Japan histology results for 14-day PTU assay

1 Section Image

Figure 1 shows typical thyroid glands of the 14-day PTU test. The thyroid gland and follicular cell size increased with increasing PTU concentration.

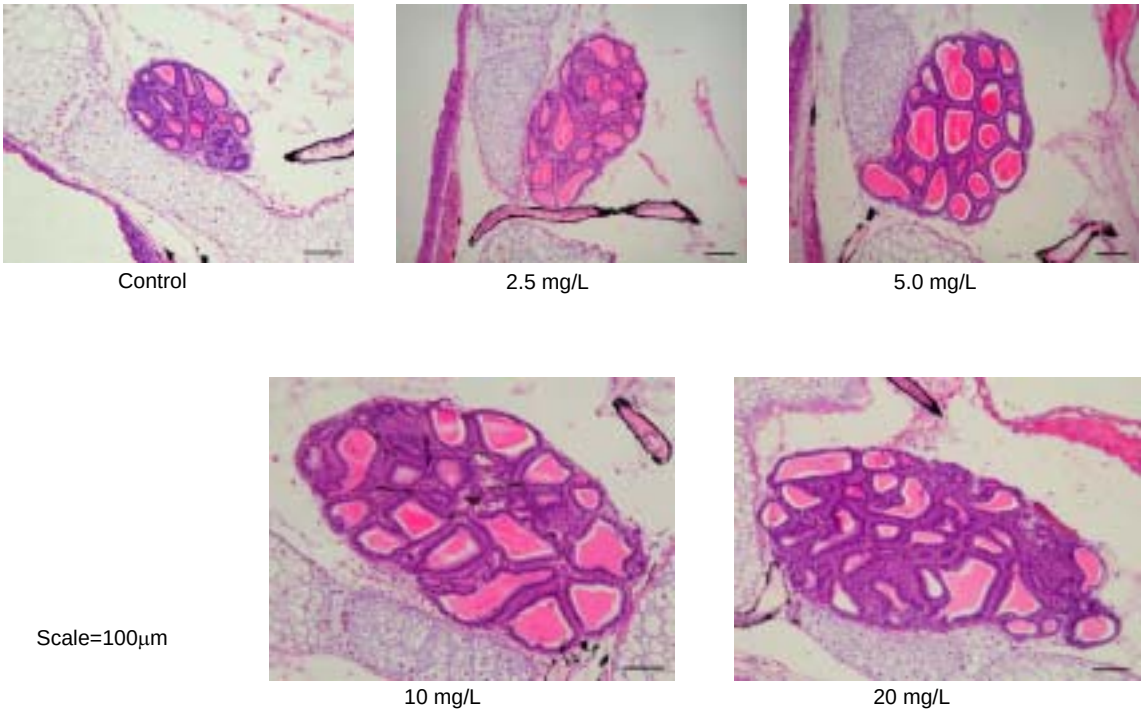

Fig.1 Section image of thyroid gland of stage 54 *Xenopus laevis* exposed to PTU for 14 days

2 Thyroid gland area

Figure 2 shows the sagittal section area of stage 54 tadpoles exposed to PTU for 14 days. Gland area in all the treatment groups except in the 20 mg/L treatment were insignificant compared to the control ($P<0.05$).

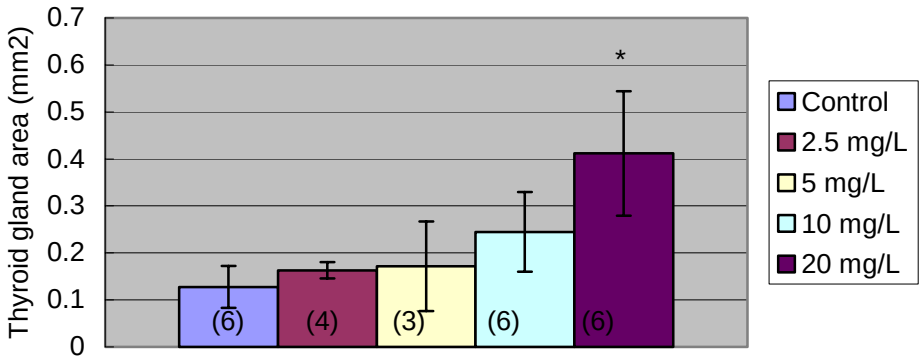

Fig.2 Thyroid gland area of stage 54 *Xenopus laevis* exposed to PTU for 14 days
Figures in parenthesis represent the number of samples analyzed.

3 Follicular lumen area

Exposure to PTU also led to changes in follicular lumen (Fig. 3). Follicular lumen area in the 10 and 20 mg/L treatment group were significantly pronounced as compared to the control group ($P<0.05$).

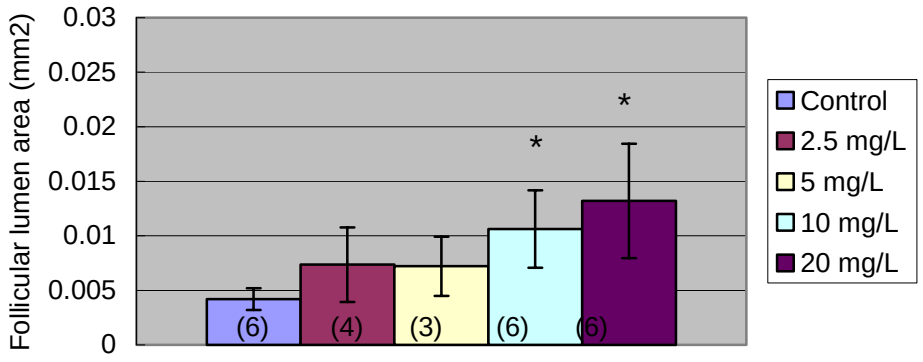

Fig.3 Follicular lumen area of stage 54 *Xenopus laevis* exposed to PTU for 14 days
Figures in parenthesis represent the number of samples analyzed.

Analysis of the samples from the 21-day PTU, 14-day T4, and 21-day T4 assays is still on-going.

Discussion

Even the lowest PTU concentration (2.5 mg/L) caused noticeable extent changes in both gland area and follicular lumen area. Both parameters also showed a dose-dependent trend, suggesting that gland area and follicular lumen area could be effective endpoints for the evaluation of thyroid effects. However, no statistically significant differences in thyroid gland area were seen between the control and the 20 mg/L treatment. Similarly, there were no significant statistical differences between the control and the 10 and 20 mg/L in terms of follicular lumen area. Apparent the large variation in the sample numbers did not allow for detection of significant statistical differences. It is possible therefore that as sample size increases the differences observed would become significant.

A pathological standard that could qualitatively evaluate thyroid gland morphological changes, follicular hypertrophy, etc would be a more effective means to evaluate these changes. However, since qualitative analysis may subjective depending on individual skills a unified and easy to use quantitative technique is necessary.