

CURRICULUM VITAE

Steven S. Vogel, Ph.D.

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Education and Certifications:

INSTITUTION AND LOCATION	DEGREE	YEAR	FIELD OF STUDY
The City College of New York	B.S.	1978	Biology
Columbia University, NYC	M.A.	1984	Biochemistry & Molecular Biophysics
	M. Phil.	1988	Biochemistry & Molecular Biophysics
	Ph.D.	1989	Biochemistry & Molecular Biophysics

Professional Associations and Services:

- Program committee, The second International Discussion Meeting
“Förster Resonance Energy Transfer in Life Sciences II” Goettingen, Germany (2016)
- Participant in DARPA meeting on advanced photon counting devices (2015)
- Co-organizer, 8th Workshop on Advanced TCSPC Techniques in Biomedical Sciences, Bethesda, MD
- Conference program committee, BIOS/SPIE (2012-Present)
(2013)
- Co-organizer, 7th Workshop on Advanced TCSPC Techniques in Biomedical Sciences, Bethesda, MD
(2012)
- Co-chair, Förster Resonance Energy Transfer: Spectroscopy and Microscopy at the Biophysical Society Meeting,
San Diego, CA (2012).
- Co-organizer, 6th Workshop on Advanced TCSPC Techniques in Biomedical Sciences, Bethesda, MD
(2011)
- Editor, JoVE: Journal of Visualized Experiments (2011-present)
- Program committee member, Multiphoton Microscopy Conference, SPIE West/BiOS (2011)
- Co-organizer, 5th Workshop on Advanced TCSPC Techniques in Biomedical Sciences, Bethesda, MD
(2011)
- Guest Editor, JBO: Journal of Biomedical Optics, Special Edition on FRET (2011)
- Co-organizer, “FRET at 65: A celebration of Förster”, University of Virginia, VA (2011)
- Director of Imaging Section, MBL Neurobiology Course, Woods Hole, MA (2004)
- Member of organization committee, Exocytosis–endocytosis subgroup Biophysical Society,
Bethesda, MD (2003-4)
- Member of Biophysical Society, Bethesda, MD
- Co-director, FAES course 'Membrane Structure & Function', Bethesda, MD (1994-1996)
- Associate Director, Grass Fellowship Program, Woods Hole, MA (1993)
- Biophysical Society Program Committee, Bethesda, MD (1992-1995)
- Grass Foundation Oversight Committee, Quincy, MA (1990)

Honors and Awards:

- NIH Office of the Director Honor Award (2019)

- Invited participant Banbury Center Conference on CaMKII and its role as a self-tuning structural protein at the synapse, Lloyd Harbor, New York (Oct. 2019)
- NIH Office of the Director Honor Award (2016)
- Blue Flame Award, Addgene (2016)
- Keynote speaker UVA Symposium on Microscopy and Imaging (2012)
- Keynote speaker 6th Conference on Single Cell and Molecule Analysis, Münster, Germany (2009)
- Alberta Heritage Foundation for Medical Research Visiting Lecturer, Canada (2004)
- Steinbach Fellowship, Marine Biological Laboratory, Woods Hole, MA (1989)
- Grass Fellowship, Marine Biological Laboratory, Woods Hole, MA (1988)
- Marine Biological Laboratory Neurobiology Summer Course, Woods Hole, MA (1987)
- Hulme Scholar, Brasenose College, Oxford University, UK (1984)
- Dean's List City College of New York, New York, NY (1975 & 1976)
- New York State Regents Scholarship, New York, NY (1973-1978)

Research Interests: We are interested in developing photonics tools for studying how proteins interact under physiological conditions.

