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**June 23-25, 2020 | San Diego**

[www.crispr-agbio.com](http://www.crispr-agbio.com)



**4TH ANNUAL**

# **CRISPR AgBio**

**CONGRESS**

**Harness Next Generation CRISPR Tools  
to Enable Precise & Efficient Plant  
Genome Modification to Revolutionize  
the Future of Agriculture**

## **Expert Speakers Include:**



**Aaron Hummel**  
Head of Genome  
Editing Technologies  
**Pairwise Plants**



**Chloe Pavely**  
Global Regulatory  
Director  
**Calyxt**



**Yunde Zhao**  
Professor  
**University of  
California San Diego**



**Neil Hoffman**  
Chief Science Advisor  
**United States  
Department of  
Agriculture (USDA)**



**Hajime Sakai**  
Chief Executive Officer  
**Napigen**



**Sandeep Kumar**  
Principal Investigator  
& Senior Scientist  
**Corteva Agriscience**

**Proud to Partner:**



# Welcome to the 4th Annual CRISPR AgBio Congress

**In the last decade, the application of CRISPR has ushered in dramatic advances in speed, scope and scale of genetic improvement to achieve the most desirable breeding traits. But this journey is far from complete.**

The **CRISPR AgBio Congress** will showcase the next generation of CRISPR tools to deliver sustainable and superior agricultural products to market faster and help meet the world's growing agricultural demands.

Devoted entirely to agricultural applications of novel CRISPR tools, this event will enable you to learn about prime editing, base editing, and advances in homology directed repair, understand the next wave of traits primed for modification and tether your work to the realities of the global regulatory and policy environment.

Join established and emerging agricultural companies progressing novel CRISPR-based agricultural programs as well as the academic organizations breaking new ground in establishing novel CRISPR tools to **usher in the next generation of precise and efficient plant genome editing.**

## Hear what previous CRISPR AgBio attendees have to say

It was a great opportunity to learn from outstanding speakers and to network with industry leaders

The CRISPR AgBio Congress allowed me to understand the current status of genome editing technologies, as well as network with peers in the industry

Excellent opportunity to hear about the leading-edge applications of advanced gene editing tools and business models

## Brand New Content for 2020:

**NAPIGEN**

Discover how Hajime Sakai, CEO at **Napigen** is developing a novel CRISPR technology enabling gene editing of mitochondrial and chloroplast DNA to **create superior agricultural products**

**PAIRWISE**

Explore how the CEO & CSO at **Pairwise Plants** are implementing prime editing and other precision editing tools to **accelerate trait discovery and deployment**

**UC San Diego**

Understand how Yunde Zhao from **UC San Diego** is improving the efficiency of homology directed repair to **increase the precision of plant genome modifications**

**calyxt**

Leverage regulatory expertise from the Global Regulatory Director at **Calyxt**, who have launched the first gene edited food product on the US market, to **develop and implement effective global regulatory strategies going forward**



Realize the power of novel plant transformation systems by hearing how researchers at the **Landry Lab** are improving the efficiency of transgene-free systems to **ensure 'non-GMO' status**



# YOUR EXPERT SPEAKERS



**Tom Adams**  
Chief Executive  
Officer  
**Pairwise Plants**



**Roxi Beck**  
Director, Consumer  
Engagement  
**The Center for  
Food Integrity**



**Jason Dietz**  
Senior Policy Analyst  
**Food and Drug  
Administration  
(FDA)**



**Gilad Gershon**  
Chief Executive  
Officer  
**Tropic Biosciences**



**Eduardo Gonz  les  
Grand  o**  
Postdoctoral Fellow  
**Landry Lab,  
University of  
California at  
Berkeley**



**Neil Hoffman**  
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**United States  
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**Aaron Hummel**  
Head of Genome  
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**Pairwise Plants**



