

The Meeting in Miniature
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More information about the
Theobald Smith Society
can be found at the
Society's Web Site at
<http://www.asmbanches.org/brnj/>
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branch section
of the ASM site
www.asm.org

For Membership Information Contact: **Joyce Kohler**
Joyce Kohler (tsskohler@gmail.com)



**Theobald
Smith
Society**

North Jersey Branch of the
American Society for Microbiology

**2016
Meeting in Miniature
and
63rd Selman A. Waksman
Honorary Lectureship**

April 27, 2016
1:00 – 8:00 PM
Trayes Hall,
Douglass Student Center,
Rutgers University



THEOBALD SMITH SOCIETY



THEOBALD SMITH 1859-1934

The year 2016 marks the 157th Anniversary of the birth of Theobald Smith, a great pioneer of American bacteriology for whom our Society is named. Dr. Smith's contributions to bacteriology and medical science were manifold and of far-reaching significance.

Of his many contributions, recorded in some 280 publications, Theobald Smith is perhaps best known for his work on Texas fever in cattle. He discovered the protozoan agent and the means of transmission by ticks, and opened the way for the explanation of the transmission of such human disease as yellow fever and African sleeping sickness. In later work, he clearly distinguished between the bovine and human types of tubercle bacilli. His work in immunology was also fundamental. He was one of the first to demonstrate the production of immunity by killed cultures of the disease organism, and to show that a mixture of diphtheria toxin and anti-toxin confers immunity. The observation that animals develop hypersensitivity to bacteria upon repeated injections was long known as the "Theobald Smith Phenomenon". His numerous other contributions to science justify his renown as a bacteriologist, parasitologist, pathologist, physician, inventor, scholar and teacher.

Theobald Smith was born in Albany, New York on July 31, 1859. He was graduated from Cornell University in 1881 with a Bachelor of Philosophy degree and received his M.D. at Albany Medical College in 1883. From 1884-1895 he was director of the pathology laboratory of the Bureau of Animal Industry in the United States Department of Agriculture, Washington, D.C., where he investigated infectious disease of animals. During this period he also established a Department of Bacteriology at Columbia (now George Washington University).

Theobald Smith came to New Jersey in 1915 to become director of the Department of Animal Pathology at the Rockefeller Institute for Medical Research in Princeton, where he remained until 1929, when he became emeritus director.

Dr. Smith was a member of numerous scientific and medical societies and association and held major offices in many of them. He was president of the American Association of Pathologists and Bacteriologists, the American Society of Tropical Medicine, the Congress of American Physicians and Surgeons, and the International Society Against Tuberculosis. He was a Fellow of the AAAS, and a member of Phi Beta Kappa, Sigma Xi, and Phi Kappa Phi. He received twelve honorary degrees from leading universities and eleven medals, among which was the Copley Gold Medal of the Royal Society, regarded as one of the highest scientific awards in the world.

Officers 2015-2016

President	Siobain Duffy
President-elect	Jennifer Adams Krumins
Secretary	Ines Rauschenbach
Treasurer	Andrew Marinucci
Past President	Donna Fennell
National Councilor	Prakash S. Masurekar
Alternate National Councilor	Jessica McCormick-Ell
Local Councilors	Margaret Dooley ('16) Jessica McCormick-Ell ('16) Max Häggblom ('17) Lee Kerkhof ('17) Alexander Ploss ('18) Abigail Porter ('18)

Committees

Meeting in Miniature

Facility & Planning Lee Kerkhof, Jessie Maguire, Siobain Duffy, Donna Fennell, Kathy Maguire

