

I.V. Bobrysheva

State institution “Lugansk State Medical University”

Key words: rats, pituitary gland, thyrotropic cells, imunofan.

Received: 14.10.2012

Accepted: 20.11.2012

UDC 577.3:615.275

FEATURES OF STRUCTURAL CHANGE OF THYROTROPIC CELLS OF PITUITARY GLAND AFTER EXPERIMENTAL IMMUNOSTIMULATION

The study was conducted as part of the research work “Features of the structure of immune and endocrine systems in immune stimulation and immune suppression” (state registration 0112U000096).

Summary. The purpose of the presented research was to determine the dynamics of changes of structure of thyrotropic cells of pituitary gland of mature white laboratory rats after imunofan application in a dosage 0,7 mg/kg of body weight. Control animals received 0,9% soluble sodium chloride. The pituitary samples were taken on 1st, 7th, 15th, 30th, 60th, and 90th day after treatment. The conducted morphological and morphometric research with the high degree of validity showed that in reply to introduction of immunomodulator of imunofan the change of structure, cytological and caryometric parameters of thyrotropic cells of pituitary gland of mature white rats is observed, that testifies to their active reaction on exogenous influence. Dynamics of change of areas of nuclei, nuclear-cytoplasmic ratio, and also percent correlation of thyrotropic cells with the different diameter of their nuclei of pars distalis of pituitary gland testifies to appearance of signs of increase of functional activity of these cells of pituitary gland: the significant increase of indexes of experimental groups in relation to control data is established since 7th days after introduction of preparation.

Citation: Bobrysheva IV. [Features of structural change of thyrotropic cells of pituitary gland after experimental immunostimulation]. *Morphologia*. 2012;6(4):22-8. Russian.

© **Bobrysheva I.V., 2012**

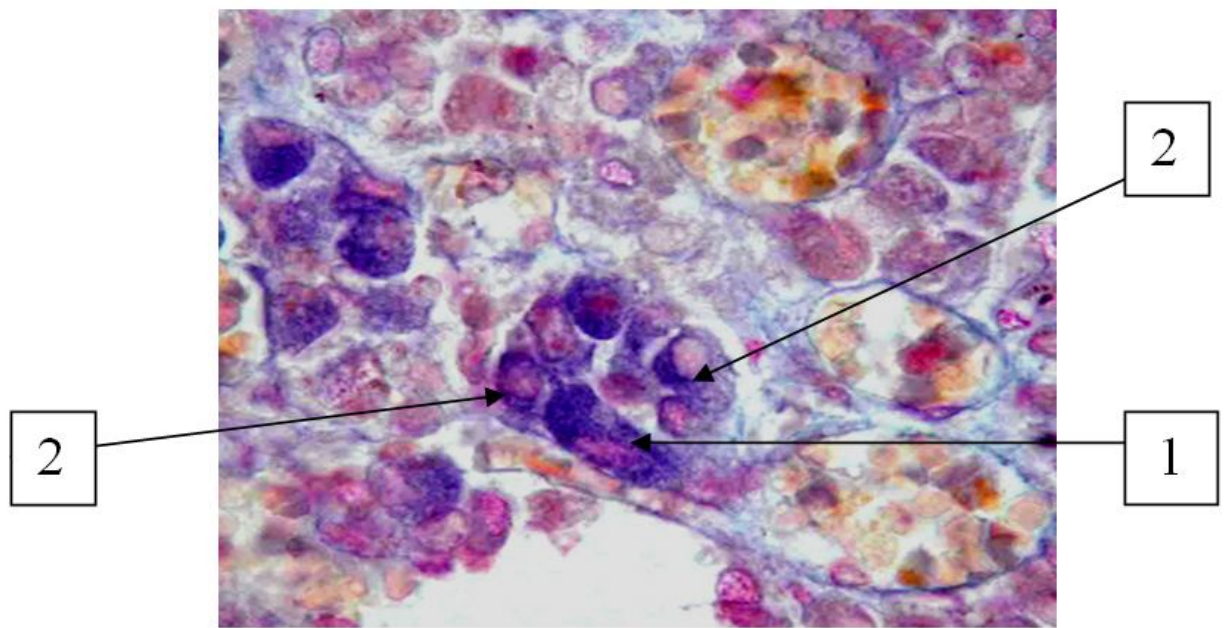


Fig. 1. Adenohypophysis of the adult male white rat of the control group. 1 – thyrotropic endocrinocyte, 2 – gonadotropic endocrinocytes. Mallory's stain. $\times 162$. Lens: Plan CN $\times 60/0,25\infty/-/FN22$.

