

## **Approach of Alternative Animal Experiments to Evaluate the Efficacy and Safety of Medicines**

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With regard to the use of experimental animals for research and education, alternative methods for animal testing came to be discussed on account of criticisms made on animal welfare and humanitarian grounds as well as awareness among scientists. With the recent concern for animal rights, experimental studies using mammals have been limited. Thus, based on social acceptance, experimental studies using chick embryos have drawn attention. Chick embryonic heart develops through a similar process as in mice, rats and humans and also has a similar atrioventricular system. In order to develop alternative methods, we have studied the biological effects of drugs on the cardiovascular system of chick embryos using physiological techniques. Fertilized eggs of White Leghorns were incubated and investigated. Drugs were injected into the air sac of each fertilized egg. Electrocardiograms (ECGs) were recorded after the drug injection, and heart rate was determined from R R intervals. We have demonstrated that our recording system for an electron cardiogram system using chick embryo may be applied as an animal test alternative. The ECGs obtained from chick embryos may be used to evaluate the efficacy and safety of some medicines, and we expect to obtain a great deal of information using this alternative method.