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Poster Abstract – A.07

IN PLANTA PRODUCTION OF HUMAN PROINSULIN THROUGH TRANSIENT EXPRESSION

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Type 1 Diabetes Mellitus (T1DM) is the most frequent chronic disease of childhood. Due to the complete destruction of insulin-producing pancreatic tissue, life-long insulin replacement is mandatory. Although insulin therapy protocols have recently become more physiologically appropriate, late-onset complications of T1DM are still common, and have a strong social impact. Preventing T1DM would therefore be a major contribution to public health. The development of safe, low cost, effective and specific strategies to prevent T1DM in the general population (primary prevention) has, therefore, become mandatory. Proinsulin has recently gained the role of key autoantigen in autoimmune diabetes. In the human situation both insulin and proinsulin have been shown to be common targets of autoantibodies and T-cells. We have recently used one PVX based vector (see poster of Avesani et al.), which allows to expose the recombinant protein outside the virus coat , to produce a vaccine against the classical swine fever virus. Here we report the transient transformation of Nicotiana benthamiana through PVX vector carrying either the human proinsulin cDNA or its B9-B23 peptide. The in planta expression of both proinsulin and B9-B23 peptide was demonstrated by RT-PCR and immunoblotting assays.