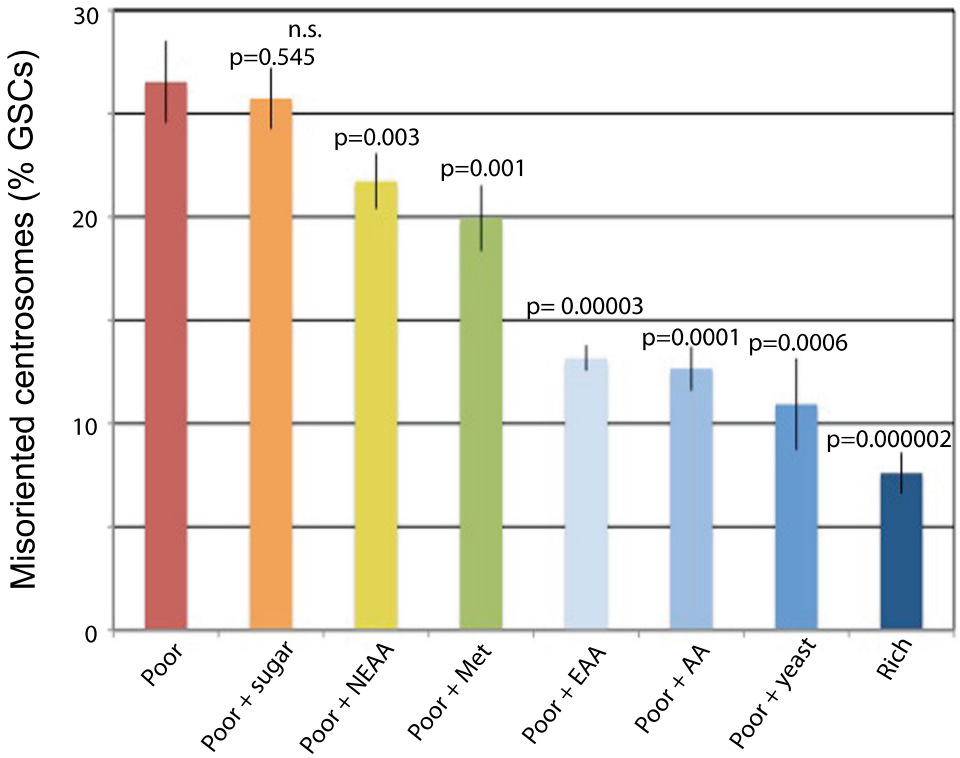

Figure S1 Amino acids as an essential component of GSC centrosome orientation. Yeast, not sugar (sucrose), is the essential ingredient in rich media responsible for correct GSC centrosome orientation (see Table S1 for the media recipe). Critically, supplementing poor media with 20 amino acids (Poor + AA) significantly restored centrosome orientation. The effect of the 20 amino acids largely comes from essential amino acids (poor + EAA), while non-essential amino acids (poor + NEAA) also significantly contribute to correct centrosome orientation. Supplementing methionine (Poor + Met) resulted in moderate but statistically significant suppression of centrosome misorientation. Wild-type flies were grown in the media as indicated, and their GSC centrosome orientation was scored. Data are expressed as the mean ± S.D. (p-value is provided compared with poor media). Amino acids were supplemented according to (Grandison et al., 2009).

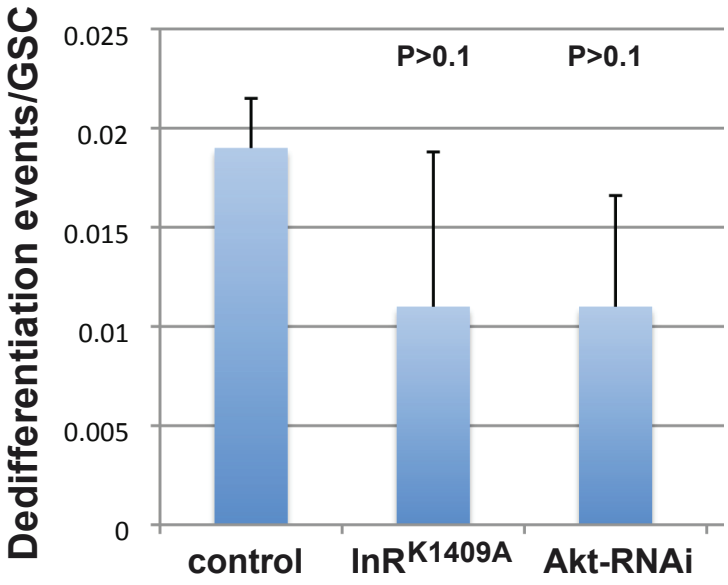

Figure S2 Expression of dominant-negative InR or Akt-RNAi does not increase dedifferentiation. Frequency of dedifferentiation in rich media (mean ± S.D.; n >500/data point.). P-value comparing control and each genotype is shown. Ubi-Pav-GFP. nos-gal4 flies were crossed with UAS-InR^{K1409A} or UAS-Akt-RNAi. Sibling flies from the same cross without UAS-transgenes were used as controls.

