

April 16–18, 2024

THE 2024 SYMPOSIUM ON THE IMMUNE SYSTEM OF BACTERIA

Joseph B. Martin Conference Center,
Harvard Medical School, Boston, MA



CONFERENCE SCHEDULE SUMMARY

TUESDAY, APRIL 16

- 8:00 AM Conference registration and **Poster Session 1 setup**
9:00 AM Welcome notes
9:15 AM Bacterial defense evolution and ecology
9:15 AM Kim Seed, Tera Levin, Egill Richard (Short talk)
10:35 AM Coffee break
11:00 AM Kotaro Kiga, Sofya Garushyants (Short talk), Aude Bernheim
12:30 PM Lunch and **Poster Session 1**
2:00 PM Mechanisms of bacterial defense
2:00 PM Joe Bondy-Denomy, Owen Tuck (Short talk), Eugene Kim (Short talk)
3:10 PM Coffee break
3:40 PM David Bikard, Douglas Wassarman (Short talk), Giedre Tamulaitiene
5:00 PM Reception and **Poster Session 1**
7:00 PM Conference Day 1 end

WEDNESDAY, APRIL 17

- 9:00 AM New bacterial defense systems**
9:00 AM Michael Laub, Gemma Atkinson, Jens Hoer (Short talk)
10:20 AM Coffee break (**Poster Session 1 remove posters**)
10:50 AM Anna Lopatina (Short talk), Max Wilkinson (Short talk), Eugene Koonin
12:00 PM Diversity data presentation – Aude Bernheim
12:20 PM Lunch and **Poster Session 2 (Poster Session 2 setup)**
2:30 PM Mechanisms of bacterial defense 2
2:30 PM Bostjan Kobe, Seth Shipman, Cameron Roberts (Short talk)
3:50 PM Coffee break
4:25 PM Monika Jasnauskaitė (Short talk), J.P. Gerdt (Short talk), Nicholas Taylor (Short talk), Philip Kranzusch
5:55 PM Conference Day 2 end – Free evening

THURSDAY, APRIL 18

- 9:00 AM Bacterial defense evolution and ecology 2**
9:00 AM Melanie Blokesch, Julia Frunzke, Molly Sargen (Short talk)
10:20 AM Coffee break
11:00 AM Lanying Zeng, Helena Shomar (Short talk), Michele LeRoux
12:20 PM Lunch and **Poster Session 2**
2:20 PM New bacterial defense systems 2
2:20 PM Luciano Marraffini, Chris Waters, Thomas Ve (Short talk), Amy Conte (Short talk)
4:00 PM Coffee break (**Poster Session 2 remove posters**)
4:30 PM Christopher Vassallo (Short talk), Tianmin Fu (Short talk), Rotem Sorek
5:40 PM Poster Awards and Conference Summary
6:00 PM Conference Dinner – Full dinner with live music
10:00 PM Conference Day 3 end

FRIDAY, APRIL 19

- ~10:00 AM Optional excursion meet-up times

ORGANIZERS

Philip Kranzusch
Harvard Medical School

Aude Bernheim
Pasteur Institute

Rotem Sorek
Weizmann Institute of Science

SCAN HERE FOR
FULL SCHEDULE:



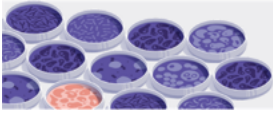
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Symposium on the Immune System of Bacteria

April 16–18, 2024 – Harvard Medical School



Funding

We acknowledge generous donor support for the symposium:



Special Acknowledgements

The conference organizers acknowledge extraordinary individuals helping make the symposium possible:

Harvard Medical School

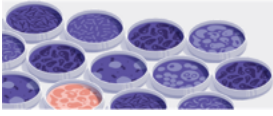
Ann Hochschild
Shannon Haas
Sibylle Kelleher
Trisha Sardesai
Hera Vlamakis
David Zenaty

