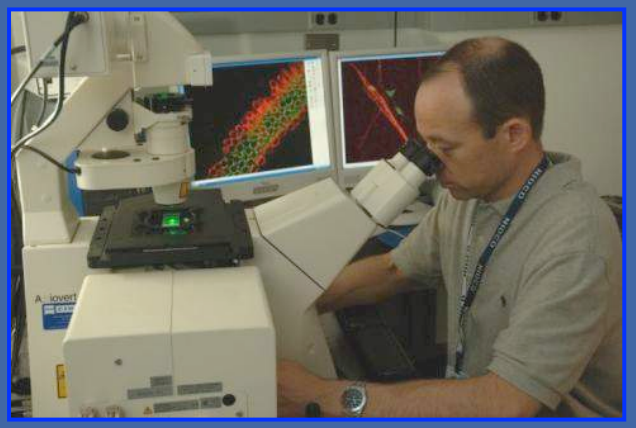
The Cures Acceleration Network and Therapeutics at NIH

Francis S. Collins, M.D., Ph.D.
Director, National Institutes of Health

2010 ITMAT International Symposium
October 26, 2010

NIH: Steward of Medical and Behavioral Research for the Nation

"Science in pursuit of fundamental knowledge about the nature and behavior of living systems ... and the application of that knowledge to extend healthy life and reduce the burdens of illness and disability."



RESEARCH AGENDA

Opportunities for Research and NIH

The promise of fundamental advances in diagnosis, prevention, and treatment of disease has never been greater.

Francis S. Collins

The mission of the National Institutes of Health (NIH) is science in pursuit of fundamental knowledge about the nature and behavior of living systems and the application of that knowledge to extend healthy life and to reduce the burdens of illness and disability. The power of the molecular approach to health and disease has steadily gained momentum over the past several decades and is now poised to catalyze a revolution in medicine. The foundation of success in biomedical research has always been, and no doubt will continue to be, the creative insights of individual investigators. But increasingly those investigators are working in teams, accelerated by interdisciplinary approaches and empowered by open access to tools, databases, and technologies, so a careful balance is needed between investigator-initiated projects and large-scale community resource programs. For both individual and large-scale efforts, it is appropriate to identify areas of particular promise. Here are five such areas that are ripe for major advances that could reap substantial downstream benefits.

High-Throughput Technologies

In the past, most biomedical basic science projects required investigators to limit their scope to a single aspect of cell biology or physiology. The revolution now sweeping the field is the ability to be comprehensive—for example, to define all of the genes of the human or a model organism, all of the human proteins and their structures, all of the common variations in the genome, all of the major pathways for signal transduction in the cell, all of the patterns of gene expression in

sive information about the genetic underpinnings of 20 major tumor types. This information will likely force a complete revision of diagnostic categories in cancer and will usher in an era where abnormal pathways in specific tumors will be matched with the known targets of existing therapeutics. Another example is the opportunity to understand how interactions between ourselves and the microbes that live on us and in us (the "microbiome") can influence health and disease (*2*).

Translational Medicine

Critics have complained in the past that NIH is too slow to translate basic discoveries into new diagnostic and treatment advances in the clinic. Some of that criticism may have been deserved, but often the pathway from molecular insight to therapeutic benefit was just not

bring them to clinical trials and U.S. Food and Drug Administration (FDA) approval.

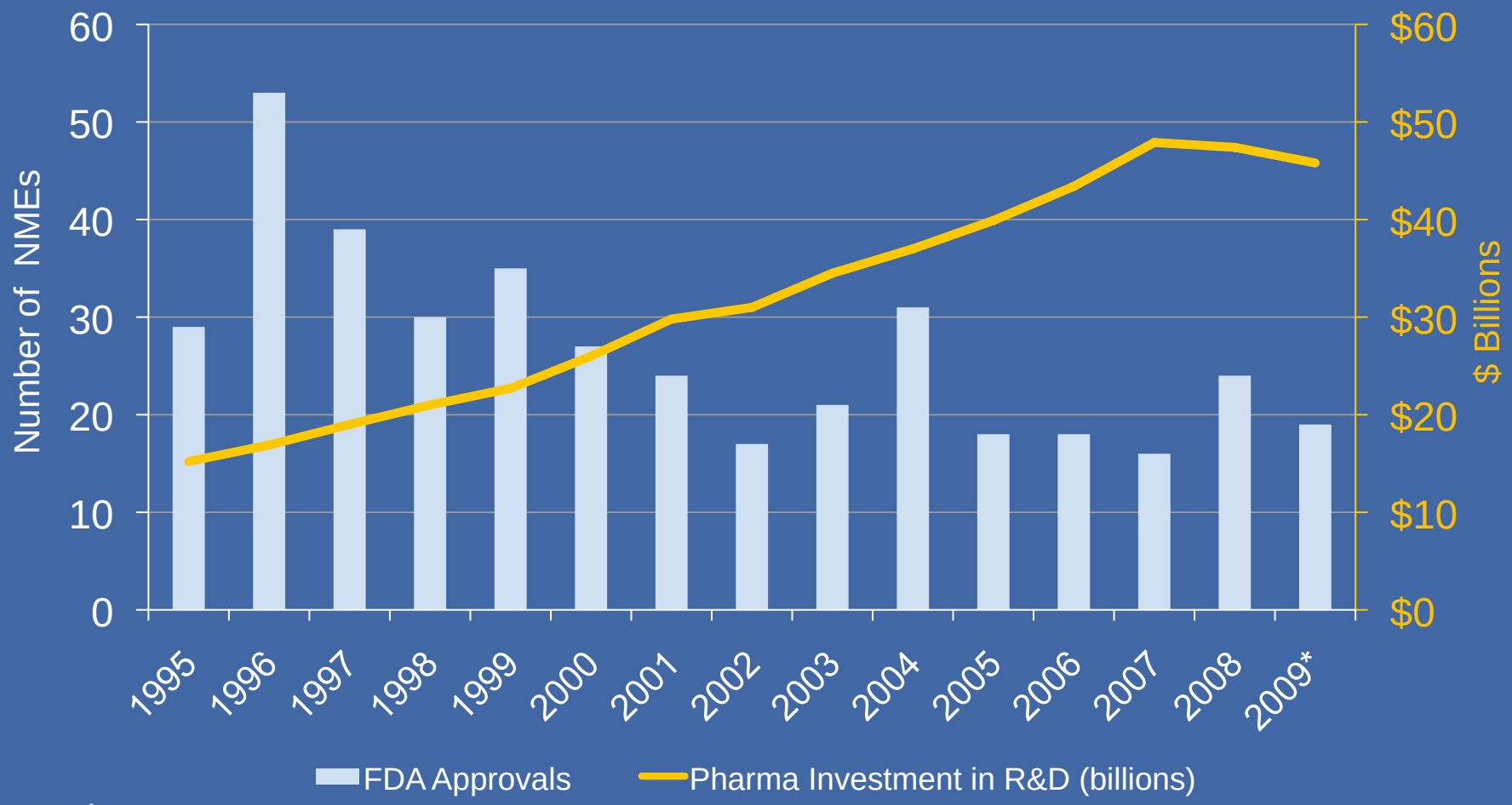
As one example, the NIH Therapeutics for Rare and Neglected Diseases (TRND) (*3*) program will allow certain promising compounds to be taken through the preclinical phase by NIH, in an open environment where the world's experts on the disease can be involved. Furthermore, as information about common diseases increases, many are being resolved into distinct molecular subsets, and so the TRND model will be even more widely applicable.

The first human protocol (for spinal cord injury) involving human embryonic stem cells (hESCs) was approved by the FDA in 2009, and the opening up of federal support for hESC research will bring many investigators into this field. The capability of transforming human skin fibroblasts and other cells into induced pluripotent stem

IVERSITY; LINDA BARTLETT/NCI, NIH; BILL BRANSON/NCI,NIH; NASA; BILL BRANSON/NIDCR, NIH

Opportunity #2: Translating basic science discoveries into new and better treatments

Despite Greater Pharma R&D Investments, FDA Approvals of NMEs Declined



*Estimate

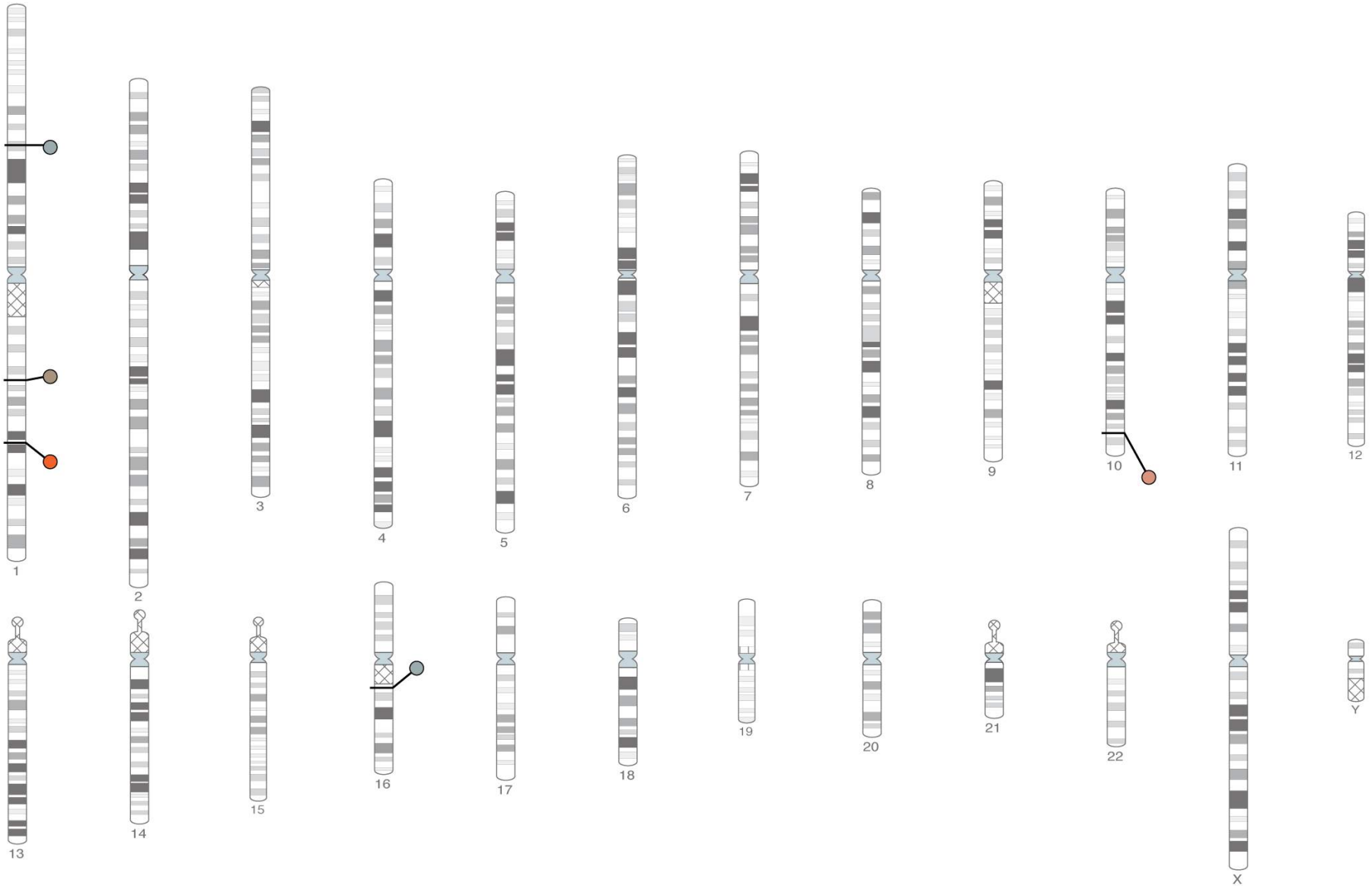
Glaxo tries biotech model to spur drug innovations. *Wall Street Journal*, July 1, 2010.

Sources: Pharmaceutical Research and Manufacturers of America; FDA

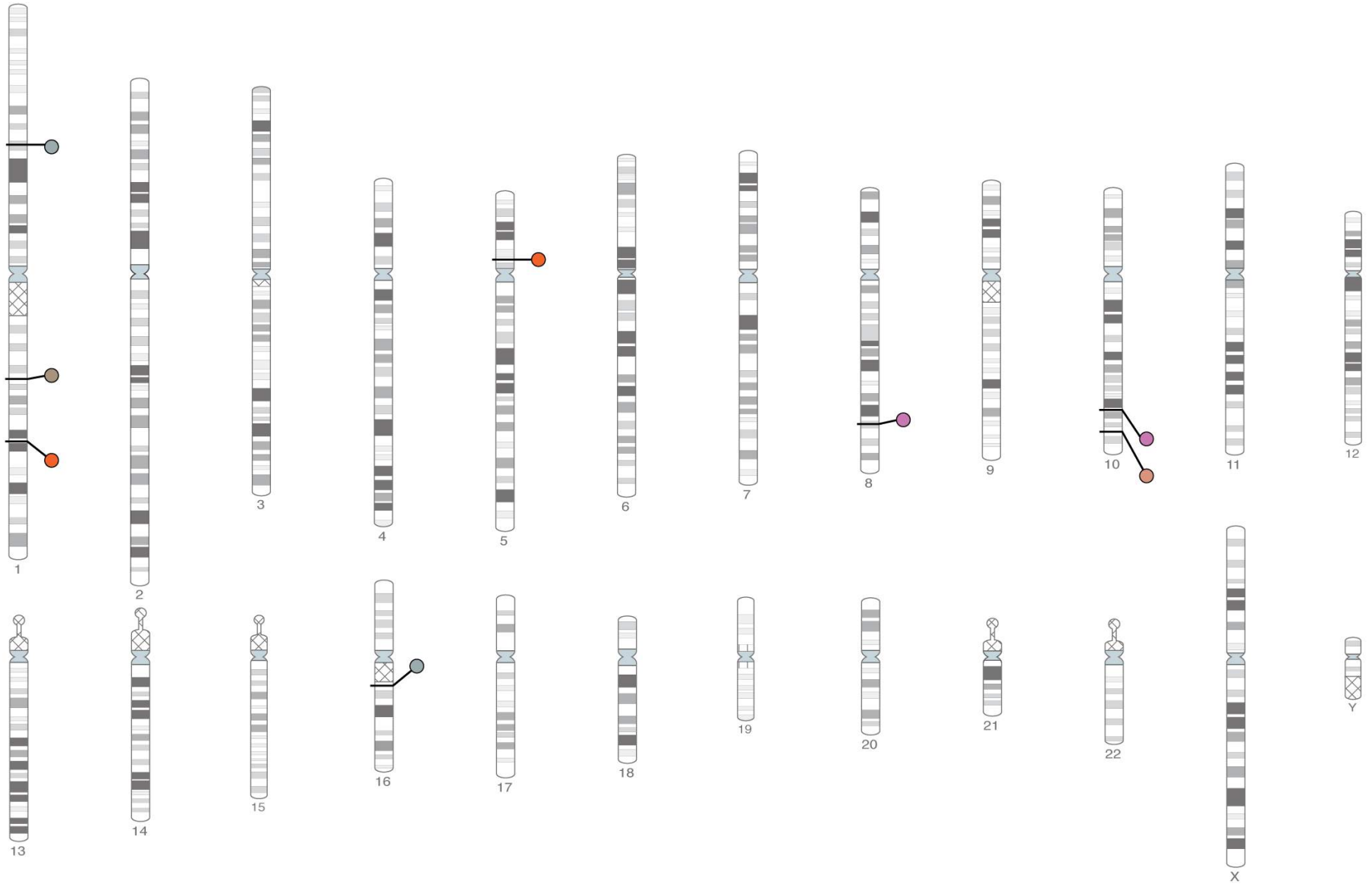

Science
21 December 2007 | $10
BREAKTHROUGH OF THE YEAR
Human Genetic Variation
#BXNCCNG ******FIRM**CAR-RT LOT**C-000
#201427027# AS 09/26/08 5858
DR FRANCIS S COLLINS
NIH NHGRI
BLDG 31 4B09
31 CENTER DR
BETHESDA MD 20892-0001
P24
2192
12
AAAS

