NEWTONIANA

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NEWCOTIANA

Tobacco (*Nicotiana tabacum*) is a commercial crop that is used to produce the eponymous product for cigarettes, cigars, and pipes. Some major cigarette companies are now committed to end smoking, given the overwhelming scientific evidence that smoking is harmful. Tobacco plants can also be used for other purposes that are clearly beneficial for health, however.

Newcotiana explores these new possible use cases of tobacco plants. The project combines several New Plant Breeding Techniques to produce high-value substances in tobacco plants (specifically in the cultivated crop *Nicotiana tabacum* and in its wild relative *Nicotiana benthamiana*) by turning their leaves into efficient plant factories for medical, pharmaceutical, and cosmetic products. For this purpose, the project's scientists are using technologies such as genome editing (CRISPR/Cas9), agroinfiltration, grafting, and intra-genesis. In this way, tobacco will be bred to produce vaccines, antibodies, and other health-promoting substances including anti-aging or anti-inflammatory compounds, thus potentially transforming the declining tobacco cultivation in Europe into an innovative and sustainable agricultural sector.