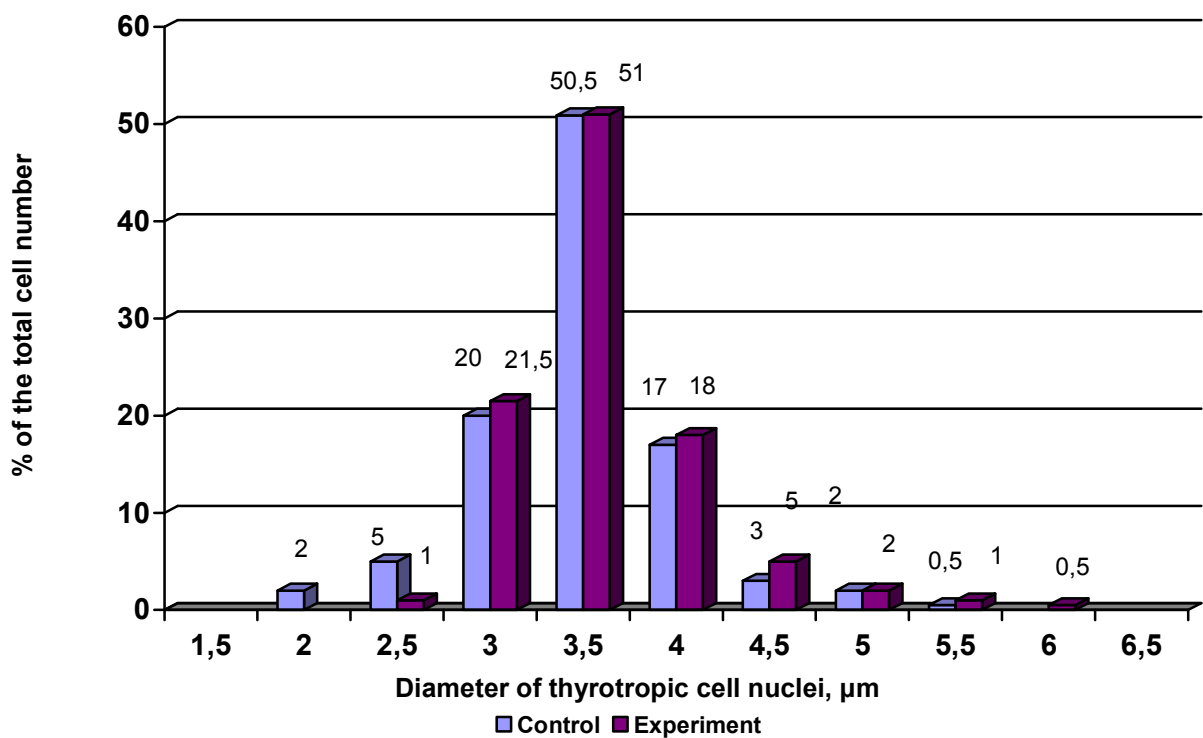


Fig. 2. Percentage of thyrotropic cells with nuclei of different diameter in the control animals and in the animals 1 day after Imunofan administration.

