

Supplemental Table S1. Literature search strategy using PubMed, Cochrane Library, and Web of Science databases

Database	Search Terms	Limits / filters
PubMed	((((((((((((((apolipoprotein a 1[MeSH Terms]) OR (Apolipoprotein A I)) OR (Apo A-I)) OR (Apo A1)) OR (Apolipoprotein AI)) OR (ApoA- 1)) OR (ApoA-I)) OR (Apolipoprotein A-1)) OR (Apolipoprotein A 1)) OR (Apolipoprotein A1)) OR (Apo A-1)) OR (Apo AI)) AND (cholesterol efflux capacity))	Publication date: from 1 January 2000 till 1 May 2024 Species: Humans Age: Adult 19+ years Article language: English
Cochrane Library	“cholesterol efflux capacity” AND “human”	Content type: Trials Date published on the Cochrane Library: from 1 January 2000 till 1 May 2024
Web of Science	((((((((((((((ALL=("apolipoprotein a 1")) OR ALL=(Apolipoprotein A I)) OR ALL=(Apo A-I)) OR ALL=(Apo A1)) OR ALL=(Apolipoprotein AI)) OR ALL=(ApoA-1)) OR ALL=(ApoA-I)) OR ALL=(Apolipoprotein A-1)) OR ALL=(Apolipoprotein A 1)) OR ALL=(Apolipoprotein A1)) OR ALL=(Apo A-1)) OR ALL=(Apo AI)) AND ALL=(cholesterol efflux capacity)) AND ALL=("human")	Publication date: from 1 January 2000 till 1 May 2024 Document type: Article

Supplemental Table S2. The quality assessment form for the evaluation of studies.

Study design	Evaluation
D1. Is the study design appropriate for correlation analysis? (0 to 2)	0 - No, 1 - Partial, 2 - Yes.
Sample size	
D2. Is the sample size justified or statistically powered for detecting biomarker correlation? (0 to 2)	0 - No, 1 - Unclear, 2 - Yes.
Biomarker evaluation (Apo A1)	
D3. Was Apo A1 measured using a clinically validated method? (0 to 2)	0 - No, 1 - Partial, 2 - Yes.
Biomarker evaluation (CEC)	
D4. Was CEC assessed using a clearly described and reproducible experimental method? (0 to 2)	0 - No, 1 - Partially described, 2 - Fully described.
Blinding of laboratory analysis	
D5. Were biomarker measurements blinded to clinical data or outcome? (0 to 2)	0 - No, 1 - Unclear, 2 - Yes.
Cofounding factors	
D6. Were potential confounders identified and controlled for? (0 to 2)	0 - No, 1 - Partial control, 2 - Full control
Statistical Analysis	
D7. Was an appropriate statistical method used? (0 to 2)	0 - No, 1 - Basic analysis only, 2 - Advanced/adjusted
CEC - cholesterol efflux capacity. Apo A1 - apolipoprotein A1.	

Supplemental Table S3. The quality assessment scores for all included studies.

Study	Study design	Sample size	Biomarker evaluation (Apo A1)	Biomarker evaluation (CEC)	Blinding of laboratory analysis	Cofounding factors	Statistical Analysis	Total score
	Is the study design appropriate for correlation analysis? (0 to 2) (D1)	Is the sample size justified or statistically powered for detecting biomarker correlation? (0 to 2) (D2)	Was Apo A1 measured using a clinically validated method? (0 to 2) (D3)	Was CEC assessed using a clearly described and reproducible experimental method? (0 to 2) (D4)	Were biomarker measurements blinded to clinical data or outcome? (D5)	Were potential confounders identified and controlled for? (0 to 2) (D6)	Was an appropriate statistical method used? (0 to 2) (D7)	
Asztalos <i>et al.</i>	2	1	2	2	1	1	2	11
Asztalos & Hauser <i>et al.</i>	2	1	2	1	1	1	2	10
Borggreve <i>et al.</i>	2	1	2	2	1	1	2	11
Dullaart <i>et al.</i>	2	1	2	2	1	1	2	11
Ebtehaj <i>et al.</i>	2	1	2	2	1	1	2	11
Fadaei <i>et al.</i>	2	1	0	2	1	1	2	9
Fadaei & Poutschi <i>et al.</i>	2	1	0	2	1	1	2	9