Dana-Farber Cancer Institute

Cameron Cox
Kathleen Kennedy
Charles Thomas

Kranzusch Lab

Sadie Antine
Sam Fernandez
Aidan Hill
Sarah Mooney
Ady Ragucci
Hunter Toyoda



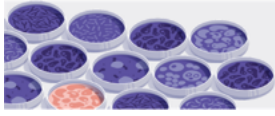
Full Conference Schedule – Day 1

Talks: 25 min, 5 min of questions

Short talks: 15 min, 5 min of questions

Tuesday, April 16

- 8:00 AM Conference registration and **Poster Session 1 setup**
- 9:00 AM Welcome notes
- 9:15 AM Bacterial defense evolution and ecology – Session Chair: Rotem Sorek (Weizmann Inst.)**
- 9:15 AM *Fighting with phages: how epidemic Vibrio cholerae defends against viral attack*
Kim Seed, University of California–Berkeley, USA
- 9:45 AM *The evolutionary relationships between bacterial and eukaryotic immune proteins*
Tera Levin, University of Pittsburgh, USA
- 10:15 AM *Short talk: Bacteriophages exploit RNA-guided transcription factors to remodel host flagella*
Egill Richard, Columbia University, USA
- 10:35 AM Coffee break
- 11:00 AM *Exploring the diverse counter-defense systems in bacteriophages*
Kotaro Kiga, National Institute of Infectious Diseases, Japan
- 11:30 AM *Short talk: Synergistic anti-phage activity of bacterial defense systems*
Sofya Garushyants, National Institutes of Health, USA
- 11:50 PM *Conservation of anti-viral immunity across domains of life*
Aude Bernheim, Pasteur Institute, France
- 12:30 PM Lunch and **Poster Session 1**
- 2:00 PM Mechanisms of bacterial defense – Session Chair: Karen Maxwell (University of Toronto)**
- 2:00 PM *How to stop a big phage that has it all*
Joe Bondy-Denomy, University of California–San Francisco, USA
- 2:30 PM *Short talk: Hachiman is a genome integrity sensor*
Owen Tuck, University of California–Berkeley, USA
- 2:50 PM *Short talk: The bacterial SMC Wadjet complex couples DNA loop extrusion to specific plasmid cleavage*
Eugene Kim, Max Planck Institute of Biophysics, Germany
- 3:10 PM Coffee break
- 3:40 PM *The PARIS defense system senses diverse phage proteins*
David Bikard, Pasteur Institute, France
- 4:10 PM *Short talk: Analysis of Type IV CBASS signaling reveals a new mechanism of anti-phage defense*
Douglas Wassarman, Harvard Medical School, USA
- 4:30 PM *Type II Thoeris system produces a new type signaling molecule*
Giedre Tamulaitiene, Vilnius University, Lithuania
- 5:00 PM Reception and **Poster Session 1**
- 7:00 PM Conference Day 1 end



Full Conference Schedule – Day 2

Talks: 25 min, 5 min of questions

Short talks: 15 min, 5 min of questions

Wednesday, April 17

9:00 AM **New bacterial defense systems – Session Chair: Sam Hobbs (Harvard Medical School)**

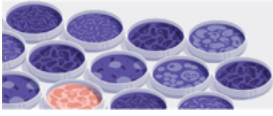
- 9:00 AM *Activation of anti-phage defense systems*
Michael Laub, Massachusetts Institute of Technology, USA
- 9:30 AM *Evolutionary and structural connections of toxin-antitoxins and other phage defense systems*
Gemma Atkinson, Lund University, Sweden
- 10:00 AM *Short talk: Bacteria conjugate ubiquitin-like proteins to interfere with phage assembly*
Jens Hoer, Helmholtz Institute for RNA-based Infection Research (HIRI), Germany
- 10:20 AM Coffee break (**Poster Session 1 remove posters**)
- 10:50 AM *Short talk: The diversity and biosynthesis of hypermodified nucleobases in bacteriophage DNA*
Peter Weigele, New England Biolabs, USA
- 11:10 AM *Short talk: Structural mechanisms of a defense-associated reverse transcriptase*
Max Wilkinson, Broad Institute of Harvard and MIT, USA
- 11:30 AM *Immunity and programmed cell death in prokaryotes: the double bind*
Eugene Koonin, National Institutes of Health, USA

12:00 PM Diversity data presentation – Aude Bernheim

12:20 PM Lunch and **Poster Session 2 (Poster Session 2 setup)**

2:30 PM **Mechanisms of bacterial defense 2 – Session Chair: Ben Adler (UC-Berkeley)**

- 2:30 PM *Enzymatic activities of TIR domains: molecular basis and immune signaling*
Bostjan Kobe, University of Queensland, Australia
- 3:00 PM *Retrons: Emerging mechanisms for phage detection and applications in biotechnology*
Seth Shipman, University of California–San Francisco, USA
- 3:30 PM *Short talk: CBASS activation by terminase-driven small RNA*
Cameron Roberts, The Rockefeller University, USA
- 3:50 PM Coffee break
- 4:25 PM *Short talk: Structure and mechanisms of retron Ec67*
Monika Jasnauskaite, Vilnius University, Lithuania
- 4:45 PM *Short talk: Chemical Inhibition of the Antiviral Immune Systems of Bacteria*
J.P. Gerdt, Indiana University, USA
- 5:05 PM *Short talk: Structure and mechanism of Zorya anti-phage defense system*
Nicholas Taylor, University of Copenhagen, Belgium
- 5:25 PM Nucleotide signaling in bacterial immunity
Philip Kranzusch, Harvard Medical School, USA
- 5:55 PM Conference Day 2 end – Free evening



