

Life science to save lives

The 'Spanish flu' pandemic of 1918-1920 infected more than 500m people and killed an estimated 50m-100m worldwide. Many virologists believe it is only a matter of time before the virus once again mutates into a similarly virulent strain. However, thanks to a breakthrough on the Norwich Research Park (NRP), scientists may now be able to develop a new vaccine quickly enough to prevent another global tragedy.

The Hypertrans® process harnesses the natural properties of *Nicotiana benthamiana* plants, a relative of tobacco, to turn its leaves into mini vaccine factories (bioreactors). It is the brainchild of Professor George Lomonosoff and Dr Frank Sainsbury from the John Innes Centre (JIC), which is one of the original life sciences institutes on the NRP. Professor Lomonosoff won the Innovator of the Year Award 2012 from the Biotechnology and Biological Sciences Research Council (BBSRC) for his work on the process.

Hypertrans® is a fast, efficient, safe and simple way of producing pharmaceutical proteins beneficial to human health, such as vaccines, antibodies and enzymes. Leaf Expression Systems is a partnership between JIC, its main strategic funder the BBSRC, and Plant Bioscience Ltd. It already works with a number of health organisations and aims to commercialise its technology by scaling up its production capabilities.

Leaf opened its purpose built, state of the art facility on the NRP in January 2017. This includes offices, plant potting



Leaf Expression Systems - Bio-Science

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- It meets all the latest bio-security standards
- Professor Lomonosoff won 'Innovator of the Year' for his work on the Hypertrans® process

and inoculation areas, controlled environment growing chambers, R&D laboratories, and protein purification facilities. They all meet the latest bio-security containment and safety standards.

Why invest in Norfolk?

NRP specialises in supporting food, health and life sciences R&D. It is home to four of the UK's strategic research institutes, the UEA, the Norfolk and Norwich University Hospital, and 80 companies, making it one of Europe's largest single-site concentrations of such research. More than 3,000 scientists and clinicians, as well as 12,000 other employees, now work on the 230-hectare park just 3.5 miles from the city centre.

Leaf Expression Systems is a great example of NRP's purpose built facilities – and the innovative bioscience in the region. Its location on the park's Enterprise Zone means it

benefited from a simplified planning process and now gets discounted business rates. The NRP management team worked with the primary construction contractor, RG Carter, to complete building in just 12 months.

"NRP is ideal for our pioneering bioscience research and development centre," says Dr Philip Cater, Leaf's Director of Operations. "It gives us access to the best technology, a supportive network of talented people and organisations who could use our services, and a thriving life sciences cluster. As a result, we're now in the middle of an innovative development culture that's seeding new and exciting global applications."

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www.locatenorfolk.com

Call +44 (0)1603 223 142 Email info@locatenorfolk.com

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