



2021 GCHERA World Agriculture Prize Laureate

Emeritus Professor Marc Van Montagu

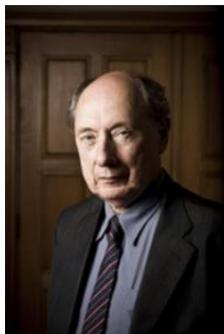
Ghent University

Founder and Chairman of VIB - International Plant Biotechnology Outreach, Ghent University

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Profile Statement



Dr. Marc Van Montagu is Emeritus Professor at Ghent University and Founder and Chairman of VIB-International Plant Biotechnology Outreach at Ghent University. He is also Advisor to the Flemish Institute for Biotechnology (VIB), Ghent, Belgium, since 1999, Chairman of the Scientific Advisory Panel of Futura Gene (Israel/Brazil), since 2011, and President of the Public Research & Regulation Initiative (PRRI), Delft, Holland and Brussels Belgium, since 2005. He received his M.Sc. in Chemistry and Organic Chemistry from Ghent University in 1955 and his PhD in Organic Chemistry and Biochemistry from Ghent University in 1965.

Dr. Van Montagu is a molecular biologist and an internationally renowned expert on plant biotechnology who, together with his close colleague the late Professor Jeff Schell, and their team at Ghent University was responsible for the discovery of the Ti-plasmid of *Agrobacterium tumefaciens* and *Agrobacterium*-mediated gene transfer. Their discovery and research laid the foundation for establishing a major tool for plant genetic engineering, and Dr. Montagu's intellectual leadership led to the development of tools enabling plant molecular biology studies and applied knowledge in the plant sciences. The impact of their discovery was a rapid adoption of *Agrobacterium*-mediated plant transformation by the scientific community leading to a worldwide boom of academic and industrial laboratories focusing on as explained by Dr. Boerge Diderichsen, Professor and Strategic Advisor, VIB in his nomination letter "a new field of plant biology enabling the study of the role of plant genes and plant gene mutations in plant growth and development, the defence of plants against biotic and abiotic stress conditions and more". He goes on to affirm that "These discoveries, that are now used in every plant biology lab worldwide, revolutionized our knowledge about the molecular mechanisms behind plant growth and development, and the use of that knowledge in agriculture."

Dr. Van Montagu's lab at Ghent University became a leading lab on plant molecular biology and provided numerous tools for the plant research community. His global impact on plant biotechnology includes the training in his lab of hundreds of scientists and researchers from all over the world who have gone on to take leading positions in academic institutions and

agricultural companies. Researchers from the developed and developing world have been invited to participate on his team over the years and plant biotechnology labs have been established around the world by scientists who gained experience in his labs including in Japan, Brazil, Mexico, South Africa and the United States. Dr. Van Montagu has been and continues to advise Ministers and senior officials from countries around the world on related issues. In recognition of these accomplishments Dr. Van Montagu was designated as Goodwill Ambassador for the development of agribusiness in low-income countries by the United Nations Industrial Development Organisation in 2014. Dr. Van Montagu has been especially active on capacity building in low- and middle-income countries and, in 2000, he founded the Institute of Plant Biotechnology Outreach (IPBO), hosted by VIB and that is dedicated to promoting sustainable socio-economic development and the transfer of know-how and expertise on plant biotechnology to less-developed countries. He seeks to share biotechnology know-how with the purpose of improving crop quality and productivity in marginal environments of low-income countries, with a view to improving human nutrition and developing solutions to address the impact of climate change impacts on tropical agriculture.

As stated by Jo Bury, Managing Director of VIB in his nominating letter “Dr. Marc Von Montagu is one of the few people who is simultaneously a world leading scientist and an innovator who excels in converting his breakthrough inventions in products that are now available to millions of people.” He founded two highly successful biotechnology start-ups: Plant Genetic Systems and CropDesign that led to the development of transgenic crops resistant to insect pests and tolerant to environmentally benign herbicides. Jo Bury asserts that “Marc Van Montagu has also been both visionary and highly productive in the translation of his basic research to products for society.”

Plant biotechnology applied to the development of genetically modified crops has been an innovative disruptive technology. Its first pursuit aimed to increase yields, reduce crop losses to pests and diseases, and to decrease agrochemical use. Since its introduction, genetically modified crops have accounted for millions of tons of food, feed, and fibre worldwide. Despite the early criticism it has been reported by ISAAA and PG Economics Limited that crop biotechnology has resulted in improved productivity and profitability for more than a million adopting farmers. Of note, it has directly led to poverty alleviation among resource poor farmers and landless depending on agriculture, which represents most of the world’s poorest people. Smallholder farmers in developing countries (approximately 65 million people), benefit not only from increased crop yields and higher profit but also from the change in farming habits to become more environmentally friendly by reducing carbon emission and use of pesticides.

Marc continues to communicate the benefits of plant biotechnology around the world. As stated by Dr. Huanming YANG, Professor of BGI-China in his Nomination Letter “Marc has been the champion of utilizing plant biotechnology to combat climate change. Marc and Mrs. Nora Van Montagu have also established the ‘Marc and Nora Van Montagu (MNVM) Fund’ to utilize

plant biotechnology to address societal and environmental challenges facing the scientists, the farmers, the children and their families and local communities in Africa.”