

**Supplementary Material for: Epidermal invagination and muscle rearrangement associated with the segment addition during anamorphosis in a millipede, *Niponia nodulosa***

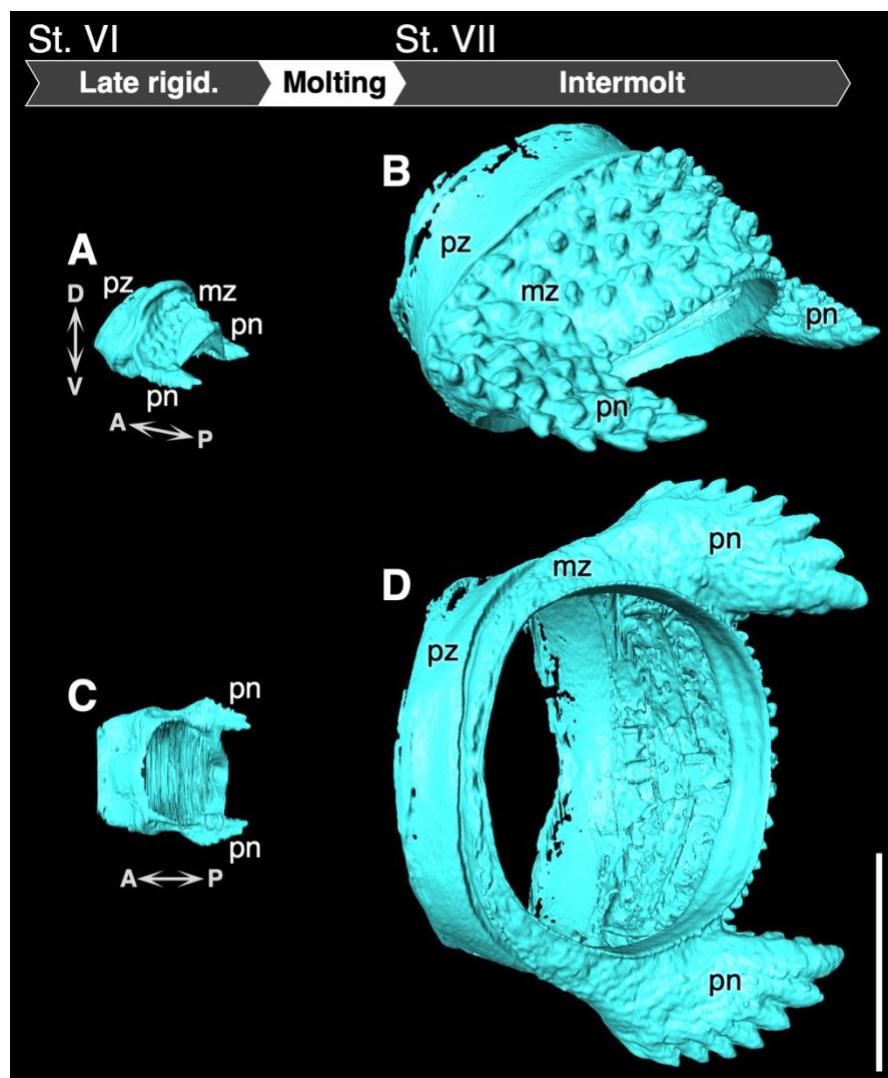
**Soma Chiyoda<sup>1</sup>, Kohei Oguchi<sup>1</sup>, Hitoshi Aonuma<sup>2</sup>, Toru Miura<sup>1</sup>**

<sup>1</sup>Misaki Marine Biological Station, School of Science, The University of Tokyo, Miura, Kanagawa 238-0225, Japan

