**Table S1: List of constituents of subnuclear organelles and phase nuclear separated proteins and their *C. elegans* homologs**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Vertebrate protein** | **Worm homolog** | **Examined in this study?** | **Reagent type** | **Reagent** | **Source** | | **Result** |
|  |  |  |  |  |  |  | |  |
| **Nucleoli** | FIB1 | *fib-1* | Yes | Endogenous CRISPR GFP tag | *fib-1(ot1036[fib-1::gfp::3xflag])/+ V.* | This study | | nuclear focus (nucleolus) |
| GNL3L | *nst-1* | Yes | Translational fusion as extrachromosomal array | *vrEx6 [nst-1p::nst-1::GFP::nst-1 3' UTR + unc-119(+)].* | Kudron *et al.,* (2008) | | nuclear focus (nucleolus) |
|  |  |  |  |  |  |  | |  |
| **Cajal bodies** | coilin | none |  |  |  |  | |  |
|  |  |  |  |  |  |  | |  |
| **Gems bodies** | SMN | *smn-1* | Yes | Endogenous CRISPR GFP tag | *smn-1(rt280[smn-1::gfp]) I.* | O'Hern *et al.,* (2017) | | diffuse cytoplasm |
|  |  |  |  |  |  |  | |  |
| **Splicing Speckles** | SC35/SRSF2 | *rsp-4* | Yes | Endogenous CRISPR GFP tag | *rsp-4(syb2575[rsp-4::gfp]) II.* | This study | | diffuse nucleoplasm |
| SRF1 | *rsp-3* | No |  |  |  | |  |
| ELAVL1-4 | *exc-7* | Yes | Endogenous CRISPR GFP tag | *exc-7(ot970[exc-7::gfp::3xflag]) II.* | Pham and Hobert, (2019) | | diffuse nucleoplasm |
| Rbfox | *fox-1* | Yes | Endogenous CRISPR GFP tag | *fox-1(ot1081[fox-1::gfp::3xflag]) X.* | This study | | diffuse nucleoplasm |
|  |  |  |  |  |  |  | |  |
| **Paraspeckles** | NONO/p54nrb | *nono-1* | Yes | Endogenous CRISPR GFP tag | *nono-1(ot1018[nono-1::gfp::3xflag]) III.* | This study | | nuclear foci (paraspeckles) |
| PSPC1/PSP1 |
| SFPQ/PSF |
| RBM14/PSP2 | *rnp-1* | No |  |  |  | |  |
|  |  |  |  |  |  |  | |  |
| **Histone locus body** | FLASH | none |  |  |  |  | |  |
| U7 snRNP | none |  |  |  |  | |  |
| NPAT | none |  |  |  |  | |  |
|  |  |  |  |  |  |  | |  |
| **Sam68 bodies** | Sam68/ KHDRBS1 | *B0280.17* | No |  |  |  | |  |
| SLM1/ KHDRBS2 |
| SLM2/ KHDRBS3 |
|  |  |  |  |  |  |  | |  |
| **PML body** | PML | none |  |  |  |  | |  |
| SUMO | *smo-1* | Yes | Endogenous CRISPR GFP tag | *smo-1(ot1038[smo-1::gfp::3xflag]) I.* | This study | | diffuse nucleoplasm and cytoplasm in gonad |
|  |  |  |  |  |  |  | |  |
| **Clastosome** | PSMC4 | *rpt-3* | Yes | Endogenous CRISPR GFP tag | *rpt-3(ot1017[rpt-3::gfp]) III.* | This study | | diffuse nucleoplasm |
|  |  |  |  |  |  |  | |  |
| **Nuclear stress bodies** | HSF1 | *hsf-1* | Yes | Single copy insertion of translational fusion | *drSi13 [hsf-1p::hsf-1::GFP::unc-54 3'UTR + Cbr-unc-119(+)] II.* | Morton and Lamitina, (2012) | | diffuse nucleoplasm, nuclear foci after stress |
|  |  |  |  |  |  |  | |  |
| **PcG bodies** | EZH1/2 | *mes-2* | Yes | Endogenous CRISPR GFP tag | *mes-2(ax2059[mes-2::gfp]) II.* | Paix *et al.*, (2014) | | diffuse nucleoplasm |
| EED | *mes-6* | No |  |  |  | |  |
| RBBP7/4 | *lin-53* | No |  |  |  | |  |
| SUZ12 | none | No |  |  |  | |  |
| BMI1 | *mig-32* | No |  |  |  | |  |
| RING1A/B | *spat-3* | No |  |  |  | |  |
| PCGF1-6 | *spat-3* | No |  |  |  | |  |
|  |  |  |  |  |  |  | |  |
| **Miscellaneous Proteins** | | | | | | | | |
| **Heterochromatin proteins** | HP1 | *hpl-1* | Yes | Endogenous CRISPR mKate2 tag | *hpl-1(ot841 [hpl-1::mKate2]) X.* | Patel and Hobert, (2017) | diffuse nucleoplasm | |
| *hpl-2* | Yes | Endogenous CRISPR mKate2 tag | *hpl-2(ot860 [hpl-2::mKate2]) III.* | Patel and Hobert, (2017) | diffuse nucleoplasm | |
| **H3K9 Methyltransferases** | SETD1B | *met-2* | Yes | Endogenous CRISPR mCherry tag | *met-2(gw1419[met-2::FLAG::TEV::mCherry]) III.* | Delaney *et al.,* (2019) | nuclear foci at nuclear periphery | |
| EHMT1/2 | *set-11* | Yes | Endogenous CRISPR GFP tag | *set-11(syb3003[set-11::gfp]) II.* | This study | no expression detected | |
| SUV39H1/2 |
| **RNA Pol II subunit** | POLR2A | *ama-1* | Yes | Endogenous CRISPR GFP tag | *ama-1(ot1037[gfp::3xflag::ama-1]) IV* | This study | diffuse nucleoplasm | |
| **RNA Pol III subunit** | POLR3A | *rpc-1* | Yes | Endogenous CRISPR GFP tag | *rpc-1(ot1041[rpc-1::gfp::3xflag]) IV.* | This study | diffuse nucleoplasm  in neurons and sometimes forms in foci in non-neuronal cells | |
| **RNA binding proteins** | FUS | *fust-1* | Yes | Endogenous CRISPR GFP tag | *fust-1(ot1039[fust-1::gfp::3xflag]) II.* | This study | diffuse nucleoplasm, and cytoplasmic expression,  foci in germ cells | |
| EWSR1 |
| TAF15 |
| **Acetylated histone binding bromodomain proteins** | BRD1 | *lin-49* | Yes | Translational fusion as extrachromosomal array | *otEx1028 [lin-49::gfp; rol-6(su1006)]* | Chang *et al*., (2003) | diffuse nucleoplasm | |
| BRPF1/3 |
| BRD2/3/4/6 | *bet-1* | Yes | Translational fusion as extrachromosomal array | *osEx240 [bet-1p::bet-1::GFP + unc-76(+)]* | Shibata *et al.,* (2010) | diffuse nucleoplasm | |
| **Zinc finger transcription factor** | ZFP57 | *lsy-2* | Yes | Translational fusion as extrachromosomal array | *otEx1325 [lsy-2::gfp; rol-6(su1006)]* | Johnston and Hobert, (2005) | nuclear foci (not NUN bodies) | |