

## **Svetlana P. Chapoval, M.D., Ph.D.**

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**Maiden name:** Svetlana Grabovskaia

### **Education**

1994	Ph.D., Epidemiology and Immunology Gamaleya Scientific Research Institute of Epidemiology and Microbiology Russian Academy of Medical Sciences, Moscow, Russia
1985	M.D., Medicine and Biophysics Russian State Medical University, Russian Ministry of Health, Moscow

### **Postgraduate Education and Training**

1996 -2002	Fellow, Department of Immunology, Mayo Clinic, Rochester, MN (Immunology) Mentor: Chella S. David, PhD
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### **Academic Appointments**

2012-2012	Visiting Assistant Professor, Department of Biochemistry and Molecular Biology, University of Maryland School of Medicine
2006-2011	Assistant Professor, Department of Microbiology and Immunology, Center for Vascular and Inflammatory Diseases, University of Maryland School of Medicine (laboratory of Achsa D Keegan, PhD and as a PI)
2002-2005	Associate Research Scientist, Section of Pulmonary & Critical Care Medicine, Yale University, New Haven, CT (laboratory of Jack Elias, MD)

### **Current position**

2012-	Adjunct Assistant Professor, Department of Microbiology and Immunology, Volunteer, Center for Vascular and Inflammatory Diseases, University of Maryland School of Medicine
2013 -	President and Founder, SemaPlex LLC

### **Other Employment**

1995-1996	Senior Researcher, Gamaleya Research Institute
1993-1995	Researcher, Gamaleya Research Institute
1986-1990	Microbiologist, Pharmaceutical Company "Ferein", Russia

### **Professional Society Memberships**

2008 - 2012	Sigma Xi
2008 - present	Science Advisory Board
2008 - 2012	International Cytokine Society
2008 - present	Scientists Without Borders
2001 - present	Mayo Medical Alumni Association
1999 - present	American Association of Immunologists
1999 - 2012	American Academy of Allergy, Asthma and Immunology, 2012 - Fellow

### **Honors and Awards**

2013-2011, 2007, 2004	AAI Junior Faculty Travel Award, Experimental Biology and Immunology Meetings
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2009-2011	NIH R21 grant award
1999-2002	NCI Tumor Immunology Training Grant
1998-2001	Travel Grant Awards to the 54 <sup>th</sup> , 55 <sup>th</sup> , 56 <sup>th</sup> , and 57 <sup>th</sup> American Academy of Allergy, Asthma and Immunology Meetings
1996-1999	Boehringer Ingelheim Inc. Fellowship
1995	Career Development Award from Russian Academy of Medical Sciences

### **Teaching**

2008-2011	Graduate Program in Life Sciences (UM School of Medicine), small group discussion sessions (2 sessions/year)
2008-2011	Developed and taught "Hypersensitivities" lecture, UM School of Dentistry (one lecture/year)
2009-2010	Developed and taught "Dendritic cells" seminar, Advanced Immunology course, Department of Microbiology&Immunology (one lecture/year)

### **Local Service**

2011	Poster session judge, 33 <sup>rd</sup> Annual Graduate Student Research Conference, UMB
2011	Oral session judge, 34 <sup>th</sup> Annual Medical Student Research Day, UMB
2010	Reviewer for student's presentation, 2 <sup>nd</sup> Annual SigmaXi Mid-Atlantic meeting
2010	Centennial Lane Elementary School STEM program, "Immunology of asthma"
2010	Proposal and business plan to establish the Experimental Model of Asthma Core Facility at UMSOM
2008	Reviewer for student's presentation, Graduate Program in Life Sciences, UM School of Medicine

