



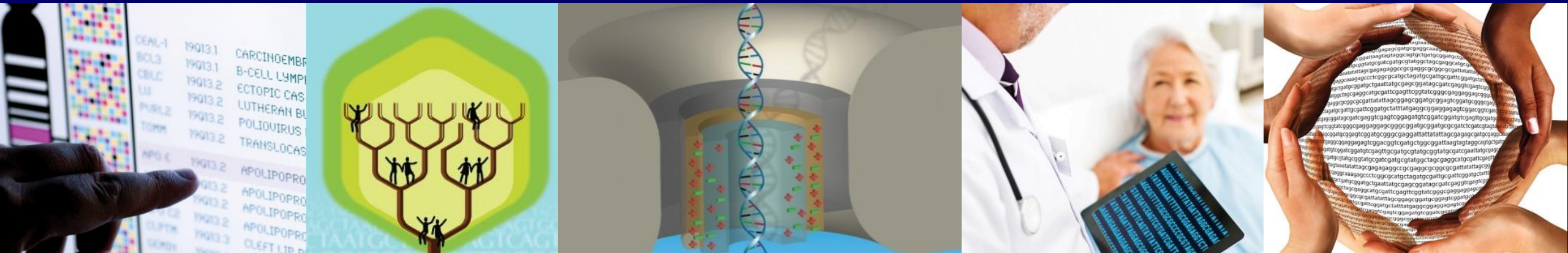
National Human Genome
Research Institute

The **Forefront**
of **Genomics**

DIRECTOR'S REPORT

Eric Green, M.D., Ph.D.
Director, NHGRI

February 2022



Director's Report-Related Documents

February 2022

Director's Report

Director's Report

No.	Relevant Documents
1	New Chief Data Science Strategist & Director, Office of Genomic Data Science
2	Training, Diversity, and Health Equity (TiDHE) Office TiDHE Office TiDHE News Feature NHGRI Action Agenda Webpage
3	NASEM Consensus Study
4	Genomics and Health Disparities Lecture Series

genome.gov/DirectorsReport

Document #



Open Session Presentations

Presentations:

Expanding the Capacity to Conduct Gene x Environment Experiments

Rick Woychik

Future Directions of the NHGRI Analysis, Visualization, and Informatics Lab-space (AnVIL)

Marylyn Ritchie

Open Session Presentations

Concept Clearance:

Multi-Omics for Health and Disease

Joannella Morales

Presentation:

**Triennial Inclusion Report on Human Subjects Participation
in NHGRI-Sponsored Research**

Christine Chang

Director's Report Outline

- I. General NHGRI Updates**
- II. General NIH Updates**
- III. General Genomics Updates**
- IV. NHGRI Extramural Research Program**
- V. NIH Common Fund/Trans-NIH**
- VI. NHGRI Communications, Policy, and Education**
- VII. NHGRI Intramural Research Program**

Director's Report Outline

- I. General NHGRI Updates**
- II. General NIH Updates**
- III. General Genomics Updates**
- IV. NHGRI Extramural Research Program**
- V. NIH Common Fund/Trans-NIH**
- VI. NHGRI Communications, Policy, and Education**
- VII. NHGRI Intramural Research Program**

Happy Institute'ness, NHGRI!

25th!!!



25th!!!



New Chief Data Science Strategist & Director, Office of Genomic Data Science



Valentina Di Francesco, M.S.

New Scientific Review Officer



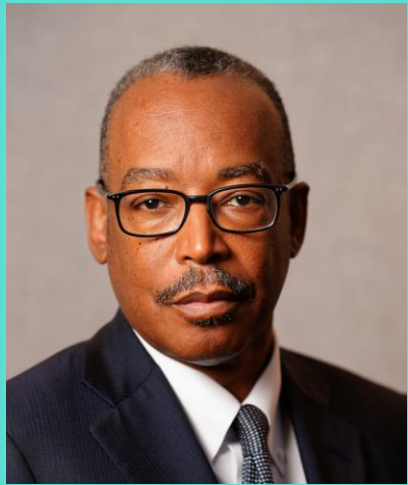
Sarah Wheelan, M.D., Ph.D.

Training, Diversity, and Health Equity (TiDHE) Office



- **Develop, support, and coordinate NHGRI programs that foster careers in genomics**
- **Advise divisions and branches about genomics workforce diversity and health equity**
- **Provide strategic programmatic leadership to reduce health disparities and advance health equity**

Training, Diversity, and Health Equity (TiDHE) Office



**Vence
Bonham,
J.D.**



**Faye
Brown**



**Lorjetta
Schools,
M.B.A.**



**Jamil Scott,
Ph.D.**



**Amber
Jackson**

New Lead Extramural Training Program Director



Lucia Hindorff, Ph.D., M.P.H.

New Health Equity and Workforce Diversity Program Director



Ebony Madden, Ph.D.

New Partnerships and Engagement Officer



Christina Daulton, M.A.

Industry Roundtables



- **Two Industry Roundtables on diversifying the genomics workforce**
- **Strategies and methods of collaboration to attain a more diverse genomics workforce**
- **Meeting report forthcoming with objectives, themes, and next steps of engagement**

NASEM Consensus Study



The National
Academies of | SCIENCES
ENGINEERING
MEDICINE



- 14 NIH Institutes, Centers, Offices, & Programs co-sponsoring study (NHGRI as co-lead)
- Study committee announced on February 2
- Review existing methodologies, benefits, and challenges in the use of race and ethnicity and other population descriptors in genomics research
- Three public meetings planned
- Final report in February 2023

Genomics and Health Disparities Lecture Series



Alondra Nelson, Ph.D.

Deputy Director, Office of Science and Technology Policy | The White House

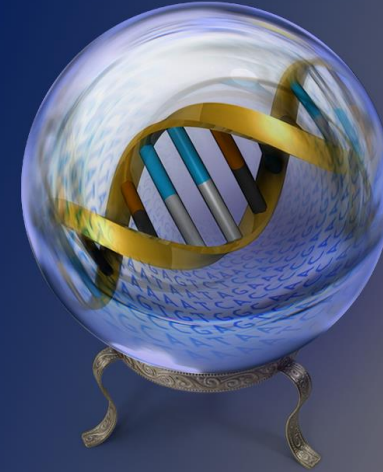
Presidential Rank Award



Teri Manolio, M.D., Ph.D.

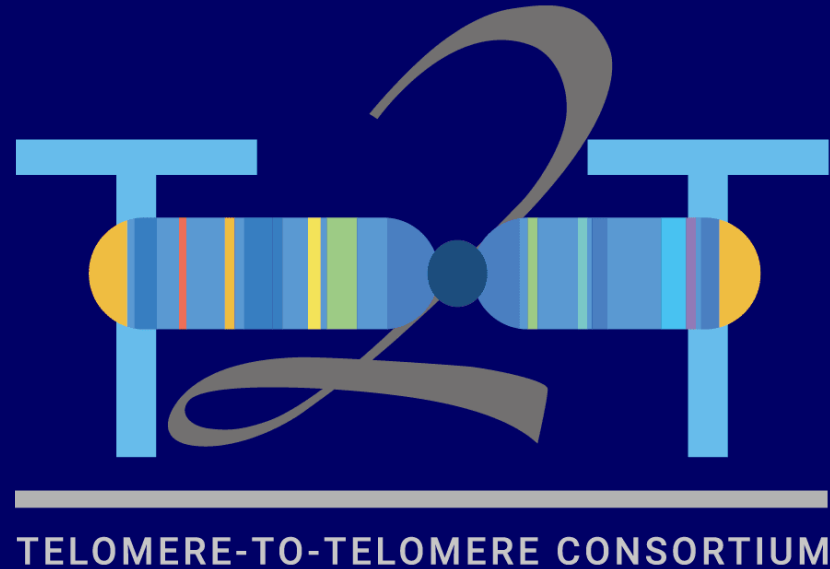
Bold Predictions Seminar Series

Bold Predictions for Human Genomics by 2030: An NHGRI Seminar Series



- Two speakers discussed each Bold Prediction from the 2020 NHGRI Strategic Vision
- On average, 378 virtual attendees from 25 countries and 25 questions asked

Telomere-to-Telomere (T2T) Consortium



- **Open, community-based effort to generate the first truly complete human genome sequence**
- **CHM13 sequence now complete**
- **Planning to complete additional, diverse human genome sequences and to help field transition to improved references**

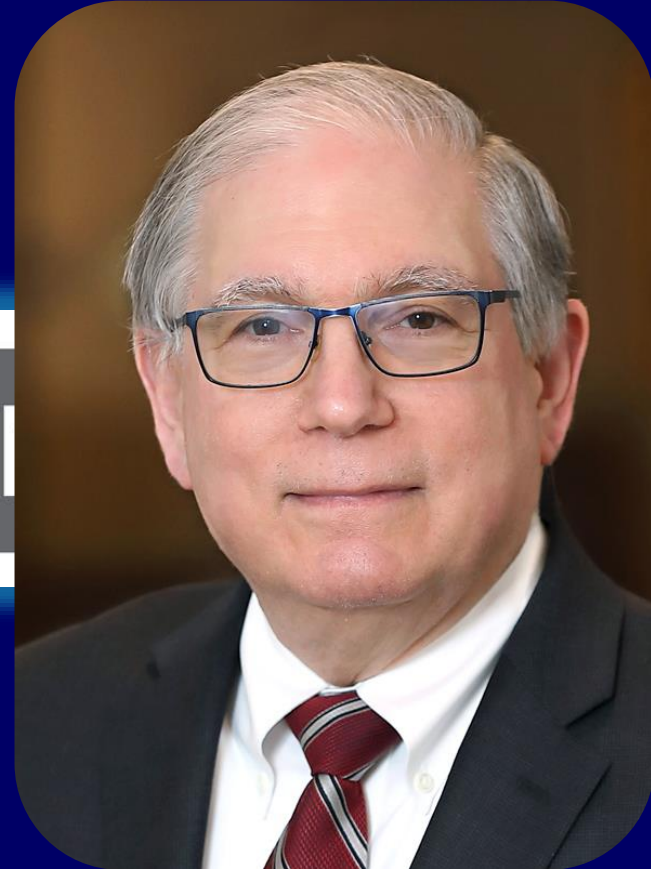
Director's Report Outline

- I. General NHGRI Updates
- II. General NIH Updates**
- III. General Genomics Updates
- IV. NHGRI Extramural Research Program
- V. NIH Common Fund/Trans-NIH
- VI. NHGRI Communications, Policy, and Education
- VII. NHGRI Intramural Research Program

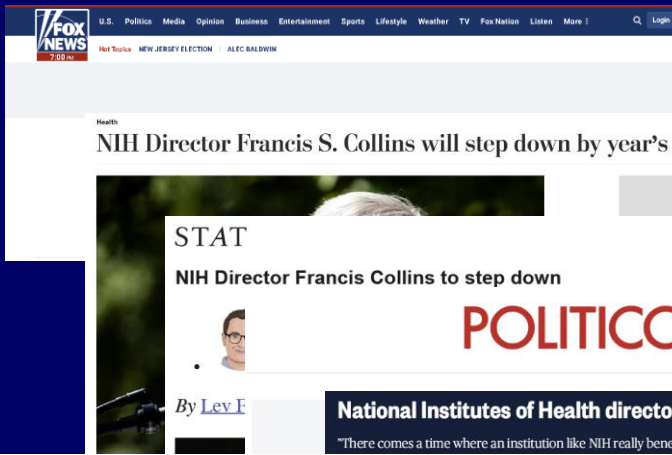
Francis Collins Steps Down as Director, National Institutes of Health



Francis Collins, M.D., Ph.D.



