

# ahead

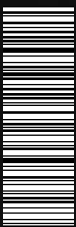
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Clariden  Leu

## Longevity

The Key to a Healthy Old Age.

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# 80 years

Life expectancy of people



The life expectancy of a new born baby is currently 80 years in many European countries and the US, and as much as 82 years in Japan.

Photo: Alexander Sauer



“Every man desires to live long, but no man wishes to be old,” observed Jonathan Swift 300 years ago. For centuries, old age was associated with hardship. This has changed dramatically. Life expectancy has risen steadily in the US, Japan, and Europe since 1945. And people are not just living much longer – enormous progress has also been made in terms of their health and wellbeing.

Many factors have played a part here: education, nutrition, lifestyle, and medical advances contribute to longevity, which is the theme for this issue of ahead. Two leading US scientists – Stuart K. Kim of Stanford University and S. Jay Olshansky of the University of Illinois in Chicago – tell us about the latest discoveries in aging research. Four famous people, all past retirement age but still as active as ever, discuss growing old and staying young. They seem to have made an old African saying their own: “40 is the age when the young start to become old, 50 is when the old become young again.”

When you think about it, that’s not a bad way of looking at things.

Stefan K. Kräuchi  
Member of the Executive Board  
Clariden Leu

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**Stuart K. Kim** is a professor at Stanford University Medical Center in California. He is investigating why various organisms age at different rates. One of his next research goals at the Department of Developmental Biology and Genetics is to make an old roundworm young again.

# Understanding Why We Age

interview by Irene B. Püttner and Karin Schefer

All organisms age: roundworms in two weeks, mice in two years, humans in about 80 years, and whales in 200 years. But why do they age, and why do their lifespans vary so much? US aging researcher Stuart K. Kim addresses these and other questions.

**P**rofessor Kim, let us start with the burning question that interests us all. Do you think it is conceivable that people will be able to live much longer thanks to the findings of aging research in, say, ten years' time? We do not mean just a couple of years longer, but much longer – another 50 years, for example.

There are three views today: the pessimistic view, the optimistic view, and the genetic view. The pessimists assume that the maximum human lifespan is about 90 years. They say we can have a small influence on how long and how healthily we live through exercise and diet, but there's no way we can extend our lives by 50 years. Here are some facts: the average lifespan in the US has risen from 46 years in 1900 to 78 years today. This success stems mainly from progress in medicine, which now allows us to treat diseases that used to be fatal, like the flu. We can treat diseases better today, but we've barely succeeded in slowing down the rate of aging. The average lifespan in ancient Greece, circa 300 BC, was 20 years, but the Greeks basically aged

at the same rate as we do. Anyone back then who was lucky enough not to die as a result of war or disease would also have grown old. Two famous Greeks, namely Sophocles and Hippocrates, both lived to be over 90 years old. Sophocles wrote his famous play *Electra* when he was 82. The maximum age has been about 90 since prehistory. All the progress that has been made in scientific research and medicine since then has not increased this maximum age very much. That's the pessimistic view.

#### So what is the optimistic view?

I think that, in the next ten years, it should finally become possible – and perhaps not even very difficult – to extend the human lifespan by a significant amount. Why do I think that? If we compare the lifespans of different kinds of animal, we see that they vary a lot. Dogs die after about ten to 17 years, cats a few years earlier, mice after two years, and chimpanzees after 40 years. Even closely related mammals have very different lifespans. Chimpanzees have DNA that's roughly 99% identical to ours, and yet they only live half as

long. There must be some aspect of the human genome that's very different from the chimpanzee genome, otherwise it wouldn't be possible for people to live twice as long as chimpanzees. At the other end of the scale, there are lots of organisms that outlast us. Turtles and whales live for 200 years. We know this for certain in the case of whales because they have been found with harpoons in them that were thrown 200 years ago. The world's longest-living animal is a clam, which can live for 400 years. There can be no doubt that the clam is very different from humans on many levels, but the differences in some respects are quite small from a biochemist's point of view. The most popular theory of aging today states that it is caused by oxidative damage.

**According to this theory, oxidative stress from oxygen free radicals is the main cause for aging. Oxygen free radicals are poisons produced by the metabolism of cells. They increase in number as a cell gets older and more active, ultimately killing the cell.**

That's right. Cells produce dangerous and reactive molecules, oxygen free radicals being one example. These arise as a by-product of the biochemical synthesis of adenosine triphosphate (ATP), the substance that supplies energy for all the processes of life. This happens in every cell, more specifically in the mitochondria. All organisms have mitochondria, and all use ATP. Mice thus produce oxygen free radicals just as people or whales do. So why do whales live 100 times longer than mice? The whale has found a way to neutralize the effects of oxygen free radicals. If oxygen free radicals really are the cause of aging in people, therefore, it should be possible to neutralize their damaging effects just as whales do, be it biochemically, genetically or through drugs. That's the optimistic view.

### What is your view?

My view is that we really don't know the causes of aging. If oxidative damage is the cause, it affects all animals, so why should we age in 80 years? The whale is also a mammal and has a similar physiology to us as regards the genome and cell metabolism. Oxidative damage, then, should not be an insurmountable physical problem, since whale cells can live for 200 years. No, I'm not convinced that oxidative stress is truly what causes aging.

### Based on your research work, we thought you might say that aging has more to do with genes.

Indeed I do. That's the third view. I'll come to my findings a little later. The key model organisms in this regard are *Caenorhabditis elegans*, a tiny roundworm that lives for two weeks; *Drosophila*, a fruit fly that lives for two months; mice, which live for two years, and people, who live for 80 years. In 1992, Cynthia Kenyon was the first person to rear a roundworm that lived twice as long as other roundworms. She changed the *daf-2* gene, which encodes the Insulin-like Receptor. Reducing the quantity of Insulin-like Receptor caused the worm to age at half the normal rate. That was very big news at the time and attracted a lot of attention.

### What has happened since 1992?

The technology has improved so much since then that we can now screen the

entire worm genome for genes that make the worm live longer when we manipulate them. The astounding thing is that we've found more than 300 genes to date that affect the aging process. Lots of genes can now be manipulated to double the lifespan without much difficulty. Researchers have succeeded in rearing worms that live ten times longer. Even though mice have many more genes than worms, we can now extend their lifespan as well. Even though it is very difficult to conduct lifespan experiments in mice, the fact that we've already found many life-extending genes in mice after testing only a small number of candidates suggests that there are many more life-extending genes left in the genome.

### Have genes also been found in people that play a part in the aging process?

That's the big question. Do people have genes that influence aging? How can we find out if there are genetic factors at work in human aging? We can investigate, for example, how long identical twins live compared with brothers and sisters who are not twins. Identical twins have a very similar life expectancy. The current thinking is that 40% of aging comes from your genes, and 60% comes from your environment. There's a very famous family that was studied by Dr. Nir Barzilai in New York. There are four brothers and sisters, all of whom are over 100, but they look more like 70-year-olds than 100-year-olds. They can still walk around, and they live alone. Not one of them has a healthy lifestyle. They smoke, like to drink, and they eat bad food. We don't know what's causing their longevity, but there is an idea that the reason could be genetic.

### Is the aging process universal? Could genes discovered in one model organism extend the lifespan of many others as well?

A lot of the research in model organisms seems to be of a general nature. Manipulating the *daf-2* gene, for instance, affects the lifespan not only of worms, but also of fruit flies and mice. There is evidence to suggest that there could also be a link between genetic variants of *daf-2* and long life in humans. Another very famous gene is *sir2*.

### Experiments with mice have shown that resveratrol, which occurs naturally in red wine, activates sirtuins (SIR2). Obese mice that were given resveratrol lived 25–45% longer. That sounds promising...

It certainly does. Ten years ago, Lenny Guarente and David Sinclair at Harvard University knew that activating the SIR2 protein made yeast, worms, and flies live longer. They searched for a substance that could activate SIR2, and they found resveratrol. Guarente and Sinclair founded a company, Sirtris, which was acquired by the pharmaceuticals group GlaxoSmithKline in April 2008 for USD 700 million. Sirtris has now discovered a substance that's said to be 100 times more effective at activating SIR2 than natural resveratrol. It seems that this drug has a life-extending effect on mice, and it also appears not to be harmful to people, since it has passed the critical safety tests. The substance is currently undergoing clinical trials for type 2 diabetes in people.

### Is it true that the research is focusing for now on the drug's benefits for diabetes patients rather than the question of whether it can extend life?

Yes, that's right. I'm very optimistic about this approach. A molecule that slows down the aging process could pass a variety of clinical tests because almost all diseases have a strong link to aging. A substance like this could thus not only make us live longer, it could also delay the onset of age-related problems such as diabetes, heart attacks, and cancer. Sinclair and Guarente are testing the substance for its effect on diabetes because this will deliver immediate results. Reversing the metabolism of a cell to a younger state should cause the blood sugar level to go down straight away, and this is easy to prove. It would be difficult, on the other hand, to conduct an experiment to prove that the drug reduces a patient's risk of getting cancer, even though it probably has the potential to do that.

### Are there other ways progress could be made?

Back in the 1990s, when Sirtris was founded, we only knew about two genes that influence aging, namely *daf-2* and

Why do different creatures' lifespans vary so much? Aging scientists are searching for the answers.



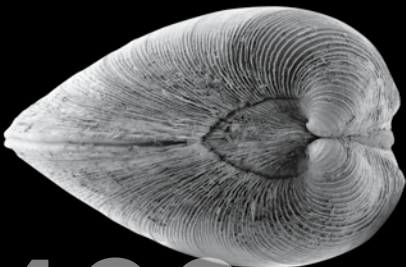
**60** days  
Drosophila, fruit fly



**40** years  
Chimpanzee

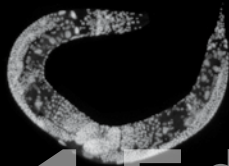


**200** years  
Bowhead whale



**400** years  
Quahog clam

**140** years  
Box turtle



**15** days  
C. elegans, roundworm



**2** years  
Mouse



**17** years  
Dog

*sir2*. In 2009, there are a large number of genes we know about that play a part in the aging of model organisms. A lot of molecules could be targets for research. Other firms could take the same path that Sirtris took and seek to develop drugs that work on these targets in the desired manner. I'm confident that, around ten years from now, we will for the first time ever have the option of extending life by a fair amount, not just a few years. I'm also optimistic that genetic research will reveal which genes allow certain people to live to more than 100 like the family Nir Barzilai studied.

**Your findings are quite spectacular, too. You have observed that changes in gene regulation are responsible for aging in roundworms. What exactly are the results of your studies with worms?**

Our work was surprising and shed light on a completely new aging mechanism. Even now, many scientists assume that aging is caused by the build-up of oxidative damage. The molecules in a cell get more and more damaged over time, the proteins lose the ability to function, and changes in the DNA become more widespread. All of this could be responsible for aging. We can compare this to a old car, with every part starting to rust. The rust can't be stopped. However, our results don't confirm this theory. They suggest that aging can be explained by changes in gene regulation. We looked at roundworms and carried out a completely unbiased experiment. We asked how gene expression changes between an old worm and a young worm.

