Talking About Your Research with Non-Researchers

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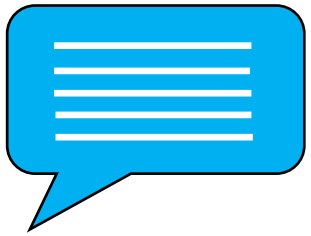
an **an**
demon tomic
vapor to This is a
very ously
mentioned -Einstein
conden far off-
resonance nter-parts
recombined. We have coupled pulses of atoms out of our magnetic trap to give a crude form of an atom laser…

Outline

- Strategies to be clear, concise, and compelling
- Effective customer discovery
- Partnering with OTD

Clear, Concise & Compelling



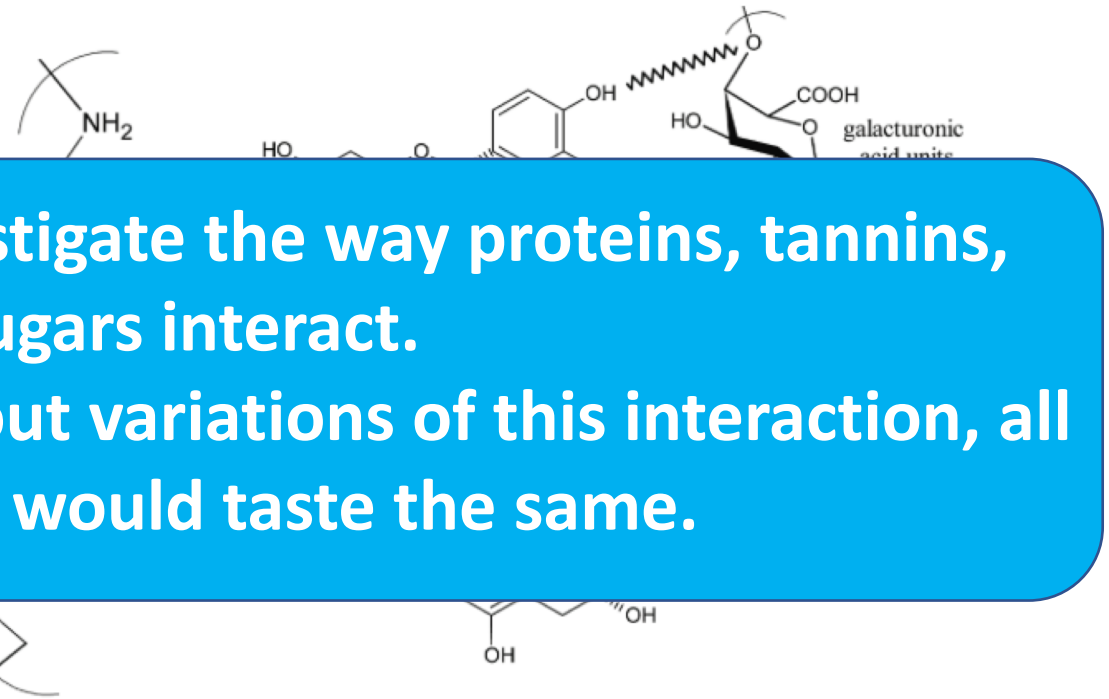
CLEAR: Start with why it matters

- Use a problem-solution approach
- Put facts and numbers in context
- Connect your impact to something relatable

That is equivalent to a savings of pollution from 900,000 cars.

CONCISE: Understand your audience

- Realistically, what does your audience need to know
- Use simple graphics and analogies
- Avoid jargon
- Create relatable narratives



I investigate the way proteins, tannins, and sugars interact.
Without variations of this interaction, all wines would taste the same.

COMPELLING: Interesting short story

- Why pursue the focus of your research?
  - Have specific ‘take-away’ point ready
- Keep your presentations visually interesting
  - Use charts, graphs, or photos
  - Maintain good contrast between text and background
  - Use text sparingly, ensure all information is legible

Table 2. *Results of uni[illegible]te analysis for CCHS cases versus controls in combined data set a[illegible]ided by gender*