### **National Service**

2015, 2010-2011	Neighborhood volunteer for the American Lung Association,
2014	Associate Editor, MedCrave Online Journal of Immunology
2013	2013-2014 Spirit of Innovation Challenge, the Conrad Foundation
2013	AAAS BMENA scientific exchange program grant reviewer (5/6, 5/10)
2013	Judge for SigmaXi showcase student's presentations (3/20 – 3/21)
2012	Organized and chaired the AAAI-2012 course "Deeper Insights into the Mechanisms of Asthma and Allergic Inflammation" (3/2)
2011	Member, NIH & NIAID Scientific Review Group for the Allergen Epitope Research & Validation Center (11/30 – 12/01)
2011	Member, NIH & NIAID Scientific Review Group for the Asthma & Allergic Disease Cooperative Research Center (3/9 - 3/11)
2011	Block symposium chair, the annual AAI meeting "Immunology-2011", session 79. Novel Regulatory Pathways in Allergic Disease
2011	Associate Editor, <i>Journal of Immunology</i>
2011	Editorial board member, <i>TheScientificWorldJournal</i>
2011	Leading faculty, Webmedcentral
2010-2011	Neighborhood volunteer for the Leukemia and Lymphoma Society (two days/year)
2007-2008	Abstract reviewer for the AAAAI 2008, 2009 meetings
2007	Reviewer, Philip Morris External Research Program

### **Grant Support**

#### **Completed grants**

06/01/09-12/31/11	Chapoval SP (PI, 50%) <i>Immune semaphorins in allergic airway inflammation</i> NIH, NIAID, R21 AI076736
05/01/1996- 06/30/2011	Chapoval SP (Participating faculty, 15%) PI: Achsah Keegan <i>Molecular Mechanisms of IL-4 and IL-13 Signaling</i> NIH, NIAID, R01 AI038985

**Publications**

**Peer Reviewed Journal Articles**

**Published**

1. Shanks K, EH Nkyimbeng-Takwi, EP Smith, MM Lipsky, LJ DeTolla, AD Keegan, SP Chapoval. 2013. Neuroimmune semaphorin 4D is necessary for optimal lung allergic inflammation. *Molecular Immunology*. 56:480-487.
2. Mogie G, K Shanks, EH Nkyimbeng-Takwi, EP Smith, E Davila, MM Lipsky, LJ DeTolla, AD Keegan, **SP Chapoval**. 2013. Neuroimmune semaphorin 4A as a drug and drug target for asthma. *International Immunopharmacology*. 17:568-575.
3. Dorsey NJ, **SP Chapoval**, EP Smith, J Skupsky, DW Scott, AD Keegan. 2013. STAT6 controls the number of regulatory T cells in vivo thereby regulating allergic lung inflammation. *J Immunol*. 191:1517-1528.
4. Atamas SP, **SP Chapoval**, AD Keegan. 2013. Cytokines in chronic respiratory diseases. *Faculty of 1000 Biology Reports*, 5:3
5. Nkyimbeng-Takwi EH, K Shanks, Smith EP, A Iyer, MM Lipsky, LJ DeTolla, H Kikutani, AD Keegan, **SP Chapoval**. 2012. Neuroimmune semaphorin 4A downregulates the severity of allergic response. *Mucosal Immunology*. 5:409-419.
6. Dasgupta P, **SP Chapoval**, EP Smith, AD Keegan. 2011. Transfer of in vivo primed transgenic T cells supports allergic lung inflammation and FIZZ1 and Ym1 production in an IL-4R $\alpha$  and STAT6 dependent manner. *BMC Immunology*. 12:60.
7. Smith EP, K Shanks, MM Lipsky, LJ DeTolla, AD Keegan, **SP Chapoval**. 2011. Expression of neuroimmune semaphorins 4A and 4D and their receptors in the lung is enhanced by allergen and vascular endothelial growth factor. *BMC Immunology*. 12:30.
8. Nkyimbeng-Takwi EH and **SP Chapoval**. 2011. Biology and function of neuroimmune semaphorins 4A and 4D. *Immunologic research*. 50:10-21.
9. **Chapoval SP**, P Dasgupta, EP Smith, LJ DeTolla, MM Lipsky, A Kelly-Welch, AD Keegan. 2011. STAT6 expression in multiple cell types mediates the cooperative development of allergic airway disease. *J. Immunol*. 186:2571-2583.
10. Gunsolly C, JD Nicholson, SJ Listwak, D Ledee, P Zelenka, D Verthelyi, **S Chapoval**, A Keegan, LH Tonelli. 2010. Expression and regulation in the brain of the chemokine CCL27 gene locus. *J. Neuroimmunol*. 225:82-90.
11. **Chapoval SP**, P Dasgupta, N Dorsey, AD Keegan. 2010. Regulation of the T helper cell Type 2 (Th2)/ T regulatory cell (Treg) balance by IL-4 and STAT6. *J. Leuk. Biol*. 87:1011-1018.
12. **Chapoval SP**, CG Lee, C Tang, AD Keegan, L Cohn, K Bottomly, JA Elias. 2009. Lung vascular endothelial growth factor expression induces local myeloid dendritic cell maturation. *Clin. Immunol*. 132:371-384.
13. Yamasaki M, HR Kang, RJ Homer, **SP Chapoval**, SJ Cho, BJ Lee, JA Elias, CG Lee. 2008. P21 Regulates TGF- $\beta$ 1-Induced Pulmonary Responses via a TNF- $\alpha$  Signaling Pathway. *Am. J. Respir. Cell Mol. Biol*. 38:346-353.
14. **Chapoval SP**, A Al-Garawi, JM Lora, I Strickland, B Ma, PJ Lee, RJ Homer, S Ghosh, AJ Coyle, JA Elias. 2007. Inhibition of NF- $\kappa$ B activation reduces the tissue effects of transgenic IL-13. *J. Immunol*. 179:7030-7041.