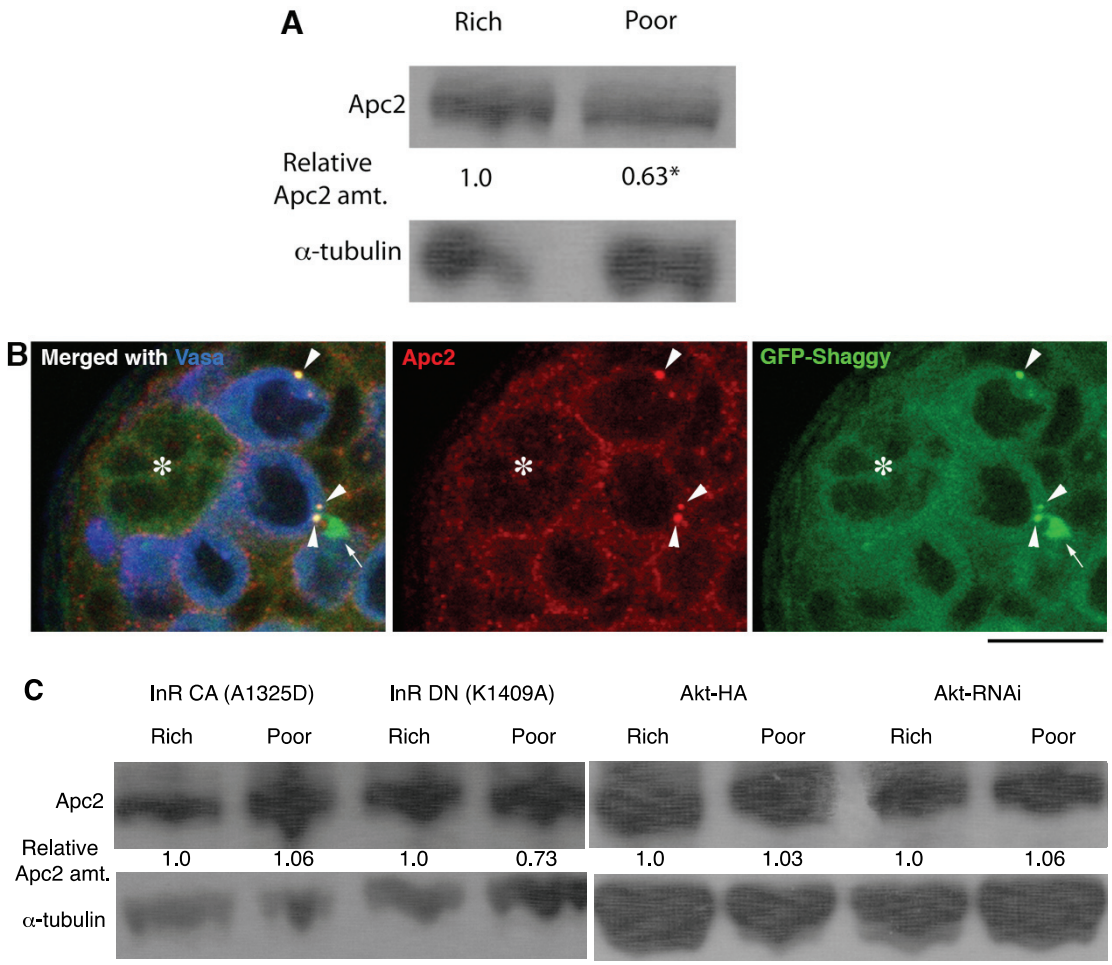

Figure S3 Apc2 protein changes its amount and localization in poor media.

A) Western blotting of Apc2 protein using testis extract. The relative protein amount (normalized by α-tubulin western blotting) is shown at the bottom of the Apc2 western signal. *, the average amount of Apc2 protein in poor media compared with that in rich media (normalized with the α-tubulin amount) was 0.67 ± 0.12 (mean ± S.D.).

B) Punctuate Apc2 structure in the cytoplasm colocalizes with Shaggy (indicated by arrowheads). Shaggy also localizes to the spectrosome (indicated by arrow) as reported (Morin et al., 2001). Blue, Vasa (germ cells). Red, Apc2. Green, Shaggy-GFP. Hub (*). Scale bar, 10 μm.

C) Apc2 amount (western blotting using whole testis extract) upon modulation of InR or Akt (driven by nos-gal4). Relative Apc2 amount is the average of three independent experiments.

