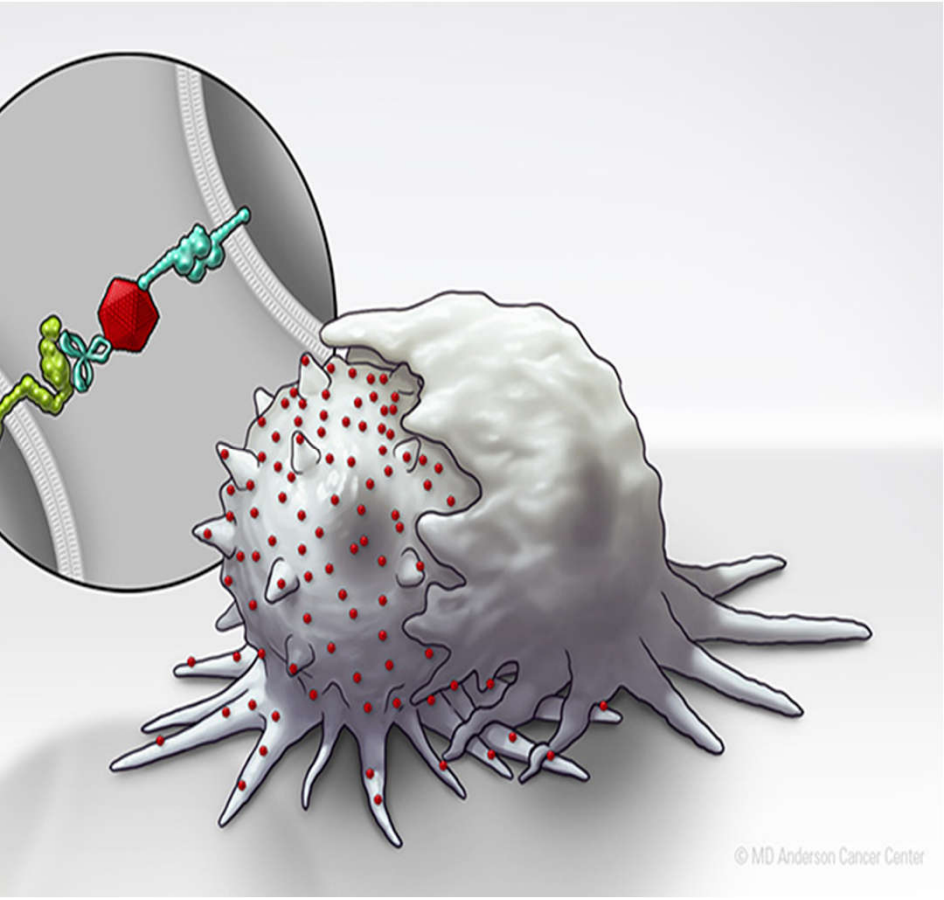
INTERNET NEWS

BS. ĐỖ NGỌC ANH KHOA

Making Tumors Tastier for the Immune System



Researchers at The University of Texas MD Anderson Cancer C
have developed a nanotechnology platform that can make ca
cells more vulnerable to immune attack in the body. The resea
call their system the bispecific tumor-transforming nanoconju
(BiTN) platform.

The idea is to make solid tumors more appealing for the immu
system by attaching a molecule that acts as an “eat me” signa
white blood cells. This molecule is called signaling lymphocyti
activation molecule family member 7 (SLAMF7) receptor and
more commonly found on cancer cells in blood cancers, which
explains the relative success of existing immune therapies in t
cancer types. Solid tumors are not typically as susceptible to t
immune system, so these researchers decided to make them
appealing by attaching SLAMF7 to their surface.

