### E1 genes  IPR000594

| CG number | Gene symbol | RNAi line | MS1096 phenotype | Ci staining |
|-----------|-------------|-----------|------------------|-------------|
| CG12276   | Aos1        | V18528*   | Severely damaged | No phenotype|
| CG13090   | Aos1        | V47256    | Severely damaged | No phenotype|
| CG13343   | V17137      | Blistered | Up-regulated     |             |
| CG1794    | V32937      | Larval lethal |             |             |
| CG1782    | Uba1        | N1782R-2**| Pupal lethal     | Up-regulated|
| CG5489    | Atg7        | V27432    | No phenotype     |             |
| CG5489    | Atg7        | V45558    | No phenotype     |             |
| CG7528    | Uba2        | N7528R-1  | Severely damaged | Disc malformed|
| CG7528    | Uba2        | N7528R-2  | Severely damaged | Disc malformed|
| CG7828    | APPBP1      | V7728     | No phenotype     |             |

8 genes  12 RNAi lines

### E2 genes  IPR000608

| CG number | Gene symbol | RNAi line | MS1096 phenotype | Ci staining |
|-----------|-------------|-----------|------------------|-------------|
| CG10254   | cbx         | V15992    | No phenotype     |             |
| CG10536   | cbx         | V16078    | No phenotype     |             |
| CG10640   | Uev1A       | V32267    | No phenotype     |             |
| CG10682   | vih         | V27306    | No phenotype     |             |
| CG10723   | Kua         | V30305    | No phenotype     |             |
| CG10862   | Kua         | V101360   | Blistered        |             |
| CG12799   | Ubc84D      | V20260    | No phenotype     |             |
| CG14739   | V18358      | No phenotype |             |             |
| CG15437   | morgue      | N15437R-1 | No phenotype     |             |
| E2/F-box  | V11090      | No phenotype |             |             |
| CG16894   | V10067      | No phenotype |             |             |
| CG17030   | V32827      | No phenotype |             |             |
| CG18319   | ben         | V9413     | Pupal lethal     | Disc malformed|
| CG2013    | UbcD6       | V23230    | Pupal lethal     | Disc malformed|
| CG2257    | Ubc-E2H     | V33510    | Bent             |             |
| CG2574    | V40173      | No phenotype |             |             |

128 genes  12 RNAi lines
| CG number | Gene symbol | RNAi line   | MS1096 phenotype | Ci staining |
|-----------|-------------|-------------|------------------|------------|
| CG11734   | HERC2       | N11734R-1   | No phenotype     |            |
|           |             | N11734R-3   | No phenotype     |            |
| CG17735   |             | N17735R-2   | No phenotype     |            |
|           |             | V108546     | Bent             |            |
| CG3099    |             | N3099R-2    | No phenotype     |            |
|           |             | N3099R-3    | No phenotype     |            |
| CG3356    |             | N3356R-1    | Blistered        |            |

