# THE IDENTIFICATION OF PISUM CHROMOSOME 7 IN THE INTERPHASE NUCLEUS

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As described earlier (1) Pisum chromosome 7 is characterized by a very prominent heterochromatic block distal on the q-arm [long arm -Ed.] near the secondary constriction (Fig. 1). These regions easily can be recognized in Pro-/Metaphase nuclei and, in suitable preparations, even the respective chromosomes can be identified as a whole (Fig. 2). In earlier stages (P) these prominent regions likewise are visible. Figs. 4 through 6 show four prophases in different stages of development. Though in these nuclei an identification of the respective chromosome is not possible, because its total length cannot be followed, the characteristic heterochromatic segment clearly marks the position of chromosome 7, or at least that of its terminal region. In interphase all heterochromatin of the chromosomes is visible as smaller or larger dots (Fig. 3). Yet, the heterochromatin of chromosome 7 are largest and are clearly discernible from the others (Fig. 3). This finding offers the possibility to investigate the position in relation to one another and within the interphase nucleus.

In Fig. 7 several stages of mitosis are depicted. As clearly can be recognized, the size of the heterochromatic block of chromosome 7 is more or less unchanged in the course of development from interphase to metaphase. This is further proof that heterochromatin remains heteropycnotic during interphase.

Close observation of the long P/M-chromosome shows an interesting detail. The longitudinal magnification of the chromosomes reveals that some further heterochromatic regions, other than those described (I), are present, which are not visible in metaphase chromosomes because of their strong spiralization. The tiny bandings are concealed under these conditions. In Fig. 2 such a tiny banding on the long arm of chromosome 7, adjacent to the large intercalary banding, is visible (arrow). In addition, these extreme long chromosomes show that the centromere region, in general, is a block of several small heterochromatic bandings (Fig. 2, arrows).

1. Wolff, G. 1985. Nucleus 28:3-7.

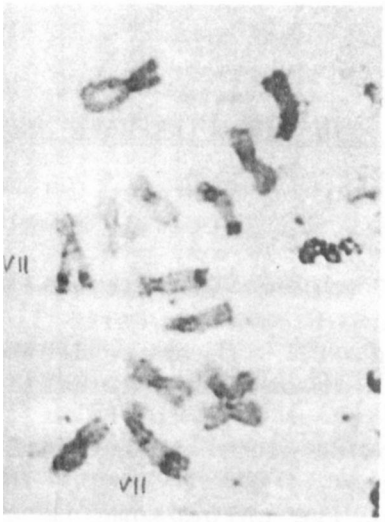


Fig. **1.** Metaphase of root-tip meristem; Pisum sativum, cv.'Dippes Gelbe Viktoria'; C-banding.

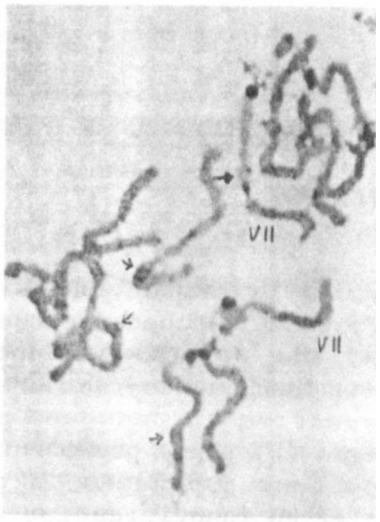


Fig. **2.** Pro-/Metaphase of root-tip meristem; Pisum sativum cv. 'Dippes Gelbe Viktoria C-banding.

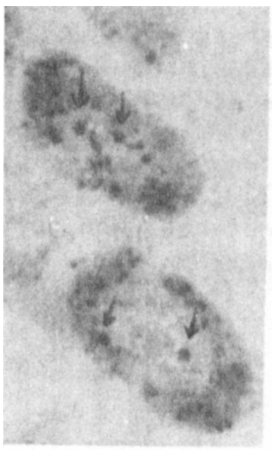

Fig. 3. Interphase nuclei of root-tip meristematic cells; arrow: heterochromatin block of chromosome 7.

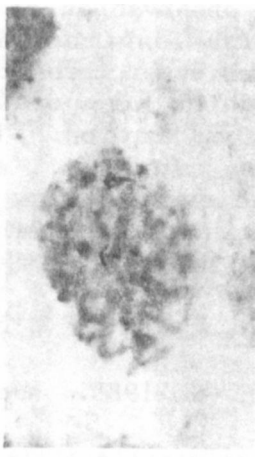

Fig. 4. Early Prophase. Arrow: heterochromatin block of chromosome 7.

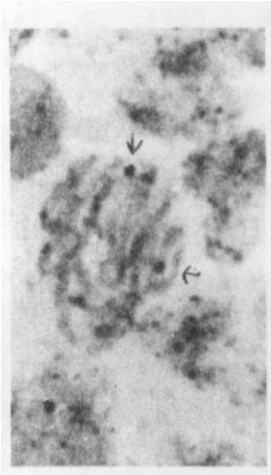

Fig. 5. Middle Prophase. Arrow: heterochromatin block of chromosome 7.

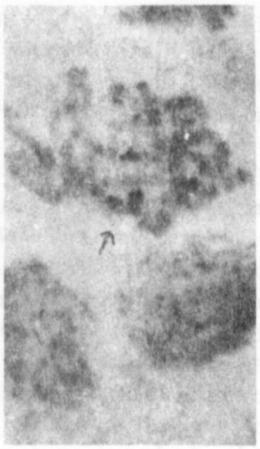

Fig. 6. Late Prophase. Arrow: heterochromatin block of chromosome 7.

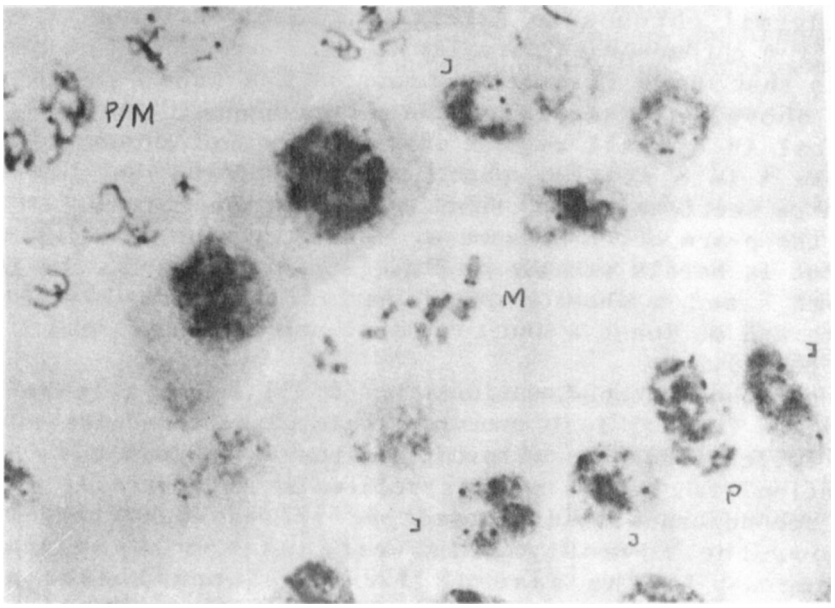


Fig. 7. Meristematic root-tip cells of Pisum sativum. I = Interphase; P = Prophase; P/M = Pro/Metaphase; M = Metaphase.

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