Program Andrew Marinucci, Ann Charles, Nicole Lloyd

Archive Representative Ron Becker

Newsletter Editor Joyce Kohler

Web Site Andrew Marinucci

Membership Joyce Kohler,

Corporate Membership Randolph L. Greasham, Prem Sreenivasan

Waksman Award Max Häggblom, Lee Kerkhof, Donna Fennell

Scholarship All Officers & Active Past Presidents

Science Fair Judging Andrew Marinucci

Nominations Donna Fennell

Regional Science Fair Awards

Mercer County Science and Engineering Fair March 2016 Rider University			
First Place	Jiyoung Kang	Princeton High	<i>Impacts of Phragmites australis invasion on soil enzyme activities and methane emission of tidal marshes in Maryland, USA</i>
Second Place	Braulio Adonys Cappas	Trenton Central High West Campus	<i>Is Lawrence's Sewage Treatment Polluting a Trenton Stream and Drinking Water?</i>
Third Place	Jackie Ketter	Foundation Academy	<i>Can Provodine help prevent the spread of infectious disease?</i>
Honorable Mention	Maria Vittadello	Lawrence Intermediate	<i>Biological Yeast Fermentation with Sugar and Wheat</i>
Honorable Mention	Kathryn Elizabeth Black	St. Gregory the Great School	<i>Bye Bye Bacteria</i>

North Jersey Regional Science Fair March 2016 Rutgers University		
Nishita Sinha	Chatham H.S.	<i>Experimental Studies in Developing Safe Sanitation Solutions</i>
Natalie Ann Gadaleta Danielle T Samitt Grace Emma	Pascack Hills High School	<i>Epigenetic Alterations of Prodigiosin Synthesis and GFP Expression</i>
Daniel C. Lee Rohan Shah	Watchung Hills Regional High School	<i>Epigenetic Alterations of Prodigiosin Synthesis and GFP Expression</i>

Theobald Smith Society

New Jersey Branch
American Society for Microbiology

2016 Meeting in Miniature

and

63rd Annual Selman A. Waksman Honorary Lectureship

Thursday,

April 27, 2016

1:00 - 8:00 PM

Trayes Hall,
Douglass Student Center,
Rutgers University,
New Brunswick, NJ

PROGRAM

Registration

1:00 **Keynote Presentation**
*What's in Your Cup of Tea? Antiviral Activity of
Tea Polyphenols against Herpes Simplex Virus.*

Tin-Chun Chu
Seton Hall University

1:30 PM **Oral Presentations**

4:10 PM **Posters and Reception**

6:00 PM **Dinner**

6:45 PM **Waksman Honorary Lecture**

Chestnut blight:

A great system to study microbiology and much more

Bradley J. Hillman,
Department of Plant Biology and Pathology,
Rutgers University

7:45 -PM **Awards Ceremony**

Poster and Oral Presentation Prizes

Young Investigator Award

Yana Bromberg
Rutgers University

Graduate Scholarship Recipient

Preshita Gadkari
Rutgers University

Adjournment

THEOBALD SMITH SOCIETY PAST-PRESIDENTS

1941-42 - Robert L. Starkey	1980-81 - Alan D. Antoine
1942-43 - Louis O. Kunkel	1981-82 - Paul Cino
1943-44 - John A. Anderson	1982-83 - David Pramer
1944-45 - Wolcott B. Dunham	1983-84 - Richard Burg
1945-46 - Philip R. White	1984-85 - Julia P. Cino
1946-47 - Arthur P. Richardson	1985-86 - Douglas E. Eveleigh
1947-48 - Frank H. Johnson	1986-87 - Robert A. Fromtling
1948-49 - Rudolph L. Mayer	1987-88 - Steven R. Schwarz
1949-50 - H. Boyd Woodruff	1988-89 - Monica A. Devanas
1950-51 - Edward O. Karow	1989-90 - Easter G. Frazier
1951-52 - Vincent Groupe	1990-91 - Richard Bartha
1952-53 - Eugene R. L.Goughran	1991-92 - Joseph Zindulis
1953-54 - Walter J. Nickerson	1992-93 - Richard B. Middleton
1954-55 - Leslie A. Stouber	1993-94 - Patrick Weir
1955-56 - Wayne W. Umbrelt	1994-95 - Charmanie Mukherjee
1956-57 - David Hendlin	1995-96 - Lawrence Frankel
1957-58 - Werner Braun	1996-97 - Howard Singer
1958-59 - Ralph E. Sennett	1997-98 - George Carman
1959-60 - Frederick C. Kull	1998-99 - Katherine Young
1960-61 - Arnold L. Demain	1999-00 - Andrew C. Marinucci
1961-62 - Allen L. Laskin	2000-01 - Karl R, Matthews
1962-63 - William E. Brown	2001-02 - Donna Zicker-Stoecker*
1963-64 - Thomas H. Stoudt	& Mary Jo Donovan*
1964-65 - Benjamin S. Schwartz	Andrew C. Marinucci ¹
1965-66 - Sam S. Barkulls	2002-03 - Andrew C. Marinucci
1966-67 - Vernon Bryson	2003-04 - June H. Middleton
1967-68 - Paul M. Borick	2004-05 - Gerben Zylstra
1968-69 - A. Katherine Miller	2005-06 - Kathleen Gerhardt
1969-70 - J. Oliver Lampen	2006-07 - Katherine Young*
1970-71 - William Chamey	& Howard Singer*
1971-72 - Bernard W. Koft	2007-08 - Joyce Kohler
1972-73 - Aris Bayan	2008-09 - Prakash S. Masurekar
1973-74 - Donald Kronish	2009-10 - Randolph L. Greasham
1974-75 - Richard Thoma	2010-11 - Martha Beyazova
1975-76 - Barbara Lago	2011-12 - Prem Sreenivasan
1976-77 - John Keller	2012-13 - Max Häggblom
1977-78 - Sam Ringel	2013-14 - Lee Kerkhof
1978-79 - Edward O. Stapley	2014-15 - Donna Fennell
1979-80 - Robert S. Robinson	

