Supplemental Data

Dystroglycan and Perlecan Provide a Basal Cue that Is Required for Epithelial Polarity during Energetic Stress

Vincent Mirouse, Christina P. Christoforou, Cornelia Fritsch, Daniel St. Johnston, and Robert P. Ray

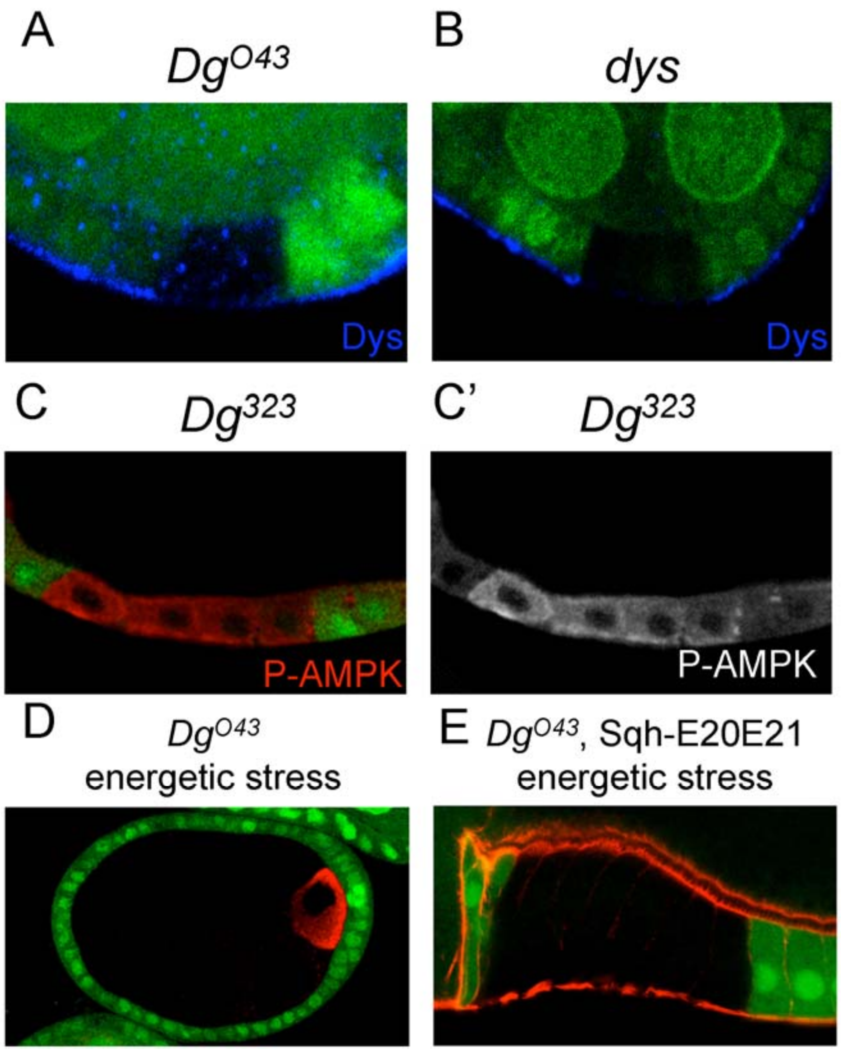

Figure S1. Mutant Cells Are Marked by the Absence of GFP (green)
(A) *Dg*^{O43} clone. Dys (blue) is absent from the basal domain
(B) *Df(3R)6184* clone (deleting the entire *dys* locus) Dys is not dectected in the mutant cells.
(C) *Dg*^{323} mutant follicle cell clone under normal conditions. PhosphoT184-AMPK is shown in red (white on C').
(D) *Dg*^{O43} germline clone under energetic stress conditions, marked with Orb (red).
(E) *Dg*^{O43} mutant cells under energetic stress conditions and expressing Sqh-E20E21 stained for F-actin (red).

