

# 4LIFE TRANSFER FACTOR'S EFFECT ON IMMUNE CELLS IN OLDER ADULTS

## Technical White Paper

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### OBJECTIVE

This study compared 4Life Transfer Factor's ability to activate Natural Killer (NK) cells in the presence of a health threat in younger and older subjects.

### BACKGROUND

Immune health is closely associated with aging and vitality. Older individuals have weaker immune systems compared to younger individuals, and, as a result, face more health challenges.<sup>1</sup> A person's NK cells' ability to target and kill health threats decreases as one ages and may serve as a surrogate immune marker for healthy aging. One study observed that the NK function of people who live past 100 was particularly robust compared to middle-aged subjects and similar to those of younger subjects.<sup>2,3</sup>

4Life Transfer Factor® has been shown to activate NK cells in the presence of a health threat across many different studies, so it is prudent to further investigate the relationship between 4Life Transfer Factor, immune system, and healthy aging.

### METHODS

Immune sample activity was evaluated based on ability of treated PBMC (Peripheral Blood Mononuclear Cells) samples to kill K562 cells, which are identified as health threats.<sup>4</sup> PBMC samples were taken from six younger subjects with an average age of 27 and five older subjects with an average age of 62. The samples were treated for 48 hours prior to analysis. Killing events were quantified by flow cytometry using DAPI. Results were normalized using PBMC and K562 treatment alone. The treatment group was PBMC, K562, and 4Life Transfer Factor.

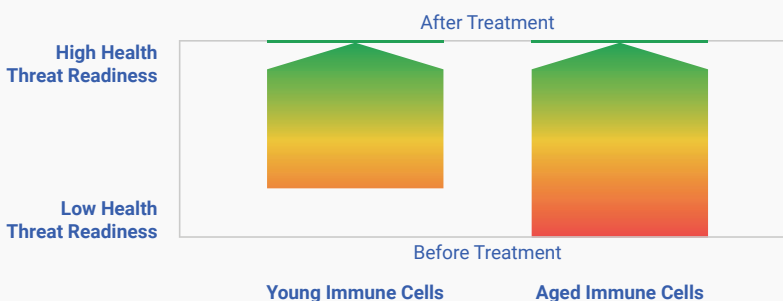
### RESULTS AND DISCUSSION

When treated with 4Life Transfer Factor, younger and older PBMC samples bolstered NK cell activity in the presence of a health threat. Comparing samples revealed that there was no statistical difference in % killing (Figure 1). This initial finding supports the notion that 4Life Transfer Factor could activate both older and younger NK cells at the same rate.

These results are significant given that NK cells of younger individuals have previously shown a greater ability to target health threats when compared to older individuals.<sup>5</sup>



FIGURE 1



### CONCLUSION

The results of this exploratory study suggest that 4Life Transfer Factor may rejuvenate older NK cells for a more youthful immune response. When a robust immune system is supplemented with 4Life Transfer Factor, there is greater potential for healthy aging and vitality.

1. Aging and the immune system: An overview - PubMed (nih.gov)
2. Lymphocyte subsets and natural killer cell activity in healthy old people and centenarians - PubMed (nih.gov)
3. Ligotti ME, Accardi G, Aiello A, Calabrò A, Caruso C, Corsale AM, Dieli F, Di Simone M, Meraviglia S, Candore G. Sicilian Semi- and Supercentenarians: Age-related NK Cell Immunophenotype and Longevity Trait Definition. *Transl Med UniSa*. 2023 Oct 17;25(1):11-15. doi: 10.37825/2239-9747.1041. PMID: 38143508; PMCID: PMC10740710.
4. Method development for the analysis of PBMC-mediated killing of K562 cells by bovine colostrum - ScienceDirect
5. Ligthart GJ, Schuit HR, Hijmans W. Natural killer cell function is not diminished in the healthy aged and is proportional to the number of NK cells in the peripheral blood. *Immunology*. 1989 Nov;68(3):396-402. PMID: 2592014; PMCID: PMC1385454