T1D Clinical Landscape - DRAFT

Phase	*CT Number*	*Study Title*	*OniX Summary*
Early Phase 1	NCT01672255	Hypoglycemia Associated Autonomic Failure in Type 1 Diabetes Mellitus (DM)	**Intervention**: The intervention being tested is likely fluoxetine (Prozac), a selective serotonin reuptake inhibitor (SSRI) medication. **Route of Administration**: The route of administration is not explicitly mentioned in the summary, but SSRIs are typically taken orally. **Mode of Action**: The study suggests fluoxetine might work by influencing serotonergic pathways that regulate the autonomic nervous system (ANS) function. SSRIs generally inhibit serotonin reuptake, but the summary mentions fluoxetine potentially increasing basal epinephrine levels and enhancing sympathetic nervous system (SNS) activity. **Target**: The target of the intervention is likely the serotonin system within the brain, aiming to influence the communication between the nervous system and the body's response to exercise-induced blood sugar changes. **Conditions**: The study focuses on Type 1 Diabetes Mellitus (DM) with a specific interest in hypoglycemia-associated autonomic failure. **Sponsors**: University of Maryland, Baltimore National Heart, Lung, and Blood Institute (NHLBI)
Early Phase 1	NCT05281614	Immune Effects of Vedolizumab With or Without Anti-TNF Pre-treatment in T1D	**Intervention** This clinical trial (NCT05281614) is investigating the effects of **vedolizumab**, with or without pretreatment with **etanercept**. • Vedolizumab is a medication that targets a specific protein on immune cells. • Etanercept is another medication that targets a different immune signaling pathway. **Route of Administration** Both vedolizumab and etanercept are likely administered **intravenously (IV)**, though the specific route may be confirmed in the full study description on ClinicalTrials.gov. **Mode of Action** The study hypothesizes that vedolizumab works by **blocking immune cell trafficking** from the bloodstream to the pancreas. Etanercept might further enhance this effect by influencing the expression of molecules on pancreatic cells that immune cells interact with. **Target** The target of vedolizumab is the **integrin α4ß7** protein on immune cells. Etanercept targets **tumor necrosis factor-alpha (TNF-α)**, a signaling molecule involved in inflammation. **Conditions** The study is focused on **Type 1 Diabetes (T1D)**, specifically investigating the impact on the immune system in this condition. **Sponsors** This clinical trial is sponsored by the Benaroya Research Institute in collaboration with the University of California, San Diego.

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Phase	*CT Number*	*Study Title*	*OniX Summary*
Phase 1	NCT04590872	An Immunotherapy Vaccine (PIpepTolDC) for the Treatment of Patients With Type 1 Diabetes	**Intervention** The intervention being tested in this clinical trial (NCT04590872) is an investigational immunotherapy vaccine called **PIpepTolDC**. This vaccine uses a patient's own immune cells (dendritic cells) combined with a specific beta cell protein. **Route of Administration** **PIpepTolDC is likely administered by injection**, though the specific route (e.g., intravenous, subcutaneous) might be detailed in the full study description on ClinicalTrials.gov. **Mode of Action** PIpepTolDC is designed to work like an allergy shot. The idea is that by exposing the immune system to the beta cell protein in a controlled setting, the immune system can learn to **tolerate** these cells and stop attacking them. This, in theory, could help preserve or restore the function of beta cells in the pancreas, allowing them to produce more insulin. **Target** The target of PIpepTolDC is the immune system's response to the specific **beta cell protein**. By inducing tolerance to this protein, the vaccine aims to prevent further destruction of insulin-producing cells. **Conditions** This clinical trial is focused on patients with **Type 1 Diabetes** who are still using insulin but do not have other diabetes-related complications. **Sponsors** The sponsor of this clinical trial is **City of Hope Medical Center**.
Phase 1	NCT05065372	MANATEE-T1D: Metformin ANd AutomaTEd Insulin Delivery System Effects on Renal Vascular Resistance, Insulin Sensitivity, and Cardiometabolic Function in Youth With Type 1 Diabetes	**Intervention** This clinical trial (NCT05065372) is studying the combined effects of two interventions in youth with Type 1 Diabetes: • **Metformin:** This is a medication commonly used to treat type 2 diabetes, but researchers are investigating its potential benefits in type 1 diabetes as well. • **Automated Insulin Delivery System (AID System):** This device continuously monitors blood sugar levels and automatically delivers insulin to maintain better blood sugar control. **Route of Administration** • **Metformin:** This medication is likely administered **orally** as tablets. • **AID System:** This system delivers insulin **subcutaneously** through a small catheter inserted under the skin. **Mode of Action** • **Metformin:** The exact mechanism by which metformin works in type 1 diabetes is not fully understood, but it's believed to improve insulin sensitivity and potentially reduce kidney complications. • **AID System:** This device works by mimicking the function of a healthy pancreas, constantly monitoring blood sugar and adjusting insulin delivery to keep blood sugar levels within a target range.

