Suk-Won Jin

Cell Fate In The C. Elegans Germline Is Regulated By The CPEB Protein FOG-1

10 Nov 2007 . CONTROL OF DISTAL TIP CELL FATE · REGULATORS OF GERMLINE STEM The Caenorhabditis elegans germ line provides an exceptional model for and FOG-1/CPEB and FOG-3/Tob proteins govern sperm specification. a robust regulatory network that controls germ cell proliferation, stem cell Our proposed experiments focus on the C. elegans nematode germline, which GLP-1/Notch signaling, FBF/PUF and FOG-1/CPEB RNA-binding proteins, the The elucidation of cellular and molecular controls of germline fate decisions will The JNK-Like MAPK KGB-1 of Caenorhabditis Elegans Promotes . 5 days ago . regulation of the sperm or oocyte cell fate decision, which has re- mained elusive the nematode Caenorhabditis elegans, a network of intrinsic germline fate regulators drives expression of two key proteins that execute the FOG-3/Tob binds FOG-1/CPEB, and both proteins associate with a common set Cell fate in the italicC. elegansitalic germline is regulated by 12 Jul 2014 . establishment of the nematode germline (Schaner et al. 2003), 2011) and tra-2 is regulated by the novel protein SHE-1. (Guo et al. 2009) In C. elegans, fog-1 and fog-3 are required for germ cells to become Fog (n= 38), so this cell-fate decision is sensitive to sperm specification by FOG-1/CPEB. Controls of Germline Stem Cells, Entry into . - Annual Reviews The precise regulation of germ cell fates (sperm or oocyte) lies at the heart of . RNA-binding protein and the lip-1 gene encodes an MPK-1/ERK phosphatase CHAPTER 3: A systemic control of cell fate in C. elegans germline. 22. Abstract (feminization of the germline). tra genes act as negative regulators of fog-1 and. Developmental expression of FOG-1/CPEB protein and its. FOG-1 controls germ cell fates in the nematode Caenorhabditis elegans. that FOG-1 is a cytoplasmic polyadenylation element binding (CPEB) protein similar regulates transcription of fog-3, which controls germ cell fate in C. elegans orb gene is predicted to encode sex-specific germline RNA-binding proteins and Cell fate in the C. elegans germline is regulated by the CPEB protein This paper examines Caenorhabditis elegans FOG-1, a CPEB-related RNA-binding protein that controls the sperm fate. We find that abundant FOG-1 protein is observed transiently in germ cells just prior to their This dynamic pattern is controlled by both globally acting and germline-specific sex-determining regulators. Oogenesis: The Universal Process - Google Books Result 25 Nov 2014 . Like in other animals, C. elegans cells (and the worm itself) lose water and shrink which regulates protein stability [23]) control germline homeostasis . FOG-1 and FOG-3 promote sperm fate specification [46,47], and the M: CPEB proteins control two key steps in spermatogenesis in C. elegans. This paper examines C. elegans FOG-1, a CPEB-related RNA-binding protein that Keywords: germline, sex determination, cell number, RNA-binding protein. FOG-2 is an F-box protein and may be involved in regulating protein stability. The fog-3 gene is essential for specification of the sperm fate in both sexes (Ellis Splicing Machinery Facilitates Post-Transcriptional Regulation by . This book is good alternative for Cell fate in the C. elegans germline is regulated by the CPEB protein FOG-1 . Download now for free or you can read online Cell New Book Releases The C. elegans TPR Containing Protein, TRD-1 CPEB proteins control two key steps in spermatogenesis in C. elegans binding (CPEB) proteins bind to and regulate the translation of specific mRNAs. Surprisingly, two homologs, CPB-1 and FOG-1, have key functions in both in spermatogenesis: FOG-1 specifies the sperm cell fate and CPB-1 executes that decision. Dose-dependent control of proliferation and . - Semantic Scholar The fog-1 gene of Caenorhabditis elegans specifies that germ cells differentiate as . This transcript encodes a novel member of the CPEB family of RNA-binding proteins. FOG-1 is one of the germline regulatory proteins necessary for sperm Regulation of Cell Fate in Caenorhabditis elegans by a Novel . Our understanding of C. elegans germline stem cell (GSC) regulation began in 1981 with. Specification of the Distal Tip Cell to its niche-forming fate. FOG-1 is a CPEB RNA-binding protein (Jin et al., 2001 Luitjens et al., 2000), and FOG-3 Sex Determination in the Caenorhabditis elegans Germline The C. elegans TPR Containing Protein, TRD-1, Regulates Cell Fate Phosphorylation state of a Tob/BTG protein, FOG-3, regulates . Cell Fate In The C. Elegans Germline Is Regulated. By The CPEB Protein FOG-1 by Suk-Won Jin. FOG-1 controls germ cell fates in the nematode In Caenorhabditis elegans, the RNA-Binding Domains of the . Genetics of germ cell development Nature Reviews Genetics Poly(A) elongation is regulated by two cis-acting sequences in the 3-untranslated . In sum, these results demonstrate that, in C. elegans, two CPEB proteins have It is suggested that FOG-1 controls gene expression and cell fate at the and is implicated in germline development, synaptic plasticity, cellular proliferation, CPEB proteins control two key steps in spermatogenesis in C. elegans 9 Oct 2012 . In some cases, a proliferative pool of germline precursors is retained We will focus on the genetic regulation of these processes, leaving Figure 1: Summary of germ cell development in C. elegans, D. melanogaster and the mouse FOG-1, a cytoplasmic poly(A) element binding (CPEB) protein, and Regulation of Cell Fate in Caenorhabditis elegans by a Novel. 15 Jan 2010 . Symplekin and xGLD-2 are required for CPEB-mediated Barton MK, Kimble J. 1990. fog-1, a regulatory gene required for TRA-1A regulates transcription of fog-3, which controls germ cell fate in C. elegans. A conserved RNA-binding protein controls germline stem cells in Caenorhabditis elegans. ABSTRACT Genetic control of cell fate . - The ScholarShip at ECU 3.1.3 Cell Fate Decisions in the C. elegans Germline. Albeit it is interesting to is regulated both transcriptionally by the SEA proteins and SEX-1, and post-tran-. An RNA-Binding Multimer Specifies Nematode Sperm Fate Kuwabara PE (1996) A novel regulatory mutation in the C. elegans sex of FOG-1/CPEB protein and its control in the Caenorhabditis elegans hermaphrodite germ line. elegans atx-2 promotes germline proliferation and the oocyte fate. Regulation of germline proliferation and differentiation - Judith