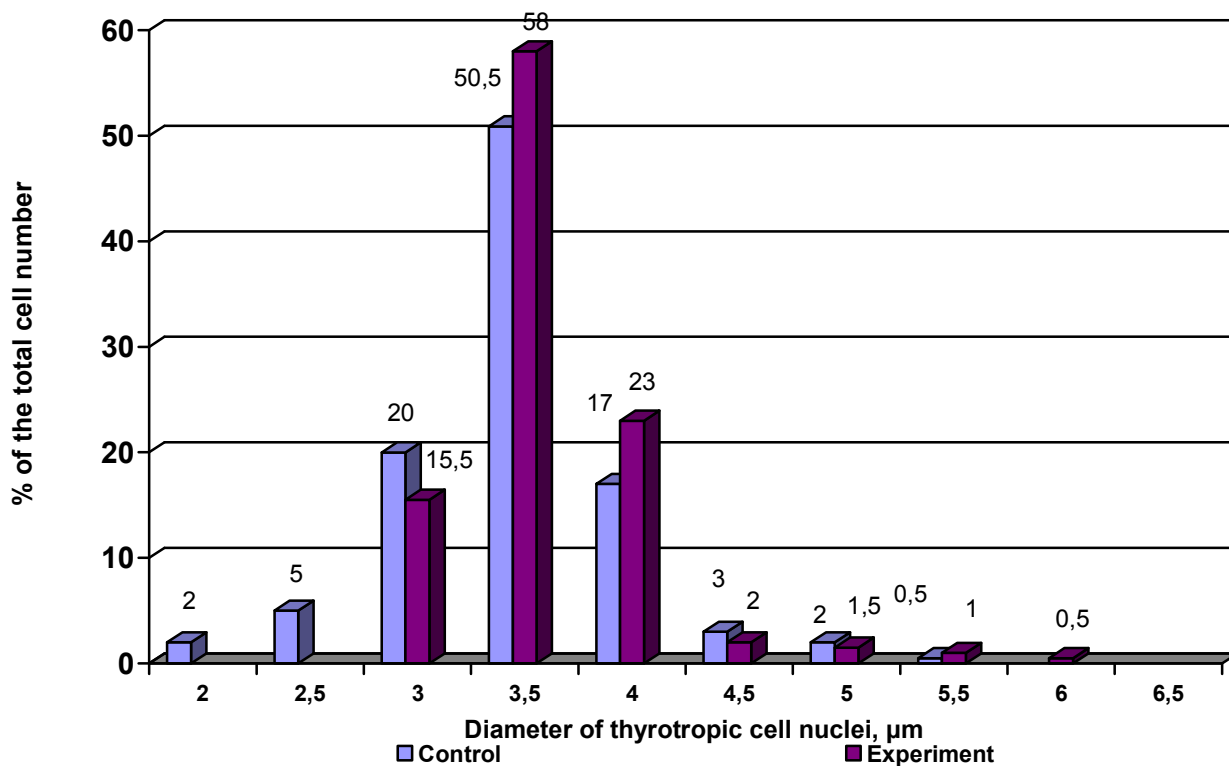


Fig. 3. Percentage of thyrotropic cells with nuclei of different diameter in the control animals and in the animals 7 days after Imunofan administration.

