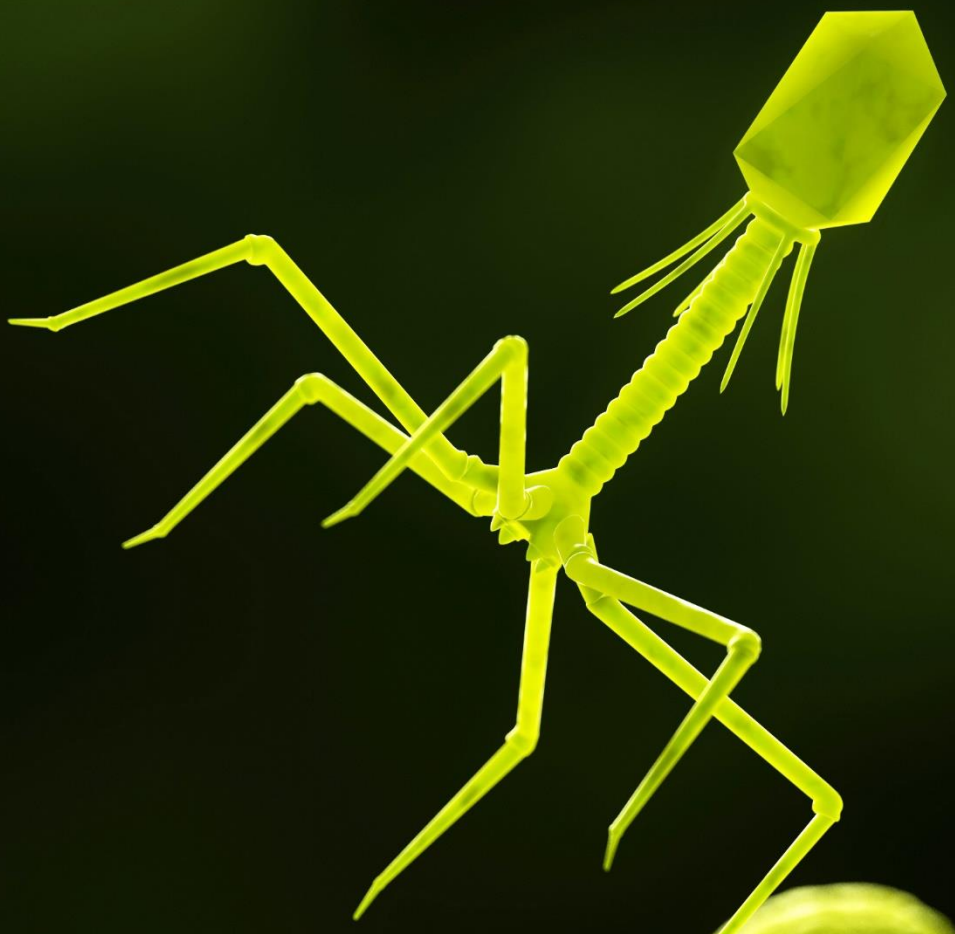
Bacteriophage 2017



AGENDA

17th - 19th January 2017
Location: Online

EuroSciCon

This annual event will discuss emerging research relating to bacteriophage structure and mechanism of action, and their application in medical and industrial biotechnologies.

