

THE USE OF LEAD NITRATE FOR DETECTION
OF THE INTRACELLULAR APPARATUS RETICULAR

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We propose a modification of Cajal's method, by substituting lead nitrate for uranium nitrate. The material should be treated as follows:

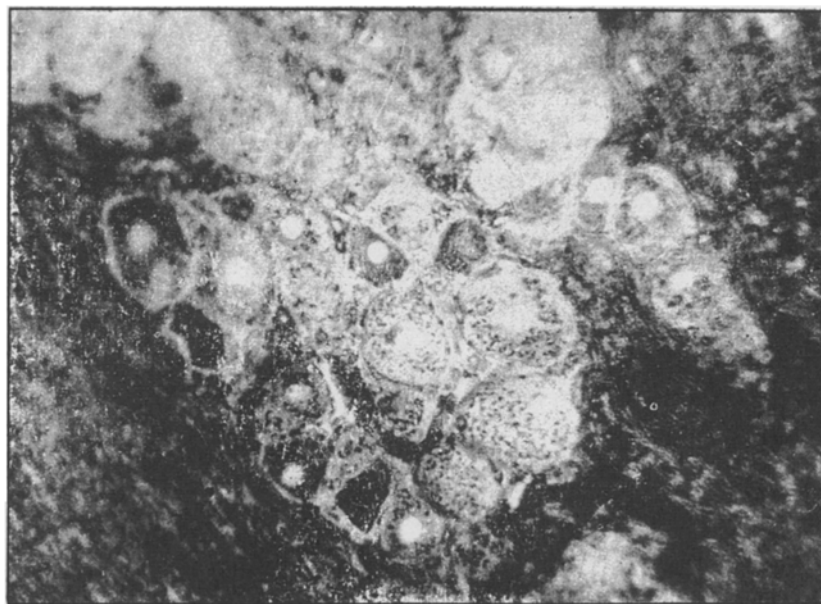


Fig. 1. Section of the spinal ganglion of a cat. Stained by a modification of Ramón y Cajal's method to detect the Golgi apparatus.
Magnification: ocular 7x, objective 40x.

- 1). Fixation for 10 hours in the mixture: lead nitrate — 1 g, neutral formalin — 15 ml, distilled water — 100 ml.
- 2). After rapid rinsing in distilled water the pieces of material are kept for 24 hours in a 1.5% solution of silver nitrate.
- 3). The specimens are placed for 2-5 hours in a mixture of hydroquinone (2 g), formalin (10 ml) and distilled water (100 ml) to which has been added anhydrous sodium sulfate, a grain at a time until it dissolves, until the mixture acquires the color of tea.



Fig. 2. Section of the vagus nerve ganglion of a cat. Stained by a modification of Ramón y Cajal's method to detect the Golgi apparatus.
Magnification: ocular 7x, objective 40x.

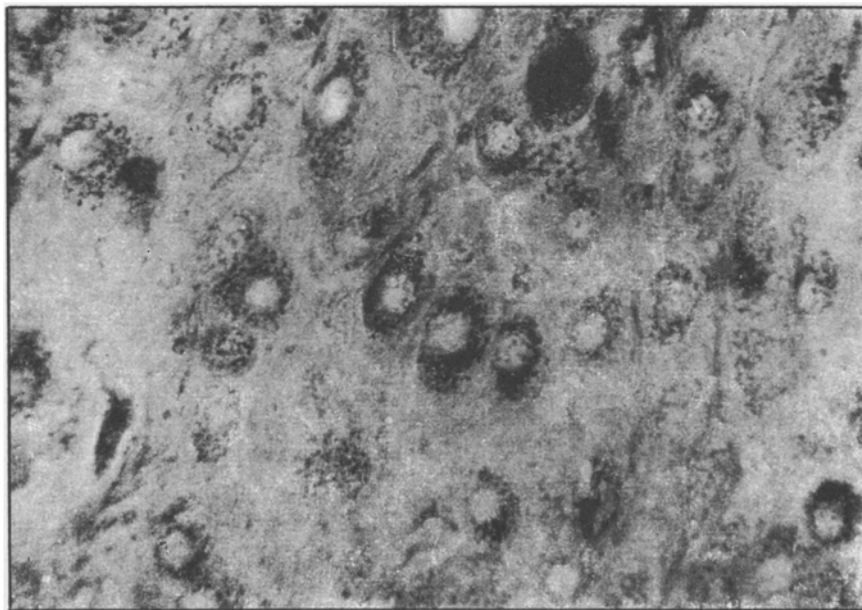


Fig. 3. Section of the cranial cervical ganglion of a cat. Stained by a modification of Ramón y Cajal's method to detect the Golgi apparatus.
Magnification: ocular 7x, objective 40x.

