Guido Norbiato, J Biotechnol Biomater 2015, 5:7
http://dx.doi.org/10.4172/2155-952X.C1.046

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412th OMICS International Conference

World Bio Summit & Expo

November 02-04, 2015 Dubai, UAE

Treatment of type 2 diabetes and its complications with an innovative biotechnology based on zebra fish embryos stem cells differentiation stage factors

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Increasing incidence of type 2 diabetes is a major health problem in the modern world, with the highest values being observed in countries and regions across the Middle East, India, and Indonesia. This worldwide diabetes epidemic has greatly increased the costs of treating such diseases and their numerous debilitating complications, including obesity, micro and macro vascular damage, and various forms of cancer and neuro-cognitive degeneration. Diabetes mellitus is a disease characterized by hyperglycemia, reduced insulin action, alterations of insulin receptors, and gene signal transduction systems which cause severe metabolic abnormalities. A series of significant studies suggest the prominent roles of chronic inflammation, cellular aging, immunological and steroid hormone dysfunctions, and multiple epigenetic alterations in the pathogenesis of diabetes. The extreme complexity of this disease, the failure of current therapies, and the financial burden of its treatment make it necessary to develop new therapies and particularly efficient prevention methods to control its impact on societies across the world. We are proposing a stem cells "education" therapy for diabetes based on the administration of stem cells differentiation stage factors (SCDSFs) taken from zebra fish embryos. Experiments on isolated human stem cells and cancer cells show that the addition of SCDSFs regulates the gene expression of normal and pathological stem cells. This new treatment vivifies stem cells by extending telomeres length, cancelling epigenetic alterations and inhibiting the proliferation of cancer cells. New data strongly suggests that SCDSFs administration helps the body to adjust itself, while restoring its original regulatory mechanisms of the neuro-immune-endocrine-metabolic systems and inhibiting the proliferation of cancer cells. This offers a very promising outcome for the treatment of diabetes and its related complications.

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.

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