Variable	Com[illegible]				Female				Male			
	CCHS n = 45	Cont[illegible]			CCHS n = 22	Control n = 22			[illegible] = 23	Control n = 23		
	Mean (SD)	[illegible]	[illegible]	[illegible]	Mean (SD)	Mean (SD)	[illegible]	[illegible]	[illegible]	Mean (SD)	$M_c–M_c$	*p*
Supraorbital breadth	107.93 (9.37)	[illegible]	[illegible]	[illegible]	105.14 (8.74)	[illegible]	[illegible]	[illegible]	[illegible]	105.08 (7.80)	5.51	0.016
Forehead height	48.19 (8.21)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	46.61 (7.55)	−0.45	NS
Forehead inclination	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.24	NS
Face breadth	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.28	0.054
Mandible breadth	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	2.76	NS
Morphological face height	104.22 (13.26)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	107.57 (12.33)	−0.99	NS
Upper face height	63.09 (6.41)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	66.08 (6.97)	−2.16	0.026
Lower face height	57.62 (10.34)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	62.38 (8.89)	−2.72	NS
Mandible height	38.49 (7.89)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	41.23 (7.23)	−1.29	NS
Upper face inclination	0.76 (7.31)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	4.38 (4.57)	−1.71	NS
Lower face inclination	−6.14 (8.58)	−9.16 (5.03)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	−3.29 (6.99)	−9.19 (4.85)	5.90	0.005
Intercanthal width	30.69 (3.26)	29.22 (3.34)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	31.80 (3.21)	29.03 (3.04)	2.77	<0.001
Biocular width	87.35 (7.84)	84.03 (8.54)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	88.58 (5.95)	83.58 (7.05)	5.00	0.001
Nose breadth	34.08 (4.08)	33.39 (4.32)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	NS	34.98 (4.00)	33.46 (3.68)	1.53	NS
Nasal tip protrusion	19.90 (3.97)	18.03 (3.64)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20.51 (3.51)	18.52 (3.13)	1.99	0.034
Nose height	46.60 (5.26)	46.54 (7.28)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	46.92 (5.50)	45.19 (5.94)	1.73	NS
Nasofrontal angle	132.51 (10.20)	136.51 (8.80)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	129.90 (8.10)	136.20 (9.21)	−6.30	0.033
Nasolabial angle	102.39 (13.15)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	111.81 (12.11)	−9.81	0.015
Nasal bridge inclination	146.78 (6.20)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	146.45 (5.35)	−2.30	0.042
Upper lip height	16.33 (3.01)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	20.89 (2.78)	−3.93	<0.001
Lower lip height	14.30 (3.07)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	16.19 (2.71)	−1.63	0.003
Lateral lip height (left)	13.45 (2.03)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	15.46 (2.29)	−1.88	0.002
Ear length (left)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.27	NS
Forehead-supraorbital index	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	−2.50	NS
Forehead-face height index	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	0.26	NS
Facial index	83.37 (7.56)	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	87.84 (5.89)	−3.69	0.007
Mandible-face width index	88.52 (4.17)	[illegible]	[illegible]	[illegible]	88.04 (4.36)	86.45 (3.43)	[illegible]	[illegible]	[illegible]	89.72 (3.25)	−0.73	NS
Upper facial index	50.56 (3.85)	[illegible]	[illegible]	[illegible]	50.65 (4.44)	53.66 (4.86)	[illegible]	[illegible]	[illegible]	54.02 (3.74)	−3.54	0.001
Intercanthal index	35.18 (2.66)	[illegible]	[illegible]	NS	34.43 (2.52)	34.86 (2.18)	[illegible]	[illegible]	[illegible]	34.74 (2.32)	1.15	NS
Nasal index	73.55 (8.32)	[illegible]	[illegible]	NS	71.84 (6.54)	70.14 (6.64)	1.71	[illegible]	[illegible]	74.76 (8.80)	0.43	NS
Nose-face width index	27.28 (2.27)	[illegible]	[illegible]	NS	26.93 (2.50)	27.03 (2.03)	−0.10	[illegible]	[illegible]	27.36 (2.02)	0.26	NS
Nose-face height index	44.99 (4.21)	[illegible]	1.52	NS	45.77 (3.69)	44.93 (4.35)	0.84	[illegible]	44.26 (4.61)	42.08 (3.87)	2.17	NS

Prepare and Practice (and Revise)

- Assume a limited attention span
- Anticipate killer questions
- Be prepared to back up product-market fit through effective customer discovery
  - Evidence that your discovery has value in a specific market at a specific timepoint (more on this coming up…)

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

Networking

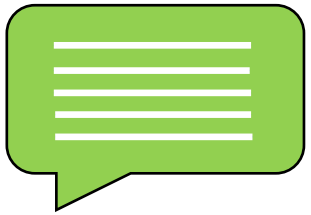
- Faculty within your department
- Faculty from other departments
- Academic conferences

Growth & Value

- Funding opportunities
- Interest from investor

Effectively communicating your research creates opportunities to enhance its impact.

