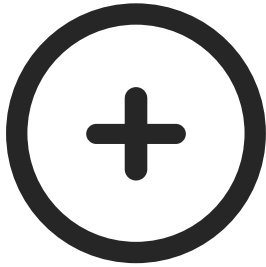


Scope

Spotlight on Swiss science

RESIZING THE PROTON



An experiment at Switzerland's Paul Scherrer Institute (PSI) has shown that the diameter of the proton, one of the elementary particles making up the nucleus of atom, is 4% smaller than previously thought. This difference took the physics world by surprise and means that theories and approximations done up to this point need to be revisited. The PSI experiment used modified hydrogen atoms, in which the electron orbiting the nucleus was replaced by a muon, a particle that resembles an electron but is 200 times heavier.

COOP LISTS ITS NANO PRODUCTS

Swiss supermarket chain Coop has published a list of products containing nanoparticles, primarily in dirt-repelling surfaces and cosmetics. Coop is following the spirit of an initiative put forward by the Community of Interest of Swiss Retailers (CI CDS), made up of Switzerland's major distributors, including Coop.

THE ROLE OF GENES IN LONGEVITY



ERIC MONTFORT

To live longer, it's not enough to have one good gene. In an article published in the journal "Cell," EPFL professor Johann Auwerx emphasizes the role played by a network of metabolic pathways involving more than 700 genes, of which a third are involved in transforming food into energy. The organization of these signaling pathways could allow us to better understand the effects of caloric restriction on the body, which remains the only effective method of prolonging life span. The research underlines the importance of gene networks, as opposed to individual genes.

SHEDDING LIGHT ON FIRE BLIGHT



SEBASTIAN STABINGER

Erwinia amylovora has been unmasked. The genome of this bacterium that causes fire blight, a disease that is fatal to fruit trees and ornamental plants but harmless to humans, has been decoded by a team led by Brion Duffy at the Agroscope Changins-Wädenswil Research Station.

Alfred Klay, a scientist at the Federal Office of Agriculture, explains that the genetic information will lead to several opportunities. "This discovery will give us a better understanding of the mechanism by which the bacterium attacks and its interaction with the host plant." Using the gene sequencing, researchers will be able to create a database that lists the roles and activities of the various genes involved.

A better understanding of the enemy would also perhaps make it possible to find its weak point. Today, there is only one weapon against *Erwinia amylovora*: streptomycine. Authorized for use in Switzerland for the first time in 2008, this antibiotic has proven effective, but it can be used only sparingly due to concern over the use of antibiotics in the environment. Each application requires specific permission from cantonal authorities.

The genetic information will also make it possible to fine-tune the selection of plant species capable of resisting fire blight. Says Klay: "The selection of resistant species is still largely empirical. But information on the genetic makeup of the bacterium opens the possibility of conducting more targeted research into understanding exactly which genes are sensitive to the disease." For the moment, varieties of fruit trees resulting from such selection haven't been very successful; they are disease resistant, but their fruit is not as good.