

**Supplementary Table 1 Raw pigmentation scores of the strains used in this study.**

| strain                         | Individual number | Thorax            |                 |                        | Abdomen           |                 |                        |
|--------------------------------|-------------------|-------------------|-----------------|------------------------|-------------------|-----------------|------------------------|
|                                |                   | Mode <sup>a</sup> | BG <sup>b</sup> | %darkness <sup>c</sup> | Mode <sup>a</sup> | BG <sup>b</sup> | %darkness <sup>c</sup> |
| w1118; + (control)             | 1                 | 85                | 161             | 73.5                   | 108               | 162             | 66.5                   |
|                                | 2                 | 89                | 162             | 72.4                   | 109               | 162             | 66.2                   |
|                                | 3                 | 79                | 163             | 75.7                   | 114               | 163             | 64.9                   |
|                                | 4                 | 83                | 164             | 74.6                   | 110               | 162             | 65.9                   |
|                                | 5                 | 80                | 162             | 75.2                   | 108               | 162             | 66.5                   |
|                                | 6                 | 78                | 161             | 75.7                   | 108               | 163             | 66.7                   |
|                                | 7                 | 76                | 162             | 76.5                   | 116               | 162             | 64.1                   |
|                                | 8                 | 81                | 162             | 74.9                   | 120               | 163             | 63.0                   |
|                                | 9                 | 79                | 162             | 75.5                   | 105               | 161             | 67.3                   |
|                                | 10                | 76                | 161             | 76.3                   | 106               | 162             | 67.2                   |
| w1118; e <sup>Δ1028priEE</sup> | 1                 | 66                | 160             | 79.3                   | 119               | 160             | 62.7                   |
|                                | 2                 | 63                | 161             | 80.4                   | 120               | 159             | 62.1                   |
|                                | 3                 | 67                | 159             | 78.8                   | 131               | 160             | 58.9                   |
|                                | 4                 | 66                | 160             | 79.3                   | 133               | 160             | 58.3                   |
|                                | 5                 | 60                | 161             | 81.3                   | 121               | 161             | 62.3                   |
|                                | 6                 | 67                | 160             | 79.0                   | 124               | 163             | 61.8                   |
|                                | 7                 | 71                | 161             | 77.9                   | 133               | 162             | 58.8                   |
|                                | 8                 | 64                | 161             | 80.0                   | 111               | 163             | 65.8                   |
|                                | 9                 | 67                | 160             | 79.0                   | 122               | 162             | 62.2                   |
|                                | 10                | 63                | 161             | 80.4                   | 119               | 161             | 62.9                   |
| w1118; e <sup>Δ1029priEE</sup> | 1                 | 66                | 159             | 79.2                   | 117               | 160             | 63.3                   |
|                                | 2                 | 68                | 160             | 78.7                   | 112               | 159             | 64.6                   |
|                                | 3                 | 66                | 160             | 79.3                   | 108               | 163             | 66.7                   |
|                                | 4                 | 64                | 161             | 80.0                   | 107               | 160             | 66.4                   |
|                                | 5                 | 69                | 160             | 78.4                   | 117               | 160             | 63.3                   |
|                                | 6                 | 68                | 160             | 78.7                   | 109               | 160             | 65.8                   |
|                                | 7                 | 64                | 160             | 79.9                   | 119               | 161             | 62.9                   |
|                                | 8                 | 71                | 161             | 77.9                   | 116               | 161             | 63.8                   |
|                                | 9                 | 65                | 161             | 79.7                   | 133               | 160             | 58.3                   |
|                                | 10                | 68                | 161             | 78.8                   | 117               | 163             | 64.0                   |
| e <sup>1</sup>                 | 1                 | 25                | 159             | 92.1                   | 88                | 159             | 72.2                   |
|                                | 2                 | 24                | 161             | 92.5                   | 86                | 159             | 72.8                   |
|                                | 3                 | 23                | 160             | 92.8                   | 76                | 158             | 75.9                   |
|                                | 4                 | 22                | 161             | 93.1                   | 70                | 159             | 77.9                   |
|                                | 5                 | 23                | 160             | 92.8                   | 69                | 159             | 78.2                   |
|                                | 6                 | 23                | 161             | 92.8                   | 70                | 159             | 77.9                   |
|                                | 7                 | 25                | 158             | 92.1                   | 73                | 159             | 77.0                   |
|                                | 8                 | 23                | 159             | 92.7                   | 74                | 160             | 76.8                   |
|                                | 9                 | 21                | 160             | 93.4                   | 76                | 161             | 76.3                   |
|                                | 10                | 24                | 160             | 92.5                   | 76                | 159             | 76.0                   |

<sup>a</sup> Mode: the mode of grayscale brightness values (0-255) of the quantified area (N = 10 females for each strain)

<sup>b</sup> BG: the mode of grayscale brightness values (0-255) of the background area (N = 10 females for each strain)

<sup>c</sup> % darkness was calculated from Mode corrected by the reference grayscale (128) of the background.