**What did you find?**

We discovered a network of regulating proteins and genes that is regulated differently in young worms relative to old ones. By the age of two weeks, at least one of the worm's key developmental control circuits has become too repressive. It blocks a protein that serves to activate lots of associated genes, the consequence of which is a change in the activity of these genes.

**Must there be a trigger, therefore, that induces this change in gene regulation?**

Exactly. We have a few ideas at present as to which upstream processes cause

these changes in old animals, but we're still searching hard for the actual triggers. What we can say at this stage is that we aren't finding any evidence to confirm that these changes are caused by oxidative damage. One particular circuit with three regulators might play a key role. It appears that the regulatory mechanism, which is optimized for young worms, goes off balance in an old worm. The genome could be programmed to allow these changes in gene regulation in old age, when we believe some regulating molecules become either overactive or inactive. Small changes in their activity can cause big changes downstream through a cascade effect.

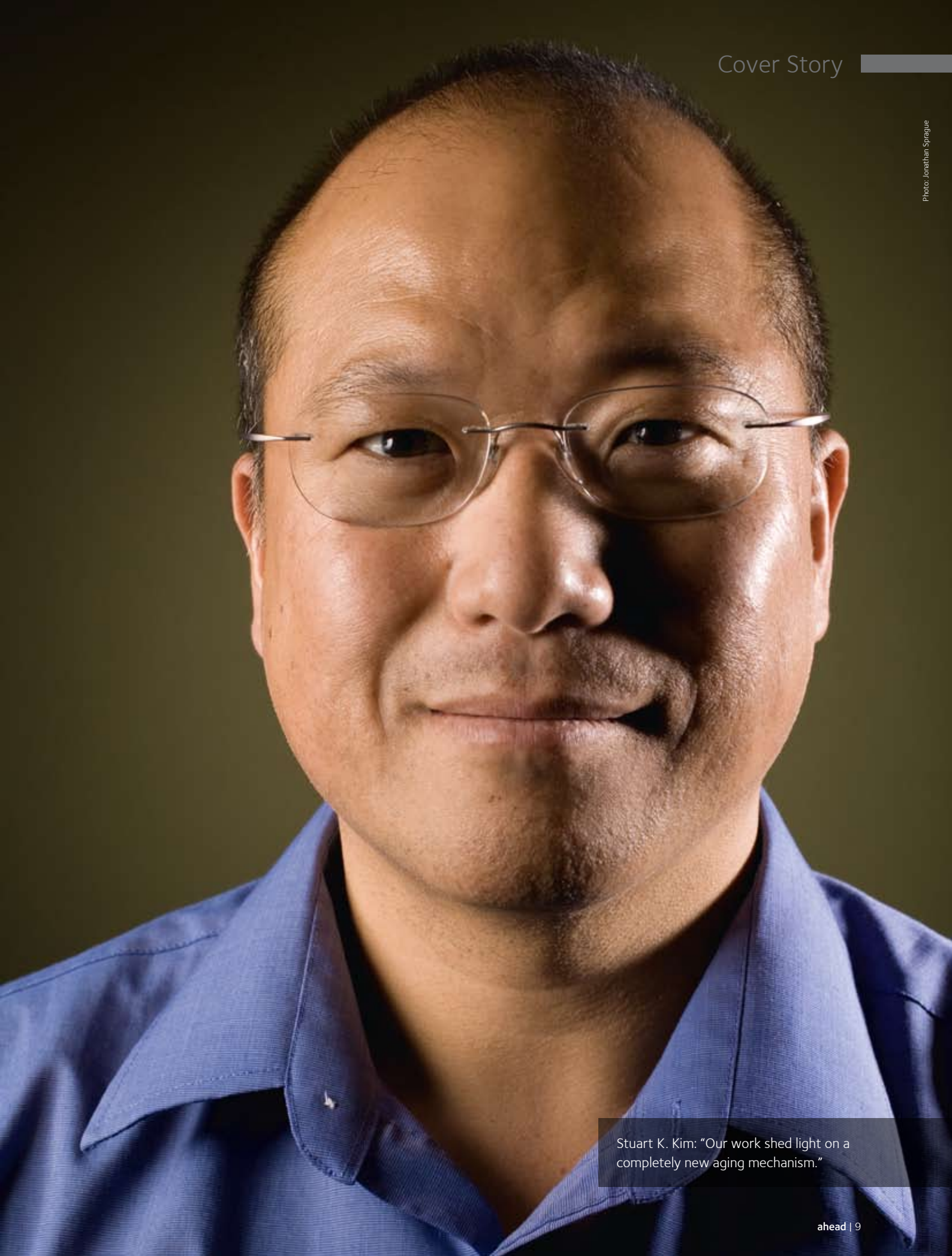
**This contradicts the rusting car image.**

That's right, it does. It's not an old car with all the individual parts rusting independently. It's more like one with problems centered on the gas pedal, which is too weak, and the brakes, which are too strong. This explains why the old car doesn't go very fast. That's a fundamentally different picture to that of a rusty old car. Above all, this car is easy to fix. You only have to know where the brakes are to solve the problem. That's exactly what we did in our experiment. We reactivated the blocking factor and showed that this made the worm live longer. Repairing the "brakes" had a positive effect on the whole organism. If we could figure out which important systems are going wrong or deviating from their normal state in old animals, we could theoretically intervene in these systems. It may even be possible not only to stop the aging process, but in fact to reverse it. The worm would then get younger. This is of course merely a theoretical possibility. However, if changes in gene regulation rather than the accumulation of oxidative damage are responsible for aging, I can understand – in theory at least – why different organisms have such contrasting lifespans. I used to have a hard time trying to work out how mitochondria in worms were different biochemically from those in humans.

**Would you personally welcome a longer human lifespan? Other scientists believe that prolonging life should not be the goal of science.**

That's a question society must answer. I'm optimistic that we'll have the option in ten year's time, but we need to think about whether it would be a good thing to make use of this option. In principle, there are two ways in which we could age in future. We could just live longer, perhaps reaching 80, and then stay alive but at the old-age state until we die. Alternatively, we could stay relatively young for a long time and then die suddenly, for instance, once we turn 85. If we can ensure that people aged around 80 aren't so badly in need of care that they have to spend the rest of their lives in a nursing home or a hospital, that would be incredibly beneficial. The aim of aging research is to make old people healthy, not to keep sick people alive for longer. We want to extend the time that people are healthy – their "healthspan", so to speak. The actual age we reach is much less important. Maybe we'll get to 80 and still be playing tennis, running around, feeling fit and healthy, and then at 85 – boom! It's all over. Who knows? Maybe that's the right way to go. Economically speaking, it would have the advantage of drastically reducing healthcare costs. ■





Stuart K. Kim: "Our work shed light on a completely new aging mechanism."

# Biotech Makes Old Age Last Longer

by Angela Obrist

**We all want to stay young and healthy. Old age? No thank you! Becoming sick and frail? Preferably not. And yet people get older and older. There has never been a greater chance of living a long and healthy life than there is today, but the biotechnology industry still has a lot of work to do.**

**A**n anyone dealing with the topic of longevity inevitably makes three realizations. Firstly, life expectancy is still rising – by an average of 60 days every year in Switzerland. Nobody knows where the upper limit of longevity lies. However, serious researchers assume that there is such an upper limit and that the human race will never discover the secret of immortality. Secondly, there are marked differences in life expectancy from country to country (see chart). Thirdly, there is considerable variance within individual countries, too: between men and women, for instance, as well as between different social groups.

Besides rising life expectancy, another demographic trend is taking shape around the world. With birth rates falling and people expecting to live ever longer, the over-60s are the fastest-growing age group. The World Health Organization (WHO) claims that the number of people who are more than 60 years old will more than treble between 2000 and 2050.

### Huge potential for biotech

This global trend poses new challenges and problems for our society as regards health. Older people are often affected by different illnesses compared with the younger population. The WHO thus pre-

dicts that non-infectious diseases such as cardiovascular ones will become an increasingly common cause of death in the next 25 years. Social changes will need to occur if we are to overcome these future challenges. Medical science is working hard to develop ways of treating illnesses that are more common in old age.

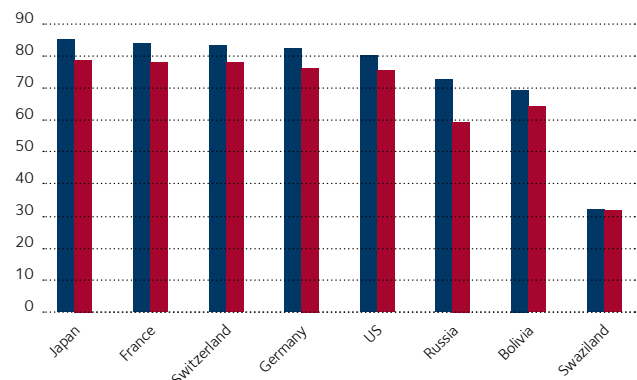
Many of these innovative drugs and therapies are being researched and discovered these days in the field of medical biotechnology, which employs proteins, enzymes, antibodies, and other substances produced naturally in the human body as well as other living



Photo: Keystone

**Life expectancy** ■ Female ■ Male

Source: The World Factbook, US Government, 2009



organisms such as plants, animal cells, bacteria, and viruses.

