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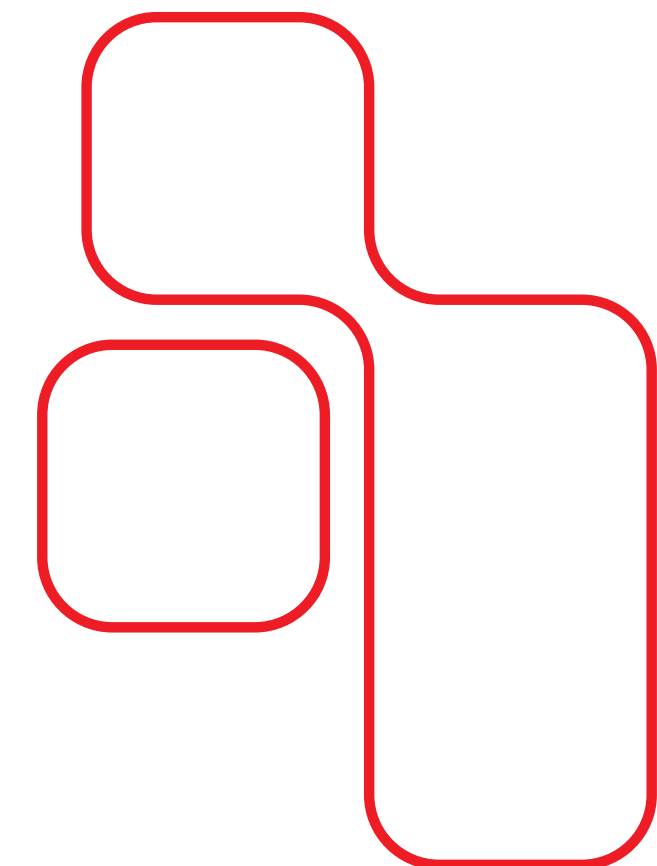
Match Maker Dairy and Poultry Health Solutions

Merify 4T: On-Farm Mastitis Diagnosis with Treatment-Guiding Insight

Lead Inventor: Mr. Roshan Naik

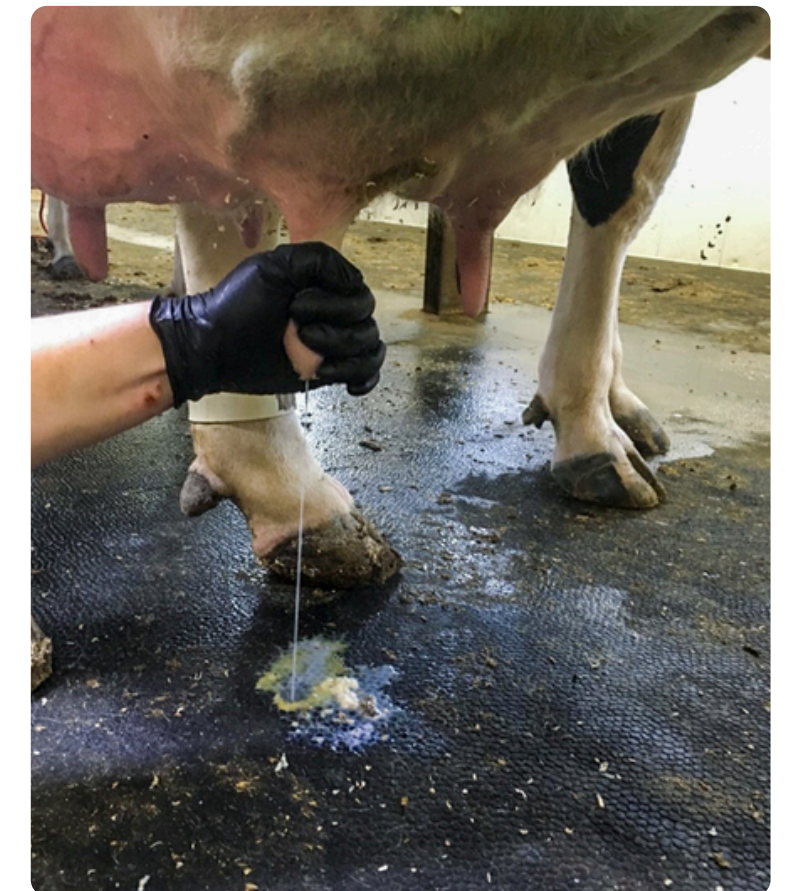
Organization: Diagopreutic Pvt Ltd

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Problem: Mastitis in Dairy animals

