Supplementary Table 1. Studies of the association between thrombus composition and endovascular outcomes

Research	Study model	Components	Staining	Recanalization	Pass number	Procedural time	Secondary embolism
Yuki, 2012[27]	Experimental; animal	Erythrocyte-rich and fibrin-rich	N/A	"Every vessel in group A (erythrocyte-rich) showed recanalization (100%), whereas only 3 of 8 samples (37.5%) achieved recanalization in group B (fibrin-rich)."	"The average number of attempts to achieve TIMI grade II or III recanalization was 2.75 times in group A (erythrocyte-rich) and 4.5 times in group B (fibrin-rich) (P < 0.001), respectively."	"The mean time to achieve recanalization was 15.5 minutes in group A (erythrocyte-rich) and 81.5 minutes in group B (fibrin-rich) (P < 0.01)."	
Freiherr von Seckendorff, 2022[25]	Experimental; in vitro	Erythrocyte-rich and platelet-rich	N/A		"Platelet-rich thrombi were associated with a higher number of stent retriever passes (P = 0.03) compared to erythrocyte-rich thrombi."	"Platelet-rich thrombi were associated with a longer procedure duration (P = 0.02) compared to erythrocyte-rich thrombi."	"Erythrocyte-rich thrombi released more embolic fragments than platelet-rich thrombi (P = 0.004)."
Simons, 2015[38]	Clinical	Erythrocyte > fibrin, erythrocyte = fibrin, and erythrocyte < fibrin	H&E			"No significant associations were found between thrombus pathology and mean onset to recanalisation time or mean procedure duration."	
Hashimoto, 2016[28]	Clinical	Erythrocyte-rich and erythrocyte-poor	H&E	"On multivariate logistic regression analysis, > 64% erythrocyte components were positively related (odds ratio, 4.352; 95% confidence interval, 1.185–19.363) to successful reperfusion."			
Maegerlein, 2018[41]	Clinical	Erythrocyte-rich and erythrocyte-poor	H&E				"Regarding clots with high amounts of erythrocyte, thrombus migration was significantly more often observed in the erythrocyte-rich group as compared to the non-erythrocyte-rich group (57.1% vs. 12.3%, P = 0.003)."
Maekawa, 2018[34]	Clinical	Erythrocyte-rich and fibrin-rich	H&E	"A patient with a fibrin-rich thrombus had a TICI score of 2a, the other patients had TICI scores of 2b or 3."	"The patients with erythrocyte-rich thrombi required a smaller number of recanalization maneuvers (1.8 ± 1.1 vs. 2.9 ± 1.5; P = 0.02)."	"The patients with erythrocyte-rich thrombi had a shorter procedure time (median 24.5 min [8–85] vs. 44 min [13–129]; P < 0.01)."	
Ye, 2020[40]	Clinical	Erythrocyte-rich and erythrocyte-poor; fibrin-rich and fibrin-poor; platelet-rich and platelet-poor	H&E; MSB				"When dichotomous variables were analyzed, we found that patients with secondary embolism had a comparable proportion of erythrocyte-rich clots (63.2 % vs. 42.9 %, P = 0.154), fibrin-rich clots (36.8 % vs. 57.1 %, P = 0.154), platelet-rich clots (42.1 % vs. 54.3 %, p = 0.393) to patients without secondary embolism."
Shimizu, 2022[33]	Clinical	Erythrocyte-rich and erythrocyte-poor	H&E			"Erythrocyte-rich thrombi were associated shorter puncture-to-reperfusion times than erythrocyte-poor thrombi."	
		Platelet-rich and platelet-poor	IHC	"Platelet-rich thrombi were associated with a lower prevalence of TICI 3 reperfusion than platelet-poor thrombus."	"Platelet-rich thrombi were associated with a larger number of recanalization maneuvers than platelet-poor thrombus."		
Hashimoto, 2016[28]	Clinical	Erythrocyte; fibrin/platelet	H&E	"The proportion of erythrocyte components was higher (57 ± 23% versus 47 ± 24%; P = 0.042) in thrombi retrieved from the reperfused than the unreperfused group."			
Sporns, 2017[31]	Clinical	Erythrocyte; fibrin	H&E	"There were no statistically noticeable differences in the amounts of fibrin and (P = 0.128) and amounts of erythrocytes (P = 0.096) between patients with poor and good interventional outcome."		"We observed a strong correlation between high amounts of fibrin and longer intervention times (r = 0.484; P ≤ 0.001), whereas thrombi with high amounts of erythrocytes were associated with shorter intervention times (r = –0.491; P ≤ 0.001)."	"High amounts of fibrin (P ≤ 0.001) and low amounts of erythrocytes were significantly associated with secondary embolism (P ≤ 0.001)."
Maegerlein, 2018[41]	Clinical	Erythrocyte; fibrin/platelet	H&E				"Patients with proven thrombus migration had the same levels of erythrocyte as patients without thrombus migration (median 41% vs. 37%, P = 0.23)." "A higher portion of erythrocyte-rich thrombi could be identified in the migrated group as opposed to the stable group (36.4% vs. 5.7%, p = 0.003)."

