A072
Genetic variation of the endangered Catalonian donkey breed

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The Catalonian donkey is a local donkey breed located in several Pyrenean and pre-Pyrenean regions of the Catalonian area (North-east Spain). This breed has contributed to the formation and improvement of several European breeds, and has had a great and decisive influence in the formation of the American ass or Mammoth. The current census is very reduced; the total number of animals slightly surpasses 100 individuals, approximately a third of which are males.

Ninety-five individuals of both sexes were examined for variation at six biochemical genetic loci: Transferrin (*TF*) A_d=0.397, B_d=0.217, C_d=0.114 and D_d=0.272; 6-Phosphogluconate dehydrogenase (*PGD*) F=0.974, S=0.000 and C_d= 0.026; Vitamin D-binding protein (*GC*) F=0.181 and S=0.819; the other three systems were shown to be monomorphic, Albumin (*ALB*) C_d=1.000; Glucose phosphate isomerase (*GPI*) I=1.000; and α-1-β glycoprotein (*A1B*) A_d=1.000 (d=donkey-specific variant).

Four microsatellite loci isolated from the domestic horse, were used in our donkey population: *HTG6* (*n*=34 individuals), where four alleles were detected, ranging from between 82 bp to 90 bp interval (A=0.015; B=0.088; C=0.323; D=0.574); the other three markers were monomorphic, *HTG8* (*n*=20) only allele 182bp, *HMS5* (*n*=38) allele 105bp, and *HMS7* (*n*=19) allele 170bp.

A073
Genetic polymorphisms of equine ceruloplasmin and plasminogen in 12 horse breeds including Japanese native horses using a simultaneous detection method by isoelectric focusing

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A simultaneous detection method using isoelectric focusing (IEF) for equine ceruloplasmin (CP) and plasminogen (PLG) was established. These components were identified by immunostaining, and could be displayed within pI 4.4–8.7. By the present IEF method, CP and PLG types could be the classified into F and S types and 1 and 2 types as reported previously. As for the behaviour of the CP bands, it was recognized that the S band was more anodal than the F band. Furthermore, genetic polymorphisms of CP and PLG in 12 horse breeds including Japanese native horses were investigated using this method.

For CP variations, no variations were observed, all were of the F type. On the other hand, PLG variations were observed as the following allelic frequencies of PLG 1; Anglo-Arab 0.847, Thoroughbred 0.809, Hokkaido 0.818, Kiso 0.763, Misaki 1.000, Noma 1.000, Tokara 0.577, Taisyu 0.955, Yonaguni 0.778, Berton 0.670, Percheron 0.940, Cheju island horse 0.900, respectively. Observed and expected PLG phenotypes did not show significant deviation from the Hardy–Weinberg proportions by chi-square testing.

A074
Comparative analysis of some genetic markers in Polish Arabs and Konik Polski

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Genetic polymorphism of the following markers: 10 blood proteins (TF, ALB, ES, CA, PGD, PGM, PHI, GC, A1B, PI) and three microsatellite loci (*EA2C4*, *EB2E8*, *HTG8*) were compared in two horse breeds raised in Poland (Polish Arabs and primitive horse Konik Polski). Some alleles identified in Polish Arabs (ES^c; $A1B^s$, PHI^F, PI^F, PI^W, PI^{Z2}) were not present in the population of tested Konik Polski whereas the alleles as follows: TF^{F1}, CA^L, $A1B^F$, PI^{Z2}, PI^K, PI^x and *EB2E8* 135 bp were characteristic for Konik Polski. Moreover, a significant difference in frequency of alleles were also noted. We suggest that alleles PI^{Z2}, PI^K and *EB2E8* 135 bp could be considered as markers of Konik Polski because their frequency was high (0.4375, 0.1563, 0.2757, respectively). The higher value of genetic distance between both breeds was estimated on the basis of the frequency of alleles: *TF* (0.4382), *PGD* (0.5060) and *PI* (0.4088) whereas that calculated on the basis of 13 genetic systems was 0.1811.

A075
Serological and electrophoretic markers in the Marwari horse

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The Marwari horse, a native breed of India bred for speed, stamina and hardiness, is believed to be closely related to the Kathiawari with some Arabian breeding as well. Blood samples collected from 59 Marwari horses were tested for polymorphisms in seven blood group systems and eight electrophoretic systems. The polymorphisms that were found are listed here with the system designation followed by the allelic products for that system in parentheses. A (a, b, c, –); C (a, –); D (bcm, cgm, cegimn, de, dfkr, dghmr, dn, dk, dr); K (a, –); P (a, ad, b, bd, –); Q (abc, b, c, –); U (a, –); Al (A, B); Tf (D, F1, F2, H2, O, R); Es (F, I , G, *); Pi (F, G, I, K, L, L2, P, Q, R, S, U, Z, *); Xk (K, S, *); Gc (F, S); PGD (F, S); Hb (A2, B1, B2). * represents unidentified electrophoretic markers.

Allelic frequencies in this group are compared with those of Indian Thoroughbreds and those of US Arabians. Two points of interest are the high frequency of Hb-A2 (present in 27 samples) and the presence of Pi-Z (one sample) which has almost always been confined to the Arabian breed.

A076
Genetic variability and paternity testing in the Asturcon pony breed based on microsatellite markers

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