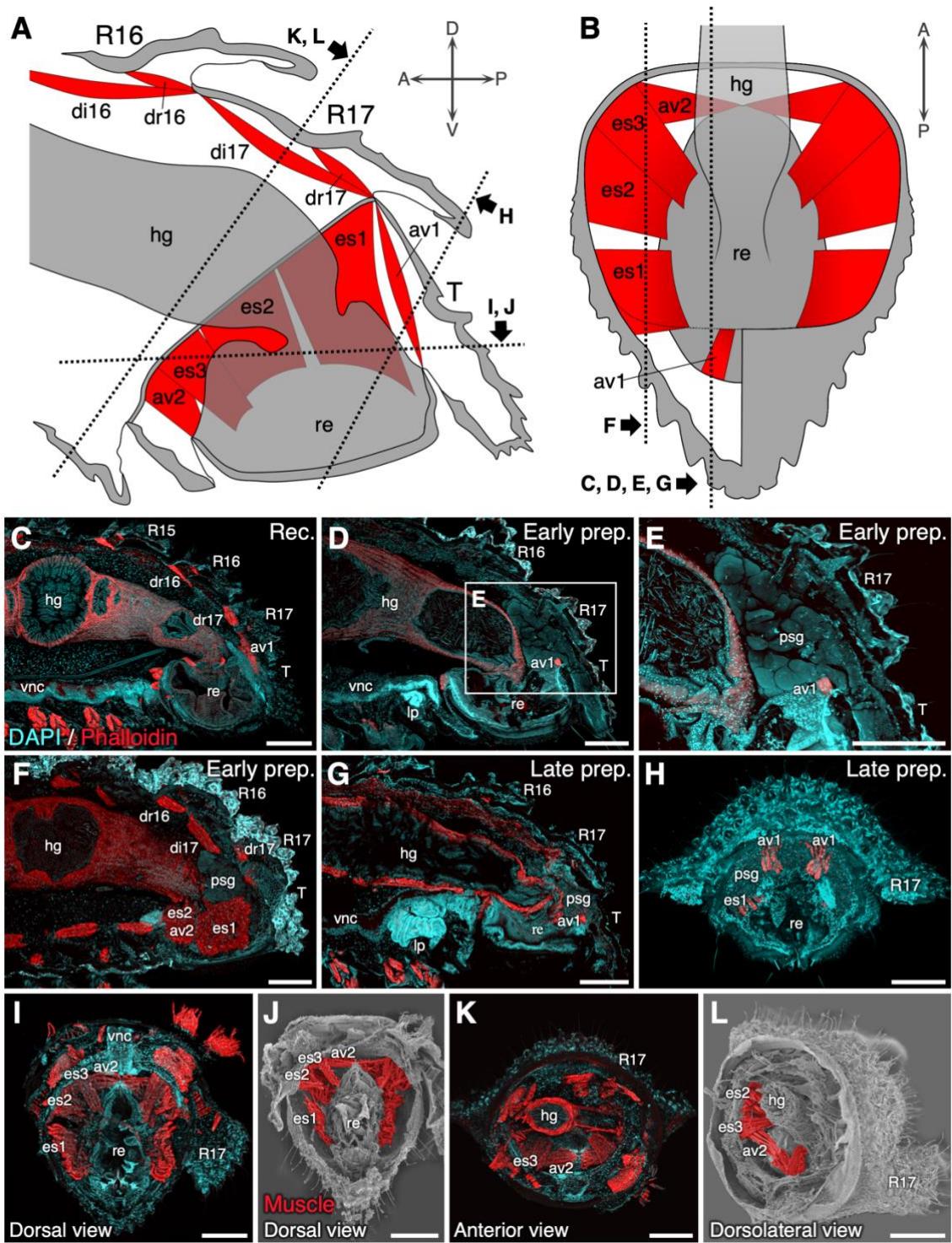
<sup>2</sup>Graduate School of Science, Kobe University, Kobe, Hyogo, 657-8501, Japan

**Table S1.** Duration of intermolt in stadium VI juveniles of *N. nodulosa* reared individually.

Individual	The day the stadium VI juvenile left from the molting chamber	The day the stadium VII juvenile left from the molting chamber	Number of days in between
#1	25–27 Feb. 2024	27 May 2024	90–92
#2	18 May 2024	6 Sep. 2024	111
#3	19 Dec. 2024	23 Jan. 2025	35
#4	23 Dec. 2024	25–28 Jan. 2025	33–36
#5	29 Sep. 2024	4 Feb. 2025	128
#6	7 Feb. 2025	14–15 Mar. 2025	35–36
#7	13 Feb. 2025	25 Apr. 2025	71
#8	1 May 2025	18 Jun. 2025	48