- Mastitis is one of the most prevalent and costly diseases in dairy cattle worldwide, affecting both milk quality and animal health.
- The primary cause is bacterial intra-mammary infection.
- Infection leads to inflammation of the mammary gland, causing changes in milk composition, reduced milk yield, and increased somatic cell count (SCC).



Disease characteristics (key challenge)

- Silent disease (Subclinical mastitis) → No visible symptoms
- Bacterial infection with multiple pathogen types (gram +/-)
- Time-sensitive progression → Early detection = better recovery



Scale and Importance of the problem

High disease prevalence

- High prevalence, especially subclinical mastitis (SCM) → Affects ~30–50% of animals (~41% in India)

Significant economic losses

- One of the highest economic burdens in dairy → Global losses: ~\$20–30B annually
- Direct impact on farmer income → Reduced milk yield, discarded milk, treatment costs, culling



Existing Methods for diagnosing Subclinical Mastitis

Subclinical mastitis is all about picking up hidden infection before visible symptoms appear.

Traditional Cow-Side Methods

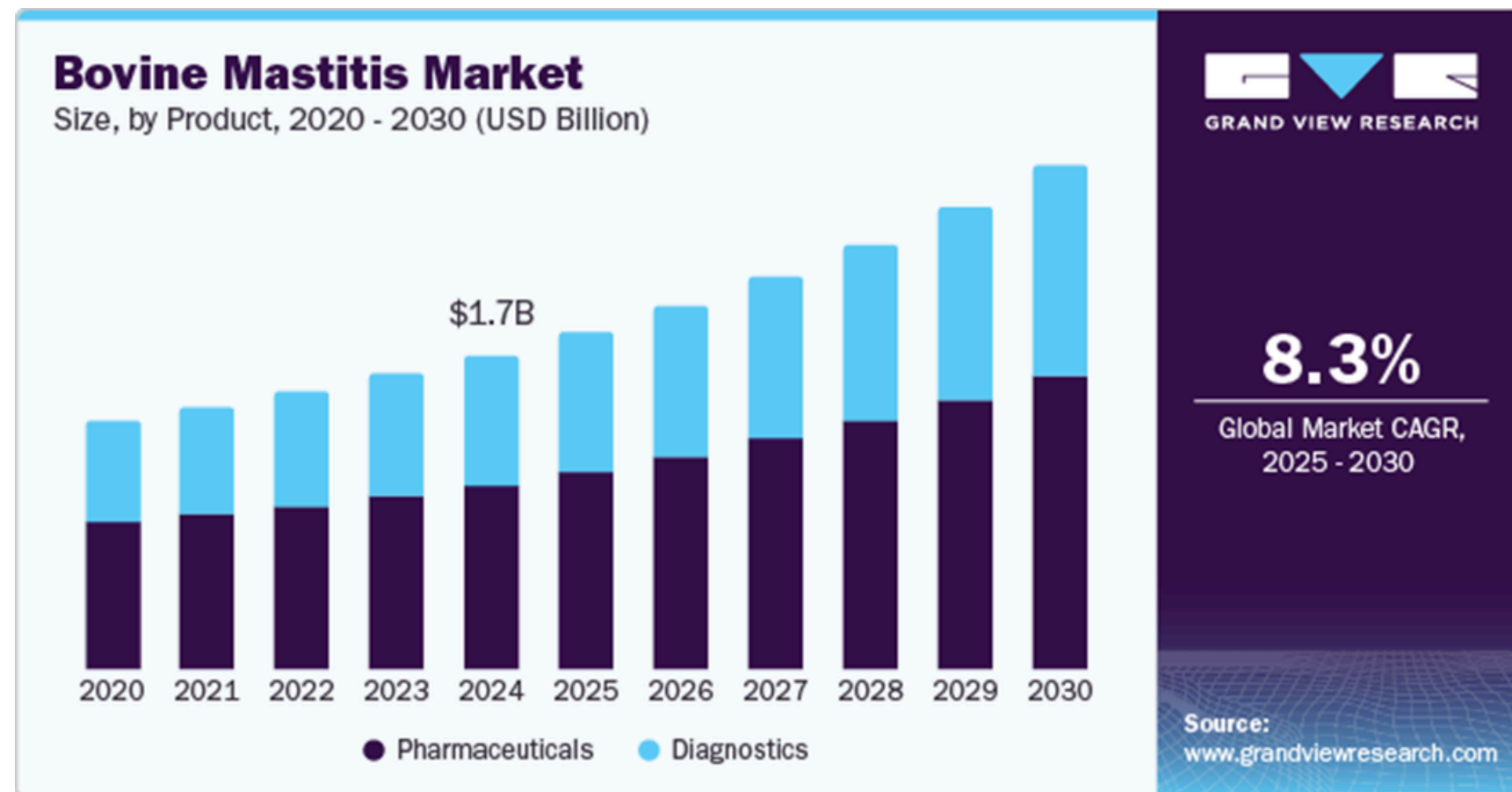
- California Mastitis Test (CMT): quick, on field, limit of detection ~200,000 SCC
- Electrical Conductivity / Sensor-based Tests: quick, on field, limit of detection < ~200,000 SCC
- Visual/Clinical Examination

