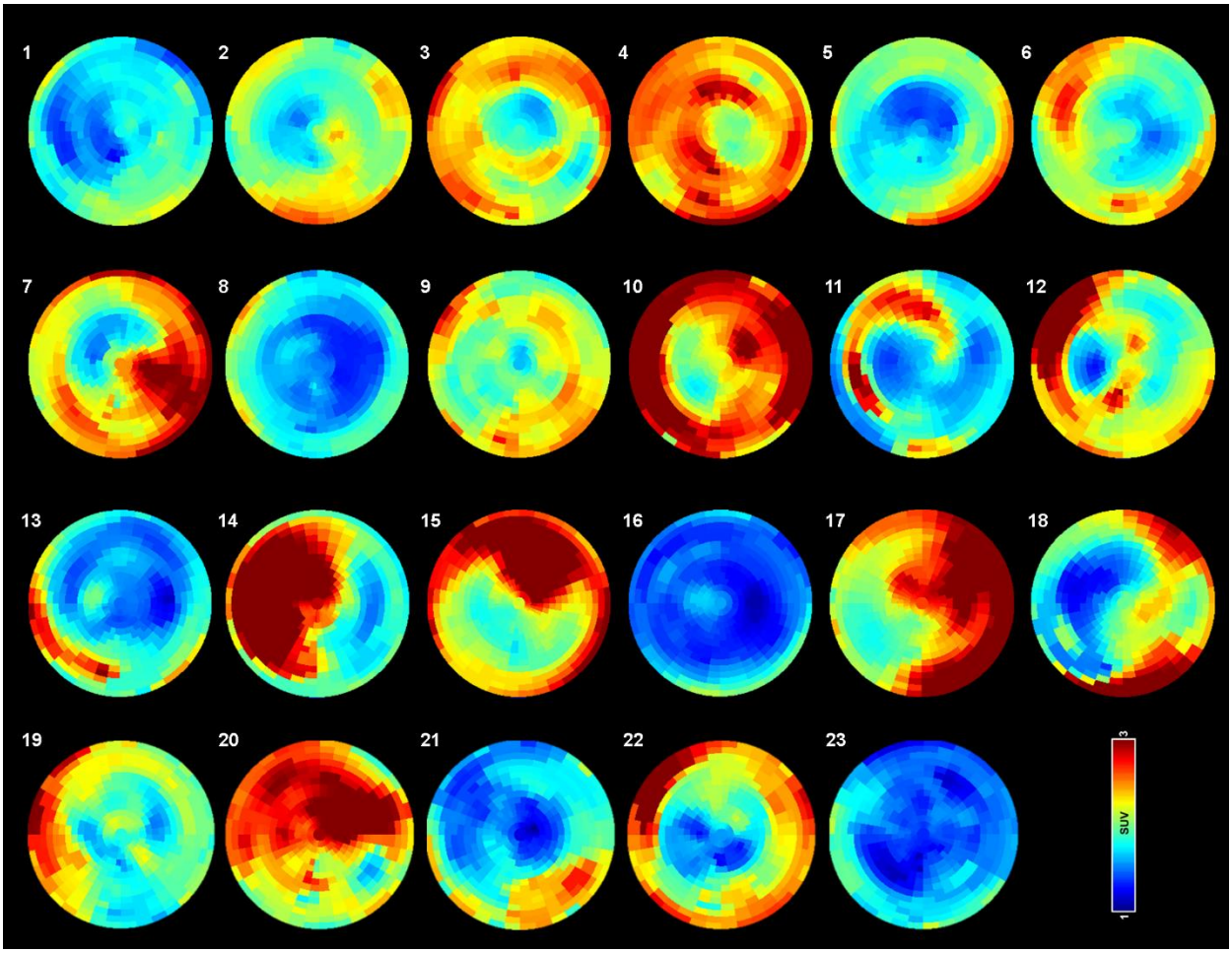
