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Chromosomes of the Laboratory Mouse¹

MARGART L. WATSON AND JERRY D. OLIVER²

Abstract. The chromosome number of 40 for the laboratory mouse was confirmed. A karyotype of mouse chromosomes was made. The chromosomes can be arranged into four groups based on size and shape.

Since the albino mouse is so widely used in research, we felt that it might be valuable to attempt to confirm the early chromosome count of forty made by Painter (1) by using more modern techniques. The mice of this study were from a Bagg albino strain obtained from Dr. Ernst W. Caspari. Four pregnant females were sacrificed, and chromosomes from 14 embryos were studied.

The method of obtaining the chromosomes was the technique of Ford and Woolam (2) in which both the pregnant female and the embryonic livers were treated with Colcemid (Ciba).

The staining technique was our own modification of various methods. We stained the smears in a 3% solution of Orcein in 45% acetic acid for 30 minutes. The slides were rinsed in two changes of 45% acetic acid, and then air dried. After they were thoroughly dry, they were mounted in Euparal.

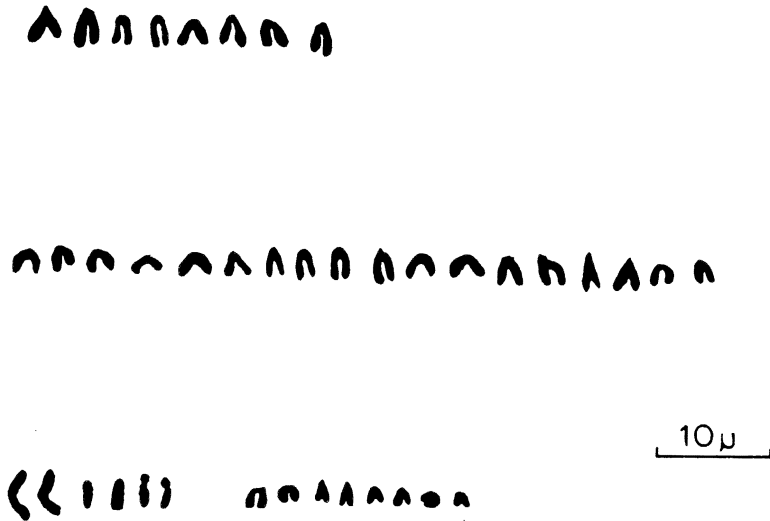


Figure 1. Karyotype of mouse chromosomes, prepared from camera lucida drawing.

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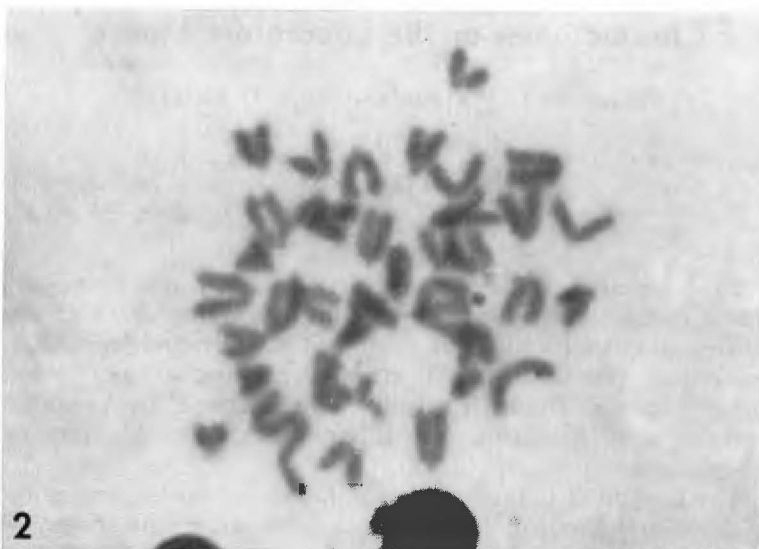


Figure 2. Chromosomes of the laboratory mouse. Metaphase plate, from embryonic liver tissue ($\times 2250$)

The chromosomes were drawn with the aid of a camera lucida. When arranged according to size and shape, they seemed to form four natural groups, as shown in Figure 1. We cannot be certain in every case that we have arranged the chromosomes as homologous pairs. The drawing was from a metaphase plate such as is illustrated in Figure 2. The photograph was taken on high contrast copy film.

Our work confirmed Painter's chromosome count of 40 for the laboratory mouse. A karyotype of the chromosomes was prepared.

Literature Cited

1. Painter, T.S., 1928. *Genetics* 13:180-189.
2. Ford, E.H.R., and D.H.M. Woolam, 1963. *Stain Technology* 38:271-274.