Media Release

Syngenta Group expands collaborations for more innovative scientific and technological solutions in agriculture

- Collaboration across industries grows following launch of *“Shoots by Syngenta”* innovation accelerator platform in 2023
- Syngenta now seeking collaborators for six new challenges
- Work with IBM Research helps drive the digitalization of agricultural chemistry and enables new products to reach markets faster and more efficiently
- Maxygen, a US biotech specializing in the directed evolution of proteins, is collaborating with Syngenta Seeds to optimize its molecular enabling technologies

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Syngenta Group, one of the world’s leading global agriculture technology companies, today announced important collaborations following the launch of its innovation accelerator platform *Shoots by Syngenta* in 2023. These collaborations, which connect expertise across industries and sectors, are aimed at making possible novel solutions to agricultural challenges more quickly and efficiently.

Two collaborations – with IBM Research and with US biotech Maxygen – brought their respective pioneering approaches in data-based predictions modelling, and in the directed evolution of proteins more commonly leveraged in the pharmaceutical industry, together with Syngenta’s world-leading agricultural research and proprietary data sets.

“Helping growers sustainably feed a rapidly growing human population requires a strong collaboration focus, not just across agriculture but across industries,” said Gusui Wu, Global Head of Seeds Research. “Collaboration is at the heart of how our scientists approach innovation every day. It is embedded in our scientific culture, and we are continually seeking out different technologies, solutions, and partners to help us better serve farmers.”

IBM Research and Syngenta accelerate optimization of chemical compound synthesis with language models.

Syngenta Group, in collaboration with IBM Research, has enhanced productivity in chemical synthesis using IBM-RXN – a software developed to enable the use of language models for the synthesis of new molecules and materials. IBM-RXN encodes, models, and predicts chemical reactivity. By combining Syngenta's world-leading chemistry research and proprietary data sets with IBM's world-class reactivity modelling capabilities and leveraging Natural Language Processing (NLP), IBM's pioneering modelling approach, enables the partners to deliver scalable, accurate, and data-based predictions modelling. This enables Syngenta to investigate multiple related compounds simultaneously and prioritize routes that offer compounds with the most desirable commercial attributes.

Syngenta is closing the data loop by connecting the IBM-RXN platform to the synthesis platform. Reactivity predictions are now an integral part of the design of synthetic procedures. The models' outcomes are fully integrated with synthesis planning and execution, establishing a virtual loop where high-quality data generate more relevant models that, in turn, inspire better synthetic procedures. The digitalization of synthetic workflows and the adoption of predictive reactivity modelling are increasing the efficiency and the effectiveness of the synthetic process. Both teams worked on extending reactivity modelling to include bio-catalyzed reactions and metabolic transformations, to support the design of more sustainable synthetic procedures that have a better safety and environmental footprint.

As the predictive power of reactivity models increases, scientists may become increasingly confident in delegating part of their work to AI-enabled automation. This should allow shifting the focus to the synthesis strategy and overall chemical design.

Syngenta collaborates with Maxygen to optimize molecular enabling technology.

US biotech, Maxygen, which specializes in the directed evolution of proteins, is collaborating with Syngenta Seeds to optimize its enabling technologies.

Since the collaboration launched, one of the success factors has been the consistent and robust level of scientific engagement on both sides. Both Maxygen and Syngenta adopted an open collegiate approach from the start, with Syngenta giving the collaboration a high-priority status as part of its core portfolio, enabling the project to progress swiftly.

The teams from Syngenta and Maxygen met frequently to review results, manage decision-making, adjust plans, and mark progress milestones. This approach has delivered success resulting in protein variants with highly improved attributes and the subject of novel intellectual property.

Seeking new collaborators to six challenges

Shoots by Syngenta spotlights specific innovation needs from across the Syngenta Crop Protection and Seeds businesses. Science-based innovation challenges are posted on its website (ShootsBySyngenta.com), inviting anyone with a scientific interest to submit proposals in response. Proposals are quickly evaluated, and if there is a mutual fit, progressed to a collaboration partnership to take forward the research or technology that might eventually be licensed.

Currently, *Shoots by Syngenta* lists six challenges, ranging from identifying new chemical building blocks derived from biomass waste streams, to developing diagnostic tools for detecting non-visible indicators of poor crop growth.

“We’re looking forward to connecting with new partners from academia, research institutes, start-ups, and cross-industry sectors, to work with our extensive global network of scientists and to push the boundaries of what is known today in science,” said Camilla Corsi, Syngenta’s Global Head of Crop Protection Research. “We’re proud of our strong reputation as a collaborator of choice and are excited about the potential of the *Shoots by Syngenta* platform to generate new possibilities to benefit farmers and agriculture.”

About Syngenta Group

Syngenta Group is one of the world’s biggest agricultural technology companies, with roots going back more than 250 years. With more than 59,000 employees, operating in more than 100 countries, the company strives to transform agriculture with science-driven, technological innovations to deliver high productivity and high-quality food while fighting climate change and restoring nature. Syngenta Group is working with farmers to enable Regenerative Agriculture - an outcome-based food production system that nurtures and restores soil health, protects the climate and water resources and biodiversity, and enhances farms' productivity and profitability. Syngenta Group, which is registered in Shanghai, China, and has its management headquarters in Switzerland, draws strength from its four business units: Syngenta Crop Protection, headquartered in Switzerland; Syngenta Seeds, headquartered in the United States; ADAMA®, headquartered in Israel; and Syngenta Group China. Together, these businesses provide industry-leading ways to serve customers around the world.

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