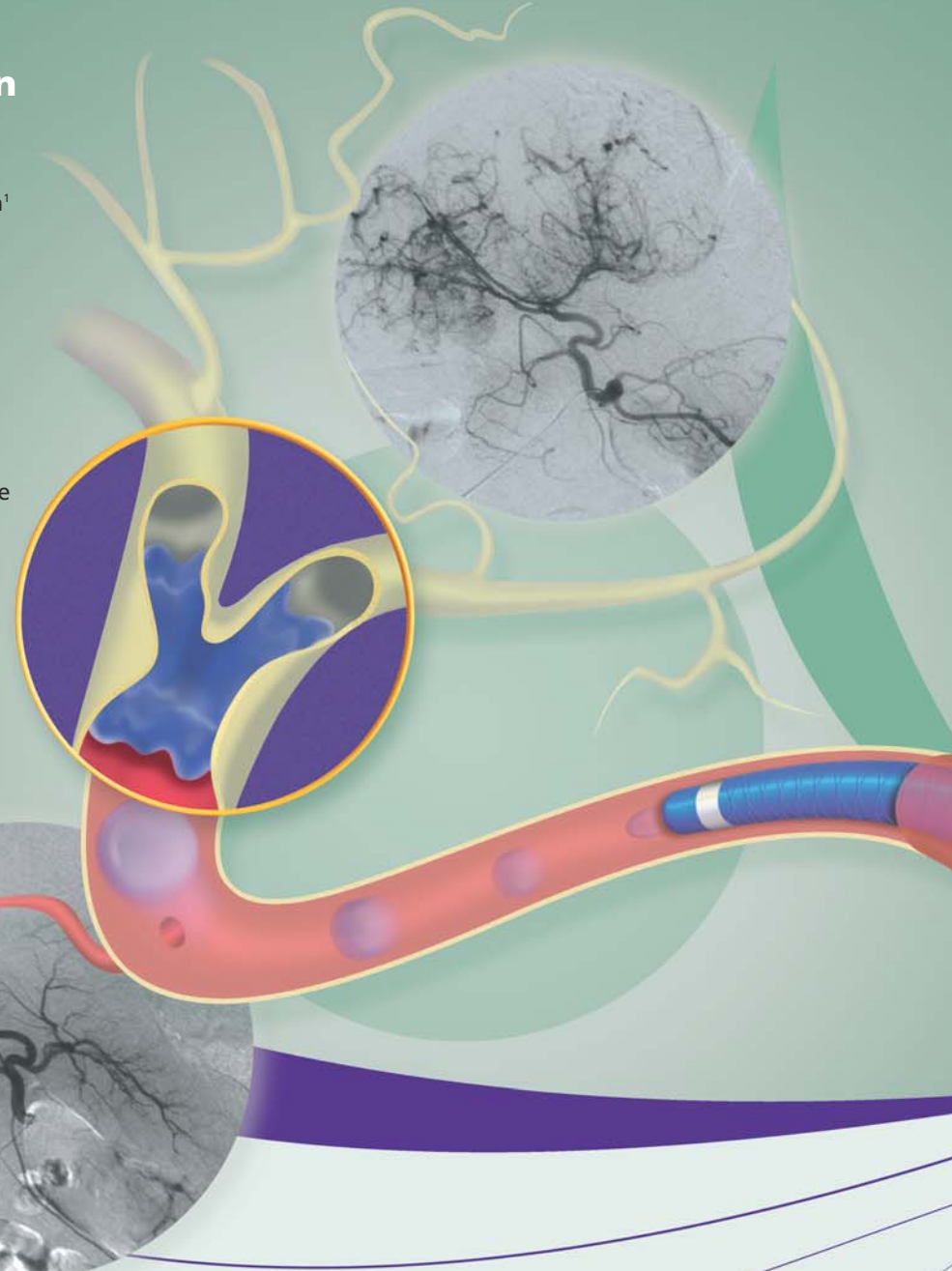# The conformable solution to embolisation

- Designed for Hepatic Arterial Embolisation[1]

- Soft and deformable spheres which mould into the occlusion site anatomy

- Enlargement after delivery improves occlusion effectiveness[2]

- Unique fluid absorbing properties minimise tracking into smaller vessels beyond the targeted occlusion site

HepaSphere™
EXPANDING MICROSPHERES
Promoting Embolization Efficacy in Liver

BioSphere® Medical

HepaSphere™
EXPANDING MICROSPHERES
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# The conformable solution to embolisation

Precise occlusion site targeting
As well as achieving occlusions with a large surface area, the unique fluid absorbing properties of **HepaSphere™** microspheres minimise unwanted tracking beyond the embolisation site.

