

# UNLOCKING MECHANISMS OF GENE REGULATION, DEVELOPMENT, AND DISEASE BIOLOGY

DOVETAIL 3D GENOMICS BIOINFORMATIC SERVICES



Full  
Service



Flexible  
Integration



Accelerate  
Research

## Applications

- **Gene Expression:** Unravel gene regulatory mechanisms during development and disease progression.
- **Drug Development:** Discover novel drug targets and therapeutic strategies.
- **Biomarker Discovery:** Identify biomarkers for diagnostic and prognostic purposes.
- **Developmental Biology:** Gain insights into cellular reprogramming and cell fate determination.
- **Oncology:** Investigate the impact of genetic variants on chromatin structure and gene expression.

### Primary Analysis



#### Data Processing

- Alignment
- Pair Coordinates
- QC
- Contact Matrix

### Secondary Analysis



#### Feature Calling

- A/B Compartments
- TADs
- Loops
- Comparison

### Tertiary Analysis



#### Annotation

- Gene Annotation
- GO Analysis

### Consulting Services



#### Custom Analyses

- Collaborative
- Access the Experts
- Flexible Solutions

## Complete Bioinformatics Solutions Enabling Sample to Insight

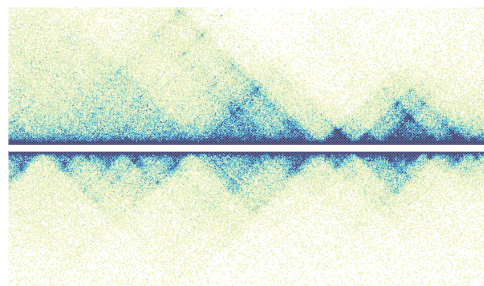
Whether you are adding our bioinformatics services to a service project or to your own data generated using Dovetail® Kits, we can get you answers. Our services are compatible with Dovetail® Micro-C, Dovetail® HiChIP and Dovetail® Pan Promoter Panel datasets.

- Our full bioinformatics pipeline takes FASTQs to biological insights.
- Paired sample comparisons (e.g. non-treated vs. treated, normal vs. disease) identifies chromatin conformation differences.
- Gene annotation provides context to your detected chromatin conformation features. Gene ontology analyses uncovers biological insights.
- Available consulting services offer tailored analysis solutions – benefit from customized analysis pipelines, integration of multi-omic data analysis pipelines, and integration of multi-omic data.



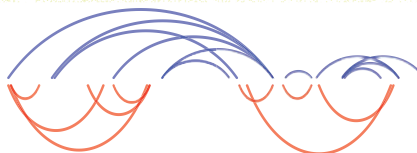
**NSC**  
Micro-C Matrix  
10kb KR Norm

**iPSC**  
Micro-C Matrix  
10kb KR Norm



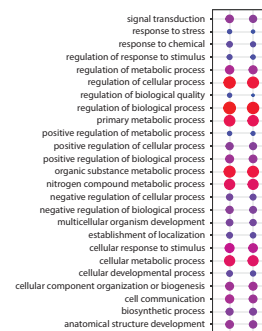
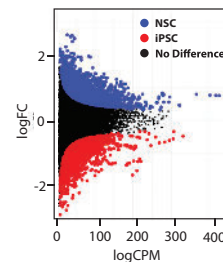
**NSC**  
Loops

**iPSC**  
Loops



**NSC H3K27ac**

**iPSC H3K27ac**



*Comparison between iPSC and NSC cells in a developmental system. Plots show 3D genomics signal, chromatin loops, and enhancer signal. Differences between the two conditions are captured in the MDplot and summarized with a GO analysis.*

## Why Choose Our 3D Genomics Services?

- Chromatin Conformation Capture experts: Our bioinformatics team specializes in 3D genomics analysis.
- Verified workflows: We employ peer-reviewed tools to ensure quality results from well vetted analysis workflows.
- Biological Insights: Our approach uncovers crucial topological features and regulatory interactions.
- Flexible services: We work closely with you to understand your research objectives and match you with the appropriate resources.
- Timely Results: Our pipelines leverage high-performance cloud computing enabling processing of large datasets quickly.

## Deliverables

Stage	Primary	Secondary	Tertiary	Consulting
Deliverables	Raw Data (.fastq) Alignment (.bam) Coverage (.bigwig) Valid Pairs (.pairs) Matrix (.cool & .hic) QC stats (.txt)	A/B Compartments (.bed) TADs (.bed) Loops (.bedpe) Comparison of statistically differentiated logFC (.txt)	Annotated Interactions (.bedpe) GO Summary (.txt)	User defined deliverables

**Contact us today to discuss how our 3D genomics services can accelerate your research in gene regulation, development, and disease biology!**



© 2023 Cantata Bio [www.cantatabio.com](http://www.cantatabio.com)  
We are Cantata Bio. Delivering powerful, novel NGS-based products and services.