**Anthony Kinney**  
Research Director,  
R&D Trait Discovery  
**Corteva  
Agriscience**



**Sandeep Kumar**  
Principal  
Investigator &  
Senior Scientist  
**Corteva  
Agriscience**



**Keith Matthews**  
Of Counsel  
**Wiley Rein**



**Nyasha Mudukuti**  
Science &  
Communications  
Associate  
**Alliance for Science**



**Chloe Pavely**  
Global Regulatory  
Director  
**Calyxt**



**Snigdha Poddar**  
Graduate  
Researcher  
**University of  
California at  
Berkeley**



**Hajime Sakai**  
Chief Executive  
Officer  
**Napigen**



**Kristi Snell**  
Chief Scientific  
Officer & Vice  
President, Research  
**Yield10 Biosciences**



**Bing Yang**  
Professor  
**University of  
Missouri**



**Linda Webster**  
Director, Quality  
Management &  
Biosafety  
**Canadian Food  
Inspection Agency  
(CFIA)**



**Paul Zankowski**  
Senior Advisor for  
Plant Health and  
Production & Plant  
Products  
**United States  
Department of  
Agriculture (USDA)**



**Feng Zhang**  
Professor  
**University of  
Minnesota**



**Yunde Zhao**  
Professor  
**University of  
California San  
Diego**



**Speaker to be  
Confirmed  
Cibus**

# PRE-CONFERENCE WORKSHOP DAY

## TUESDAY, JUNE 23

### Workshop A

8:00-11:00

## Evaluating & Detecting the Presence of CRISPR Off-Target Effects in Plants

The CRISPR toolbox is rapidly expanding as the 'classic' CRISPR-Cas9 is developed to be more specific, efficient, and safe. While regulators are highly concerned with off-target effects of CRISPR for clinical application, the potential magnitude of off-target edits in crops is smaller than conventional or mutation breeding. Recent studies have shown that with appropriate design of genome editing reagents, off-target edits in plants are nearly undetectable in the background of inherent genetic variation. Reducing off-targets in the first place and detecting their presence will be explored, as well as relevance of off-target effects in plants in the light of standing genomic variation.

#### Attend this workshop to learn about:

- Developing and utilizing new tools to optimize editing specificity and reduce the potential for off-target edits
- Discussing the challenges of detecting off-target edits in the background of inherent variation in plants
- Creating quick and efficient methods to detect on-target edits in plants
- Understanding why relevance of off-target effects in plants is different from therapeutic applications
- Sequencing and other detection methods for measuring off-target edits in plants

#### Workshop Leader



**Sandeep Kumar**

Principal Investigator & Senior Scientist

**Corteva Agriscience**

### Workshop B

11:30-14:30

## Establishing a Presence in the CRISPR AgBio Space

The CRISPR space is exploding, and more companies than ever before are entering the space with the realization that we are on the cusp of an agricultural revolution, and now is the time to get involved. Gene editing is only part of the key criteria for a successful company in this space, and a grounding in the regulatory, technical, and commercial aspects of agricultural application of CRISPR will help set up for success in the years to come.

#### Attend this workshop to learn about:

- Regulatory considerations along the timeline of bringing a gene edited crop to market
- Different functions required to establish a strong presence
- Development of gRNAs to target the desired sequence
- Best strategies to identify the crops and traits that will give most commercial returns
- Collaborations across the space – where are the gaps and how to fill them

#### Workshop Leader



**Keith Matthews**

Of Counsel

**Wiley Rein**



## Workshop C

15:00-18:00

# Evaluating Strategies to Effectively Improve Public Awareness of Gene Edited Crops

Innovative CRISPR tools have the power to transform crops, improving traits for increased productivity, yield, and crop protection. However, this revolution in agriculture will have no meaning unless consumers embrace gene edited crops. Identifying promising strategies, learning from past mistakes, and exploring success stories, this workshop will give you the tools to ensure consumer confidence when your product reaches the market.