* Co-Presidents ¹ Acting President

UNDERGRADUATE POSTERS

1. **Degradation of Diphenhydramine (Benadryl) under aerobic and anaerobic conditions** Sabrina Mohsin and Lily Young.
2. **Presence of the Anaerobic Benzoyl-CoA Degradation Pathway in Animal Samples.** Katherine Fullerton , Abigail W. Porter, Lily Y. Young
3. **RE-search: A tale of troubleshooting DNA extractions.** Jessica Bedele, Preshita Gadkari, and Max Häggblom
4. **In Search of a surrogate: Cross-Contamination of *E. aerogenes*, avirulent *E. coli* and *E. coli* O157:H7 during lettuce washing.** J Medrano¹, AL Charles², and DW Schaffner PhD³
5. **Development of a quantitative microbial risk assessment for Norovirus in foodservice facilities.** R. Miranda, M. Igo and DW Schaffner
6. **Temperature profile of bagged leafy greens during transportation as affected by season.** Yash Desai, Ann Charles, Donald Schaffner, PhD
7. **The effect of phosphatidate phosphatase and diacylglycerol kinase enzymes on catalase enzymatic activity.** Sarah Hazaveh, Yeonhee Park, and George M. Carman. Rutgers Center for Lipid Research, Rutgers University, New Brunswick, NJ
8. **Chronological life span and superoxide dismutase activity in yeast lacking phosphatidate phosphatase and diacylglycerol kinase.** Brinley Burdge, Yeonhee Park, and George M. Carman. Rutgers Center for Lipid Research, Rutgers University, New Brunswick, NJ
9. **Mapping Epistasis in Pseudomonas Bacteriophage phi6 Host Range Mutants** Dragos Stemate, Lele Zhao, Siobain Duffy. Rutgers University, New Brunswick, NJ

