

Supplementary Table I. Core set measures of IMACS criteria at 3-year follow-up and the clinical outcome.

Pat No	ASAT	ALAT	LD	CK	HAQ	Glob physic	Glob patient	Extra-Muscular Activity score	MMT-8	Global improvement score*	Clinical outcome ⁺
1	0.42	0.3	4.3	0.8	0	0	1	0	80	67.5	responder
2	0.29	0.16	3.2	0.8	0.38	0	23	0	80	55.0	responder
3	NA	0.71	NA	NA	0.63	20	87	15	79	55.0	responder
4	0.42	0.94	4.5	1.6	0.38	0	10	0	80	20.0	responder
5	0.33	0.37	3.6	1.5	0.63	0	4	0	78	55.0	responder
6	0.79	1.05	4	3.1	0.38	15	61	10	80	70.0	responder
7	0.41	0.39	NA	1.9	NA	20	12	10	69	10.0	non-responder
8	0.62	0.62	4	1.5	0.38	2	23	0	73	10.0	non-responder
9	0.96	0.59	5.1	11.5	1.5	9	54	12	76	62.5	non-responder
10	0.41	0.52	3.3	2.4	0.38	10	28	10	76	40.0	non-responder
11	0.69	0.49	4.1	5.2	1.75	3	51	0	53	17.5	non-responder
12	0.54	0.39	4.4	2.9	0.88	6	37	6	68	47.5	non-responder
13	0.52	0.48	3.6	1.7	0.25	0	10	0	72	20.0	non-responder

*Total improvement score (TIS) (from 0-100) calculated by the value of Glob physic, Glob patient, HAQ, two of ASAT, ALAT, LD, CK, MMT-8, and extra muscular activity score according to the ACR/EULAR 2016 improvement criteria. The score ≥ 20 , ≥ 40 , and ≥ 60 represents minimal, moderate, and major improvement, respectively.

*Responders were defined by achievement of MMT-8 ≥ 78 together with at least minimal improvement according to the ACR/EULAR 2016 improvement criteria at 3-year follow up.

ASAT: aspartate aminotransferase; ALAT: alanine aminotransferase; LD: lactate dehydrogenase; CK: creatine kinase; HAQ: health assessment questionnaire; Glob physic: physician's global disease activity assessment, measured by 100mm visual analogue scale (VAS); Glob patient: patient's global disease activity assessment, measured by 100mm visual analogue scale (VAS); Extra act: extramuscular disease activity; MMT-8: manual muscle test-8, the maximum score is 80; NA: not available.

Supplementary Table II. Muscle biopsies and blood samples available for analysis.

Patient number	Time point	Muscle biopsies*	Blood samples*
1	baseline	×	NA
	after 8-13 months	NA	NA
2	baseline	×	×
	after 8-13 months	×	×
3	baseline	×	×
	after 8-13 months	×	×
4	baseline	×	NA
	after 8-13 months	NA	NA
5	baseline	×	×
	after 8-13 months	×	×
6	baseline	×	NA
	after 8-13 months	NA	NA
7	baseline	×	NA
	after 8-13 months	NA	NA
8	baseline	×	NA
	after 8-13 months	×	NA
9	baseline	×	NA
	after 8-13 months	×	NA
10	baseline	×	×
	after 8-13 months	×	×
11	baseline	×	NA
	after 8-13 months	×	NA
12	baseline	×	NA
	after 8-13 months	×	NA
13	baseline	×	×
	after 8-13 months	×	×

*NA: no samples; ×: sample used for analysis. * NA: no samples; ×: sample used for analysis.

Supplementary Table III. Pathological evaluations of muscle biopsy before and after treatment.

Level*	Before treatment																							
	Reg/deg fibres			Endomysial infiltrates			Perimysial infiltrates			Necrotic fibres			Perifascicular atrophy			Rimmed vacuoles			CD3+ T cells			MHC class I		
	Res	Non	All	Res	Non	All	Res	Non	All	Res	Non	All	Res	Non	All	Res	Non	All	Res	Non	All	Res	Non	All
	(n=6)	(n=7)	(n=13)	(n=6)	(n=7)	(n=13)	(n=6)	(n=7)	(n=13)	(n=6)	(n=7)	(n=13)	(n=6)	(n=7)	(n=13)	(n=6)	(n=7)	(n=13)	(n=5)	(n=7)	(n=12)	(n=6)	(n=7)	(n=13)
N+	3	4	7	5	3	8	3	3	6	4	6	10	5	7	12	6	5	11	1	1	2	0	0	0
1+	1	3	4	0	1	1	3	2	5	1	0	1	1	0	1	0	2	2	2	2	4	3	2	5
2+	2	0	2	1	2	3	0	2	2	1	1	2	0	0	0	0	0	0	2	3	5	1	2	3
3+	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	3	5
After treatment																								
	Res	Non	All	Res	Non	All	Res	Non	All	Res	Non	All	Res	Non	All	Res	Non	All	Res	Non	All	Res	Non	All
	(n=3)	(n=6)	(n=9)	(n=3)	(n=6)	(n=9)	(n=3)	(n=6)	(n=9)	(n=3)	(n=6)	(n=9)	(n=3)	(n=6)	(n=9)	(n=3)	(n=5)	(n=8)	(n=3)	(n=4)	(n=7)	(n=3)	(n=5)	(n=8)
N	2	6	8	2	4	6	3	5	8	2	6	8	3	5	8	2	3	5	2	2	4	1	1	2
1+	1	0	1	1	1	2	0	1	1	1	0	1	0	1	1	1	1	2	1	1	2	1	2	3
2+	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	1	1	0	1	1	1	2	3
3+	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*Different level of severity of lesions, 1+, 2+, 3+: number of patients with 1+, 2+, and 3+ level of severity of lesions, the higher the more severity.

*Number of patients with no lesions. Res: number of available muscle biopsies of responders; Non: number of available muscle biopsies of non-responders.

Supplementary Table IV. Antibody panel for immunohistochemistry.

Primary antibody	Production number	Dilution or concentration	Isotype	Supplier
Anti-CD3	347340	1/320	Mouse IgG1	BD Bioscience, San Jose, CA, USA
Anti-CD66b	IM0166	1/600	Mouse IgG1	Beckman Coulter, Krefeld, Germany
Anti-IL-15	M111	5ug/ml	Mouse IgG1	Amgen INC, Thousand Oaks, CA, USA
Anti-CD68	M0178	1/400	Mouse IgG1	DakoCytomation, Glostrup, Denmark
Anti-CD163	M0794	1/200	Mouse IgG1	DakoCytomation, Glostrup, Denmark
Anti-MHCn	NCL-MHCn	1/200	Mouse IgG1	Novocastra, Newcastle, UK
Secondary antibody			Supplier	
Biotinylated horse anti-mouse IgG(H+L)			BA2001, Vector Laboratories, Burlingame, CA, USA	
Negative control			Supplier	
Negative Control Mouse IgG1			X0931, Dako, Glostrup, Denmark	