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Facing up to diabetes mellitus, epidemic of the century, with a new biological treatment based on stem cells differentiation stage factors (SCDSFs) taken from zebrafish embryos

Guido Norbiato
Luigi Sacco University Hospital in Milan, Italy

Diabetes mellitus is a metabolic disease characterized by chronic hyperglycemia caused by defects in insulin secretion, insulin action, or both, which result in metabolic abnormalities of carbohydrates, lipids and proteins. Low levels of insulin, insulin resistance, and alterations of insulin receptors, enzymes, and genes signal transduction systems are responsible for metabolic abnormalities. Type-2 diabetes is associated with significantly accelerated rates of micro-vascular and macro-vascular complications, cardiovascular disease such as atherosclerosis, hypertension, infarction and stroke. Chronic inflammation, cellular aging, reduction in immunological functions, increased susceptibility to diseases, decreasing energy production, neuro-cognitive decline, obesity and cancer are often associated with such disease. Epigenetic changes in key-chromatin histone methylation patterns and telomere length have been observed under diabetes conditions. Despite the accumulation of extensive data at the molecular and cellular levels, the mechanisms of diabetes development and complications are still not fully understood and limitations in current therapeutic approaches persist. We propose treatment with stem cells differentiation stage factors (SCDSFs) taken from zebrafish embryos which are able to regulate the genetic expression of normal and pathological stem cells, enhance stem cell expression of multipotency, activate both telomerase-dependent and -independent antagonists of cell senescence, remove the waste from aberrant DNA methylation and histone acetylation, and control cells proliferation. In summary, SCDSFs networks control metabolic disease and prevent neurological, vascular and cancer degeneration, and restore homeostasis of neuro-endocrine-metabolic mechanisms that have been disrupted by stress and environmental threats.

Biography

Guido Norbiato received his medical degree from the University of Milan, Italy, where he also completed his Post doctoral studies, specializing in Endocrinology and Metabolism, and University Teaching, and served as an Assistant Professor for many years. He began his medical career at the Luigi Sacco University Hospital in Milan, where he became the Chief Director of the Endocrinology and Metabolism Units, founding its first Endocrinology Laboratory following his Directorship of its Special Diseases Department. He has published more than 140 articles and various other publications in internationally referred journals on his research in endocrinology, metabolism, and autonomic, immune, inflammatory, and vascular systems, with an Impact Factor of 652. He has also edited two books on Endocrinology and Metabolism in the context of HIV infection.

guidonorbiato@libero.it

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