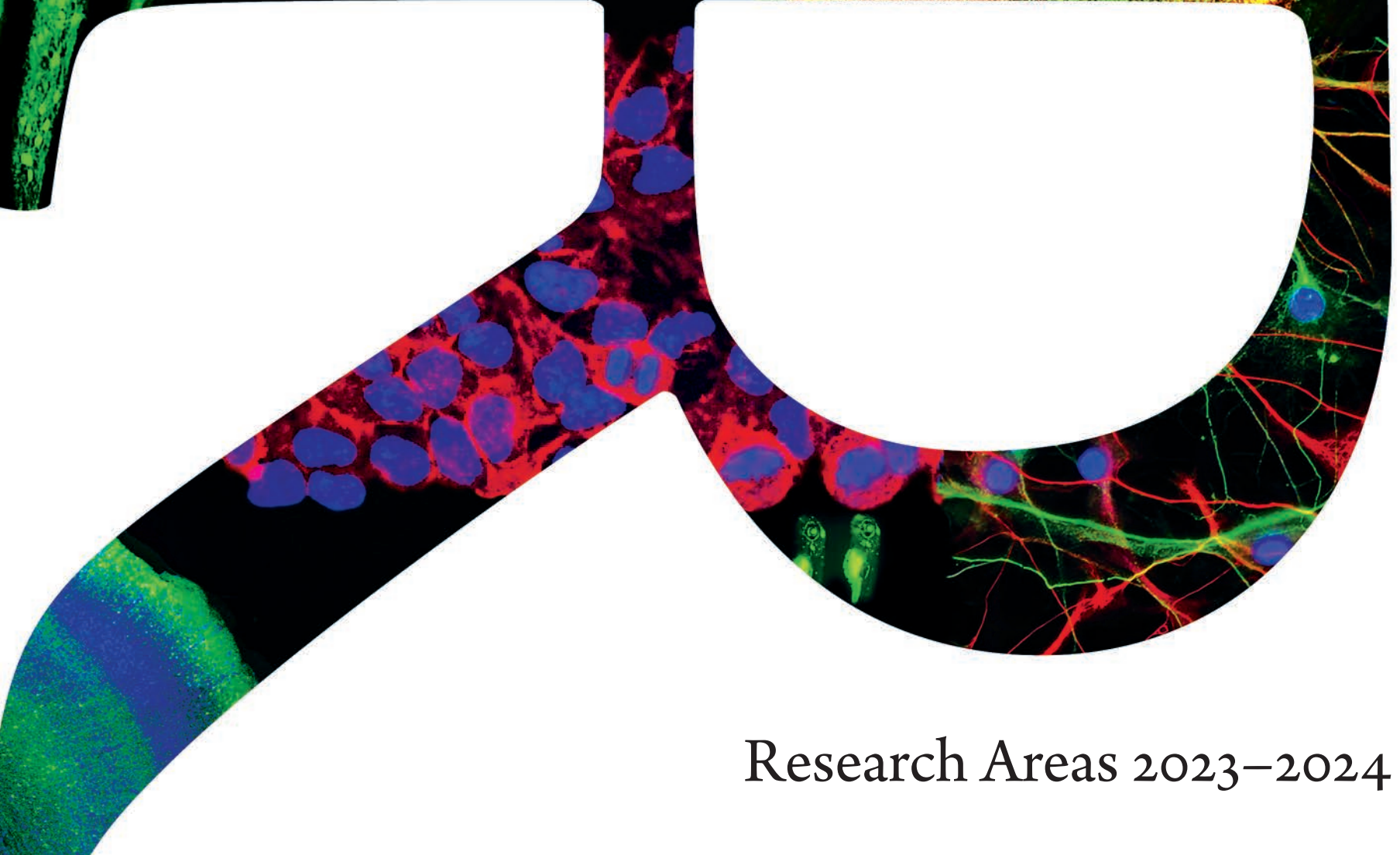

Research Areas 2023–2024

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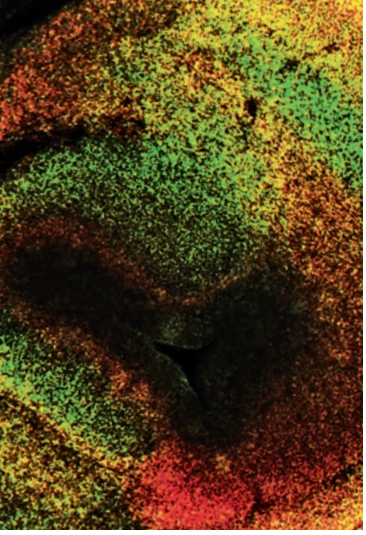
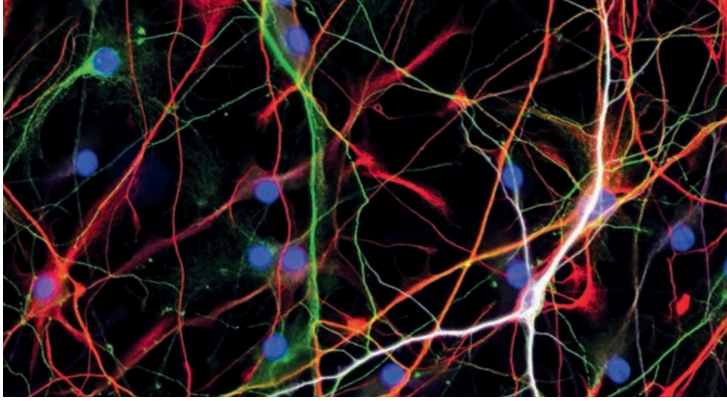
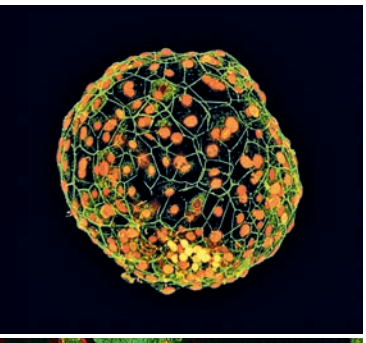
