

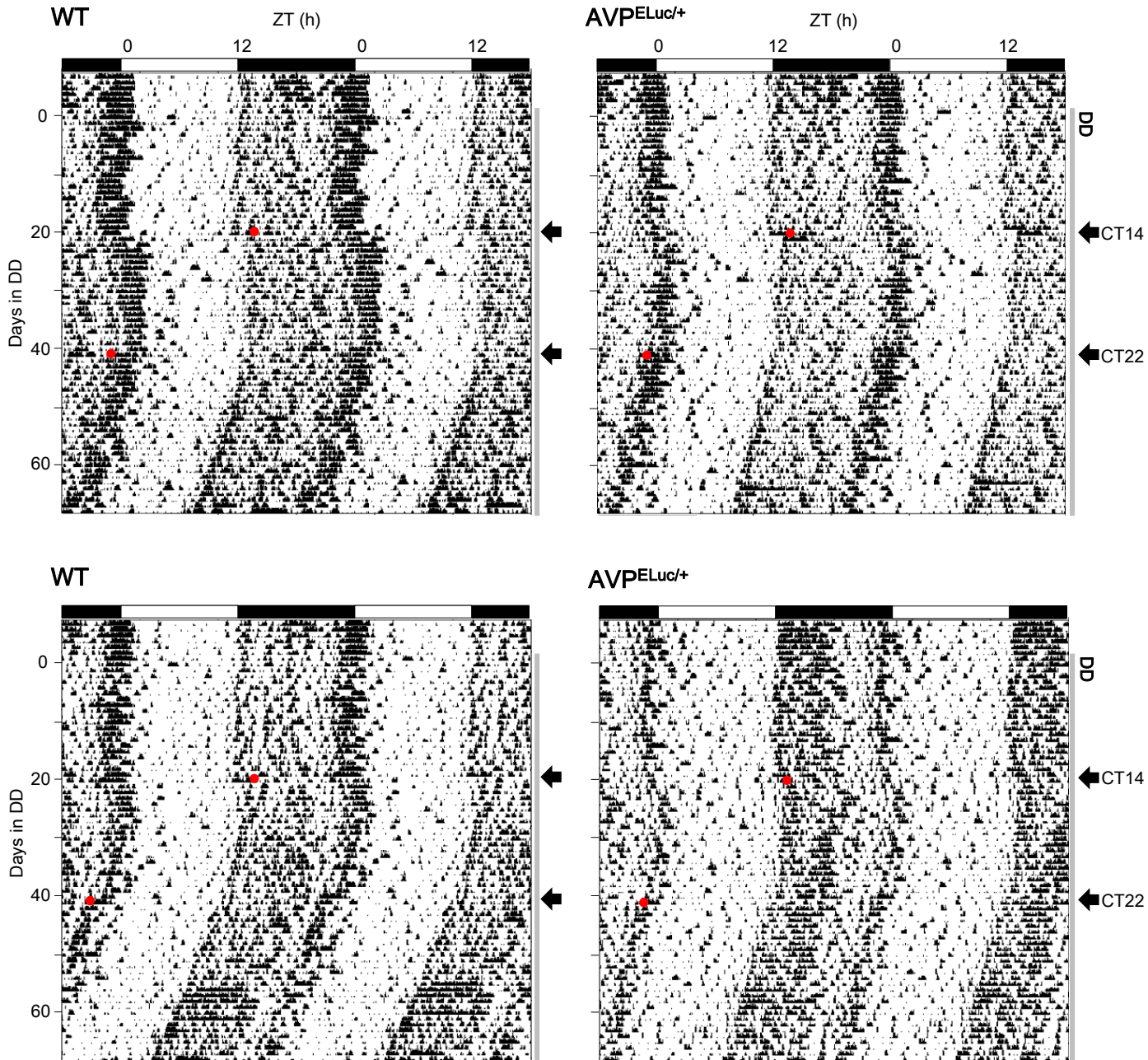


Title	Spatiotemporal profiles of arginine vasopressin transcription in cultured suprachiasmatic nucleus
