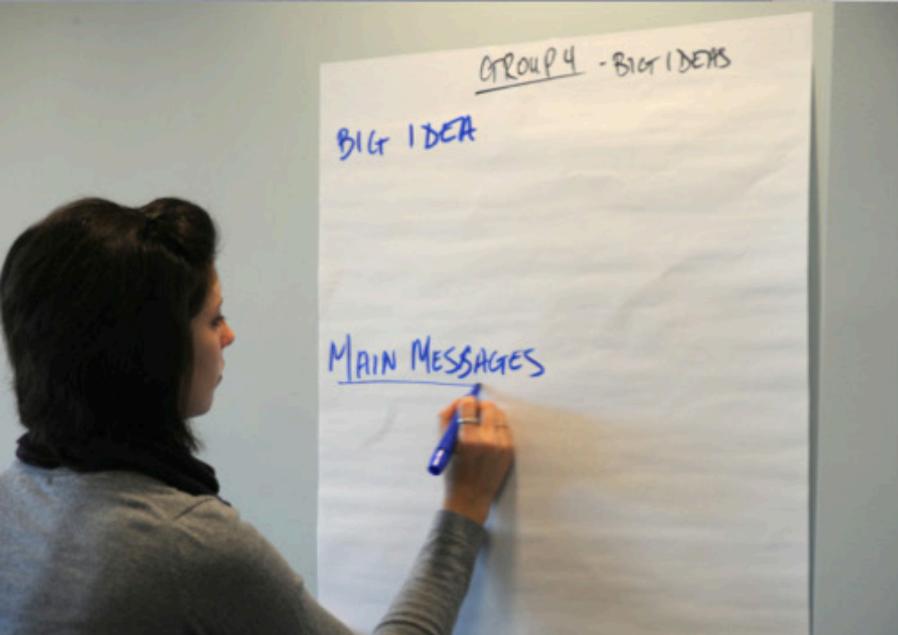


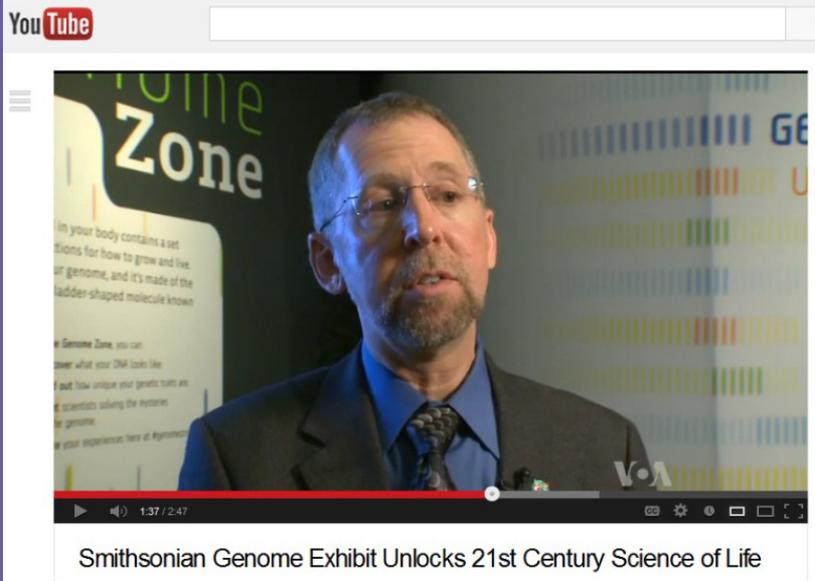
Origins of NHGRI-Smithsonian Partnership

- Proximity of NIH and Smithsonian
- 2013: Celebratory Year for Genomics





Smithsonian Exhibition: Reviews



Smithsonian Exhibit Aims to Make Genomics Relatable to the Public

THE WALL STREET JOURNAL
WSJ.com

ARTS & ENTERTAINMENT
June 18, 2013, 4:27 p.m. ET

Our Lives on a String

By JULIA M. KLEIN

Washington

It was a sweet coincidence: As the Smithsonian Institution's National Museum of Natural History was previewing "Genome: Unlocking Life's Code" on Thursday, a galvanizing news story underlined the subject's importance and topicality.

