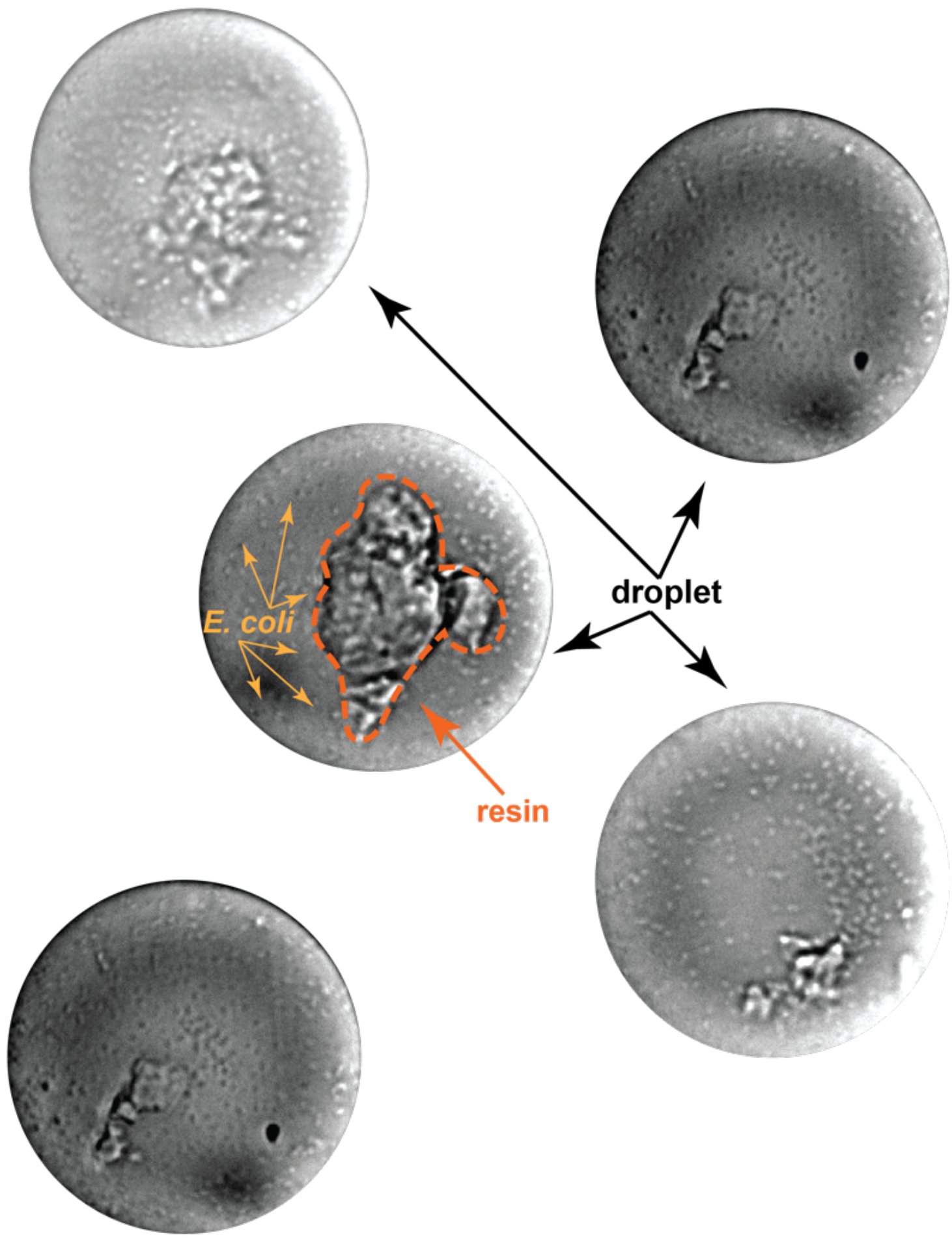




## Smart nanomaterials for biotechnologies

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# Introduction to RAN Biotech:

RAN Biotechnologies (RAN Biotech) is a team of chemists and biologists developing smart nanomaterials that reinforce the work of other scientists. We innovate in the lab and iterate for the scientific market. We create the tools that scientists use, and then we make them better.

Nanomaterials have been unlocking new potential in the scientific world. Whether the work is in the research lab or in the field, in next-generation sequencing or in the management of our most crucial resources – great science is dependent on great scientific tools.



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## Ordering Info:

Efficiency and immediate order processing are at the core of our customer support.

For ordering, please submit quote requests via email to:  
[info@ranbiotechnologies.com](mailto:info@ranbiotechnologies.com)

or via phone by calling:  
001 (833) 726-2661.