### 1976: the year it all started

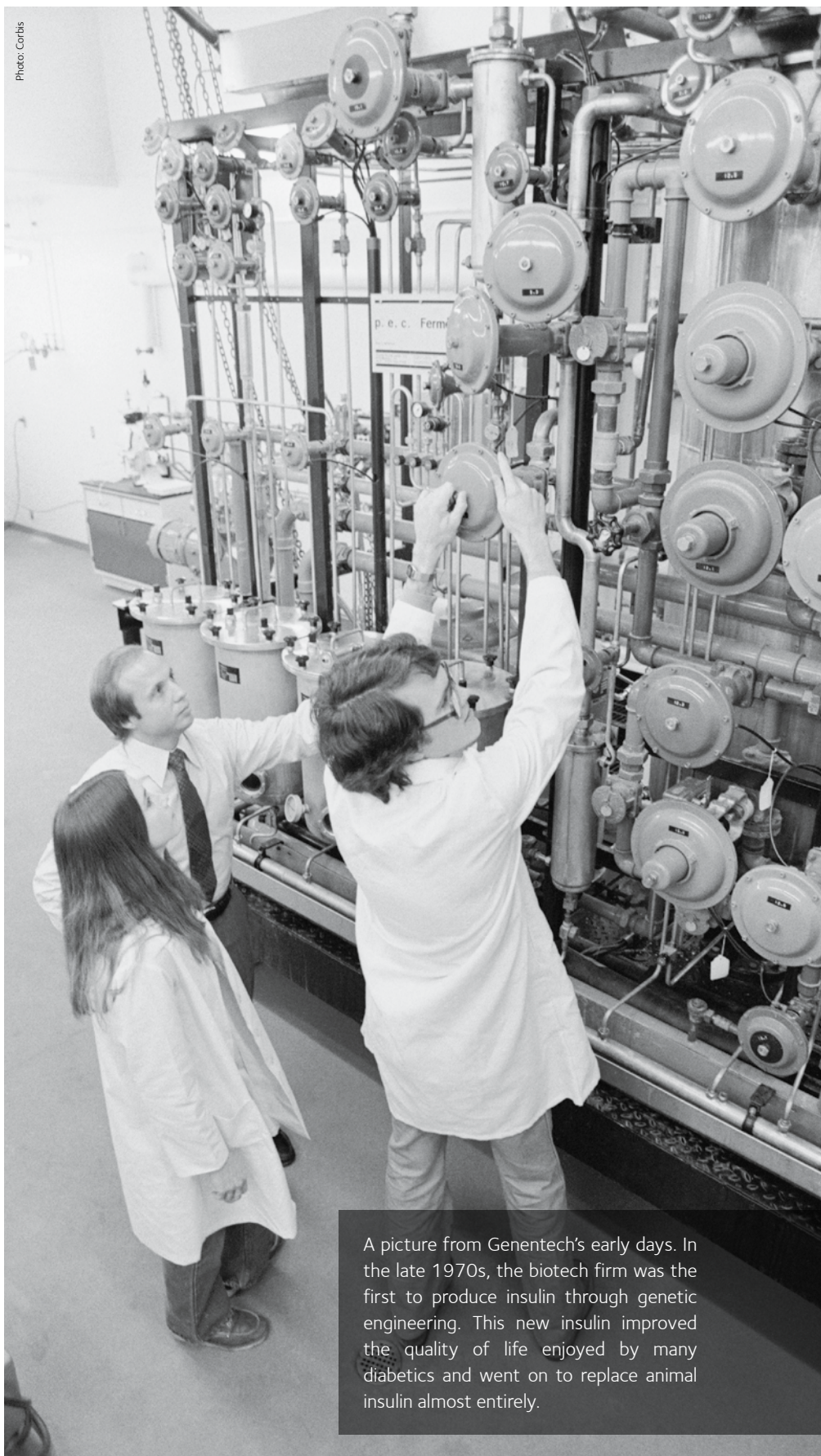
When the first ever medical biotechnology firm, Genentech, was formed in 1976, there was widespread skepticism regarding many of the company's research projects. After 1980, however, Genentech was able to show its first groundbreaking results. It had succeeded for the first time in producing insulin using genetically modified bacteria, making laborious production methods that used animal pancreases obsolete. The new process made it possible to manufacture large quantities of pure insulin, which diabetics need to stay alive.

A lot has happened since then. According to EuropaBio (the European Association for Bioindustries), more than 325 million people have benefited from biotech drugs since 1982. In addition to diabetes, examples of conditions these drugs treat include heart attacks, strokes, multiple sclerosis, breast cancer, leukemia, and hepatitis. EuropaBio estimates that 20% of all newly approved drugs are products of biotech research, although the percentage is much higher for drugs that treat cancer and infectious diseases as well as for cell therapies and growth hormones. However, biotech is not merely seeking to beat aging by fighting diseases. Some scientists are also interested in the underlying reasons for our mortality. If they find them, it may be possible to slow down the aging process in the distant future.

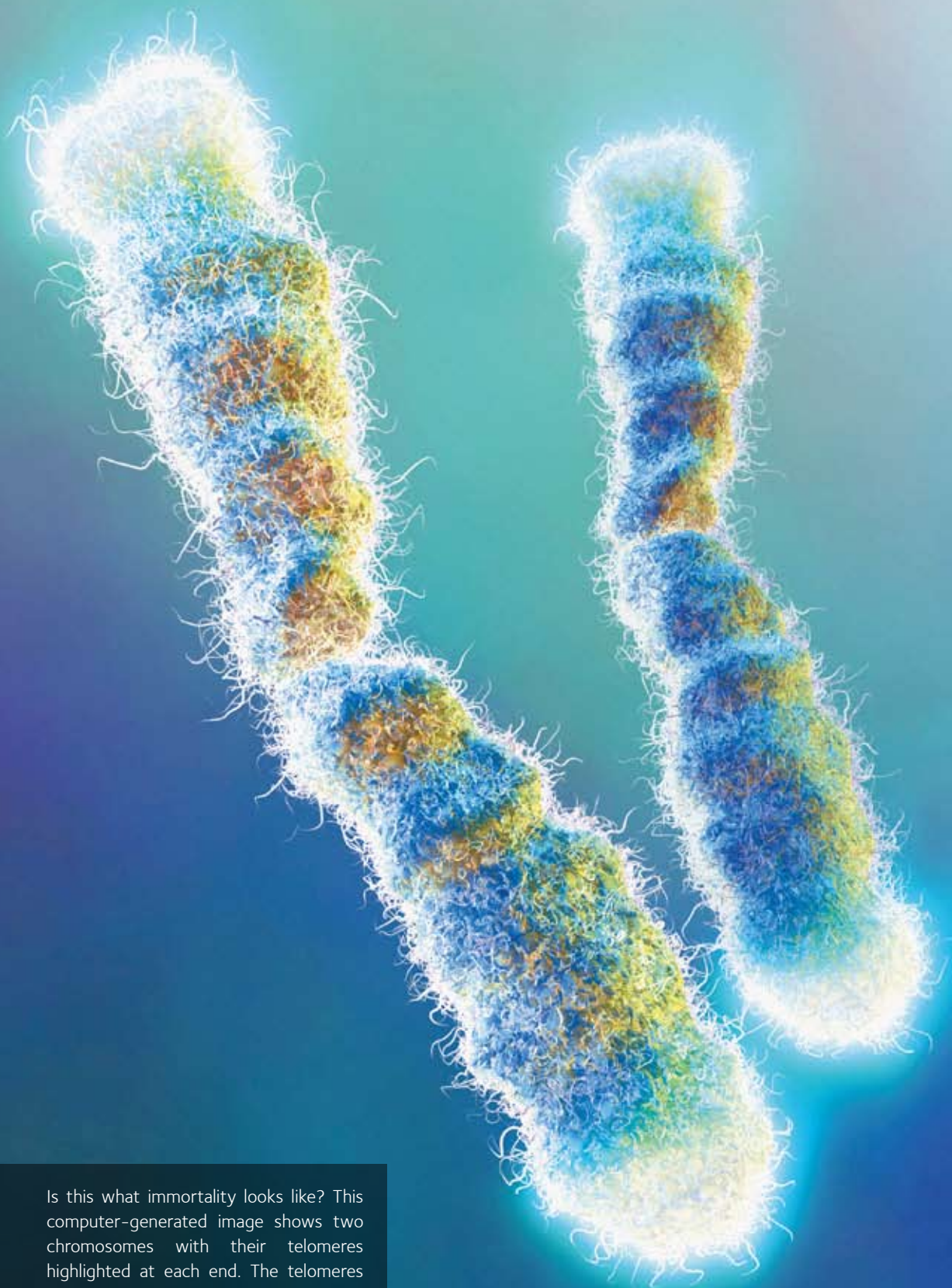
### Shopping spree among pharmaceutical firms

In spite of the ambitious research targets and the indisputable successes biotech has achieved, the industry has repeatedly been hit by considerable market turmoil. It suffered from massive financing shortages all over the world during the recent crisis. According to Ernst & Young's Global Biotechnology Report 2009, capital raised and IPO funding were sharply lower in 2008. Despite this, listed biotech companies' worldwide revenues rose, while the global industry's overall net loss was more than halved.

Photo: Corbis



A picture from Genentech's early days. In the late 1970s, the biotech firm was the first to produce insulin through genetic engineering. This new insulin improved the quality of life enjoyed by many diabetics and went on to replace animal insulin almost entirely.



Is this what immortality looks like? This computer-generated image shows two chromosomes with their telomeres highlighted at each end. The telomeres produce telomerase, the “immortality enzyme” that enables cells to divide an infinite number of times.

The traditional pharmaceutical sector now views biotech as having huge potential. Even at the height of the economic crisis, there were numerous biotech acquisitions by pharmaceutical firms. These often made the headlines on account of the high prices paid. Roche acquired UK biotech firm Piramed in the middle of 2008 and then paid USD 46.8 billion to take over Genentech in the US in the spring of 2009. This was the highest price ever paid for a takeover by a Swiss company. Also in 2009, the world's largest pharmaceutical corporation, Pfizer, bought rival firm and biotech specialist Wyeth for USD 68 billion in one of the biggest takeovers for years.

The pharmaceutical firms hope that buying biotech businesses will enhance their own innovative power and open up more market opportunities for them going forward. As the Ernst & Young Biotechnology Report 2008 notes, many popular drugs are due to lose their patent protection in the near future, and acquisition decisions are being motivated by mounting global competition and increasing demand for personalized medical treatment.

Biotech also has negative aspects, however. The complex structure of biotech drugs, for example, means that they can take years to develop, so biotech firms often have to invest more in research and development than most traditional pharmaceutical firms. EuropaBio claims that this expenditure accounts for 20-25% of revenues in biotech, compared with "only" 15% in pharmaceuticals. Biotech drugs are still comparatively expensive and thus more susceptible to cost pressure. The process of having a new drug approved is also a long and costly one as the pharmaceutical industry is one of the most heavily regulated by law. There are also certain ethical concerns among the population at large as regards some methods of biotech research such as cloning, experiments on stem cells, and genetic engineering in general.

#### **Where is the impetus coming from?**

The US led the world in terms of medical biotech thanks to Genentech, and a flourishing industry has now become

established there. It is focused mainly on key economic centers like Boston, San Diego, and San Francisco. As well as attracting the necessary expertise and large amounts of specialists in the recent past, these regions also got to grips with the strict approval tests for drugs years ago. Many US states, including Florida and North Carolina, are now building large biotech research centers to create a permanent base for this promising industry. Governments in fact perceive the industry as extremely attractive thanks to its low-emissions production methods and high earnings prospects.

It is not only the US heavyweights like Genentech and Amgen that are important players on the global market for medical biotech. Many smaller firms, too, are playing a key role. Lots of traditional pharmaceutical corporations, for example, are outsourcing early-stage drug development to smaller biotech partners around the world. According to EuropaBio, some 1,600 firms are actively involved in research in Europe alone.

#### **Immortality enzyme discovered**

The biotech industry is expanding worldwide, and its long-term growth outlook is very positive. Its most recent research triumph saw the 2009 Nobel Prize in Medicine awarded to Elizabeth Blackburn, Carol W. Greider, and Jack W. Szostak for their research into chromosomes and the enzyme telomerase. Telomerase is referred to as the "immortality enzyme" because it enables cells to divide an infinite number of times and thus prevents cell aging. It remains to be seen whether this discovery represents a fountain of youth and whether it will help technology save us from diseases or even give us eternal youth in the future. Biotech firms like Geron in the US are looking into it. ■

# Caviar, Gold or Platinum for Your Skin?

by Juan Mendoza and Karin Schefer

**La Prairie Group has carved a niche for itself in luxurious and effective skincare products. The company is driving its business forward at full speed. Continual innovation, top quality, and global expansion will secure its long-term success.**

**A**n anyone who loves luxury and is looking for highly effective anti-aging skincare products need look no further than La Prairie Group. The company is completely focused on developing products that counteract the premature aging of the skin. Based on the latest scientific discoveries, these products restore the skin's balance and aid cell renewal. The end result is timelessly beautiful skin that stays smooth, firm, and full of vitality.

