

## PSYCHIATRIC DISORDERS

### Irrepressible memories for PTSD

Science **367**, eaay8477 (2020)



Credit: sharply\_done/E+/Getty

People with post-traumatic stress disorder (PTSD) have impaired regulation of memory recollection, which may contribute to the disorder.

It is unclear why in the aftermath of a trauma, some people experience unbidden recollection of memories that occur as part of the disorder and some do not.

To investigate the role that the ability to suppress memory might have in PTSD, a group of researchers based in France studied 102 people exposed to the 2015 Paris terrorist attacks and 73 non-exposed

people. They asked the people to suppress new, laboratory-implemented memories. They found that those experiencing PTSD were unable to actively suppress these intrusive memories and that this was linked to a disruption in their memory-control system, as assessed by functional magnetic imaging. HS

<https://doi.org/10.1038/s41591-020-0811-x>

## CANCER THERAPY

### NK cells join the anti-cancer armory

N. Engl. J. Med. **382**, 545-553 (2020)

Natural killer (NK) cells can be engineered to target leukemias specifically with limited toxicity.

T cells engineered to target cancers that express CD19 (CAR-T cells) are a recently developed successful therapy for a number of hematological cancers. However, they are somewhat challenging to manufacture, as they must be personalized and can be extremely toxic. NK cells are components of the immune system that are in development for anti-cancer therapy and have the advantage of being easier to manufacture than are T cells.

In a clinical trial, 11 patients with CD19<sup>+</sup> cancer were treated with CAR-NK cells. The large majority responded to the treatment without toxic effects. HS

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## CANCER GENOMICS

### Understanding cancer genetics through a global collaboration

Nature **578**, 82-93, 94-101, 102-111, 112-121, 122-128 & 129-136 (2020)

A worldwide consortium of scientists has carried out a collaborative analysis of the genomics of cancer, providing insights into cancer complexity.

Genomic sequencing can be especially informative to understanding cancer, since it allows the identification of mutations that might drive the cancer, along with the mechanisms by which they come about and, if RNA is sequenced, whether there are any resultant effects on gene expression.

The Pan-Cancer Analysis of Whole Genomes consortium analyzed over 2,600 tumors in 38 tissues and presented their results in six papers in *Nature*. HS

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## INFECTIOUS DISEASE

### Lack of maternal-fetal SARS-CoV-2 transmission

Lancet [https://doi.org/10.1016/S0140-6736\(20\)30360-3](https://doi.org/10.1016/S0140-6736(20)30360-3) (2020)

The SARS-CoV-2 coronavirus produces the same clinical symptoms in pregnant women as it does other infected people, and there is currently no evidence for vertical transmission.

The recent outbreak of COVID-19 pneumonia, caused by SARS-CoV-2, has been declared a global public-health emergency by the World Health Organization. SARS-CoV-2 is highly infectious, and the disease can lead to death; however, it is unknown whether pregnant women have specific support needs after infection and, in particular, if there is a risk of vertical transmission to unborn children.

Chen et al. studied nine pregnant women with lab-confirmed COVID-19 who were admitted to the Zhongnan Hospital of Wuhan University. They found that their clinical symptoms were similar to those of non-pregnant adults and that there was no indication of vertical transmission to children, although the findings need to be confirmed in a larger study. HS

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## SYNTHETIC BIOLOGY

### Delivering immunotherapy with bacteria

Sci. Transl. Med. **12**, eaax0876 (2020)

PDL-1 and CTLA-4 antagonists can be delivered to tumors by engineered bacteria that then release this therapeutic payload.

Targeting therapy to tumors could reduce their toxicity and increase the efficacy of the therapy. Bacteria are known to preferentially colonize tumors, and this tendency could be leveraged to deliver therapies.

Gurbatri et al. engineered probiotic bacteria that were able to produce anti-PDL-1 and anti-CTLA-4 nanobodies that are checkpoint-blockade inhibitors that are released only when they reach a critical quorum. The authors found that injecting these bacteria into genetically similar, tumor-bearing mice resulted in higher therapeutic efficacy than that of the therapy alone. HS

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