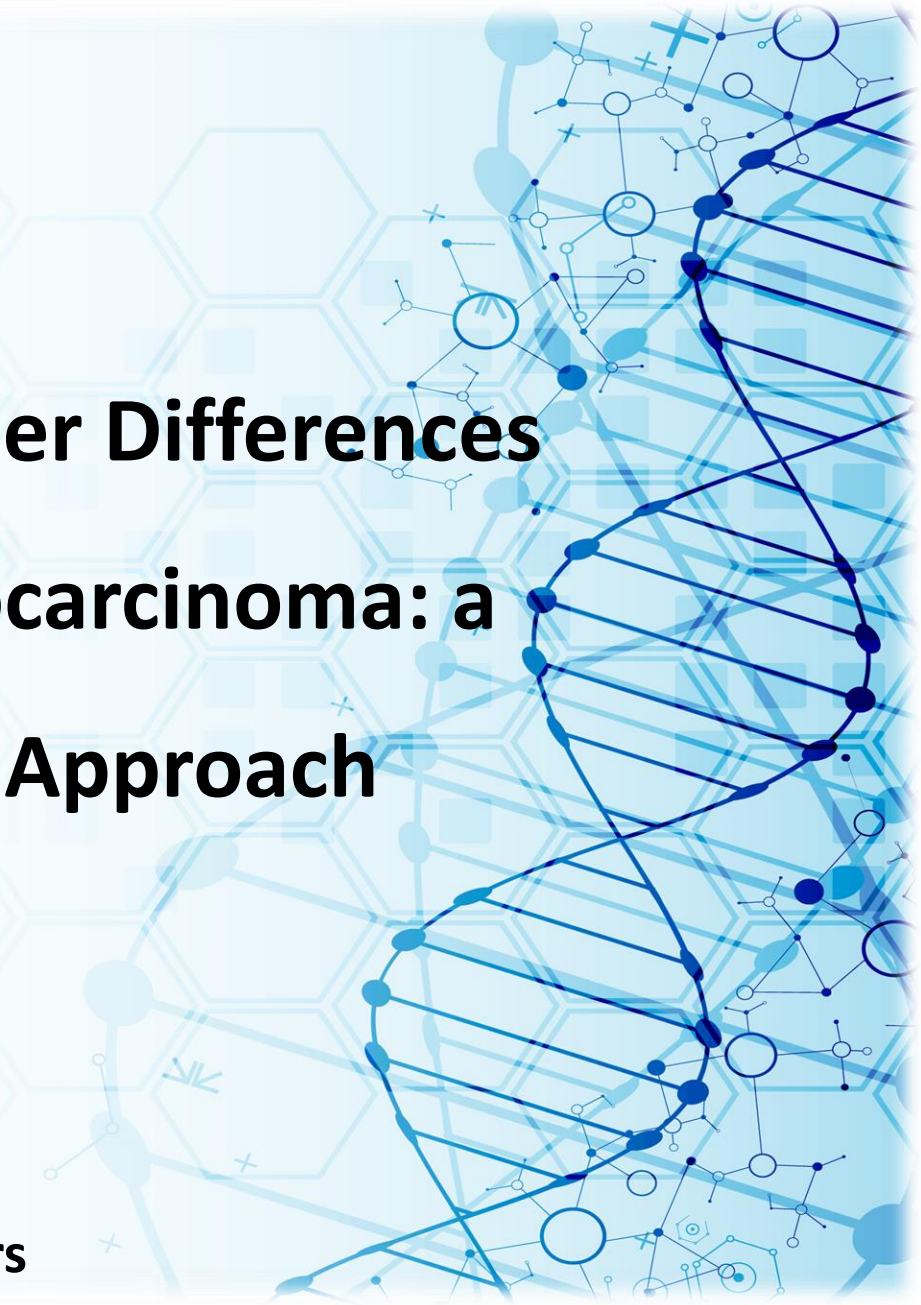
HackBio Internship: Project Phase

Exploring Gender Differences in Colon Adenocarcinoma: a Transcriptomic Approach



Presented by: Team GeneXplorers

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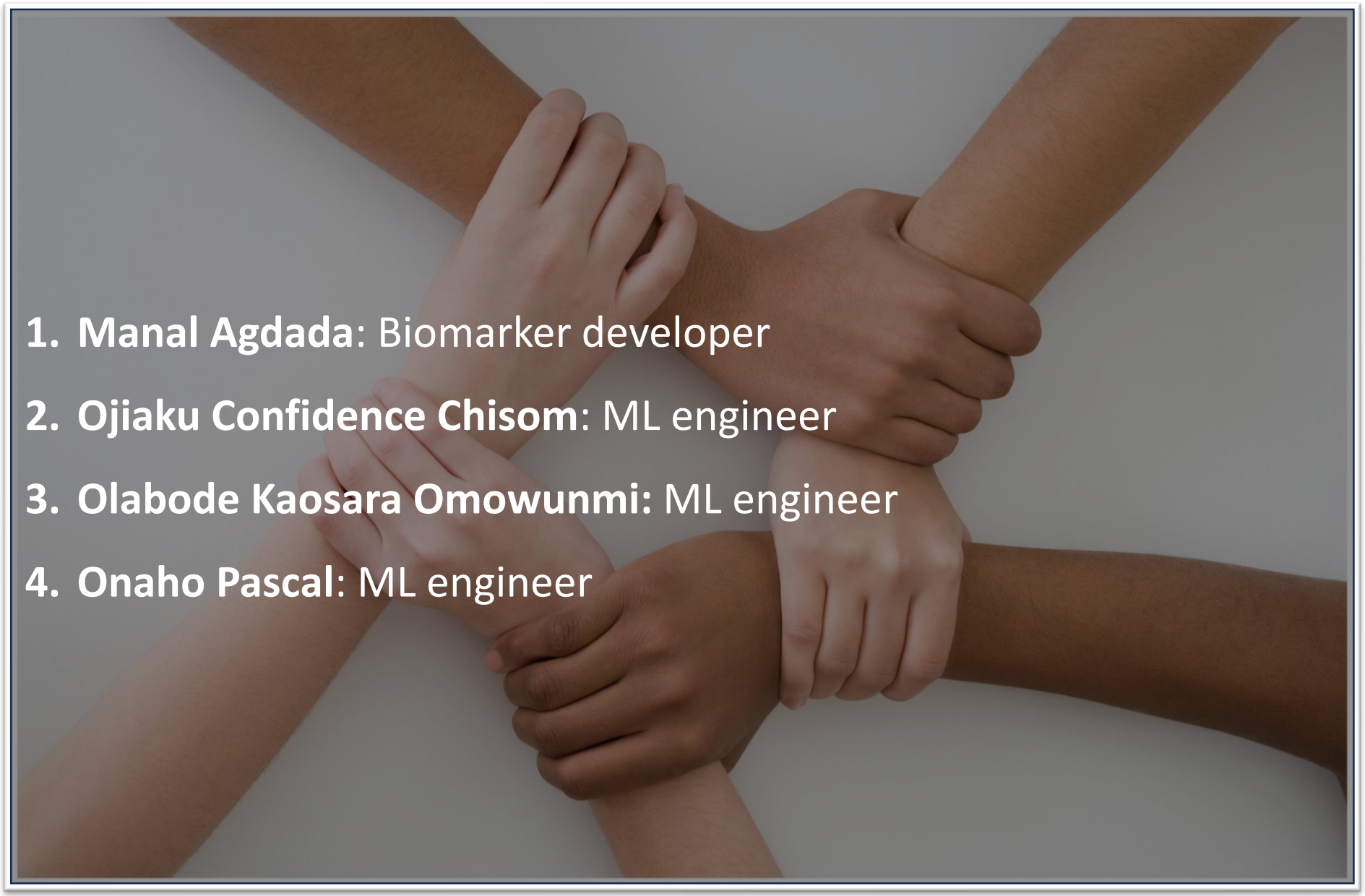
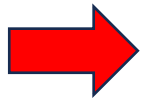


1. **Manal Agdada**: Biomarker developer
2. **Ojiaku Confidence Chisom**: ML engineer
3. **Olabode Kaosara Omowunmi:** ML engineer
4. **Onaho Pascal**: ML engineer

Introduction to the problem

- Higher incidence of colon adenocarcinoma (COAD) in men compared to women
- Women generally show better survival outcomes

- Existing studies show sex-specific gene expression differences, specifically focusing on estrogen-related pathways
- There is a lack of comprehensive understanding of the molecular mechanisms driving sex-specific differences



GeneXplorers aims to fill this gap by perfoming a detailed transcriptomic analysis to uncover sex-specific molecular mechanisms in COAD

