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the thousands of eligible scientists at the translational-research institute. The offer has so far attracted only 22 applicants – all of whom received the award.

Replication studies are important. How else could researchers be sure that some experimental drugs fail to relieve disease symptoms in mice? Or that current experimental tests of dark-matter theories are drawing a blank[1]? But publishing this work is not always a priority.

Two strategies can be used to encourage change. First, institutions should actively encourage their researchers, through both words and actions. Second, journals need to emphasize to the research community the benefits of publishing replication studies and null results. Researchers who report null results can help to steer grant money towards more fruitful studies. Replications are also invaluable for establishing what is necessary for reliable measurements, such as fundamental constants. And wider airing of null results will, eventually, prompt communities to revise their theories to better accommodate reality.

At *Nature*, replication studies are held to the same high standards as all published papers. We welcome the submission of studies that provide insights into previously published results: those that can move a field forwards and those that might provide evidence of a transformative advance. We also encourage the research community as a whole to view the publication of such work as having real value.

For example, it had been thought that the presence of bacteria in the human placenta caused complications in pregnancy such as pre-eclampsia. However, a 2019 paper found no evidence for the presence of a microbiome in the placenta[2], suggesting that researchers might need to look elsewhere to understand such conditions.

Null results are also an essential counterweight to the scientific focus on positive findings, which can cause conclusions to be accepted too readily. This is what happened when repeated studies suggested that a variation called 5-HTTLPR that affects the expression of the serotonin transporter gene was a major contributor to depression. For many, it took a comprehensive null study to shake entrenched assumptions and show that this is not the case[3].

By contrast, confirmatory replications give researchers confidence that work is reliable and worth building on. This was the case when *Nature* published a case study describing someone with HIV who went into remission after receiving transplants of HIV-resistant stem cells. That person – who did not wish to be identified and has come to be known as the 'London patient' – was not the first to be freed of the virus in this way. That was Timothy Brown, who was treated in Berlin, but the work with the London patient showed that Brown's cure was not an anomaly[4].

Not all null results and replications are equally important or informative, but, as a whole, they are undervalued. More institutions and funders must step up and support replications – for example, by explicitly making them part of evaluation criteria. Change cannot come soon enough.

1. Smorra, C. *et al. Nature* **575**, 310–314 (2019).
2. de Goffau, M. C. *et al. Nature* **572**, 329–334 (2019).
3. Border, R. *et al. Am. J. Psychiatry* **176**, 376–387 (2019).
4. Gupta, R. K. *et al. Nature* **568**, 244–248 (2019).

> **"The scientific focus on positive findings can cause conclusions to be accepted too readily."**

Egyptology: more light, less heat

How to settle the continuing controversy around Tutankhamun's tomb.

The discovery of possible hidden rooms behind the walls of Tutankhamun's tomb in Egypt's Valley of the Kings generated many headlines last week. A team of researchers used ground-penetrating radar (GPR) to scan the area, and have reported detecting a space around 2 metres high and at least 10 metres long (see page 497).

The survey was intended to help settle a debate about whether – as some researchers are proposing – the young king's burial space contains hidden rooms that could include the burial place of Egypt's queen Nefertiti. The Supreme Council of Antiquities, a government body that approved the survey, has yet to comment. But the results are unlikely to achieve the survey's aim.

This is partly because they need to be confirmed – ideally, by further surveys. However, that will still not satisfy those who say that GPR on its own is insufficient, and that confirmation will need further excavations. But these are unlikely to take place, partly because any drilling will damage priceless artwork inside.

Another reason for the continued controversy is the absence of fully available evidence. Egyptology research is a complex undertaking with a troubled history. Egypt lacks the resources to create its own research and publishing infrastructure, and this vacuum has been filled by international research teams and external funders – including private companies, such as media groups.

At the same time, because of Egyptology's colonial history, the government is cautious about allowing research on its historical sites and disseminating the results. All of this means that the results of research – including the latest survey – are not always (or not immediately) made public. And when results are released, raw data are held back, further restricting public and scholarly involvement.

Now is the time for Egypt and its international partners to change this. There's great excitement around preparations for the opening of several museums in Cairo on the centenary of the 1922 discovery of Tutankhamun's tomb. These plans should also include one for better dissemination of research results – a plan that the Egyptian public should co-produce and own. In addition, Egyptologist Nicholas Reeves, who first proposed that there might be an extension to Tutankhamun's tomb, has said that if evidence of its existence accumulates, experts should meet to decide what to do next. That is a suggestion we support.

The arguments, of course, may well continue – but by further opening up the research process and openly publishing their findings, Egypt's authorities and their partners will know their work is robust.

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