SIMR foci are found in the progenitor germ cells of *C. elegans* embryos
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Abstract
RNA interference is a widely conserved mechanism of gene regulation and silencing across eukaryotes. In *C. elegans*, RNA silencing is coordinated through perinuclear nuage containing at least four granules: P granules, Z granules, *Mutator* foci, and SIMR foci. Embryonic localization of these granules is known for all except SIMR foci. Here we establish that SIMR foci first appear at the nuclear periphery in the P₄ germline blastomere and become numerous and bright in the Z₂ and Z₃ progenitor germ cells. This timing coincides with the appearance or de-mixing of other germline granules, providing further evidence for coordinated germ granule reorganization.

Figure 1. SIMR foci are numerous and bright in the Z₂/Z₃ progenitor germ cells: A-E: Representative live images of embryos expressing PGL-1::BFP (blue), MUT-16::GFP (green) and SIMR-1::mCherry (red) to visualize P granules,
**Methods**

Request a detailed protocol

**Microscopy**

Worms were grown at 20°C according to standard conditions (Brenner 1974). Gravid adult *C. elegans* were dissected in 10 µL M9 to expose embryos and mounted on a fresh 2% agarose pad for live imaging. At least 3 embryos were observed for each stage. All images were acquired with a DeltaVision Elite (GE Healthcare) microscope using a 60x N.A. 1.42 oil-immersion objective. Ten 0.2-micron Z stacks were compiled as maximum intensity projections and pseudo-colored using Adobe Photoshop to create each image. The same exposure, acquisition, and pseudo-coloring settings were used for each image.

**Reagents**

USC1401 simr-1(cmp15[smir-1::mCherry::2xHA]) mut-16(cmp3[mut-16::gfp::3xFLAG]) I; pgl-1(cmp226[pgl-1::bfp::3xFLAG]) IV.
Strain Construction

USC1401 was created by crossing USC1269 (pgl-1(cmp226[pgl-1::bfp::3xFLAG])) (Uebel and Phillips 2019) and USC774 (simr-1(cmp15(simr-1::mCherry::2xHA)) mut-16(cmp3(mut-16::gfp::3xFLAG)) I; unc-119(ed3) III) (outcrossed) (Manage et al. 2020). All strains are available upon request.

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References


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