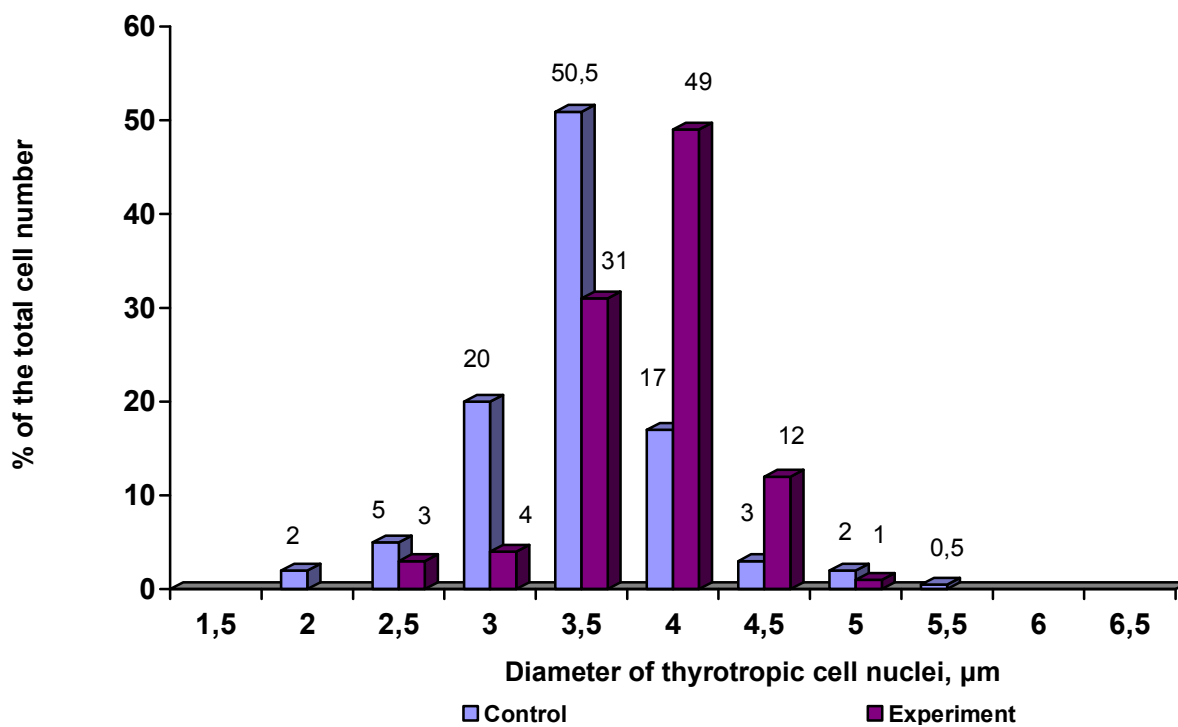


Fig. 4. Percentage of thyrotropic cells with nuclei of different diameter in the control animals and in the animals 15 days after Imunofan administration.

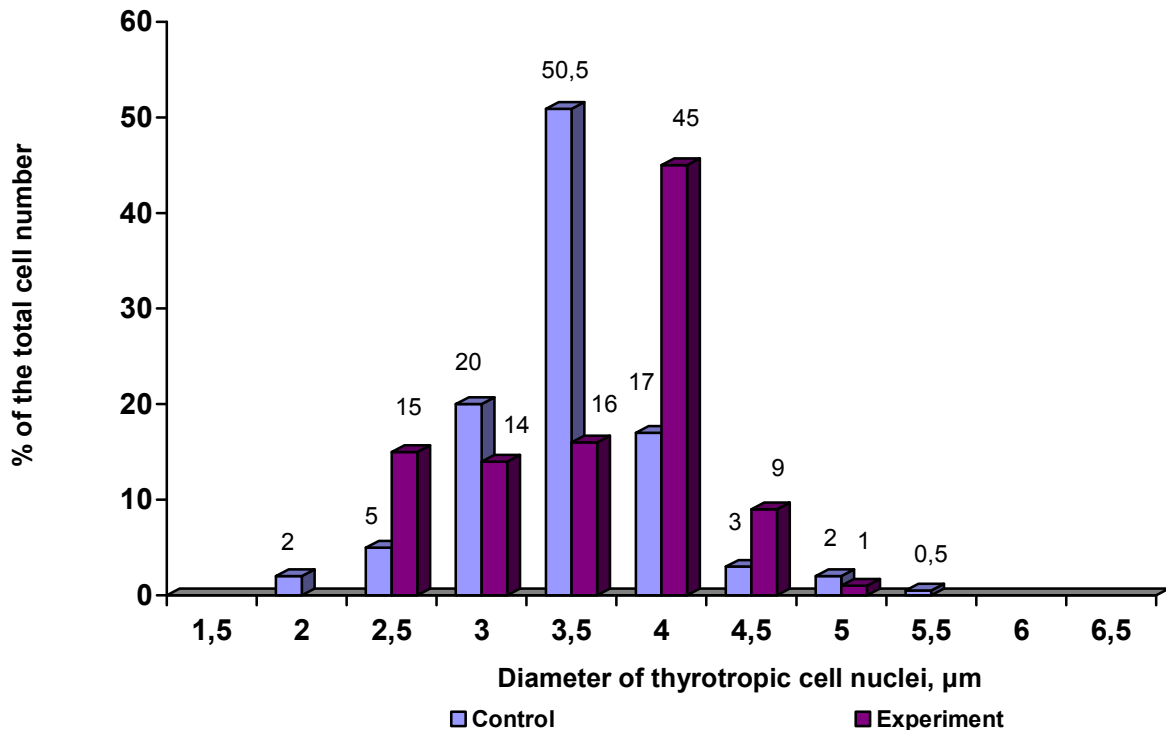


Fig. 5. Percentage of thyrotropic cells with nuclei of different diameter in the control animals and in the animals 30 days after Immunofan administration.