Postdoctoral training:

1989-1991 NIH, NIDDK, Bethesda, Maryland. *IRTA Fellow* under Dr. W. Jacoby
 1991-1996 NIH, NICHD, Bethesda, Maryland. *Senior Staff Fellow* under Dr. J. Zimmerberg
 1996-1997 NIH, NINDS, Bethesda, Maryland. *Senior Staff Fellow* under Dr. E.F. Stanley

Professional Work Experience:

1997-2003 Medical College of Georgia, Augusta, Georgia. *Director Cell Imaging Core.*
 1997-2002 Medical College of Georgia, Augusta, Georgia. *Assistant Professor*
 1999-2003 Medical College of Georgia, Augusta, Georgia. Faculty in the School of Graduate Studies.
 2002-2003 Medical College of Georgia, Augusta, Georgia. *Tenured Associate Professor*
 2003-2005 Medical College of Georgia, Augusta, Georgia. *Adjunct Associate Professor*
 2003-2013 NIH, NIAAA, Rockville, Maryland. *Acting Section Chief and Investigator (Tenure-track).*
 2013-present NIH, NIAAA, Rockville, Maryland. *Section Chief and Senior Investigator (Tenured).*
 2017-2018 NIH, NIAAA, Rockville, Maryland. *Acting Laboratory Chief.*
 2018- present NIH, NIAAA, Rockville, Maryland. *Laboratory Chief*

Grants and Contracts (recent):

Title: Calcium and Endocytotic Membrane Retrieval
 Source: NIH/NINDS (R01-NS41055-01)
 Position: Principal Investigator
 Project Total (4-1-00 to 4-1-04): (\$1,168,000)

Title: Markers of Low-dose Radiation Response
 Source: DOE (DE-FG07-99ER62875)
 Position: Co-Investigator
 Project Total (9-15-99 to 9-14-02): (\$1,012,947)

Title: Cellular and Molecular Mechanisms Mediating Rapid Resealing of Gravity-induced Plasma Membrane Disruptions
 Source: NASA (99-HEDS-02/03-220)
 Position: Co-Investigator
 Project Total (7-1-00 to 6-30-03): (\$972,134)

Title: FRET imaging of protein-protein interactions inside living cells Source: NIH (1 Z01 AA000452)
 Position: Investigator
 Project Total (5-1-03 to present)

Title: Pilot Study to determine if a morpholino approach to determine the function of dysferlin in sea urchin is feasible.
 Source: Jain foundation
 Position: Investigator
 Project Total (7-1-07)

Title: Using morpholinos to determine the function of dysferlin in sea urchin.
Source: Jain foundation
Position: Investigator
Project Total (5-1-08 to 10-31-08)

Title: Determine the role dysferlin plays in wounding triggered ATP secretion.
Source: Jain foundation
Position: Investigator
Project Total (3-1-09 to 2-28-10)

Professional Services:

NIH, Bethesda MD. Committee on Scientific Conduct and Ethics (2013-Present).
Medical College of Georgia, Augusta, Georgia. Intellectual Property Committee (2000-2003).
Medical College of Georgia, Augusta, Georgia. Academic Computing Advisory Board (2001-2003).
Medical College of Georgia, Augusta, Georgia. Executive Committee, Institute of Molecular Medicine and Genetics (2001-2002).
Medical College of Georgia, Augusta, Georgia. Core Lab Oversight Committee (2002-2003).
Georgia Research Alliance, Atlanta, Georgia. Advanced Medical Treatments and Devices planning group (2002-2003).

Teaching:

Not Applicable

Graduate Students and Postdoctoral Fellows:

Postdoctoral fellows

B. Baibakov, PhD	Post-Doctoral Fellow/Imaging Core manager, Medical College of Georgia 1997-2001. Current position: Biologist, Lab Cellular & Developmental Biology, NIDDK. NIH.
Y. Ikebuchi, MD	Post-Doctoral Fellow, Medical College of Georgia 1997-2001 Current position: Private practice in reproductive endocrinology, Mino City, Japan.
K. Miyake, PhD	Post-Doctoral Fellow/Imaging Core manager, Medical College of Georgia 2001-2003 Current position: Associate Professor Department of Histology and Cell Biology, School of Medicine, Kagawa University, Japan.
W. Frejtag, PhD	Post-Doctoral Fellow, Medical College of Georgia 2002-2003 Current position: Unknown
S.V. Koushik, PhD	Post-Doctoral Fellow, NIAAA 2003-2011 Current position: Self-employed.
C. Thaler, PhD	Post-Doctoral Fellow, NIAAA 2003-2011 Current position: Self-employed.
J. F. Covian-Nares, PhD	Post-Doctoral Fellow, NIAAA 2004-2008 Current position: Professor Instituto Tecnológico de Morelia, Mexico.
T. A. Nguyen, PhD	Research Fellow, NIAAA 2009-present
J. V. Veetil, PhD	Post-Doctoral IRTA Fellow, NIAAA 2011-2015 Current position: Program Manager FAES
P. Sarkar PhD	Research Fellow, NIAAA 2011-2015 Current position: Program Manager Organisation For Friends, Energies & Resources. Kolkata, India.
Y. Kim, PhD	Post-Doctoral IRTA Fellow, NIAAA 2015-2020 Current position: Lecturer in Quantum Biology, University of Surrey, U.K.

