



# ENCODE Data Utilization Workshop

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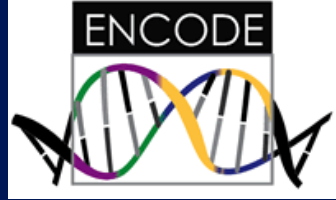
National Human Genome  
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# Welcome

- Objectives
  - Provide overview of ENCODE Project and resources available to access ENCODE data
  - Demonstrate how ENCODE data and resources can be used by presentation of specific research applications
  - Answer questions based on your specific research needs



# Agenda

- Introduction to the ENCODE Project, ENCODE data portal, and SCREEN site for ENCODE candidate cis-Regulatory Elements  
Mike Pazin, NHGRI; Jason Hilton, Stanford
- ENCORE: Using the ENCODE RNA binding protein resource to study RNA processing regulation  
Eric Van Nostrand, Yeo Lab, UCSD
- Aggregating hundreds of ENCODE epigenomic annotations to predict cell-state-specific regulatory elements  
Tiffany Amariuta, Raychaudhuri Lab, Harvard



# Open Discussion

- Ask questions about ENCODE data and resources





# ENCODE: Encyclopedia of DNA Elements

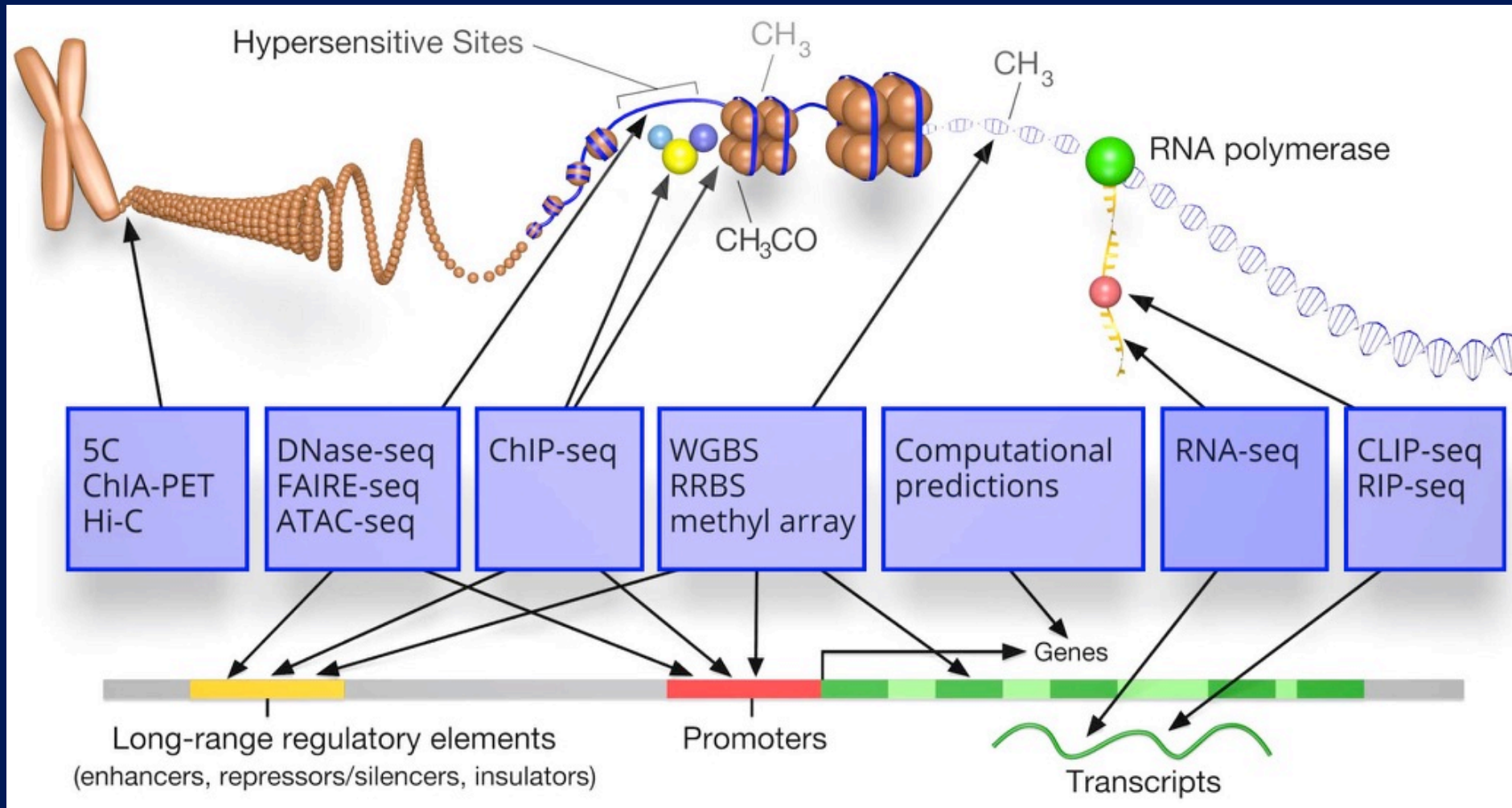
- Catalog all functional elements in the human and select model organism genomes
- Develop freely available resource for research community to enhance understanding of:
  - regulation of gene expression
  - genetic basis of disease



