A model

* sperm provides polarity cue

polarization of PAR-2 and PAR-3

localization of PAR-1

localization of P granules, SKN-1, etc.

Boyd, et al., 1996
Nematode and epithelia

(a)

Developmental regulators
- PAR-6
- atPKC-PAR-3
- MEX-5
- PAR-1
- PAR-2

Cytoskeleton
- Microfilaments/WMV-2
- Microtubules/centrosomes

(b)

Interphase → Prophase → Anaphase

Epithelia

Current Opinion in Cell Biology

An RNA that screws up gastrulation

A

uninj.

XL221p20

B

uninj. XL221p20

Normal: open
Shortened: grey
Spina bifida: black
Mesoderm is fine: shape, not fate

C

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<thead>
<tr>
<th></th>
<th>Xbra</th>
<th>gsc</th>
<th>Xwnt11</th>
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D

XGAP expression

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Morpholino antisense disrupts gastrulation, rescued by mRNA

Cell fates are fine
Cell autonomy
Quantitation of polarity

C

(orientation of active protrusion (%))

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<th>XGAP-Mo + resXGAP</th>
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<tr>
<td>AP</td>
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Ligand-binding domain
Extracellular
Cytoplasm
Dormant tyrosine kinase domain
Inactive responding protein
Active tyrosine kinase
Active responding protein

Ligand

ATP
ADP
GAP Domain

Conserved domain
PAR6 is a multi-domain protein