Immunotherapies have changed the way that many cancers a
treated. There is something pleasing about activating our own
immune system to attack a cancer, and it may avoid the need
administer large doses of toxic chemotherapy drugs that can l
wide spectrum of unacceptable side-effects. Our immune cell
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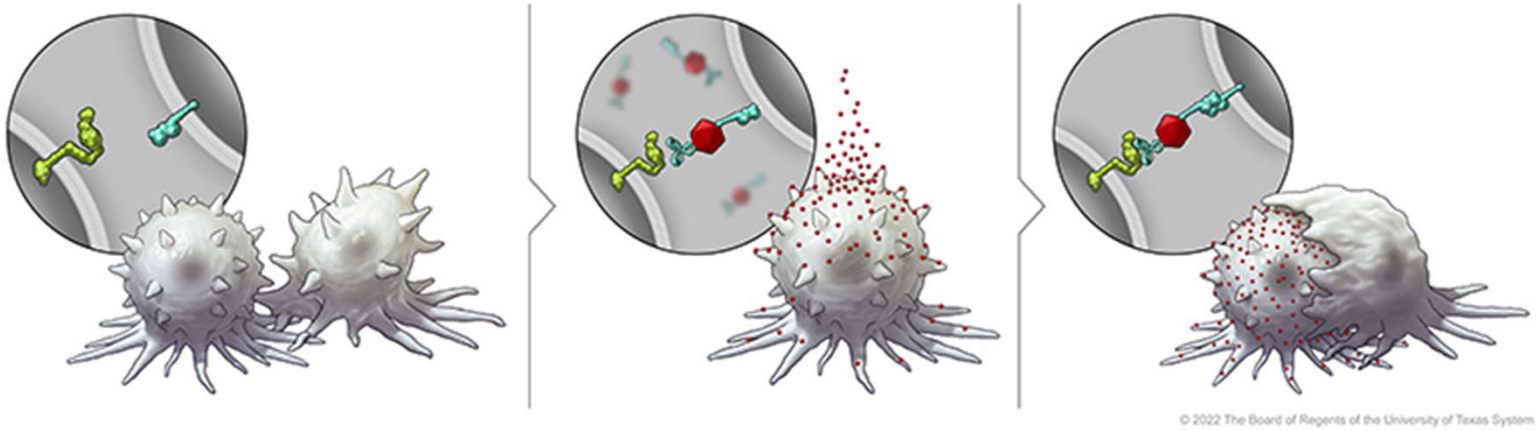
some instances they may need a little help to identify the tum



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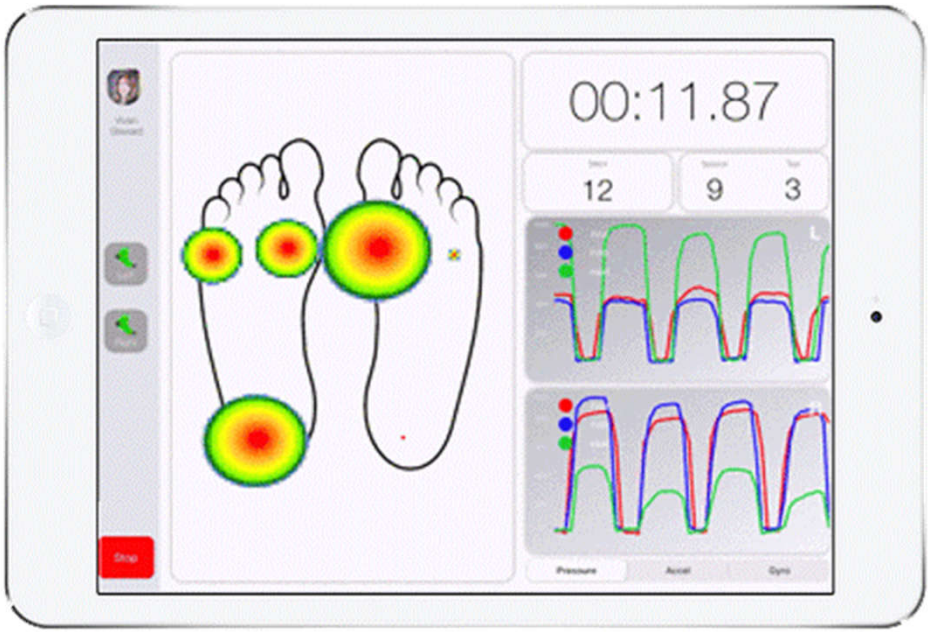
case of blood cancers, such as leukemia and lymphoma, immune therapies are often relatively successful. In
because these cancers tend to express SLAMF7 on their cell surfaces, and this is a key cue for the immune sy
ntify them as worthy of attack and acts as sweet honey for phagocytic white blood cells. In solid tumors, how
ficacy of immune treatments tends to be more mixed, and there is a need to improve this.

researchers have developed a nanotechnological system that can label solid tumor cells with SLAMF7, makin
much tastier to white blood cells. The system is called bispecific tumor-transforming nanoconjugate (BiTN)
rm, and it consists of a tumor-specific antibody that is conjugated with SLAMF7.

