



SKYGENIC

The Multi-Omic Management Platform



Nathan Ali
Founder
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501(c)(3) nonprofit organization
For profit organization

Why Skygenic Started



What Sets Skygenic Apart From Existing Solutions

Centered on the Health Scientist



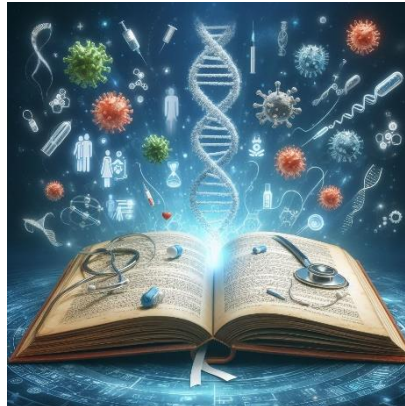
Empowering Collaboration



Democratizing Bioinformatics



 **SKYGENIC**
Opening Access to Data



Translational Pediatric Physician Scientists



Lauren Henderson MD, MMSc

Skygenic Consultant
Boston Children's Hospital
Assistant Professor, Harvard Medical School
Research Area: Juvenile Idiopathic Arthritis



Jodie Ouahed MD, MMSc

Skygenic Consultant
Boston Children's Hospital
Assistant Professor, Harvard Medical School
Research Area: Inflammatory Bowel Disease



Pui Lee MD, PhD

Key Opinion Leader
Boston Children's Hospital
Assistant Professor, Harvard Medical School
Research Area: Peds Autoinflammatory Diseases



Craig Platt MD, PhD

Key Opinion Leader
Boston Children's Hospital
Assistant Professor, Harvard Medical School
Research Area: Primary Immunodeficiencies



Bioinformaticians



Diego Marques Coelho PhD

Neuroscience
Cell Biology
Embryology

Transcriptomics
Epigenomics



Iara Dantas de Souza PhD

Neuroscience
Comparative Genomics
Statistics

Transcriptomics
Systems Biology
Metabolomics



Andre Fonseca PhD

Cancer Biology
Immunogenetics

Transcriptomics
Antigen Discovery



Diego Gomez PhD

Biochemistry
Virology

Phylogenetics
Genome Assembly
Metagenomics

How Skygenic Empowers Scientists

Challenge: Limited Access to Bioinformaticians

Skygenic Solution:

- No coding, graphical interface
- Experiment design wizard
- Analysis wizard
- Data interpretation wizard



How Skygenic Empowers Scientists

Challenge: Difficulty Accessing Public Datasets

Skygenic Solution:

- Graphical integration with publicly available datasets
 - EMBL-EBI/European Nucleotide Archive
 - Sequence Read Archive/dbGaP
- Integration with biobanks and repositories



Advancing Collaborative Research Globally



Challenge: Interinstitutional Data Sharing

Skygenic Solution:

- Scientists retain file ownership
- Files combined for analysis without access by other users
- HIPAA & GDPR compliant
- Clinical datasets can remain within a specific country
- Skygenic secures agreements across institutions
- Data mesh of institutions repositories



New Collaborative Opportunities

Challenge: Global Collaboration

Skygenic Solution:

- Collaborative project environment
- Combine datasets from multiple institutions
- Live chat functionality
- Shared analysis screens
- Report generation tools and functionality



Desired Fine-Grained Control

Challenge: Administrative Requirements

Skygenic Solution:

- Individual cost centers and billing accounts
- Hierarchy of administrative control (division, labs, groups)
- Controlled access of scientists
- Control of every file within an organization
- Biobanks and repositories can maintain control



DNA

- Genome assembly and annotation
- Genetic variant identification
- Metagenomics

RNA

- Differential gene expression
- Metatranscriptomics
- Gene fusion
- Single cell RNA-Seq

1. Identification of public datasets that support a research question

- Integration with the experiment design wizard
- Automatically identify relevant existing datasets and studies
- Search of public repositories and biobanks

2. Research match portal (voluntary)

- Matching of multi-disciplinary scientists based on biological criteria
- Use of profile questionnaire, wizard answers, analysis results. e.g.
 - Scientist A: has funding, no access to rare clinical patients
 - Scientist B: access to rare clinical patients, little funding
 - Multi-disciplinary scientists studying similar biological pathways

Ongoing Discussions

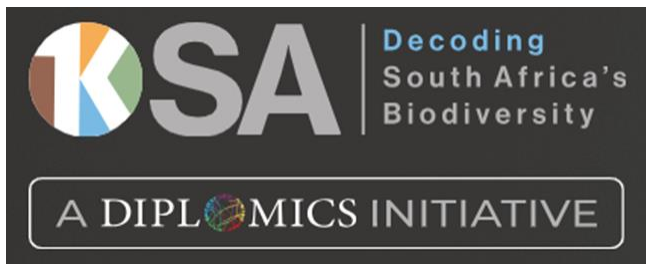


110K Genome Project



SANBI

South African National
Bioinformatics Institute




PAN AFRICAN CANCER
RESEARCH INSTITUTE
DEFEATING CANCER TOGETHER



South Africa Rare
Disease Repository



UNIVERSITY OF CAPE TOWN
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

DIPLOMICS 

Ongoing Discussions



Ethiopia



Nigerian Institute of Medical Research
Research for National Health



Nigeria

المعهد الوطني للبحث الزراعي
ⓄⓈⓂⓃ ⓄⓂⓈⓄ Ⓜ ⓈⓄⓃⓂ ⓄⓈⓄⓂⓂⓂ
Institut National de la Recherche Agronomique



Morocco



INSTITUTE OF PRIMATE RESEARCH
Translating Life Science



Kenya



UNIVERSITY
OF GHANA



NOGUCHI
Memorial Institute for Medical Research
University of Ghana

Ghana

Ongoing Discussions



Institute of Molecular Biology

National Academy of Sciences of Armenia

Armenia



Albania



**PASTEUR
NETWORK**



جامعة خليفة
Khalifa University

United Arab Emirates



MAGDI YACOUB
HEART FOUNDATION

Egypt



جامعة الخليج الطبية
GULF MEDICAL UNIVERSITY
ACADEMIC HEALTH CENTER

Skygenic Mission: To Support Academic Researchers

1. Grow a global collaborative infrastructure of scientists

2. Introduction to:

- Research institutions of interest
- Disease specific organizations
- Charitable organizations
- Biobanks and biorepositories
- Biotechnology and pharmaceutical companies

3. Discuss how we can support individual challenges and needs

Thank You

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