Diffusion Coefficients

Ion or molecule	Diffusion coefficient
H^+	9.3[1]
NO	3.8[2]
Na^+	1.33[1]
K^+	1.96[1]
Ca^{2+}	0.6[3]
IP_3	0.2[4]
Calmodulin	0.13
CaM kinase II	0.034

Diffusion coefficients in an aqueous environment for different ions and second messenger molecules in units of 10^{-5} cm^2/sec, that is $\mu m^2/msec$.

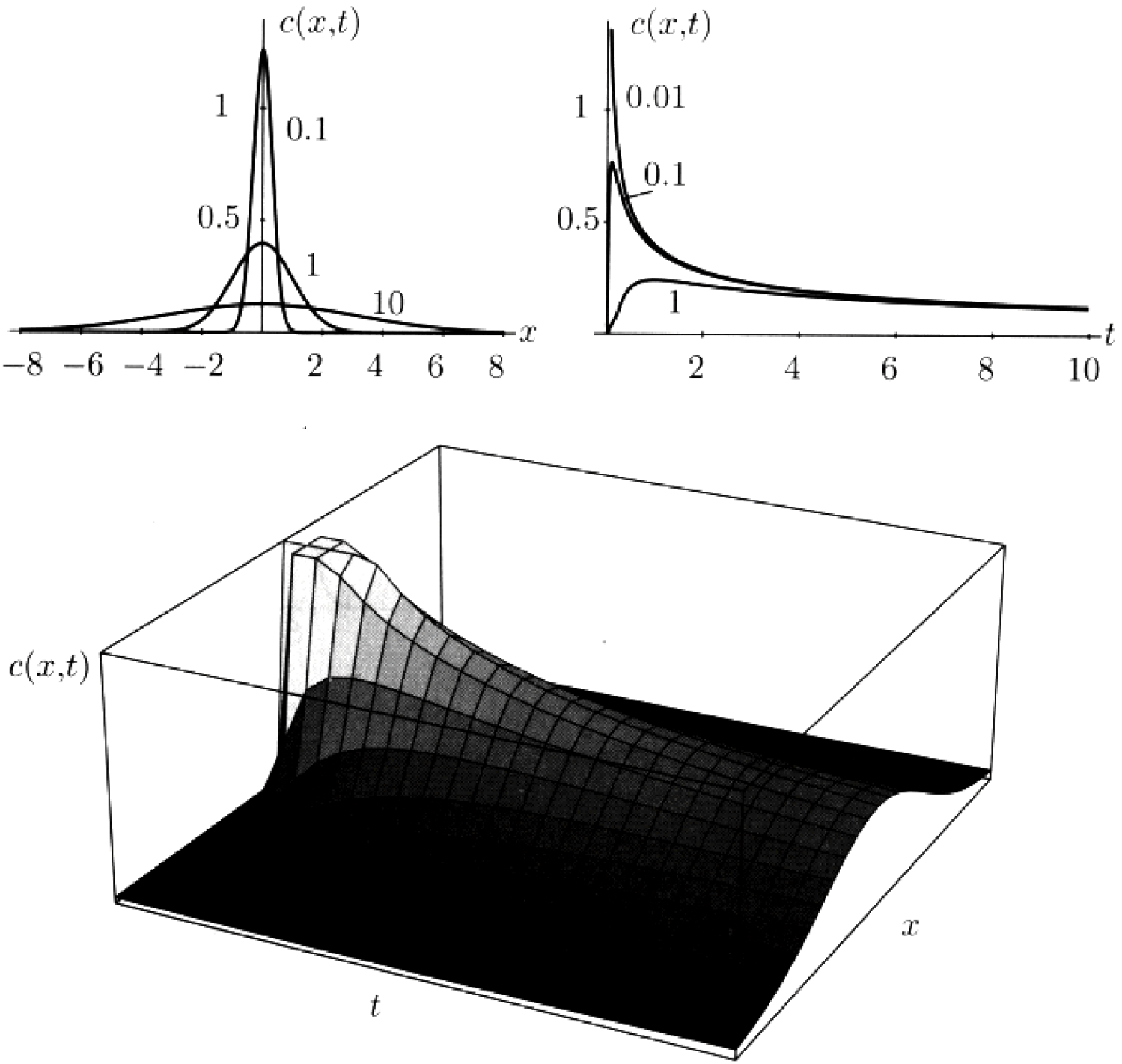
[1] Table 10.1 in Hille (1992).

[2] In rat cortex; Meulemans (1994); see also Wise and Houghton (1968).