**34 genes  61 RNAi lines**

**E3 genes  IPR000569  HECT domain**
| CG number | Gene symbol | RNAi line   | MS1096 phenotype | Ci staining |
|-----------|-------------|-------------|------------------|-------------|
| CG10144   |             | V18019      | No phenotype     |             |
|           |             | V105952     | No phenotype     |             |
| CG10263   |             | N/A***      |                   |             |
| CG10277   | Bre1        | V7518       | No phenotype     |             |
| CG10542   | Bre1        | V15620      | Bent             |             |
|           |             | V108206     | Bent             |             |
| CG10916   |             | V31379      | No phenotype     |             |
|           |             | V107518     | No phenotype     |             |
| CG10961   | Traf6       | V16125      | No phenotype     |             |
|           |             | V16126      | No phenotype     |             |
| CG10981   |             | N10981R-3   | No phenotype     |             |
|           |             | N10981R-4   | No phenotype     |             |
| CG11281   | snky        | V5246       | No phenotype     |             |
|           |             | V5247       | No phenotype     |             |
| CG11321   |             | N11321R-3   | No phenotype     |             |
| CG1134    |             | N1134R-2    | No phenotype     |             |
| CG11360   |             | N11360R-2   | No phenotype     |             |
|           |             | N11360R-4   | No phenotype     |             |
| CG11414   |             | N11414R-1   | No phenotype     |             |
|           |             | N11414R-3   | No phenotype     |             |
| CG11534   |             | N11534R-1   | No phenotype     |             |
|           |             | N11534R-3   | No phenotype     |             |
| CG11982   |             | V38623      | Blistered        |             |
|           |             | V105651     | No phenotype     |             |
CG11988  neur  V11988R-1  No phenotype
          neur  V11988R-3  No phenotype
CG12099  V18734  No phenotype
CG12200  N12200R-1 No phenotype
          N12200R-3 No phenotype
CG12218  mei-P26 V31695  Pupal lethal  Disc malformed
          mei-P26 V101060 No phenotype
CG12284  th  N12284R-2  No phenotype
CG12362  N12362R-1 No phenotype
          N12362R-3 No phenotype
CG12477  V31944  No phenotype
          V102882  No phenotype
CG12489  dnr1  N12489R-1 No phenotype
CG13025  N13025R-1 No phenotype
          N13025R-2 No phenotype
CG13030  sinah  N13030R-2 No phenotype
          N13030R-3 No phenotype
CG13344  N13344R-1 No phenotype
CG13481  V17205  No phenotype
          V103527  No phenotype
CG13605  V105112  No phenotype
CG13835  N13835R-2 No phenotype
          N13835R-4 No phenotype
CG14306  V106368 No phenotype
CG14435  N14435R-1 Blistered  No phenotype
          N14435R-4 Blistered  No phenotype
CG14983  V32341  No phenotype
          V104309  No phenotype
CG15011  N15011R-3 No phenotype
CG15104  Topors  N15104R-2 No phenotype
          Topors  N15104R-3 No phenotype
CG15105  abba  V19290  No phenotype
          abba  V107067  No phenotype
CG15150  elfless  N15150R-1 No phenotype
CG15439  V19490  Pupal lethal  Disc malformed
CG15814  V30429  Bent  No phenotype
          V100725  Bent  No phenotype
CG16807  roq  V23843  No phenotype
CG16947  V108103  No phenotype
CG16982  Roc1a  V32399  Pupal lethal  Up-regulated
          Roc1a  V106315  Pupal lethal  Up-regulated
CG16988  Roc1b  V32797  Pupal lethal  Up-regulated
          Roc1b  V32798  Pupal lethal  Up-regulated
CG17019  N17019R-3 No phenotype
          N17019R-6 No phenotype
CG17033  elgi  N17033R-2 No phenotype
          elgi  N17033R-3 No phenotype
CG17048  V8780  No phenotype
          V101890  No phenotype
| Gene ID   | Transcript ID | Description                      | Phenotype          |
|-----------|---------------|----------------------------------|--------------------|
| CG17260   | N17260R-1     | No phenotype                     |                    |
| CG17260   | N17260R-2     | No phenotype                     |                    |
| CG17329   | V19171        | Bent                             | No phenotype       |
| CG17492   | mib2          | N17492R-1                        | No phenotype       |
| CG17492   | mib2          | N17492R-3                        | No phenotype       |
| CG17721   | V6036         | No phenotype                     |                    |
| CG18028   | lt            | N1815R-1                         | No phenotype       |
| CG1909    | V20745        | No phenotype                     |                    |
| CG1937    | V6870         | No phenotype                     |                    |
| CG2304    | N2304R-2      | No phenotype                     |                    |
| CG2304    | N2304R-3      | No phenotype                     |                    |
| CG2617    | N2617R-1      | No phenotype                     |                    |
| CG2679    | N2679R-3      | No phenotype                     |                    |
| CG2681    | N2681R-2      | No phenotype                     |                    |
| CG2682    | N2682R-1      | No phenotype                     |                    |
| CG2709    | N2709R-3      | No phenotype                     |                    |
| CG2926    | N2926R-2      | No phenotype                     |                    |
| CG3093    | V33733        | Bent                             | No phenotype       |
| CG3093    | V107053       | Bent                             | No phenotype       |
| CG31053   | N31053R-1     | No phenotype                     |                    |
| CG31053   | N31053R-3     | No phenotype                     |                    |
| CG31392   | V25756        | No phenotype                     |                    |
| CG31716   | V101163       | No phenotype                     |                    |
| CG31721   | Trim9         | V21405                           | Bent               |
| CG31721   | Trim9         | V100767                          | Bent               |
| CG31807   | N31807R-2     | No phenotype                     |                    |
| CG31807   | N31807R-3     | No phenotype                     |                    |
| CG32096   | rolls         | N/A                              |                    |
| CG32210   | l(3)76BDr     | N9268R-1                         | No phenotype       |
