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The use of pluripotency in the manufacture of advanced cell-based tissue-engineered therapeutics

Human pluripotent stem cell lines display the potential to cascade through all primary germ layers and hence, almost certainly, all human somatic cell types. This pluripotency has led to the prospect of using master cell banks of pluripotent cells to generate previously rare and valuable cell types on an industrial scale. The growing need for precise genetic modifications in cell-based therapeutics (such as in applications in immunotherapy) highlights the unique advantage of pluripotency in facilitating repeated targeting events in the master cell banks followed by immortal propagation and subsequent differentiation of differentiated cell types. The demonstration that downstream embryonic progenitors can be robustly expanded clonally is leading to improved manufacturing technologies with enhanced definition of purity and identity. The maintenance of a regenerative phenotype in pluripotent stem cell-derived products as evidenced by a lack of markers of the embryonic-fetal transition (EFT), suggests these cells may have the potential to participate in scarless tissue regeneration. Lastly, the use of defined matrices to facilitate differentiation *in vitro* or to facilitate engraftment *in vivo*, provide a broad technology platform that will potentially impact numerous fields of medicine. We will provide an update on ongoing clinical trials as well as products in preclinical development.

Biography

Michael D West is the Chief Executive Officer of BioTime, Inc. (NYSE-MKT: BTX) and its subsidiary AgeX Therapeutics. The companies are focused on developing therapeutic products using human embryonic stem cells. He received his PhD from Baylor College of Medicine and has focused his academic and business career on the application of developmental biology to the age-related degenerative disease. He was previously the Founder of Geron Corporation (NASDAQ: GERN), where he initiated and managed programs in telomere biology and human embryonic stems and later CEO at ACT (Ocata) (NASDAQ: OCAT) managing programs in somatic cell nuclear transfer and cell-based retinal therapeutics.

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