

Supplementary Information

Table S1: Detailed searching information.

Databases	Search Formula	Results
PubMed	((((CRSwNP) OR (chronic rhinosinusitis)) OR (nasal polyps)) AND ((((((biologic agents) OR (omalizumab)) OR (mepolizumab)) OR (benralizumab)) OR (depemokimab)) OR (dupilumab)) OR (tezepelumab))) AND (((randomized) OR (controlled)) OR (RCT))	187
Cochran Library	("CRSwNP" OR "chronic rhinosinusitis" OR "nasal polyps") AND ("biologic agents" OR omalizumab OR mepolizumab OR benralizumab OR depemokimab OR dupilumab OR tezepelumab) AND (randomized OR controlled OR RCT)	275
Web of Science	TS=("CRSwNP" OR "chronic rhinosinusitis" OR "nasal polyps") AND TS=("biologic agents" OR omalizumab OR mepolizumab OR benralizumab OR depemokimab OR dupilumab OR tezepelumab) AND TS=(randomized OR controlled OR RCT)	305
Embase	('CRSwNP' OR 'chronic rhinosinusitis' OR 'nasal polyps') AND ('biologic agents' OR omalizumab OR mepolizumab OR benralizumab OR depemokimab OR dupilumab OR tezepelumab) AND (randomized OR controlled OR RCT)	755

Table S2: League Table for NPS by Fixed-Effects Model

Dupilumab							
-0.32 (-0.36, -0.28)	Tezepelumab						
-0.39 (-0.79, 0.01)	-0.07 (-0.47, 0.32)	GR1802					
-1.51 (-1.57, -1.45)	-1.19 (-1.25, -1.13)	-1.12 (-1.52, -0.72)	Omalizumab				
-1.59 (-1.92, -1.26)	-1.27 (-1.60, -0.94)	-1.20 (-1.72, -0.69)	-0.08 (-0.41, 0.25)	Mepolizumab			
-1.79 (-1.83, -1.75)	-1.47 (-1.50, -1.44)	-1.40 (-1.79, -1.00)	-0.28 (-0.34, -0.22)	-0.20 (-0.53, 0.13)	Depemokimab		
-1.82 (-2.08, -1.56)	-1.50 (-1.76, -1.24)	-1.43 (-1.90, -0.95)	-0.31 (-0.57, -0.04)	-0.23 (-0.65, 0.19)	-0.03 (-0.29, 0.24)	Benralizumab	
-2.39 (-2.42, -2.36)	-2.07 (-2.09, -2.05)	-2.00 (-2.39, -1.60)	-0.88 (-0.93, -0.83)	-0.80 (-1.13, -0.47)	-0.60 (-0.62, -0.58)	-0.57 (-0.83, -0.31)	Placebo

Table S3: League Table for SNOT-22 by Fixed-Effects Model

Tezepelumab							
-3.2 (-3.7, -2.8)	Dupilumab						
-6.1 (-15.3, 3.1)	-2.8 (-12.0, 6.3)	GR1802					
-8.4 (-9.1, -7.8)	-5.2 (-5.9, -4.5)	-2.4 (-11.5, 6.9)	Omalizumab				
-10.5 (-15.2, -5.7)	-7.2 (-11.9, -2.5)	-4.4 (-14.7, 5.8)	-2.0 (-6.8, 2.7)	Mepolizumab			
-16.1 (-16.5, -15.6)	-12.8 (-13.3, -12.3)	-10.0 (-19.2, -0.8)	-7.6 (-8.3, -6.9)	-5.6 (-10.3, -0.9)	Depemokimab		
-18.9 (-24.4, -13.3)	-15.6 (-21.2, -10.0)	-12.8 (-23.6, -2.0)	-10.4 (-16.0, -4.8)	-8.4 (-15.7, -1.1)	-2.8 (-8.3, 2.8)	Benralizumab	
-24.2 (-24.5, -23.8)	-20.9 (-21.2, -20.6)	-18.1 (-27.2, -8.9)	-15.7 (-16.3, -15.1)	-13.7 (-18.4, -9.0)	-8.1 (-8.5, -7.7)	-5.3 (-10.9, 0.2)	Placebo