Smart Socks Help Prevent Falls Among At-Risk Patients



chers at the Ohio State University Wexner Medical Center have tested the PUP (Patient is Up) Smart Socks, developed by a h company called Palarum, in their ability to reduce falls among at-risk patients. The socks contain pressure sensors that al ers when a patient is attempting to stand up. This can include situations such as a patient getting out of bed to go to the toi ks can wirelessly communicate with the system, which then alerts the caregivers that are closest to the patient, so that the nd provide assistance as soon as possible. The recent study showed that the system significantly reduced fall rates in patien k of such incidents.

n spell serious consequences for frail and vulnerable patients, and can often be the start of a downward health spiral. It is y possible to monitor high-risk patients every minute of the day, but wireless technologies are well-suited to fulfill an assist ontext.

ten happen when a high-risk patient attempts to get out of bed to use the restroom, and this is the time that having a careg to assist can dramatically reduce the risk of such incidents. Current approaches sometimes involve pressure sensors in bed , but these frequently give false alarms, leading to alarm fatigue and reduced effectiveness of such systems.

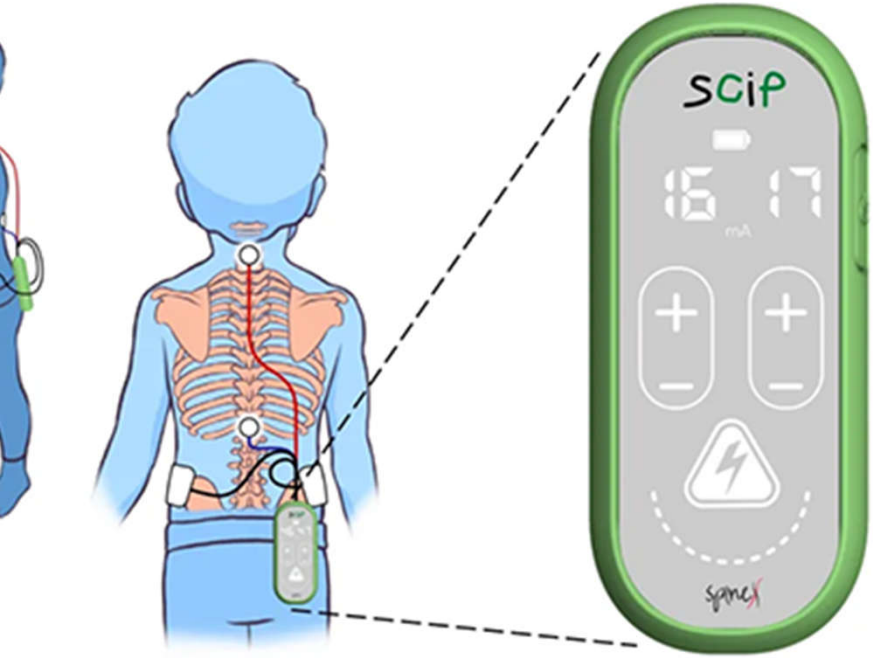
AR Headset Helps Surgeons Place Implants

Enovis, a medtech company based in Delaware formerly know
DJO, recently announced the launch of ARVIS (Augmented Re
Visualization and Information System), an augmented reality
technology that is designed to assist surgeons during implant
placement in the hip and knee. The hands-free technology co
of an eyepiece that is mounted on a surgical helmet that prov
the surgeon with real-time information about the position of
implant with respect to patient anatomy.

It can be difficult for a surgeon to accurately track patient ana
obscured by a variety of obstacles, such as sterile drapes. The
behind this new device is to allow a computer to assist with th
while impacting the surgeon as little as possible with a hands-
design. The augmented reality system is smaller and less com
than many existing surgical robotic systems.

It allows highly experienced surgeons to perform procedures
themselves rather than largely outsourcing them to a machine
the new system provides insights that only a machine could. T
technology includes infrared cameras that can track the positi
surgical tools and the surgeon can mark specific landmarks on
patient anatomy to help orient the system at the beginning an
throughout a procedure.