Larry Tabak, D.D.S., Ph.D.



Dr. Francis Collins to step down as head of NIH

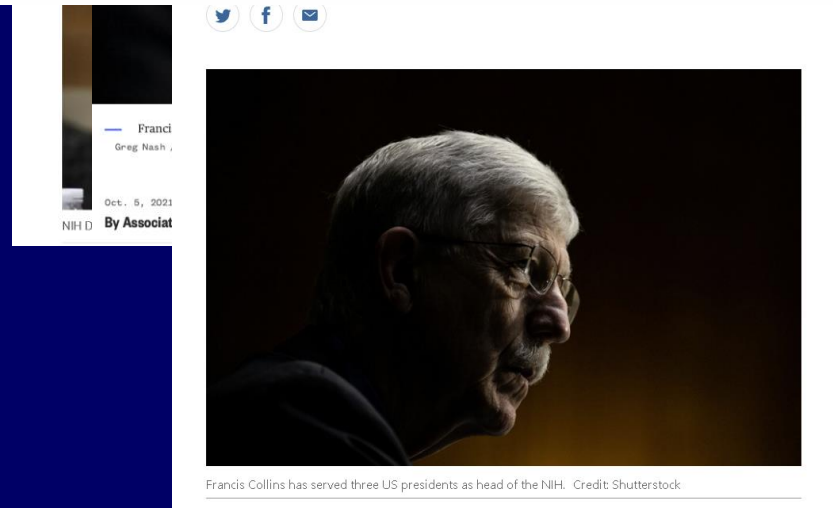


By Maggie Fox, CNN

Updated 12:13 AM ET, Tue October 5, 2021



(CNN) — Dr. Francis Collins, the folksy, guitar-playing director of the National Institutes of Health (NIH), is planning to step down Tuesday as head of the gigantic research agency and return to his previous job as the director of the National Human Genome Research Institute, the Washington Post and Politico reported Monday night.



“What???”



National Human Genome
Research Institute

President Biden Visits NIH



Retirement of NIH Associate Director for Behavioral and Social Sciences Research



William Riley, Ph.D.



Christine Hunter, Ph.D., ABPP

NIH Genomic Data Sharing Policy

Request for Information on Proposed Updates and Long-Term Considerations for the NIH Genomic Data Sharing Policy

Notice Number:

NOT-OD-22-029

Key Dates

Release Date:

November 30, 2021

Response Date:

February 28, 2022

- **Responses due February 28, 2022**

Fiscal Year 2022 Appropriations

	FY2022 House Labor-HHS Appropriation (passed)	Increase from FY2021	F2022 Senate Labor-HHS Appropriation (released)	Increase from FY2021
NIH	\$49.4 B	\$6.5 B* (15%)	\$47.9 B	\$5 B (12%)
NHGRI	\$646.3 M	\$30.5 M (5%)	\$634.6 M	\$18.8 M (3%)

* House language designates that ARPA-H would receive \$3 billion of NIH's budget increase

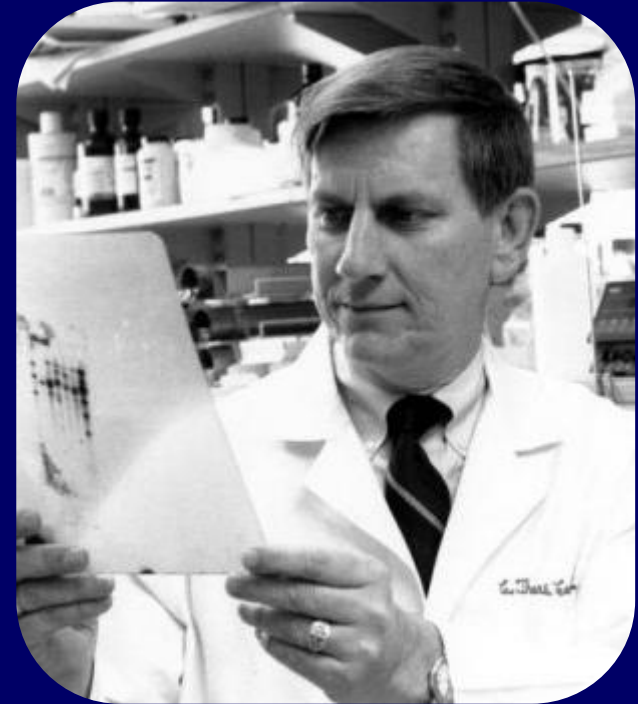
Director's Report Outline

- I. General NHGRI Updates
- II. General NIH Updates
- III. General Genomics Updates**
- IV. NHGRI Extramural Research Program
- V. NIH Common Fund/Trans-NIH
- VI. NHGRI Communications, Policy, and Education
- VII. NHGRI Intramural Research Program