### Attend this workshop to learn about:

- Exploring how de-regulation of products is necessary but not sufficient for successful marketization
- Evaluating potential strategies to improve public acceptance of gene editing in agriculture
- Showcasing successful case studies which show promise
- Educating in the most effective way so gene edited crops are not feared or rejected by consumers
- Discussing what different companies are doing in this space

### Workshop Leader



**Paul Zankowski**

Senior Advisor for Plant Health and Production & Plant Products  
**USDA**

■ ■ Gaining an update on knowledge of the regulatory guidelines for genome-edited agriculture products and understanding technical and logistical hurdles in developing future products ■ ■

**Kan Wang, Professor & Director, Center for Plant Transformation, Iowa State University**

■ ■ Highly interesting congress, great speakers covering a broad range of CRISPR-associated topics, and ideal setting for networking with academic experts and peers in the industry ■ ■

**Past attendee, CRISPR AgBio Event Series**

# CONFERENCE DAY ONE

## WEDNESDAY, JUNE 24



### 7.00 Registration, Coffee & Networking

**Aaron Hummel**  
Head of Genome  
Editing Technologies  
**Pairwise Plants**

### 7.50 Chair's Opening Remarks

## Investigating Novel CRISPR Tools with the Potential to Improve Efficiency & Specificity of Gene Editing in Plants

**Aaron Hummel**  
Head of Genome  
Editing Technologies  
**Pairwise Plants**

### 8.00 Precision Editing Tools for Trait Discovery & Deployment in Crops

- Why precision editing tools can accelerate trait discovery and deployment
- Building a platform for rapid development of new editing tools
- Performance characteristics of base editors, prime editors and other precision editing tools

**Yunde Zhao**  
Professor  
**University of California San Diego**

### 8.40 Efficient Homology-Directed Repair (HDR) for Crop Improvement

- HDR allows precise modifications of genomes
- HDR is usually not efficient and has been a challenge in crop breeding
- Presenting key factors for improving HDR efficiency
- Providing examples of efficient HDR in plants

**Bing Yang**  
Professor  
**University of Missouri**

### 9.10 Challenges & Advantages of Multiplex Editing in Crop Genomes

- Editing several genes in the same timeframe poses unique challenges
- Realizing the hurdles specific to plants to overcome, including polyploidy and crop type
- Highlighting current work with the promise of delivering multiple specific edits at once



### 9.40 Speed Networking & Morning Refreshments

**Hajime Sakai**  
Chief Executive  
Officer  
**Napigen**

### 11.10 Organelle CRISPR Technology Opens New Opportunities in Agriculture

- New Technology that enables gene editing of both mitochondrial and chloroplast DNA
- Prospective opportunity in creating superb male-sterility lines for hybrid seed production in wheat and other crop plants
- Prospective opportunity in crop protection by expressing pest control genes
- Prospective opportunity in breeding by introducing new variations of organelle genes

## Navigating the Unsettled Regulatory Landscape for CRISPR-Edited Crops

**Chloe Pavely**  
Global Regulatory  
Director  
**Calyxt**

### 11.40 Harnessing Regulatory Expertise from the First Gene Edited Food Product on the Market

- Exploring the regulatory hurdles that must be overcome from an industry perspective to develop an effective strategy going forward
- Discussing when to engage regulators over products
- Understanding what information regulators need in order to progress through to marketization
- Expanding reach into international markets

## 12.10 Panel Discussion: Assessing the Current International Regulatory Landscape & its Impacts on Revolutionizing Agricultural Development

The international regulatory landscape on gene edited crops is in a state of unrest. With ever-changing guidelines, and different countries and regions giving different recommendations and advice, it is difficult for any company operating the space to keep up. This panel discussion will bring together regulatory experts to discuss the most pressing topics in the space, including:

- Current USDA guidelines concerning 'non-GMO' status and how this is expected to evolve
- Discussing standpoints across the international landscape, and potential impacts on agricultural development
- Opinions on using DNA vectors for plant transformation and their impact on GMO classification
- The co-ordinated framework between the USDA, FDA & EPA – understanding specific priorities for 2020
- Creating a harmonized, uniform regulatory framework to simplify processes for all players in the space



