Gathering Market Insight for Innovation & Commercial Development

Gina McMillen, DVM, PhD | *Director, OTC*
Meredith Wilkerson, PhD | *Licensing Officer, OTC*

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.

The Value Proposition

"Our technology is *a novel approach for delivering small molecules* **for** *treating tumors; targeting specific cells; imaging* **in order to**

noun/short phrase

applications/users

improve *efficacy/safety of solid tumor treatment; detection of small tumors* **."**

problem/shortcoming of currently available options

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

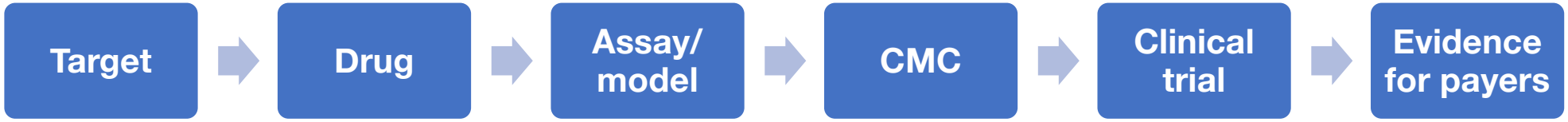
Confidential information

- 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- Unpublished data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

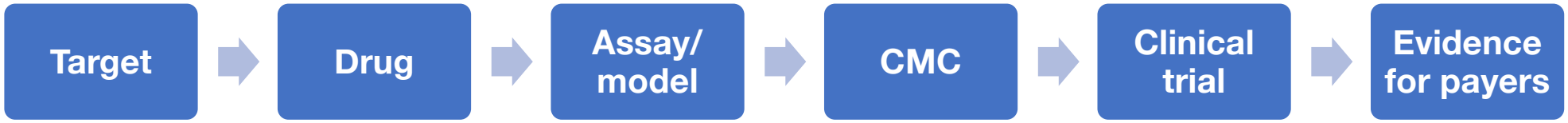


- At what stage does your company typically engage with academia?
- What targets or mechanisms are of interest to your company?
- What does a successful preclinical data package typically include?

Source: Pullan Consulting, April 2018

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?

Source: Pullan Consulting, April 2018

- 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”

OFFICE OF TECHNOLOGY COMMERCIALIZATION
The UNIVERSITY *of* OKLAHOMA

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

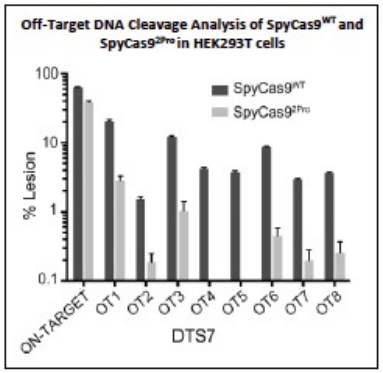
Goal: *Identify industry partner for further development.*

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.



Engagement Contact: Meredith Wilkerson, PhD
Office of Technology Commercialization
(405) 271-7725
meredith-wilkerson@ouhsc.edu

