NHGRI Training Programs in Genomic Medicine

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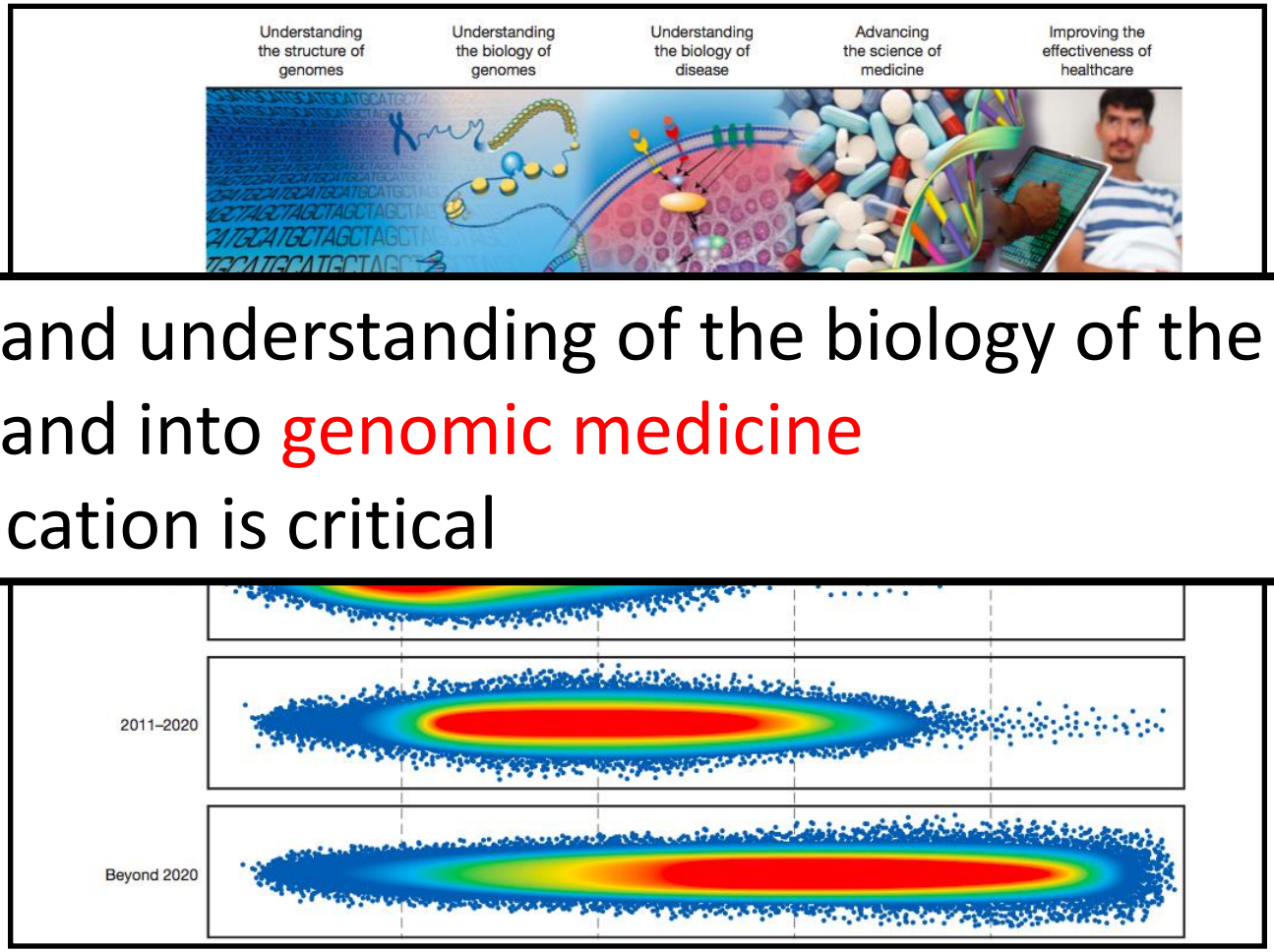
Division of Genomic Medicine

NIH National Human Genome Research Institute
Advancing human health through genomics research

NHGRI 2011 Strategic Plan



- Expand understanding of the biology of the genome
- Expand into genomic medicine
- Education is critical

https://www.genome.gov/27543215/

Institutional T32

- Goal: Train individuals to conduct research and prepare for research careers
- Structured training program: didactic, lab-based, multi-disciplinary, mentoring, career development
- Trainee slots for pre-docs and post-docs
- PI are typically leaders in the field
- Rich scientific environment
- Typically 5 year awards