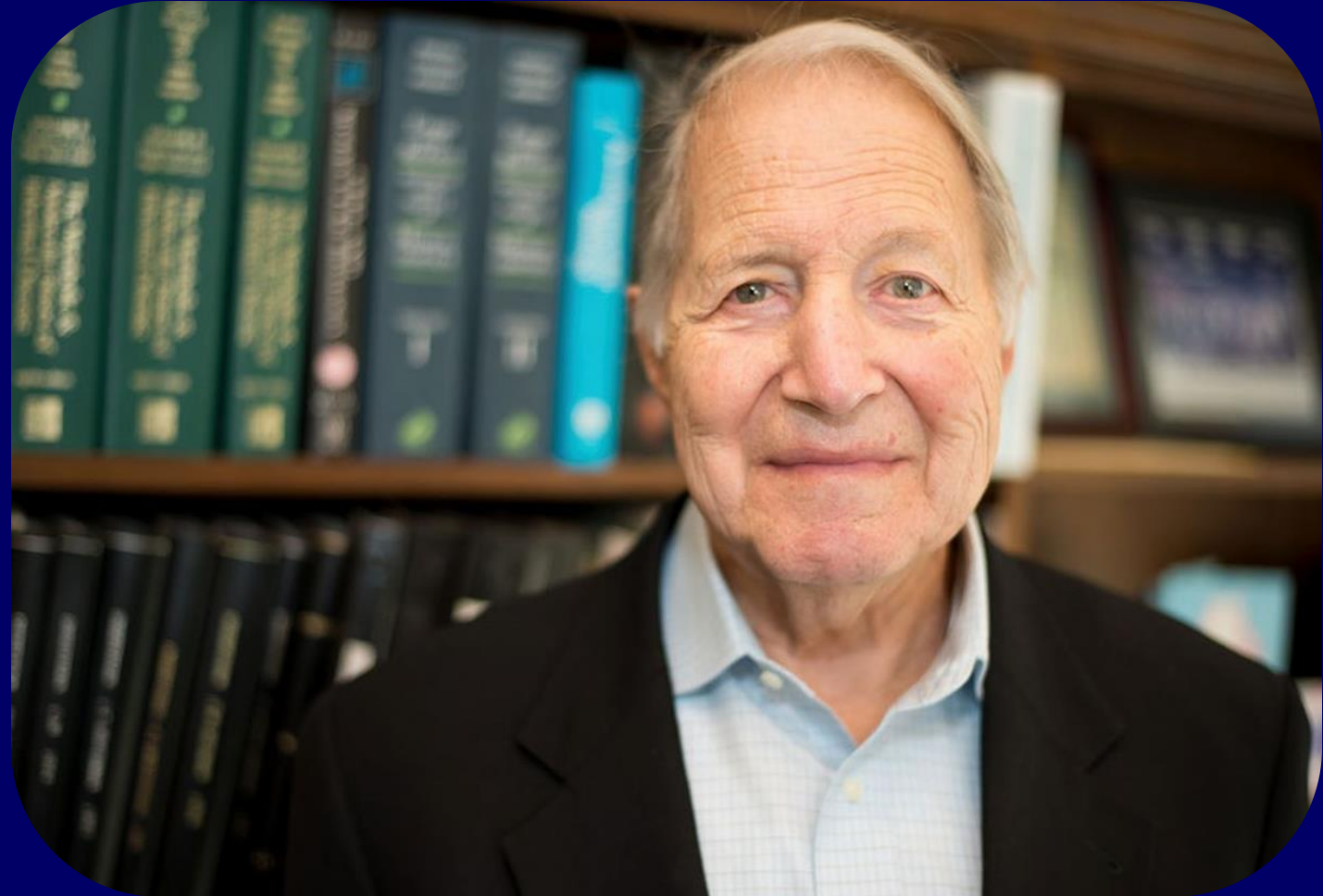
Mourning the Loss of Debbie Nickerson



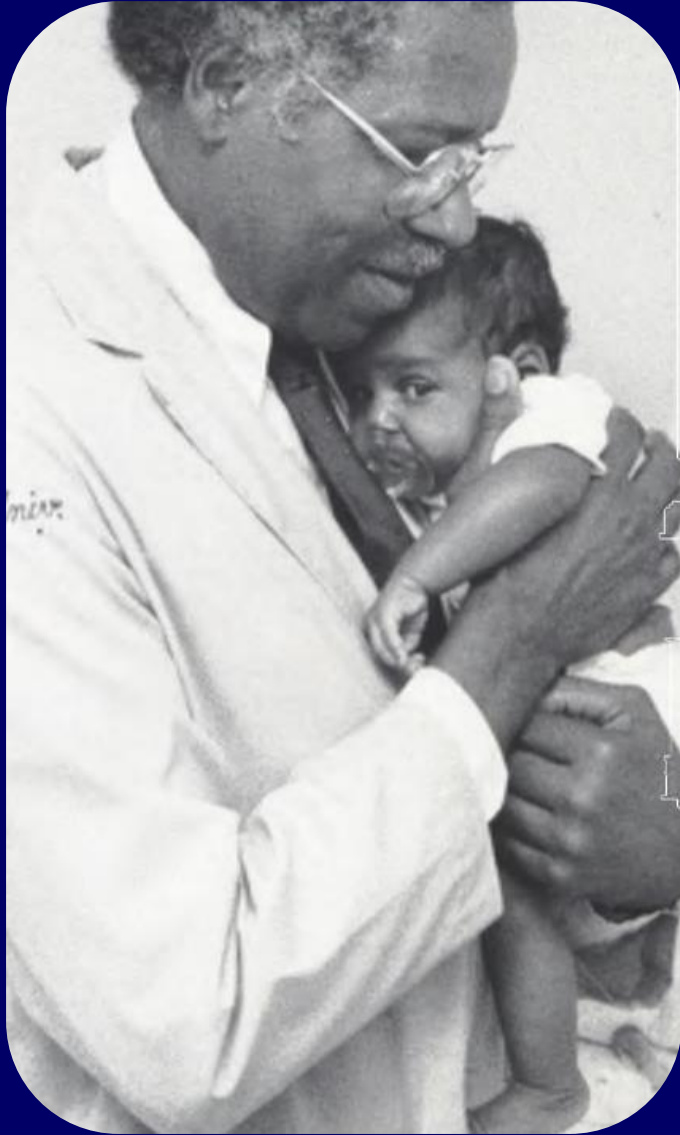
Mourning the Loss of Tom Caskey



Mourning the Loss of Haig Kazazian



Mourning the Loss of Robert Murray



2021 American Society of Human Genetics Awards



C. Thomas Caskey, MD
Watch Award Lecture
2021 William Allan Award



Emmanouil Dermitzakis, PhD
Watch Award Lecture
2021 Curt Stern Award



Wylie Burke, MD, PhD
Watch Award Lecture
2021 McKusick Award



Sharon Terry, MA
Watch Award Lecture
2021 Advocacy Award

Elected to National Academy of Medicine

Job Dekker

Paul Ginsburg

Vamsi Mootha

Marylyn Ritchie

Sarah Tishkoff



NATIONAL ACADEMY OF MEDICINE

Elected to AAAS

Christopher Austin

Yoav Gilad

Hopi Hoekstra

Tara Matise

Axel Meyer

Patrick Schloss

Kenneth Offit



New HHMI Investigators

Frederick Matsen

Dana Pe'er



**Howard Hughes
Medical Institute**

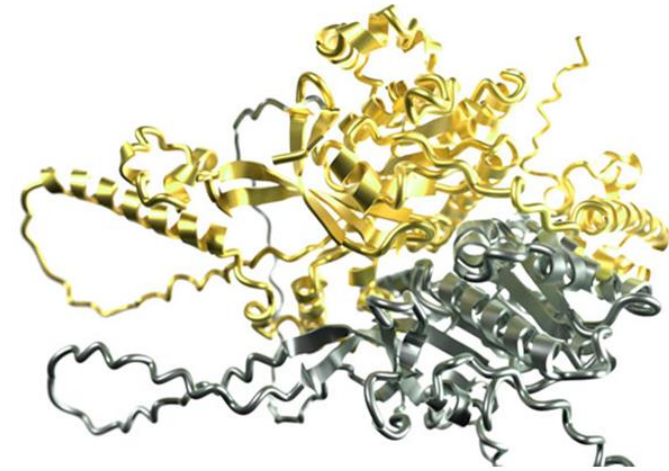
New President, The Jackson Laboratory



Lon Cardon, Ph.D.



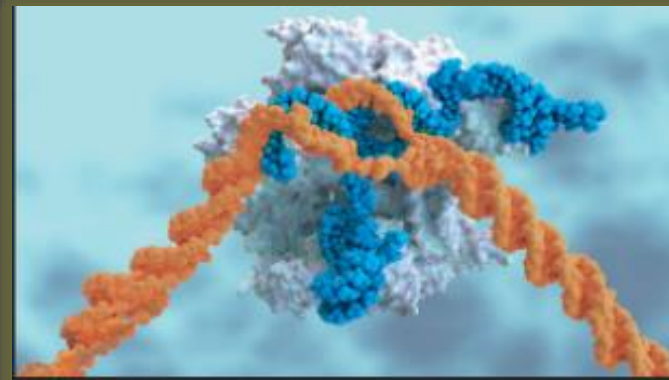
Science's 2021 Breakthrough of the Year & Runners Up



Protein structures for all

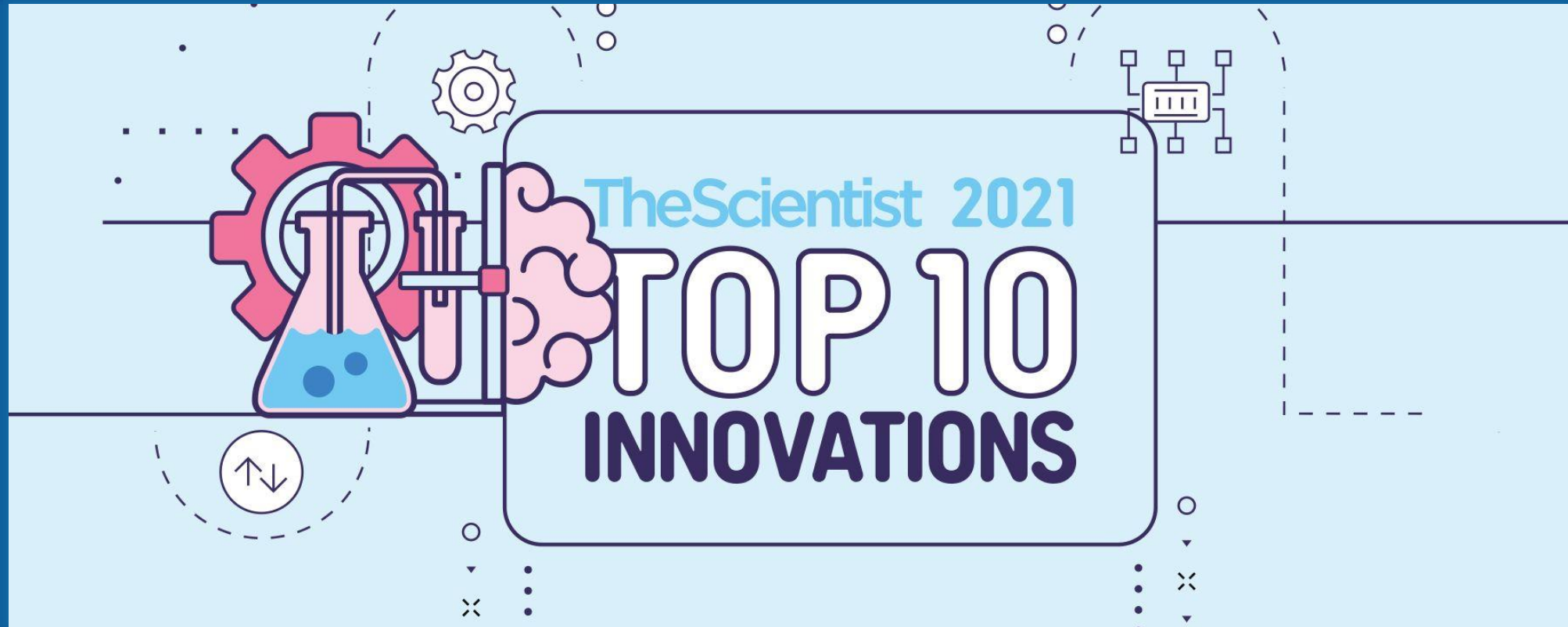


Ancient soil DNA



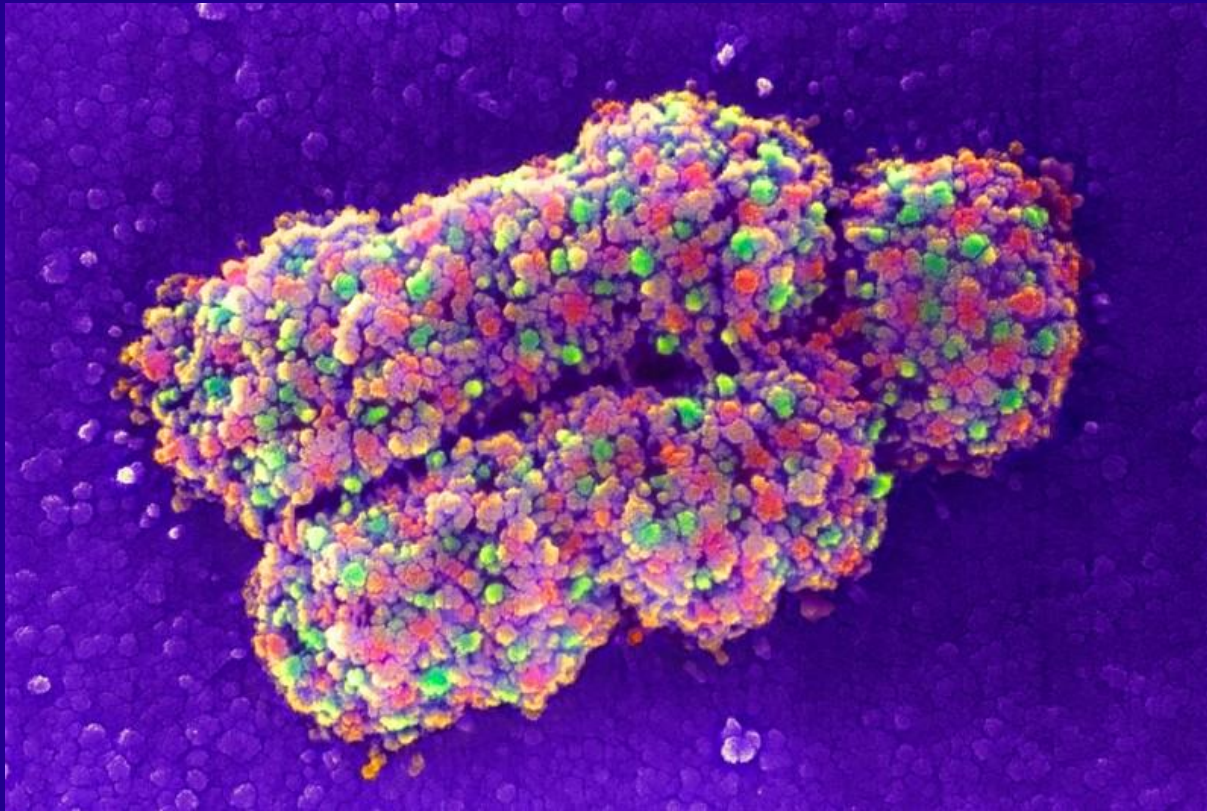
CRISPR fixes genes inside the body

The Scientist's Top Technical Advances of 2021



Spatial genomics tools
Instruments for single-cell analysis
CRISPR-based SNP chip