Technology Push

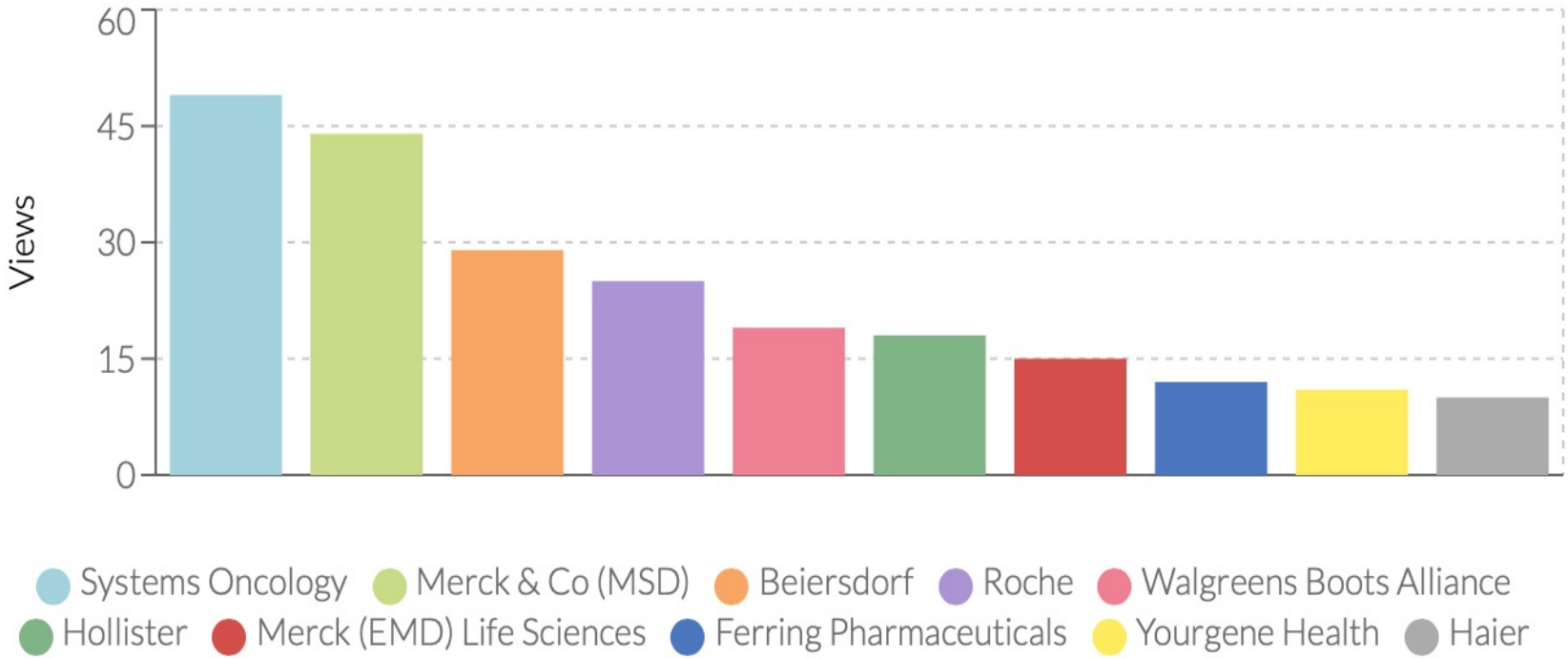
Collaborate with OTC to create *marketing abstract*