La Prairie Group can trace its origins back to Juvena, a company founded in 1954 that was Switzerland's leading skin cream brand in the 1960s. Even today, the head office is housed in a Juvena building in Volketswil. Juvena was taken over by Beiersdorf in 1990 but remained independent in key areas such as research, development, and marketing of skincare products. It bought the high-end Swiss brand La Prairie the following year. "That was the starting point for our firm's success story in the luxury segment, which spans almost 20 years," says Dirk Trappmann, CEO of La Prairie Group. Two further brands have been added since then: Marlies Möller Beauty Haircare was acquired in 2001, and the cosmetics group launched SBT Skin Biology Therapy

several years later. SBT is aimed at people who either suffer from skin problems or have very sensitive skin. The new skincare line was developed in close collaboration with Professor Steinkraus, a leading European dermatologist who set up what is now the world's largest dermatology clinic in Hamburg in 1997, which he still runs together with four partners. German Dirk Trappmann took charge of Juvena in 2005. Only then was the name changed to La Prairie Group. Trappmann had previously spent 13 years working for Beiersdorf, managing part of its Asian business for ten of these. He was Managing Director in Thailand from 2000 to 2005.

## **The boom market is in Asia**

As the new CEO of La Prairie Group, Trappmann set his targets high right from the start. "We drew up our vision at the start of 2005. It contained the goal of doubling sales by 2010," he recalls. Asia was the focus for this expansion. La Prairie Group intends to invest and grow most intensively there, first and foremost in China. Another aim was to set up a global travel retail organization. Duty free business is especially important because a very large share of luxury purchases are made by people traveling abroad.

"For the four years up to and including 2008, we were right on target. We were posting double-digit growth in net sales every year," says Trappmann. Then came the crisis, which made the business plan obsolete. Like all luxury goods firms, La Prairie Group saw its sales fall sharply in the first months of 2009. The trend now seems to have bottomed out, although Trappmann sees no signs of a sustained turnaround just yet: "Business is doing better one month, then worse again the next. It's a zig-zag pattern, almost like on the stock market." Results vary from region to region, with double-digit sales growth in Asia (ex Japan) compensating for downturns in the US and Japan.

Trappmann claims La Prairie Group has met its qualitative targets. "We've made progress in Asia, we now have a global travel retail organization, the points of sale are looking much more appealing these days, and the 55-year-old Juvena brand underwent a complete relaunch in April 2009," he notes. The repositioning of Juvena was necessary because the brand's image had lost some of its sparkle in recent years. Back in the 1960s, it was the market leader not only in Switzerland, but throughout Central Europe. "Over the years, though, the brand lost its way

The Gold Facial Treatment mask is presented at the Beautyworld trade fair in Tokyo. The 24-karat gold leaf is applied to the skin, left to rest for a short while, and then massaged in. The treatment promises to leave the skin looking younger and smoother.



Photo: Reuters

a little,” says Trappmann, continuing, “There were lots of sub-brands, and they obscured the core brand somewhat. When I asked three different employees what Juvena stood for, I got three different answers.” The rebranding has changed all that. The brand message is now “JUVENA. CREATE FRESH, NEW SKIN.” According to Trappmann, “Now everyone knows what Juvena stands for again.”

### China poised to overtake Japan as a luxury market soon

Just as for the luxury goods industry in general, Asia is the key market for premium cosmetics. Trappmann believes China offers the greatest growth potential: “I think China will overtake Japan to become the world’s biggest luxury market in the next five years.” The Chinese market is already bigger than that in the US. In addition to Asia, however, La Prairie Group’s rapid growth in the last three to four years (with the exception of 2009) has also been supported by Russia and the Middle East.

With its four exclusive brands, La Prairie Group was not among the first companies to expand into China. On the contrary, in fact, it only started to push its business in China toward the end of 2005. “We were thus the last cosmetics brand to enter the Chinese market, although we’re growing all the faster for it,” says Trappmann. At least the La Prairie brand is now represented in China’s leading shops, with its products on display at prime points of sale. A subsidiary was formed in 2007 with its own management and its own organization. Trappmann remarks, “We’re driving the business in China forward at full speed. Sales have already doubled from a low starting point. La Prairie ranks among the top five brands in almost all of the 11 shops where our products are on sale.” This rapid expansion was possible because the relevant target group was already familiar with La Prairie as a luxury brand in China, too. “The picture of the skin cream pot with the caviar was known to everyone at the time, even in China,” says Trappmann. Ultimately, Chinese consumers are attracted to prestigious

European brands just as much as their Japanese counterparts are. “People aspire to owning a Mercedes, and it’s no different with La Prairie. The brand’s a status symbol,” concludes Trappmann.

### Whitening – the Asian megatrend

La Prairie Group largely sells the same premium products in Asia as it does in Europe and the US. However, there is one huge trend that is specific to Asia: whitening. “Asian women simply want a lighter skin tone,” says Trappmann. The consensus on beautiful skin in Korea and Japan would be that an elegant, almost porcelain-like tone is ideal. Like many other companies, therefore, La Prairie has developed skin whitening products specially for the Asian market.

However, whitening is just a sideline. In Asia, like everywhere else, anti-aging products constitute the largest segment overall. The big difference is that many women in Asia start to use anti-aging products much sooner than those in Europe, and they use more products on average. According to Trappmann, it is the Koreans who take it to extremes, applying seven products every morning. “That’s why the Asian markets are so big. While women in Europe only get interested in anti-aging products from a certain age and mainly use them to conceal wrinkles, in Asia it’s more about prevention. Women there use products to avoid getting wrinkles in the first place,” he says. The fact that there is probably more pressure to conform to an ideal look in Asia than there is in Europe or the US is likely to play a role as well.

Building a strong brand and an image to go with it takes a lot of time and money. “It takes five to ten years to establish a new brand in the premium segment,” says Trappmann. For its newest brand, SBT Skin Biology Therapy, the company started here in Switzerland with a handful of leading retailers such as Osswald on Zurich’s Bahnhofstrasse and Spiess in Berne. It all began on a very small scale. More shops were gradually added, the profile was raised, and advertising eventually followed, although La Prairie Group is highly selective in its use of advertising. Trappmann is emphatic on

## The World’s Most Expensive Skin Cream

Beauty has its price. The world’s most expensive skin cream – Cellular Cream Platinum Rare from La Prairie – costs USD 1,000 for a 50-milliliter tub. The exclusive cream was launched in New York in October 2008, just as the financial crisis came to a head. In spite of the unfavorable market environment at that time, the company’s decision to roll out its new skincare line has been vindicated one year on. “We thought long and hard about whether we should dare to make the leap, but, believe it or not, Platinum Rare was a best seller in 2009,” says Dirk Trappmann, CEO of La Prairie Group. In general, stresses Trappmann, the core products in the premium price segment have not been affected so much by the crisis. “The worst falls in sales in 2009 came in secondary products like toner and make-up remover, where consumers are quicker to switch to cheaper brands,” he says.





this point: “Our products certainly aren’t designed for the mass market. They have to remain very special and exude top quality and exclusivity.”

### Technology borrowed from emergency medicine

Research and development are crucial to the company’s long-term success. “We’re innovation-driven,” says Trappmann, adding, “Consumers spending this much money on a skincare product naturally expect something special and unique. That’s why research and development are absolutely central to what we do.”

Juvena has succeeded in creating a “double revolution” with its SkinNova SC Technology, a combination of SkinNova Technology and StemCell Peptide. This innovative technology forms the basis for a complete range of facial care products. In MasterCream, the new Juvena’s star product that was launched in April 2009, it is combined with several active anti-aging ingredients to produce a holistic skincare experience. The first revolution, SkinNova Technology, which La Prairie Group has patented for cosmetics, is a result of the partnership between Professors Odile Damour and Sven Gohla (Head of R&D at La Prairie Group). Professor Damour heads the University of Lyon’s Laboratoire des Substituts Cutanés (Skin Substitutes Laboratory), one of the leading institutes for the treatment of burn injuries worldwide. She has developed a technique for growing completely new skin from just a small number of a person’s own cells. “Juvena has succeeded in incorporating this matrix into a cosmetic formula,” explains Trappmann. The main benefit of SkinNova Technology is that it provides the ideal micro-environment to ensure the skin cells’ optimal development and improve their absorption of active skincare ingredients.

“We also developed the exclusive StemCell Peptide for Juvena in 2008 – our second revolutionary achievement,” says Trappmann. This active peptide ingredient boosts the self-renewal potential inherent in the skin’s own stem cells. After around eight years of research, Professor Gohla and Dr. Daniel Stangl of

La Prairie Group were able to create an effective yet skin-friendly principle of cell renewal. The quality of the skin is demonstrably improved. The result is skin that feels fresh and brand new. ■



Photo: La Prairie Group

**Dirk Trappmann (48)** has been CEO of La Prairie Group since April 2005. Prior to that, he worked for Procter & Gamble from 1986 to 1992 and then spent 13 years with Beiersdorf in Hamburg and Thailand. Trappmann treats his skin to the world’s best skincare products and drinks a good three liters of water every day. He also attaches a great deal of importance to a healthy work/life balance, which – since he is a keen marathon runner – means a daily jog along Lake Zurich every morning from 6 to 7 a.m. He often has to travel abroad for his job. “But I always pack my running shoes,” he points out.

# Growing Old, Staying Young

Retirement is an upheaval for many people, but not for others. They remain active, eager to learn, outgoing. They discover the benefits of a more relaxed approach. Beatrice Tschanz is one such person. As Head of Communications at Swissair, she experienced lots of highs and lows in her career. A year after retiring, she shares her thoughts on growing old and staying young. We also give brief portraits of three more active seniors.

authors:  
Urs Thaler  
Claudio Mascolo  
Angela Obrist

## Beatrice Tschanz (65) Corporate Communications Expert

I paid into the state pension scheme all my working life. When I received my first payout from it in 2008 at the age of 64, it was a good feeling, rather like getting a gift. However, it also brought home the fact that I now find myself among the massed ranks of retirees. The realization that I am no longer 30 had already hit me once or twice before I retired. Now my state pension softens the blow of old age. Yes, I really value that pension.

I suffered a crisis when I turned 50. I suddenly started to feel really old, and I was not happy about that at all. Then I said to myself, "Right, pull yourself together. After all, you still have your health."

