

SPOTTED

Fragile X checklist; France plays catch-up; bar-coded neurons and more

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Fragile X checklist

Children diagnosed with autism are typically referred for tests of **fragile X syndrome**, the genetic condition most commonly associated with autism. In low-resource settings, however, the tests aren't always feasible. A study published 6 April in *Molecular Genetics and Genomic Medicine* offers **a seven-item checklist** of fragile X features that may help identify children at highest risk for the syndrome.

The researchers selected the features based on how closely they track with the syndrome. The features include soft skin, large prominent ears, an elongated face and a family history of intellectual disability.

SOURCES:

Molecular Genetics and Genomic Medicine / 04 Apr 2018

Fragile X checklists: A meta-analysis and development of a simplified universal clinical checklist
<https://onlinelibrary.wiley.com/doi/abs/10.1002/mgg3.398>

France plays catch-up

After gaining an **international reputation** for lagging in autism diagnosis and treatment, France is **determined to catch up** to countries such as the United States and Canada. President Emmanuel Macron has unveiled a 340 million euro plan to improve early diagnosis and education for French children with autism. Only one in five French children on the spectrum attends school, according to a 5 April story in *U.S. News & World Report*.

SOURCES:

U.S. News & World Report / 04 Apr 2018

Lagging decades behind on autism care, France plays catch-up

<https://www.usnews.com/news/news/articles/2018-04-05/lagging-decades-behind-on-autism-care-france-plays-catch-up>

Bar-coded neurons

Using viruses to insert genetic ‘bar codes,’ or unique identifier sequences, into mouse brain neurons, researchers have produced a 3-D map of the **connections each neuron makes**, *Quanta Magazine* reported 4 April.

When the viruses with their unique RNA sequences invade neurons and multiply, each neuron carries a distinct assemblage of the sequences, forming an identifying bar code. Using sequential brain sections, researchers can track this bar code along a neuron and build a map of its connections.

Although the technique is relatively new, investigators have already used it to uncover an unexpectedly tangled complexity of the mammalian visual system, the magazine reported. (*Quanta Magazine* and *Spectrum* are both editorially independent divisions of the same parent organization, the Simons Foundation.)

SOURCES:

Quanta Magazine / 04 Apr 2018

New brain maps with unmatched detail may change neuroscience

<https://www.quantamagazine.org/new-brain-maps-with-unmatched-detail-may-change-neuroscience-20180404/>

Rett reversal

Predictions abound about how researchers might use the gene-editing tool CRISPR. In a story featuring a girl with **Rett syndrome**, *STAT* reported 9 April that one potential use is for **repairing mutations** underlying such conditions. The hoped-for outcome is that the repaired cells would produce neurons carrying the functional gene and reverse some features of the condition, but significant obstacles remain, *STAT* reported.

SOURCES:

STAT / 09 Apr 2018

Scientists are thinking the unthinkable: CRISPR might one day reverse devastating brain diseases

<https://www.statnews.com/2018/04/09/crispr-brain-disorders/>

CRISPR rush

With CRISPR poised for its debut in clinical trials, is it truly ready for prime time? An article published 11 April in *MIT Technology Review* notes that the gene-editing tool's ability to keep its curative promise has yet to be **fully established in monkeys**, and there are unresolved questions about its safety in people.

One problem is that available monkey models, such as those for sickle cell disease, don't have the targeted condition, so researchers must use indirect measures of the treatment's effectiveness.

Yet CRISPR might also be the right tool to solve this modeling problem: Investigators are using it to edit genetic sequences linked to a condition in order to produce animals with features closer to that condition, *MIT Technology Review* reported.

SOURCES:

MIT Technology Review / 11 Apr 2018

CRISPR trials are about to begin in people — but we still don't know how well it works in monkeys

<https://www.technologyreview.com/s/610721/crispr-trials-are-about-to-begin-in-people-but-we-still-dont-know-how-well-it-works-in/>

Visualizing CRISPR

It's the third entry in a CRISPR trifecta for Spotted readers: Staff at *STAT* say they spend "a lot of time" working on ways to visualize what we can't see. Their latest creation is a video that takes readers into the **machinery of CRISPR**. Visualizing the gene-editing process was "one of the hardest subjects to capture" in the medium, *STAT* reported 4 April.

SOURCES:

STAT / 04 Apr 2018

How CRISPR works, explained in two minutes

<https://www.statnews.com/2018/04/04/how-crispr-works-visualized/>

Sesame spectrum

Who are the people in your neighborhood? At **Sesame Place theme park** in Philadelphia, many of them may be children on the spectrum. The park has earned the world's first Certified Autism Centre designation, working with the **International Board of Credentialing and Continuing Education Standards**. The certification process involves rigorous staff training and a sensory guide for all of the park's attractions, *Lonely Planet* reported 8 April.

SOURCES:

Lonely Planet / 08 Apr 2018

Sesame Place becomes the world's first theme park to be officially autism-friendly
<https://www.lonelyplanet.com/news/2018/04/09/sesame-place-autism-guide/>

New neurons or not?

Do our brains make more neurons as we age? A pair of studies focusing on the hippocampus has found **directly conflicting answers**, *Science News* reported 5 April. People in their 70s have as many freshly made neurons as adolescents, one research group reported in *Cell Stem Cell* on 5 April. That finding directly contradicts another result, **first reported** at the Society for Neuroscience meeting in November, that the hippocampus stops producing neurons in childhood.

SOURCES:

Science News / 05 Apr 2018

Human brains make new nerve cells — and lots of them — well into old age
<https://www.sciencenews.org/article/human-brains-make-new-nerve-cells-and-lots-them-well-old-age>

Tuberous sclerosis drug approval

Tuberous sclerosis, a genetic condition, often co-occurs with autism and can involve seizures that are difficult to control. The U.S. Food and Drug Administration has green-lighted the **drug everolimus** as a treatment for people who have both tuberous sclerosis and partial-onset seizures.

Novartis, the company that markets the drug, announced the agency's approval in a 10 April statement. Everolimus is already approved as therapy for some types of benign brain and kidney tumors that can be features of tuberous sclerosis.

SOURCES:

markets.businessinsider.com / 10 Apr 2018

Novartis drug Afinitor DISPERZ® receives FDA approval to treat TSC-associated partial-onset seizures

<http://markets.businessinsider.com/news/stocks/novartis-drug-afinitor-disperz-receives-fda-approval-to-treat-tsc-associated-partial-onset-seizures-1021107747>

Social impact

Researchers in the sciences are looking outside their university duties to get away from the numbers game plaguing academia. *Nature* reported 3 April that investigators weary of tracking their **measures of academic success** instead of the real social impact of their work are seeking nonacademic ways to make a difference with their work.

SOURCES:

Nature / 03 Apr 2018

How researchers are ensuring that their work has an impact

<https://www.nature.com/articles/d41586-018-03925-8>

Vote for Spectrum!

Spectrum is up for Best Health Website in the Webby Awards, a prestigious award for online publications. Please **vote now** to give *Spectrum* your seal of approval as the best health website on the internet.

SOURCES:

22nd Annual People's Voice Webby Awards / 11 Apr 2018

22nd Annual Webby Awards People's Voice

<https://vote.webbyawards.com/PublicVoting#/2018/websites/general/health>

News tips

Do you have a new paper coming out? Are you making a career move? Did you see a study or news story that you want to share? Send your news tips to news@spectrumnews.org.
