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(71) Applicants: INSERM (INSTITUT NATIONAL DE
LA SANTÉ ET DE LA RECHERCHE MÉDICALE)
[FR/FR]; 101, rue de Tolbiac, PARIS, 75013 (FR).
CENTRE NATIONAL DE LA RECHERCHE SCIENTIFIQUE - CNRS - [FR/FR]; 3, rue Michel Ange, PARIS,
75016 (FR). UNIVERSITE COTE D'AZUR [FR/FR];
Grand Château, 28 Avenue de Valrose, BP 2135, 06103
NICE CEDEX 2 (FR).

(72) Inventors: COLLOMBAT, Patrick; 1577 route de
Chateaufort, 06690 TOURRETTE LEVENS (FR). SIL-
VANO, Serena; 25 rue Monseigneur Alfred Daumas,
06300 NICE (FR).

(74) Agent: PLASSERAUD IP; 66 rue de la Chaussée d'Antin,
75440 PARIS CEDEX 09 (FR).

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(54) Title: RSPOL PROTEINS AND THEIR USE

(57) Abstract: The disclosure relates to Rspol proteins and their use as a medicament, in particular for the treatment of diabetes, such as diabetes type 1 or 2. The disclosure also relates to methods for inducing the proliferation of pancreatic beta cells in a human subject in need thereof, said method comprising administering an efficient amount of an Rspol protein in said subject. Inventors have surprisingly shown that treatments with recombinant Rspol protein induce in vivo proliferation of functional pancreatic beta cells, and improve glucose tolerance and increase glucose-stimulated insulin secretion (GSIS) in mice models of diabetes. In addition, they found out that upon near complete beta-cell ablation, the remaining beta-cells could be induced with Rspol protein administration to proliferate and reconstitute a functional beta-cells mass able to maintain euglycemia. Lastly, they showed that Rspol can also induce human beta-cell proliferation opening new unexpected avenues for the treatment and prevention of diabetes in human.