Table S4: League Table for Serious Adverse Events by Fixed-Effects Model

GR1802							
-2.35 (-5.83, -0.08)	Dupilumab						
-2.51 (-5.95, -0.36)	-0.17 (-0.98, 0.64)	Tezepelumab					
-2.86 (-6.36, -0.57)	-0.50 (-1.62, 0.61)	-0.33 (-1.25, 0.57)	Mepolizumab				
-2.87 (-6.29, -0.75)	-0.53 (-1.27, 0.20)	-0.36 (-0.71, -0.02)	-0.03 (-0.87, 0.82)	Placebo			
-3.29 (-7.22, -0.33)	-0.89 (-3.17, 1.20)	-0.71 (-2.91, 1.26)	-0.38 (-2.72, 1.76)	-0.35 (-2.52, 1.59)	Omalizumab		
-3.44 (-6.91, -1.19)	-1.09 (-2.10, -0.09)	-0.91 (-1.70, -0.16)	-0.58 (-1.67, 0.51)	-0.55 (-1.25, 0.13)	-0.20 (-2.26, 2.08)	Benralizumab	
-3.54 (-7.05, -1.24)	-1.19 (-2.34, -0.08)	-1.01 (-1.97, -0.11)	-0.69 (-1.90, 0.51)	-0.65 (-1.54, 0.18)	-0.30 (-2.46, 2.02)	-0.10 (-1.21, 0.99)	Depemokimab

