

Supplemental Table 1. Study Enrollment Criteria.

Inclusion Criteria	Exclusion Criteria
<ul style="list-style-type: none">• Age: 18-99 years• Diagnosis of light chain amyloidosis by standard criteria (immunofixation of serum and urine, IgG free light chain (FLC) assay, a biopsy of fat pad/ bone marrow, or organ biopsy, followed by typing of the light chain using immunohistochemistry or immunogold assay with confirmation by Mass spectroscopy as needed).• Willing and able to provide consent	<ul style="list-style-type: none">• Hemodynamic instability• Decompensated heart failure (unable to lie flat for 1 hour)• Concomitant non-ischemic non-amyloid heart disease (valvular heart disease or dilated cardiomyopathy)• Known obstructive epicardial coronary artery disease with stenosis > 50% in any single territory• Known history of myocardial infarction. Percutaneous coronary intervention or coronary artery bypass grafting• Severe claustrophobia despite use of sedatives• Presence of MRI contraindications such as metallic implants (pacemaker or ICD) at the time of study enrollment• Dialysis• Estimated glomerular filtration rate < 30 ml/min/m² within 14 days of each cardiac magnetic resonance imaging study.• Pregnant state• Documented allergy to ¹⁸F-florbetapir or gadolinium
<ul style="list-style-type: none">• Active AL cohort: As defined above with and without cardiac involvement and enrolled prior to initiation of chemotherapy• Remission AL cohort: Documented history of systemic AL amyloidosis with cardiac involvement and currently in complete remission or very good partial remission of AL for at least 12 months	

MRI = magnetic resonance imaging; ICD = implantable cardioverter defibrillator.

Supplemental Table 2. Organ Involvement in Active Systemic AL Amyloidosis: With and Without Cardiac Involvement

	Cardiac AL YES N = 22	Cardiac AL NO N = 8	Cardiac AL YES N = 22	Cardiac AL NO N = 8	Cardiac AL YES N = 22	Cardiac AL NO N = 8
Organ	Visual N (%)	Visual N (%)	Quantitative N (%)	Quantitative N (%)	SUV_{max} Mean ± SD	SUV_{max} Mean ± SD
Parotid	16 (50%)	4 (50%)	15 (47%)	4 (50%)	2.6 ± 1.6	2.8 ± 1.8
Tongue	15 (47%)	2 (25%)	19 (59%)	2 (25%)	3.0 ± 1.4	2.3 ± 1.1
Thyroid	8 (25%)	1 (13%)	13 (42%)	1 (13%)	3.6 ± 4.8	1.8 ± 0.8
Lung	10 (31%)	1 (13%)	11 (34%)	1 (13%)	2.3 ± 2.8	1.1 ± 1.2
Pancreas	5 (16%)	0 (0%)	13 (41%)	3 (38%)	2.4 ± 0.8	2.1 ± 0.8
Kidney	3 (9%)	1 (13%)	3 (9%)	2 (25%)	2.0 ± 0.6	2.1 ± 0.7
Spleen	6 (19%)	2 (25%)	6 (19%)	2 (25%)	2.4 ± 2.5	2.5 ± 2.5
Gluteal muscle	1 (3%)	0 (0%)	3 (9%)	0 (0%)	1.4 ± 0.6	1.4 ± 0.4
Abdominal wall fat	3 (9%)	1 (13%)	2 (6%)	1 (13%)	1.2 ± 0.7	1.3 ± 0.7
Humeral head	7 (22%)	1 (13%)	4 (13%)	2 (25%)	1.6 ± 0.9	1.8 ± 0.8

Involvement defined as SUV_{max} ≥ 2.5. Liver was considered unevaluable due to known hepatobiliary excretion of ¹⁸F-florbetapir. SUV = standardized uptake value; SD = standard deviation

