**Supplemental Online Material**

**Supplemental Table 1. Tissue-Specific Rescue of *bbs* Mutants**

| Promoter | Promoter length [a] | Expression pattern | cDNA | Rescue Secretion [b] | Rescue Body Size [b] | Rescue Feeding [b] |
|---|---|---|---|---|---|---|
| *bbs-7* | 1452bp | Ciliated neurons | *bbs-1* | nd[c] | full | full |
| | | | *or* | | | |
| | | | *bbs-7* | nd[c] | nd[c] | full |
| *bbs-1* | 2000bp | Ciliated neurons | *bbs-1* | full | nd[c] | nd[c] |
| *tax-4* | 2000bp | AWC, ASI, AFD, ASG, ASJ, ASK, BAG, URX, ASE | *bbs-1* | none | none | none |
| | | | *or* | | | |
| | | | *bbs-7* | nd[c] | none | none |
| *ocr-2* | 2000bp | **ADL**, ASH, AWA, **ADF**, and phasmids | *bbs-1* | full | full | full |
| | | | *or* | | | |
| | | | *bbs-7* | full | full | full |
| *gpa-13* | 2000bp | ASH, AWC, **ADF**, phasmids | *bbs-1* | nd[c] | partial | full |
| | | | *or* | | | |
| | | | *bbs-7* | nd[c] | partial | full |
| *gpa-11* | 2000bp | **ADL,** ASH | *bbs-1* | nd[c] | partial | nd[c] |
| | | | *or* | | | |
| | | | *bbs-7* | nd[c] | partial | nd[c] |
| *srh-220* | 1800bp | **ADL** | *bbs-1* | partial | partial | none |
| | | | *or* | | | |
| | | | *bbs-7* | partial | partial | none |
| *tph-1* | 1300bp | **ADF** | *bbs-1* | nd[c] | none | full |
| | | | *or* | | | |
| | | | *bbs-7* | nd[c] | none | full |
| *odr-7* | 1500bp | AWA | *bbs-1* | nd[c] | none | nd[c] |
| | | | *or* | | | |
| | | | *bbs-7* | nd[c] | none | nd[c] |
| *hsp-16.1* | 422bp | all cells upon heat shock | *bbs-7* | partial | nd[c] | nd[c] |

Ciliated neurons that rescue *bbs* mutants are shown in bold.
[a] Promoter lengths are calculated from the start codon of the corresponding genes.
[b] Rescues were defined as reversion of the size, pumping rate when starved, and increased insulin secretion from ADL to wild type levels. Transgenic animals with intermediate phenotypes that were statistically different from both non-transgenic siblings and wild type were considered as partially rescued.
[c] not determined.