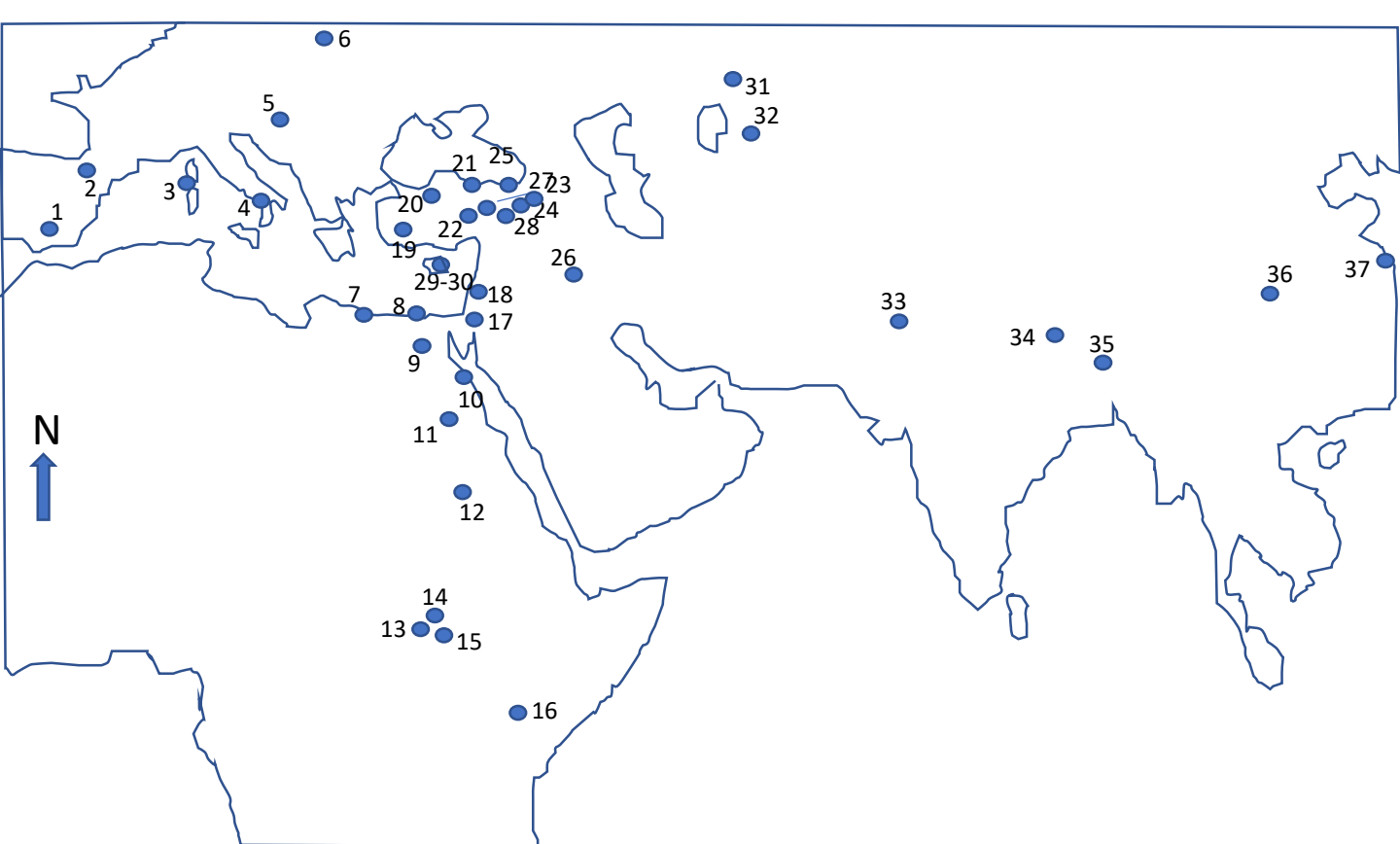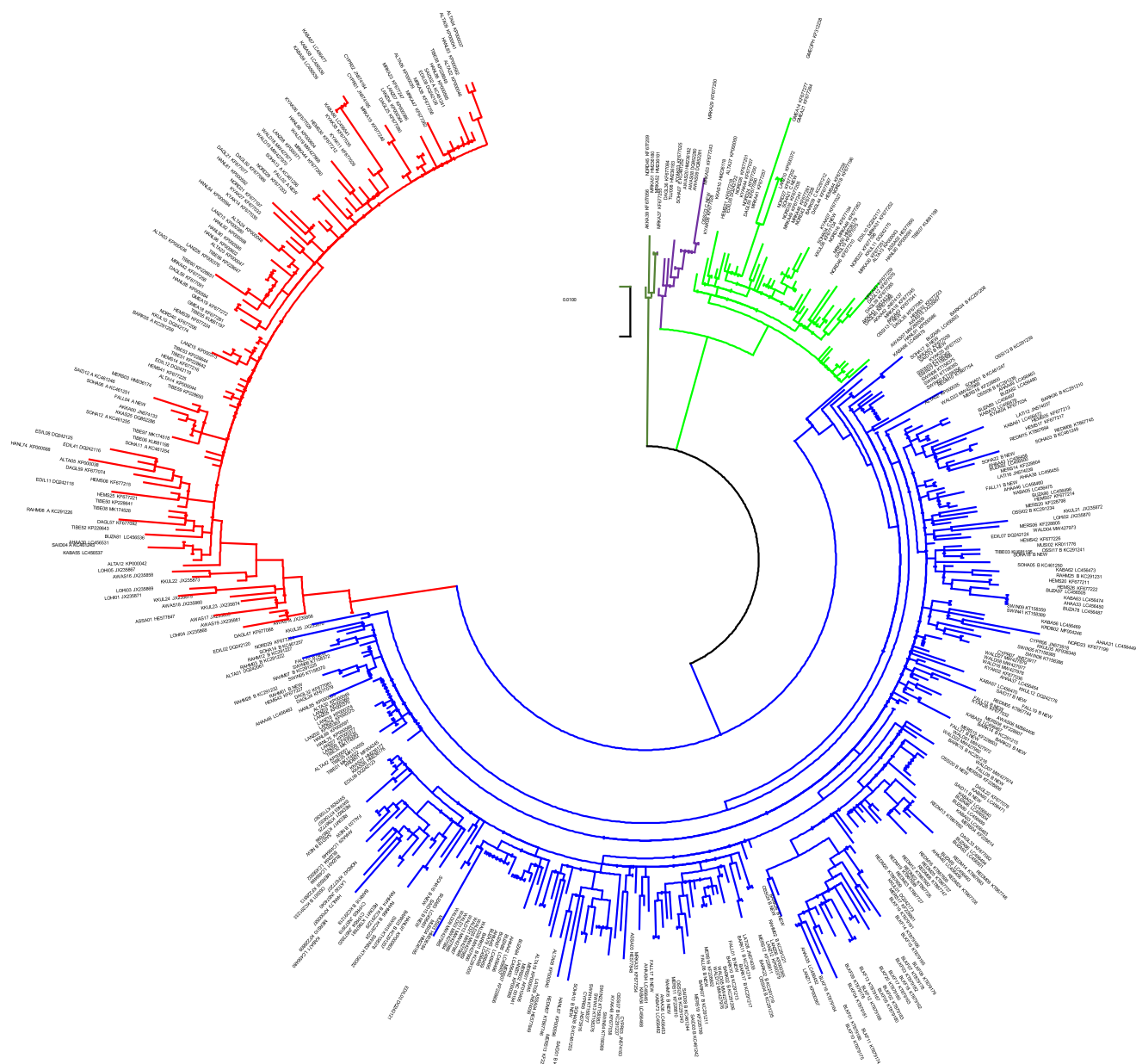Falllahi (Ram)