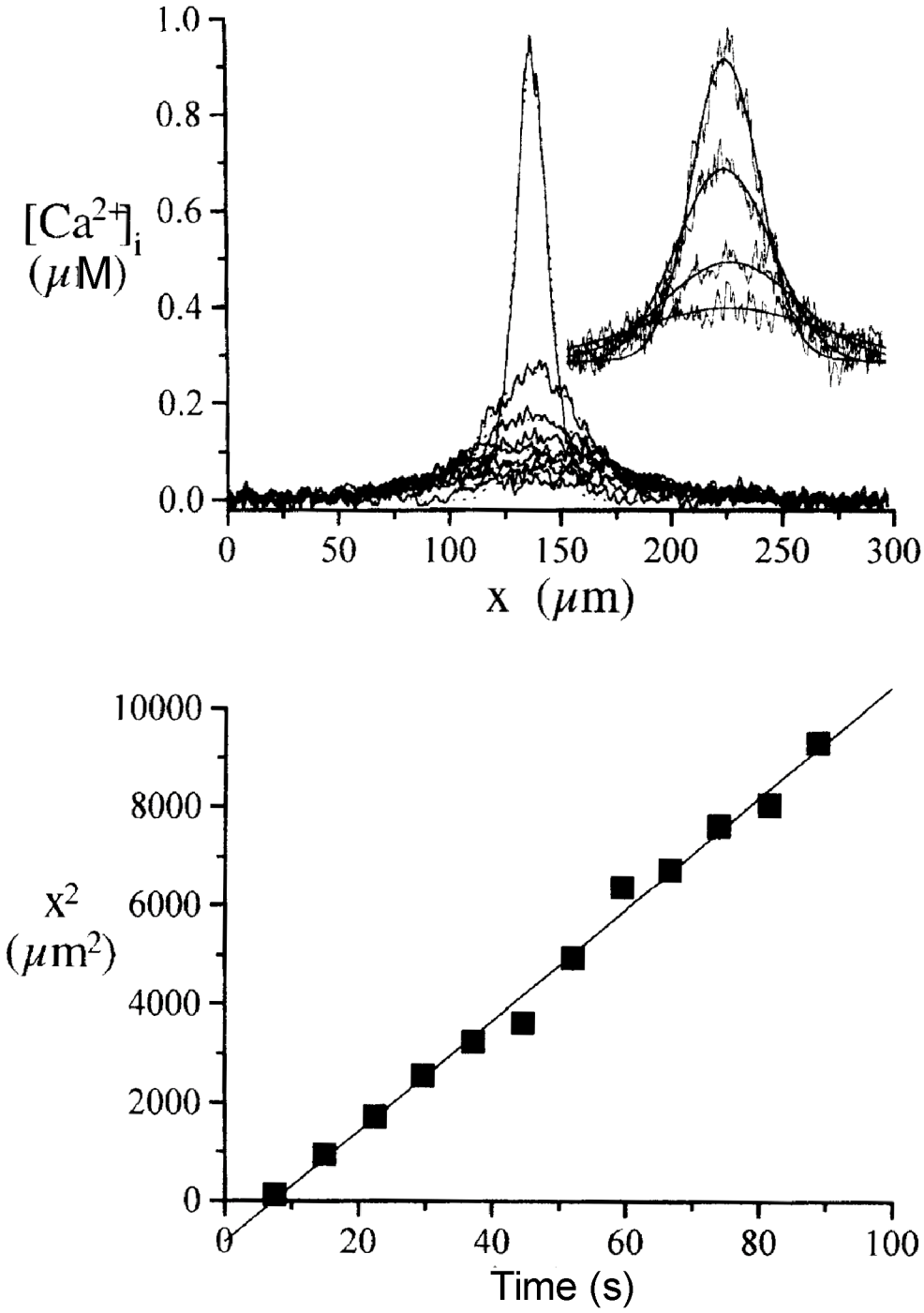
[3] Blaustein and Hodgkin (1969).