Institutional Training Program in **Genomic Sciences** for Graduate Students and Postdoctoral Fellows (T32)

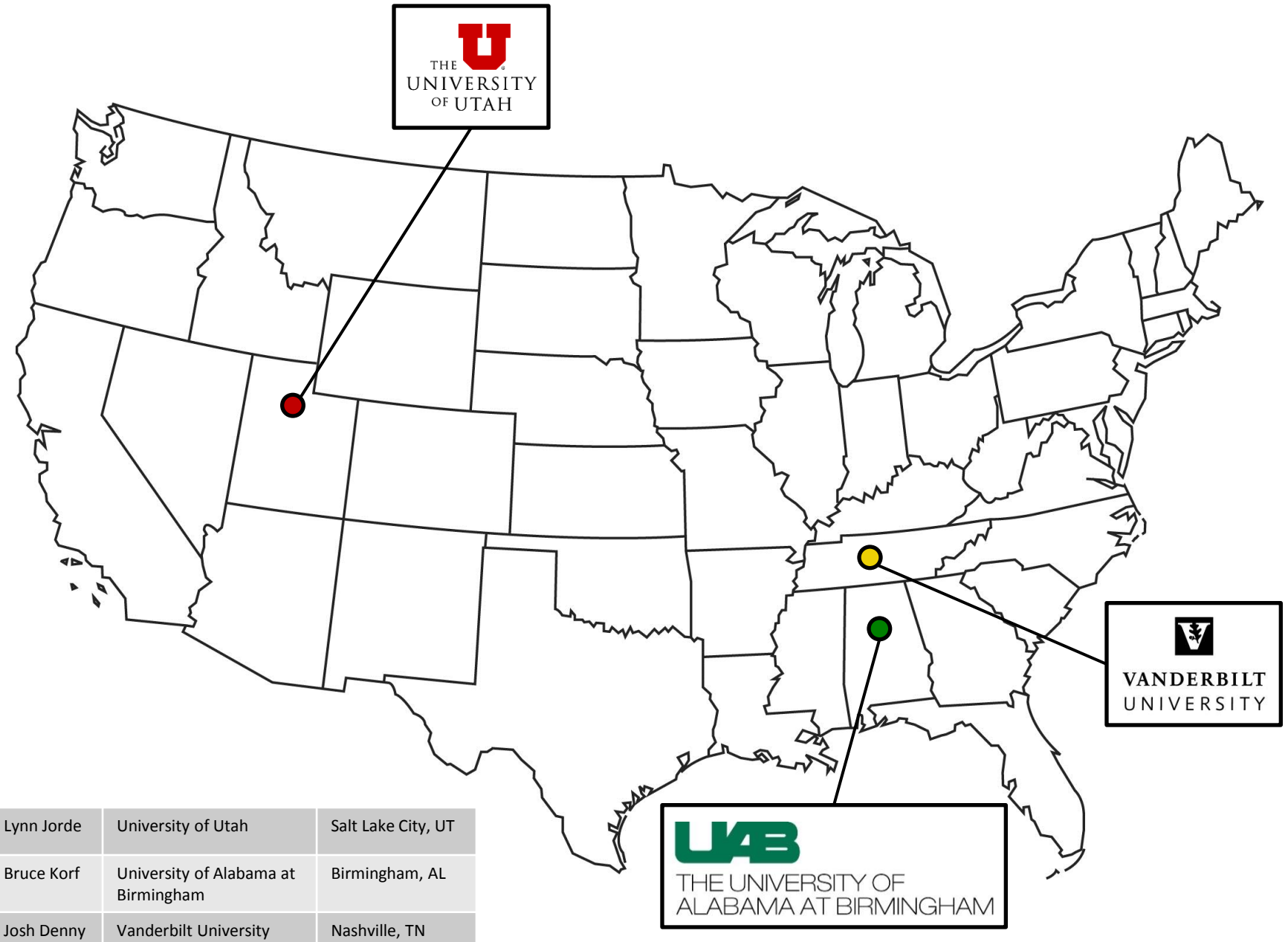
Objective: To develop leaders in genomic sciences

- Eligible appointees: Graduate students and postdoctoral fellows - MD, PhD
- Comprehensive knowledge base and skills set in the quantitative and informational sciences
- Cross-training can include clinical discovery work and technology development
- http://grants.nih.gov/grants/guide/notice-files/NOT-HG-14-017.html

