

NIEHS Virtual Technology Fair | October 28, 2024

Stemloop



Khalid K. Alam, Ph.D. | Founder & CEO | khalid@stemloop.com

The world's leading experts in synthetic biology



A super team of serial scientific innovators and entrepreneurs



Khalid K. Alam, PhD
2x Cofounder, CEO



Mike Jewett, PhD
5x Cofounder, 1x Exit



Julius Lucks, PhD
Cofounder



R Baer, PhD
Principal Scientist



Megan Kill
Sr. Research Associate



Monica Patiño
Sr. Research Associate



Dick Co, PhD
Advisor



Sonia Kim, PhD
Pre-seed Investor

N.XT Fund



Jill Enos
Pre-seed Investor



John Cumbers, PhD
Advisor



Andy Ellington, PhD
Scientific Advisor



Jim Collins, PhD
Scientific Advisor



Accessing molecular data is hard



Limiting our ability to solve large-scale planetary and human health challenges

\$250k – \$1M per instrument

before installation and operational costs

Requires expert FTEs

to operate, interpret, and maintain

Limited throughput

single sample at a time

**Up to \$1k
per sample**

**Days-to-weeks
turnaround time**

Stemloop biosensors make it easy



10X cheaper and **100X** faster for **1000X** the data

Scale up screening

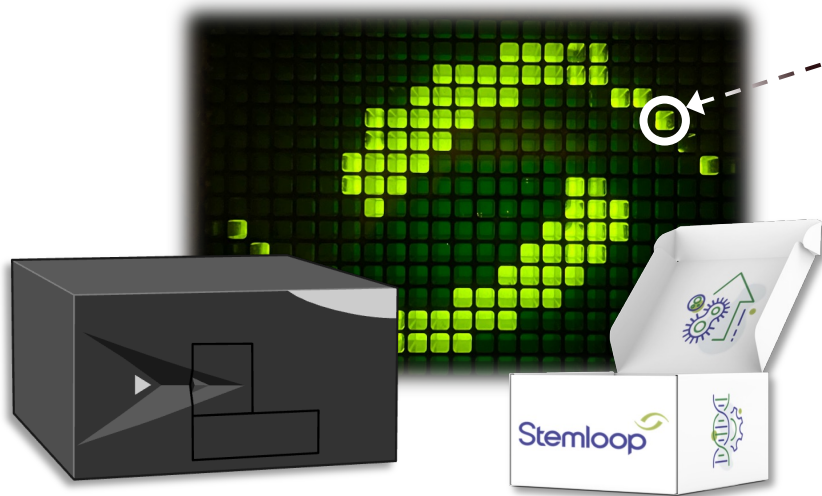
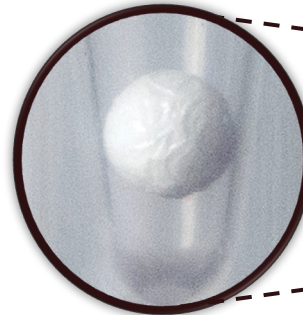


Plate-based format for **drop-in compatibility** with existing R&D workflows and **1536x the data**