# ENCODE 4 Components

- Functional Element Mapping Centers
- Functional Element Characterization Centers
- Computational Analysis Research Projects
- ENCODE Data Coordination Center (DCC)
- ENCODE Data Analysis Center (DAC)

# ENCODE Assays



Biochemical Features

Assays

Genomic elements



# ENCODE Outreach



## ENCODE Tutorials

These tutorials were prepared for biologists using human and/or mouse gene biology. They explain what data are available, what they mean, how they can be used in genetic research on human disease.

- **ENCODE: Getting Started**  **New**
- **2016 Society of Toxicology Annual Meeting Workshop**
- **ENCODE/Roadmap Epigenomics Tutorial, October 2015, ASHG**
- **ENCODE 2015: Research Applications and Users Meeting**
- **ENCODE Workshop, April 2015, Keystone Symposia**

## Workshop materials

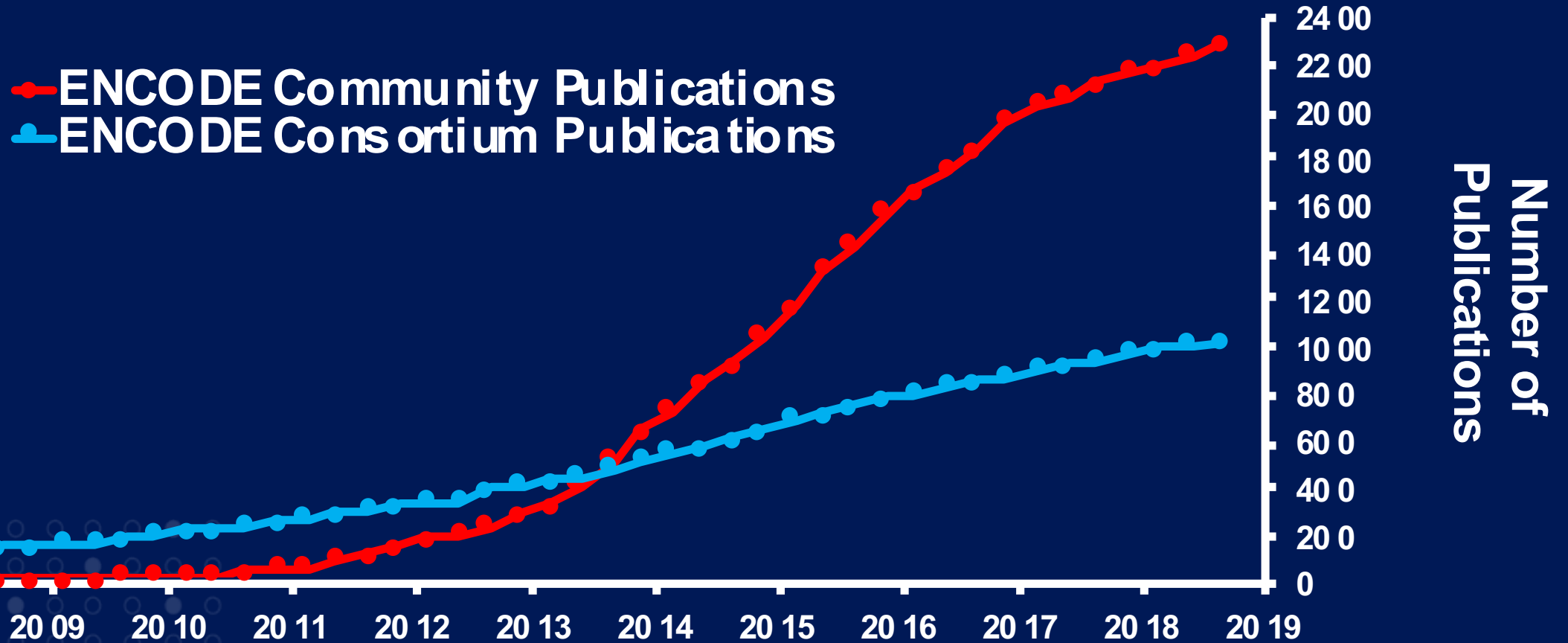
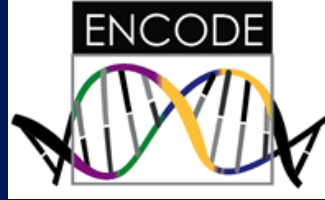
- **NEW: Uniform Processing Pipelines/DNAnexus Tutorial** from the ASHG 2016 Workshop in Vancouver, BC O
- **Presentations, tutorials, and video** from the **ENCODE Users Meeting 2016** in Palo Alto, CA June 8 - 10, 2016
  - Video and workshop materials from hands-on tutorial sessions on accessing, processing, analyzing, and using ENCODE resources, along with presentations from leading experts in disease, biology, and computational fields explaining how to use ENCODE resources in their work.
  - Pictures by Forrest Tanaka can be viewed using #EUM16 on twitter
- **Keystone Symposium 2016, Chromatin and Epigenomics, Whistler, British Columbia, March 21, 2016.**
  - J. Seth Strattan, Find and Visualize ENCODE Data
- **Asia Pacific Bioinformatics Conference, San Francisco, January 10, 2016.**
  - J. Michael Cherry, Introduction to ENCODE and the ENCODE DCC
  - Aditi Narayanan, The ENCODE Portal: Searching for Metadata and Data
  - J. Seth Strattan, ENCODE Data Availability and Standardized Processing