Invited Presentations:

Virtual Talk to Center for Quantum Technology, University of Kwazulu-Natal, **South Africa** (2020)
Virtual Talk to Quantum Biology Group University of Surrey, **U.K.** (2020)
FRET Microscopy Workshop, University of Virginia, VA (2020)
ABRF, Palm Springs, CA (2020)
BiOS Photonics West, San Francisco, CA (2020)
17th Annual Advanced Imaging Methods Workshop, UC Berkley CA (2020)
13th Workshop on Advanced TCSPC Techniques in Biomedical Sciences, Bethesda, MD (2019)
Banbury Center, Cold Spring Harbor Laboratory, workshop on CaMKII and its role as a Self-tuning Structural Protein at the Synapse. Lloyd Harbor, NY (2019).
16th Annual Advanced Imaging Methods Workshop, UC Berkley CA (2019)
University of Minnesota, Department of Physics (2018)
12th Workshop on Advanced TCSPC Techniques in Biomedical Sciences, Bethesda, MD (2018)
FRET Microscopy Workshop, University of Virginia (2018)
15th Annual Advanced Imaging Methods Workshop, UC Berkley CA (2018)
11th Workshop on Advanced TCSPC Techniques in Biomedical Sciences, Bethesda, MD (2017)
NIH Light Microscopy special interest Group, Bethesda, MD (2017)
FRET Microscopy Workshop, University of Virginia (2017)
14th Annual Advanced Imaging Methods Workshop, UC Berkley CA (2017)
NIST Quantum Optics group, Gaithersburg, MD (2017)
10th Workshop on Advanced TCSPC Techniques in Biomedical Sciences, Bethesda, MD (2016)
Max Planck 2nd FRET Workshop, Göttingen, **Germany** (2016)
FRET Microscopy Workshop, University of Virginia (2016)
Biophysical Society Meeting, Los Angeles, CA (2016)
13th Annual Advanced Imaging Methods Workshop, UC Berkley CA (2016)
9th Workshop on Advanced TCSPC Techniques in Biomedical Sciences, Bethesda, MD (2015)
Royal Microscopy Society, Microscience Microscopy Congress, Manchester, England. 2015.
10th Workshop on Advanced Multiphoton and Fluorescence Lifetime Imaging Techniques, Saarland University, Saarbrücken, **Germany**, (2015)
SUNY Stony Brook, Dept of Biochemistry & Cell Biology, 2015
FRET Microscopy Workshop, University of Virginia (2015)
SPIE BioS Meeting in San Francisco (2015)
12th Annual Advanced Imaging Methods Workshop, UC Berkley (2015)
8th Workshop on Advanced TCSPC Techniques in Biomedical Sciences, Bethesda, MD (2014)
FRET Microscopy Workshop, University of Virginia (2014)
Biophysical Society Biological Fluorescence Sub-group Meeting, San Francisco, CA (2014)
11th Annual Advanced Imaging Methods Workshop, UC Berkley (2014)
7th Workshop on Advanced TCSPC Techniques in Biomedical Sciences, Bethesda, MD (2013)
Single Photonics and Quantum Information Laboratory, National Institute of Standards and Technology, Boulder, CO (2013)
Physical Measurement Laboratory, National Institute of Standards and Technology, Gaithersburg, MD (2013)
Max-Planck-Institute for Biophysical Chemistry, Göttingen, **Germany** (2013)
8th Workshop on Advanced Multiphoton and Fluorescence Lifetime Imaging Techniques, Saarland University, Saarbrücken, **Germany**, (2013)
Fast Track Action Committee on Optics and Photonics (FTAC-OP), Physical Science Subcommittee of the Committee on Science of the National Science and Technology Council. White House Conference Center, Washington DC (2013)
FluoroFest at the Center for Commercialization of Fluorescence Technologies at the University of North Texas Health Science Center in Fort Worth, Texas (2013).
FRET Microscopy Workshop, University of Virginia (2013)
NICHD Program in Physical Biology Seminar Series (2013)
10th Annual Advanced Imaging Methods Workshop, UC Berkley (2013)
NIH Light Microscopy Interest Group (2012)
UVA Symposium on Microscopy and Imaging (2012)
6th Workshop on Advanced TCSPC Techniques in Biomedical Sciences, Bethesda, MD (2012)
Instituto Tecnológico de Morelia, **Mexico** (2012)
Heinrich-Heine-Universität Duesseldorf, **Germany** (2012)
7th Workshop on Advanced Multiphoton and Fluorescence Lifetime Imaging Techniques, Saarland University, Saarbrücken, **Germany**, (2012)
NIST Polymers Division Materials Measurement Laboratory, Gaithersburg, MD (2012)
NIH Synaptic Plasticity Interest Group (2012)
FRET Microscopy Workshop, University of Virginia (2012)