| CG32210   | l(3)76BDr     | N9268R-3                         | No phenotype       |
| CG3231    | N3231R-1      | Pupal lethal                     | Disc malformed     |
| CG32350   | V24732        | No phenotype                     |                    |
| CG32369   | V45129        | No phenotype                     |                    |
| CG3241    | msl-2         | V29356                           | Bent only in males |
| CG3241    | msl-2         | V102386                          | Bent only in males |
| CG32486   | V41907        | Severely damaged                 | No phenotype       |
| CG32486   | V41908        | Severely damaged                 | No phenotype       |
| CG32581   | V49727        | Blistered                        | No phenotype       |
| CG32581   | V49728        | Blistered                        | No phenotype       |
| CG32592   | hiw           | V28163                           | Bent               |
| CG32592   | hiw           | V36085                           | Bent               |
| Gene       | Allele | Description        | Phenotype   |
|------------|--------|--------------------|-------------|
| CG32847    | V48422 | No phenotype       |             |
| CG32850    | N/A    |                    |             |
| CG33144    | V17081 | Blistered          |             |
| CG33552    | V47843 | No phenotype       |             |
| CG34289    | N/A    |                    |             |
| CG34308    | N/A    |                    |             |
| CG34440    | 'img'  | N/A                |             |
| CG3639     | pex12  | N3639R-1           | No phenotype|
| CG3647     | stc    | V47973             | No phenotype|
| CG3886     | Psc    | N3886R-1           | Pupal lethal|
| CG3905     | Su(z)2 | V50368             | Pupal lethal|
|            | Su(z)2 | V100096            | Severely damaged|
| CG3929     | dx     | N3929R-1           | No phenotype|
| CG4030     | dx     | N3929R-2           | No phenotype|
| CG4195     | l(3)73Ah | N4195R-1        | No phenotype|
| CG42593    | V5468  | Pupal lethal       | Disc malformed|
| CG4325     | unk    | V102993            | No phenotype|
| CG4420     | unk    | V4267              | No phenotype|
| CG4813     | N4813R-1 | No phenotype    |             |
| CG4909     | POSH   | N4909R-1           | No phenotype|
| CG4973     | POSH   | N4973R-1           | No phenotype|
| CG4976     | Mes-4  | V10836             | No phenotype|
| CG5071     | N5071R-1 | No phenotype      |             |
| CG5140     | nopo   | V22013             | No phenotype|
| CG5206     | bon    | V44283             | Blistered   |
| CG5334     | N5334R-1 | No phenotype    |             |
| CG5347     | N5347R-1 | No phenotype      |             |
| CG5382     | V101394 | No phenotype      |             |
| Gene  | V-number  | Phenotype       | Comment       |
|-------|-----------|-----------------|---------------|
| CG5555| V35012    | Pupal lethal    | No phenotype  |
|       | V110162   | Pupal lethal    | No phenotype  |
| CG5591| V22170    | No phenotype    |               |
|       | V22171    | No phenotype    |               |
| CG5595| V27465    | Pupal lethal    | Disc malformed|
| V106328| Pupal lethal | Disc malformed |
| CG5659| ari-1 V35029| No phenotype    |               |
| ari-1 | V39591    | No phenotype    |               |
| CG5709| ari-2 N5709R-1| No phenotype    |               |
| CG5841| mib1 V27525| Pupal lethal    | No phenotype  |
| mib1  | V27526    | Pupal lethal    | No phenotype  |
| CG6613| V42065    | No phenotype    |               |
|       | V42066    | No phenotype    |               |
| CG6688| N6688R-3  | No phenotype    |               |
| CG6752| N6752R-1  | No phenotype    |               |
| CG6923| V26096    | No phenotype    |               |
|       | V108095   | No phenotype    |               |
| CG7037| Cbl N7037R-1| No phenotype    |               |
|       | N7037R-2  | No phenotype    |               |
| CG7081| pex2 N7081R-2| No phenotype    |               |
| CG7184| Mknn1 V34373| No phenotype    |               |
| Mknn1 | V101694   | No phenotype    |               |
| CG7376| V35222    | No phenotype    |               |
| CG7614| Mat1 V12575| Blistered       | No phenotype  |
| Mat1  | V104780   | Bent            | No phenotype  |
| CG7694| N7694R-1  | No phenotype    |               |
|       | N7694R-2  | No phenotype    |               |
| CG7864| pex10 V46613| No phenotype    |               |
| CG8103| Mi-2 V10766| Pupal lethal    | Disc malformed|
| Mi-2  | V107204   | Pupal lethal    | Disc malformed|
| CG8141| V37349    | No phenotype    |               |
|       | V101087   | No phenotype    |               |
| CG8293| Iap2 N8293R-1| Severely damaged| Disc malformed|
| Iap2  | N8293R-2  | Severely damaged| Disc malformed|
| CG8419| V24097    | No phenotype    |               |
|       | V107626   | No phenotype    |               |
| CG8651|trx V37715 | Blistered       | Disc malformed|
| trx   | V108122   | Pupal lethal    | Disc malformed|
| CG8786| N8786R-1  | No phenotype    |               |
|       | N8786R-4  | No phenotype    |               |
| CG8910| N8910R-1  | No phenotype    |               |
|       | N8910R-3  | No phenotype    |               |
| CG8974| N8974R-2  | Severely damaged| Disc malformed|
|       | V5572     | Pupal lethal    | Disc malformed|
| CG8998| Roc2 V28102| Bent            | No phenotype  |
| Roc2  | V100629   | Bent            | No phenotype  |
| CG9014| N9014R-1  | No phenotype    |               |
|       | N9014R-2  | No phenotype    |               |
| CG9086| N9086R-3  | No phenotype    |               |
| CG number | Gene symbol | RNAi line | MS1096 phenotype | Ci staining |
|-----------|-------------|-----------|------------------|-------------|
| CG11261   | V31478      | No phenotype |
| CG11261   | V31479      | No phenotype |
| CG11861   | N11861R-1   | Pupal lethal | No phenotype    |
| CG11861   | N11861R-2   | Pupal lethal | No phenotype    |
| CG1401    | N1401R-1    | No phenotype |
| CG1401    | N1401R-2    | No phenotype |
| CG1512    | N1512R-1    | No phenotype |
| CG1512    | N1512R-3    | No phenotype |
| CG1877    | N1877R-1    | Pupal lethal | Up-regulated    |
| CG1877    | N1877R-2    | Pupal lethal | Up-regulated    |
| CG3060    | N3060R-2    | Bent        | No phenotype    |
| CG8711    | N8711R-2    | No phenotype |
| CG8711    | V105668     | Pupal lethal | Disc malformed  |

