



LETTERS

Unnecessary restrictions on blood donors should be removed to maximize the blood and plasma available for use.

Edited by **Jennifer Sills**

Ease restrictions on U.S. blood donations

With a vaccine for coronavirus disease 2019 (COVID-19) likely more than a year away, we must identify effective therapies for patients now. One promising approach is the use of plasma from patients who have recovered from COVID-19 (1, 2). To facilitate this strategy, the U.S. Food and Drug Administration (FDA) recently revised some of the restrictions on blood donation, including a decrease in deferral time for men who have sex with men (MSM) to 3 months (3). This is a positive change to an outdated guideline, but it does not go far enough.

In 1983, the FDA indefinitely barred all MSM from donating blood for fear of transmitting human immunodeficiency virus (HIV) and hepatitis B/C by transfusion. In 2015, the lifetime ban was changed to 12 months from last sexual contact (4). Today, the risk of contracting HIV or hepatitis B/C through transfusion is less than 1 in 2 million, and the incidence is substantially lower (5). This success is due to advances in screening, not to banning MSM from donating blood. The false-negative rates of modern HIV nucleic acid tests fall around 0.05%. The window between infection and detection has dropped to 9 days (5, 6). Despite this improvement, the FDA continues to exclude otherwise healthy MSM through arguably discriminatory policy. Although a step forward from the 12-month policy, a deferral period of 3 full months is not necessary to protect patients (7, 8).

Moreover, this revised policy may not meaningfully increase the donor pool, given that waiting until 3 months after sexual contact amounts to a lifetime blood donation ban for many men.

The demand for healthy blood and convalescent plasma will accelerate as COVID-19 infects more Americans. To address the acute shortage (9), the deferral period should be decreased to 2 weeks, after which we can reliably screen for HIV. More granular deferrals could also be introduced. Instead of a blanket discriminatory ban on MSM blood donations, we could evaluate donors based on concrete risky behaviors, such as having unprotected sex with multiple sexual partners or sharing needles. Alternatively, we could inactivate pathogenic DNA and RNA with intercalating molecules such as amotosalen, which European blood centers already do routinely (10, 11). Coupled with robust testing and screening, these approaches will exclude fewer healthy donors while still minimizing the risk of transfusion-transmitted HIV.

The FDA's policies must be grounded in science. Safely lifting the restrictions on blood donations has the potential to save millions of lives in a normal year (12). Now, plasma may play a crucial role in treating patients suffering from COVID-19. We cannot afford to turn away HIV-negative blood with lifesaving antibodies just because the donor is gay or bisexual.

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The precarious position of postdocs during COVID-19

Postdoctoral researchers play a crucial role in many research groups, serving as mentors, teachers, and leaders as they develop their skills and prepare for scientific careers (1). However, the coronavirus disease 2019 (COVID-19) crisis has put funding and support for postdoc positions at risk, threatening to upend the career paths available to these junior scientists.

Even in normal times, postdoctoral positions provide little job security (2, 3). Most postdocs are employed on yearly contracts, and the availability of research funds is highly variable (1). Postdocs receive little institutional support in comparison to undergraduates, graduate students, and faculty. The positions often do not provide access to affordable health care or child care, career counseling or resources, paid sick leave, or employee and student benefits such as alumni network membership or union representation (1, 2, 4–7). Before the pandemic, an ongoing national discussion among postdocs was taking place to address the benefits of collective bargaining and unionization, as many feel the working conditions and terms of employment are substandard or outright nonexistent (1, 3, 8). For 2 to 3 years (and sometimes much longer), postdocs tolerate these subpar conditions in hopes of using their experience to propel them into full-time jobs as professors or researchers outside academia (2).

