T cells outpace virus by getting a jump-start on division

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Killer T cells begin to divide en route to virus-infected tissue, allowing them to hit the ground running when they arrive, according to a study published online on April 4 in the *Journal of Experimental Medicine*.

Cytotoxic ("killer") T cells (CTL) defend the body against viruses by attacking infected cells. In order to outpace a rapidly replicating virus, CTL must bolster their numbers via cell division. But early cell division is a slow process, requiring nearly a full day for each round of division. Once activated, the CTL still has to travel through the blood to get to the site of infection.

To make every minute count, the CTL gets a jump-start on cell division during its journey, according to Dorian McGavern and colleagues at the National Institutes of Health. During viral brain infection in mice, up to 1/3 of the CTL in the blood had already initiated the division process. Upon arrival in the brain, the CTL finished dividing within minutes of encountering virus-infected cells.

More information: Kang, S.S., et al. 2011. J. Exp. Med. doi:10.1084/jem.20101295

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