**Gene-Editing Therapy Saves Lives of Two Baby Girls With Leukemia**

By Robin Andrews: Jan 26, 2017

The world may be in a dark place right now, but science is providing plenty of light to fight off the shadows. Take the case of two babies that have just been rescued from previously incurable forms of leukemia – thanks to gene-editing therapy, their lives will no longer be cut short.

Writing in the journal [Science Translational Medicine](http://stm.sciencemag.org/content/9/374/eaaj2013), a European team of researchers report that two girls have remained cancer-free 18 and 12 months after being given a novel treatment. In this case, it involved genetically engineering white blood cells to give them the ability to effectively target cancerous cells.

The team’s paper notes that “molecular remissions were achieved within 28 days in both infants,” an incredibly short space of time. At present, the two younglings have shown no signs of the [acute lymphocytic leukemia](http://www.nhs.uk/conditions/Leukaemia-acute/Pages/Introduction.aspx) they were once riddled with.

Without the hard work of the team at both London’s Great Ormond Street Hospital and Cellectis, a French Biotech firm, these extremely young children wouldn’t be around today.

This technique has been used before by various drug companies, but the engineered white blood cells have been extracted from patients that are themselves undergoing treatment. In this case, the killer cells were taken from healthy donors and then engineered to attack the cancer cells in the young patients.

Although this could have caused the two girls’ immune systems to negatively react to and destroy the “alien” white blood cells injected into their bodies, this wasn’t the case – at least initially.

The team did note that the first young patient did indeed have a bad immune reaction to the treatment two months after it took place, but after a round of steroids and some bone marrow transplantation, she’s now doing well.

One of the reasons this new method was tested on these babies is that extremely young children do not have many white blood cells as it is. Taking any away from them could weaken their immune system to a dangerous point.

The fact that this transference technique appears to be effective suggests that it could be a truly “universal” therapy, one that works on all donors regardless of age or relative immune system strength. Plenty more work is needed to confirm that this technique works on others, including older children and adults, but this trial is so far looking to be incredibly successful.

Cancer comes in hundreds of forms, each with varying ways of sneaking past our immune systems and corrupting our bodies. Although there has been an upsurge in increasingly [effective](http://www.iflscience.com/brain/experimental-immunotherapy-treatment-brain-cancer-hailed-success/) and [ingenious](http://www.iflscience.com/health-and-medicine/researchers-kill-drug-resistant-leukemia-cells-using-dna-trojan-horse-attack/) ways to treat cancers, it remains a scourge.

As this research shows, however, the tide may be turning.

[H/T: [Reuters](http://www.reuters.com/article/us-health-cancer-gene-editing-idUSKBN1592IX)]