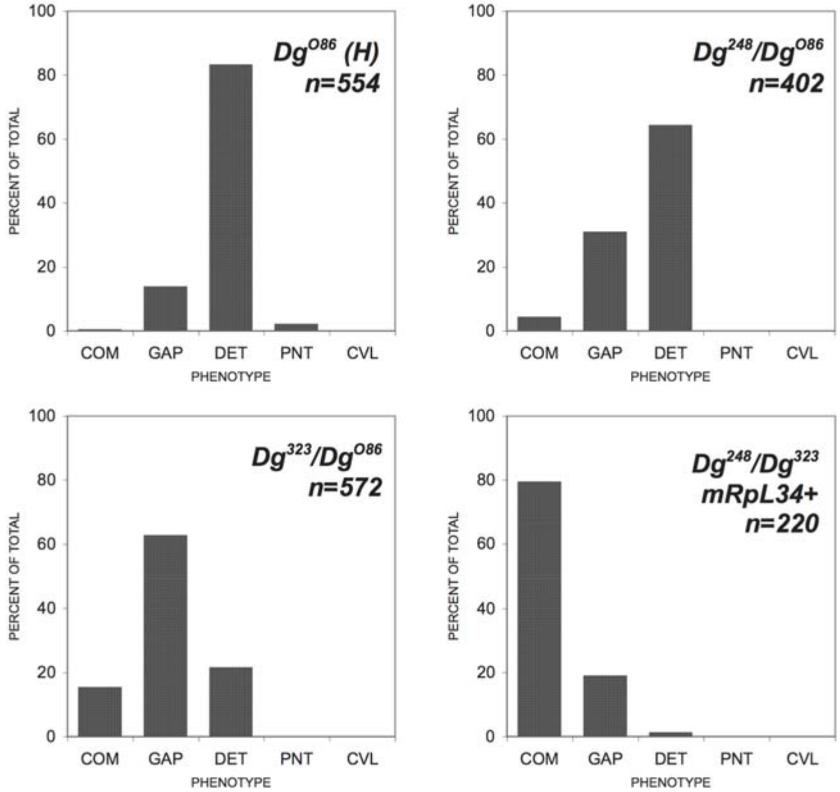

Figure S2. **Expressivity of Crossvein Defects Associated with *Dg* Alleles**
Graphs showing the expressivity of Dg allelic combinations on a per wing basis. Genotypes are shown in the upper right hand of the graph, beneath which is indicated the number of wings scored. The phenotypic classes are 'complete' (COM), where the crossvein extends from L4 to L4 as in wild type; 'gapped' (GAP), where there is a gap between the crossvein and either L4 or L5; 'detached' (DET) where the crossvein is gapped from both L4 and L5; 'point' (PNT) where only a small spot of crossvein material remains; and 'crossveinless' (CVL), where the crossvein is entirely absent (see also Christoforou et al., 2008).

Table S1. Fertility of *Dg* Mutant Females (Maternal and Maternal+Zygotic Effect)

		Eggs					
Female genotype[a]	N	*hatched (H)*	*dead*	*unfertilized (U)*	*collapsed (C)*	**% H**	**% U+C**
pr cn/Dg^{O86} pr cn	630	584	13	28	5	**93**	5
Dg^{O38}, pr cn/Dg^{O86} pr cn	560	410	8	133	9	**73**	25
Dg^{O43}, pr cn/Dg^{O86} pr cn	632	422	14	184	12	**67**	31
Dg^{O55}, pr cn/Dg^{O86} pr cn	532	353	13	152	14	**66**	31
Dg^{O38}/Dg^{O86} x Dg^{O43}/CyO	900	766	4	119	11	**85**	14
Dg^{O43}/Dg^{O86} x Dg^{O55}/CyO	900	788	9	89	14	**79**	11
Dg^{O55}/Dg^{O86} x Dg^{O38}/CyO	900	735	14	130	21	**82**	17
Dg^{248}/Dg^{O86} pr cn	1593	1421	37	135	0	**89**	8
Dg^{323}/Dg^{O86} pr cn	1660	1380	43	237	0	**83**	14