Nature's Seven Technologies to Watch in 2022



1. Fully finished genomes
2. Protein structure solutions
3. Quantum simulation
4. Precise genome manipulation
5. Targeted genetic therapies
6. Spatial multi-omics
7. CRISPR-based diagnostics

Director's Report Outline

- I. General NHGRI Updates
- II. General NIH Updates
- III. General Genomics Updates
- IV. NHGRI Extramural Research Program**
- V. NIH Common Fund/Trans-NIH
- VI. NHGRI Communications, Policy, and Education
- VII. NHGRI Intramural Research Program

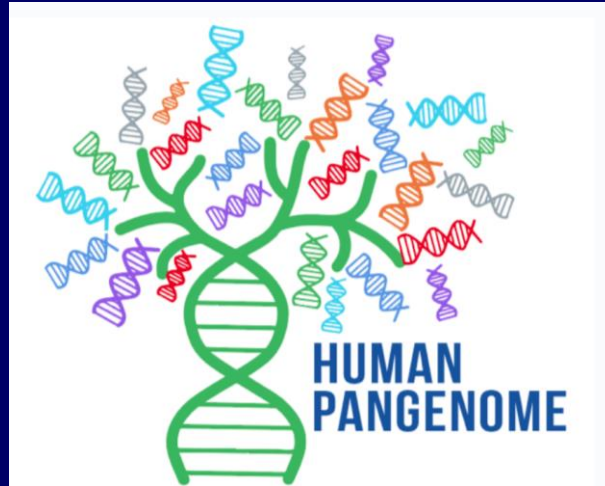
Genome Sequencing Program (GSP)

Centers for Mendelian Genomics Final Publication



- Final publication slated for *Genetics in Medicine*
- Article available in medRxiv

Human Genome Reference Program (HGRP)



**TOWARDS A
COMPLETE
REFERENCE OF
HUMAN GENOME
DIVERSITY**

- **Generate ≥ 350 high-quality reference genome sequences; data from phased diploid genomes from 100 individuals released**
- **Annual HGRP meeting:**
 - Embedded ELSI component**
 - Multi-genome graph representation results are promising**
 - International outreach: GA4GH, H3Africa**

Comparative Genomics

Enabling Discovery through Genomics (EDGE) Program



- **NHGRI-funded EDGE Awards:**

Yang Da, University of Minnesota

Nadav Ahituv, UCSF

Lars Steinmetz, Stanford



- **January 2022 Awardee meeting**
- **Next EDGE proposal due date: February 17, 2022**

Technology Development Program



- **Transformative Nucleic Acid Sequencing
Technology Innovation and Early Development**

Next due date: March 1, 2022

- **Advanced Genomic Technology Development
Meeting**

Hosted by the Technology Development
Coordinating Center at the Jackson Laboratory

Small Business Program

- ~\$16.5 million in Fiscal Year 2021
- 10 Phase I Proof of Principle awards
- 15 Phase II Pre-Commercialization awards to companies including:



ENCyclopedia of DNA Elements (ENCODE)

Updates to Registry of cCREs & SCREEN

SCREEN Registry V3

SCREEN: Search Candidate cis-Regulatory Elements by ENCODE

Registry of cCREs V3

[Biosamples](#) [Overview](#) [About](#) [UCSC Genome Browser](#) [Tutorials](#) [Downloads](#) [Versions](#)

TSV [cell type](#) [Quick Start](#) [Detailed Elements](#) [Data Matrices](#)

Human 1,063,878 cCREs • 1,518 cell types Mouse 313,838 cCREs • 169 cell types

[Download all human cCREs \(hg38\)](#) [Download all mouse cCREs \(mm10\)](#)

[Download human candidate promoters \(hg38\)](#) [Download mouse candidate promoters \(mm10\)](#)

[Download human candidate enhancers \(hg38\)](#) [Download mouse candidate enhancers \(mm10\)](#)

[Download human CTCF-bound cCREs \(hg38\)](#) [Download mouse CTCF-bound cCREs \(mm10\)](#)

[Download human cCRE-gene links \(hg38\)](#) [Download mouse cCRE-gene links \(mm10\)](#)

Search for a biosample... Search for a biosample... Search for a biosample... Search for a biosample... Search for a biosample... Search for a biosample...

Chromosome chr19 Coordinates: chr19:44905754

Total: 1518

CLPTM1

31.2

© 2016-2021 Weng Lab @ UMass Med, ENCODE Data Analysis Center

ENCyclopedia of DNA Elements (ENCODE)

Highlights of cCRE Findings in 2021 Papers Funded by ENCODE

Cell

Volume 184, Issue 24, 24 November 2021, Pages 5985–6001.e19



Resource

A single-cell atlas of chromatin accessibility in the human genome

Kai Zhang^{1,6,8}, James D. Hocker^{1,2,3,8}, Michael Miller⁴, Xiaomeng Hou⁴, Joshua Chiou^{3,5}, Olivier B. Poirion⁴, Yunjiang Qiu¹, Yang E. Li^{1,6}, Kyle J. Gaulton^{5,7}, Allen Wang⁴, Sebastian Preissl⁴, Bing Ren^{1,4,6,7,9}

Article | Published: 29 July 2021

Direct characterization of *cis*-regulatory elements and functional dissection of complex genetic associations using HCR–FlowFISH

Steven K. Reilly , Sager J. Gosai, Alan Gutierrez, Ava Mackay-Smith, Jacob C. Ulirsch, Masahiro Kanai, Kousuke Mouri, Daniel Berenzy, Susan Kales, Gina M. Butler, Adrienne Gladden-Young, Redwan M. Bhuiyan, Michael L. Stitzel, Hilary K. Finucane, Pardis C. Sabeti & Ryan Tewhey

Nature Genetics **53**, 1166–1176 (2021) | [Cite this article](#)

7154 Accesses | **1** Citations | **62** Altmetric | [Metrics](#)

Article | Published: 07 April 2021

Genome-wide enhancer maps link risk variants to disease genes

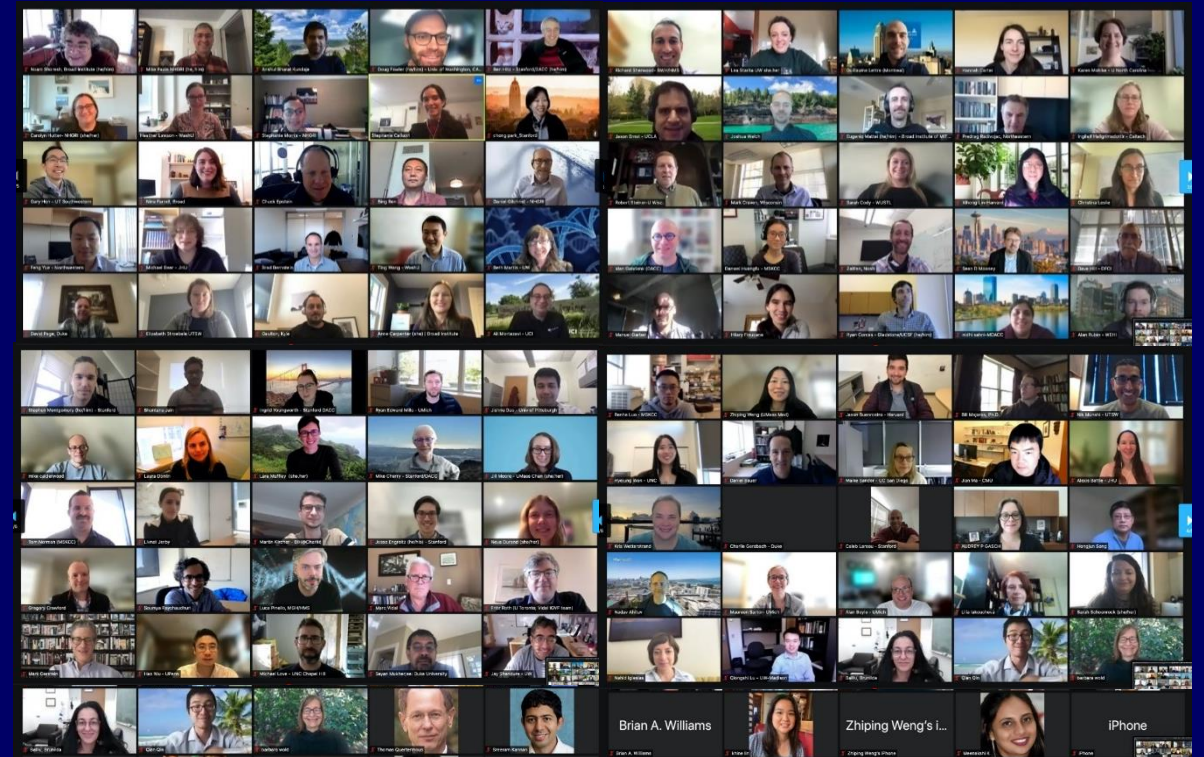
Joseph Nasser, Drew T. Bergman, Charles P. Fulco, Philine Guckelberger, Benjamin R. Doughty, Tejal A. Patwardhan, Thouis R. Jones, Tung H. Nguyen, Jacob C. Ulirsch, Fritz Lekschas, Kristy Mualim, Heini M. Natri, Elle M. Weeks, Glen Munson, Michael Kane, Helen Y. Kang, Ang Cui, John P. Ray, Thomas M. Eisenhaure, Ryan L. Collins, Kushal Dey, Hanspeter Pfister, Alkes L. Price, Charles B. Epstein, Anshul Kundaje, Ramnik J. Xavier, Mark J. Daly, Hailiang Huang, Hilary K. Finucane, Nir Hacohen, Eric S. Lander & Jesse M. Engreitz [— Show fewer authors](#)

