

SUPPLEMENTARY TABLES

Supplementary Table 1. Quantification of Ca²⁺ signal parameters (ratio 340/380 ± SEM) for combined Ca²⁺ measurements with 0.5 mM Ca²⁺ in the external solution as shown in Figures 1A, 3A and Supplementary Figure 5A, 5G.

	Basal Ca²⁺	Influx Peak	Ca²⁺ Plateau	Influx Rate
adult	0.41572	3.35034	2.86868	0.01493
untouched	(± 0.00724)	(± 0.06840)	(± 0.11545)	(± 0.00325)
elderly	0.43849	2.74772	2.29437	0.00943
untouched	(± 0.00963)	(± 0.16623)	(± 0.17377)	(± 0.00138)
adult	0.44257	1.58579	1.32114	0.00618
stimulated	(± 0.00828)	(± 0.08134)	(± 0.06486)	(± 0.00135)
elderly	0.45081	1.22973	0.99628	0.00411
stimulated	(± 0.00674)	(± 0.11855)	(± 0.10602)	(± 0.00030)
norm. adult	1	1	1	1
sorted CM/EM				
norm. elderly	1.00521	0.76461	0.76402	0.66231
sorted CM	(± 0.01682)	(± 0.04269)	(± 0.03756)	(± 0.06913)
norm. elderly	0.97606	0.89495	0.90768	0.77298
sorted EM	(± 0.00743)	(± 0.04126)	(± 0.03429)	(± 0.09990)

Supplementary Table 2. Quantification of Ca²⁺ signal parameters (ratio 340/380 ± SEM) for re-addition measurements with 0.5 mM Ca²⁺ in the external solution as shown in Figures 1B, 3B and Supplementary Figure 5B, 5H.

	Basal Ca²⁺	TG Peak	Influx Peak	Ca²⁺ Plateau	Influx Rate
adult	0.40805	0.54841	3.44848	2.71912	0.04126
untouched	(± 0.00360)	(± 0.01312)	(± 0.12020)	(± 0.09117)	(± 0.00299)
elderly	0.43947	0.69555	2.6784	2.08323	0.02871
untouched	(± 0.01381)	(± 0.08362)	(± 0.08594)	(± 0.06764)	(± 0.00205)
adult	0.49956	0.55749	1.73206	1.26592	0.01808
stimulated	(± 0.02458)	(± 0.01406)	(± 0.08618)	(± 0.08696)	(± 0.00189)
elderly	0.46913	0.62148	1.34722	0.92057	0.01210
stimulated	(± 0.01081)	(± 0.03382)	(± 0.06802)	(± 0.05860)	(± 0.00064)
norm. adult	1	1	1	1	1
sorted CM/EM					
norm. elderly	0.99123	1.03256	0.80305	0.77923	0.81061
sorted CM	(± 0.01456)	(± 0.01979)	(± 0.03007)	(± 0.03169)	(± 0.09589)
norm. elderly	0.99405	1.02691	0.91613	0.91261	0.95864
sorted EM	(± 0.01283)	(± 0.04218)	(± 0.02254)	(± 0.01533)	(± 0.04460)

Supplementary Table 3. Quantification of Ca²⁺ signal parameters (ratio 340/380 ± SEM) of combined Ca²⁺ measurements with 2 mM Ca²⁺ in the external solution as shown in Supplementary Figures 2A, 3A.

	Basal Ca ²⁺	Influx Peak	Ca ²⁺ Plateau	Influx Rate
adult untouched	0.44246 (± 0.01405)	3.67726 (± 0.07794)	3.37786 (± 0.07495)	0.01558 (± 0.00312)
elderly untouched	0.45475 (± 0.01841)	3.18998 (± 0.08738)	2.77220 (± 0.07289)	0.01403 (± 0.00602)
adult stimulated	0.48054 (± 0.00932)	2.32779 (± 0.20696)	2.09853 (± 0.18375)	0.00757 (± 0.00214)
elderly stimulated	0.49030 (± 0.01157)	2.09466 (± 0.15442)	1.80740 (± 0.14058)	0.00651 (± 0.00109)

Supplementary Table 4. Quantification of Ca²⁺ signal parameters (ratio 340/380 ± SEM) for re-addition measurements with 2 mM Ca²⁺ in the external solution as shown in Supplementary Figures 2D, 3D.

	Basal Ca ²⁺	TG Peak	Influx Peak	Ca ²⁺ Plateau	Influx Rate
adult untouched	0.44743 (± 0.01368)	0.52506 (± 0.01526)	3.87886 (± 0.10149)	3.12665 (± 0.11758)	0.03775 (± 0.00362)
elderly untouched	0.44508 (± 0.00836)	0.62696 (± 0.07810)	3.40563 (± 0.14274)	2.68961 (± 0.08306)	0.02863 (± 0.00161)
adult stimulated	0.49982 (± 0.01600)	0.55386 (± 0.00431)	2.53691 (± 0.17716)	2.06464 (± 0.15648)	0.01970 (± 0.00080)
elderly stimulated	0.51258 (± 0.01150)	0.64717 (± 0.03941)	2.22903 (± 0.09299)	1.70259 (± 0.07201)	0.01882 (± 0.00072)

Supplementary Table 5. Quantification of rate constant (*k*), calculated as 1/tau (sec⁻¹ ± SEM), extract from global Ca²⁺ measurements with 0.5 mM [Ca²⁺]_{ext} for untouched and stimulated CD8⁺ T cells isolated from adult and elderly mice as shown in Figure 6B, 6E.

[Ca ²⁺] _{int}	untouched				stimulated			
	adult		elderly		adult		elderly	
	mean	cells	mean	cells	mean	cells	mean	cells
0-0.5	-	-	-	-	0.02306 (± 0.00241)	18	0.03365 (± 0.00406)	59
0.5-1	0.04083 (± 0.00551)	40	0.053413 (± 0.00361)	88	0.03919 (± 0.00066)	963	0.04978 (± 0.00091)	947
1-1.5	0.048453 (± 0.00552)	35	0.060124 (± 0.00387)	74	0.048255 (± 0.00103)	468	0.06430 (± 0.00207)	295
1.5-2	0.05410 (± 0.0050)	60	0.05795 (± 0.00384)	128	0.05175 (± 0.00129)	262	0.06784 (± 0.00418)	118
2-2.5	0.05111 (± 0.00324)	383	0.06567 (± 0.00284)	247	0.06127 (± 0.00136)	333	0.0744 (± 0.00477)	56
2.5-3	0.05461 (± 0.00094)	627	0.07003 (± 0.00284)	101	-	-	-	-
3-3.5	0.05139 (± 0.00054)	145	0.05901 (± 0.00284)	26	-	-	-	-