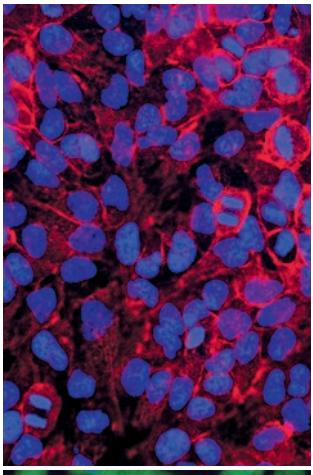
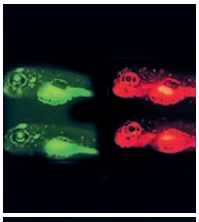
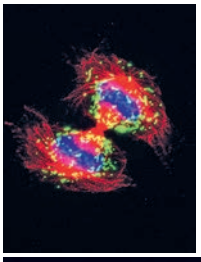

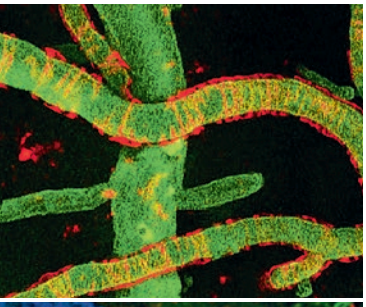
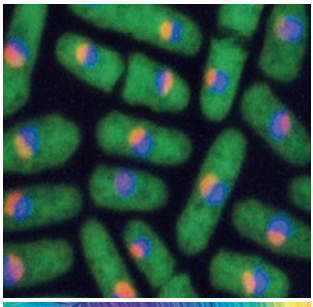

