

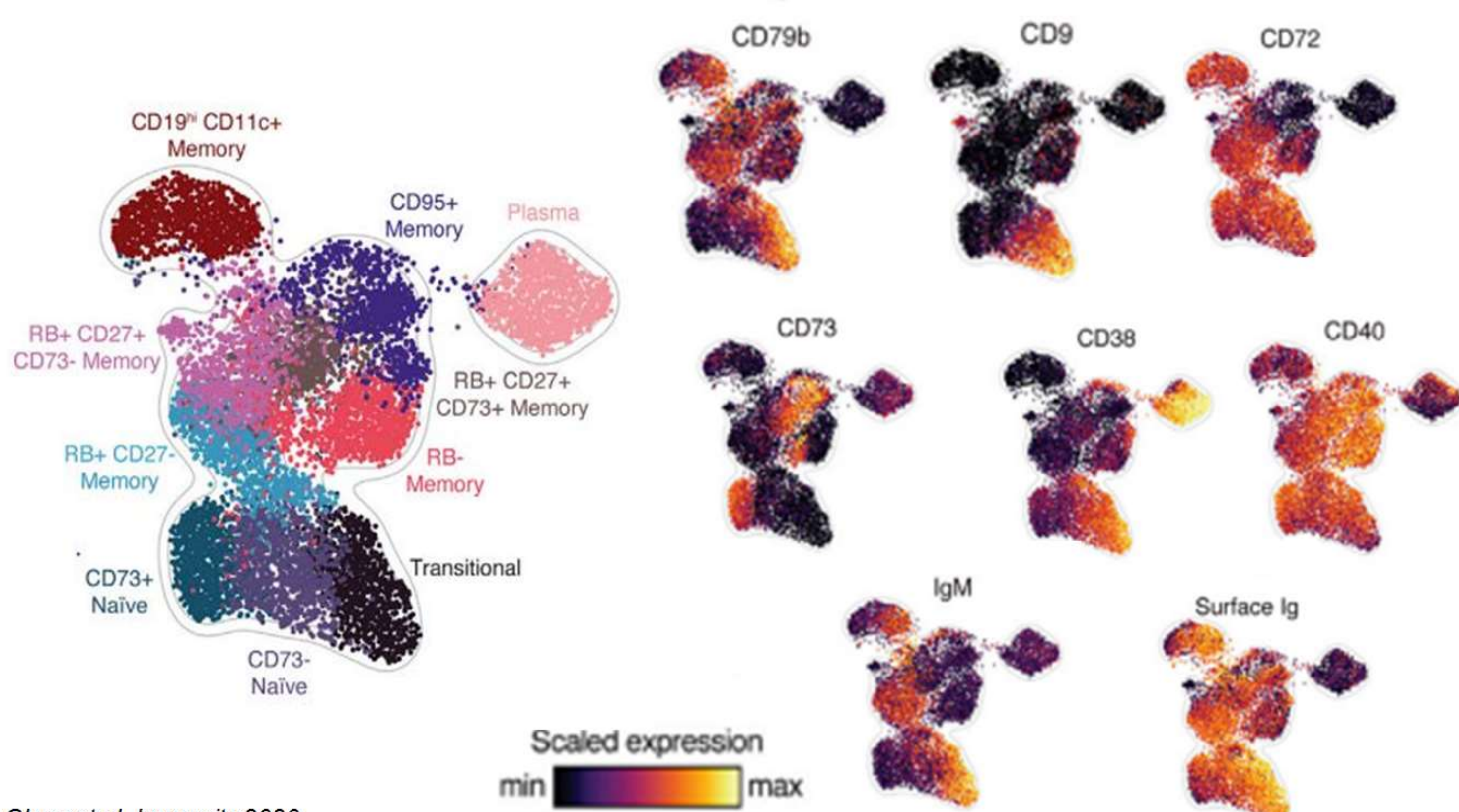
Diversity of the Human Naïve B Cell Repertoire and its Implications on Germline Targeting HIV Vaccines

