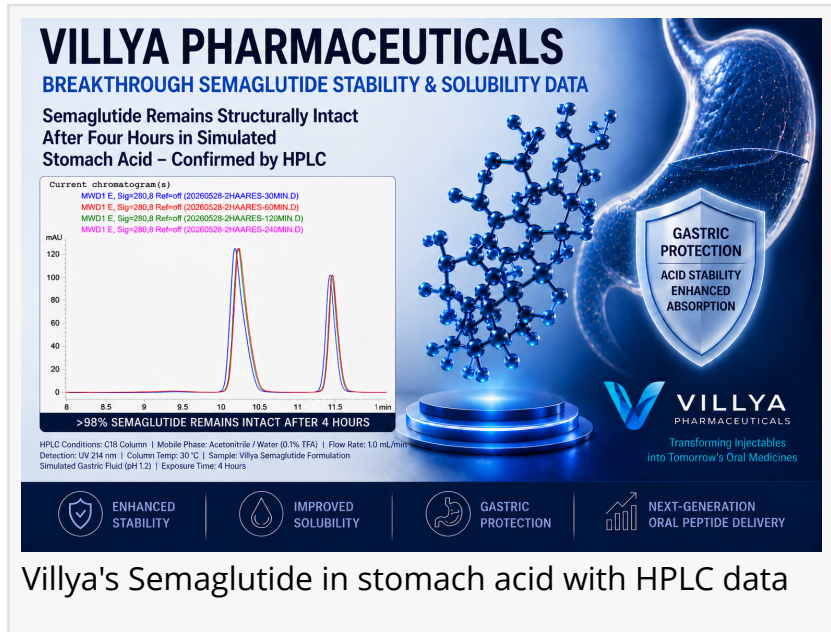


Villya Announces Breakthrough Data Demonstrating Enhanced Stability and Solubility for Insulin, GLP-1s

Novel oral peptide delivery platform demonstrates preservation of semaglutide and insulin integrity after prolonged exposure to simulated gastric conditions

MELBOURNE, FL, UNITED STATES, June 22, 2026 /EINPresswire.com/ -- Villya Announces Breakthrough Data Demonstrating Enhanced Stability and Solubility for Insulin and GLP-1s

Novel oral peptide delivery platform demonstrates preservation of semaglutide and insulin integrity after prolonged exposure to simulated gastric conditions.



Villya today announced new laboratory data supporting the potential of its proprietary delivery technology covered under international patent application WO2025064695A1, “[Compositions and Methods for Improving the Solubility of Insulin](#), Insulin Analogs, and A1C or Glucose Regulatory Compounds.”

“

The future of oral semaglutide isn't just absorption—it's protection. Villya's platform is designed to preserve peptide integrity even before delivery begins”
 William Miller

The company's technology platform has demonstrated the ability to significantly improve the solubility characteristics of insulin and GLP1 drugs such as semaglutide, while simultaneously protecting the molecule from degradation in simulated gastric conditions. High-performance liquid

chromatography (HPLC) analysis showed preservation of semaglutide integrity following prolonged exposure to simulated stomach acid, a result that could have important implications for the future development of orally delivered peptide therapeutics. The overall advantage is the increased bioavailability of this new Semaglutide from Villya. The improved stability, solubility,

and bioavailability demonstrated by Villya's technology may enable significantly lower doses to achieve equivalent or superior therapeutic outcomes, potentially improving patient convenience while reducing overall drug requirements.

Semaglutide, a GLP-1 receptor agonist used in the treatment of obesity and type 2 diabetes, has historically faced significant challenges in oral administration due to degradation within the gastrointestinal tract and limited absorption. Villya's technology was developed specifically to address these longstanding barriers. "Our objective has always been to solve one of the most important problems in modern medicine—protecting fragile therapeutic molecules during oral delivery," said [William Miller, Founder and Chief Executive Officer of Villya](#). "The HPLC data generated thus far suggest that our technology can maintain semaglutide stability in simulated gastric conditions for extended periods of time, providing evidence that oral administration may be possible without the limitations traditionally associated with peptide drugs."

Key Findings

Recent analytical testing conducted by Villya demonstrated:

Enhanced solubility characteristics of semaglutide formulations utilizing Villya's proprietary platform.

Bioavailability and Bioburden

- Preservation of semaglutide molecular integrity following up to four hours of exposure to simulated gastric fluid.

Loading Technology Comparison: Villya's Technology vs. Salcaprozate Sodium(SNAC)



Villya's Technology

Key Aspects:

- **Sweetness:** 250–300 times sweeter than sugar
- **Health Benefits:** Used as sugar alternative for weight & diabetes management (no blood sugar spike)
- **Safety Profile:** Generally recognized as safe (GRAS) within ADI limits; mild bitter/licorice aftertaste possible
- **Additional Properties:** Potential anti-inflammatory, anti-oxidant, and blood pressure support
- **Low Stevioside Load:** Keeps intake minimal



Current: Salcaprozate Sodium (SNAC) – Absorption Enhancer in Oral Semaglutide

Common and Potential Side Effects (from 2026 Animal Studies):