This event has CPD accreditation

This is a draft agenda
The agenda will be finalised two weeks before the event

www.lifescienceevents.com/phage2017

#PhageESC

Contents

Day 1: Phage Structure & Function

London GMT	New York EST	Tokyo JST		
			Early Session	
07:15	02:15	16:15	**Session online**	**Speaker practice session**
07:45	02:45	16:45	**Euroscicon Welcome**	*Euroscicon Host*
07:50	02:50	16:50	**Introduction by the chair**	*Dr Mark J van Raaij,* Centro Nacional de Biotecnologia (CNB-CSIC), Spanish National Research Council, Madrid, Spain
08:00	03:00	17:00	**Crystal structures of bacteriophage fibre proteins** **Q and A**	*Dr Mark J van Raaij,* Centro Nacional de Biotecnologia (CNB-CSIC), Spanish National Research Council, Madrid, Spain
08:30	03:30	17:30	**Detection of phage ϕ1207.3 in Streptococcus pneumoniae by immunoassays targeting the major capsid protein** **Q and A**	*Dr. Francesco Santoro,* University of Siena, LAMMB – Dept. of Medical Biotechnologies, Siena, Italy
09:00	04:00	18:00	**A Secondary Translation Product Regulates the Activity of the CTP1L Endolysin** **Q and A**	*Dr Rob Meijers,* EMBL Hamburg c/o DESY, Hamburg, Germany
09:30	04:30	18:30	**Closing remarks**	**End of Early Session**

Day 1: Phage Structure & Function

London GMT	New York EST	Tokyo JST		
			Late Session	
13:15	08:15	22:15	**Session online**	**Speaker practice session** **Poster Viewing**
13:45	08:45	22:45	**Euroscicon Welcome**	*Euroscicon Host*
13:50	08:50	22:50	**Introduction by the chair** **Essential head genes in the giant PhiKZ-related phages** **Q and A**	*Professor Julie Thomas,* Rochester Institute of Technology, Rochester, United States
14:30	09:30	23:30	**The phage T4 DNA and protein packaging machine – Old, New, Widely true, useful too** **Q and A**	*Professor Lindsay W. Black,* Department of Biochemistry and Molecular Biology, University of Maryland, Baltimore, USA
15:00	10:00	00:00	**Session break**	
15:30	10:30	00:30	**Phage Sf6 ejection mechanisms** **Q and A**	*Professor Kristin N. Parent*, Michigan State University, East Lansing, United States
16:00	11:00	01:00	**A novel role for phage P22's scaffolding protein: triggering portal ring oligomerization and incorporation during procapsid assembly** **Q and A**	*Dr. Tina Motwani,* University of Connecticut, Storrs, United States
16:30	11:30	01:30	**Comparative genomics and proteomics of paenibacillus larvae bacteriophages** **Q and A**	*Assistant Professor Philippos Tsourkas,* University of Nevada, Las Vegas, Las Vegas, Nevada, United States
17:00	12:00	02:00	**Closing remarks, End of Late Session**	

Day 2: Host-Phage Interactions

London GMT	New York EST	Tokyo JST		
			Early Session	
07:15	02:15	16:15	**Session online**	**Speaker practice session**
07:45	02:45	16:45	**Euroscicon Welcome**	*Euroscicon Host*
07:50	02:50	16:50	**Introduction by the chair**	*Dr Darren L. Smith,* Northumbria University, UK
08:00	03:00	17:00	**Bacteriophage translocation across epithelial cells provides a mechanism for phage to penetrate the body** **Q and A**	*Dr Jeremy J Barr,* Monash University, Victoria, Australia
08:30	03:30	17:30	**The transcriptional battle between phage and host in the Pseudomonas phage infected cell** **Q and A**	*Mr Bob G Blasdel,* KU Leuven, Leuven, Belgium
09:00	04:00	18:00	**Session break**	
09:30	04:30	18:30	**The bacteriophage carrier state of Campylobacter** **Q and A**	*Professor Ian Connerton,* Northern Foods Chair of Food Safety, Division of Food Sciences, School of Biosciences, Sutton Bonington Campus, Loughborough, United Kingdom
10:00	05:00	19:00	**Phage-host interactions at single-cell resolution** **Q and A**	*Professor Abram Aertsen*, Laboratory of Food Microbiology, Department of Microbial and Molecular Systems (M^2S), Faculty of Bioscience Engineering, KU Leuven, Leuven, Belgium
10:30	05:30	19:30	**Closing remarks, End of Early Session**	