Falllahi (Ewe)

Barki (Ram)

Supplementary figure S1. Pictures of Fallahi (ram and ewe) and Barki (ram) breeds (courtesy of Pr O. Othman and Mr A. Ghazy, respectively).

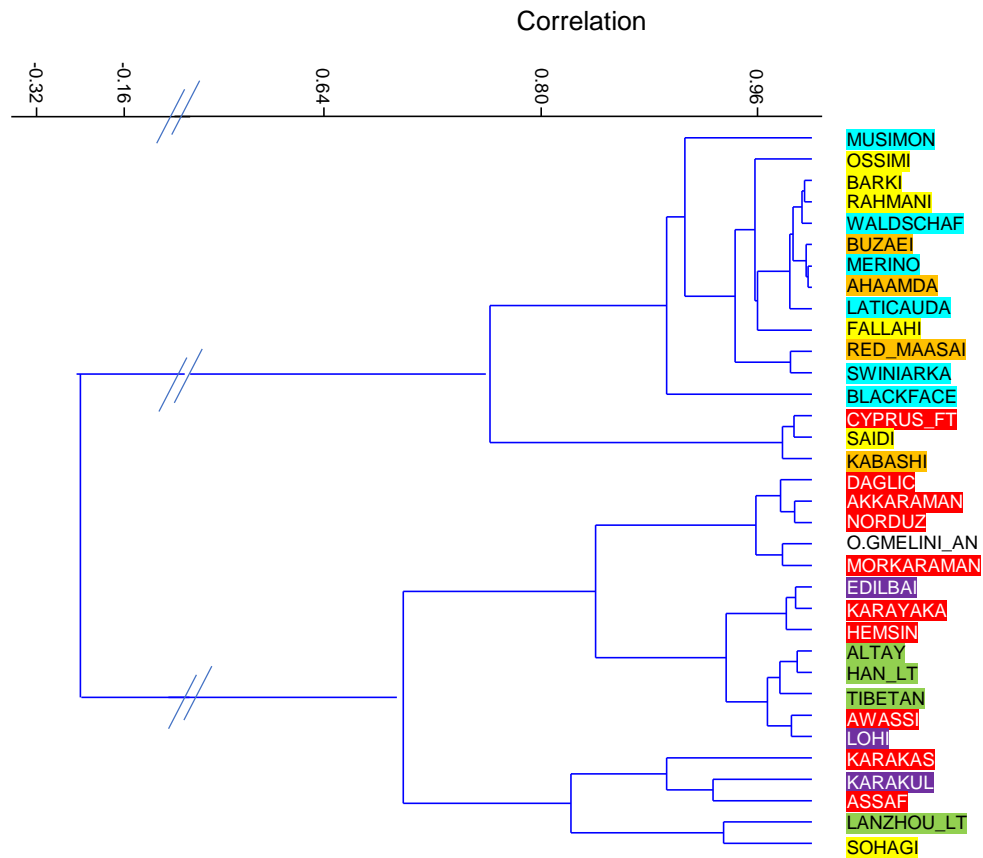**Supplementary figure S2. Localization of breeds.**

