Molecule for Repairing Leaky Gut And Restoring Energy Metabolism

Tech ID: 33761 / UC Case 2024-535-0

APPLICATIONS

- Treatment for inflammatory conditions damaging the gut, like HIV/AIDS
- Useful in therapies aiming at gut health and balance
- Potential use in the treatment of microbial dysbiosis

ABSTRACT

Researchers at the University of California, Davis have identified an orally administered molecule from microbial origin, capable of repairing damaged gut epithelial barriers and restoring energy metabolism.

FULL DESCRIPTION

Gastrointestinal tissue is an early target of viral infections including HIV, which leads to rapid disruption of gut epithelial barrier integrity and function resulting in leaky gut, systemic immune activation, and impaired defense against opportunistic pathogens. The importance of gut repair pathways goes beyond one infection or condition. Microbially derived bioactive molecules are also superb candidates for combating multiple inflammatory gut diseases as they are naturally occurring and can promote a large variety of repair pathways through epigenetic modulation.

Cytokine and growth factor treatments and orally administered live probiotics have been used with mixed results, but overall, most treatments thus far fail to traffic directly to the site of inflammation and cause rapid local repairin vivo.

This newly identified small molecule restores the leaky gut by repairing the damaged gut epithelial barriers and works through a novel form of epigenetic modification which rapidly prompts processes for gut repair and renewal. It restores cell energy balance and mitochondrial function and can also restore gut microbiota. It has potential applications in treating conditions like HIV or other conditions that cause damage to the gut epithelial barriers. It has been found to induce histone crotonylation and mitochondrial biogenesis, both necessary for gut barrier integrity and function.The molecule is orally administered and in high amounts without cytotoxic effects.

FEATURES/BENEFITS

- First molecule of its kind to repair gut epithelial barriers through epigenetic modifications
- Restores mitochondrial function and cell energy balance
- Restores gut microbiota, important for overall gut health
- Effective for treating inflammatory conditions
- No cytotoxic effects when administered in high amounts
- Heals damage to gut epithelial barriers caused by disease or inflammation
- Repairs mitochondria and restores cell energy balance

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INVENTORS

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OTHER INFORMATION

KEYWORDS

leaky gut, epithelial barriers, histone crotonylation, mitochondrial biogenesis, inflammatory gut conditions, gut health, microbial dysbiosis, gut microbiota

CATEGORIZED AS

- **Medical**
  - Disease: Digestive System
  - Other
  - Therapeutics

RELATED CASES

2024-535-0

- Helps in the revival of gut microbiota disturbed by illness, promoting overall gut health

PATENT STATUS

Country	Type	Number	Dated	Case
Patent Cooperation Treaty	Published Application	WO 2025/128741	06/19/2025	2024-535

Additional Patent Pending

ADDITIONAL TECHNOLOGIES BY THESE INVENTORS

- Walnut Pellicle and Somatic Embryo Tissues as a Unique Plant Source of Bioactive Lipid Supplements
- Methods for Disrupting HIV Latency Using Anti-HIV Latency Agents

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