Non-Invasive Spinal Modulation for Cerebral Palsy



SpineX, a medtech company based in California, has developed the Spinal Cord Innovation in Pediatrics (SCiP device, a non-invasive spinal cord neuromodulation technology that is intended to treat children with cereb palsy. The technology is designed to be used in conjunc with activity-based neurorehabilitation therapy with th goal of improving functional movements in such childre Through transcutaneous spinal cord neuro-stimulation, technology aims to modulate dysfunctional brain and sp cord connectivity. In a recent pilot study, the company reports that 16 pediatric patient volunteers, with a rang cerebral palsy severities and ages, demonstrated impro sensorimotor function after treatment with the device.

Cerebral palsy is a group of movement disorders that typically occur because of damage to the developing br with symptoms affecting posture, gait, and balance. At present, there are no therapies to effectively treat cere palsy. Some patients undergo invasive surgery in an atte to address certain symptoms, such as spasticity, but the a clear need for new effective treatments and less invas alternatives.

Conductive Cotton Thread for Wearable Sensors in Commercial Textiles

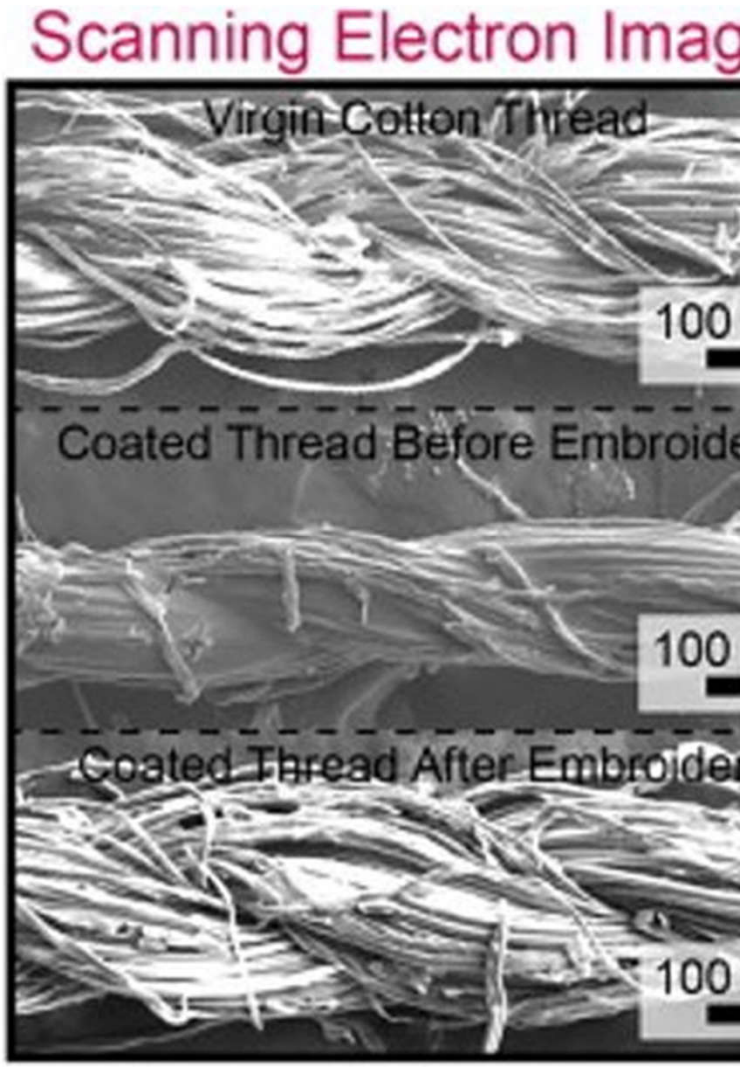
ial College London researchers created a conductive cotton thread that can go a computerized embroidery process for incorporation into commercially ced textiles, such as t-shirts and face masks. The thread, called PECOTEX, e used to create wearable health sensors, such as heart rate monitors, ning monitors and even gas sensors, including ammonia sensors for the n, which can provide information on liver and kidney function.