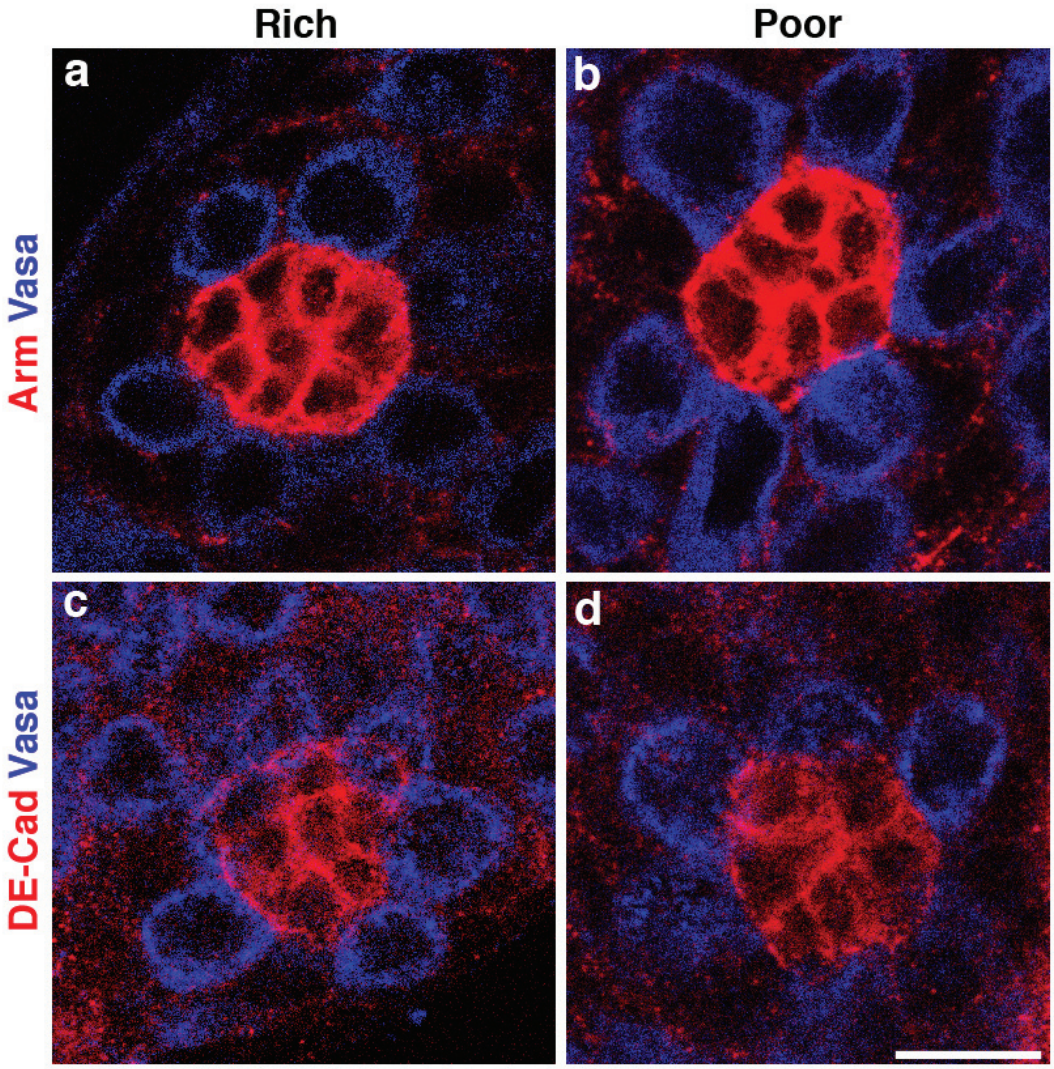

Figure S4 E-cadherin or Armadillo does not change its localization in response to the poor media.

Blue, Vasa (germ cells). Red, Armadillo (in a and b) or DE-cadherin (in c and d). a,c) rich media. b, d) poor media. Hub (*). Scale bar, 10 μm.

Table S1

Media ingredients (adapted from (Min et al., 2007))

Ingredient (per 100 mL)	Medium			
	Rich	Poor	High Protein Low Sugar	Low Protein High Sugar
Yeast	16 g	4 g	16 g	4 g
Sucrose	16 g	4 g	4 g	16 g
Cornmeal	5.2 g	5.2 g	5.2 g	5.2 g
Agar	0.7 g	0.7 g	0.7 g	0.7 g

Table S2

Spindle orientation in mitotic GSCs (% oriented)

Media used to culture flies*	Number of days after media switch		
	Day 0	Day 3	Day 5
Poor to poor	98.5% (n=65)	96.7% (n=30)	96.9% (n=32)
Poor to rich	98.5% (n=65)	98.5% (n=67)	98.3% (n=67)
Rich to rich	100% (n=61)	100% (n=62)	100% (n=60)
Rich to poor	100% (n=61)	98.4% (n=61)	100% (n=80)

*Flies were raised in the indicated media until day 0 of the adult stage, and then were shifted to the new media, as indicated.

References for Supplementary material

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