On Exhibit

ON GOINGOUTGUIDE.COM/BLOG
See more images from this exhibit and read all the latest news and reviews from the Going Out Guide.

Science marches on, double time

Exhibit marks milestones in genetics while staying up-to-date on advances

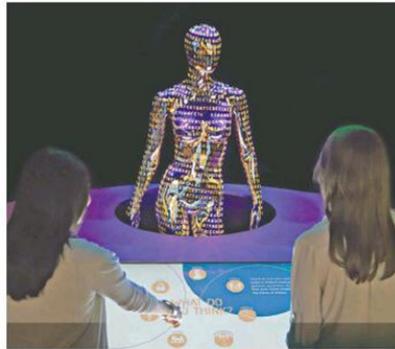
BY MICHAEL O'SULLIVAN

The National Museum of Natural History's new exhibition on the human genome includes a couple of nifty metaphors for its woefully subject matter.

In one segment of a four-part video produced by the History Channel, former president Bill Clinton calls it "the most important, most wondrous map ever produced by humankind." Elsewhere, it's referred to as a set of instructions, or owner's manual, for our bodies. But for a boring dictionary definition of the genome as the "complete set of genetic or hereditary material of a living organism" (i.e., DNA), you might do better to just ask any middle-schooler wandering through the gallery.

What have you been living under a rock?

Organized by the museum in conjunction with the National Human Genome Research Institute (NHGRI), "Genome: Unlocking Life's Code" commemorates the anniversaries of two major scientific milestones: the 1863 description, by Francis



Donald E. Pflieger and James D. Lisette

A touch-screen station in "Genome" asks provocative questions. The show's Web site will also survey people's attitudes about the social implications of genome sequencing.

be able to participate in by going to the show's Web site. According to Biesecker, that survey, which will collect information about people's evolving attitudes regarding the social implications of genome sequencing, will go live by the end of this month.

In an interview, Biesecker suggested that science may be changing faster than we can keep up with it. As an example, she noted the controversy surrounding a recent policy decision by the American College of Medical Genetics and Genomics. According to the group, whenever gene sequencing is performed for any single medical condition, analysis of 57 additional potentially disease-causing genes must also be performed. That's even if the patient does not wish to know the results of those extra tests and even if the patient is a child.

"Genome" will be on view at Natural History through the summer of 2014. After that, it will travel for four to five years. In that time, there will certainly be new advances in our understanding of "life's code" as well as new questions.

To accommodate those changes, "Genome" was designed to be flexible. That means that it includes a new sticker display spitting out a continuous stream of late-breaking developments via connections to such information outlets as NHGRI's Twitter feed.

According to NHGRI Director Eric Green, it also means this: Given the fact that the field of genomics is expected to

New York Times Review

“But credit “Genome: Unlocking Life’s Code,” an exhibition at the Smithsonian National Museum of Natural History here that opened in June, with being a bit of a pioneer in its own realm. It is smart, playful, and, while leaning toward the pop-science end of things, enlightening.”

New York Times 8/28/16

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EXHIBITION REVIEW
The ABC's of Your DNA
‘Genome: Unlocking Life’s Code,’ at the Smithsonian



T.J. Kingpatrick for The New York Times

Genome Elements of human genome projected onto a model at the Smithsonian's Natural History Museum.

By EDWARD ROTHSTEIN
Published: August 28, 2013

WASHINGTON — It has been a decade since the human genome was first sequenced and the 3.2 billion rungs of our DNA ladder laid out for analysis.



T.J. Kingpatrick for The New York Times
A “tree” of related organisms that viewers can explore.

