Towards a complete genome characterization of all African indigenous cattle

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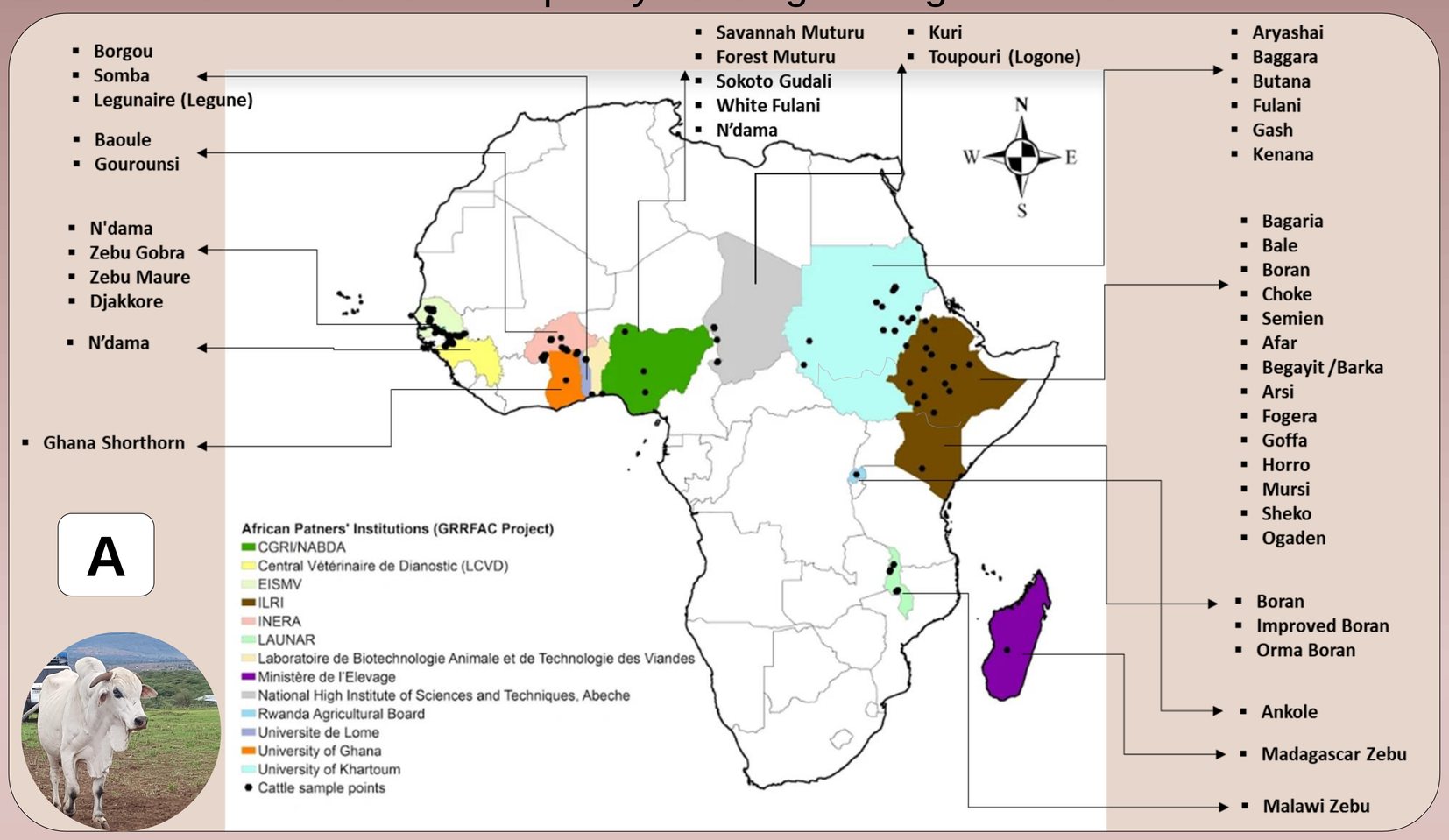
Project Objectives

We aim to develop a genomic reference resource for African cattle through a consortium of African partners. Our current objectives Include:

- ❑ Identification of most informative SNPs for designing African reference SNP genotyping arrays
- ❑ Identification of selection signatures underpinning adaptation and productivity traits
- ❑ Pan-genome analyses of African cattle including *de novo* sequencing and transcriptomic analyses
- ❑ Facilitate bioinformatics capacity building among African Scientists