2005

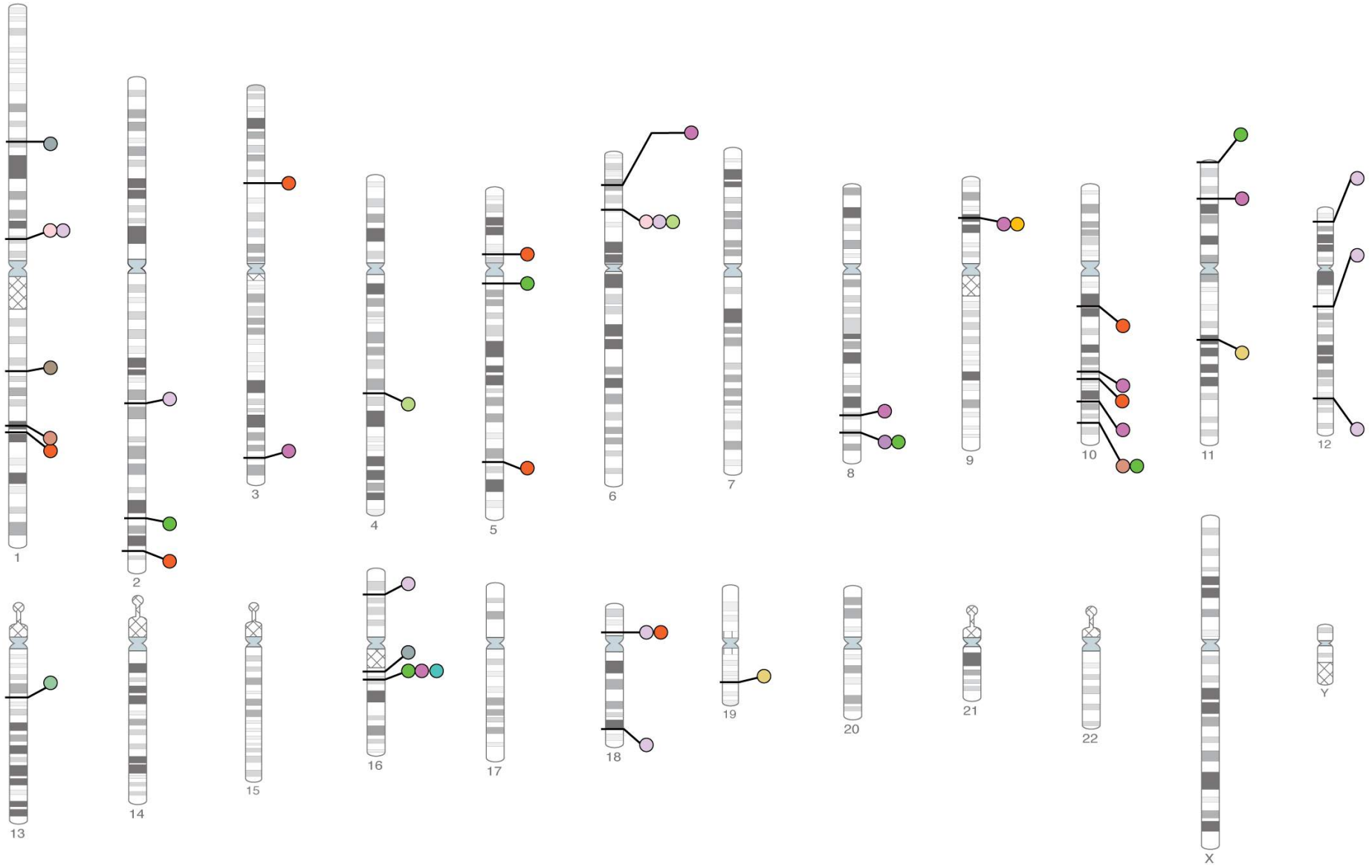
2006



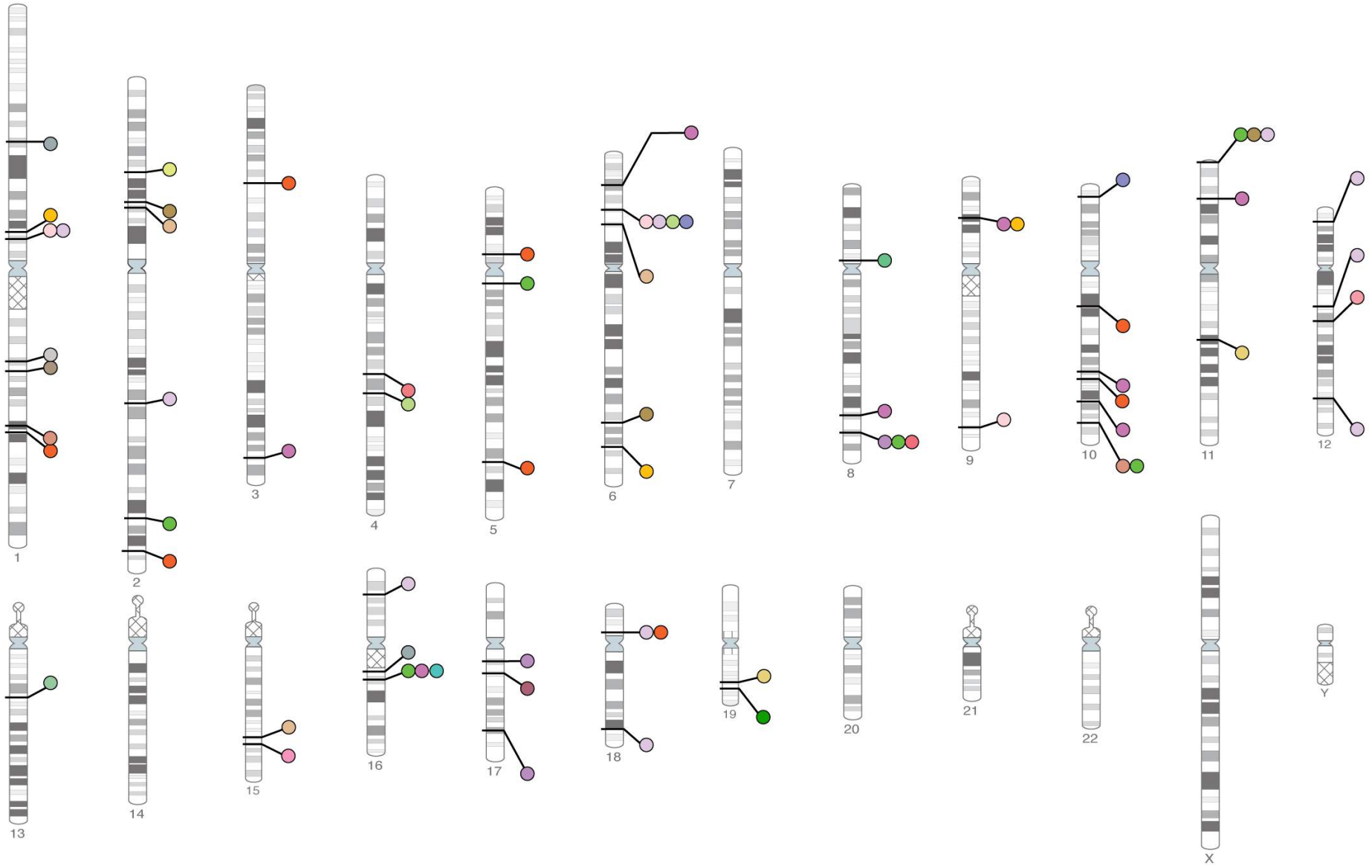
2007 1st quarter



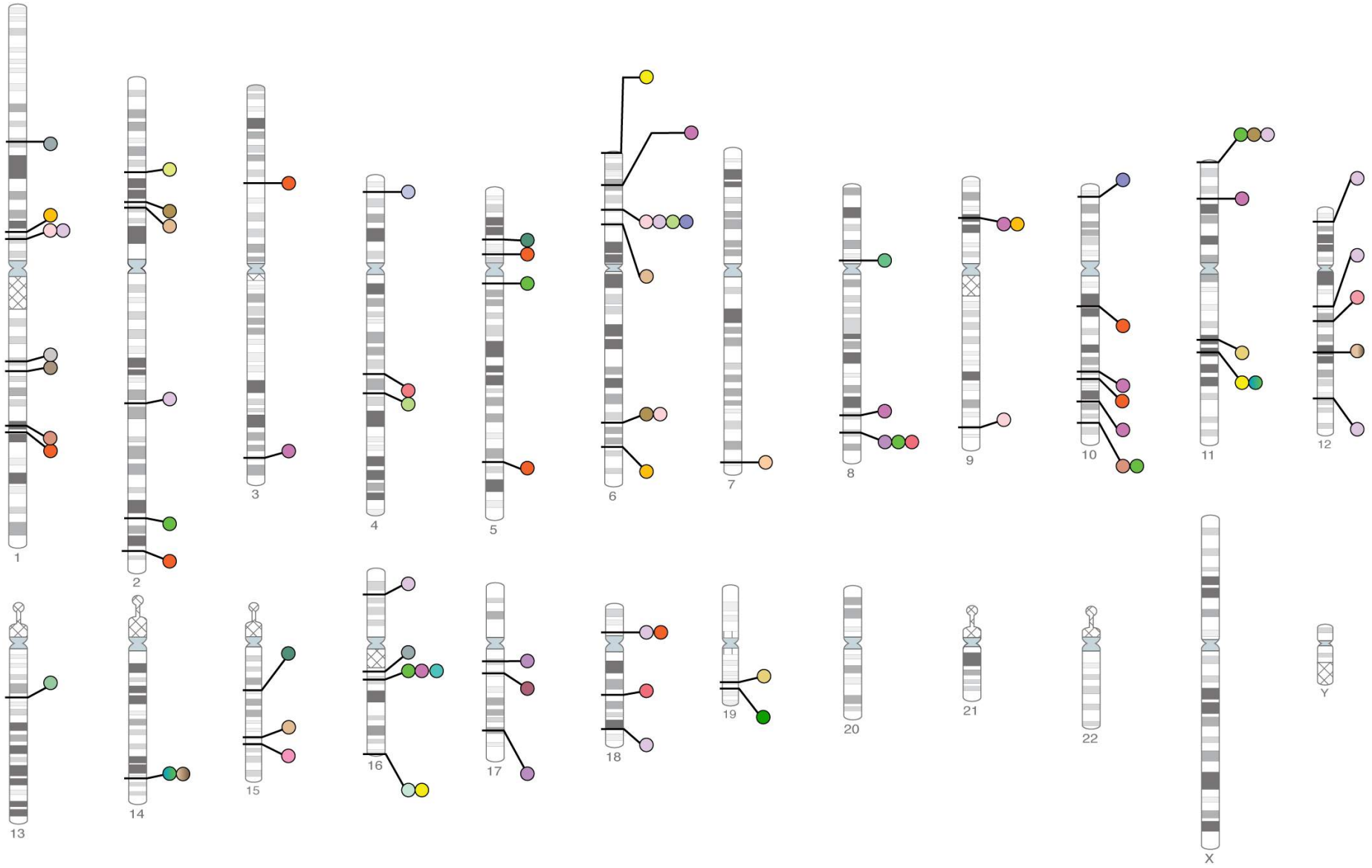
2007 2nd quarter



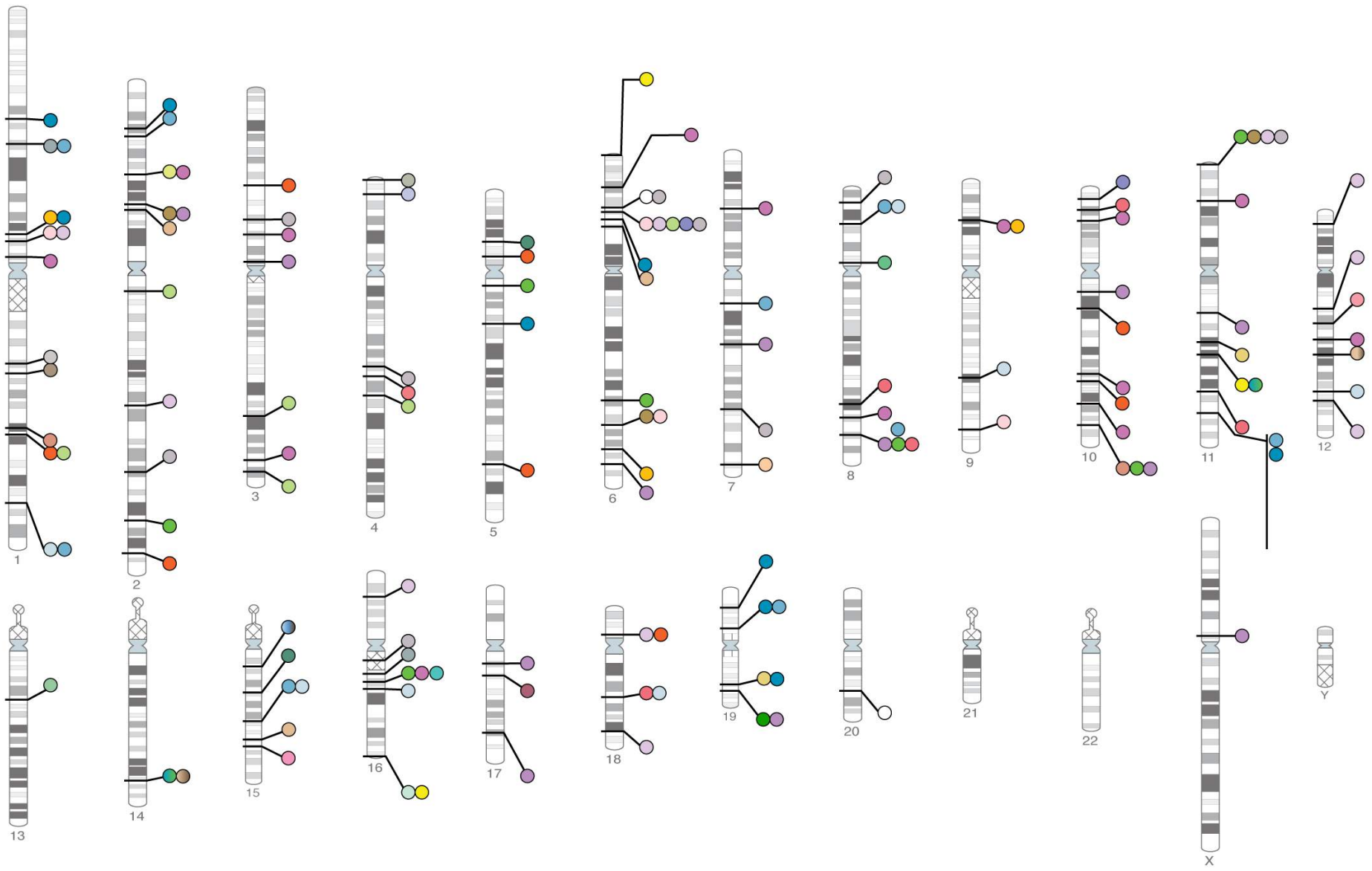
2007 3rd quarter



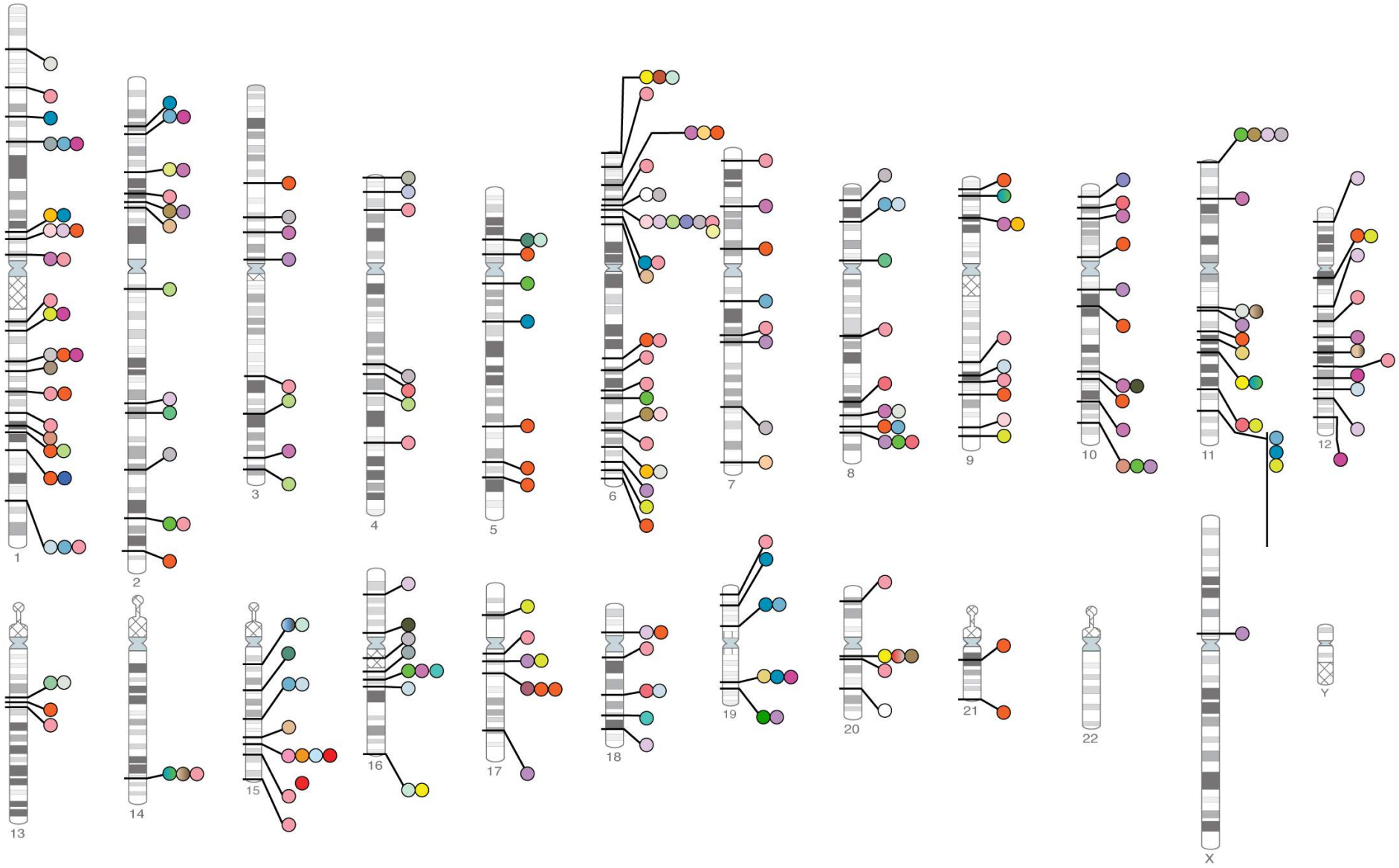
2007 4th quarter



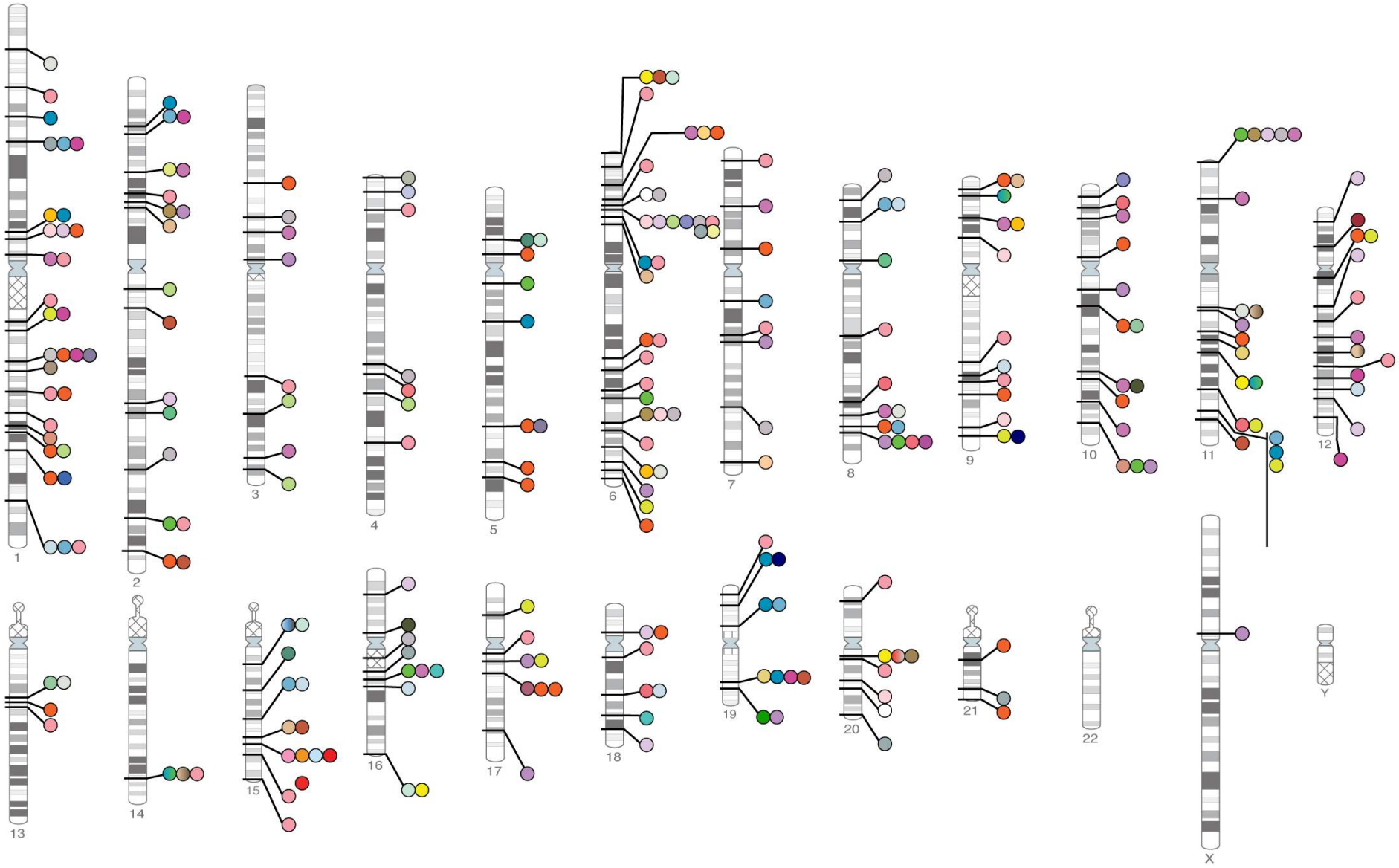
2008 1st quarter



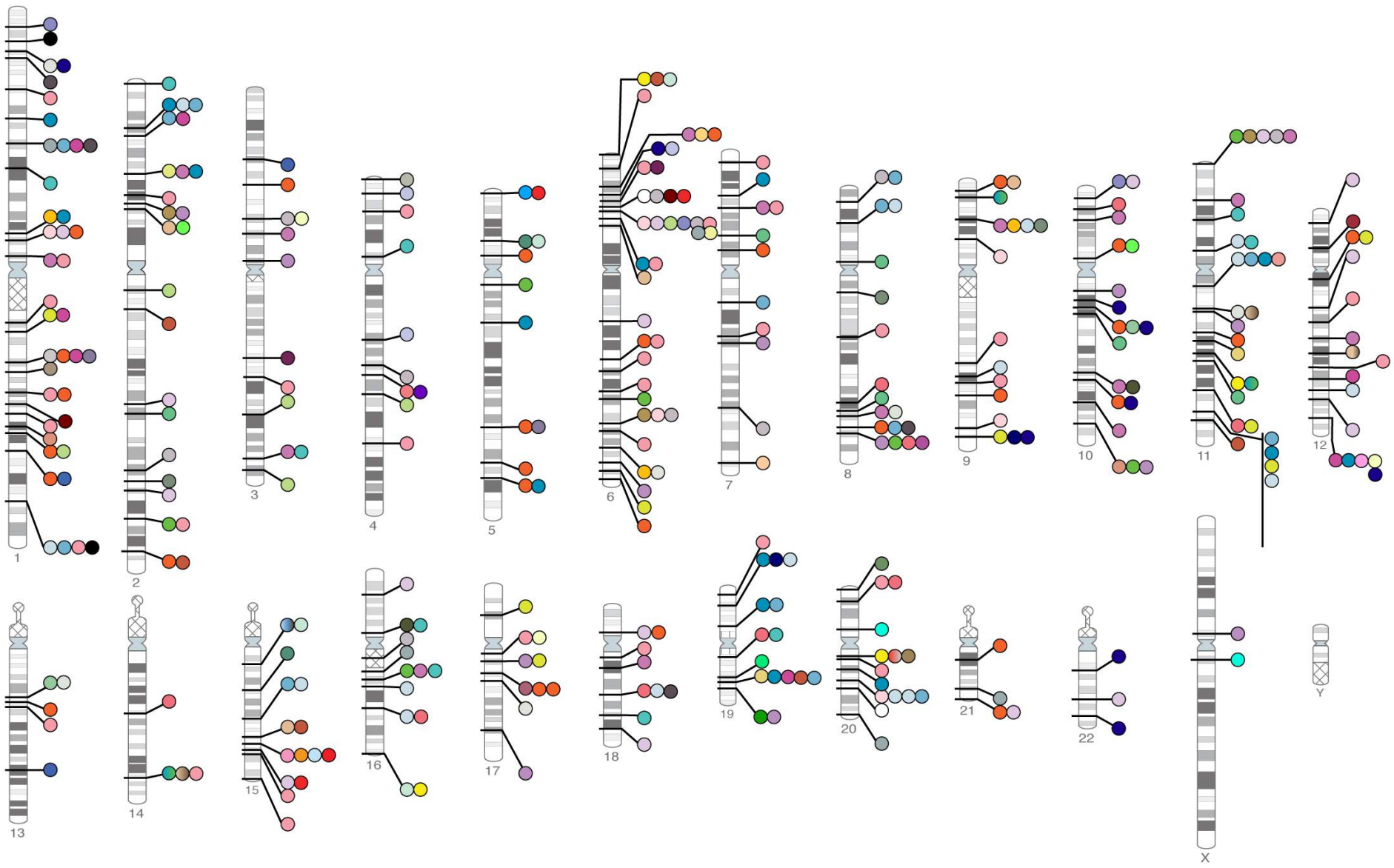
2008 2nd quarter



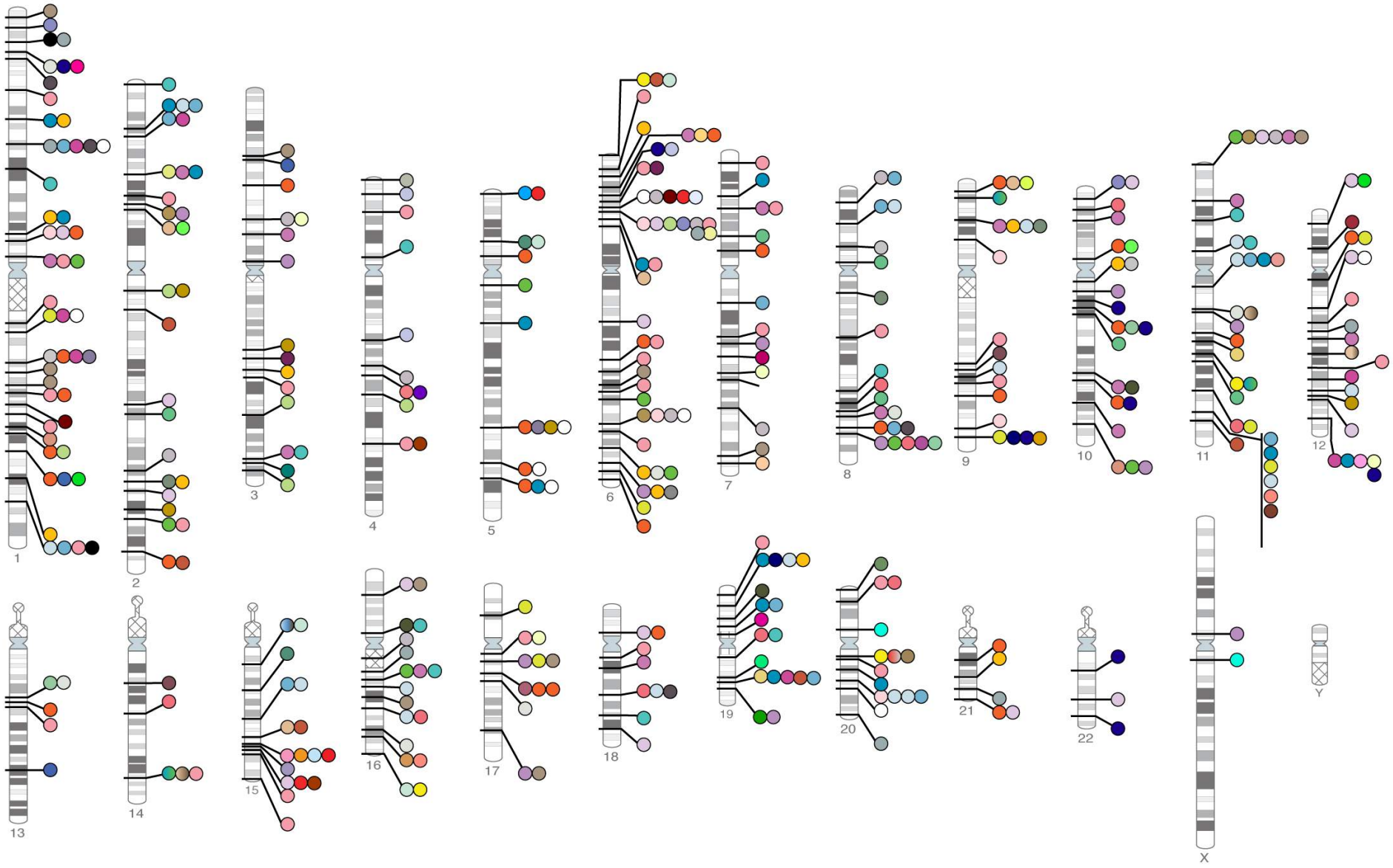
2008 3rd quarter



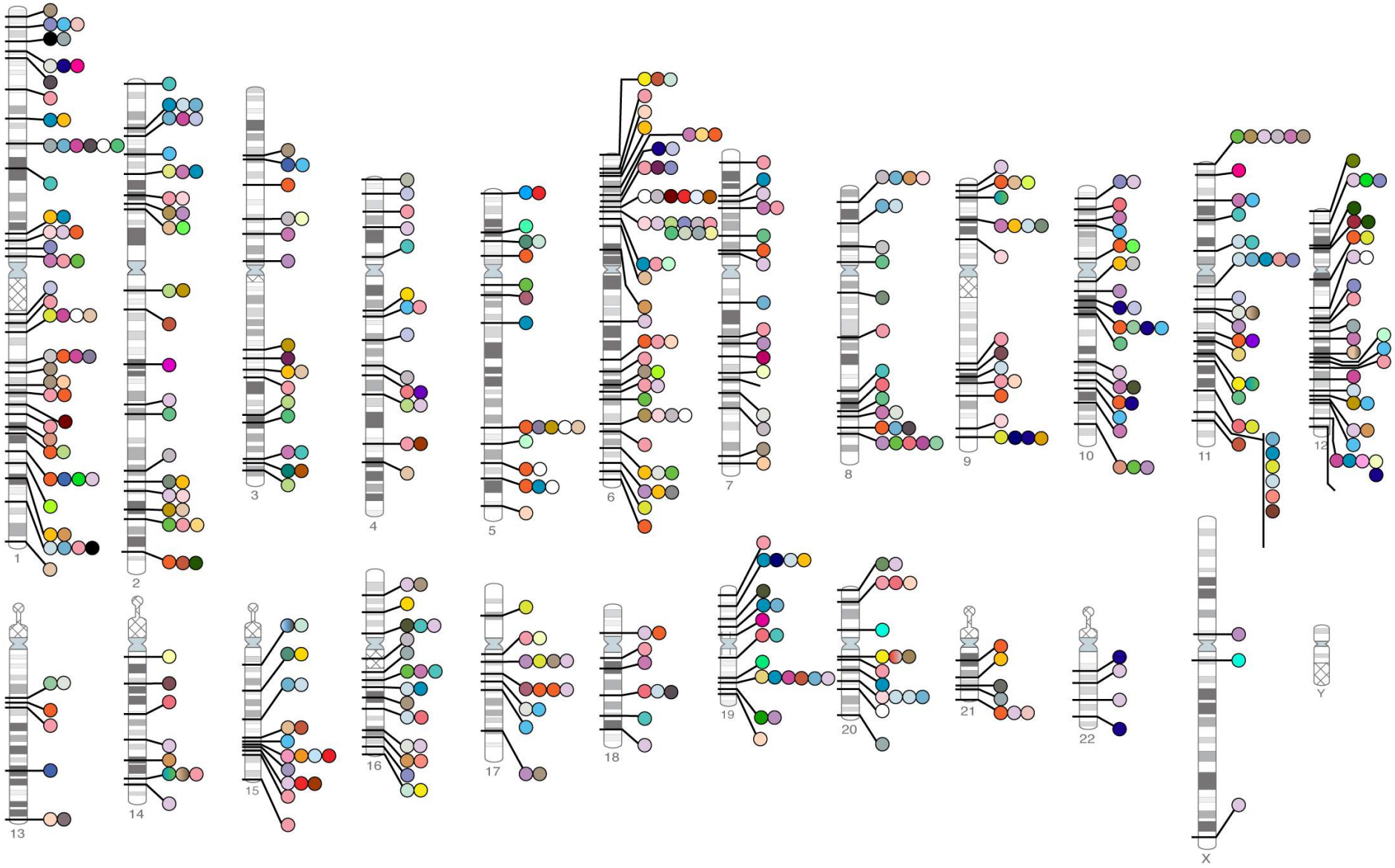
2008 4th quarter



2009 1st quarter



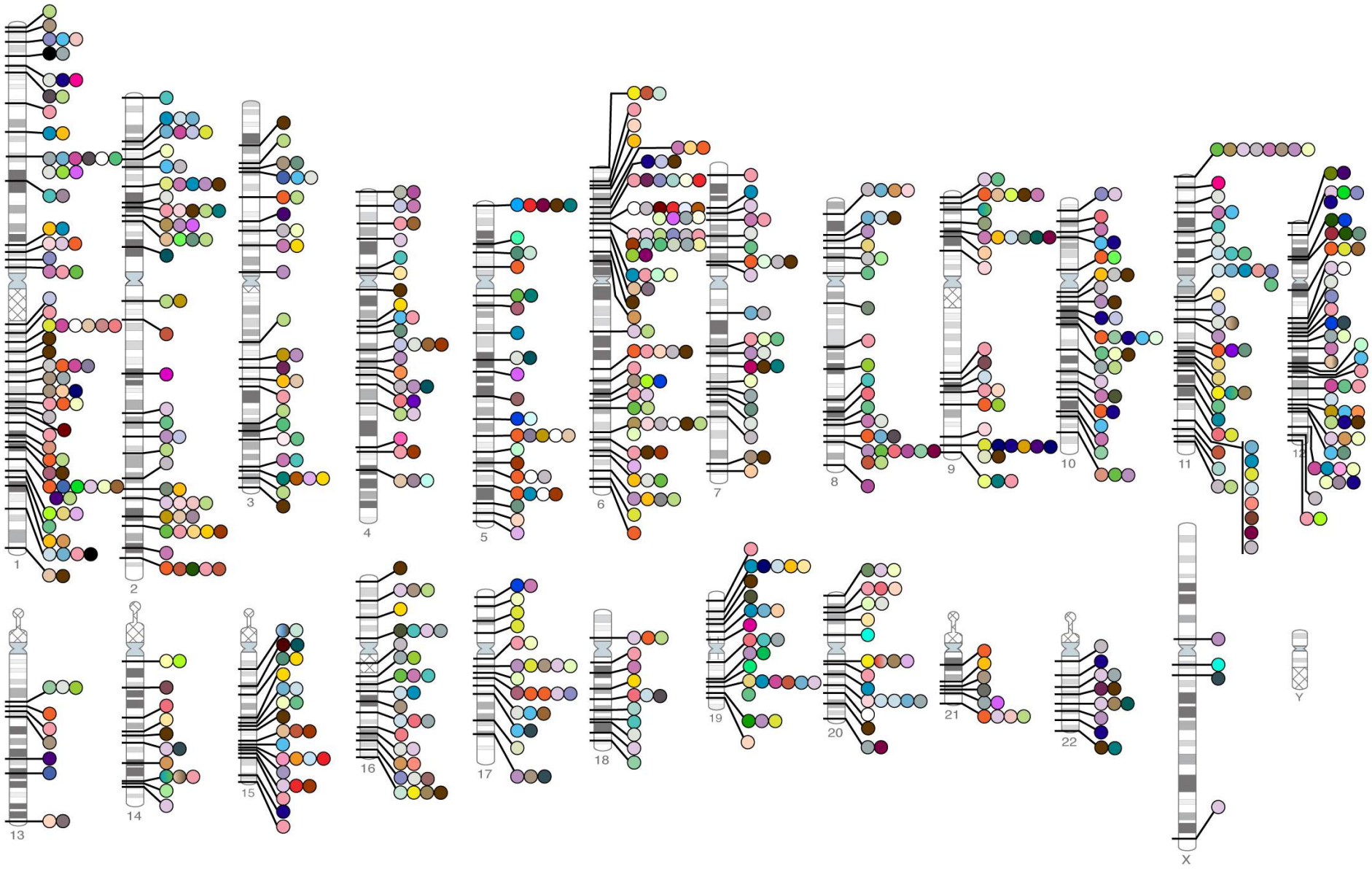
2009 2nd quarter



2009 3rd quarter

2009 4th quarter

2010 1st quarter



2010 2nd quarter

www.genome.gov/gwastudies/

A Changing Landscape: Shifting the Paradigm for Therapeutics Discovery

ANALYSIS

How to improve R&D productivity: the pharmaceutical industry's grand challenge

Steven M. Paul, Daniel S. Mytelka, Christopher T. Dunwiddie, Charles C. Persinger, Bernard H. Munos, Stacy R. Lindborg and Aaron L. Schacht

Abstract | The pharmaceutical industry is under growing pressure from a range of environmental issues, including major losses of revenue owing to patent expirations, increasingly cost-constrained healthcare systems and more demanding regulatory requirements. In our view, the key to tackling the challenges such issues pose to both the future viability of the pharmaceutical industry and advances in healthcare is to substantially increase the number and quality of innovative, cost-effective new medicines, without incurring unsustainable R&D costs. However, it is widely acknowledged that trends in industry R&D productivity have been moving in the opposite direction for a number of years. Here, we present a detailed analysis based on comprehensive, recent, industry-wide data to identify the relative contributions of each of the steps in the drug discovery and development process to overall R&D productivity. We then propose specific strategies that could have the most substantial impact in improving R&D productivity.

New molecular entity (NME) A medication containing an active ingredient that has not been previously approved for marketing in any form in the United States. NME is conventionally used to refer only to small-molecule drugs, but in this article we use the term as a shorthand to refer to both new chemical entities and new biologic entities.

Lilly Research Laboratories, Eli Lilly and Company, Lilly Corporate Center, Indianapolis, Indiana 46285, USA.
Correspondence to S.M.P.
e-mail:
smpaulmd@gmail.com
doi:10.1038/nrd3078
Published online
19 February 2010

The pharmaceutical industry is facing unprecedented challenges to its business model. Experienced observers and industry analysts have even predicted its imminent demise[1–3]. Over the past decade, serious concerns about the industry's integrity and transparency — for example, around drug safety and efficacy — have been raised, compromising the industry's image, and resulting in increased regulatory scrutiny[4,5]. This erosion in confidence in the industry and its products has resonated poorly with patients, health-care professionals, payers and shareholders. Indeed, the industry's price/earnings ratio, a measure of the current valuation of the industry, has decreased below that of the S&P 500 index and has remained more or less flat, as have share prices for the past 7 years.

