Curriculum Vitae

Dan H. Schulze, MS, PhD

Associate Professor, Department of Microbiology/Immunology and Otorhinolaryngology Departments

University of Maryland School of Medicine

**Date** August 10, 2015

**Contact Information**

Business Address: Department of Microbiology and Immunology

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Foreign Languages: German (basic scientific reading knowledge)

**Education**

1969 B.S., Zoology, Indiana University (Bloomington)

1972 M.S., Zoology, Miami University (Oxford) Advisor: Thomas G. Gregg, PhD, Molecular properties of whole body and spermatocyte DNA in *Drosophila hydei*.

1976 Ph.D., Zoology/Genetics, University of Texas (Austin), Thesis Advisor – Dr. C..S. Lee PhD. DNA sequence relationships among several closely related *Drosophila* species.

**Post Graduate Education and Training**

1979-1980 Postdoctoral Fellow, University of Minnesota, St. Paul. Department of Genetics and Molecular Biology. Advisor: Walter Sauerbier, PhD

1981-1984 Postdoctoral Fellow, Albert Einstein College of Medicine, Department of Immunology and Cell Biology, Advisor: Stanley Nathenson, MD

**Certifications**

NA

**Medical Licensures**

NA

**Employment History**

1969 - 1970 Teacher-Mathematics, Adams School, Hamilton, Ohio

1970 - 1972 Research Assistant, Miami University, Department of

Zoology and Physiology, Oxford, Ohio.

1972 - 1973 Teaching Assistant, University of Texas, Department of

Zoology, Austin, Texas.

**Academic Appointments**

1984 - 1989 Assistant Professor, University of Texas Medical Branch at

Galveston, Department of Microbiology, Galveston, Texas 77550

1989 - 1991 Assistant Professor, University of Maryland, School of Medicine, Department of Microbiology and Immunology, Baltimore, Maryland 21201

1989-2009 Appointment to the Medical Biotechnology Center, University of Maryland Biotechnology Institute

1991 -Present Associate Professor with Tenure, University of Maryland, School of Medicine, Department of Microbiology and Immunology, Baltimore, Maryland 21201

1998-2000 Director of Gene DeTech Genotyping Facility, University of Maryland, School of Medicine, Department of Microbiology and Immunology, Baltimore, Maryland 21201

2006- Present Joint appointment to the Department of Otorhinolaryngology, Baltimore, Maryland

2013- Present Good Laboratory Practices (GLP) Training Facilities Manager for the University of Maryland School of Medicine

**Professional Society Membership**

1983-2000 Sigma XI

1983-2007 American Association of Immunology

1993-2008 Biophysical Society

2001-Present American Association for the Advancement of Sciences

**Honors And Awards**

1968 NSF Undergraduate Research Fellowship

1973-1977 NIH Genetics Training Grant

1980-1981 American Cancer Society Research Grant

2013 Elected Member, Carolyn J. Pass, MD’66 and Richard M. Susel MD’66, Academy of Educational Excellence, University of Maryland School of Medicine

**Clinical Activities**

NA

**Clinical Expertise**

NA

**Scope of Clinical Practice:**

NA

**Development of any Clinical Programs:**

Worked with several Otorhinolaryngology Faculty members to delineate and expand their clinical research program for the Residents in the department of Otorhinolaryngology (2006 to present).

**Administrative Service**

**Institutional Service**

1989 – 1990 Immunology Faculty Recruitment Committee for the Department of Microbiology and Immunology

1989 - 1990 Transgenic Faculty Recruitment Committee

1990 Microbiology and Immunology Graduate Student Committee

1991 Short-term Research Training Program Committee

1989-1995 Medical Biotechnology Institute Advisory Committee

1990-1991 Bone Marrow Transplantation Task Force

1991-1994 Medical Biotechnology Planning Board

1992-1993 Short Term Research Training Program Committee

1993 Core Facilities Task Force

1993 Strategic Planning Committee for the University of Maryland School of Medicine

1995-2007 Biopolymer Oversight Committee

1998-1999 Year Two Executive Committee for the University of Maryland School of Medicine

1998-2007 Membrane Training Program Committee

2000-2005 Baltimore Medical Community Outreach-Faculty Director

2006-2015 Albert Schweitzer Fellowship Board

2002-2008 Special Research Initiative Support Review Committee School of Medicine

2002-2005 Molecular Cell Biology Advising Committee

2006-Present Year One/Two Committee for the University of Maryland School of Medicine

2006-Present Advancement Committee (Co-Chair) for the University of Maryland School of Medicine

2006-Present University of Maryland Greenebaum Cancer Center Grant Member

2002-Present Department of Microbiology and Immunology Curriculum Committee

1991-2000, 2010-Present The University of Maryland School of Medicine Medical School Admissions Committee

2008-Present Grad students Recruitment Committee for the Department of Microbiology/Immunology