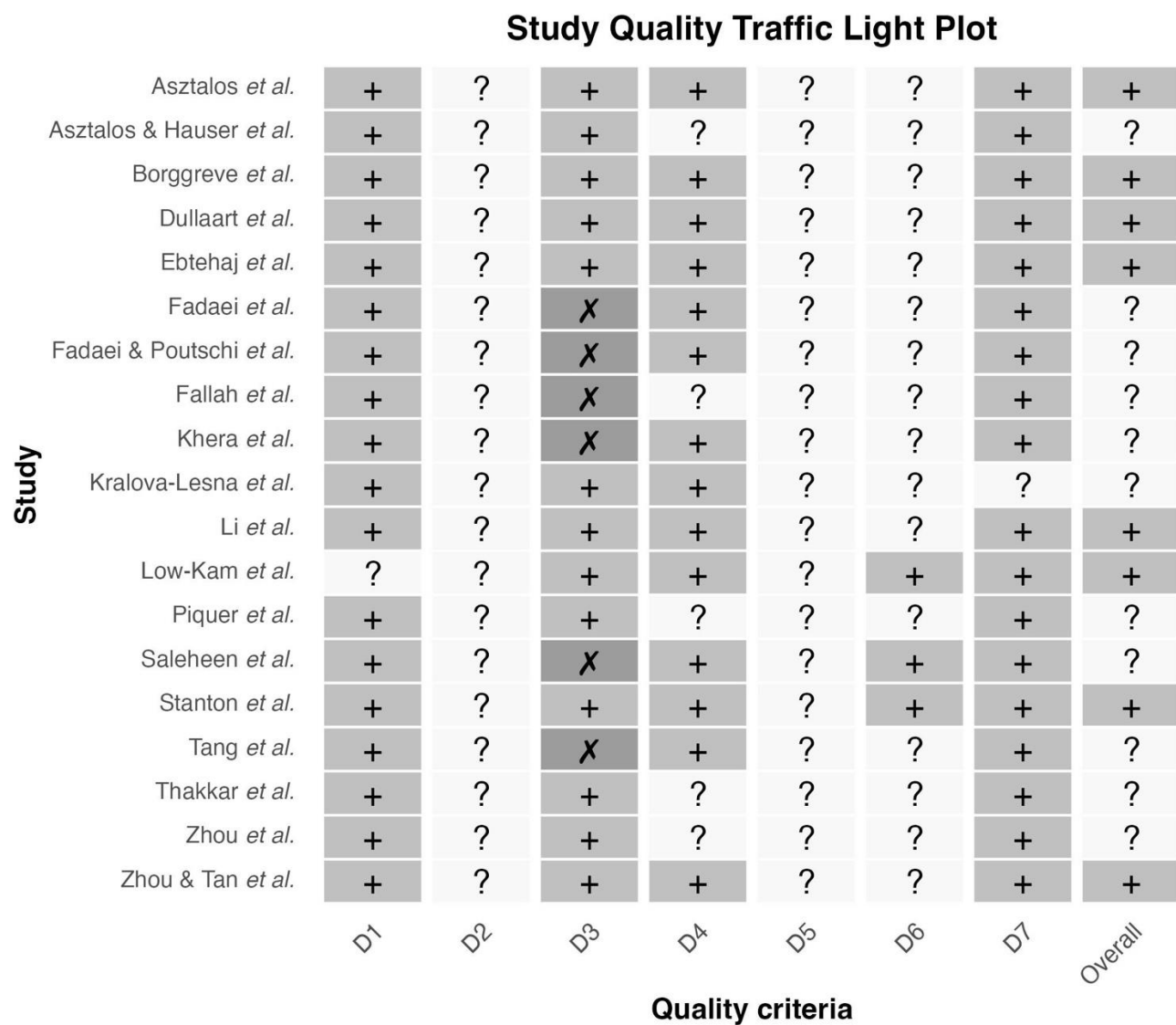
Continuation of Supplemental Table S3. The quality assessment scores for all included studies.