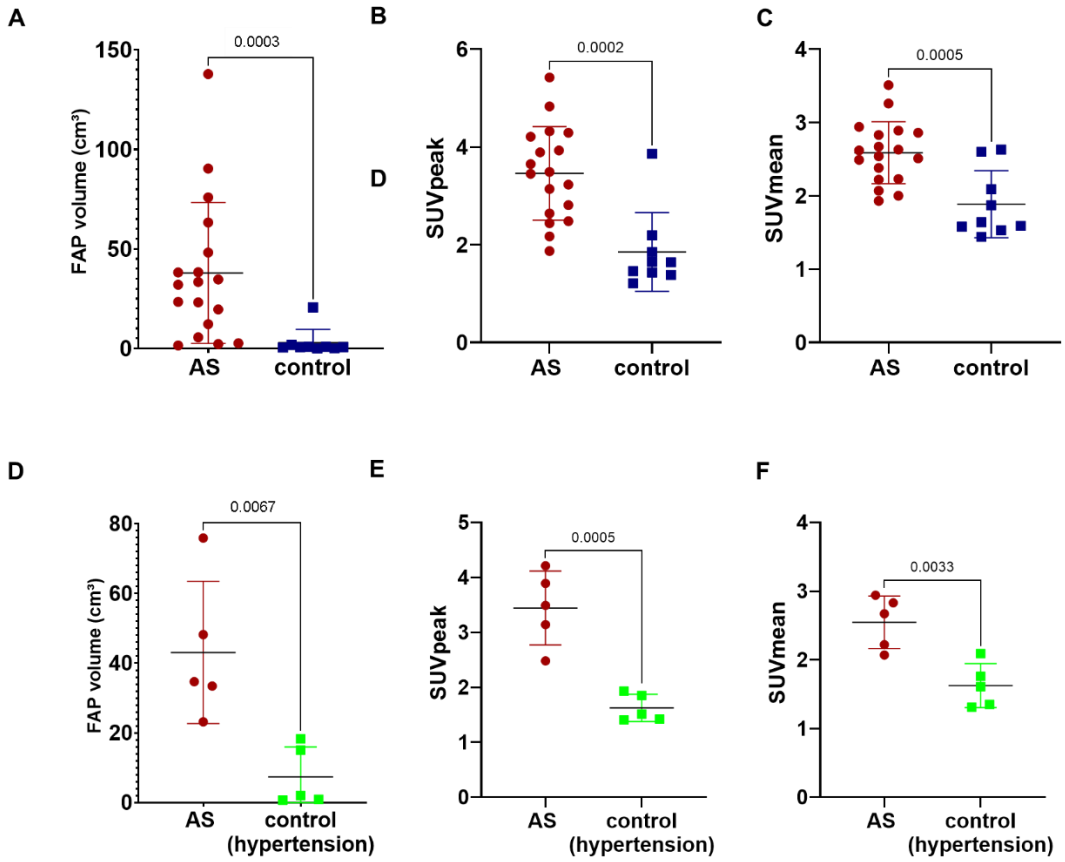
SUPPLEMENTAL DATA

