



## Breakthrough in plant-based production of Cyxone's T20K

**Cyxone (publ), a biotech company in autoimmune diseases, is developing T20K which acts to stop or slow down the progression of Multiple Sclerosis (MS). Researchers at the well renowned Center of Excellence for Innovations in Peptide and Protein Science, Australia have demonstrated a breakthrough in plant-based production of Cyxone's T20K. The research findings means that sustainable, large scale and cost-effective production of cyclotide-based pharmaceuticals such as T20K, are now within reach.**

Since cyclotides are gene-encoded plant peptides, Professor David Craik and his team at University of Queensland, Australia, have investigated ways of enhancing the production yield of plant-derived cyclotides. By utilizing the Australian tobacco plants (*Nicotiana benthamiana*) as 'biofactory', it was demonstrated that the combined expression of the T20K precursor gene and the gene encoding for an important processing enzyme (called AEP ligase) resulted in a significantly improved production yield of T20K. Recombinant production of cyclotides in microbial or plant-based systems has hitherto been extremely difficult.

"The current finding is a breakthrough in the biotechnological production of T20K and will have implications for future industrial scale plant-based manufacturing of macrocyclic peptides", says Professor Christian Gruber of the Medical University of Vienna, Austria, Chairman of Cyxone Scientific Advisory Board, and co-inventor of the immunosuppressor T20K.

"We are thrilled to see T20K utilized as a prototype for the plant-based production concept developed by Professor Craik and his world class cyclotide research group at the University of Queensland. It goes to show that T20K as pharmaceutical concept garners great interest in the cyclotide research community globally. Professor Craik and his team previously explored alternative production processes for cyclotide production based on the chemoenzymatic ligation technology, something Cyxone is currently implementing in the manufacturing of T20K. The plant-based production approach is something that we are extremely excited about, as this would enable lower production cost of this rather special molecule. It would allow a much more sustainable, environmentally friendly, and scalable process going forward", says Carl-Magnus Högerkorp, CEO, Cyxone.

T20K is a peptide that in preclinical models reduces inflammation by reversibly targeting IL-2, a well-known player in the break-down of myelin. In the mouse model of multiple sclerosis (EAE model), T20K significantly delays onset as well as severity of clinical symptom. This potentially disease preventing mechanism-of-action is unique and T20K could thus be effective in slowing down the disease progression, preventing disease flares and postponing the need of second-line treatments. Initial preclinical data suggest that T20K has long-lasting effects and is efficacious at low doses and thus administration does not have to be frequent.

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**Press release**

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**About Cyxone**

Cyxone AB (publ) (Nasdaq First North Growth Market: CYXO) develops disease modifying therapies for diseases such as rheumatoid arthritis and multiple sclerosis. Rabeximod is a Phase 2 candidate drug being evaluated for the management of rheumatoid arthritis. T20K is a Phase 1 candidate drug for treatment of multiple sclerosis. Certified Adviser is FNCA Sweden AB. For more information, please visit [www.cyxone.com](http://www.cyxone.com)