Gene Therapy in the Treatment of Type 1 Diabetes Mellitus

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OBJECTIVES

- Understanding **Type 1 Diabetes Mellitus** and its treatment' limitations.
- Collect up-to-date information about the **use of gene therapy to treat T1DM**.

What is Type 1 Diabetes Mellitus?

(Olivares Reyes & Arellano Plancarte, 2008)
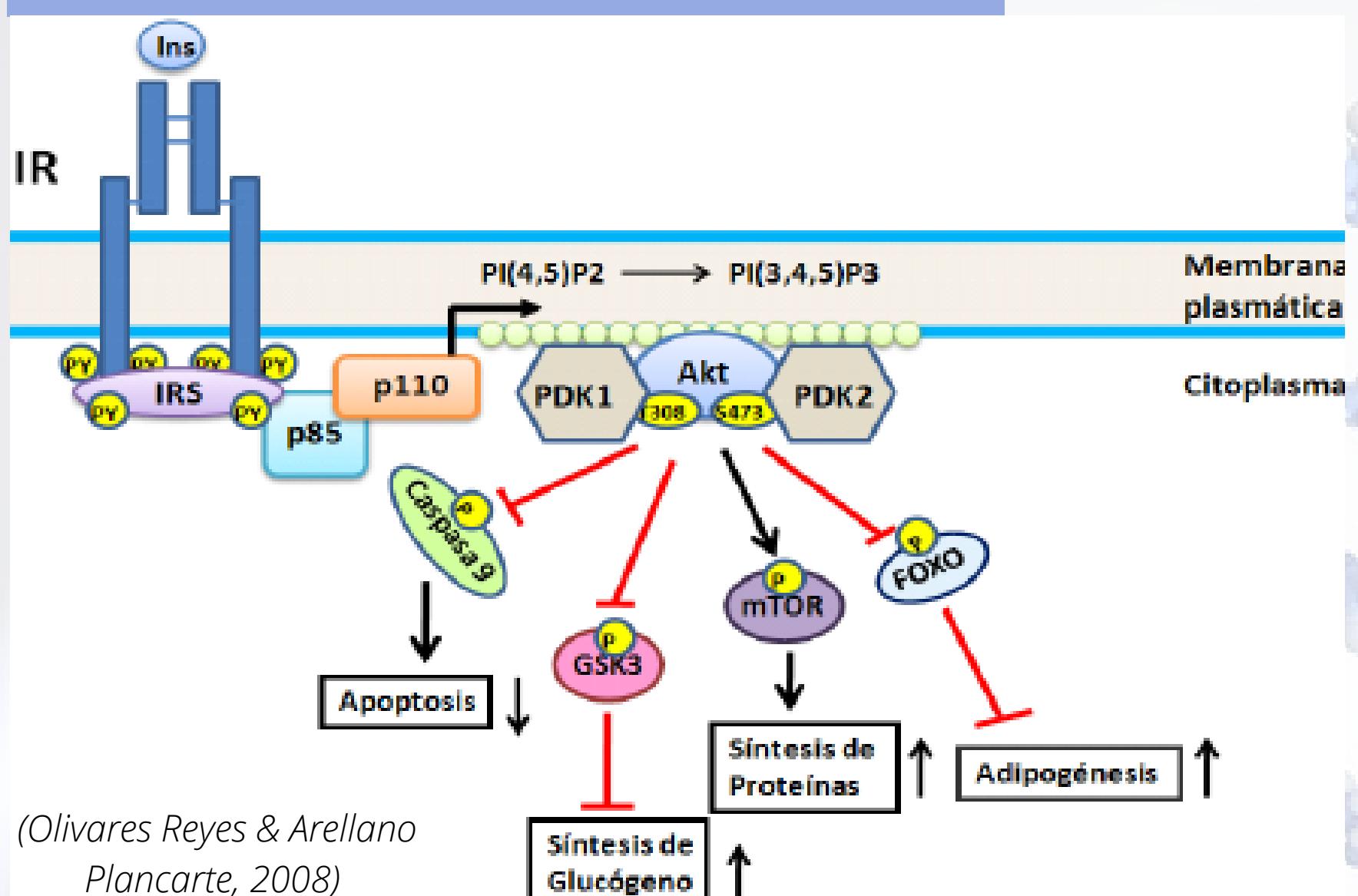
What causes pancreatic beta cell dysfunction or destruction?