Supplemental Figure 1



Depicted are parametric polar maps of ^{68}Ga-FAPI-46 standardized uptake value (SUV) in the left ventricular myocardium for all 23 patients with aortic stenosis (polarmaps are a two-dimensional display of three-dimensional left ventricular activity with apex in center, base in periphery, anterior wall on top, inferior wall on bottom, septum on the left and lateral wall on the right). Note that myocardial FAP-uptake differed significantly between individuals, and regionally within the individuals.

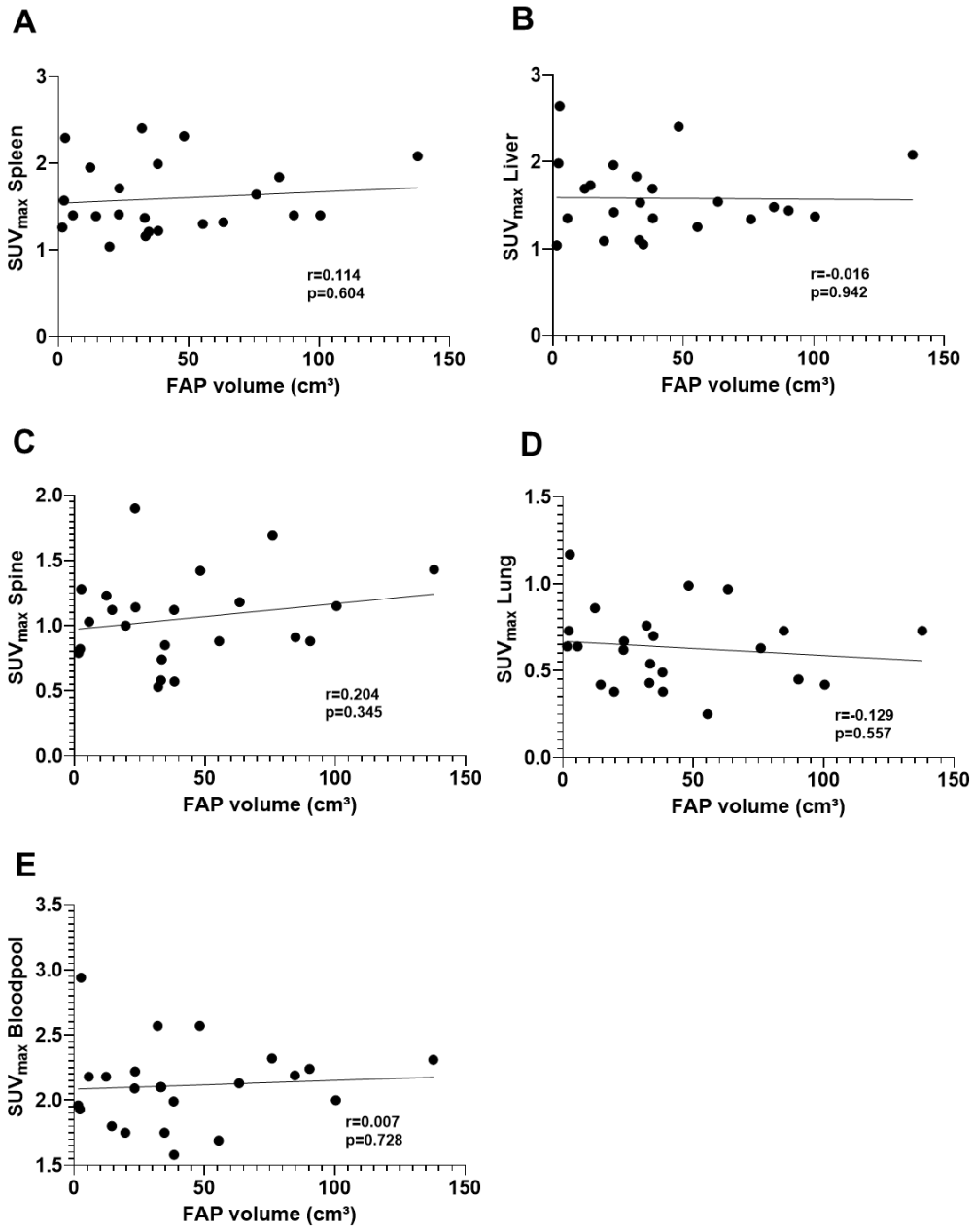
Supplemental Figure 2



Comparisons of AS patients (red dots) vs. matching control patients.

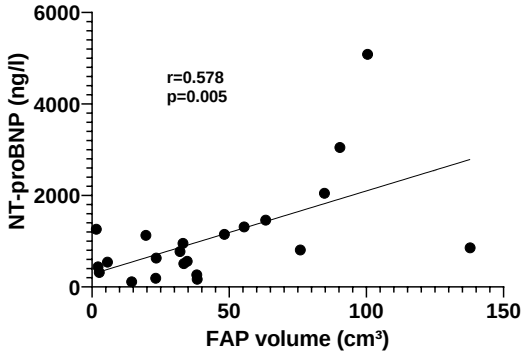
Upper row: sex-matched controls without cardiovascular comorbidities (blue dots). Comparisons of (A) FAP volume, (B) myocardial SUVpeak and (C) myocardial SUVmean. Bottom row: sex- and age-matched controls with arterial hypertension (green dots). Comparisons of (D) FAP volume, (E) myocardial SUVpeak and (F) myocardial SUVmean. Lines represent mean and standard deviation.