[4] Allbritton, Meyer, and Stryer (1992).

chapt_3_diffusion_coef.eps

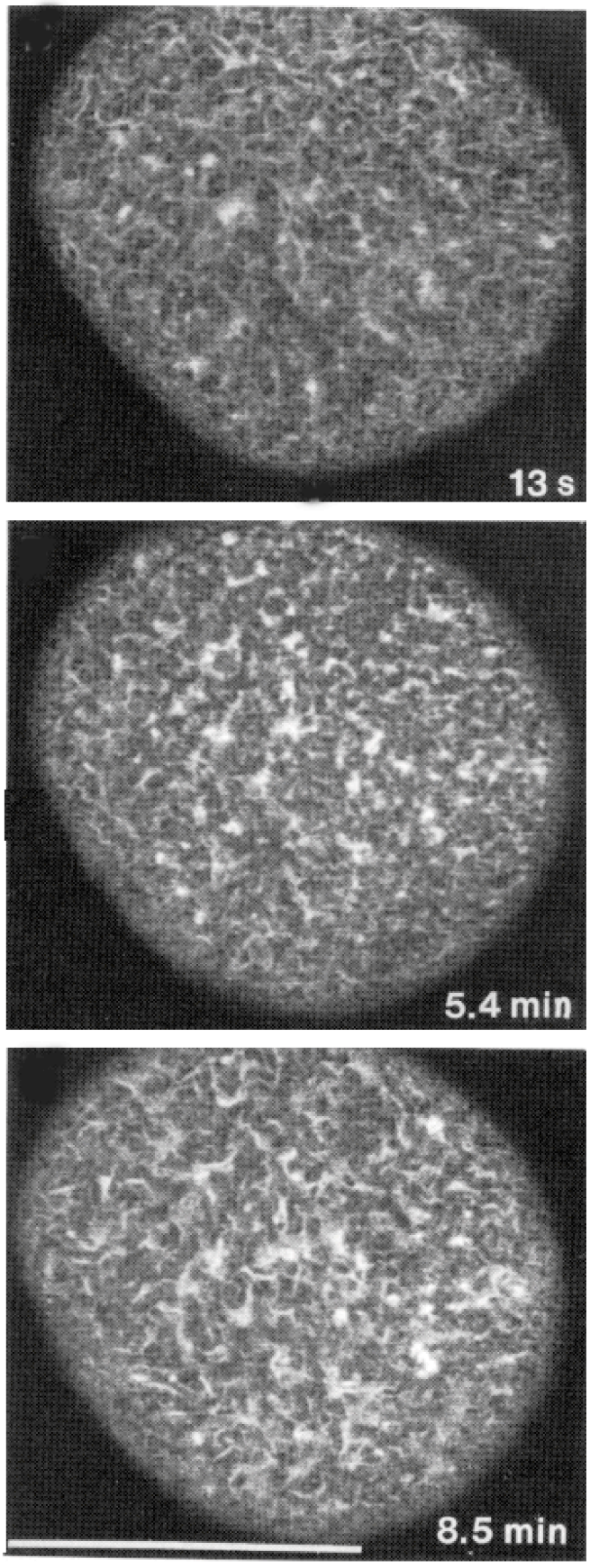


chapt_3_diffusion_green.eps

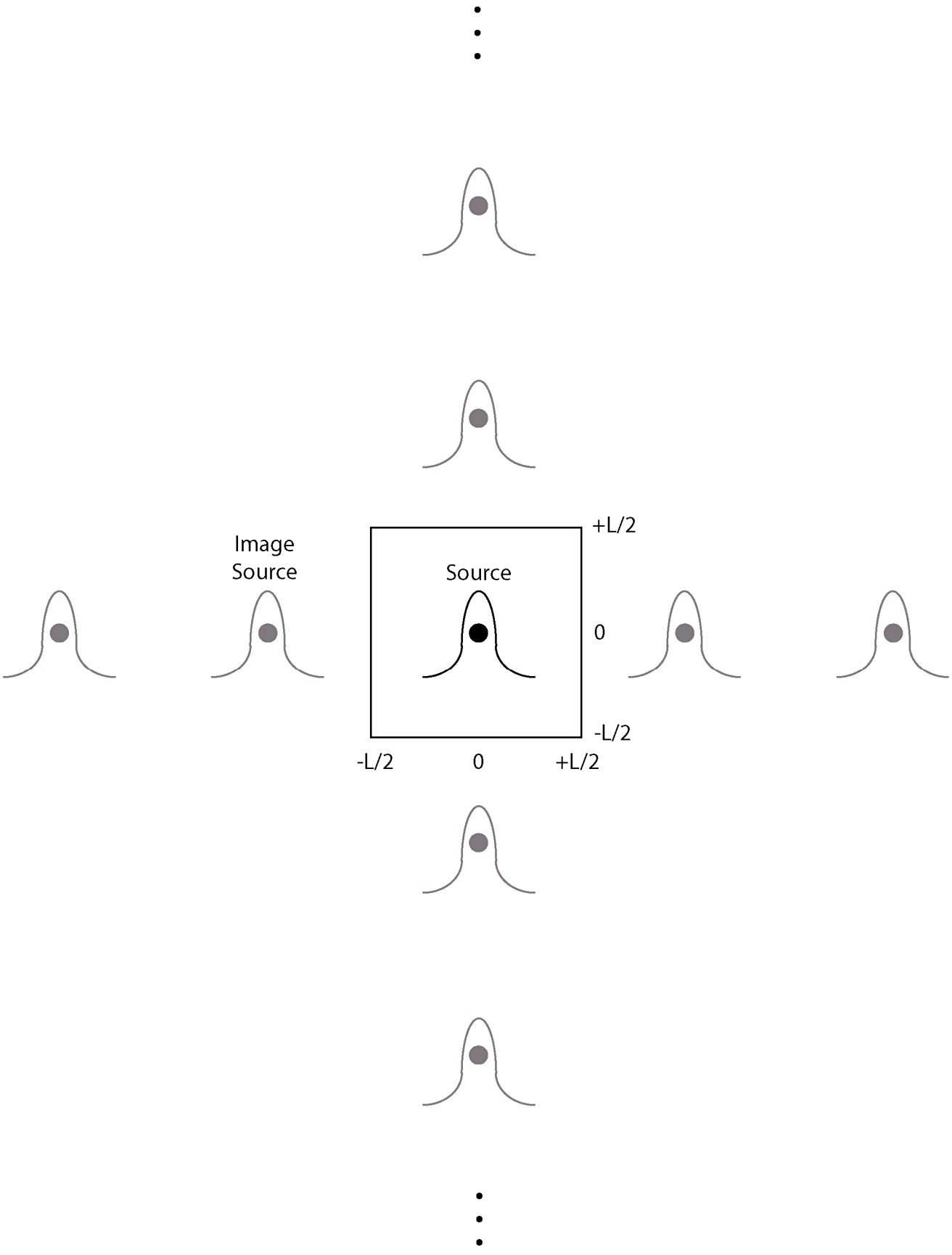


CALCIUM SPREAD ALONG AN AXON
Experimental determination of the calcium signal (recorded using the calcium-dependent fluorescent