Nature **593**, 238–243 (2021) | [Cite this article](#)

31k Accesses | **20** Citations | **255** Altmetric | [Metrics](#)

Impact of Genomic Variation on Function (IGVF)

Consortium Kick-Off Meeting: November 2021



Developmental Genotype-Tissue Expression (dGTEx) Project



Biospecimen Procurement Center (BPC)

National Disease Research Interchange

Laboratory, Data Analysis, and Coordinating Center (LDACC)

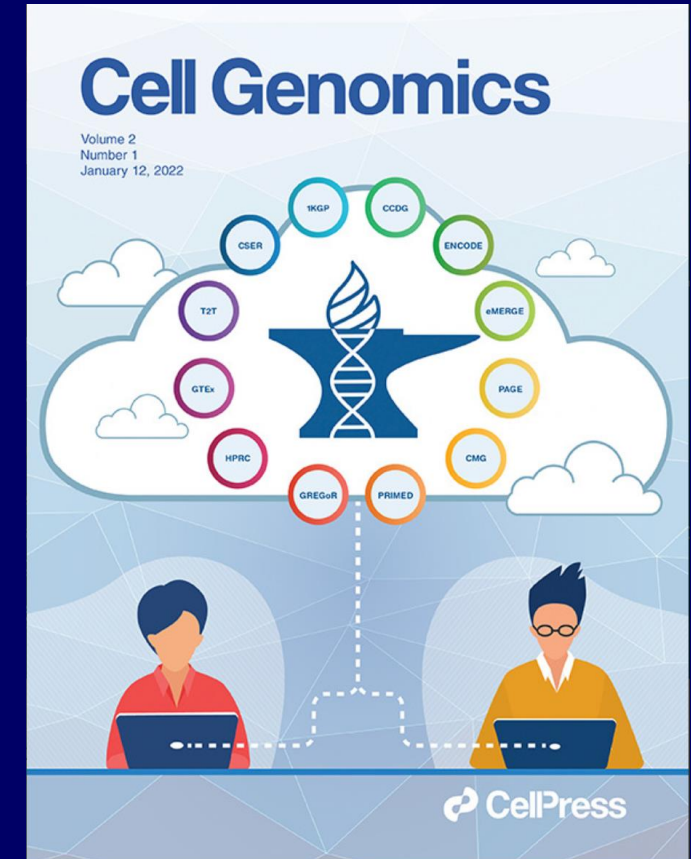
Broad Institute

Yale University

Non-Human-Primate dGTEx applications reviewed in October 2021

NHGRI Analysis, Visualization, and Informatics Lab-space (AnVIL)

- Future Directions of the NHGRI AnVIL Workshop (October 2021)
- Marker paper “Inverting the Model of Genomics Data Sharing with the NHGRI AnVIL” in *Cell Genomics* (January 2022)



Phenotypes and Exposures (PhenX) Toolkit

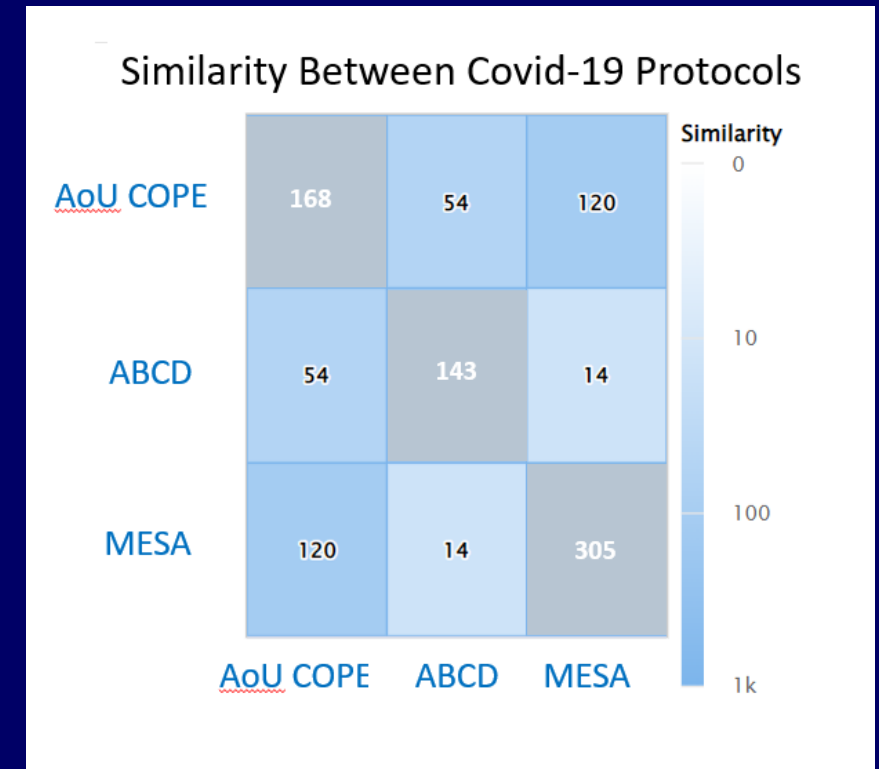


Sickle Cell Disease Curative Therapies

- 13 protocols released in August 2021
- Funding: NHLBI

COVID-19 Variable Compare Tool

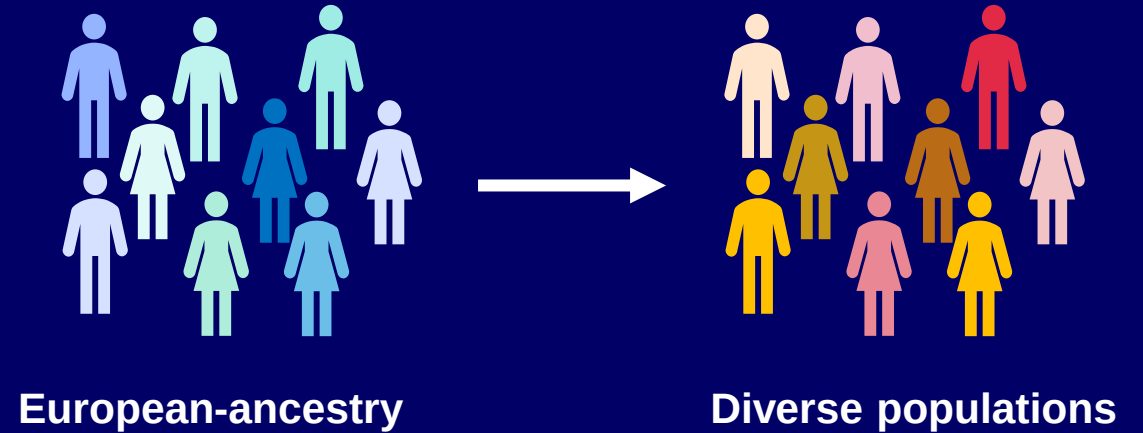
- 39 protocols
- Assesses content of COVID-19 protocols at the variable level



Received single Institutional Review Board approval



Combine monogenic risk, clinical risk, polygenic risk, and family history



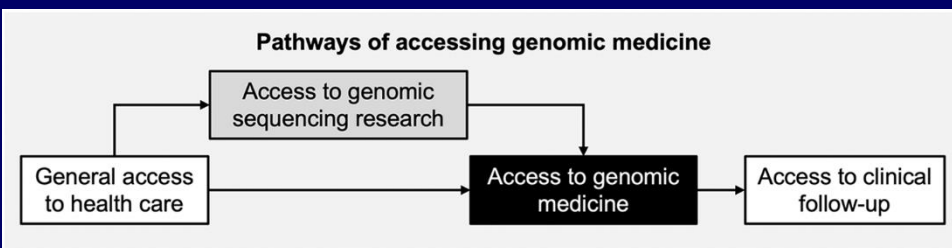
Research ways to apply European-ancestry derived PRSs in diverse populations

Begin enrolling 25,000-participant cohort in Spring 2022

Clinical Sequencing Evidence-Generating Research (CSER) Program

Examining access to care in clinical genomic research and medicine: Experiences from the CSER Consortium

Amanda M. Gutierrez¹ , Jill O. Robinson¹, Simon M. Outram², et al.



