

Lubiprostone, a constipation drug, has a kidney protective effect

Improvement of Intestinal Microbiota Improves Mitochondrial Function

Overview

Chronic kidney disease (CKD) is a major global health issue without any drugs that improve kidney function. Previous mouse experiments showed that lubiprostone, a constipation drug, reduces uremic toxin accumulation by improving the intestinal environment altered by kidney decline, thus inhibiting kidney damage progression¹.

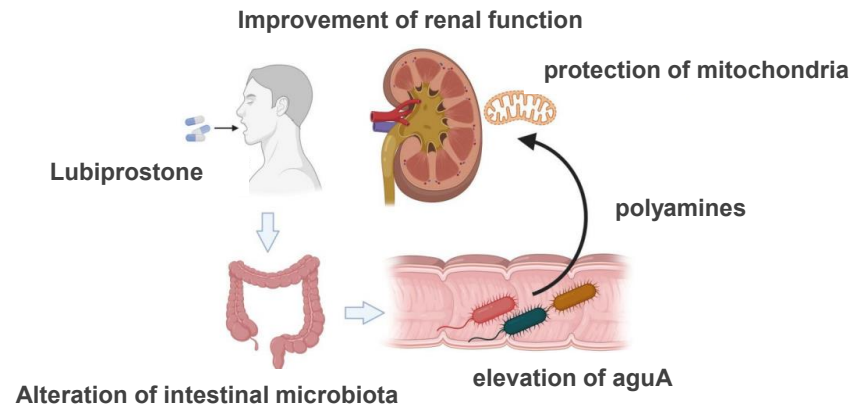
A phase II clinical trial was conducted to test lubiprostone's effects on kidney function in patients. Results revealed dose-dependent suppression of kidney function decline (eGFR) in lubiprostone-treated patients compared to placebo. Further analysis showed lubiprostone improves kidney mitochondrial function by modulating the gut microbiota and increasing spermidine production, which enhances mitochondrial activity and provides kidney protection.

Product Application

- ❑ Drug for treating CKD
- ❑ Drug for treating overall diseases associated with decreased mitochondrial function

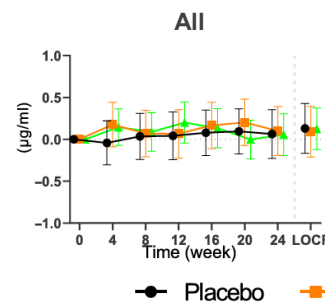
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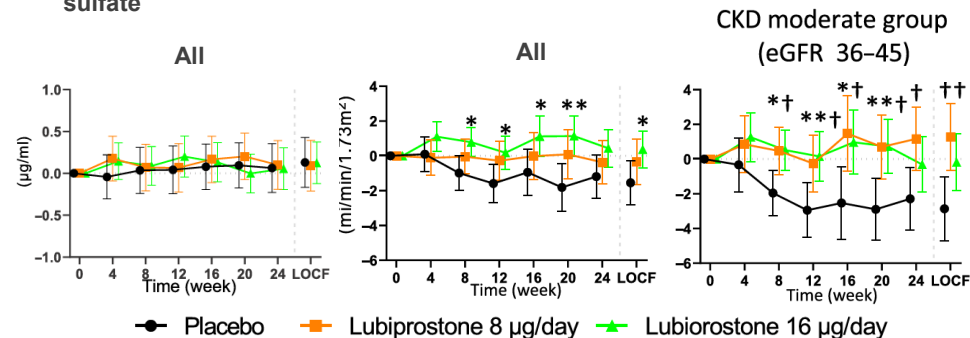


Lubiprostone has a kidney protective effect²

A. Change in indoxyl sulfate



B. Change in eGFR



A. No change was observed in indoxyl sulfate

B. Lubiprostone 8 μg, 16 μg significantly suppressed the decline in renal function, especially in the intermediate group.

Related Works

- [1] J Am Soc Nephrol. 2015 Aug;26(8):1787-94
- [2] Lubiprostone in Chronic Kidney Disease: Insights into Mitochondrial Function and Polyamines from a Randomized Phase 2 Clinical Trial
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