Above-standard laboratory screenings

We included to our screening panel more laboratory tests to ensure high health standard of our donors. These screenings aim to prevent possible health complications of future offsprings of our donors.

Fragmentation of sperm DNA by a method Sperm Chromatin Structure Assay (SCSA)

The method determines the percentage with fragmented DNA with the help of two parametres – HDS and DFI. Those men with high percentage of sperms with fragmented DNA tend to have problems with fertility.

HDS(High DNA Stainability) - Formulation of level of condensation of chromatine

principle: flowcytometry

result: excellent - 0 to 15 %, satisfactory - 15 to 20 %

DFI(DNA Fragmentation Index) Formulation of integrity of sperm chromatine

principle: flowcytometry

result: excellent - 0 to 15 %, satisfactory - 15 to 27 %

Faktor V – Leiden R506Q

The carriers of this mutation have higher predisposition for venous thrombosis. However, the carriers are mostly without symptoms.

This predispozition was contradicted by genetic screening at some of SBI donors.

principle: qualitative formulation of thrombofilic mutations by the in-house method PCR and gel electroforesis

result: negative, heterozygote, homozygote

Faktor II Prothrombin G20210A

The carriers of this mutation, which is prevalent almost exclusively in Caucasian race, have higher predisposition for venous thrombosis.

However, their carriers are mostly without symptoms. This predispozition was contradicted by genetic screening for some of SBI donors.

principle: qualitative formulation of thrombofilic mutations by the in-house method PCR and gel electroforesis

result: negative, heterozygote, homozygote

Spinal muscular atrophy (SMA)

The autosomal recessive neuromuscular disorder, which is the second most prevelant genetic reason of neonatal mortality. The affected individual is a homozygote. The heterozygote individuals do not show signs of the disease, but they can transmit this disorder to their offspring. For the SBI donors the transferring is contradicted by genetic screenings.

Gene SMN1 and SMN2

SMN1 exon 7, exon 8 – number of copies

SMN2 exon 7, exon 8 – number of copies

principle: MLPA, fragmental analysis

result: negative

Congenital adrenal hyperplasia (CAH)

The autosomal recessive disorder, which affects a production of glucocorticoids in adrenal glands díky, as a result of missing enzymes necessary for their creation.

This leads to excessive male genital hormone production. For the SBI donors the transferring is contradicted by genetic screening.

Gene CYP21A2

11 mutations: P30L, I2splice, del8bpE3, I172N, Cluster E6, V281L, L307, frameshift Q318X, R356W, P453S, R483P

principle: PCR, reversal hybridization

result: negative

The Epstein-Barr virus (EBV)

It is a herpesvirus type, one of the most common viruses in humans. The majority of infections of EBV is asymptomatic, the virus can cause an infectious mononucleosis.

EBV VCA IgG

EBV VCA IgM

principle: chemiluminiscent imunoanalysis

result: the active infection is excluded in donors

Cytomegalovirus CMV

The virus is passed in body fluids. The body produces antibodies which last for life. It is estimated that 50 – 80 % of the population is affected by this virus.

CMV IgM

CMV IgG

principle: chemiluminiscent imunoanalysis

result: the active infection is excluded in donors

Human papillomavirus (HPV)

HPV is the most common sexually transmitted infection globally. According to the ability to induce changes in the infected cells leading to the tumor

proliferation - HPV is divided into high (hr) and low (lr) risk types. Currently, we test 18 hr and 6 lr HPV types.

principle: PCR

result: the active infection is excluded in donors