

NOMAD Bioscience Published Milestone Research Paper Describing its NOMADIC™ Expression Technology

December 2014 - NOMAD Bioscience announces the publication in the Plant Biotechnology Journal (S. Hahn et al., PBJ DOI: 10.1111/pbi.12299) of research paper describing a new generation technology for manufacturing of recombinant proteins in plants developed by Nomad Bioscience researchers.

NOMAD believes that the new plant-based manufacturing process described in the paper represents the most efficient, simple, inexpensive, rapid and flexible process of manufacturing recombinant proteins in plants, the one that is fully and indefinitely scalable and represents a mature industrial process even in its present early form. We and others described manufacturing processes based on transient expression in green plants before (Marillonnet et al., *Proc Natl Acad Sci U S A* **101**, 6852 (2004); Marillonnet et al., *Nat Biotechnol* **23**, 718 (2005); Giritich et al., *Proc Natl Acad Sci U S A* **103**, 14701 (2006)) but all those methods have been based on vacuum infiltration of plants, a procedure that required immersing of plants in bacterial solution and thus could be performed on containerized plants only. The new technology achieves the same production parameters as previous processes but, because it relies on simple spraying of plants with *Agrobacterium* suspensions, it can be applied to plants grown in soil. The resultant manufacturing technology is not only simpler, it is also fully compatible with the current agronomy practices and it allows manufacturing of recombinant proteins in plants at commodity agricultural prices. It is expected that the technology will find broad applicability in the large-scale recombinant protein production.

As a further proof of principle and applicability, this manufacturing process has been used to produce cellulases, one of the most volume- and cost-sensitive biotechnology products. The data presented in the paper demonstrate that representatives of all hydrolase classes necessary for cellulose decomposition can be expressed at high levels, stored as silage for extended periods without additional processing or significant loss of activity, and then used directly as enzyme additives. Same process has been successfully tested for two other potential high-volume products such as non-caloric sweetener thaumatin and antiviral protein griffithsin.

About NOMAD Bioscience GmbH. Nomad Bioscience GmbH is a plant biotechnology company developing transient expression systems with application to a broad range of agricultural and pharmaceutical products. Corporate offices are headquartered in Munich, Germany and the Company's Research division is located in Halle, Germany. NOMAD Bioscience GmbH has two subsidiary companies: ICON Genetics GmbH (Halle, Germany) and UAB Nomads (Vilnius, Lithuania).