Non-coding RNAs to treat vascular smooth cell dysfunction

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Abstract

Vascular smooth muscle cell (vSMC) dysfunction is a critical contributor to cardiovascular diseases, including atherosclerosis, restenosis, and vein graft failure. Recent advances have unveiled a fascinating breadth of non-coding RNAs (ncRNAs) that play a pivotal role in regulating vSMC function. This review aims to provide an in-depth analysis of the mechanisms underlying vSMC dysfunction and the therapeutic potential of various ncRNAs in mitigating this dysfunction, either preventing or reversing it. We explore the intricate interplay of microRNAs, long-non-coding RNAs and circular RNAs, shedding light on their roles in regulating key signalling pathways associated with vSMC dysfunction. Moreover, we discuss the prospects and challenges associated with developing ncRNA based therapies for this prevalent cardiovascular pathology.

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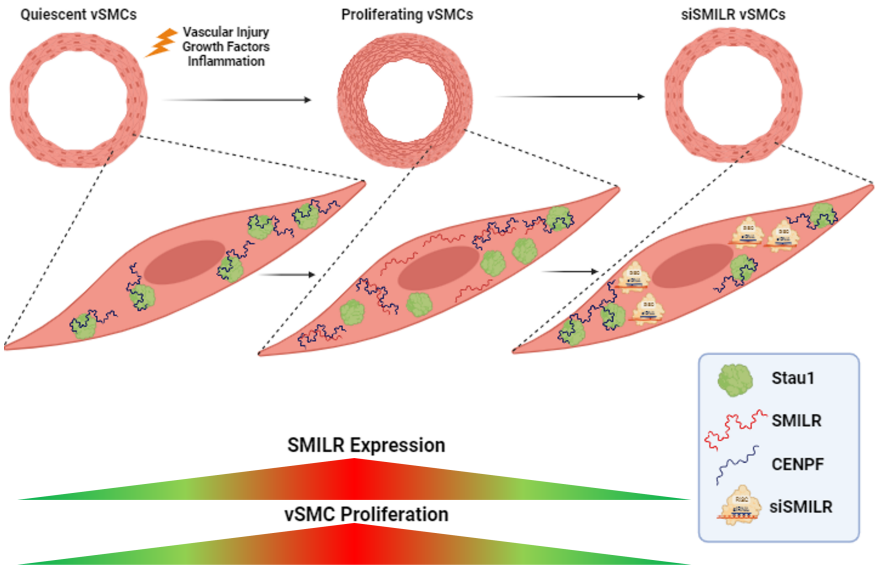

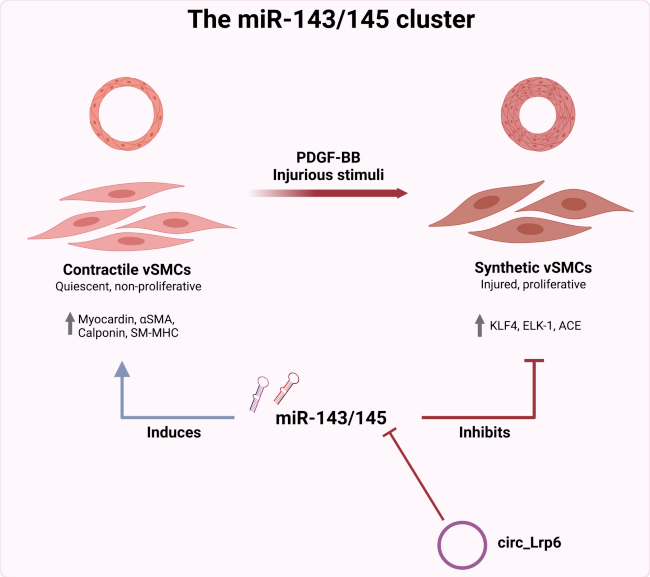

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Table 1 vSMC miRNA.xlsx available at https://authorea.com/users/701020/articles/687672-non-coding-rnas-to-treat-vascular-smooth-cell-dysfunction

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Table 2 vSMC lncRNA.xlsx available at https://authorea.com/users/701020/articles/687672-non-coding-rnas-to-treat-vascular-smooth-cell-dysfunction

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Table 3 Approved Oligonucleotide Drugs.xlsx available at https://authorea.com/users/701020/articles/687672-non-coding-rnas-to-treat-vascular-smooth-cell-dysfunction