Study	Study design	Sample size	Biomarker evaluation (Apo A1)	Biomarker evaluation (CEC)	Blinding of laboratory analysis	Cofounding factors	Statistical Analysis	Total score
	Is the study design appropriate for correlation analysis? (0 to 2) (D1)	Is the sample size justified or statistically powered for detecting biomarker correlation? (0 to 2) (D2)	Was Apo A1 measured using a clinically validated method? (0 to 2) (D3)	Was CEC assessed using a clearly described and reproducible experimental method? (0 to 2) (D4)	Were biomarker measurements blinded to clinical data or outcome? (0 to 2) (D5)	Were potential confounders identified and controlled for? (0 to 2) (D6)	Was an appropriate statistical method used? (0 to 2) (D7)	
Fallah <i>et al.</i>	2	1	0	1	1	1	2	8
Khera <i>et al.</i>	2	1	0	2	1	1	2	9
Kralova-Lesna <i>et al.</i>	2	1	2	2	1	1	1	10
Li <i>et al.</i>	2	1	2	2	1	1	2	11
Low-Kam <i>et al.</i>	1	1	2	2	1	2	2	11
Piquer <i>et al.</i>	2	1	2	1	1	1	2	10
Saleheen <i>et al.</i>	2	1	0	2	1	2	2	10

Continuation of Supplemental Table S3. The quality assessment scores for all included studies.

Study	Study design	Sample size	Biomarker evaluation (Apo A1)	Biomarker evaluation (CEC)	Blinding of laboratory analysis	Cofounding factors	Statistical Analysis	Total score
	Is the study design appropriate for correlation analysis? (0 to 2) (D1)	Is the sample size justified or statistically powered for detecting biomarker correlation? (0 to 2) (D2)	Was Apo A1 measured using a clinically validated method? (0 to 2) (D3)	Was CEC assessed using a clearly described and reproducible experimental method? (0 to 2) (D4)	Were biomarker measurements blinded to clinical data or outcome? (0 to 2) (D5)	Were potential confounders identified and controlled for? (0 to 2) (D6)	Was an appropriate statistical method used? (0 to 2) (D7)	
Stanton <i>et al.</i>	2	1	2	2	1	2	2	12
Tang <i>et al.</i>	2	1	0	2	1	1	2	9
Thakkar <i>et al.</i>	2	1	2	1	1	1	2	10
Zhou <i>et al.</i>	2	1	2	1	1	1	2	10
Zhou & Tan <i>et al.</i>	2	1	2	2	1	1	2	11

CEC - cholesterol efflux capacity.



Supplemental Figure S1. Traffic light plot representing study quality evaluation scores.

Supplemental Table S4. The characteristics of the included studies.

Study ID	Author (s)	Year	Country	Study design	Total sample size	Control sample size included in the analysis	Sex	Cholesterol label	Measurement method of Apo AI	Cholesterol acceptor	Cell line	Correlation coefficient
1.	Asztalos <i>et al.</i>	2017	USA	Cross-sectional observational study with a case control design	269	146	M/F	Radiolabeled cholesterol	Immunoturbidimetry	2.8% apo B-depleted serum	J774 murine macrophages	$r = 0.339$
2.	Asztalos & Hauser <i>et al.</i>	2022	USA	Cross-sectional observational study with a case control design	1610	100	M/F	Radiolabeled cholesterol	Immunoturbidimetry	2.8% apo B-depleted serum	J774 murine macrophages	$r = 0.358$
3.	Borggreve <i>et al.</i>	2008	The Netherlands	Cross-sectional observational study	223	223	M	Radiolabeled cholesterol	Immunonephelometry	1% plasma	Human fibroblasts from normolipidemic control	$r = 0.14$
4.	Dullaart <i>et al.</i>	2019	The Netherlands	Cross-sectional observational study with a case control design	150	75	M/F	Radiolabeled cholesterol	Immunoturbidimetry	1% plasma	Human skin fibroblasts from study subjects	$r = -0.005$

Continuation of supplemental Table S4. The characteristics of the included studies.