However, the economic crisis resulting from COVID-19 stay-at-home orders has spurred a growing list of universities to implement hiring freezes and cancel new faculty hires (9, 10). This lowers the chances that postdocs can obtain coveted full-time positions. Meanwhile, experimental work has all but ground to a halt, visas are expiring with little clarity about the prospect of extensions, and continued funding has become uncertain, jeopardizing the time-sensitive research that postdocs are conducting during their short contracts.

Although many institutions have granted some form of pandemic relief to other members of the academic community, postdocs have been overlooked (11, 12). To protect the future and diversity of the scientific pipeline, universities and research institutes must take immediate action to retain these vital junior scientists. Institutions should implement programs to prolong fellowship positions (12), similar to stop-the-clock policies available to tenure-track faculty, and vigorously advocate for federal-level extensions to visa programs. They should also offer temporary assistance to help vulnerable postdocs cope with current child care and health care challenges.

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COMPETING INTERESTS

All authors are board members of the California Institute of Technology (Caltech) Postdoctoral Association (CPA). The views expressed herein do not in any way represent the view of other members of the CPA board, postdoctoral individuals at Caltech, or Caltech.

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Sumatran rhinoceros on the brink of extinction

The Sumatran rhinoceros (*Dicerorhinus sumatrensis*), the closest living relative to the extinct woolly rhino, has been on decline for about a million years (1), but it is now at risk of imminent extinction. According to the International Union for Conservation of Nature Red List, the Sumatran rhino is Critically Endangered (2). In just 20 years, the species population has decreased from 250 to just 80 animals. Since the recent death of the last Sumatran rhino in Malaysia (3), all remaining individuals live in one of four subpopulations in Indonesia (2, 4). The current population is not sustainable without the help of breeding programs.

The main reason for the Sumatran rhino's population collapse is poaching driven by the Asian black market of traditional medicine, where a kilo of rhino horn can sell at around US\$65,000 (5, 6). In addition, human activities such as deforestation fragment the rhino's habitats (4). If these human activities continue, the rhino population will likely go extinct by 2030 (7).

In addition to curtailing these harmful activities, capture, relocation, and breeding programs are now critical to prevent population collapse and avoid harmful mutations leading to diseases that reduce the reproductive capacity of the Sumatran rhinos (8, 9). The breeding programs managed by the World Association of Zoos and Aquariums (10) may be able to provide conservation programs with new individuals to increase genetic diversity. However, these strategies must take into account that Sumatran rhinos do not thrive or breed well in captivity or outside their ecosystem (11). Breeding

programs should urgently be established in the rhino's natural habitat and include both natural and artificial insemination as well as embryo technologies, as has been tried for the northern white rhino (12). We must devote time and resources to ensure that the remaining 80 Sumatran rhinos are not the last.

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TECHNICAL COMMENT ABSTRACTS

Comment on "High-surface-area corundum by mechanochemically induced phase transformation of boehmite"

Jiangong Li, Sanxu Pu, Wenbin Cao, Lu Li, Ruiyun Guo

Amrute *et al.* (Reports, 25 October 2019, p. 485) claimed that no methods were able to produce high-purity α -Al₂O₃ with surface areas greater than 100 m² g⁻¹, even though much higher surface areas up to 253 m² g⁻¹ have been reported. Moreover, the materials they obtained could be porous aggregates and may not be 13-nm nanoparticles, as claimed.

Full text: [dx.doi.org/10.1126/science.abb0142](https://doi.org/10.1126/science.abb0142)

Response to Comment on "High-surface-area corundum by mechanochemically induced phase transformation of boehmite"

Amol P. Amrute, Zbigniew Łodziana, Hannah Schreyer, Claudia Weidenthaler, Ferdi Schüth

Li *et al.* commented that our report claims that methods reported thus far cannot enable the production of high-purity corundum with surface areas greater than 100 m² g⁻¹, and that our obtained material could be porous aggregates rather than nanoparticles. We disagree with both of these suggestions.

Full text: [dx.doi.org/10.1126/science.abb0948](https://doi.org/10.1126/science.abb0948)

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