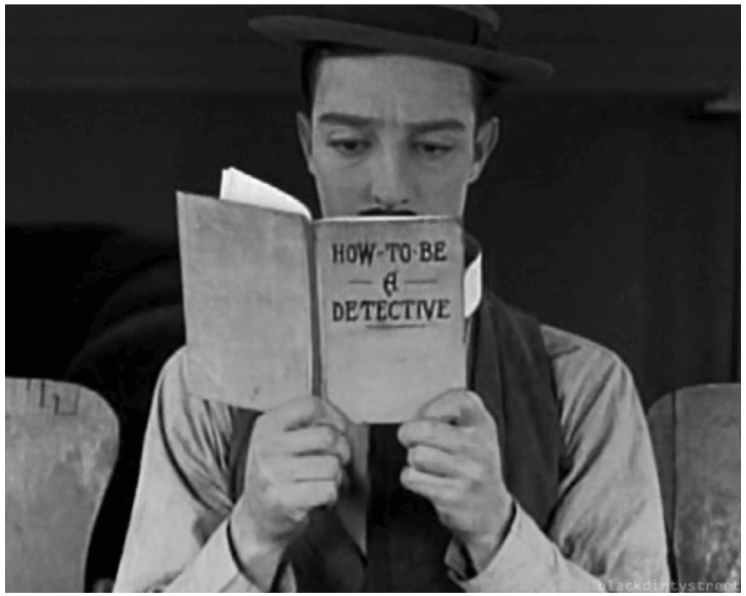
Customer Discovery



What Is Customer Discovery?

A few things it is **not**:

- Asking people to design your product
- Validating your assumptions only
- Pitching or selling



Be a detective: look for clues and patterns to gain insight.

Get The Best Insight

- Talk to people and observe real behavior
- Seeing behavior that validates the need for your technology is very useful
  - Tried different solutions?
  - Big enough priority for people to seek solution?

Get The Right Information

- Your product is not for “everyone”
- Do not ask:
  - Would you buy this?
  - Do you like this idea?

- Focus on sharing stories
- Listening is more important than talking
- Ask for referrals

Customer Discovery Mistakes

- Using only secondary research
  - Information may be outdated or not directly relevant
  - Online data is available to everyone, no true competitive edge
- Surveying only the people you know
  - May not be your target customer, networking is crucial

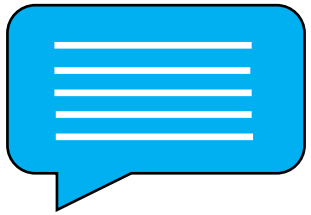
“It’s the customer’s job to explain their behavior, goals, and challenges. It’s the product designer’s job to come up with the best solution.”

Talking to Humans

Goal: Obtain QUALITATIVE information from potential users, buyers, and competitors that you can apply to maximize the potential value of your invention

What do you like or dislike about current products or services on the market?

Your Research & Our Office



We believe innovation from academic research can make a positive difference in the world.

Our purpose is to help OU researchers transform ideas into tangible impact for the betterment of society.

Share Your Expertise

- Know the current research landscape
  - Who are your competitors?
  - How do you differentiate your technology?
  - Is there a clear path to market for your technology?
- Be candid about research plans for development
  - Funding? What further development is needed?

We Can Help Protect Intellectual Property

- Sharing too much too early can hurt patent rights
- Always seek early advice before public disclosures like conference presentations and manuscript publishing
- *See Chris Corbett's "PATENTS 101" on our website*

We Can Help Network With Industry

- Marketing Abstract
  - Audience: BD Representative
  - Focus: Value proposition

THE UNIVERSITY OF OKLAHOMA
OTD OFFICE OF TECHNOLOGY DEVELOPMENT

MRSA Treatment with β-lactams

Tech ID: 15NOR033

Technology Type/Class: Therapeutic/Drug Repurposing and Rescue
Mechanism/Modality: Inhibition of Wall Teichoic Acid Functionality
Application: MRSA, Antibiotics, Superbugs

Technology Background

Methicillin-resistant *Staphylococcus aureus* (MRSA) poses a serious threat to human health. Re-sensitization of MRSA to traditional antibiotic therapies may be preferred to the long-term and high cost of bringing new antibiotics to market. The β-lactam class of antibiotics bind to the active site of penicillin binding protein (PBP), thereby preventing bacterial cell wall crosslinks and facilitating death through cellular rupture. However, MRSA produces an alternative, PBP2a, that β-lactam antibiotics are unable to disable, thus essential cell-wall crosslinking is maintained. Compounds that disable PBP2a remain elusive. But targeting the PBP2a co-factor, wall teichoic acid (WTA), restores anti-MRSA properties to β-lactam antibiotics.