PAST RECIPIENTS OF THE SELMAN A. WAKSMAN HONORARY LECTURESHIP AWARD

1954 - BERNARD D. DAVIS	1986 - NORBERTO PALLERONI
1955 - ALFRED D. HERSHEY	1987 - ALEXANDER THOMASZ
1956 - JOHN T. BONNER	1988 - SMITH SHADOMY
1957 - WAYNE W. UMBREIT	1989 - GUENTHER STOTZKY
1958 - MANFRED M. MAYER	1990 - EDWARD O. STAPLEY
1959 - CURTIS O. THORNE	1991 - MARY P. LECHEVALIER
1960 - EVELYN M. WITKIN	1992 - NAFSIKA H GEORGOPAPADAKOU
1961 - SAM S. BARKULIS	1993 - ALBERT SCHATZ
1962 - JULIUS MARMUR	1994 - GEORGE LUDEDEMANN
1963 - ALLAN GAREN	1995 - HERBERT PRINCE
1964 - EDWARD REICH	1996 - GEORGE CARMAN
1965 - NOBORU SUEOKA	1997 - ALLAN ANTOINE
1966 - MARVIN FISHMAN	1998 - CARL SCHAFFNER
1967 - FRANK J. RAUSCHER	1999 - SAMUEL M. RINGEL
1968 - DANIEL NATHANS	2000 - DAVID PRAMER
1969 - JAMES H. SCHWARTZ	2001 - GERBEN J. ZYLSTRA
1970 - CHARLES E. HELMSETTER	2002 - WILLIAM R. STROHL
1971 - MAX M. BURGER	2003 - BONNIE L. BASSLER
1972 - HOWARD TEMIN	2004 - THOMAS J. MONTVILLE
1973 - H. RON KABACK	2005 - TAMAR BARKAY
1974 - ALLEN LASKIN	2006 - DOUGLAS E. EVELEIGH
1975 - ARNOLD DEMAIN	2007 - H. BOYD WOODRUFF
1976 - VERNON BRYSON	2008 - JOAN W. BENNETT
1977 - SIDNEY PESTKA	2009 - LILY Y. YOUNG
1978 - KARL MARAMOROSCH	2010 - MAX M. HÄGGBLOM
1979 - R. WALTER SCHLESINGER	2011 - KATHRIN U. JANSEN
1980 - THOMAS E. SHENK	2012 - RICHARD H. EBRIGHT
1981 - JEROME BIRNBAUM	2013 - ROGER C. PRINCE
1982 - BYRON WAKSMAN	2014 - BESS WARD
1983 - RICHARD NOVICK	2015 - BARRY N. KREISWIRTH
1984 - GEOFFREY ZUBAY	
1985 - JEAN E. BRENCHLEY	

**Waksman Honorary
Lectureship Recipient
Bradley J. Hillman,**



Bradley Hillman was educated in Plant Pathology at UC Berkeley (BS, MS, PhD), where he primarily worked on Tomato bushy stunt virus and characterized the first defective interfering RNA in a plant virus system. He relocated to New Jersey in 1987 to work with Donald Nuss at the Roche Institute of Molecular Biology on parasites of chestnut blight, *C. parasitica*. Through work on the hypoviruses of *C. parasitica* and wide-ranging discoveries including the first fungal-infecting reovirus (now family Mycoreovirus) he became a leader in fungal virology. However, Brad has always been a generalist virologist. Not only has he continued to work on plant viruses, but he discovered the first virus able to infect mitochondria (mitovirus).

Brad is a Full Professor of Plant Biology and Pathology at Rutgers and currently serves as director of the New Jersey Agricultural Experiment Station. He is a fellow of the American Phytopathological Society and has served on the executive committee of the International Committee for the Taxonomy of Viruses.

**Keynote Speaker
Tin-Chun Chu**



Dr. Chu received her BS in Molecular Biology from Montclair State University and her PhD in Biomedical Informatics from University of Medicine and Dentistry of New Jersey (now Rutgers University). She joined Seton Hall University in 2008 and is currently an Associate Professor in the Department of Biological Sciences. Her research interests include using natural small molecules such as green tea, black tea and Chinese Knotweed to develop alternative antibacterial and antiviral agents. To date, she has a total of 28 publications, including peer-reviewed articles, book chapters – many of them with student co-authors. In addition, Dr. Chu has published over 100 published abstracts at SHU where she has mentored 5 PhD students, 9 MS students and over 38 undergraduate students. Dr. Chu was named University Researcher of the Year in 2013 and Professor of the Year in 2014.