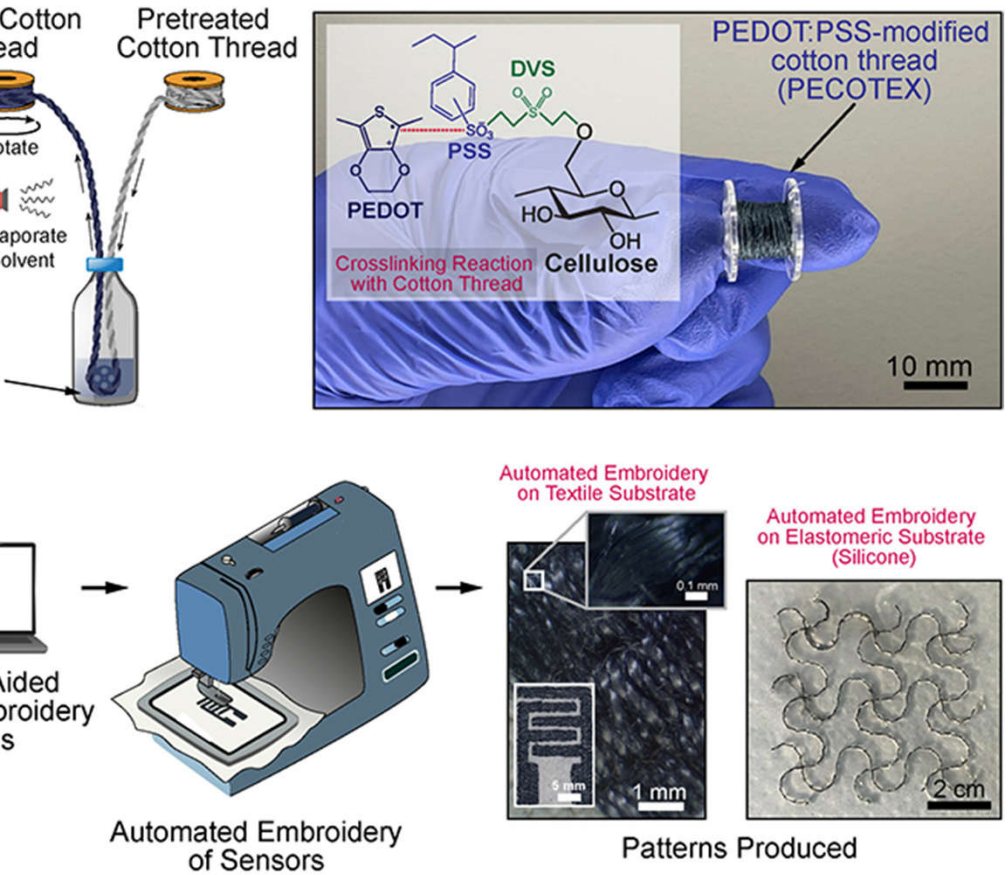
mbroidered sensors are machine washable and are stronger and more ctive than previously developed conductive threads. The major benefit, h, is the thread's compatibility with industrial computerized embroidery nes, meaning that it can easily and inexpensively be incorporated in a wide of commercially available textiles.

ating health sensors into everyday clothing or face masks makes a lot of . After all, we wear such items everyday and they are frequently in close ct with our skin. However, if clothing that contains health sensors is to ne widely adopted, it would be beneficial if such technologies are atible with existing industrial manufacturing processes.

ss 'specialized' a technology is to manufacture, the less expensive it is and it e likely that it will be used by many people. This is the impetus for this technology, PECOTEX thread, which aims to bring health sensing clothing to ter pool of users.

esearchers created the PECOTEX thread by crosslinking poly(3,4-enedioxythiophene) polystyrene sulfonate (PEDOT:PSS) and cotton thread divinyl sulfone as a crosslinker. The thread is very inexpensive, costing just per meter, which can then go on to form multiple sensors in a garment.




