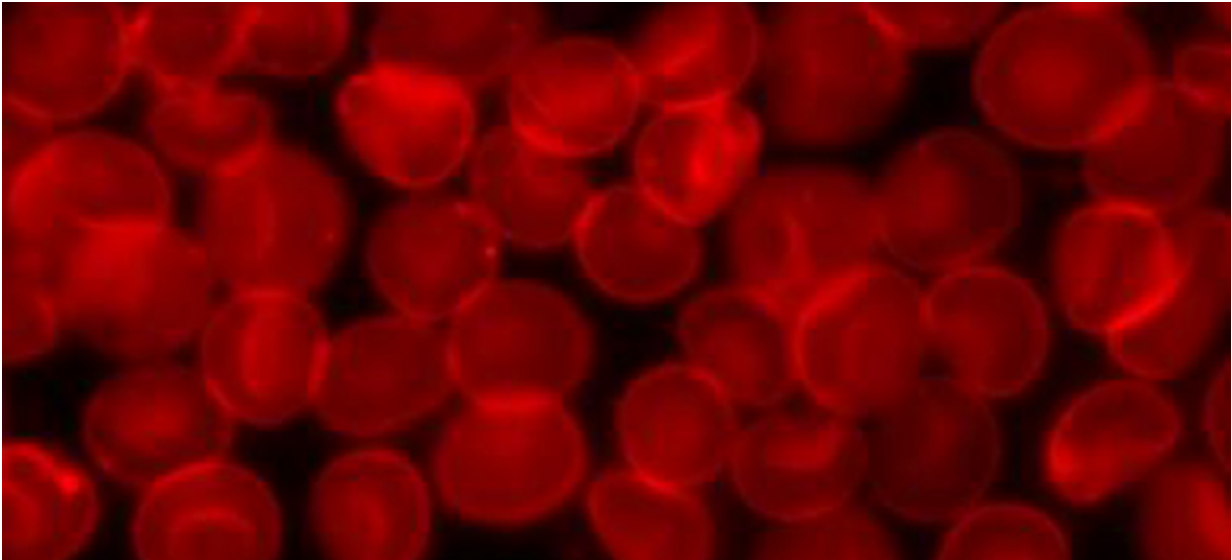


# Coexistence of people with Rh+ and Rh- blood groups explained

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Credit: Wikimedia Commons

A new study published today in *PLoS ONE* showed that incidence and morbidity of many diseases and disorders correlate negatively with frequencies of Rh+ heterozygotes (i.e. the carriers of one copy of the gene for Rh positivity and one copy of the gene for Rh negativity) in the population of individual countries. At the same time, the disease burden associated with the same disorders correlated positively with frequency of Rh negative subjects in individual countries. Together with the observed worse health status and higher incidence of many disorders in

Rh negative subjects published by the same research team last autumn, this result probably solved 80 years old enigma of coexistence of carriers of two variants of Rhesus gene in the same population.

Professor Jaroslav Flegr, the head of the research team and the author of the present paper said: "One enigma has been probably solved, however, two new have arisen. The first one is, how is it possible that the correlation of the disease burden and the frequency of particular genotypes have not been described much earlier when all necessary data are available at WHO pages and the analyses can be performed within a few hours. Similarly, data showing worse health status of Rh negative subjects are available in many databases including the large Scandinavian nationwide databases. The second enigma is even more challenging - what is the physiological mechanism of better [health status](#) of Rh positive heterozygotes, i.e. the subjects with one copy of an intact and one copy of a nearly totally deleted Rhesus gene."

The biological function of the Rhesus gene-coded protein, a part of an ion pump and also a carrier of probably the most immunogenic site on human red cells, is still unknown. New discovery could provide new hints for what this function could be. The discovery could be also of importance for clinical praxis as it could be used in personalized medicine in future.

**More information:** Jaroslav Flegr et al. Heterozygote Advantage Probably Maintains Rhesus Factor Blood Group Polymorphism: Ecological Regression Study, *PLOS ONE* (2016). [DOI: 10.1371/journal.pone.0147955](https://doi.org/10.1371/journal.pone.0147955)

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