Supplements

Contents:

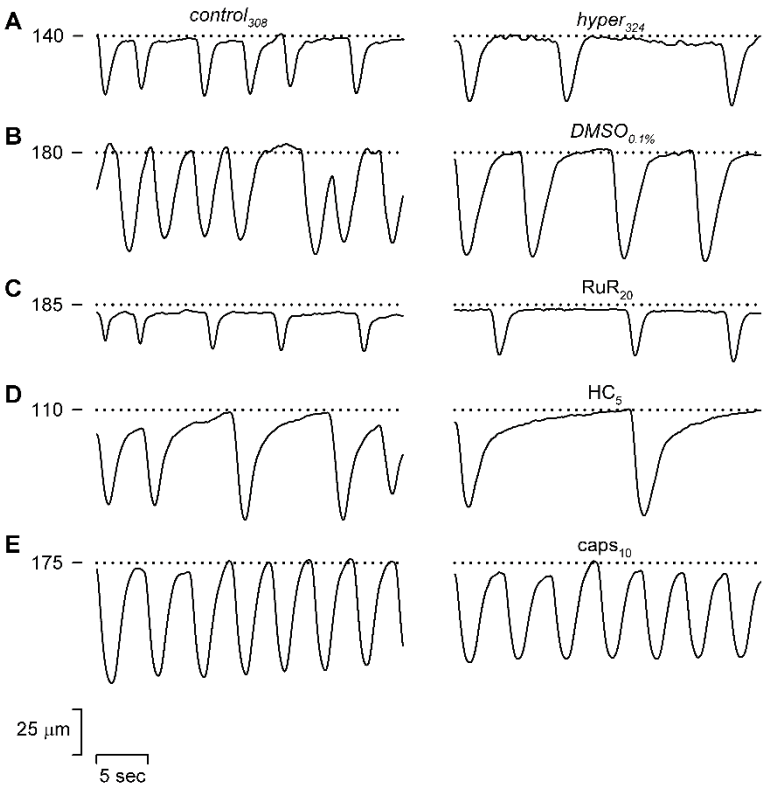
Video S1: Representative video recording of a lymphatic vessel bathed with the isotonic and hyperosmolar solutions.

The panel on the left (308 mOsm) shows the contractile behaviour of an FITC-filled lymphatic tract video recorded in an isotonic condition. The panel on the right (324 mOsm) shows the behaviour of the very same vessel after 15 minutes of perfusion with $hyper_{324}$. Scale bar is 150 μm.

Video S2: Representative video recording of a lymphatic vessel bathed with the isotonic and hyposmolar solutions.

The panel on the left (308 mOsm) shows the contractile behaviour of an FITC-filled lymphatic tract video recorded in an isotonic condition. The panel in the middle (290 mOsm E) shows the behaviour of the very same vessel at the intrinsic f_c peak (~ 2 minutes of perfusion with $hypo_{290}$ - *early*). The panel on the right (290 mOsm L) shows the behaviour of the very same vessel after 15 minutes of perfusion with $hypo_{290}$ (*late*). Scale bar is 150 μm.

