



Press release 20 December 2001

Medivir and Peptimmune announce break-through research on treatment of rheumatoid arthritis

Medivir and Peptimmune, a business unit of Genzyme General, jointly announce today that, an orally active, small molecule inhibitor of the protease enzyme Cathepsin S, suppresses the development of arthritis in an animal disease model. This finding raises hope of a new treatment paradigm for the management of rheumatoid arthritis (RA). Currently approved drugs are designed to treat the symptoms of RA rather than halting the autoimmune reaction that is the underlying cause of the disease. There is a large unmet medical need for new treatments that can stop the progression of this common, chronic and debilitating disease.

Oral dosing of the inhibitor in mice prevented arthritis development without any apparent signs of toxicity. This independent study at the William Harvey Research Institute, St Bartholomew's and Royal London School of Medicine and Dentistry demonstrates the promise of this new approach to treatment of RA.

Cathepsin S is a protease (protein degrading enzyme) that plays a significant role in the activation of certain immune responses. Previous in vitro studies have shown that inhibitors of Cathepsin S prevent or reduce activation of T helper cells. Results from the present study demonstrate that these inhibitors also can prevent the activation of immune responses in vivo. Potential clinical applications of the inhibitors include controlling the initiation and/or progression of immune system disorders such as rheumatoid arthritis, multiple sclerosis, asthma and organ/graft rejection.

Medivir and Peptimmune have a joint-venture program to develop Cathepsin S inhibitor drugs. The program includes a license to the intellectual property rights to Cathepsin S as a therapeutic target from the Massachusetts Institute of Technology. Medivir/Peptimmune have also filed patent applications for a family of potent lead compounds against Cathepsin S. These lead compounds were developed using Medivir's proprietary technologies for inhibitor design. An extensive library of structure-activity data encompassing thousands of compounds has been created. These data, together with structural information from a number of high-resolution X-ray crystal structures of the enzyme, have enabled rapid progress to advanced lead inhibitors. The X-ray structures of Cathepsin S have been obtained in collaboration with Professor R.E Hubbard, University of York and one of the structures has been submitted for publication in an international journal.

The Medivir group

Medivir is an innovative and specialized research company active in the pharmaceuticals sphere, located in Cambridge, UK and Huddinge, Sweden. Medivir's research focuses on the development of new pharmaceutical compounds as inhibitors of target enzymes with protease or polymerase activity.

The group comprises Medivir AB, the subsidiaries Medivir UK Ltd. and CCS AB, plus second-tier subsidiaries CCS (UK) Ltd. and Nordic Care Sweden AB (formerly Jill AB). Medivir is listed on the Stockholm Stock Exchange since 1996.

The research portfolio includes projects against HIV, jaundice, shingles, cold sores, osteoporosis, rheumatoid arthritis, asthma, multiple sclerosis and organ/graft rejection.

Medivir has five projects in clinical development. Of these, two are moving towards phase III trials after having completed phase II trials. Two are in phase I and one is in phase II. Medivir's pre-clinical research encompasses a number of projects, of which one is on its way and two are in the lead optimization phase and one is in the late pre-clinical research stage.

For more information about Medivir, visit the company's web site at [http:// www.medivir.com](http://www.medivir.com)

Peptimmune

Peptimmune is a business unit of Genzyme Corporation based in Cambridge, MA, USA. Peptimmune is developing specific immunotherapies for the treatment of autoimmune and allergic diseases. These new treatments are expected to be safer and more effective than the conventional immunosuppressive agents currently in use.

Genzyme General, a division of Genzyme Corp., develops and markets therapeutic products and diagnostic products and services. The division has five therapeutic products on the market and a strong pipeline of therapeutic products in development focused on the treatment of genetic disorders and other chronic debilitating diseases.

This press release contains forward-looking statements, including statements concerning: a potential therapy for RA; and other potential indications for Cathepsin S inhibitors. Actual results may materially differ due to numerous factors, including without limitation: the results of development efforts; the safety and efficacy of products in humans; decisions made by regulatory authorities; and the risks and uncertainties described in Genzyme's reports filed with the U.S. Securities and Exchange Commission under the Securities Exchange Act of 1934, as amended, including Exhibit 99.2 to Genzyme's 2000 Annual Report on Form 10-K. Genzyme General Division common stock is a series of common stock of Genzyme Corporation. Therefore, holders of Genzyme General Division common stock are subject to all of the risks and uncertainties described in the aforementioned reports.

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