Ezecure™

In silico-derived anticancer compound (MTS_42 & MTS_69) targeted towards MDM2/MDM4 - modified ezetimibe drug for cancer treatment

"Reprogramming Cancer at the Core."

Technology

This invention introduces a novel anti-cancer therapy derived from structural modifications of ezetimibe, a known cholesterol absorption inhibitor. The modified compound has been designed to address ezetimibe's limitations in bioavailability and metabolic stability, especially for oral administration in treating colorectal and other cancers. This new drug variant shows significantly improved pharmacokinetics and pharmacodynamics for dual inhibition of HDM2 and HDM4 (HDMX)—two important negative regulators of the tumour suppressor protein p53.

Market need

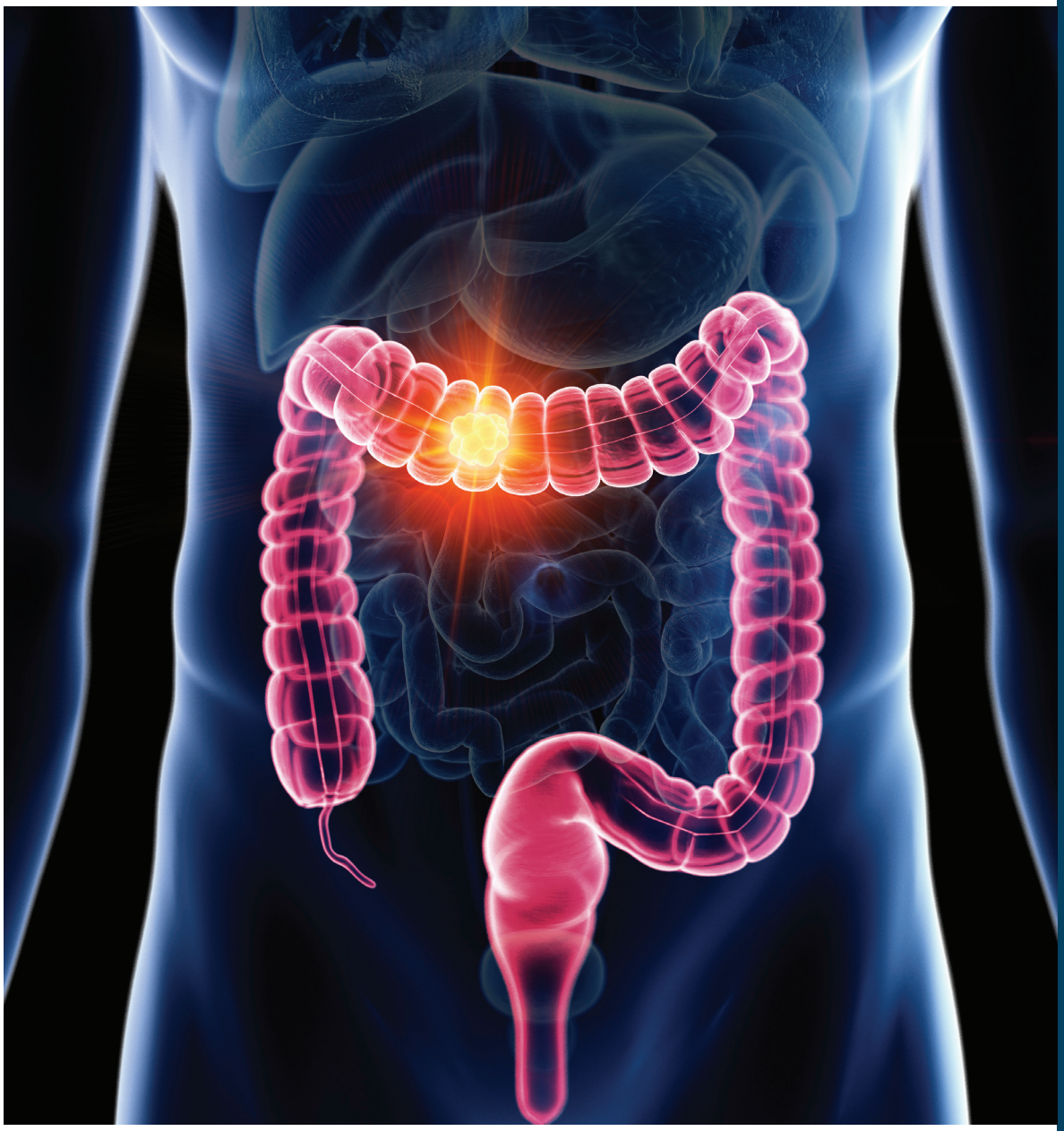
Current treatments targeting the p53 pathway often face issues with specificity, metabolic degradation, or limited effectiveness against both HDM2 and HDM4. Ezetimibe was previously identified as a small molecule capable of binding the HDM2 hydrophobic pocket. However, its rapid conversion in the intestines makes it unsuitable for anti-cancer therapy. There is a clear need for stable, orally available small-molecule inhibitors of both HDM2 and HDM4, which would provide better therapeutics for cancers involving p53 suppression, especially colorectal cancer, and drugs that restore p53 activity by preventing its degradation and inhibition.

Features

- Structural modification of ezetimibe enhances metabolic stability and prevents rapid degradation by intestinal enzymes.
- Targeted binding to the p53-binding pockets of both HDM2 and HDM4.
- Improved oral bioavailability and intestinal permeability, making it effective for colon-targeted therapies.
- Simultaneous inhibition of HDM2's E3 ubiquitin ligase activity and HDM4's p53-binding function.

Benefits

- Suitable for oral administration
- Potential for broader application across multiple p53-related cancers beyond colorectal types.
- Enhanced anticancer efficacy by stabilising and reactivating p53 function.



Industry
Drug discovery

Potential applications
- Colorectal cancer treatment: oral therapy targeting p53 pathway restoration by inhibiting both HDM2 and HDM4.
- Broad-spectrum anticancer therapy: potential use in cancers where p53 activity is suppressed, such as breast, lung, and liver cancers.
- Adjuvant cancer therapy: combined use with chemotherapy or radiotherapy to enhance tumour suppression and reduce resistance.
- Drug development and screening: a platform for designing next-generation small-molecule inhibitors targeting the p53 regulatory pathway.
- Personalised medicine: potential use in precision oncology for patients with p53-dependent tumour profiles.

Creators
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Stage of development
Early stage

Intellectual property
Patent Protection

Desired relationship
Co-development, Investors