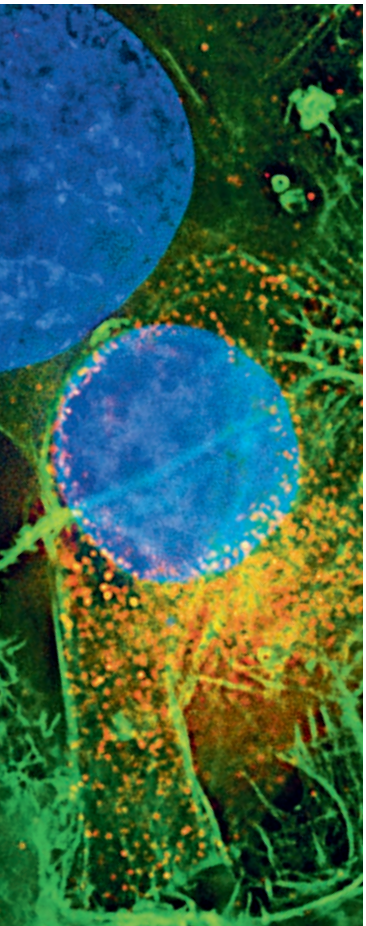
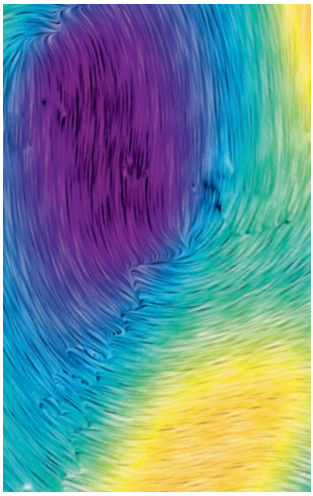
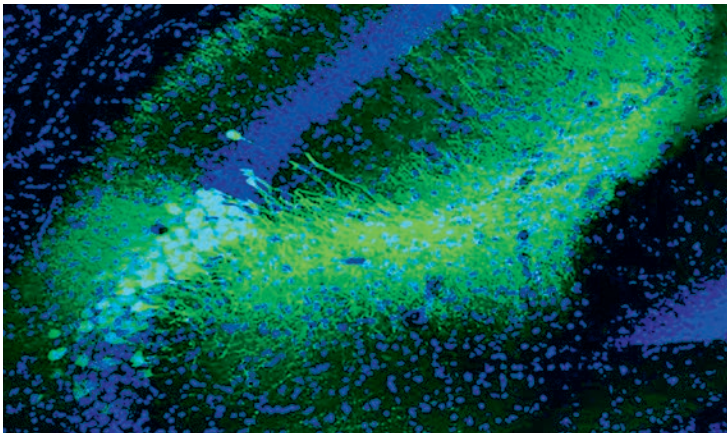

Biochemistry, Biophysics, Chemical Biology, and Structural Biology

Gregory M. Alushin
Sean F. Brady
Steve L. Bonilla
Brian T. Chait
Jue Chen
Paul Cohen
Robert B. Darnell
Seth A. Darst
Titia de Lange
A. James Hudspeth
Tarun Kapoor
Sebastian Klinge
Shixin Liu
Jiankun Lyu
Roderick MacKinnon
Michael O'Donnell
Charles M. Rice
Viviana I. Risca
Jeremy M. Rock
Robert G. Roeder
Michael P. Rout
Vanessa Ruta
Thomas P. Sakmar
Sanford M. Simon
Sohail Tavazoie
Thomas Tuschl
Ekaterina V. Vinogradova
Thomas Walz

1 2 3

Cancer Biology

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Cell Biology

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Tarun Kapoor
Gaby Maimon
Luciano Marraffini
Paul Nurse
Michel C. Nussenzweig
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Robert G. Roeder
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Shai Shaham
Amy E. Shyer
Sanford M. Simon
Agata Smogorzewska
Tim Stearns
Hermann Steller
Thomas Tuschl
Ekaterina V. Vinogradova
Lamia Wahba
Michael W. Young

1

Biochemistry, Biophysics, Chemical Biology, and Structural Biology

Scientists study how molecules interact to drive biological processes such as gene regulation, signal transduction, and enzymology. Their work involves delineating the properties of molecules, molecular complexes, and cells; using chemistry tools to manipulate disease mechanisms; and determining the structures of molecular assemblies at near-atomic resolution.

