

Figure S1 Level of Fz expression from the *Act5C-fz* transgene. Western blot of 28 hr pupal wing extracts from *w*¹¹¹⁸, *fz*^{P21} and *w*; *Act5C-fz/+; fz*^{P21} animals, probed for Fz protein (upper panel) or Actin (lower panel). One copy of the *Act5C-fz* transgene gives about five-fold higher expression of Fz than two copies of the endogenous gene as seen in the *w*¹¹¹⁸ control strain.

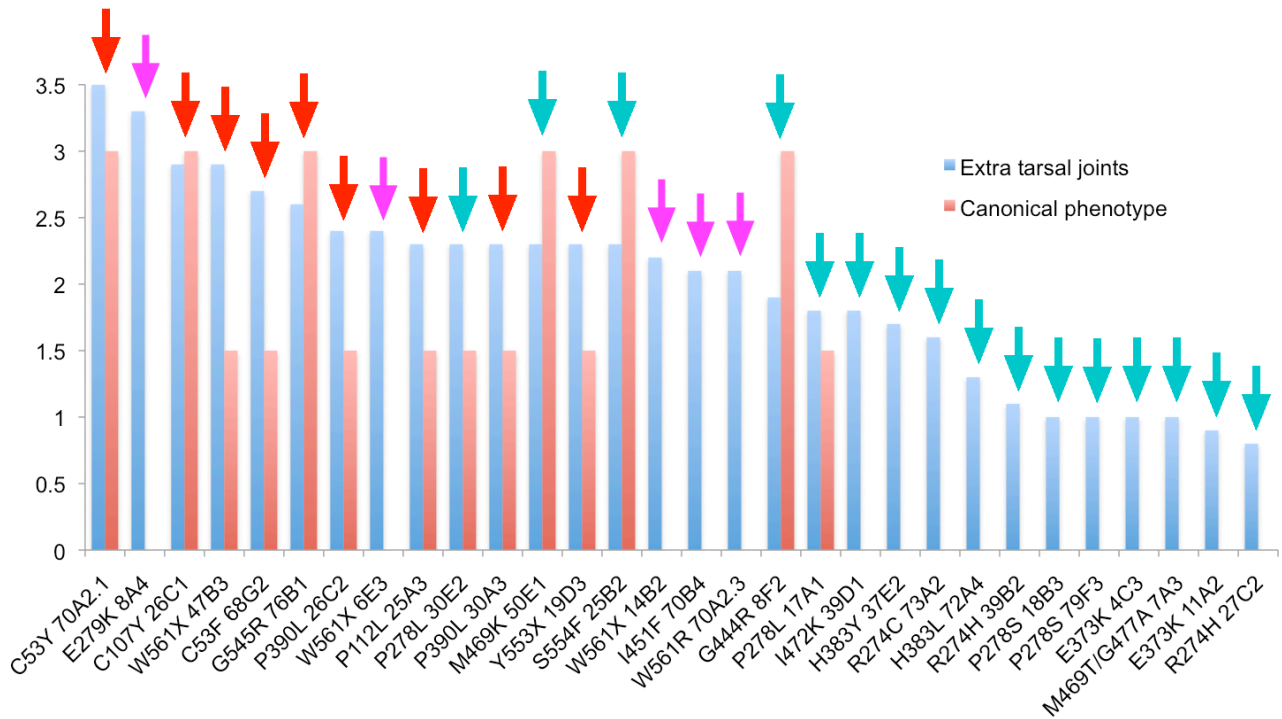


Figure S3 Chart showing relative planar polarity and canonical allele strengths. For each missense and nonsense allele subjected to detailed analysis, the strength of the planar polarity defect is plotted in terms of the number of extra tarsal segments (blue bars). The canonical defect is shown in arbitrary units with a large red bar indicating a "strong" phenotype with anterior wing margin notching of more than 10%, and a medium sized red bar indicating an "intermediate" phenotype with notching between 0-10% and fewer than 10% *yellow* bristles present. Red arrows indicate alleles where Fz protein is not stably localized to junctions. Turquoise arrows indicate alleles showing phenotypes consistent with similar defects in canonical and planar polarity activity and magenta arrows indicate alleles with a strong defect in planar polarity activity but normal canonical activity (magenta).

Table S1 Quantitative scoring of missense alleles

Amino acid change and Allele	Region of protein	Planar polarity phenotype (extra tarsal joints)	Canonical phenotype (wing margin): Category	Canonical phenotype (wing margin): Proportion of anterior wing margin notched	Canonical phenotype (wing margin): Proportion of anterior wing margin with yellow bristles
C53F	CRD	2.7	Intermediate	0.07	0.01
C53Y	CRD	3.5	Strong	0.16	0.00
C107Y	CRD	2.9	Strong	0.40	0.01
P112L	CRD	2.3	Intermediate	0.02	0.05
R274C	ICL1	1.6	Rescued	0.00	0.37
R274H	ICL1	0.8	Rescued	0.00	0.44
R274H	ICL1	1.1	Rescued	0.00	0.52
P278L	ICL1	1.8	Intermediate	0.03	0.03
P278L	ICL1	2.3	Intermediate	0.08	0.03
P278S	ICL1	1	Rescued	0.00	0.45
P278S	ICL1	1	Rescued	0.00	0.38
E279K	ICL1	3.3	Rescued	0.00	0.19
E373K	ICL2	1	Rescued	0.00	0.29
E373K	ICL2	0.9	Rescued	0.00	0.47
H383L	TM4	1.3	Rescued	0.00	0.44
H383Y	TM4	1.7	Rescued	0.00	0.45
P390L	TM4	2.4	Intermediate	0.02	0.03
P390L	TM4	2.3	Intermediate	0.06	0.02
G444R	TM5	1.9	Strong	0.22	0.00
I451F	ICL3	2.1	Rescued	0.00	0.47
M469K	ICL3	2.3	Strong	0.16	0.00
M469T/G	ICL3/T	1	Rescued	0.00	0.36
I472K	TM6	1.8	Rescued	0.00	0.36
G545R	TM7	2.6	Strong	0.25	0.00
Y553X	C-	2.3	Intermediate	0.05	0.04
S554F	C-	2.3	Strong	0.19	0.03
W561X	C-	2.4	Rescued	0.00	0.25
W561X	C-	2.2	Rescued	0.00	0.24
W561X	C-	2.9	Intermediate	0.03	0.03
W561R	C-	2.1	Rescued	0.00	0.22