Community Newsletter: Human pluripotent stem cells, a prediction algorithm challenge, autistic perspectives

BY **SPECTRUM**

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This week, Twitter talked up a new *Nature* paper on using small molecules to **generate human pluripotent stem cells**. In it, **Hongkui Deng**, professor of immunology at Peking University in China, and his colleagues demonstrate a new approach to dedifferentiate human somatic cells back into pluripotent stem cells via an 'intermediate plastic state.'

"This study lays foundations for developing regenerative therapeutic strategies that use well-defined chemicals to change cell fates in humans," Deng and his colleagues wrote.

Jian Shu, associate member at the Broad Institute in Cambridge, Massachusetts, and a former member of Deng's lab, called it "**a landmark work**," building on 10 years of effort across different lab generations.

> A landmark work from the Deng Lab on chemical reprogramming of human iPSCs **@Nature**. A new chapter of reprogramming! More than 10 years of efforts from multiple generations of friends and lab mates in the Deng Lab!???? **#hCiPSCs #reprogramming #regeneration https://t.co/qtDfhbE5ut**
>
> — Jian Shu (@JianShuLab) **April 13, 2022**

"**Remarkable achievement**," tweeted **Micha Sam Brickman Raredon**, a postdoctoral researcher in biomedical engineering at Yale University.

Human pluripotent cells can now be made without any direct genomic alteration. Remarkable achievement.**https://t.co/TmmcW2wz77**
"This study lays foundations for developing regenerative therapeutic strategies that use well-defined chemicals to change cell fates in humans." **https://t.co/byNePSxOYD pic.twitter.com/Qgx1ypV6VN**

— Micha Sam Brickman Raredon (@msbr89) **April 14, 2022**

Colwyn Headley, a postdoctoral scholar in cardiovascular medicine at Stanford University in California, tacked a '**mind blown**' emoji onto his retweet of Shu's comment.

10 years ???? **https://t.co/0U82rER1qk**

— Colwyn Headley, PhD (@CoCo_Headley) **April 14, 2022**

Gaël Varoquaux, research director at the National Institute for Research in Digital Science and Technology in France, tweeted an eight-part thread about an "**important paper**" that he and his colleagues published on the use of **brain imaging in search of autism biomarkers**. The team served up preprocessed anatomical and functional magnetic resonance imaging data from more than 2,000 people in an international challenge and evaluated 146 prediction algorithms they received in response.

Lessons learned from the exercise? The best predictions come from simple models and draw on functional, not anatomical, data; large sample sizes matter more than "fancy algorithms"; and overfitting is rampant in the field. "If you torture the data long enough, it will confess," Varoquaux quips.

????Important paper in **@NeuroImage_EiC**: Insights from an autism imaging biomarker challenge: promises & threats to biomarker discovery

1. Trustworthy challenge shows good MRI-based diagnosis of autism: AUC~0.80
2. Overfit compromised self-evaluation**https://t.co/g7iaClocSW**

???? 1/8

— Gael Varoquaux (@GaelVaroquaux) **April 11, 2022**

"These studies never compare autism with other neurodevelopmental conditions, such as DLD [developmental language disorder]. So even if they can differentiate those with autism diagnosis from controls, we have no idea of specificity," **Dorothy Bishop**, professor of developmental neuropsychology at Oxford University in the United Kingdom, tweeted in a reply.

Autistic self-advocate and doctoral student **Morénike Giwa Onaiwu** tweeted about the **addition of autistic voices** at the Interagency Autism Committee meeting this past week. "I asked you to share your perspectives, and you really came through," she wrote.

#ActuallyAutistic folx…wow. Y'all did it. I asked you to share your perspectives, & you really came through.

119 pages of public comments about **#autism**.
Our voices, whether typed, pointed, or spoken, are LOUD & MUST be respected!
TY.**#IACCForAutisticshttps://t.co/uvj47YF1ht**

— Morénike Giwa Onaiwu, she/they, PhD candidate (@MorenikeGO) **April 6, 2022**

The unmet health-care needs of autistic people is a frequent cri de coeur on Twitter. In an attempt to answer those pleas, **Emily Hotez**, assistant professor of medicine at the University of California, Los Angeles, announced this week the initial charter of the **Autism Intervention Research Network on Physical Health**. The **research network** aims to "support innovative life-course intervention research that promotes optimal health and well-being across the lifespan of autistic individuals in six key areas," ranging from primary care to genetics.

During **#AutismAcceptanceMonth** I am excited to present our **@AIRPNetwork** Charter. We present our vision for **#research** that is **#neurodiversity**-oriented, stakeholder-driven, and equity-focused:**https://t.co/JSaS4rUkLk**

— Emily Hotez, Ph.D. (@EmilyHotezPhD) **April 13, 2022**

And lastly, *Spectrum*'s story last week on why **autism therapies have an evidence problem** sparked some conversation on social media. "When autism advocates have for a long time been describing interventions like ABA as analogous to conversion therapy, it is interesting to see **this perspective from the scientists**," tweeted **Brendan Halpin**, a specialist in sociology at the University of Limerick in Ireland.

> When autism advocates have for a long time been describing interventions like ABA as analogous to conversion therapy, it is interesting to see this perspective from the scientists. **https://t.co/YR4oocfQjs**
>
> — Brendan Halpin (@BrendanTHalpin) **April 14, 2022**

That's it for this week's Community Newsletter! If you have any suggestions for interesting social posts you saw in the autism research sphere, feel free to send an email to **news@spectrumnews.org**.

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