KetoCitra®, for the dietary management of Chronic Kidney Disease

(Including the genetic form, Polycystic Kidney Disease)

What is KetoCitra®?

- A medical food for the dietary management of individuals with mild to moderate stages of CKD (stages 1-3).
- Non-prescription.
- Contains beta-hydroxybutyrate (BHB) and citric acid (citrate).
- Formulated to be kidney-safe.
- Launched in November 2021.

What is Santa Barbara Nutrients®?

- A startup company out of the University of California Santa Barbara (UCSB), based on research done at UCSB, and launched by kidney researchers and kidney patients.
- A benefit corporation.
- Focused on R&D to create innovative products for kidney diseases and kidney health.
- Exclusive license to commercialize UCSB's patented and patent-pending technologies (US Patent No. 11,013,705).

What outcomes have people had on KetoCitra®?

- KetoCitra has been used in the Ren.Nu Program for over a year and a half to help individuals with the dietary management of kidney disease.
  - What is the Ren.Nu Program?
    - The Ren.Nu Program Program is a collaboration between Santa Barbara Nutrients and the Kidney Nutrition Institute (kidneynutritioninstitute.org), a dietitian-led company that advocates nutrition first in kidney disease.
    - Ren.Nu is a 12 week, interactive online program administered by renal dietitians to teach the implementation of kidney-safe ketogenic metabolic therapy and master a lifelong in diet & lifestyle.

Reference:
Bruen, et al. *Ren.Nu, a Dietary Program for Individuals with Autosomal-Dominant Polycystic Kidney Disease Implementing a Sustainable, Plant-Focused, Kidney-Safe, Ketogenic Approach with Avoidance of Renal Stressors*
Kidney and Dialysis. 2022, 2(2), 183-203

How the Ren.Nu Program Helps Patients

- **Avoidance of kidney stressors** - smart strategies to balance oxalates, sodium, phosphates, and excessive protein
- **KetoCitra®** - Participants will learn about the benefits of KetoCitra® and how to incorporate KetoCitra® as part of their daily nutrition plan
- **Whole Team Approach** - A group of experienced renal dietitians to guide patients, a community to support patients, and communication with physicians for optimal support
- **Evidence-Based Nutrition** - A nutrition plan using cutting-edge science specifically for PKD and kidney health
- **Mindset strategies and peer support** - Strategies to empower patients during each step of change; patients meet in groups for peer support

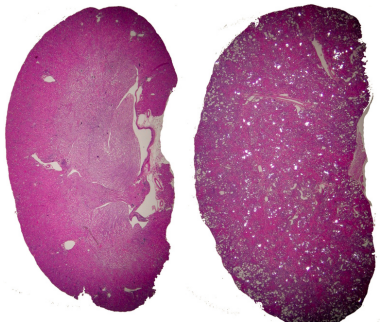
For more information or to enroll patients, reach out to: support@knicare.org

The Science Behind KetoCitra®

Dr. Thomas Weimbs, a University of California, Santa Barbara professor and molecular biologist, has directed a research laboratory for more than 20 years focusing on the molecular mechanisms that underlie kidney disease. During that time, two significant discoveries emerged that pointed to dietary approaches in the management of kidney disease.

1. CRYSTALS

What was previously an unknown mechanism, the Weimbs lab discovered that micro-crystals that can precipitate in renal tubule lumens lead to the activation of signaling pathways, tubule dilation, and acceleration of CKD progression.



Mouse kidney sections with calcium oxalate crystals (right) compared to control

Reference:
Torres JA, Rezaei M, Broderick C, Lin L, Wang X, Hoppe B, Cowley BD, Savica V, Torres VE, Khan S, Holmes RP, Mrug M, Weimbs T. *Crystal deposition triggers tubule dilation that accelerates cystogenesis in polycystic kidney disease.* ***J. Clin. Invest.*** 2019; 130:4506-4522.

2. KETOSIS

The Weimbs lab discovered that dietary interventions that promote the metabolic state of ketosis slowed the progression of kidney disease in multiple animal models, and that the effect can be mimicked by supplementing the diet with the ketone beta-hydroxybutyrate (BHB).

Based on these results and numerous clinical data, carbohydrate-predominant diets consumed by most individuals in industrialized societies likely worsen the progression of CKD and PKD.

Reference:
Torres JA, Kruger SL, Broderick C, Amarlkhagva T, Agrawal S, Dodam JR, Mrug M, Lyons LA, Weimbs T. *Ketosis Ameliorates Renal Cyst Growth in Polycystic Kidney Disease.* ***Cell Metabolism.*** 2019; 30:1007–1023

For more information, reach out to us:
Practitioners@SantaBarbaraNutrients.com
1+805-272-0029