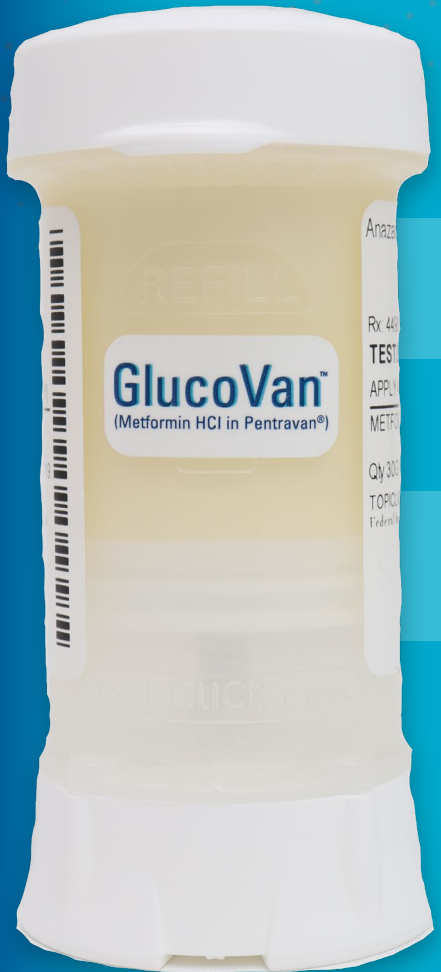




# TOPICAL CREAMS

*Pentravan® is an oil-in-water emulsion with a liposomal matrix that allows more efficient absorption of drugs compared to other topical bases. Its also a true vanishing cream, that is preservative and fragrance-free, leaving no sticky residue and providing a cosmetically elegant skin feel. Pentravan® Plus is a more viscous version of Pentravan with additional emulsifiers that can incorporate higher concentrations of drugs.*



- Non-oral topical delivery
- Easy application with TopiCLICK® applicator
- Patient-specific prescription required

## GlucoVan™

**Metformin HCl in Pentravan®  
Topical Cream 50 mg/g and 100 mg/g**

## ResveraVan™

**Resveratrol in Pentravan®  
Topical Cream 50 mg/g**

## GlucoFirm™

**Metformin HCl / Resveratrol  
in Pentravan® Plus  
Topical Cream 100 mg/g / 100 mg/g**

## GlucoFirm™ + D3

**Metformin HCl / Resveratrol /  
Vitamin D3 in Pentravan® Plus  
Topical Cream 100 mg/g / 100 mg/g / 5000 iu/g**

Metformin, an FDA-approved first-line drug for the treatment of type 2 diabetes has been prescribed for over 50 years based on its beneficial effects on glucose metabolism. More recently, Metformin is undergoing NIH-supported clinical trials to study other promising uses and effects of this pharmaceutical ingredient. Compounding Metformin in a topical route of administration results in medication not passing through the gastrointestinal tract, eliminating side effects associated with some orally administered medications.

Researchers have long believed that substances in red wine might have health benefits. Beginning in the 1990s, experts began to focus on Resveratrol, a naturally occurring polyphenol in red wine, grapes, and peanuts. Since then, some animal and lab studies have shown that Resveratrol has promising uses and effects.

### **Metformin, Resveratrol, and Vitamin D Studies on the Other Side**

## STUDIES



### Studies on Vitamin D<sub>3</sub>

- **Investigating Transdermal Delivery of Vitamin D<sub>3</sub>**

Alsaqr, A., Rasouly, M., & Musteata, F. M. (2015). Investigating transdermal delivery of vitamin D<sub>3</sub>. AAPS PharmSciTech, 16(4), 963–972. doi:10.1208/s12249-015-0291-3  
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4508301>

### Studies on Metformin

- **Metformin in Longevity Study**

Brutsaert, E., & A. (2018, May 31). Metformin in Longevity Study (MILES). - Full Text View. Retrieved December 07, 2018, from <https://clinicaltrials.gov/ct2/show/NCT02432287>

- **Effects of Metformin and Weight Loss on Serum Alanine Aminotransferase Activity in the Diabetes Prevention Program**

Obesity (Silver Springs) 18:1762-1767 Krakoff J, Clark JM, Crandall JP, Wilson C, Molitch ME, et al. (2010) <https://pubmed.ncbi.nlm.nih.gov/20186137>

- **Metformin Loaded Carbopol Gel for Lowering the Intra-Abdominal Visceral Fat**

Abellatif AAH, Takfeek HM (2016) Metformin Loaded Carbopol Gel for lowering the Intra-Abdominal Visceral Fat. J Bioequiv Availab 8: 149-152. doi:10.4172/jbb.1000286 <https://www.longdom.org/open-access/metformin-loaded-carbopol-gel-for-lowering-the-intraabdominal-visceral-fat-jbb-1000286.pdf>

### Studies on Resveratrol

- **Recent Studies on Resveratrol and its Biological and Pharmacological Activity**

Anti-aging properties of resveratrol: review and report of a potent new antioxidant skin care formulation. Richard A Baxter, from <https://pubmed.ncbi.nlm.nih.gov/18254804/>

- **The Therapeutic Potential of Resveratrol: A Review of Clinical Trials**

Berman, A. Y., Motechin, R. A., Wiesenfeld, M. Y., & Holz, M. K. (2017, September 25). The therapeutic potential of resveratrol: A review of clinical trials. Retrieved from <https://www.nature.com/articles/s41698-017-0038-6>

- **Formulating with Pentravan**

Polonini HC, et al; In vitro drug release and ex vivo percutaneous absorption of resveratrol cream using HPLC with zirconized silica stationary phase; Journal of Chromatography B, 947-948 (2014) 23-31. Almeida PA, et al; Studies with emulsion containing trans-resveratrol: in vitro release profile and ex vivo human skin permeation; current drug delivery, 2015,12,157-165. Walle T., et al; High absorption but very low bioavailability of oral resveratrol in humans; Drug metabolism and disposition, 2004, 32: 1377-1382. Chiong HS, et al; Cytoprotective and enhanced anti-inflammatory activities of liposomal piroxicam formulation in lipopolysaccharide stimulated RAW 264. macrophages; Int] Nanomedicine. 2013; 8: 1245-55. Maia H, et al; 2016; SEUD, 2017 -submitted <https://pubmed.ncbi.nlm.nih.gov/24381018/>



*\*Patient-specific prescriptions required in order to dispense. A physician must determine a compounded preparation prescribed is appropriate for a patient and document accordingly in the patient's medical record.*

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