1: Merino; 2: Latxa Black Face; 3: *Ovis aries musimon*; 4: Italian Laticauda; 5: Waldschaf; 6: Swiniarka; 7: Barki; 8: Rahmani; 9: Ossimi; 10: Fallahi; 11: Saidi; 12 Sohagi; 13: Buzaei; 14: Kabashi; 15: Ahaamda; 16: Red Maasai; 17: Assaf; 18: Awassi; 19: Daglic; 20: Akkaraman; 21: Karayaka; 22: Karakas; 23 Norduz; 24: Morkaraman; 25: Hemsin; 26: Karadi; 27: Tuj; 28: *O. gmelini anatolica*; 29: *O. gmelini ophion*; 30: Cyprus fat-tailed; 31 Edilbai; 32: Lohi; 33: Karakul; 34: Altay; 35: Tibetan; 36: Lanzhou large-tailed; 37: Han large-tailed.
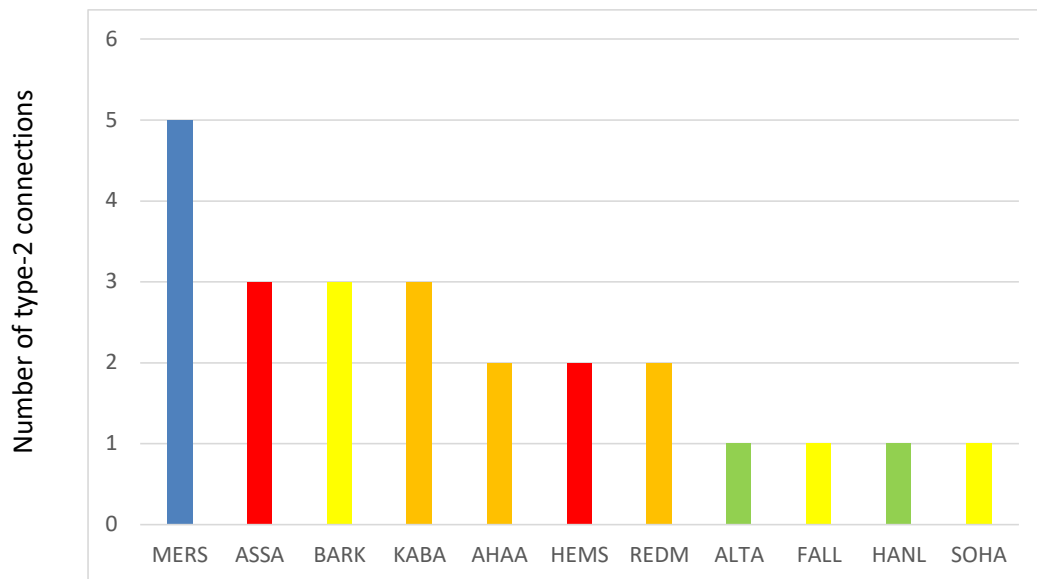
Supplementary figure S3. Phylogenetic tree.

The evolutionary history was inferred by PhyML [28] implemented in Seaview v. 2.4 [29] based on the HKY85 substitution model [30], with a gamma-distribution (Γ) of among-site rate variation (4 discrete categories) [31] and an estimated proportion of invariant sites (0.45). There were 720 homologous positions retained by Gblocks [32] in the final dataset of 467 aligned sequences. The best-scoring maximum likelihood tree has a log-likelihood (LnL) value of -8218.28 and the estimated value of α shape parameter of Γ was 0.44. The tree is drawn to scale, with branch lengths measured in the number of substitutions per site. The drawing was made with MEGA X [27].

The colours of the branches correspond to the haplogroups: red = A, blue = B, light green = C, dark green = D, and violet = E.

Supplementary figure S4. Cluster analysis of differentiation between breeds.

The *F*st values served to construct the figure, using Pearson correlation as a measure of distance. The background of letters indicates the origin of the breed. Yellow: Egypt; orange: East Tropical Africa; blue: Europe; red: Western Asia; violet: Central Asia; green: Eastern Asia. The drawing was made with PAST v. 4.03 [37].

Supplementary figure S5. Type-2 connections between the Italian Laticauda and other breeds.

The colour of each bar indicates the origin of the breed. Yellow: Egypt; orange: East Tropical Africa; blue: Europe; red: Western Asia; green: Eastern Asia. For the abbreviations of breeds, see table 1.