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P58^{TFL} does not localize to messenger RNA processing bodies

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The messenger RNA processing body (P-body) is a cellular structure that has a critical role in the regulation of mRNA translation, storage, transport and degradation (reviewed in 1–3). In a recent study published in Molecular Cancer Research, Minagawa et al. (4) reported that p58^{TFL} fused to green fluorescent protein (GFP), when co-expressed with P-body components HA-DCP1a or HA-EIF2C2, localized to P-bodies. p58^{TFL} is a member of the ZCH12 zinc finger family of proteins and may regulate cell growth by suppressing retinoblastoma protein phosphorylation. Because the regulation of the cell cycle and cell growth would be new functions for P-bodies, we attempted to confirm the observation that p58^{TFL} is a P-body component.

The plasmid encoding p58^{TFL}-GFP was obtained from Minagawa and colleagues and transfected into human epidermoid carcinoma cell line Hep-2. Cells were stained with anti-GFP antiserum and with antibodies directed against endogenous P-body markers Ge-1/HEDLS (5), RAP55 (6) or DCP1a (7). p58^{TFL}-GFP localized to dot-like structures throughout the cell (Figure 1a, d, and g), as reported (4). However, p58^{TFL}-GFP did not co-localize with Ge-1 (a–c), RAP55 (d–f), or DCP1a (g–i). The same results were observed whether cells were permeabilized with methanol (Figure 1) or Triton X-100 (not shown). In addition, p58^{TFL}-GFP did not co-localize with P-body markers when expressed in a second cell line (murine fibroblast cell line 3T3, not shown). These results confirm that p58^{TFL}-GFP forms dot-like structures in mammalian cells as previously reported. However, p58^{TFL}-GFP-containing structures are distinct from P-bodies.

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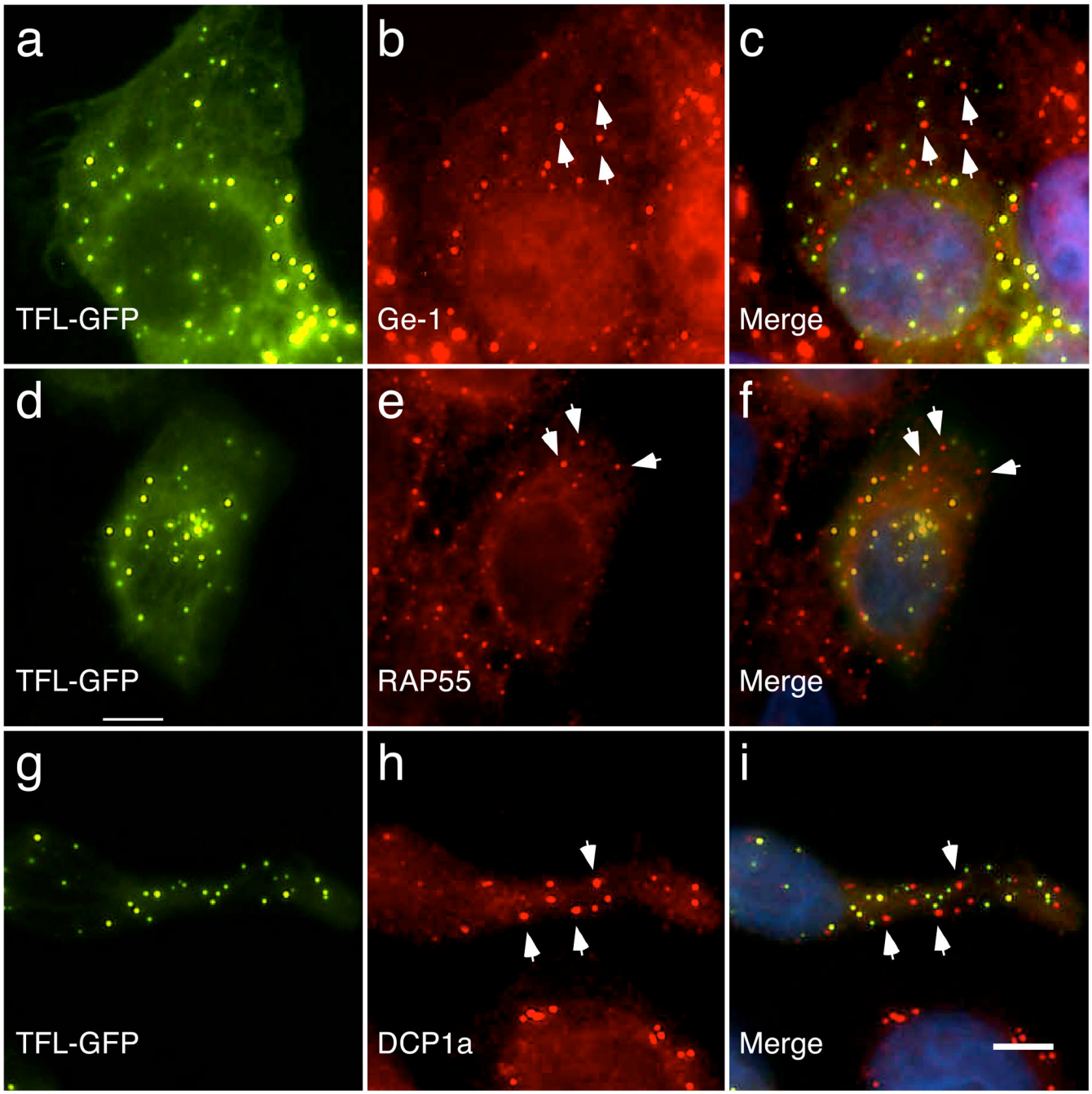

Figure 1.

p58^{TFL}-GFP does not localize to P-bodies. When expressed in Hep-2 cells, p58^{TFL}-GFP localized to dot-like structures throughout the cell (green, a, d, and g). However, p58^{TFL}-GFP did not co-localize with antibodies directed against P-body markers Ge-1, RAP55, or DCP1a (red, b, e, and g). Merge of panels a and b, d and e, and g and h are shown in c, f and i, respectively. White arrows indicate representative P-bodies that lack p58^{TFL}-GFP. DAPI staining in c, f, and i (blue) indicate the location of cell nuclei. White bar indicates 5 μm.