# Article information:

Frontiers | HLA Class I Knockout Converts Allogeneic Primary NK Cells Into Suitable Effectors for “Off-the-Shelf” Immunotherapy
<https://www.frontiersin.org/articles/10.3389/fimmu.2020.586168/full>

# Article summary:

1. Adoptive cell transfer (ACT) of autologous genetically modified immune cells is expensive and time-consuming, leading to the development of "off-the-shelf" products using immune effector cells from healthy donors.

2. Natural killer (NK) cells are an attractive option for "off-the-shelf" cell-based products as they do not cause Graft-versus-Host-Disease (GvHD) and have innate recognition of transformed cells.

3. Researchers have used genome editing and HLA biology to generate highly cytotoxic, primary "off-the-shelf" human NK cells that are protected from autolysis/fracticide by NK cells and do not activate or expand allogeneic T cells.

# Article rating:

Appears moderately imbalanced: The article provides some useful information, but is missing several important points or pieces of evidence that would be required to present the discussed topics in a balanced and reliable way. You are encouraged to seek a more balanced perspective on the presented issues by exploring the provided research topics and looking at different information sources.

# Article analysis:

The article discusses the potential of using natural killer (NK) cells as an "off-the-shelf" product for adoptive cellular therapy. The authors highlight the limitations of using T cells, such as graft-versus-host disease (GvHD), and propose that NK cells may be a safer alternative due to their innate recognition of transformed cells and lack of GvHD.

The article provides a comprehensive overview of the current state of research in this field, including various approaches to prevent rejection of the graft by the host immune system and methods for genetically modifying NK cells. However, there are some potential biases in the article.

Firstly, the authors focus heavily on the advantages of using NK cells over T cells without fully exploring potential drawbacks or limitations. While it is true that NK cells do not cause GvHD, they may still have other adverse effects or limitations that are not fully discussed in this article.

Additionally, while the authors mention some studies that have used stable NK cell lines or differentiated NK cells from stem cells, they do not fully explore these approaches or compare them to their proposed method of genetically modifying primary NK cells. This could be seen as promotional content for their specific approach rather than a balanced analysis of all available options.

Furthermore, while the authors discuss their use of CRISPR/Cas9 technology to knock out HLA class I expression in human NK cells and equip them with a modified single-chain HLA-E molecule, they do not provide sufficient evidence for the efficacy or safety of this approach. More research is needed to fully understand any potential risks associated with genetic modification and how it may impact the function and behavior of NK cells.

Overall, while this article provides valuable insights into the potential use of NK cells for adoptive cellular therapy, it is important to consider potential biases and limitations in its reporting. Further research is needed to fully understand the benefits and drawbacks of using different types of immune effector cells for this purpose.

# Topics for further research:

* Limitations of using NK cells for adoptive cellular therapy
* Adverse effects of NK cell therapy
* Comparison of stable NK cell lines and primary NK cells for therapy
* Safety concerns of genetic modification in NK cells
* Efficacy of CRISPR/Cas9 technology in modifying NK cells
* Alternative approaches to adoptive cellular therapy using immune effector cells

# Report location:

<https://www.fullpicture.app/item/5e91121b770aa4f1ca4d25d568906444>