Subject number	Systemic active AL-Cardiac involvement															Systemic active AL-No cardiac involvement								Remission AL-Prior cardiac involvement																
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H	I	J
Parotid	2.2	3.0	3.8	3.4	7.5	1.3	4.2	2.7	3.2	1.7	0.6	5.0	2.3	2.0	1.3	1.2	2.0	2.7	2.7	1.2	1.6	1.1	4.7	4.7	5.4	1.7	1.5	2.7	0.9	1.1	6.6	3.0	3.0	2.8	1.5	3.49	2.3	1.7	0.9	1.5
Tongue	3.0	5.8	3.8	3.2	1.4	4.6	3.4	1.8	2.1	5.0	3.3	4.2	3.2	2.2	2.6	6.5	2.2	1.9	2.6	1.4	2.3	1.7	3.5	2.2	4.5	2.0	2.0	1.4	1.7	1.4	2.5	2.9	3.2	6.0	4.3	1.75	3.1	1.9	1.5	1.0
Thyroid	7.6		11.6	3.4	6.9	3.6	2.8	2.1	3.0	2.1	1.8	26.2	1.4	1.4	1.7	2.1	1.4	1.3	1.3	1.0	1.3	1.0	2.3	1.1	1.3	3.0	2.4	2.0	1.9	0.7	7.1	2.9	7.0	1.5	3.1	2.85	2.0	1.5	1.1	0.9
Lung (Upper)	5.5	2.2	2.1	1.9	0.4	1.6	0.7	0.9	3.0	8.3	9.6	2.3	0.6	2.6	2.6	2.1	0.5	0.6	0.6	0.6	0.9	0.5	2.7	1.0	0.7	0.6	0.7	0.9	0.4	0.7	7.5	0.5	2.0	1.5	0.9	0.40	2.7	2.4	0.9	0.4
Lung (Mid)	3.8	4.7	3.3	2.3	0.4	2.0	0.5	0.7	0.8	14.1	11.4	1.8	0.4	2.8	1.2	2.1	0.6	0.7	0.8	0.5	0.5	0.6	4.6	0.7	0.5	0.6	0.8	0.4	0.4	0.4	7.9	0.4	1.9	1.4	0.8	0.31	0.8	2.3	0.5	0.5
Lung (Lower)	4.8	2.9	4.9	3.6	0.5	5.8	0.4	0.7	1.6	13.4	9.3	2.4	0.4	2.8	1.9	3.3	0.7	0.6	1.1	0.6	0.6	0.9	5.1	0.9	1.0	0.7	0.8	1.0	0.5	0.5	6.8	0.4	1.5	1.5	1.1	0.45	1.0	2.0	0.9	0.6
Left atrium	2.7	2.8	1.4	1.8	1.9	1.7	1.7	1.4	1.5	2.2	1.3	1.5	0.9	1.4	1.2	1.9	1.2	1.4	1.5	1.0	1.1	0.8	1.9	1.8	1.6	1.6	2.1	1.7	1.3	0.6	1.8	1.4	1.4	1.9	1.1	0.92	2.2	0.9	0.9	0.9
Pancreas	2.4	3.3	3.0	3.6	3.7	4.4	3.6	3.0	2.6	2.3	1.3	2.4	2.1	1.9	2.1	2.5	2.6	2.4	1.9	2.6	2.1	1.8	2.7	3.5	1.5	2.5	2.5	1.6	1.3	1.0	2.1	1.6	2.9	3.2	2.5	1.15	1.6	1.8	1.2	2.3
Kidney	3.9	1.9	3.2	2.2	3.9	1.6	2.1	2.3	2.2	1.0	1.8	2.2	1.8	1.6	2.4	2.0	2.4	2.0	2.0	2.1	2.3	1.4	2.1	3.3	1.8	1.7	2.1	2.6	1.7	1.1	1.8	2.1	1.7	1.9	1.7	1.86	1.7	1.7	1.4	1.3
Spleen	2.8	7.7	1.5	2.3	10.2	1.2	1.7	4.2	9.3	1.6	2.0	1.8	1.6	0.9	1.5	1.5	1.4	1.0	2.3	1.6	2.0	0.7	1.6	6.8	0.9	6.4	1.0	1.8	1.3	0.6	1.1	6.4	1.7	1.0	1.1	0.89	1.0	0.7	0.6	0.8
Gluteal muscle	3.2	1.5	1.2	1.7	1.3	1.5	1.4	3.1	1.6	0.9	0.6	0.8	1.0	1.0	2.9	1.9	1.6	1.3	1.4	0.9	1.1	1.0	1.5	1.5	2.0	1.3	1.9	1.1	1.4	0.8	1.1	1.3	1.6	1.0	1.1	1.54	1.6	1.4	1.3	0.9
Abdominal fat	1.3	1.4	0.6	1.3	0.8	1.1	1.1	3.3	0.9	0.7	0.9	0.5	0.5	0.8	1.5	2.5	0.5	0.9	0.9	0.9	3.4	0.9	1.2	1.0	1.2	2.1	0.5	1.1	2.8	1.0	0.9	1.2	1.5	0.7	1.7	1.05	1.2	1.4	0.8	1.9
Vertebral body	3.9	3.7	2.0	4.1	1.7	2.2	5.5	2.8	3.5	1.6	1.5	3.4	4.1	2.2	2.2	2.3	4.3	3.1	2.2	1.9	1.3	1.6	2.6	3.7	3.1	3.2	2.8	3.9	1.3	1.4	2.6	4.1	3.1	3.3	3.3	3.67	2.7	2.9	2.0	1.4
Humeral head	1.6	2.0	0.6	3.0	1.5	2.7	4.0	1.3	2.0	1.8	0.3	0.7	4.1	2.1	0.7	1.1	2.2	0.7	2.4	1.8	1.8	1.9	1.0	2.7	1.0	0.7	2.8	2.4	2.0	2.0	0.7	0.5	2.1	0.9	1.1	1.59	1.6	1.8	0.7	0.8
SUVmax Key	0.1 - 2.5					2.6 - 5.0					5.1 - 7.5					7.6 - 10					10.1 +																			

Supplemental Figure 1. Distribution of amyloid deposits by organ in each subject. “Heat map” depiction of 18F-florbetapir uptake by subject, and organ are shown for the three study groups. Green White cells indicate maximum standardized uptake value (SUVmax) within the volume of interest less than or equal to 2.5, yellow indicates SUVmax between 2.6 and 5.0, orange indicates SUVmax between 5.1 and 7.5, red indicates SUVmax between 7.6 and 10.0 and dark red indicates SUVmax of 10.1 or greater while colored cells indicate increasing degree of tracer uptake. Note that the thyroid was absent in one patient.