Photonics West, BiOS Conference on Multiphoton Microscopy, San Francisco, CA (2012)
 9th Annual Advanced Imaging Methods Workshop, UC Berkley (2012)
 5th Workshop on Advanced TCSPC Techniques in Biomedical Sciences, Bethesda, MD (2011)
 Departamento de Biología Celular, CINVESTAV-IPN, Mexico City, **Mexico** (2011)
 Genética y Biología Molecular, CINVESTAV-IPN, Mexico City, **Mexico** (2011)
 NIH Neurobiology Interest Group (2011)
 Western Kentucky University, Physics Department (2011)
 Laboratory of Neurobiology, NINDS, NIH, Bethesda, MD (2011)
 Cold Spring Harbor Laboratories, Imaging Structure and Function in the Nervous System Course (2011)
 The International School of Physics "ENRICO FERMI", Varenna, **Italy** (2011).
 5th Jain Foundation Dysferlin Conference, Chicago, IL (2011)
 NIAD Seminar Series (2011)
 FRET Microscopy Workshop, University of Virginia (2011)
 Biophysical Society Exocytosis and Endocytosis Subgroup, Baltimore, MD (2011)
 NICHD Program in Physical Biology Seminar Series (2011)
 Johns Hopkins University School of Medicine, Dept. of Biomedical Engineering (2011)
 8th Annual Advanced Imaging Methods Workshop, UC Berkley (2011)
 NICHD Program in Cellular Regulation and Metabolism Seminar Series (2011)
 Vanderbilt University, Molecular Physiology and Biophysics Department (2011)
 University of Iowa, Cardiovascular Seminar Series, Iowa City IA (2010)
 4th Boston Workshop on Advanced TCSPC Techniques, Boston MA (2010)
 4th Jain Foundation Dysferlin Conference, Seattle, WA (2010)
 Charité – Universitätsmedizin, Inter-institutional Neuroscience Seminar Series, Berlin, **Germany** (2010)
 The Vollum Institute. Portland, OR (2010)
 Universidad Michoacana de San Nicolas de Hidalgo, **Mexico** (2010)
 FRET Microscopy Workshop, University of Virginia (2010)
 Georgetown University, Department of Physiology and Biophysics, Washington, D.C. (2010)
 7th Annual Advanced Imaging Methods Workshop, UC Berkley (2010)
 4th International Biophotonics Workshop, National Yang-Ming University Taipei, **Taiwan** (2009)
 6th Conference on Single Cell and Molecule Analysis, Münster, **Germany** (2009)
 3rd Boston Workshop on Advanced TCSPC Techniques, Boston MA (2009)
 Johns Hopkins Medical School. Baltimore, MD. (2009)
 3rd Jain Foundation Dysferlin Conference, Boston, MA (2009)
 University of North Texas Health Science Center, Ft. Worth, TX (2009)
 FRET Microscopy Workshop, University of Virginia (2009) Faculty
 Photonics West, BiOS Conference on Multiphoton Microscopy, San Jose, CA (2009)
 6th Annual Advanced Imaging Methods Workshop, UC Berkley (2009)
 University of Maryland Biotechnology Institute, CARB (2008)
 Imaging at the Nano-scale Symposia, NIH Research Festival (2008)
 2nd Boston Workshop on Advanced TCSPC Techniques, Harvard Medical School (2008)
 3rd Workshop on Advanced Multiphoton and Fluorescence Lifetime Imaging Techniques,
 Saarland University, **Germany** 2008
 2nd Jain Foundation Dysferlin Conference, Puerto Rico (June 2008)
 FRET Microscopy Workshop, University of Virginia (March 2008) Faculty
 5th Annual Advanced Imaging Methods Workshop, UC Berkley (2008)
 Carnegie Institution, Stanford University (2008)
 International Symposium on Advance Techniques for Molecular Imaging, Taichung, **Taiwan**
 (2007)
 2nd Advanced Optical Imaging Workshop, University of Melbourne, **Australia** (2007)
 University of Wisconsin, W.M. Keck Laboratory for Biological imaging (2007)
 1st Boston Workshop on Advanced TCSPC Techniques (2007)
 1st Jain Foundation Dysferlin Conference, Hamilton, **Bermuda** (2007)
 4th Annual Advanced Imaging Methods Workshop, UC Berkley (2007)
 FRET Microscopy Workshop, University of Virginia (2007) Faculty
 University of Rochester, Department of Pharmacology and Physiology (2006)
 Cold Spring Harbor Laboratories, Imaging Structure and Function in the Nervous System Course (2006)
 Third Northern Lights Summer Conference on Multiphoton Microscopy, Saskatoon, **Canada** (2006)
 Case Western Reserve, Department of Physiology and Biophysics (2006)
 Max-Planck-Institute for Biophysical Chemistry, Göttingen, **Germany** (2006)
 FRET Microscopy Workshop, University of Virginia (2006) Faculty
 BiOS 2006 Conference on Multiphoton Microscopy, San Jose, CA (2006)
 3rd Annual Advanced Imaging Methods Workshop, UC Berkley (2006)
 4th Word Congress of Cellular & Molecular Biology, Poitiers, **France** (2005)

