

An advance toward blood transfusions that require no typing

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Scientists are reporting an "important step" toward development of a universal blood product that would eliminate the need to "type" blood to match donor and recipient before transfusions. A report on the "immunocamouflage" technique, which hides blood cells from antibodies that could trigger a potentially fatal immune reaction that occurs when blood types do not match, appears in the ACS journal, *Biomacromolecules*.

Maryam Tabrizian and colleagues note that blood transfusions require a correct match between a donor and the recipient's blood. This can be a tricky proposition given that there are 29 different [red blood cells](#) types, including the familiar ABO and Rh types. The wrong blood type can provoke serious immune reactions that result in [organ failure](#) or death, so scientists have long sought a way to create an all-purpose red blood cell for transfusions that doesn't rely on costly blood typing or donations of a specific blood type.

To develop this "universal" red blood cell, the scientists discovered a way to encase living, individual red blood cells within a multilayered polymer shell. The shell serves as a cloaking device, they found, making the cell invisible to a person's immune system and able to evade detection and rejection. Oxygen can still penetrate the polymer shell, however, so the red [blood](#) cells can carry on their main business of supplying oxygen to the body. "The results of this study mark an important step toward the production of universal RBCs," the study states.

More information: "Investigation of Layer-by-Layer Assembly of Polyelectrolytes on Fully Functional Human Red Blood Cells in Suspension for Attenuated Immune Response", *Biomacromolecules*.

Provided by American Chemical Society

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