**Jason Dietz**  
Senior Policy Analyst  
**Food and Drug Administration (FDA)**



**Neil Hoffman**  
Chief Science Advisor  
**United States Department of Agriculture (USDA)**



**Keith Matthews**  
Of Counsel  
**Wiley Rein**



**Chloe Pavely**  
Global Regulatory Director  
**Calyxt**



**Linda Webster**  
Director, Quality Management & Biosafety  
**Canadian Food Inspection Agency (CFIA)**



## 13.00 Lunch & Networking

### Improving & Implementing Gene Discovery Tools for Better Target Validation & Identification

**Speaker to be Confirmed**  
**Cibus**

#### 14.30 Slot Reserved for Cibus

- Talk details to be confirmed

**Kristi Snell**  
Chief Scientific Officer & Vice President of Research  
**Yield10 Biosciences**

#### 15.00 The GRAIN Platform: Integration of Metabolic and Genomic Models into a Trait Development Program to Aid Target Gene Selection

- Understanding the need for better modelling as editing shifts from single edits to complex systems with multiple edits
- Integrating metabolic and genomic models to identify genes to modify to achieve a phenotype
- Highlighting the use of The GRAIN Platform to identify traits to increase oil content and/or seed yield in the oilseed Camelina



## 15.30 Afternoon Refreshments & Poster Session

### Expanding the CRISPR Scope to More Challenging Agricultural Crops

**Snigdha Poddar**  
Graduate Researcher  
**University of California at Berkeley**

#### 16.30 Developing CRISPR for use in a Highly Commercial Crop: The Unique Challenges & Opportunities

- Increasing the power of CRISPR tools for use in commercial crops
- Exploring and overcoming challenges for wheat genome editing
- Inducing de novo resistance in rice and wheat

**Gilad Gershon**  
Chief Executive Officer  
**Tropic Biosciences**

#### 17.00 Using CRISPR to Edit 'Next Tier' Crops: The Unique Challenges & Opportunities

- Exploring the commercial potential of crops including banana and coffee, and the reasoning behind crop selection
- Developing a gene editing system to address disease resistance in banana
- Understanding and overcoming the challenges associated with working on 'next-generation' crops

**Aaron Hummel**  
Head of Genome Editing Technologies  
**Pairwise Plants**

#### 17.30 Chair's Closing Remarks

## 17.40 End of Day One



# CONFERENCE DAY TWO

## THURSDAY, JUNE 25

**Yunde Zhao**  
Professor  
University of  
California San Diego

### 8.50 Chair's Opening Remarks



**Yunde Zhao**  
Professor  
University of  
California San Diego

### 9.00 Fireside Chat: Accelerating CRISPR Technology into the Plant World

Exciting CRISPR technology is being developed all the time, with the exciting potential to revolutionize agriculture. This fireside chat is the perfect opportunity to delve deeper into how these novel technologies can translate into plants more quickly, and how we can work closer as a community to share expertise between the mammalian world and the plant world.

## Increasing Plant Transformation & Regeneration Efficiency Utilizing 'Non-GMO' Approaches

**Eduardo Gonz  les  
Grandi  **  
Postdoctoral Fellow  
Landry Lab,  
University of  
California at  
Berkeley

### 9.30 Improving CRISPR/Cas9 Transient Expression from DNA Plasmids Delivered by Carbon Nanotubes

- Presenting an update on the carbon nanotube technology being used to deliver CRISPR in plants
- Improving efficiency of CRISPR/Cas expression through improvement of DNA plasmid systems
- Exploring how plasmids behave in different plants and how to enhance efficiency in different plant types



### 10.00 Morning Refreshments & Networking

**Feng Zhang**  
Professor  
University of  
Minnesota

### 11.00 Transgene Free Genome Editing in Plants by Delivering CRISPR/Cas as Ribonucleoproteins (RNPs)

- Discussing the strategy and benefits of transgene-free genome editing for crop improvement
- Presenting the method to enable highly efficient transgene free genome editing in plants
- Comparison of efficiency and specificity of different CRISPR/Cas systems when delivered as RNP in plants