Medical College of Ohio, Neurobiology Program (2005)
 Annual Meeting American Society for Cell Biology, FRET Workshop (2004)
 Marine Biological Laboratory, Neurobiology Course, Woods Hole, MA (2004)
 National Institutes of Health, NIAMS (2004)
 University of Calgary, Department of Physiology & Biophysics, **Canada** (2004) Visiting Lecturer
 University of Alberta, Department of Cell Biology, Edmonton, **Canada** (2004) Visiting Lecturer
 Zeiss Workshop on Advanced imaging, Bethesda, MD (2004)
 National Institutes of Health, Light Microscopy Interest Group (2003)
 Developmental Biology of Sea Urchins XV, Woods Hole, MA (2003) Session Chair.
 National Institutes of Health, NIAAA Scientific Council (2003)
 National Institutes of Health, NIAAA (2002)
 University of Chicago Department of Neurobiology, Pharmacology & Physiology (2001)
 Case Western Reserve, Department of Physics (2001)
 Wayne State Medical School, Pharmacology Department (2001)
 University of Virginia, Department of Cell Biology (2001)
 Guthrie Institute (2001)
 Georgia Institute of Technology, Multi-photon Excitation Conference (2001)
 Gordon Conference on Fertilization (2001) Session Chair
 University of North Carolina-CH, Department of Cell & Mol. Physiology (2001)
 University of Massachusetts Med. School, Neurobiology Department (2001)
 University of South Alabama, Pharmacology Department (2001)
 University of Med. & Dent. of New Jersey, Department of Pharm. & Phys. (2001)
 Tufts Medical School, Physiology Department (2000)
 FASEB Conference on Calcium and Cell Function (2000)
 University of Colorado Denver, Physiology Department (2000)
 Yale University School of Medicine, Pharmacology Department (2000)
 Wayne State Medical School, Pharmacology Department (1999)
 Emory University, Department of Physiology (1999)
 University of Pennsylvania, Center for Atmospheric Medicine (1997)
 Georgia State University, Biology Department (1997)
 Wayne State School of Pharmacy (1996)
 Medical College of Georgia, Institute for Molecular Medicine and Genetics (1996)
 Conference on the Developmental Biology of the Sea Urchin, Woods Hole, MA (1996)
 University of Michigan, College of Pharmacy (1996)
 Louisiana State University, Anatomy Department (1996)
 Wayne State Medical School, Pharmacology Department (1995)
 Boston University, Pharmacology Department (1995)
 University of Miami, Pharmacology Department (1995)
 Wayne State University, Biology Department (1994)
 Food and Drug Administration (1994)
 Columbia University, Center for Neurobiology & Behavior (1994)
 Medical College of Pennsylvania, Physiology Department (1994)
 Medical College of Pennsylvania, Neurobiology Department (1994)
 Johns Hopkins, Cell Biology Department (1994)
 Harvard Medical School, Synaptic Mechanisms Group (1994)
 Jacques-Monod Conference, Aussois, **France** (1992)
 SUNY Stony Brook, Pharmacology Department (1991)
 SUNY Stony Brook, Neurobiology Department (1991)
 Yale University, Physiology Department (1991)
 Gordon Conference on Molecular Pharmacology (1991)
 University of Pennsylvania, Physiology Department (1991)
 New York Academy of Sciences, (1990)