15. Bhandari V, R Choo-Wing, **SP Chapoval**, CG Lee, C Tang, YK Kim, B Ma, P Baluk, MI Lin, DM McDonald, RJ Homer, WC Sessa, JA Elias. 2006. Essential role of nitric oxide in VEGF-induced, asthma-like angiogenic, inflammatory, mucus, and physiologic responses in the lung. *Proc. Natl. Acad. Sci U S A*. 103:11021-11026.
16. Xue A\*, **SP Chapoval\***, ES Finn\*, VR Chowdhary, EV Marietta, TA Gaffey, AC Pursifull, CS David. 2005. HLA-DQ8 is a predisposing molecule for detergent enzyme subtilisin BPN'-induced hypersensitivity. *Clin. Immunol.* 117:302-315 (\*equal contribution).
17. Ma B, CG Lee, **S Chapoval**, W Liu, A Coyle, J Lora, D Picarella, RJ Homer, JA Elias. 2005. Role of CCR5 in gamma-interferon-induced and cigarette smoke-induced emphysema. *J. Clin. Invest.* 115:3460-3472.
18. Lee CG, H Link, P Baluk, RJ Homer, **S Chapoval**, V Bhandari, MJ Kang, L Cohn, YK Kim, DM McDonald, and JA Elias. 2004. Vascular endothelial growth factor (VEGF) induces remodeling and enhances Th2-mediated sensitization and inflammation in the lung. *Nature Med.* 10:1095-1103.
19. Lee CG, SJ Cho, MJ Kang, **SP Chapoval**, PJ Lee, PW Noble, T Yehualaeshet, B Lu, RA Flavell, J Milbrandt, RJ Homer, JA Elias. 2004. Early growth response gene 1-mediated apoptosis is essential for transforming growth factor beta1-induced pulmonary fibrosis. *J. Exp. Med.* 200:377-389.
20. Das P\*, **S Chapoval\***, V Howard, CS David and TE Golde. 2003. Immune response against A $\beta$ 1-42 in HLA class II transgenic mice: implications for A $\beta$ 1-42 immune-mediated therapies. *Neurobiol. Aging.* 24:969-976 (\*equal contribution).
21. **Chapoval SP** and CS David. 2003. Identification of antigenic epitopes on human allergens: Studies with HLA transgenic mice. *Environ. Health Perspect.* 111:245-250.
22. **Chapoval SP** and CS David. 2003. CD28 costimulation is critical for experimental allergic asthma in HLA-DQ8 transgenic mice. *Clin. Immunol.* 106:83-94.
23. **Chapoval SP**, EV Marietta, MK Smart, K Iijima, AI Chapoval, AG Andrews, and CS David. 2002. Allergic inflammatory response to short ragweed extract in HLA-DQ transgenic mice lacking CD4 gene. *J. Immunol.* 168:890-899.
24. Papouchado BG, **SP Chapoval**, EV Marietta, CR Weiler, CS David. 2001. Cockroach allergen-induced eosinophilic airway inflammation in HLA-DQ/human CD4+ transgenic mice. *J. Immunol.* 167:4627-4634.
25. **Chapoval SP**, EV Marietta, MK Smart, CS David. 2001. Requirements for allergen-induced airway inflammation and hyperreactivity in CD4-deficient and CD4-sufficient human leukocyte antigen-DQ transgenic mice. *J. Allergy Clin. Immunol.* 108:764-771.
26. Krco CJ, J Harders, **S Chapoval**, and CS David. 2000. Immune response of HLA-DQ transgenic mice to house dust mite allergen p2: Identification of HLA-DQ restricted minimal epitopes and critical residues. *Clin. Immunol.* 97:154-161.
27. Papouchado BG, **SP Chapoval**, EV Marietta, CR Weiler, CS David. 2000. HLA-DQ/human CD4-restricted immune response to cockroach allergens in transgenic mice. *Tissue Antigens* 55:303-311.