Figure S1: Supplementary Figures

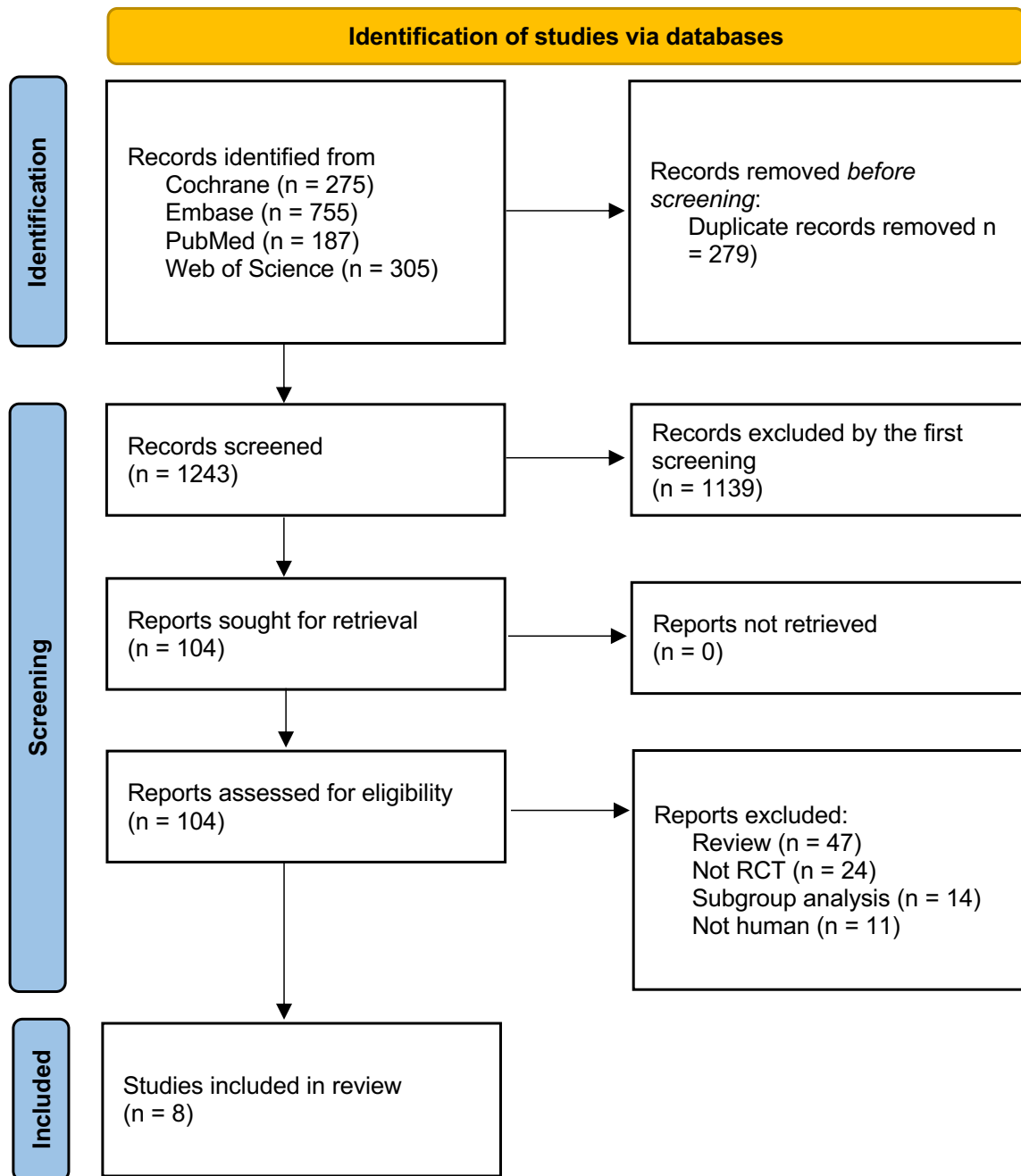


Figure S2: Funnel Plot Assessing Publication Bias in NPS

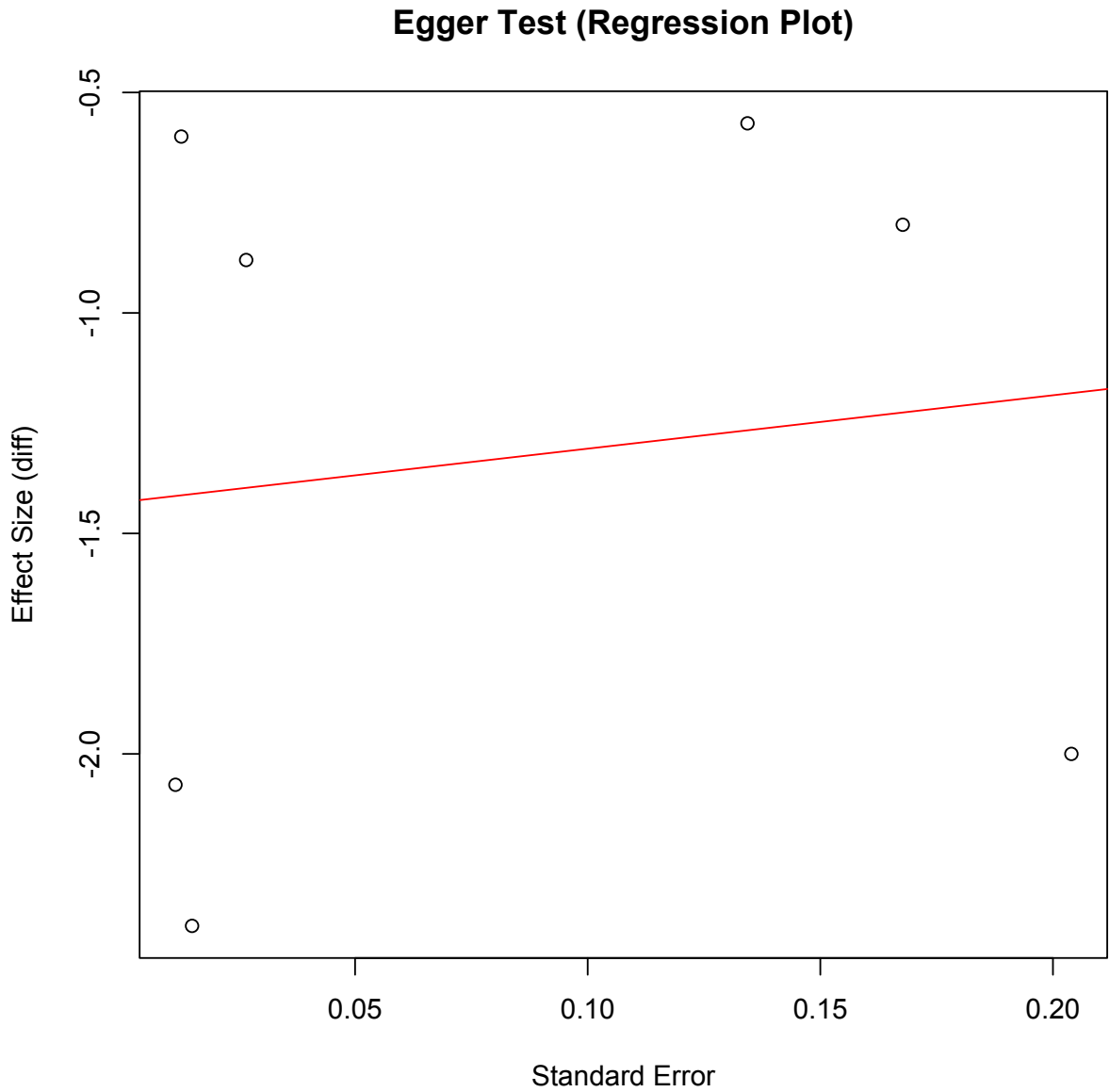


Figure S3: Treatment Ranking Probabilities in NPS by Fixed-Effects Model

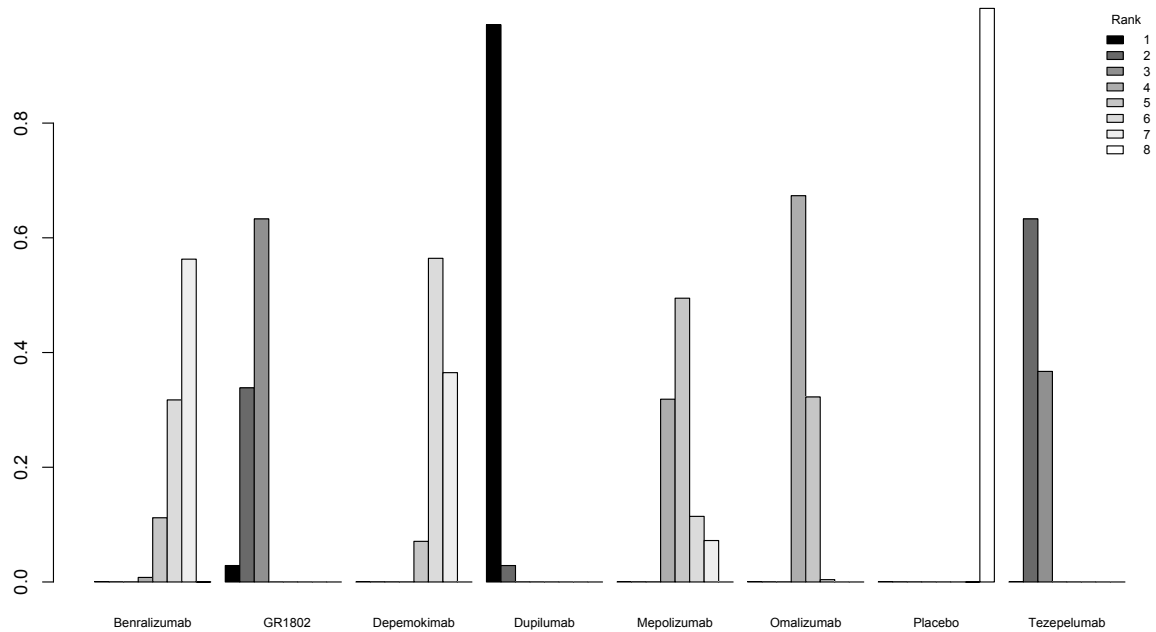