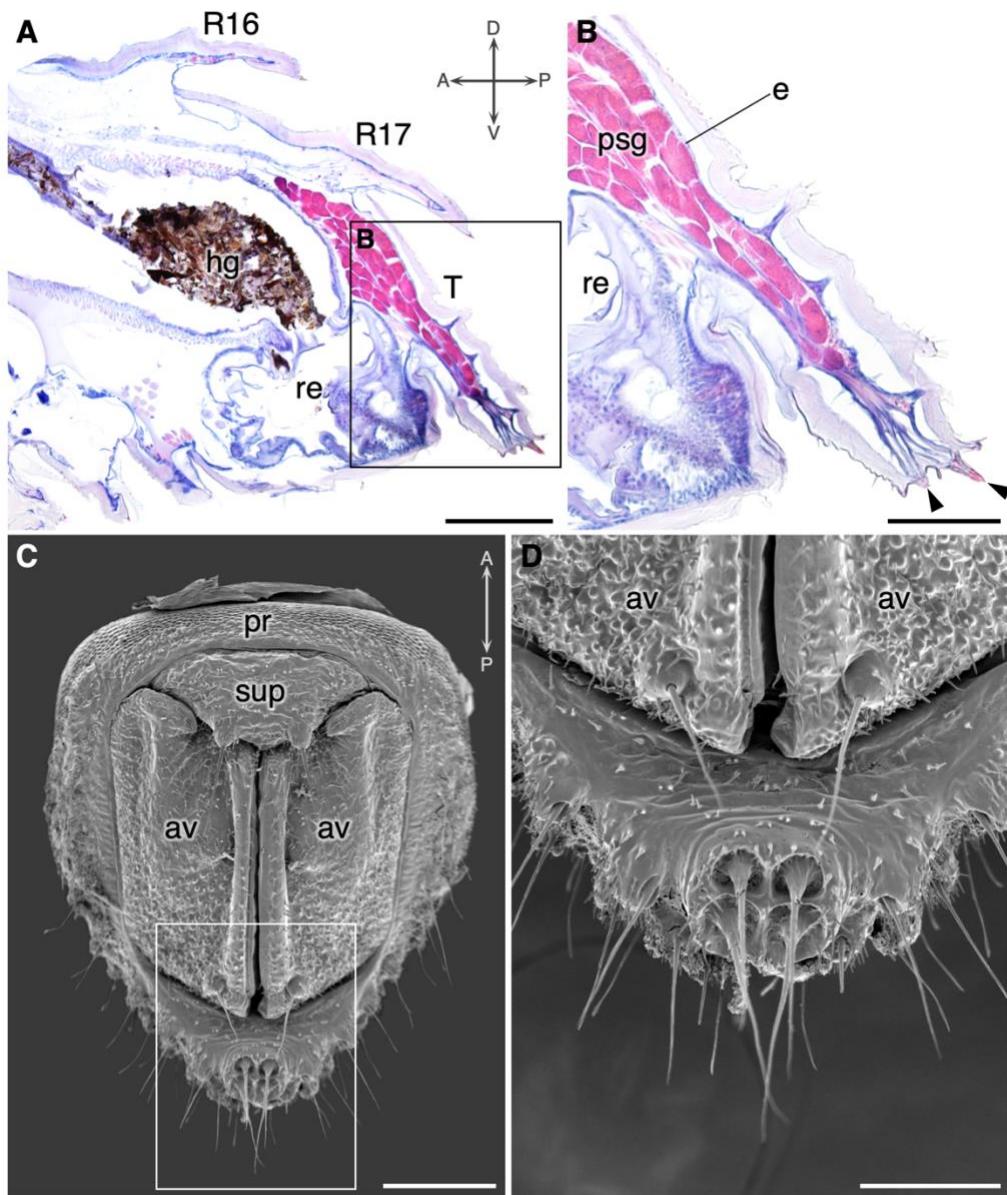


**Fig. S1** Comparison of the ring primordium in the late rigidification period of stadium VI with the completed ring 18 of stadium VII in *N. nodulosa*, based on  $\mu$ CT data. **A, B** Posterolateral views. **C, D** Ventral views. **A, C** Stadium VI, late rigidification period. **B, D** Stadium VII, intermolt period (Day 10). Not to scale in (A, B). Scale bars: 500  $\mu$ m (C, D). Abbreviations: mz, metazonite; pn, paranotum; pz, prozonite.



**Fig. S2** Musculature in the posterior region of stadium VI juveniles of *N. nodulosa*, based on DAPI and phalloidin staining and SEM observations. **A** Schematic diagram of musculature posterior to ring 16, lateral view, with corresponding sections in (H–L). **B** Schematic diagram of telson musculature, dorsal view, with corresponding sections in

**(C–G)**, **C–I**, **K** DAPI and phalloidin staining. **J**, **L** SEM images with selected muscles pseudo-coloured in red. **C** Recovery period. **D–F** Early preparatory period; **(E)** shows magnified view of the boxed area in **(D)**. **G**, **H** Late preparatory period. **I–L** Musculature inside telson during the intermolt period; **(I, K)** correspond to the same samples as **(J, L)**, respectively. Scale bars: 200  $\mu$ m. Abbreviations: av, anal valve muscle; di17, dorsal internal muscle of ring 17; dr, dorsal retractor muscle (e.g. dr17 = dorsal retractor muscle of ring 17); es, eversible anal sac muscle; hg, hindgut; lp, leg primordia; psg, putative spinning gland; R, ring (e.g. R17 = ring 17); re, rectum; T, telson; vnc, ventral nerve cord.



**Fig. S3** Putative spinning gland and spinnerets in the telson of *N. nodulosa*, based on histology and SEM. **A, B** Sagittal sections through the spinnerets of a stadium VI juvenile during the late preparatory period. A different section from the same individual shown in figure 4c. **(B)** shows a magnified view of the boxed area in **(A)**. Arrowheads indicate spinnerets. **C, D** SEM images of the ventral side of the telson in a stadium VII juvenile. **(D)** shows a magnified view of the boxed area in **(C)**, showing two pairs of spinnerets. Scale bars: 200  $\mu$ m (**A, C**), 100  $\mu$ m (**B, D**). Abbreviations: av, anal valve; e, epidermis; hg, hindgut; pr, preanal ring; psg, putative spinning gland; R, ring (e.g. R17 = ring 17); re, rectum; sup, subanal plate; T, telson.