28. **Chapoval SP**, GH Nabozny, EV Marietta, EL Raymond, CJ Krco, AG Andrews, and CS David. 1999. Short ragweed allergen induces eosinophilic lung disease in HLA-DQ transgenic mice. *J. Clin. Invest.* 103:1707-1717.
29. **Chapoval SP**, T Neeno, CJ Krco, E Marietta, J Harders, and CS David. 1998. HLA-DQ6 and HLA-DQ8 transgenic mice respond to ragweed allergens and recognize distinct set of epitopes on short and giant ragweed group 5 antigens. *J. Immunol.* 161: 2032-2037.
30. Kuchma VR, NN Sukhanova, TA Semenenko, GA Danilina, MP Amarian, **SP Grabovskaia**. 1996. Relationship between physical development and the immune status of children and adolescents [ Russian ]. *Gigiena i Sanitariia* 2:17-19.
31. Suchkov UG, TA Semenenko, AV Sedov, VV Petrosov, GA Danilina, AI Katkov, MI Mikhailov, **SP Grabovskaia**. 1993. Organization of paramount actions for protection of population within disaster [Russian]. *Medicine of catastrophes.* 1(3): 16-21.

#### Proceedings

1. **Grabovskaia SP**, GA Danilina, TA Semenenko. 1995. Epidemiological analysis of infectious diseases in children from radionuclid polluted regions [Russian]. In: *Health of Plavsk district population in connection with Chernobyl disaster.* p.48-57.
2. Danilina GA, **SP Grabovskaia**, OB Filukova, MP Amarian, TA Semenenko. 1995. Immune status of children from territories polluted by radionuclides [ Russian ]. In : *Health of Plavsk district population in connection with Chernobyl disaster.* p.58-65.
3. Stepanov VS, EA Gukasian, BN Filatov, **S Grabovskaj**. 1993. On applications of the state software system CLAVDIA to some problems in medical diagnostics. In: International Conference on Human-Computer Interaction *EWHC-93 Proceedings*. Moscow. Volume III, 85-101.

#### Book chapters

1. Heller NM, Dasgupta P, Dorsey NJ, **Chapoval SP**, and Keegan AD. The Type I and Type II receptor complexes for IL-4 and IL-13 differentially regulate allergic lung inflammation. In : “Allergic Diseases – Highlight in the Clinic, Mechanisms and Treatment”. In-tech, 2012. Edited by Celso Pereira, ISBN 978-953-51-0227-4.
2. **Chapoval SP**. Flow cytometry-based analysis and sorting of lung dendritic cells. In: “Flow Cytometry – Recent Perspectives”. In-tech. 2012. Edited by Ingrid Schmid, ISBN 978-953-51-0626-5.

