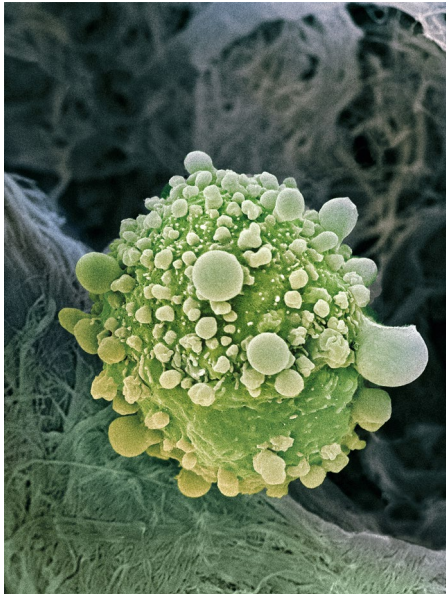# research highlights

PANCREATIC CANCER

A wasted early warning

Nature **558**, 600–604 (2018)

Credit: Steve Gschmeissner/Science Source

Wasting of peripheral tissue is an early sign of pancreatic ductal adenocarcinoma and could be used to aid early diagnosis of the disease.

Pancreatic ductal adenocarcinoma (PDAC) is associated with peripheral tissue wasting resulting in a severe reduction in quality of life in affected individuals, but its cause and role in mortality are unclear.

Researchers based in Boston find in mouse models of PDAC and in humans that both adipose and muscle wasting occurs at early stages of the disease. They attribute this to pancreatic enzyme secretion loss in mice, but surprisingly in both mouse models and humans, this doesn't seem to contribute to mortality. The tissue wasting could potentially be used as an early diagnostic for the disease. *HS*

https://doi.org/10.1038/s41591-018-0153-0

DIAGNOSTIC DEVICES

Identifying atrial fibrillation

JAMA **320**, 146–155 (2018)

The wearing of a diagnostic device increases the diagnosis of atrial fibrillation (AF) and subsequent engagement with appropriate healthcare.

AF is the most common sustained arrhythmia, and it substantially increases the risk of stroke in affected individuals. Its diagnosis is important for correct prescription of anticoagulants to reduce the risk of stroke and is currently made during screening at regular medical checks.

In a clinical trial, participants at high risk for AF wore a self-applied wearable electrocardiogram (ECG) patch that could diagnose AF. The rate of AF diagnosis and engagement with healthcare were higher among individuals who wore the device. *HS*

https://doi.org/10.1038/s41591-018-0151-2

PREGNANCY OUTCOME

Predicting preterm birth

Science **360**, 1133–1136 (2018)

A noninvasive blood test is able to predict gestational age and preterm birth.

At present, there is a no test that can accurately predict gestational age or that can take preterm birth into account, and incorrect dating can lead to inappropriate induction of birth or Cesarean.

Quake and colleagues developed a noninvasive blood test that is able to predict preterm birth and gestational age on the basis of nine circulating RNA transcripts in a cohort of 38 women at risk of preterm birth.
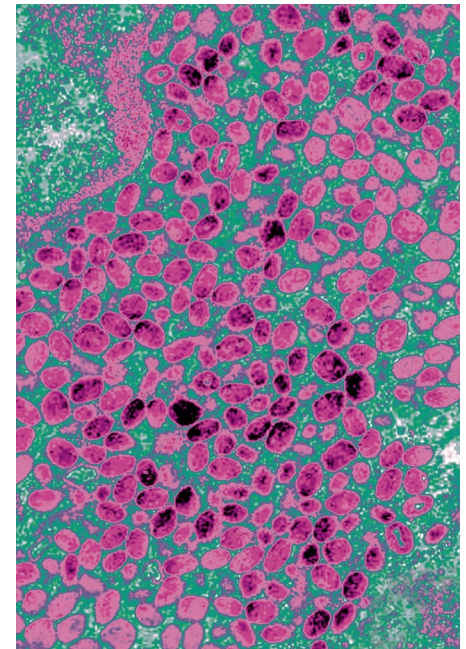
Before the test can be applied in the clinic, it needs to be further tested in a cohort of diverse women. *HS*

https://doi.org/10.1038/s41591-018-0154-z

INFECTIOUS DISEASE

An antiviral for smallpox

N Engl. J Med. **379**, 44–53 (2018)

Credit: Elena Ryabchikova/Voisin/Science Source

The antiviral tecovirimat is a promising candidate for therapy in the case of a smallpox outbreak.

Smallpox has been eradicated, but the variola virus still exists, and there are fears of an outbreak due to bioterrorism or warfare. Just one infection would be a worldwide public health emergency.

Because of its infectious and pathogenic nature, it is unethical to expose humans deliberately to variola. Scientists from SIGA Technologies established the efficacy of the antismallpox therapy tecovirimat in two animal models of smallpox infection. They determined its safety in uninfected individuals.

Tecovirimat was approved as a smallpox therapy by the Food and Drug Administration on July 13, 2018. *HS*

https://doi.org/10.1038/s41591-018-0152-1

Hannah Stower

STEM CELL THERAPIES

Cell therapy for spinal cord injury

Cell Stem Cell **22**, 941–950 (2018)

Transplantation of human spinal cord–derived neural stem cells is safe and may be of therapeutic benefit in individuals with chronic spinal cord injury (CSI).

For individuals with CSI, currently no therapy exists that results in improvement of motor or sensory function, although some cell therapies have shown promise. Joseph Ciacci and colleagues show for the first time in four individuals with CSI that injection with human spinal cord–derived neural stem cells is safe. Furthermore, three of the individuals that received the treatment saw some improvement in motor or sensory function.

The study provides promise for development of stem cell therapies for CSI. *HS*

https://doi.org/10.1038/s41591-018-0155-y