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## CAREER DEVELOPMENT : ARTICLES

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Christine Van Broeckhoven

### Belgian Scientist Shares Her Struggles to the Top

Alexander Hellemans  
Belgium  
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Christine Van Broeckhoven doesn't shrink from the "tough lady" moniker she's known by around her institute, the [Flanders Institute for Biotechnology](#) (VIB) in Antwerp, Belgium. "People like me are difficult people," she says, laughing. After all, the assertiveness that earned her that name -- along with talent and years of hard work -- also earned her position as scientific director overseeing the 80 researchers in the [Department of Molecular Genetics](#) at VIB, several awards including the prestigious [Potamkin Prize](#) awarded by the [American Academy of Neurology](#), and a seat in the Flemish parliament.

Van Broeckhoven is outspoken about women in science and about how men continue to block the road to gender equality. "Men still believe that we do this as a pastime," she says. Research has hardly been a hobby for her, though; she's worked hard to become one of the top scientists studying the genetics of neurodegenerative diseases such as Alzheimer's while battling tight times, the challenges of single-parenthood, and depression.

#### THE EARLY YEARS

Van Broeckhoven says she was destined to go into science. "Science was always part of my personality. I'm a logical person and I keep asking, 'why?'" she explains. She was born in April 1953, the month that Francis Crick and James Watson's paper on the structure of DNA appeared in *Nature*. "I'm born under lucky stars,

"I emerged as a stronger and healthier person from my depression. My experience of the world is now more intense and full." - Christine Van Broeckhoven

DNA, and the helix," she says.

At the end of the 1970s, her Ph.D. fellowship ended before she defended her Ph.D. thesis, leaving her unemployed. As a stopgap, she was given a job in a laboratory at the [Provincial Institute for Hygiene](#) in Antwerp. "I was fortunate -- I did not end up in an administrative job but in a laboratory," she says. That laboratory exposed Van Broeckhoven to human genetics, especially the genetics of metabolic disorders. She finished writing her thesis on RNA and defended it in early 1980 while still working at the Provincial Institute.

When she started looking for a permanent position, she ran into a wall. Job applications remained unanswered, and as a young divorcee with a new baby born right after she got her Ph.D., she had to rely on unemployment money. "It was a very difficult period of my career," she says.

Finally, in 1983, Van Broeckhoven joined the [University of Antwerp](#) and started up her own laboratory. She was the first scientist in Belgium to use some of the recently developed recombinant DNA techniques, such as gene splicing with enzymes and gene cloning. During that time transmission genetics in humans became possible, and the first genetic maps of humans were constructed. "This allowed us to look at a complete family with a genetic disorder, and to look at how this disorder was passed on from generation to generation," explains Van Broeckhoven.

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She found her current research focus when she started working with the [Born-Bunge Institute](#), a brain-research institute at the University of Antwerp. She reopened research on a Belgian family whose Alzheimer's disease appeared around the age of 35. "In this family the transmission of the disease was simply autosomal dominant, following the laws of Mendel," Van Broeckhoven says -- but she didn't know what genetic defect underlay the family's condition. Researchers did know, however, that Down syndrome patients, who carry three copies of chromosome 21, develop the same Alzheimer's pathology -- amyloid plaques and tangles -- later in life. "This pointed to chromosome 21 as a location for a genetic defect for Alzheimer's," Van Broeckhoven says.

"This was another important turning point in my career, and fortunately things turned out well," she comments. At that time Alzheimer's was not recognized as a disease, nor was it known whether genetic factors were at play. So starting this investigation was "a jump in at the deep end," Van Broeckhoven says. It proved a worthwhile risk: Her group later showed that a mutation in the gene coding for the amyloid precursor protein (APP) -- located on chromosome 21 -- was associated with early-onset Alzheimer's disease.

## A PUBLIC VOICE

Van Broeckhoven's research with dementia and Alzheimer's disease made her aware that she had a responsibility not only to scientific research but also to the public. In dealing with patients and their relatives, she became aware of how much they long for information. "'How much am I at risk?', and 'can I be tested for this?', they continually ask," she says. She also believes that if your work is paid by public money you have an obligation to communicate your results to the public. She has given frequent public lectures and interviews and appeared on television talk shows. "People know I research dementia, and they want to know more about me," says Van Broeckhoven. And people appreciate her straightforward approach, she says. "I tell things how they are. If there is no treatment, then I say so."

In 2006, Van Broeckhoven wrote [Brein en Branie](#) (published in Dutch), a book for the general public on her research on the genetics of Alzheimer's disease. In it, she writes about the major depression she suffered in 1992, which she overcame not with medication but, in part, with enough self-analysis to fill two notebooks. But it was hard, fruitful work that was the best remedy. The depression coincided with a work-related financial crisis -- her research group lost all its funding -- and her relentless efforts at fundraising resulted in the restoration of funding and helped pull her out of her depression.

That time was remarkable from a scientific standpoint: She published three major research papers about Alzheimer's disease that year. "I emerged as a stronger and healthier person from my depression," she writes in *Brein en Branie*. "My experience of the world is now more intense and full." Her book resulted in a flurry of e-mails and letters from people appreciating her openness about a subject that's usually taboo. "I've now sufficient material for another book," she says.

By working with ageing mental patients Van Broeckhoven became aware of the increasing gap between society at large and the greying population. "The gap between society and old people is larger than I thought, and it is increasing with time," she says. This compelled her to enter another male bastion: politics. She joined a small committee of the Flemish Socialist Party and in June 2007 was elected as a representative at the Flemish parliament. "I entered politics not to start a new career, but to focus attention on a number of problems and arguments," she says. She immediately came under fire, being accused of not being a "professional" politician. "They're right when they say I'm not a *gepopt en gemazelt* ('born and bred') politician. And I tell them, I'm glad I'm not a 'born and bred' politician. I have no history [in politics], but I have knowledge."

## EMPOWERING WOMEN

Van Broeckhoven takes seriously her role as a senior-level woman scientist, advising the young women at her institute to be assertive and strong, which she admits can be more difficult for women than men. "The two X chromosomes we have, they play tricks on us ... we rather take a step back," she says. "I train my women, and I'm very strict about this, and I put a lot of energy into it." Lectures at conferences are very important. Her training program is comparable to that of an actor: "Speak loudly, project yourself... You have to be convinced about what you are saying, and you have to be convinced that you are as good as anyone else in the auditorium."

She is also known for her rather outspoken comments about women in science. "Women choose science because they are interested, while men are driven by money and business...And now women are freer to make choices," says Van Broeckhoven.

At the same time, Van Broeckhoven motivates younger women to make better choices. "She has supported me during the last 10 years in my career," says Joke Beuten, a researcher at the University of Texas Health Science Center at San Antonio, Texas, and who until 5 years ago worked as a postdoc in Van Broeckhoven's team. "[Van Broeckhoven] is an intelligent woman, with a big heart ... very human and simple, notwithstanding her top career," Beuten says.

Alexander Hellemans is a freelance science writer in Antwerp, Belgium.	Comments, suggestions? Please send your feedback <a href="#">to our editor</a> .
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**Even Scientists Get the Blues**

2 April 2004,

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