2

Cancer Biology

Work in this area focuses on the processes by which cancers arise, progress, and respond to therapy. Researchers seek to understand how cancer cells transform, metastasize, and interact with their microenvironment; study the mechanisms that drive disease; and develop innovative strategies to control cancer processes.

3

Cell Biology

A host of diseases are spurred by disruptions in the processes by which cells propagate or die, or perform other basic functions. Scientists working in this area dissect the genes and molecular pathways that control the cell cycle, apoptosis, protein trafficking, and many other cellular events.

Genetics and Genomics

Cori Bargmann
Kivanç Birsoy
Ali H. Brivanlou
Junyue Cao
Jean-Laurent Casanova
Joel E. Cohen
Paul Cohen
Barry S. Coller
Frederick R. Cross
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Nathaniel Heintz
Erich D. Jarvis
Daniel Kronauer
Richard P. Lifton
Shixin Liu
Luciano Marraffini
Paul Nurse
Charles M. Rice
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Jeremy M. Rock
Robert G. Roeder
Shai Shaham
Agata Smogorzewska
Sidney Strickland
Gabriel D. Victora
Leslie B. Vosshall
Lamia Wahba
Michael W. Young
Li Zhao

Mechanisms of Human Disease

Paul Bieniasz
Kivanç Birsoy
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4

5

6

Immunology, Virology, and Microbiology

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Jean-Laurent Casanova
Brian T. Chait
Vincent A. Fischetti
James G. Krueger
Luciano Marraffini
Daniel Mucida
Michel C. Nussenzweig
Jeffrey V. Ravetch
Charles M. Rice
Jeremy M. Rock
Robert G. Roeder
Michael P. Rout
Sanford M. Simon
Alexander Tarakhovsky
Gabriel D. Victora
Ekaterina V. Vinogradova

4

Genetics and Genomics

Fundamental to all bioscience is the study of how genes and gene-regulatory processes contribute to development, behavior, and disease. Researchers working in this area employ genetic sequencing technology, bioinformatics, and animal models to pursue genome-wide comparisons, population genetics, functional studies, and more.

5

Immunology, Virology, and Microbiology

Investigations into the workings of the immune system are yielding progress against diseases such as cancer, autoimmune disorders, HIV, hepatitis C, and COVID. Work in this area covers the basic mechanisms of immunity, the biology of disease-causing agents, and new treatment approaches from vaccines and antibiotics to personalized immunotherapies.

6

Mechanisms of Human Disease

Many labs are conducting research to understand the root causes of both rare and common diseases, and are developing new therapies based on their insights. Clinical science is enhanced by access to The Rockefeller University Hospital, which enables translational research involving human patients earlier than might otherwise be possible.

7

Neurosciences and Behavior

To understand how the nervous system develops and produces behaviors and cognition, neuroscientists study the brain from many perspectives, focusing on neuronal cells and circuits as well as high-level functions. In addition, labs are working on treatments for Alzheimer's, drug addiction, obesity, and other diseases.

Neurosciences and Behavior

Cori Bargmann
Jean-Laurent Casanova
Robert B. Darnell
Winrich Freiwald
Jeffrey M. Friedman
Charles D. Gilbert
Mary E. Hatten
Nathaniel Heintz
A. James Hudspeth
Erich D. Jarvis
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Marcelo O. Magnasco
Gaby Maimon
Priya Rajasethupathy
Vanessa Ruta
Thomas P. Sakmar
Shai Shaham
Hermann Steller
Sidney Strickland
Alipasha Vaziri
Leslie B. Vosshall
Michael W. Young

Stem Cells, Development, Regeneration, and Aging

Ali H. Brivanlou
Junyue Cao
Jean-Laurent Casanova
Paul Cohen
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Charles M. Rice
Viviana I. Risca
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Amy E. Shyer
Eric D. Siggia
Agata Smogorzewska
Hermann Steller
Sidney Strickland

