

Gathering Market Insight for Innovation & Commercial Development

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March 2021

Outline

- Communicating your technology to industry
 - Creating value-based benefits of your technology
- OTC is teaming up with industry to bring you opportunities
 - Leveraging industry feedback

- Industry looks at academia for cutting edge ideas
 - Scientific conferences (presentations and posters)
 - Partnering meetings
 - Pre-existing relationship with OTC

- Industry takes into consideration:
 - Strategic fit
 - Level of risk
 - Competitive edge

Clear, Concise, & Compelling: Why It's Important

Networking

- Faculty within your department
- Faculty from other departments
- Academic conferences

Growth & Value

- Funding opportunities
- Interest from investor

Effectively communicating your research goals creates opportunities to broaden its impact.

Common pitfall: Sharing too much too soon

Non-Confidential information

- Value proposition
- Potential benefits
- Potential applications
- Publicly available materials

Generate industry interest in your technology

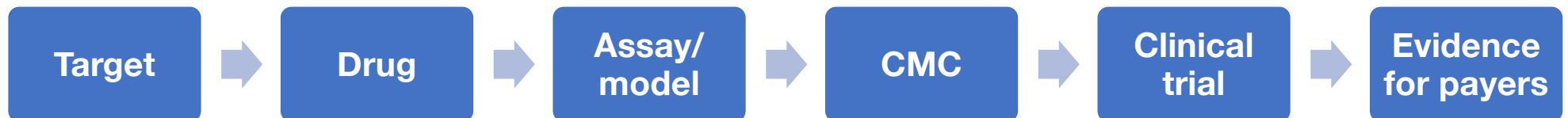
Confidential information

- Ingredients
- Peptide sequence
- Detailed methods
- Unpublished data

MIGHT jeopardize ability to pursue international patent rights

Gathering useful market insights

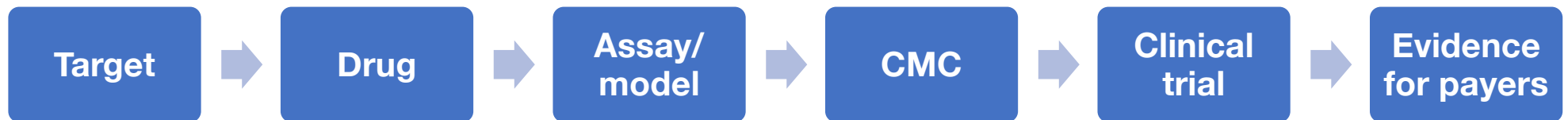
De-risk your technology / avoid barriers to market entry



- At what stage does your company typically engage with academia?
- What targets or mechanisms are of interest to your company?
- What does a successful preclinical data package typically include?

Gathering useful market insights

De-risk your technology / avoid barriers to market entry



- How do you determine if your product needs improvement?
- What challenges do you face when moving a technology from academia through clinical trials?

- Gathering **useful** insights from the market can help you:
 - Lower the risk associated with your technology
 - Help you avoid costly mistakes
 - Align your technology development with industry

Your technology has commercial potential, now what?

- File an invention disclosure with OTC: www.ou.edu/otc
- Work with OTC to develop marketing materials
- Continue to share non-confidential details
- Obtain NDA
- Discuss confidential details in follow-up conversations
- Unsure if the information is confidential?
 - “I would be happy to arrange an NDA to enable further discussion.”

OTC is teaming up with industry to bring you opportunities

TECHNOLOGY PUSH

- OTC promotes technologies in a non-confidential manner
- Marketing
 - Flintbox & IN-PART
- Networking
 - BIO & MDDC

MARKET PULL

- Industry requests help from academia
 - Academic conferences
 - Publications (abstract/manuscript)
 - Intellectual property
 - “Industry Calls for Opportunities”



Cas9 Variant Imparts Substrate Specificity in Target DNA Cleavage

Technology Class: Genome editing

Mechanism: Interference of loop-to-helix conversion in bridge helix

Applications: Type II CRISPR-Cas systems, DNA targeting by Cas9

TRL: 2

IP: [16/570,555](#)

Tech ID: 2019-014

PI: Rajan

Goal: Identify industry partner for further development.

