



Press release

HRB applies for patent for targeted delivery of crop care products and biologicals

15 March 2022, Wageningen – Hudson River Biotechnology (HRB), together with Sphera Encapsulation (SE), has applied for a patent for a smart delivery particle.

New and better molecules for plant treatment are currently being brought on the market. But efficient delivery remains a challenge, especially for field applications. Current delivery systems cannot provide targeted delivery inside plant cells, are often not biodegradable and provide limited customization. Crop care products are therefore associated with substantial run-off into the environment. Only one third of fertilizers and <0.1% of pesticides reach their target. This leads to enormous amounts of chemical and product waste, as well as high costs.

To combat this issue, HRB and SE collaborated on Plenrance™: a targeted, biodegradable particle for crop inputs, which can uniquely penetrate the plant cell wall and deliver cargo inside plant cells. Plenrance™ increases the bioavailability of crop inputs, so the active ingredients are delivered in the right place at the right time. The new patent application describes a method for encapsulating biological compounds, compositions of the resulting particles and their applications.

Ferdinand Los (CSO): *“Originally tailored for CRISPR delivery as part of TiGER genome editing workflow, we soon realized that these particles hold unique potential for crop care applications as well because of the unique combination of delivery and encapsulation features, a cheap feedstock and a scalable manufacturing process.”*

With this technology, HRB expands its portfolio of smart delivery systems to include tailor-made nanoparticles that can increase the efficacy of agrochemicals. Delivery via HRB’s Plenrance™ particles is compatible with ecological agriculture, leads to less waste and ultimately decreases the strain on our natural ecosystems. HRB is further developing and scaling up the system to seamlessly integrate it into the existing crop care workflows of manufacturers and farmers.

About Hudson River Biotechnology B.V. (HRB)

HRB is an independent technology provider, specialized in plant breeding, crop development, genetics, and biotechnology. Through our work, we intend to deliver on the promise that crop improvement can address the demands of a resilient, sustainable bioeconomy. Since HRB’s founding in 2015, we have established a name in the market as a go-to player for disruptive innovations and cutting-edge technological developments. As our first portfolio technology, we have worked with a variety of companies to develop new traits and solve technological barriers in gene editing with CRISPR. In 2021, we have expanded our portfolio to offer delivery of biologicals and small molecules in field applications through nanotechnology.

HRB's customers range from large multinationals to family-owned businesses in, for example, the food, pharmaceuticals, plant breeding and biotech industries. Our goal is to make plant-focused technologies accessible, tailor-made to each customer and create mutual success.

For more information, please contact:

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