[a]For the first set of crosses, *pr cn* or *Dg^{O}**, *pr cn/SM6a* males were crossed to *Dg^{O86}*, *pr cn/SM6a* virgin females, and virgin females of the genotypes in the table were collected and crossed to Oregon-R males. For the second set, *pr cn* or *Dg^{O}**, *pr cn /CyO, GFP* males were crossed to *Dg^{O86}*, *pr cn/CyO, GFP* virgin females, and virgin females of the genotypes in the table were collected and crossed to the *Dg^{O}** mutant not represented in the maternal genotype in trans to the balancer CyO, GFP. For the third set, w* ; FRT-G13 Dg248/CyO males were crossed to *Dg^{O86}*, *pr cn/SM6a* virgin females, and virgin females of the genotypes in the table were collected and crossed to Oregon-R malesFor all crosses, Eggs were collected at 12 hour intervals and the number of hatched, dead, unfertilized and collapsed eggs were counted 36 hours later.

Table S2. Viability of *Dg*^{O*} Alleles as Transheterozygotes

Cross[a]	N	Progeny: *Dg*^{O}*/*Dg*^{O86}	*Dg*^{O}*/*cn*	*Dg*^{O86}/*CyO* + *cn/CyO*	% Expected[b]
Dg^{O86}/*cn* x *Dg*^{O38}/*CyO*	1716	263	666	787	39 (67)
Dg^{O86}/*cn* x *Dg*^{O43}/*CyO*	1820	333	639	848	52 (79)
Dg^{O86}/*cn* x *Dg*^{O55}/*CyO*	1610	273	627	710	44 (77)

[a]For all crosses, isogenic *cn* males were crossed to *Dg*^{O86}, *pr cn/CyO* virgin females, and the male *Dg*^{O86}, *pr cn/cn* progeny were crossed to *Dg*^{O}*, *pr cn/CyO* virgin females. From the latter cross, three classes of progeny are distinguishable, the *Dg*^{O}*, *pr cn/Dg*^{O86}, *pr cn* experimental class, the *Dg*^{O}*/*cn* control class and the two *Cy* classes, *Dg*^{O86}, *pr cn/CyO* and *cn/CyO*, that cannot be distinguished from one another.

[b]For percent expected, the first figure was calculated by dividing the number of *Dg*^{O}*/*Dg*^{O86} progeny by the number of *Dg*^{O}*/*cn* progeny, and the second figure (in parentheses) by dividing the number of *Dg*^{O}*/*Dg*^{O86} progeny by half the total number of *Cy* progeny.

Table S3. Viability of *Dg* Alleles when Grown without Competition from Heterozygous Larvae (Maternal+Zygotic Effect)

Female genotype[a]	N	Larvae *GFP–*	Larvae *GFP+*	Adults *GFP–*	Adults *GFP+*	% Expected
pr cn/pr cn x Dg^{O43}*/CyO*	400	200	200	188	177	**106**
Dg^{O38}/Dg^{O86} *x* Dg^{O43}*/CyO*	499	250	249	201	214	**94**
Dg^{O43}/Dg^{O86} *x* Dg^{O55}*/CyO*	874	424	450	335	386	**92**
Dg^{O55}/Dg^{O86} *x* Dg^{O38}*/CyO*	836	436	400	361	363	**91**

[a]*pr cn* or Dg^{O}*, *pr cn /CyO, GFP* males were crossed to Dg^{O86}, *pr cn/CyO, GFP* virgin females, and virgin females of the genotypes in the table were collected and crossed to the Dg^{O}* mutant not represented in the maternal genotype in trans to the balancer CyO, GFP. GFP+ and GFP– larvae were collected as L1s and reared separately, 50 larvae per vial. Adults were counted as they eclosed until no new progeny were recovered on three successive collections.

