

Charting the next century of insulin replacement with cell and gene therapies

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Abstract

The discovery of insulin a century ago changed the lives of millions of individuals suffering from diabetes, paving the way for long-term survival. While the availability of recombinant insulin for hormone replacement therapy has served extremely well to help control blood glucose in diabetes, there remains significant room for further improvements for an ultimate “cure” for diabetes patients. In this review, we celebrate the 100th anniversary of the discovery of insulin and consolidate the key milestones and advances in the development of recombinant human insulin. We summarize recent and current technological developments in terms of insulin gene and cell replacement therapies, that are promising in having a greater therapeutic potential. We envision the next era of insulin replacement therapies will effectively treat diabetes and serve our patients even better for the next century to come.

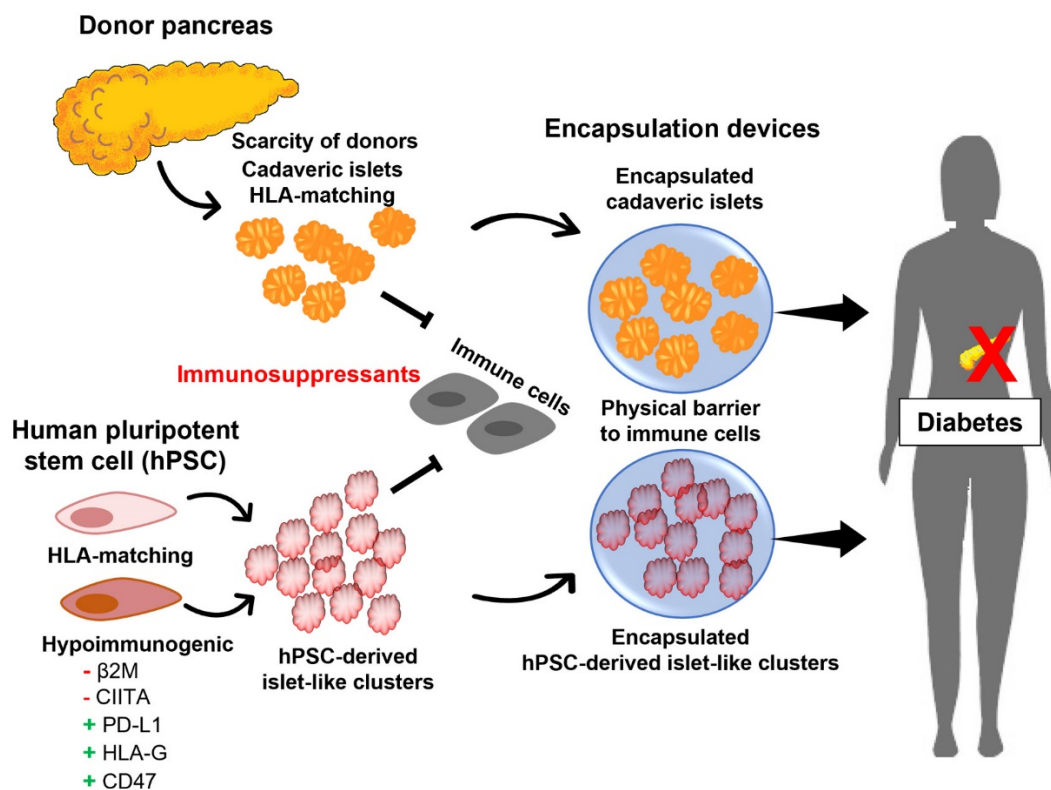


Figure legend: Strategies of cell replacement therapy to treat diabetes.