- **Gastrointestinal Distress:** Nausea, vomiting, abdominal pain, diarrhea (due to increased membrane permeability)
- **Gut Microbiota Changes:** Reduced beneficial bacteria (e.g., Muribaculaceae, Bacteroidaceae), lower short-chain fatty acids (butyrate)
- **Systemic Effects:** Increased inflammatory markers (TNF-α, IL-6), altered BDNF, increased liver weight
- **Other:** Potential electrolyte shifts and stomach histopathological changes at high doses
- **Warning Note:** High-dose animal studies show risks; human long-term data still emerging

Advantage of Villya Platform: Natural GRAS complexing agent with enhanced solubility/stability

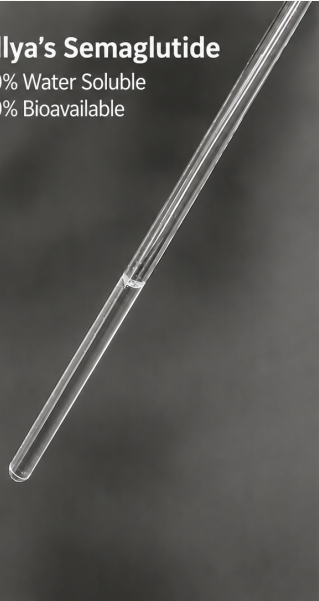
- Avoids synthetic permeation enhancers like SNAC

Comparison for Oral Peptide Delivery

Comparison of Villya's proprietary oral peptide delivery platform and conventional SNAC-based absorption enhancement, highlighting Villya's use of a natural GRAS complexing agent designed to improve solubility, stability, and gastric protection.

Villya's Semaglutide

100% Water Soluble
100% Bioavailable



Traditional Commercial Semaglutide



Visual comparison of aqueous solubility between Villya's semaglutide formulation and a traditional commercial semaglutide preparation, demonstrating the enhanced clarity and complete dissolution achieved with Villya's proprietary delivery technology.

- HPLC chromatographic profiles indicating minimal structural degradation during gastric exposure testing.
- Comparative laboratory observations suggesting improved performance relative to conventional semaglutide formulations tested under similar conditions.

The company believes these findings support the continued development of a next-generation oral semaglutide product designed to improve patient convenience, compliance, and therapeutic accessibility.

Addressing a Major Limitation in Oral Peptide Delivery

Despite the commercial success of injectable GLP-1 therapies, oral delivery remains one of the most sought-after advances in metabolic medicine. Many peptide-based therapeutics are vulnerable to degradation by stomach acid and digestive enzymes, resulting in poor bioavailability and limited effectiveness when administered orally.

Villya's patented platform seeks to overcome this challenge through proprietary molecular encapsulation and 100% solubility-enhancement mechanisms designed to 100% shield the active pharmaceutical ingredients during gastrointestinal transit. According to company scientists, preservation of semaglutide's structure after four hours in simulated gastric conditions represents a potentially significant advancement in oral peptide delivery science. It lowers the dose in return lowers the bioburden on the patients organs. "Stability in the gastric environment is one of the most difficult hurdles facing oral peptide development, most peptides drugs are acid sensitive and degrade in the stomach before absorption" said a company spokesperson. "The chromatographic data indicate that semaglutide remains structurally intact after prolonged acid exposure, supporting the hypothesis that the molecule can survive conditions that traditionally limit oral peptide administration."

Platform Potential for Diabetes

If successful translated into clinical development, the technology could create opportunities across multiple therapeutic areas, including:

- Obesity management
- Type 2 diabetes
- Insulin replacement therapies
- Metabolic disease
- Peptide-based therapeutics

Intellectual Property Position

Villya's technology is protected under international patent application WO2025064695A1. The

company believes the patent establishes a broad intellectual property position surrounding enhanced solubility and gastrointestinal protection technologies applicable to multiple classes of therapeutic compounds.

The patent portfolio is intended to support the development of oral formulations that may otherwise be limited by poor solubility, low absorption, or degradation within the gastrointestinal tract.

Next Development Steps

Villya plans to continue preclinical evaluation of its semaglutide platform through expanded analytical studies, additional pharmacokinetic investigations, and future animal studies designed to evaluate oral bioavailability and therapeutic performance.

The company is also pursuing strategic partnerships with pharmaceutical organizations interested in oral peptide delivery technologies and next-generation metabolic therapeutics.

“We believe these findings represent an important milestone for Villya and for the broader field of oral biologic medicines,” said Miller. “Our mission is to eliminate barriers between patients and life-changing therapies by transforming injectable medicines into convenient oral treatments.”

About Villya LLC.

Villya is a biotechnology company in Florida focused on developing innovative drug delivery technologies designed to improve the solubility, stability, and bioavailability of therapeutic compounds. Through its proprietary intellectual property portfolio, including patent application WO2025064695A1, the company is advancing solutions intended to enable oral delivery of therapeutics that have historically required injection-based administration.

Forward-Looking Statements

This press release contains forward-looking statements regarding product development, intellectual property, regulatory pathways, commercial opportunities, and future clinical outcomes. Actual results may differ materially from those expressed or implied by these statements. Villya undertakes no obligation to update forward-looking statements except as required by applicable law.

Images

Digital media created using ChatGPT

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