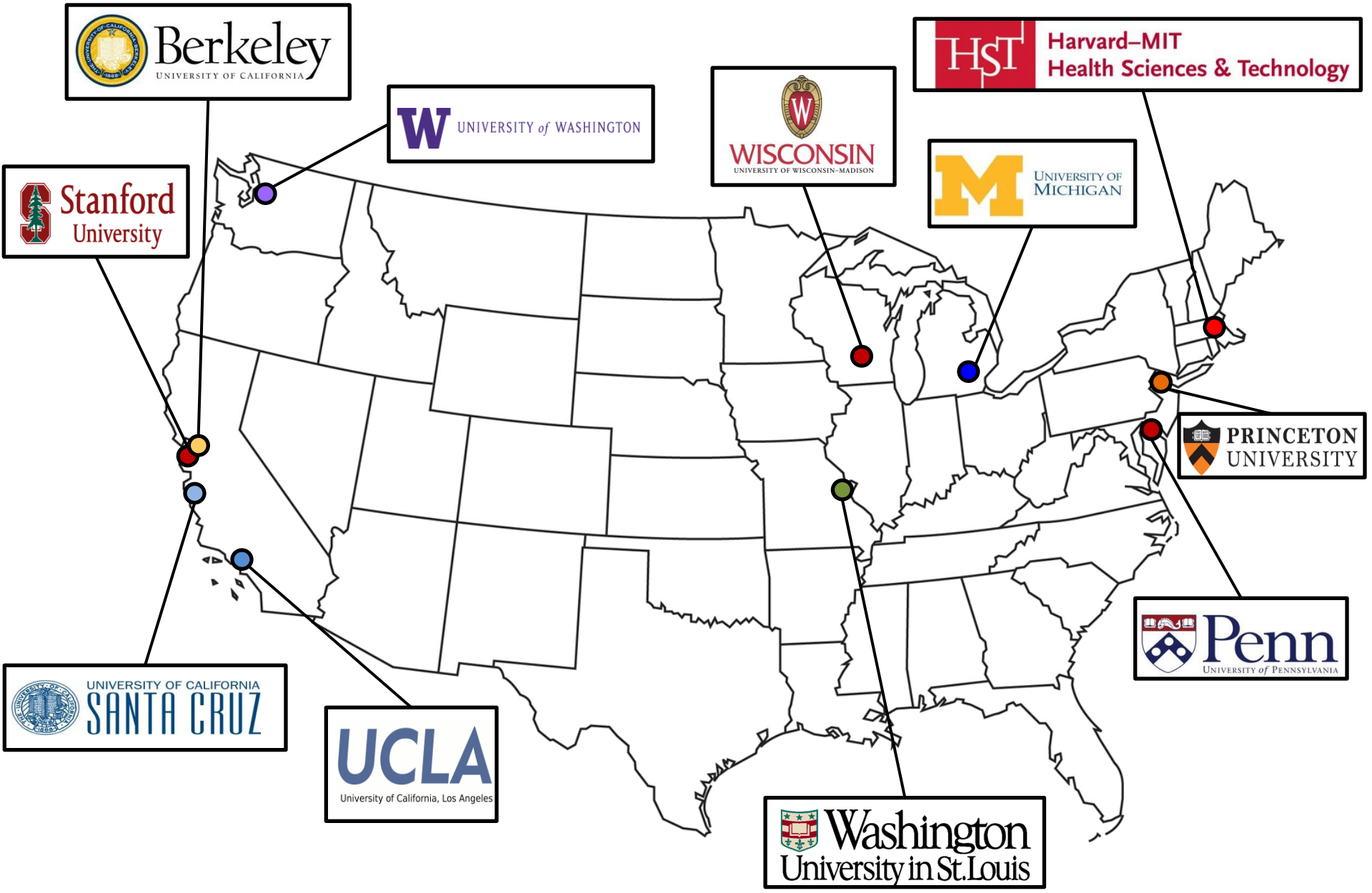
Institutional Training Program for Postdoctoral Fellows in **Genomic Medicine** (T32)

Objective: To develop leaders in genomic medicine

- Two training paths (programs may include one or both):
  (1) train genomic medicine researchers and
  (2) provide comprehensive training in genomics for clinicians
  - Eligible appointees: Postdoctoral fellows with MD or clinical PhD degree.
  - Course requirements flexible, training in quantitative approaches and ELSI required.
  - Individual appointments 2-3 years' duration.
- *Number of training slots per application: 4-6*