9. **The *yaaT*, *ylbF*, and *ymcA* protein are necessary to signal for sporulation in *Bacillus subtilis*, but what are their functions in the non-sporulating bacterium *Staphylococcus aureus*?** Hassan. M. Al-Tameemi, Ameya. A. Mashruwala, Andrew W. Tanner, Valerie J. Carabetta, David Dubnau, and Jeffrey. M. Boyd. *Department of Biochemistry and Microbiology, Rutgers University, New Brunswick, NJ.*
10. **The Suf iron-sulfur cluster biosynthetic system is essential for *Staphylococcus aureus* viability and decreased Suf function results in global metabolic defects and decreased survival in human neutrophils** Christina Roberts, Hassan M. Al-Tameemi, Ameya A. Mashruwala, Zuelay Rosario-Cruz, William Sause, Victor Torres, and Jeffrey M. Boyd
11. **A Preliminary Glimpse into the Genome of *Sedimenticola selenatireducens* strain AK4OH1.** Tiffany Louie and Max M. Häggblom
12. **Does Environmental Exposure of Killifish to Mercury Select for Multiple Drug Resistant Bacteria in the Fish Gut?** Nicole A. Lloyd, Sarah E. Janssen, John R. Reinfelder and Tamar Barkay
13. **Molecular Control of Light Acclimation in the Diatom, *Phaeodactylum tricornutum*.** Ananya Agarwal^{1,2}, Orly Levitan^{2,3}, Maxim Y. Gorbunov² and Paul G. Falkowski^{2,4}
14. **Molecular Control of Light Acclimation in the Diatom, *Phaeodactylum tricornutum*.** Ananya Agarwal^{1,2}, Orly Levitan^{2,3}, Maxim Y. Gorbunov² and Paul G. Falkowski^{2,4}
¹Department of Microbiology & Biochemistry, Rutgers University, New Brunswick, NJ 08901²Environmental Biophysics and Molecular Ecology Program, Dept. of Marine and Coastal Sciences, Rutgers University, New Brunswick, NJ 08901³Department of Plant Biology and Pathology, Rutgers University, New Brunswick, NJ 08901. ⁴Department of Earth and Planetary Sciences, Rutgers University, Piscataway, NJ 0885

4. **Bugs on Drugs: Fate and Ecotoxicity of Pharmaceuticals and Personal Care Products.** Michelle Zeliph¹, Aamani Rupakula¹, Anna Przybyla¹, Rachel Dean¹, Chang-Ping Yu³, Donna E. Fennell², Lori A. White¹, Keith R. Cooper¹, Max M. Häggblom¹ ¹Department of Biochemistry and Microbiology and ²Department of Environmental Sciences, Rutgers, The State University of New Jersey, New Brunswick, NJ; ³Institute of Urban Environment, Chinese Academy of Sciences, Xiamen, China.
5. **The Emerging Cost: Bacteriophage phi6 Encounters Constraint After Host Range Expansion.** Lele Zhao, Dragoş Stemate², and Siobain Duffy³ 1. Department of Biochemistry and Microbiology, Rutgers University; 2. School of Arts and Sciences, Rutgers University; 3. Department of Ecology, Evolution and Natural Resources, Rutgers University
6. **Identification and Expression of Reductive Dehalogenase Genes in a Marine Sponge-Associated Debrominating Bacterium, *Desulfoluna spongiiphila* strain AA1.** Jie Liu¹, Nora Lopez-Chiaffarelli², Lee J. Kerkhof² and Max M. Häggblom¹ ¹Department of Biochemistry and Microbiology; ²Department of Marine and Coastal Science, Rutgers, The State University of New Jersey, New Brunswick, NJ.
7. **Lipopeptides produced by *Bacillus amyloliquefaciens* inhibit growth and induce chlamydospore formation in filamentous fungi.** Irizarry I, Chen Q, Bergen M, White JF. Department of Plant Biology, Rutgers University, New Brunswick, NJ
8. **Regulation of Clp proteases by SrrAB in *Staphylococcus aureus*** Ameya A. Mashruwala, Adriana van de Guchte, Carly Earle, Jeffrey M. Boyd

Young Investigator Award Recipient

Yana Bromberg

Dr. Yana Bromberg is an associate professor at the Department of Biochemistry and Microbiology, Rutgers University. She holds an adjunct position at the Department of Genetics at Rutgers and is the Chief Scientific Officer at BioSof — a company for bioinformatics tool development. She is also a fellow at the Institute of Advanced Studies in the Technical University of Munich.