Flowchart of the methods

Data collection

- TCGA-COAD

Data Preprocessing

- Normalization and Filtering

Differential Expression Analysis

- Identifying differential expressed genes between males and females

Enrichment Analysis

- Identifying top deregulated pathways between males and females

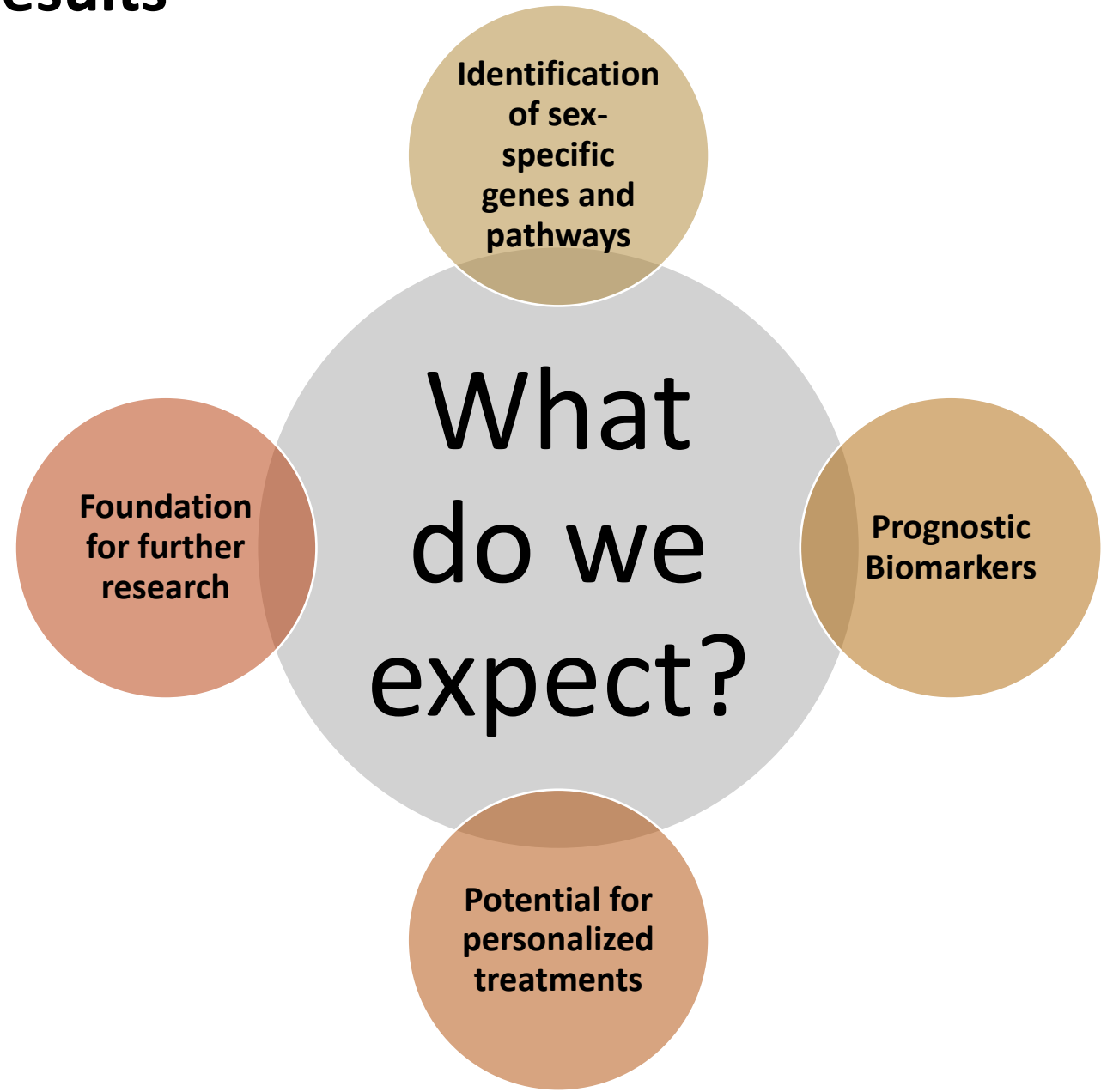
Machine Learning for feature selection

- Dimensionality reduction and application of KNN and Random forest to identify key genes

Predictive Modelling and Model Validation

- Use ML methods to predict survival based on gene expression and sex

Expected results



Thank you for the attention!