dye fura-2) following a brief intracellular injection of calcium at one point into the axon of a cultured metacerebral *Aplysia* neuron by Gabso, Neher, and Spira (1997).

chapt_3_aplysia_ca.eps



chapt_3_oocyte.eps



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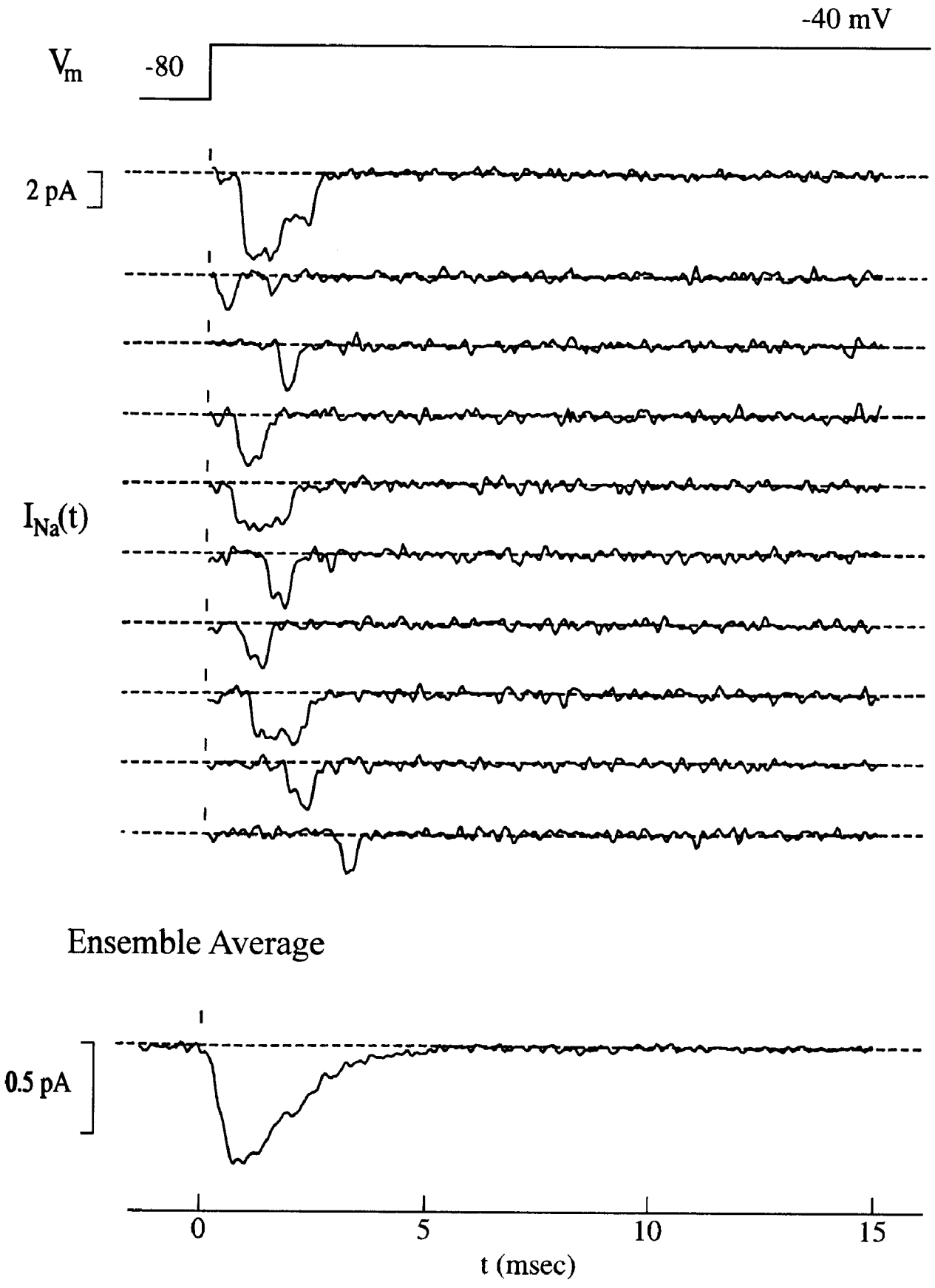