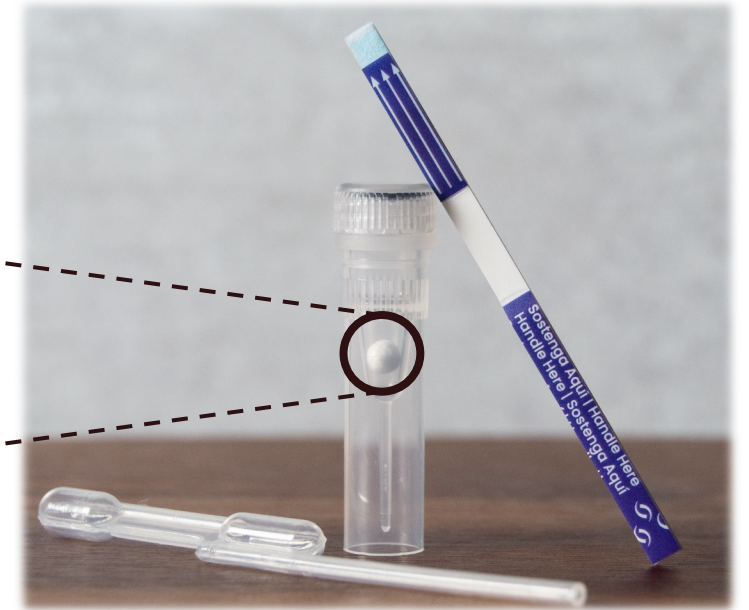
pennies-per-test
biochemical COGs



patented shelf-stable formats

for storage and distribution
without cold chain

Scale out testing



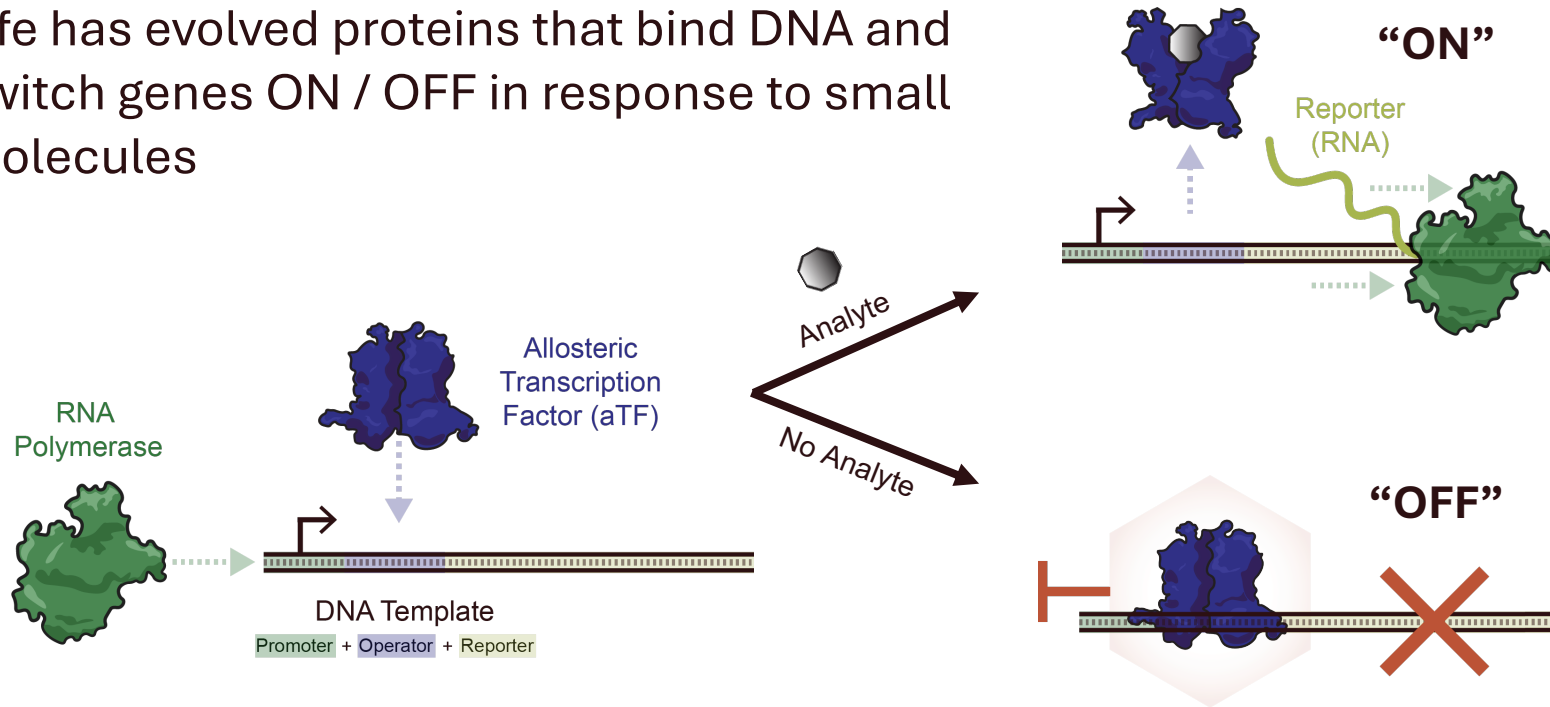
Patented lateral flow format for
equipment-free point-of-use testing