Background

The CRISPR genome editing process utilizes the Cas9 enzyme to snip DNA, allowing for replacement/alteration of a faulty gene. Cas9's primary drawback is off-target DNA cleavage. Increased stringency of the interdependence between RNA-DNA complementarity and DNA cleavage efficiency would improve the precision of CRISPR-Cas systems, ultimately decreasing unnecessary DNA damage/mutations.

Technology

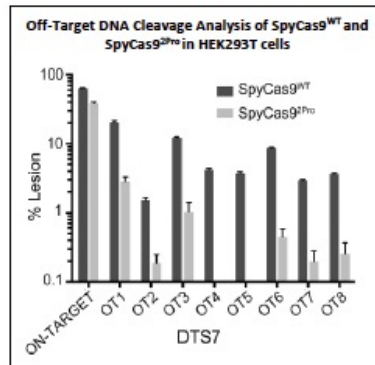
Site directed mutagenesis was used to mutate a loop region in the bridge helix (BH) of the *Streptococcus pyogenes* (Spy) Cas9 protein in order to increase cutting specificity. This SpyCas9 variant (SpyCas9^{2Pro}) impairs the DNA cleavage activity by accumulating nicked products and reducing target DNA linearization, thereby imparting higher selectivity in DNA targeting. Compared to WT protein (SpyCas9^{WT}), DNA cleavage activity of SpyCas9^{2Pro} decreases substantially against those with PAM-proximal mismatches, ultimately resulting in reduced off-target cleavage. Off-target cutting is decreased in both *in vitro* study and cell-based (HEK293T – see figure below) activity assays ([Babu et al., 2019](#)).

Differentiation Factor

Compared to WT, SpyCas9^{2Pro} offers a higher degree of selectivity in DNA targeting, providing enhanced gene editing capabilities.

Next Step

Current work is focused on increasing on-target activity of the SpyCas9^{2Pro} variant.



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Technology Push

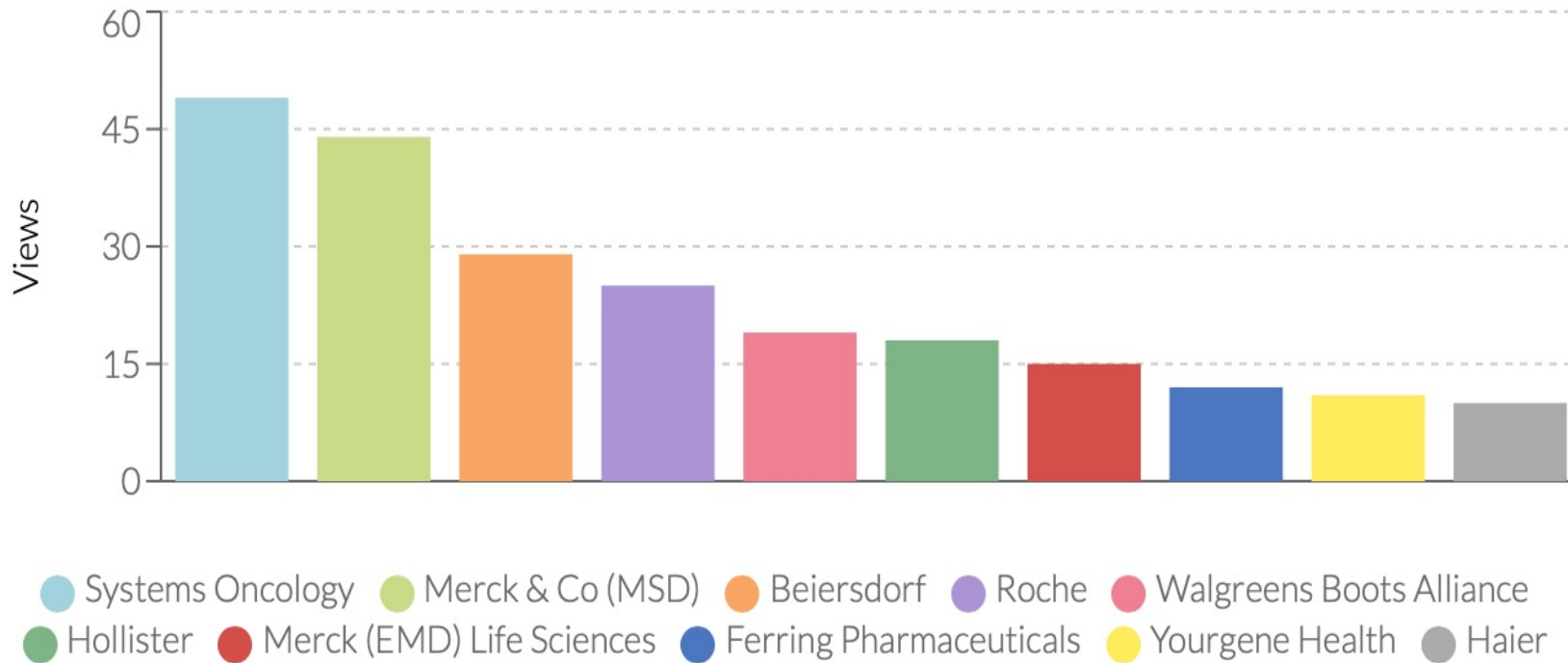
Collaborate with OTC to create *marketing abstract*