**Local and National Service**

**National Service**

**Editorial Reviews-Manuscripts**

1984-Present Reviewer, Journal of Immunology-7

1986,1987 Ad Hoc Reviewer, Journal of Virology-1

1992,1998, 2006-8 Reviewer Biochem et Biophysica ACTA-4

1998-2000, 2005-Present Reviewer, Journal of Clinical Investigation- 5

1998, 2000-2005 Reviewer, Cell Calcium- 6

1998-2000, 2007-2010 Reviewer Am. J. Physiol. (Cell)-5

1998, 2000 Ad Hoc Reviewer, Am. J. Physiol. (Renal)-2

1999, 2002 Reviewer, Journal of Neurochemistry-2

2002-2008 Reviewer. Journal of Cellular Biochemistry-4

**GRANT REVIEWER**

1985 Reviewer, Minnesota Arthritis Foundation

1986, 1988, 1990 Reviewer, Veterans Administration Research Grants

1990 Reviewer, State of Idaho - Grant Review

1991-1996, 2003-2006 Reviewer, John Sealy Memorial Endowment-University of Texas

1999-2002 Reviewer, Israel National Foundation

2004-2006 Reviewer, United States/Israel Bi-national Foundation

**STUDY SECTION**

1992 Reviewer, American Cancer Society-Developmental Biology Study Section

1998 Ad Hoc Reviewer, Developmental Biology, American Cancer Society,

**Local Service**

1989-95, 98, 99 Reviewer DRIF grant-University of Maryland

1995 Reviewer, Department of Medicine Postdoctoral Fellowship Committee, University of Maryland

1991 Reviewer, PEW Fellowships, University of Maryland

1998-2003 Boy Scout Assistant Scoutmaster

1998-2010 Habitat for Humanity, Sandtown Baltimore

1993-2005 Social Work Community Outreach Services

2006-2015 Albert Schweitzer Fellowship Board

2013 Reviewer, Passano Fellowship, University of Maryland School of Medicine

**Teaching Service**

**Undergraduate Student Teaching**

1994-1995 Hood College Fredrick MD, Immunology

2007-2015 Mentor, Summer Research Training Program (undergraduates, daily laboratory contact for 8 weeks in the summer)

**Medical Student Teaching**

1986-1989 Medical Immunology (UTMB- MHC lectures and small groups every year)

1989-1992 Medical Microbiology (MMIC 603) (UMB- MHC lectures and small groups every year)

1993-2004 Medical Microbiology and Immunology Section Leader (MMIC 603) (UMB- MHC and Immunoglobulin lectures and small groups every year)

2005-Present Medical Microbiology/Host Defense Infectious Diseases Co-Course Director (UMB- MSPR 520, Introduction to Immunology, MHC and Immunoglobulin lectures and small groups every year)

**Dental Student Teaching**

2008-Present Dental Immunology (Course Director 2008-2010, Co-Course Director 2011-Present)

**Resident and Fellow Teaching**

2011-2013 Christopher Wartmann Otorhinolaryngology Research Block

3 month block 2011 3ed year Resident 100 hrs, 5 hours 4th year Resident, 2 hours 5th year resident

**Post-Graduate Teaching**

1986-1989 Molecular Cell Biology (UTMB organized and taught 1/3 of the lectures, 25 hours)

1989-2004 Practical Molecular Biology Techniques, Director. (UMB-MBC 801, two week lab course, contact ~100 hours)

1990-1997 Molecular Biology (UMB- MCB602 Molecular Biology Lectures taught Molecular Biology, 5 hours)

1990-1996 Core Course (UMB- MMIC 714, Immunology MHC and Immunoglobulins, 6 hours)

1992-1996 Introduction to Microbiology and Immunology – (UMB- MMIC 709, 4 hours)

1992-1996 Introduction to Molecular & Cell Biology Student Seminar – (UMB- MCB 729 Organized, 30 hours)

1993-2010 Advanced Molecular Biology – (UMB- MBIC 703, taught Immunoglobulin lectures and paper discussion, 6 contact hours)

1993-2010 Membrane Structure and Function (UMB- MBIC 710/ MPHY 710, Lectures on integral membrane proteins 6 contact hours)

1994-Present GPILS Core Course Section head, 2006-present.(UMB- Organized 1/3 of course and lectured 120 contact hours.)

2000-2010 Research Ethics (UMB- CIPP 907, 3 contact hours)

2002 Functional Genomics (UMB- MPHY 760, 3 contact hours)

2003-2008 Graduate Student Writing course (UMB- 3 contact hours)

2010-Present Translational Core Course (UMB- GPILS 600, 4 contact hours)

**1985-Present MS/Ph.D Thesis Committees for 28 students**

While at the University of Texas and the University of Maryland I have served on numerous student thesis committees. The students names are listed with the PI’s indicated.

1987-1989 **Richard Cronkhite**,was a student in the laboratory of Dr. J. Cerny. I was on his Ph.D thesis committee and served as a reader for his thesis.

1990-1993 **Oscar Gomez** was a student in the laboratory of Dr. J. Kaper. I was on his Ph.D committee (Thesis: Studies on Regulation of Virulence Gene Expression on Enteropathic E. coli).