- Among 5 sites, ~19% of CSER participants experienced barriers
- Evaluation and improvement strategies
- Example: patient, family and provider interviews to identify barriers in accessing follow-up care



- Group interview of 12 payers
- Opportunities to advance coverage
 - Genome vs. exome sequencing
 - Methods for evidence generation
 - Consistency among labs
 - Implementation and care delivery

Clinical Genome Resource (ClinGen)

Grantees

PI Team	Institutions
Jonathan Berg	UNC Chapel Hill
Sharon Plon, Aleks Milosavljevic, Teri Klein	Baylor College of Medicine Stanford University
Heidi Rehm, Christa Martin, Erin Riggs	Broad Institute Geisinger

~\$14.5M per year (FY21-FY25)

Renewal Themes

- Engage relevant communities including patients, healthcare systems, scientific experts, and genetics professionals
- Increase scale and impact of ClinGen tools and curation results
- Expand diversity of curation workforce and databases

Clinical Genome Resource (ClinGen)

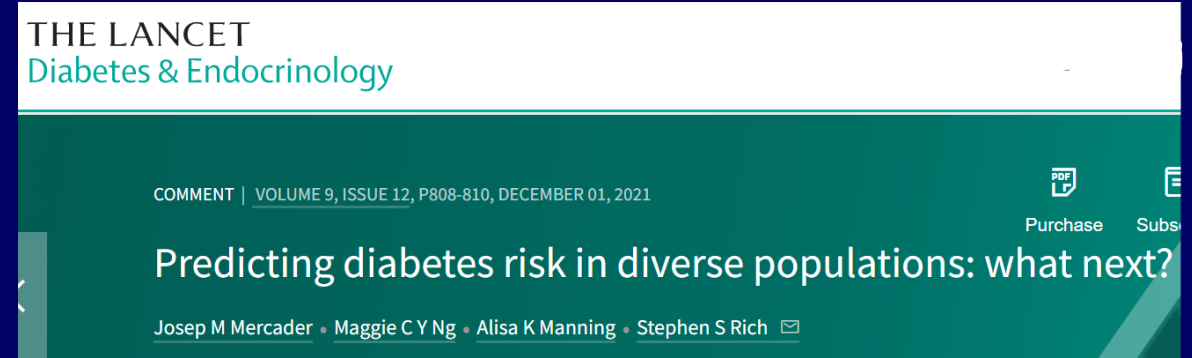
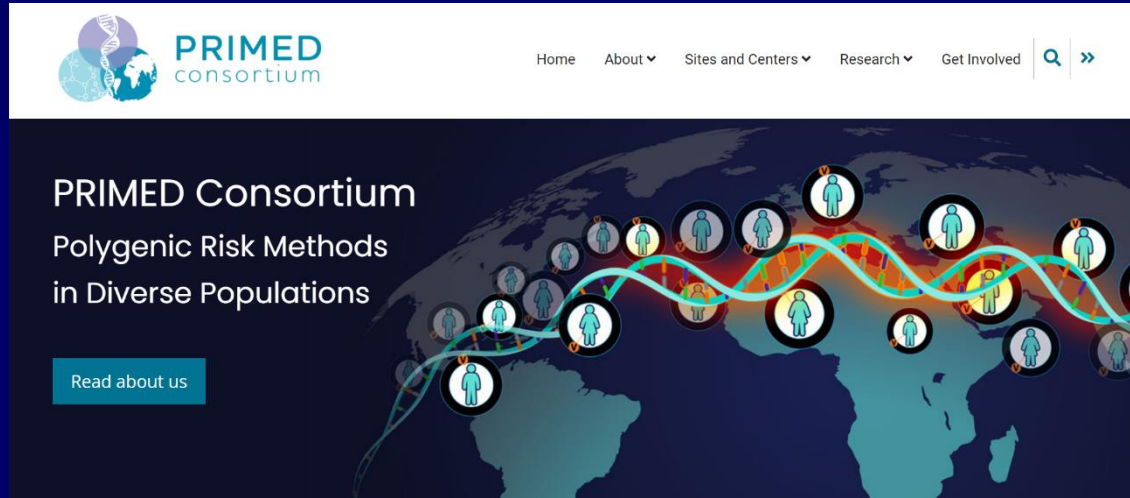
ClinGen and GeT-RM Collaborative Project



Expert Curated Variant List:

- Nominations from 36 ClinGen Expert Panels
- 546 variants in 84 genes, including 29 genes on ACMG Secondary Findings v3.0 List
- Heritable cancers, inborn errors of metabolism, cardiomyopathy, diabetes, and immune disorders

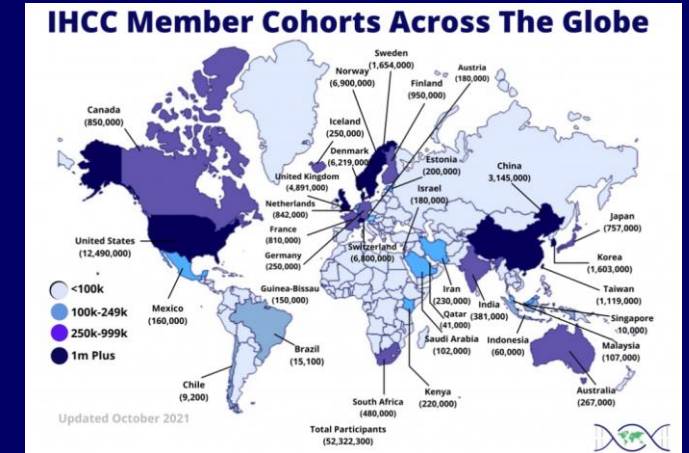
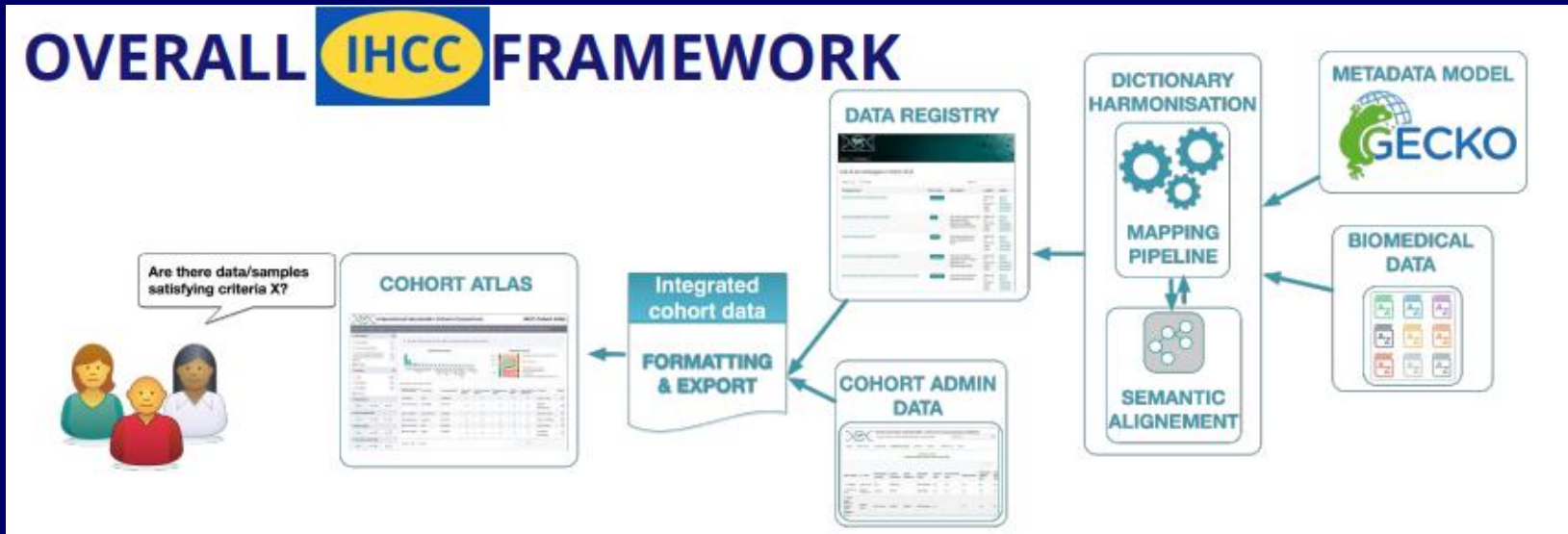
Polygenic Risk Methods in Diverse Populations (PRIMED) Consortium



- New study site will be led by Iftikhar Kullo (Mayo Clinic)
- Broad Institute's D-PRISM study site publication about improving use of PRSs for assessing diabetes risk in diverse populations
- PRIMED website and Twitter now accessible to public

International 100K+ Cohort Consortium (IHCC)

IHCC Cohort Atlas Workshop



2021 Q4 IHCC Virtual Members Workshop

ALL ENGAGEMENT
106.61k



USER CONTRIBUTIONS
132



MINUTES OPEN
10.54k



USERS
68



Workshop on Ethical, Legal, and Social Implications of Gene-Environment Interaction Research



**NIEHS/NHGRI Workshop
January 11-12, 2022**

- **Community partnership throughout**
- **Communication on myriad downstream implications**
- **Importance and new challenges of data sharing**
- **Incorporating hypotheses on social determinants of health**

Supporting Talented Early Career Researchers in Genomics

Funding Opportunity Title

Supporting Talented Early Career Researchers in Genomics (R01 Clinical Trial Optional)

Activity Code

R01 Research Project Grant

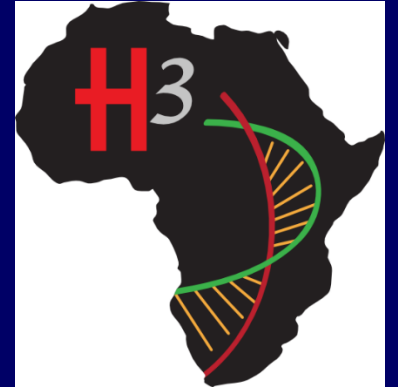
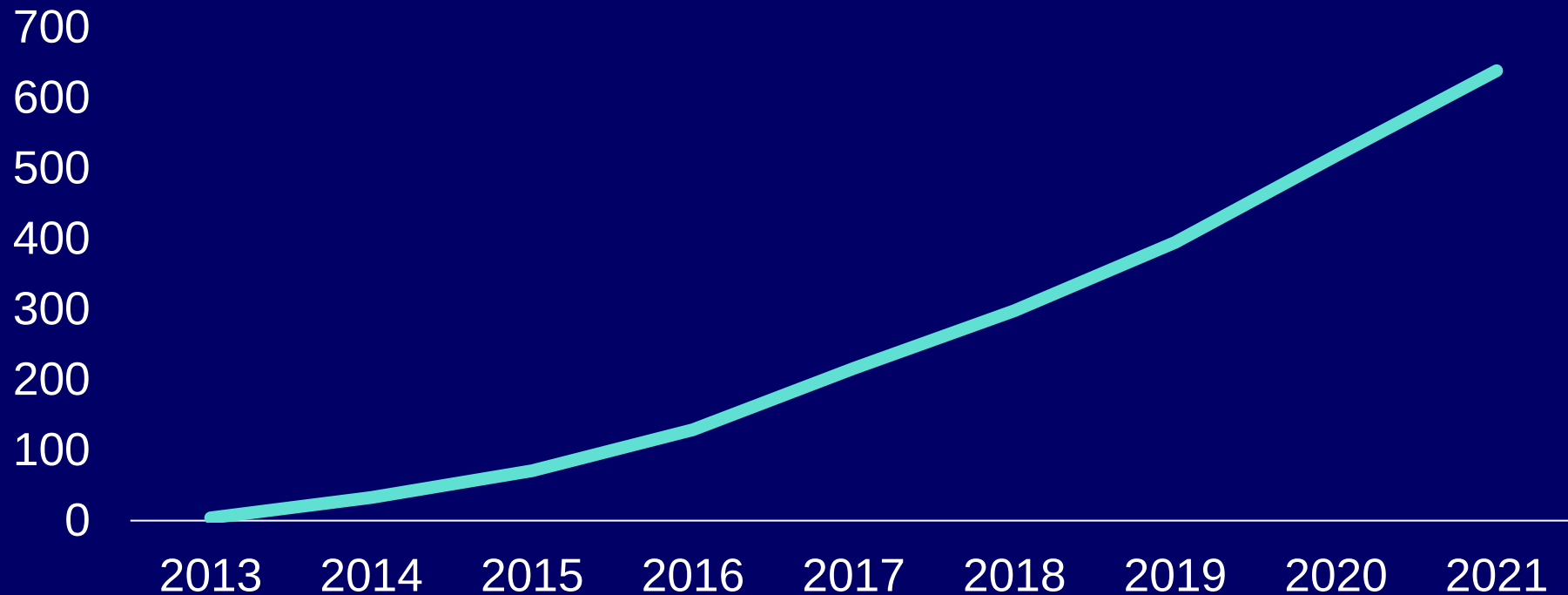
- **RFA-HG-22-001**
- **Early-Stage Investigator (ESI) status**
- **First receipt date: March 4, 2022**
- **Additional receipt dates: Feb 2023 & Feb 2024**