Immune-mediated · Toxicity · Exocrine pancreatic disease · Idiopathic · Infection · Congenital hypoplasia or abiotrophy
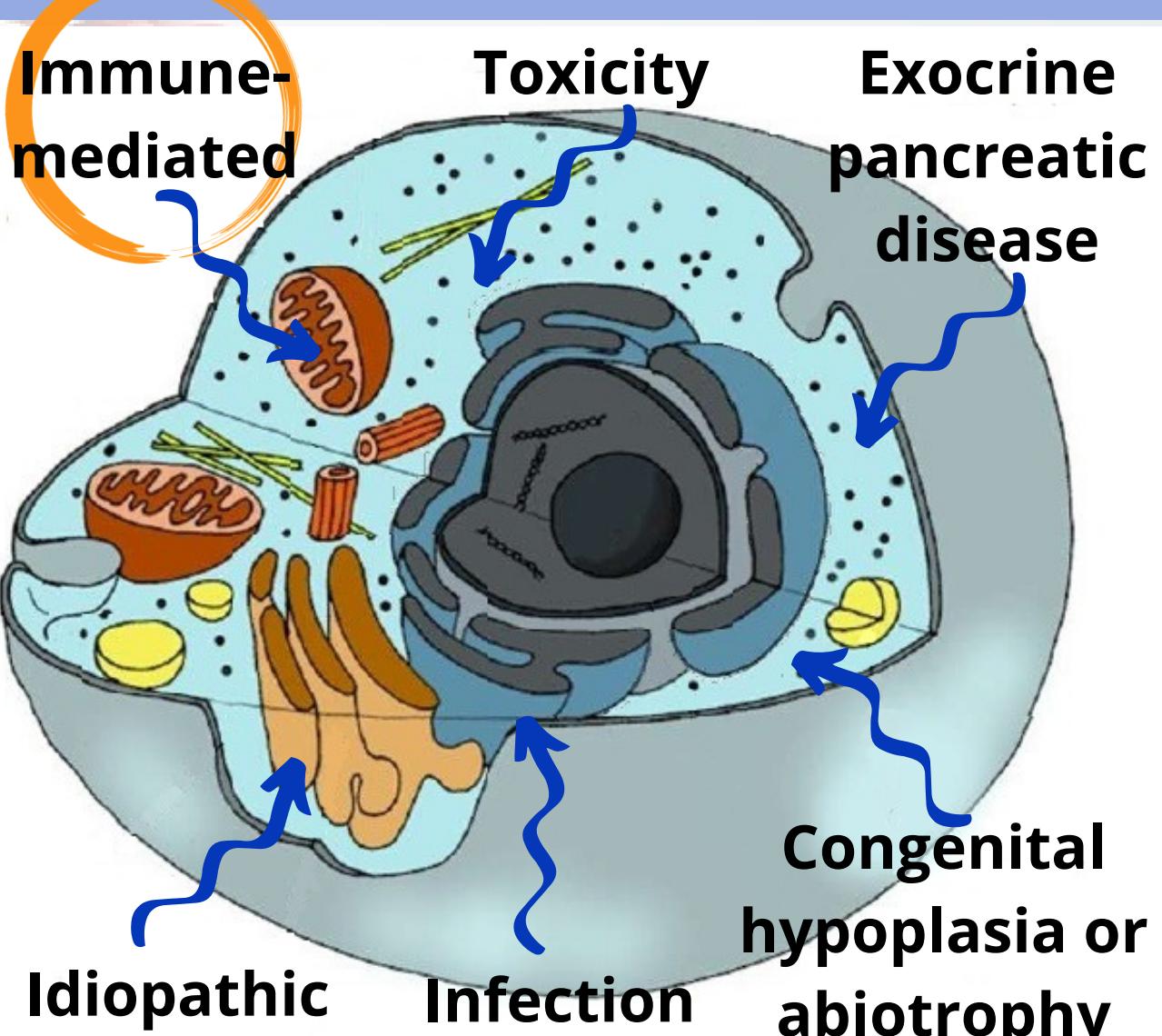
What is the current treatment?