Arts & Entertainment Guide
A sortable calendar of noteworthy cultural events in the New York region, selected by Times critics.
• Go to Event Listings »

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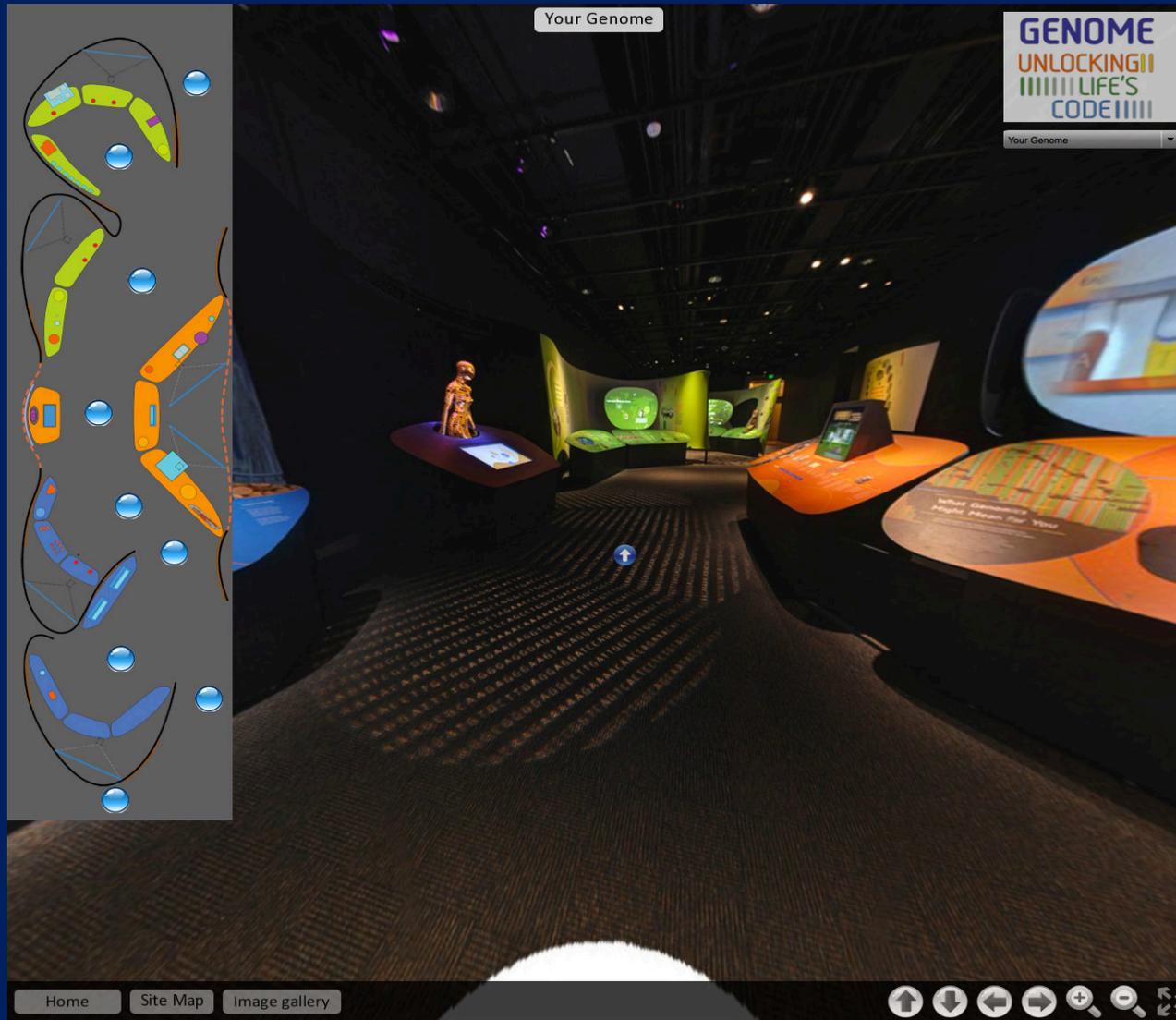
That achievement — mapping the fundamental biological code that defines our species and characterizes us as individuals — may have implications as important as the splitting of the atom or the discovery of the wheel. We can already envision custom-designed medicines as well as custom-designed fetuses. There are ethical questions to be asked and scientific questions to be answered. And nothing about the subject is simple.

But credit “[Genome: Unlocking Life’s Code](#),” an exhibition at the Smithsonian National Museum of Natural History scientific questions to be answered.