Supplemental Figure 3



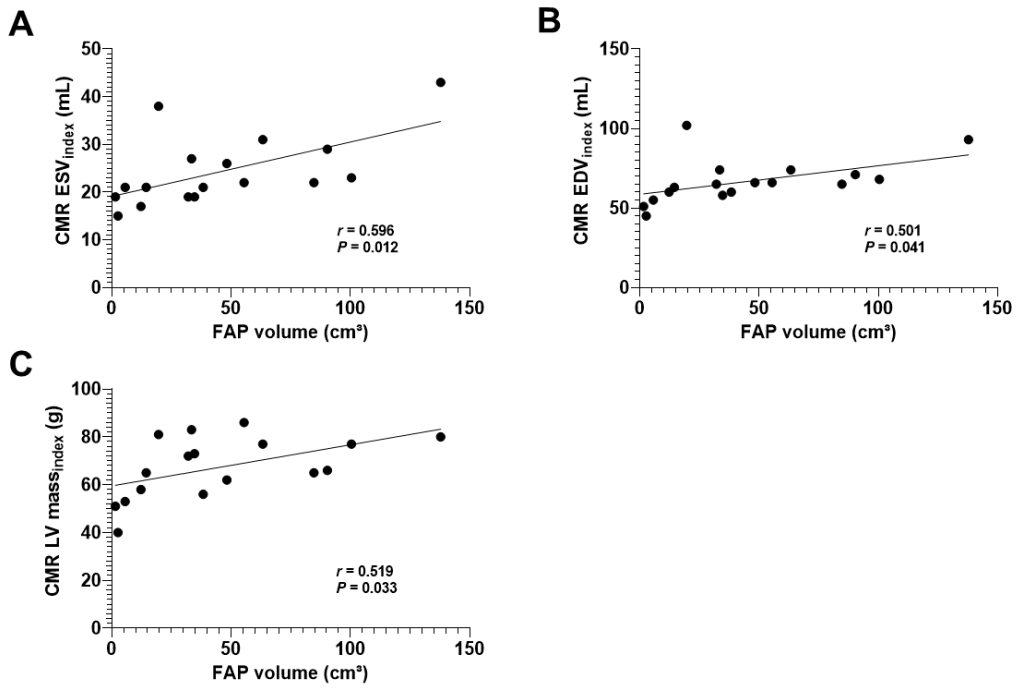
Regression plots for myocardial volume of elevated fibroblast activation protein signal (FAP volume) and standardized uptake value (SUV) in other organs.

Supplemental Figure 4



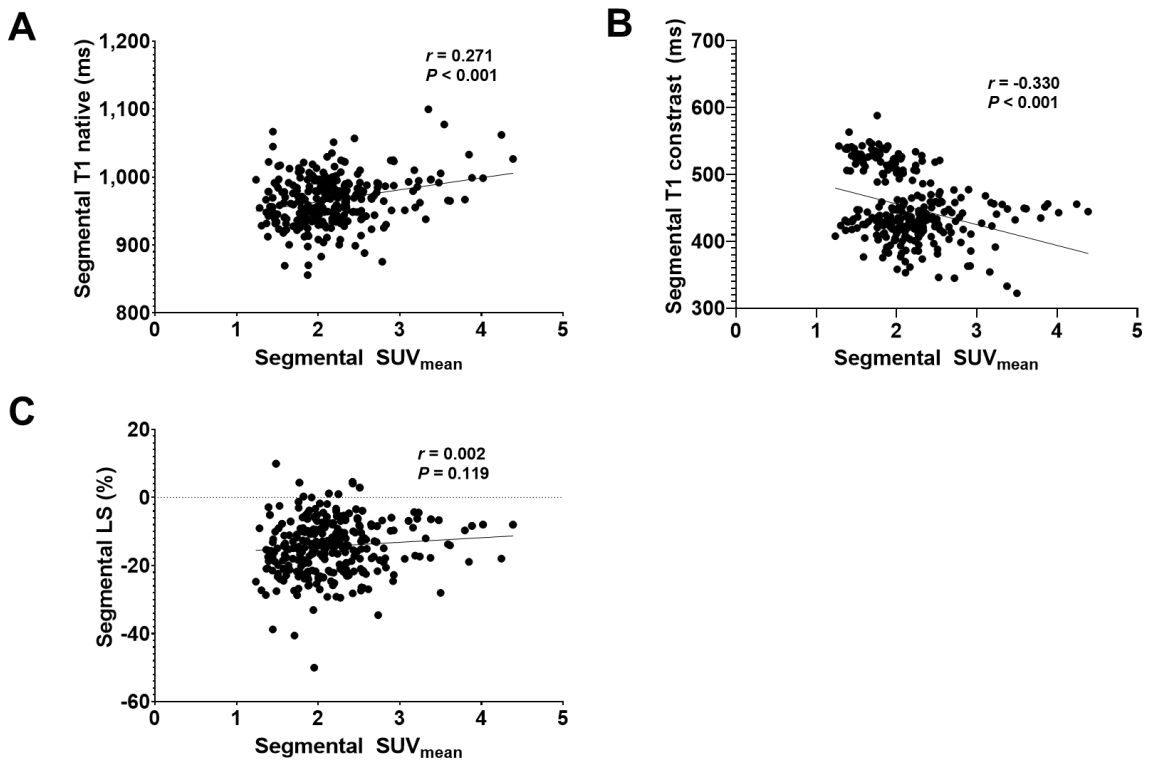
Regression plot for myocardial volume of elevated fibroblast activation protein signal (FAP volume) and pre-procedural levels of N-terminal prohormone of brain natriuretic peptide (NT-proBNP).