Director's Report Outline

- I. General NHGRI Updates
- II. General NIH Updates
- III. General Genomics Updates
- IV. NHGRI Extramural Research Program
- V. NIH Common Fund/Trans-NIH**
- VI. NHGRI Communications, Policy, and Education
- VII. NHGRI Intramural Research Program

Human Heredity & Health in Africa (H3Africa)

Cumulative H3Africa Publications



- **600+ publications to date**
- **Continued involvement in COVID-19 response**
- **18th Consortium Meeting**

Human Heredity & Health in Africa (H3Africa)



- H3Africa investigators received new awards

PRIMED

DS-I Africa

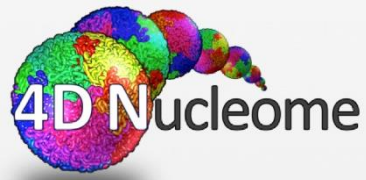
NIH and others



- Final year of program

Publications

Finale Consortium Meeting



4D Nucleome (4DN)

ANALYSIS

<https://doi.org/10.1038/s41592-021-01248-7>

nature | methods

OPEN

Systematic evaluation of chromosome conformation capture assays

Betul Akgol Oksuz^{1,10}, Liyan Yang^{1,10}, Sameer Abraham², Sergey V. Venev¹, Nils Krietenstein¹, Krishna Mohan Parsi^{4,5}, Hakan Ozadam^{1,6}, Marlies E. Oomen¹, Ankita Nand¹, Hui Mao^{4,5}, Ryan M. J. Genga^{4,5}, Rene Maehr^{4,5}, Oliver J. Rando³, Leonid A. Mirny^{2,7,8}, Johan H. Gibcus^{1,9} and Job Dekker^{1,9} ✉

Cell

Article

RNA promotes the formation of spatial compartments in the nucleus

Sofia A. Quinodoz¹, Joanna W. Jachowicz^{1,5}, Prashant Bhat^{1,2,5}, Noah Ollikainen^{1,5}, Abhik K. Banerjee^{1,3,6}, Isabel N. Goronzy^{1,2,6}, Mario R. Blanco¹, Peter Chovanec¹, Amy Chow¹, Yolanda Markaki⁴, Jasmine Thai¹, Kathrin Plath⁴ and Mitchell Guttman^{1,7,*} ✉

Bonora et al. *Genome Biology* (2021) 22:279
<https://doi.org/10.1186/s13059-021-02432-w>

Genome Biology

RESEARCH

Open Access

Single-cell landscape of nuclear configuration and gene expression during stem cell differentiation and X inactivation

Giancarlo Bonora¹, Vijay Ramani², Ritambhara Singh^{3,4}, He Fang⁵, Dana L. Jackson¹, Sanjay Srivatsan¹, Ruolan Qiu¹, Choli Lee¹, Cole Trapnell^{1,6,7}, Jay Shendure^{1,6,7,8}, Zhijun Duan^{9,10}, Xinxian Deng^{5*}, William S. Noble^{1,11*} and Christine M. Disteche^{5,6,12*} ✉



Cell-type specialization is encoded by specific chromatin topologies

<https://doi.org/10.1038/s41586-021-04081-2>

Received: 4 August 2020

Accepted: 30 September 2021

Published online: 17 November 2021

Open access

Check for updates

Warren Winick-Ng^{1,22} ✉, Alexander Kukalev^{1,22}, Izabela Harabula^{1,2,22}, Luna Zea-Redondo^{1,2,22}, Dominik Szabó^{1,2,22}, Mandy Meijer³, Leonid Serebreni^{1,16}, Yingnan Zhang⁴, Simona Bianco⁵, Andrea M. Chiariello⁵, Ibai Irastorza-Azcarate¹, Christoph J. Thieme¹, Thomas M. Sparks¹, Sílvia Carvalho^{1,6,7,8}, Luca Fiorillo⁵, Francesco Musella⁵, Ehsan Irani^{1,9}, Elena Torlai Triglia^{1,17}, Aleksandra A. Kolodziejczyk^{10,11,18}, Andreas Abentung^{12,19}, Galina Apostolova¹², Eleanor J. Paul^{13,20,21}, Vedran Franke¹⁴, Rieke Kempfer^{1,2}, Altuna Akalin¹⁴, Sarah A. Teichmann^{10,11}, Georg Dechant¹², Mark A. Ungless¹³, Mario Nicodemi^{15,9}, Lonnie Welch⁴, Gonçalo Castelo-Branco^{3,15} & Ana Pombo^{1,2,9} ✉

All of Us

RESEARCH PROGRAM

Chief Engagement
Officer



Karreim Watson,
D.H.Sc.

Chief Medical and
Scientific Officer



Geoffrey Ginsburg,
M.D., Ph.D.

Chief Cohort
Development Officer



Holly Garriock,
Ph.D.

Director's Report Outline

- I. General NHGRI Updates
- II. General NIH Updates
- III. General Genomics Updates
- IV. NHGRI Extramural Research Program
- V. NIH Common Fund/Trans-NIH
- VI. NHGRI Communications, Policy, and Education**
- VII. NHGRI Intramural Research Program

New Informed Consent Information



- **Two New Fact Sheets**

The informed consent process

Why is informed consent required?

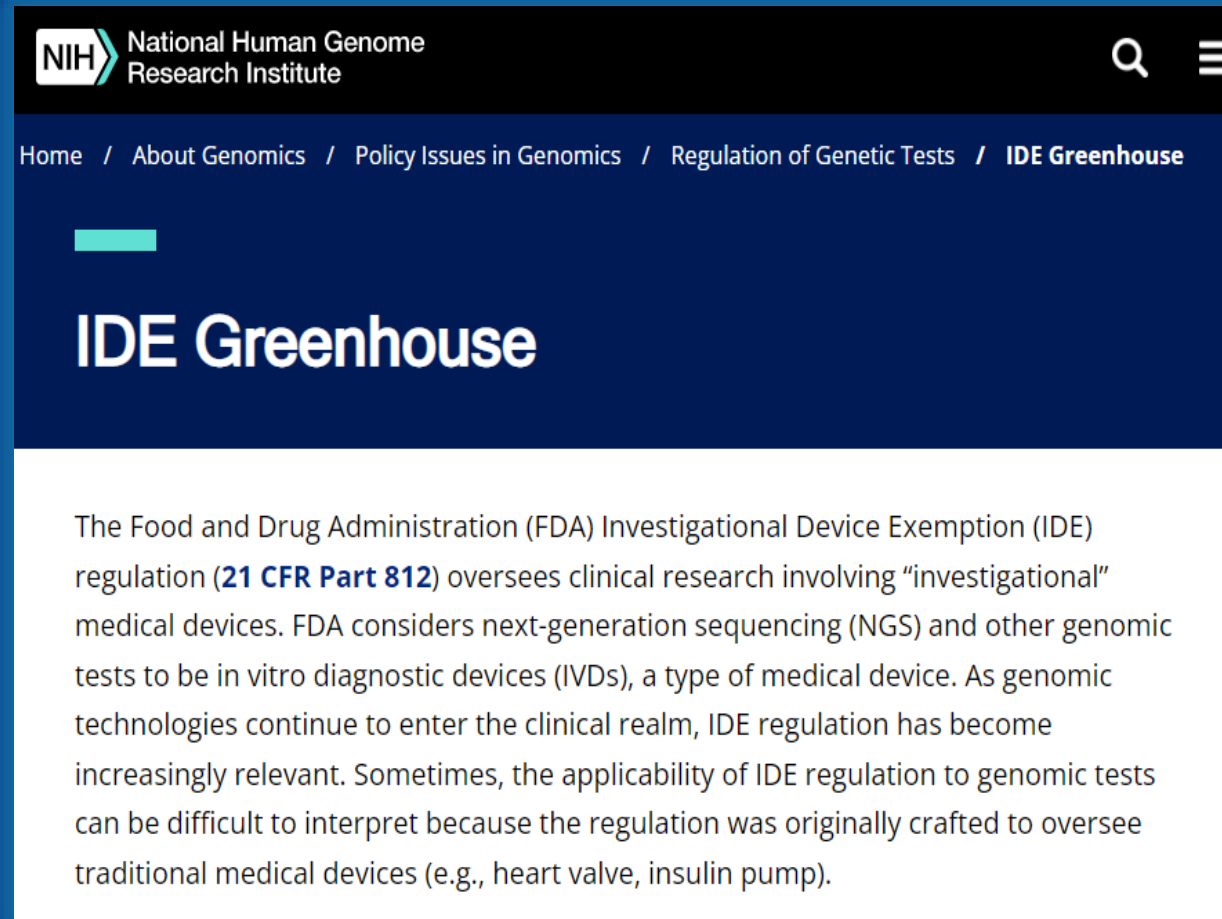
- **Informed Consent Resource**

Required Elements of Informed Consent

Considerations for Genomics Research

Sample Informed Consent Forms

Investigational Device Exemption (IDE) Greenhouse



- New educational resource with reference application documents

New and Refreshed NHGRI Fact Sheets

Fact Sheet

Artificial Intelligence, Machine Learning and Genomics

With increasing complexity in genomic data, researchers are turning to artificial intelligence and machine learning as ways to identify meaningful patterns for healthcare and research purposes.



