

# AltrixBio

## LuCI™, A Proprietary Therapeutic that Mimics the Metabolic Benefits of Gastric Bypass Surgery, Surgery in a Pill™.

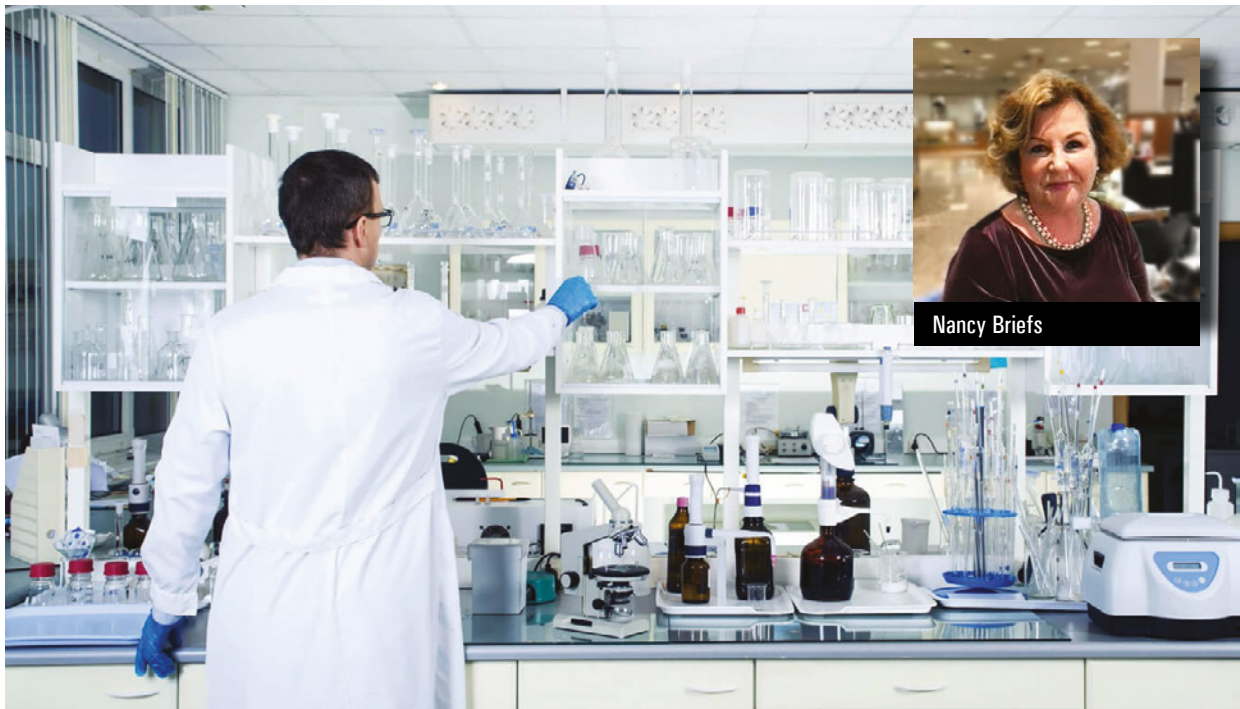
**O**besity and type 2 diabetes (T2D) are perhaps the most common diseases known to substantially decrease life expectancy, increase healthcare costs, and diminish the quality of life. And in recent times, the incidence of these conditions continues to rise exponentially.

While the growing worldwide obesity epidemic is estimated to affect nearly 42 percent of the U.S. adults over the age of 20 years, T2D represents a significant global, societal, and economic health burden set to affect approximately 650 million people worldwide by 2040. America is losing the war against diabetes, a chronic and disabling disease that is associated with obesity and affects 13 percent of the U.S. adult population.

Diabetes prevalence has been increasing and is the most common cause of blindness, renal failure, and amputation in the U.S., costing our healthcare system >\$350B annually.

