

GlucoFirm[™]

Metformin HCl / Resveratrol in
Pentran[®] Plus

Topical Cream 100 mg/g / 100 mg/g

GlucoFirm[™] + D3

Metformin HCl / Resveratrol / Vitamin D3
in Pentran[®] Plus

Topical Cream 100 mg/g / 100 mg/g
/ 5000 iu/g

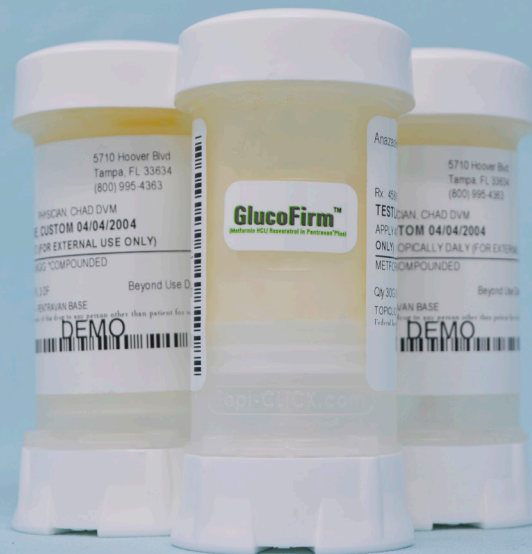
- Non-oral topical delivery
- Easy application with TopiCLICK[®] applicator
- Patient-specific prescription required

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.

Pentran[®] Plus is a more viscous version of Pentran with additional emulsifiers that can incorporate higher concentrations of drugs. It is also an oil-in-water emulsion with a liposomal matrix that allows more efficient absorption of drugs compared to other topical bases.

Pentran[®] Plus is a true vanishing cream, that is preservative and fragrance-free, leaving no sticky residue and providing a cosmetically elegant skin feel.



Studies on Vitamin D₃

- **Investigating Transdermal Delivery of Vitamin D₃**
Alsaqr, A., Rasouly, M., & Musteata, F. M. (2015). Investigating transdermal delivery of vitamin D3. AAPS PharmSciTech, 16(4), 963–972. doi:10.1208/s12249-015-0291-3

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)
- **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

Studies on Resveratrol

- **Recent Studies on Resveratrol and its Biological and Pharmacological Activity**
Joo Kim, Y., Ok Chung, S., Kwang Kim, J., & Un Park, S. (2017, April 27). National Center for Biotechnology Information. Recent studies on resveratrol and its biological and pharmacological activity. Retrieved March 5, 2019, from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC5491918/>

GlucoVan™

Metformin in Pentravan®

Topical Cream 50 mg/g and 100 mg/g

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

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ResveraVan™

Resveratrol in Pentravan®

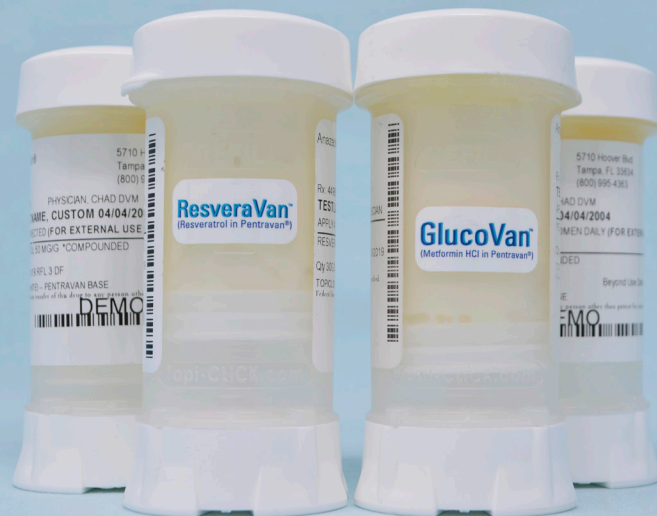
Topical Cream 50 mg/g

- Topical delivery
- Easy application with TopiCLICK® applicator
- Patient-specific prescription required

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.

Pentravan® is an oil-in-water emulsion with liposomal matrix that allows more efficient absorption of drugs compared to other topical bases.

Pentravan® is a true vanishing cream, that is preservative and fragrance-free, leaving no sticky residue and providing a cosmetically elegant skin feel.



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> -submitted

Additional Metformin Studies on the Other Side

Studies on Resveratrol

• Recent Studies on Resveratrol and its Biological and Pharmacological Activity

Joo Kim, Y., Ok Chung, S., Kwang Kim, J., & Un Park, S. (2017, April 27). National Center for Biotechnology Information. Recent studies on resveratrol and its biological and pharmacological activity. Retrieved March 5, 2019, from <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC5491918/>

• 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; IntJ Nanomedicine. 2013; 8: 1245-55. Maia H, et al; 2016; SEUD, 2017 -submitted

**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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5710 Hoover Blvd
Tampa, FL 33634
P: 800.995.4363
F: 800.985.4363
anazaohealth.com