Fact Sheet

Understanding COVID-19 mRNA Vaccines

Messenger RNA (mRNA) is a molecule that encodes a sequence that can be made into a protein. Scientists first learned about mRNA nearly 60 years ago, and researchers have been studying vaccines using mRNA for decades. The earliest COVID-19 vaccines authorized for use in the United States by the Food and Drug Administration (FDA) are mRNA vaccines.



Fact Sheet

Eugenics and Scientific Racism

Eugenics is an inaccurate theory linked to historical and present-day forms of discrimination, racism, ableism and colonialism. It has persisted in policies and beliefs around the world, including the United States.



Fact Sheet

Genomics and Diversity in the Workplace

Enhancing the diversity of the research workforce fosters innovation and creativity.



Introducing *The Forefront of Genomics* Newsletter



NHGRI History of Genomics Program

The Meaning of Eugenics: Historical and Present-Day Discussions of Eugenics and Scientific Racism



- Examined the history of eugenics, scientific racism, and complex legacies in the modern health sciences
- Over 1400 registered attendees

UNITED STATES
HOLOCAUST
MEMORIAL
MUSEUM



Smithsonian Institution

NATIONAL
MUSEUM *of*
NATURAL
HISTORY

NHGRI History of Genomics Program

Eugenics and Scientific Racism Fact Sheet & Timeline

COVID-19 CDC health information NIH research Español

NIH National Human Genome Research Institute

Begin your search here

About Genomics Research Funding Research at NHGRI Health Careers & Training News & Events About NHGRI

Home / About Genomics / Educational Resources / Fact Sheets about Genomics / **Eugenics and Scientific Racism**

Fact Sheet

Eugenics and Scientific Racism

Eugenics is an inaccurate theory linked to historical and present-day forms of discrimination, racism, ableism and colonialism. It has persisted in policies and beliefs around the world, including the United States.



Fact Sheet

COVID-19 CDC health information NIH research Español

NIH National Human Genome Research Institute

Begin your search here

About Genomics Research Funding Research at NHGRI Health Careers & Training News & Events About NHGRI

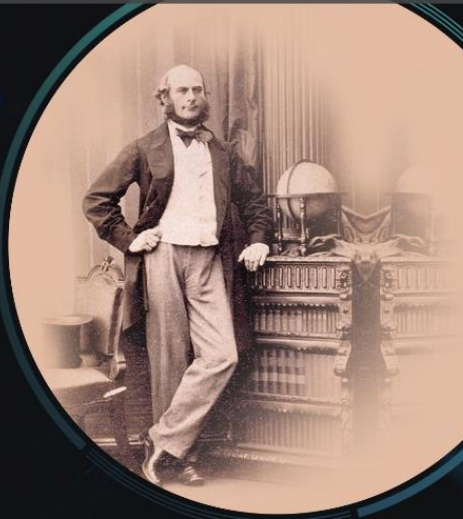
Timeline — select a year for more details

Galton defines eugenics and gives birth to a movement

Francis Galton (pictured), Charles Darwin's cousin, derived the term "eugenics" from the Greek word *eugenes*, meaning "good in birth" or "good in stock." Galton first used the term in an 1883 book, "Inquiries into Human Fertility and Its Development." Francis Galton (pictured), Charles Darwin's cousin, derived the term "eugenics" from the Greek word *eugenes*, meaning "good in birth" or "good in stock." Galton first used the term in an 1883 book, "Inquiries into Human Fertility and Its Development."

We greatly want a brief word to express the science of improving stock, which is by no means confined to questions of judicious mating, but which, especially in the case of man, takes cognizance of all influences that tend in however remote a degree to give to the more suitable races or strains of blood a better chance of prevailing speedily over the less suitable than they otherwise would have had. The word eugenics would sufficiently express the idea.

Galton believed that eugenics could control human evolution and



- 1883
- 1905
- 1906
- 1907
- 1910
- 1912
- 1914
- 1920
- 1921
- 1924

Timeline

Family Health History Social Media Campaign

#FamilyHealthDay2021



Inter-Society Coordinating Committee for Practitioner Education in Genomics (ISCC-PEG) Scholars



**Lisa Ferrand, MSA,
CRNA, APRN**



**Abimbola Oladayo,
B.D.S., M.P.H.**



**Katharine Press (KP)
Callahan, M.D.**



**Sarah Roth,
M.A.**

Genome: Unlocking Life's Code Exhibition

Return to the Smithsonian

GENOME
UNLOCKING
LIFE'S
CODE



Smithsonian Institution

NATIONAL
MUSEUM *of*
**NATURAL
HISTORY**

Director's Report Outline

- I. General NHGRI Updates
- II. General NIH Updates
- III. General Genomics Updates
- IV. NHGRI Extramural Research Program
- V. NIH Common Fund/Trans-NIH
- VI. NHGRI Communications, Policy, and Education
- VII. NHGRI Intramural Research Program**

New Chair, National Cancer Advisory Board



John Carpten, Ph.D.

History of Population Descriptors in Genetics

ARTICLE

Evolving use of ancestry, ethnicity, and race in genetics research—A survey spanning seven decades

Yen Ji Julia Byeon,^{1,3} Rezarta Islamaj,² Lana Yeganova,² W. John Wilbur,² Zhiyong Lu,² Lawrence C. Brody,^{4,*} and Vence L. Bonham^{3,*}

Human geneticists curb use of the term 'race' in their papers

Field still struggles with how to accurately describe populations, study finds

2 DEC 2021 • 5:30 PM • BY RODRIGO PÉREZ ORTEGA

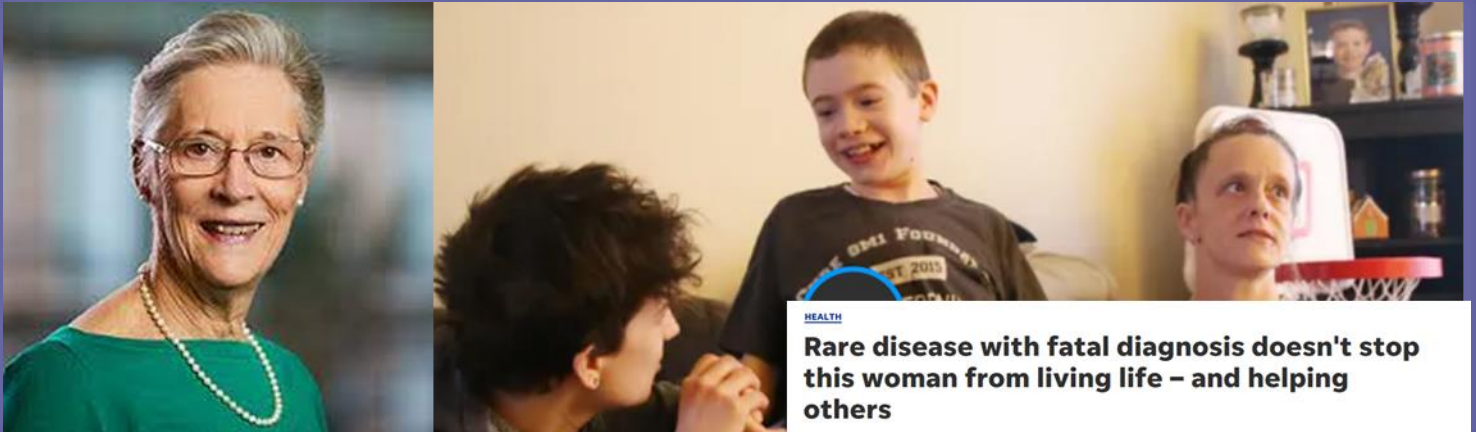
SHARE:



Human geneticists have mostly abandoned the word “race” when describing populations in their papers, according to a new study of research published in a leading genetics journal. That’s in line with the current scientific understanding that race is a social construct, and a welcome departure from research that in the past has often conflated genetic variation and racial categories, says Vence Bonham, a social scientist at the National Human Genome Research Institute who led the study.

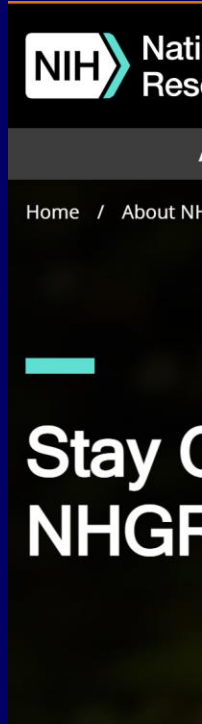


High-Profile Intramural Research Program Highlights



'One-Stop-Shop' to Stay Connected

genome.gov/stayconnected



Podcasts

	AMERICAN METAPHOPHOSIS (MARCH 30, 2021) The Butterfly Effect >
	TRAILBLAZERS WITH WALTER ISAACSON (DECEMBER 15, 2020) Genomics: Rewriting Our Health >
	GENETICS UNZIPPED (OCTOBER 22, 2020) The Past, Present and Future of the Human Genome Project >

There are many
of the major s

Op-Eds/Commentaries

An Anti-racist Action Plan for Studying the Human Genome
The Hill, September 16, 2021

A Vision for the Next Decade of Human Genomics Research
Scientific American, October 28, 2020



Thanks!



Special Thanks!

A dark blue background featuring a central circle with a light gray border. Inside the circle, the text 'The Forefront of Genomics®' is displayed in white. Two short, teal-colored vertical bars are positioned on either side of the text. Surrounding the central circle are two concentric arcs. The outer arc is composed of numerous small, white, horizontal line segments of varying lengths, resembling a DNA microarray or gel electrophoresis pattern. The inner arc consists of white capital letters representing the four DNA bases: A, T, C, and G, arranged in a circular sequence.

The **Forefront**
of **Genomics®**