Public Abstract
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Title:An essential role in germline development for a P-granule associated novel protein in the model organism *Caenorhabditis elegans* and RNAi in the ubiquitous parasitic nematode *Ascaris suum*

The germline RNA helicases (GLHs) are constitutive components of P granules and important for fertility in C. elegans. Discovered as a GLH-1 partner, the Pgranule associated novel protein (PAN-1) is important both in larval development and for germline development. We focused our studies on characterizing the germline function of PAN-1 and found it co-localized with the P-granule components PGL-1 and GLH-1 in the adult germline, but not during embryogenesis. In addition, when PAN-1 was knocked down only in germline by a somatic RNAi defect strain rrf-1, it resulted in reducing or eliminating GLH-1 protein levels, depending on the dsRNA concentration used for the RNAi effect. Because PAN-1 contains 13 leucine rich repeats that are often found in the F-box protein in C. elegans and the homologue to C. elegans F-box protein FOG-2, as well as the F-box conserved motif at the N-terminal domain, it is possibile that PAN-1 works as an F-box protein involved in regulating GLH-1 protein level, directly or non-directly. Since the CSN-5 was also found as a GLH-1 binding partner that protects GLH-1 from degradation, whether they work in the same pathway is yet to be studied.
Ascaris infections are the most prevalent human parasite nematode infections. There are concerns as to the current treatment of using anthelmintic drugs due to the drug resistance and the efficiency in killing the exuberant Ascaris eggs. As RNAi was discovered as an exciting technology, it has the great therapeutic potential due to its specificity, potency and diversity. To investigate if RNAi could be used to cause sterility in Ascaris worms, we divided our task to two steps: first of all, in searching the potential dsRNAs that could be used in the RNAi study in Ascaris, we used C. elegans as a model to test different Ascaris dsRNAs that can cause either embryonic lethal or sterile phenotype in C. elegans. Then, the dsRNAs that have been successfully tested in the cross-species RNAi led us to test RNAi using Ascaris worms. Howerver, although we tried various different means of dsRNAs delivery to Ascarisadults or the embryos, we have yet to succeed to observe any developmental defect.