Press Release – Science

Antwerp – 2 February 2009

Christine Van Broeckhoven to be knighted

Antwerp – On 6 February, renowned scientific researcher Christine Van Broeckhoven is to receive the insignia of Chevalier de la Légion d'honneur at the French embassy. The Légion d'honneur, established by Napoleon, is the highest honorary decoration in France. It is primarily awarded to French citizens, but it can also be awarded to foreign nationals who have been of meritorious service to France. Christine Van Broeckhoven's research is of global stature – and thus of service to France. Moreover, in conducting her research, she has regularly collaborated with French research institutes.

Christine Van Broeckhoven's knighthood places her in the distinguished company of Chevaliers including politician Herman De Croo, climatologist André Berger, conductor Philippe Herreweghe, painter Pierre Alechinsky, singer Bono, playwright Eugène Ionesco, and actor Clint Eastwood.

Christine Van Broeckhoven from VIB, the University of Antwerp, and the Born-Bunge Institute, is known all over the world for her pioneering research on the origins of brain disorders in humans, such as Alzheimer's disease. She is also very active socially as the federal representative for the Sp.a political party, through which she strives to put Alzheimer's and other brain diseases on the political agenda. Her scientific discoveries regarding hereditary risk patterns help inform current developments of new treatments and medications.

Christine Van Broeckhoven is a passionate researcher and has been nationally and internationally acclaimed with numerous scientific prizes and major awards for her research on degenerative human brain diseases.

> ***Christine Van Broeckhoven****: 'Science – you love it or you don't. But those who love it cannot stop questioning, 'digging' for the truth, launching scientific research projects… For me, science is a passion, much more than an occupation. But it's my character, too, that drives me: every step that I can take successfully is immediately the beginning of a next stage. I continually push through and I want to finish whatever I've started at all costs.' (from her book* 'Brein en Branie'*, Houtekiet 2006)*

Brain diseases are insidious, causing a gradual loss of cells in the brain (as in Alzheimer's dementia) or in the peripheral nervous system (as in Charcot-Marie-Tooth disease).

Alzheimer's disease
Up to 70% of all patients with dementia suffer from Alzheimer's disease. Dementia is a mental disease that particularly affects human intellectual functions. General knowledge and personal information, as well as automatic actions, diminish gradually. According to estimations, about 150,000 people live with dementia in Belgium. Accurate numbers have not been collected for Belgium, but small-scale studies show that the patient population is probably 3 times larger. Today's medication for Alzheimer's patients supports memory for a while, but it does not stop brain cells from dying, so the disease is currently incurable.

Christine Van Broeckhoven and her team search for clues in human DNA (our hereditary code) that can explain why the brain's ageing process increases the risk of dementia, and why one person grows demented while another does not. Over the last 25 years, this quest has yielded important findings that now form the cornerstone for the development of new medications that should keep brain cells healthy longer. In the

future, knowledge of the hereditary risk profile will also contribute to early detection and treatment of

persons with a high risk. In his speech, **Peter St George-Hyslop** examined the contribution of genetic research to our understanding of Alzheimer's disease today and tomorrow.

Today, Christine Van Broeckhoven is the **godmother of the Flemish Alzheimer's Association** (**www.alzheimerliga.be/**) and chairperson of the scientific advisory body for the **Belgian Foundation for Alzheimer's Research** (**www.alzh.org/**). In 2007, she was elected **federal representative for the Sp.a political party** and her major political topics are the graying of our society, ethical and social issues, and science and technology (**www.christinevanbroeckhoven.be/**). She is supported in her research by Professors **Marc Cruts** and **Samir Kumar-Singh** and a team of 25 researchers.

Charcot-Marie-Tooth disease
Charcot-Marie-Tooth disease (or CMT) is a frequently occurring disease of the peripheral nervous system. CMT causes a loss of neurons, resulting in loss of muscular strength and/or feeling in the limbs. The severity of the disease varies from person to person: from very mild symptoms to very serious handicaps that necessitate the use of a wheelchair. CMT is a congenital hereditary disease that can also appear at a young age. The disease is not life-threatening but it does have large emotional and socio-economic impacts on the patient's life.

