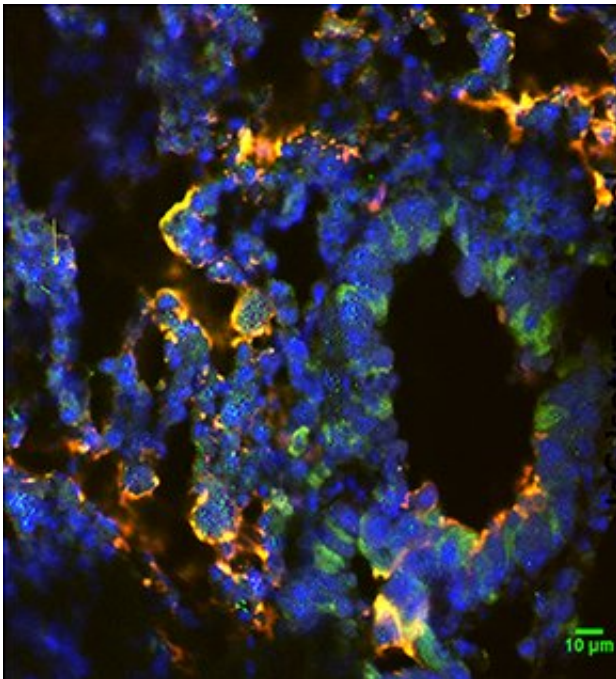


Alcohol increases tuberculosis-related deaths in young mice

August 2 2018



IFN- α production in Mtb-infected young alcoholic mice is associated with the expression of molecules involved in necroptosis. Credit: Vankayalapati et al. (2018)

Alcohol increases the mortality of young but not old mice infected with the tuberculosis-causing bacterium *Mycobacterium tuberculosis* (Mtb), and this effect is mediated by the production of a protein called interferon-alpha (IFN- α). The study, led by Deepak Tripathi of the University of Texas Health Science Center, will be published August 2

in the open-access journal *PLOS Pathogens*.

Chronic alcohol consumption modulates host immune defense mechanisms and increases susceptibility to infections with various pathogens such as Mtb. However, limited information is available about the mechanisms involved in alcohol-mediated host susceptibility to Mtb and other intracellular bacterial infections, particularly in old individuals. To address this question, Tripathi and colleagues used a mouse model and human blood samples to determine the effects of chronic alcohol consumption on immune responses during Mtb infection.

Alcohol increased the mortality of young [mice](#) but not old mice with Mtb infection. The increased mortality in alcohol-fed Mtb-infected young mice was due to IFN- α production in the lungs by a subset of immune cells that express molecules called CD11b and Ly6G. Among patients with latent [tuberculosis](#) infection, peripheral blood mononuclear cells from young alcoholic individuals produced significantly higher amounts of IFN- α than those from young non-alcoholic, old alcoholic, and old non-alcoholic individuals.

The findings shed light on the immune mechanisms involved in [alcohol](#)-induced susceptibility to Mtb infection. The results also suggest that young alcoholic individuals with latent tuberculosis infection have a higher risk of developing active tuberculosis [infection](#). According to the authors, the study could facilitate the development of therapies for alcoholic individuals with latent and active Mtb infections.

More information: *PLOS Pathogens* (2018).
[journals.plos.org/plospathogen ... journal.ppat.1007174](https://journals.plos.org/plospathogen/article?id=10.1371/journal.ppat.1007174)

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