OBTAINING AND CHARACTERIZATION OF RECOMBINANT FLUORESCENT DERIVATIVES OF SOLUBLE HUMAN HB-EGF

ISSN 2410-7751 (Print)
ISSN 2410-776X (Online)

Ж-л "Biotechnologia Acta"
V. 7, No 2, 2014

"Biotechnologia Acta" v. 7, no 2, 2014
P. 46-53, Bibliography 11, Ukrainian.
Universal Decimal classification: 577(112+25+354.9)+57(085.2+086.2)
doi: 10.15407/biotech7.02.046

OBTAINING AND CHARACTERIZATION OF RECOMBINANT FLUORESCENT DERIVATIVES OF SOLUBLE HUMAN HB-EGF
Heparin-binding EGF-like growth factor (HB-EGF) belongs to the epidermal growth factor receptor family and is synthesized as a transmembrane precursor proHB-EGF. Binding of sHB-EGF with receptors EGFR and HER-4 results in formation of ligand-receptor complexes and activation of signaling pathways and thereby promotes survival, proliferation and migration of cells.

The aim of the study was to obtain the recombinant fluorescent derivatives of full-length soluble sHB-EGF – mCherry-sHB-EGF and truncated sHB-EGFΔ84-106 (without heparin-binding domain) – mCherry-sHB-EGFΔ84-106. The recombinant fluorescent derivatives may be used to investigate the sHB-EGF binding with receptors EGFR and HER-4, intracellular transportation of ligand-receptor complexes and the role of sHB-EGF heparin-binding domain in sHB-EGF biological activity.

It was shown the ability of both fluorescent derivatives specifically bind to EGFR, to internalize in receptor-mediated pathway and to enhance the proliferation of 3T3 cells. Absence of heparin-binding domain in structure of mCherry-sHB-EGFΔ84-106 significantly did not effect on its ability to bind with receptor, but decreased twice its mitogenic activity. Thus, obtained fluorescent derivatives of sHB-EGF could be a convenient tool for investigation of molecular mechanisms of sHB-EGF biological activity and role of heparin-binding domain in these processes.

**Key words**: heparin-binding EGF-like growth factor (HB-EGF), epidermal growth factor receptor.


