

Early therapy of multiple sclerosis

Study shows positive effect of interferon beta-1b

The five-year findings of the BENEFIT study, now available, point the way to a new strategy for early therapy of multiple sclerosis (MS). According to the data, consistent early therapy with interferon beta-1b significantly

reduces the risk of suffering a further MS episode and thus of developing clinically definite multiple sclerosis.

“Thus there is no doubt that early therapy is of tremendous importance with respect to the outlook for

multiple sclerosis patients,” said Professor Ralf Gold from Bochum, commenting on the study results. At the same time, he pointed to the importance of patient compliance. “People with multiple sclerosis need to understand the benefits of long-term interferon therapy.”

In the BENEFIT study, 468 patients with first clinical symptoms and typical MS findings were treated with Betaferon® at two-day intervals.

In light of these results, Bayer Schering Pharma has developed a starter pack specifically designed for patients beginning treatment with Betaferon®. The starter pack helps the body adjust more slowly to the medication. This in turn facilitates the long-term continuation of therapy.

It is not always easy for MS patients such as Eveline (right) from Bünzen, Switzerland, to lead a carefree life. Her daughter helps her to cope. Bayer is aiming to support people with MS through an international campaign entitled “Mastering MS.”



Bayer CropScience acquires biological products from AgroGreen for the crop protection business

Company strengthens its crop protection portfolio

Bayer CropScience has signed an agreement with AgroGreen, Ashdod, Israel, to acquire certain assets and technology related to that company's biological development products. The acquisition expands Bayer CropScience's broad range of crop protection solutions to include biocontrol agents that offer further value added for its customers and provide the company with good growth opportunities in the seed treatment market.

The company also sees good prospects for use of these biocontrol agents by turfgrass professionals. AgroGreen, a business unit of the Minrav Group, is among the leading suppliers of bionematicides and biofungicides.

“Bayer CropScience is very well positioned in its core crop protection

business. With this acquisition, we are further strengthening our portfolio with innovative and unique crop protection solutions to help safeguard harvests and increase yields,” commented Dr. Rüdiger Scheitza, Member of the Board of Management of Bayer CropScience AG and responsible for portfolio management. Avraham Kuznitski, Chairman of the Minrav Group, said he is excited at the acquisition by Bayer CropScience of biological technology and products developed by Minrav. “We are convinced that our technology will be an excellent fit with the Bayer CropScience portfolio.”

The acquired assets include products marketed under the brand name BioNem (active ingredient *Bacillus firmus*) that reduce nematode popula-

tions and root infestations in the soil while stimulating increased yields.

BioNem is currently registered in Israel for use in cucumbers, eggplant, peppers, tomatoes, almonds, apricots, olives, peaches, plums, pomegranates, major herbs and garlic. Based on this *Bacillus Firmus* as a mixing partner, Bayer CropScience plans to develop new seed treatment solutions for important agricultural crops such as corn, soybeans and cotton as well as soil-applied applications for use on fruits and vegetables.

Partners in Beijing

Bayer HealthCare and Tsinghua University in Beijing, China, have signed a comprehensive collaboration agreement to enter into a strategic partnership. The two partners will establish a joint research center at Tsinghua University, the Bayer-Tsinghua (Institute of Biomedicine) Research Center of Innovative Drug Discovery.

The center is part of an initiative of Bayer HealthCare's newly inaugurated R&D Center in Beijing. Under the terms of the agreement, scientists from the university will collaborate with scientists from Bayer Schering Pharma (BSP) along the drug discovery and development value chain, particularly in BSP's therapeutic research areas of oncology, women's healthcare, diagnostic imaging, and

cardiology. "Complementing our own capabilities, strategic alliances with international innovation partners from academia are an essential element of our R&D strategy," said Professor Andreas Busch, the member of the Board of Management of Bayer Schering Pharma responsible for Global Drug Discovery.

Doing away with weeds

New herbicidal active ingredient indaziflam presented

Bayer CropScience presented a new herbicidal active ingredient called indaziflam for the first time at the 49th Annual Meeting of the Weed Science Society of America. Indaziflam is one of the new active ingredients that Bayer CropScience is planning to launch between 2008 and 2012. It is currently at an advanced stage of development. The company anticipates marketing the first products based on this active ingredient in 2011, assuming that regulatory approval is granted. Advantages of indaziflam include its long-lasting

action, low application rate and control of a broad spectrum of weeds – including species that are difficult to eliminate such as annual bluegrass, goosegrass, ryegrass and goosefoot. Prospective areas of application include particularly golf courses and sports fields, as well as public lawns and gardens. The company also sees additional growth potential in agricultural applications, where indaziflam can be used as a new basic herbicide.