**Supplementary Table 2 Raw Ebony-mCherry fluorescent intensity values of the strains used in this study**

| strain  | Individual number | Mode A3 pixel value <sup>a</sup> | Mode A4 pixel value <sup>a</sup> | Mode A5 pixel value <sup>a</sup> | Average pixel value | Mode (background) pixel value | mCherry signal intensity <sup>b</sup> |
|---|-------------------|----------------------------------|----------------------------------|----------------------------------|---------------------|-------------------------------|---------------------------------------|
| w1118; e::mCherry (control)                           | 1                 | 23                               | 24                               | 25                               | 24.00               | 3                             | 21.00                                 |
|   | 2                 | 27                               | 25                               | 21                               | 24.33               | 3                             | 21.33                                 |
|   | 3                 | 20                               | 17                               | 16                               | 17.67               | 3                             | 14.67                                 |
|   | 4                 | 21                               | 23                               | 21                               | 21.67               | 3                             | 18.67                                 |
|   | 5                 | 26                               | 25                               | 22                               | 24.33               | 3                             | 21.33                                 |
|   | 6                 | 23                               | 28                               | 26                               | 25.67               | 3                             | 22.67                                 |
|   | 7                 | 25                               | 26                               | 26                               | 25.67               | 3                             | 22.67                                 |
|   | 8                 | 20                               | 24                               | 23                               | 22.33               | 3                             | 19.33                                 |
|   | 9                 | 23                               | 24                               | 21                               | 22.67               | 3                             | 19.67                                 |
|   | 10                | 26                               | 24                               | 22                               | 24.00               | 3                             | 21.00                                 |
| w1118; e <sup>Δ1017priEE</sup> ::mCherry              | 1                 | 29                               | 33                               | 33                               | 31.67               | 3                             | 28.67                                 |
|   | 2                 | 31                               | 30                               | 34                               | 31.67               | 3                             | 28.67                                 |
|   | 3                 | 34                               | 30                               | 32                               | 32.00               | 3                             | 29.00                                 |
|   | 4                 | 28                               | 25                               | 30                               | 27.67               | 3                             | 24.67                                 |
|   | 5                 | 31                               | 32                               | 36                               | 33.00               | 3                             | 30.00                                 |
|   | 6                 | 24                               | 27                               | 28                               | 26.33               | 3                             | 23.33                                 |
|   | 7                 | 23                               | 26                               | 27                               | 25.33               | 3                             | 22.33                                 |
|   | 8                 | 22                               | 29                               | 25                               | 25.33               | 3                             | 22.33                                 |
|   | 9                 | 30                               | 31                               | 31                               | 30.67               | 3                             | 27.67                                 |
|   | 10                | 31                               | 31                               | 33                               | 31.67               | 3                             | 28.67                                 |
| w1118; e <sup>Δ1027priEE</sup> ::mCherry              | 1                 | 29                               | 33                               | 29                               | 30.33               | 3                             | 27.33                                 |
|   | 2                 | 35                               | 37                               | 33                               | 35.00               | 3                             | 32.00                                 |
|   | 3                 | 34                               | 35                               | 34                               | 34.33               | 3                             | 31.33                                 |
|   | 4                 | 29                               | 29                               | 30                               | 29.33               | 3                             | 26.33                                 |
|   | 5                 | 32                               | 32                               | 34                               | 32.67               | 3                             | 29.67                                 |
|   | 6                 | 34                               | 34                               | 34                               | 34.00               | 5                             | 29.00                                 |
|   | 7                 | 29                               | 32                               | 34                               | 31.67               | 3                             | 28.67                                 |
|   | 8                 | 30                               | 33                               | 31                               | 31.33               | 3                             | 28.33                                 |
|   | 9                 | 29                               | 32                               | 35                               | 32.00               | 3                             | 29.00                                 |
|   | 10                | 30                               | 31                               | 31                               | 30.67               | 3                             | 27.67                                 |
| w1118; e <sup>Δ1092priEE(5' _partial)</sup> ::mCherry | 1                 | 25                               | 28                               | 31                               | 28.00               | 3                             | 25.00                                 |
|   | 2                 | 23                               | 24                               | 23                               | 23.33               | 3                             | 20.33                                 |
|   | 3                 | 30                               | 27                               | 29                               | 28.67               | 3                             | 25.67                                 |
|   | 4                 | 23                               | 22                               | 24                               | 23.00               | 3                             | 20.00                                 |
|   | 5                 | 24                               | 25                               | 25                               | 24.67               | 3                             | 21.67                                 |
|   | 6                 | 23                               | 28                               | 31                               | 27.33               | 3                             | 24.33                                 |
|   | 7                 | 23                               | 25                               | 28                               | 25.33               | 3                             | 22.33                                 |
|   | 8                 | 26                               | 29                               | 31                               | 28.67               | 3                             | 25.67                                 |
|   | 9                 | 29                               | 29                               | 31                               | 29.67               | 3                             | 26.67                                 |
|   | 10                | 26                               | 28                               | 30                               | 28.00               | 3                             | 25.00                                 |
| w1118; e <sup>Δ498priEE(3' _partial)</sup> ::mCherry  | 1                 | 27                               | 27                               | 31                               | 28.33               | 3                             | 25.33                                 |
|   | 2                 | 27                               | 28                               | 31                               | 28.67               | 3                             | 25.67                                 |
|   | 3                 | 28                               | 25                               | 25                               | 26.00               | 3                             | 23.00                                 |
|   | 4                 | 21                               | 24                               | 25                               | 23.33               | 3                             | 20.33                                 |
|   | 5                 | 24                               | 24                               | 25                               | 24.33               | 3                             | 21.33                                 |
|   | 6                 | 32                               | 31                               | 34                               | 32.33               | 3                             | 29.33                                 |
|   | 7                 | 32                               | 34                               | 36                               | 34.00               | 3                             | 31.00                                 |
|   | 8                 | 30                               | 35                               | 34                               | 33.00               | 3                             | 30.00                                 |
|   | 9                 | 29                               | 33                               | 34                               | 32.00               | 3                             | 29.00                                 |
|   | 10                | 29                               | 31                               | 33                               | 31.00               | 3                             | 28.00                                 |

<sup>a</sup> Manually chosen areas for measurements in A3-5 abdominal tergites are shown in Figure 3A. N = 10 females for each strain.

<sup>b</sup> mCherry signal intensity is calculated as "average pixel value" - "background pixel value".