IHC analysis of proliferative activity showed significant rise in Ki-67 signal in esiNanog and esiTrrap, as well as in 5azaC treated embryos/teratomas, compared to control. Apoptotic activity showed no significant change in any treatment.

This preliminary data notifies that epigenetic drugs and agents may have a significant effect on embryo/teratoma growth. It seems that teratoma growth is inhibited by necrotic activity rather than apoptosis which could consequently induce a rise in proliferation as a tissue reaction.

Keywords: epigenetics; DNA methylation; apoptosis; proliferation; TGCTs; mouse teratocarcinoma in vivo.

APOPTOSIS IN NATIVE VEIN WALL IN FAILURE OF HEMODIALYSIS ARTERIOVENOUS FISTULAS

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In line with the growing interest for studying apoptosis in blood vessels, this study is one of the first to assess the apoptosis in native veins used for arteriovenous fistulas (AVF) done for hemodialysis. The aim of this study was to evaluate apoptosis in previously punctured native veins (study groupy) compared with not punctured native veins (controls) in patients who undergo a surgical procedure for AVF as dialysis access. Cephalic vein specimens were obtained from 60 patients before the placement of AVF. Half of the specimens were from the previously punctured and half from non-punctured veins. A 1-cm long segment was excised from distal part of the cephalic vein, divided into two portions along longitudinal axis and prepared for immunohistochemical analysis. Immunohistochemical assessment and quantification of signals was used to evaluate the expression of Bax, p53, caspase 3 and Bcl-2.

Vein specimens from the study group with previously punctured veins showed significantly increased caspase 3 and Bax expression, compared with the control

group (p<0.01). Bcl-2 expression in the study group was significantly decreased compared with the control group (p<0.01). p53 showed no significant differences between the two groups (p=0.791). There were statistically significant differences in fistula failure between the study group and control group (26.7% *versus* 6.7%, p=0.038). The association we have found between previously punctured veins and apoptosis indicates the role that venipuncture may play in the development of apoptosis. Patients with increased apoptosis showed an increased fistula failure, which is of importance for the improvement of the AVF procedure itself.

***Keywords*:** native vein wall; arteriovenous fistula; hemodialysis; apoptosis; fistula failure.

THE ASSOCIATION OF *BIRC5* GENE POLYMORPHISM AND SURVIVIN EXPRESSION IN DIFFERENT TUMORS TYPES

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Survivin, encoded by *BIRC5* gene, belongs to the family of inhibitors of apoptosis (IAP) proteins. Survivin is an essential chromosomal passenger protein required for mitotic progression. It is also an inhibitor of apoptosis and can prevent caspase-mediated cell death. It is usually expressed in embryonic tissues and homozygous survivin deletion results in early embryonic death, showing its essential role in cell development, differentiation and homeostasis. In healthy organisms it is not expressed in differentiated tissues, while its expression is markedly increased in most cancers (including bladder cancer, lung cancer, breast cancer, stomach, esophagus, liver, ovarian cancers and hematological cancers).

In tumors its presence correlates with increased resistance to chemo- and radiotherapy, as well as worse survival rate. Although its expression is usually confined to G2-phase and mitosis, survivin is in cancer often expressed throughout the cell cycle.

At least 5 different splice variants of the survivin gene have been reported in humans so far (wild type, 2α, 2B, 3B and deltaEx3). All survivin protein isoforms arising from the splice variants share the same N-terminus region, but differ in the carboxyl end. The transcript expression levels of various survivin isoforms have been significantly associated with clinico-pathologic characteristics in several cancers.