Indaziflam is manufactured by Bayer CropScience at the Höchst industrial park. From left: Dr. Klemens Minn, Dr. Chris Rosinger, Dr. Hansjörg Dietrich



New photovoltaic modules give the appearance of a continuous surface (top right), unlike conventional systems (bottom).

Solar energy: an attractive prospect

A successful collaboration between Bayer MaterialScience and its customer Solon SE of Berlin has yielded a prestigious innovation award, with Solon being honored at the "Symposium on Photovoltaic Solar Energy" for its photovoltaic module. The solar module has an innovative frame with an integrated mounting system based on the polyurethane foam Bayflex®, replacing the conventional installation system. This design makes an expensive substructure unnecessary.

The polyurethane sheathing of solar modules also opens up a whole range of design opportunities in terms of color and shape. In contrast to the conspicuous box-like structure of solar systems with aluminum frames, a network of several solar modules with polyurethane frames gives the appearance of a continuous surface.

Customers of Bayer MaterialScience have long used the Bayflex® polyurethane system as sheathing for automotive glazing.



Bayer employees Stefan Stargard and Antje Stratmann examine cell cultures under a microscope.

Strategies to fight cancer

Bayer and the German Cancer Research Center have agreed to form a strategic research alliance to further intensify tumor diagnosis and therapy. The collaboration is aimed at enabling more rapid exploitation of research findings for the development of new cancer drugs and improved evaluation of innovative therapeutic approaches to tumor diseases. Each partner will invest a total of €1.75 billion in the joint cancer research.

In the field of preclinical cancer research, Bayer Schering Pharma has established a collaboration with the National University of Singapore. Specifically, the alliance aims to profile oncology drugs in Asian populations, identify new biomarkers and investigate novel tumor models with high relevance for the clinical situation.

Bayer also plans further partnerships with Singapore-based universities, hospitals, research institutes and companies, corresponding to an investment of roughly €10 million.

Bayer Schering Pharma and Hamamatsu Photonics K.K., Japan, have signed a licensing agreement in the area of tumor diagnostics concerning the use of novel substances for molecular imaging in oncology. Under the agreement, Bayer Schering Pharma acquires exclusive worldwide rights for the research, development and commercialization of a group of molecules that specifically bind to malignant tumor cells. Such tracers have the potential to significantly improve the diagnosis of a variety of cancers.

Good prospects for the future: Carbon nanotubes – a key technology

United States – a new market for Baytubes®

Bayer MaterialScience can now market its multi-wall carbon nanotubes known as Baytubes® in the United States as well, now that the U.S. Environmental Protection Agency (EPA) has granted regulatory approval for the product. This significantly reinforces Bayer MaterialScience's role as one of the world's leading manufacturers of carbon nanotubes.

Baytubes® can be added to polymer matrices or metal systems as a modifier or filler to improve their mechanical strength and/or antistatic properties. The product's applications include rotor blades for wind turbines along with sports equipment such as skis, hockey sticks, baseball bats and surfboards. Another application for nanotubes is the modification of light metals such as aluminum or magnesium. Martin Schmid, in charge of Baytubes® activities at Bayer MaterialScience in Leverkusen, views the EPA approval as a key milestone: "Now Bayer MaterialScience in the U.S. can take Baytubes® out of the lab and onto the market, working with our customers to develop new applications."

World's largest pilot facility for carbon nanotubes

The world's largest pilot plant for carbon nanotubes is currently being built in the Leverkusen Chempark. Bayer MaterialScience is investing some €22 million in the facility, which will have a capacity of 200 tons per year. "We are investing in a key technology of the future that will open up a broad range of new applications for us," explained Dr. Wolfgang Plischke, the member of the Bayer AG Board of Management responsible for Innovation, Technology and the Environment, at a press conference marking the start of construction.

The global market for carbon nanotubes is currently predicted to grow by 25 percent a year. Experts estimate that annual sales of these products will reach US\$ 2 billion within about ten years. Bayer MaterialScience is one of the few companies that can produce carbon nanotubes of consistently high quality on an industrial scale.



Launch of construction for the world's biggest production facility for carbon nanotubes (CNT) in Leverkusen (from left): Michael Klefisch (Construction Planning), Dr. Ralph Weber (Head of Production), Roland Motzek (Project Manager), Dr. Josef Sanders (Plant Manager) and Dr. Dieter Zeitz (Plant Engineer)



Dr. Gerrit Weimann, Dr. Maria-Luisa Rodriguez and Dr. Johannes-Peter Stasch (from left) hope to ensure that pulmonary hypertension, a serious yet frequently underrated illness, will someday be as easy to treat as high blood pressure.

