

Could young blood hold secrets to longer, healthier life?

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Credit: public domain

In what sounds like a scene from a science fiction movie, researchers in 2005 stitched together old and young mice so they shared a circulatory system. Youthful blood seemingly rejuvenated many tissues of the elderly rodents, boosting their cognitive and physical performance. Now, scientists are examining whether certain molecules in young blood could

help treat age-related diseases, according to an article in *Chemical & Engineering News (C&EN)*, the weekly newsmagazine of the American Chemical Society.

Versions of the macabre experiment, known as parabiosis, date back to the mid-1800s, when researchers were interested in learning how conjoined organisms, like some twins, could affect each other. But recent experiments in the field of aging have reignited interest in the technique, freelance contributor Melissa Pandika writes. Now researchers are using parabiosis, in combination with modern molecular tools, to tease out which factors in [young blood](#) are responsible for the rejuvenating effects. The answers could help treat a variety of age-related disorders, such as [macular degeneration](#) and Alzheimer's disease, as well as offer hope for extending healthy lifespan.

Parabiosis experiments provide a way for researchers to identify proteins, metabolites and nucleic acids that change in older mice after they receive blood from their younger partners, and vice versa. For example, Saul Villeda and colleagues at the University of California, San Francisco found that after parabiosis, levels of an enzyme called Tet2 increased in aged mice, and that Tet2 regulated genes involved in the growth of neurons. When the team expressed high levels of Tet2 in mature mice who had not undergone parabiosis, the rodents showed neurogenesis similar to younger mice, and their memories improved. Other researchers are studying proteins from young blood that are involved in blood vessel formation, which is often impaired during aging. Yet another approach involves identifying and pharmacologically inhibiting proteins elevated in old mice that could be harmful to tissues. Turning back the clock on aging will likely require modifying multiple molecules, experts say.

More information: "Young blood may hold the weapons for targeting age-related diseases," [cen.acs.org/biological-chemist ... ons-](https://cen.acs.org/biological-chemist.../ons-)

[targeting/97/i40](#)

Provided by American Chemical Society

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