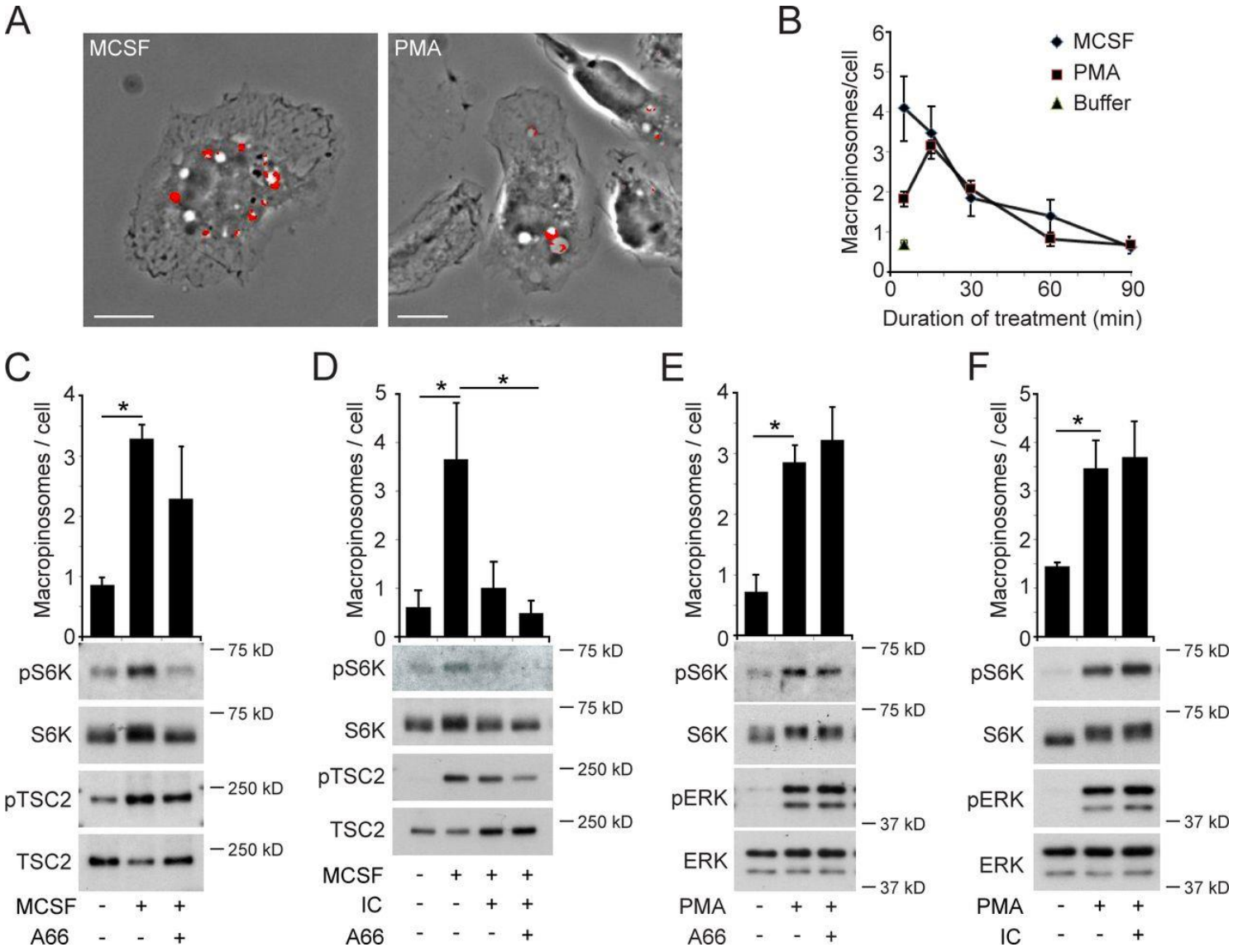
Macropinocytosis is required for activation of mTORC1 by M-CSF and PMA in macrophages.



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Macropinocytosis is required for activation of mTORC1 by M-CSF and PMA in macrophages. (A) Macropinosome formation in response to M-CSF and PMA. BMMs were incubated for 5 min in buffer containing fluorescein dextran with M-CSF or PMA, and then were washed, fixed, and observed by phase-contrast and fluorescence microscopy (red overlay; Bars, 10 μm). (B) Time course of macropinosome formation after stimulation with M-CSF (diamonds), PMA (squares), or with buffer only (triangle). $n \geq 25$ cells per time point. (C–F) Effects of PI3K inhibitors on macropinocytosis (top) and mTORC1 activity (bottom). M-CSF–stimulated macropinocytosis and mTORC1 activity were inhibited partially by A66 (C) and were inhibited more completely by IC87114 (IC) or the combination of IC87114 and A66 (D). PMA-stimulated macropinocytosis and mTORC1 activity were unaltered by either A66 (E) or IC (F). B–F show the means ± SEM from three independent experiments, with >25 cells scored per condition. *, $P < 0.05$, one-tailed *t* test.