1990-1992 **Joshy Jacob** was a student in the laboratory of Dr. G. Kelsoe. He worked in the laboratory briefly and I was on his Ph.D thesis committee. (Thesis: Architecture of the Primary Immune Response).

1990-1992 **Melinda Moree** was a student in the laboratory of Dr. Hanson. I was on her Ph.D committee (Thesis: Structural, Antigenic and Biological Characterization of Rickettsia Tsutsugamushi Proteins).

1992-1994 **Farah Bahrani** was a student in the laboratory of Dr. H. Mobley. I was on her Ph.D thesis committee (Thesis: Genetic Studies and Role of Virulence of Mannose-Resistant Proteus-like (MR-P) Fimbriae of Uropatholic Proteus Mirabilis).

1992-1994 **C-F. Weng** was a student in the laboratory of Dr. L. Aurelian. I was on her Ph.D thesis committee (Thesis: Interactions of Immune and Neuroendocrine systems in Response to the Super-antigen, Staphloococcal enterotoxin B).

1993-1995 **Francesca Macchiarini** was a student in the laboratory of Dr. K. Abraham. I was on her Ph.D committee (Thesis: The Role of the Putative CDR1 (beta) segment in Selection of the Peripheral and Germline (alpha and beta) T cell Repertoires).

1993- 1994 **Lu Pang** was a student in the laboratory of Dr. J. Berman. I was a member of her Ph.D Thesis committee.

1994-1996 **S. Sriwasthana** was a student in the laboratory of Dr. H. Mobley. I was a member of her Ph.D Thesis committee.

1994-1996 **Xiaoling Zhou** was a student in the laboratory of Dr. G Gustaveson. I was a member of her Ph.D Thesis committee (Thesis Inactivation and Growth Supression of CDKN2 and CDNK2B in Esophageal Cancer.).

1994-1996 **Eric Crawford** was a student in the laboratory of Dr. J. Hasday. I was on his Ph.D thesis committee (Thesis: Tumor Necrosis Factor (alpha) Post-translational Gene expression Regulation and MessengerRibonucleic Acid Poly (A) Tail Metabolism in Macrophages).

1994-1996 **Lily Huang** was a student in the laboratory of Dr. S. Meltzer. I was on her Ph.D committee.

1995-1997 **Garet Lahvis** was a student in the laboratory of Dr. J. Cerny. He worked in my lab briefly to learn some techniques. I was on his Ph.D thesis committee (Thesis: The Role of Activated CD4+ T cells in the Induction of Germinal Center B cell Markers *in vitro*).

1995-1997 **Jeffrey Ensor** was a student in the laboratory of Dr. J. Hasday. I was on his Ph.D thesis committee (Thesis: Regulation of Tumor Necrosis Factor (alpha) (TNF) and Interleukin-6 (IL-6) Expression in Macrophages at Temperatures in the Febrile Range).

1996-1998 **Martin Slodzinski** was a student in the laboratory of Dr. M. Blaustein. I was on his Ph.D thesis committee (Thesis: Antisense Oligonucleotide Inhibition of The Sodium Calcium Exchanger in Cardiac and Arterial Myocytes).

1998-2001 **Abdoulaye Djimdewas** a student in the laboratory of Dr. C. Plowe. I was on his Ph.D committee (Thesis: Molecular Marker of Plasmodium falciparum Resistant to Chloquine. Implication for Malaria Control of Anti-Malarial Immunity).

1998-2000 **Audrey Lau** was a student in the laboratory of Dr. A. Azad. I was on her Ph.D committee (Thesis: The Characterization of Parasite and Host Gene Products in Plasmodium yoelli Infected Livers).

1999-2001 **Keith Dilly** was a student in the laboratory of Dr. J. Lederer. I was on his Ph.D thesis committee. (Thesis: Ca2+ Signaling in Cardiac Muscle: from development to heart failure).

1999-2001 **Sibini Pati** was a student in the laboratory of Dr. M. Reitz. I was a member of her Ph.D thesis committee (Activation of Signal Transduction Pathways by HHV-8 Chemokine Receptor Homologue ORF74:evidence for a paracrine Mechanism of Karposi’s sarcoma pathogenesis).

2003-2005 **Grace Kim** was a student in the laboratory of Dr. R. Morgan. I was a member of her Ph.D thesis committee (Understaning Mechanisms of Radiation Induced Genomic Instability).

2006-2009 **Steve Bowen** was a student in the laboratory of Dr. F. Livak. I was a reader and a member of his Ph.D thesis committee (Thesis: Abnormal V(D)J Recombination in Ataxia Telangiectasia Mutated (ATM) Devicient CD4/CD8 Double Negative Thymocytes).

2007-2009 **Jonathan Skupsky** was a student in the laboratory of Dr. D. Scott. I was on his Ph.D committee for his thesis

2007-2011 **Melissa Hay**es was a student in the laboratory of Drs. Lukashevich/Salvato. I was on her Ph.D committee and served as a reader for his thesis (Thesis: Pathogenic Old World Arenaviruses Attenuate TLR-dependent Pro-Inflammatory Cytokine Response).

