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Granulysin nanobodies to prevent the development of heart attack and stroke

Stanford scientists designed a nanobody platform to inhibit the activity of granulysin, a protein that is often found in arterial plaque and released by T cells, to prevent the development of atherosclerosis such as heart attack and strokes. Currently, direct modulation of the immune system's involvement in the development of heart attacks and strokes is unavailable and prior research involving immune modulators has shown adverse outcomes. While the exact mechanisms through which granulysin affects the development of atherosclerosis are unknown, there is evidence to suggest that granulysin may play a role in the formation and destabilization of atherosclerotic plaques. To address this challenge, the scientists designed a nanobody to specifically block the secretion of granulysin and thereby inhibit the formation of plaques. This method differs from conventional treatments, which can have broader effects and sometimes cause unintended side effects. The advantages of the nanobody approach are threefold, spanning greater precision, as it directly targets granulysin to the potential to increase effectiveness by addressing a suspected underlying factor.

Stage of Development
Proof of concept

Applications

- Prevention of heart attacks and strokes

Advantages

- Higher specificity as targeting granulysin directly
- Greater potential efficacy as addressing underlying factor
- Safer profile with limited off-target impact to healthy cells

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