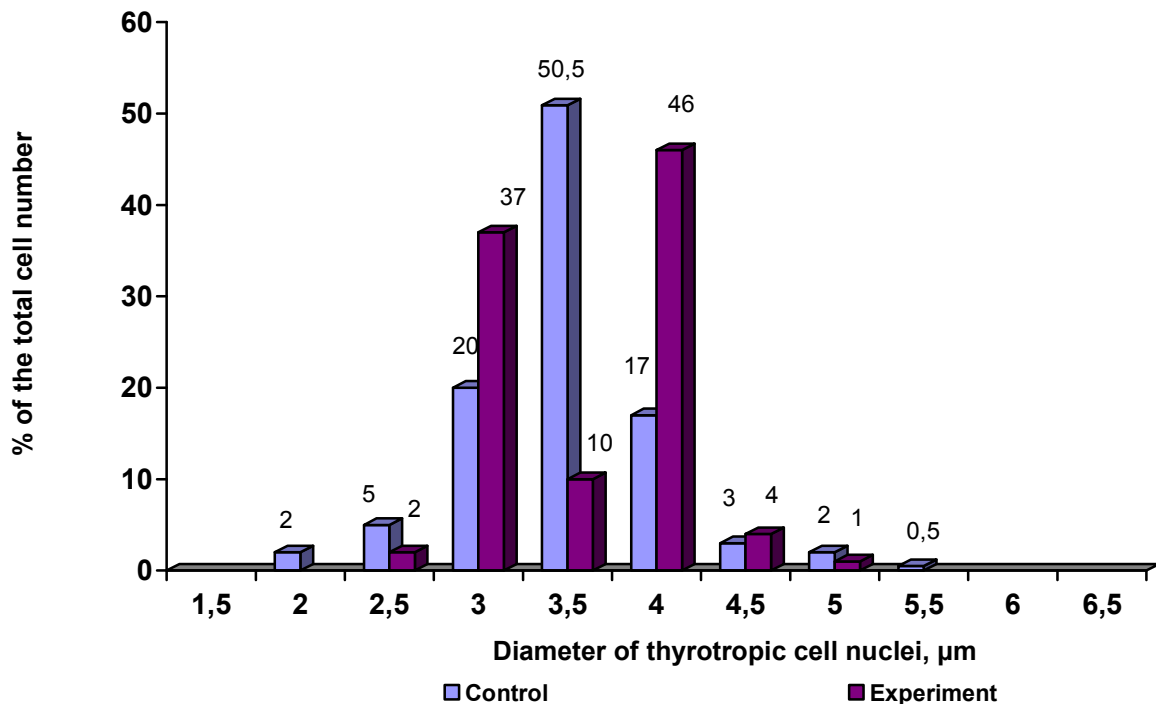


Fig. 6. Percentage of thyrotropic cells with nuclei of different diameter in the control animals and in the animals 60 days after Immunofan administration.