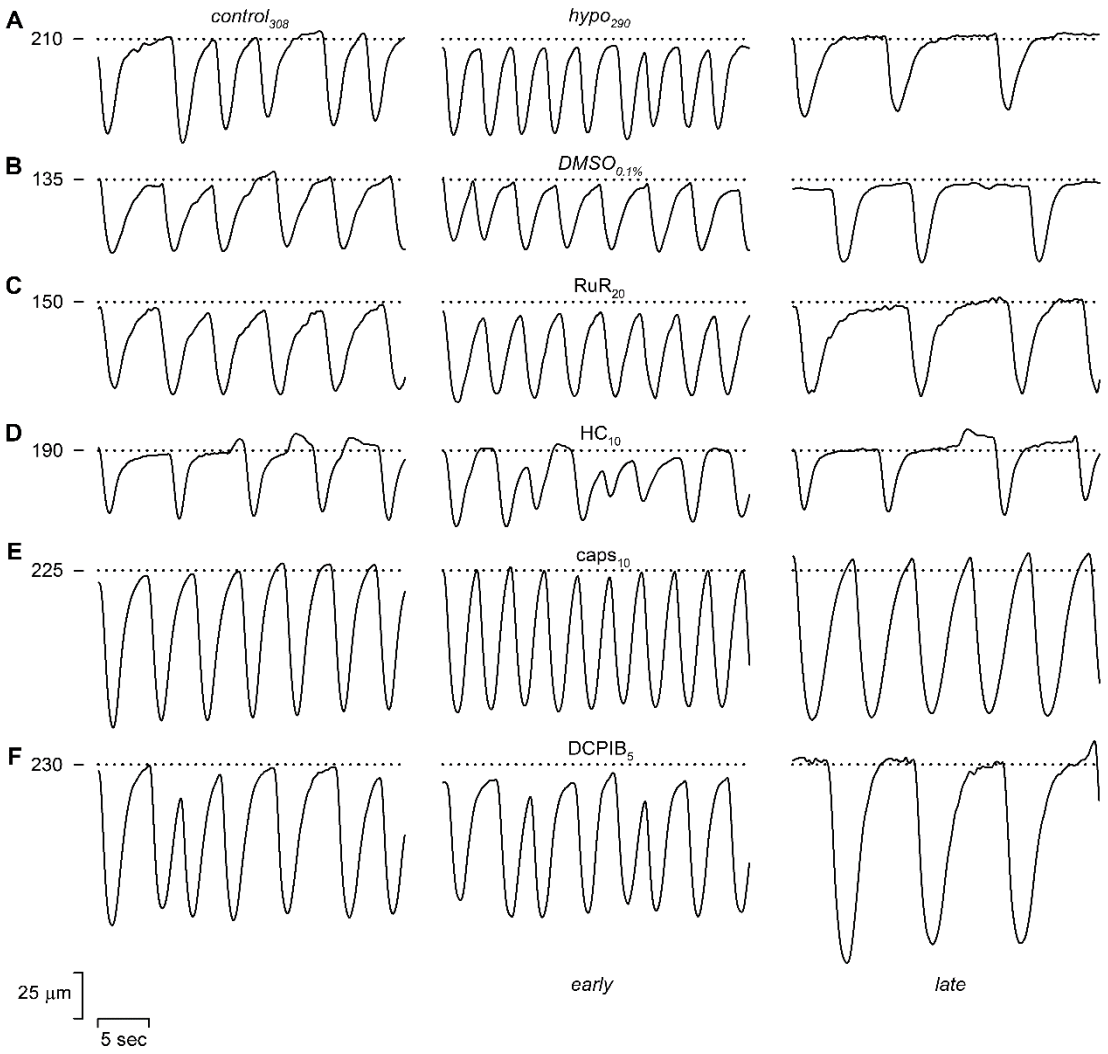
Figure S1



Representative tracings of the diameter profile over time of lymphatic vessels exposed to the different conditions summarized in Figure 6.

The panels on the left show the contractile behaviour of different lymphatic vessels obtained under isosmotic *control*$_{308}$ conditions. The panels on the right show the behaviour of the very same lymphatics after 15 minutes of perfusion in the different tested conditions for hyperosmolar experimental groups. **A** *hyper*$_{324}$, **B** *DMSO*$_{0.1\%}$, **C** RuR$_{20}$, **D** HC$_5$, and **E** caps$_{10}$.

Figure S2



Representative tracings of the diameter profile over time of lymphatic vessels exposed to the different conditions summarized in Figure 10 and Figure 12.

The panels on the left show the contractile behaviour of different lymphatic vessels obtained under isosmotic *control*$_{308}$ conditions. The panels in the middle show the behaviour of the very same vessels at the time interval of intrinsic f_c peak (*early*) in the different tested conditions for hyposmolar experimental groups. The panels on the right show the behaviour of the very same lymphatics after 15 minutes of perfusion (*late*). **A** *hypo*$_{290}$, **B** *DMSO*$_{0.1\%}$, **C** RuR$_{20}$, **D** HC$_{10}$, **E** caps$_{10}$, and **F** DCPIB$_5$.

Table S1 Parameters for f_c data fitting, hyperosmolarity experimental groups.

