



CSH Cold Spring Harbor Laboratory

BANBURY CENTER

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EXECUTIVE DIRECTOR'S REPORT

In October 2004, one year after an influenza (H5N1) outbreak and SARS-CoV-1 epidemic, a group of experts gathered on Banbury Lane to talk pandemics and vaccines. Participants were drawn from the World Health Organization and public health organizations in the United States, Brazil, Canada, India, South Korea, the Netherlands, Singapore, Taiwan, and the United Kingdom, as well as vaccine manufacturers. The meeting's eerily prophetic sessions covered surveillance, planning and response, vaccine manufacturing capacity, and political and economic considerations. By the second day, broader discussions became more specific recommendations aimed at improving influenza surveillance, increasing capacity for vaccine manufacturing, and advancing general vaccine technologies.* More than 15 years later, we were surprised. Not that a pandemic was here—this had been predicted by experts for some time—but that the virus to blame was not influenza.

As Wuhan's borders closed and the first infections outside China were confirmed, Banbury opened for our 2020 season. Our second meeting began just as news of the first death outside China was reported. Participants for our third meeting were only beginning to refer to the disease as "COVID-19," and by our fourth meeting, parts of Italy and Iran were becoming hot spots, while the first U.S. death had been confirmed. The Center concluded our final in-person meeting of 2020 on March 4, sending participants to airports and train stations with wishes for good health, and optimism that with one or two postponements, we would resume the season by May. By the end of March, office staff transitioned to remote work, and meeting postponements continued as the pandemic worsened, not to convene again in 2020.

Activities

The Center was only able to welcome four groups to the estate before COVID-19 took hold, but the meetings covered an array of important issues in science. *The MAVEN Project* is an education and mentorship program aiming to support women and minority senior scientists, led by Karina Davidson of Northwell Health. Their January planning workshop at Banbury allowed the program's leadership to develop details and plan for implementation. Discussions for the next meeting pivoted from mentorship to communication with *Professionalizing Science Communication*, led by Laura Lindenfeld (Alda Center for Communicating Science) and Dagnia Zeidlickis (Cold Spring Harbor Laboratory). The diverse group of scientists and communicators considered the emergence of the profession of science communication and relevant gaps in training and degree programs. The next two meetings centered around issues in clinical and translational research. First, the annual convening of the Cold Spring Harbor Laboratory *Technology and Education*



Technology and Education Council: Challenges and Promise in Precision Medicine

*Korn V. 2004. Experts say global vaccine policy for pandemic influenza is needed. *Sabin Vaccine Report* 7: 1–7. Retrieved from <https://www.sabin.org/sites/sabin.org/files/SVRFall2004.pdf>



Professionalizing Science Communication

Council joined representatives from biotech and pharmaceutical industries with experts from government and academia to consider aspects of precision medicine that would benefit from a Banbury meeting(s). Finally, we began and ended March meetings with the *Copper Cancer Consortium*. Organizers Michael Petris (University of Missouri), Nick Tonks (Cold Spring Harbor Laboratory), and Linda Vahdat (Memorial Sloan Kettering Cancer Center) led a meeting to share new findings and opportunities centered on copper as a therapeutic target in carcinogenesis and metastasis.

Although larger conferences were able to successfully pivot to virtual convenings, this format was more challenging for Banbury-style discussions for a number of reasons. First, the virtual platform limited or removed the opportunity for informal engagement—often the most productive time for open discussion and building connections. Second, experts participating from home locations

would lose the ability to focus for the full meeting duration while isolated on the estate, instead managing work and family responsibilities between sessions. Third, the aligning of time zones for our highly international groups would be nearly impossible, and, finally, our ability to guarantee confidential proceedings would be limited.