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

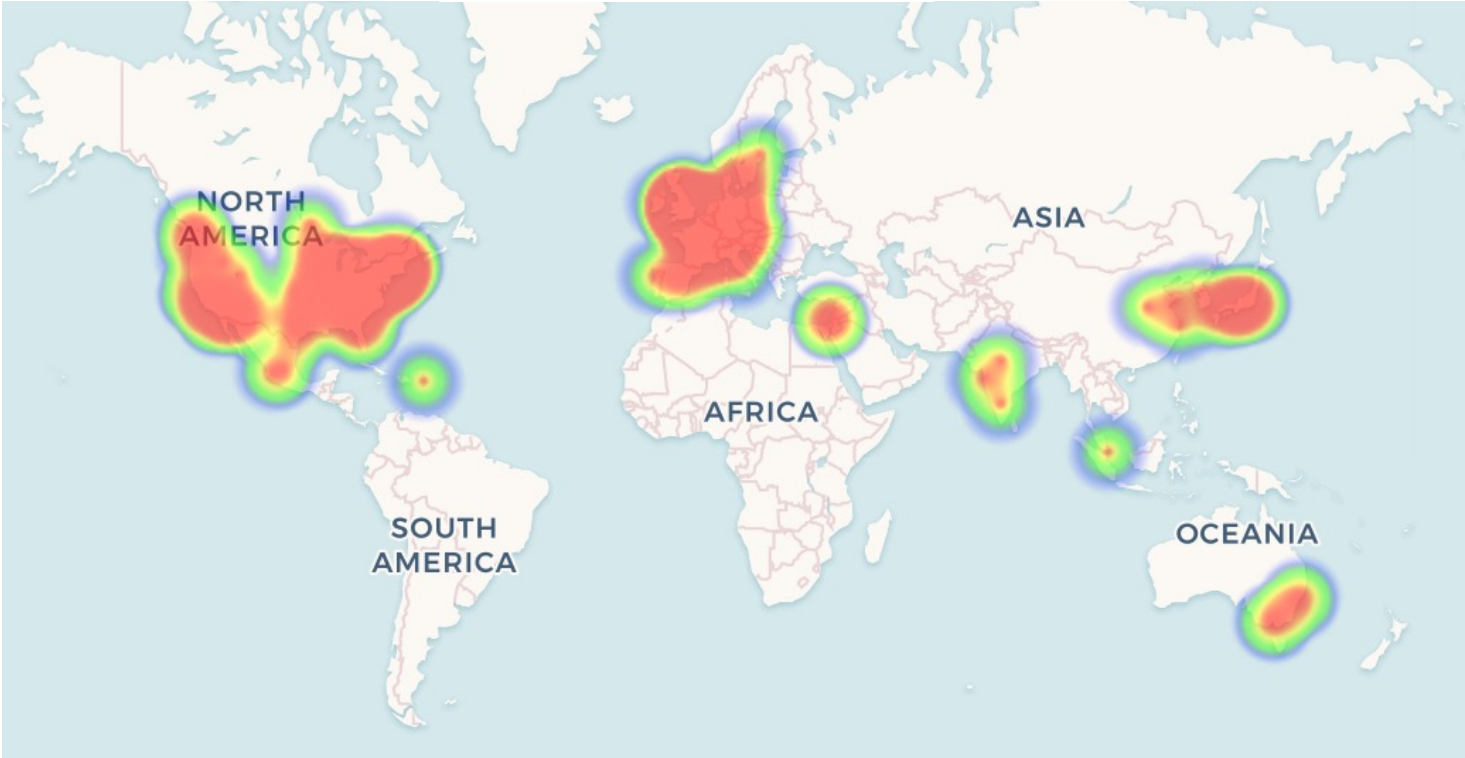
OTC advertises your technology

- 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

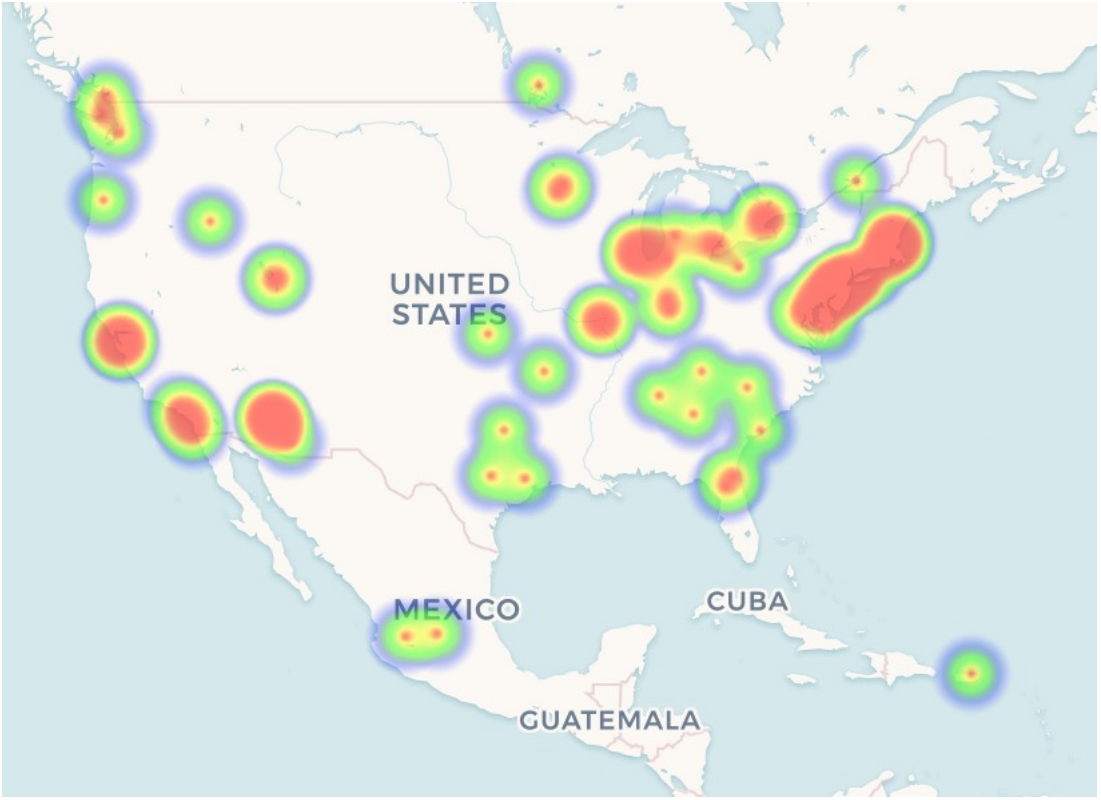
Top Companies by Technology Views



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

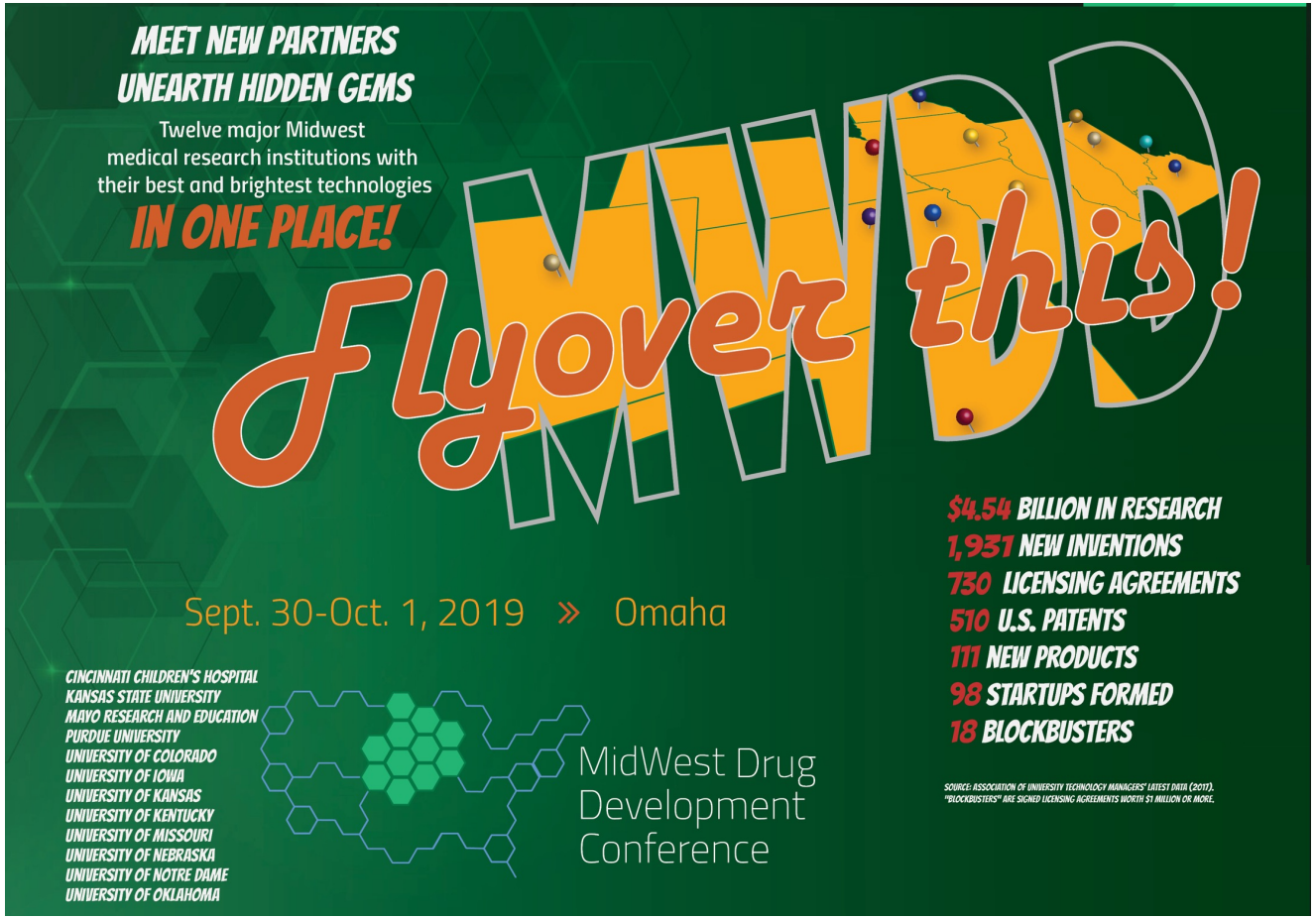
- Discuss OU assets
- Promote research expertise
- Glean information on company preferences

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



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/

Main Office:
301 David L. Boren Blvd.
Suite 3120
Norman, OK 73019
(405) 325-3800

OUHSC Office:
865 Research Parkway
Suite 300
Oklahoma City, OK 73104
(405) 271-7725