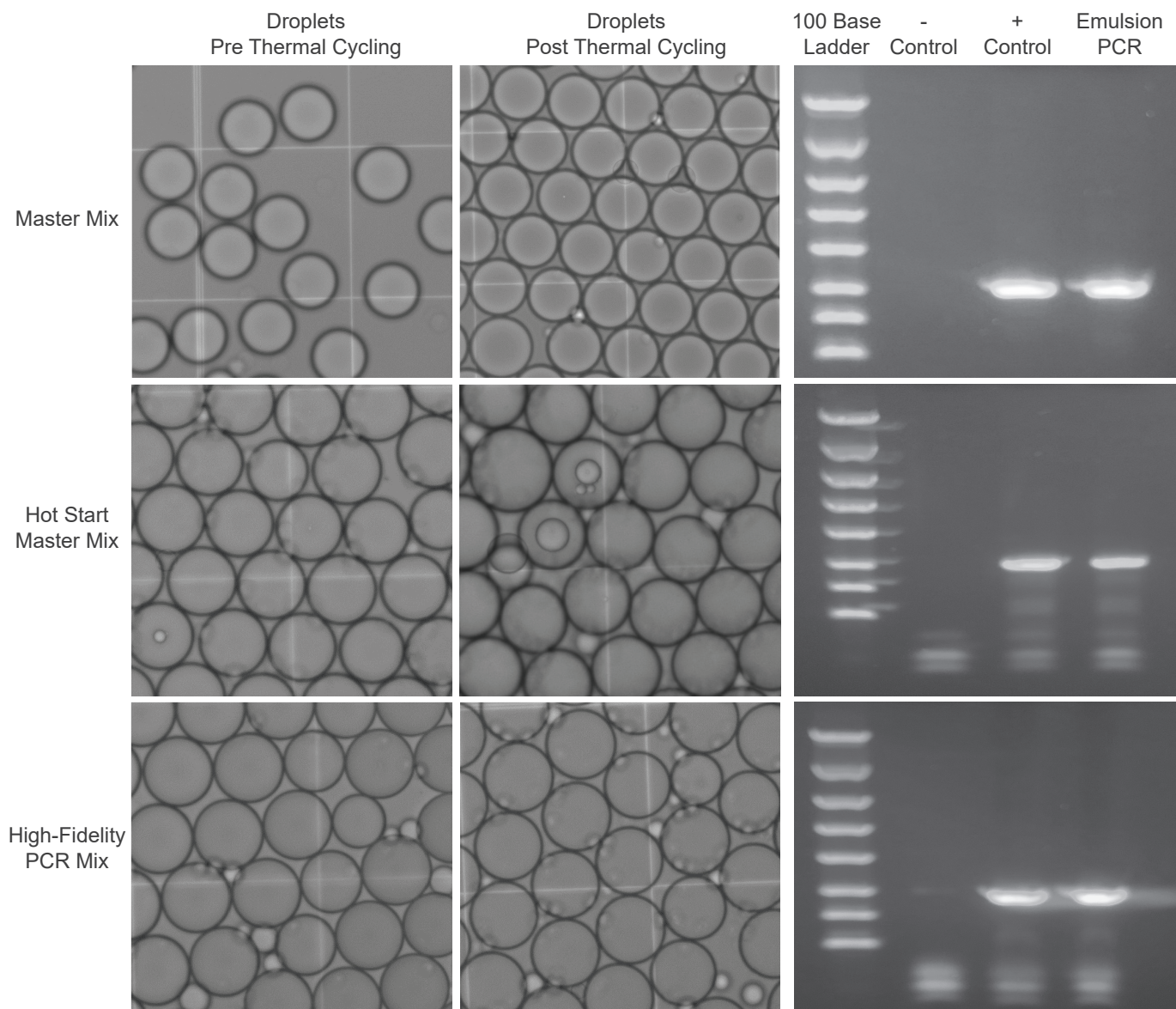
For payment, we accept:

- Purchase Orders (Net30Days)
- Major credit cards, including Visa, Mastercard, American Express, and Discover.



**Your findings are as effective as the tools you use.** For biologists working with droplet microfluidics, that means trusting rare materials and key experiments to the quality of your fluorosurfactants. Low-performing chemicals cost time. And maybe more.

RAN Biotech develops fluorosurfactants specifically for use by the most rigorous researchers. We have worked for years in conversation with our customers to achieve biocompatibility, stability and reproducibility that meets the highest standards. Because success in your lab begins in ours.