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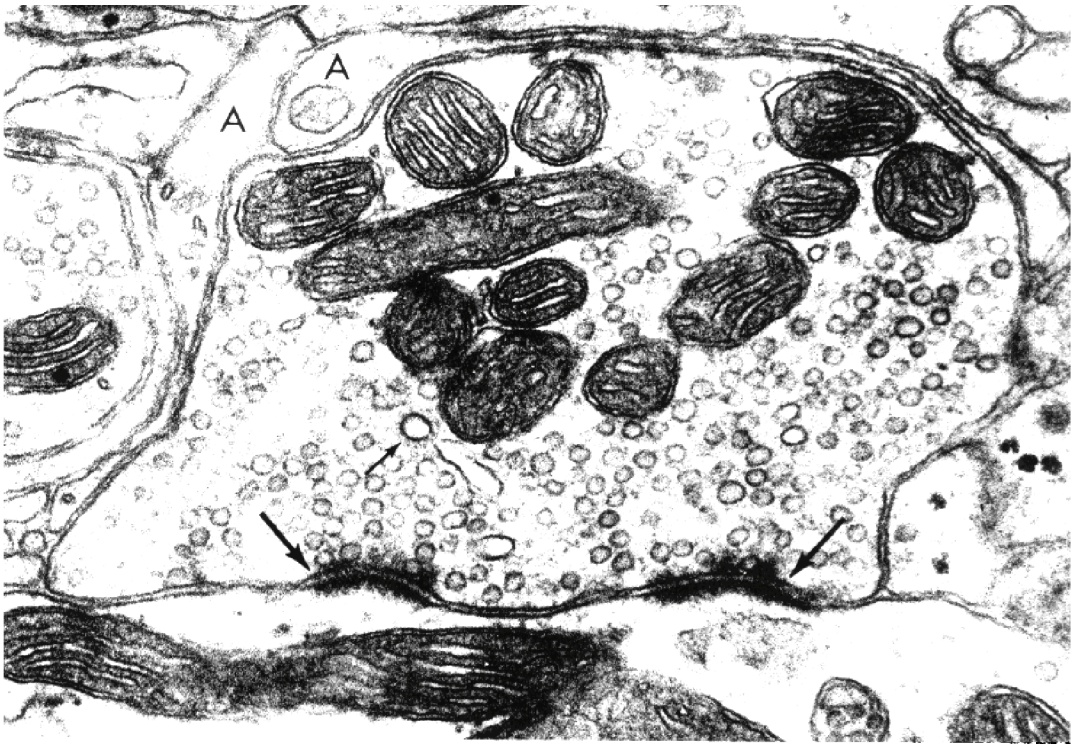