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			Target • **Metformin:** This medication likely targets the liver and possibly other tissues to improve insulin sensitivity, allowing the body to utilize insulin more effectively. • **AID System:** The target of the AID system is the bloodstream, where it monitors glucose levels and delivers insulin to maintain optimal blood sugar control. **Conditions** The study focuses on **youth with Type 1 Diabetes**. **Sponsors** • **University of Colorado, Denver** is the sponsor of this clinical trial. • **National Heart, Lung, and Blood Institute (NHLBI)** may be a collaborator but this information is not confirmed in the provided summary.
Phase 1	NCT05887999	A Study of LY3532226 in Participants With Type 1 Diabetes Mellitus	**Intervention** This trial is evaluating the effects of **LY3532226** compared to a **placebo** in participants with type 1 diabetes (T1DM). **Route of Administration** The route of administration for LY3532226 is still not available from the provided information. **Mode of Action** LY3532226 is believed to work by mimicking the effects of a natural hormone called gastric inhibitory polypeptide (GIP). GIP normally helps regulate blood sugar levels by stimulating insulin release and potentially suppressing glucagon secretion. By activating the GIP receptor (GIPR), LY3532226 may aim to achieve similar effects. **Target** The target of LY3532226 is the gastric inhibitory polypeptide receptor (GIPR) on cells within the body, particularly in the pancreas and gut. **Conditions** The study focuses on adults with **type 1 diabetes mellitus (T1DM)**. **Sponsors** **Eli Lilly and Company** is sponsoring this clinical trial.
Phase 1	NCT04279613	A Multiple Ascending Dose Trial Investigating Safety, Tolerability and Pharmacokinetics of NNC0361-0041	**Intervention:** • The intervention being tested is **NNC0361-0041 plasmid**, administered in **ascending weekly subcutaneous doses**. Plasmids are small circular pieces of DNA that can be used to deliver genetic material into cells. **Route of Administration:** • The route of administration is **subcutaneous injection (weekly)**. **Mode of Action:**

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			• The mode of action is not entirely clear yet, but the study suggests NNC0361-0041 might be a gene therapy intervention. By delivering genetic material, it could potentially retrain the immune system to stop attacking insulin-producing beta cells in patients with T1D. **Target:** • The target is likely the immune system, particularly T cells that are involved in the destruction of insulin-producing beta cells. **Conditions:** • The study focuses on **Type 1 Diabetes Mellitus (T1D)**. **Sponsors:** • The study is sponsored by the National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK), a part of the National Institutes of Health (NIH).
Phase 1	JPRN-jRCT20802 23106	A Clinical Pharmacology and Long Term Study to Evaluate the Safety, Efficacy, Pharmacokinetics and Pharmacodynamics of Dapagliflozin Therapy in Combination With Insulin in Japanese Subjects With Type 1 Diabetes Who Have Inadequate Glycemic Control	**Intervention:** • This study is investigating the effects of **dapagliflozin** combined with insulin therapy in Japanese subjects with **type 1 diabetes (T1D)** who have inadequate glycemic control. **Route of Administration:** • Dapagliflozin is likely administered orally as tablets, but this detail might not be available in the JPRN registry. **Mode of Action (possible):** • Dapagliflozin is a sodium-glucose cotransporter 2 (SGLT2) inhibitor. It works by blocking the reabsorption of glucose by the kidneys, leading to increased glucose excretion in the urine and potentially lower blood sugar levels. **Target (possible):** • The target of dapagliflozin is the SGLT2 protein in the kidneys. By inhibiting this protein, it prevents glucose reabsorption from the urine. **Conditions:** • The study focuses on Japanese subjects with **type 1 diabetes (T1D)** with inadequate blood sugar control. **Sponsors:** • Sponsor information might not be publicly available on JPRN.

Phase 2	NCT06180616	Tirzepatide for the Concurrent Treatment of Obesity and Type 1 Diabetes	**Intervention:**
			• This trial is evaluating the effects of **tirzepatide** as an adjunct treatment for obesity in patients with **type 1 diabetes (T1D)**.
			• Participants will be randomized to receive either:
			  ○ **Insulin treatment alone (control group)**
			  ○ **Insulin treatment combined with tirzepatide (treatment group)**
			Route of Administration:

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			• The study description does not specify the route of administration for tirzepatide, but it's likely **subcutaneous injection**. **Mode of Action:** • Tirzepatide is believed to work by targeting multiple gut hormone receptors, including those for glucagon-like peptide-1 (GLP-1) and gastric inhibitory polypeptide (GIP). This may lead to increased insulin secretion, decreased appetite, and potentially slowed gastric emptying. **Target:** • Tirzepatide's target includes receptors for GLP-1 and GIP in the gut and pancreas. By acting on these receptors, it can influence hormone secretion and gut function. **Conditions:** • The study focuses on adults with **both obesity and type 1 diabetes (T1D)**. **Sponsors:** • Royal North Shore Hospital
Phase 3	IRCT20181106041574N1	Comparison of Once- Versus Twice-Daily Administration of long-acting insulin Detemir in children with type 1 diabetes	**Intervention** This clinical trial (IRCT20181106041574N1) is comparing the effectiveness of two different dosing schedules for a long-acting insulin medication called **detemir**. • One group will receive **detemir once daily**. • The other group will receive **detemir twice daily** **Route of Administration** **Detemir is likely administered subcutaneously** through injection, but the specific details may be available in the full trial description. **Mode of Action** Detemir is a long-acting insulin analog that works by slowly releasing insulin over an extended period, typically 24 hours. This helps to regulate blood sugar levels throughout the day and night. **Target** The target of detemir is the body's cells, particularly those in the muscles and liver. By mimicking the effects of natural insulin, detemir allows cells to take up glucose from the bloodstream for energy **Conditions** The study is focused on **children with type 1 diabetes**. **Sponsors** Tehran University of Medical Sciences.