Second, we designed projects to test assumptions. With many laboratories analysing an identical pool of antibodies in parallel, inconsistent results are quickly recognized. We can now explain why the same antibodies can yield different results under different assay conditions. Our programme allows more scientists immediate access to an identical set of materials, facilitating a broader range of tests and comparisons than otherwise possible. Because of this, we have found new antibody features, not previously analysed, that correlate with protection.

BRANCHING OUT

The VIC's approach could be applied to other pressing health issues. Several emerging viruses are prime candidates: MERS, Crimean–Congo haemorrhagic fever, Chikungunya, Nipah, Hendra and Zika. Beyond viruses, a large, organized consortium could find antibodies against neglected problems — such as those caused by the complex array of toxins in scorpion, spider and snake venom. To treat venomous bites or stings, medicine still relies largely on horse-serum treatments. Malaria and anthrax pose particular challenges, too.

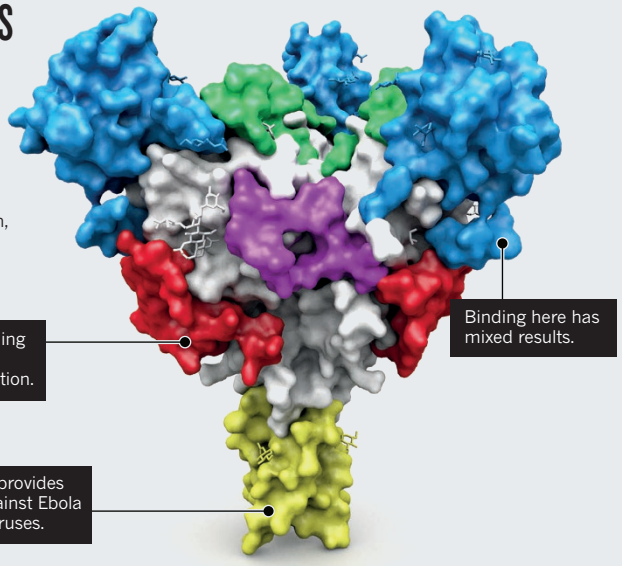
Because investigators share the antibodies they develop in their own labs with the understanding that these could become components of therapeutic cocktails, the collaborative approach may be easiest to implement where research is mainly academic. Cross-comparison of different labs' samples could also be useful in fields with larger markets, such as cancer immunotherapy, but commercial pressures and risk aversion could limit collaboration. That said, at least two clinical-stage projects have launched in the past two years to test multiple cancer drugs from different companies.

In academia, one challenge is the amount of time required in exchange for potentially limited recognition. In each lab, our collaboration requires work on many antibody samples identified by code names rather than inventors. A researcher may be one of a great many authors in the resulting manuscripts, whereas first-author manuscripts are often required to gain a PhD or a job after a postdoctoral appointment. Hopefully the benefits outweigh the costs: trainees have a larger data set to explore, and can address their own questions in spin-off studies. Also, the semiannual meetings of the VIC, in which we integrate data from disparate approaches and international sources, provide experience that transcends what young scientists would receive working in a single lab.

> ***"Sceptics suggested that people would not contribute their 'favourite' antibodies."***

VIRUS BLOCKERS

Some antibodies that bind to this ebolavirus protein (glycoprotein) stall infection, but others don't. The Viral Hemorrhagic Fever Immunotherapeutic Consortium coordinates experiments to learn where antibodies bind on the protein, which antibodies (and combinations of antibodies) work best and why.



SOURCE: CHRISTINA CORBACI, TSRI; ADAPTED FROM Y. ZHAO *ET AL. NATURE* **535,** 169–72 (2016)

Another problem for projects at this scale is funding. Fortunately, the VIC was catalysed by a NIAID Center of Excellence in Translational Research grant. There are few other funding sources and administrative mechanisms designed to support such collaborations. Public-funding programmes have tended to spend most of their research resources in their own nations, a problem for global networks. Institutions with a global focus are in a better position to support similar worldwide collaborations. These include the World Health Organization or the World Bank, and private philanthropic organizations such as the Bill & Melinda Gates Foundation in Seattle, Washington (which supports the NAC and the CAVD), the Howard Hughes Medical Institute based in Chevy Chase, Maryland, and the Wellcome Trust in London.

Much could be gained if these challenges are met and collaborations set up before an epidemic gets under way. It is difficult to test potential treatments against standard of care during an outbreak: resources and time are too scarce to test each possibility; the location and timing are unpredictable, and an outbreak usually sickens fewer people than the typical clinical trial requires for drug approval. If there are many potential therapies to test, there must be an ethical mechanism to decide what is evaluated. Each local ministry of health must be engaged to assess whether studies are wanted, how studies and patients are prioritized and who owns the results. Each location may make a different decision, and all decisions must happen quickly.

Collaborations such as we describe between a multi-institution body of experts — with agreements, trust, a research pipeline, an organized arsenal of therapeutic options and decision-making criteria already in place — could provide unbiased scientific advice for local authorities and international aid organizations to ensure a swifter, more effective response. ■

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A list of co-signatories and further reading accompanies this article online: see go.nature.com/2j7uvhc.

CORRECTION

The Comment 'Involve social scientists in defining the Anthropocene' (E. Ellis *et al. Nature* **540,** 192–193; 2016) incorrectly stated that proposals for defining this epoch will be put forward for ratification by the International Geological Congress. In fact, they will be put to the executive committee of the International Union of Geological Sciences.