New substance class to treat pulmonary hypertension

Phase III program launched for active substance riociguat

Bayer Schering Pharma is making good progress with the development of its new pulmonary hypertension drug. Based on the positive findings from the clinical development phase II trial, the company has now begun a phase III program. Two phase III trials will investigate the active substance riociguat in patients with chronic thromboembolic pulmonary hypertension and pulmonary arterial hypertension. Riociguat is the first member of a new class of vasodilative substances and can be taken in tablet form.

“We are very encouraged by the positive phase II findings,” says Professor Hossein Ardeschir Ghofrani,

head of the pulmonary hypertension unit in the Department of Internal Medicine at the University Hospital of Giessen and Marburg, Germany. “If these results are replicated in the phase III trials, this will be an exciting breakthrough for patients with pulmonary hypertension.” Chronic thromboembolic pulmonary hypertension and pulmonary arterial hypertension are life-threatening diseases. The currently available treatments are approved only for pulmonary arterial hypertension, which affects some 1.85 million people worldwide, and the median survival time for treated patients remains very limited.

Chancellor Merkel visits Bayer at the Hanover Fair

How is it possible to sustainably save over 20 percent energy in an industrial production plant? German Chancellor Dr. Angela Merkel, Research Minister Dr. Annette Schavan and South Korean Prime Minister Dr. Han Seung-So discovered the answer when they visited the Hanover Fair – the world’s largest industrial trade show – and saw a model of a production plant developed jointly by Bayer Technology Services (BTS) and the Hanover Fair company.

The model, which measures 5 x 2.5 m², demonstrates the energy-saving potential inherent in ancillary processes such as heating and cooling, transporting and conveying, sealing, ventilating and pumping. At the same time it illustrates how the Bayer Climate Check works. Developed by BTS, this system is used to identify and evaluate potential savings and optimize operating parameters and process control strategies.



German Chancellor Dr. Angela Merkel with Friedhelm Loh, President of the Central Association of the Electrical and Electronic Industry, and Bayer’s Dr. Klaus Sommer (left).

Bayer CropScience and French research organization CNRS step up collaboration

Bayer CropScience and the French National Center for Scientific Research (CNRS) in Paris have renewed a framework agreement signed in 2005. The new, joint research projects pursued under this agreement are intended to contribute to ensuring a sustainable food supply for a growing world population against the back-

ground of climate change. Over the next four years, the company will invest some €4 million in joint projects. This funding will support basic research projects at a number of CNRS institutions throughout France. One of them is the “mixed laboratory” with a team of about 20 researchers at the La Dargoire research campus

operated by Bayer CropScience in Lyon. A multidisciplinary approach will be adopted to improving the stress tolerance of plants and finding ways to increase yields – areas in which several CNRS research teams are among the global leaders.

News

Growth in India

New production facility for Desmodur polyisocyanates

Bayer MaterialScience will invest some €20 million in a new aromatic and aliphatic polyisocyanate manufacturing facility in India as part of its strategy to grow its business in that country and strengthen its position as a market leader in the supply of polyurethane raw materials. The new plant in the northwestern

state of Gujarat is due on stream in 2011.

“This investment underlines our commitment to India and the region. Despite the current weakness of the global economy, we are convinced that India holds great promise for sustainable market growth,” says Dr. Joachim Wolff, head of the

Coatings, Adhesives, Specialties business unit.

The facility will produce Desmodur® polyisocyanates, which are used as raw materials for the formulation of a variety of polyurethane coatings, adhesives and sealants.



A new BaySystems polyurethane systems house was inaugurated in Goungzhou.

Systems house for South China

Bayer MaterialScience has further expanded its presence in China, supporting customers in the automotive, construction, appliance, furniture, and footwear sectors with customized polyurethanes.

Baytherm® systems for thermal insulation of appliances and Baymer® for building insulation will have a particularly important role to play. These activities are spurred by the Chinese government's goal of significantly reducing energy consumption in both public and residential buildings. Says Peter Vanacker, head of the Polyurethanes business unit: “By 2015 China will be the largest polyurethanes market in the world.”

Including the new project in South China, Bayer MaterialScience now operates a global network of 30 systems houses in close proximity to its customers.

