Table S1. Summary of clinical and pathologic features of the patients studied. LBD: lewy body dementia; DP, diffuse plaques; TDP-43, TAR DNA binding protein-43 inclusions; NFT neurofibrillary tangles.

AD	CAA	Gender	Sample ID	ApoE	Braak Stage	Age at Onset	Age at Death	Duration (years)	PMI (hours)	Other Diagnoses
none	none	F	E05-130	3/4	0		52		3	DP
none	none	M	E06-41	3/3	2		57		10	TDP-43
none	none	F	E06-45	3/3	0		46		6.5	
none	none	F	E08-101	3/3	2		78		11.5	Cerebral hemorrhage
none	none	M	E10-142	3/3	2		94		5.5	Infarcts, NFT
none	none	F	E08-137	3/3	3		92		15.5	infarcts
none	none	M	E14-06		1		56		12.5	NFT, ischemia
none	none	F	OS2-35	3/3	1		75		6	
none	none	M	OS3-299	3/3	2		69		6	LBD, infarcts, DP
none	none	M	E15-106		2		61		6	
AD	none	F	E05-90	3/4	6	69	76	7	8	LBD
AD	none	M	E08-104	3/3	5	79	89	10	22	LBD, TDP-43
AD	none	M	E11-139	2/3	6	55	62	7	6	
AD	none	F	OS3-300	4/4	6	60	75	15	12	
AD	mild	F	E06-190	3/4	6	80	93	13	5	
AD	mild	M	E16-21		6	55	62	7	3	
AD	mild	M	E07-36	3/3	5		91		22	
AD	mild	M	E07-38	3/4	6	70	77	7	12	TDP-43
AD	mild	F	E07-69	3/4	6	53	58	5	6	
AD	mild	M	E08-41	3/4	6	76	84	8	12	infarcts
AD	mild	F	E08-108	3/4	4	76	94	18	4	TDP-43, sclerosis, Rosenthal fibers
AD	mild	F	E10-33	3/3	6	52	62	10	6	LBD, TDP-43
AD	mild	F	E16-110		6	64	77	13	14	TDP-43
AD	severe	F	E05-37	4/4	6	71	86	15	6.5	LBD, infarcts
AD	severe	M	E06-155	2/3	6	56	67	11	8.5	LBD
AD	severe	M	E07-84	3/4	6	67	72	5	16	microinfarcts
AD	severe	F	E08-53	3/3	6	70	78	10	8	TDP-43
AD	severe	F	E09-65	4/4	5	77	85	8	10	Infarcts
AD	severe	M	E09-126	3/4	6	63	68	5	17	TDP-43

AD	severe	M	E11-97	3/3	6	60	74	14	2.5	
AD	severe	F	E13-116	3/4	6	67	77	10	10	sclerosis
AD	severe	M	OS0-40	4/4	5	83	88	5	4.25	TDP-43, infarcts