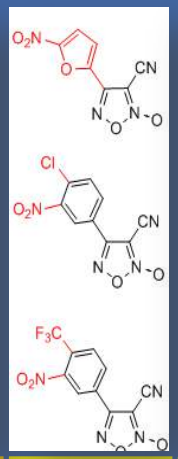
The industry's profitability and growth prospects are also under pressure as healthcare budgets become increasingly strained. Generic drugs, although clearly helping to keep drug prices in check, are currently approaching 70% of all prescriptions written in the United States[6]. Moreover, key patent expirations between 2010–2014 have been estimated to put more than US$209 billion in annual drug sales at risk, resulting in $113 billion of sales being lost to generic substitution[7]. Indeed, for every dollar lost in declining product revenues due to patent expirations by 2012, it has been estimated that large-cap pharmaceutical companies will only be able to replace on average 26 cents with new product revenues[8].

Simply stated, without a dramatic increase in R&D productivity, today's pharmaceutical industry cannot sustain sufficient innovation to replace the loss of revenues due to patent expirations for successful products. A key aspect of this problem is the decreasing number of truly innovative new medicines approved by the US Food and Drug Administration (FDA) and other major regulatory bodies around the world over the past 5 years (in which 50% fewer new molecular entities (NMEs) were approved compared with the previous 5 years)[9]. In 2007, for example, only 19 NMEs (including biologics) were approved by the FDA, the fewest number of NMEs approved since 1983, and the number rose only slightly to 21 in 2008. Of the 21 new drugs approved by the FDA in 2008, only 6 were developed by the 15 largest pharmaceutical companies and only 29% would be considered 'first-in-class' medicines. In 2009, 24 new drugs were approved, 10 of which were developed by large pharmaceutical companies and only 17% of which could be considered first-in-class. Some have argued that the number of approved 'mechanistically

Growing "environmental" pressures on pharmaceutical industry

- **Search for ways to increase # and quality of cost effective new medicines w/o unsustainable R&D risks and costs**
- **Traditional drug development paradigm → proposed alternative paradigm "quick win-fast fail"**

Steven M. Paul, et al. *Nature Reviews Drug Discovery* 2010



Disease	Target ID	Assay Dev.	HTS	Probe to Lead	Pre-Clinical	FDA IND	Ph. I	Ph. II	Ph. III	FDA Re-view

NIH Supported Basic Research

NIH Molecular Libraries Initiative

NIH TRND

NIH RAID

Pharma, Biotech, NIH Clinical Center, CTSAs

New NIH FDA Partnerships

New NIH-FDA Partnership

- NIH-FDA Joint Leadership Council
  - Meeting: October 28, 2010
- Joint Regulatory Science Initiative
  - 58 applications received
  - 4 projects funded
    - Diverse areas of research: Nanotechnology, heart-lung models for testing safety and efficacy, innovative clinical trial design, innovations in toxicological screening

The Problem of Rare and Neglected Diseases

- ~7,000 diseases affect humankind – but only a small fraction support commercial development of therapeutic agents
- Two types of neglected diseases:
  - Low prevalence, i.e., "rare" (<200,000 diagnosed in U.S.)
    - There are >6000 rare (orphan) diseases
    - Cumulative prevalence in U.S. ~ 25 – 30 million
    - Most are single gene diseases
    - <200 have any pharmacotherapy available
  - High prevalence but "neglected"
    - Occur chiefly among impoverished and marginalized populations in developing nations (treatment costs prohibitive)