Laboratory based tests

- Somatic Cell Count (SCC): Lab based, takes 12- 24 hrs, no limit of detection
- Bacteriological Culture: Lab based, takes 2-3 days, no limit of detection
- PCR / Molecular Diagnostics: Lab based, takes 12- 24 hrs, no limit of detection

Market size and opportunity

Market size: The global bovine mastitis diagnostics market size was approximately USD 250–300 million in 2024 and is projected to reach USD 500 million by 2030. (Source: [Grandview Search](#))



Major players: Zoetis, Merck Animal Health, Thermo Fischer, Idexx Laboratories, Boehringer Ingelheim, DeLaval, Weizur India Pvt Ltd

Limitations of on-field solutions

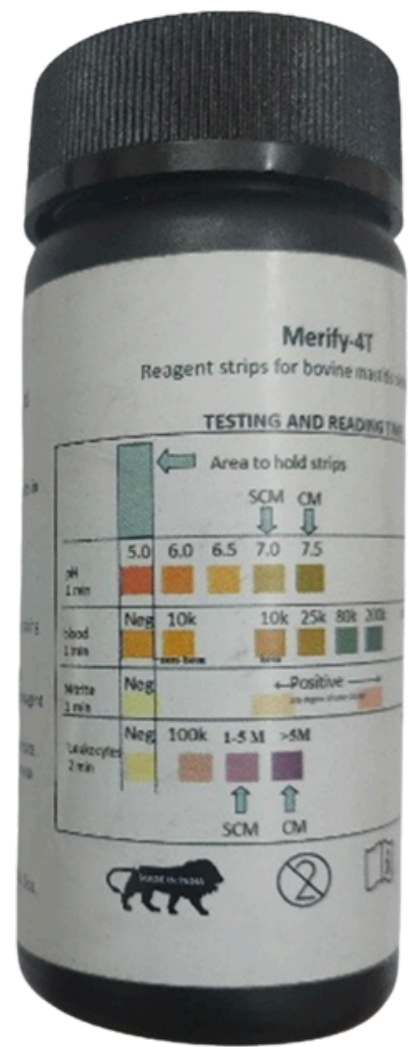
Why it matters?