## Exploring the Most Agriculturally & Economically Important Traits to Edit

**Anthony Kinney**  
Research Director,  
R&D Trait Discovery  
Corteva Agriscience

### 11.30 Enhancing the Protein Content of Commercial Crops for Human & Animal Nutrition

- The source of most of the protein in the food we eat is ultimately derived from plant seeds, mostly oilseed crops such as soy
- As the world population increases, and developing countries consume more protein in their diets, worldwide demand for protein is increasing
- The protein content of the major oilseed crops is declining as agronomic yields are being increased, resulting in less protein produced per hectare
- Gene editing technologies are enabling the development of high-yielding oilseed crops with increased protein content



### 12.00 Lunch & Networking



### 13.00 Roundtables: Analyzing the Next-Generation of Promising Target Traits: Revolutionizing the Future of Agriculture

Certain traits have the potential to dramatically increase outputs without compromising on environmental impact, so that we can feed and sustain the 10 billion population by 2050. Equally, genome editing of crops has the power to bring higher quality, more nutritional products to consumers. This roundtable will explore some of the next-generation traits that are being targeted and helps understand the unique challenges and opportunities in each.



## Yield



**Kristi Snell**  
Chief Scientific Officer &  
Vice President of Research  
**Yield10 Biosciences**



## Crop Protection



**Gilad Gershon**  
Chief Executive Officer  
**Tropic Biosciences**



## Product Quality



**Tom Adams**  
Chief Executive Officer  
**Pairwise Plants**



### 14.00 Afternoon Break & Networking

### Understanding the Long Road to CRISPR Crop Commercialization

**Nyasha Mudukuti**  
Science &  
Communications  
Associate  
**Alliance for Science**

#### 14.30 Understanding the Barriers to Bringing a Commercial Product to Market: Successes & Challenges

- Discussing the value in bringing CRISPR crops to market – are they being well received?
- Understanding the relative risks and benefits surrounding regulatory decisions and outcomes
- Effectively engaging with policy makers and developing consumer-centred programs

**Roxi Beck**  
Director, Consumer  
Engagement  
**The Center for Food  
Integrity**

#### 15.00 Guidelines for Responsible Use of Genome Editing: A Storied Journey of Learning and Application

- Building a framework for responsible genome editing through collaboration and facilitation
- Discussing past learnings in genome engineered food labeling and understanding how to build effective strategies going forward
- Highlighting the importance of trust building and bridging the gap between the public and industry

**Yunde Zhao**  
Professor  
**University of  
California San Diego**

#### 15.30 Chair's Closing Remarks

### 15.40 Close of Conference

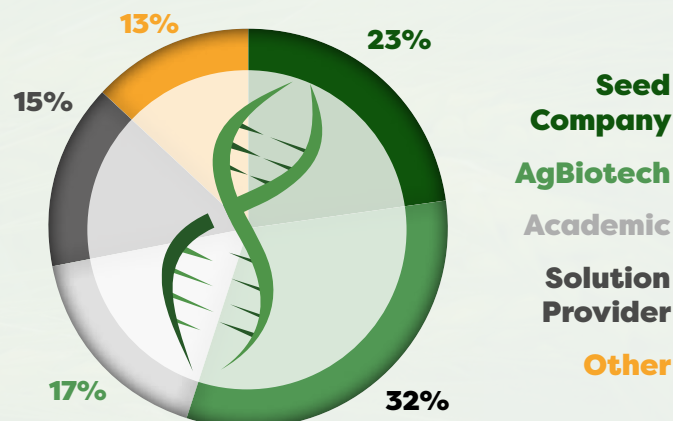
📌 The congress was great to get up to speed with what is happening in the industry and allowed us to network and meet potential suppliers 📌

**Past attendee, CRISPR AgBio Event Series**

# WHO WILL YOU MEET?

The CRISPR AgBio Congress will bring together experienced and dedicated professionals from across the CRISPR AgBio space. This will provide the unique opportunity to share the latest and greatest innovations, explore collaborations and keep up with developments which will have direct and meaningful input to your own gene editing programs.