RAN Biotech's non-ionic FluoroSurfactants have been optimized for droplet microfluidics and for emulsion-based molecular biology (e.g. ePCR). They uniquely combine:

- Chemical compatibility
- Biological compatibility
- High purity
- Reproducibility
- Custom chemical modifications
- Custom product packaging
- Experienced technical and scientific support



### Neat (un-dissolved) 008-FluoroSurfactant

Product	Catalogue Number
1g	008-FluoroSurfactant-1G
5g	008-FluoroSurfactant-5G
10g	008-FluoroSurfactant-10G
50g	008-FluoroSurfactant-50G
100g	008-FluoroSurfactant-100G
0.5kg	008-FluoroSurfactant-500G
1kg	008-FluoroSurfactant-1000G

### 008-FluoroSurfactant dissolved in common fluorinated oil

Product	Catalogue Number
50 g of 2 weight % 008-FluoroSurfactant in HFE7500	008-FluoroSurfactant-2wtH-50G
50 g of 2 weight % 008-FluoroSurfactant in FC40	008-FluoroSurfactant-2wtF-50G
500 g of 2 weight % 008-FluoroSurfactant in HFE7500	008-FluoroSurfactant-2wtH-500G
500 g of 2 weight % 008-FluoroSurfactant in FC40	008-FluoroSurfactant-2wtF-500G
20 g of 5 weight % 008-FluoroSurfactant in HFE7500	008-FluoroSurfactant-5wtH-20G
20 g of 5 weight % 008-FluoroSurfactant in FC40	008-FluoroSurfactant-5wtF-20G
200 g of 5 weight % 008-FluoroSurfactant in HFE7500	008-FluoroSurfactant-5wtH-200G
200 g of 5 weight % 008-FluoroSurfactant in FC40	008-FluoroSurfactant-5wtF-200G

### Starter Kits

Product	Catalogue Number
- 008-FS in HFE7500 (10g) at 5wt%	StarterKit#1
- 008-FS in FC40 (10g) at 5wt%	
- Neat HFE7500, 50g	
- Neat FC40, 50g	
- Neat 008-FS (1g)	StarterKit#2
- Neat HFE7500, 60g	
- Neat FC40, 60g	

### Functionalized FluoroSurfactants

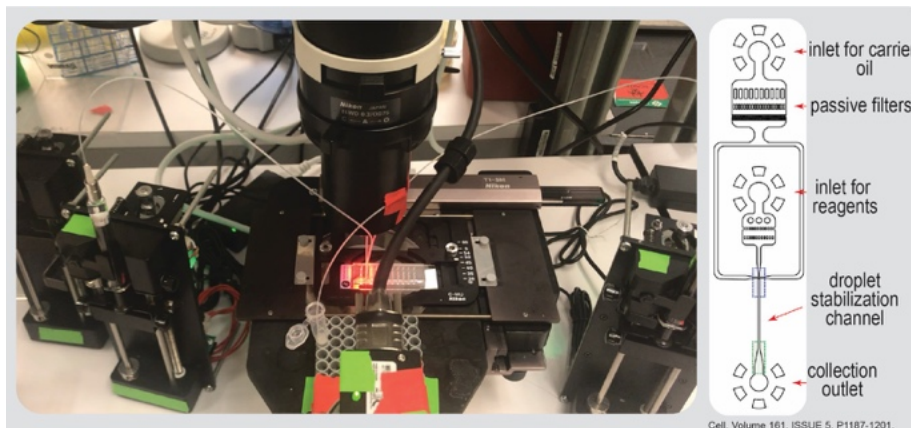
Functionality	Catalogue Number
Biotin	FS-Biotin
BenzylGuanine	FS-BG
Sugar	FS-Sug
Fluorescein	FluoreFS

# Chip-Free Engineered Droplet Generation Kit

*Simplifying high throughput biology.*



Traditional on-chip droplet generation process requires extensive training in engineering and microfluidics in order to setup and maintain a multi-component system involving microscopic parts, in addition to devising and manufacturing a microfluidic chip. Furthermore, the process of generating droplets requires constant monitoring of the setup and eliminating potential external interferences, particularly statics.



**Materials and equipment required for traditional on-chip droplet generation**

**RAN Biotech is introducing the first commercial kit for Chip-Free Engineered Droplet Generation.** The kit includes reagents which lead to the generation of droplets, monodispersed in size, without the need for a microfluidic setup or microfluidic chips. Instead, vortexing or pipetting is all that is needed to generate a monodispersed emulsion.



