

PRESS RELEASE

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Plants for Health with New Breeding Techniques

The Fraunhofer Institute for Molecular Biology and Applied Ecology IME participates in the EU-funded NEWCOTIANA project, a research and innovation action that combines several new plant breeding techniques to produce medical and cosmetic products in plants.

- Taking advantage of cutting-edge molecular breeding methodologies, researchers will develop new varieties of tobacco and its wild relative *Nicotiana benthamiana* to produce added-value compounds such as antibodies, vaccines and drugs in a sustainable manner.
- NEWCOTIANA is a 7,2 M€ H2020 EU project coordinated by scientists at the Institute for Plant Molecular and Cellular Biology (IBMCP) from the Spanish Research Council (CSIC) with participation of 19 industrial and academic partners from 8 European countries and Australia.

Researchers have found promising New Plant Breeding Techniques (short: NPBT) to turn leaves into efficient plant factories for medical, pharmaceutical and cosmetic products. The same is true for the leaves of *Nicotiana benthamiana*, a dwarf tobacco relative from Australia which is especially suited for indoors production of bio-pharmaceuticals. In this way the plants will be bred to produce vaccines, antibodies, and other health-promoting substances including anti-aging or anti-inflammatory compounds. The cutting-edge NPBTs include the so-called CRISPR technique, also known as genome editing, which offers unprecedented opportunities for crop breeding. Other NPBTs that researchers will apply are modern forms of grafting, or infiltration for temporary gene expression. By taking advantage of NPBTs, NEWCOTIANA is expected to contribute to revive the traditional cultivation of tobacco and *Nicotiana benthamiana*, creating new applications that are favourable for health, and revitalizing rural areas in decline with high-value products in line with the European Knowledge-Based Economy.

Funded by the European Union



Editorial notes

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“The consortium will carry out experiments to assess the efficiency and safety of NPBTs, providing the industry, policy makers and consumers with experimental evidence that facilitate the decision-making process on the adoption of NPBTs in Europe.” adds Diego Orzaez from CSIC, coordinator of the NEWCOTIANA project. “NEWCOTIANA’s scientific aims are ambitious, and in addition to solving a number of technical issues we realize that regulatory requirements need to be taken into account as well as starting a dialogue with stakeholders and the general public.”

At Fraunhofer IME Prof. Stefan Schillberg and his team will have an important contribution to NEWCOTIANA by conducting research on the knock-out of proteases to increase the stability of produced target proteins. In addition, the team will produce pharmaceutical proteins in *Nicotiana benthamiana* through a scaled up indoor agroinfiltration process allowing rapid protein production.

NEWCOTIANA, which was launched in February 2018 in Brussels, is a 4,5-year project funded by the European Union’s Horizon 2020 Research and Innovation programme under grant agreement No 760331.



Project updates can be found at: newcotiana.org.

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