Parameters for sigmoidal fit of f_c decrease to endpoint					
Experimental group	**top** (cycles/min)	**bottom** (cycles/min)	**f_{c50}** (min)	**HS**	**r^2**
hyper$_{324}$	11.2 ± 0.2	4.7 ± 0.1	3.39 ± 0.12	5.3 ± 0.8	0.99
RuR$_{10}$	11.6 ± 0.3	4.2 ± 0.2	4.08 ± 0.18	3.5 ± 0.5	0.99
RuR$_{20}$	11.3 ± 0.1	6.9 ± 0.5	10.04 ± 0.66	4.6 ± 0.9	0.98
DMSO$_{0.1\%}$	11.0 ± 0.2	5.0 ± 0.1	3.63 ± 0.14	5.0 ± 0.9	0.98
HC$_{2.5}$	11.2 ± 0.2	4.2 ± 0.1	4.15 ± 0.11	6.0 ± 0.9	0.99
HC$_5$	11.6 ± 0.1	4.0 ± 0.1	4.37 ± 0.07	8.2 ± 0.9	0.99
caps$_5$	11.6 ± 0.3	6.5 ± 0.2	4.72 ± 0.27	7.2 ± 2.5	0.95

Table S2 Parameters for f_c data fitting, hyposmolarity experimental groups.

A. Parameters for sigmoidal fit of f_c rise to early peak

Experimental group	top (cycles/min)	bottom (cycles/min)	f_{c50} (min)	HS	r^2
hypo$_{290}$	16.4 ± 0.3	11.8 ± 0.2	0.63 ± 0.08	-3.4 ± 1.2	0.98
RuR$_{10}$	15.9 ± 0.5	11.7 ± 0.3	1.00 ± 0.14	-2.9 ± 1.1	0.98
RuR$_{20}$	16.2 ± 0.3	11.9 ± 0.3	0.81 ± 0.11	-2.7 ± 0.8	0.99
DMSO$_{0.1\%}$	16.1 ± 0.5	11.9 ± 0.3	0.92 ± 0.13	-3.3 ± 1.4	0.98
HC$_{2.5}$	16.8 ± 0.2	11.6 ± 0.1	1.03 ± 0.03	-2.7 ± 0.2	0.99
HC$_5$	16.0 ± 0.4	11.7 ± 0.2	1.05 ± 0.11	-3.7 ± 1.4	0.98
HC$_{10}$	14.2 ± 0.4	11.6 ± 0.2	1.02 ± 0.17	-2.9 ± 1.4	0.98
caps$_5$	16.6 ± 0.6	11.9 ± 0.5	0.79 ± 0.16	-3.6 ± 2.0	0.96
caps$_{10}$	16.8 ± 0.5	12.1 ± 0.3	0.65 ± 0.10	-2.9 ± 1.2	0.98

B. Parameters for sigmoidal fit of f_c decrease to endpoint

Experimental group	top (cycles/min)	bottom (cycles/min)	$f_{c50,1}$ (min)	HS_1	$f_{c50,2}$ (min)	HS_2	r^2
hypo$_{290}$	16.2 ± 0.2	4.4 ± 0.1	4.51 ± 0.30	5.7 ± 1.9	10.39 ± 0.10	9.0 ± 0.6	0.97, 0.99
RuR$_{10}$	15.9 ± 0.1	5.3 ± 0.3	4.39 ± 0.11	6.8 ± 1.0	9.57 ± 0.35	8.5 ± 2.3	0.99, 0.97
RuR$_{20}$	16.2 ± 0.1	7.0 ± 0.2	5.42 ± 0.39	5.2 ± 1.6	10.91 ± 0.15	13.2 ± 2.1	0.98, 0.99
DMSO$_{0.1\%}$	15.8 ± 0.2	4.6 ± 0.2	4.79 ± 0.26	5.1 ± 1.2	10.36 ± 0.17	14.9 ± 3.1	0.98, 0.99
HC$_{2.5}$	16.3 ± 0.1	5.4 ± 0.2	4.24 ± 0.11	5.6 ± 0.7	10.30 ± 0.18	26.1 ± 9.8	0.99, 0.97
HC$_5$	16.0 ± 0.2	8.2 ± 0.2	4.14 ± 0.28	6.7 ± 2.7	8.53 ± 0.16	15.5 ± 3.7	0.94, 0.98
HC$_{10}$	14.2 ± 0.1	8.4 ± 0.2	4.72 ± 0.46	3.9 ± 1.2	9.62 ± 0.18	30.5 ± 11.7	0.96, 0.97
caps$_5$	16.7 ± 0.3	8.0 ± 0.2	3.07 ± 0.16	7.6 ± 2.7	10.15 ± 0.13	31.6 ± 14.2	0.97, 0.98
caps$_{10}$	17.1 ± 0.2	8.5 ± 0.4	3.63 ± 0.23	3.5 ± 0.7	12.85 ± 0.19	25.2 ± 8.1	0.98, 0.98