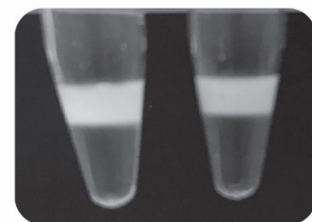
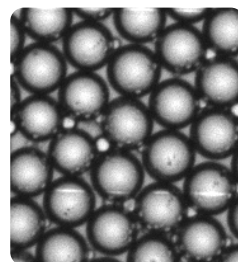
**Gel Beads**

**Emulsion oil**

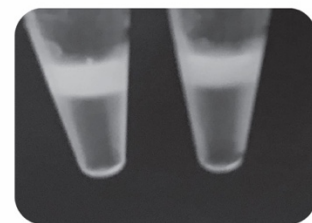
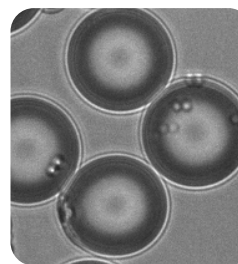
**Recovery oil**



or



pre cycle



post cycle

**Materials Required for RAN Biotech's Chip-Free Engineered Droplet Generation**

**Droplet Generation via vortexing or pipetting**

**Droplet Dispersion**

**Emulsion Stability**

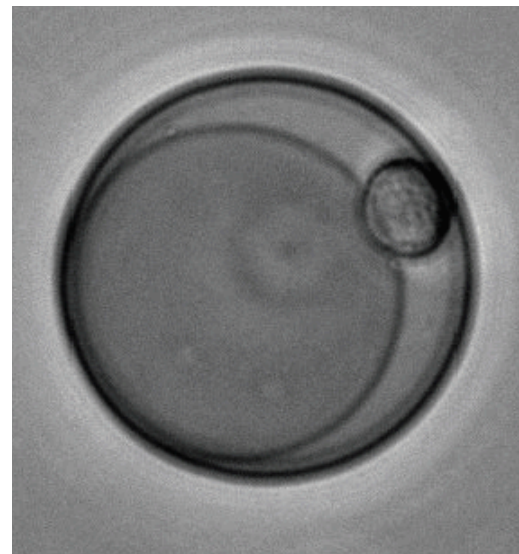
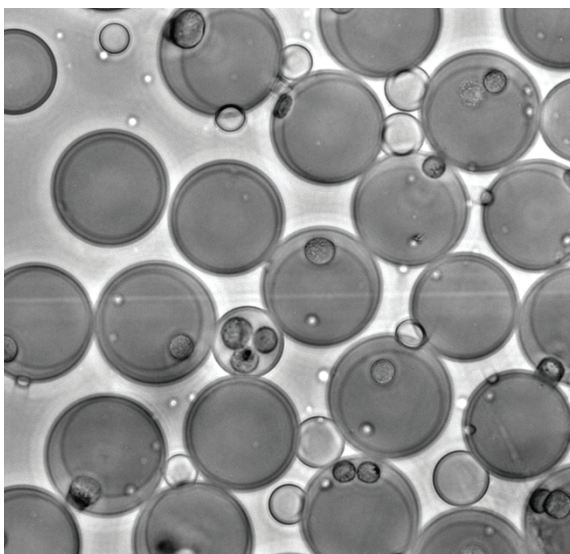
Advantages of the Chip-Free Engineered Droplet Generation kit (**NoChipDrop™** kit):

- Production of monodispersed droplets in less than a minute without the need for specialized microfluidics equipment.
- Droplets are generated using RAN Biotechnologies' surfactants, gel beads and standard lab equipment (vortex or pipette).
- Droplets are stable with various enzymatic formulations for applications such as PCR, cDNA synthesis, ddPCR and single cell encapsulation.
- High throughput emulsification of multiple samples in microcentrifuge tubes or standard well plates
- Droplets can easily be imaged and aqueous phases can easily be recovered.
- **Custom functionalization is available for gel beads (size, surface modifications and magnetism).**



Chip-Free Engineered Droplet Generation Kit (NoChipDrop™ kit)

Product	Catalogue Number
Emulsion Oil - 2ML	NoChipDrop-Kit1
Aqueous Recovery Oil - 300microL	
Gel Bead Slurry - 500microL	