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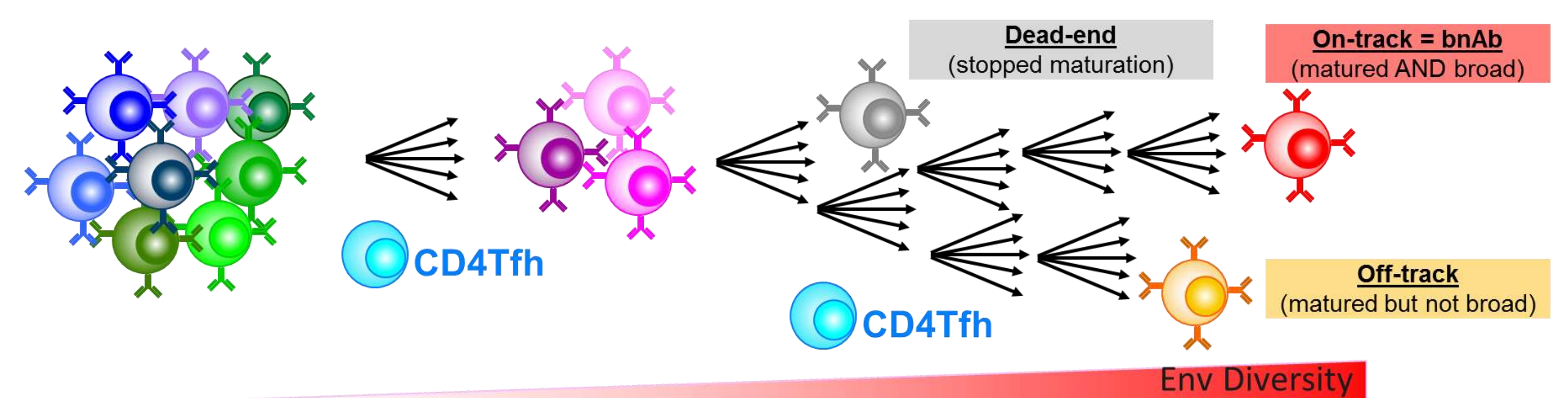
Background

- Naïve B cells (NBCs) are mature B lymphocytes that lack antigen experience.
- NBCs are considered a homogeneous population, but some literature suggests potential heterogeneity within the population.



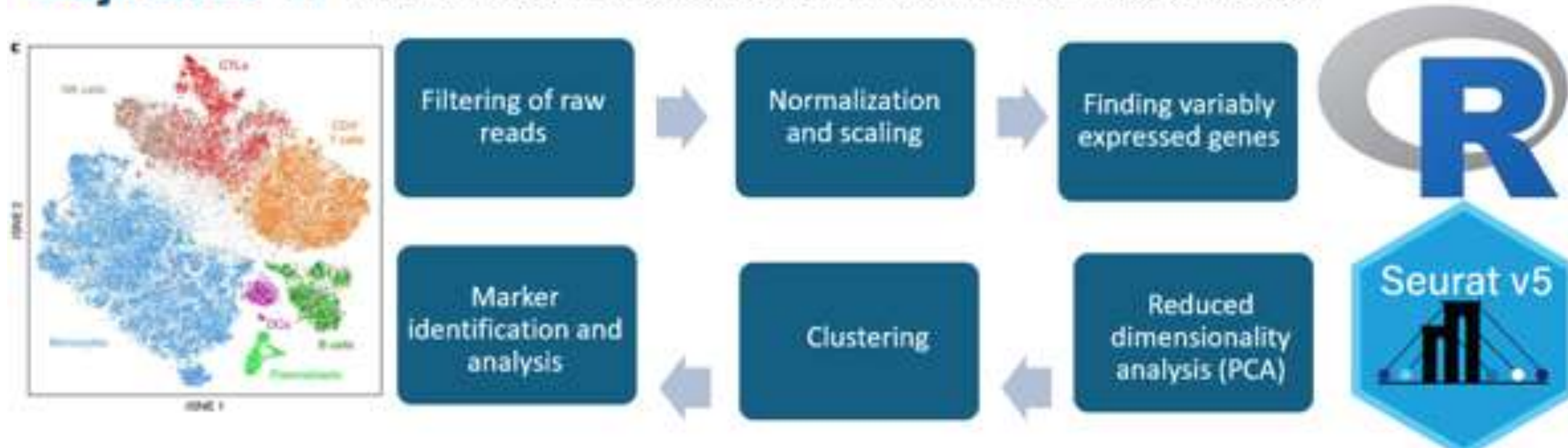
Glass et al, Immunity 2020

- Germline-targeting (GT) HIV vaccines are designed to engage very specific germline precursor cells in the NBC repertoire
- Upon maturation, these precursor cells should be able to elicit potent and broadly protective antibody responses against HIV.