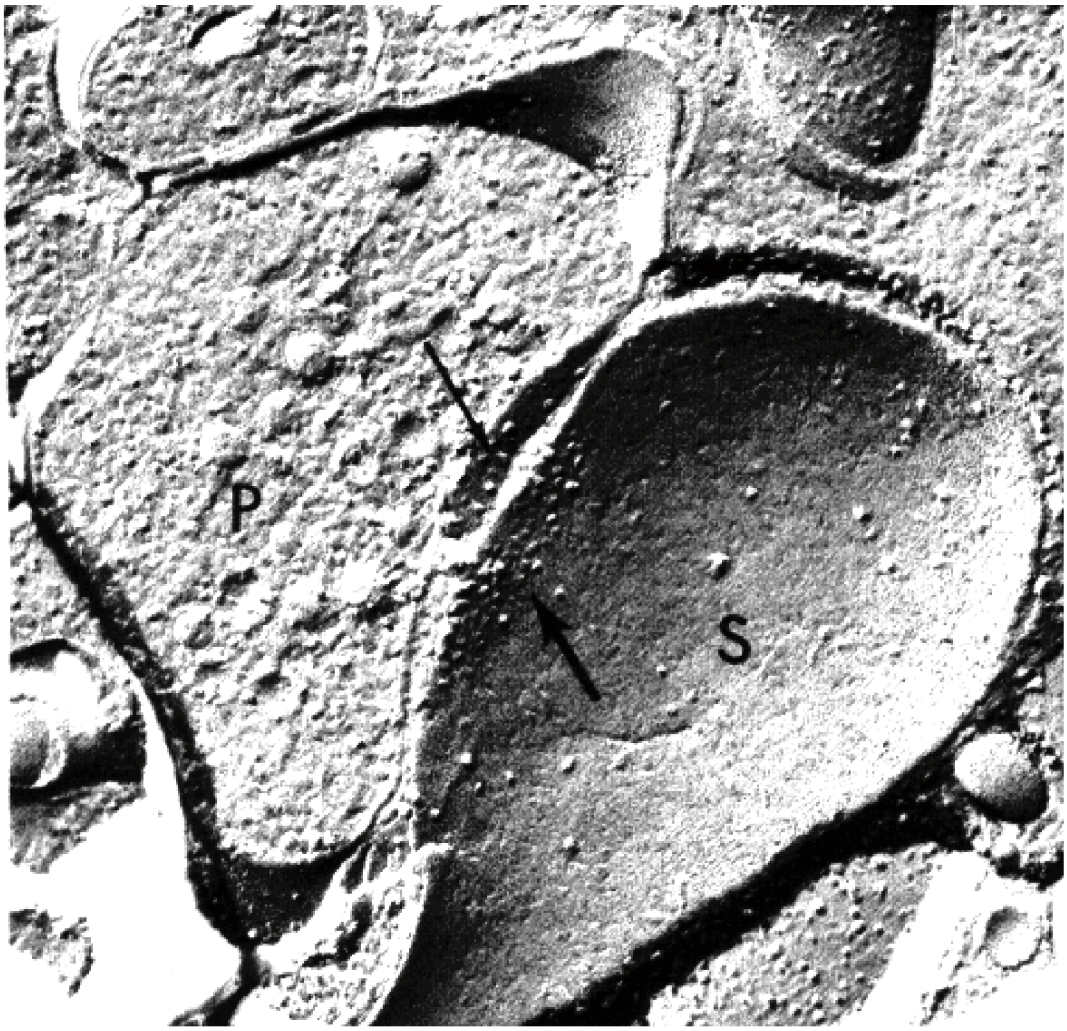

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