With these restrictions in mind, we considered virtual meetings case by case and were able to bring together three groups remotely. In June we reconvened participants from 2019's *Bridging the Research-to-Practice Chasm in Digital Mental Health*, continuing some discussions as a manuscript was being drafted, and revisiting topics in the context of crisis. Their report will be available in early 2021. In September, Mikala Egeblad (Cold Spring Harbor Laboratory) led a virtual meeting aiming to share information on the role of *Neutrophils in COVID-19*. Over two days, experts shared their most recent findings in the laboratory and clinic. In addition to rapidly sharing new information, the group was able to identify new therapeutic approaches to target neutrophils and areas where important work was still needed. The same month, we brought together experts in land-based mining and the deep sea to begin discussions of *Environmental Consequences of Deep-Sea Mining*. The group, led by Anna Metaxas (Dalhousie University) and Verena Tunnicliffe (University of Victoria), was tasked with comparing areas in which environmental impact metrics used successfully in land mining may be applicable to the sea. These conversations began building the foundation for two planned meetings in 2021.

Support

Funding is always a major hurdle to organizing Banbury meetings, as topics often fall at new intersections of science and technology or deal with delicate ethical or policy issues. We are ever grateful to the organizations and individuals that provide the financial support to enable Banbury to convene global leaders. The CSHL Corporate Sponsor Program remains a critical resource for cutting-edge meetings. In 2020 we are especially grateful to our funding partners who graciously extended grants so that we could postpone meetings, rather than cancel or attempt virtual convening.

The Team

The Center is successful thanks to a team of professionals who ensure the estate and programs are running at a high level. The pandemic made everyone's work much more difficult this year. Michelle Corbeaux expertly managed the Center's finances and tightened budgets, working closely with Development's Michael Gurtowski and Cat Donaldson to manage a

quality Corporate Sponsor Program. Our housekeepers, Miriam and Maria, supervised by Claudia Schmid and Patricia McAdams, ensured our rooms were kept clean and disinfected. The Culinary Services team, led by Jim Hope and overseen by Christina DeDora, ensured consistently delicious fare, and Bill Dickerson and the entire the Audiovisual staff led by Ed Campodonico flexibly supported Banbury's technology needs during in-person and virtual meetings. Jose Peña Corvera, Paulo Krizanovski, and Juan Colacho skillfully maintained 55 acres of impeccable grounds, keeping the estate beautiful and accessible throughout the entire pandemic. As always, we are grateful to the entire Facilities team who kept us running and up-to-date on health and safety protocols.

The Center was sad to lose two members of the team in 2020, with Allison Eichler and Basia Polakowski moving on. As thousands of Banbury participants and Meetings & Courses guests can attest, Basia Polakowski's generous hospitality, endless knowledge, and around-the-clock support ensured every expert was well looked after for her 15 years as Banbury Hostess. Robertson House will certainly not be the same without her meticulous oversight, beautiful flower arrangements, and, of course, her warm welcome.

Rebecca Leshan, Ph.D.
Executive Director



Conference Center entrance

2020 Publications Resulting from Banbury Meetings

- Browning M, Carter CS, Chatham C, Den Ouden H, Gillan CM, Baker JT, Chekroud AM, Cools R, Dayan P, Gold J, et al. 2020. Realizing the clinical potential of computational psychiatry: report from the Banbury Center Meeting, February 2019. *Biol Psychiatry* **88**: e5–e10. doi:10.1016/j.biopsych.2019.12.026
- Monje M, Borniger JC, D'Silva NJ, Deneen B, Dirks PB, Fattahi F, Frenette PS, Garzia L, Gutmann DH, Hanahan D, et al. 2020. Roadmap for the emerging field of cancer neuroscience. *Cell* **181**: 219–222. doi:10.1016/j.cell.2020.03.034
- Sahai E, Atsaturon I, Cukierman E, DeNardo DG, Egeblad M, Evans RM, Fearon D, Gretchen FR, Hingorani SR, Hunter T, et al. 2020. A framework for advancing our understanding of cancer-associated fibroblasts. *Nat Rev Cancer* **20**: 174–186. doi:10.1038/s41568-019-0238-1