Occlusions that conform to the site anatomy
Each **HepaSphere** microsphere immediately absorbs fluid on delivery, causing it to expand - up to four times the dry state diameter - becoming soft and flexible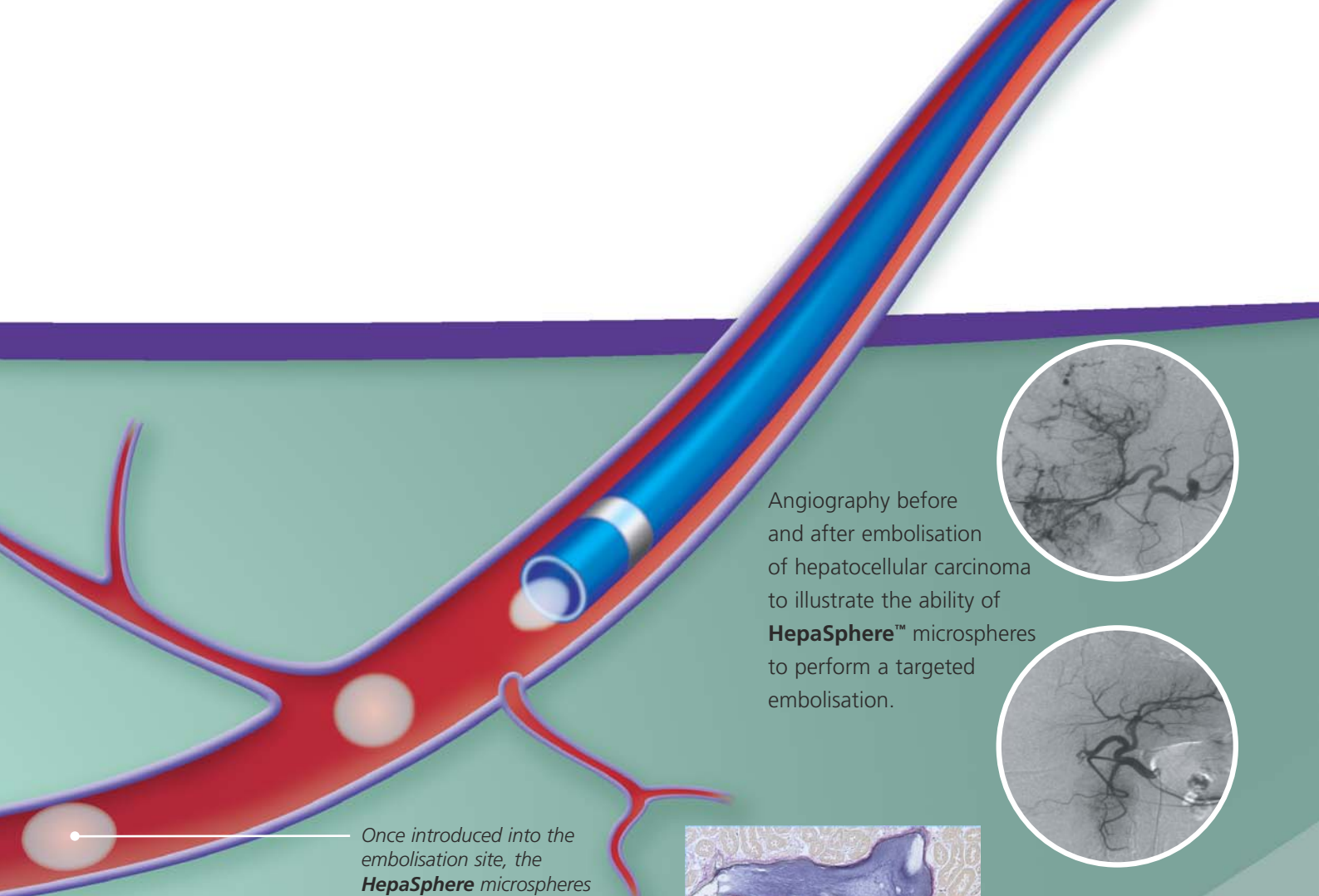, without any loss of integrity. The enlarged sphere then conforms to the occlusion site anatomy to form a moulded occlusion with a large surface area.

