An Autosomal Pericentric Inversion in *Gallus domesticus*

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A pericentric inversion in the number two autosome was produced by sperm irradiation, and isolated in a line of birds. Morphology of the autosome changed from markedly submetacentric (arm ratio 0.58) to almost metacentric (arm ratio 0.80). Examination of pachytene cells revealed that no inversion loop was present but a non pairing segment was visible in some cells. Chiasmata counts at diakinesis suggested that the inversion caused a reduction of 0.6 chiasma (not yet tested statistically). Secondary spermatocyte metaphases showed a ratio of 0.5 for normal to inverted two autosomes, and genome imbalances were not detected.

Fertility levels in matings of heteromorphic males to normal females were normal and examination of metaphases from 18 hour embryos showed a ratio of 0.5 for normal to heterozygous karyotypes, with no chromosome imbalances being detected.

Molekulare Aspekte bei Chromosomenaberrationen

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Zunehmend vertrauter werden die optischen Darstellungen von Chromosomen-aberrationen, wenn leider auch meist nur mit lichtmikroskopischen Aufnahmen. Zum besseren Verständnis der Veränderungen des chromosomalen Materials ist jedoch eine molekulare Betrachtungsweise der Chromatinphysiologie erforderlich. Die Beschreibung der einzelnen Funktionselemente der Chromatinelementarfaser und der Metaphasenchromosomen ermöglicht Einblicke in die Mechanismen der Chromatinmetabolisierung und die daraus entstehenden Chromosomenaberrationen.

Variability of banding patterns in chromosome F1 of the cat karyotype

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A striking polymorphic banding pattern of chromosome F1, one of the two *t* pairs, was observed in a cat family. The family was brought to our attention because the dam continually gave rise to small litters and on one occasion two malformed kittens.

The broad light G-banded segment was demonstrated to be either double sized (q+) or completely missing (q—). With the Q and the R techniques the « normal » and « + segments » did not fluoresce, or fluoresced very weakly, respectively, while with the C technique the segment stained dark. Individuals with the chromosome combinations, qq, qq+ and q+q—, have been observed, all of which were phenotypically normal and apparently with normal fertility.

The nature of the polymorphic banding pattern and possible association to litter size and malformations are discussed.

La chromatine Barr dans les cellules du sarcome de Stiker

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La maladie de STICKER, sarcome vénérien du chien, est due à la greffe d'une cellule véhiculant un virus lors du contact sexuel ou dans des conditions expérimentales (cf. D. PASCA, Th. Méd. Vét., Bucarest, 1972). Parmi les chromosomes de la cellule tumorale prédominent les dibran-

chiaux résultant surtout par fusion centrique des chromosomes monobranchiaux habituels chez le chien. Dans les deux sexes, de nombreuses cellules tumorales interphasiques portent un chromocentre ressemblant au corpuscule X de BARR.

Les différences dimensionnelles entre ces chromocentres semblent évoquer des causes différentes pour leur formation :

1) contamination des cellules à deux chromosomes X par le virus;

2) prolifération sélective de certaines lignées cellulaires;

3) fusion centrique par translocation d'un chromosome X sur un autre chromosome ou fragment chromosomique, ainsi que cela semble ressortir de la technique de dénaturation thermique ménagée (bandes R de DUTRILLAUX et LEJEUNE, 1971).

R-banding patterns of the dog chromosomes

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Identification of individual chromosome pairs of the dog karyotype have been impossible using conventional staining techniques due to the existence of a high chromosome number ($2n = 78$) and a karyotype containing only acro- or telocentric autosomes. The Q and the G techniques have not made possible accurate identification of all pairs. With a combined Q and R staining technique after BudR incorporation all pairs of chromosomes are easily identified. The Q- and G-banding patterns are described.

Remarks on Identification of X chromosome in Pig

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Identification of X chromosome in pig is still very controversial. Karyotype of pig was investigated by visualising G bands after treatment with trypsin. The fluorescence pattern of R bands was evaluated after application of BUDR and staining with acridine orange.

Occurrence of fluorising R band at the end of *p* arm of X chromosome suggested to be the identifing feature of this sex chromosome in pig.

The effect of Feeding Various Levels of Aflatoxin B_1 on the chromosome Pattern of Rats and Pigs

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Inadequate storage and handling of feeds under intensive husbandry conditions may result in their contamination with moulds, among which *Aspergillus flavus*, producing aflatoxin, is a hazard in particular. To date, the data on negative effects of aflatoxin on chromosome pattern have been scanty, being based merely on the effects produced by its addition to human lung cell culture.

In our experiments aflatoxin B_1 was fed to rats and pigs at various dose levels ranging from 4 ppm to LD_{50} for varying lengths of time to investigate its effects in vivo. In addition to a considerable effect on reproductive performance, the low doses produced mainly numerical aberrations, the medium ones were responsible in addition for structural aberrations and the LD_{50} produced various types of marked structural aberrations in more than 75 per cent of all cells.