**E3 genes**  **IPR001373**  **Cullin domain**

**E3 genes**  **IPR001810**  **F-Box**
| Gene | Description | RNAi Lines | PhenoType | Expression |
|------|-------------|------------|-----------|------------|
| fbl6 | V100758     | No phenotype | Disc malformed |
| V40819 | No phenotype | Disc malformed |
| V101001 | No phenotype | Disc malformed |
| CG15010 | ago | N15010R-2 | Blistered |
| N15010R-3 | Blistered | Disc malformed |
| CG15437 | morgue | N15437R-1 | No phenotype |
| E2/F-box | V11090 | No phenotype | |
| CG1839 | Fbxl4 | V15475 | No phenotype |
| V15476 | No phenotype | |
| CG2010 | N2010R-1 | Severely damaged | Disc malformed |
| V100736 | Blistered | No phenotype |
| CG2247 | V43417 | No phenotype | |
| CG30466 | N/A | |
| CG31633 | N31633R-2 | No phenotype | |
| CG32085 | N32085R-1 | Severely damaged | Disc malformed |
| CG32221 | V21672 | No phenotype | |
| CG34025 | N/A | |
| CG3412 | slmb | N3412R-1 | Pupal lethal | Up-regulated |
| slmb | N3412R-3 | Pupal lethal | Up-regulated |
| CG3428 | pall | N3428R-1 | No phenotype | |
| pall | N3428R-3 | No phenotype | |
| CG4221 | Fsn | V34810 | No phenotype | |
| Fsn | V26578 | No phenotype | |
| CG4643 | V107315 | No phenotype | |
| CG4911 | N4911R-1 | Bent | No phenotype |
| CG5003 | N5003R-1 | No phenotype | |
| N5003R-3 | Blistered | No phenotype |
| CG5961 | N5961R-1 | No phenotype | |
| CG6758 | V43606 | No phenotype | |
| CG7148 | N7148R-1 | No phenotype | |
| N7148R-2 | No phenotype | |
| CG7707 | N7707R-1 | No phenotype | |
| CG8272 | N8272R-1 | Blistered | No phenotype |
| N8272R-2 | No phenotype | |
| CG8873 | jet | V45618 | No phenotype | |
| jet | V104399 | No phenotype | |
| CG9003 | V23481 | No phenotype | |
| V23482 | No phenotype | |
| CG9144 | Fbw5 | N9144R-1 | No phenotype | |
| Fbw5 | N9144R-2 | No phenotype | |
| CG9316 | Fbw5 | N9316R-1 | No phenotype | |
| CG9461 | FBX011 | V24039 | No phenotype | |
| FBX011 | V24041 | No phenotype | |
| CG9772 | V15636 | Bent | No phenotype |
| V101487 | Bent | No phenotype |
| CG9952 | ppa | N9952R-1 | No phenotype | |
| ppa | N9952R-2 | No phenotype | |

