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Forever Young: The Scientific Fountain of Youth

By Anne Dimon

The anti-aging revolution may mean a 150-year lifespan is within reach

Digital Journal — The “ageless society” is coming. So predicts Dr. Ron Klatz, president of the American Academy of Anti-Aging Medicine, who spares no hyperbole in describing a dream sought by countless generations.

“Anti-aging is where the medical entrepreneurial spirit has migrated,” he says. “Breakthroughs are immense and will have an impact greater than the computer revolution.”

If this sounds a little presumptuous, at least the numbers back him up: Since 1992, when Klatz first spoke of “anti-aging medicine,” it has since become an industry worth \$54 billion (all figures in U.S. dollars), poised to reach \$74 billion by 2009.



By Klatz's definition, anti-aging is any intervention that has to do with early detection, prevention or reversal of age-related conditions and diseases. Today, laboratories are able to extend animal life by

up to 300 per cent, he says, in experiments that will become increasingly relevant to humans as the baby boom generation enters its twilight years. Essentially, Klatz envisions an era of technologies that will slow or even reverse the “dysfunction” he calls aging — or what everyone else simply calls the process of life.

Leading the path of scientific innovation is stem-cell therapy, which “shows ubiquitous promise for everything from stroke to spinal cord injury,” says Klatz. Further along the line, Klatz pictures even loftier results. “Imagine being able to do a Tour de France at 150 years old,” he says.

It's not such a crazy thought. Americans born in 1959 had life expectancies of 70 years, while those born in 1999 will likely stick around until they're 77. But in 1959, nobody had heard of stem-cell therapy, the idea of harvesting cells taken from placentas to eventually replace aging or diseased organs. Despite various legal roadblocks, this controversial treatment is now catching on, especially since the recent opening of the United States' first national stem cell bank in Madison, Wisconsin. The bank will house many of the “officially sanctioned batches” of embryonic stem cells, according to the U.S. National Institutes of Health.

In other areas, Dr. Klatz points to advances in genetic engineering that will allow for early detection and diagnosis for people at risk of age-related conditions like Alzheimer's, heart disease and certain forms of cancers. In five to 10 years, he says, “we could see genes being turned on or off as needed and cellular tissues being regenerated.” Even now, he says, this technology is being offered by several companies on a disease-specific basis.

Another building block being intently studied is DNA. Whenever those gently twisted ladders become distressed, it accelerates the aging



In less than 20 years, scientific advances will allow for resetting and repairing DNA damage to return cellular functions to youthful levels. — Photo courtesy of Speedo

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process. But in less than 20 years, scientific advances will allow for resetting and repairing DNA damage to return cellular functions to youthful levels, Klatz predicts. Tinkering with DNA and genes has already shown us what the future can hold. This year, researchers at Harvard Medical School identified a life-extending gene, which is switched on by following a low-calorie diet. Dubbed SIR2, this gene found in mice, rats, flies and even baker's yeast fights age-related diseases when a low-salt, calorie-restricted diet is followed. Looks like snack foods are the real culprits behind wrinkles.

Always thinking optimistically, Dr. Klatz believes we could achieve an ageless society or practical immortality (read: 150 years plus) by 2029. But will it be something available only to the wealthy, much like plastic surgery was two decades ago?

"Anti-aging treatments will be like cellphones and computers," he says. "Initially very expensive, but increasingly affordable with demand." As science and technology meet and mingle, anti-aging products and procedures will become gradually available to the average consumer.

This could either be creepy or a cause for celebration, depending on how you feel about being alive a century from now. Either way, the fountain of youth may soon be bubbling at a lab near you.

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Dr. Klatz's View of the Future:

- A single drop of blood will supply enough info to make an instant diagnosis for potential genetic diseases and disorders. Customized drugs and nutrients will be prescribed to help prevent the onset of various conditions.
- Nanotechnology devices will be injected into the bloodstream, destroying aberrant cells that could lead to cancer or building new tissue to repair damage caused by free radicals.
- Orthopedic surgeons can now take a small piece of cartilage from the knee, have it amplified in the lab, and then inject modified cells into the knee to grow new cartilage. This form of stem cell-based regenerative medicine will become more sophisticated and widespread.

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