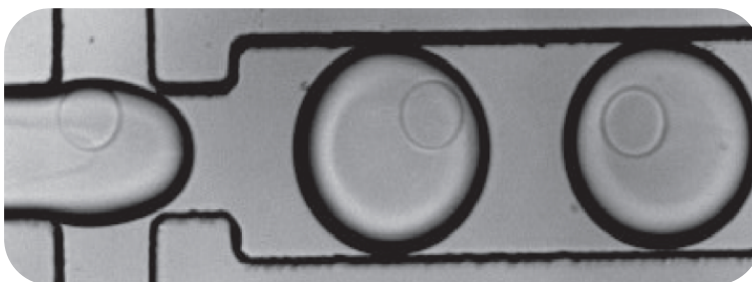
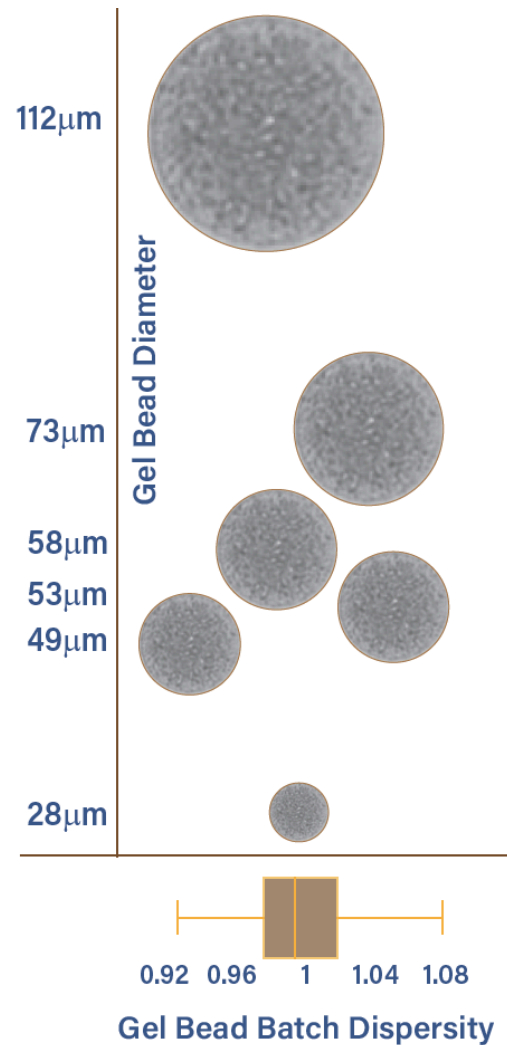


Single cells encapsulated in templated droplets using RAN Biotech's NoChipDrop-Kit1

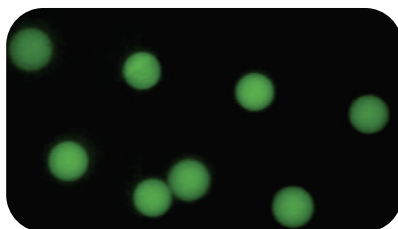
*The ideal particles for capturing and delivering.*

The biocompatibility of gel beads in general and polyacrylate beads in particular, coupled with their ability to be porous, soft yet tough, allows them to remain widely used materials in biological applications.

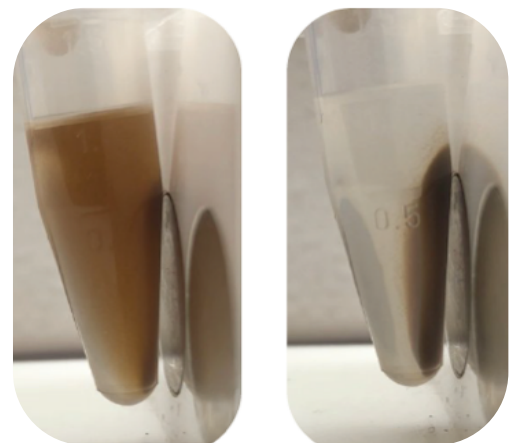
RAN Biotech's compressible Functionalized Gel Beads (FunGelBead™) can be used to capture nucleic acids or proteins or to perform biology on solid surfaces in general. RAN Biotech has developed and optimized a process for making these beads reproducibly and at a large scale. They are available in different sizes and functionalities, magnetic and non-magnetic, depending on the customer's requirements.