We unlock nature's molecular sensors

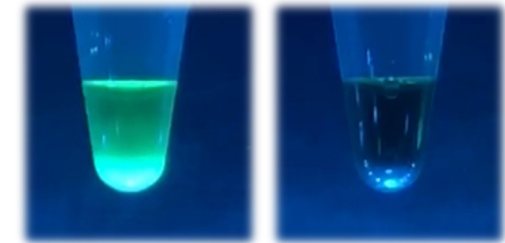


Biology is the best analytical chemist

Life has evolved proteins that bind DNA and switch genes ON / OFF in response to small molecules



Rapid visible results



ON

OFF

Lateral flow format



We **discover**, **develop**, and **deploy** these sensors with “cell-free” synthetic biology to enable measurement of small molecules at scale



uSenseTM for Lead

We're #1

States and cities ranked by number of lead service lines

1. **Illinois**
2. Ohio
3. Michigan
4. New York
5. New Jersey
6. Missouri
7. Wisconsin
8. Indiana
9. Texas
10. Minnesota

1. **Chicago**
2. Cleveland
3. New York
4. Detroit
5. Milwaukee
6. Denver
7. Saint Louis
8. Indianapolis
9. Minneapolis
10. Cincinnati



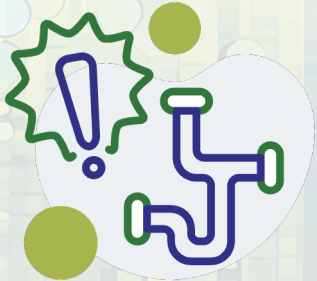
186M

Americans exposed to lead in drinking water



>3000

US communities with lead levels higher than Flint, Michigan



10M

US households with lead service lines



400k

US schools and childcares with lead service lines

**Our moment
to act is now**

\$15B

Bipartisan Infrastructure Law
funding to get the lead out

EPA

Lead and Copper Rule
Improvements, Oct. '24

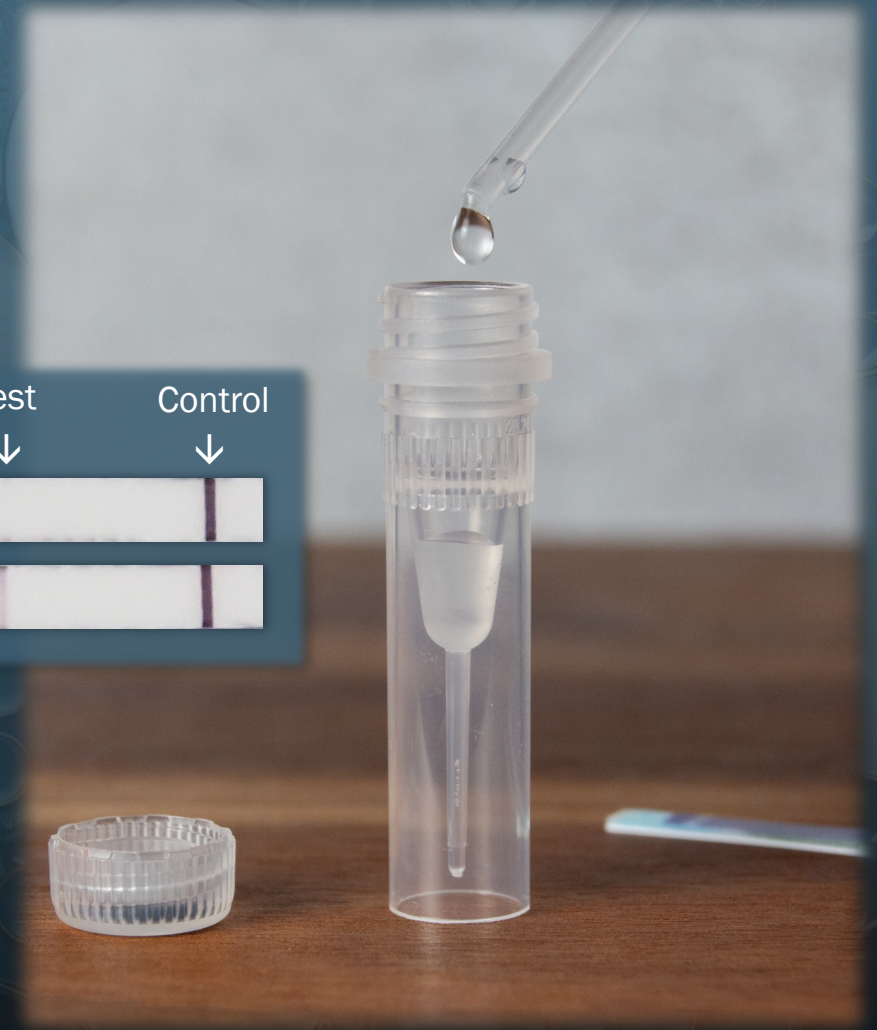
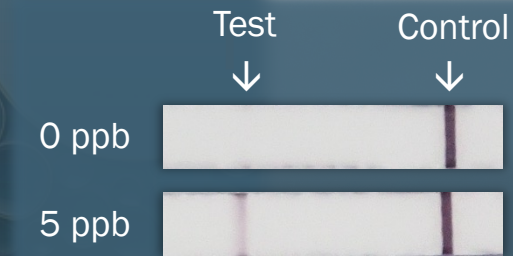
uSenseTM for Lead