2009-2011 **Adam Fisch** was a student in the laboratory of Dr. A. Shuldiner. I was a member of her Ph.D thesis committee. (Shuldiner)

2009-2011 **Janet Ugolino** was a student in the laboratory of Dr. M. Monteiro. I was on his Ph.D committee and served as as a reader for her thesis (Thesis: Characterization of Wild Type and Mutant Atp13a2 Proteins Linked to Parkinson’s Disease)

2010-2013 **Michelle Sallin** was a student in the laboratory of Dr. S. Strome. I was on her Ph.D committee and served as a reader for her thesis (Thesis: Defining the Role of Fc-Fc Gamma Receptor Interactions in the Anti-Tumor Function of Anti-CD137 Monoclonal Antibody Therapy)

2012-2016 **Eric Lege**nzov was a student in the laboratory of Dr. J. Kao. Eric worked in my laboratory for 6 months to develop constructs to be expressed for his thesis. I am currently on his Ph.D thesis committee and will be serving as a reader for his thesis (Thesis: Targeted Delivery of Nitroxide Spin Probes Using Immunoliposomes for Electron Paramagnetic Resonance Imaging of Tumors *in vivo*.

2015 **Kyle Wilson** was a student in the laboratory of Dr. P Anthony. I was asked to replace a member of his Ph.D committee who had left earlier in the year (Thesis: NK1.1+ B220+ Cell Depletion Enhances the Rejection of Established Melanoma by TAA-Specific CD4+ Cells).

**Supervision of Graduate Students**

Masters Student

1987-1990 **Xiaohong (Helen) Chen an MD from China** began working in my laboratory in 1985 at the University of Texas Medical Branch at Galveston. The last year of her research was carried out at the University of Maryland School of Medicine, where she graduated from UMB September 1990 (Thesis:.Expression of a Uniqure Immunoglobulin Kappa Light Chain Variable Gene in Differenct Strains of Mice). Currently Dr. Chen is the Associate Chief and Medical Officer at the National Cancer Institute.

Ph.D. Students

1986-1991 **Robert Miceli** began work with me in 1986 at University of Texas Medical Branch at Galveston. He completed this thesis work at the University of Maryland School of Medicine and received his degree, June 1991 (Thesis: Vh Gene Expression in Murine Bone Marrow B Lymphocytes). He is currently working in an administrative role at the FDA.

1990-1993 **Paulo Kofuji** worked with me and Dr. J. Lederer at the University of Maryland School of Medicine. He received his Ph.D., June 1993 (Thesis: Molecular Characterization of the Plasma Membrane Na/Ca Exchanger). Dr. Kofuji took a post doctoral position in Dr. H. Lester’s Laboratory CalTech and currently is an Associate Professor at the University of Minnesota School of Medicine.

1994-1998 **Suwin He** joined my laboratory in 1994 at theUniversity of Maryland School of Medicine, Dr. He was awarded his degree in from the University of Maryland School of Medicine in 1998 (Thesis: Na+-Ca2+ Exchanger Isoforms in Nervous Tissue and Isoform –Specific Regulation by PKA). Dr. He worked as a postdoctoral fellow in the laboratory of Dr. J. Lingrel, University of Cincinnati School of Medicine for 4 years. He became a clinical resident in Muncie Indiana where he now practices on the staff.

**Postdoctoral Fellows**

Postdoctoral Fellows that have been trained in my laboratory

1989-1992 **Chiara Borghesi Nicoletti** spent 4 years in my laboratory and currently is working in a laboratory in Siena, Italy.

**1990-1993 Dr. Carmen Valdivia** who worked in my laboratory is currently in the Internal Medicine Department, Cardiology, at the University of Michigan.

1994-1995 **Dr. Wendy Uang** spent one year in my laboratory and moved to the Mayo Clinic, Rochester Mn. I have lost touch with her after working in Minnesota.

1994-1997 **Dr. Kaifeng Qian** spent 3 years in my laboratory doing molecular and cell biology and is a resident at Mercy Hospital in Philadelphia, PA ().

1994-1995 **Dr. Claire Paul** worked in my laboratory for 1 year. She then worked at the Mayo Clinic for two years and shortly after returning to work in France became ill and learned that she has passed away.

2006-2009 **Dr. Abdul Ruknudin** has worked with me for four years. Became a Research Assistant Professor, University of Maryland, Baltimore. Currently works in clinical research position with Convance (2012- present).

1998-1999 **Dr. Qing-Shen Mi** worked for 6 months in my laboratory to learn cloning. Currently he is a practicing physician in Florida.

2000-2002 **Dr. Shiek Kumar** was a postdoctortoral fellow that created some NCX isoform variants for study in the laboratorya postdoctoral fellow. I have lost touch with him since he worked in the laboratory.

2001-2003 **Dr. Swamy Polumori** was a postdoctoral fellow, and then moved to Dr. S. Vogel’s laboratory. He recently took a position at the FDA.

2015- **Dr. Danielle Kalkofen**, is currently postdoctoral fellow in my laboratory.