Gel Beads in picoL-sized droplets

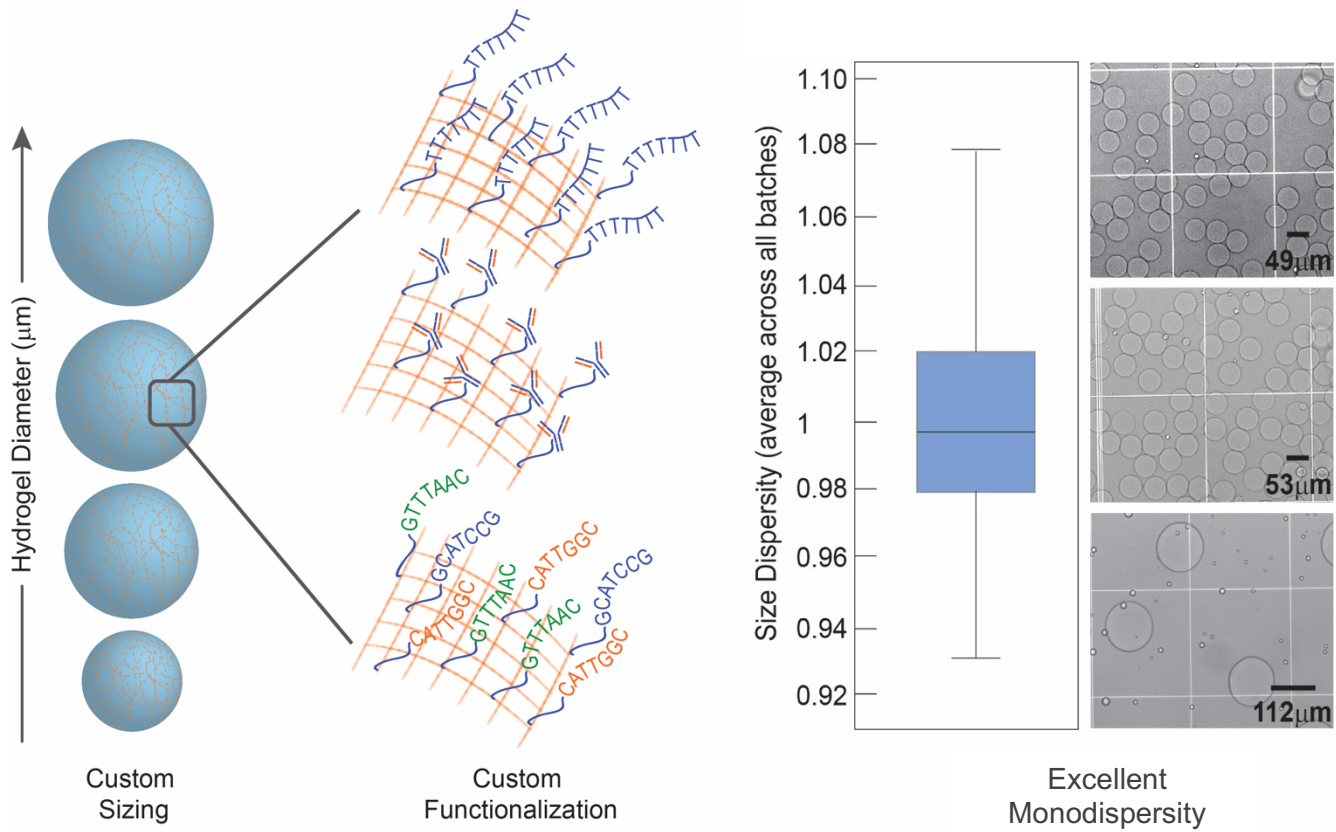


Fluorescent Gel Beads



SuperparaMagnetic Gel Beads





- RAN Biotech's gel beads can be customized for size and functionality depending upon the desired application.
- RAN Biotech's deformable gel beads are monodisperse and can be used in microfluidic, well and tube based applications.
- Superparamagnetic gel beads are available.

