Figure 5-source data 1. Summary of statistical analysis of circular plots presented in Figure 5.

Mean Phase Angle is the average peak phase of bioluminescence rhythms of each tissue from the indicated sample number. The distribution is shown as circular standard deviation (Circular SD). Circular Variance is calculated as *V* = 1 - *r*, where *r* is the length of mean vector (i.e. the strength of the phase clustering), hence is expressed as values between 0 and 1. Watson-Williams F-test was performed to compare the mean phase angle in each tissue from Fx/Fx and BKO mice under LD or DD conditions. Variance (distribution of peak phase values) was compared by bootstrapping to estimate P-values for each comparison.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **LD** | | Pituitary | Liver | Kidney | Heart | Lung | Spleen |
| Fx/Fx | Mean Phase Angle (˚) | 254.9  (n = 14) | 202.5  (n = 15) | 244.6  (n = 15) | 258.6  (n = 15) | 265.8  (n = 15) | 315.4  (n = 15) |
| Circular SD (˚) | 27.74 | 13.63 | 17.00 | 12.00 | 16.61 | 15.26 |
| Circular Variance | 0.111 | 0.028 | 0.043 | 0.022 | 0.041 | 0.035 |
| BKO | Mean Phase Angle (˚) | 274.1  (n = 14) | 196.5  (n = 15) | 234.7  (n = 15) | 250.1  (n = 15) | 262.6  (n = 15) | 323.0  (n = 15) |
| Circular SD (˚) | 29.10 | 15.49 | 16.97 | 20.65 | 18.59 | 20.45 |
| Circular Variance | 0.121 | 0.036 | 0.043 | 0.063 | 0.051 | 0.062 |
| Watson-Williams F-test | |  |  |  |  |  |  |
|  | P value | 0.095 | 0.287 | 0.133 | 0.195 | 0.636 | 0.274 |
| Comparison of variance | |  |  |  |  |  |  |
|  | P value | 0.464 | 0.290 | 0.503 | **0.018** | 0.327 | 0.098 |
|  | for Fx/Fx < BKO |  |  |  |  |  |  |
| **DD** | | Pituitary | Liver | Kidney | Heart | Lung | Spleen |
| Fx/Fx | Mean Phase Angle (˚) | 269.3  (n = 15) | 230.1  (n = 15) | 261.1  (n = 15) | 274.9  (n = 15) | 278.6  (n = 15) | 322.3  (n = 15) |
|  | Circular SD (˚) | 16.23 | 22.78 | 12.77 | 16.33 | 14.94 | 9.735 |
|  | Circular Variance | 0.039 | 0.076 | 0.025 | 0.040 | 0.033 | 0.014 |
| BKO | Mean Phase Angle (˚) | 250.1  (n = 15) | 176.2  (n = 15) | 205.4  (n = 15) | 227.6  (n = 15) | 276.1  (n = 15) | 327.7  (n = 15) |
|  | Circular SD (˚) | 56.21 | 72.94 | 46.09 | 48.27 | 31.08 | 36.34 |
|  | Circular Variance | 0.382 | 0.555 | 0.276 | 0.299 | 0.137 | 0.182 |
| Watson-Williams F-test | |  |  |  |  |  |  |
|  | P value | 0.217 | **0.014** | **1.29E-4** | **0.001** | 0.783 | 0.585 |
| Comparison of variance | |  |  |  |  |  |  |
|  | P value | **0.0000** | **0.0004** | **0.0000** | **0.0013** | **0.0037** | **0.0000** |
|  | for Fx/Fx < BKO |  |  |  |  |  |  |