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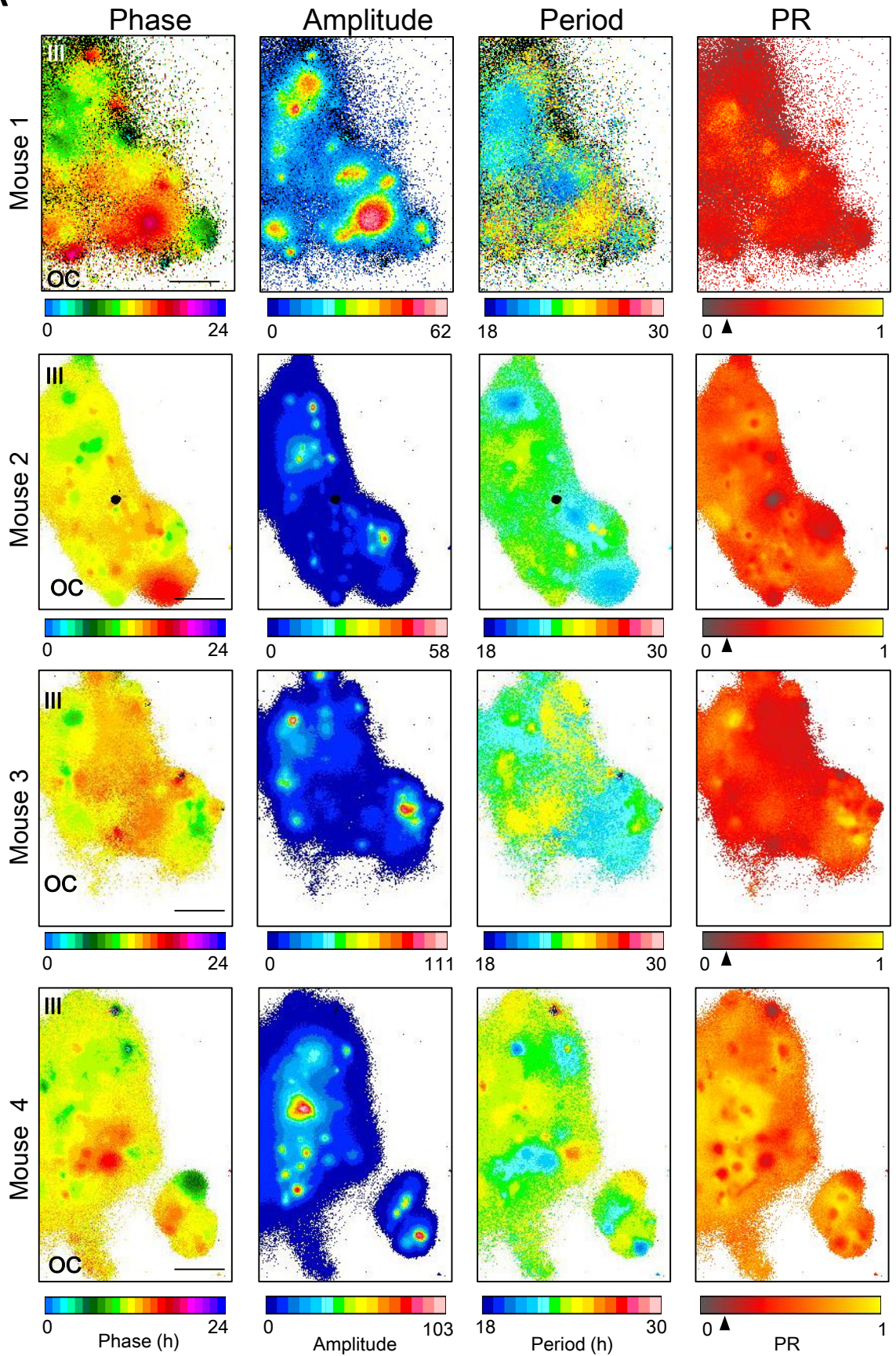
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# Supplemental figure 1

