Table II. Speed and scale of some biological processes. Processes are ordered according to increasing frame rates (f) that are required to image them at a resolution $\Delta x'$. We calculated f using a simplified version of Eq. (2), $f = v/\Delta x'$ where $\Delta x'$ was taken to be 1/10th of the imaged structure size. Note how slow processes can require high framerates since f also depends on the required imaging resolution. For example, the motion of broken DNA ends is slow (1 nm/s, the slowest process in the table) but it ranks fourth according to required frame rate.

# Fig. 2	Name	Required frame rate f	Required resolution $\Delta x'$ (μm)	Size of structure (μm)	Velocity v (μm/s)	References
1	Somite formation in chicken	6 fph	10	100	1.8×10^{-2}	(Palmeirim *et al.*, 1997), (Kulesa and Fraser, 2002)
2	Mesodermal cell motion during chicken gastrulation	1 fpm	1	10	1.7×10^{-2}	(Zamir *et al.*, 2006)
3	Neural crest cell migration in chicken	2.4 fpm	1	10	40×10^{-3}	(Kulesa and Fraser, 2000)
4	DNA broken ends in mammalian cells	24 fpm	2.5×10^{-3}	25×10^{-3}	10^{-3}	(Soutoglou *et al.*, 2007)
5	Morphogen diffusion (*drosophila Decapentaplegic*)	72 fpm	2.5×10^{-3}	25×10^{-3}	3×10^{-3}	(Kicheva *et al.*, 2007)
6	Ribosome translating mRNA (*E. coli*)	10 fps	4×10^{-3}	40×10^{-3}	4×10^{-2}	(Berg *et al.*, 2001), (Alberts *et al.*, 2002)
7	DNA Polymerase T7 Polymerizing plasmidic DNA	15 fps	2×10^{-3}	20×10^{-3}	30×10^{-3}	(Wuite *et al.*, 2000)
8	Protein folding	20 fps	10^{-3}	10×10^{-3}	2×10^{-2}	(Cecconi *et al.*, 2005)
9	Telomere displacement in yeast	20 fps	2.5×10^{-3}	25×10^{-3}	50×10^{-3}	(Gasser, 2002)
10	Flagelated cell	100 fps	0.1	1	10	(Bray, 1992)
11	Microtubule polymerization of cytoplasmic extracts from xenopus eggs	167 fps	3×10^{-3}	30×10^{-3}	0.5	(Parsons and Salmon, 1997)
12	Kinesin I on a microtubule pulling a bead	180 fps	5×10^{-3}	50×10^{-3}	0.9	(Nishiyama *et al.*, 2002)
13	Calcium waves during heart development	150 fps	5	50	10^3	(Tallini *et al.*, 2006)
14	Embryonic zebrafish beating heart	200 fps	5	50	10^3	(Forouhar *et al.*, 2006), this report
15	Red blood cells in the developing cardio-vascular system	10^3 fps	1	10	10^3	(Jones *et al.*, 2004)

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