Here as well, **Christine Van Broeckhoven** and her team have achieved a major breakthrough with their genetic research. They have shown that the most prevalent form of this disease is caused by the presence of 3, instead of 2, copies of a myelin gene. Myelin is the material that coats and insulates the nerves that control the extremities. Poor insulation results in a loss of signaling and, as a consequence, the nerve and muscle cells die off. This myelin gene is located in the DNA, and the extra copy is the result of **DNA duplication**. In his presentation, **James R. Lupski** explained the effects of a surplus or shortage of a particular protein in the peripheral nervous system and the onset of diseases of the brain.

In 1991, Christine Van Broeckhoven and her team provided support to CMT patients by establishing the **CMT Belgium patients' association** (**www.charcot-marie-tooth.be/**) in order to help make this disease more well-known by the general public and to give patients a voice in asserting their rights. To unite CMT research internationally, Christine Van Broeckhoven has founded the **European CMT consortium**, through which more than 100 laboratories worldwide are active in multidisciplinary and complementary research toward better knowledge of the disease and possible treatments and medications. Today, the CMT research in her department is in the hands of Professors **Peter De Jonghe**, **Vincent Timmerman** and **Albena Jordanova**.

Note to the Editor:
VIB, the Flanders Institute for Biotechnology, is a non-profit research institute in the life sciences. Some 1100 scientists and technicians conduct strategic basic research on the molecular mechanisms that control the functioning of the human body, plants, and micro-organisms. Through a close partnership with four Flemish universities – Ghent University, the Katholieke Universiteit Leuven, the University of Antwerp, and the Vrije Universiteit Brussel – and a solid investment program, VIB unites the forces of 65 research groups in a single institute. Their research aims at fundamentally extending the frontiers of our knowledge. Through its technology transfer activities, VIB strives to convert the research results into products for the benefit of consumers and patients. VIB also develops and distributes a broad range of scientifically substantiated information about all aspects of biotechnology. More info at: www.vib.be.

The University of Antwerp is situated in the economic and cultural heart of Flanders. It is a medium-sized university, renowned for its high-quality education and internationally relevant research in a variety of fields. Today, over 11,000 students are enrolled at the University of Antwerp, making it the third largest university in Flanders. Of these students, over 1,200 are visiting from abroad.
With its 7 faculties, 2,455 academic staff members, 23 Bachelor, and 88 Master and Master-after-Master programmes, the University of Antwerp offers training in a wide range of fields. Thanks to the relatively

small class sizes and excellent tutoring structures, individual students are given every opportunity to develop their talents optimally.
The University of Antwerp is committed to a strong research policy. Numerous researchers with the University have performed excellently in competitive, interuniversity selection procedures and now belong to authoritative international research teams. Over 3,000 academic publications are produced at the University every year. The University of Antwerp cooperates intensively with other domestic and foreign universities, research centres and institutions, which translates into numerous exchange programmes in both research and education. Finally, the private sector is an important partner of the University of Antwerp in areas of socially and / or economically relevant research. More info at: www.ua.ac.be.

The **Born-Bunge Institute** is a research institute affiliated with the University of Antwerp. The primary research projects of the BBI's various laboratories are focused on the study of Alzheimer's disease and related disorders, Parkinson's disease, frontotemporal dementias, Creutzfeldt-Jakob disease, epilepsy, peripheral neuropathies and muscular disorders. Through the use of molecular genetics, biochemistry, experimental research into behavioral changes, and computational neurosciences, the BBI concentrates on improving the integration and correlation of fundamental, clinical and neuropathological data concerning neurological disorders. The BBI Biobank is part of a collective initiative of the research units of the BBI's Neurology department and builds further on the original brain bank. More info at: www.bornbunge.be.

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