BANBURY CENTER MEETINGS

<i>Dates</i>	<i>Title</i>	<i>Organizer(s)</i>
January 25–27	The MAVEN Project	Karina Davidson
February 2–5	Professionalizing Science Communication	Laura Lindenfeld, Dagnia Zeidlickis
February 18–20	Technology and Education Council: Challenges and Promise in Precision Medicine	Rebecca Leshan
March 1–4	Copper Cancer Consortium	Michael Petris, Nicholas Tonks, Linda Vahdat
June 1	Bridging the Research-to-Practice Chasm in Digital Mental Health (virtual)	Patricia Areán, David Mohr
September 24–25	Neutrophils in COVID-19 (virtual)	Mikala Egeblad
September 29–October 1	Environmental Consequences of Deep-Sea Mining (virtual)	Anna Metaxas, Verena Tunnicliffe

BANBURY CENTER MEETINGS

The MAVEN Project

January 25–27

ARRANGED BY K. Davidson, Center for Personalized Health, Northwell Health, New York, New York

FUNDED BY Feinstein Institutes for Medical Research

The MAVEN Project is an education and mentorship program to advance the careers of women and underrepresented minority senior scientists. This planning workshop convened a leadership group to finalize core details of the program curriculum.

Day 1: Mission, Deliverables, Modules

Day 2: Modules, Materials, Deliverables, Case Study

Day 3: Review Program and Wrap-Up

Participants

E. Brondolo, St. John's University, Jamaica, New York

K. Davidson, Center for Personalized Health, Northwell Health, New York, New York

B. Diamond, The Feinstein Institutes for Medical Research, New York, New York

J. Duer-Hefelee, Center for Personalized Health, Northwell Health, New York, New York

M. Kiernan, Stanford University, California

J. Kim, Rutgers Business School, New Brunswick, New Jersey

R. Monane, Center for Personalized Health, Northwell Health, New York, New York

J. Peacock, White Plains Hospital, New York

N. Spector, Drexel University College of Medicine, Philadelphia, Pennsylvania

C. Wang, The New York Academy of Medicine, New York

S. Yoon, Columbia University Irving Medical Center, New York, New York



(Back row, left to right) M. Kiernan, E. Brondolo, J. Peacock, J. Kim, J. Duer-Hefelee, R. Monane;
(front row, left to right) N. Spector, K. Davidson, C. Wang, B. Diamond



D. Zeidlickis, F. Badiane Markey



R. Maktoufi, A. Dudo

SESSION 2A: Skills and Training I—Needs

Chairperson: C. Lambert, Cold Spring Harbor Laboratory, Cold Spring Harbor, New York

R. Maktoufi, Northwestern University, Evanston, Illinois:
New generation of science communicators: what do we need?

M. Feliú-Mójer, CienciaPR & iBiology, San Francisco, California: Diversity, equity and inclusion: a necessary skill-set for science communicators

M. DiChristina, Boston University, Boston, Massachusetts:
How scientist communicators can avoid common pitfalls and landmines

SESSION 2B: Skills and Training II—Best Practice

Chairperson: M. Bare, Science Philanthropy Alliance, Palo Alto, California

P. Mullin, UK Research and Innovation, London, United Kingdom: How did I get here? Career pathways into science communication in the UK

A. Dudo, University of Texas, Austin, Texas: Five ways to enhance science communication training

S. Menezes, Metcalf Institute, University of Rhode Island, Kingston: Frontloading inclusion in science communication

SESSION 3: Opportunities and Models for the Future

Chairperson: N. Leavey, Alan Alda Center for Communicating Science, Stony Brook, New York

K. Fallon Lambert, Harvard T.H. Chan School of Public Health, Boston, Massachusetts: Science communicators as boundary spanners

C. Barriault, Laurentian University, Sudbury, Ontario, Canada: The little program that could: the unlikely evolution of science communication professionalization in Sudbury, Ontario

A. Stanley, COMPASS, Seattle, Washington; Science communication for social change

J.-W. van Doorn, Health Science Communications, New York, New York; The future of scientific communications: what matters (and why)?

E. Cloyd, American Association for the Advancement of Science, Washington, D.C.: Traffic circles or transfer stations:



M. Feliú-Mójer, C. Lambert



M. Bare, A. Merchant

how can institutions support the multiple pathways to a career in scicom?