ORIGINAL PAPERS:

A. In press and submitted

B. Printed

1. Phenotypic switching in cells transformed with Herpes simplex virus thymidine kinase gene. M. Ostrander, S. S. Vogel and S. J. Silverstein. **Molecular and Cellular Biology** 2:708 (1982).
2. Synaptosomes Prepared from Aplysia Nervous Tissue are Capable of Releasing Transmitter. 1. Preparation, and Biochemical and Morphological Characterization. G. J. Chin, E. Shapiro, S. S. Vogel and J. H. Schwartz. **J. Neuroscience** 9:38-48 (1989).
3. Characterization of G Proteins in Nerve and Muscle of the Marine Gastropod Aplysia. S. S. Vogel, G. J. Chin, S. M. Mumby, M. Schoenberg and J. H. Schwartz. **Brain Research** 478:281-292 (1989).
4. Characterization of synaptophysin and G proteins in synaptic vesicles and plasma membrane of Aplysia californica. G. J. Chin, S. S. Vogel, A. M. Elste, and J. H. Schwartz. **Brain Research** 508:265-272 (1990).
5. Pertussis toxin-sensitive G proteins are transported toward synaptic terminals by fast axonal transport S. S. Vogel, G. J. Chin, J. H. Schwartz and T. S. Reese. **Proc. Natl. Acad. Sci., USA** 88:1775-1778 (1991).
6. Proteins on exocytic vesicles mediate calcium-triggered fusion. S. S. Vogel and J. Zimmerberg. **Proc. Natl. Acad. Sci., USA** 89:4749-4753 (1992).
7. Calcium-triggered fusion of exocytotic granules requires proteins in only one membrane. S. S. Vogel, L. V. Chernomordik & J. Zimmerberg **Journal of Biological Chemistry** 267:25640-25643 (1992).
8. 8. Lysolipids reversibly inhibit Ca^{2+} , pH and GTP dependent fusion of biological membranes. L. V. Chernomordik, S. S. Vogel, E. A. Leikina, A. Sokoloff, H. O. Onaran & J. Zimmerberg **FEBS Letts.** 318:71-76 (1993).
9. Lysophosphatidylcholine reversibly arrests exocytosis and viral fusion at a stage between triggering and membrane merger S. S. Vogel, E. A. Leikina & L. V. Chernomordik **Journal of Biological Chemistry** 268:25764-25768 (1993).
10. Using caged calcium to study sea urchin egg cortical granule exocytosis in vitro N.I. Shafi, S. S. Vogel & J. Zimmerberg **Methods: A Companion to Methods in Enzymology** 6:82-92 (1994).
11. Application of a membrane fusion assay for rapid drug screening S. S. Vogel, S. Beushausen & D. S. Lester, **Pharmaceutical Research** 12:1417-1422 (1995).
12. Direct membrane retrieval into large vesicles after exocytosis in sea urchin eggs T. Whalley, M. Terasaki, M-S. Cho & S. S. Vogel **The Journal of Cell Biology** 131:1183-1192 (1995).
COVER
13. Poisson distributed active fusion complexes underlie the control of the rate and extent of exocytosis by calcium S. S. Vogel, P. S. Blank, & J. Zimmerberg. **The Journal of Cell Biology** 134:329-338 (1996).
14. Reconstitution of calcium triggered membrane fusion using 'reserve' granules. Valery V. Chestkov, Sergey P. Radko, Myoung-Soon Cho, Andreas Chrambach & Steven S. Vogel **Journal of Biological Chemistry** 278:2445-2451 (1998).
15. Submaximal responses in calcium-triggered exocytosis are explained by differences in the calcium sensitivity of individual secretory vesicles. P. S. Blank, M.S. Cho, S. S. Vogel, D. Kaplan, A. Kang, J. Malley & J. Zimmerberg. **J Gen. Physiol.** 112:559-67 (1998).
16. The calcium sensitivity of individual secretory vesicles is invariant with the rate of calcium delivery. P. S. Blank, S. S. Vogel, M.S. Cho, D. Kaplan, D. Bhuva, J. Malley & J. Zimmerberg. **J Gen. Physiol.** 112:569-76 (1998)
17. Calcium influx is required for endocytotic membrane retrieval. S.S. Vogel, R. M. Smith, B. Baibakov, Y. Ikebuchi, and N. A. Lambert. **Proc. Natl. Acad. Sci., USA** 96: 5019-5024 (1999)
18. Exocytotic Insertion of Calcium Channels Constrains Compensatory Endocytosis to Sites of Exocytosis. R. M. Smith, B. Baibakov, Y. Ikebuchi, B. H. White, N. A. Lambert, L. K. Kaczmarek, and S. S. Vogel. **The Journal of Cell Biology** 148:755-767 (2000).