INSULIN · PANCREATIC TRANSPLANT

What is Gene Therapy?

GENE OF INTEREST · GENE TRANSFER · Bone marrow derived dendritic cells · Plasmid carrying the gene of interest · INJECT

(Chellappan et al., 2018)

CONCLUSIONS

- Canine DM is a **multifactorial disease.**
- Mainly focused on **immune system' genes.**
- **Independence** from exogenous insulin + **prevention** of secondary complications.
- **Additional** and long-term **studies.**
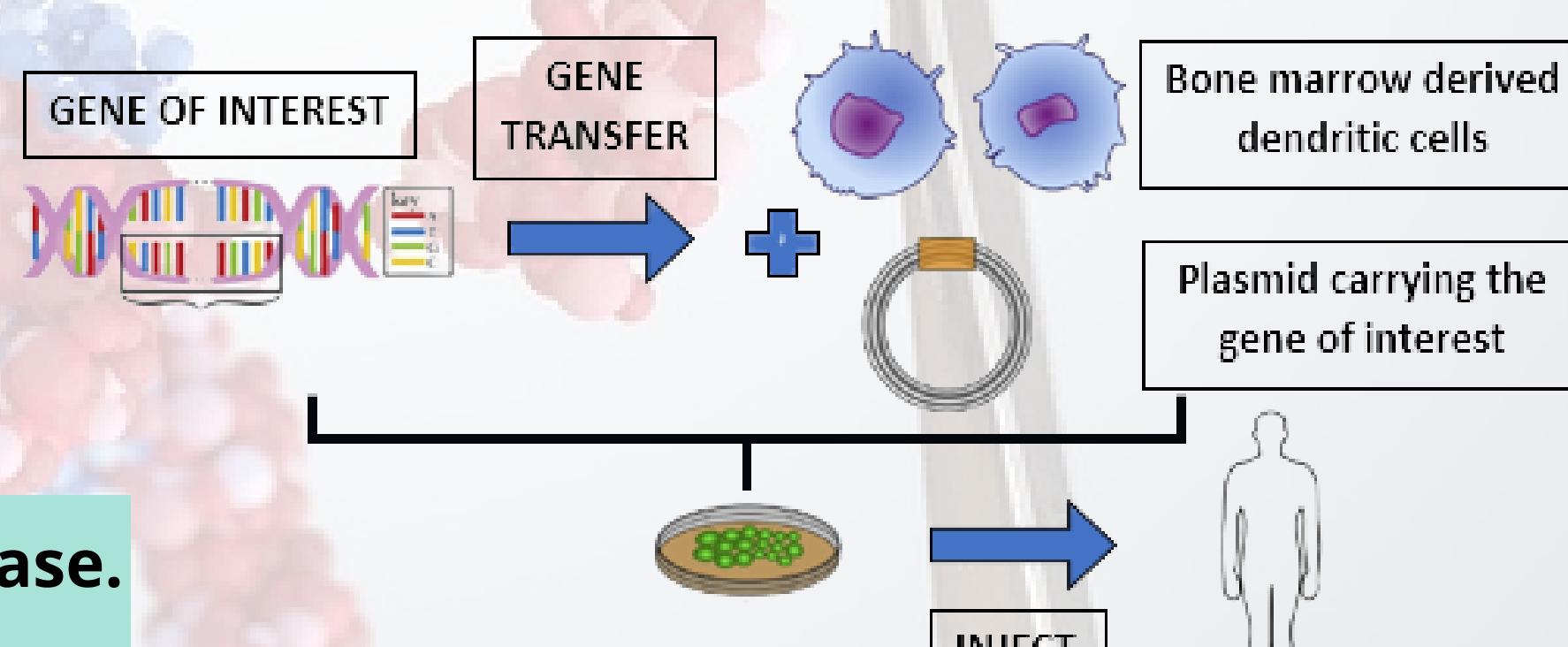
Obtaining new insulin-producing cells

Protection of beta cells against autoimmunity

GENE THERAPY TECHNIQUES TO TREAT T1DM