Study ID	Author (s)	Year	Country	Study design	Total sample size	Sample size included in the analysis	Sex	Cholesterol label	Measurement method of Apo AI	Cholesterol acceptor	Cell line	Correlation coefficient
5.	Ebtehaj <i>et al.</i>	2019	Sweden	Prospective cohort study with nested case-control design	705	354	M/F	Radiolabeled cholesterol	Immunonephelometry	2% apo B-depleted plasma	Human THP-1 monocytes	$r = 0.358$
6.	Fadaei <i>et al.</i>	2022	Iran	Cross-sectional observational study with a case control design	92	23	M/F	Radiolabeled cholesterol	ELISA	2.8% apo B-depleted plasma	J774 murine macrophages	$r = 0.397$
7.	Fadaei & Poutschi <i>et al.</i>	2018	Iran	Cross-sectional observational study with a case control design	85	30	M/F	Radiolabeled cholesterol	ELISA	2.8% apo B-depleted serum	J774 murine macrophages	$r = 0.53$
8.	Fallah <i>et al.</i>	2021	Iran	Cross-sectional observational study with a case control design	87	43	M/F	Radiolabeled cholesterol	ELISA	2.8% apo B-depleted serum	J774 murine macrophages	$r = 0.379$
9.	Khera <i>et al.</i>	2011	USA	Cross-sectional observational study	203	203	M/F	Radiolabeled cholesterol	Not disclosed	2.8% apo B-depleted serum	J774 murine macrophages	$r = 0.64$

Continuation of supplemental Table S4. The characteristics of the included studies.

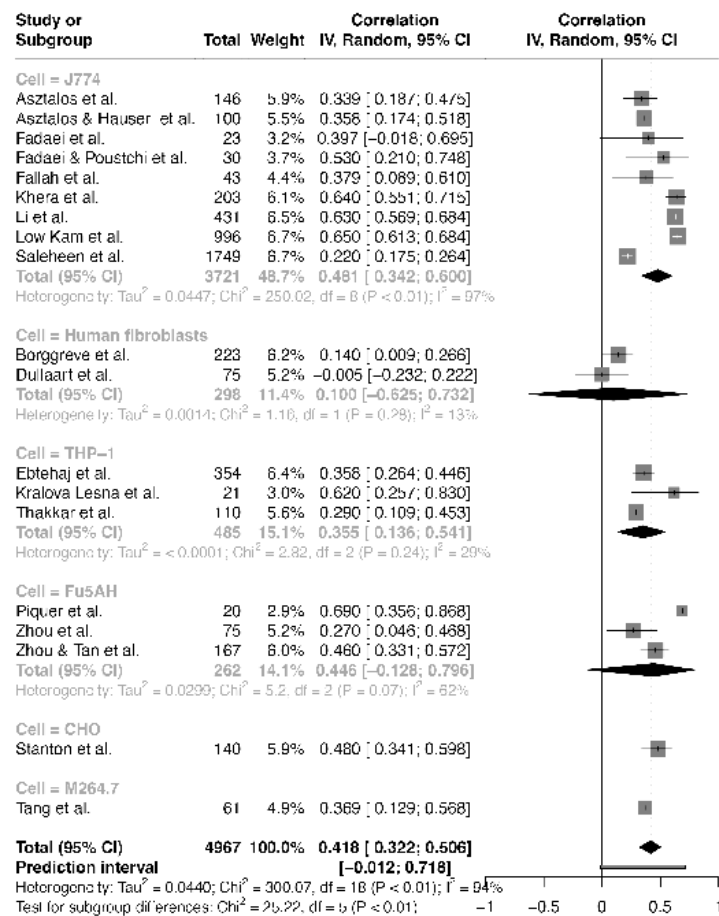
Study ID	Author (s)	Year	Country	Study design	Total sample size	Sample size included in the analysis	Sex	Cholesterol label	Measurement method of Apo AI	Cholesterol acceptor	Cell line	Correlation coefficient
10.	Kralova Lesna <i>et al.</i>	2012	Czech Republic	Cross-sectional observational study with a case control design	39	21	F	Radiolabeled cholesterol	Immunoturbidimetry	5% plasma	Human THP-1 monocytes	$r = 0.62$
11.	Li <i>et al.</i>	2013	USA	Prospective cohort study with nested case-control design	577	431	M/F	Radiolabeled cholesterol	Immunoturbidimetry	2% apo B-depleted serum	J774 and RAW 264.7 murine macrophages	$r = 0.63$
12.	Low Kam <i>et al.</i>	2018	Canada	Cross-sectional observational study with a case control design	5293	996	M/F	Radiolabeled cholesterol	Immunonephelometry	2.8% apo B-depleted plasma	J774 murine macrophages	$r = 0.65$
13.	Piquer <i>et al.</i>	2006	France	Cross-sectional observational study with a case control design	49	20	M/F	Radiolabeled cholesterol	Immunonephelometry	5% serum	Fu5AHmurine hepatic cells	$r = 0.69$
14.	Saleheen <i>et al.</i>	2015	USA	Prospective cohort study with nested case-control design	3494	1749	M/F	Radiolabeled cholesterol	Not disclosed	2.8% apo B-depleted serum	J774 murine macrophages	$r = 0.22$