Lynn Jorde	University of Utah	Salt Lake City, UT
Bruce Korf	University of Alabama at Birmingham	Birmingham, AL
Josh Denny	Vanderbilt University	Nashville, TN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HST
Harvard–MIT
Health Sciences & Technology
Stanford
University
UNIVERSITY OF MICHIGAN
PRINCETON
UNIVERSITY
Penn
University of Pennsylvania
UNIVERSITY OF CALIFORNIA
SANTA CRUZ
UCLA
University of California, Los Angeles
Washington
University in St.Louis

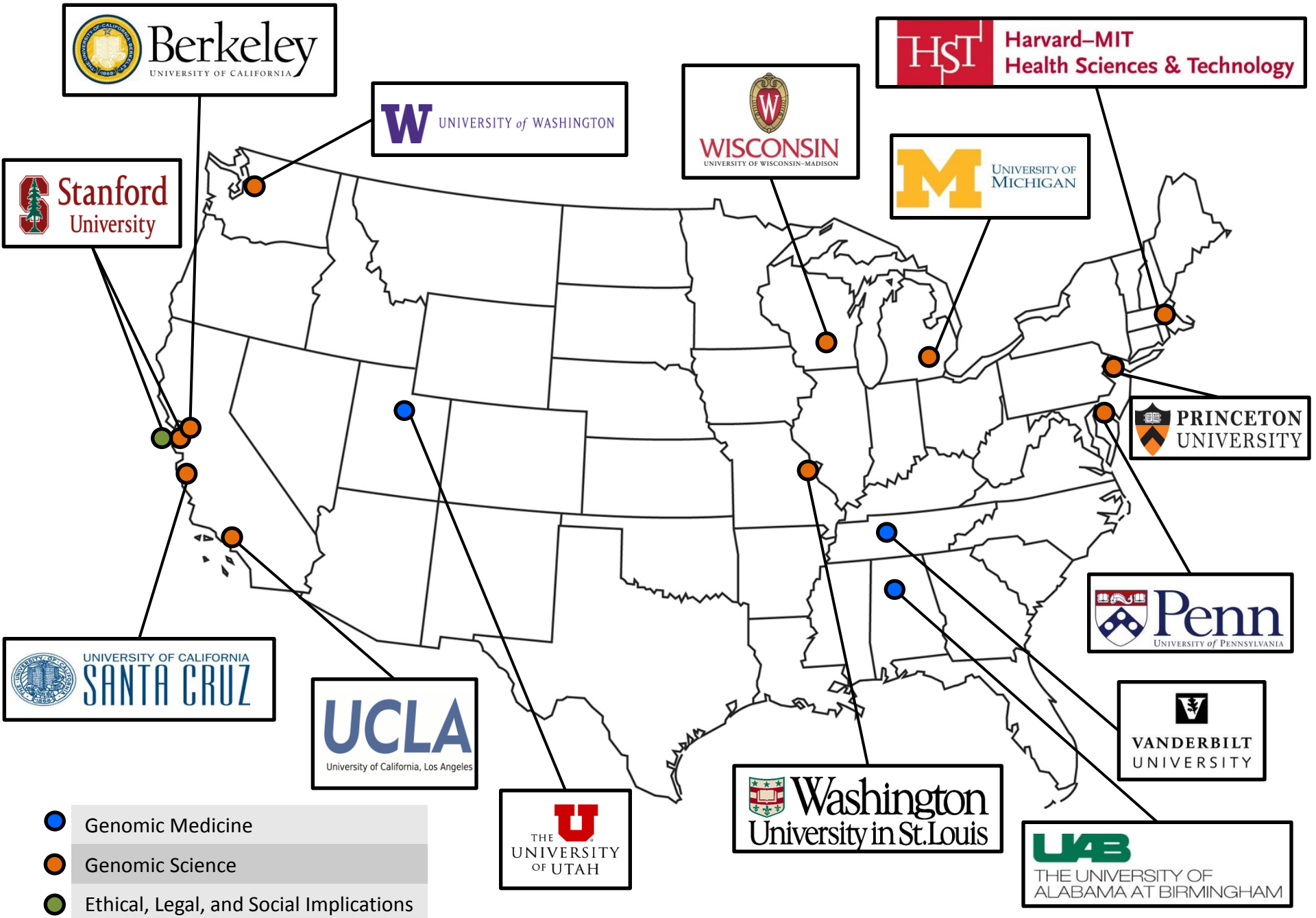
Individual Mentored Clinical Scientist Career Award in Genomic Medicine (K08)

Objective: To provide a mentored research experience to clinically-trained individuals to become independent investigators and practitioners of genomic medicine

- Eligible appointees: Individuals with a MD degree
- Course requirements: Defined curriculum needed to complement their existing clinical expertise and to receive training in ELSI.
- Pursue a research project that would provide preliminary data for an independent research project.