##### Grant Support

###### Active Grants:

3/2015-2/2016  **(**PI D. Schulze, 10%)

Development of a Universal Biosensor

Maryland Industrial Partnership #5522

Total Direct Cost: $100,000

7/01/2015-06/30/2017 Webb (PI) / Schulze (Co-PI 8%)                                              
 NKT cells with chimeric antigen receptors

NIH/NCI   1R21CA199544-01                                                                       Annual Direct Cost: $108,750

Total Direct Cost: $326,250

*Working with students and postdocs for the development and engineering of chimeric antigen receptors for expression in cells.*

**Completed Grants:**

4/87-3/93(PI D Schulze, 50%)

Characterization and Expression of a large Vh gene family.

NIH R29 AI 124681

TDC $68,744

7/88-7/91 (PI: D. Schulze, 30%)

Characterization and Expression of Immunoglobulin Gene Families NIH R01 AG08191

TDC $350,000

12/91-11/96 (Program Director J. Cerny, $1,753,412 all projects)

Project #1 PI: D. Schulze 30%

Mechanisms of Immunosenescense

P01 NIH AG10207

$117,439 per year

TDC $445,056

7/94-6/97 (PI. D Schulze, 20%)

Structure/Function analysis of the Na/Ca exchanger

American Heart Association 9401950 Annual Direct Costs$43,340

Total Direct Costs $130,020.

7/1994-6/1995 (PI. D Schulze, 10%)

Analysis of Na+/Ca2+ exchanger isoforms in cardiac cells in development

University of Maryland Special Research Initiatives

Annual Direct Costs $13,983

Total Direct Costs $13,983

4/2000 to 3/2004: (PI: D. Schulze, 30%)

Biology of the Na+/Ca2+ Exchanger

NIH R01 HL62521

Annual Direct Costs $200,000. :

Total Direct Costs $600,000

2001-2006 (PI: Frank Margolis) (Collaborator D. Schulze 5%)

OMP: Role in olfactory detection and transduction-

NIH R01DC003112-08

Total Costs $464,172 per year

*Studying NCX/NCKX expression pattern and activity in olfactory tissue.*

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8/2007-7/2009 (PI: S.Strome), (Co/PI D. Schulze 10%)

Recombinant Stradomers to Treat Autoimmune Disease;

Maryland Industrial Partnership -Gliknik Inc./University of Maryland, Baltimore.

Total Direct Costs $135,000

**ISSUED PATENTS**

2007 United States Patent 60/941,644 **Use of Ig dimers for the treatment of disease** Inventors: Scott E. Strome and Dan H. Schulze (June 1, 2007) Assignee: The University of Maryland School of Medicine. Abstract: "Fixed Functional Portions of Immunoglobulin Fc Fragments" Dec 20, 2007

**Publications**

**Peer-reviewed journal articles**

1. Braunstein, J.D., **D.H. Schulze,** T. Del Guidice, A. Furst and C.L.Schildkraut. The temporal order of replication of murine immunoglobulin heavy chain constant region sequences corresponds to their linear order in the genome. Nuc. Acids Res. 10:6887-6902; 1982. (PMID 6294619) *Role: Data collection, data analysis, and contributed to writing manuscript.*

2. Pease, L.R., **D.H. Schulze**, G. Pfaffenbach and S.G. Nathenson. Spontaneous H-2 mutants provide evidence that a copy mechanism analogous to gene conversion generates polymorphism in the MHC. Proc. Natl. Acad. Sci. USA 80:242-246; 1983. (PMID: 6571997). *Role: Cloning, sequencing, data collection, data analysis and contributed to writing manuscript.*

3. **Schulze D.H**., L.R. Pease, Y. Obata, S.G. Nathenson, A.A. Reyes, S., Ikuta and R.B. Wallace. Identification of the cloned gene for the murine transplantation antigen H-2Kb by hybridization with synthetic oligonucleotides. Molec. Cell. Biol. 3:370-375; 1983. (PMID: 6855774). *Role: Planning experiments data interpretation and contributed to writing the manuscript.*

4. **Schulze, D.H**., L.R. Pease, A.A. Reyes, L.A. Sarmiento, R.B. Wallace and S.G. Nathenson. Comparison of the cloned H-2Kbml variant gene to the H-2Kb gene shows a cluster of seven nucleotide differences. Proc. Natl. Acad. Sci. USA 80:2007-2011; 1983. *Role: Experimental design, sequencing , data collection and contributed to writing the manuscript*

5. **Schulze, D.H**., L.R. Pease, K. Yokoyama, S.S. Geier, G.M., Pfaffenbach, J. Geliebter, R.A. Zeff, B.P. Rosenblatt and S.G. Nathenson. Diversity and polymorphism in the MHC appear to be generated by a copy mechanism. Transp. Proc. 15:2009-2012; 1983. (PMID: 6673203).  *Role: experimental design, data interpretation, contributed to writing the manuscript.*

6. Alterman, R.M., S. Ganguly, **D.H. Schulze**, W.F. Marzluff, C.L., Schildkraut and A.I. Skoultchi. Cell cycle regulation of mouse H3 histone mRNA metabolism. Molec. Cell. Biol. 4:123-132; 1984. (PMID: 6583492). *Role: data collection data analysis and made minor contributation to writing the manuscript*