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THE WAY WAY BACK WATCH TRAILER

Genome: Unlocking Life's Code



The Genome Zone

Interactive space for visitors adjacent to the exhibit

Rotating schedule of special programs and hands-on activities

200+ NIH volunteers recruited for informal education initiatives



NIH Volunteers In the Genome Zone

Genome Scientist Is In
1:00 - 4:00 p.m.
Thursdays
7 Senior NIH Scientific Staff

Genome Geeks
1:00 - 4:00 p.m.
Saturdays and Sundays
16 NIH trainees

Hands-on Guides
Daily Programs
6 trainees

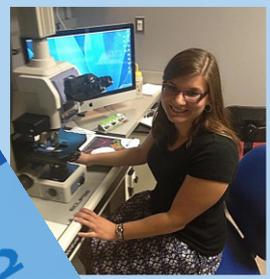
Exhibition Docents
Daily Programs
27 NIH Staff



The Genome Geek Is In

Dr. Lawrence B. Gold
National Institutes of Health (NIH)
July 13th, 2013
3-4 pm in the Genome Zone

Genomes are a vast storehouse of information that, found in our cells, through the how an individual's genome varies from others, helps to determine their susceptibility to various diseases. My research focuses on understanding the genetic and environmental factors that influence the development of a variety of human diseases. I am particularly interested in the role of the genome in the development of neurodegenerative diseases such as Alzheimer's and Parkinson's. My research focuses on understanding the genetic and environmental factors that influence the development of a variety of human diseases. I am particularly interested in the role of the genome in the development of neurodegenerative diseases such as Alzheimer's and Parkinson's.



The Genome Geek Is In

...is a major open question in ... diseases such as cancer, our nuclei—the ... Learning how and why the nucleus ... help us improve disease treatments and prevent the ... at comes with aging.

...ar and cell biologist. I am interested in how nuclei achieve their shape ... alker's yeast as a model organism. I spend a lot of time in the lab making ... mutations in yeast genes and using a microscope to see how these mutations affect ... nuclear shapes. It is a tremendous thrill to be the first person to discover something ... new about the cell!

Sturla, M. ...
National Museum of Natural History



The Scientist Is In

Dr. Lawrence B. Gold
National Institutes of Health (NIH)
July 13th, 2013
3-4 pm in the Genome Zone

Dr. Gold's laboratory is investigating mutations in the two known breast-cancer-linked genes, breast cancer gene 1 (BRCA1) and breast cancer gene 2 (BRCA2). Having a particular BRCA1 or BRCA2 mutation can increase a woman's risk of developing breast cancer by as much as 7-fold. Men with the mutation are at an increased risk for prostate cancer.

Dr. Gold and his colleagues are now determining what these genes do, and how failing to do those jobs contributes to cancer development. As part of his research, Dr. Gold is also using new DNA chip technologies. The DNA microchip is a revolutionary new tool used to identify mutations in genes like BRCA1 and BRCA2.

Sam ...
National Museum of Natural History



The Scientist Is In

Dr. Lawrence B. Gold
National Institutes of Health (NIH)
July 13th, 2013
3-4 pm in the Genome Zone

Dr. Gold is a Research Entomologist and Curator of Invertebrates at the National Museum of Natural History (NMNH). His research interests focus on the interactions between the genome and the environment, with a primary goal of understanding the role of the genome in the development of a variety of human diseases. I am particularly interested in the role of the genome in the development of neurodegenerative diseases such as Alzheimer's and Parkinson's.