I am not the sort of woman who stands in front of the mirror every morning counting the lines on her face. We have to accept that our bodies age, our skin becomes looser, and the wrinkles spread. It is not a cheery prospect, but it is unavoidable. We get older, and we eventually become frail. I have sympathy for women who refuse to accept it and grasp desperately at all the options offered by plastic surgery and cosmetics. However, even they cannot escape the aging process.

When I worked in the US, people used to say to me, "Beatrice, you should get a facelift," as if it would be as simple as going in during my lunch hour to have a couple of staples put in behind my ears. I never did. My hands, my neck, my body, the way I move – that is who I am. And that will remain the case even as they all change. For me, it is a question of dignity.

I see a lot of positive aspects to aging. I still have a lot of questions about life, people, society. I have not lost my curiosity and take an interest in lots of things. One thing that has changed markedly compared with my time as a career woman is that I am now much more relaxed. I do not get angry about every little thing. Back in my working days, I could get very worked up. I was always highly strung. It was usually a positive, constructive form of tension that produced results and was needed to keep communications running smoothly at a big company like Swissair.

### New-found freedom

One thing I like about retirement is my new-found freedom. Unlike in my career, I can now get up in the morning, look out of the window, and say, "Today I'm going to the woods to enjoy the beautiful weather." Or I might just enjoy lying on the sofa with a good book. I am reading

Simone de Beauvoir's classic "The Coming of Age" at the moment, and it is as inspirational as ever.

My daily routine does not involve conquering mountain peaks or discovering tranquil islands in southeast Asia. I am more likely to be found in Zollikon. The older you get, the more relaxation you need, and I find relaxing easiest at home.

My job would occasionally see me thrust into the public spotlight. I will admit that I found that very stimulating, but where there is light, there is also shade. I found out the hard way that there was a negative side to the public status I enjoyed, for example when a Swissair plane crashed at sea near Halifax and later when the whole group collapsed. I probably took my job too personally back then, making myself available at the company's beck and call. I was always there for anyone who wanted something from me – almost 24 hours a day. This became an unbearable burden because there was no way back, at least as long as I embodied that public function. People who work in the media are driven, always wanting more. I had to learn to distance myself step by step from the media circus.

I am sometimes asked whether I ever feel lonely or alone in my old age. My answer



Photo: Vera Hartmann

is yes, I am alone from time to time, but I never feel lonely. In fact, I cherish these times because they help me to straighten my thoughts out in my head. Half a day all to myself is a blessing. I might do nothing at all for that half-day, or I might spend it deep in thought, or I might go for a walk.

I see a lot of businesspeople who are totally at a loss after they retire because their job has been their whole life for decades and they had no interests outside work. I know it can be hard to stay open to new experiences when you work a 60 or 70-hour week, but that makes it all the more important to make time for other things. I managed to do that because I have always been receptive to new ideas and never took a blinkered approach.

Young people today have a harder time than we did 40 or 50 years ago. I enjoyed my youth to the full. I traveled abroad, fell in love anew every three weeks, and discovered the wonderful diversity of the world and its people. Yes, it was a fine time, but it is all in the past, and that is where it belongs. I have no need for all the excitement of those days any more. I am grateful to my father for insisting on a good education. He always said, "Money can be lost or squandered, but nobody can take away the knowledge you learn." That is probably why I was able to stand on my own two feet so soon in life.

### **Less haste, more contemplation**

You have more time to reflect in old age. I do a lot of thinking. You need time for that, and I have time. When you are working, the years rush by like an express train. One day, you stand there and ask yourself where this or that decade went. Life for young people is lived in haste. Life for older people has room for contemplation.

Old age has something in common with investment. In investment, you cannot always expect to see a return of 12% or 15%. There are times when you have to make do with 6, 5 or even 3%. That is not so hard to live with.

The financial crisis eroded my assets, too, so I was preoccupied with it just as many other people were. Older people

perhaps worry even more about financial losses because they do not have enough time to recoup them. I often thought of my grandfather during the financial crisis. He always said to us, "If you get 5% interest, you should be grateful." He knew instinctively that 5% is basically a decent rate of interest. I now believe it is greedy to expect any more than that, and people are often too willing to forget that greed is all around us.

Is there anything I still wish for? Yes, of course there is. The purely material wishes diminish, while the immaterial ones tend to grow. That probably comes from getting more relaxed with age. Maybe one or two big vacations would be nice. Aside from that, however, I think questioning is just as important as wishing. I question life in general as well as other people, society at large and the state.

I have always taken a greater interest in the future than in the past. I keep both feet in the present and look forward. I am sure that this interest in the future stems from my need to constantly think ahead in my career. What will happen? What might happen? Even today, I still feel the need to keep up with what is going on. I read the newspapers, listen to the radio. I find myself watching less and less television because most of it these days is nonsense. I am not really interested in looking back. I am not the type of person who likes to go to class reunions and reminisce about the old days. What is gone is gone.

### **My wish for Switzerland**

As regards our society, I wish that it would put people first again rather than numbers and profits. Humanity is needed in day-to-day life, in business, and in politics. I also have another wish for Switzerland and Swiss politics in particular: shake off this spinelessness once and for all, stop playing down our country's values and strengths and sacrificing them piece by piece! We should continue to stand up for the things that make this country great.

## Franco Sbarro (70)

Car Designer

Franco Sbarro (70) has never taken a single week's vacation in his life. For him, nothing beats displaying his concept cars at the Geneva Motor Show. "That's my vacation," says the Italian, who ranks among the most individual and influential car designers and developers of the last 40 years. Sbarro was just eleven when he repaired his first motorcycle. Now, despite being 70 years old, he can still be found in his workshop in Grandson, western Switzerland – even on Saturdays. "I like to believe I'm immortal," he says with a wry smile. He had to go for a brief stay in hospital recently due to kidney stones. "I had a moment to reflect and realized that I do need to look after myself. Otherwise, though, growing old isn't a subject that gets me down," he observes.

One thing he does notice is that he is becoming more impatient. Time is important – and it passes. "Visions need time. Not for dreaming, but for work. You have to take time to learn the practical skills that will help you realize your vision," comments Sbarro. The creative process starts with work done by hand. "It's impossible to develop a prototype if you can't build and test the car yourself," he explains. Reaching retirement age had no significance for him. He worked before, and he has continued to work since. "In my profession," he says, "what happens between 20 and 30 is important. I believe those are the years when the biggest change takes place. Before that, your thoughts are still free, your path is not yet defined, anything is possible. After that, it just gets harder and harder."

Since 1992, he has had close contact with young people who are just starting to make their dreams come true through his design school. His students come from all over the world. Would Sbarro like to be young again? "No. I've used my time well and, almost by accident, achieved more than I ever dreamed possible. And the ideas just keep coming – hundreds of them every day!"



Photo: Vera Hartmann



## Heinrich Eichenberger (75)

Author

What would Dr. Heinrich Eichenberger (75) like to be if he had the choice? "I'd like to be the man at a party who sits down at the piano and takes everyone's breath away," he says. It would be nice to be a pianist, "But it's probably too late for that," says the Aargau native, who now lives in Lucerne, with a smile.

An economist by trade, Eichenberger has already felt the effects of aging: "I've had two operations on my heart, that's definitely something to watch." However, far from experiencing an upheaval when he reached retirement age, he simply kept on working. He remained on the management team at Korn/Ferry International way beyond the usual age limit, and after that he slipped seamlessly into the role of independent business investigator. "But I don't have any more ongoing operations these days," he says. Eichenberger is happy that he no longer has any obligations but is still able to do anything he puts his mind to. He has taken advantage of this newfound freedom to write seven espionage novels, all of which have been published. These business-themed thrillers are the result of meticulous research. He has visited all of the international locations where his plots are set. "The trips aren't always comfortable, but I find them more interesting than lying on a beach somewhere or pottering around on a golf course," he explains.

Heinrich Eichenberger would love to be young again. "I often replay scenes in my mind and remember saying something that I could have phrased better. That's when I'd like to turn back the clock." Even now, he has not stopped learning. He reads a lot and seeks out new knowledge, commenting, "It was not until I turned 60 that I really opened my mind." Despite having a successful career, his knowledge outside the professional sphere had been limited: "Back then, I didn't miss the joy of discovery, which is so important to me now, because I had no idea what I was missing out on."

## Trudi Gerster (90)

Storyteller

Trudi Gerster turned 90 in 2009. That is old, certainly, but what does she have to say on the subject? She recalls that, as a child, she never thought about what old age would be like. "And anyway, I can still walk fine," she notes enthusiastically. Indeed, Switzerland's favorite storyteller continues to perform to packed audiences, getting every word and every emphasis just right. A book entitled "Trudi – Queen of the Fairytale" was recently dedicated to her. It contains a wonderful collection of her fairytales from all over the world.

The trained actress has spent most of her life doing what she loves most – telling stories. The secret of her success, she explains, is that she specialized at an early age: "You can tell stories at any age. In the theater, good roles become increasingly rare as you get older, especially for women. But my voice can still act the part of a man or a woman, a boy or a girl, a bird or a dragon, even now."

Even at the ripe old age of 90, Trudi Gerster has no thoughts of retiring. She certainly does not want to die. In fact, she finds the prospect somewhat scary. She would not hesitate for a single second if she had the opportunity to be young again. Things were so great when she was young. "But what can you do?" she says, "It happens to us all. Everyone grows old."

They do, of course, but Gerster has held on to a unique gift. When she recounts her story, it almost sounds like a fairytale: "A bearded man, maybe 60 years old, was once in the audience. He had his eyes closed. After the reading, I asked him if he'd been asleep. On the contrary, he replied. When he listened to me with his eyes closed, it felt like he was eight years old again, sitting on the kitchen floor and listening to Trudi Gerster's fairytales on the radio." The Queen of the Fairytale beams at the thought that, at 90, she still has the power to make others feel young again through her voice alone. ■



Photo: Vera Hartmann

# A Longer Life – Making the Dream a Reality

Hopes are high: many people are anticipating further increases in life expectancy. They also expect the chances of recovering from cancer and other common diseases to improve. But what are the consequences of interfering in the human aging process? Professor S. Jay Olshansky of the University of Illinois at Chicago tells us more.

interview by Christian Bruns and Karin Schefer

**Professor Olshansky, you deal with longevity from a scientific point of view. Have you ever thought about how old you would like to live to? 70? 80? Or perhaps even older?**

I won't say a number, but the answer couldn't be simpler: I'd like to keep on living as long as I can stay healthy. My father is now 94, and he's in great shape both physically and mentally. I hope I can get to be at least as old as him, maybe even older. It's not the number of years that counts for me, it's the quality of life in old age.

**There has been a huge increase in life expectancy over the past 100 years. It has risen by an average of three and a half months every year in Switzerland. However, this has brought an increase in the number of people suffering from age-related frailty and illnesses. Is that the downside?**

Yes. The fact is that lots of people who would have died at 50 or 60 in earlier times can now live to be 70 or 80. This puts them in an age bracket where certain illnesses such as Alzheimer's and cancer become much more common. That's the flipside of the progress we've made in terms of longevity over the past few decades. Nevertheless, I'd say the increase in life expectancy represents a great success for humanity in general.