Symposium on the Immune System of Bacteria

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Full Conference Schedule – Day 3

Talks: 25 min, 5 min of questions Short talks: 15 min, 5 min of questions

Thursday, April 18

9:00 AM **Bacterial defense evolution and ecology 2 – Session Chair: Aaron Whiteley (CU-Boulder)**

9:00 AM *New phage defense systems in pandemic Vibrio cholerae strains*
Melanie Blokesch, École polytechnique fédérale de Lausanne (EPFL), Switzerland

9:30 AM *Bacterial multicellular behavior in antiviral defense*
Julia Frunzke, Forschungszentrum Jülich, Germany

10:00 AM *Short talk: Prophage competition in salmonella persists in macrophages*
Molly Sargen, Harvard Medical School, USA

10:20 AM Coffee break

11:00 AM *Removal of retractile pili by ssRNA phages*
Lanying Zeng, Texas A&M University, USA

11:30 AM *Short talk: Genomics-driven discovery of a family of RiPPs that protect Actinobacteria from phage infection.*
Helena Shomar, Pasteur Institute, France

11:50 AM Using toxin-antitoxin phage defense systems to explore bacterial-phage specificity
Michele LeRoux, Washington University, USA

12:20 PM Lunch and **Poster Session 2**

2:20 PM **New bacterial defense systems 2 – Session Chair: Aude Bernheim (Pasteur Institute)**

2:20 PM *Discovery of new phage defense systems through the screening of metagenomic DNA libraries*
Luciano Marraffini, The Rockefeller University, USA

2:50 PM *Island exploration: Uncovering phage defense systems in Vibrio cholerae*
Chris Waters, Michigan State University, USA

3:20 PM *Short talk: Activation of bacterial immune systems by NAD⁺ derived signaling molecules*
Thomas Ve, Griffith University, Australia

3:40 PM *Short talk: Bacterial NLR-related proteins detect RNA phage through a host chaperone*
Amy Conte, University of Colorado–Boulder, USA

4:00 PM Coffee break (**Poster Session 2 remove posters**)

4:30 PM *Short talk: A toxin-antitoxin-chaperone system ADP-ribosylates mRNA to confer antiviral immunity*
Christopher Vassallo, Massachusetts Institute of Technology, USA

4:50 PM *Short talk: Oligomerization-mediated activation of a short Argonaute*
Tianmin Fu, The Ohio State University, USA

5:10 PM *New mechanisms of bacterial anti-phage defense*
Rotem Sorek, Weizmann Institute of Science, Israel

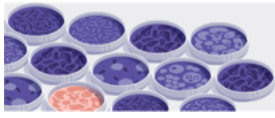
5:40 PM Poster Awards and Conference Summary

6:00 PM Conference Dinner – Full dinner with live music

10:00 PM Conference Day 3 end

Friday, April 19

~10:00 AM Optional excursion meet-up times



Poster Presentations

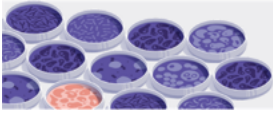
Please see the symposium website for a link to download a Zip file of the abstracts.

