



The **Realisation** of Research

## **Magnetic Targeting of Cells using MR Imaging Gradients**

**Case ID:**

90-018

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**Category(s):**

Delivery of Therapeutics

Gene/Cell Therapy

**Description:**

### **Magnetic Targeting of Cells using MR Imaging Gradients**

**Available for:** Co-development and/or licensing

### **Summary**

UCL researchers have developed a novel technique to magnetically target cells using MRI. This allows image guided targeted delivery of cells to sites of the body which cannot be reached with external permanent magnets.

### **The Technology and its Advantages**

An increasing number of clinical trials assess the efficacy of stem cell therapies, with their success depending on the extent of delivery cells to the site of injury. Delivery of cells to specific targets within the body generally remains a difficult task. Labelling of cells with MRI contrast agents such as superparamagnetic iron oxide particles is becoming an established method for the tracking of cells in animal models and has recently been applied to humans. Scientists at UCL have shown the first demonstration of magnetic targeting of biologically relevant material- stem cells- using MRI. MR Imaging gradients were used to guide cells labelled with the FDA-approved MRI contrast agent Endorem® in a vascular bifurcation flow model. This work supports the value of MRI for improved targeting of intravascular cells.

### **Market Opportunity**

MRI is an important technology in modern medicine and MR scanner can be found in most modern hospitals. Developing a delivery technique based on an MR platform will significantly increase the utility of MRI scanners. In particular this would allow combining diagnostic imaging with localised drug delivery to the disease regions. This technology would increase the value of MR systems to healthcare professionals.

### **Intellectual Property Status**

A patent claiming this novel technique has recently been filed

### **Further Information**

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