

## **Description of Additional Supplementary Files**

### **Supplementary Data 1: Differentially expressed genes in *NvLsd1* mutants vs**

**controls.** Given are the lists of genes up-regulated (upreg) or down-regulated (downreg) at late planula (planula) and primary polyp (polyp) stages using either no fold change cut off [Non-stringent (Non-S)] or a log<sub>2</sub> fold cut off of 1 [Stringent(S)].

### **Supplementary Data 2: Genes upregulated in *NvNcol3::mOrange2<sup>+</sup>* and**

***NvElav1::mOrange<sup>+</sup>* cells.** Given are the lists of genes up-regulated (upreg) in *NvNcol3::mOrange2<sup>+</sup>* (Ncol) and *NvElav1::mOrange<sup>+</sup>* (Elav) cells compared to mOrange<sup>-</sup> cells. Lists of genes generated using no fold change cut off [Non-stringent(Non-S)] or a log<sub>2</sub> fold cut off of 1 [Stringent(S)] are given.

**Supplementary Data 3: List of sequences and accession codes for proteins used to generate the Phylogeny in Supplementary Fig. 1b.**

**Supplementary Data 4: Alignment file for the Phylogeny in Supplementary Fig. 1b.**