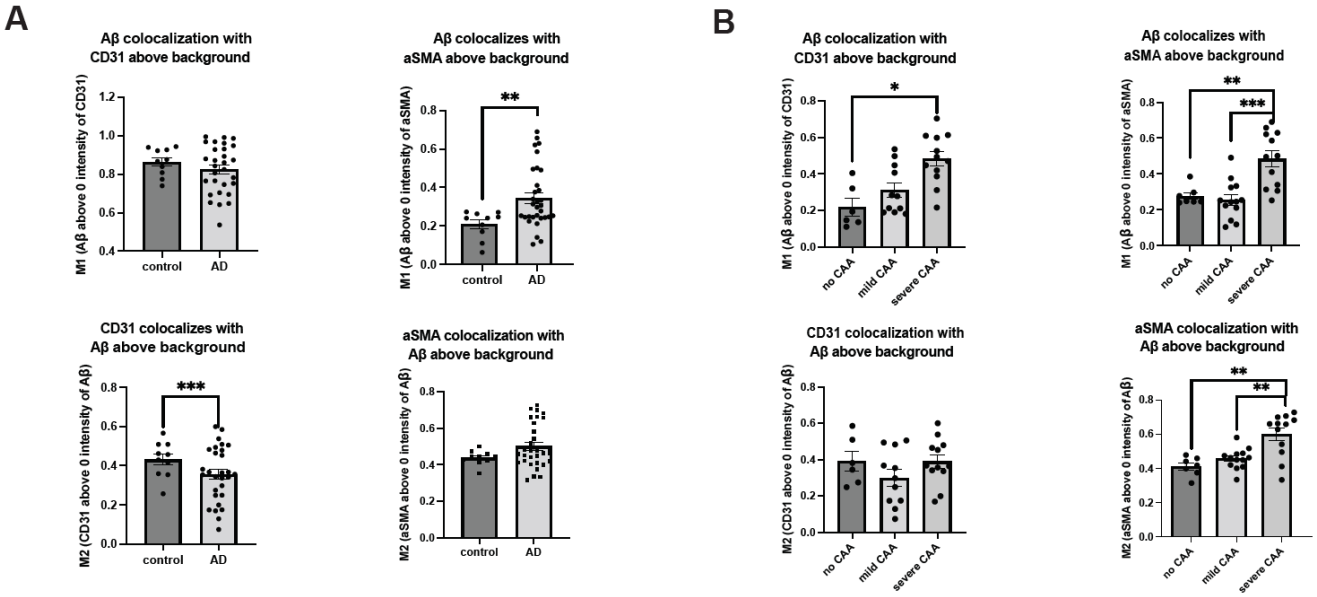

Figure S1. Mander's M1 and M2 coefficient analysis of the overlap of Aβ with CD31 or αSMA. The overlap between Aβ and above-background CD31 fluorescence remains unaffected (M1), while CD31 fluorescence overlap with above-background Aβ fluorescence (M2) is elevated in the presence of AD (A). Aβ fluorescence overlap with above-background αSMA fluorescence (M1) is increased in the presence of AD, and there is a tendency of increase for αSMA fluorescence overlap with above-background Aβ fluorescence in AD as well (A). In the CAA-stratified AD groups, only the severe CAA subgroup exhibits an increased Aβ fluorescence overlap with above-background CD31 and αSMA fluorescence (M1s). Meanwhile, αSMA fluorescence shows an increase in overlap with above-background Aβ fluorescence (M2), and CD31 fluorescence overlapping with Aβ fluorescence does not exhibit a significant change (B). The p values for pairwise comparisons are provided. The data are presented as mean ± SD. For significance results, * = P ≤ 0.05, ** = P ≤ 0.01, *** = P ≤ 0.001. For the comparison of CAA group effect analyses, the Kruskal Wallis H test, and Chi Square values are reported.

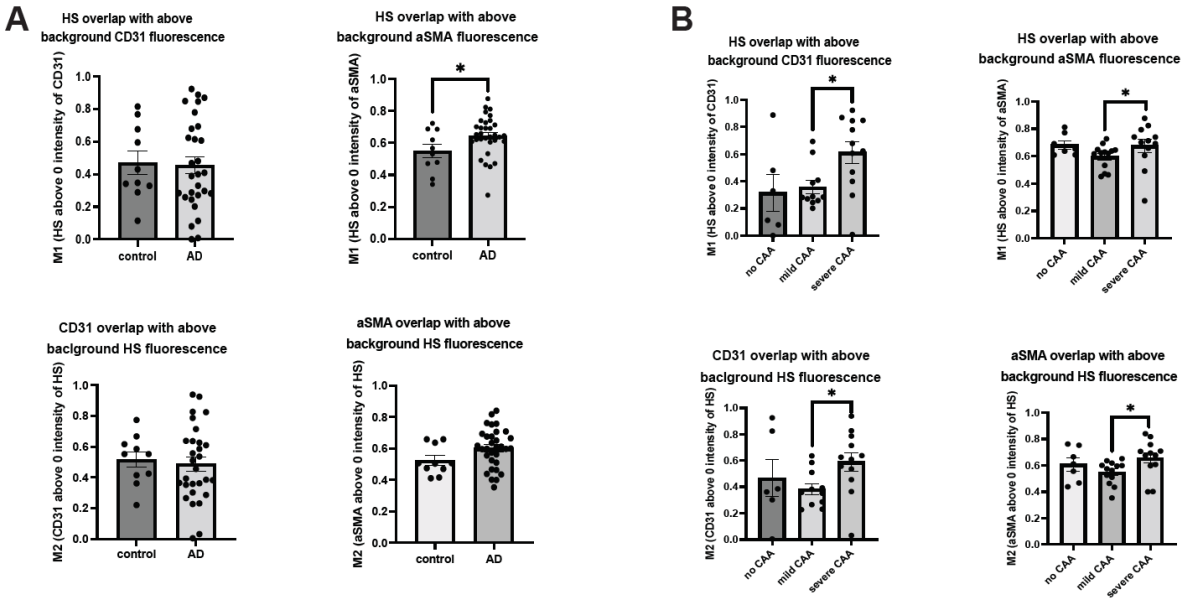

Figure S2. Mander`s coefficient analysis. The comparison of overlap coefficients for the following pairs in EC- and SMC compartments between AD and control: above background HS-CD31 staining, above background CD31-HS staining, above background HS-αSMA staining, and above background αSMA-HS staining (**A**). A similar comparison between CAA-stratified AD subgroups (**B**). The data are presented as mean ± SD. For significance results, * = P ≤ 0.05.