to blood-borne IgG during allergic encephalomyelitis in the guinea pig. *Giornale di Malattie Infettive e Parassitarie*, 42 (8), 729-731.

Colover, J, **Skundric, DS** and Zlokovic, BV (1989) Chain of events leading to demyelination. In: *Recent advances in multiple sclerosis therapy*. Eds. R.E.Gonsette and P.Delmotte. Elsevier Science Publishers B.V. p. 305-308.

Zlokovic, BV, **Skundric, DS**, Segal, MB, Colover, J, Jankov, RM, Pejnovic, N, Lackovic, V, Mackic, JB, Lipovac, M, Davson, H, Kasp. E, Dumonde, D and Rakic, Lj (1989) Blood-brain barrier permeability changes during acute allergic encephalomyelitis induced in the guinea pig. *Metab Brain Dis*, 4, 1, 33-40.

Skundric, DS, Cupic, D, and Cvetkovic, D (1988) Immunohistochemical determination of IgG in the brain of rabbits during an acute EAE. *Iugoslav Physiol Pharmacol Acta*, 24, 6, 447-448.

Skundric, DS, Zlokovic, BV, Pejnovic, N, Kasp, E, Lackovic, V, Colover, J, Segal, MB, Rakic, Lj and Dumonde, D (1988) Blood-cerebrospinal fluid barrier permeability to blood-borne IgG during an acute EAE in the guinea pig. *Iugoslav Physiol Pharmacol Acta*, 24, 6, 449-450.

Skundric, DS and Cupic, D (1986) The influence of Complete Freund adjuvant on changes of the IgG content in rabbit serum during experimental encephalomyelitis. *Period Biolog*, 88, 1/A, 341-342.

Skundric, DS (1985) Analysis of IgG content in the serum of rabbits during experimental allergic encephalomyelitis. *Iugoslav Physiol Pharmacol Acta*, 21, 4, 341.

PUBLISHED ABSTRACTS

Skundric DS, Cai J, Cruikshank WW, and Gveric D. (2007) Production of IL-16 correlates to CD4+ Th1 inflammation and phosphorylation of axonal cytoskeleton in multiple sclerosis (MS) lesions. Midwinter Conference of Immunologists, Asilomar, Pacific Grove, CA. *Immune System Development and Function*, Abstracts on line: <http://www.midwconfimmunol.org/>

Skundric DS, Cai J, Cruikshank WW, and Gveric D. (2007) Production of IL-16 correlates to CD4+ Th1 inflammation and phosphorylation of axonal cytoskeleton in multiple sclerosis (MS) lesions. Midwinter Conference of Immunologists, Asilomar, Pacific Grove, CA. *Immune System Development and Function*, Abstracts on line: <http://www.midwconfimmunol.org/>

Skundric, DS, Cai, J, Cruikshank, WW, and Gveric, D. (2006) Expression of Bioactive IL-16 and Active Caspase-3 by Infiltrating Lymphocytes Correlate to Damage of Axonal Cytoskeleton in Multiple Sclerosis (MS) Lesions. *J Immunol*, 176 Suppl, S32 44.10.

Skundric, DS, Dai, R, Skoff, RP, Cruikshank, WW, and Kurjakovic, Z (2005) Increased IL-16, active-Caspase-3 and CD4+ T cells parallel with relapses, and oligodendroglial and axonal damage in CNS of H-2^{b/s} mice with EAE induced by MOG₃₅₋₅₅. *FASEB J*, Suppl. 1, 153.

Skundric, DS, Dai, R, Skoff, RP, Cruikshank, WW, Kurjakovic, Z. (2005) Immunotherapy of Relapsing Experimental Autoimmune Encephalomyelitis(EAE) by Neutralization of CD4+ T Cell Chemoattractant Cytokine IL-16. *Clin Immunol* Suppl. 1: 40-41.

Skundric, DS, Dai, R, Skoff, RP, Bessert D, Cruickshank, WW, and Kurjakovic, Z (2005) Neutralization of IL-16 reduces inflammation, demyelination, axonal damage, and reverses paralysis during relapsing-remitting EAE. *J Neurochem* Suppl. 1: 52-68,

Skundric, DS, Dai, R, Zakarian, VL, Bessert, D, Skoff, RP, Cruikshank, WW, Kurjakovic, Z (2004) Therapeutic potential of anti-IL-16 therapy in mouse model of relapsing-remitting EAE. Midwinter Conference of Immunologists, Asilomar, Pacific Grove, CA. *Immune System Development and Function*, Abstracts on line: <http://www.midwconfimmunol.org/>

Skundric, DS, Dai, R, Zakarian, VL, Bessert, D, Skoff, RP, Cruikshank, WW, and Kurjakovic, Z (2004) Anti-IL-16 Therapy Reduces CD4+ T Cell Infiltration and Improves Paralysis and Histopathology of Relapsing EAE. AAI Conference in Washington, April - **Oral Presentation** - *FASEB J.*, vol. 18, 781.5, A1175

Skundric, DS Dai, R, Skoff, RP, Cruikshank, WW, and Kurjakovic, Z (2004) Immune Therapy of Relapsing EAE by Neutralization of CD4+ T Cell Chemoattractant Cytokine IL-16. *J Neuroimmunol*, 154, Suppl. 1-2

Skundric, DS, Dai R, and Mataverde, P (2003). Regulation of TNF α and caspases in diabetic neuropathy. *Apoptosis 2003: From signaling pathways to therapeutic tools, Proceedings*, VII, 31, pp 347. Abstract selected and highlighted on Plasma Transfer (www.plasmatransfer.com)