- Non-confidential material
- Problem/solution approach for BD representative
- Focus on commercially relevant data & differentiating factors

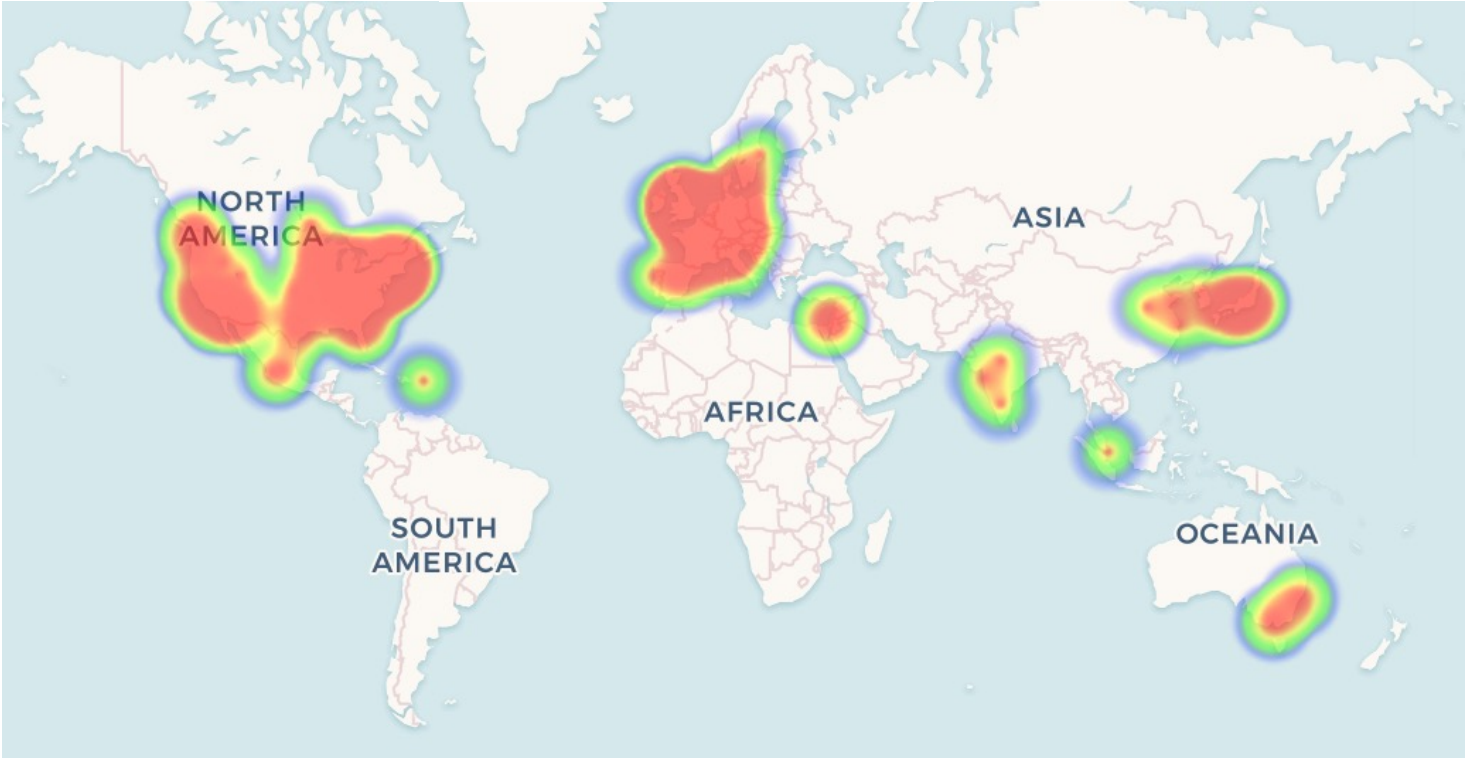
OTC advertises your technology

- IN-PART - Subscription-based match-making platform
- IN-PART proactively pushes research with commercial potential to their industry network
 - Introductions to new commercial partners, feedback from market-decliners, impact reports