Continuation of supplemental Table S4. The characteristics of the included studies.

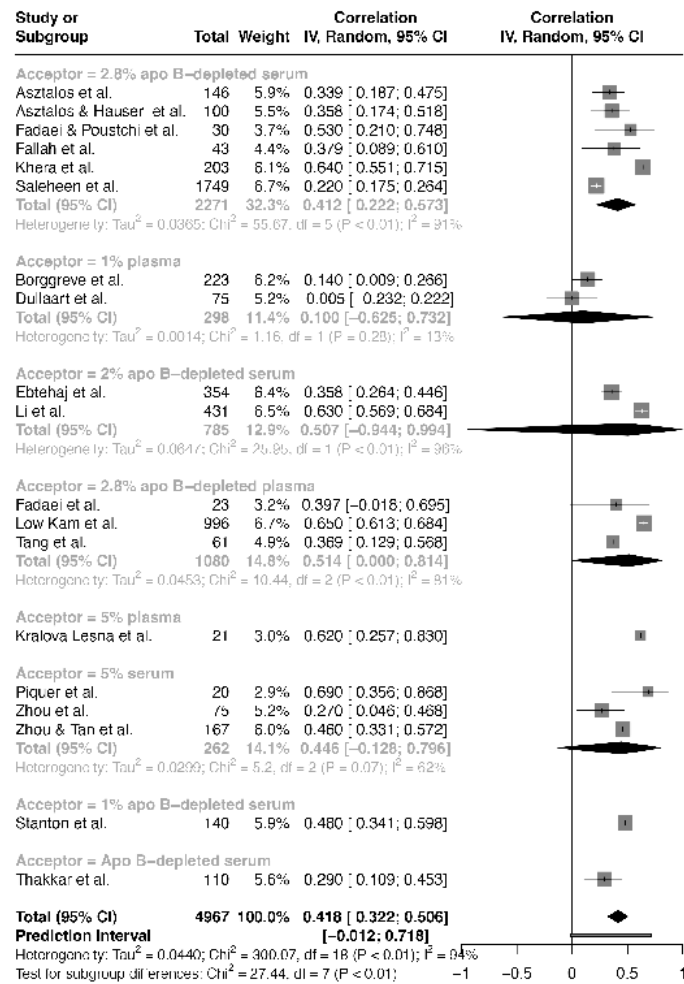
Study ID	Author (s)	Year	Country	Study design	Total sample size	Sample size included in the analysis	Sex	Cholesterol label	Measurement method of Apo AI	Cholesterol acceptor	Cell line	Correlation coefficient
15.	Stanton <i>et al.</i>	2022	Australia	Prospective cohort study with subject randomization	140	140	M	Radiolabeled cholesterol	Immunoturbidimetry	1% apo B-depleted serum	CHO hamster ovary cells	$r = 0.48$
16.	Tang <i>et al.</i>	2021	China	Cross-sectional observational study with a case control design	97	61	M/F	Radiolabeled cholesterol	Not disclosed	2.8% apo B-depleted plasma	RAW 264.7 murine macrophages	$r = 0.369$
17.	Thakkar <i>et al.</i>	2020	India	Cross-sectional observational study with a case control design	260	110	M/F	Fluorescent labelled cholesterol	Immunoturbidimetry	Apo B-depleted serum	Human THP-1 monocytes	$r = 0.29$
18.	Zhou <i>et al.</i>	2009	China	Cross-sectional observational study with a case control design	212	75	M/F	Radiolabeled cholesterol	Immunonephelometry	5% serum	Fu5AHmurine hepatic cells	$r = 0.27$