- Treatment depends on pathogen type—gram-negative infections are often self-limiting and may not require antibiotics
- Enables targeted therapy, reducing unnecessary antibiotic use
- Minimizes antibiotic residues in milk, ensuring food safety and compliance

Parameter	CMT (California Mastitis Test)	Draminski Mastitis Detector Q4
Cost per test	Low (₹20–30/test)	High (device ₹25,000–40,000)
Performance / accuracy	Qualitative detection of high somatic cell count. Detection limit 200,000	Detection limit < 200,000
Ease of use	Requires reagent mixing and visual interpretation	Requires device handling and calibration
Sensitivity	75 % (<u>approx 25% false negatives</u>)	~65% – 75% (<u>approx 25–35% false negatives</u>)
Pathogen identification	No	No

Unmet need: The dairy industry lacks a rapid, on-field diagnostic that not only detects mastitis early but also guides treatment decisions.

About the technology



Merify-4T

Product 1: Merify-4T

Test Strip Technology

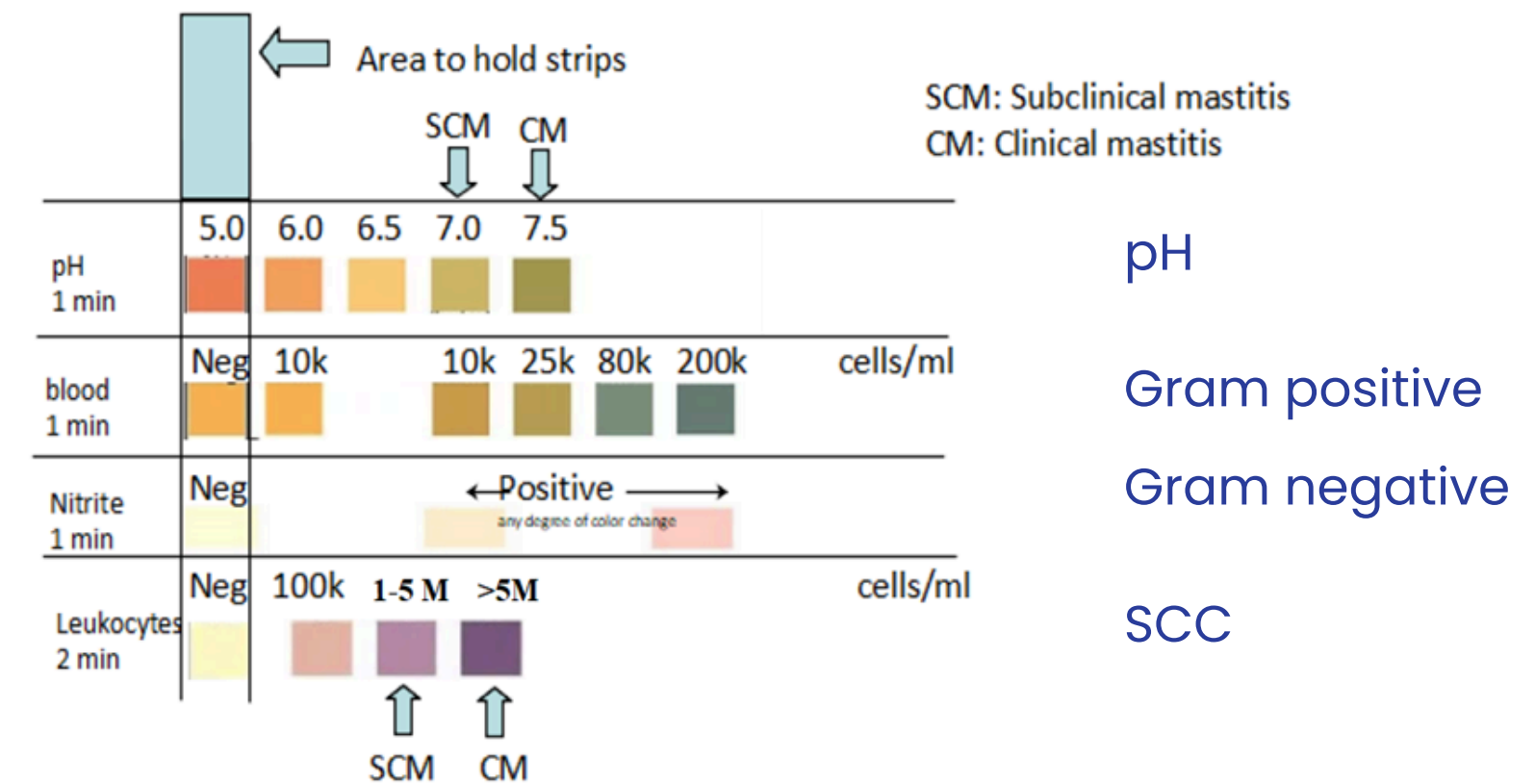
- 2-minute subclinical & clinical mastitis detection
- Color-based visual readout
- Detects gram-positive bacteria
- Detects gram-negative bacteria
- Simple before/ after use interpretation