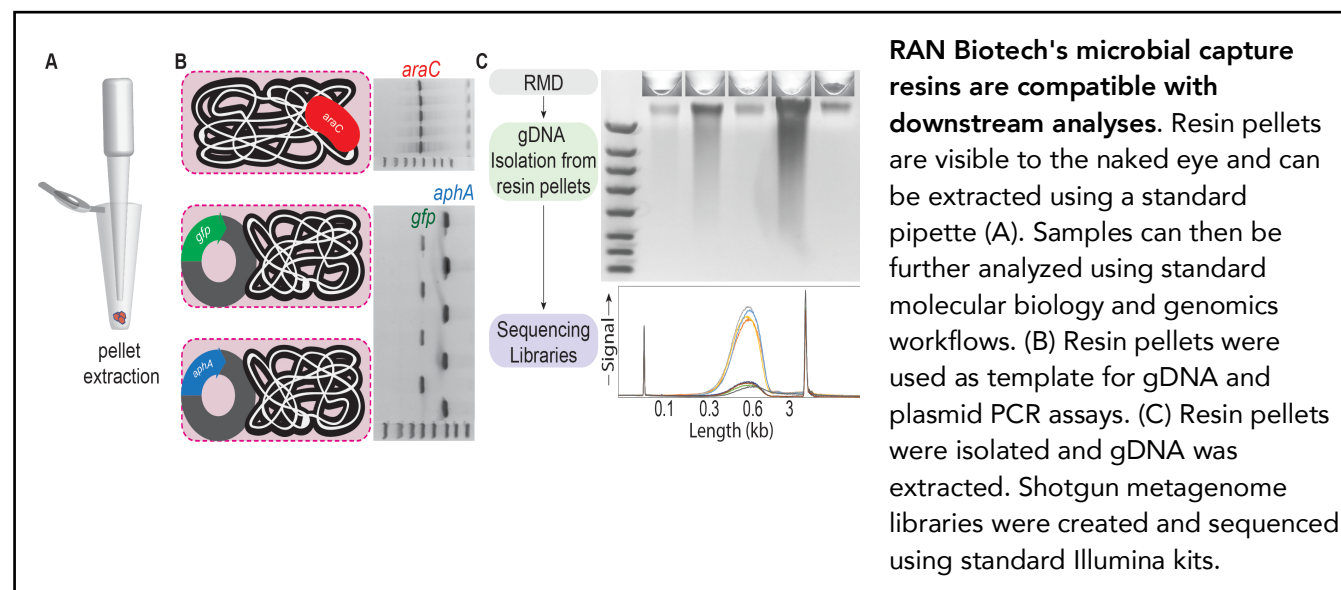
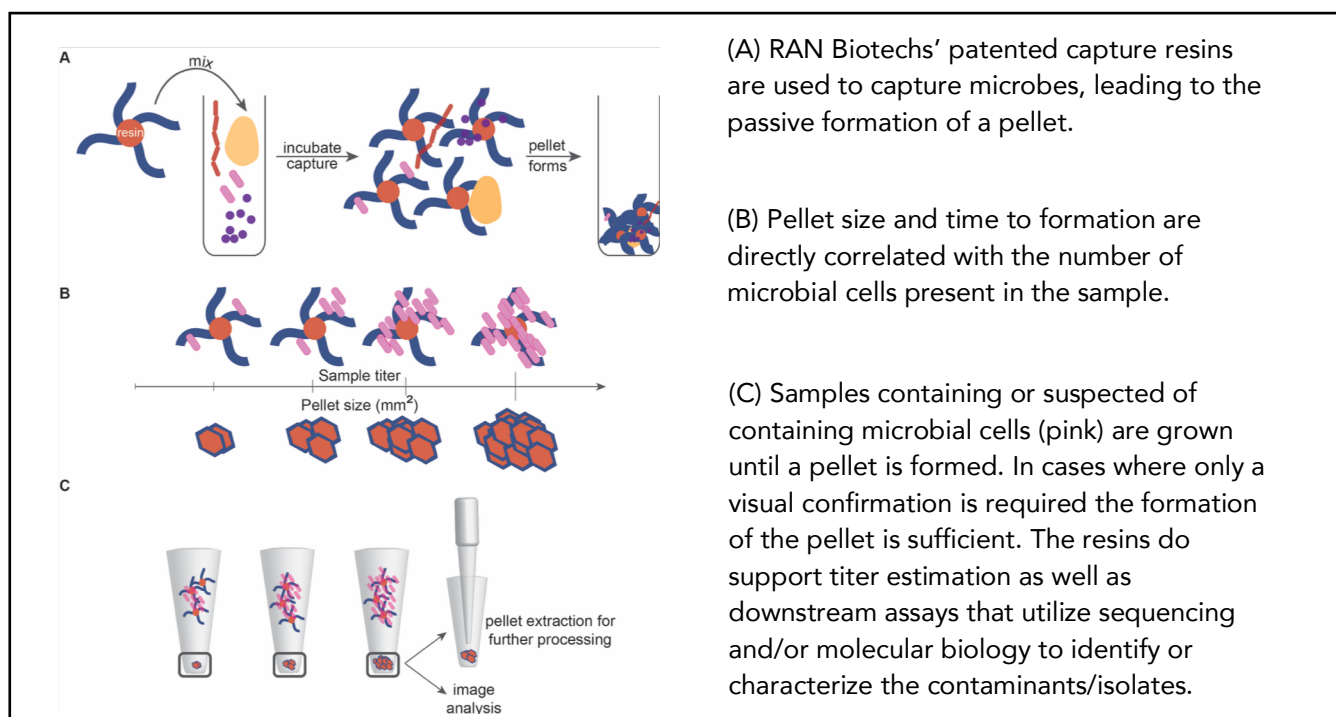