What's new?

- Expansion of the mentored career award program to support clinicians in genomic medicine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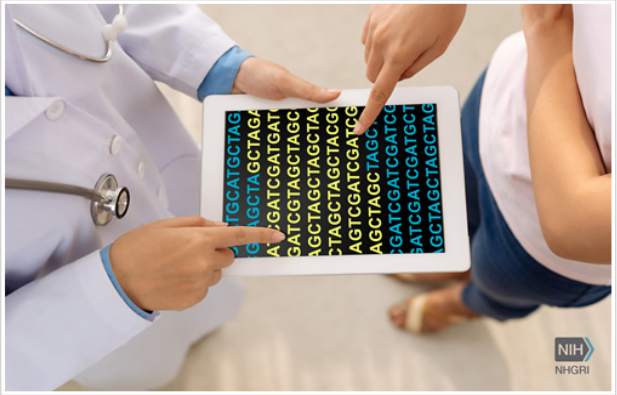
ALABAMA AT BIRMINGHAM
Genomic Medicine
Genomic Science
Ethical, Legal, and Social Implications

New training grants prime doctors to tackle genomic medicine

Using genome sequencing in the clinic is the tidal wave of the future, but do scientists and physicians know how to harness its power?

By Sheena Faherty
Science Writer, NHGRI



Imagine what House, M.D., could do if he had his patient's entire genome.

Although sensationalized, television's Dr. Gregory House is the embodiment of how medicine is currently practiced. After visiting with the patient to collect information about family history and symptoms, House and his team gather to generate a list of all possible causes and, through blood work and x-rays, weed out the wrong diagnoses until only one is left.

House always gets it right.

In reality, the practice of medicine is expensive and doesn't fit in the one-hour time frame Hollywood portrays. Those "weeding out" tests can only eliminate one diagnosis at a time.

Questioning and family history can narrow down the vast number of tests that help a doctor arrive at the correct diagnosis, explained Leslie Biesecker, M.D., chief of the National Human Genome Research Institute's (NHGRI) Medical Genomics and Metabolic Genetics Branch. But even with the information gathered upfront, there are a huge number of tests to consider, and many tests may still be needed.

How to solve this dilemma? Evaluating all potential genetic features of inherited diseases by sequencing the genetic code is a powerful solution to confront the challenges of cost and time in today's practice. It can reduce the need to gather much of the patient's information upfront in an effort to decide which genetic test or panel to order.

"Having a patient's genome changes the paradigm of how medicine is currently practiced because the test is the same no matter what inherited disease the patient has," said Dr. Biesecker.

The genome is a resource that doctors can use - and re-use - to answer many different questions depending on their patient's situation. And much like what Dr. House represents to his team of experts, the genome can call attention to an otherwise missed diagnosis or gene variant that alerts the doctor whether one ultrasound or another is the most appropriate test.

But this new way of practicing is not without its challenges. With more genomic advances in the medical arena comes a wider gap in training scientists and physicians on how to use that information to harness the genome's power.

To address this challenge, NHGRI is funding new grants - the Institutional Training Grant Program in Genomic Medicine - to cultivate leaders in the field of genomic medicine. The five-year grants, totaling approximately $3.5 million, have been awarded to a partnership between The University of Alabama at Birmingham (UAB) and the HudsonAlpha Institute for Biotechnology, The University of Utah in Salt Lake City, and Vanderbilt University in Nashville.

https://www.genome.gov/27565602/

Undiagnosed Diseases Network

Undiagnosed Diseases Program (UDP)

Coordinating Center (RM-12-020)

Clinical Sites (RM-13-004)

Gene Function Studies (PA-13-076, RM-13-003)

Core Laboratories

Outline

1. The Undiagnosed Diseases Program
2. The Undiagnosed Diseases Network
3. Objectives RFA-RM-13-004
4. Frequently Asked Questions
5. Applicant Questions

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Applicant Questions

Any Questions?

THANKS!