

# **Correlation between expression of Epidermal Growth Factor Receptor, Vascular Endothelial Growth Factor, Chemokine Receptor 4 and Vimentin by colorectal carcinoma cells**

**De Zoysa MIM<sup>1</sup>, Samarasekera DN<sup>1</sup>, Senarath LDJU<sup>1</sup>, Samarasekera CA<sup>2</sup>, Reid CB<sup>3</sup>, Lokuhetty MDS<sup>1</sup>**

*<sup>1</sup>Departments of Pathology, Surgery and Community Medicine, Faculty of Medicine, University of Colombo*

*<sup>2</sup>National Hospital of Sri Lanka*

## **Introduction**

Colorectal carcinomas are known to variably express multiple biomarkers. Increased expression of Epidermal Growth Factor Receptor (EGFR), Vascular Endothelial Growth Factor (VEGF) and Chemokine Receptor4 (CXCR4) or reduced expression of Vimentin has shown to be associated with a poor prognosis. However the correlation between expressions of these markers is hitherto not adequately evaluated.

## **Objectives**

To study the correlation between expression of EGFR, VEGF, CXCR4 and Vimentin by colorectal carcinoma cells.

## **Methods**

Ninety one consecutive patients who underwent colorectal carcinoma resection at the National Hospital of Sri Lanka were included. Immunohistochemical expression of four biomarkers was evaluated on representative paraffinized tumour tissue. Digital image analysis was performed using an Olympus F070 microscope and Neurolucida 7.50.4 software package. Average staining intensity of each biomarker was recorded for each case. Correlation analysis was performed. Pearsons Correlation Coefficient(r) was used to determine the strength of values indicating statistical significance.

## **Results**

Correlation was moderate between EGFR and VEGF expressions( $r=0.506$ ,  $p 0.01$ ) and between VEGF and CXCR4( $r =0.639$ ,  $p 0.01$ ). Correlation was low between EGFR and CXCR4( $r= 0.301$   $p 0.01$ ) and between EGFR and Vimentin( $r = 0.264$ ,  $p 0.05$ ). No correlation was observed between VEGF and Vimentin( $r= 0.172$ ) and CXCR4 and Vimentin( $r = 0.087$ ).

## **Conclusions**

VEGF expressing colorectal carcinomas are also likely to express EGFR and CXCR4. Vimentin expressing tumours are less likely to express other biomarkers. Therefore, VEGF and Vimentin should be included in the initial biomarker panel used to assess prognosis in colorectal carcinoma patients, especially in resource limited settings.