

EVALUATING METHYLENE BLUE AS A POTENTIAL NEW DRUG IN THE TREATMENT OF ALCOHOLIC PANCREATITIS AND ALCOHOL INDUCED HEPATITIS

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Poster

Pancreas

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Methylene blue significantly reduced severity of alcohol-induced acute pancreatitis in mouse models by enhancing PMCA activity and preserving mitochondrial function without altering gene expression of key ion channels.

KEY POINTS

- In alcohol-induced acute pancreatitis models, methylene blue treatment significantly reduced serum amylase levels, oedema, leukocyte infiltration, and necrosis scores compared to ethanol-palmitoleic acid treated controls.
- Fluorescent calcium measurements showed methylene blue significantly potentiated PMCA activity following ethanol and palmitic acid exposure in mouse pancreatic, mouse liver, and human pancreatic ductal organoid cultures.
- Mitochondrial membrane potential measurements confirmed methylene blue's protective effect, and immunofluorescence staining demonstrated methylene blue promoted PMCA4 apical localization in treated groups.
- Gene expression analysis revealed no significant differences in CFTR, PMCA4, or ORAI1 expression between ethanol-palmitic acid and methylene blue treated groups.
- This experimental study using organoid cultures and mouse models may interest researchers investigating calcium regulation mechanisms and potential therapeutic targets in alcohol-related pancreatic and liver diseases.

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