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Summary

MAST CELLS AS KEY PLAYERS OF VISCERAL HYPERSENSITIVITY TRIGGERED BY MICROBIAL HISTAMINE

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Mast cell stabilization with cromolyn reduces visceral hypersensitivity in mice colonized with high histamine-producing IBS patient microbiota but not low histamine-producing microbiota, suggesting mast cell-targeted therapy may benefit only a subset of IBS patients.

KEY POINTS

- Cromolyn decreased visceral hypersensitivity in mice colonized with high histamine-producing IBS microbiota (P=0.037) but had no effect in mice with low histamine-producing microbiota.
- Cromolyn treatment reduced serum mast cell protease 1 in high histamine-colonized mice (P=0.001) and decreased neuronal excitability of dorsal root ganglia neurons exposed to their colonic supernatants (P=0.02).
- Mast cell deficient mice, particularly females, colonized with high histamine-producing microbiota showed reduced visceral hypersensitivity compared to wild-type mice (P=0.05).
- The study used germ-free NIH Swiss mice colonized with IBS patient stool samples and treated with cromolyn 100mg/kg once daily for one week starting three weeks after colonization.
- Mast cells appear to be required for visceral hypersensitivity only in the presence of high histamine-producing microbiota, indicating mast cell-directed treatment may be effective in a specific patient subset.

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