**HepaSphere** microspheres can be delivered using **Embo-Cath™** Hydrophilic Infusion Catheter.
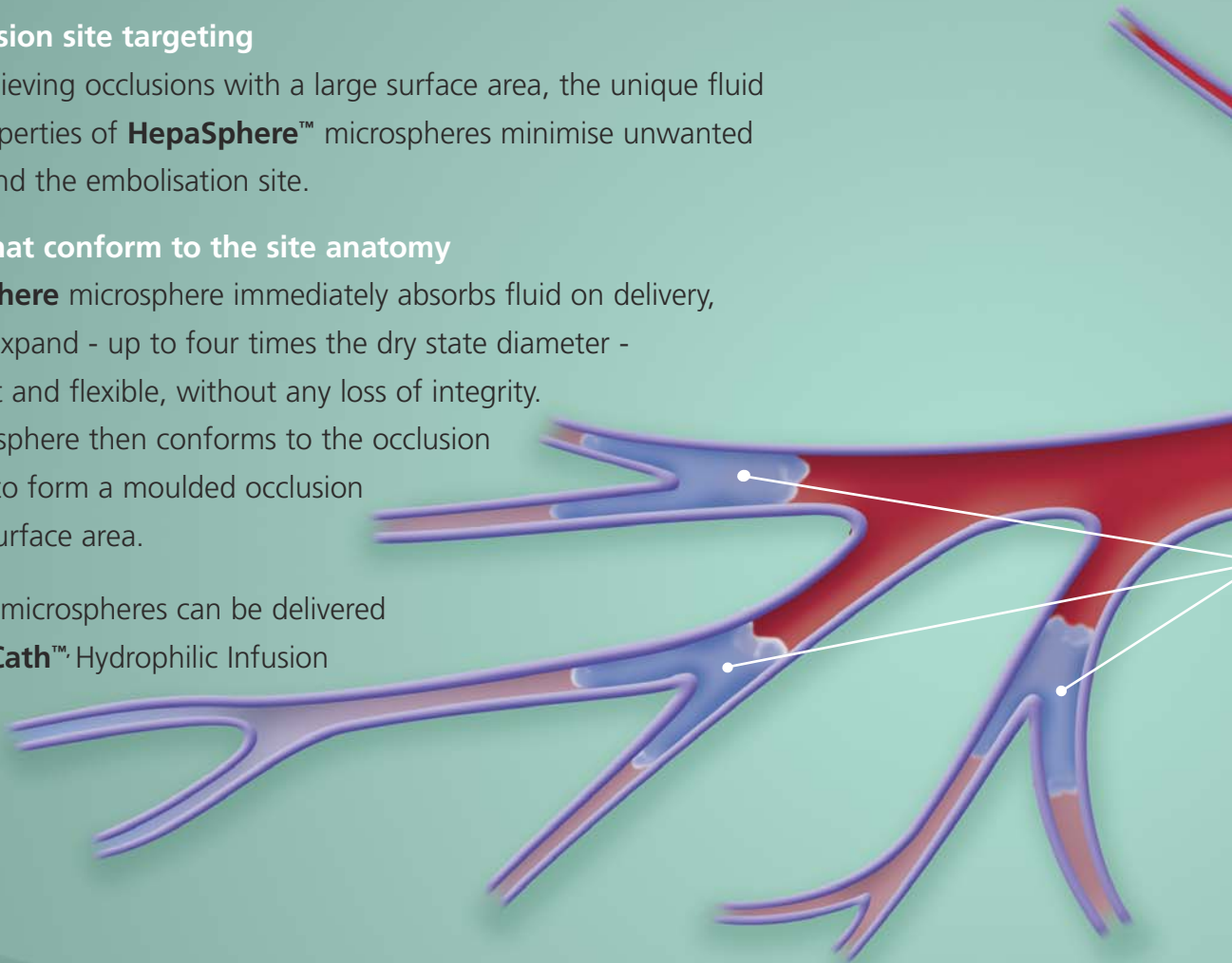
HepaSphere microspheres provide versatile therapy options

- **HepaSphere microspheres** are designed for bland as well as chemo-embolisation.
- **HepaSphere microspheres** are compatible and can be mixed with chemotherapeutic agents such as Ethiodol, Cisplatin, Epirubicin, Doxorubicin, Fluorouracil, Mitomycin etc.*
- The swelling properties of the functionalized polymer used in **HepaSphere microspheres** provides a high drug absorbing capability.
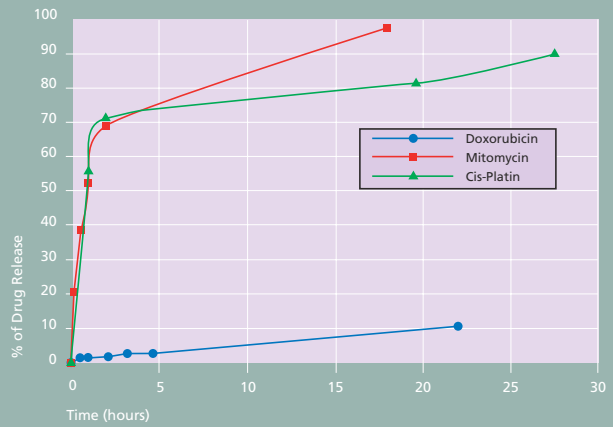
Angiography before and after embolisation of hepatocellular carcinoma to illustrate the ability of **HepaSphere™** microspheres to perform a targeted embolisation.