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13:15	08:15	22:15	**Session online**	**Speaker practice session**
13:45	08:45	22:45	**Euroscicon Welcome**	*Euroscicon Host*
13:50	08:50	22:50	**Introduction by the chair** **The effect of phage on modifying the genome of Clostridium difficile** **Q and A**	*Prof Peter Mullany,* UCL Eastman Dental Institute, London, United Kingdom
14:30	09:30	23:30	**Antimicrobial tolerance encoded by temperate bacteriophages'**	*Dr Darren L. Smith,* Northumbria University, UK
15:00	10:00	00:00	**Session break**	
16:00	11:00	01:00	**Unexpected interactions between Campylobacter bacteriophages and host protein glycosylation**	*Jessica Sacher,* University of Georgia/University of Alberta, Athens, GA, United State
16:15	11:15	01:15	**Prophage control of the host phenotype** **Q and A**	*Dr Heather E. Allison*, University of Liverpool, Merseyside, Liverpool, United Kingdom
16:45	11:45	01:45	**Ecology, Applied and Otherwise, of Phage-Biofilm Interactions** **Q and A**	*Dr Stephen T. Abedon,* The Ohio State University, Unites States
17:15	12:14	02:15	**Closing remarks, End of Late Session**	

Day 3: Applications of Phage in Medicine & Industry

London GMT	New York EST	Tokyo JST		
			Early Session	
07:15	02:15	16:15	**Session online**	**Speaker practice session**
07:45	02:45	16:45	**Euroscicon Welcome**	*Euroscicon Host*
07:50	02:50	16:50	**Introduction by the chair**	*Dr. Sophie Kittler,* University of Veterinary Medicine Hannover, Hannover, Germany
08:00	03:00	17:00	**Exploiting Bacteriophage for rapid detection of Mycobacteria** **Q and A**	*Dr Catherine E.D. Rees,* University of Nottingham, United Kingdom
08:30	03:30	17:30	**Application of bacteriophages in commercial broiler houses- results and population dynamics in field trials** **Q and A**	*Dr. Sophie Kittler,* University of Veterinary Medicine Hannover, Hannover, Germany
09:00	04:00	18:00	**Session Break**	
10:00	05:00	19:00	**Bacteriophage; the future cure to treat antibiotic resistant bacteria in Egypt** **Q and A**	*Professor Ayman El-Shibiny,* Zewail City of Science and Technology, Giza, Egypt
10:30	05:30	19:30	**Interaction of bacteriophages with sessile bacteria** **Q and A**	*Professor Joana Azeredo,* Universidade do Minho, Campus de Gualtar, Braga, Portugal
11:00	06:00	20:00	**Genomics approaches for analysing therapeutic bacteriophages** **Q and A**	*Ms Henrike Zschach,* Technical University of Denmark, Kongens Lyngby, Denmark
11:30	06:30	20:30	**Closing remarks, End of Early Session**	

Day 3: Applications of Phage in Medicine & Industry

London GMT	New York EST	Tokyo JST		
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13:15	08:15	22:15	**Session online**	**Speaker practice session** **Poster Viewing**
13:45	08:45	22:45	**Euroscicon Welcome**	*Euroscicon Host*
13:50	08:50	22:50	**Introduction by chair** **Phages and CRISPR-Cas in the classroom** **Q and A**	*Professor Sylvain Moineau*, Universite Laval, Quebec, Canada
14:30	09:30	23:30	**Computational biology and tools for uncovering hidden information from the viral dark matter.** **Q and A**	*Professor Alejandro Reyes Munoz,* Universidad de los Andes, Bogota, Colombia
15:00	10:00	00:00	**Session break**	**Poster Viewing**
15:30	10:30	00:30	**Oral Presentations** Dual-Reporter Mycobacteriophages reveal pre-existing Mycobacterium tuberculosis persistent cells in human sputum	*Dr. Paras Jain*, Albert Einstein College of Medicine, Bronx, United States
15:45	10:45	00:45	**Lambda Display Phage as a Mucosal Vaccine Delivery Vehicle for Peptide Antigens** **Q and A**	*Professor Sidney Hayes* and *Dr Philip J. Griebel*, University of Saskatchewan, Saskatoon, Canada
16:15	11:15	01:15	**Coat to Protect or Print to Detect: Phage-based Smart paper to Enhance Food Safety** **Q and A**	*Dr Hany Anany,* Canadian Research Institute for Food Safety, University of Guelph, Guelph, Canada
16:45	11:45	01:45	**Closing remarks, End of Late Session**	

