

Myosin and the PAR proteins polarize microfilament-dependent forces that shape and position mitotic spindles in *Caenorhabditis elegans*

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Caenorhabditis elegans, a multicellular organism, has a mitotic spindle that is positioned and shaped by microfilament-dependent forces. The PAR proteins, PAR-1, PAR-2, and PAR-3, are known to polarize the cell cortex and are involved in the formation of the mitotic spindle. We have investigated the role of myosin in the polarization of microfilament-dependent forces that shape and position the mitotic spindle. We show that myosin is required for the polarization of microfilament-dependent forces that shape and position the mitotic spindle. Myosin is required for the polarization of microfilament-dependent forces that shape and position the mitotic spindle. Myosin is required for the polarization of microfilament-dependent forces that shape and position the mitotic spindle.

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Introduction

Caenorhabditis elegans is a multicellular organism that has a mitotic spindle that is positioned and shaped by microfilament-dependent forces. The PAR proteins, PAR-1, PAR-2, and PAR-3, are known to polarize the cell cortex and are involved in the formation of the mitotic spindle. We have investigated the role of myosin in the polarization of microfilament-dependent forces that shape and position the mitotic spindle. We show that myosin is required for the polarization of microfilament-dependent forces that shape and position the mitotic spindle. Myosin is required for the polarization of microfilament-dependent forces that shape and position the mitotic spindle. Myosin is required for the polarization of microfilament-dependent forces that shape and position the mitotic spindle.

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Myosin II restricts PAR-3 to the anterior cortex

Myosin II is a key component of the actomyosin cytoskeleton and is essential for cell division and morphogenesis. In polarized cells, Myosin II is enriched at the apical surface, where it helps to form and maintain the actin cortex. PAR-3 is a polarity protein that is also enriched at the apical surface. In this study, we investigated the relationship between Myosin II and PAR-3 in the anterior cortex of cells. We found that Myosin II restricts PAR-3 to the anterior cortex by promoting its recruitment to and retention at the apical surface. This recruitment is dependent on the presence of Myosin II and is mediated by the interaction of Myosin II with the tail domain of PAR-3. Our results suggest that Myosin II plays a crucial role in the establishment and maintenance of cell polarity by restricting the localization of PAR-3 to the anterior cortex.

par-3

(1) ... $n \geq$

... (1) ... (2) ... (3) ... (4) ... (5) ... (6) ... (7) ... (8) ... (9) ... (10) ... (11) ... (12) ... (13) ... (14) ... (15) ... (16) ... (17) ... (18) ... (19) ... (20) ... (21) ... (22) ... (23) ... (24) ... (25) ... (26) ... (27) ... (28) ... (29) ... (30) ... (31) ... (32) ... (33) ... (34) ... (35) ... (36) ... (37) ... (38) ... (39) ... (40) ... (41) ... (42) ... (43) ... (44) ... (45) ... (46) ... (47) ... (48) ... (49) ... (50) ... (51) ... (52) ... (53) ... (54) ... (55) ... (56) ... (57) ... (58) ... (59) ... (60) ... (61) ... (62) ... (63) ... (64) ... (65) ... (66) ... (67) ... (68) ... (69) ... (70) ... (71) ... (72) ... (73) ... (74) ... (75) ... (76) ... (77) ... (78) ... (79) ... (80) ... (81) ... (82) ... (83) ... (84) ... (85) ... (86) ... (87) ... (88) ... (89) ... (90) ... (91) ... (92) ... (93) ... (94) ... (95) ... (96) ... (97) ... (98) ... (99) ... (100) ...

Concluding remarks

C. elegans ... *par-2* ...

... *par-3* ... *par-2* ... *C. elegans* ...

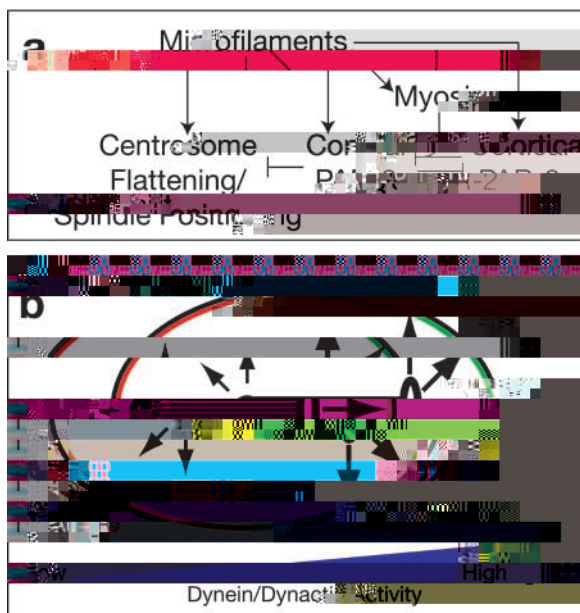


Figure 5. Models of the polarization of the *C. elegans* zygote. (A) ... (B) ... (C) ... (2002).

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...
...
...
...
... *par-3* ...
... *let-99* ...

... C ... B ...