

Supplemental Information.
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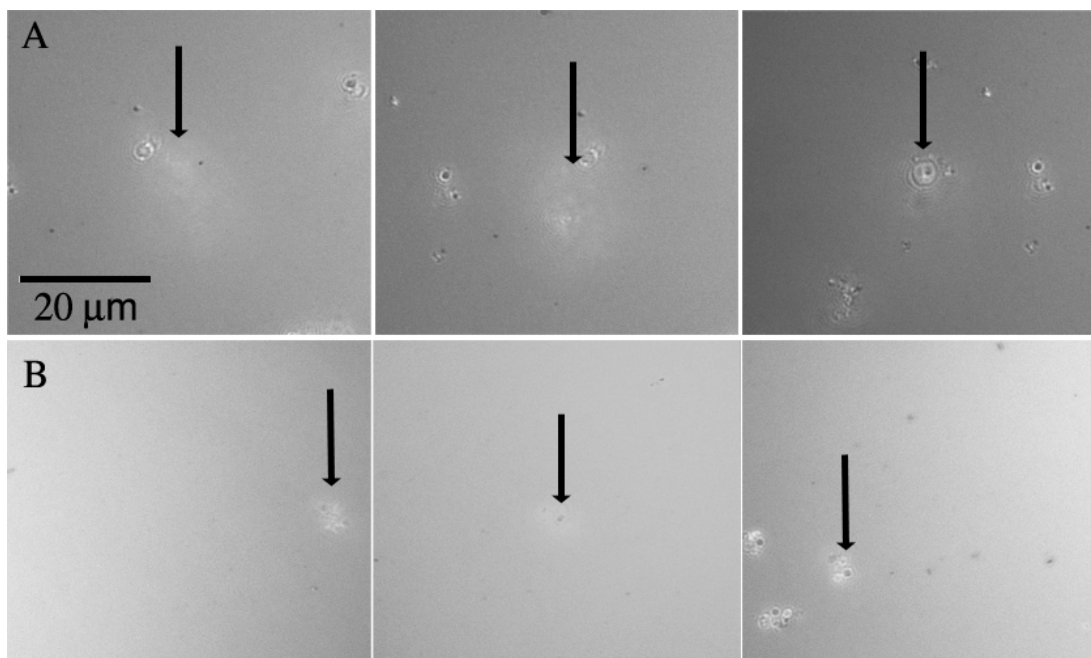


Figure S1. RICM images of flaccid vesicle rolling on a P-selectin substrate. Vesicle remains ≥ 100 nm above the substrate until it binds firmly (A). Rigid vesicle touches the surfaces at a separation of ≈ 50 nm throughout the rolling trajectory (B). Images proceed in time from left to right. Flow moves from right to left in each image.

Table S1. Adhesive flux (events- min^{-1} - mm^{-2}) for sLe^x-coated vesicles adhering to P-selectin substrates in constant shear flow, $\gamma = 130 \text{ s}^{-1}$. A minimum of 6 measurements were performed for each column in this table.

	100% P-sel		50% P-sel		30% P-sel	
	Flaccid	rigid	flaccid	rigid	flaccid	rigid
unstable rolling	41.3 ± 10.3	32.3 ± 5.9	21.2 ± 3.9	16.8 ± 0.7	1.5 ± 0.5	7.4 ± 1.9
stable rolling	133.2 ± 28.5	69.1 ± 8.4	84.1 ± 8.3	74.9 ± 2.4	7.6 ± 2.0	21.2 ± 4.6
rolling+binding	20.2 ± 6.3	14.7 ± 3.1	5.8 ± 1.8	1.6 ± 0.9	0 ± 0.0	0 ± 0.0
firm adhesion	58.2 ± 11.9	26.7 ± 5.3	31.3 ± 4.0	12.3 ± 2.4	18.5 ± 15.0	9.3 ± 1.8