#	Session	First	Last	Institution	Title
1	S1	David	Adams	EPFL	Diverse phage defence systems define West African South American pandemic <i>Vibrio cholerae</i>
2	S1	Marian	Addo	Indiana University	No title
3	S1	Benjamin	Adler	University of California, Berkeley	Hachiman is a genome integrity sensor
4	S1	Shelby	Andersen	University of Colorado	A conserved serine recombinase serves as bait for finding novel antiphage defense systems in diverse genomes
5	S1	Sadie	Antine	Harvard Medical School	Structural basis of Gabija anti-phage defense and viral immune evasion
6	S1	Hee-Won	Bae	CHA university	Professional defense genes against anti-RNA phages identified from <i>Pseudomonas aeruginosa</i> clinical isolates
7	S1	Nathalie	Bechon	Weizmann Institute of Science	Diversification of molecular pattern recognition in bacterial NLR-like proteins
8	S1	Ryan	Bell	NIH	No title
9	S1	Dmitry	Biba	National Institutes of Health	Programmed suicide and anti-viral immune response in bacteria
10	S1	Chelsea	Blankenchip	University of California San Diego	Control of bacterial immune signaling by a WYL domain transcription factor
11	S1	Jack	Bravo	University of Texas at Austin	Plasmid targeting and destruction by pAgo-Helicase-Nuclease
12	S1	Lucas	Brenes	MIT	No title
13	S1	Susanne	Brenzinger	Biozentrum, AG Brochado	The <i>Vibrio cholerae</i> CBASS phage defence system modulates resistance and killing by antifolate antibiotics
14	S1	Drew	Bridges	Carnegie Mellon University	Cell-lysis sensing drives biofilm formation in <i>Vibrio cholerae</i>
15	S1	Nathan	Bullen	McMaster University	Evolution of a small phage protein overcomes antiphage defense in <i>Enterococcus faecalis</i>
16	S1	Max	Burroughs	National Library of Medicine	No title
17	S1	Arturo	Carabias	University of Copenhagen	Molecular insights into the immune mechanism of a Retron system
18	S1	Ryan	Catchpole	University of Georgia	Evaders from the Deep: Broad-spectrum Anti-CRISPRs from Hyperthermophilic Archaea
19	S1	Julie	Chen	MIT / Broad Institute	Natural <i>Vibrio</i> isolates leverage prophage induction for interference competition through an SOS-independent pathway
20	S1	Gong	Chen	Tufts University	DNA ejection protein Gp15 from vibriophage ICP3 antagonizes the CBASS antiviral system in <i>Vibrio cholerae</i>
21	S1	Collin	Chiu	Stanford University	Structural Basis of Phage Terminase Recognition by the Bacterial Immune Receptor Avs2
22	S1	Shin-Yae	Choi	CHA university	CRISPR-guided platforms for functional research and engineering of <i>Pseudomonas aeruginosa</i> phages
23	S1	Brady	Cress	University of California, Berkeley	Genome-Wide Characterization of Diverse Bacteriophages Enabled by RNA-Binding CRISPRi
24	S1	Emily	Cruz-Lorenzo	University of Pittsburgh	No title
25	S1	Edward	Culbertson	University of Pittsburgh	Eukaryotic CD-NTase, STING, and viperin proteins evolved via domain shuffling, horizontal transfer, and ancient inheritance from prokaryotes
26	S1	Amar	Deep	University of California, San Diego	Architecture and infection-sensing mechanism of the PARIS antiphage defense system
27	S1	Florence	Depardieu	Institut Pasteur	The PARIS defense system senses diverse phage proteins