Scientist is in

the genome geek is in

unlockinglifescode.org

The screenshot shows the homepage of the 'Genome: Unlocking Life's Code' website. At the top, there is a navigation bar with the logo on the left and menu items: EXPLORE, ABOUT, LEARN, HUMAN GENOME PROJECT, MEDIA, and CONNECTIONS. A search icon is also present. A news ticker at the top right reads: 'Recent Genomic News: Henrietta Lacks' family gets role in use of 'immortal life' cells (NY Times)'. Below the navigation is a large hero section with a blue and white background featuring chromosome-like structures. The text in this section reads: 'GENOMIC MEDICINE' and 'Travel the genomic road to personalized healthcare.' with a 'LEARN MORE' button. Below the hero section, there are several content blocks: 'Now open at the Smithsonian's National Museum of Natural History' with links to 'Smithsonian.com' and 'Smithsonian Associates', and 'Plan your visit | Traveling Schedule'. The main content area is divided into three columns. The first column has 'EXPLORE' (The exhibit) with a magnifying glass icon, 'LEARN' (Multimedia, Activities and More...) with a chromosome icon, and 'FEATURED' (Check out our highlighted features!) with a 'Smithsonian ASSOCIATES' logo and 'Exhibit Events' link. The second column has 'ABOUT' (The exhibit) with a chromosome icon. The third column has 'NEW & NOTEWORTHY' with a list of items: 'N.Y. Times reviews Unlocking Life's Code exhibit', 'My Favorite Things', 'Voice of America', 'Virtual Tour Now Live!', and 'Patents (de)Pending'. At the bottom, there are social media icons for Facebook, Twitter, and Pinterest.

GENOME UNLOCKING LIFE'S CODE

EXPLORE ABOUT LEARN HUMAN GENOME PROJECT MEDIA CONNECTIONS

Recent Genomic News: Henrietta Lacks' family gets role in use of 'immortal life' cells (NY Times)

GENOMIC MEDICINE
Travel the genomic road to personalized healthcare.
[LEARN MORE](#)

Now open at the Smithsonian's National Museum of Natural History
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EXPLORE
The exhibit

ABOUT
The exhibit

NEW & NOTEWORTHY

- N.Y. Times reviews Unlocking Life's Code exhibit
The N.Y. times recently visited the Genome: Unlocking Life's Code exhibit.
- My Favorite Things
Take a peek at what drives the individuals who helped create Genome: Unlocking Life's Code.
- Voice of America
Share the experiences of visitors to this exhibit in this video presented by Voice of America.
- Virtual Tour Now Live!
Start exploring the exhibit by taking a virtual tour!
- Patents (de)Pending
In a recent decision, the Supreme Court held that unmodified genes ineligible for patents.

LEARN
Multimedia, Activities and More...

FEATURED
Check out our highlighted features!

[Exhibit Events](#)

[Like](#) [Tweet](#) [Pin it](#)

News Ticker

Henrietta Lacks' family gets role in use of "immortal life" cells (NY Times)

The Lacks family and the N.I.H. settled on an agreement: the data from both studies should be stored in the institutes' database of genotypes and phenotypes. Researchers who want to use the data can apply for access and will have to submit annual reports about their research. A so-called HeLa Genome Data Access working group at the N.I.H. will review the applications. Two members of the Lacks family will be members. The agreement does not provide the Lacks family with proceeds from any commercial products that may be developed from research on the HeLa genome.

GENOMIC MEDICINE

Travel the genomic road to personalized healthcare.

LEARN MORE

Now open at the Smithsonian's National Museum of Natural History

[Smithsonian.com](#)
[Smithsonian Associates](#)

[Plan your visit](#) | [Traveling Schedule](#)

EXPLORE

The exhibit



ABOUT

The exhibit



NEW & NOTEWORTHY



N.Y. Times reviews Unlocking Life's Code exhibit
The N.Y. times recently visited the Genome: Unlocking Life's Code exhibit.



My Favorite Things
Take a peek at what drives the individuals who helped create Genome: Unlocking Life's Code.



Voice of America
Share the experiences of visitors to this exhibit in this video presented by Voice of America.



Virtual Tour Now Live!
Start exploring the exhibit by taking a virtual tour!



Patents (de)Pending
In a recent decision, the Supreme Court held that unmodified genes ineligible for patents.

LEARN

Multimedia, Activities and More...



FEATURED

Check out our highlighted features!



[Exhibit Events](#)

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Education Resources

GENOME UNLOCKING LIFE'S CODE

EXPLORE ABOUT LEARN HUMAN GENOME PROJECT MEDIA CONNECTIONS

TIMELINE OF THE HUMAN GENOME

Timeline of the Human Genome

Any

APPLY

2001 | First draft of the human genome released

2002 | Mouse becomes first mammalian research organism with decoded genome

2003 | Human Genome Project completion announced

GENOME UNLOCKING LIFE'S CODE

EXPLORE ABOUT LEARN HUMAN GENOME PROJECT MEDIA CONNECTIONS

HOME | MEDIA | IMAGES & ILLUSTRATIONS | CELLS

Cells

CELLS
Structural, functional and biological units.