4). The specimens are rapidly rinsed in distilled water, taken up through increasing strengths of alcohol and embedded in paraffin wax.

In this work we selected small fragments of organs (up to 0.5 cm in thickness). This enabled the material to be taken through alcohol quickly: for 1 hour in the 45° and 70°, 3 hours in the 96° and 3-6 hours in the absolute alcohol.

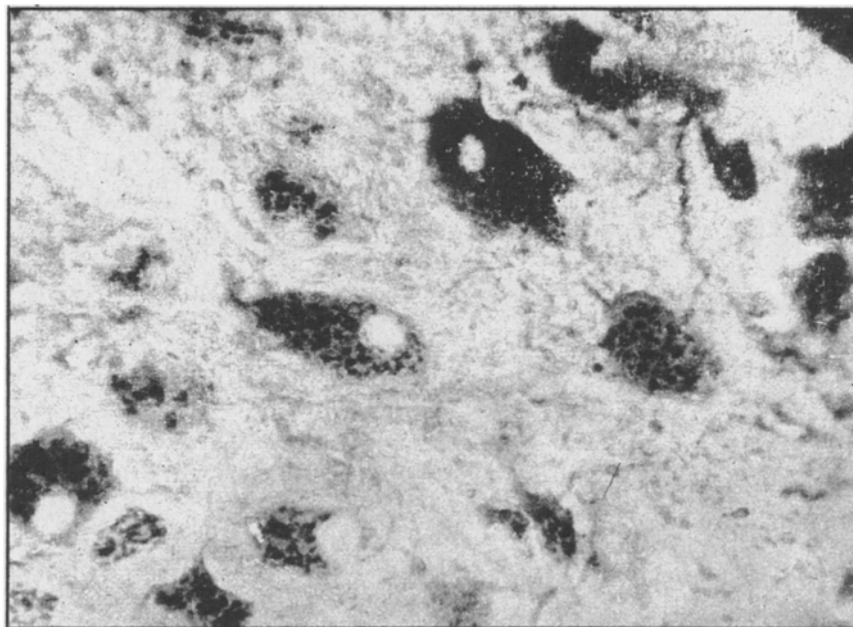


Fig. 4. Section of the semilunar ganglion of a cow. Stained by a modification of Ramón y Cajal's method to detect the Golgi apparatus. Magnification: ocular 7x, objective 40x.

By using the method described, we obtained good results in examinations of the spinal ganglia (Fig. 1), the ganglion nodosum (Fig. 2) and the cranial cervical ganglion (Fig. 3) of cats and the semilunar (Fig. 4) and the stellate ganglia of cattle. The Golgi apparatus stains a black color.

In sections of the spinal ganglia differences are clearly seen in the size, intensity of staining and the character of the color hues of the nerve cells (Fig. 1). As a rule the protoplasm of the larger cells is stained less intensely. In other ganglia which we investigated, there was little difference between the nerve cells as regards the intensity of staining.

SUMMARY

As a result of experiments it was established that lead nitrate may be employed for the detection of the internal reticular apparatus. Together with the neutral formalin, lead nitrate is included into the content of the fixating solution. The preparation is kept in the silver nitrate solution and, finally, in the mixture of hydroquinone, sodium sulfate and formalin. Then the material is quickly passed through the alcohols and is embedded in paraffin. The whole process takes about 5 days. Following this treatment Golgi apparatus are clearly seen in the nerve cells of various ganglia in mammals, epithelial cells of the small intestine, cells of the corpus luteum and oocytes.

LITERATURE CITED

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