**Life expectancy has shown a much smaller increase in the western world during the last few years. Why?**

The rate of growth in life expectancy has slowed down in most industrialized nations in the past 20 years. I don't know exactly why life expectancy has increased in countries like France and

Japan while remaining stable in the US and the Netherlands, but I do have an idea of what's happening in the US.

**What is that?**

In the US, one factor that has had a significantly positive impact on life expectancy throughout the population as a whole in recent decades is starting to lose its importance, and that's education. I should point out here that education is probably the best predictor, besides genetics, of longevity and health. The most important factor in a person's longevity is naturally how long their parents and grandparents lived. Over the last 100 years, the level of education in the US has increased from one generation to the next. Now, however, we're seeing people who are about as well educated as those in the generation before them. We can thus say that the country's educational attainment has now leveled off, as a result of which we can't expect any further significant gain in longevity due to this factor. We're seeing divergent trends for the major diseases of civilization. Fewer people are dying of cancer and heart disease these days, but there is evidence that cardiovascular disease could be on the rise again in a large number of countries. One of the really worrying developments of recent years is the sharp increase in the number of people who are obese.

**The common tips we hear for leading a long and healthy life include taking lots of exercise, eating healthily, not smoking or drinking too much alcohol, and avoiding stress. Which are true, which are not?**





Photo: Jeff Keastore

Two ladies exercising in Sun City Arizona, a whole US city geared specifically to active retirees aged 55 and over.

Diet and exercise are important. We can extend our lives and improve our quality of life by reducing our calorie intake and by eating more fruit and vegetables and less fat and red meat. Not smoking and not drinking too much are also critical as these are bad habits that shorten your life. We've learned a great deal about the interplay between these factors in recent decades. The crux of the matter is that, even if you do everything right, you'll still get old, and you are still likely to die as a result of heart disease, cancer or a stroke, albeit at a later age.

**Some people are predicting that science is not far from cracking the secret of immortality. What is your view of the theory that we will be able to achieve this in 20 to 30 years' time?**

It's pure fantasy.

**One person claiming that death could be eradicated in the next 20 to 50 years is Aubrey de Grey, chief science officer of the SENS Foundation. Another is Ray Kurzweil, inventor of new technologies. We assume both of these experts can provide credible evidence to back up their "theory of immortality"...**

No. They are hypotheses, pure and simple, without any scientific basis. Aubrey de Grey argues that all we need to do to stay forever young is to develop and use regenerative medicines and have our bodies regularly overhauled, just like we do with our cars, getting worn-out parts replaced from time to time. The trouble is that we're just not equipped to do

this. De Grey himself has no idea how we might go about fitting spare parts. Ray Kurzweil, on the other hand, believes that tiny robots known as nanobots could be used in the foreseeable future to treat and cure all known diseases inside the body. That makes for great science fiction, but sadly we have no way of knowing if these microscopic machines can be built, and what they would do if we did build them. It's nothing more than a fantasy. So why do they make these outlandish claims? There are lots of incentives, one of them being that the media will always be eager to listen to such stories of everlasting youth. The more fantastical the claims, the more interest they attract – that's the general rule.

**What do you see as the realistic assumptions? What progress do you expect in the next ten to 20 years?**

I'm very optimistic that scientists will soon make a breakthrough that allows us to slow down the biological process of human aging. I believe the first medical treatments may be available within ten to 20 years, probably in the form of pills that we can take daily. These won't be sold as "anti-aging" pills but as drugs that reduce the risk of a single age or behavioral-related illness – such as diabetes. The side effect will be a systemic deceleration in the rate of aging and decline in the risk of all diseases simultaneously. These pills will definitely have a measurable effect on our quality of life.

**What do we know today about the aging process? Is there a precise explanation for the phenomenon of aging?**

There are lots of theories as to how and why we age, but I think it's significant that scientists are for the first time ever in a position to make organisms age more slowly in laboratory experiments. They have succeeded in prolonging the lives of worms, flies, mice, dogs, and monkeys. There is evidence that this will also be possible in humans within ten to 20 years. Sirtris, for example, is a company that has been acquired by GlaxoSmithKline and is researching the effect of resveratrol on the aging process. Other compounds are also being tested. Furthermore, it's likely that research into the genetics of people over 100 years of age will yield crucial information as to which genetic factors favor long life and good health. These findings, too, could lead to new drugs that allow us to live longer while remaining healthy.

**Is there a maximum biological age that humans cannot exceed?**

That's a complicated question. I can say for sure that there are no genes whose purpose is to kill us off – there are no aging or death genes. Such genes can't exist because they would have to become active in an age bracket that, historically speaking, people hardly ever reached. That said, the absence of a genetic program determining how long we live doesn't mean there are no limits. Let me give you an example: The world record for running a mile currently stands at three minutes and 43 seconds. Some 150 years ago, it was five minutes. The record has thus been cut by one minute and 17 seconds. Now, if I were to ask you whether it's possible for someone to run a mile in one minute, what would your answer be?

**It seems very unlikely. We will probably see the record being broken again and again, but by an ever smaller margin each time.**

Precisely, you get the idea. There are no genes governing the maximum speed at which a person can run. There are no genes preventing us from running a mile in a minute. It's biological restrictions resulting from the way our bodies are constructed that limit our sporting performance. The same applies to longevity. Our genes serve to take us into adulthood, the stage at which we are fertile and able to reproduce. Genes are there for growth, development, and reproduction. The fact that our lifespan is limited, almost as a side-effect, seems less like an intentional product of evolution, but in fact it is a product of evolutionary neglect – not intent. There are no genes with the specific purpose of limiting life, but there are biological clocks in earlier stages of life that inadvertently set limits to longevity.

**You say there could be drugs in the foreseeable future that slow down the aging process. This could mean it would take longer for the typical signs of aging to appear. Hips would not wear out so quickly, sight would not deteriorate as fast, hair would turn gray later. But what about the brain? Would it stay in good shape if we could live longer?**

That's a critical point. Most of the cells in the human body renew themselves constantly. Be it the blood or the skin, this keeps a large proportion of the body relatively young. The muscles and the neurons in the brain, on the other hand, aren't renewed, so you're absolutely right. We may well be able to keep our bodies young for longer, but the question remains as to whether we will also be able to make our brains function efficiently for longer. Firms like Sirtris want to develop medicines that slow down the aging of the brain as well as the body. At the moment, though, we don't know whether these medicines will have the same effect on the brain as on the body. This critical question must be answered before such interventions are given to the population at large.

**If a sensible lifestyle has a positive impact on health and life expectancy, do we really need all this complex research into genetics and aging?**

Investments in aging research are worthwhile because they can improve our health and quality of life in old age well beyond what can be achieved through lifestyle modification. If we can stop people from smoking and becoming obese, this will have a dramatic effect on their health and increase their lifespan by a noticeable amount. However, I would like to stress that medical research is focusing at present on age-related diseases such as heart disease, stroke, cancer, and diabetes – and with some success. If we continue in this direction, disregarding research into aging, there is a risk that we may reach a point where we are merely extending the old-age phase. In other words, we would all get older – 70, 80 or even 90 years old – but without any reduction in the risk of falling victim to Alzheimer's, for example, or in hearing and sight impairments, or in the other restrictions that come with old age. However, if we succeed in slowing down the aging process, all these problems would be pushed back by

a few years. We would extend our healthy lifespan. That would definitely be more worthwhile than simply prolonging old age.

**It is obvious that we would all benefit from more years of good health, but what burdens would it place on society, on our pension funds and healthcare systems, if people were to live, say, 20 years longer in the future?**

My personal view is that 20 more years of living in good health would be a great blessing – not only for each of us individually, but also for society as a whole. People could choose to work longer, retire later, and spend more, which would be good news for the overall economy. People would be healthy for longer, and this would postpone the final phase of life before death, which is the most expensive for the healthcare system as the frailty of old age gets worse and the need for medical treatment steadily increases. This would be doubly beneficial: the number of years during which people pay into the healthcare coffers would increase, and so would the number of years during which they have no need for healthcare.

**How valuable are growth hormones, antioxidants, and all the other remedies available today that promise to slow down the aging process?**

They are worthless. The people selling these supposed elixirs are interested first and foremost in making money, and they are having great success doing just that. It's been going on for 2000 years. If any of them actually worked, we'd all be living longer already. Longevity salesmen in the past who invented and marketed these "miracle cures" (I refer to them as having the second oldest profession) have lived to the same age as their contemporaries.

**One final question: what do you pay attention to in your own life? Is there anything you consciously do or avoid to keep your mind and body feeling young?**

I take care to exercise every day wherever possible, be it by taking a walk or going for a jog. I like to compare exercise with the oil filter of a car, since both have the same effect. Your car won't work as well without an oil filter, and your body won't work as well if you don't exercise. Something else I've done in recent years is increase the number of meals I eat from three to five a day while reducing the amount I eat at each meal. This keeps my blood sugar stable and has helped me to lose a few pounds – sadly not as many as I would have hoped, but I'm fortunate enough to be only 55 years of age so I have plenty more time to reach my target weight. ■

**Professor S. Jay Olshansky (55)**, is a biodemographer lecturing at the School of Public Health at the University of Illinois in Chicago and a member of the scientific staff of the Center on Aging at the University of Chicago and the London School of Hygiene and Tropical Medicine. He has worked intensively on longevity and aging research for 30 years and has published a number of articles on the subject. Olshansky is the principal author of the book "The Quest for Immortality: Science at the Frontiers of Aging".



# Longevity – a New Investment Theme

Almost everything that happens on the financial markets involves a transfer of risk. Some want to offload their risk, while others are prepared to take it on against payment. The risks associated with longevity and mortality can also be transferred, giving rise to new investment opportunities. But how do investments in the life business work? Christian Bruns, a Clariden Leu fund manager specializing in insurance-linked investments, gives us an overview.

by Christian Bruns



Photo: Willi Kracher

**Dr. Christian Bruns** is a fund manager at Clariden Leu specializing in insurance-linked investments.

**B**ig challenges lie ahead for the insurance industry. In life insurance especially, there are latent risks that will keep life insurers, pension funds, and social security systems very busy for years to come. If people live longer, the mortality rate falls, and these institutions find themselves exposed to longevity risks. If, on the other hand, the number of people dying suddenly increases above expectations, this equates to an increase in the mortality rate. Gradual changes in the mortality rate are no major problem in themselves because they are reflected over time in adjusted premiums and benefits.

A life insurer noticing that the mortality rate is climbing slowly but surely will raise premiums for whole-life cover and cut the promised benefits accordingly – at least for new policies. A pension fund, meanwhile, will respond to a steady decline in the mortality rate (i.e. increasing longevity) by raising pension contributions and cutting benefits. Improved standards of living and medical progress have resulted in a steadily falling mortality rate in all industrialized countries and across all age groups over the past 100 years, although this trend has slowed down in the last 20 years. Life insurers are thus factoring

steadily increasing life expectancy into their products.

