Inflammatory immune cells can flip the genetic script

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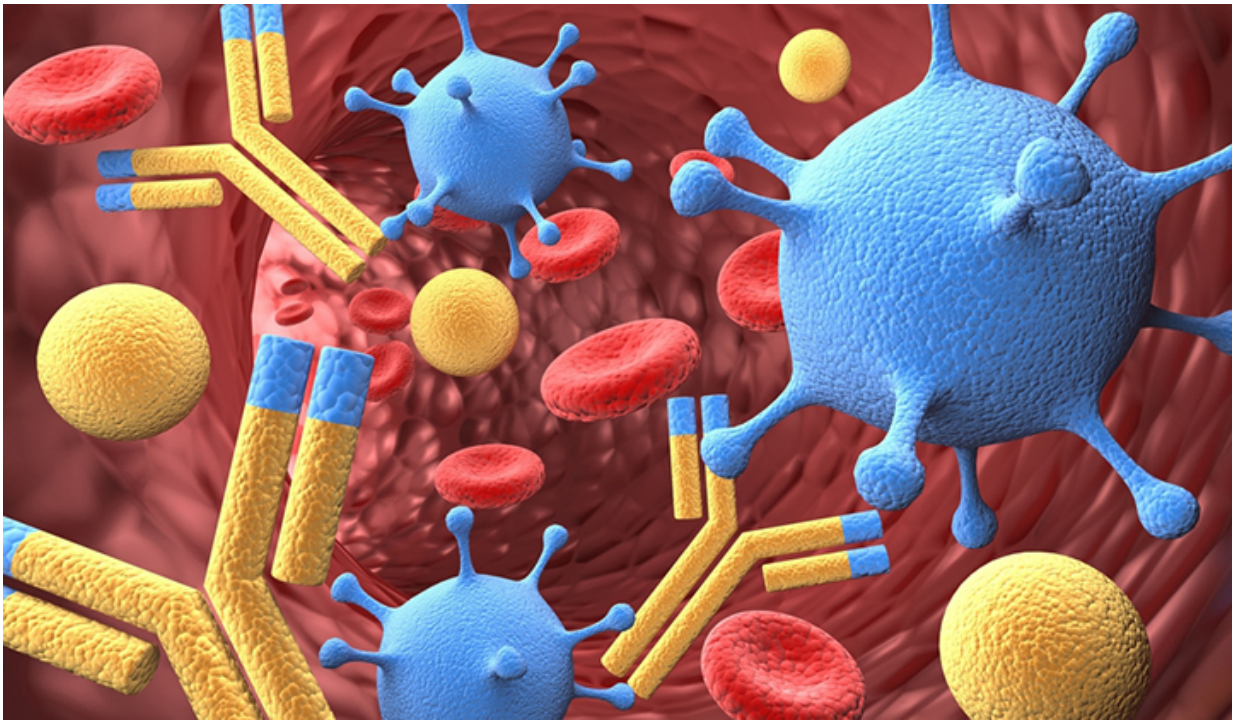

A type of immune cell that promotes inflammation during the immune response, TH17, can convert into another type of cell that reduces inflammation, Yale researchers have found. The finding, published April 29 in *Nature*, points to a possible therapeutic strategy for inflammation-mediated diseases, such as inflammatory bowel disease, multiple

sclerosis, and rheumatoid arthritis.

The research team, led by Yale's chair of immunobiology, Dr. Richard Flavell, used mouse models to observe TH17 cells, which have been known to change behavior when stimulated. Through a series of experiments, they found that the TH17 cells that had expressed a pro-inflammatory response had converted into a regulatory cell with the ability to limit inflammation.

This conversion from pro-inflammatory to anti-inflammatory is an example of "transdifferentiation," a process of reprogramming from one type of immune cell to a completely different type. TH17's ability to transdifferentiate suggests that it may be a target for the development of future immunotherapies without the negative side effects of current immunosuppressive treatments, say the researchers.

More information: "TH17 cells transdifferentiate into regulatory T cells during resolution of inflammation" *Nature* (2015) DOI: 10.1038/nature14452

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