- Easy-to-use
- Rapid results
- Inexpensive



uSenseTM for Lead

- 5 ppb (EPA limit 15 ppb)
- Results in minutes
- \$25 / test



“Data is severely lacking”

Director of Water Quality Surveillance

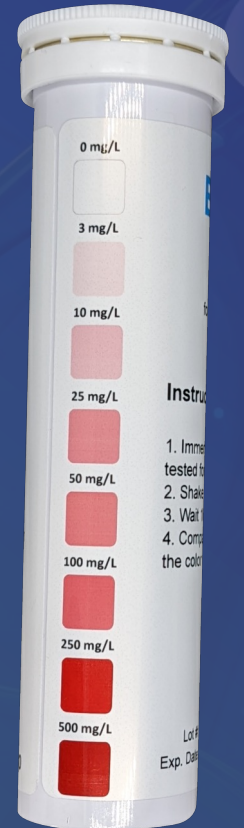
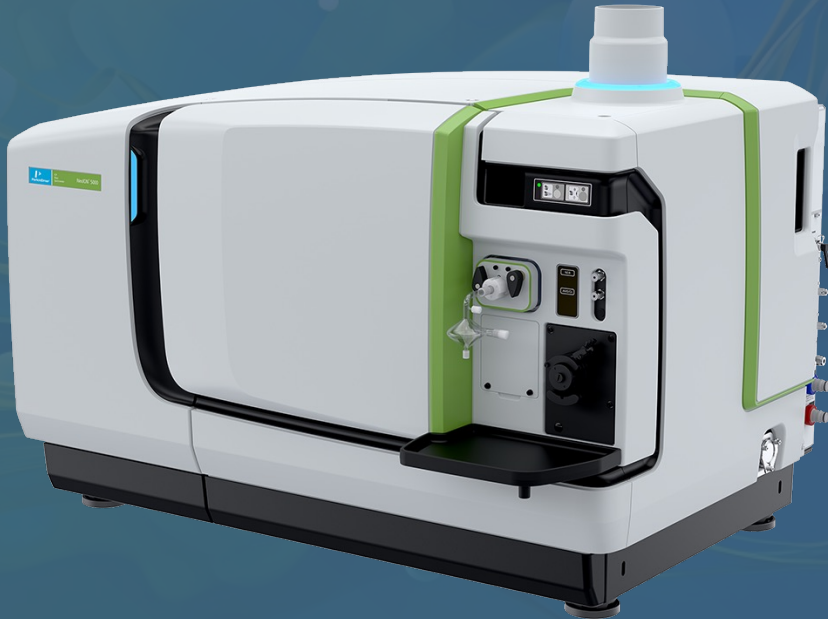
“It’s an astronomical problem”

Water Works Assistant Director

“You can’t machine learn your way out of it”

Data Scientist, Engineering Firm

Existing approaches don't meet customer needs



\$200M+ opportunity in the US alone

Informed by deep ecosystem research and >300 interviews

\$8.6B
7% CAGR

Water Quality
Monitoring Market

- Engineering Firms
- Water Treatment
- Schools/Childcare
- Consumer

Source: BCC Research

Commercialization ready



- ✓ Exclusive global license
- ✓ 3 patents pending
- ✓ Pilot scale manufacturing
- ✓ Early pilots complete
- ✓ uSense web app