	top (cycles/min)	bottom (cycles/min)			f_{c50} (min)	HS	r^2
DCPIB$_5$	11.1 ± 0.2	5.7 ± 0.3			9.45 ± 0.19	18.7 ± 5.9	0.97

Table S3 Parameters for J_{lymph} (%) data fitting.

A. Hyperosmolar environment—Parameters for sigmoidal fits of J_{lymph} (%) decrease to endpoint

Experimental group	top J (%)	bottom J (%)	J_{50} (min)	HS	r^2
hyper$_{324}$	99.9 ± 1.4	45.6 ± 0.8	3.53 ± 0.09	6.6 ± 0.9	0.99
RuR$_{20}$	96.6 ± 1.1	49.7 ± 10.3	11.77 ± 1.04	6.0 ± 1.7	0.97
DMSO$_{0.1\%}$	101.8 ± 2.1	46.1 ± 1.2	3.64 ± 0.15	4.9 ± 0.8	0.98
HC$_5$	99.5 ± 1.6	33.5 ± 1.0	4.28 ± 0.09	7.5 ± 1.0	0.99
caps$_{10}$	98.6 ± 2.7	74.8 ± 1.5	3.38 ± 0.44	4.4 ± 2.2	0.88

B. Hyposmolar environment—Parameters for sigmoidal fits of J_{lymph} (%) early rise to peak

Experimental group	top J (%)	bottom J (%)	J_{50} (min)	HS	r^2
hypo$_{290}$	132.2 ± 3.0	100.3 ± 2.5	0.83 ± 0.10	-4.0 ± 1.6	0.99
RuR$_{20}$	136.1 ± 4.0	99.7 ± 3.6	0.78 ± 0.13	-3.1 ± 1.3	0.99
DMSO$_{0.1\%}$	141.5 ± 5.9	100.6 ± 3.5	0.89 ± 0.17	-2.6 ± 1.1	0.98
HC$_{10}$	126.0 ± 1.3	99.8 ± 0.8	1.20 ± 0.07	-2.5 ± 0.4	0.99
caps$_{10}$	139.2 ± 3.5	100.3 ± 3.0	0.81 ± 0.11	-3.0 ± 1.0	0.99

C. Hyposmolar environment—Parameters for sigmoidal fits of J_{lymph} (%) decrease to endpoint

Experimental group	top J (%)	bottom J (%)	$J_{50,1}$ (min)	HS_1	$J_{50,2}$ (min)	HS_2	r^2
hypo$_{290}$	135.2 ± 1.9	33.4 ± 3.0	4.33 ± 0.34	3.7 ± 0.8	10.61 ± 0.26	11.4 ± 2.7	0.99, 0.98
RuR$_{20}$	135.7 ± 1.3	56.9 ± 1.8	4.74 ± 0.21	6.9 ± 1.9	10.76 ± 0.15	14.0 ± 2.4	0.99, 0.99
DMSO$_{0.1\%}$	137.7 ± 1.0	40.3 ± 1.6	4.91 ± 0.14	4.7 ± 0.5	10.32 ± 0.18	16.3 ± 4.1	0.99, 0.98
HC$_{10}$	124.0 ± 0.8	79.4 ± 1.7	5.08 ± 0.19	8.2 ± 2.2	9.48 ± 0.28	29.0 ± 15.6	0.98, 0.93
caps$_{10}$	138.3 ± 1.9	70.8 ± 6.0	3.46 ± 0.36	4.5 ± 1.8	12.88 ± 0.32	22.3 ± 10.2	0.92, 0.96

Experimental group	top J (%)	bottom J (%)	J_{50} (min)	HS	r^2
DCPIB$_5$	100.7 ± 1.0	60.9 ± 1.4	9.54 ± 0.13	26.9 ± 6.5	0.98