## **Pandemics are risk factors**

Changes in the mortality rate have a direct impact on the liabilities of a life insurer or pension fund. Unlike very slow upward or downward trends in longevity, which can be offset by adjusting premiums and benefits, faster changes – and in particular those that happen abruptly – can be a problem. The two extremes can be illustrated by pandemics on the one hand and groundbreaking new cures, known in the industry as “silver bullets”, on the other.

Life insurance companies may suffer heavy losses when a pandemic causes a sharp increase in the mortality rate. The Spanish flu, for example, killed around 40 million people worldwide between 1918 and 1920. A severe pandemic will result in a lot of deaths over a short period of time, causing countless payouts to become due on whole-life policies. Life insurers must prove to the supervisory authorities that they are in a position to meet their liabilities in this eventuality. This proof is typically provided in the form of a relatively high capital base and suitable reinsurance against extreme mortality risks.

## Pandemics in the 20<sup>th</sup> and 21<sup>st</sup> Centuries

Source: WHO

| Period    | Name          | Origin           | Worldwide deaths |
|-----------|---------------|------------------|------------------|
| 1918–1920 | Spanish flu   | USA, France      | 40–50 million    |
| 1956–1958 | Asian flu     | China            | 2 million        |
| 1968–1969 | Hong Kong flu | Hong Kong, China | 1 million        |
| 2009–     | Swine flu     | Mexico           | 13,000*          |

By way of comparison:

|        |              |        |                 |
|--------|--------------|--------|-----------------|
| Annual | Seasonal flu | Global | 200,000–500,000 |
|--------|--------------|--------|-----------------|

\* As of end of December 2009



Japanese schoolgirls wear masks to protect themselves against the Spanish flu of 1918–20.

At the other end of the scale is the “silver bullet”. This is what insurers term a universally effective treatment that leads to a rapid fall in the mortality rate, which can exert financial pressure on pension funds and annuity insurers. With a large number of their clients suddenly living longer, annuities must be paid out over a longer period. Here, too, the risk of insolvency is reduced with a relatively high capital base as required by the supervisory authorities and reinsurance against longevity risks.

### Investing in life expectancy

Life insurers and pension funds can both use hedging products to strategically control mortality risks. Whereas mortality risks were in the past mainly transferred from primary insurers to reinsurers or banks, it has been possible for some years now for institutional and private investors to become involved in the longevity/mortality business. The appeal of life investments stems from their combination of a low correlation to movements on the financial markets and attractive potential returns. A financial market crisis will not trigger a pandemic, nor will it suddenly make people live longer. While theoretically conceivable, the opposite – a financial market crisis triggered by a pandemic – was not even observed during the Spanish flu pandemic of 1918-20. The strict conditions imposed by the supervisory authorities and rating agencies suggest that risk transfers in life insurance are likely to be a growth market.

Under the EU’s new Solvency II Directive, direct insurers in particular will transfer more mortality and longevity risks to the capital market, since the Directive allows them to get capital relief for certain types of cover obtained from capital markets. In addition, direct insurers will for the first time be able to tap into the capital market without needing a reinsurer or a bank to act as intermediary.

Investors can now choose from a wide range of life products. On the mortality side, there are pandemic cat bonds, mortality swaps, and Triple-X transactions. On the longevity side, there are

longevity swaps. Embedded value transactions, meanwhile, allow investors to participate in the future cash flows of an entire life insurance business. Last but not least, a special case on the longevity side is the purchase of life insurance policies traded on the secondary market (known as life settlements).

### Low risk, low premium – high risk, high premium

Pandemic cat bonds protect against the risk of a very fast and sharp rise in mortality. They are very low-risk bonds because the transactions traded on the market only entail a payout in the event of several hundred thousand or even millions of deaths over a short period. Triple-X transactions serve to free up capital for US life insurers obliged by Regulation XXX to hold redundant reserves against extreme mortality. A Triple-X bond transfers the extreme mortality risk to the capital market. With both pandemic cat bonds and Triple-X transactions, investors receive a premium in return for taking on the risk.

Longevity and mortality swaps function like interest-rate swaps, the difference being that changes in the swapped cash flows are driven by the mortality rate within a pool of insurance clients or other people. Depending on the need for hedging, the reference may even be an entire population. In the case of a longevity hedge, for example, a pension fund pays a fixed premium in line with the expected pension payments for its actual pool of members, while the

investor pays a variable premium in line with the actual pension payments due. If everything goes as planned, the fixed premium is always higher than the variable one. The difference represents the investor’s profit as compensation for the risk taken on. However, if the pool’s life expectancy increases markedly, for instance due to a new kind of medical treatment, the variable premium increases because more pension payments fall due. Since the fixed premium remains unchanged, the investor suffers a loss as a result of the increase in life expectancy. This same structure can also be applied to mortality risks, in which case the fixed premium corresponds to the expected death benefits to be paid out and the variable premium to the actual benefits paid out.

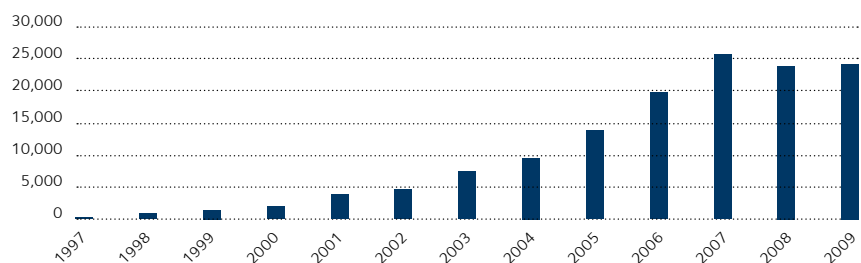
### A broad selection of life investments

An embedded value transaction is an investment in the embedded value of an existing life insurance portfolio, which is defined as the discounted value of all future cash flows from the policies in the (normally closed) portfolio. In highly simplified terms, the future cash flows comprise premium payments, benefits paid out, and income on the investments used to cover liabilities. The sponsor of the transaction may be seeking to run off part of its business or free up trapped capital. Other reasons might be to monetize future profits or accelerate the balance sheet by reducing long-term liabilities. In an embedded value transaction, the investor essentially takes over the complete life insurance business in question, so lapse

### Growth in the Life Investments Market 1997-2009

Volume of capital market longevity and mortality transactions in USD millions\*

Source: Clariden Leu



\*As of December 2009; investments in EUR converted into USD at year-end exchange rates

rates and asset coverage must also be analyzed in detail in addition to mortality and longevity risks.

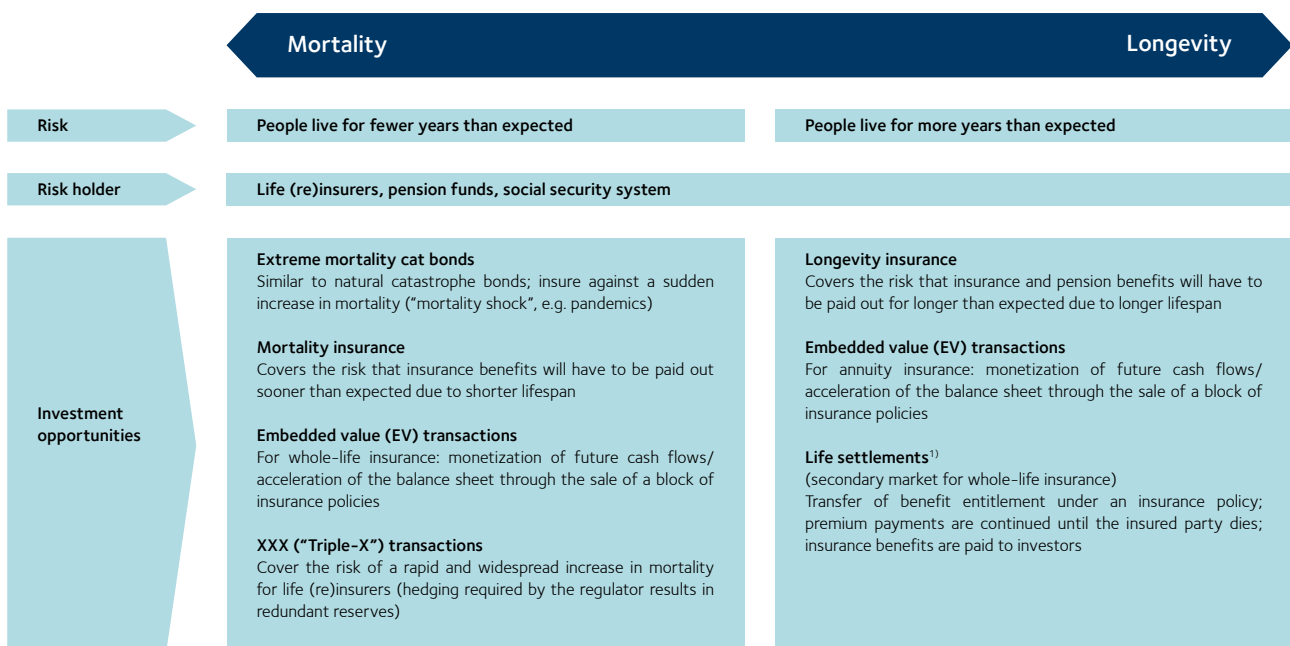
Last but not least, there are life settlements, whereby the investor becomes the beneficiary of one or more existing whole-life policies. The starting point for this transfer is the original policyholder, who no longer needs the policy or is no longer able to pay the premiums. If the insured person were to hand the policy back to the insurance company, he or she would only receive a very small amount in return. This is called the cash surrender value. Alternatively, the insured party can sell the policy to an investor, who pays the premiums until the insured party dies and then collects the death benefits when they are paid out. The prospect of this payout means that the investor is prepared to pay the insured party much more for the policy than the cash surrender value he or she would receive from the insurance company. Whether or not this pays off for the investor depends on how long the insured party lives, since the investor must keep paying the regular premiums as long as the insured party is alive.

**What investors should look out for**

A thorough analysis and sound risk assessment of each life transaction by specialists are crucial to successful life investing. Ideally, the risk seller should retain a share – a deductible and coinsurance, so to speak – to counteract the “moral hazard”, and the underlying life risks should offer sufficient granularity and uniformity. The valuation methods, legal structures, and portfolio management tools used must take account of the special characteristics of the life market. If these conditions are met, investors can look forward to solid performance from life investments that is largely decoupled from the turmoil on the financial markets. ■

**Mortality and Longevity as Investment Opportunities**

Source: Clariden Leu



<sup>1)</sup> Primarily US whole-life & term-life policies

# Providing for Old Age Means You Get More out of Life

**People are living longer and longer. Those retiring in Switzerland today can expect to enjoy another two decades – more precisely 18.7 years for men and 23 years for women. What does this mean when it comes to retirement planning?**

by Urs Thaler

**T**he retirement age is relatively fixed in many European countries and hard to change from a political point of view. In Switzerland, the statutory retirement age is currently 64 for women and 65 for men. When the state pension scheme first paid out annuities in 1948, the life expectancy of the average retiree was years lower than it is today. Indexing the retirement age to life expectancy would have pushed it up to 70 since then. In other words, everyone retiring today has gained more than five years of life over

that first generation of state-funded pensioners and will thus be drawing a pension for five years more – even though they have not paid any more into the scheme.