    - Most are infectious

THE WALL STREET JOURNAL

NIH Takes On New Role in Fight Against Rare Diseases

By AMY DOCKSER MARCUS

A government program focusing on rare diseases has launched five pilot projects that are taking the National Institutes of Health in a new direction: developing drugs.

The NIH Therapeutics for Rare and Neglected Diseases (TRND) program was established last year with $24 million of funding. TRND will work together with scientists, advocates and others to do the required research and testing on drugs before a compound can be tried in humans in a clinical trial.

Promising new drugs discovered through basic research often flounder during this stage of the process, which is expensive, time-consuming and prone to failure.

The pilot projects, three of which were selected this spring, target drug development for sickle-cell disease; chronic lymphocytic leukemia; the fatal neurodegenerative disease Niemann-Pick Type C; the genetic muscle disorder hereditary inclusion body myopathy; and the parasitic diseases schistosomiasis and hookworm.

The projects, which are in various stages of development, were selected because they illustrate a range of problems and issues in the effort to drive drug development.

The problems include the high cost of studies in animals to determine if a drug is too toxic to give to humans, the challenges of meeting regulatory requirements before the Food and Drug Administration allows clinical trials to begin, and the sheer amount of coordination that goes into getting a new drug to market.

"Most of the problems we are addressing are not scientific problems," said Christopher P. Austin, director of the NIH program. "They are operational issues."

For most new drugs, these issues are handled by a pharmaceutical company. Rare diseases, which the NIH defines as diseases that affect fewer than 200,000 people in the U.S., represent a small market.

As a result of the small markets, many pharmaceutical companies are reluctant to take on the risks and expense of trying to develop new drugs for these conditions.

TRND is assigning project managers with experience in drug development to the pilot projects to help identify the necessary steps to get to clinical trials.

The sickle-cell disease project, for instance, involves AesRx LLC, a Newton, Mass., biotech company, and needs to complete toxicity studies and regulatory work to launch a trial.

"The alternative would be to raise outside capital from venture capitalists," said Steve Seiler, chief executive of AesRx. Mr. Seiler said at this stage of the project it would have been difficult to get the financing. "Once we have human clinical data, it is much different," he said.

With the muscle disorder hereditary inclusion body myopathy, William A. Gahl, clinical director of the National Human Genome Research Institute, said he had been unable to launch a clinical trial to test a promising compound for three years, before the project was taken up by the NIH program.

He said that before he could start a clinical trial with the compound, the FDA wanted toxicology studies conducted in animals, at an estimated cost of $500,000 to $1.5 million—money the small biotech company and patient advocacy group he is working with didn't have available. "We were about to give up," Dr. Gahl said.