L. Lindenfeld and N. Leavey, Alan Alda Center for Communicating Science, Stony Brook, New York: Professionalizing science communication: a preliminary landscape analysis

SESSION 4: Breakout/Writing Groups

SESSION 5: Reporting and Next Steps

Chairpersons: L. Lindenfeld, Alan Alda Center for Communicating Science, Stony Brook, New York; D. Zeidlickis, Cold Spring Harbor Laboratory, Cold Spring Harbor, New York



A. Wasey

CSHL Technology and Education Council: Challenges and Promise in Precision Medicine

February 18–20

ARRANGED BY R. Leshan, Cold Spring Harbor Laboratory, New York

FUNDED BY Cold Spring Harbor Laboratory Corporate Sponsor Program

Cold Spring Harbor Laboratory's Technology and Education Council (TEC) is an advisory group composed of senior scientists from the pharmaceutical and biotechnology industries. This meeting convened members of TEC as well as global experts and thought leaders for high-level, interdisciplinary engagement around the challenges and opportunities in precision medicine. In addition to open discussions of new opportunities and strategies, the meeting identified topics for future Banbury meetings.

Welcoming Remarks: D. Stewart, Meetings & Courses Program, Cold Spring Harbor Laboratory, New York
R. Leshan, Executive Director, Banbury Center, Cold Spring Harbor Laboratory, New York

SESSION 1: Sector Initiatives

Chairperson: A. Whiteley, Cold Spring Harbor Laboratory, New York

K. Gebo, National Institutes of Health, Bethesda, Maryland:
The *All of Us* research study: large-scale data integration driving precision medicine

H. Willard, Genome Medical, Durham, North Carolina: A clinical imperative: genomics and population screening from Geisinger to beyond

G. FitzGerald, University of Pennsylvania Perelman School of Medicine, Philadelphia: Translating science into precision medicine at an academic medical center

SESSION 2: Research and Translation I

Chairperson: J. Miletich, Merck Research Labs, Rahway, New Jersey





A. Califano, E. Segal



Discussions during coffee break

C. Kemp, Fred Hutchinson Cancer Research Center, Seattle, Washington: Functional precision oncology: techniques, uses, and challenges

C. Grandori, SEngine Precision Medicine, Seattle, Washington: From the bench to the clinic: predictive value and lessons learned from a CLIA-certified drug sensitivity assay employing patient-derived tumor organoids

J. Hogenesch, Cincinnati Children's Hospital Medical Center, Ohio: Precision circadian medicine

SESSION 3: Research and Translation II

Chairperson: M. Hassan-Zahraee, Pfizer, Cambridge, Massachusetts

S. Wang, Columbia University, New York, New York: Challenges in microbiome data analysis

E. Segal, Weizmann Institute of Science, Rehovot, Israel: Personalized medicine based on microbiome and clinical data

A. Califano, Columbia University, New York, New York: Mechanistic elucidation and targeting of non-oncogene dependencies in individual cancer patients

A. Baryshinkova, Calico Life Sciences, South San Francisco, California: Data libraries: a challenge and a promise for modeling biological systems

S. Setia Verma, University of Pennsylvania, Philadelphia: Groundwork for precision medicine: the role of electronic health records in new discoveries and clinical implementation

SESSION 4: Patient Populations and Clinical Trials

Chairperson: R. Plenge, Bristol-Myers Squibb

A. Manrai, Harvard Medical School/Boston Children's Hospital, Massachusetts: Precision cardiovascular medicine in multi-ethnic populations

R. Nelson, Johnson & Johnson, Spring House, Pennsylvania: Challenges in pediatric drug development

K. Davidson, Center for Personalized Health, Northwell Health, New York, New York: Expanding the footprint of personalized trials to inform precision medicine

K. Phillips, University of California, San Francisco: The coming earthquakes! Schisms form re: big data, payer coverage, lab industry, and early detection via liquid biopsy

