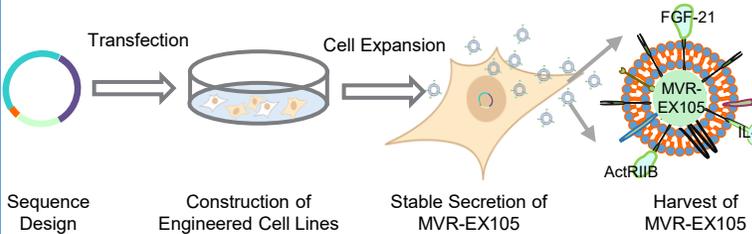


BACKGROUND

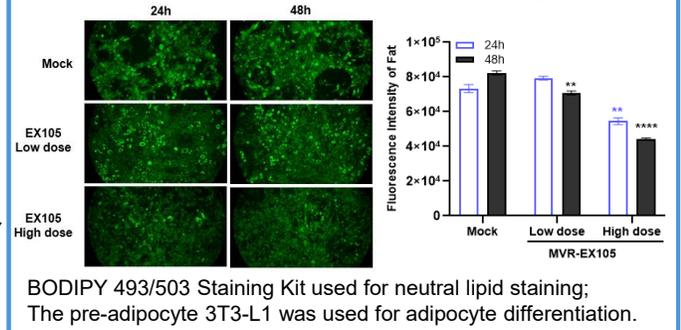
The rising prevalence of obesity has become a pressing global health issue. While metabolic bariatric surgery is an option, it carries significant risks of complications and severe side effects, leading to growing interest in non-invasive methods for reducing localized subcutaneous fat. Notably, emerging anti-obesity medications have shown effectiveness in promoting fat loss. However, their widespread adoption is limited by a high rate of adverse effects. Additionally, the need for injectable administration further reduces patient compliance. Exosome-based therapeutics, as topical treatments, offer a promising alternative, providing greater convenience and improved tolerability.

METHODS

The genetically engineered exosomes, MVR-EX105, armed with three exogenous bio-functional proteins—FGF-21, IL-27, and activin receptor (ActRIIB)—were designed to target subcutaneous fat reduction.

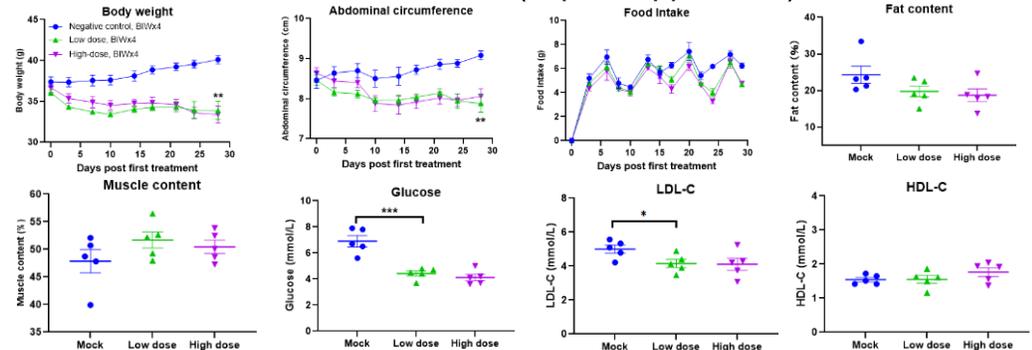


MVR-EX105 reduced lipid accumulation with time and concentration dependency in vitro



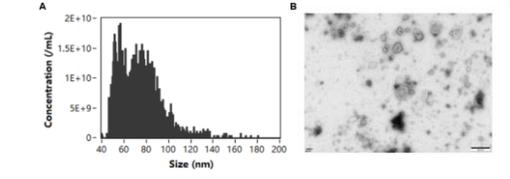
RESULTS

MVR-EX105 effectively reduced abdominal volume and regulated fat metabolism in DIO mouse model (Topical application)

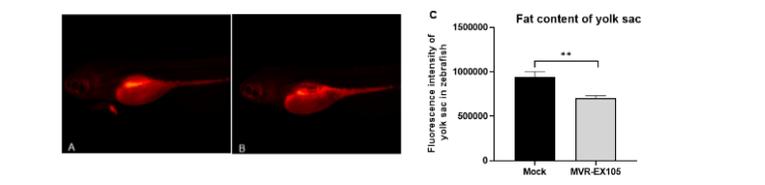


RESULTS

Characterization of MVR-EX105



MVR-EX105 promoted lipolysis on zebrafish model



MVR-EX105 effectively reduce abdominal volume and waist circumference in vivo (Topical application with 36 individuals)



CONCLUSION

MVR-EX105 demonstrates significant efficacy in reducing subcutaneous fat without muscle loss, offering a promising non-invasive approach to obesity management. These findings provide a strong foundation for the future clinical development of exosome-based therapeutics in metabolic health.