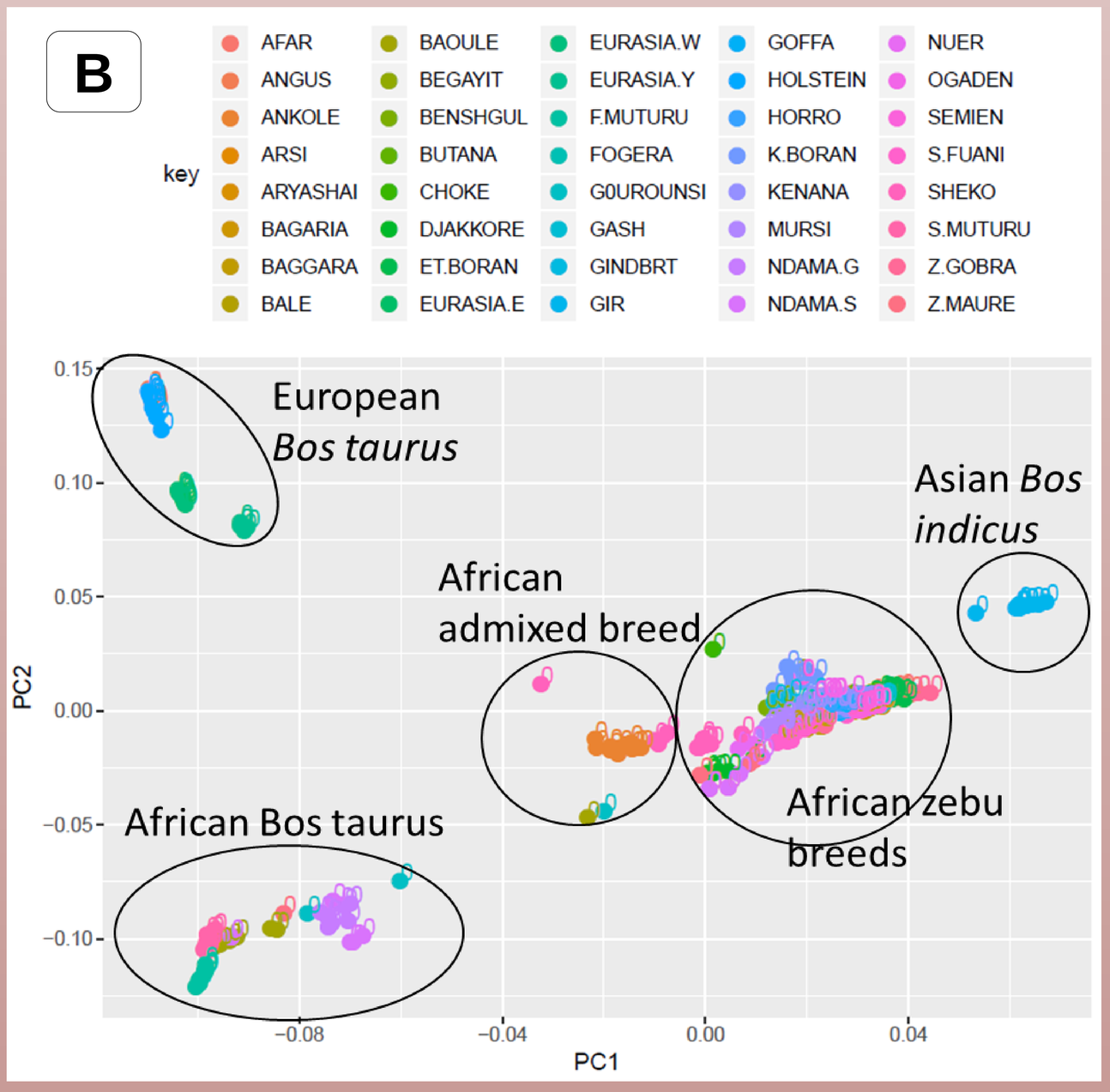


Genomic Reference resource for African cattle (GRRFAC) project

- ❑ An initiative of the dairy genomics program of CTLGH
- ❑ A strategic alliance of ILRI, Roslin Institute, SRUC and African research partners
- ❑ Aims to facilitate the generation of a collated set of sequences and genotype information on African cattle
- ❑ For use by African and international research and breeding communities in cattle genomics for the ultimate benefit of African livestock keepers
- ❑ Facilitate the capacity building of African researchers in the field of genomics
- ❑ **More partners especially from North and South of Africa are welcome**
- ❑ **Signed MTA and country ABS permit are required**

Project update

- ❑ 13 African partners, 40 African cattle breeds and about 1500 samples (Figure A)
- ❑ Whole genome sequences of up to 380 samples is already in our database and the generation of new sequences is on-going
- ❑ Sequences are being mapped to the latest reference genome assembly (ARS-UCD1.2) for variants discovery and further analyses
- ❑ About 38 million SNPs identified in 346 samples and PCA of these samples shown in Figure B →



Expected outcome

- ❑ Design of tailored African SNP array(s)
- ❑ Define and characterize important cattle adaptability, resilient and productivity traits
- ❑ Project consortium, database and website
- ❑ Bioinformatics trainings targeted at African partners