*Once introduced into the embolisation site, the **HepaSphere** microspheres start to expand and soften as they track down to the targeted occlusion position.*

*The **HepaSphere** microspheres then conform with the occlusion site anatomy without continuing to track into the smaller vessels beyond.*
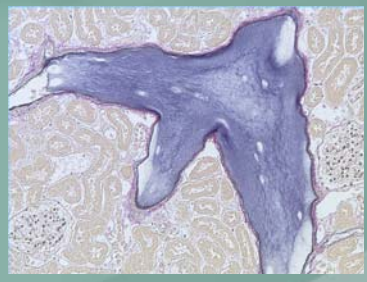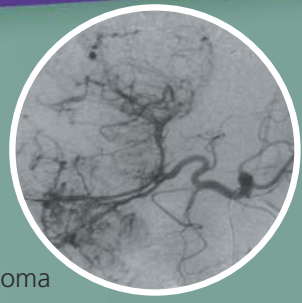
Histology of a **HepaSphere** microsphere showing their conformability.

Release Kinetics with HepaSphere Microspheres in Common Chemotherapeutics (in-vitro model)*

*Dry **HepaSphere** microspheres*

***HepaSphere** microspheres after absorbing Doxorubicin*

HepaSphere microspheres can absorb up to 64 times their initial volume of an aqueous medium, enabling them to act as a drug reservoir.*

The inset demonstrates the potential of **HepaSphere** microspheres' drug-loading capabilities.

% of Drug Release

Time (hours)

Doxorubicin
Mitomycin
Cis-Platin

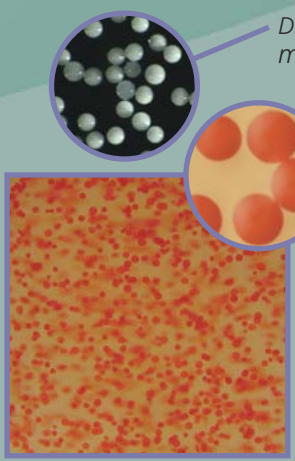* Laboratory tests indicate that **HepaSphere** microspheres will absorb and slowly release Doxorubicin Hydrochloride.

Data on file at BioSphere Medical, Inc.

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Ordering Information

HepaSphere™ Expanding Microspheres

| Size range of dry particles (µm)	Size range when expanded (µm)	Colour code		Quantity (mg)	Order Number
50-100	200-400	Yellow		50	V305HS
100-150	400-600	Blue		50	V505HS
150-200	600-800	Red		50	V705HS

HepaSphere microspheres can absorb aqueous medium by up to 64 times their initial dry state volume, the expansion rate being mostly dependent on ionic concentration.
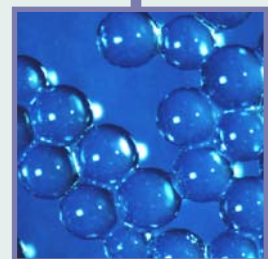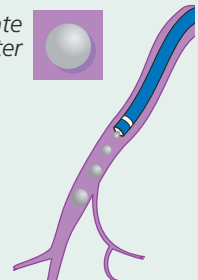
Dry state diameter

2x dry state diameter

4x dry state diameter
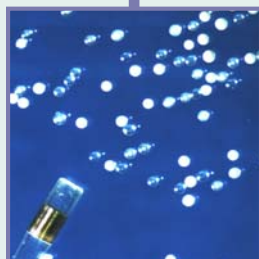
The **HepaSphere** microspheres are supplied as dry particles.
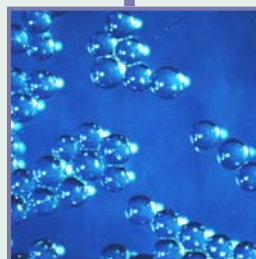
When Ionic Contrast Media is added, the **HepaSphere** microspheres expand 2x their dry state diameter: *equal to 8x volume*.

When in contact with blood or Non Ionic Contact Media (NaCI 0.9%) the **HepaSphere** microspheres expand to 8x their dry state volume: *equal to 64x volume*.

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(1) Transarterial Embolization for Large Hepatocellular Carcinoma with Use of Superabsorbent Polymer Microspheres: *Initial Experience, K. Osuga et al. JVIR 2002, Vol. 13, pp.929-934*

(2) Embolic Effects of Superabsorbent Polymer Microspheres in Rabbit Renal Model: *Comparison with Tris-acryl Gelatin Microspheres and Polyvinyl alcohol, A.A. Khankan et al. Radiation Medicine 2004, Vol. 22, pp.384-390*

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