Cotton
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PEDOT:PSS-modified
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Cellulose
Crosslinking Reaction
with Cotton Thread
10 mm
Automated Embroidery
on Textile Substrate
Automated Embroidery
on Elastomeric Substrate
(Silicone)
0.1 mm
5 mm
1 mm
2 cm
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broidery
s
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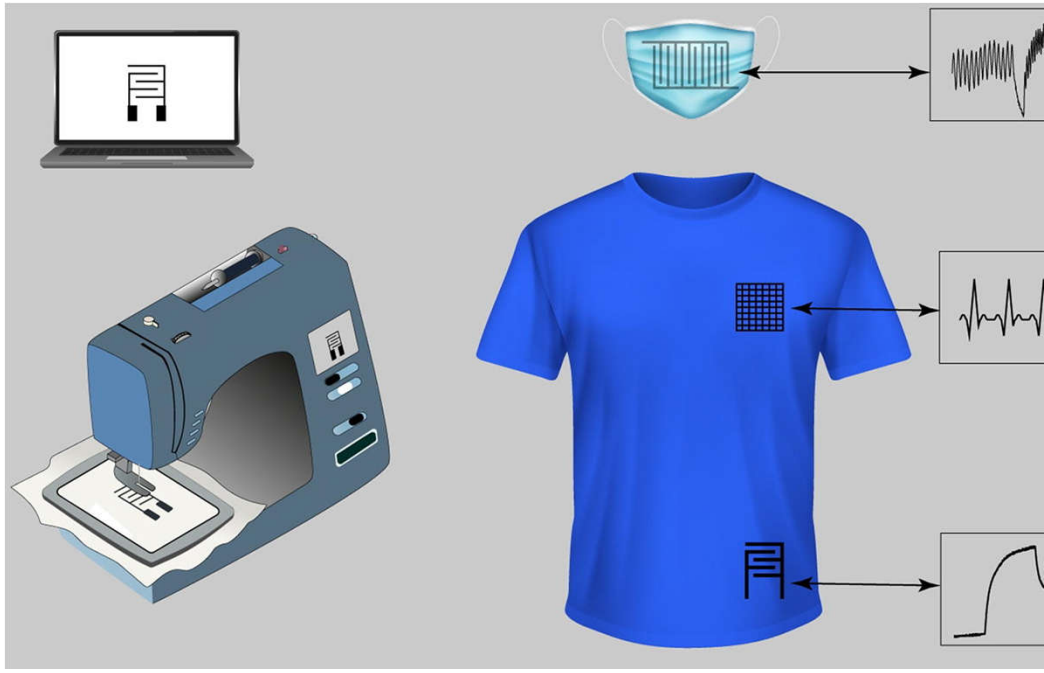
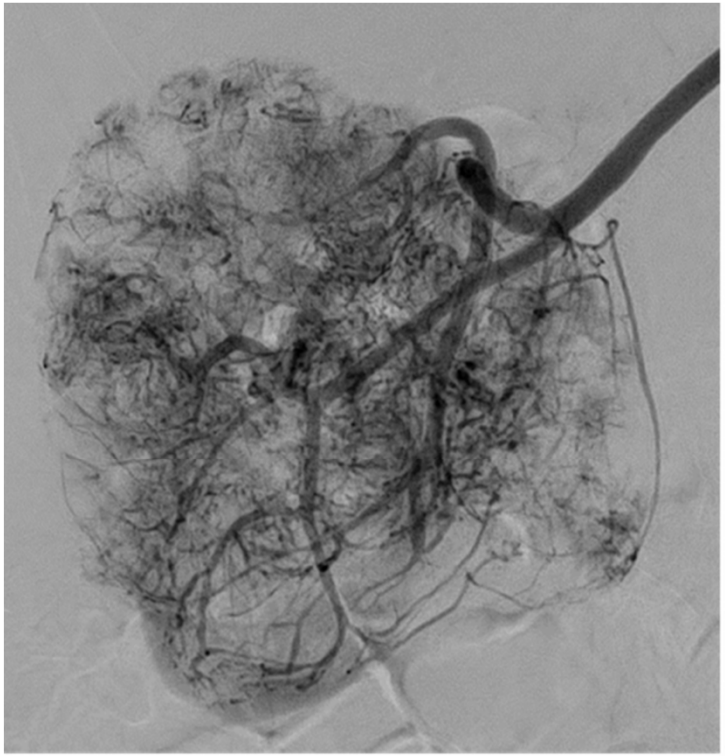
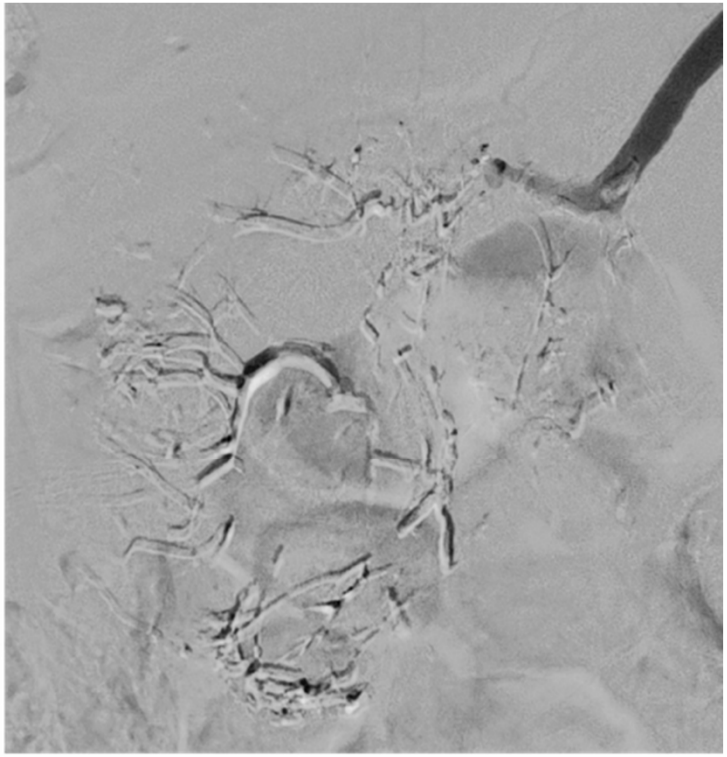
of Sensors
Patterns Produced



