

AN IMPROVED CHARACTERIZATION OF DONKEY (*EQUUS ASINUS*, 2N=62) CHROMOSOMES BY USING C-, G- AND R-BANDING PATTERNS

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donkey, banding, karyotype, constitutive heterochromatin, breed

Few cytogenetic studies have been undertaken in the donkey (*Equus asinus*, 2n=62; EAS), so far. Indeed, the main interest on the chromosomes of this species is due to the close relationships with the horse, especially for a better understanding of the reasons for the sterility of their hybrids. A donkey chromosome nomenclature based on GTG-banding patterns at low-medium banding resolution was earlier presented by Raudsepp et al. (2000) and used in our study to construct improved G and R-banded karyotypes at about 450 band level and to study the distribution of constitutive heterochromatin (HC). Peripheral blood cultures from 15 animals of “Ragusana” and “Amiata” breeds were treated for early- and late-BrdU incorporation to obtain G- and R-banding patterns, respectively. Cell cultures were synchronised with MTX+BrdU (*G-banding*) or with thymidine (*R-banding*). Cell blocks were removed washing cells twice and recovering cells in fresh medium containing thymidine (G-banding) or BrdU+H33258 (R-banding). Improved banding patterns were obtained in all chromosomes enhancing our knowledge on the chromosomes of this species. In addition, CBA-banding (*C-banding by acridine orange staining*) revealed large blocks of HC in many chromosomes, in particular on EAS1q-prox (*the largest HC-block*). EAS1 shows also the p-arms C-band positive. HC varies among chromosomes. In particular, some animal of Ragusana breed showed a very small HC-block at the homozygous or heterozygous level, in EAS1q when compared with the that achieved in normal karyotypes. Further studies are necessary to better understand this phenomenon. This study is also our contribution for the standardization of donkey karyotype.