## Types of Companies Attending:



\*Based on audience breakdown from CRISPR AgBio Congress 2019

**Interact with experts from all corners of the CRISPR AgBio landscape, including:**



Regulatory  
Agencies



Seed  
Companies



AgBiotech  
Start-Ups



Pioneering  
Academics



Plant Genomics  
Specialists

## Previous CRISPR AgBio Event Series Attendees Include:





# PARTNER WITH US

More companies than ever before are realizing the potential of novel CRISPR tools to increase the productivity and quality of agricultural products. These improved crops cannot be pioneered without companies providing key services, from high quality CRISPR reagents to powerful genome sequencing tools.

If you want to establish yourself as the go-to company in the CRISPR AgBio space, then partnering with us will provide you with a unique platform to establish those long-term relationships with companies at the forefront of gene editing in agriculture.

Get in touch today to learn more about how we can build a bespoke partnership to support your business development objectives.

**Email [sponsor@hansonwade.com](mailto:sponsor@hansonwade.com) to learn more.**

## 2020 PARTNER:



### Program Partner

Cibus is the leader in non-transgenic breeding & precision gene editing in agriculture. Our mission is to improve plants and other organisms with a new class of non-transgenic breeding technologies. This work is carried out without integrating foreign genetic material thus the resulting organisms are non-transgenic. Since our improvements are non-transgenic, they will be globally acceptable.

**[www.cibus.com](http://www.cibus.com)**

Highly interesting congress, great speakers covering a broad range of CRISPR-associated topics, and ideal setting for networking with academic experts and peers in the industry

**Past attendee, CRISPR AgBio Event Series**

## GET INVOLVED



**Frank Plowden**  
Partnerships Director  
Tel: +44 (0)20 3141 8700  
Email: [sponsor@hansonwade.com](mailto:sponsor@hansonwade.com)




# READY TO REGISTER?

## 3 EASY WAYS TO BOOK

 [www.crispr-agbio.com/take-part/register](http://www.crispr-agbio.com/take-part/register)

 Tel: +1 617 455 4188

 Email: [register@hansonwade.com](mailto:register@hansonwade.com)

- 1 Network** with CRISPR pioneers to learn about the future of the field and explore the possibility of collaborations
- 2 Discover** the latest and greatest innovations in CRISPR technology for application in plants to integrate into your programs
- 3 Investigate** the realities of the global regulatory landscape to inform strategic commercial decisions

### Team Discounts\*

**10% discount - 2 delegates**

**15% discount - 3 delegates**

**20% discount - 4 delegates**

Please note that discounts are only valid when two or more delegates from one company book and pay at the same time.

Discounts cannot be used in conjunction with any other offer or discount. Only one discount offer may be applied to the current pricing rate.

Contact: [register@hansonwade.com](mailto:register@hansonwade.com)

## SECURE YOUR PLACE

Industry Pricing*	Register & Pay by March 6 Save up to \$1,400	Standard Pricing
Conference + 3 Workshops	\$2,446	\$3,846
Conference + 2 Workshops	\$2,197	\$3,397
Conference + 1 Workshop	\$1,948	\$2,948
Conference Only	\$1,699	\$2,499
Workshop Only	\$249	\$549

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Conference + 3 Workshops	\$3,346	\$4,746
Conference + 2 Workshops	\$2,997	\$4,197
Conference + 1 Workshop	\$2,648	\$3,648
Conference Only	\$2,299	\$3,099

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Conference + 3 Workshops	\$2,046	\$3,146
Conference + 2 Workshops	\$1,797	\$2,797
Conference + 1 Workshop	\$1,548	\$2,448
Conference Only	\$1,299	\$2,099
Workshop Only	\$249	\$449

\* The industry rate is available to allow AgBiotech and seed companies to attend this meeting. Eligibility criteria states that the company needs to be developing an agricultural product in-house. Solution providers are excluded. All bookings at this rate are subject to organizer approval. T&Cs apply.






## VENUE

**Sheraton San Diego Mission Valley**  
1433 Camino Del Rio South  
San Diego, California, 92108, USA

**For further information or assistance, please visit**  
[www.marriott.com](http://www.marriott.com)

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