ABOUT THE SPEAKERS

Joana Azeredo, Universidade do Minho, Campus de Gualtar, Braga, Portugal
Joana Azeredo is an Associate Professor with habilitation at the Department of Biological Engineering of the University of Minho and develops her research activity at Centre of Biological Engineering (CEB). She belongs to the direction board of CEB and is the head of the Phage Biotechnology Research Group. Her main research interests are biofilm science and technology and bacteriophage biotechnology.
Joana Azeredo obtained her PhD in Chemical and Biological Engineering from the University of Minho (1998) on Biofilm Science and Technology. She has been responsible for several national and European projects related to the areas previously mentioned. She is/was responsible for the supervision of 14 PhD students and 25 MSc students and has published more than 120 international refereed papers, 10 international book chapters, 2 books and 2 patents. Her H-index is 30.

Robert Armon, Technion, Haifa, Israel
Prof. Robert Armon started his academic career on bacteriophages in water, wastewater and effluents as indicators of hygienic quality. During his Post-Doc studies (in USA and Canada) he developed new methods of bacteriophages concentration and detection. Since then he performed environmental research on phages in Israel and in collaboration with researchers from Spain. Recently he performed new directions on phages' application: 1. prevention of biofilm formation on filtration membrane (UF) as a new anti-biofouling measure; 2) use of bacteriophages to prevent hygienic bacterial colonization on human body; and 3) to prevent deep wells clogging by IOB, via specific bacteriophages.

Stephen T. Abedon, The Ohio State University, Mansfield, United States
BS, University of Massachusetts, in Biochemistry; Ph.D., University of Arizona, in Microbiology, concentration in Molecular Genetics, minor in Ecology and Evolutionary Biology; Dissertation title (1990): The Ecology of Bacteriophage T4; Postdoc, University of Pennsylvania. I've been at the Ohio State University since 1995, tenured there in 2001. My interests are in especially the organismal ecology of phages, the applied ecology and, indeed, pharmacology of phage-mediated biocontrol of bacteria, a.k.a., phage therapy, and also issues of phage history. I'm closing in on 100 publications including ~5 monographs and the two most cited and three most read articles in the journal, Bacteriophage.

Bob G Blasdel, KU Leuven, Leuven, Belgium
Bob Blasdel is a PhD student supervised by Rob Lavigne in the Laboratory of Gene Technology at KU Leuven studying the transcriptomes of bacteriophage infected Pseudomonas aeruginosa cells through RNA-Seq analysis. He has worked in phage for the last eight years, having gotten his masters at The Ohio State University with Steve Abedon and his Bachelors from The Evergreen State College with Betty Kutter. Bob currently sits on the boards of the PhageBiotics Foundation as well as P.H.A.G.E. and have been active in coordinating the biannual Evergreen International Phage Conference since 2009.

Ian Connerton, Northern Foods Chair of Food Safety, Division of Food Sciences, School of Biosciences, Sutton Bonington Campus, Loughborough, United Kingdom
Ian Connerton is Professor of Food Safety at the University of Nottingham, UK. He joined the University of Reading in 1987 to teach Microbiology before joining the Institute of Food Research in 1991 first as a Section Leader and then Deputy Head of Food Macromolecular Science. He was appointed as the first Northern Foods Chair of Food Safety in 1998 (now 2 Sisters Chair). Current research includes host pathogen interactions of food borne bacterial (Campylobacter and

enterovirulent E. coli) and viral pathogens, and the influence of bacteriophage on foodborne bacterial pathogen populations.

