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Summary

MITOCHONDRIA ARE BETTER PROTECTED FROM HYPOXIA-REOXYGENATION INJURY IN CRYPT-LIKE HUMAN INTESTINAL ORGANOIDS COMPARED WITH VILLUS-LIKE ORGANOIDS: A ROLE FOR MITOPHAGY?

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Small Intestine & Nutrition

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A human small intestinal organoid study found that crypt-like organoids showed increased mitophagy markers after hypoxia-reoxygenation while villus-like organoids exhibited more severe mitochondrial damage without increased mitophagy.

KEY POINTS

- Crypt-like organoids showed a significant increase in autophagy and mitophagy markers following hypoxia-reoxygenation, while villus-like organoids did not
- Villus-like organoids displayed a drastic decrease in TMRM fluorescence indicating impaired mitochondrial activity, whereas crypt-like organoids did not show this decrease
- Both organoid phenotypes exhibited mitochondrial ultrastructural changes including swelling and disrupted cristae after hypoxia, with tubular or small round shapes after 480 minutes of reoxygenation
- Mitochondrial content markers decreased in both crypt-like and villus-like organoids following hypoxia-reoxygenation
- The authors conclude that crypt-like organoids might be protected by inducing mitophagy and are currently validating this with live-cell imaging

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