

## **Supplemental movie legends:**

**Supplemental movie 1: Response to poking assay prior to bisection in half.** Poking assays were performed prior to amputation (time 0 uncut). This *Nematostella* individual responded to the touch stimulus by retracting its tentacles. Video duration: 00:08; 3 frames/second.

**Supplemental movie 2: Response to poking assay is maintained in regenerating animals.** Poking assays were performed following regeneration (7dpa). This *Nematostella* individual responded to the touch stimulus by retracting its tentacles. This video is of the same individual as Supplemental movie 1. Video duration: 00:07; 3 frames/second.

**Supplemental movie 3: Response to poking assay prior to prolonged starvation.** Poking assays were performed prior to starvation (time 0). This *Nematostella* individual responded to the touch stimulus by retracting its tentacles. Video duration: 00:07; 3 frames/second.

**Supplemental movie 4: Response to poking assay is maintained in starved animals.** Poking assays were performed following 6 weeks of starvation. This *Nematostella* individual responded to the touch stimulus by retracting its tentacles. This video is of the same individual as Supplemental movie 3. Video duration: 00:06; 3 frames/second.

**Supplemental movie 5: Response to poking assay prior to prolonged feeding.** Poking assays were performed prior to feeding (time 0). The *Nematostella* individual responded to the touch stimulus by retracting its tentacles. Video duration: 00:07; 2 frames/second.

**Supplemental movie 6: Response to poking assay is maintained in fed animals.** Poking assays were performed following 3 weeks of feeding. This *Nematostella* individual responded to the touch stimulus by retracting its tentacles. This video is of the same individual as Supplemental movie 6. Video duration: 00:12; 2 frames/second.