Ayman El-Shibiny, Zewail City of Science and Technology, Giza, Egypt
Dr. Ayman El-Shibiny is currently an associate professor of biomedical sciences at the University of Science and Technology, Egypt. He completed his Ph.D degree in food microbiology (food safety) from Nottingham University, UK. His main research area is phage therapy and his current research interests include the therapeutic use of bacteriophages. Prior to joining Zewail City, El-Shibiny worked as a postdoctoral fellow at Nottingham University in the U.K., Cardiff University in the U.K., and The Evergreen State College in the U.S. He also served as an associate professor and head of the food sciences department in Suez Canal University (Egypt).

Philip J. Griebel, University of Saskatchewan, Saskatoon, Canada
Dr. Griebel is a Research Fellow at the Vaccine and Infectious Disease Organization (VIDO-Intervac) and Professor in the School of Public Health at the University of Saskatchewan, Saskatoon, SK, Canada. He has been active in research related to mucosal immunity and vaccines for over 25 years and has published over 150 peer-reviewed articles. His current research focus is the role of the microbiome in the development of the mucosal immune system in newborn calves, developing mucosal vaccine delivery vehicles, and vaccination strategies to optimize protection against enteric and respiratory infections.

Paras Jain, Albert Einstein College of Medicine, Bronx, United States
Paras Jain is a trained molecular biologist. His research has been focused on generating novel genetic tools. He has developed a T7-based mycobacterial expression system, efficient phage-based tools to genetically manipulate mycobacteria, to diagnose and perform drug susceptibility of M. tuberculosis, and to predict response to treatment in tuberculosis patients. He is also actively working on finding ways to identify and characterized persisters, bacteria which are drug sensitive but can survive lethal concentration of bactericidal antibiotics. His recent work shows that the persisters cells not only pre-exist but can be induced by stress, such as antibiotic exposure..

Sophie Kittler, University of Veterinary Medicine Hannover, Hannover, Germany
Dr. Sophie Kittler is group leader of the phage group at the University of Veterinary Medicine Hannover, Germany. Her main research interests are the practical application of phages in food production and especially in livestock farming. She has been working on phages for six years, performing field trials in commercial broiler flocks during her doctoral research study and in ongoing projects.

Peter Mullany, UCL Eastman Dental Institute, London, United Kingdom
I have been working on C. difficile mobile genetic elements for the past 20 years and have published extensively in this field. I have also used some of these elements to investigate virulence of this organism. In addition I have been investigating the genetics underlying the transfer of antibiotic resistance in bacteria.

Alejandro Reyes Munoz, Universidad de los Andes, Bogota, Colombia
Assistant Professor in the Biological Sciences Department at Universidad de los Andes, Bogotá, Colombia. Microbiologist with M.Sc in molecular microbiology from Universidad de los Andes, Bogotá, Colombia and a PhD in Computational and Systems Biology from Washington University in Saint Louis, MO, USA. Interested in understanding relationships and dynamics in microbial communities, in particular among microbes and their viruses. This approach is taken by the use and development of computational tools that take advantage of latest DNA sequencing technologies.

Sylvain Moineau, Universite Laval, Quebec, Canada
Prof. Moineau obtained his BSc in microbiology in 1987 and his Ph.D. in food science in 1993 from the Université Laval. After an industrial postdoctoral fellowship with Quest International/ Unilever, he returned to his alma mater to start his academic career in 1996. In 2003, he was designated the Curator of the Félix d'Hérelle Reference Center for Bacterial Viruses (www.phage.ulaval.ca). In 2005, he was nominated full Professor of Microbiology. He holds the Canada Research Chair in Bacteriophages since 2011. He was on Thomson Reuters's list of highly cited researchers in the Microbiology Category in 2014 and 2015.

Tina Motwani, University of Connecticut, Storrs, United States
Dr. Tina Motwani received her PhD in Molecular Biology and Biochemistry from Wesleyan University. She is an Assistant Research Professor in Dr. Carolyn Teschke laboratory at the University of Connecticut. The main goal of Teschke lab is focused on understanding the folding of viral proteins. Using bacteriophage P22 as a model system, they are trying to study how the viral proteins assemble with high fidelity into complex structures that form viruses. Dr. Motwani's project is to investigate the assembly of the portal protein complex during the procapsid assembly of bacteriophage P22.

