

## GRADE summary of findings table.

Outcome	Participants (studies)	Risk of bias	Inconsistency	Indirectness	Imprecision	Other considerations	Overall certainty of evidence
ANGPTL8	9 observational studies	Serious <sup>1</sup>	Serious <sup>2</sup>	Not serious	Not serious	Plausible confounding <sup>4</sup>	⊕○○○ VERY LOW
ANGPTL4	2 observational studies	Serious <sup>1</sup>	Serious <sup>2</sup>	Not serious	Serious <sup>3</sup>	Plausible confounding <sup>4</sup>	⊕○○○ VERY LOW
ANGPTL3	2 observational studies	Serious <sup>1</sup>	Serious <sup>2</sup>	Not serious	Serious <sup>3</sup>	Plausible confounding <sup>4</sup>	⊕○○○ VERY LOW

<sup>1</sup>Serious risk of bias due to the NOS score (5-6)

<sup>2</sup>Serious inconsistency due to significant heterogeneity ( $I^2 > 40\%$ )

<sup>3</sup>Serious imprecision due to small sample size ( $n < 400$ )

<sup>4</sup>all plausible residual confounding would reduce the demonstrated effect. Some of the studies do not match the basic information of two groups, like age, BMI and so on.