【Symposium 9-1】

The Promise and Challenges of Allogenic Stem Cell-based Therapies

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Recent advancements in stem cell research and technology open a new door for patients suffering from intractable diseases and/or injuries. For instance, cell-based therapy is at the forefront of clinical investigation for cardiovascular disease, backed by over a decade of rigorous pre-clinical study of cell biology, mechanism(s) of action, immunology, and phenotypic efficacy. After early proof-of-concept and safety clinical trials, the field will enter the next phase of clinical evaluation to delineate clinical efficacy.

Translating cell therapy into standard clinical practice requires the ability to readily administer a safe and efficacious product at the optimal dosage. However, it is time-consuming and expensive to prepare optimal cell dose for autologous cell therapy. An opportunity that greatly enhances the ability to develop such a product is the use of allogeneic therapy, which may offer an efficient way to achieve both immediate availability of product and the appropriate number of cells.

Nevertheless, autologous and allogeneic cell-based therapy might harm patients both physically and financially. Moreover, we continue to encounter practical issues that limit their use, including their inherent properties of tumorigenicity, immunogenicity, heterogeneity, the optimal cell delivery method, cell dosage range, and cell characteristics.