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| **Trait** | **Models** | **Explanatory variables** |
| ***PCA1 - Larval and pupal traits*** | **Environment** | **Sex** | **SNP (model of inheritance)** |
| Larval development (PC1-1) | PCA+ lme + FDR | NS | df>90, *p*-value<1.52e-8 | *hsp\_1:106G>A*, df=92, t=-3.15, *p*-value=2.18e-3 |
| Larval development (PC1-1) | PCA+ lme + FDR | NS | df>90, *p*-value<1.52e-8 | All other 32 SNPs: NS |
| Larval development (PC1-2) | PCA+ lme + FDR | NS | NS | *c50\_est:735A>G,* df=92, t=-3.36, *p*-value*=*1.15e-3 (Over-dominant) |
| Larval development (PC1-2) | PCA+ lme + FDR | NS | NS | *c50\_est:824A>G,* df=93, t=-3.34, *p*-value=1.21e-3 (Over-dominant) |
| Larval development (PC1-2) | PCA+ lme + FDR | NS | NS | Interaction environment by genotype, 2SNPS in *SgAbd-8*, In FL: G>A, df=91, t=-3.14, *p*-values<2.26e-3 (Dominant)  |
| Larval development (PC1-2) | PCA+ lme + FDR | NS | NS | All other 30 SNPs: NS |
| Larval development (PC1-3) | PCA+ lme + FDR | NS | df>90, *p*-value<3.1e-5 | *(Pgi):c.331A>C,* df=145, t=3.64, *p*-value=3.84e-4 (Dominant) |
| Larval development (PC1-3) | PCA+ lme + FDR | NS | df>90, *p*-value<3.1e-5 | All other 32 SNPs: NS |
| Larval development (PC1-4) | PCA+ lme + FDR | NS | NS | All 33 SNPs: NS |
| Larval time (days)(2007 pilot study) | lme + FDR | NS | df=37, *p*-value<5.80e-6 | Both genotyped *Pgi* SNPs: NS |
| Pupal weight (mg) (2007 pilot study) | lme + FDR | NS | df=37, *p*-value=1.01e-7  | *(Pgi):c.331A>C*, df=37, t=3.15, *p*-value=0.0032 (Dominant) |
| Pupal weight (mg) (2007 pilot study) | lme + FDR | NS | df=37, *p*-value=1.01e-7  | Second *Pgi* SNP: NS |
| ***PCAM - Adult male traits*** | **Environment** | **SNP (model of inheritance)** |
| PCM1 | PCA+ lme + FDR | NS | *c3917\_est:386A>C*, df=32, *p*-value=1.64e-3 (Recessive) |
| PCM1 | PCA+ lme + FDR | NS | All other 32 SNPs: NS |
| PCM2 | PCA+ lme + FDR | NS | c480\_est:1003G>C, df=43, *p*-value=2.15e-3 (Dominant) |
| PCM2 | PCA+ lme + FDR | NS | All other 32 SNPs: NS |
| PCM3 | PCA+ lme + FDR | NS | *c480\_est:926G>A*, df=31, *p*-value*=*8.56e-4 (Dominant)  |
| PCM3 | PCA+ lme + FDR | NS | *c480\_est:1051G>A*, df=31, *p*-value*=*8.56e-4 (Dominant)  |
|  |  |  | Interaction environment by genotype, 2 SNPS in *SgAbd-8*, df=31, t=-3.39, *p*-values=1.87e-3 (over-dominant)  |
| PCM3 | PCA+ lme + FDR | NS | *c50\_est:824A>G*, df=31 , *p*-value=2.35e-3 (Additive) |
| PCM3 | PCA+ lme + FDR | NS | *hsp\_1:206T>G*, df=42, *p*-value=1.33e-3 (Recessive) |
| PCM3 | PCA+ lme + FDR | NS | All other 29 SNPs: NS |
| ***PCAF - Adult female traits*** | **Environment** | **SNP (model of inheritance)** |
| PCF1 | PCA+ lme + FDR | NS | All 33 SNPs: NS |
| PCF2 | PCA+ lme + FDR | NS | All 33 SNPs: NS |
| PCF3 | PCA+ lme + FDR | NS | All 33 SNPs: NS |