[b]For percent of expected, the fraction of GFP– adults (=GFP–Adults/GFP–Larvae) was divided by the fraction of GFP+ adults (=GFP+Adults/GFP+Larvae), and the quotient multiplied by 100.

Table S4. Viability of *Dg* Alleles, Dg^{248} and Dg^{323} in Trans to Dg^{O}* Alleles

Cross[a]	N	Progeny Dg^{*}/Dg^{O*}	$Dg^{*}/SM6a$	Dg^{O*}/CyO	% Expected[b]
Dg^{248}/CyO x $Dg^{O38}/SM6a$	594	234	174	186	130
Dg^{248}/CyO x $Dg^{O43}/SM6a$	776	294	267	215	122
Dg^{248}/CyO x $Dg^{O55}/SM6a$	772	250	289	233	96
Dg^{248}/CyO x $Dg^{O86}/SM6a$	608	210	211	187	106
Dg^{323}/CyO x $Dg^{O38}/SM6a$	710	229	266	215	95
Dg^{323}/CyO x $Dg^{O43}/SM6a$	689	264	232	193	124
Dg^{323}/CyO x $Dg^{O55}/SM6a$	762	262	255	245	105
Dg^{323}/CyO x $Dg^{O86}/SM6a$	851	346	270	235	137

[a]For all crosses, *w* ; FRT-G13 Dg*/CyO* males were crossed to $Dg^{O*}/SM6a$ virgin females. From these crosses, three classes of progeny are distinguishable, Dg^{*}/Dg^{O*} transheterozygotes, and the two *Cy* classes, *Dg*/SM6a*, and Dg^{O*}/CyO.
[b]For percent of expected, the number of Dg^{*}/Dg^{O*} progeny was divided by half the number of the two *Cy* classes combined and the quotient multiplied by 100.

Table S5. Viability of *Dg* Deletion Alleles with the *mRpL34*$^{+}$ Transgene

Genotype tested[a]	N	Progeny[b] *Dg*/Dg**	*Dg*/CyO*	% Expected[c]
Dg^{248}*/Dg*^{323} *; P[mRpL34+]52/+*	1309	442	867	**102**
Dg^{323}*/Dg*^{248} *; P[mRpL34+]52/+*	610	199	411	**97**
Dg^{248}*/Dg*^{248} *; P[mRpL34+]52/+*	749	229	520	**88**
Dg^{323}*/Df-2457 ; P[mRpL34+]52/+*	424	99	325	**61**
Dg^{248}*/Df-2457 ; P[mRpL34+]52/+*	507	112	395	**57**

[a]For all crosses, the numerators in the genotype are the maternal chromosomes and the denominators the paternal chromosomes, and all parental stocks were in a white mutant background. *P[mRpL34+]41* and *P[mRpL34+]52* are two independent insertions of the *mRpL34+* transgene on the third chromosome.

[b]For the first cross, *y w*^{1118} *; Dg*^{248}*/CyO ; P[mRpL24+]52/TM6b, Tb* males were crossed with *w*^{1118} *; Dg*^{323}*/CyO, Act-GFP* females; for the second, , *y w*^{1118} *; Dg*^{323}*/CyO ; P[mRpL24+]52/TM6b, Tb* males were crossed with *w*^{1118} *; Dg*^{248}*/CyO, Act-GFP* females; for the third, *y w*^{1118} *; Dg*^{248}*/CyO ; P[mRpL24+]52/TM6b, Tb* males were crossed with *w*^{1118} *; Dg*^{248}*/CyO, Act-GFP* females; and for the fourth and fifth, , *y w*^{1118} *; Dg*/CyO ; P[mRpL24+]52/TM6b, Tb* females were crossed with *w*^{1118} *; Df(2R)ED2457/CyO, Act-GFP* males. The numbers in the table reflect only the Tb+ progeny from the cross, the Tb progeny were not counted.

[c]For percent of expected, the number of *Dg*/Dg** progeny was divided by half the number of the *Dg*/Cy* class and the quotient multiplied by 100.