2.6 Values of the parameters used in simulations

A natural time scale in the problem is $1/\gamma$ and velocities can be conveniently expressed in units of $\beta_0 = D/L$. The analysis of both persistence data and BMDC trajectories in $2D$ was performed with a single set of parameters :
– $\gamma^{-1} = 15$ min which is a typical relaxation time of large actin protrusions,
– $\beta_0 = 0.40\ \mu\text{m.min}^{-1}$ which is a typical actin flow velocity.
Note that the order of magnitude for L is $L = 5\ \mu$m so that $L^2/D = 2$ min. One therefore has $L^2/D < \gamma^{-1}$ as expected. The best fit for both the persistence data and the probability distribution of BMDC trajectories was then obtained for $K \approx 6.10^3\ \mu\text{m}^2.\text{min}^{-3}$ and $K_c \approx 10^4\ \mu\text{m.min}^{-1}$.

The scales β_0 and γ^{-1} used for the fitting of the 7 experimental data sets are indicated in Table S1.

Table S1: Scaling parameters in fit of experimental data to the master curve.

	mBMDC 2D	BMDC 2D	BMDC 1D	RPE1 2D	RPE1 1D	Myeloid 3D	BMDC 3D
β_0 ($\mu\text{m.min}^{-1}$)	1.6 ± 0.20	0.38 ± 0.03	0.52 ± 0.04	0.05 ± 0.04	0.06 ± 0.04	1.6 ± 0.10	1.60 ± 0.20
γ^{-1} (min)	15 ± 1.2	15 ± 1.1	47 ± 3.5	11 ± 0.9	95 ± 7	4.5 ± 0.58	25 ± 1.4