Kristin N. Parent, Michigan State University, East Lansing, United States
Dr. Kristin Parent is a structural biologist, who joined the Department of Biochemistry and Molecular Biology as an Assistant Professor in January, 2013. She is mainly interested in the processes of virus assembly and infection mechanisms. Her work has recently been funded through the National Institutes of Health, as well as through a AAAS award for women in the chemical sciences. Dr. Parent was also the recipient of the College of Natural Sciences outstanding mentor award from Michigan State in 2015.

Philippos Tsourkas, University of Nevada, Las Vegas, Las Vegas, Nevada, United States
Dr. Philippos Tsourkas is from Athens, Greece. He obtained his Ph.D. in Mechanical Engineering from the University of California, Berkeley, in 2004. He worked as a post-doc in the Department of Biomedical Engieering at the University of California, Davis between 2005 and 2011, and at the Curie Institute in Paris in 2012. Since 2013 Dr. Tsourkas is Assistant Professor in the School of Life Sciences at the University of Nevada Las Vegas since 2013, where he works in bioinformatics. Since 2014 he has been active in the area of Paenibacillus larvae bacteriophages, on which he has currently published 4 papers.

Abram Aertsen, Laboratory of Food Microbiology, Department of Microbial and Molecular Systems (M^2S), Faculty of Bioscience Engineering, KU Leuven, Leuven, Belgium

Heather E. Allison, University of Liverpool, Merseyside, Liverpool, United Kingdom

Hany Anany, Canadian Research Institute for Food Safety, University of Guelph, Guelph, Canada
Dr. Hany Anany is currently a Research Associate at the Canadian Research Institute for Food Safety, Food Science Department of University of Guelph, Canada. Dr. Anany achieved his Bachelor of Science (BSc) with Honours in 1996 and his Masters of Science (MSc) in Microbiology in 2003 from Ain Shams University, Egypt. In 2010, he completed his PhD in Food Science at University of Guelph, Canada.
He is involved in several research projects that use bacteriophages to enhance food safety since 2006. Dr. Anany's current research areas involve isolation and genome characterization of bacteriophages for taxonomical and application purposes. He is investigating the use of non-immobilized and immobilized bacteriophages to control and detect various foodborne pathogens including, but not limited to, E. coli O157:H7, Listeria monocytogenes and Salmonella spp. in food. He is also studying the effect of the development of resistance against the lytic phages on the

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virulence fitness of different pathogens. He has published 15 peer reviewed scientific journal articles, 3 book chapters and 16 scientific talks in different meetings and conferences.

Jeremy J Barr, Monash University, Victoria, Australia

Lindsay W. Black, Department of Biochemistry and Molecular Biology, University of Maryland, Baltimore, USA
Lindsay W. Black is a Professor of Biochemistry and Molecular Biology at the University of Maryland Medical School, Baltimore, Md. USA. He received his BS degree from the University of Chicago, and his PhD in Biochemistry from the Stanford University School of Medicine. He was a postdoc in Institute for Molecular Biology at the University of Geneva, Geneva, Switzerland. He took a sabbatical at the Biozentrum at the University of Basel, Basel, Swizerland. He received an NIH Merit award as well as being supported by NIH for over 30 years. He has been on the editorial board of a number of virology and bacteriophage journals.

Sidney Hayes, University of Saskatchewan, Saskatoon, Canada
Sidney Hayes, Department of Microbiology and Immunology, College of Medicine, University of Saskatchewan, Saskatoon, Canada.
Sidney Hayes is a professor of Microbiology. He received B.S., M.S. (botulism research) and Ph.D. (physical organic chemistry) from Oregon State University, Corvallis, OR, with research undertaken at OSU in Corvallis, at the Oregon Graduate Center in Beaverton, and Health Sciences University, in Portland. OR. He was a postdoctoral fellow at the McArdle Laboratory for Cancer Research, University of Wisconsin, Madison where he first began studies exploring bacteriophage lambda control circuits in the laboratory of Waclaw Szybalski, then started an academic career in the Department of Molecular Biology and Biochemistry, University of California, Irvine, and has been in Saskatoon since 1980. Besides exploring basic replication and transcriptional regulation of lambda he has an in interest in developing genetic platforms for producing phage display vaccines.