CHROMOSOMES
Structures of DNA, protein, and RNA.

GENES
The basic physical unit of inheritance.

DNA
Molecule encodes genetic instructions.

ACGT
Four nucleic acid bases that make DNA.

MICROSCOPIC IMAGES
Learn from these up close images.

GENETIC CONDITIONS
caused by abnormalities in the genome.

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GENOME UNLOCKING LIFE'S CODE

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Explore

Overview
The Genome Within Us
The Natural World
Our Genomic Journey
Genomic Medicine
Genomics & Society
Genome Zone
Virtual Tour

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Plan Your Visit
Traveling Schedule
The Partnership
Advisory Boards
Sponsors
Credits
Contact

Learn

Learning Tools for Students
Educator's guide
Resources for Teachers
Curriculum
Profile: Jasmine Jackson
Genomic Careers Resource
Talking Glossary of Genetic Terms



Smithsonian
National Museum of Natural History

10th Street & Constitution Avenue, NW
Washington, DC 20560

IN PARTNERSHIP WITH



National Human Genome
Research Institute

Department of Health and Human Services
Email the webmaster

Virtual Tour

Virtual Tour



Take a virtual tour of the exhibit on your personal computer, tablets, or smart phone. This dynamic introduction to "Genome: Exploring Life's Code" virtual tour will enable you to explore and focus in closely on the various design elements and high-tech environment of the entire 2,500-square-foot exhibition.



Launch Virtual Tour

opens in new window

OVERVIEW

THE GENOME WITHIN US

THE NATURAL WORLD

OUR GENOMIC JOURNEY

GENOMIC MEDICINE

GENOMICS & SOCIETY

GENOME ZONE

VIRTUAL TOUR



Your Genome

Your Genome

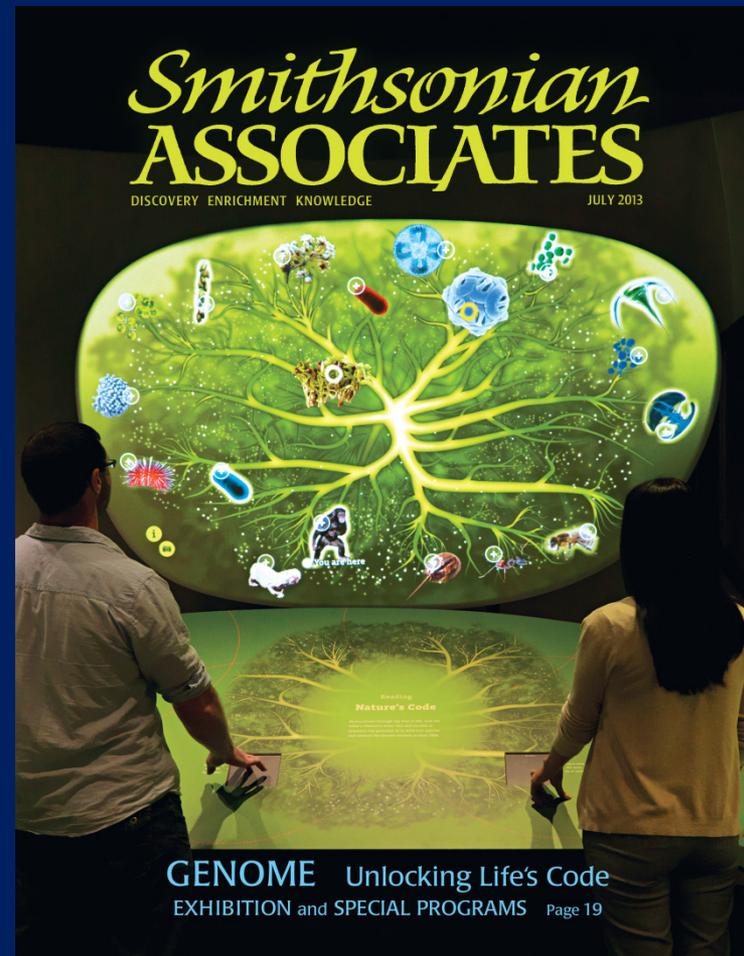


unlockinglifescode.org



Exhibition Programming

- NHGRI, NMNH, and The Smithsonian Associates to offer nine programs to the public from September 2013 to July 2014
- Other highlights:
genomics & theater;
citizen science;
evolutionary genomics;
genomics in pop culture;
genomics & wine; ELSI
debate