7. **Schulze, D.H.** and C.S. Lee. DNA sequence comparison among closely related *Drosophila* species in the Mulleri complex. Genetics 113:287-303; 1986. (PMID: 3721196). *Role: Provided experimental results,data analysis and wrote the manuscript.*

8. Geliebter, J., R.A. Zeff, **D.H. Schulze**, L.R. Pease, E.H. Weiss, A.L. Mellor, R.A. Flavell and S.G. Nathenson. Interaction between Kb and Q4 gene sequences generates the Kbm6 mutation. Molec. Cell Biol.6:645-652; 1986. (PMID: 3023861). *Role: Provided data, sequencing, clone analysis and contributed to writing the manuscript.*

9 **Schulze, D.H**. and G. Kelsoe. Genotypic analysis of B-cell colonies by in situ hybridization: Expression of three VH gene families in adult C57BL/6 and BALB/c mice. J. Exp. Med. 166:163-172; 1987. *Role: Experimental design, sequencing , data collection and co-wrote the manuscript.*

10. Cronkhite, R., **D.H. Schulze** and J. Cerny. Regulation of idiotype expression: IV Genetic linkage of two D-region independent T15 idiotypes to the IgH allotype. J. Immunol. 142:568-574; 1989. *Role: provided Experimental results,data analysis and, wrote parts of the manuscript.*

11. Kelsoe, G., R. Miceli, J. Cerny and **D.H. Schulze**. Mapping of antibody specificities of VH gene families. Immunogenetics, 29:288-296; 1989. *Role: Experimental design, data collection and contributed to writing the manuscript*

12. Kaushik, A. **D.H. Schulze**, C. Bona and G. Kelsoe. Murine VK gene expression does not follow the VH paradigm. J. Exp. Med. 169:1859-1864; 1989. *Role: Experimental design, data collection and contributed to writing the manuscript*

13. Striebich, C.C., R. Miceli, **D.H. Schulze**, G. Kelsoe and J. Cerny. Antigen binding repertoire and immunoglobulin heavy chain gene usage among B-cell hybridomas from normal and autoimmune mice. J. Immunol. 144:1857-1865;1990. (PMID: 2106554). Role: provided experimental results,data analysis and, wrote parts of the manuscript.

14. Kaushik, A., **D.H. Schulze**, F.A. Bonilla, C. Bona and G. Kelsoe. Stochastic VH + VK pairing occurs in polyclonally activated B cells. Proc. Natl. Acad. Sci. 87:4932-4936; 1990. (PMID: 2114644). *Role: experimental design, data collection and contributed to writing the manuscript*

15. Borghesi-Nicoletti, C. and **D. H. Schulze**. PCR amplification of genes flanked by short non-contiguous sequence motifs. Anal. Biochem. 192:449-452; 1990. Role: experimental design, data interpretation and writing the manuscript.

16. Miceli, R.M., Mancillas, P. and **D.H. Schulze**. Analysis of the expressed heavy chain variable gene repertoire in aged mice. Aging: Immunol. and Infectious Diseases 2:153-161; 1990. Role: experimental design, data interpretation and writing the manuscript.

17. Goidl, E.A., Chen, X.H. and **D.H. Schulze**. B cell function in the immune response. Aging: Immunol. and Infectious Diseases 2:135-138; 1990. Role: Experimental design, data interpretation and contributed to writing the manuscript.

18. Pfaffenbach, G.M., H. Uehara, J. Geliebter, S.G. Nathenson and **D.H. Schulze**. Analysis of the H-2Kbm8 mutant: correlation of structure with function. Mol. Immunol. 28: 697-701; 1990. *Role: Experimental design, data interpretation and wrote the manuscript.*

19. **Schulze D.H.** and E. Goidl. Age-associated changes in antibody-forming cells (B cells). Proc. Soc. Exp. Biol. and Med. 196:253-259; 1990. .*Role: Experimental design,data analysisand co-wrote the manuscript.*

20. Nicoletti, C.C. Borghesi-Nicoletti, X. Young, **D.H. Schulze** and J. Cerny. The repertoire diversity of antibody response to bacterial antigens in aged mice. II Phosphorylcholine- antibody in young and aged mice differin the VH/VL gene repertoire and in specificity. J. Immunol. 147:2750-2755; 1991. *Role: Provided experimental results,data analysis and, wrote parts of the manuscript.*

21. Borghesi-Nicoletti, C. and **D.H. Schulze**. Oligonucleotide hybridization used to detect short non-contigous sequences BioTechniques 12:474-477; 1992. *Role: Experimental design, data interpretation and wrote the manuscript.*

22. **Schulze, D.H**., P. Mancillas, A. Kaushik, C. Bona and G. Kelsoe. Mitogen-induced VH and VL expression is similar in young adult and aged mice. Aging: Immunology and Infection Diseases 3:127-134; 1992. *Role: Experimental design, data collection and contributed to writing the manuscript.*

