



Jacques Loeb Centre
for the History and Philosophy
of the Life Sciences

10th International Workshop

Data, Knowledge, and Genomic Causality

Philosophy and scientific
practice in informational
biology in the era of 'Big Data'
technology and computation

December 9-10, 2019

Ilse Katz Institute for Nanoscale Science and
Technology (Bldg. 51), Ben-Gurion University
of the Negev, Marcus Family Campus



אוניברסיטת בן-גוריון בנגב
Ben-Gurion University of the Negev



Monday, December 9th

9:15 a.m. - 9:45 a.m.

Registration and Refreshments

9:45 a.m. - 10:05 a.m.

Greetings and Opening Remarks

Prof. Raz Jelinek, Vice President and Dean for Research and Development, Ben-Gurion University of the Negev

Prof. Ofer Ovadia, Chairman, Department of Life Sciences, Ben-Gurion University of the Negev

Prof. Ute Deichmann, Director, Jacques Loeb Centre for the History and Philosophy of the Life Sciences, Ben-Gurion University of the Negev

10:05 a.m. - 11:35 a.m.

I. Beyond Big Data - The Originator of Sequencing and the Limitations and Methodological Crimes of Big Data Driven Science

George Brownlee, F.R.S, University of Oxford, UK
Fred Sanger (1918-2013), the biologist who worked out how to sequence proteins, RNA and DNA

Jeremy Gunawardena, Harvard Medical School, U.S.A.
Beyond 'Big Data' and 'Big Model': The role of abstraction in biology

11:35 a.m. - 11:50 a.m.

Coffee Break

11:50 a.m. - 1:20 p.m.

Ute Deichmann, Ben-Gurion University of the Negev, Israel
Data, theory, and scientific belief in early molecular biology: Pauling's and Crick's conflicting theories about the genetic determination of protein synthesis and the solution to the 'secret of life'

Dan Graur, University of Houston, U.S.A.

Data is not information, information is not knowledge, knowledge is not wisdom, wisdom is not truth: The many methodological crimes of data-driven big science

1:20 p.m. - 2:00 p.m.

Lunch Break

2:00 p.m. - 3:00 p.m.

Robert Weinberg, Whitehead Institute for Biomedical Research, U.S.A.
Epithelial-mesenchymal transition in malignant progression: The limited contribution of genomic analyses

3:00 p.m. - 3:30 p.m.

Coffee Break

3:30 p.m. - 5:00 p.m.

II. Correlation and Causation in Brain Research

Ami Citri, Hebrew University of Jerusalem, Israel
Correlations and causal relations in the study of the cellular and molecular basis of drug addiction

Ally Eran, Ben-Gurion University of the Negev, Israel
Using big data to dissect the autism spectrum

5:00 p.m. - 8:00 p.m.

Reception and Dinner
(for invited speakers and guests)

Tuesday, December 10th

9:15 a.m. - 10:45 a.m.

III. Genomic Causation and Gene Regulatory Networks in Evolution and Development

Michael Hiller, Max Planck Institute of Molecular Cell Biology and Genetics, Germany

Identifying genomic changes that are associated with or cause phenotypic changes between species

Douglas Erwin, Smithsonian National Museum of Natural History, U.S.A.

Inferring ancestral functions for highly conserved developmental genes in early animals and their ancestors

10:45 a.m. - 11:05 a.m.

Coffee Break

11:05 a.m. - 1:20 p.m.

Ellen Rothenberg, California Institute of Technology, U.S.A.

Causality and validation in single-cell genomics: Analysis of a major hematopoietic transition

Shalev Itzkovitz, Weizmann Institute of Science, Israel

Spatial transcriptomics of mammalian tissues

Stanislav Shvartsman, Princeton University, U.S.A.

Data-driven models of embryogenesis

1:20 p.m. - 2:20 p.m.

Lunch Break

2:20 p.m. - 3:50 p.m.

IV. Causation and Philosophy in Biology

Ron Milo, Weizmann Institute of Science, Israel

Genomic causality in a bacterium that was lab-evolved to turn CO₂ into sugar

Denis Forest, Université Paris 1-Panthéon-Sorbonne & IHPST, France

The age of enlightenment. Optogenetics, causation and the enlarged biological community.

3:50 p.m. - 4:15 p.m.

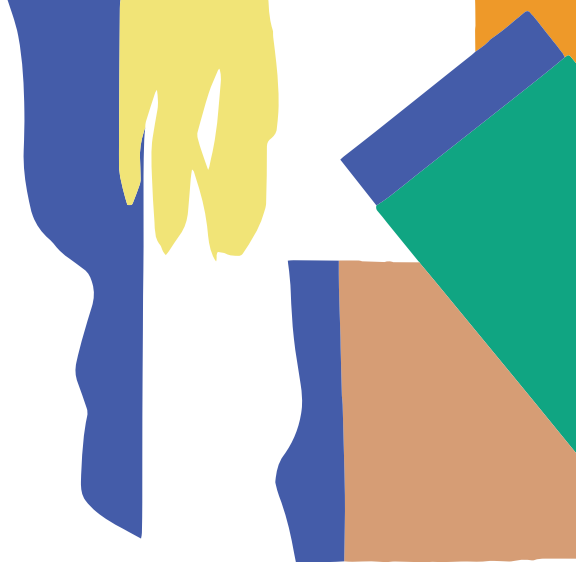
Coffee Break

4:15 p.m. - 4:45 p.m.

Round table discussion

7:00 p.m.

Dinner and Evening Lecture
(for invited speakers and guests)





The Jacques Loeb Centre for the History and Philosophy of the Life Sciences was inaugurated in March 2008. The Centre supports advanced research in topics related to the life sciences and pursues a broad range of investigations into the history and philosophy of modern research. It organizes national and international conferences aimed at an interdisciplinary exchange between scientists from different disciplines and commentators on science such as historians and philosophers of science. The proceedings of its annual international workshops have been published as special editions of leading scientific and historical journals.



Abstracts can be viewed at
<http://tiny.cc/2sk3fz>

For further information
please visit: <https://t2m.io/fmKudxdZ>
or contact jloebcentre@post.bgu.ac.il