Figure S4: Funnel Plot Assessing Publication Bias in SNOT-22

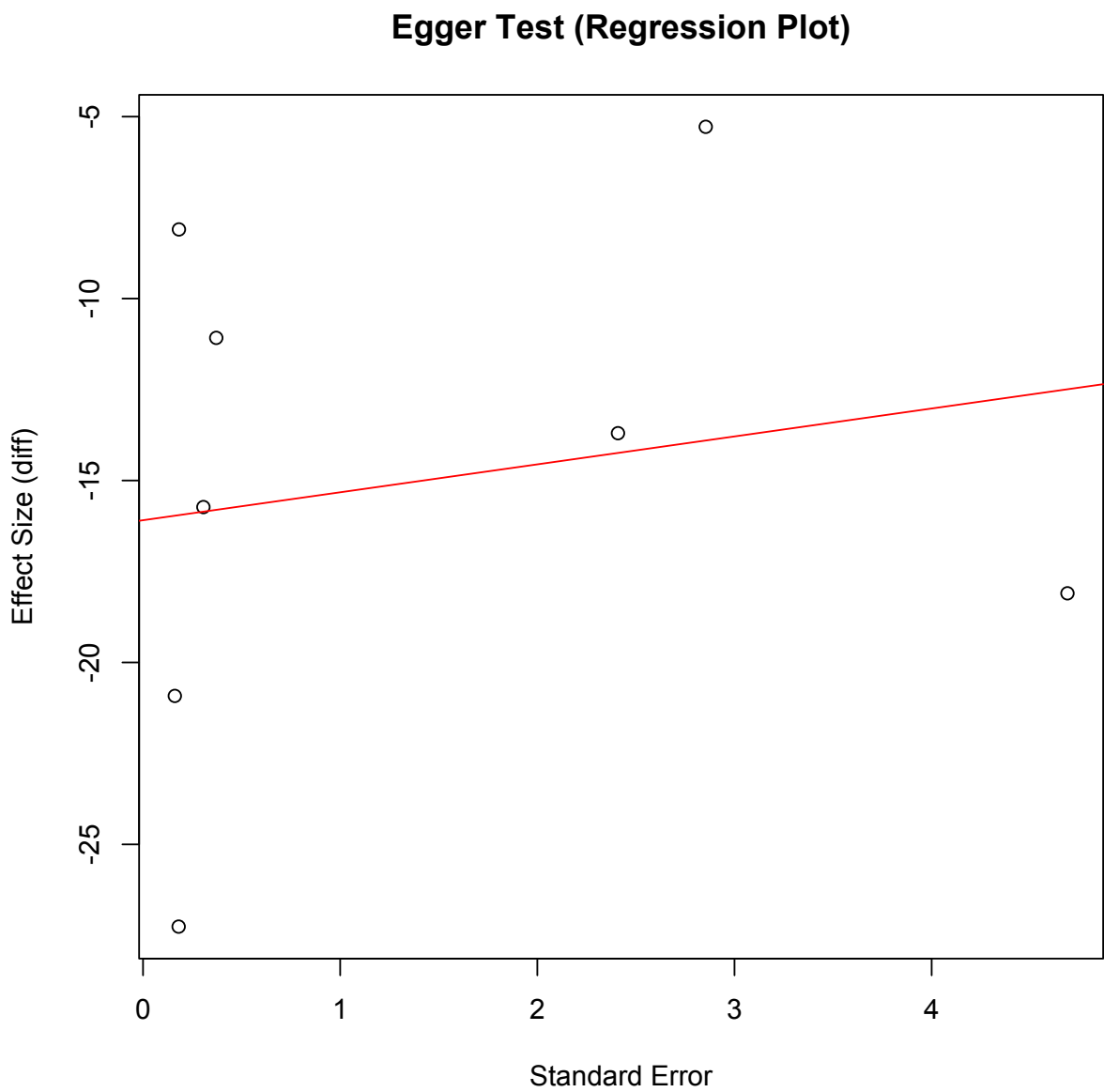


Figure S5: Treatment Ranking Probabilities in SNOT-22 by Fixed-Effects Model

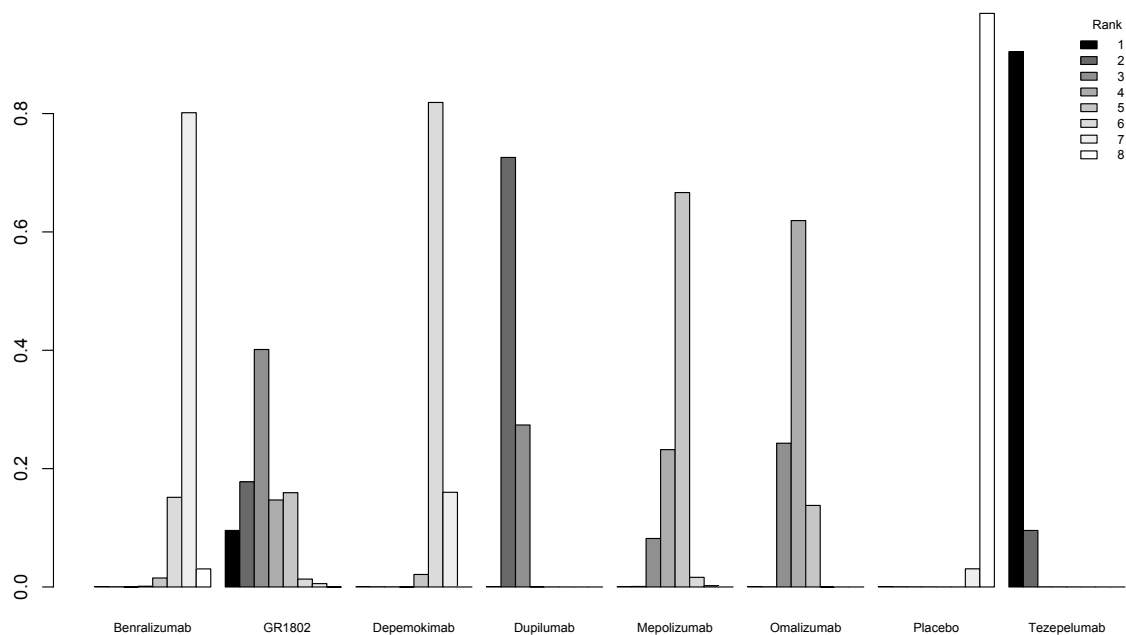