Capacity expansion for crop protection products

CropScience to invest €30 million in Dormagen

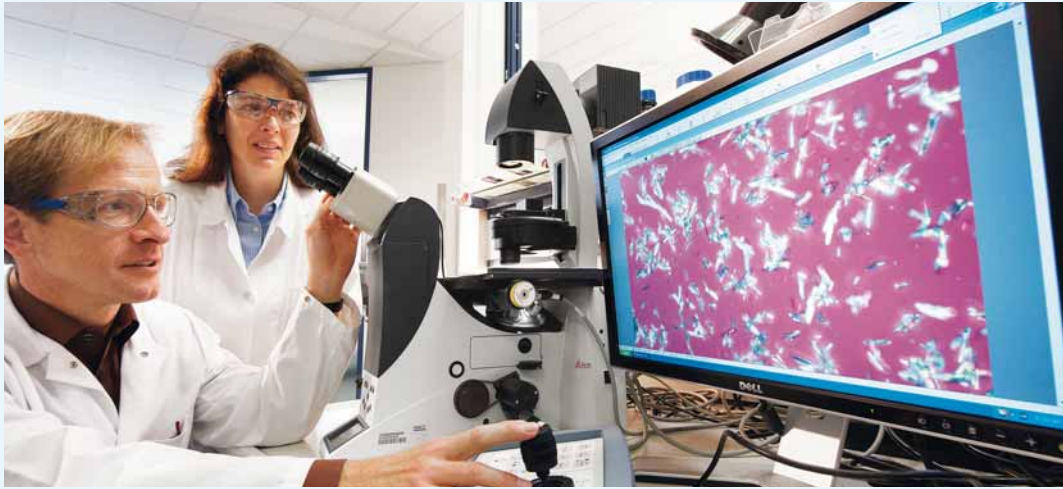
In response to rising demand for fungicides, CropScience AG will invest some €30 million in the next two years to expand production capacities at the Dormagen Chempark for the active ingredient prothioconazole. Dormagen is one of the biggest production sites of Bayer CropScience worldwide.

Prothioconazole is registered in more than 40 countries for use in cereal, canola, soybeans, legumes and peanuts. This modern active ingredi-

ent, which is marketed worldwide, features significant, long-lasting efficacy against a broad spectrum of fungal diseases in plants. Prothioconazole also counteracts the development of mycotoxins, fungi that pose a danger to health and are a frequent cause of food poisoning. In 2008 fungicides based on prothioconazole accounted for global sales of €246 million, putting them among the ten most important Bayer CropScience products.



Bayer CropScience will invest some €30 million over the next two years to expand production capacities for the active ingredient prothioconazole at the Dormagen Chempark.



Bayer employees Dr. Susanne Röhrig and Dr. Alexander Straub, two of the inventors of Xarelto® from Medical Chemistry, observe crystals of new test compounds under the microscope.

Revolutionizing the prophylaxis of dangerous thromboses

Studies demonstrate superior efficacy of Xarelto against a comparator

Bayer's Xarelto® (active ingredient: rivaroxaban) has demonstrated superior efficacy against a comparator in the prevention of venous thromboembolism following hip or knee-joint replacement surgery. These were the findings of the overall evaluation of four Phase III studies in which this first Factor Xa inhibitor that can be taken in tablet form was thoroughly investigated. Says Professor A.G.G. Turpie from McMaster University in Canada, who is the lead investigator

for the study program: "All reported findings confirm my confidence in Xarelto's potential to revolutionize the prophylaxis of dangerous thromboses."

An advisory committee to the U.S. Food and Drug Administration (FDA) also confirmed a favorable benefit-risk profile of rivaroxaban in venous blood clot prevention following hip or knee-joint replacement surgery. Although the advisory committee's recommendation is not binding, the FDA will

take its opinion into account when processing the registration application for rivaroxaban.

In addition, rivaroxaban showed encouraging results in patients with acute coronary syndrome (ACS). A Phase II study designed to test the anticoagulant in secondary prevention of ACS was successful. Rivaroxaban has now been transferred to the next development stage for this indication.

Partnership for better cotton

Focus on yield improvement, stress resistance and fiber quality

How can the quality of cotton be further improved? Bayer CropScience and U.S.-based Nature Sources Genetics plan to pursue this goal together. To this end the two companies have entered into an exclusive five-year collaboration involving the pre-breeding and enhancement of cotton germplasm. The goal of the collaboration is to identify previously inaccessible genes and incorporate them into certain cotton varieties using innovative technologies. Bayer CropScience will initially concentrate on the areas of yield improvement,

stress resistance – both biotic and abiotic – and fiber quality. However, more traits will be added as the program expands.

"The collaboration between Bayer CropScience and Nature Source Genetics takes cotton breeding to a completely new level and marks a significant expansion in the strategic scope of our cotton breeding program," says Mike Gilbert, Cotton General Manager at Bayer CropScience.



The collaboration aims to identify previously inaccessible genes and incorporate them into certain cotton varieties using innovative technologies.