23. Goidl, E.A., J. Cerny, G. Kelsoe and **D.H. Schulze**. Aging and humoral immunity. Maryland Med. J. 41:609-613, 1992. Role: Interpreted data and wrote portions of the paper

24. Kofuji, P., R.W. Hadley, R.S. Kieval, W.J. Lederer and **D.H. Schulze**. Expression of the Na+/Ca2+ exchanger in diverse tissues:a study using the cloned human cardiac Na+/Ca2+ exchanger. Am. J. Physiol. 263:C1241-C1249, 1992.  *Role: Experimental design, supervison of the work and contributed to writing of the manuscript.*

25. McDaniel, L.D., W.J. Lederer, P. Kofuji, **D.H. Schulze**, R. Kieval and R.A. Schultz. Mapping of the human cardiac Na+/Ca2+ exhanger by *In situ* hybridization to chromosenes 2p22-p23. Cytogenetics and Cell Genetics 63:192-193, 1993. (PMID: 8485996). *Role: provided probes for the mapping and contributed to writing the manuscript.*

26. **Schulze, D.H**., P. Kofuji, R. Hadley, M.S. Kirby, R. Kieval, A. Doering, E. Niggli and W.J. Lederer. Sodium-calcium exchanger in heart muscle: molecular biology. Cellular function and its special role in excitation-contraction coupling. Cardiovascular Research 27:1726-1734, 1993. *Role: data analysis, interpretations and contributing to writing of the paper.*

27. Kofuji, P., W.J. Lederer and **D.H. Schulze**. Na+/Ca2+ exchanger isoforms expressed in the heart and kidney. Am. J. Physiol. 263:C1241-C1249, 1993. *Role: Experimental design, supervison of the work, data interpretation and contributed to writing of the manuscript.*

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**Non-peer reviewed journal articles**

**Book Chapters** .

1. Zeff, R.A.; Geier, S.S.; Gopas, J.; Geliebter, J.; **Schulze, D.H**.; Pease,L.R.; Pfaffenbach, G.M.; Mashimo, H.; McGovern, D.A. and Nathenson, S.G. Mutants murine major histocompatibility complex: Structural analysis of in vivo and in vitro H-2Kb variants. In Cell Biology of the Major Histocompatibility Complex, B. Pernis and H.J. Vogel Eds., Academic Press, Inc. N.Y. pp. 41-49, 1985.

2. **Schulze, D.H**. A copy substitution mechanism characterized in MHC mutants Vertebrate Immunity: The antigen-receptor and MHC gene families. G. Kelsoe and D.H. Schulze Eds. University of Texas Press. pp 413-427, 1987.

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**Books**

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**Major Invited Speeches** (number entire section continuously, through each subsection)

Local

**1. Schulze, DH** Repertoire development of immunoglobulin genes in the mouse.Goucher College, Department of Biology, Baltimore, MD, 1993.

**2. Schulze DH** Cloning and characterization of the human NCX I gene Department of Microbiology and Immunology, University of Maryland, Baltimore MD April 24, 2003.

**3.** **Schulze DH** Characterization of the transcripts for NCX1 from various human tissues. Presentation to the Institute of Molecular Cardiology, UMBI January 2004

**4. Schulze DH** Cloning of the Drosophila NCX gene: structure and function. Summer Research Program UMB July 2005

**5. Schulze DH** Cloning and Characterization of the Human NCX I gene Department of Biology, University of Maryland, College Park MD, 2005..

**6**. **Schulze DH** Alternative splicing of transcripts in the mouse. University of Maryland Cancer Center September 2006

**7. Schulze DH** Role of FcRIIIA polymorphisms in the treatment of SCCHN. Presentation to Otorhinolaryngology-Head and Neck Surgery and Tumor Immunology and Immunotherapy Retreat, August 25, 2010.

National

**8. Schulze DH** [Diversity and polymorphism in the MHC appear to be generated by a copy mechanism.](http://www.ncbi.nlm.nih.gov/pubmed/6673203) Bar Harbor Research Laboratories, Bar Harbor, ME, 1985.

9. **Schulze DH** [Spontaneous H-2 mutants provide evidence that a copy mechanism analogous to gene conversion generates polymorphism in the major histocompatibility complex.](http://www.ncbi.nlm.nih.gov/pubmed/6571997) University of Texas Medical Branch, Department of Microbiology, Galveston, TX, 1985,

**10. Schulze DH** Comparison of the cloned H-2Kbm1 variant gene with the H-2Kb gene shows a cluster of seven nucleotide differences. Baylor College of Medicine, Department of Immunology, Houston, TX. 1985.

**11. Schulze DH** [Diversity and polymorphism in the MHC appear to be generated by a copy mechanism.](http://www.ncbi.nlm.nih.gov/pubmed/6673203) University of Texas, Department of Zoology, 1985, Austin, TX

**12. Schulze DH** [Interaction between Kb and Q4 gene sequences generates the Kbm6 mutation.](http://www.ncbi.nlm.nih.gov/pubmed/3023861)

University of North Carolina, Cancer Center and Microbiology Department, Chapel Hill, North Carolina, 1985.