7 8 9 10

Organismal Biology and Evolution

Ali H. Brivanlou
Jean-Laurent Casanova
Joel E. Cohen
Erich D. Jarvis
Daniel Kronauer
Stanislas Leibler
Marcelo O. Magnasco
Gaby Maimon
Michael O'Donnell
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Physical, Mathematical, and Computational Biology

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8

Organismal Biology and Evolution

In studying biological processes from the perspective of entire organisms, populations, and ecosystems, scientists seek to reveal how complex traits and behaviors develop, and how diseases manifest. Their work covers the biology of vertebrate and invertebrate organisms and plants, the evolution of species, and other topics.

9

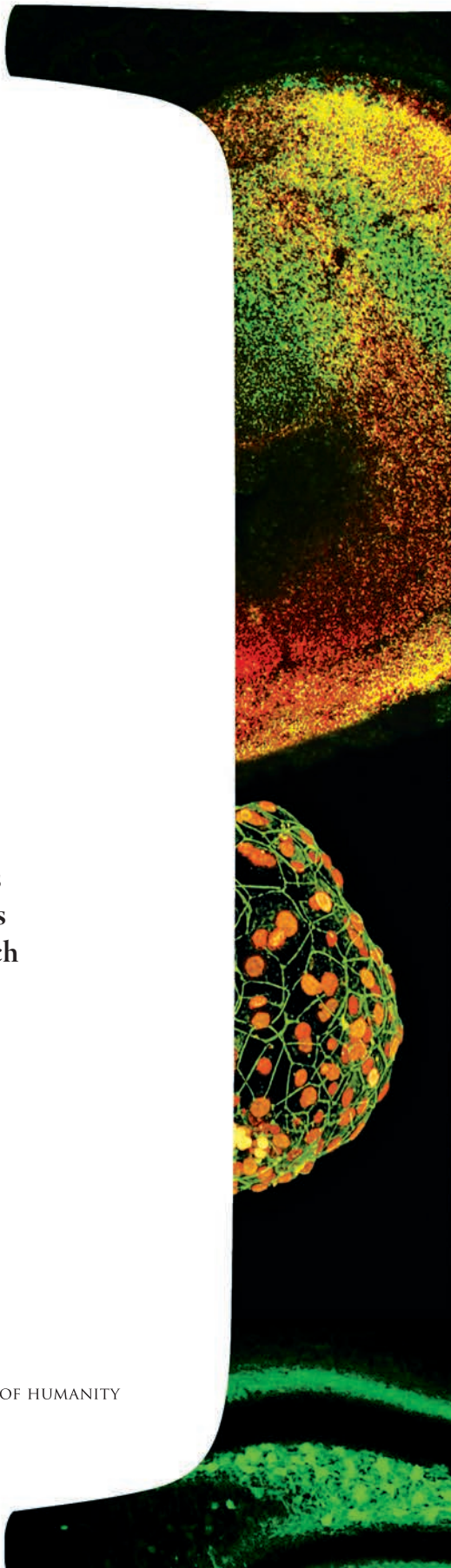
Physical, Mathematical, and Computational Biology

Research in this area is aimed at understanding the complex properties of biological and other systems, and at applying sophisticated analytic techniques to model phenomena from biological networks to weather patterns. Areas of interest to these scientists include systems theory, biological statistics and probability, population dynamics, and sensory processing.

10

Stem Cells, Development, Regeneration, and Aging

In researching how pluripotent stems cells differentiate, how embryos develop, how tissues replenish themselves, and how organisms age, scientists are laying the groundwork for broad progress toward tomorrow's medicines. Their work holds promise for the development of new disease models as well as innovative therapeutic interventions.



Rockefeller's 72 laboratories are leading breakthroughs across the biosciences, addressing the world's most pressing scientific quandaries and health problems. Their research interests can be categorized in 10 broad areas of discovery.

The Rockefeller University 1901

SCIENCE FOR THE BENEFIT OF HUMANITY