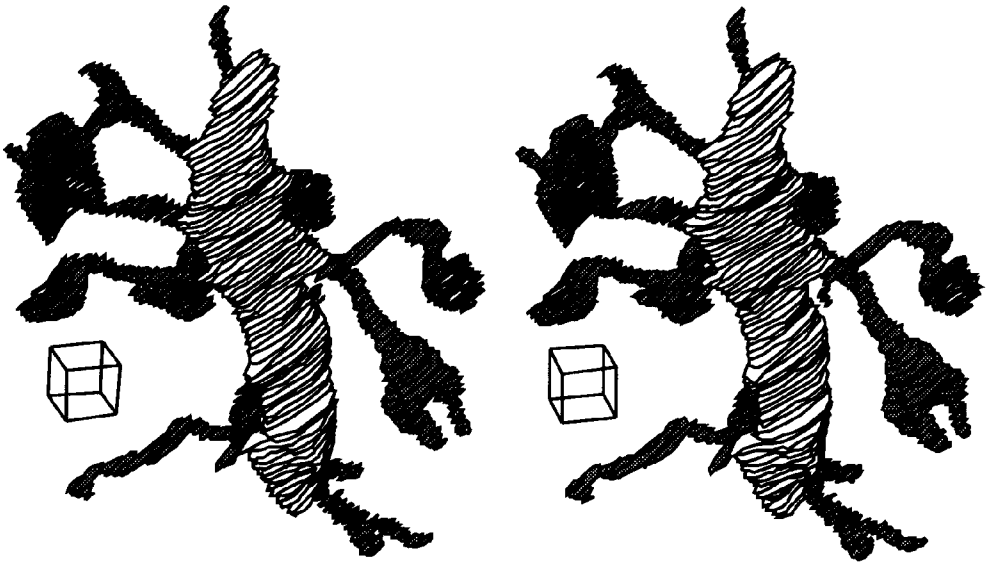
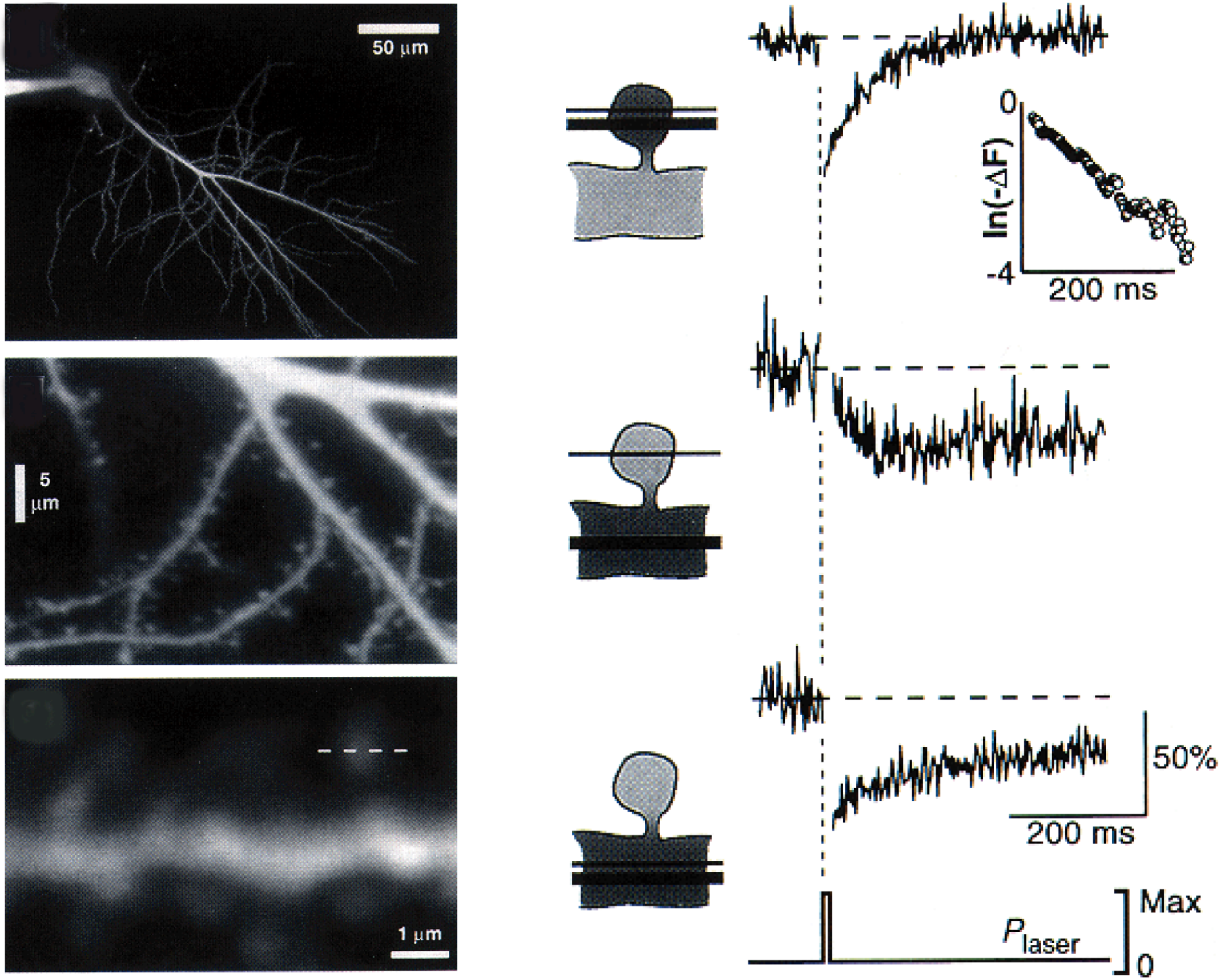


