Bilateral Infusion

Bilateral infusion is a research technique that allows for simultaneous infusion of a test solution into a target area of each brain hemisphere. This method can be used to administer a solution of a test agent simultaneously into brain structures on both hemispheres. This method can also be used to expose one brain hemisphere to a test agent, while infusing the contralateral side with a different test agent or a vehicle control.

ALZET® Osmotic Pumps provide a means for chronic administration of solutions into the brain of awake, unstrained animals. They can be adapted for use in CNS applications requiring bilateral infusion (click here for a list of relevant research citations). One potential way to achieve bilateral infusion is to connect a single ALZET pump to a 'Y connector", which diverts the flow of test solution from a single pump into two different outputs. While theoretically feasible, the caveat of using such connector is that even distribution of the solution between the two outputs is not guaranteed. The infusate will likely choose the path of least resistance, leading to uneven dosing at the target areas. To ensure accurate and even bilateral distribution, we recommend implanting two ALZET pumps simultaneously*, with each pump connected to a catheter leading to each target site at the corresponding brain hemisphere. Bilateral cannulae with various lengths and compatible with ALZET pumps are available from Plastics One, Inc.

Figure 1. Diagram of a bilateral infusion cannula from Plastics One.

*Two pumps can be implanted provided the animal is large enough to accommodate the additional pump. Click here for additional information on minimum animal weight requirements for multiple pump implantation.