The approach to treating diabetes has been to adjust diet, recommend exercise and give medications that help improve glucose levels. The disease is progressive, and over time, patients end up being on increasing number of medications and eventually insulin. Over the last decade, the pharmaceutical industry has invested heavily in new drugs to improve glycemic control, including drugs that enhance the action of GLP-1, a pro-insulin drug.

Unfortunately, despite this and at a population level, we have made very little progress. In fact, a recent CDC



Nancy Briefs

study published in the New England Journal of Medicine showed that we are losing ground on glycemic control with worse average glucose control in patients over the past decade than before.

While medical therapy of this disease has failed to demonstrate clinical progress, weight loss operations and gastric bypass surgery specifically have been shown to have potent anti-diabetic effects and, independent of their weight loss, can lead to significant

and rapid resolution of diabetes. Surgery does not only improve diabetes but puts the disease to remission, with many patients coming off their medications completely. This is a paradigm-shifting observation that has pushed bariatric surgery to the forefront of diabetes management, with several randomized studies confirm its superiority to medical management. Unfortunately, surgery is complicated and has risks which have limited its uptake.

AltrixBio is an innovative BioTech Startup that banks on this very idea while giving it a revolutionary spin! They aim to treat the “Treacherous Triecta: Obesity, Diabetes, and Fatty Liver Disease” through an orally administered proprietary therapeutic, LuCI™ AJN 003, which provides duodenal isolation of the proximal gut without entering the bloodstream.

Founded in 2019, AltrixBio translates the vision of bioengineer Dr. Jeff Karp and bariatric surgeon and researcher Dr. Ali Tavakkoli of Brigham & Women’s Hospital to develop a drug that is transient with a high safety profile capable of adhering to the proximal bowel to replicate the effect of gastric bypass surgery for T2D. This eventually paved the way for the development of LuCI™ (AJN 003).

To emulate the results of gastric bypass in a pill, Dr. Karp and Dr. Tavakoli joined hands with Nancy Briefs, a serial entrepreneur who has co-founded six prior companies and has extensive experience creating value, driving strategy, and launching products in the life sciences market.


This joint venture eventually became AltrixBio as we know it today. “Our approach for an orally administered transient pill that adheres to the gut is an innovative solution. It seeks to reproduce the effect of surgery (isolation of proximal bowel from nutrient exposure) without the need for an invasive procedure and its associated risks,” says Nancy Briefs, President, CEO, Co-Founder & BOD Member, AltrixBio. “In essence, when LuCI™ is swallowed, it forms

a paste that coats the upper tract of the gastrointestinal system to target the metabolic center.

After initial results published in Nature Materials, the company has demonstrated preclinical enabling studies in chronic animal models, had a successful Pre-IND meeting for an expedited drug development pathway, and preparing for human studies in 2022. In preclinical chronic animal models, LuCI™ has been shown to lower fasting glucose levels, mitigates insulin resistance and lowers HOMA-IR and reduces circulating incretins during fasting, and improves GLP-1 and GIP responses following a glucose challenge. Treatment also lowered the total serum cholesterol level, especially contributed by the lowered serum LDL levels.

Augmenting their leadership is an exceptional team that includes

biomaterials engineer Yuhan Lee PhD, an expert in formulations using safe biomaterials and GRAS materials for clinical, pharmaceutical, and cosmetic uses. Backed by such a strong leadership team and a revolutionary product, AltrixBio aims to up the ante, tackling the growing T2D with the Obesity epidemic, once and for all. “Our vision is that LuCI™ will prevent progression of T2D while allowing patients to reduce their insulin and T2D drugs.”

The company is not stopping at the therapeutic transformation. “LuCI™ also has a second development pathway to act as a platform for delivery of drugs to the G.I. tract. The related data published in the Nature Material paper has led to interest from major pharmaceuticals to further explore the role of LuCI™ for oral peptide, small molecule, and biologics delivery. 



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