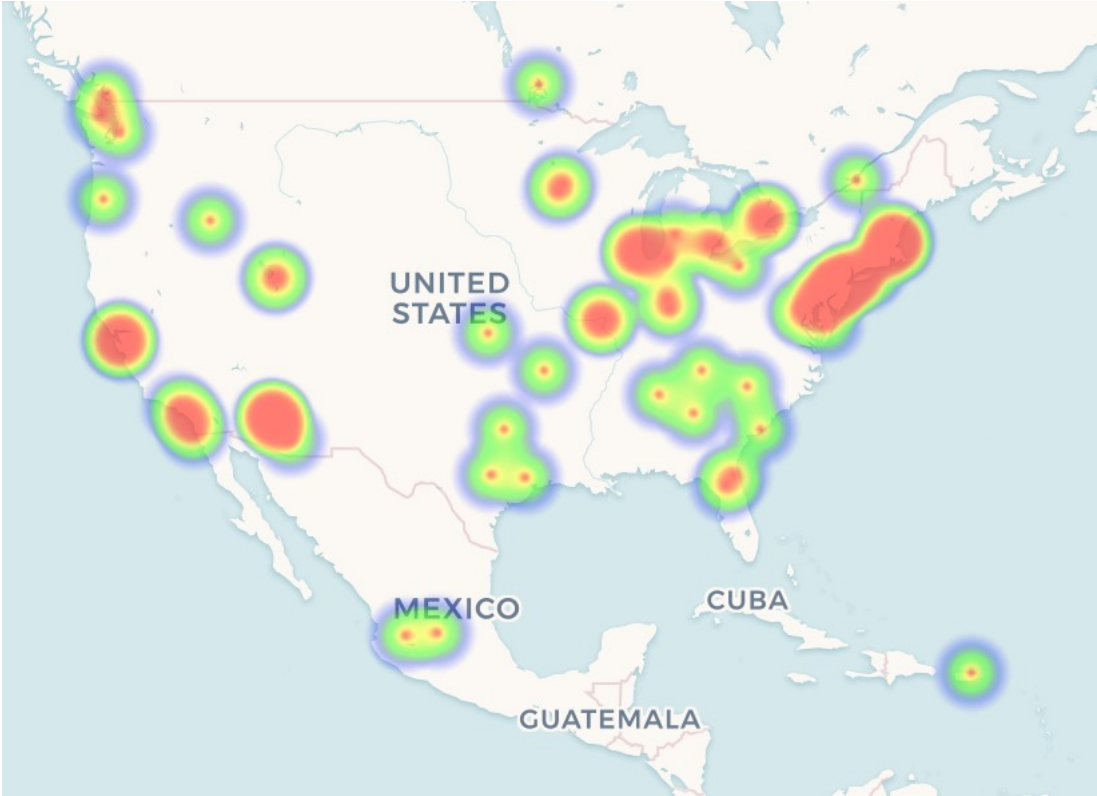
Top Companies by Technology Views



Geographic Reach



Geographic Reach



Market Pull

- IN-PART Discover
 - Fully driven by the requirements of an industry partner within a particular sector
 - Companies communicate their specific requirements through an “Industry Call for Opportunity” (ICO)



Industry Call for Opportunity (ICO)

Typical submissions

- Research projects
- Academic experts
- Centers of Excellence
- Technology (IP)
- Spin-outs

Outcomes

- Funding for academic research
 - Sharing existing company know-how & resources
 - Sharing company resources
 - Licensing
 - Long-term strategic partnerships
-
- Average:  **11%** of opportunities submitted have been engaged by industry

Making connections at BIO International

Networking



Partnering



Objectives at BIO International

Build relationships with biotech/pharma for future partnerships

- Amgen, AstraZeneca & MedImmune, Sanofi, Roche, Inova Diagnostics, Ferring Pharmaceuticals, Santen Pharmaceuticals, MatriVax, Spark Therapeutics, and others.

Meet with business development representatives

- Discuss OU assets
- Promote research expertise
- Glean information on company preferences

Convey industry feedback to OU researchers

- Provide information in support of **GrowthFund** application
- Contribute to strategic IP protection

Midwest Drug Development Conference

- Focus: innovation in the 'flyover states'
- Host: University of Nebraska, Medical Center

**MEET NEW PARTNERS
UNEARTH HIDDEN GEMS**

Twelve major Midwest
medical research institutions with
their best and brightest technologies
IN ONE PLACE!

Flyover this!

Sept. 30-Oct. 1, 2019 » Omaha

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UNIVERSITY OF COLORADO
