

## **A050 AGSC**

### **The Oxygen Level in Chick Embryo during Early Development**

#### **Abstract**

Shell-less culture and shell-windowing methods for chick embryos with increased hatchability are beneficial for the efficient generation of transgenic chickens, gene manipulations, and tissue engineering, toxicity tests. The main challenges of these methods are that once the egg is opened, there is an increase in water loss and altered gas exchange. This results in the death of the chicken embryo. Oxygen plays a critical role in the maintenance of growth development in chickens. The main goal of this study is to determine whether alterations in oxygen level plays a role in the embryonic death in shell-less and shell-windowed embryo culture. For this purpose, the oxygen level has been measured at different stages of development in control, windowed, and shell-less embryo culture. In the past, it was hard to measure oxygen levels on chick embryos, we employed micro-oxygen probes. Oxygen levels were measured at four locations within the egg: egg white away from the embryo, the center of the embryo, the egg of the embryo, and egg yolk away from the embryo. The experiments confirmed that levels of oxygen are associated with the time of incubation. To conclude, the oxygen level drops in the embryo when the time of incubation increases. It is necessary to develop methods that captures oxygen levels in near-death embryos.