Dr. Bromberg received her Bachelor degrees in Biology and Computer Sciences from the State University of New York at Stony Brook and a Ph.D. in Biomedical Informatics from Columbia University, New York. She is known for her seminal work on a method for screening for non-acceptable polymorphisms, or SNAP for short, which evaluates the effects of single amino acid substitutions on protein function. Currently, research in the Bromberg lab is focused on the molecular functional annotation of microbiomes, aiming to identify emergent functionality specific to individual environmental niches. The lab also analyses human variomes for disease predisposition and the studies evolution of life's electron transfer reactions. Dr. Bromberg is a member of the Board of Directors of the International Society for Computational Biology and actively participates in organizing the ISMB/ECCB conferences (ISMB stands for Intelligent Systems for Molecular Biology, and ECCB is it's European equivalent). She chairs poster and talk sessions, conducts workshops, and organizes a special interest group aimed at the study of genomic variation — VarI-SIG.

Dr. Bromberg's work has been recognized by several awards, including the recent NSF CAREER award, the Rutgers Board of Trustees Research fellowship for Scholarly Excellence, and the Hans-Fischer award for outstanding early career scientists from the Institute of Advanced Studies in Technical University of Munich. Dr. Bromberg also serves as an editor and a reviewer of several top bioinformatics journals, including BMC Genomics and PLoS Computational Biology. To date, she has authored or co-authored 36 peer reviewed scientific articles and has been invited to give nearly 70 talks.

Past Recipients of Young Investigator Award

2000 - MIKHAIL CHIKNIDAS	2011 - NIHAL ALTAN-BONNET
2005 - JOSEPH T. NICKELS, JR.	2013 - NING ZHANG
2006 - LANBO SHI	2014 - SIOBAIN DUFFY
2008 - GIL-SOO HAN	2015 - ALEXANDER PLOSS

Oral Presentations

- 1:30 *The Dirt on the Arctic: Tundra Soil Bacteria Are Active In Subzero Temperatures.* Preshita Gadkari and Max Haggblom, Rutgers University
- 1:50 *Reductive Dechlorination of 1,2,3,4-Tetrachlorodibenzo-p-dioxin in River Sediment Enrichment Cultures.* Hang Dam and Max Haggblom, Rutgers University
- 2:10 *The mer operon of Thermus thermophilus: a direct link between thiols and mercury.* Javiera Norambuena and Tamar Barkay. Rutgers University
- 2:30 **Break and Snack**
- 3:00 *Born to Clean: Corrinoid Auxotrophy in Organohalide Respiring Dehalobacter restrictus.* Aamani Rupakula Boyanapalli, PhD. Swiss Federal Institute of Technology
- 3:30 *Deep-Sea Dinner Party; Carbon Cycling in Biofilms at Hydrothermal Vents.* Ashley Grosche, J Dreifus, D. Giovannelli and Costantino Vetriani, Rutgers University
- 3:50 *A long story of MTBE biodegradation and the characterization of keystone taxa under different redox conditions.* Weimin Sun and Max Haggblom. Rutgers University

Chestnut blight: A great system to study microbiology and much more. Bradley J. Hillman, Department of Plant Biology and Pathology, Rutgers University

Abstract: Around the turn of the 20th century, the chestnut blight fungus, *Cryphonectria parasitica* started to burn its way from the northeast U.S. through the entire range of the American chestnut, meeting no significant resistance. In the process, it became the greatest forest tree pandemic in recent history and a fungal pathogen studied in depth from more perspectives than almost any other. An important contribution of this system to the study of microbiology is its central role in examining the use of viruses for biological control of plant pathogenic fungi. Our characterization of the diversity of viruses of this fungus and their effects on the biology of the fungus has also greatly advanced the field of fungal virology. Recently, we have also been examining the population of transposable elements of the fungus, as they reveal details about its history. While this plant pathosystem has been an especially rich one for research, the breadth of subject matters it touches upon makes it an excellent teaching tool as well.

Poster Presentations

Graduate Posters

1. **The efficacy of electrolyzed water in preventing cross-contamination of foodborne pathogens in leafy green lettuce during a crisping process; retail scale study.** Yangjin Jung, Hyein Jang, Mengqi Guo, Jingwen Gao and Karl Matthews. Food Science, Rutgers University
2. **Microbial Transformation of Diphenhydramine by a Methanogenic Consortium.** Sarah Wolfson, Dr. Abigail Porter, and Dr. Lily Y Young
3. **The Dirt on the Arctic: Tundra Soil Bacterial Communities Active at Subzero Temperatures Detected by Stable Isotope Probing.** Preshita Gadkari. and Max M. Haggblom.