**In vitro methods for evaluation of novel radiopaque embolic flow properties**

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*In vitro* profiling using microfluidic models has become increasingly utilized in the evaluation of medical devices over the last 30 years. To evaluate the unique flow properties of embolic products, bespoke *in vitro* microfluidic test systems have been developed. A traditional issue associated with angiographic guided administration of embolic products has been visualizing real-time vascular positioning post-delivery. This issue has been addressed with the development of novel radiopaque beads. The fundamental physiochemical properties of these novel embolic agents have been presented by Duran et al in 2016. However the flow properties and user handling considerations have not been fully compared to non-radiopaque embolics *in vitro*. This presentation will focus on the characterization of novel radiopaque microspheres and the profiling methods that have aided in their development. It will also cover the specific advantages provided clinically through extensive *in vitro* profiling of flow distribution, CT visualization and deliverability studies compared to *in vivo* distribution data. The flow properties of RO Bead in terms of final distal location have been shown to be comparable to DC Bead™ under a variety of *in vitro* tests and *in vivo* models however physiochemical properties inherent to the radiopacity functionality have been shown to alter the compressibility, suspension and inter-channel packing characteristics *in vitro*. These physical properties have not been shown to influence the *in vivo* physical penetration end-points, administration user response or distribution pattern of representative sizes of either embolic *in vitro*.

**Biography**

Marcus Caine is an Innovation Scientist at BTG. Initially focusing on analytical method development and validation, he is pursuing part-time PhD with the University of Southampton in Applied Biomimetic Microfluidics and focusing on the application of this project to advancing treatment in the field of interventional oncology and pulmonology.

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