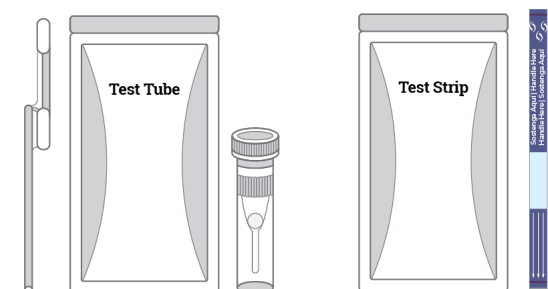


Testing with uSense™ for Lead

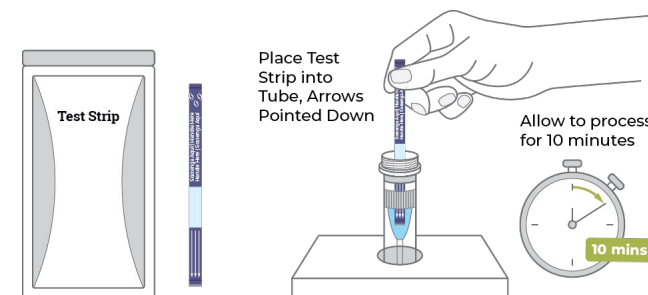
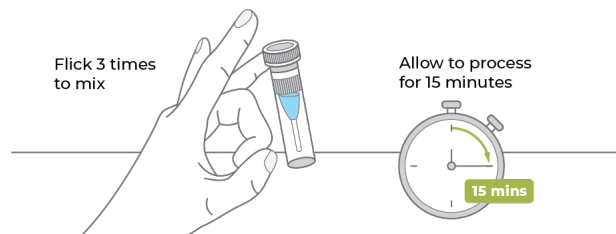
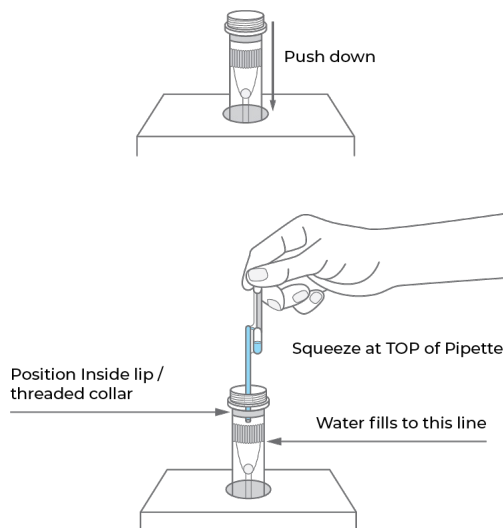
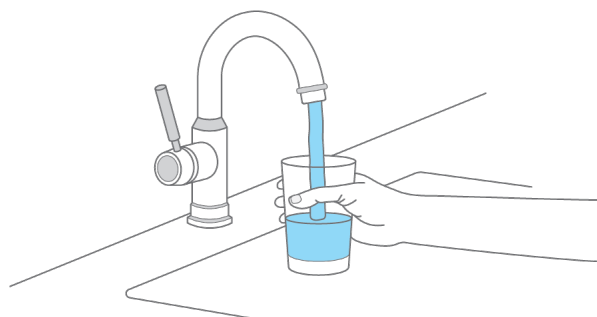


2. Test sample

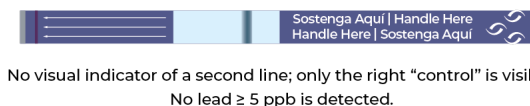
3. Read result



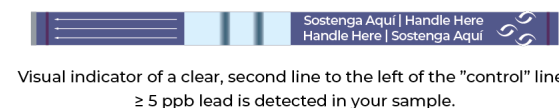
1. Collect sample



Lead Not Detected (Negative)



Lead Detected (Positive)



Share results with uSense™ for Lead's web application



10:20

Stemloop

Log in

Upload testing results

Street address*

Street address

Provide address unit (Optional)

Suite, unit, room #

Number of test strips*

1

Project code (Optional)

Project code

Sample name or ID (Optional)

Sample name or ID

Type of test result*

app.stemloop.com

10:21

Sample name or ID

Type of test result*

Lead not detected (control line is visible)

Lead detected (both lines are visible)

Invalid test (control line is not visible)