The cube has a dimension of 0.5 μm

chapt_3_spines_2.eps



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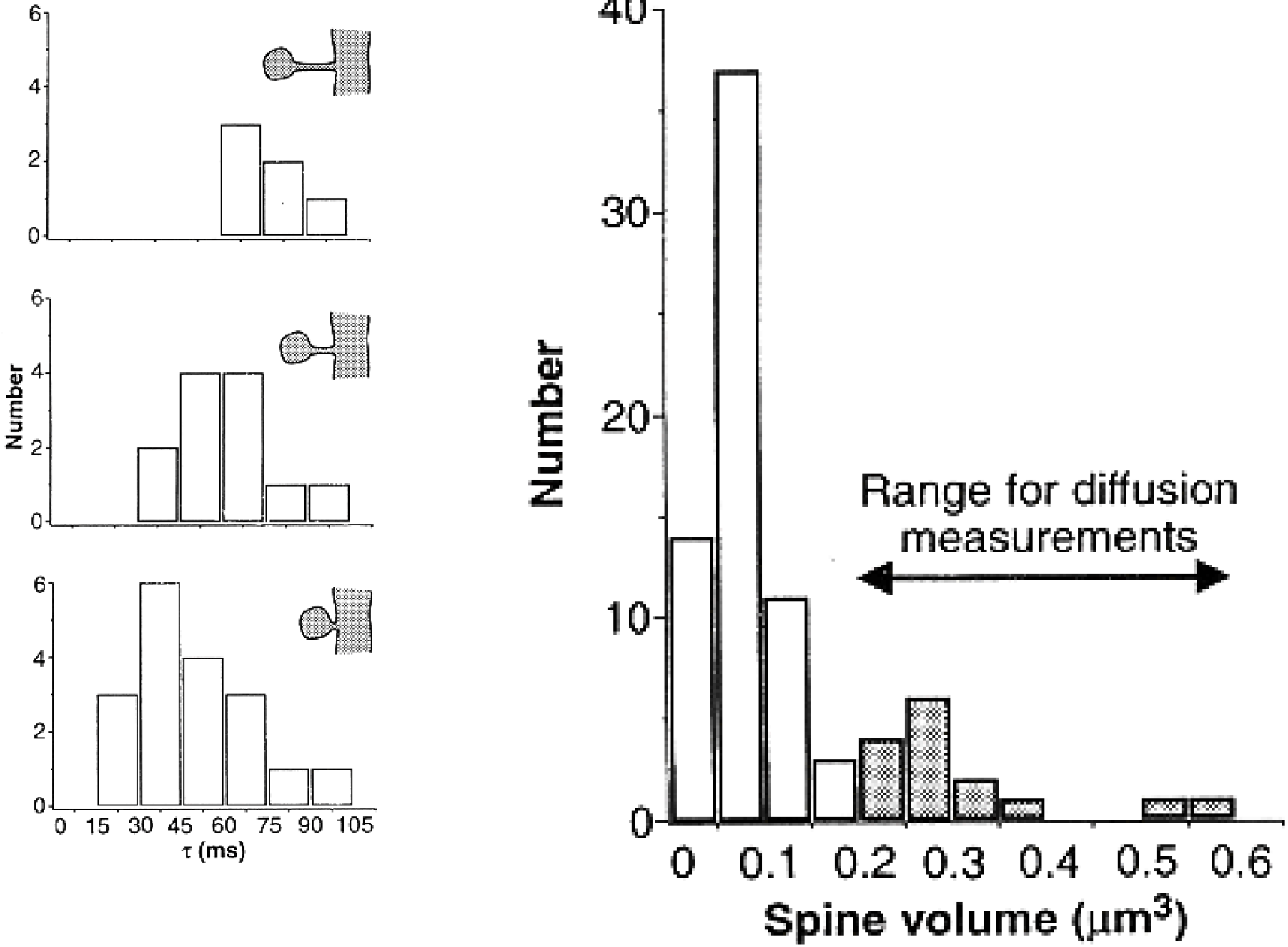

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