**37 genes**  **59 RNAi lines**
### E3 genes  IPR001232  SKP1 domain

| CG number | Gene symbol | RNAi line  | MS1096 phenotype | Ci staining       |
|-----------|-------------|------------|------------------|------------------|
| CG11941   | *skpC*      | N11941R-3  | Blistered        | Disc malformed   |
|           | *skpC*      | V109047    | No phenotype     |                  |
| CG11942   | *skpE*      | N11942R-3  | Blistered        | Disc malformed   |
|           | *skpE*      | V109539    | No phenotype     |                  |
| CG12227   | *skpF*      | N12227R-1  | Severely damaged | No phenotype     |
|           | *skpF*      | N12227R-2  | Severely damaged | No phenotype     |
| CG12700   | *skpD*      | N12700R-2  | Severely damaged | Disc malformed   |
|           | *skpD*      | V49122     | No phenotype     |                  |
| CG15800   |             | V19615     | No phenotype     |                  |
| CG16983   | *skpA*      | N16983R-3  | No phenotype     |                  |
| CG8881    | *skpB*      | N8881R-4   | No phenotype     |                  |
| CG9291    | *Elongin-C* | V15302     | No phenotype     |                  |
|           | *Elongin-C* | V105740    | Severely damaged | Disc malformed   |

8 genes  13 RNAi lines

### E3 genes  IPR003613  U-Box

| CG number | Gene symbol | RNAi line  | MS1096 phenotype | Ci staining       |
|-----------|-------------|------------|------------------|------------------|
| CG11070   |             | V31413     | No phenotype     |                  |
|           |             | V31414     | No phenotype     |                  |
| CG2218    |             | N2218R-2   | No phenotype     |                  |
|           |             | N2218R-4   | No phenotype     |                  |
| CG5203    | *CHIP*      | N5203R-2   | No phenotype     |                  |
|           | *CHIP*      | N5203R-3   | No phenotype     |                  |
| CG5519    | *Prp19*     | N5519R-1   | Pupal lethal     | Disc malformed   |
|           | *Prp19*     | V108575    | Pupal lethal     | Disc malformed   |
| CG9934    |             | V36464     | No phenotype     |                  |

5 genes  9 RNAi lines

### E3 genes  IPR003126  Zinc finger, N-recognin

| CG number | Gene symbol | RNAi line  | MS1096 phenotype | Ci staining       |
|-----------|-------------|------------|------------------|------------------|
| CG14472   | *poe*       | N14472R-1  | No phenotype     |                  |
|           | *poe*       | N14472R-3  | No phenotype     |                  |
| CG15141   |             | N15141R-1  | No phenotype     |                  |
|           |             | N15141R-4  | No phenotype     |                  |

2 genes  4 RNAi lines
*: RNAi lines with their names starting with "V" were obtained from the VDRC.
**: RNAi lines with their names starting with "N" were obtained from the NIG-Fly.
***: RNAi lines were not available for a total of 10 genes.