

FlyBase

<http://www.flybase.org/>

1. Look up the *D. melanogaster Antennapedia* gene.
 - a) What is its official symbol (abbreviation)?
 - b) What is its annotation symbol (CG number)?
 - c) What is its FlyBase ID number?
 - d) On which chromosome arm is it located?
 - e) What protein motif(s) are found in this gene?
 - f) What is the molecular function of this gene?
 - g) How many different transcripts are produced from this gene?
 - h) Can you find the protein sequence encoded by each transcript isoform?
 - i) According to modENCODE temporal expression data, which developmental stages show the highest expression of this gene?
 - j) What is the expression level at the above stages?

2. Look up the *D. melanogaster ocnus* gene.
 - a) What is its official symbol (abbreviation)?
 - b) How many different transcripts are produced from this gene?
 - c) How many exons does this gene have?
 - d) According to FlyAtlas anatomical expression data, which tissue shows the highest expression of this gene?
 - e) What is the expression level in the above tissue?
 - f) According to modENCODE tissue and temporal expression data, how does the expression of this gene differ between adult males and adult females?

3. Using the "RNA-Seq Profile" tool:
 - a) How many genes can you find for which the expression is "off" (very low or below) in adult females, but "on" (very high or above) in adult males?
Note: Search "stage expression" only
 - b) How many genes can you find for which the expression is "off" (very low or below) in adult males, but "on" (very high or above) in adult females?
 - c) Did you find the *ocnus* gene in one of the above categories?

4. From the FlyBase release notes (under the "About" link):
 - a) What version of FlyBase is this? When was it released?
 - b) What is the current release version of the *D. melanogaster* genome?
 - c) How many protein-coding genes are there?
 - d) How many new gene models are there since the last release?
 - e) How many transposable elements are in the sequenced (reference) genome?