Video Article

In Utero Intraventricular Injection and Electroporation of E15 Mouse Embryos

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Abstract

In-utero in-vivo injection and electroporation of the embryonic mouse neocortex provides a powerful tool for the manipulation of individual progenitors lining the walls of the lateral ventricle. This technique is now widely used to study the processes involved in corticogenesis by over-expressing or knocking down genes and observing the effects on cellular proliferation, migration, and differentiation. In comparison to traditional knockout strategies, in-utero electroporation provides a rapid means to manipulate a population of cells during a specific temporal window. In this video protocol we outline the experimental methodology for preparing mice for surgery, exposing the uterine horns through laporatomy, injecting DNA into the lateral ventricles of the developing embryo, electroporating DNA into the progenitors lining the lateral wall, and caring for animals post-surgery. Our laboratory uses this protocol for surgeries on E13-E16 mice, however it is most commonly performed at E15 as shown in this video.

References