UNIVERSITY OF IOWA
UNIVERSITY OF KANSAS
UNIVERSITY OF KENTUCKY
UNIVERSITY OF MISSOURI
UNIVERSITY OF NEBRASKA
UNIVERSITY OF NOTRE DAME
UNIVERSITY OF OKLAHOMA

MidWest Drug Development Conference

\$4.54 BILLION IN RESEARCH
1,931 NEW INVENTIONS
730 LICENSING AGREEMENTS
510 U.S. PATENTS
111 NEW PRODUCTS
98 STARTUPS FORMED
18 BLOCKBUSTERS

SOURCE: ASSOCIATION OF UNIVERSITY TECHNOLOGY MANAGERS' LATEST DATA (2017).
"BLOCKBUSTERS" ARE SIGNED LICENSING AGREEMENTS WORTH \$1 MILLION OR MORE.

Midwest Drug Development Conference

- Features Midwestern university technologies
 - Cincinnati Children's Hospital, Kansas State University, Mayo Research & Education, Purdue University, University of Colorado, University of Iowa, University of Kansas, University of Kentucky, University of Missouri, University of Nebraska, University of Notre Dame, University of Oklahoma
- Present Top 3 technologies to BD reps, investors, accelerators
- One-to-one meetings
 - Eli Lilly, Pfizer, GSK, Merck, Santen, BioMed Valley Discoveries, Cour Pharma, MDB Capital, ARCH Ventures, Biomotiv
 - Pipeline
 - How to strike a partnership

Leveraging Industry Feedback

OTC shares feedback with researcher for technology development

- Industry feedback can help formulate strategic approach
 - Utilize preferred methods/validation criteria
 - Guide current development from basic to pre-clinical status
 - Align new development ideas with current industry standards

What we need from you

Marketable technology

- Disclose to our office
- Evaluate intellectual property potential
- Publications available
- Demonstration of value
- ***Updates***

Office of Technology Commercialization

<http://www.ou.edu/otc/>

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