28	S1	Eirene Marie	Ednacot	University of California - Irvine	No title
29	S1	Simone	Evans	Stanford University	Structural Basis of Phage Terminase Recognition by the Bacterial Immune Receptor Avs2
30	S1	Jose	Nakamoto	Lund University	Discovering novel Toxin-Antitoxin-Chaperone (TAC) systems associated with SecB homologues in bacteria
31	S1	Guilhem	Faure	Broad Institute	Transformation of CRISPR-Cas from defense mechanisms to Tn7 target selector
32	S1	Iana	Fedorova	UCSF	Tad1 and Tad2 proteins inhibit different Types of CBASS and Thoeris systems
33	S1	Tianyu	Gan	Washington University in St. Louis	Picobirnaviruses encode proteins that are functional bacterial lysins
34	S1	Landon	Getz	University of Toronto	Identification of a Novel Phage Defence Hotspot in <i>Vibrio parahaemolyticus</i>
35	S1	Marshall	Godsil	University of Washington	Temperate phage tolerance by the type VI-A CRISPR-Cas system in <i>Listeria seeligeri</i>
36	S1	Jasper	Gomez	Michigan State University	Discovery of a Type IV restriction system encoded on the <i>Vibrio cholerae</i> Pathogenicity Island-II
37	S1	Alejandro	Gonzalez-Delgado	Gladstone Institutes	Simultaneous multi-site editing of individual genomes using retron arrays
38	S1	Uri	Gophna	Tel Aviv University	An archaeal CBASS E1-E2 protein with effector function
39	S1	Matthieu	Haudiquet	Institut Pasteur	No title
40	S1	Ehud	Herbst	Weizmann Institute of Science	Extracellular antiphage activity of a secreted bacterial protease
41	S1	Alba	Herrero del Valle	Institut Pasteur	Deciphering the molecular mechanism of Eleos, a conserved immune system across the tree of life
42	S1	Alex	Hong	UCSF	Gabija identifies foreign substrates that exclude RecBCD binding
43	S1	Haidai	Hu	CPR copenhagen university	Structure and mechanism of Zorya anti-phage defense system
44	S1	Erin	Huiting	University of California, San Francisco	CBASS immunity protects cells from phage-induced lysis in <i>Pseudomonas aeruginosa</i>
45	S1	Artem	Isaev	Skolkovo Institute of Sci. and Tech.	Structural basis of foreign DNA recognition by the BREX anti-phage immunity system
46	S1	Xiaofang	Jiang	NIH/NLM	Large-scale Genomic Survey with Deep Learning-based Method Reveals Strain-Level Phage Specificity Determinants
47	S1	Marcus	Johansson	Lund University	Characterization of the <i>Lactococcus</i> AbiA anti-phage defense system
48	S1	Seth	Jones	University of Rochester Medical Center	No title
49	S1	Charlotte	Kamm	Helmholtz Institute	Repurposing the phage defense protein DarT for programmable genome editing
50	S1	Emily	Kibby	University of Colorado Boulder	Protein structure predictions identify activators of bacterial NLR-related proteins
51	S1	Timothy	Klein	UCSF	DNA-targeting defense systems in <i>Listeria monocytogenes</i> are activated at low temperatures
52	S1	Tatsuaki	Kurata	Lund University	FaRel2 toxSAS: mechanisms of toxicity and its regulation
53	S1	Anton	Kuzmenko	California Institute of Technology	Reversible oligomerization mediated by small RNA binding in a bacterial anti-phage system
54	S1	Hannah	Ledvina	University of Colorado Boulder	Discovery and characterization of a predatory bacteria defense system
55	S1	Yan-Jiun	Lee	New England Biolabs	Biosynthesis of Thymidine Hypermodifications
56	S1	Audrey	Leprince	Université Laval	Harnessing the immune system of <i>S. thermophilus</i> to counter bacteriophages in the dairy industry
57	S1	Xin	Li	University of Michigan	ApoCas9 regulates CRISPR adaptation as a guide RNA sensor in <i>Neisseria</i>
58	S1	Hon Wing	Liu	University of Lausanne	Plasmid recognition and cleavage by the DNA-measuring SMC JET nuclease (Wadjet)
59	S1	Christian	Loyo	MIT	A phage-encoded counter-defense gene prevents activation of an NAD-degrading phage defense system in <i>Bacillus subtilis</i>