19. Patching Plasma Membrane Disruptions with Cytoplasmic Membrane. P.L. McNeil, S.S. Vogel, K. Miyake, M. Terasaki. **J Cell Science** **113**:1891-1902 (2000).
20. Concurrent expression of recombination activating genes 1 and 2 in zebrafish olfactory sensory neurons. J.R. Jessen, T.N. Jessen, S.S. Vogel, & S. Lin. **Genesis**; **29**:156-62 (2001).
21. Analysis of Pancreatic Development in living Transgenic Zebrafish Embryos. H. Huang, S.S. Vogel, N Liu, D.A. Melton, & S. Lin. **Mol Cell Endocrinol.** **177**:117-24 (2001).
22. A Kinetic Analysis of Calcium-triggered Exocytosis. P.S. Blank, S.S. Vogel, J.D. Malley, & J. Zimmerberg. **J Gen Phys** **118**:145-155 (2001).
23. Plasma Membrane Resident 'Fusion Complexes' Mediate Reconstituted Exocytosis. Y. Ikebuchi, B. Baibakov, R.M. Smith, and S. S. Vogel. **Traffic** **2**:654-667 (2001).
24. Low pH inhibits compensatory endocytosis at a step between membrane depolarization and calcium influx. R.M. Smith, B. Baibakov, N. A. Lambert, and S.S. Vogel. **Traffic** **3**:397-406 (2002). **COVER**
25. The endomembrane requirement for cell surface repair. P.L. McNeil, K. Miyake, and S. S. Vogel. **Proc Natl Acad Sci U S A.** **100**:4592-7 (2003).
26. Defective membrane repair in dysferlin-deficient muscular dystrophy. D.Bansal, K. Miyake, S.S. Vogel, S. Groh, C.C. Chen, R. Williamson, P.L. McNeil, and K.P. Campbell. **Nature** **423**:168-72. (2003). **COVER**
27. An increase in surface area is not required for cell division in early sea urchin development. W. Frejtag, J. Burnette, B. Kang, R. M. Smith, and S.S. Vogel. **Developmental Biology** **259**:62-70 (2003).
28. Quantitative Multiphoton Spectral Imaging and its use for Measuring Resonance Energy Transfer. C. Thaler, S.V. Koushik, P.S. Blank, and S.S. Vogel. **Biophysical Journal** **89**:2736-2749 (2005). **COVER**
29. Photobleaching of YFP does not produce a CFP-like species that affects FRET measurements. C. Thaler, S S. Vogel, S.R. Ikeda and H. Chen. **Nature Methods** **3**:491-493 (2006).
30. Measurement of FRET Efficiency and Ratio of Donor to Acceptor Concentration in Living Cells. H. Chen, H.L. Puhl III, S.V. Koushik, S S. Vogel, and S.R. Ikeda. **Biophysical Journal** **91**:L39-41 (2006)
31. Quantitative linear unmixing of CFP and YFP from spectral images acquired with two-photon excitation. C. Thaler, and S.S. Vogel. **Cytometry A** **69**:904-911(2006).
32. Cerulean, Venus and Venus_{Y67C} FRET reference standards. S. V. Koushik, H. Chen, C. Thaler, H.L. Puhl III, and S.S. Vogel. **Biophysical Journal** **91**:L99-101 (2006).
33. Two independent forms of compensatory endocytosis maintain embryonic cell surface homeostasis during early development. J. F. Covian-Nares, R.M. Smith, and S.S. Vogel. **Developmental Biology** **316**: 135-148 (2008).
34. Energy migration alters the fluorescence lifetime of Cerulean: Implications for FLIM-FRET measurements. S.V. Koushik, and S.S. Vogel. **J Biomedical Optics** **13**:031204(1-9) (2008).
35. Structural rearrangement of CaMKII α catalytic domains encodes activation. C. Thaler, S.V. Koushik, H.L. Puhl III, P.S. Blank, and S.S. Vogel. **Proc Natl Acad Sci U S A.** **106**:6369-6374 (2009).
36. Photophysical Properties of Cerulean and Venus Fluorescent Protein, P. Sarkar, S.V. Koushik, S.S. Vogel, I. Gryczynski, and Z. Gryczynski. **J Biomedical Optics** **14**:034047(1-9) (2009).
37. Anomalous surplus energy transfer observed with multiple FRET acceptors. S.V. Koushik, P.S. Blank, and S.S. Vogel. **PLoS ONE** **4**:e8031 (2009)

