GAP, an aequorin-based fluorescent indicator for imaging Ca^{2+} in organelles

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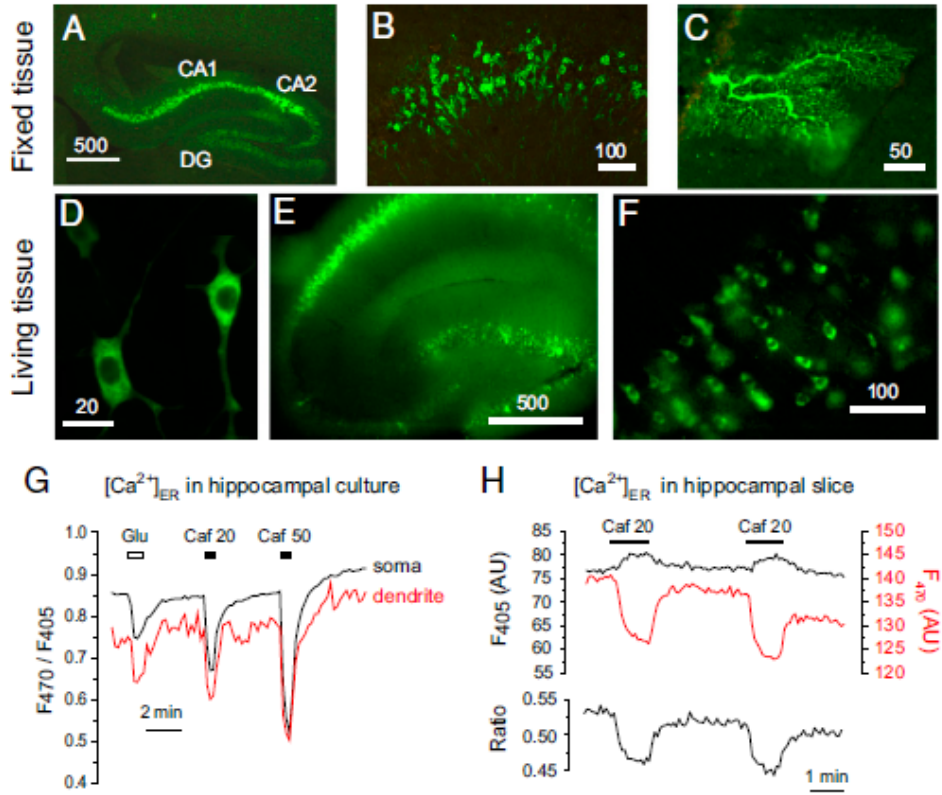

Fig. 3. Characterization of transgenic mice expressing erGAP1. (*A*) Fixed brain section showing erGAP1 expression in the hippocampus of a 6-wk–old mouse. Note the high level of expression in CA1 and CA2 regions and expression in dentate gyrus (DG). (*B*) Detail of CA1 hippocampal pyramidal cells showing high expression of erGAP1 in a 4-mo–old mouse. (*C*) Detail of a section through the cerebellum of a 8-mo–old mouse showing the dendritic tree of a Purkinje cell expressing erGAP1. (*D*) Two living pyramidal neurons expressing erGAP1 in primary culture; cells were isolated from the hippocampi of neonatal P0 mice and cultured for 9 d. (*E*) Low magnification image of a hippocampal slice (L20). (*F*) A close-up of the CA1 region. (*G*) Measurements of $[Ca^{2+}]_{ER}$ in the soma and dendrites of dissociated hippocampal neurons isolated from P2 mice and stimulated with glutamate (20 μM) or caffeine (20 and 50 mM). The images are shown in Movie S2. (*H*) Changes of erGAP1 fluorescence evoked by two consecutive caffeine (20 mM) pulses in a representative hippocampal slice isolated from a 1-mo–old transgenic mouse (L20). Individual wavelength fluorescence and ratio traces are shown. Traces are the average of nine neurons present in the same field.