Upload Image

Add results for a different location

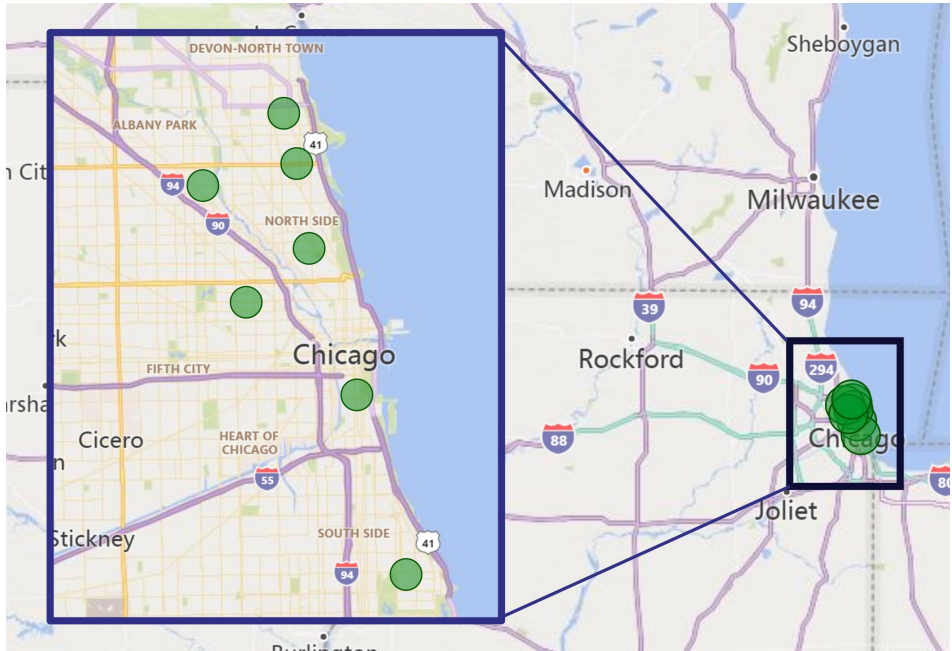
Email*

Provide your email address

By clicking submit, you are confirming that you have read and agree with the [Privacy Policy](#)