**13.** **Schulze DH** Comparison of the cloned H-2Kbm1 variant gene with the H-2Kb gene shows a cluster of seven nucleotide differences. Mayo Clinic, Department of Immunology, Rochester, MN., 1985.

**14. Schulze DH** [Spontaneous H-2 mutants provide evidence that a copy mechanism analogous to gene conversion generates polymorphism in the major histocompatibility complex.](http://www.ncbi.nlm.nih.gov/pubmed/6571997) Texas Immunology Conference, Invited Symposium Lecture, Houston, Texas, 1986.

**15. Schulze DH** [Genotypic analysis of B cell colonies by in situ hybridization. Stoichiometric expression of three VH families in adult mice.](http://www.ncbi.nlm.nih.gov/pubmed/3110348) State University of New York, Department of Microbiology and Immunology, Syracuse, NY, 1988.

**16. Schulze DH** [Genotypic analysis of B cell colonies by in situ hybridization. Stoichiometric expression of three VH families in adult mice.](http://www.ncbi.nlm.nih.gov/pubmed/3110348) University of Maryland, Department of Microbiology and Immunology, Baltimore, MD, 1988.

**17. Schulze DH** [Mapping of antibody specificities to VH gene families.](http://www.ncbi.nlm.nih.gov/pubmed/2785504) Johns Hopkins University, Immunology Council, Baltimore, MD, 1990,

**18. Schulze DH** [Stochastic pairing of heavy-chain and kappa light-chain variable gene families occurs in polyclonally activated B cells.](http://www.ncbi.nlm.nih.gov/pubmed/2114644) Mayo Clinic, Department of Immunology, Rochester, MN. 1990.

**19. Schulze DH** [Functional regulation of alternatively spliced Na](http://www.ncbi.nlm.nih.gov/pubmed/12502560)[+](http://www.ncbi.nlm.nih.gov/pubmed/12502560)[/Ca](http://www.ncbi.nlm.nih.gov/pubmed/12502560)[2+](http://www.ncbi.nlm.nih.gov/pubmed/12502560) [exchanger (NCX1) isoforms.](http://www.ncbi.nlm.nih.gov/pubmed/12502560) McMaster University, Department of Microbiology, Ont. Canada, December 12, 1998.

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**21. Schulze DH** Functional differences between cardiac and renal isoforms of the rat Na+-Ca2+ exchanger NCX1 expressed in Xenopus oocytes. Department of Pediatrics New York University Medical Center, New York, 1999.

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**23. Schulze DH** Departments of Physiology and Microbiology/Immunology, University of Texas Medical Branch, Galveston TX, March, 2002.

International

**24. Schulze DH,** Evolutionary rates in single copy DNA in the Drosophila Mulleri Subgroup. Banff, Canada1975.

**25. Schulze, DH**. Cloning and characterization of MHC class I genes in mice, Imperial Cancer Research Fund: March, 1982 Wye, England, 1982.

**26 Schulze, DH**. Characterization of MHC in mouse, Red Cross Laboratory, Amsterdam, Netherlands, 1982

**27. Schulze, DH**. Cloning and characterization MHC genes.in the mouse. Heidelberg University, Heidelberg Germany, 1982

**28. Schulze, DH** MHC class I mutant Bm8: Sequence and Significance 6th International Congress of Immunology, Toronto, Canada, 1986.

**29. Schulze, DH** Antibody Responses in Aging. Sixth International Symposium on Infection in the Immunocompromised Host, Peebles, Scotland. 1990,

**30. Schulze, DH** Developmental and strain differences in V81x espression. Keystone Conference, Taos New Mexico 1993.

**31. Schulze DH** The molecular biology of the Na+-Ca2+ exchanger and its function in heart, smooth muscle, neurons, glia, lymphocytes and non excitable cells. 3rd International Symposium on Na+/Ca+2 exchange, 1995, Woods Hole, MA., Invited Speaker, Third International Conference on the Na+/Ca2+ Exchanger, (N.Y.A.S.) April 22, 1995.

**32. Schulze DH** Development of student focus groups to assist in course improvement. 4th Biennial Conference of the International Association of Medical Science Education. Advances in Medical Sciences Education:Learning Modes and Teaching Strategies. July 17-20, 1999 Georgetown University, Washington DC

**33. Schulze, DH** Novel Functional Differences between Drosophila and Human Na+/Ca2+ exchangers. 41st International Biophysical Society Meeting New Orleans, LA., 1997

**34. Schulze, DH.** Sodium calcium exchanger NCXI, NCX2 and NCX3 transcripts in developing rat brain. 4th International Symposium on Na+/Ca+2 exchange, 2001, Calgary, Canada. Invited Speaker, Fourth International Conference on the Na+/Ca2+ Exchanger, (N.Y.A.S.) April , 2001.

**35. Schulze, DH** Characterization of the Bacterial Calcium Exchanger, 46th International Biophysical Society Meeting, San Francisco, CA 2002

**36. Schulze, DH** Exercise Alters Function of the Heart Through the NCX Macromolecular Complex, 48th International Biophysical Society Meeting, Baltimore MD, 2004