TRND is getting toxicology studies done and has hired a regulatory consultant to help address any regulatory issues with the FDA to get permission to start a trial.

"TRND has smoothed the way enormously," said Dr. Gahl, who said he hopes to launch the trial this year.

In the case of Niemann-Pick Type C, TRND's Dr. Austin had previously worked with a group of scientists and parent funders called SOAR-NPC to screen already approved FDA compounds to see if they might be effective against the disease. A promising compound was identified, but extensive work will be required to determine whether the drug is safe and effective enough to be tried in patients, Dr. Austin said.

This kind of tinkering with a promising drug—testing it in animals and then going back to the lab for further tweaks—is both time-consuming and expensive, and can be out of the reach of a parent-funded organization like SOAR.

Last week, at the annual conference of the advocacy group Genetic Alliance, Dr. Austin, a parent funder in SOAR, and Steven U. Walkley, a professor at Albert Einstein College of Medicine who is a member of SOAR, gave a joint talk that addressed some of the pressures the NIH program faces.

"There is a lot of promise built in to TRND, but there is no guarantee that they will be able to make the science deliver a therapy for a disease," Dr. Walkley said.

Dr. Austin said he recognized that "we have to succeed with these pilot projects, and if we don't, the program won't continue."

Half of the program's budget this year is going to fund the five pilot projects, he said. The other half of the budget is going to setting up TRND. Dr. Austin added that the program plans to solicit additional projects in September.

NIH Therapeutics for Rare and Neglected Diseases (TRND) Program

Creating a Drug Development Pipeline at NIH

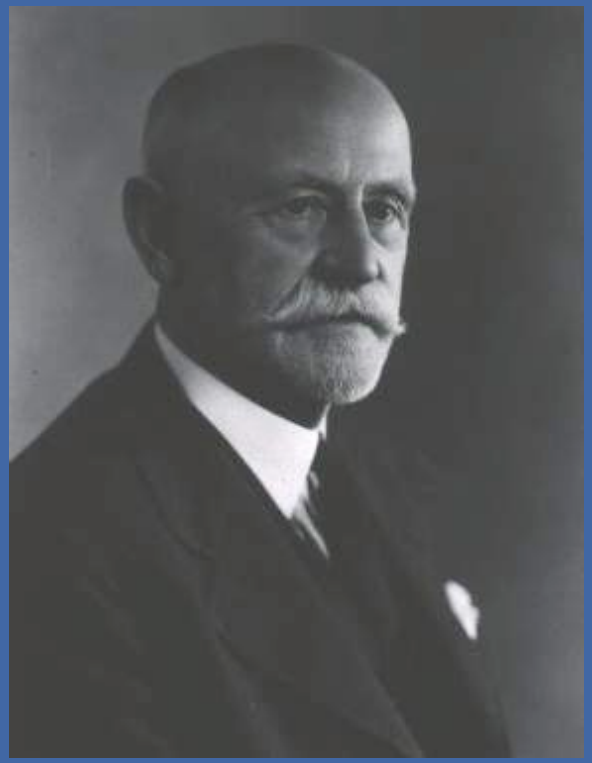
- Congressionally-mandated effort to speed development of new drugs for rare and neglected diseases
- Collaboration between NIH-intramural and extramural labs with appropriate expertise
- Projects will:
  - Enter TRND at a variety of stages of development
  - Be taken to phase needed for external organization to adopt for clinical development
  - Not duplicate PhRMA projects
- TRND will encourage creative partnerships; novel approaches to intellectual property

TRND Pilot Projects

Chosen to establish processes in advance of solicitation, with diversity of project stage, type of disease and collaborators

Disease	Type	Pathology	Collaborators	Compound type	Stage
Schistosomiasis, Hookworm	Neglected	Infectious parasite	Extramural	NME	Early (lead optimization)
NPC	Rare	CNS, liver/ spleen	Disease Fnd, Extramural, Intramural	Repurposed approved drug	Mid-stage
HIBM	Rare	Muscle	Biotech, Intramural	Intermediate replacement	Pre-IND
Sickle Cell Disease	Rare	Blood	Nonprofit, Intramural, Extramural	NME	Mid-stage
Chronic Lymphocytic Leukemia	Rare	Cancer	Disease Fnd, Extramural	Repurposed approved drug	Pre-IND

Centenary: 1910 Discovery of Sickle Cell Anemia

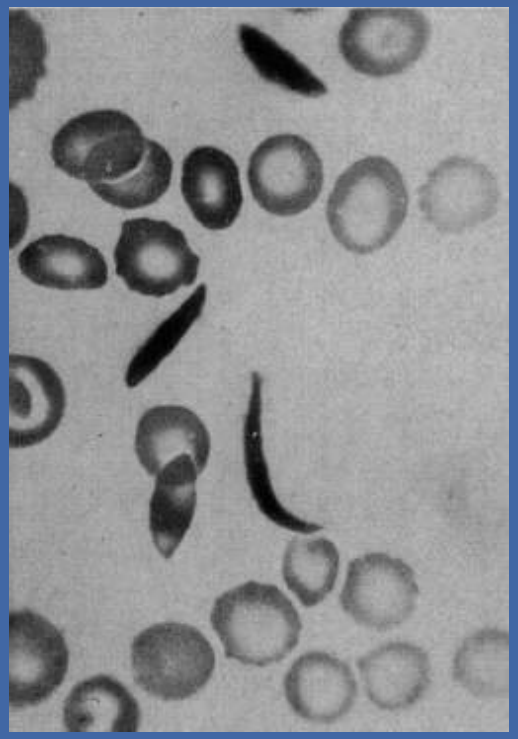


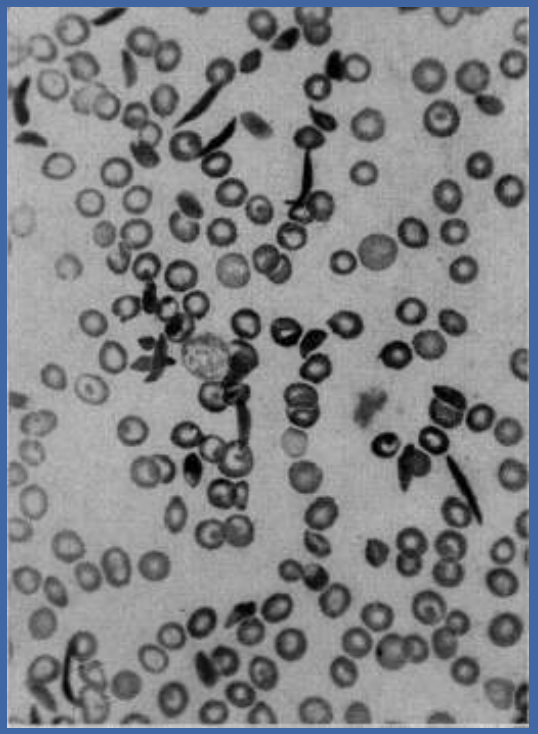
James B. Herrick

Archives of Internal Medicine (1910) vol. 5

PECULIAR ELONGATED AND SICKLE-SHAPED RED BLOOD CORPUSCLES IN A CASE OF SEVERE ANEMIA

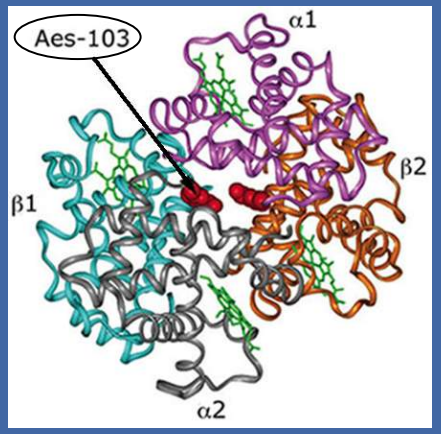
JAMES B. HERRICK, M.D.

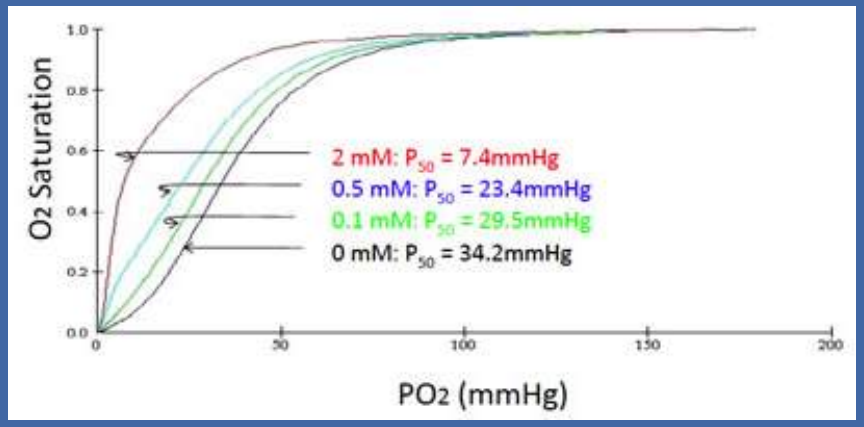


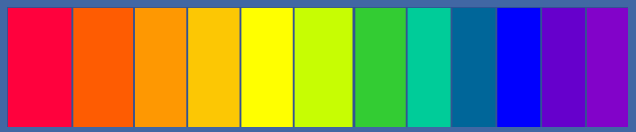


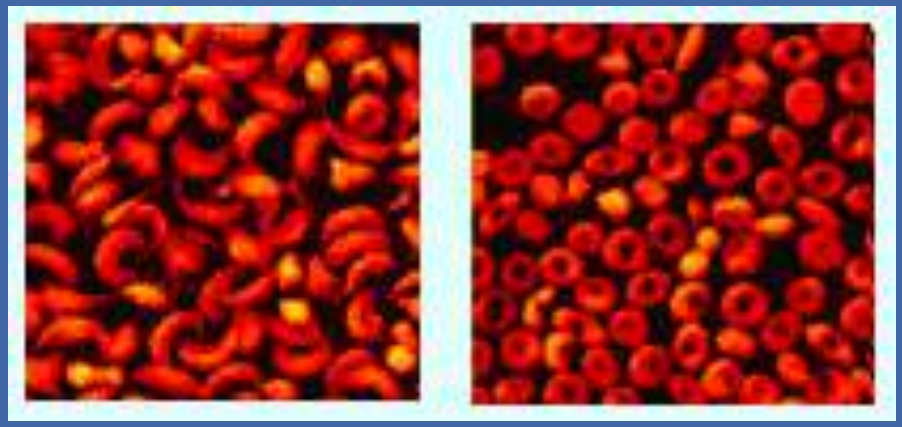
Therapeutics for Rare and Neglected Diseases (TRND): Pilot Project on SCD

- Collaborator: AesRx, Boston-based biotech
- Compound: 5-hydroxymethyl-2-furfural (Aes-103)
  - Binds to sickle hemoglobin and increases its oxygen affinity
- Stage of project: late preclinical





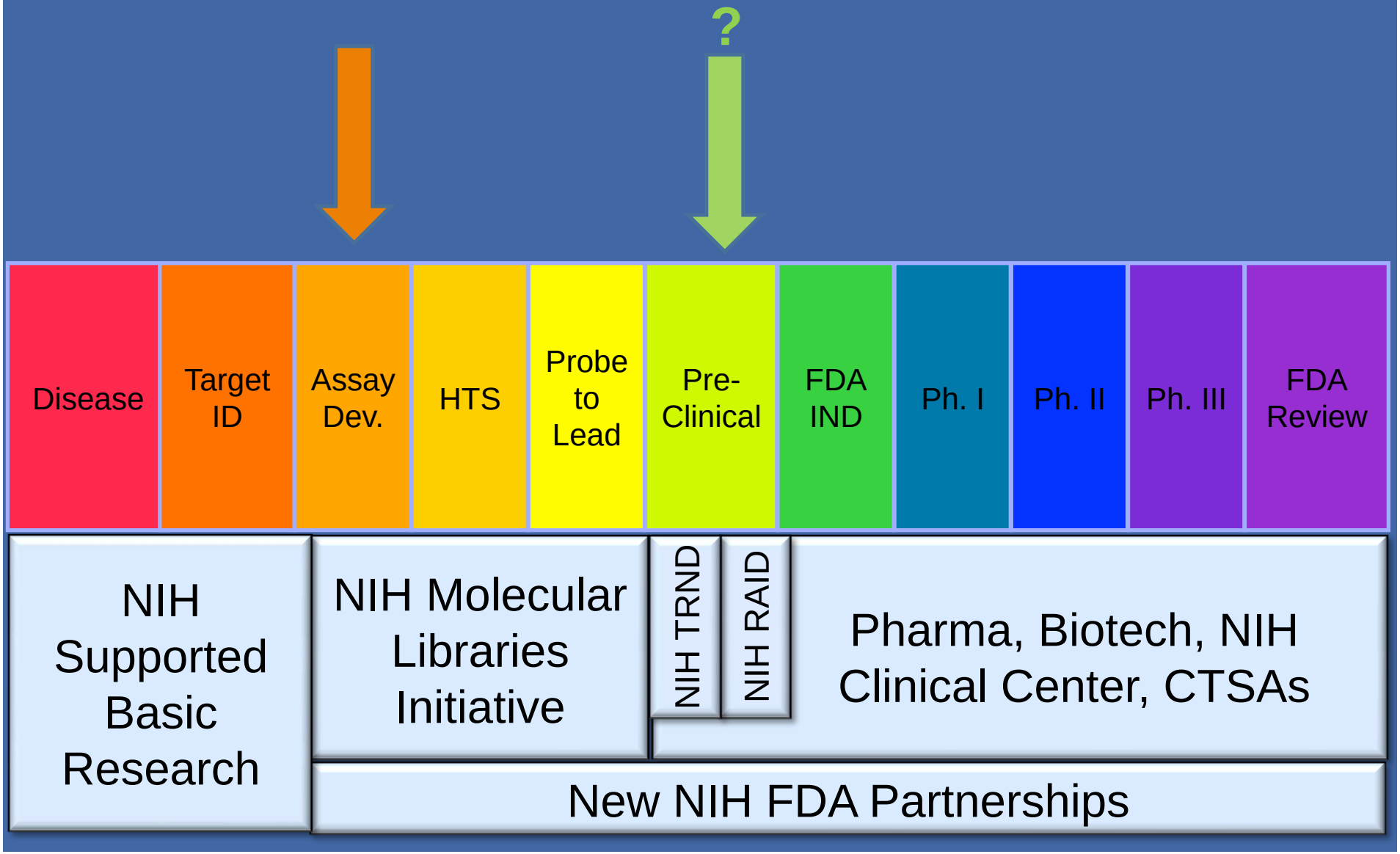




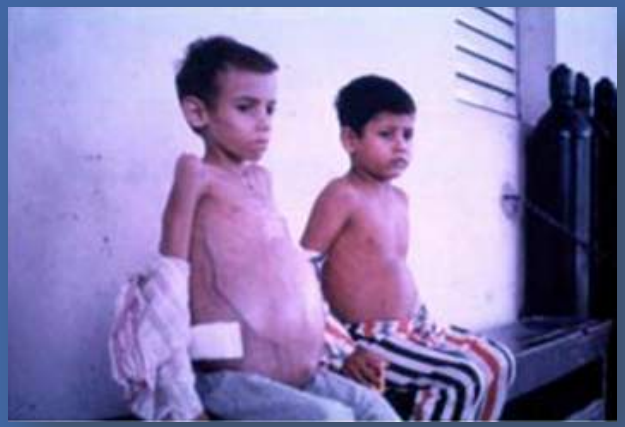
Aes-103 0mM
almost all cells underwent sickling