60	S2	Ashley	Luo	Tufts University	Identification of a phage ejectosome protein in antagonizing the Escherichia coli anti-phage CBASS system
61	S2	Sam	Hobbs	Harvard Medical School	Phage evasion of CBASS, Pycsar, and Thoiris immunity
62	S2	Kira	Makarova	National Center for Biotechnology Information	Assortment of novel toxin-antitoxins systems identified by in silico approaches in archaea and their viruses
63	S2	Shally	Margolis	University of Washington	Naïve and primed spacer acquisition in a native type VI CRISPR locus relies on other CRISPR types
64	S2	Amelia	McKitterick	Harvard Medical School	Using phage predation to unravel envelope biogenesis
65	S2	Liana	Merk	Harvard University	Prevalence of Group II Introns in Phage Genomes
66	S2	Anne	Millen	IFF	Analysis and Application of Spacer Acquisition in the Lactococcal CRISPR-Cas
67	S2	Rafael	Molina	CSIC	A Ring to Regulate it all: a CRISPR story
68	S2	Ernest	Mordret	Institut Pasteur	Gene-scope AI model of bacterial genomes accelerates the discovery of new defense systems in Actinobacteria
69	S2	Ali	Nabhani	University of California Irvine	No title
70	S2	Gianlucca	Nicastro	National Institutes of Health	No title
71	S2	Julia	Nicosia	University of Rochester	The role of the Type VI CRISPR-Cas accessory protein Csx27 in CRISPR-Cas13 mediated anti-viral immunity
72	S2	Alka	Nokhwal	ICAR-National Research Centre on Equines	Combined application of essential oils and bacteriophage to inhibit growth of A. hydrophila in vitro
73	S2	Yao	Li	Harvard Medical School	Evolution and mechanism of cGAS-like signaling pathways in antiviral immunity
74	S2	Pedro H.	Oliveira	CEA-GENOSCOPE	The anti-MGE defenses of complex microbial communities
75	S2	Véronique	Ongena	Leiden University	YidC2 plays an important role in cell wall shedding after phage infection in Streptomyces coelicolor
76	S2	Lucas	Paoli	Institut Pasteur	Multicellular organization of microbial immunity in bacterial biofilms
77	S2	Kishen	Patel	University of California, Berkeley	Defense and Counter-defense: Insights into how a Vibrio cholerae phage overcomes an anti-phage nuclease
78	S2	Elizabeth	Pursey	Lund University	An updated phylogeny of the small alarmone synthetases and investigation of their potential roles in phage defence
79	S2	Bente	Rackow	Forschungszentrum Jülich GmbH	Screening anti-viral compounds against a diverse set of Bacteriophages
80	S2	Stephanie	Ragland	Boston Childrens Hospital	Phagosome-mediated activation of STING by purine and pyrimidine-based bacterial cyclic dinucleotides
81	S2	Olga	Rechkoblit	Ichan School of Medicine at Mount Sinai	Activation of CBASS-Cap5 endonuclease immune effector by cyclic nucleotides
82	S2	Mario	Rodriguez Mestre	University of Copenhagen	Unraveling the role of plasmids in disseminating prokaryotic immune systems across different ecosystems
83	S2	Alfonso	Rojas Montero	Gladstone Institutes, San Francisco, US	An experimental census of retrons for DNA production and genome editing
84	S2	Nicole	Rutbeek	University of Copenhagen	Purification and structural characterization of a membrane associated anti-phage defense system
85	S2	Hadar	Samra	Weizmann institute of science	Unraveling the sensory mechanisms of bacterial defense systems via co-expression with phage genes
86	S2	Giedrius	Sasnauskas	Vilnius University	Structural and functional studies of a HEPN domain coding bacterial antiviral system
87	S2	Daniel	Saxton	MIT	No title
88	S2	Ryan	Sayegh	University of Colorado Boulder	A rare curli-independent mechanism for B. bacteriovorus defense
89	S2	Steven	Shaw	University of Bristol	Cleavage Site Cartography of a Directional Modification Dependent Endonuclease using Nanopore Sequencing
90	S2	Sukrit	Silas	University of California, San Francisco	Restriction enzymes with toxin-antitoxin activities that kill the host upon sensing phage proteins

