Table S2. Protein-coding genes present in the ultraconserved region CG15121-CG16894

|        |         | Cross-              | FlyAtlas <sup>d</sup> |            | SEBIDA                      | Male-Biased                       | Sperm                 | Seminal Fluid         | Chemosensory            |
|--------|---------|---------------------|-----------------------|------------|-----------------------------|-----------------------------------|-----------------------|-----------------------|-------------------------|
| Code a | Gene b  | Mapped <sup>c</sup> | Expression            | Enrichment | Classification <sup>e</sup> | Gene Expression <sup>f</sup>      | Proteome <sup>g</sup> | Proteome <sup>h</sup> | Perception <sup>i</sup> |
| 1      | CG15121 | ✓                   |                       |            | Unbiased (female)           |                                   |                       |                       |                         |
| 2      | CG15122 | ✓                   |                       |            | Unclassified                |                                   |                       |                       |                         |
| 3      | CG15904 | ✓                   |                       |            | Female                      |                                   |                       |                       |                         |
| 4      | CG9218  | ✓                   | bhcmzotaxywgs         | t          | Male                        | mel, sim, yak, ana, pse, vir, moj |                       |                       |                         |
| 5      | CG16716 | ✓                   | tay                   | t          | Male                        | mel, sim, yak, ana, pse, vir, moj |                       |                       |                         |
| 6      | CG18367 | ✓                   | bmwg                  |            | Male                        |                                   |                       |                       |                         |
| 7      | CG15124 | ✓                   | ty                    | t          | Male                        | mel, sim, yak, ana, pse, vir, moj |                       |                       |                         |
| 8      | CG15905 | ✓                   |                       |            | Unbiased (female)           |                                   |                       |                       |                         |
| 9      | CG15125 | ✓                   | t                     | t          | Male                        | mel, sim, yak, ana, pse, vir, moj |                       |                       |                         |
| 10     | CG11018 |                     | ty                    | t          | Male                        |                                   | ✓                     |                       |                         |
| 11     | CG9854  | ✓                   | bhcmzotaxywgs         |            | Female                      |                                   |                       |                       |                         |
| 12     | CG11025 | ✓                   | bhcmzotaxywgs         |            | Male                        | mel, sim, yak, pse, vir           |                       |                       |                         |
| 13     | CG15127 | ✓                   | m                     | m          | Female                      |                                   |                       |                       |                         |
| 14     | CG34198 |                     |                       |            | NA                          |                                   |                       |                       |                         |
| 15     | CG15128 | ✓                   | ty                    | t          | Male                        | mel, sim, yak, ana, pse, moj      | ✓                     |                       |                         |
| 16     | CG15126 | ✓                   |                       |            | Unclassified                |                                   |                       |                       |                         |
| 17     | CG11797 | ✓                   | hztw                  |            | Unbiased (male)             |                                   |                       |                       | Obp56a                  |
| 18     | CG30129 | ✓                   |                       |            | Female                      |                                   |                       |                       | Obp56b                  |
| 19     | CG30128 | ✓                   |                       |            | Unclassified                |                                   |                       |                       | Obp56c                  |

Table S2. Protein-coding genes present in the ultraconserved region CG15121-CG16894

|                   |                   | Cross- FlyAtlas <sup>d</sup> |               | as d       | SEBIDA                      | Male-Biased                       | Sperm                 | Seminal Fluid         | Chemosensory |
|-------------------|-------------------|------------------------------|---------------|------------|-----------------------------|-----------------------------------|-----------------------|-----------------------|--------------|
| Code <sup>a</sup> | Gene <sup>b</sup> | Mapped <sup>c</sup>          | Expression    | Enrichment | Classification <sup>e</sup> | Gene Expression <sup>f</sup>      | Proteome <sup>g</sup> | Proteome <sup>h</sup> | Perception i |
| 20                | CG11218           | <b>√</b>                     | bhcztxwg      |            | Male                        | mel, sim, yak                     |                       |                       | Obp56d       |
| 21                | CG8462            | ✓                            | hczaw         |            | Female                      |                                   |                       | mel, sim, yak         | Obp56e       |
| 22                | CG30450           |                              | a             | a          | Male                        |                                   |                       | mel, sim, yak         | Obp56f       |
| 23                | CG8517            | ✓                            | tay           | t          | Male                        | mel, sim, yak, ana, pse, moj      |                       |                       |              |
| 24                | CG12501           | ✓                            |               |            | Unclassified                |                                   |                       |                       | Or56a        |
| 25                | CG13873           | ✓                            | haw           |            | Male                        | mel, sim, yak, ana, pse           |                       | mel, sim, yak         | Obp56g       |
| 26                | CG13874           | ✓                            | h             | h          | Unbiased (male)             | sim, yak, vir, moj                |                       |                       | Obp56h       |
| 27                | CG8595            | ✓                            |               |            | Male                        |                                   |                       |                       |              |
| 28                | CG30448           |                              | ta            | a          | Male                        |                                   |                       | mel, sim, yak         | Obp56i       |
| 29                | CG13872           | ✓                            | t             | t          | Male                        | yak, ana, pse, vir, moj           |                       |                       |              |
| 30                | CG30447           |                              | ty            | t          | Male                        |                                   |                       |                       |              |
| 31                | CG10822           |                              | ty            | t          | Male                        |                                   |                       |                       |              |
| 32                | CG8654            | ✓                            | hcztxywgs     |            | Male                        | ana, pse, moj                     |                       |                       |              |
| 33                | CG16898           |                              | hmztxw        | m          | Male                        |                                   |                       |                       |              |
| 34                | CG8896            | ✓                            | bhcmzotaxywgs |            | Unbiased (female)           |                                   |                       |                       |              |
| 35                | CG11041           | ✓                            |               |            | Unbiased (female)           |                                   |                       |                       |              |
| 36                | CG16894           | ✓                            | ty            | t          | Male                        | mel, sim, yak, ana, pse, vir, moj |                       |                       |              |

<sup>&</sup>lt;sup>a</sup> As in Figure 1.

<sup>&</sup>lt;sup>b</sup> FlyBase [1].

- <sup>c</sup> Inferred to be present within this ultraconserved region prior to the divergence of the lineages that lead to the *Sophophora* and *Drosophila* subgenera [2].
- <sup>d</sup> Tissues with evidence of expression [3] (brain, b; carcass, w; crop, c; head, h; hindgut, z; larval fat body, y; larval Malphigian tubule, x; male accessory gland, a; midgut, m; ovary, o; salivary gland, s; testis, t; and thoracic abdominal ganglion, g) and preferential expression (five-fold increase in relation to the whole body) as estimated previously [2].
- <sup>e</sup> Consensus categorization of the sex bias in mRNA abundance based on a reanalysis of several expression datasets [4]. The trend is indicated in parentheses for those cases in which no statistically significant bias was found.
- f As categorized based on species-specific microarray experiments in *D. melanogaster -mel-*, *D. simulans -sim-*, *D. yakuba -yak-*, *D. ananassae -ana-*, *D. pseudoobscura -pse-*, *D. virilis -vir-*, and *D. mojavensis -moj-* [5].
- <sup>g</sup> As assessed by whole-sperm mass spectroscopy in *D. melanogaster* [6].
- <sup>h</sup> Species in which evidence of expression was found by mass spectroscopy in recently mated females [7].
- <sup>1</sup> Common name as a member of a multigene family. Those encoding odorant-binding proteins are organized into two clusters: Obp56a-Obp56f and Obp56g-Obp56i [8].

## **Supporting References**

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