

# Correspondence

## Don't let witch hunts taint investigations

Donald Kornfeld and Sandra Titus argue that misconduct should be considered when investigating irreproducible research (*Nature* 537, 29–30; 2016). In my view, this premise of 'guilty until proved innocent' risks turning a scholarly investigation into a witch hunt.

Distinguishing poorly designed research from faked data is hard, but it is generally more difficult to prove misconduct than to identify the cause of irreproducibility. Moreover, investigating bad science costs less than examining misconduct (in terms of money, time, careers and so on). One estimate put the direct cost of a misconduct enquiry at US\$525,000 (A. M. Michalek *et al. PLoS Med.* 7, e1000318; 2010).

The authors assert that the US National Institutes of Health's (NIH) training mandate for responsible conduct of research failed to reduce misconduct. Perusing research on the rate of misconduct, I find estimates that span several orders of magnitude, so it is unclear whether misconduct is or has been rising or falling. Thus, we cannot say what effect the NIH training scheme has had.

The damage caused to the scientific record by publishing sloppy, plagiarized or fabricated research is ultimately the same.

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## University on the rise without PhD students

California State University in Northridge (CSUN) is ranked 24th in the latest *Nature Index* of the 25 North American institutions classed as 'Rising stars' (see [go.nature.com/2dfvirb](http://go.nature.com/2dfvirb)). Of these, CSUN has the greatest percentage increase in publications in 2012–15 in

high-impact journals (up by 190.61%). As professor emeritus at CSUN, my view is that the rise is attributable to the university's unusual research model.

The university does not offer any PhD degrees. Instead, science undergraduates and master's students work alongside exceptional faculty members, who train and mentor them in research. The faculty includes 28 prestigious members hired over the past decade. The dean of the science college, Jerry Stinner, backed by the university chairs, president and provost, organized CSUN funding to recruit and support them. This support included comprehensive packages of research equipment and supplies, specific laboratory renovations and a reduced teaching load while they set up their labs.

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## Hasten end of dated fossil-fuel subsidies

Nations at last month's G20 summit in China reaffirmed their 2009 commitment to phase out fossil-fuel subsidies, echoing a call from almost two decades ago to end subsidies that are "adverse in the long run to both the economy and the environment" (N. Myers *Nature* 392, 327–328; 1998).

Similar 'perverse' subsidies continue to encourage logging of the few remaining pockets of old-growth forest in western Canada and overfishing in the high seas. Yet the fossil-fuel industry receives the largest subsidy of all, estimated by the International Monetary Fund (IMF) last year at US\$1,000 annually for every citizen in the G20 group. Most of this is provided by countries with energy taxes that are too low to cover the adverse effects of fossil-fuel consumption on human health and the environment ([go.nature.com/2dbs2zf](http://go.nature.com/2dbs2zf)).

The IMF also estimates that eliminating fossil-fuel subsidies would cut global carbon dioxide emissions by more than 20% and raise government revenues by \$2.9 trillion (or 3.6% of global gross domestic product). Such a step would save up to \$93 per tonne of greenhouse-gas emissions removed (see [go.nature.com/2dowcw](http://go.nature.com/2dowcw)).

These sums alone would fund climate adaptation and the protection of imperilled global biodiversity for the next 30 years (D. P. McCarthy *et al. Science* 338, 946–949; 2012). The money would also boost development of renewable energy sources and domestic support for a low-carbon economy.

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## Are farmed fish just for the wealthy?

Christopher Golden and colleagues argue that farmed fish contribute little to global food security because they are "mostly exported to the wealthy countries of Europe and North America" (*Nature* 534, 317–320; 2016). In fact, more than 90% of farmed fish produced in China, India, Indonesia, Bangladesh, Egypt, the Philippines and Myanmar — some of the world's largest aquaculture-producing developing countries — remains in domestic markets (see [go.nature.com/2dqwwh](http://go.nature.com/2dqwwh)).

Aquaculture products are more accessible to the poor in many developing nations than ever before (K. A. Toufique and B. Belton *World Dev.* 64, 609–620; 2014). And the aquaculture boom of the past two decades has stabilized world fish prices (S. Tveterås *et al. PLoS ONE* 7, e36731; 2012).

The realities of the supply and demand of aquaculture products mean that these now complement capture fisheries for global food and nutrition security.

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*Christopher Golden et al. reply* — Our argument is that most farmed fish are not reaching nutritionally vulnerable people in the low-income, food-deficit countries of sub-Saharan Africa and the Pacific islands (*Nature* 534, 317–320; 2016). In those nations, fish is a traditional food source that comes primarily from capture fisheries, including subsistence harvests (M. M. Dey *et al. Mar. Policy* 67, 156–163; 2016). Domestic consumption and import of aquaculture products are still relatively insignificant (see [go.nature.com/2dinzuc](http://go.nature.com/2dinzuc)).

In such places, aquaculture policy interventions need to be optimized for nutritional value and distribution to food-insecure populations. This could be achieved through appropriate regulations and market instruments (such as tax incentives or subsidies) and public-health campaigns, in close alliance with conservation strategies for sustainable fisheries.

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### CORRECTIONS

The Outlook article 'Industrial strength' (*Nature* 537, S57–S59; 2016) incorrectly stated that the 1999 trial at the University of Pennsylvania was based on a retrovirus; it was in fact based on an adenovirus.

Also, the Outlook Q&A 'Illuminated Universe' (*Nature* 537, S205; 2016) incorrectly gave the amount of dark energy in a cubic metre of space as 10–27 kilograms instead of 10<sup>-27</sup> kilograms.