Developed was method of Embryonic Stem Cell Transplantation (without pancreas β-cells) for treatment of diabetes mellitus (DM) that proved to be effective in DM types I and II and is protected by a number of patents and is patent pending in the U.S.

**Embryonic Stem Cell Transplantation (TESC) is indicated at all stages of diabetes, being the most effective in the following cases:**
- new-onset insulin-dependent DM (IDDM);
- DM complicated by diabetic nephropathy, chronic renal insufficiency (stages I and II), and anemia;
- brittle DM;
- DM complicated by infections and impaired immunity;
- non-healing trophic ulcers of soft tissues;
- secondary sulfanilamide resistance and necessity of insulin-therapy for type II DM patients.

### Major Effects of Embryonic Stem Cell Transplantation

**Decrease of glyceremia in new-onset IDDM**

In all cases, noted was gradual decrease of insulin dosages (ID) in 2-3 months after TESC. The average initial ID was 0.76±0.06 U/kg/day. Maximum decrease amounted to 20-100% of the initial dosage (mean 41%). The term ranging from 14 to 90 days (mean 59.04±4.3). In 65% of cases, achieved was clinical remission (daily ID < 0.4 U/kg/day or discontinuance) lasting 5-14 months.

**Increase of endogenous insulin production**

50-200% increase of serum C-peptide within one year after TESC.

**Early Post-Transplantation Improvements of General State**

Syndrome of Early Post-Transplantation Improvements - decreased weakness, improved workability, appetite, and sleep - was reported in 63% of cases on the first day after TESC. It was very vivid for a period of 1 month, after which its slightly reduced manifestations were maintained for 2-4 months.

**Improvement of Psycho-Physiological State**

Syndrome of Psycho-Physiological Changes - improvement of physical and mental activity, decreased manifestations of depression - was observed in 48% of cases and lasted for 6-8 months.

**Restoration of Hematopoiesis**

Restoration of hematopoiesis in diabetic nephropathy complicated by chronic renal insufficiency (stages I-II), and anemia. Reliable increase of erythrocyte count and hemoglobin in 1-1.5 months after TESC. The above effects were maintained for 2-11 months.

**Restoration of Immunity**

Increased counts of lymphocytes, T-lymphocytes, and sub-populations of T-lymphocytes and decreased (by mean 30-60%) B-lymphocyte count were maintained for 3-8 months.

### Dystrophic Disorders and Lesions

Disappearance of trophic ulcers, decreased manifestations of skin lipidosis, diabetic foot, infectious and mycotic dermatopathies, cutaneous lichenification, and lipoatrofic lesions.

**Strong effects were achieved in new-onset diabetes mellitus where Embryonic Stem Cell Transplantation proves to stop autoimmune aggression against pancreatic β-cells.**

Embryonic Stem Cell Transplantation is effective in diabetes mellitus, and, as we believe, will soon become as important as insulin-therapy.