Exhibition Programming

Exploring Ancestry

- First program: **The Genomic Journey: Searching for Your Roots** on September 12, 2013
- Tickets for the program sold out in two days



Advisory Boards

The screenshot shows the website's navigation bar with the GENOME UNLOCKING LIFE'S CODE logo and menu items: EXPLORE, ABOUT (highlighted), LEARN, HUMAN GENOME PROJECT, and COMMUNITIES. Below the navigation bar, the breadcrumb trail reads HOME | ABOUT | ADVISORY BOARDS. The main heading is 'Advisory Boards'. The content is organized into two columns of text, each preceded by a section title: 'Exhibition Advisory Board' and 'Education Advisory Board'. The 'Exhibition Advisory Board' lists members such as Joann A. Boughman, George Church, James P. Evans, Eric Lander, Dennis Liu, Stephen Palumbi, Charmaine D. M. Royal, and Sarah Tishkoff. The 'Education Advisory Board' lists members such as Mike Dougherty, Marnie Gelbart, Peter Guttmacher, Neil Lamb, Dave Micklos, Louisa Stark, and Julia Willingale-Theune. On the right side of the page, there is a vertical sidebar with a search icon and a list of links: PLAN YOUR VISIT, TRAVELING SCHEDULE, THE PARTNERSHIP, ADVISORY BOARDS (highlighted in orange), SPONSORS, CREDITS, CONTACT, and COPYRIGHT & FAIR USE.

GENOME UNLOCKING LIFE'S CODE

EXPLORE ABOUT LEARN HUMAN GENOME PROJECT COMMUNITIES

HOME | ABOUT | ADVISORY BOARDS

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GENOME UNLOCKING LIFE'S CODE

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The NHGRI Team



Solving Medical Mysteries

Genomics is changing the way we diagnose and treat health conditions. Watch these personal stories and learn about the benefits and limitations of genomic medicine.

John, Abigail and Noah, Madison

Cancer Begins

As we age, environments, and random mistakes in copying DNA change our genes. Cells repair most of their genomic mistakes, but sometimes genes that control cell growth or stop repair are altered, leading to abnormal cells multiplying.

As the tumor continues to grow, a cancer can arise in one organ and spread to other organs.

Questions?

Genomics Changes the Odds

Of the four types of breast cancer, HER2-positive, or HER2+, is one of the most aggressive. But genomic analysis of the cancer has led researchers to a drug therapy that slows or stops the tumor cells' growth. Called trastuzumab, or Trastuzumab, the medication has reversed the grim prognosis for many with the disease.

Diagnosing and Treating HER2+ Cancer

NORMAL CELL
Healthy cells having the wild-type have two copies of the HER2 gene. They produce only the amount of HER2 protein needed to regulate cell growth properly.

CANCER CELL
Cancer cells with more than the usual two copies of the HER2 gene produce too much HER2 protein. The protein signals the cell to divide uncontrollably.

Genomic Journey

Genetic code for every age-old species. About 200,000 years ago, this is only a short period in the history of life, the generation of two unrelated people today about 99.9 percent alike. The part that differs traces our ancestors' journey across the world.

Characterizing the Past

Genetic code for every age-old species. About 200,000 years ago, this is only a short period in the history of life, the generation of two unrelated people today about 99.9 percent alike. The part that differs traces our ancestors' journey across the world.

Exploring Our Genomic Ancestry

Start the (Gen)etic Origin

How Life Differ

READING NATURE'S CODE

We are starting to see things every day about organisms by sequencing their genomes.

Putting Life on Ice