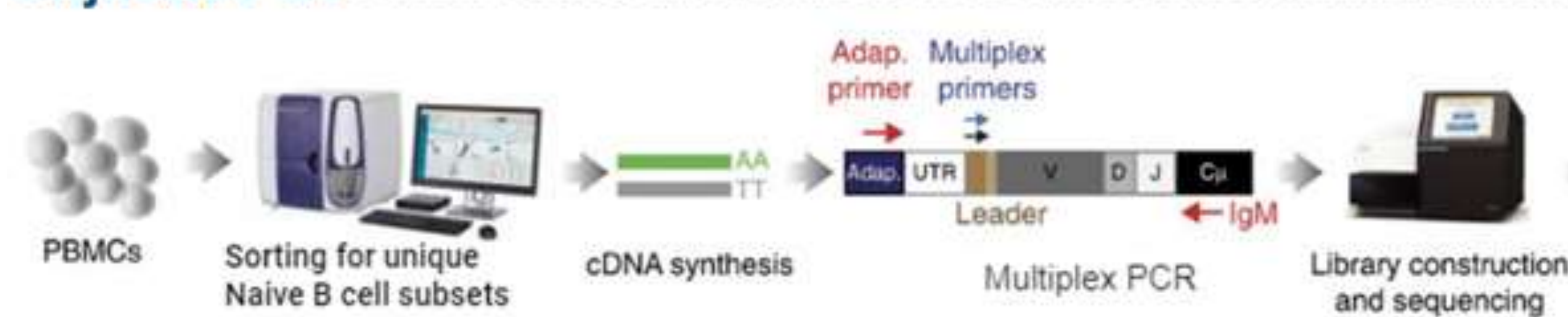


Current Work

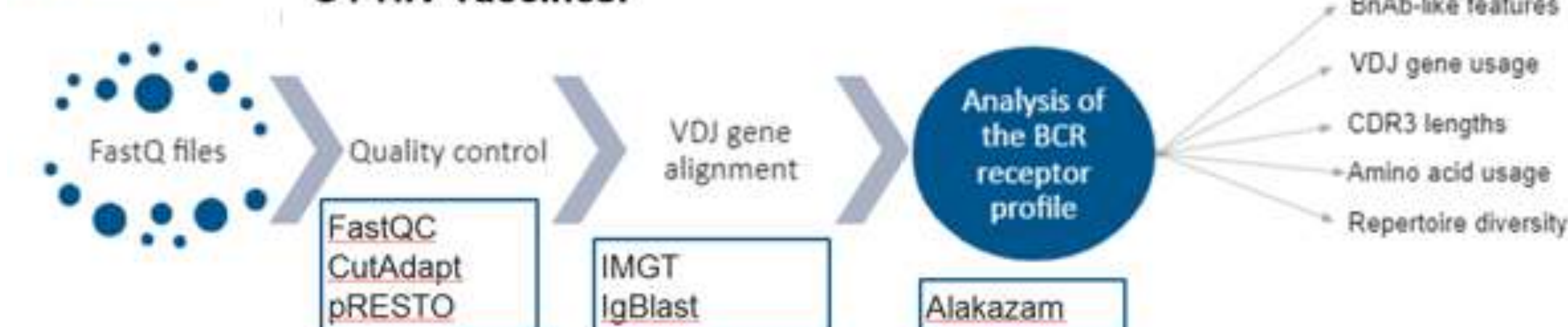
Objective 1: To do unbiased determination of human naïve B-cell subsets