Supplemental Figure 5



Regression plot for myocardial volume of elevated fibroblast activation protein signal (FAP volume) and left ventricular function parameters derived from cardiac magnetic resonance imaging (CMR): (A) indexed endsystolic volume (ESVindex), (B) indexed enddiastolic volume (EDVindex), (C) indexed LV mass.

Supplemental Figure 6



(A) Regression plot of segmental SUV_{mean} and segmental native T1 relaxation time and (B) segmental post-contrast T1 relaxation time. (C) Regression plot of segmental SUV_{mean} and longitudinal strain (GLS).

Supplemental Table 1

Table 1. Patient characteristics								
Variable		AS		Oncologic	*P-value*	AS	Oncologic	*P-value*
		all AS-patients (n=23)	*sex-matched AS-patients (n=18)*	*sex-matched controls (n=9)*		*age-and sex-matched AS-patients (n=5)*	*age-and sex-matched controls with AHT (n=5)*	
Age (years)		84.1± 3.3	83.0± 2.8	55.9± 12.0	**<0.001**	80.4± 1.7	74.8 ± 6.5	0.102
Sex (n (%))	Female	12/23 (52.2)	10/18 (55.6)	5/9 (55.6)	1.0	3/5 (60.0)	2/5 (40.0)	1.0
	Male	11/23 (47.8)	8/18 (44.4)	4/9 (44.4)	1.0	3/5 (60.0)	2/5 (40.0)	1.0
Height (cm)		166.2 ± 7.0	166.8 ± 7.4	169.9 ± 7.8	0.174	165.6 ± 11.2	167.0 ± 13.5	0.863
Weight (kg)		69.6 ± 10.4	72.2 ±9.7	74.0 ± 12.2	0.547	73.2 ± 5.4	63.4 ± 12.4	0.143
Comorbidities (n (%))	Diabetes	4/23 (17.4)	3/18 (16.7)	0/9 (0.0)	**<0.001**	1/5 (20.0)	1/5 (20.0)	1.0
	Arterial hypertension	21/23 (91.3)	17/18 (94.4)	0/9 (0.0)	**<0.001**	5/5 (100)	5/5 (100)	1.0
	Dyslipidemia	13/23 (56.5)	10/18 (55.6)	0/9 (0.0)	**0.009**	3/5 (60.0)	0/5 (0.0)	0.167
	Obesity (BMI >30 kg/m²)	4/23 (17.4)	3/18 (22.2)	2/9 (22.2)	1.0	2/5 (40.0)	0/5 (0.0)	0.444
	CAD (stenosis >50%)	11/23 (47.8)	9/18 (50.0)	0/9 (0.0)	**0.012**	3/5 (60.0)	0/5 (0.0)	0.167
	Previous PCI	4/23 (17.4)	3/18 (16.7)	0/9 (0.0)	0.529	3/5 (60.0)	0/5 (0.0)	0.167
	Previous CABG	3/23 (13.0)	3/18 (16.7)	0/9 (0.0)	0.529	0/5 (0.0)	0/5 (0.0)	1.0
	Previous stroke	1/23 (0.04)	0/18 (0)	0/9 (0.0)	1.0	0/5 (0.0)	2/5 (40.0)	0.444
NYHA class	1	2/23 (8.7)	1/18 (5.6)	not available				
	2	9/23 (39.1)	9/18 (50.0)					
	3	12/23 (52.2)	8/18 (44.4)					
Log. EuroSCORE 2		3.1 ± 1.3	3.2 ± 1.5					