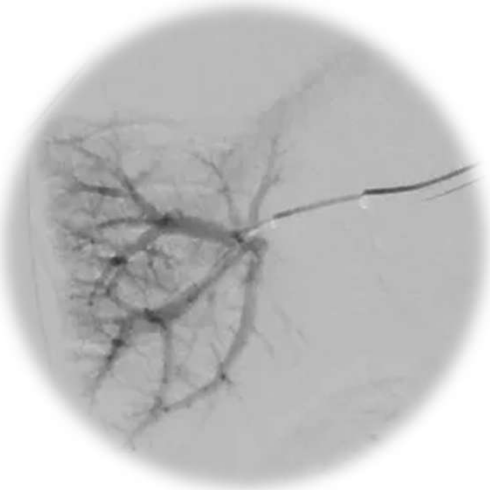
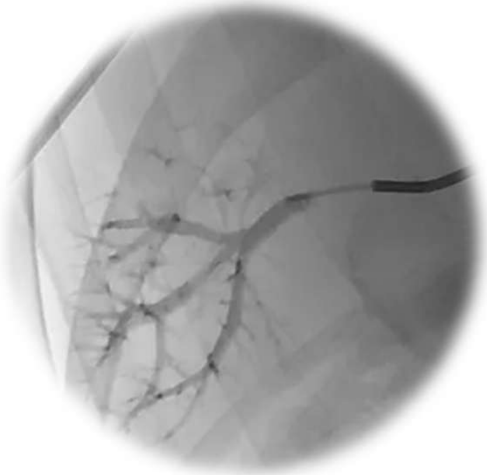
Multi-Center Liquid Embolic Study Concludes



Baseline image of contrast flowing through right renal artery and tumor. Christchurch Hospital, Christchurch, New Zealand



Occlusion of right renal artery using GPX Embolic Device. Christchurch Hospital, Christchurch, New Zealand


lt Lake City (UT) – Fluidx Medical announces the completion of a multi-center clinical trial examining the broad application of their w liquid embolic agent, GPX®. Embolization is a procedure in which arterial or venous blood supply is intentionally blocked.With th sitive conclusion of this trial, the Fluidx embolic platform has a promising future. “The completion of this trial gives GPX a lot of omentum,” said Russ Bjorklund, Vice President of Strategy and Marketing. “Physician feedback surpassed expectations, and the sults of this trial give us a great deal of confidence in GPX as a platform technology with demonstrated value in peripheral vascular d interventional oncology, and opportunities for expansion to neurovascular applications.”

common concern with liquid embolics is that the delivery microcatheter tip may become entrapped in solidifying embolic following ployment. But the unique GPX material does not entrap existing delivery microcatheters, and no entrapment was observed during e study. Because clinicians weren’t concerned with GPX-caused microcatheter entrapment, they were able to take their time during aterial delivery to ensure complete occlusion of the targeted region.

PX technology is a low viscosity, aqueous-based solution that solidifies into a durable embolus upon delivery without polymerizatior dimethyl-sulfoxide (DMSO) precipitation.* The platform is expected to bring simple preparation and controllable material delivery veral embolic applications. The device is packaged in a ready-to-use syringe, can be prepped tableside by the clinician in about 30 conds, and may be delivered through standard microcatheters (no complex mixing systems or special delivery catheters are cessary).

THANK YOU