Swiss life expectancy increases by 60 days a year on average. This has an impact on the demographic spread between the different age groups, especially with the birth rate among young couples decreasing. As a result, a steadily falling number of contributors must finance a

steadily rising number of old-age pensions in this “pay as you go” system.

## **Welcome progress**

“I believe the sharp rise in life expectancy is very clearly a positive development,” says Adrian V. Nösberger, Head of Private Banking Switzerland at Clariden Leu. “We should welcome it because it opens up entirely new lifestyle choices for most people,” he adds. Not only has our life expectancy increased, senior citizens today remain physically and mentally fit much longer than used to be the case and can often live independently to a ripe old age.

Nösberger’s work involves direct contact with clients on a regular basis. What is his experience in this regard? Do people with busy careers think about their retirement in good time, or do they simply stumble into it completely unprepared? “We see both scenarios,” admits Nösberger, “but private clients’ interest in all matters relating to retirement has grown considerably in recent years.”

In the context of holistic financial and wealth planning, adds Nösberger, periodic discussions and situation analyses usually touch on retirement provision topics soon enough. These are as a rule linked

## Your Capital Paid Out – Then What?

People commonly face a threefold question when it comes to having their occupational pension capital paid out on retirement: “How do I invest my pension capital so that i) it’s safe; ii) it can make a regular contribution to maintaining my lifestyle; and iii) it lasts for the rest of my life?” This challenge can be overcome by carefully dividing the assets into investment capital, safety capital and reserve capital – especially if you are backed up by a bank whose advisors offer sophisticated, needs-oriented analysis, concepts, and solutions to secure sustainable finance throughout your retirement.



to other topics such as succession planning in a family business or inheritance arrangements.

### Never too soon, but often too late

"I'm of the opinion that it's never too soon to discuss retirement provision, but it's often too late," says the Head of Private Banking Switzerland. He is thinking in particular of people who do not seek the requisite advice. For example, anyone who realizes two years before the normal retirement age that they will not be able to maintain the standard of living they are used to after they turn 65 faces a problem. "It's virtually impossible to close a gap in pension cover in the space of two years," explains Nösberger. If the same person were to have asked for advice at 55 rather than 63, they would have had plenty of time to build up their assets. This could have been done by making voluntary payments into an occupational pension, taking out a personal pension under the third pillar or reorganizing property investments. "If someone comes to us five years before retirement, that's usually soon enough," assures Nösberger, "but it would be even better if they were to start addressing the issue at 55." That way, people's hopes and expectations for their retirement can quickly be determined, as can the measures needed to realize them.

A situation analysis and prudent planning are the key to a happy retirement – at least financially speaking. What action must be taken? If you will have to draw on your assets to help fund your lifestyle in retirement, you should organize your investments so that the appropriate liquidity is available as and when it is needed. "The time factor is very important here," says Nösberger. The more forward-looking your investment strategy, the better.

### A solid basis – plus a little more

Nösberger claims that Switzerland's three-pillar system, comprising state, occupational, and private pensions, is still without equal internationally. Care should thus be taken to make the most of it. While Nösberger has no desire to be a scaremonger as regards government pension schemes, he does warn of the



**Adrian V. Nösberger** is Head of Private Banking Switzerland at Clariden Leu. He is a member of the Executive Board.

structural threats to them, especially due to the demographic shifts that have occurred in recent decades. Ever fewer workers have to finance the pensions of ever more retirees. In the case of "pay as you go" systems such as the Swiss state pension, this will lead to financing problems sooner or later. Nösberger sums it up vividly: "It's like taking three or four horses away from the front of an eight-horse carriage while hitching more and more trailers to the back." Politicians, therefore, must stop shirking their responsibility and do their homework to shore up pension systems so that future generations are not faced with an ever-growing burden.

These days, the view among the general public is that politicians do not care enough about securing the first (state) and second (occupational) pillars. This is one of the reasons why the private banker thinks we would all be well advised to think about our retirement as early as possible. It is worthwhile to make careful use of the options for private pension cover, and it also makes sense to consider which options are open to us in terms of occupational pensions. We can choose here between having our pension capital paid out as an annuity, a lump sum or a combination of the two.

### Take charge of your pension decisions

Nösberger is finding that more and more private banking clients are taking an interest in the capital payout they receive from their occupational pension. This trend is growing as doubts are increasingly expressed in the public arena about the long-term security of the state and occupational schemes. "Lots of clients have become accustomed in their careers to taking charge of any decisions that affect them directly," notes Nösberger. A private bank that wants to understand its clients' needs can thus benefit from addressing pension issues. "We at Clariden Leu are glad to have discovered these needs very early. We're well prepared to deal with all pension issues and offer transparent, tailored solutions," he concludes. ■

# A Brief Guide to Folk Remedies

by Angela Obrist

**For centuries, people have sought to live a long and healthy life. How can people reach an old age? The answer differs from one country to the next and has changed through the ages.**

**C**alming pillow. Sleep is essential because it allows the body and mind to rest and recover. An old wives' tale from the UK says that sleeping with your head facing north and your feet facing south ensures a deep and regenerative sleep. King George III is said to have cured his insomnia with the right pillow. His doctors filled it with hops, which helped him to sleep soundly. Macrobiotic author Michio Kushi advises something rather different: placing a raw, cut onion underneath your pillow, he says, guarantees a good night's sleep.

**Fresh air.** Austrian Anna Fischer-Dückelmann (1856-1917) was the most famous natural medicine practitioner of her era. She described her recipe for a long life as follows: "We can be sure to live to a good age through bodily exercise and breathing clean air. Idleness, a stay-at-home attitude, and sedentary activities make people ill. It is up to all of us to assess the extent to which we transgress against this duty and what we can do to improve our lives. We should escape to the mountains, to the woods, and find new strength in nature."

**High spirits.** "To be free minded, and cheerefully disposed, at Houres of Meat, and of Sleep, and of Exercise, is one of the best Precepts of long lasting," wrote British philosopher Francis Bacon (1561-1626).

**Mead.** The old Germanic tribes attributed their exceptionally long lives and good health to mead or "honey wine". Priest and hydrotherapist Sebastian Kneipp (1821-1897) also believed in the benefits of the drink, which is made by fermenting honey and water. "I know an old man of more than 80 years who prepares his own honey wine daily," he said. The man was convinced that he had the drink to thank for his health and fortitude. Kneipp agreed: "This wine has a healing, cleansing, nourishing, and fortifying effect."

**Meat broth.** Prussian Emperor Wilhelm I (1797-1888) reached the age of 90, nothing short of biblical at the time. Legend has it that he had his cooks prepare two cups of fresh meat broth every day to keep his strength up. The German term Kraftbrühe ("power broth") certainly describes this form of consommé well,

since the cooks are said to have used 12 pounds of best beef and several chickens and pigeons to make it.

**Moderation.** Japan is the country with the highest percentage of centenarians. It has the second-highest life expectancy in the world. People live even longer on the island of Okinawa than in the rest of Japan, with around 40 in every 100,000 reaching the age of 100. That is four times as many as in Germany. Perhaps this has something to do with the island's maxim "hara hachi bu", which means "only fill your stomach four fifths full".

**Muesli.** On visiting a mountain hut in the Swiss Alps, doctor and nutritionist Maximilian Oskar Bircher-Benner (1867-1939) was impressed at the alpine shepherds' healthy lifestyle in harmony with nature. While there, he enjoyed an unusual meal consisting of cereal, nuts, milk, and fruit, which inspired him to create his now world-famous "Birchermüesli". "D Spys" (literally "the meal"), as he called it, was a nutritional mainstay at his Zurich clinic. It was intended to provide natural nourishment and strength to patients and convalescents.

**Pine nut oil.** An old Chinese legend says that pine nut oil protects against aging and prolongs life. A very sick Chinese man once made his peace with the world and went into the mountains to die, but another man found him and cured him with a medicine made from pine nut oil. The cured man went home happy. He remained strong and healthy, his teeth never fell out, his hair never turned gray, and he lived to be over 100 years old.

**Toads.** It was widely believed in Europe and North America in centuries past that heart problems could be averted by eating roasted toads. There is some scientific evidence to explain the alleged effect on the heart. Besides certain hallucinogenic substances, the skin of some toads contains bufotoxin, which affects heart activity.

**Water and wine.** German physician Christoph Wilhelm Hufeland (1762-1836) studied the subject of longevity intensively. Goethe, Schiller and other famous names were among his patients in Weimar. Many of his recommendations still make good sense today. In his "Practical advice on the medicinal art of prolonging life", for example, he emphasized the importance of eating a moderate and preferably vegetarian diet, regularly rinsing the teeth after meals, and avoiding stress at work. Hufeland believed that smoking was a "most incomprehensible habit" and to be avoided. The court physician was less strict as far as wine was concerned, believing that a glass once in a while was acceptable, although he remained in no doubt that water was "the best beverage of all". He also believed that high spirits were an aid to living longer: "A day spent in the countryside with fresh air and a cheerful circle of friends is surely a more effective means of prolonging life than any elixir in the world." It all worked for Hufeland himself – he reached the age of 74, which was very old indeed at that time. ▀

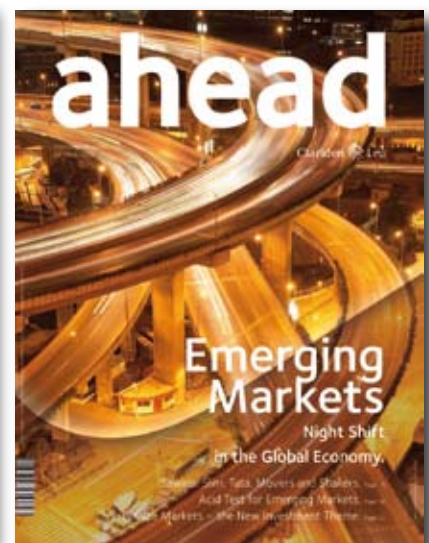
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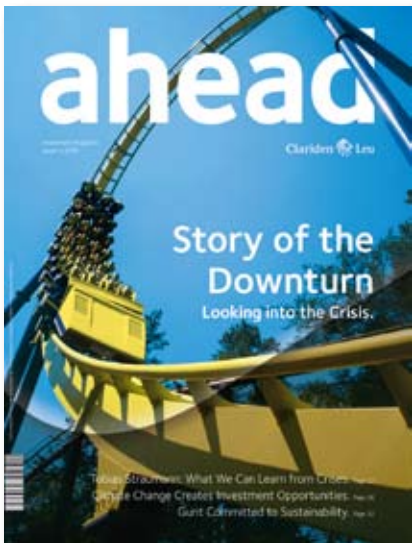
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