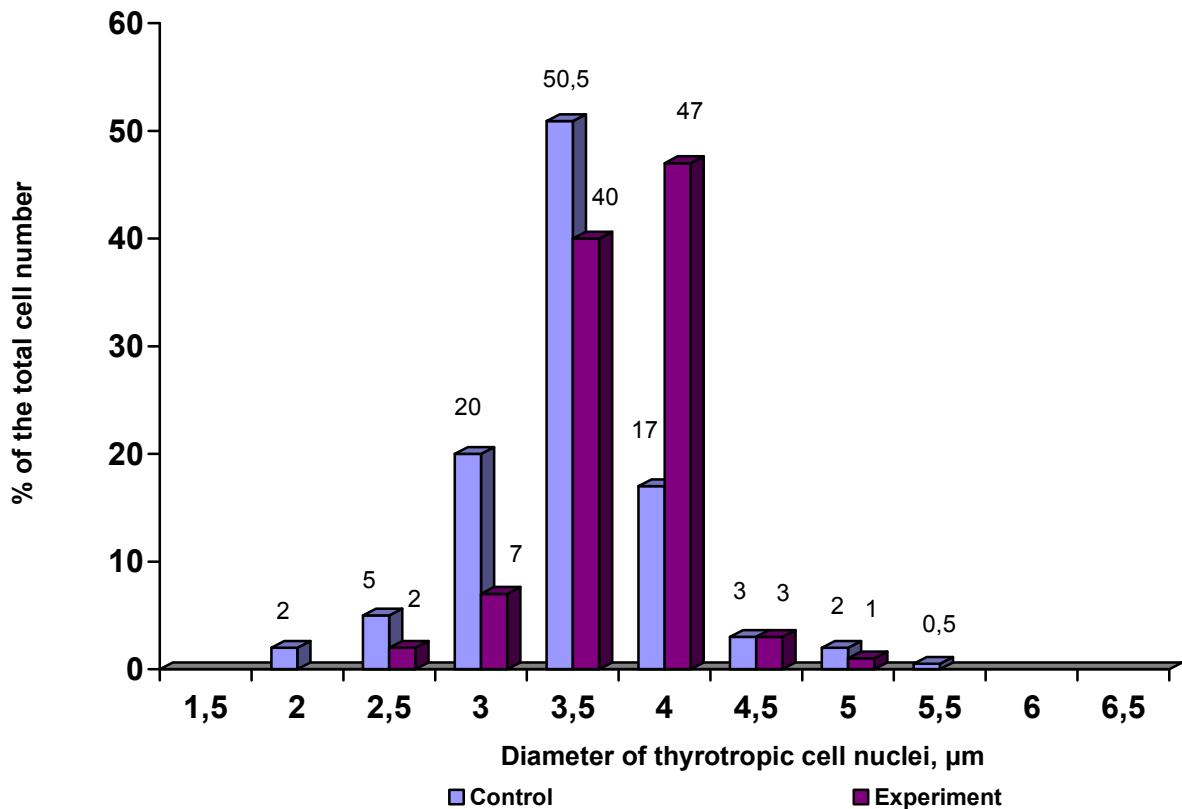


Fig. 7. Percentage of thyrotropic cells with nuclei of different diameter in the control animals and in the animals 90 days after Imunofan administration.

References:

Chaykovskiy YuB, Lutsyk OD, editors. Gistologichna nomenklatura: Mizhnarodni terminy z tsitologiyi ta gistologiyi lyudyny [Terminologia Histologica: International Terms for Human Cytology and Histology]. Kyiv: Meditsina; 2010. 283 p. Ukrainian.

[On protection of animals from cruelty], The Law of Ukraine No. 3447 (Feb 21, 2006).

Kashirina NK, Rogozina OV. [Morphological analysis of the ultrastructure of the adenohypophysis thyrotropocytes in ambient conditions and chronic lead intoxication]. Ukrayinskiy morfologichniy almanakh. 2006;4(1):78-81. Russian.

Kukhar ID. [Morphological response of the anterior pituitary to skin cryodestruction of albino rats in the long-term period after exposure]. Visnyk morfologiyi. 1998;4(2):198-9. Russian.

Lebedev VV, Pokrovskiy VI. [Imunofan : a synthetic peptide preparation of a new generation]. Vestnik Rossiyskoy akademii meditsinskikh nauk. 1999;(4):56-61. Russian.

Rogozina OV, Bolshakov SA, Kashyryna NK. [Ultrastructural changes of thyrotrophs under lead intoxication]. Visnyk morfologiyi [Reports of morphology]. 2010;16(1):73-6. Ukrainian.

Rozhkov IM. [Ultrastructural changes in the adenohypophyseal thyrotrophs under prolonged nitrate intoxication]. Visnik problem biologiyi i medytsyny. 2005;1:75-81. Ukrainian.

Rozhkov IM. [Histophysiological state of adenohipophyseal thyrotrophs under nitrate intoxication in different periods of ontogenesis]. Biomedical and Biosocial Anthropology. 2004;(2):207-9. Ukrainian.

Sepiashvili RI. [Functional system of immune homeostasis]. Allergologiya i immunologiya. 2003;(2):5-14. Russian.

Tyrtyschaya GV, Parakhonskiy AP. [The relationship disorders of the immune and endocrine systems in autoimmune disease]. Sovremenniye naukoymkiye tekhnologii. 2007;(2):80-1. Russian.

Denisov SD, editor. Eticheskiye voprosy ispolsovaniya zhyvotnykh v uchebnoy rabote i nauchnikh issledovaniyakh [Ethical aspects of animal use in teaching and research work]. [Belarusian-British Symposium]; 1997 Oct 16-18. Minsk; 1998. 140 p.