SESSION 5: Meeting Wrap-Up

Chairperson: R. Leshan, Banbury Center, Cold Spring Harbor Laboratory, New York



A. Manrai, S.S. Verma



D. Stewart, S. Wang

Copper Cancer Consortium

March 1–4

ARRANGED BY **M. Petris**, University of Missouri, Columbia
 N. Tonks, Cold Spring Harbor Laboratory, Cold Spring Harbor, New York
 L. Vahdat, Memorial Sloan Kettering Cancer Center, New York, New York

FUNDED BY **Northwell Health–Cold Spring Harbor Laboratory Affiliation**

Copper serves as an important catalytic cofactor in several biological functions, including angiogenesis, mitochondrial respiration, stroma/collagen remodeling, and oxidative stress, highlighting its role as an essential contributor to carcinogenesis and metastasis. This Banbury meeting brought together a diverse group of experts to discuss new findings, disseminate ideas and methodologies, and sketch out a roadmap—scientific and clinical—to investigate the effect of disruption of copper homeostasis on the tumor microenvironment and the prevention of metastasis.

Welcoming Remarks: **R. Leshan**, Executive Director, Banbury Center, Cold Spring Harbor Laboratory, New York

Introduction and Meeting Objectives: **M. Petris**, University of Missouri, Columbia
 N. Tonks, Cold Spring Harbor Laboratory, Cold Spring Harbor, New York
 L. Vahdat, Memorial Sloan Kettering Cancer Center, New York, New York

SESSION 1: Copper Homeostasis and Disease

Chairperson: **S. Lutsenko**, Johns Hopkins University,
Baltimore, Maryland

S. Lutsenko, Johns Hopkins University, Baltimore, Maryland;
Metabolic effects of copper misbalance in tissues
P. Cobine, Auburn University, Alabama: Copper transport by
the mitochondrial carrier family





J. Cross, L. Van Aelst



P. Yuan, K. Franz, P. Cobine, M. Petris

S. Kaler, Nationwide Children's Hospital, Columbus, Ohio: Translational neuroscience approaches to inherited disorders of ATP7A-mediated copper transport

V. Gohil, Texas A&M University, College Station: Molecular mechanisms of copper delivery to mitochondrial cytochrome *c* oxidase

SESSION 2: Copper Signaling

Chairperson: D. Brady, University of Pennsylvania, Philadelphia

D. Brady, University of Pennsylvania, Philadelphia: Copper is an essential regulator of the autophagic kinases ULK1/2 to drive lung adenocarcinoma

C. Chang, University of California, Berkeley: Activity-based sensing and proteomics approaches to decipher copper signaling

N. Tonks, Cold Spring Harbor Laboratory, Cold Spring Harbor, New York: From phosphatase-based therapeutics to the discovery of a novel copper chelator

V. Mittal, Weill Cornell Medicine, New York, New York: Copper-metabolism axis in breast cancer metastasis

G. DeNicola, H. Lee Moffitt Cancer Center, Tampa, Florida: The role of Cu/Zn-superoxide dismutase in NRF2-mediated ROS resistance

SESSION 3: Copper Handling Targets in Cancer

Chairperson: M. Petris, University of Missouri, Columbia

M. Petris, University of Missouri, Columbia: Cu-transporting P-type ATPases as anti-cancer targets

P. Yuan, Washington University School of Medicine, St. Louis, Missouri: Structural basis of ion selectivity and permeation in the high-affinity copper transporter CTR1

M. Ralle, Oregon Health & Science University, Portland: Characterization of copper distributions in mammalian tissue

SESSION 4: Therapeutic Copper Chelators and Ionophores

Chairperson: M. Schilsky, Yale University, New Haven, Connecticut

K. Franz, Duke University Chemistry, Durham, North Carolina: Designing molecules to leverage cytotoxic copper

Q. Dou, Karmanos Cancer Institute, Wayne State University, Detroit, Michigan: Copper, ubiquitin-proteasome system and cancer

L. Vahdat, Memorial Sloan Kettering Cancer Center, New York, New York: Copper depletion as a therapeutic strategy in high-risk-for-recurrence breast cancer