Log in

app.stemloop.com

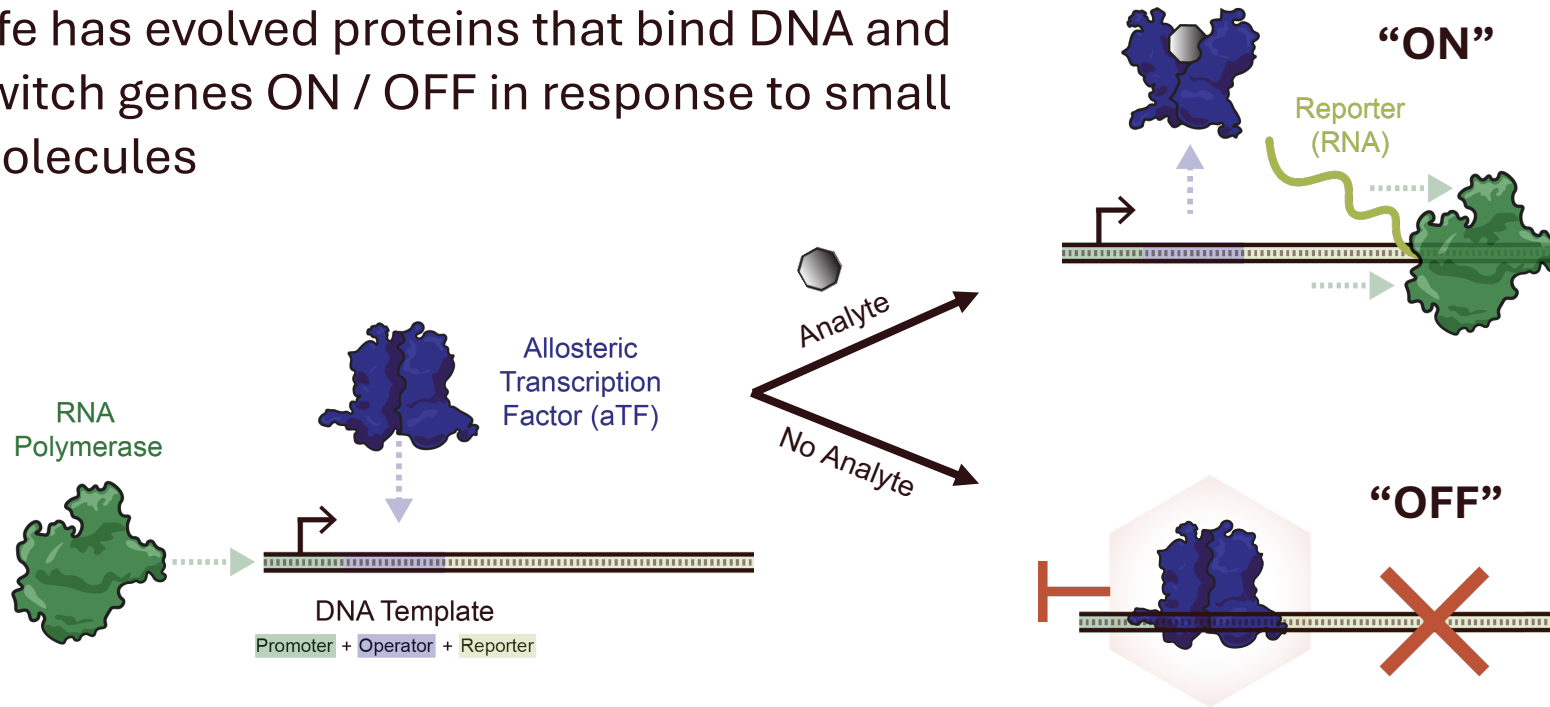


We unlock nature's molecular sensors



Biology is the best analytical chemist

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uSense™ for Lead lateral flow format



