Live Better Longer

Evidence shows that a class of drugs called senolytics can inhibit many age-related illnesses, which might increase human longevity.

August 30, 2021 By Kate Ferguson

As people age, senescent cells accumulate in the body. These cells are primarily generated as a protective response to damage, but they can also trigger low levels of inflammation, interfering with cellular repair and potentially harming healthy cells nearby. Scientists are particularly interested in senescence because the process also helps maintain health by ensuring that the immune system mounts an effective response to physical injury.

“Picture a wound on your arm. There is growing evidence that senescent cells may be critical for calling in immune cells to help heal that. But it’s just a temporary thing to close that wound, and then the signal should go away,” explains Laura Niedernhofer, MD, PhD, a professor at the University of Minnesota Medical School. “The problem comes when you’re not able to clear those senescent cells.”

In one recent study, Niedernhofer and colleagues learned that senescent immune cells damage tissues throughout the body and shorten life span. Previously, scientists, including Niedernhofer, had identified a class of drugs known as senolytics that may be capable of removing these cells and stopping the onset of many chronic age-related illnesses, such as arthritis, cancer, dementia and heart disease.

Interest in senolytics has snowballed in recent years, and numerous entrepreneurs have launched biotech companies to study possible medical and cosmetic treatments rooted in this science. Who doesn’t want to avoid the diseases and incapacitation linked to aging? And if the body can be rejuvenated by reversing the aging process, why not? Needless to say, the market for such therapies is huge.

While scientists continue to conduct research in this area, findings have already translated into a an antiaging therapy intended to improve the skin’s appearance. Billed as a topical supplement that enhances skin elasticity, evenness and firmness, the so-called peptide 14 isn’t as subject to the strict regulatory requirements reserved for medical treatments. (Eventually, the researchers who developed this product hope to determine the peptide’s ability to actually stop the skin from aging.)

In 2019, a research team launched the first of six planned clinical trials to study the diabetes drug

metformin’s ability to target age-related diseases and possibly expand human life span. Dubbed TAME (Targeting Aging with Metformin), the trial involves more than 3,000 participants between ages 65 and 79 and will be conducted at 14 institutions throughout the United States. Scientists want to see whether the drug delays the development of chronic diseases, as evidence from prior studies involving animals suggests .

“If metformin can target and delay aging, its administration should be associated with fewer age-related diseases in general, rather than merely the decreased incidence of a single disease,” suggest researchers involved in the investigation.

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