Technology Summary

This technology is based on a novel composition comprising β-lactam antibiotics and branched poly(ethylenimine) (BPEI) having efficacy against MRSA. *In vitro* and *in vivo* antimicrobial synergy of BPEI with common antibiotics (e.g., oxacillin, ampicillin, amoxicillin, meropenem) is shown against CA-MRSA and HA-MRSA strains. Examples are: MRSA USA300, MRSA 252, MRSA ST239, and MRSA USA 400. Results suggest that BPEI interrupts function of cell wall teichoic acid and PBP2a, thereby disabling the resistance mechanism. BPEI cytotoxicity has been assessed in murine fibroblast cells and human primary kidney epithelial cells. The *in vivo* half-life has been measured using a validated bioanalytical method.

In vitro study (Foxley et al., 2016) has demonstrated:

- BPEI binds to the cell wall where it can interrupt the function of teichoic acids, inactivate PBP2a, and restore β-lactam antibiotic activity.
- BPEI, administered in concert with ampicillin, resensitizes MRSA to ampicillin with a MIC of 1 µg/mL (superior to that of vancomycin MIC of 3.7 µg/mL).

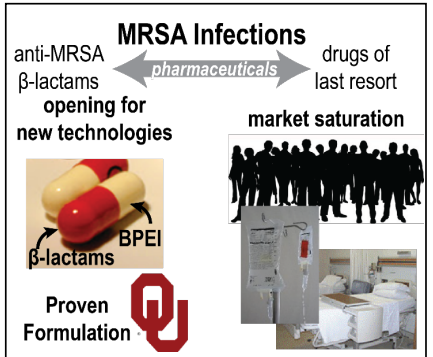
In vivo study (unpublished) has demonstrated:

- 96% reduction in the MRSA bacterial load at dose of 2 mg/kg. Further dose testing is underway to achieve 99-99.9% reduction.

Differentiation Factor

Allows FDA-approved β-lactam antibiotics to regain their efficacy against MRSA

Development Stage: Research
IP Status: PCT/US2016/037799
Lead Inventor: Charles V. Rice, PhD



This technology brings dozens of off-patent antibiotics back under IP protection to gain a market advantage.

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

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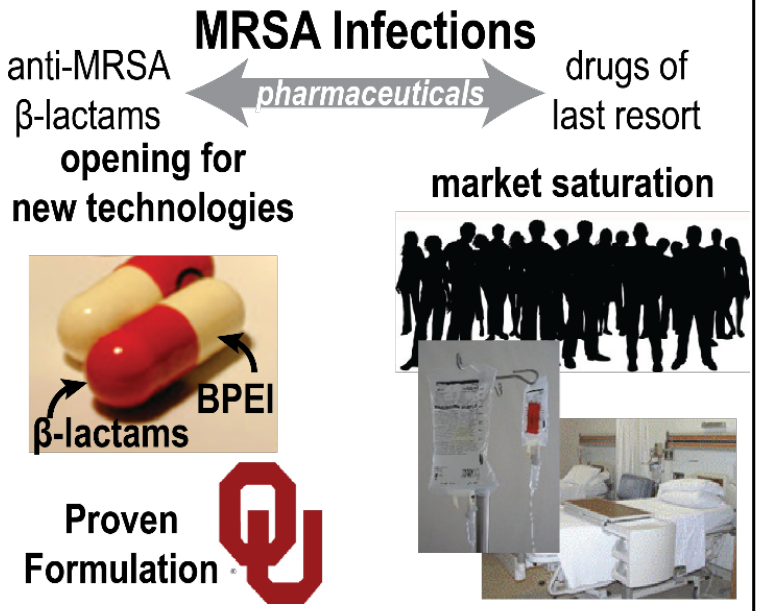

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Take-Home Messages

- Be prepared with a clear, concise, and compelling explanation of your research that is tailored to your audience

- Ask the right questions to glean qualitative insight into the market for your invention

- Work with OTD to understand how to protect intellectual property while talking about your research