Patent application: 202421099747

Test strip before use



Test strip after use



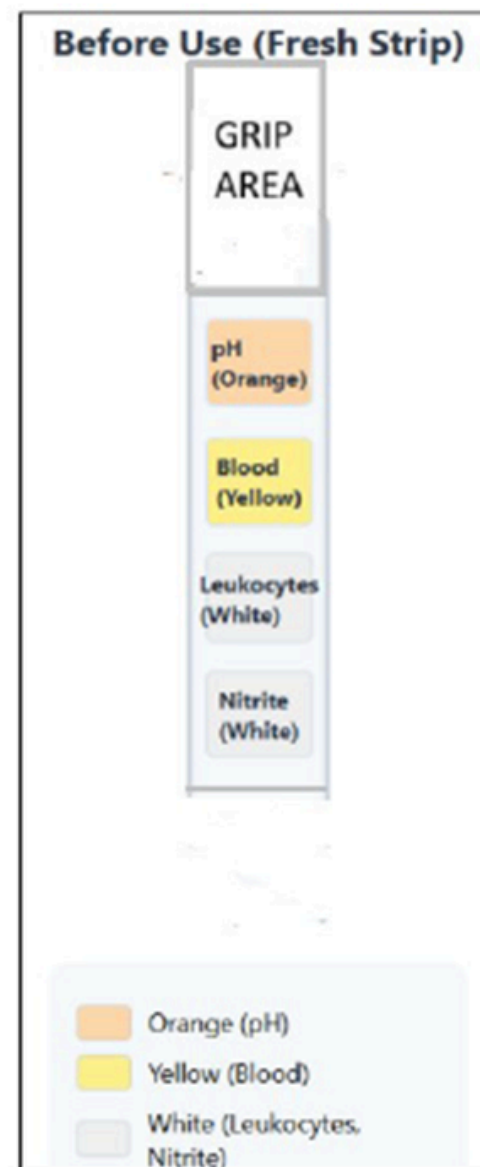
pH

Gram positive

Gram negative

SCC

How it will work?



Dip in fresh milk for 5 sec, blot off excess milk

Wait for 2 minutes

Merify-4T Strip



Compare colors: Check each test pad against the color chart.