Sylvain Moineau, Universite Laval, Quebec, Canada

Catherine E.D. Rees, University of Nottingham, United Kingdom
Dr Cath Rees is currently Associate Professor in Microbiology in School of Biosciences, at the Nottingham University Sutton Bonington campus. Originally she studied Biochemistry at Oxford, followed by PhD in Bacterial Genetics at Leicester University and current research focus is on the application of molecular techniques to study various aspects of applied microbiology. She has a long term interest in the development of recombinant phage-based methods of bacterial detection (specifically Listeria and Mycobacteria) and also in the biology and genetics of these organisms. Recent research focus has been on the development of rapid non-recombinant phage-based tests for the detection of mycobacterial pathogens for the agriculture sector including M. bovis and M. paratuberculosis.

Francesco Santoro, University of Siena, LAMMB – Dept. of Medical Biotechnologies, Siena, Italy
Francesco Santoro obtained his M. D. degree at the University of Siena, where he later specialized in clinical microbiology. He studies the genetics of Streptococci with a focus on the biology of chromosomally integrated mobile genetic elements, such as prophages and conjugative transposons.

Jessica Sacher, University of Georgia/University of Alberta, Athens, GA, United State
Jessica Sacher is a PhD student in the lab of Dr. Christine Szymanski at the Complex Carbohydrate Research Center at the University of Georgia (recently moved from the University of Alberta). Jessica has been studying phage interactions with Campylobacter jejuni glycoconjugates since 2010, when

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she joined the Szymanski lab as an undergraduate researcher. Jessica has been actively involved in coordinating the University of Alberta's annual biology conferences, enjoys many forms of science outreach such as blogging and mentoring students, and hopes to keep pursuing research in phage biology as it pertains to gut microbes and beyond.

Henrike Zschach, Technical University of Denmark, Kongens Lyngby, Denmark
Henrike Zschach holds a B.Sc in Biophysics from the Humboldt University of Berlin and a M.Sc in Bioinformatics from the Technical University of Denmark. She is currently a PhD candidate and started her PhD studies in November 2014.

Chair Persons

Mark J van Raaij, Centro Nacional de Biotecnologia (CNB-CSIC), Spanish National Research Council, Madrid, Spain
Mark J. van Raaij is Group Leader in the Department of Macromolecular Structures at CNB. His group research focuses on structural biology of the tail fibres of viruses and bacteriophages. Knowledge of the structures of viral and bacteriophage fibre proteins could lead to a variety of biotechnological applications. Modification of the bacteriophage fibre receptor binding specificities could permit improved detection and elimination of specific bacteria. The skills and expertise of the group cover construction of bacterial expression vectors, protein expression, purification, characterization and crystallisation and crystallographic structure determination by de novo or molecular replacement phasing.

Julie Thomas, Rochester Institute of Technology, Rochester, United States
Dr. Julie Thomas is an Assistant Professor in the Gosnell School of Life Sciences at Rochester Institute of Technology. Dr. Thomas first became interested in giant phages during her postdoctoral studies at the University of Texas Health Science Center at San Antonio. At that time it became evident these phages, which were previously thought to be rare, were actually abundant in the environment. It also became apparent there was a massive gap in knowledge as to what makes a giant phage “giant”. To address this problem the Giant Phage Lab uses multi-disciplinary approaches to study the virion and host interactions of phage SPN3US.

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Missing Speakers

It is unfortunate that occasionally a speaker cannot attend. Whilst we do everything possible to ensure that our speakers are present at the event we apologise in advance if you were at a session where a speaker could not attend. We always try to keep our agendas as up to date as possible, however if a speaker cancels the night before an event or on the day, there is little we can do to rectify this.