

Gene doping on the horizon for global athletics but Tokyo Olympics are still genetic-manipulation free

[The World Anti-Doping Agency, or] WADA has long banned genetically modified cells and alterations of genome sequences or gene expression “by any mechanism,” including gene editing, silencing, and transfer technologies. WADA has yet to detect gene doping in any athlete; a spokesperson pointed to the agency’s ability to store samples for up to 10 years for potential reanalysis. This is no idle threat.

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[Functional genomics expert Greg] Neely says that gene editing could be used to alter blood progenitor cells to induce an increased production of red blood cells—or to change the oxygen affinity of hemoglobin proteins in those cells—and therefore increase blood oxygen levels, essentially achieving the same result as injecting the banned substance erythropoietin.

Another theoretical gene doping possibility is that CRISPR could be used to suppress myostatin, a muscle cell growth inhibitor. There is no evidence that any athlete has ever done either of those, and at present, neither would be an easy or guaranteed way to gain advantage.

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But the very existence of a policing agency like WADA would suggest decency alone is not enough to prevent a well-funded athlete from trying to gain an unnatural advantage ahead of competition. Let the Games begin.

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