THE EXISTING PROBLEM

Brain retractors are often used to allow surgical access to deep-seated brain lesions (e.g., tumours or vascular lesions in basal ganglia, central core of the brain parenchyma, or in cerebral ventricles). Currently used retractors involve rigid/semirigid metallic blades fixed around patient’s head. Retractor-induced complications include vascular injury/compression of the blood vessels and/or direct injury to the brain, often requiring the release of blades during surgery.

Self-retaining skull-, table- or headrest-mounted retractors are also in use, as well as conical tubular retractors. The latter are still rigid structures not allowing dynamic retraction, cost several thousands of dollars and are not disposable. Retractorless surgery can be performed and dynamic retraction methods have increasingly been evaluated and adopted (e.g., using a surgical suction device). 1,2

There is an unmet need for disposable and affordable retractorless devices that enable dynamic brain retraction, minimising invasiveness and brain injury.

OUR SOLUTION

- “Brain donut” is a novel, simple, dynamic brain retraction device in development, made of silicon rubber (or potentially another plastic material), with a donut-resembling shape.
- Its design involves a toric rubber ring inflatable with saline solution, injected via a cannula connected to a common syringe. The ring supports the brain walls around the central hole, forming a central surgical tunnel in which the surgeon introduces the surgical tools to reach and treat the brain lesion.
- The plastic used for the ring can be transparent, allowing the surgeon to visualise the status of the underlying blood vessels and brain parenchyma.

ADVANTAGES | BENEFITS
--- | ---
Design | Dynamic, malleable, requires less adjustments and saves time
Cost | Inexpensive composition
Safety | Accurate placement of surgical instruments, reduces work-distance of hands to brain (reducing tremor)
Ease of use | Disposable, compact, transportable, no need to sterilise
Less injury, pressure and brain invasion | Distributes a more homogeneous force around the brain parenchyma + internal pressure can be modified

INTELLECTUAL PROPERTY POSITION
Patent filed.

PARTNERING OPPORTUNITY
We are seeking an industry partner with pertinent capabilities for further development and commercialisation of the “Brain Donut” surgical device, through a research collaboration or technology licence.

INVENTORS
Antonio Di Ieva

WOULD YOU LIKE TO KNOW MORE?
Gorjana Mitic, PhD +61-2-9850-4542
gorjana.mitic@mq.edu.au

mq.edu.au/commercialisation