Continuation of supplemental Table S5. The characteristics of the included studies.

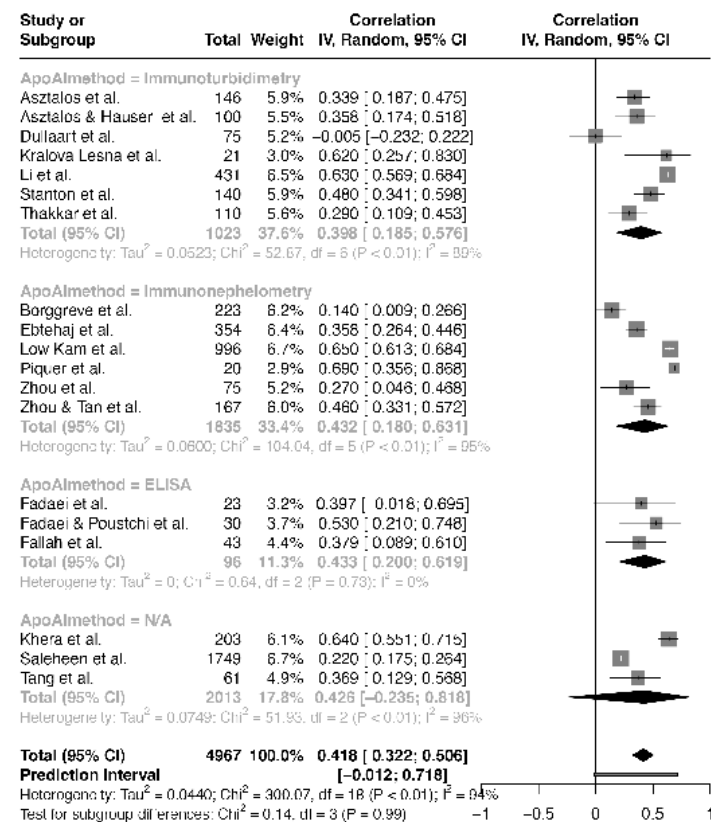
Study ID	Author (s)	Year	Country	Study design	Total sample size	Sample size included in the analysis	Sex	Cholesterol label	Measurement method of Apo AI	Cholesterol acceptor	Cell line	Correlation coefficient
19.	Zhou & Tan <i>et al.</i>	2007	China	Cross-sectional observational study with a case control design	431	167	M/F	Radiolabeled cholesterol	Immunonephelometry	5% serum	Fu5AHmurine hepatic cells	$r = 0.46$



Supplemental Figure S2. Subgroup analysis based on the cell line used in the studies.



Supplemental Figure S3. Subgroup analysis based on cholesterol acceptor used in the studies.



Supplemental Figure S4. Subgroup analysis based on apolipoprotein AI evaluation method used in the studies.