

Gut microbes could be the key to universal blood

Blood transfusions must match the blood type of a donor to that of the recipient; otherwise, the recipient's immune system could attack the foreign blood, causing severe illness. [August 21], [scientists](#) at the 256th National Meeting & Exposition of the American Chemical Society [report](#) promising new steps towards hacking this system, using bacterial enzymes derived from the gut microbiome to convert restrictive blood types into more universal blood.

There are [four main types of blood](#): AB, A, B and O blood, distinguished by the sugars red blood cells carry on their surface, called antigens.

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As it turns out, “gut microbes are professionals at breaking down sugars,” according to Katharine Ng.

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Sugar-laced proteins line the wall of the intestine—and some of these elaborate sugars resemble the same A and B antigens found on blood cells. What's more, many gut microbes [harvest these sugars](#) by plucking them off the intestinal lining.

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In the end, the team was left with 11 possible enzymes that were active against A antigen and one against B antigen—including one extraordinarily promising enzyme that was 30 times more effective against A antigen than the one discovered in 2007.

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When the researchers next tested their powerful new enzyme against real type A human blood, the results were the same—and only a minute quantity of the protein was needed to wipe the blood clean of the offending sugars.

Read full, original post: [In the Quest for Universal Blood, Go With Your Gut](#)