M. Schilsky, Yale University, New Haven, Connecticut: Clinical and biochemical assessment of a patient's "copper status"

A. Casini, Technical University of Munich, Munich, Germany: Liposome formulations of a copper-based compound with potent anticancer effects in vivo

SESSION 5: Cancer and Other Diseases of Copper Dys-homeostasis

Chairperson: A. Bush, University of Melbourne, Victoria, Australia



P. Cobine, P. Yuan, V. Gohil

J. Cross, Memorial Sloan Kettering Cancer Center, New York, New York: Deconvoluting the impact of copper chelation: metabolism, redox control, and glutathione biosynthesis in cancer cells

A. Bush, University of Melbourne, Victoria, Australia: Copper in ubiquitination

S. Gupta, Albert Einstein College of Medicine, Bronx, New York: Combined effects of copper and arsenic on hepatic injury

R. Polishchuk, Telethon Institute of Genetics and Medicine, Pozzuoli, Italy: Identification of drugs and targets that overcome ATP7B-mediated tolerance of tumor cells to cisplatin

SESSION 6: Cancer Drug Development—Bench-to-Bedside

Panel Discussion: **M. Dickler**, Eli Lilly and Company, New York, New York; **V. Miller**, Medical Oncology, Consultant Memorial Sloan Kettering Cancer Center, New York, New York; **D. Xi**, National Cancer Institute, Rockville, Maryland

SESSION 7: Meeting Wrap-Up

Chairpersons: **L. Vahdat**, Memorial Sloan Kettering Cancer Center, New York, New York; **M. Petris**, University of Missouri, Columbia; **N. Tonks**, Cold Spring Harbor Laboratory, Cold Spring Harbor, New York

Neutrophils in COVID-19 (virtual)

September 24–25

ARRANGED BY M. Egeblad, Cold Spring Harbor Laboratory, Cold Spring Harbor, New York

FUNDED BY Cold Spring Harbor Laboratory Corporate Sponsor Program

Coronavirus disease 2019 (COVID-19) is a novel, viral-induced respiratory disease. It was rapidly recognized that neutrophils—and in particular their ability to form neutrophil extracellular traps (NETs)—could be contributing to the organ damage and mortality in COVID-19. This virtual Banbury meeting convened scientists and physicians working on COVID-19, neutrophils, or both to discuss current evidence for a role of neutrophils in COVID-19 as well as the paths toward clinical targets.

Welcoming Remarks: R. Leshan, Executive Director, Banbury Center, Cold Spring Harbor Laboratory, New York

Introduction and Meeting Objectives: M. Egeblad, Cold Spring Harbor Laboratory, New York

R. Schwartz, Weill Cornell Medicine, New York, New York:
Development of stem cell/organoid models for COVID-19 disease modeling

SESSION 1: NETs and Lung Pathology

Chairperson: F. McAllister, MD Anderson Cancer Center, Houston, Texas

F. Cunha, São Paulo University, Ribeirão Preto School of Medicine São Paulo, Brazil: SARS-CoV-2–triggered neutrophil extracellular traps mediate COVID-19 pathology

T. Marichal, Liège University, Belgium: Lung NETs in severe COVID-19: does location matter?

SESSION 2: New Techniques (Flash Talks)

Chairperson: S. Takayama, Georgia Institute of Technology and Emory University, Atlanta

B. Barnes, Feinstein Institute for Medical Research, Manhasset, New York: Chasing NETs—assays to quantify NETs in patient serum

M. Vendrell, University of Edinburgh, United Kingdom: Activatable fluorophores for imaging immune cells

SESSION 3: NETs and Thrombosis in COVID-19

Chairperson: P. Liaw, McMaster University, Hamilton, Ontario, Canada

J.-P. Désilles, Rothschild Foundation Hospital, Paris, France: Neutrophil extracellular traps are responsible for the resistance of COVID-19 acute ischemic thrombi to intravenous thrombolysis

M. Herrmann, Friedrich-Alexander-University of Erlangen-Nürnberg, Germany: Vascular occlusion by neutrophil extracellular traps in COVID-19

