**Figure S2** Results of quantitative complementation tests. We carried out tests using a series of deficiencies and insertional mutants. The “Interaction” $P$-value presented assesses the significance of the Founder × Mutant interaction, determining whether there is a significant quantitative failure to complement. Information regarding the positions of deficiencies/insertions is reported based on Release 6 of the *Drosophila melanogaster* reference genome. Information regarding the genes deleted was taken from FlyBase on March 11, 2017.

**2L Deficiencies**

**BDSC: 7497**
Exelixis Deficiency

$w^{1118};$ Df(2L)Exel6011/CyO

**Deletes:** 2L:5,147,258..5,305,646
13 protein-coding genes including: *Cyp28d1, Cyp28d2, Cyp4ac1, Cyp4ac2, and Cyp4ac3*

**Interaction:** $P < 10^{-9}$

**BDSC: 26545**
BSC Deficiency

$w^{1118};$ Df(2L)BSC693/SM6a

**Deletes:** 2L:5,209,495..5,305,646
11 protein-coding genes including: *Cyp28d1, Cyp4ac1, Cyp4ac2, and Cyp4ac3*

**Interaction:** $P < 10^{-10}$
3R Deficiencies

**BDSC: 7957**
Exelixis Deficiency
w^{1118}; Df(3R)Exel7306/TM6B, Tb^1

Deletes: 3R:10,871,007..11,156,829
18 protein-coding genes including:
Ugt86Dd, Ugt86Di, and Ugt86Dc

Interaction: $P < 10^{-8}$

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**BDSC: 7958**
Exelixis Deficiency
w^{1118}; Df(3R)Exel8152/TM6B, Tb^1

Deletes: 3R:11,154,150..11,200,280
11 protein-coding genes including:
Ugt86Dc, Ugt86Da, Ugt86Dg,
Ugt86De, Ugt35b, Ugt35a,
Ugt86Dj, and Ugt86Dh

Interaction: $P < 10^{-6}$

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**BDSC: 9083**
DrosDel Deficiency
w^{1118}; Df(3R)ED5506/TM6C, cu^1 Sb^1

Deletes: 3R:10,884,998..11,172,748
19 protein-coding genes including:
Ugt86Dd, Ugt86Di, Ugt86Dc,
Ugt86Da, Ugt86Dg, Ugt86De,
Ugt35b, and Ugt35a

Interaction: $P < 10^{-9}$
Minos Insertion Mutants (2L)

**BDSC: 23530**
Minos Insertion
\( w^{1118}; \text{Mi}(\text{ET1})\text{Cyp28d1}^{MB03293} \)

**Insertion:** 2L:5,211,244
Inserts within \( \text{Cyp28d1} \)
coding exon

**Interaction:** \( P < 10^{-5} \)

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**BDSC: 23587**
Minos Insertion
\( w^{1118}; \text{Mi}(\text{ET1})\text{Cyp28d2}^{MB02776} \)

**Insertion:** 2L:5,208,263
Inserts within \( \text{Cyp28d2} \)
coding exon

**Interaction:** \( P < 10^{-14} \)
Minos Insertion Mutants (3R)

BDSC: 24834
Minos Insertion
w^{1118}; Mi{ET1}Ugt86Dj\textsuperscript{MB04890}
Insertion: 3R:11,173,796
Inserts within \textit{Ugt86Dj}
coding exon
Interaction: \( P < 0.001 \)

Note that there is a larger difference between founder alleles in the 'Control' background than in the 'Mutant' background. This observation is not consistent with an allelic failure to complement, and more likely indicates epistasis.

BDSC: 27861
Minos Insertion
w^{1118}; Mi{ET1}Ugt86Dh\textsuperscript{MB11311}
Insertion: 3R:11,177,673
Inserts within the 3'UTR of one of the two \textit{Ugt86Dh} isoforms
Interaction: \( P < 0.01 \)

Note that there is a larger difference between founder alleles in the 'Control' background than in the 'Mutant' background. This observation is not consistent with an allelic failure to complement, and more likely indicates epistasis.