

# **CAFA FORUM**

Topic: **Why Can't We Prevent and Cure Type 1 Diabetes: History, Challenges, and New Hopes**

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Location: **Chinese Overseas Cultural Center**, 9443 Telstar Ave. El Monte, CA. 91731 (TEL: 626-443-9999)

The immune system is the body's biological army against harmful germs. Like a vast army of soldiers standing guard, cells of the immune system remain ready to destroy diseased cells and defend the body from virus and other invaders. If a potential threat is found, highly-specialized immune cells are recruited to the area and destroy the diseased cells. These soldier cells normally leave healthy cells alone, however, because the immune cells are tightly controlled by special agents called regulatory cells.

In autoimmune diseases, regulatory cells lose their authority, so the pathogenic immune cells begin attacking healthy tissues in the body. For type 1 diabetes, the pathogenic immune cells attack and destroy target pancreatic islet cells that produce insulin, which helps the body turn sugar from food into energy. In the absence of a sufficient number of insulin-producing islet cells, the resulting build-up of sugar in the blood of type 1 diabetes patients can be lethal and lead to severe and life-threatening complications.

Thanks to extensive research in finding methods, such as the use of insulin, to treat this lethal disease, the life expectancy of diabetic patients has been dramatically improved over the past decades. However, recent studies have demonstrated that the prevalence and incidence of patients with diabetes has significantly increased not only in the US but also world-wide. As a result, in addition to posing a significant impact to the patients and their families, the cost of diabetes care has become a serious economic burden for the global society.

Facing this old health problem with new epidemic outcome, there is an urgent need for us to find an effective and safe therapy to prevent and cure this disease. We will discuss options that scientists have nowadays to battle against these new challenges, in order to find better treatments to not only prevent but also cure this disease. Working together as a society to include both scientists and non-scientists, we would have a better opportunity to tackle this difficult task and achieve the goal of helping the patients to regain control of their health.

## “為什麼我們還不能預防和治療 1 型糖尿病：歷史背景，挑戰，和新的希望”

劉治平博士及教授

糖尿病和代謝性疾病的研究部門

貝克曼研究所

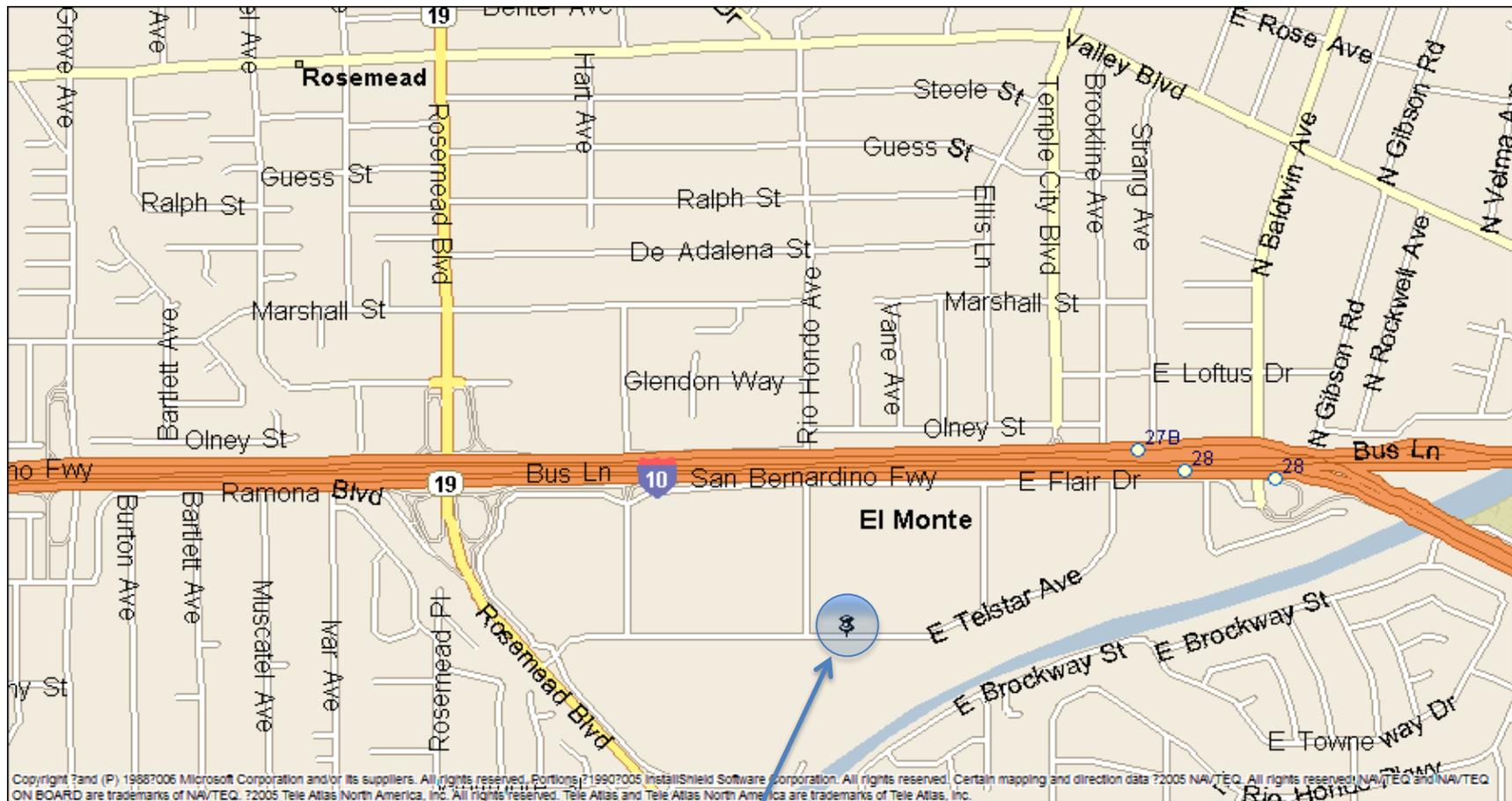
希望之城

免疫系統是人體的生物軍隊用來對抗有害的細菌，保護人體免受病毒的入侵。一旦發現有潛在的威脅，免疫系統便會派遣專門的免疫細胞去摧毀病變的細胞。由於這些免疫細胞經由調節性細胞來嚴格控制派遣，通常事後這些護衛細胞在完成任務後，便會留下單獨的健康細胞，然後離去。

當有自身免疫性疾病時，調節性細胞會失去他們自己的主宰力，造成生病的免疫細胞開始攻擊健康的身體。攻擊 1 型糖尿病的免疫細胞，並摧毀能製造胰島素用以幫助身體把食物中的糖分轉化為能量的胰島細胞。當胰島細胞的數量不足時，1 型糖尿病患者的血液中將會聚積過多的糖分，而導致嚴重的併發症，威脅生命。

數十年來，經由廣泛的研究和使用胰島素治療糖尿病，糖尿病患者的壽命已顯著提高許多。然而，最近的研究發現，糖尿病患者顯著增加，不僅在美國，世界各地的患病率和發病率都增多。糖尿病治療的費用，不但對病人和他們的家屬影響極大，對全球社會來講，已構成一個嚴重的經濟負擔。

面對這個長久以來的健康問題及其新發現的傳染性結果，我們迫切需要找到一種更安全有效的治療方式，來防止和治愈這種疾病。在此論壇，我們將討論，有那些新的治療方式，科學家們正在從事研究。同時，此一艱鉅的任務，也賴全體社會，上下一致，共同努力來達成這個目標，以便幫助患者重新掌握他們的健康。



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