#### Major Invited Presentations

1. **Chapoval SP** and Keegan AD. Neuroimmune semaphorins as potential biomarkers and drug targets for asthma. 4th International Conference on Biomarkers & Clinical Research, July 15-17, 2013. Philadelphia, PA
2. **Chapoval SP**. Immune semaphorins in allergic airway inflammation. Laboratory of Dr. Hitoshi Kikutani, Department of Molecular Immunology, Osaka University, August 20, 2010. Osaka, Japan.
3. **Chapoval SP**. STAT6 and immune semaphorins in allergic airway inflammation. Department of Environmental Health (Dr. Shuk-Mei Ho), University of Cincinnati College of Medicine, May 7, 2009. Cincinnati, OH
4. **Chapoval SP**. Lung VEGF expression stimulates maturation and function of local DC. Animal Models of Human Autoimmune Diseases, Symposium and Workshop, June, 2006. Park City, UT.

5. **Chapoval SP.** Identification of antigenic epitopes on human allergens: Studies with HLA transgenic mice. The Health Canada Workshop on Animal Models to Detect Allergenicity of Foods and GM Products. November, 2001. Ottawa, Canada (Inviting organization – Health Canada).
6. **Chapoval SP.** HLA-DQ transgenic mice as humanized mouse model of allergies and asthma. 13<sup>th</sup> NIOSH Annual Conference “Mechanisms of Immunotoxicology”- “Mechanisms in hapten- and protein-mediated hypersensitivity”. September, 1998. Morgantown, WV (Inviting organization – NIOSH).

#### **Patents, Inventions and Copyrights**

1. **Chapoval SP** and Keegan AD. 2013. Neuroimmune Semaphorin 4A and Its Use as a Drug and Drug Target for Allergic Inflammatory Diseases. US Patent application #61/892,512. UMB Docket: SC-2014-037.
2. **Chapoval SP** and Keegan AD. 2013. Neuroimmune Semaphorin 4D and its Receptors as Novel Biomarkers and Immunotherapeutic Targets for Inflammatory Diseases. US Patent application # 61/892,519. UMB Docket: SC-2014-038.
3. **Grabovskaia SP.** 1993. The immune status of humans exposed to ionized radiation due to professional activity [Russian]. *Russian Institute of Scientific and Technical Information, #1689-B93 from 6.17.93.*
4. Kuznetsova EM, **SP Grabovskaia.** Enzyme immunoassay system for detection of antibodies to *Staphylococcus aureus* [Russian]. #294, February, 1991. *Research Institute for Standardization and Control of Medical Production, Moscow. Pharmaceutical Company “Ferein” (Bioindustrial Factory “Antigen”), Elektrogorsk, Moscow region, Russia.*
5. **Grabovskaia SP,** AN Rusakov, EM Kuznetsova. Enzyme immunoassay system for detection of antibodies to *Bordetella pertussis* [Russian]. #342-91, October, 1991. *Research Institute for Standardization and Control of Medical Production, Moscow. Pharmaceutical Company “Ferein” (Bioindustrial Factory “Antigen”), Elektrogorsk, Moscow region, Russia.*

#### **Mentored students and postdoc:**

Nate Skinner – 2011 summer research fellow (Baltimore City’s Youthworks program), W. E. B. Dubois High School graduate, Baltimore

Shamirra Dorsey – 2011 summer research fellow (Vivien T. Thomas program), Vivien T. Thomas Medical Arts Academy student, Baltimore

Apoorva Iyer – 2010 summer research fellow, York High School student, Yorktown, VA ; currently – undergraduate student, University of Virginia

Gloria Angel Mogie – 2010 summer research fellow (Greenebaum Cancer Center program), undergraduate student, Kenyon College, OH

Eusebius Henry Nkyimbeng-Takwi, Ph.D. – Postdoctoral Fellow, April 2010-March 2011

Kathleen Shanks (Beasley) – graduate student, Program in Biotechnology, UMB, Laboratory Assistant, August 2009-September 2010; 2011 – Assistant Professor, Stevenson University; currently – Labtech at University of Maryland School of Nursing