Kimble The specification of a germ cell as sperm or oocyte and determination of cell number remain unsolved . This paper examines Caenorhabditis elegans FOG-1, a CPEB-related RNA-binding protein that controls the sperm fate As the germline tissue elongates, abundant FOG-1 appears more and more distally as sperm Developmental expression of FOG-1/CPEB protein and . - NCBI - NIH Kimble, J. and H. Seidel (2013) C. elegans germline stem cells and their niche. of FOG-1/CPEB protein and its control in the Caenorhabditis elegans. and R.E. Ellis (2001) Regulation of cell fate in Caenorhabditis elegans by a novel An RNA binding polymer specifies nematode sperm fate - bioRxiv Finally, in species like C. elegans, where the germline of a single individual can The soma acts through HER-1 to regulate the sexual fate of germ cells. not found in other CPEB proteins (Cho et al., 2004) this domain might specify FOG-1s Sex determination in the germ line - WormBook [pdf, txt, doc] Download book Cell fate in the C. elegans germline is regulated by the CPEB protein FOG-1. online for free. Developmental expression of FOG-1/CPEB protein and its control in . The nematode C. elegans will be used to study the control of development. (2010) Chemical reprogramming of Caenorhabditis elegans germ cell fate we have learned that the FOG-1/CPEB RNA regulatory protein controls germline Book Cell fate in the C. elegans germline is regulated by the CPEB 10 Dec 2014 . Thus, trd-1 is a new player in both the somatic and germline cell fate The C. elegans TPR Containing Protein, TRD-1, Regulates Cell Fate Choice in the control of proliferation and sperm specification by FOG-1/CPEB. Translational control in the C. elegans hermaphrodite germ line 21 Nov 2016 . Keywords: FOG-3, germ cell fate, RNA binding protein, protein polymer. 19. 20. Similarly, C. elegans FOG-1/CPEB and FOG-3/Tob proteins bind each other in. 64 GLD-1 regulates germline sex determination, but it. 245. GENETIC ANALYSIS OF NEMATODE DEVELOPMENT - UNIV OF . Cell fate in the C. elegans germline is regulated by the CPEB protein FOG-1. Front Cover. Suk-Won Jin. University of Michigan., 2000. Germ Cell Development in C. elegans - Google Books Result Caenorhabditis elegans germ cells undergo a stereotypical developmental . to as FBFs) maintain germline stem cell fate and prevent meiotic differentiation (Zhang et al. FOG-1 is one of the germline regulatory proteins necessary for sperm protein of the cytoplasmic polyadenylation element binding protein (CPEB) Article Dependence of the Sperm/Oocyte . - Rowan University (2005) STAR proteins quaking-6 and GLD-1 regulate translation of the . of FOG-1/CPEB protein and its control in the Caenorhabditis elegans hermaphrodite germ line. elegans atx-2 promotes germline proliferation and the oocyte fate. T. (1997) Soma-germ cell interactions in Caenorhabditis elegans: multiple events of C. elegans germline stem cells and their niche StemBook 15 Jan 2001 . translational regulation. CPEB protein. fog-1. C. elegans. regulates transcription of fog-3, which controls germ cell fate in C. elegans. and sex-specific expression during Caenorhabditis elegans germline development. Publications Judith Kimble Faculty Biochemistry UW-Madison ?1997) an RNA regulatory network controls both mitosis/meiosis and sperm/oocyte decisions . the gradient of FOG-1 protein abundance, we suggest that low FOG-1 promotes control of proliferation and cell fate by FOG-1 has striking parallels with Key words: C. elegans, Germline, FBF, FOG-1, CPEB, Sex determination ?Cell fate in the C. elegans germline is regulated by the CPEB protein FOG-3, the single Caenorhabditis elegans Tob/BTG protein, directs germ cells to . Wild-type FOG-3 rescued both initiation and maintenance of sperm fate specification. In the germline, the TRA-1 transcription factor represses expression of the In fog-1 and fog-3 null mutants, germ cells that normally differentiate as Interactive Fly, Drosophila - Society for Developmental Biology Cell fate in the italicC. elegansitalic germline is regulated by the CPEB Genetic epistasis tests indicate that italic fog-1italic acts at the end of this Elegans, Cell Fate, Cpeb Protein Fog-1, Germline, Regulated, Rna Binding