Aes-103 5mM
almost no sickled cells except some ISCs

The New Paradigm for Translation:
Sickle Cell Anemia

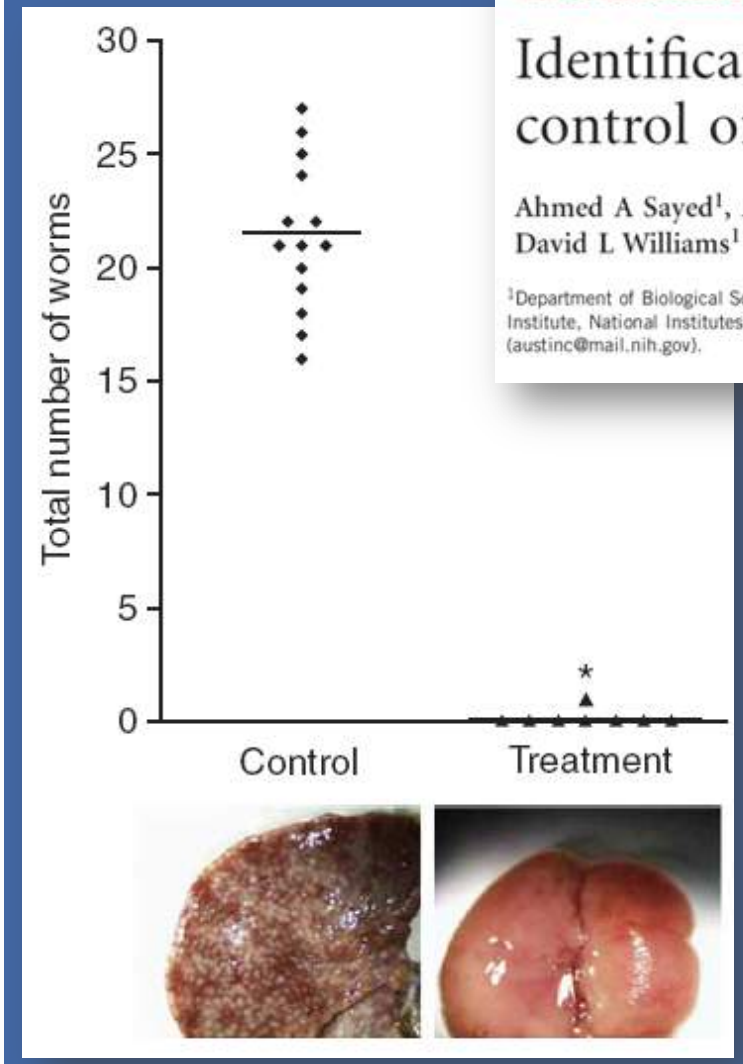


Therapeutics for Rare and Neglected Diseases (TRND)



- Schistosomiasis is a parasitic disease that affects 250 million people, mostly in Africa
- Currently controlled by praziquantel (PZQ)
  - Cure rates not 100%
  - Evidence that schistosomes could become resistant to PZQ → search for new treatment options
- NIH grantee Dr. David Williams
  - Identified potential new target
  - Collaborated with TRND to identify targeted chemicals for new drugs

Developing Drugs for Schistosomiasis



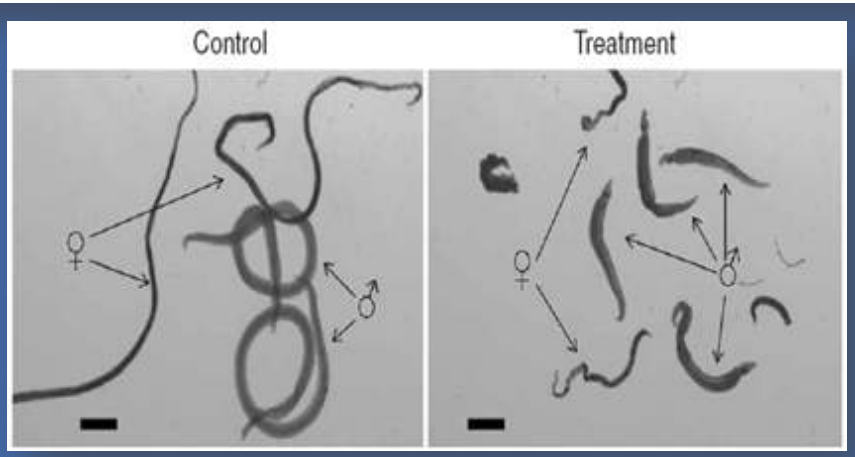
nature medicine

VOLUME 14 | NUMBER 4 | APRIL 2008

Identification of oxadiazoles as new drug leads for the control of schistosomiasis

Ahmed A Sayed[1], Anton Simeonov[2], Craig J Thomas[2], James Inglese[2], Christopher P Austin[2] & David L Williams[1]

[1]Department of Biological Sciences, Illinois State University, Normal, Illinois 61790, USA. [2]NIH Chemical Genomics Center, National Human Genome Research Institute, National Institutes of Health, Bethesda, Maryland 20892-3370, USA. Correspondence should be addressed to D.L.W. (dlwilli@ilstu.edu) or C.P.A. (austinc@mail.nih.gov).



Ex vivo worm killing

Livers of treated mice


THERAPEUTICS FOR RARE & NEGLECTED DISEASES
Bridging the Gaps in Discovery and Development of Therapeutics for Rare and Neglected Diseases
Posts
Comments
http://trnd.nih.gov/
HOME
ABOUT TRND
RESOURCES
APPLY TO TRND
CURRENT PROJECTS
RELATED PROGRAMS AT NIH
FAQ
CONTACT US
THERAPEUTICS FOR RARE & NEGLECTED DISEASES
proposalCENTRAL
FAQ || Customer Service || Help || Login
Not Logged In
Welcome to proposalCENTRAL, an e-grantmaking website shared by many government, non-profit, and private grant-making organizations. If you have any questions about registration on our site, how to apply for a particular grant, or anything else we can help you with, please contact our customer support hotline at 800 875 2562 (Toll-free U.S. and Canada), +1 703 964 5840 (Direct Dial International) or by email at pcsupport@altum.com
First Time Users
Click the button below to create a proposalCENTRAL user account
REGISTER
Applicant Login
Username:
Password:
LOG IN
Forgot your password?
Peer Reviewer Login
Click here
to access the online review
Grant Opportunities - Deadlines displayed in U.S. Eastern Time
NIH - Therapeutics for Rare and Neglected Diseases
Filter List by GrantMaker
If you would like to check for a specific grant making organization, you may utilize the drop-down list above. To see all available opportunities, select "Show All"
Grant Maker
Programs (Click for Guidelines)
LOI Deadline
Proposal Deadline
Contact Information
FAQ
NIH - Therapeutics for Rare and Neglected Diseases
NIH - Therapeutics for Rare and Neglected Diseases
12/6/2010 5:00:00 PM
-
The application deadline for the first cycle of the program is December 6th, 2010.
Submitted research proposals will be reviewed for scientific merit and technical feasibility, as well as program balance and availability of resources. Successful applicants will partner with TRND to create and implement a therapeutic project plan. No grant funds are awarded for this program.
Applications to the TRND Program are evaluated for (criteria and weight of criteria):
Application Instructions
Project Management
Selection Process
IP & Data Access
Resubmissions
Current Projects
Related Programs at NIH
FAQ
Contact Us

Health Care Reform

H. R. 3590

One Hundred Eleventh Congress
of the
United States of America

AT THE SECOND SESSION

Begun and held at the City of Washington on Tuesday, the fifth day of January, two thousand and ten

An Act

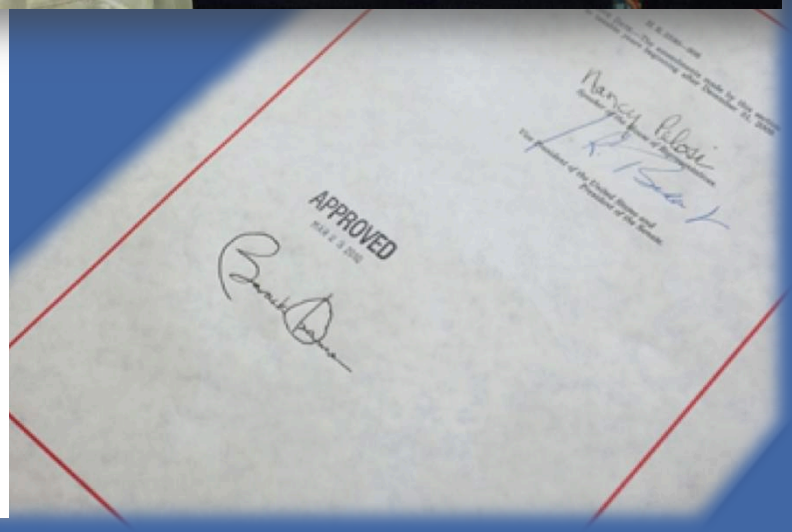
Entitled The Patient Protection and Affordable Care Act.

Be it enacted by the Senate and House of Representativ the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; TABLE OF CONTENTS.

(a) SHORT TITLE.—This Act may be cited as the "Patient Protection and Affordable Care Act".

(b) TABLE OF CONTENTS.—The table of contents of this Act is as follows:



A Bold New Paradigm: Cures Acceleration Network (CAN)

- Established by the Affordable Care Act
- Authorized $500 M (but not appropriated) for FY10
- House and Senate markups for FY11 include $50M

124 STAT. 978 PUBLIC LAW 111–148—MAR. 23, 2010

Cures Acceleration Network Act of 2009. 42 USC 201 note.

SEC. 10409. CURES ACCELERATION NETWORK.

(a) SHORT TITLE.—This section may be cited as the "Cures Acceleration Network Act of 2009".

(b) REQUIREMENT FOR THE DIRECTOR OF NIH TO ESTABLISH A CURES ACCELERATION NETWORK.—Section 402(b) of the Public Health Service Act (42 U.S.C. 282(b)) is amended—

"(c) FUNCTIONS.—The functions of the CAN are to—

"(1) conduct and support revolutionary advances in basic research, translating scientific discoveries from bench to bedside;

"(2) award grants and contracts to eligible entities to accelerate the development of high need cures;

"(3) provide the resources necessary for government agencies, independent investigators, research organizations, bio-

reduce the barriers between laboratory discoveries and

ntatives from academia,
ocacy groups

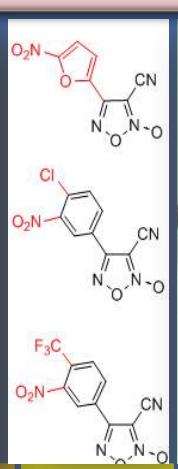




Cures Acceleration Network: Funding Mechanisms

- Grant Awards:
  - Up to $15 million per award per fiscal year
- Flexible Research Awards:
  - DARPA-like authority
  - Not to exceed 20% of total appropriated funds in any fiscal year
- Partnership Awards:
  - $1 match for every $3 from NIH
  - Up to $15 million per award per fiscal year

Cures Acceleration Network



Disease	Target ID	Assay Dev.	HTS	Probe to Lead	Pre-Clinical	FDA IND	Ph. 0	Ph. I	Ph. II	Ph. III	FDA Re-view

NIH Supported Basic Research

NIH Molecular Libraries Initiative

NIH TRND

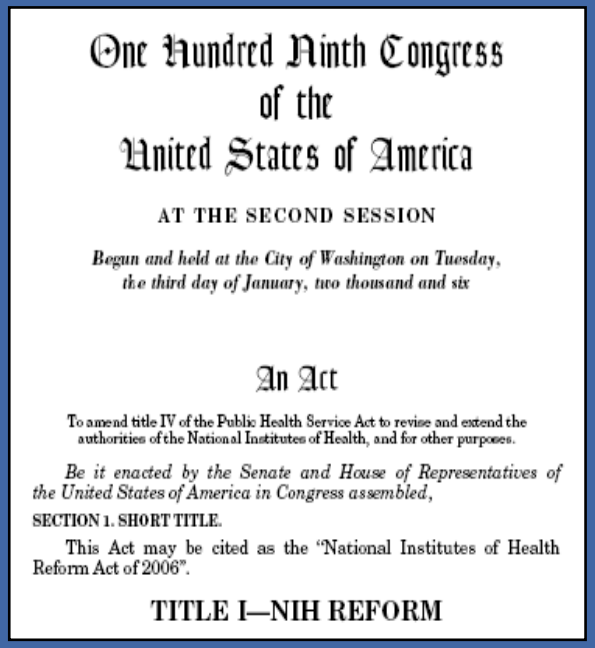
NIH RAID

Pharma, Biotech, NIH Clinical Center, CTSAs

New NIH FDA Partnerships

The NIH Scientific Management Review Board (SMRB)

- 2006 NIH Reform Act
  - Reauthorizes, reaffirms mission of NIH
  - Authorizes new process to facilitate *trans*-NIH research
  - Creates the SMRB
- SMRB
  - Advises NIH Director
  - Conducts comprehensive organizational reviews of NIH; reports findings to DHHS and Congress
  - 21 members:
    - 9 Institute and Center Directors
    - 12 external research and management experts



One Hundred Ninth Congress
of the
United States of America

AT THE SECOND SESSION

Begun and held at the City of Washington on Tuesday, the third day of January, two thousand and six

An Act

To amend title IV of the Public Health Service Act to revise and extend the authorities of the National Institutes of Health, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE.

This Act may be cited as the "National Institutes of Health Reform Act of 2006".

