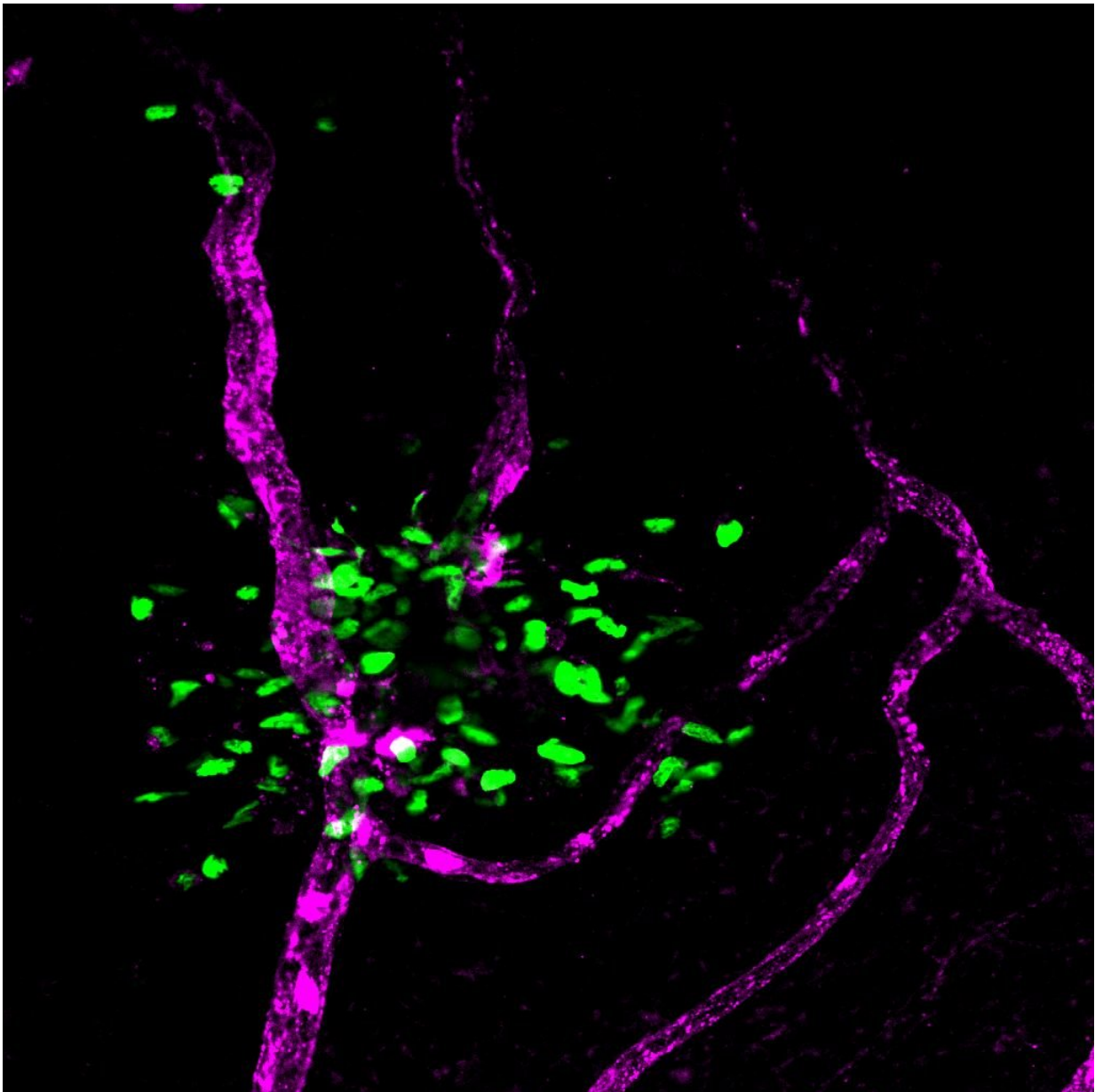


Dormant cytomegalovirus resides in eyes of healthy mice long after infection

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Cytomegalovirus infected cells surrounding iris vessels. Credit: Dr. Valentina Voigt

Infection with cytomegalovirus triggers long-lasting eye inflammation and establishes a dormant pool of the virus in the eyes of mice with healthy immune systems, according to new research presented in *PLOS Pathogens* by Valentina Voigt of the Lions Eye Institute in Western Australia and colleagues.

Cytomegalovirus infects more than half of all adults by the age of 40, but causes symptoms only in people with compromised immune systems. After a person is infected, the virus persists life-long in a dormant state. In people with healthy immune systems, reservoirs of latent [cytomegalovirus](#) were thought to exist in tissues such as lung and salivary gland, but recent evidence hints that they may also occur in tissues thought to be protected by the immune system, including the eyes.

To determine whether cytomegalovirus can access the eyes of hosts with healthy immune systems, Voigt and colleagues performed a series of experiments in mice. They infected the animals with a mouse version of cytomegalovirus and used various imaging and molecular techniques to examine the effects of the pathogen on the eye.

The researchers found that cytomegalovirus indeed infected the iris, but not the retina, of the mouse eye. The [virus](#) also caused chronic inflammation of the iris and retina that persisted for months; long after the scientists could no longer detect replicating cytomegalovirus in the eye. Latent cytomegalovirus taken from the eyes 70 days post-[infection](#) could be reactivated and begin to replicate in a dish.

"Since the mouse model of cytomegalovirus infection faithfully

recapitulates most of the pathologies seen in people after infection with human cytomegalovirus, this study represents an important advance in understanding the full impact of this infection, especially in healthy subjects" says study co-author Mariapia Degli-Esposti.

While more research is needed to determine whether these unexpected findings extend to humans, they suggest that researchers and doctors may need to rethink the effects of cytomegalovirus—and, potentially, other viruses—on the eyes. Some eye problems caused by dormant or reactivated cytomegalovirus in people with healthy immune systems may be misdiagnosed, leading to improper treatment that could damage vision.

More information: Voigt V, Andoniou CE, Schuster IS, Oszmiana A, Ong ML, Fleming P, et al. (2018) Cytomegalovirus establishes a latent reservoir and triggers long-lasting inflammation in the eye. *PLoS Pathog* 14(5): e1007040. doi.org/10.1371/journal.ppat.1007040

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