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Comparative Analysis of Endoglin Antibodies Effect on the Functional Characteristics of Endothelial Cells HUVEC and EA.hy926

A. Y. Stolbovaya[a, b, *], I. V. Smirnov[a], A. A. Pinevich[a, c], N. L. Vartanyan[a], I. Y. Krutetskaya[a], L. A. Terekhina[a], K. L. Markova[d], A. B. Malashicheva[b], and M. P. Samoilovich[a, c]

[a] *Granov Russian Research Center for Radiology and Surgical Technologies, St. Petersburg, 197758 Russia*

[b] *Almazov National Medical Research Center, St. Petersburg, 197341 Russia*

[c] *Saint Petersburg State University, Department of Cytology and Histology, Saint Petersburg, 199034 Russia*

[d] *The Ott Research Institute of Obstetrics, Gynecology and Reproductology, Saint Petersburg, 199034 Russia*

**e-mail: anastasia.stolbovaya@gmail.com*

Endoglin, a co-receptor of TGFβ-family growth factors, is a marker of endothelial cells. In our previous work we have demonstrated that monoclonal antibodies (MABs) against endoglin can change the functional properties of en-

dothelial cells EA.hy926. The aim of the present work was to study the effect of the same antibodies against endoglin on HUVEC endothelial cells, as well as to compare the data obtained for HUVEC and EA.hy926 cells. Comparison of *in vitro* models based on the permanent EA.hy926 endothelial cells and primary HUVEC cells revealed, along with common morpho-functional properties, a number of dissimilarities in adhesion molecules expression level and endothelial differentiation genes activity. Anti-endoglin MABs 2C8 and 4E4 were shown to inhibit HUVEC cell migration, reduce their adhesion to solid substrate, alter the arrangement of actin microfilaments, and impede the formation of capillary-like structures. These effects were revealed only in the presence of TGF-β1 in the culture medium or under hypoxia. Supplementation of the growth medium with MAB 2C8 promoted endoglin shedding from HUVEC cells membrane both in hypoxia and normoxia. Several impacts of anti-endoglin MABs on HUVEC cultures were similar to those detected on EA.hy926 cells. However MAB 2C8 influenced endoglin shedding oppositely in HUVEC and EA.hy926 cells.

Keywords: endoglin, endothelial cells, EA.hy926, HUVEC, monoclonal antibodies