STS Score (Mortality)		2.7 ± 0.9	2.9 ± 0.9	
Hemodynamics	Baseline heart rate (bpm)	77.2 ± 15.1	76.8 ± 16.4	
	SBP (mmHg)	143.7 ± 19.6	144.1 ± 20.4	
	DBP (mmHg)	69.9 ± 7.6	69.9 ± 7.4	
Blood biomarkers	Peak NT-proBNP (ng/l)	1072 ± 1126	828 ± 688	
	Creatin kinase (U/l)	122.4 ± 90.0	126.9 ± 99.8	
	Leukocyte count (1000/µl)	7.6 ± 1.9	7.8 ± 1.8	
	CRP (mg/dl)	1.8 ± 1.5	1.8 ± 1.5	
	Kreatinin clearance (mg/min)	61.7 ± 14.3	61.3 ± 14.0	
Medication at PET (n (%))	Beta-blockers	9/23 (39.1)	8/18 (44.4)	
	ACE/AT-1-Inhibitor	21/23 (91.3)	17/18 (94.4)	

AS, aortic stenosis; BMI, body mass index; CAD, coronary artery disease; PCI, percutaneous coronary intervention; CABG, coronary artery bypass graft; COPD, chronic obstructive pulmonary disease; NYHA, New York Heart Association; STS, Society of Thoracic Surgeons Score; SBP, systolic blood pressure; DBP, diastolic blood pressure; NT-proBNP, N-terminal prohormone of brain natriuretic peptide; ACE, angiotensin converting enzyme; AT, angiotensin receptor 2 type 1; PET, positron emission tomography; AHT, arterial hypertension

Supplemental Table 2

Supplemental Table 2. Coronary angiography and late gadolinium enhancement		
Patient ID	*Result coronary angiography*	*Result cardiac MRI*
MHH1	50% LAD, 75% LAD/RD1	no LGE
MHH3	Plaque LMCA, RD 50%	non-ischemic LGE
MHH5	LAD 50%	no LGE
MHH11	LAD: Chronic obstruction, LCX:75% LCX, 50% LCX/PLA-bifurkation, RCA: 50%; LIMA-Graft ad LAD: open, good flow, graft ad PLA: open, good flow	non-ischemic LGE
MHH12	Bypass LIMA ad LAD & VG ad PLA1 open, RCA 75% Pars descendens	non-ischemic LGE
MHH14	LMCA distal 50%, LAD ostial and proximal up to 75%	no LGE
MHH15	CABG PLA2, RIVP, LIMA to LAD, all open, good flow	non-ischemic LGE
MHH18	LAD proximal 50%, RD1 und RD2 75%, RCA ostial and proximal 75%	non-ischemic LGE
MHH19	DE-Stentimplantation RCA (Synsiro, 2,75x15 mm), good flow	non-ischemic LGE
MHH20	PTCA and 2x BMS LAD, PTCA and Cypherstent LCX, RCA 75%	non-ischemic LGE
MHH21	initially RCA 75% PTCA RCA, goof flow	non-ischemic LGE

MRI, magnet resonance imaging; LGE, late gadolinium enhancement; LAD, left anterior descending coronary artery; RD, Ramus diagonalis; LMCA, left main coronary artery; LCX, left circumflex artery; PLA, posterior left ventricular artery; RCA right coronary artery; LIMA, left internal mammary artery; VG, venous graft; CABG, coronary artery bypass grafting; PTCA, percutaneous transluminal coronary angioplasty