<https://www.genome.gov/27553900/encode-tutorials/>

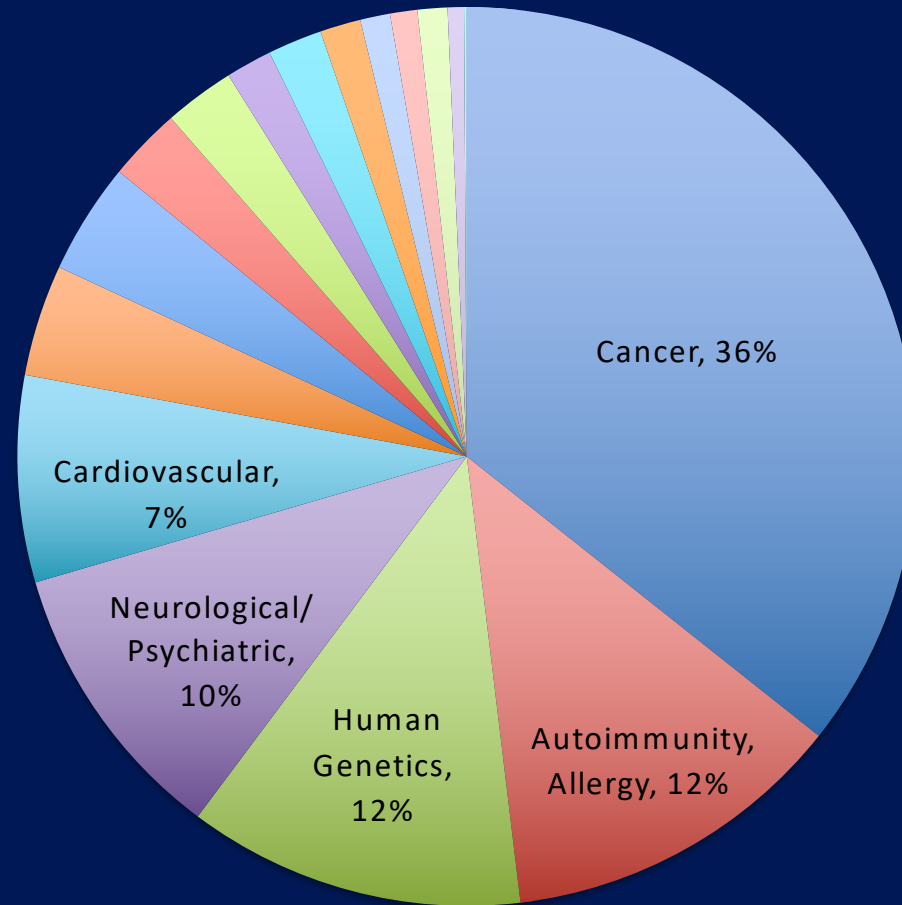
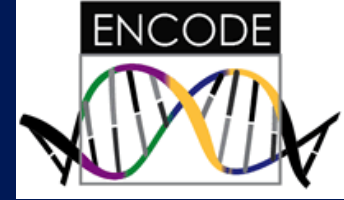
<https://www.encodeproject.org/tutorials/>



# ENCyclopedia Of DNA Elements (ENCODE)



# ENCODE Community Publications, By Disease Category



# ENCODE Consortium



## NHGRI ENCODE Team





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