91	S2	Vincent	Somerville	Université Laval	Extensive phage invasion and host evolution in cheese starter cultures over an entire cheese-making season
92	S2	Marcel	Sprenger	Friedrich Schiller University Jena	Small RNAs direct attack and defence mechanisms in a quorum sensing phage and its host
93	S2	Ashley	Sullivan	CU Boulder	Determining the target of Cap2-mediated conjugation in type II CBASS systems
94	S2	Kristina	Sztanko	University of Toronto	Prophages express a type IV pilus protein as an anti-phage defence
95	S2	Uday	Tak	University of Colorado Boulder	A bacterial cyclic GMP–AMP receptor forms a transmembrane channel to restrict viral replication
96	S2	Gintautas	Tamulaitis	Vilnius University	Activation and regulation of type III CRISPR-Cas associated signaling cascade
97	S2	Joel	Tan	Harvard Medical School	Mechanism and structural basis of Hailong antiphage defense
98	S2	Véronique	Taylor	University of Toronto	Prophages block cell surface receptors to ensure survival of their viral progeny
99	S2	Bryan	Thurtle-Schmidt	Davidson College	Class 1 OLD proteins provide anti-phage defense and are inhibited by nucleotide
100	S2	A. Delphine	Tripp	MIT	Phylogeny determines defense island carriage in the skin commensal <i>C. acnes</i>
101	S2	Daan Frits	van den Berg	TU Delft	Bacterial homologs of innate eukaryotic antiviral defenses provide phage protection
102	S2	Alexis	Villani	UC San Francisco	Long-term inactivation of a restriction enzyme in <i>Pseudomonas</i> triggered by hypomethylation
103	S2	Grazia	Vizzarro	EPFL	<i>Vibrio cholerae</i> pathogenicity island 2 encodes a dual-function restriction modification cluster
104	S2	Peter	Weigele	New England Biolabs	The chemical diversity and biosynthesis of bacteriophage hypermodified DNA
105	S2	Murray	White	University of Pittsburgh	PROPHAGE-ENCODED PEST CASSETTES AS DETERMINANTS OF MYCOBACTERIOPHAGE DEFENSE
106	S2	Kaylee	Wilburn	Michigan State University	Identifying Counter Defense Mechanisms in Pandemic <i>Vibrio cholerae</i> Lytic Phages
107	S2	Yishak	Woldetsadik	Tufts University	Phage ICP1 employs a unique strategy to overcome SIR2-HerA-mediated bacterial immunity
108	S2	Yushan	Xia	University of Science and technology	Structural basis for phage-mediated activation and repression of bacterial DSR2 anti-phage defense system
109	S2	Wearn-Xin	Yee	UCSF	Identification of a common single gene endonuclease defense system with non-abortive activity
110	S2	Erez	Yirmiya	Weizmann institute of science	Structure-guided discovery of viral proteins that inhibit host immunity
111	S2	Zhiyu	Zang	Indiana University Bloomington	Discovery of Chemical Inhibitors against Immune Systems in Bacteria
112	S2	Dapeng	Zhang	Saint Louis University	Unveiling the Multifaceted Polymorphism of the Menshen Antiphage System
113	S2	YuGeng	Zhang	University of Oxford	Autoregulation of a defence island in enteropathogenic <i>Escherichia coli</i> by a novel repressor protein
114	S2	Chengqian	Zhang	Indiana University Bloomington	Discovery of chemical inhibitors against bacteria-bacteriophage defense systems
115	S2	Juntao	Zhang	Southern University of Science and Technology	Target ssDNA activates the NADase activity of prokaryotic SPARTA immune system
116	S2	Tong	Zhang	MIT	A fused toxin-antitoxin system directly senses two unrelated phage proteins
117	S2	Aoshu	Zhong	National Institutes of Health (NIH)	Toxic antiphage defense proteins inhibited by intragenic antitoxin proteins
118	S2	Wen	Zhou	Southern University of Science and Technology	Dissecting the roles of nucleases in nucleic acid immunity
119	S2	Shai	Zilberzwige Tal	MIT	The emergence of a CRISPR RNA-guiding mechanism from a type III toxin-antitoxin system