TITLE I—NIH REFORM

Charge to the SMRB: Translational Medicine and Therapeutics

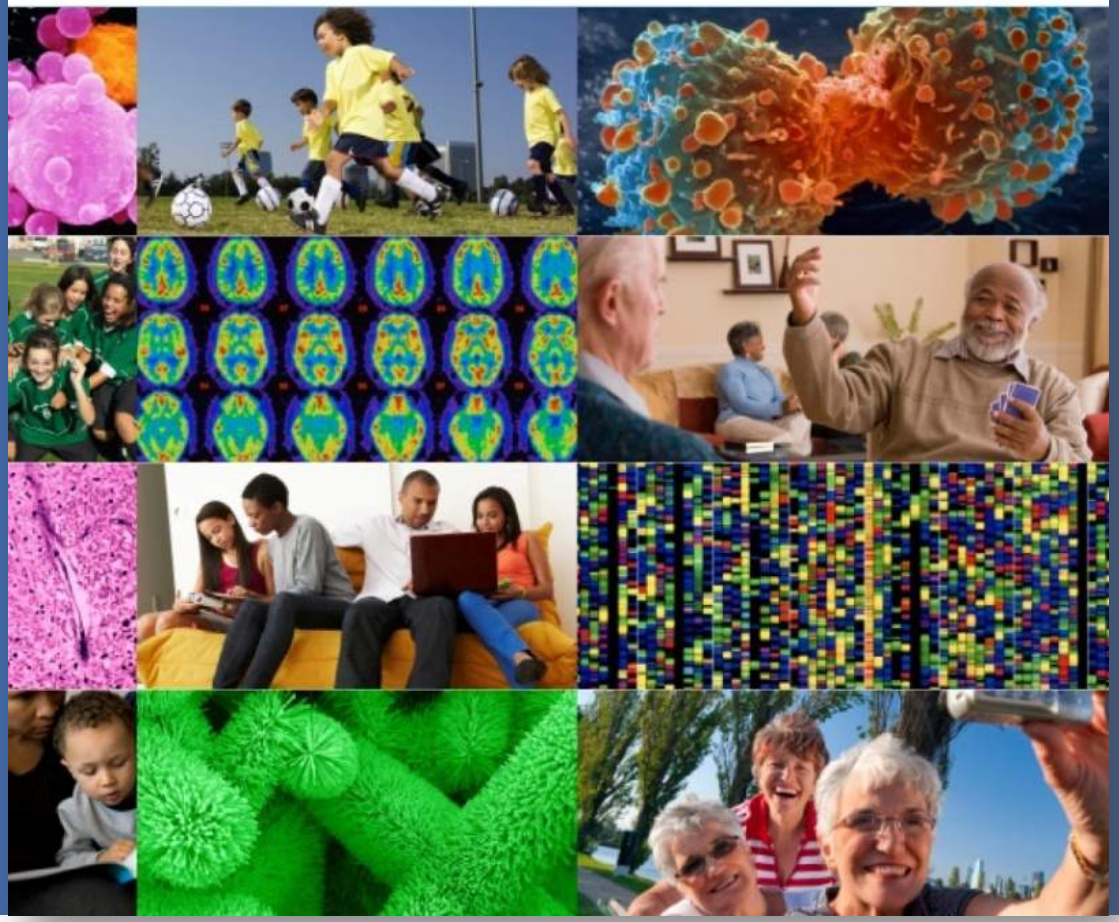
- Identify the attributes, activities, and functional capabilities of an effective translational medicine program for advancing therapeutics development
- Broadly assess, from a high-level view, the NIH landscape for extant programs, networks, and centers for inclusion in this network and recommend their optimal organization

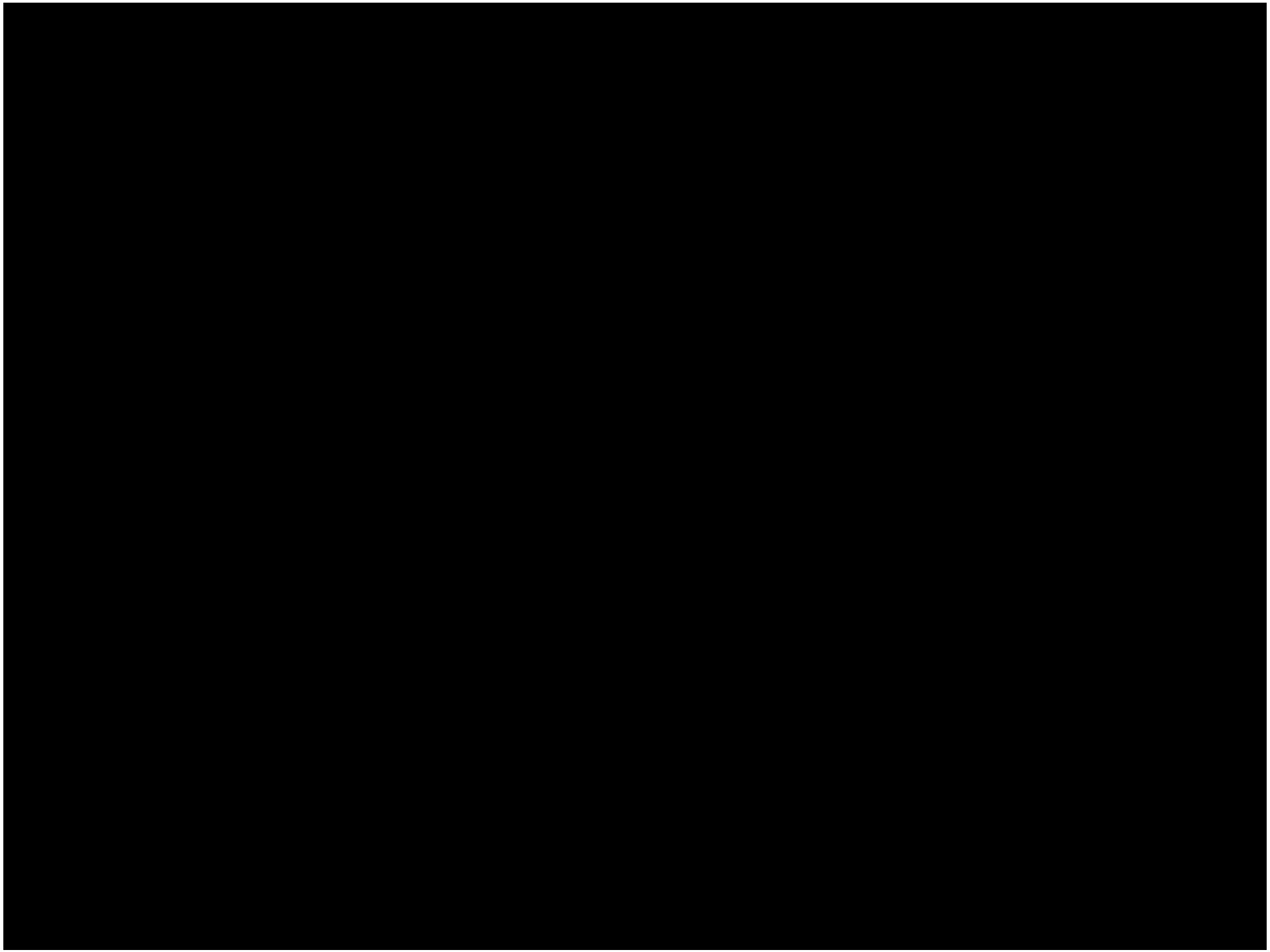
To know what has to be done, then do it, comprises the whole philosophy of practical life.

Sir William Osler

NIH…
Turning Discovery Into Health

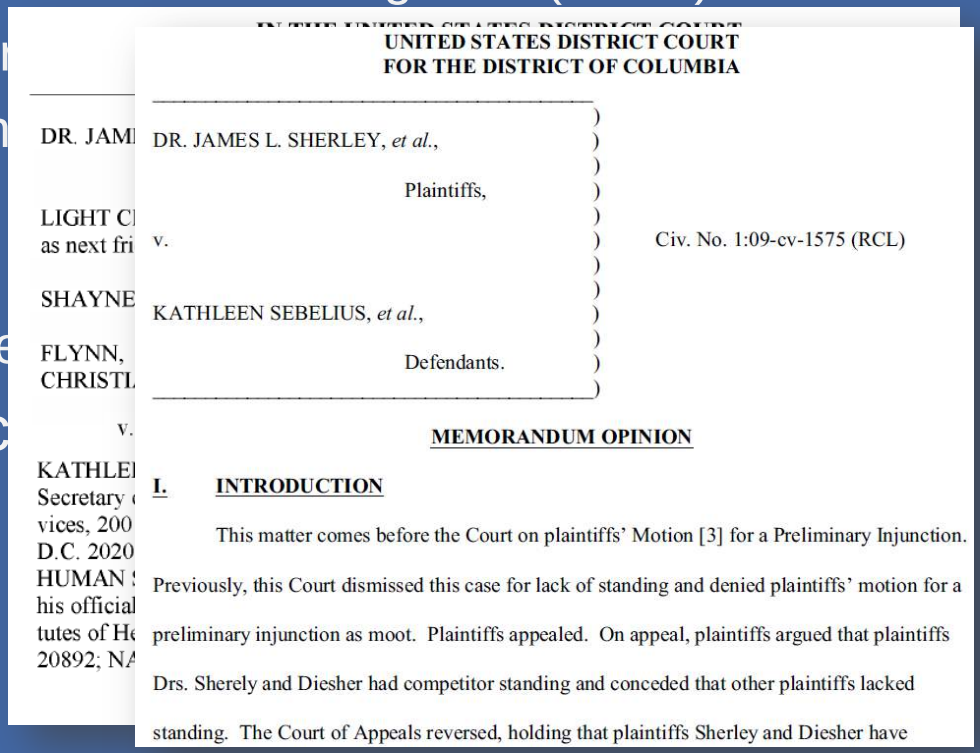
U.S. Department of Health & Human Services
National Institutes of Health





Legal Challenges to Human Embryonic Stem Cell Research

- 8/23/10: Judge Lamberth issues preliminary injunction blocking federal funding for human embryonic stem cell (hESC) research
- Injunction halted:
  - Continuation of funds for 24 extramural grants ($54M)
  - 8 intramural research gr
  - Funding for 20 promisin applications ($24M)
  - Review of new lines
  - Peer review of hESC re
- Created upheaval, unc



UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLUMBIA

DR. JAMES L. SHERLEY, *et al.*,

Plaintiffs,

v.

KATHLEEN SEBELIUS, *et al.*,

Defendants.

Civ. No. 1:09-cv-1575 (RCL)

MEMORANDUM OPINION

I. INTRODUCTION

This matter comes before the Court on plaintiffs' Motion [3] for a Preliminary Injunction. Previously, this Court dismissed this case for lack of standing and denied plaintiffs' motion for a preliminary injunction as moot. Plaintiffs appealed. On appeal, plaintiffs argued that plaintiffs Drs. Sherely and Diesher had competitor standing and conceded that other plaintiffs lacked standing. The Court of Appeals reversed, holding that plaintiffs Sherley and Diesher have

Legal Challenges to Human Embryonic Stem Cell Research: *Current Status*

- 9/9/10: U.S. Court of Appeals for the DC Circuit issues a temporary stay of the preliminary injunction
  - NIH resumes hESC activities
- 9/16/10: Hearing, Senate Subcommittee on Labor, HHS, Education Appropriations
  - 9/28/10: Court of Appeals
    appeal of preliminary inju
  - Appeal to be expedited
  - Legal proceedings contin
    In both courts…

Opportunity #3: Putting science to work for the benefit of health care

Comparative Effectiveness Research at NIH

- Prev
- Diag
- Trea
- Beha
- Heal
- Spec

COMMENTARY JAMA, June 2, 2010—Vol 303, No. 21

Using Science to Improve the Nation's Health System

NIH's Commitment to Comparative Effectiveness Research

Michael S. Lauer, MD
Francis S. Collins, MD, PhD

SINCE BARACK OBAMA BECAME THE 44TH PRESIDENT OF the United States in January 2009, nearly all sectors of society have engaged in intense discussions about the best ways to stimulate the nation's economy and reform the US health care system. The National Institutes of Health (NIH) has been—and will continue to be—in the middle of such conversations, emphasizing the power of biomedical research to show what health interventions yield the greatest benefits.

Health reform and economic concerns may have moved comparative effectiveness research (CER) from relative obscurity into the public policy spotlight. However, CER is not a new concept to NIH, which has long recognized and supported the value of CER for providing evidence-based, well-validated approaches to medical care.

For instance, nearly 2 decades ago, NIH-supported researchers published results of the Cardiac Arrhythmia Suppression

gressional Budget Office cited NIH's comparative effectiveness studies as prime examples of government-sponsored research that could directly inform clinical practice and public policy.[3]

Today, the biomedical research community has an unprecedented opportunity to build on this foundation. The United States urgently needs the evidence to design a system that offers health interventions that are both beneficial and cost-effective. The American Recovery and Reinvestment Act (ARRA) of 2009 appropriated $1.1 billion for CER, with $400 million of that funding allocated to NIH and the remainder to AHRQ and the Office of the Secretary of the Department of Health and Human Services.

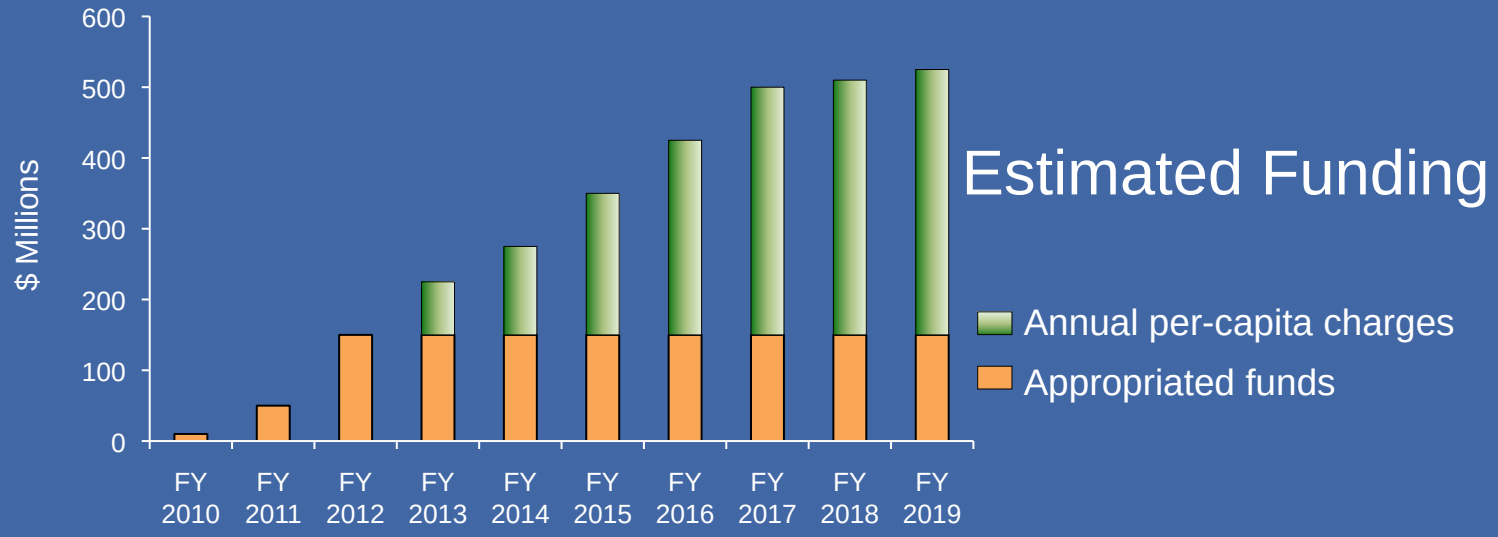
While the ARRA-mandated report of the Federal Coordinating Council acknowledged that NIH historically has been the largest source of federal support for CER,[4] NIH has important partners in other government agencies, particularly AHRQ. NIH generally contributes to CER by supporting primary research, including both observational studies and randomized control trials. AHRQ's strength is in conducting secondary comprehensive meta-analyses of multiple studies, seeking to identify overarching conclusions and

As of 2009, NIH conducted research in

88 of 100 IOM CER priority areas

Health Care Legislation and CER:
Patient-Centered Outcomes Research Institute (PCORI)

- Non-profit corporation to organize, fund CER
  - Board of Directors announced on September 23, 2010
  - Includes Directors of NIH, AHRQ
  - Standing methodology committee includes NIH, AHRQ
- Charged to identify
  - National research priorities
  - New clinical evidence; evidentiary gaps
  - Relevance; standards; economic correlates



Health Care Legislation and CER:
Patient-Centered Outcomes Research Institute (PCORI)

- Non-profit corporation to organize, fund CER
  - Board of Directors announced on September 23, 2010
    - A. Eugene Washington, MD, MSc will be Chairman
  - Includes Directors of NIH, AHRQ
  - Standing methodology committee includes NIH, AHRQ

H. R. 3590

Subtitle D—Patient-Centered Outcomes Research

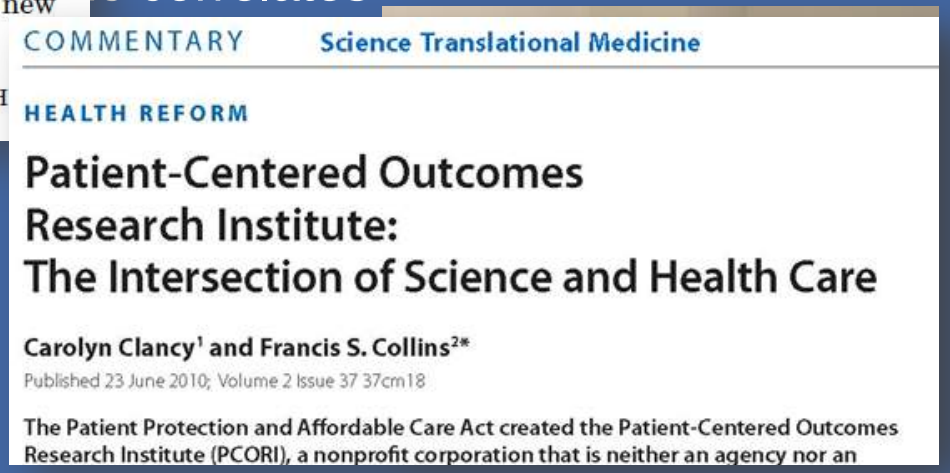
SEC. 6301. PATIENT-CENTERED OUTCOMES RESEARCH.

