Colon cancer is well understood from a genetic perspective, however, current treatments are not fully able to eliminate it in advanced stages. Recent studies show that the cause is cancer stem cells, which represent a very small tumor volume. The main part of the tumor consists of the so-called traditional cancer cells, against whom current treatments are designed. The present study shows that stem cells are resistant to hypoxia conditions and that they should be studied for the production of treatments for patients with advanced stage.

**CONCLUSION**

Colon cancer is well understood from a genetic perspective, however, current treatments are not fully able to eliminate it in advanced stages. Recent studies show that the cause is cancer stem cells, which represent a very small tumor volume. The main part of the tumor consists of the so-called traditional cancer cells, against whom current treatments are designed. The present study shows that stem cells are resistant to hypoxia conditions and that they should be studied for the production of treatments for patients with advanced stage.

**REFERENCES**


**MATERIALS AND METHODS**

Cancer stem cells were isolated from whole blood of a patient with colon cancer stage IV. The cells were cultivated in appropriate medium containing growth factors until they gave sufficient number of cells. Then the stem cells were cultured in conditions of normal oxygen concentration and hypoxia for ten days in order growth curves to be formed. Meanwhile, HCT-15 cell line was cultured in hypoxia so that it is used as control.

**RESULTS**

The results showed that stem cells, after an adaptation period to hypoxia, follow continuous exponential growth phases similar to those of cells grown in normal oxygen conditions.

**COLON CANCER STEM CELL STUDY PROVES THEIR RESISTANCE TO HYPOXIA**

Chatziioannou M.1, Apostolou P.1, Toloudi M.1, Ioannou E.1, Papasotiriou I.1

1R.G.C.C. Ltd. (Research Genetic Cancer Centre Ltd.), Filotas, Florina, Greece

**BACKGROUND**

Stem cells are an important topic in cancer research, as recent studies have revealed that they involve in tumor growth, including colon cancer. Colon cancer is the third lethal cause of cancer in the western world. Specifically, it has been demonstrated that stem cells are normally present in the intestinal villi and their main function is to produce new cells in place of those that go into apoptosis. When this process is disturbed, the stem cells produce an excess of malignant cells, with a tumor as a result. The purpose of this study is to observe the colon cancer stem cell behavior in hypoxia conditions.

**RESULTS**

The results showed that stem cells, after an adaptation period to hypoxia, follow continuous exponential growth phases similar to those of cells grown in normal oxygen conditions.

**CONCLUSION**

Colon cancer is well understood from a genetic perspective, however, current treatments are not fully able to eliminate it in advanced stages. Recent studies show that the cause is cancer stem cells, which represent a very small tumor volume. The main part of the tumor consists of the so-called traditional cancer cells, against whom current treatments are designed. The present study shows that stem cells are resistant to hypoxia conditions and that they should be studied for the production of treatments for patients with advanced stage.