

Tuberculosis vaccine lowers rates of Alzheimer's disease in cancer patients

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Holidays are a time for family. Festive gatherings with parents, grandparents, aunts and uncles create memories that last a lifetime. But when a loved one has Alzheimer's disease (AD), holidays often become painful reminders of loss and deterioration. Currently, Alzheimer's affects one-in-ten adults over the age of 65—a number that is expected to triple by 2030. The need to find a cure is great.

Now there may be a glimmer of hope. A research team headed by Hervé Bercovier, Charles Greenblatt and Benjamin Klein at the Hebrew University of Jerusalem (HU)'s Department of Microbiology and Molecular Genetics has discovered that the Bacillus Calmette-Guérin (BCG) vaccine, originally developed for tuberculosis and commonly used to treat bladder cancer, may also be an [effective treatment](#) to prevent Alzheimer's. They published their findings in *PLOS ONE*.

"There's data reaching back to the 1960's that shows that countries treating bladder cancer patients with the BCG vaccine had a lower prevalence of Alzheimer's disease but it hadn't

been properly analyzed," shared lead author Bercovier.

Until now, Bercovier and his team followed 1,371 [bladder cancer](#) patients receiving treatment at HU's Hadassah Medical Center. The average patient age was 68. During follow-up visits, 65 cancer patients had developed Alzheimer's. Those who had not received BCG as part of their treatment had a significantly higher risk of developing Alzheimer's than did BCG-treated patients: 8.9% (44 patients) as opposed to 2.4% (21). Further, when compared with the general (healthy) population, people who had never been treated with BCG had a 4-fold higher risk for developing Alzheimer's than did those who were treated with BCG.

It's important to note that the researchers have not developed a vaccine that prevents Alzheimer's. However, shared Bercovier "our study is an important step towards understanding the ways in which our immune system is a major player in the pathogenesis of Alzheimer's and how the BCG vaccine, which modulates the [immune system](#), may serve as an effective preventative treatment to this crippling condition."

And that would be the best holiday gift of all.

More information: Ofer N. Gofrit et al. Bacillus Calmette-Guérin (BCG) therapy lowers the incidence of Alzheimer's disease in bladder cancer patients, *PLOS ONE* (2019). [DOI: 10.1371/journal.pone.0224433](#)

Provided by Hebrew University of Jerusalem

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