38. Membrane wounding triggers ATP release and dysferlin-mediated intercellular calcium signaling. J. F. Covian-Nares, S.V. Koushik, H.L. Puhl III, and S.S. Vogel. **J Cell Science** **123**:1884-1893 (2010).
39. Fluorescence Polarization and Fluctuation Analysis monitor subunit proximity, stoichiometry, and protein complex hydrodynamics. T.A. Nguyen, P. Sarkar, J.V. Veetil, S.V. Koushik, and S.S. Vogel **PLoS One** **7**:e38209, 2012.
40. The impact of heterogeneity and dark acceptor states on FRET: implications for using fluorescent protein donors and acceptors. S.S. Vogel, T.A. Nguyen, B.W. van der Meer, and P.S. Blank **PLoS One** **7**:e49593, 2012
41. Concurrent Activation of Striatal Direct and Indirect Pathways During Action Initiation. G. Cui, S. Jun, X. Jin, M. D. Pham, S. S. Vogel, D. M. Lovinger, R. M. Costa **Nature** **494**:238-242 (2013).
42. Dysferlin stabilizes stress-induced Ca²⁺ signaling in the transverse tubule membrane. J.P.Kerr, A.P Ziman, A. Mueller, J. Muriel, E. Kleinhans-Welte, S.S. Vogel, J.A. Roche, R.J. Bloch, **Proc Natl Acad Sci U S A.**, 110:20831-20836 (2013).
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C. In Preparation