Biomarkers associated to human esophageal stem cell-like
L.I. Brasoveanu1, M. Mihaila1, G. Matei1, D. Predescu2, M.I. Gruia3, R. Anghel3

1"Stefan S. Nicolau" Institute of Virology, Center of Immunology, Bucharest, Romania
2"Saint Mary" Clinical Hospital, Surgery, Bucharest, Romania
3"Prof. Dr. Alex. Treatioreanu" Institute of Oncology, Cancer Biochemistry, Bucharest, Romania

The incidence of adenocarcinomas of the esophagus has increased during the last years. Many studies focused on the presence of cancer stem cells that have the capacity to regenerate tumors. Tumor initiating cells have the ability of self-renewal and proliferation, are resistant to drugs, and might express surface markers that were associated to stem cells. Moreover, recent studies demonstrated that radioresistance might be also caused by cancer stem cells (CSC). Isolation and identification of cancer stem cells in human tumors and in tumor cell lines are important steps for a further functional characterization of cancer stem cells, in order to find new ways to destroy them. The present study focused on characterization by flow-cytometry of the antigen expression of several biomarkers (CD24, CD44, CD71, CD105, CD117, CD133, CD166, CD200, EpCAM, E-cadherin, beta-catenin) associated to esophageal cells KYSE-150. Cells were cultivated in DMEM:F12 cell culture medium containing different amounts of fetal calf serum (FCS) (from 2% to 20%) or serum replacement (10% - 20%) and growth factors (bFGF, EGF). Moreover, CD44+ cells isolated after magnetic sorting using were further cultivated and antigenicity of subpopulations compared. In addition, proliferation through cell cycle phases was also studied by using propidium iodide staining, followed by flow-citometry analysis. The results obtained demonstrated a differential expression of the biomarkers taken under study, depending on cell culture conditions used. Proliferation was also influenced since DNA analysis showed major changes in S-phase distribution. These results might add to identification of esophageal stem cells and facilitate the studies on carcinogenesis. Further studies will bring new data concerning evaluation of radio- and chemoresistance, in order to establish new protocols which might eliminate/diminish the tumours, significantly contributing to the immunotherapeutical management of esophageal tumors.