# USF Available Technologies

Technology Transfer Office

# A Novel Putamen Grid for Use in Neural Transplantation

Researchers at the University of South Florida have developed a novel grid array for neurological surgery purposes.

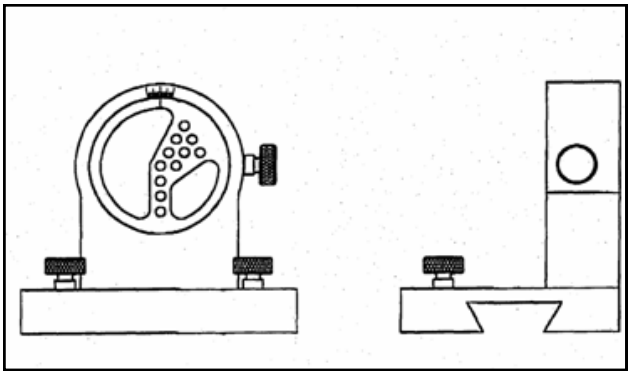
Parkinson's disease and Huntington's disease are two common neurodegenerative disorders that affect millions of people worldwide. Currently, there is no cure or universally effective treatment option for either. To treat these diseases, researchers are testing the effects of neural fetal tissue transplantations into the affected brain regions. Once grafted into the brain, the fetal tissue is able to reinnervate the organ and improve behavioral deficits. The fetal tissue is typically inserted into the brain by a grid array with multiple holes for a series of needle tracts. However, current grid arrays are solid and often too large, making the device hard to use and the brain surgery a blind maneuver. This highlights the need for a more flexible and petite grid array.

USF researchers have developed a novel grid array with holes every 5 mm so that multiple needle tracts can be utilized. This design technique facilitates the insertion of several needles in a predefined shape for increased accuracy. The apparatus is comprised of a base, multiple puck-shaped needle guides, and at least one viewing cut-out so that the surgeon can observe the needle's passage into the brain. This device decreases operating room time and improves reliability. Additionally, a smaller grid array was also developed which allows the surgeon to target only the putamen brain area. Along with neural transplantation, the grid can be used for delivery of stem cells, fetal cells, gene therapies, and RNAi interference delivery.

## ADVANTAGES:

- **Direct visualization through viewing cut**
- **Allows for 3-D transplantation**
- **Applicable for putamen and caudate brain targets**
- **Decreases operating time**
- **Improves reliability**

*Improved Visibility for the Neural Transplantation of Fetal Tissue*



*A Front and Lateral Elevated View of a Needle Guide with a Puck-Like Shape Secured within the Apparatus*

**Tech ID # 02B070** **Patent #: 8,012,159**

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