(continued)

(continued)

Research	Study model	Components	Staining	Recanalization	Pass number	Procedural time	Secondary embolism
Shin, 2018[29]	Clinical	Erythrocyte; fibrin/platelet	H&E	"Clots retrieved from successful recanalization exhibited higher erythrocyte composition (37%) than those retrieved from non-recanalization trials (20%, P = 0.001)."			
Duffy, 2019[35]	Clinical	Erythrocyte; fibrin	H&E; MSB	"Mean erythrocyte composition of material retrieved in passes 1 and 2 was significantly higher (P = 0.001) than the erythrocyte composition in pass 3 and passes 4 to 6 combined." "The inverse pattern was observed for fibrin composition, with thrombus fragments retrieved in passes 1 and 2 associated with a significantly lower (P = 0.001) fibrin composition when compared with thrombus fragments retrieved in passes 3 and passes 4 to 6 combined."			
Sporns, 2019 (also, 2021)[42,43]	Clinical	Erythrocyte; fibrin	H&E				"Patients with proven clot migration had significantly higher levels of erythrocytes than patients without clot migration (median 50% vs. 26%, P < 0.001)." "Lower amounts of fibrin were significantly more often observed in patients in the clot migration group as compared to the no clot migration group (43.5% vs. 62.0%, P < 0.001)." "Multivariable analysis identified a higher amount of erythrocytes (adjusted odds ratio, 1.03 per median percentage, P<0.001) as an independent predictor of clot migration."
Ye, 2020[40]	Clinical	Erythrocyte; fibrin; platelet	H&E; MSB				"Compared with the no secondary embolism group, patients with secondary embolism had a higher proportion of erythrocyte (42.9 % vs. 26.8 %, P = 0.045), and comparable content of fibrin (33.6 % vs. 40.2 %, P = 0.273), platelets (16.2 % vs. 22.4 %, P = 0.130)." "Erythrocyte fractions did not show significant predictive value in the multivariate analysis (OR 35.37, 95 %CI 0.73–1718.99, P = 0.072)."
Delvoye, 2022[30]	Clinical	Platelet	IHC	"Thrombi successfully removed after a single pass were poorer in GPVI (0.098 ± 0.023 vs. 0.111 ± 0.024 ng/mg, P < 0.001) compared to those whose removal had required several passes." "Higher GPVI levels were associated with a lower reperfusion grade (common OR per one-grade improvement = 0.69; 95% CI 0.54–0.89)."	"Higher GPVI levels were associated with an increased number of passes (incidence rate ratio per one standard deviation increase = 1.11; 95% CI 1.01–1.23)"	"Higher GPVI levels were associated with a longer reperfusion time (regression coefficient per one standard deviation increase, 0.14; 95% CI 0.06–0.21)."	
Kitano, 2022[10]	Clinical	Fresh; older	H&E	"Older thrombi had a lower proportion of successful reperfusion after the first pass (72 vs. 45%, P = 0.003)."	"Relative to fresh thrombi, older thrombi required significantly more device passes (median: 1 pass vs. 2 passes, P < 0.001)."		

Reference numbers are same with those in the manuscript.

CI, confidence interval; GPVI, glycoprotein VI; H&E, Hematoxylin and Eosin staining; MSB, Martius Scarlet Blue staining; N/A, not applicable; OR, odds ratio; TICI, Thrombolysis In Cerebral Infarction; TIMI, Thrombolysis In Myocardial Infarction.