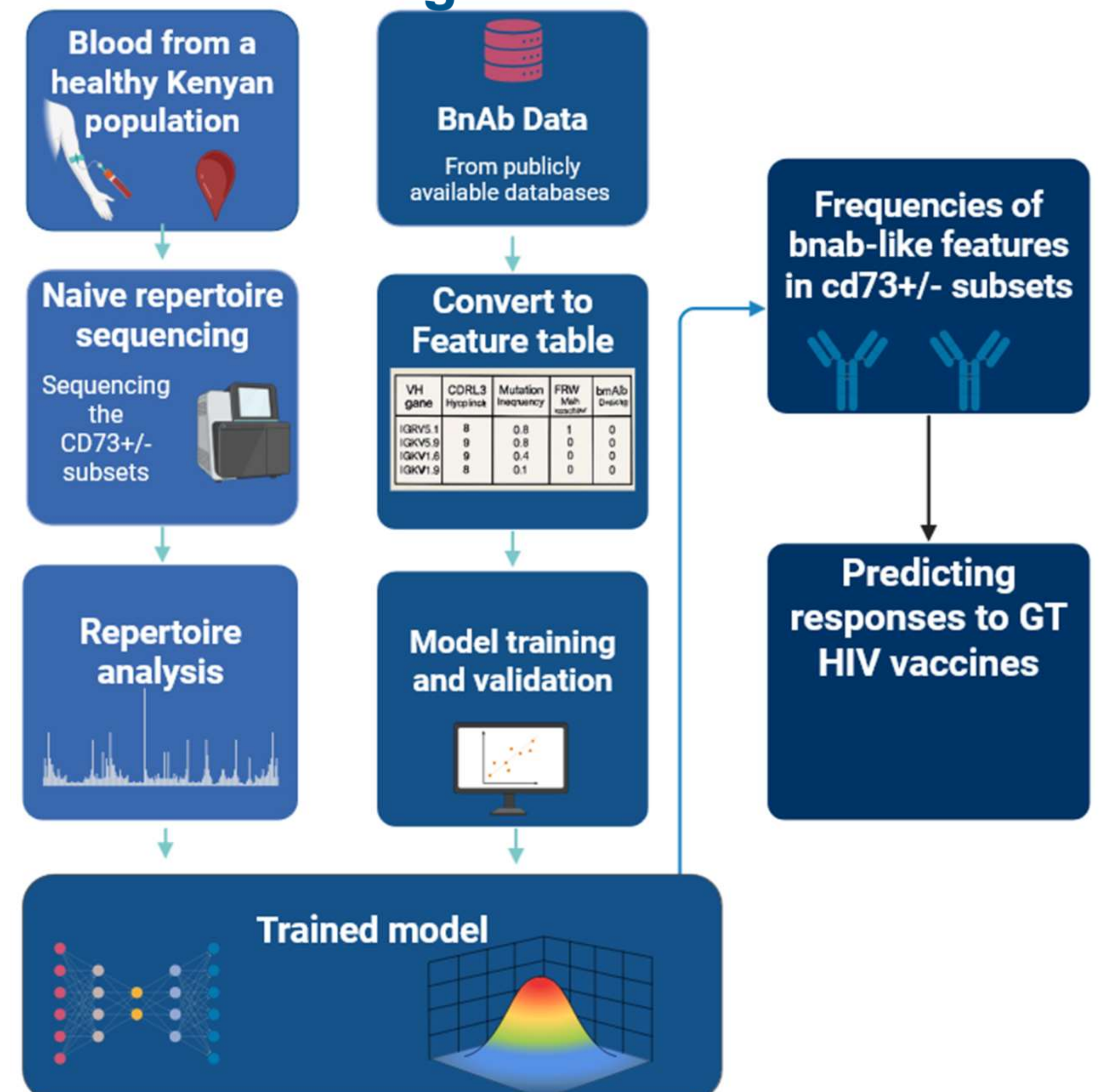
Objective 2 To assess if the BCR repertoire of NBCs varies across identified subsets.



Objective 3 To evaluate how the subset's composition influences response to GT HIV vaccines.



Machine learning workflow:



Conclusion and Expectations

- Know the frequency of bnAb-like precursor germline cells within the CD73⁺ naïve B cell subsets.
- Predict the efficacy of GT HIV vaccines
- Inform vaccine development strategies
 - ✓ The need for specific adjuvants to target the relevant subsets.
 - ✓ Inform the development of biomarkers to screen for individuals with the desired bnAb-like naïve cells.

Acknowledgement



SANTHE
SUB-SAHARAN AFRICAN NETWORK
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