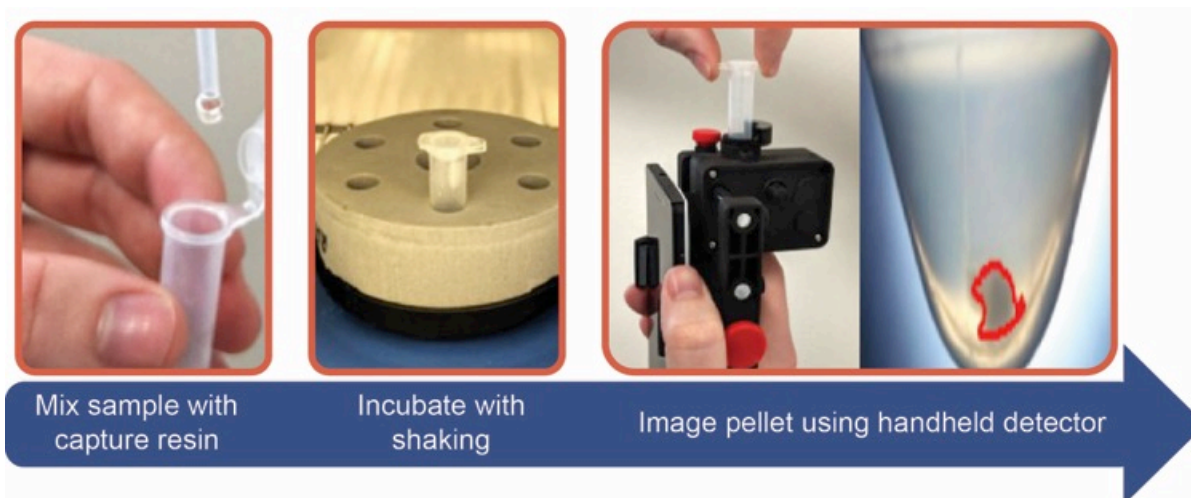
Product	Catalogue Number
Functionalized Gel Beads - Custom ordering	FunGelBead™

**You have to know.** When microbial growth represents a risk – to safety, to efficiency, to functionality – then detecting and measuring their presence is essential. But culture-plate methods take days, and newer rapid microbe detection methods mean a capital investment and a higher cost per test.

Not with RMD. RAN Biotech's patented approach detects microbes accurately, affordably and in hours instead of days. All with easy-to-learn technology that fits in the palm of your hand.

Furthermore, RAN Biotech has optimized a process that allows for molecular biology and sequencing-based identification of the captured microbes from the detection assays.

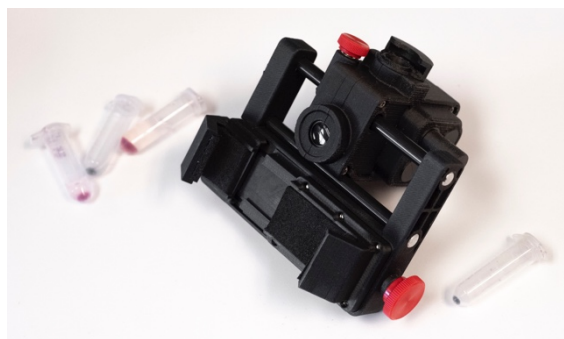


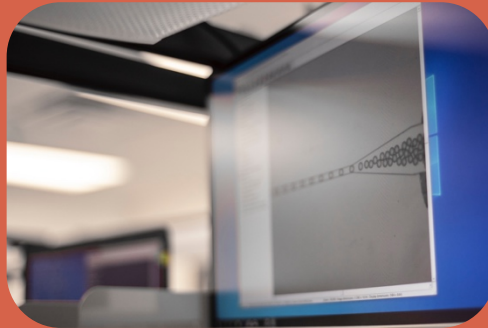
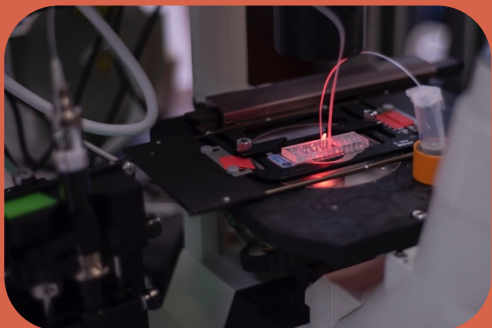


RAN Biotech’s RMD assay is simple. It includes mixing RAN Biotech’s patented capture resins with a sample, followed by incubation and visual confirmation, which is performed by naked eye or by using a handheld device. RMD is currently offered from RAN Biotech as a kit or as individual parts (resins/device).

### RMD Products

Product	Catalogue Number
Aqueous suspension of proprietary RMD1/2 resins designed to universally capture microbes. Custom amounts depending on test sample size	RMD1/2-GM
Patent-pending ViewerDevice assists in collecting and analyzing images of the visible RMD Pellet	ViewerDevice and mobile phone (optional)
Library construction and sequencing	LibraryConst/Seq





**Developed by researchers, for researchers**

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