Skundric DS., Dai, R and James, J (2002). T Cells Produce MCP-1 During Relapsing EAE: Role In MOG₃₅₋₅₅ Memory Cell Activation. *Clin Immunol*, 103 (3) Suppl. 1, S59, 179

Skundric DS., Dai, R, Mataverde, P, Lam, JS, Kahn, DE, and Hart, RP (2002). Role of IL-6 in Modulation of Na⁺ and K⁺ Transport at Early Stages of Diabetic Neuropathy. *Diabetes/Metabol Res Rev*, 18, Suppl. 4, S23

Skundric, DS, Dai, R., James, J., Sima, A. and Lisak, R.P. (2002) Hyperglycemia Induced Activation of Stat3 Signaling Pathway in Schwann Cells. *Diabetes*, June Suppl., Abstract 2157

Skundric, DS, Dai, R., James, J, and Lisak, R. (2001) Differential Regulation of MCP-1 During EAE in Relapsing (H2^{b/s}) and Non-relapsing (H2^b) mice. *J Neuroimmunol*, 118, 20

Skundric, DS, Rouhi, M., Madala, SR, and Lisak, RP (2000) Regulation of IL-1 and IL-1RA Expression by Schwann Cells (SC) During their Differentiation in vivo. *J Neurochem*, 74, Suppl., S83D

SUBMITTED MANUSCRIPTS

Skundric DS, Zakarian VL, and Dai R: Autoimmune-induced depletion of myelin-associated glycoprotein (MAG) in relapsing (B6 x SJL) F1 mice resembles pattern III of multiple sclerosis demyelination.

Skundric DS, Dai R, Zakarian VL, and Mataverde P: Concomitant regulation of TNF α , caspase-3, 9 and 7 in sciatic nerves of spontaneously diabetic BBW rat.

MANUSCRIPTS IN PREPARATION

Skundric, DS, Zhou W. IL-16 specific immunoreactivity is present in pancreas of spontaneously diabetic BB/W-DP rats.

Skundric DS A potential of anti-CD4+ Th1 targeted therapies in treatment of organ specific autoimmune disorders: past, present and perspective (invited review).

Skundric DS, Dai, R and Miller R. Aberrant activation of Notch/Hes-1 signaling pathway in infiltrating and peripheral T cells in EAE and MS.

Skundric, DS, Dai, R, Mataverde, Lam, JS, Kahn, DE, and Hart, RP. Expression profiling of diabetic nerves reveals sequential activation of inflammatory pathways throughout the course of disease

PRESENTATIONS

Skundric DS, Cai J, Cruikshank WW, Gveric D. From EAE to MS: IL-16 regulates inflammation and axonal damage in autoimmune diseases of central nervous system. **Frontiers of Clinical Investigation Symposium – From Bench to Bedside-** organized by Salk Institute, UCSD and Nature Medicine), La Jolla, **2007**.

Skundric DS, Cai J, Cruikshank WW, Gveric D. Production of IL-16 correlates with CD4+ Th1 inflammation and phosphorylation of axonal cytoskeleton in multiple sclerosis lesions – American Committee for Treatment of Multiple Sclerosis (**ACTRIMS**), Chicago, October **2006**

Skundric DS. Neutralization of IL-16 Reduces Inflammation, Demyelination, Axonal Damage, and Reverses Paralysis During Relapsing-Remitting EAE. **Frontiers of Clinical Investigation Symposium – Autoimmunity: From Bench to Bedside -** organized by Salk Institute, UCSD and Nature Medicine), La Jolla, **2005**.

Skundric D. Immunotherapy of Relapsing Experimental Autoimmune Encephalomyelitis(EAE) by Neutralization of CD4+ T Cell Chemoattractant Cytokine IL-16. **ESF Marie Network: Myelin Structure and its Role in Autoimmunity II**, Potenza, Italy, **2005**.

Skundric DS. Immunotherapy of Relapsing Experimental Autoimmune Encephalomyelitis(EAE) by Neutralization of CD4+ T Cell Chemoattractant Cytokine IL-16. Federation of Clinical Immunology Societies (**FOCIS**), Boston. **2005**.

Skundric DS. Regulation of IL-16 by CD4+T cells in experimental autoimmune encephalomyelitis (EAE). **Protein Phosphorylation & Cell Signaling**, Cold Spring Harbor Laboratory (**CSHL**), NY, **2005**.

Skundric DS. Neutralization of IL-16 reduces inflammation, demyelination, axonal damage, and reverses paralysis during relapsing-remitting EAE. International Society for Neurochemistry Conference (**ISN**), Madison WI, **2005**.

Skundric, DS, Dai R, Skoff RP, Cruikshank W, Kurjakovic Z. Therapy of Relapsing EAE by Neutralization of Lymphocyte Chemoattractant Cytokine IL-16 – **ACTRIMS**, Toronto, **2004**

Skundric DS, Dai R, Mataverde P. Molecular mechanisms of IL-16 regulation in EAE. **Days of Molecular Medicine** – organized by Salk Institute, Nature Medicine and UCSD, La Jolla, **2003**

COLLABORATIONS

Dr William Cruikshank (Boston University)

Dr Richard Ransohoff (Cleveland Clinic)

Dr Barrett Rollins (Harvard University)

Dr Robert Miller (Cleveland Clinic)

Dr Robert Skoff – Anatomy and Cell Biology (WSU)

Dr Robert Swanborg – Immunol. Microbiol., WSU

Dr Joyce Benjamins– Neurology, WSU