Figure S6: Funnel Plot Assessing Publication Bias in Serious Adverse Events

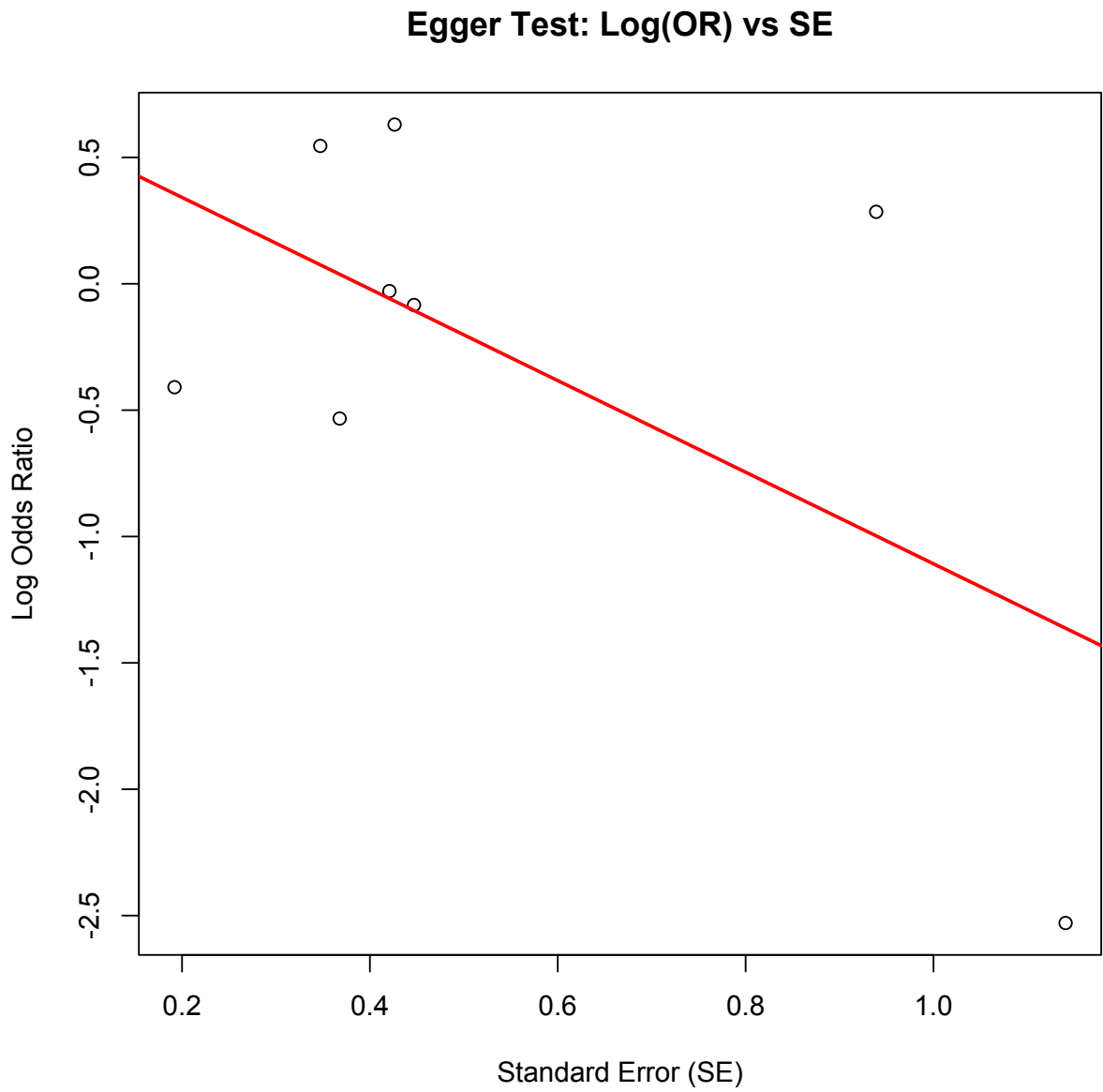


Figure S7: Treatment Ranking for Safety in Serious Adverse Events by Fixed-Effects Model

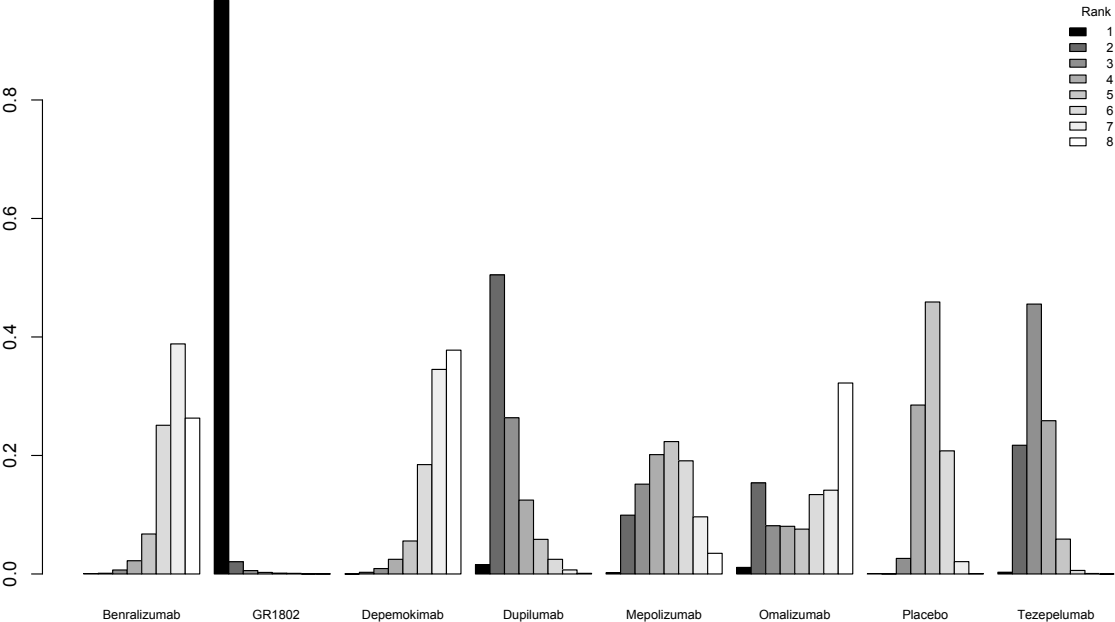


Figure S8: Risk of Bias

		Risk of bias domains				
		D1	D2	D3	D4	D5
Study	Bachert, et al.2019					
	Bachert, et al.2022					
	Gevaert, et al.2025					
	Gevaert, et al.2020					
	Han, et al.2021					
	Jacobs, et al.2025					
	Lipworth, et al.2025					
	Zheng, et al.2025					
		Domains:				
		D1: Bias arising from the randomization process.				
		D2: Bias due to deviations from intended intervention.				
		D3: Bias due to missing outcome data.				
		D4: Bias in measurement of the outcome.				
		D5: Bias in selection of the reported result.				
		Judgement				
		High				
		Some concerns				
		Low				