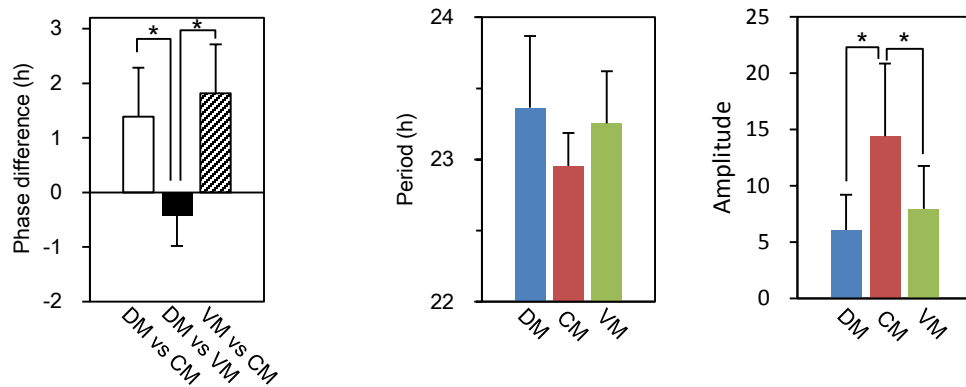


# Supplemental figure 2

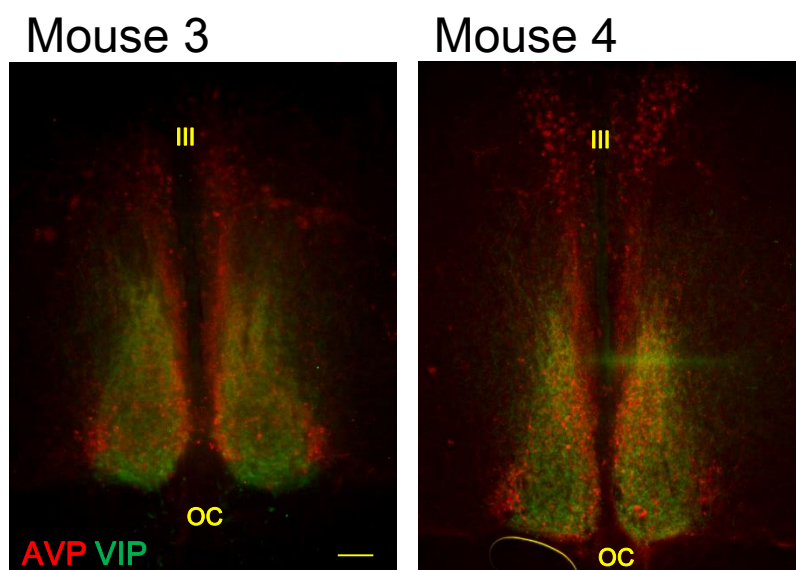
**A**



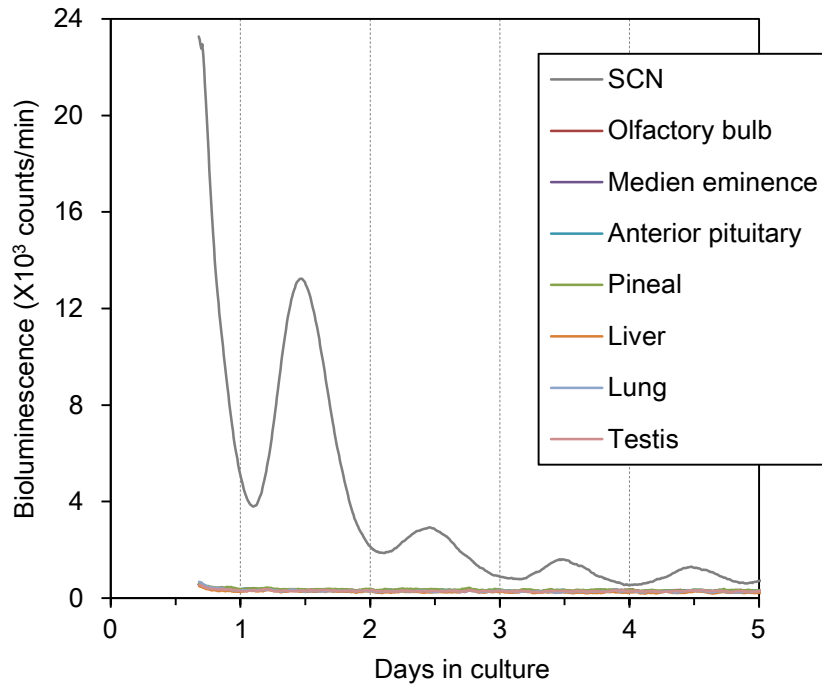
**B**



**C**



# Supplemental figure 3



**Supplemental figure 1.** Representative double-plotted actogram of circadian rhythms in spontaneous locomotor activities of WT and AVP<sup>ELuc/+</sup> mice. Amounts of locomotor activity are plotted in 1 min bins with black columns. Black and white bars at the top of each panel indicate the dark and light phases of LD cycles. Grey bars on the right margin indicate the days in DD. Red circles in the actograms and arrows in the right margin indicate the time in ZT and day of a single light pulse.

**Supplemental figure 2. A.** Heat maps of parameters of the circadian AVP-ELuc rhythms on pixel level in the SCN slices (n = 4). Acrophase (far left), amplitude (left), period (right) and percent rhythm (PR) (far right) are illustrated with pseudocolor. Color scale of acrophase indicates differences from the slice mean defined as 12 h. Goodness of fit is indicated by PR: highest with 1 and lowest with 0. The limit of significance level for curve fitting is shown by a triangle. Pixels with bioluminescence intensity less than the background level are indicated with white color and aperiodic pixels are indicated with black color. Scale bars indicate 100  $\mu$ m, III the third ventricle and OC the optic chiasm. **B.** Quantitative analyses of circadian parameters of the bioluminescence rhythm in the dorsomedial (DM), centromedial (CM) and ventromedial (VM) areas of the SCN slice. The mean differences in the acrophase between two of three areas (left), the mean period (middle) and the mean amplitude (right) of circadian AVP-ELuc rhythm in each area are expressed as the mean  $\pm$  SD (n = 5). Asterisk (\*) indicates a statistically significant difference (P<0.01, one-way ANOVA with post-hoc Tukey-Kramer test). **C.** Immunohistochemically identified AVP (red) and VIP (green) containing neurons in the SCN stained after *ex vivo* recording of bioluminescence. The SCN slices are two of the four slices as shown in A. Scale bar indicates 100  $\mu$ m.

**Supplemental figure 3.** Representative circadian AVP-ELuc rhythms in the cultured slices of extra SCN brain areas and peripheral tissues from an AVP<sup>ELuc/+</sup> mouse. Only low basal levels of bioluminescence were detected except for the SCN.