

THE UKRAINIAN BIOCHEMICAL JOURNAL

Volume 90, Special Issue, 2018

Kyiv

FEBS3+ Meeting – XIth Parnas Conference – Young Scientists Forum “Biochemistry and Molecular Biology for Innovative Medicine”

Contents

Pre-Conference Workshop	4
Plenary lectures	5
Key-note lectures	6
Young Scientists’ Talks	
Symposium I. Intracellular signaling	9
Symposium II. The biochemistry of the cell	12
Symposium III. Cell signaling in cancer	15
Symposium IV. Ligand-receptor binding in cell functions	18
Symposium V. From cell to organism	21
Symposium VI. Molecular biology of bacteria and viruses	24
Symposium VII. Metabolic engineering in the construction of the advanced biotechnological producers	27
Symposium VIII. Studying biology in single-molecule resolution	30
Symposium IX. Biochemical mechanisms in disease	33

Poster Session I. Biologically active compounds	36
Poster Session II. Biotechnology	57
Poster Session III. Cancer studies	74
Poster Session IV. Clinical studies	90
Poster Session V. Medicinal biochemistry	101
Poster Session VI. Metabolism regulation and pathology	120
Poster Session VII. Molecular biology	131
Poster Session VIII. Proteomics	151
Abstracts without presentation	164
Authors' index in alphabetical order	194

MANNOSE-CONTAINING GLYCOTOPES OF LEUKOCYTES IN NEURO-ONCOLOGICAL DISEASE

*O. V. NETRONINA*¹, *G. S. MASLAK*¹, *A. G. SIRKO*^{2,3}, *D. M. ROMANUKHA*³

¹*SI Dnipropetrovsk Medical Academy of Health Ministry
of Ukraine, Dnipro, Ukraine;
e-mail: netronina.olga@gmail.com;*

²*Cerebral Neurosurgery Department No 2, Mechnikov Dnipropetrovsk
Regional Clinical Hospital, Dnipro, Ukraine;*

³*Nervous Diseases and Neurosurgery Department,
Postgraduate Education Division, Dnipropetrovsk Medical Academy,
the Health Ministry of Ukraine, Dnipro, Ukraine*

There is a tendency to an increase in the incidence of tumors of the central nervous system in Ukraine. Among the primary brain tumors in adults, glioblastomas predominate. With the growth, differentiation and malignization of cells, the structure of membrane glycoproteins changes. In the oncologic process, there is a change in the expression of the number of glycoconjugates on the membranes of malignant cells. Therefore, the change in glycobiological indicators in cancers can be a priority direction of the research, namely, the development and improvement of existing methods of treatment.

The aim of the work was to establish quantitative changes in the glycosylation of leukocytes and separately in their lymphocyte fraction upon neuro-oncological diseases.

The subject of the study were blood leukocytes of patients with brain tumors ($n = 10$). To isolate leukocytes from human heparinized blood, OptiLyse C lysis solution (Beckman Coulter, USA) was used. Separation of the lymphocytes fraction from blood was carried out in a gradient of ficoll-urografin density according to the modified Boyum A. The control group consisted of 10 conditionally healthy donors. The number of blood cells was determined by flow cytometry using mannose-specific lectin of the *Canavalia ensiformis* - Concanavalin A (ConA). The analysis was carried out using a flow cytometer Coulter Epics XL. Calculation of changes in exposure density was carried out in accordance with the FCS Express 3 program.

The study found that the level of lymphocytes interacting with ConA was practically the same in normal and pathological processes, being 92.9 and 94.8%, respectively. However, the fraction of leukocyte cells that contain the α -mannose residues on their surface in neuro-oncological diseases was 90.2%, which is 1.2-fold higher than normal. This is ensured by the granulocyte and monocyte fraction.

Our results and published data allow us to confirm that the development of neuro-oncological diseases causes a change in the degree of glycosylation of leukocyte membranes, and can be used as an additional diagnostic criterion.