(a) IN GENERAL.—Title XI of the Social Security Act (42 U.S.C. 1301 et seq.) is amended by adding at the end the following new part:

"PART D—COMPARATIVE CLINICAL EFFECTIVENESS RESEARCH

ary gaps

ic correlates


COMMENTARY Science Translational Medicine

HEALTH REFORM

Patient-Centered Outcomes Research Institute: The Intersection of Science and Health Care

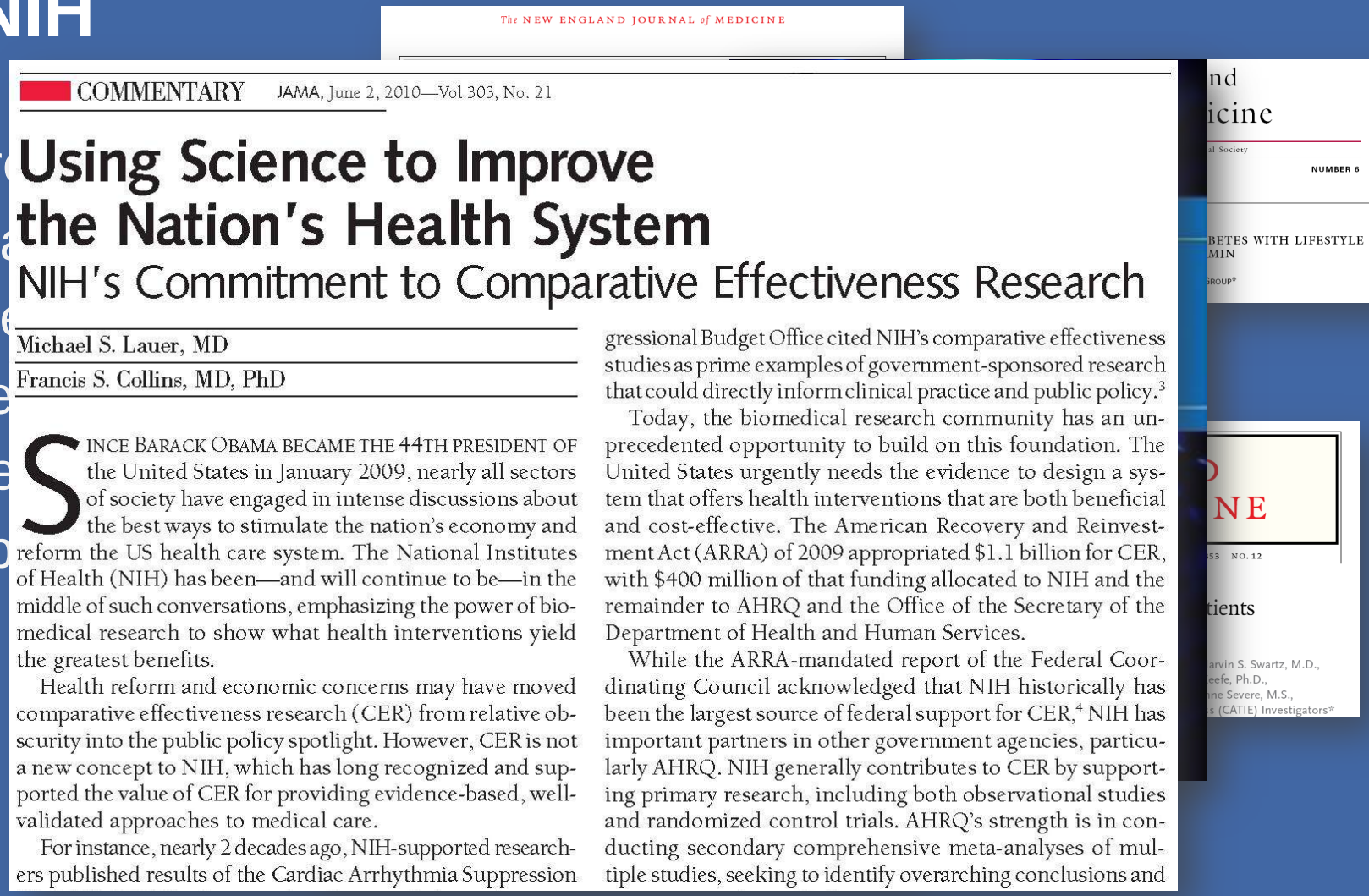
Carolyn Clancy[1] and Francis S. Collins[2]*

Published 23 June 2010; Volume 2 Issue 37 37cm18

The Patient Protection and Affordable Care Act created the Patient-Centered Outcomes Research Institute (PCORI), a nonprofit corporation that is neither an agency nor an

Comparative Effectiveness Research at NIH

- Pr
- Di
- Tr
- Be
- He
- Sp



The NEW ENGLAND JOURNAL of MEDICINE

COMMENTARY JAMA, June 2, 2010—Vol 303, No. 21

Using Science to Improve the Nation's Health System

NIH's Commitment to Comparative Effectiveness Research

Michael S. Lauer, MD
Francis S. Collins, MD, PhD

SINCE BARACK OBAMA BECAME THE 44TH PRESIDENT OF the United States in January 2009, nearly all sectors of society have engaged in intense discussions about the best ways to stimulate the nation's economy and reform the US health care system. The National Institutes of Health (NIH) has been—and will continue to be—in the middle of such conversations, emphasizing the power of biomedical research to show what health interventions yield the greatest benefits.

Health reform and economic concerns may have moved comparative effectiveness research (CER) from relative obscurity into the public policy spotlight. However, CER is not a new concept to NIH, which has long recognized and supported the value of CER for providing evidence-based, well-validated approaches to medical care.

For instance, nearly 2 decades ago, NIH-supported researchers published results of the Cardiac Arrhythmia Suppression

gressional Budget Office cited NIH's comparative effectiveness studies as prime examples of government-sponsored research that could directly inform clinical practice and public policy.[3]

Today, the biomedical research community has an unprecedented opportunity to build on this foundation. The United States urgently needs the evidence to design a system that offers health interventions that are both beneficial and cost-effective. The American Recovery and Reinvestment Act (ARRA) of 2009 appropriated $1.1 billion for CER, with $400 million of that funding allocated to NIH and the remainder to AHRQ and the Office of the Secretary of the Department of Health and Human Services.

While the ARRA-mandated report of the Federal Coordinating Council acknowledged that NIH historically has been the largest source of federal support for CER,[4] NIH has important partners in other government agencies, particularly AHRQ. NIH generally contributes to CER by supporting primary research, including both observational studies and randomized control trials. AHRQ's strength is in conducting secondary comprehensive meta-analyses of multiple studies, seeking to identify overarching conclusions and

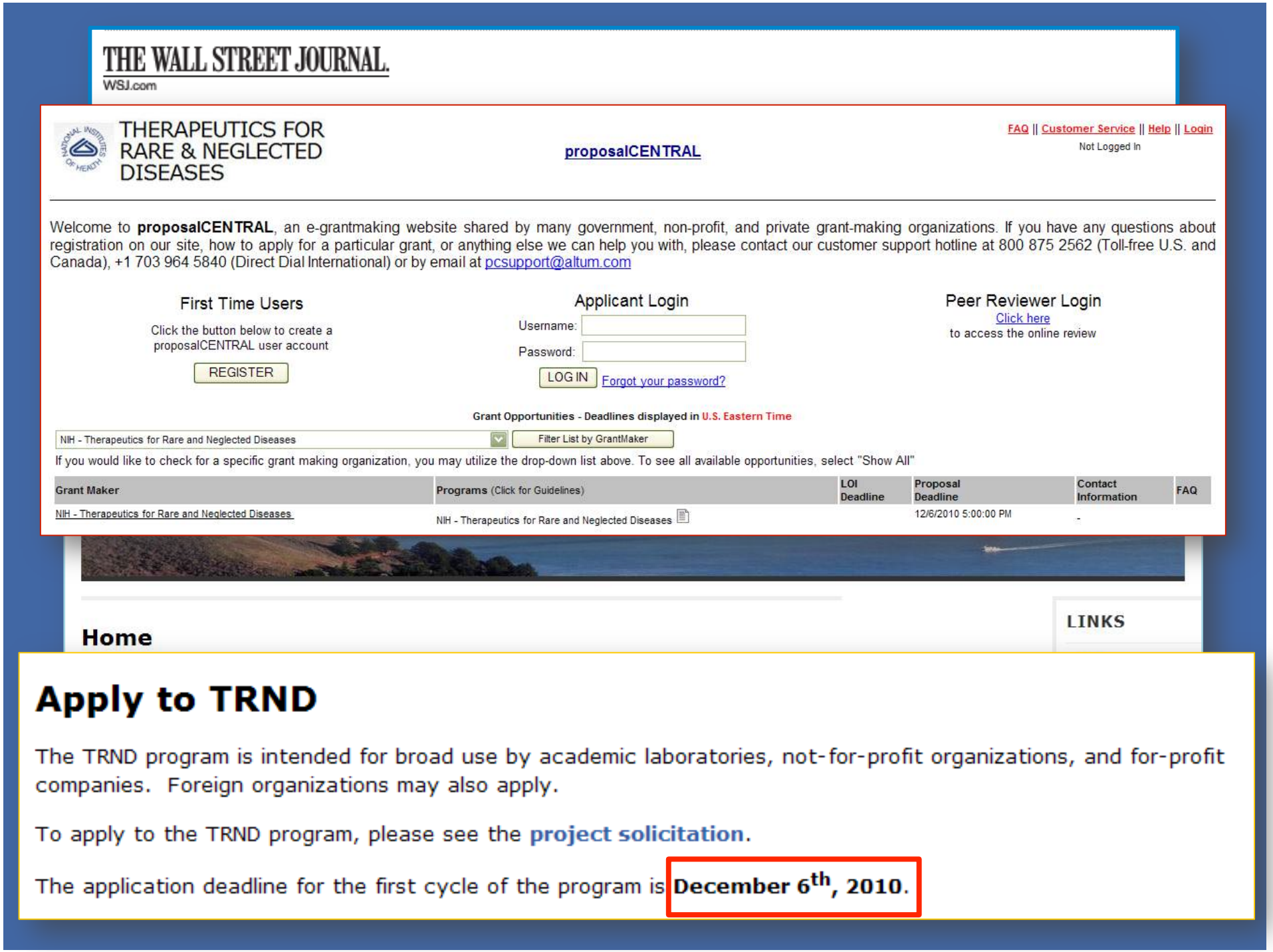
NUMBER 6

BETES WITH LIFESTYLE

NO. 12

tients

NIH conducts research in 88 of 100 IOM CER priority areas



Apply to TRND

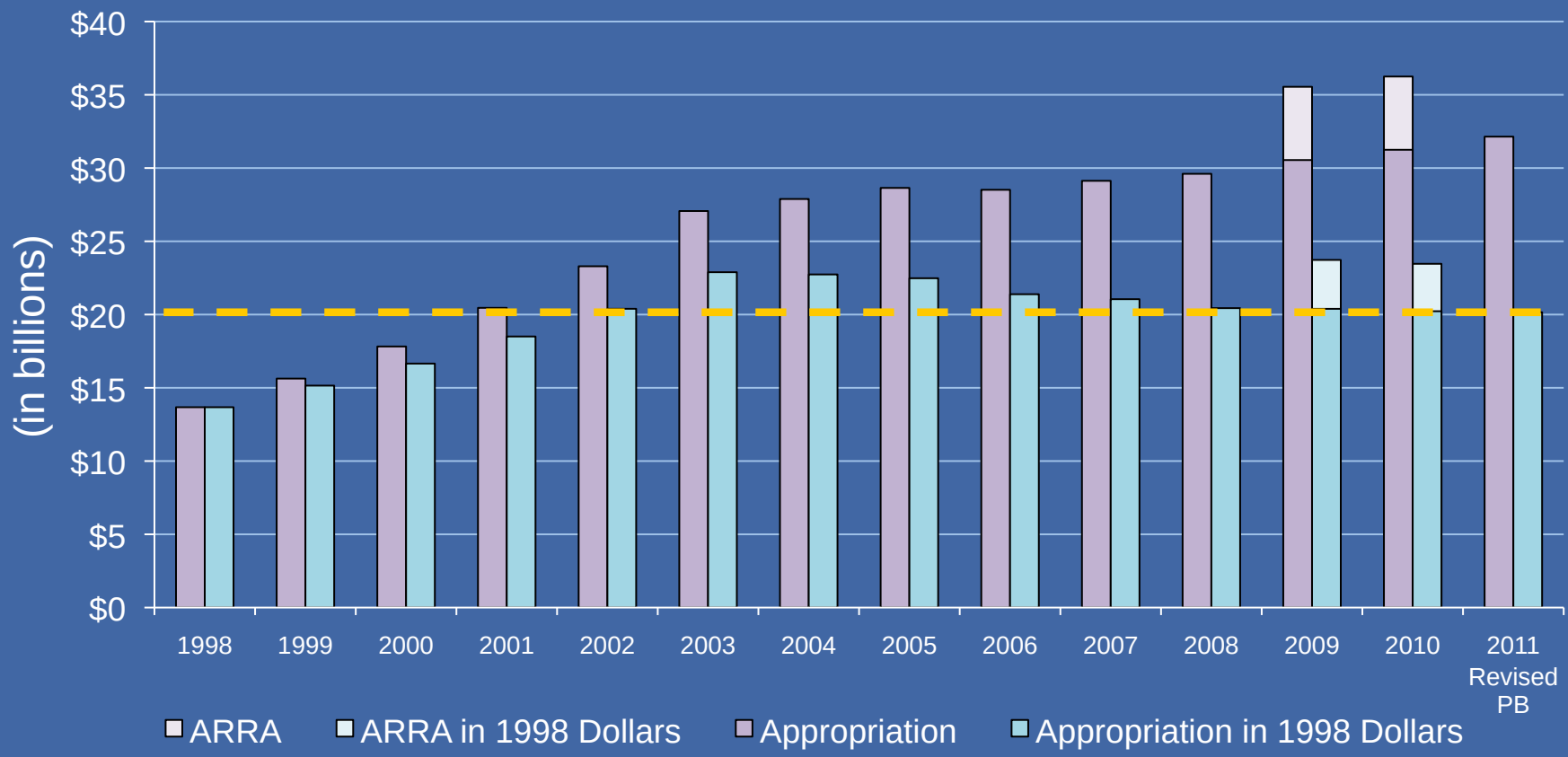
The TRND program is intended for broad use by academic laboratories, not-for-profit organizations, and for-profit companies. Foreign organizations may also apply.

To apply to the TRND program, please see the **project solicitation**.

The application deadline for the first cycle of the program is **December 6th, 2010**.

Appropriation History vs. Actual Purchasing Power (BRDPI)

(FY 1998 appropriation – FY 2011 Revised Presidential Budget)



Success Rates: FY 1978 – FY 2012 (estimate)

(Includes Recovery Act Funds)