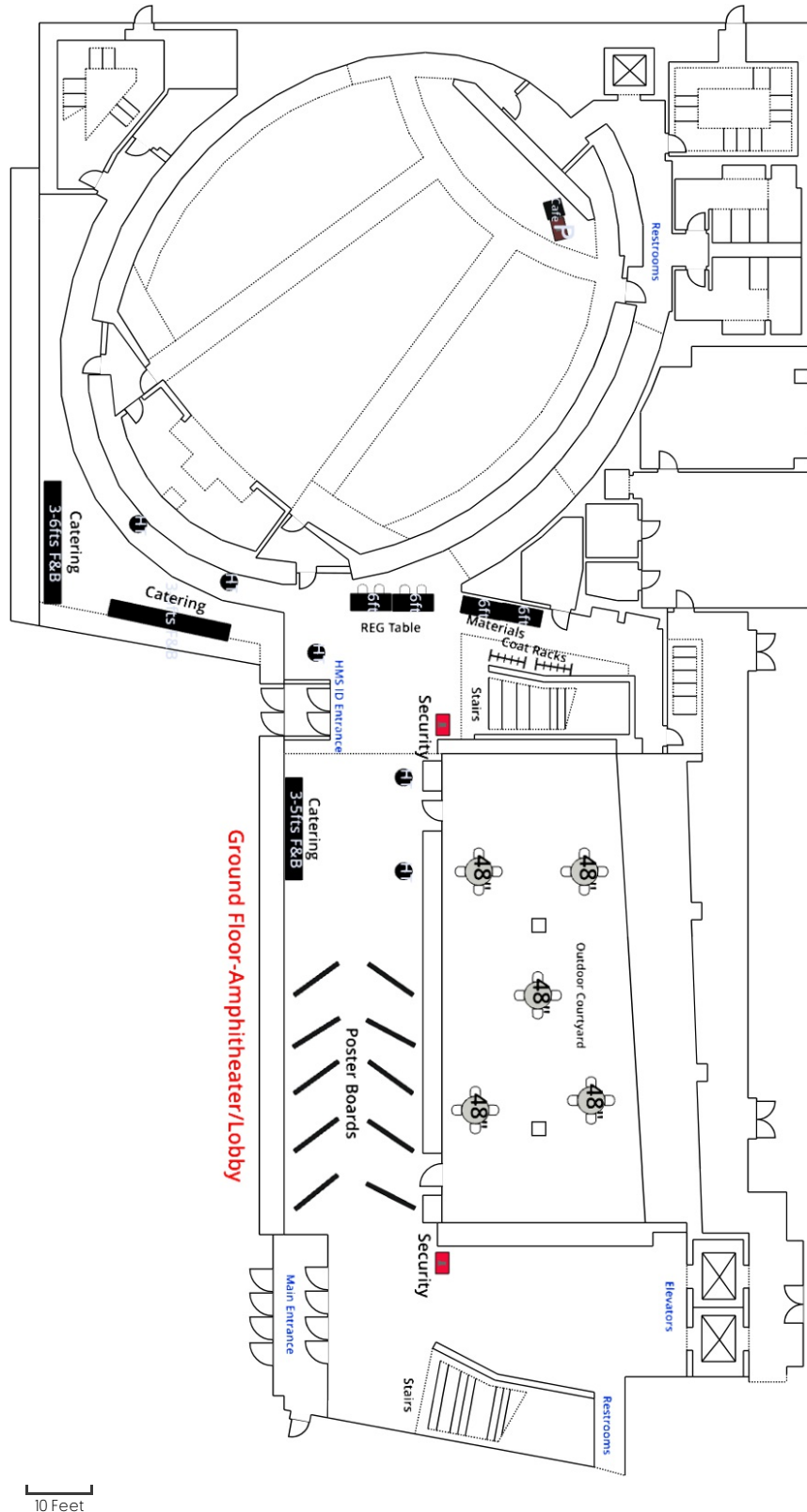


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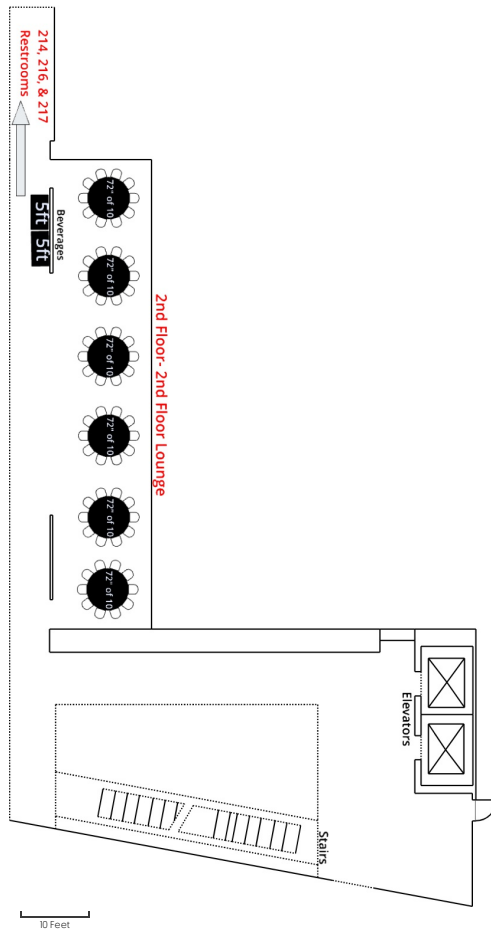
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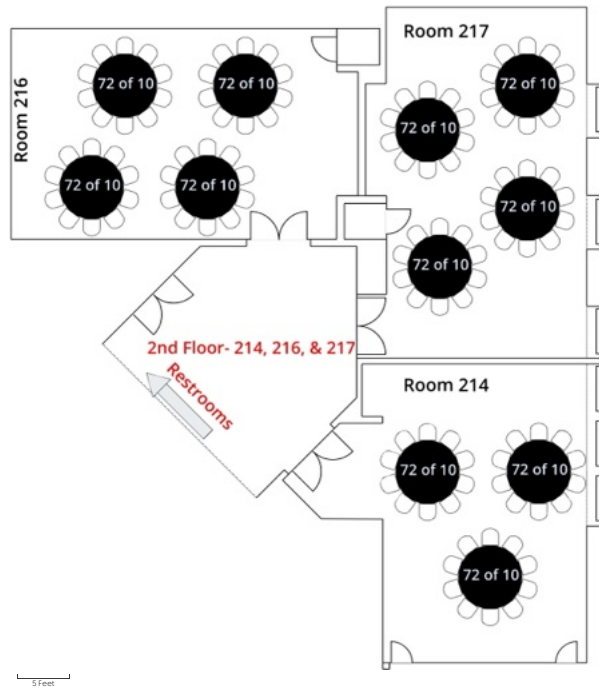
Joseph B. Martin Conference Center Floor Plan



Ground Floor for APRIL_16-18 HMS Dept. of Microbiology - April 16, 2024 at 12:00 PM



2nd Floor for APRIL_16-18 HMS Dept. of Microbiology - April 16, 2024 at 12:00 PM



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