ON



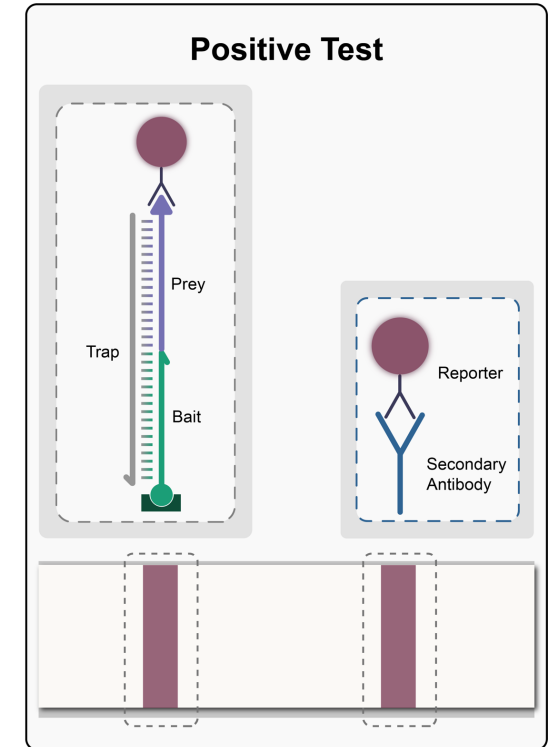
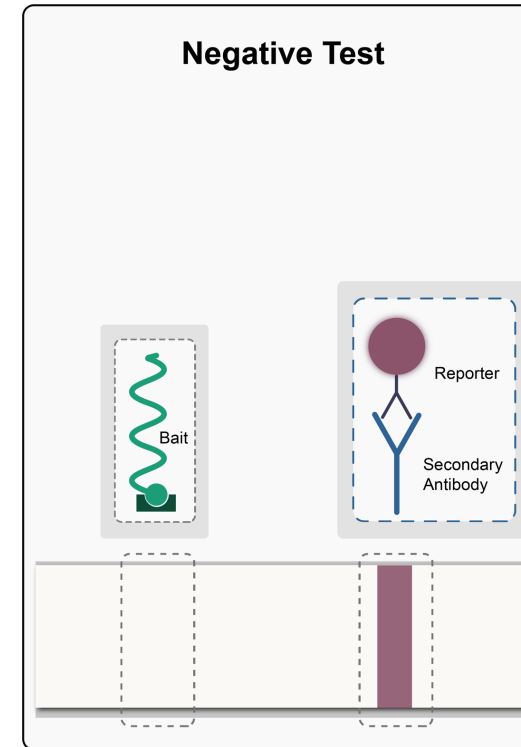
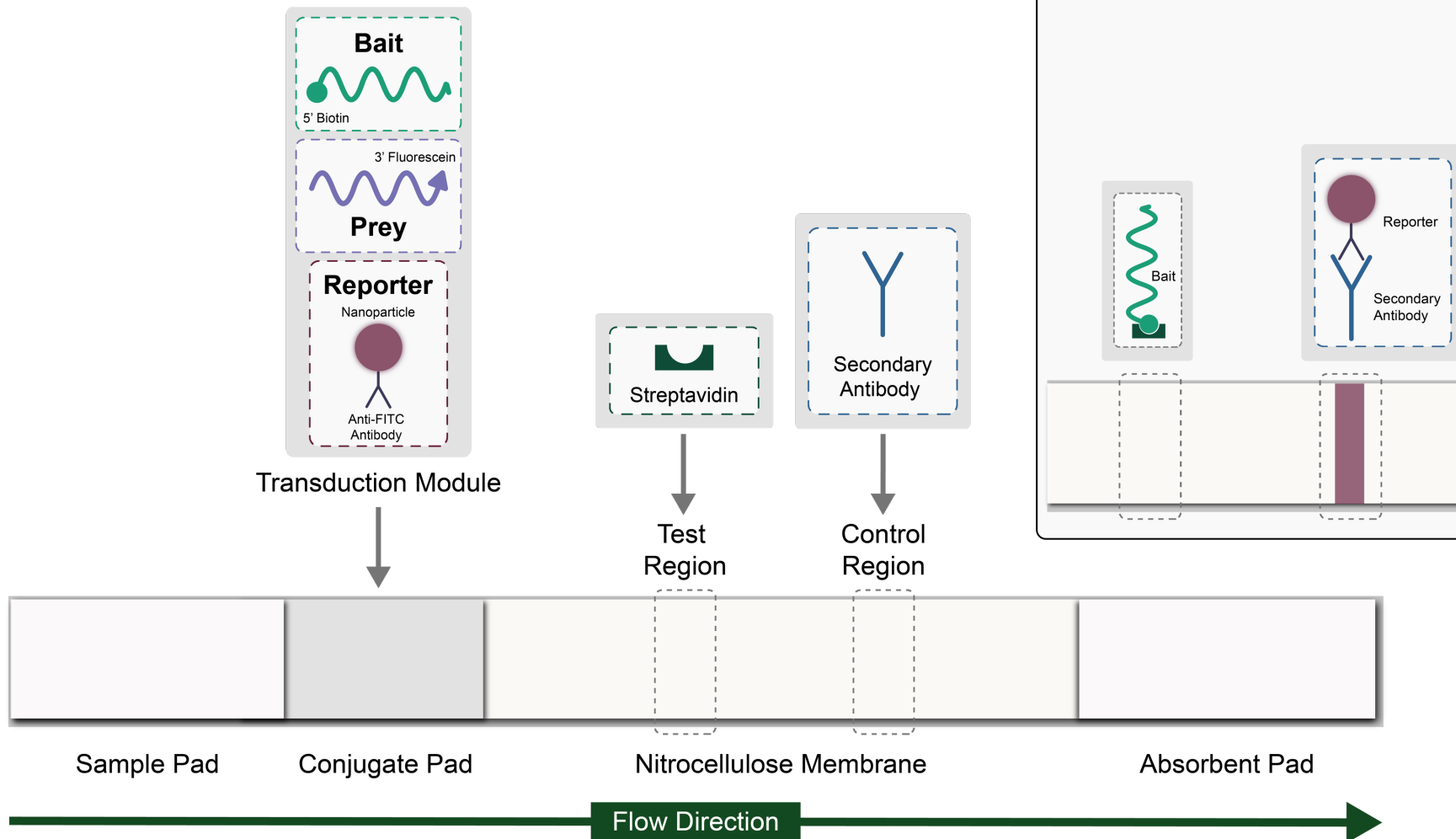
OFF

We **discover**, **develop**, and **deploy** these sensors with “cell-free” synthetic biology to enable measurement of small molecules at scale

Patent pending lateral flow technology



Enabling easy, equipment-free testing



Actively seeking partners



- Pilot testing
- Co-development
- Licensing
- Distribution

info@stemloop.com



Thank You

Khalid K. Alam, Ph.D.
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