

[African ancestry: African ancestry immune cell atlas: genetics, epigenetics and environment](#)

Description

This project provides a unique opportunity to distinguish how genetics and environment impact gene expression and immune response among people of African ancestry, increasing the understanding of variable risk for both communicable and non-communicable diseases. There are currently only a few available single cell reference biological data of tissues from pediatric healthy individuals within collaborative projects like the Human Cell Atlas. This type of data is fundamental for determining how tissues develop throughout early stages of life and how they are projected to develop in adulthood. Thus, it is necessary to generate pediatric specific data from diverse tissues that can be used by the scientific community to understand the development and physiology of infants, children and adolescents. Characterising a healthy state will facilitate the identification of changes associated with specific diseases.

With this in mind, the project will generate single cell expression and chromatin availability data derived from muscle, skin and adipose tissues from the same donor (approximately 14 donors/year prospectively) as well as scFLEA-ChIP assays in a subset of samples. Gender balance and a broad range of ages will be taken into account. This data will allow us to explore the intrinsic diversity (eQTLs) within these three tissues which are relevant for studying neuromuscular, skin and adipose diseases. Furthermore, skin fibroblasts are extensively used as surrogate tissue for other diseases involving non-accessible organs as the brain.

This data will become the foundation for relevant studies related to gene and pathway regulation. This project will provide a unique opportunity to engage society with scientific efforts to understand the natural biogenesis of tissues and how abnormal changes of developmental and physiological homeostasis lead to diseases.

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