P. Skendros, University Hospital of Alexandroupolis, Democritus University of Thrace, Greece: Complement and tissue factor-enriched neutrophil extracellular traps are key drivers in COVID-19 immunothrombosis

Y. Kanthi, National Heart, Lung, and Blood Institute, Bethesda, Maryland: Trips, Traps, and Trials in a Pandemic

SESSION 4: Neutrophil Dysregulation in COVID-19

Chairperson: Z. Fridlender, Hadassah-Hebrew University Medical Center, Jerusalem, Israel

F. Ginhoux, Singapore Immunology Network (SIgN), A*STAR, Singapore: Elevated calprotectin and abnormal myeloid cell subsets discriminate severe from mild COVID-19

S. Walmsley, University of Edinburgh, United Kingdom: Proteomics identifies a hyperinflammatory prothrombotic circulating COVID-19 neutrophil signature distinct from non-COVID-19 ARDS

J. Yan, University of Louisville, Kentucky: Emergence of low-density inflammatory neutrophils correlates with hypercoagulable state and disease severity in COVID-19 patients

SESSION 5: Opportunities to Target Neutrophil Pathology in COVID-19

Chairperson: J. Spicer, McGill University, Montreal, Québec, Canada

J. Knight, University of Michigan, Ann Arbor: What Queen Anne's lupus can teach us about COVID-19

M. Looney, University of California, San Francisco: Mechanisms and pathogenicity of viral-induced neutrophil extracellular traps

C. Con Yost, University of Utah School of Medicine, Salt Lake City: NET inhibition in SARS-CoV-2 infection

J-C. Tardif, Montréal Heart Institute, Montreal, Québec, Canada: Colchicine in COVID-19

Z. Holliday, University of Missouri, Columbia: Targeting NETs in severe COVID-19 pneumonia with inhaled dornase alfa

Environmental Consequences of Deep-Sea Mining (virtual)

September 29–October 1

ARRANGED BY A. Metaxas, Dalhousie University, Halifax, Canada
V. Tunnicliffe, University of Victoria, British Columbia, Canada

FACILITATED BY M. Breitburg-Smith, RESOLVE, Washington, D.C.

FUNDED BY Cold Spring Harbor Laboratory Corporate Sponsor Program

The presence of metalliferous ores on the seabed is fueling speculation of greater access to metal supplies to support current and projected global demands. As international authorities finalize the regulations to enable exploitation, questions concerning the environmental consequences must be addressed despite large knowledge gaps. The challenge is to assess the risks in the context of alternative metal supplies. This pre-workshop convening brought together land-based mining and deep-sea experts to begin conversations about comparing terrestrial and deep-sea mining considerations.

Welcoming Remarks: R. Leshan, Executive Director, Banbury Center, Cold Spring Harbor Laboratory, New York

Overview of Meeting Objectives and Connection to In-Person Meeting: A. Metaxas, Dalhousie University, Halifax, Canada
V. Tunnicliffe, University of Victoria, British Columbia, Canada

Agenda Review, Introductions, and Technology Overview: M. Breitburg-Smith, RESOLVE, Washington, D.C.

Day 1: Lessons Learned from Land-Based Mining

Day 2: Applicability of Land-Based Mining Metrics to Deep-Sea Mining

Day 3: Proposed Metrics and Methods for a Comparison of LBM and DSM

Participants

D. Amon, Natural History Museum, London, United Kingdom
M. Breitburg-Smith, RESOLVE, Washington, D.C.
B. Butler, U.S. Environmental Protection Agency/ORD, Washington, D.C.
P. De Morgan, RESOLVE, Washington, D.C.
J. Le
N. Mestre, CIMA, Universidade do Algarve, Faro, Portugal

A. Metaxas, Dalhousie University, Halifax, Canada
G. Mudd, RMIT University, Melbourne, Victoria, Australia
C. Smith, University of Hawai'i at Mānoa
L. Sonter, University of Queensland, Brisbane, Australia
V. Tunnicliffe, University of Victoria, British Columbia, Canada
A. Vanreusel, Ghent University, Belgium
P. Weaver, Seascope Consultants, Ltd., United Kingdom