Remember: Even ONE color change = POSITIVE SUBCLINICAL MASTITIS

Sensitivity ~83%

Specificity ~75%

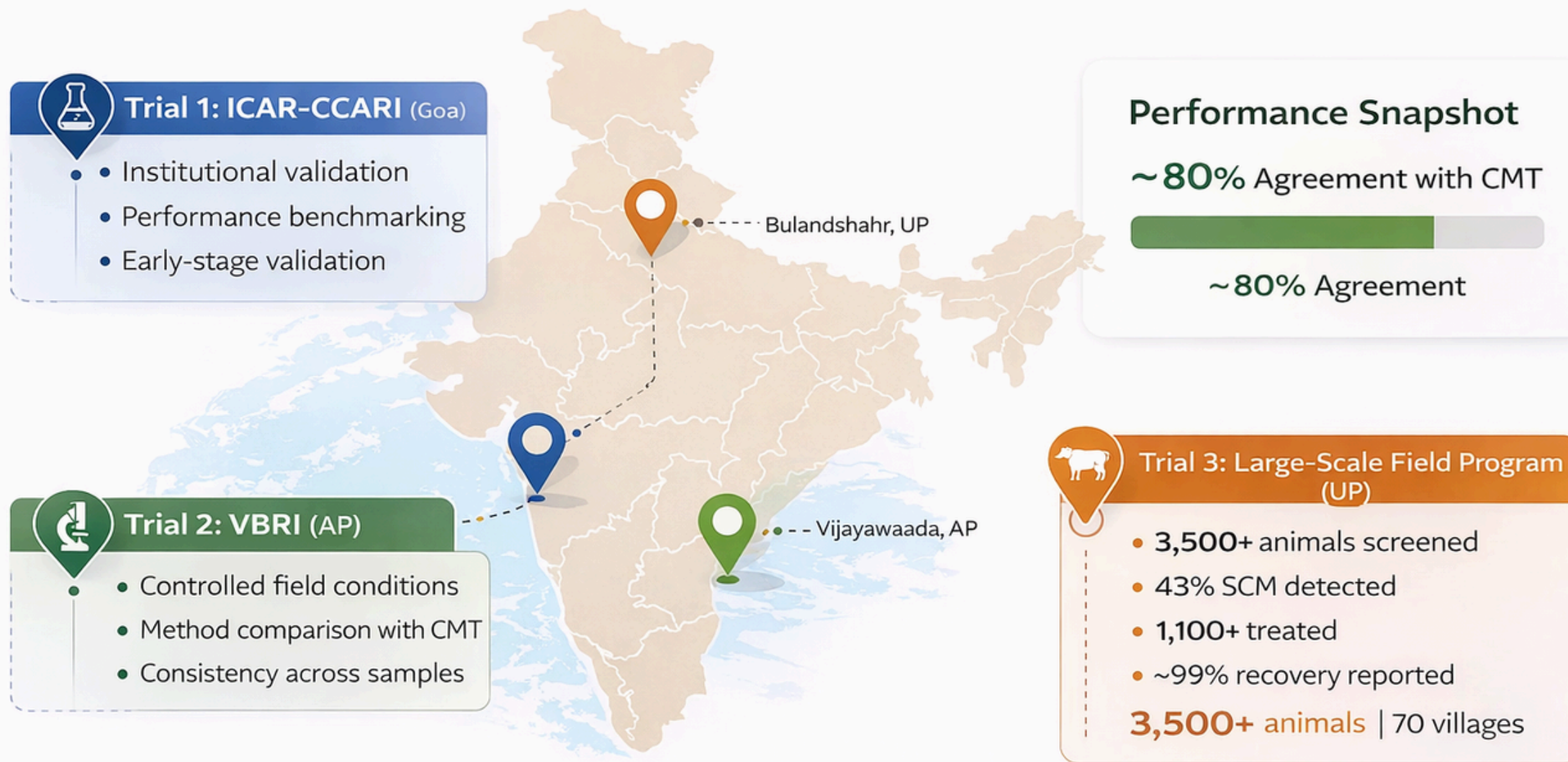
Accuracy ~80%

Benchmarked against CMT
Sensitivity similar to that of CMT

- Multiparametric strip with bromothymol blue indicator (narrow spectrum indicator centered around neutral pH, compared to litmus paper which gives a coarse acid/base reading.)
- Gram-positive: Hemolytic activity of gram-positive organisms, Hb reacts with peroxidase activity for color change.
- Gram-negative: Nitrite detection
- Somatic cell count: leukocyte esterase

Validation studies

Multi-Site Field Validation

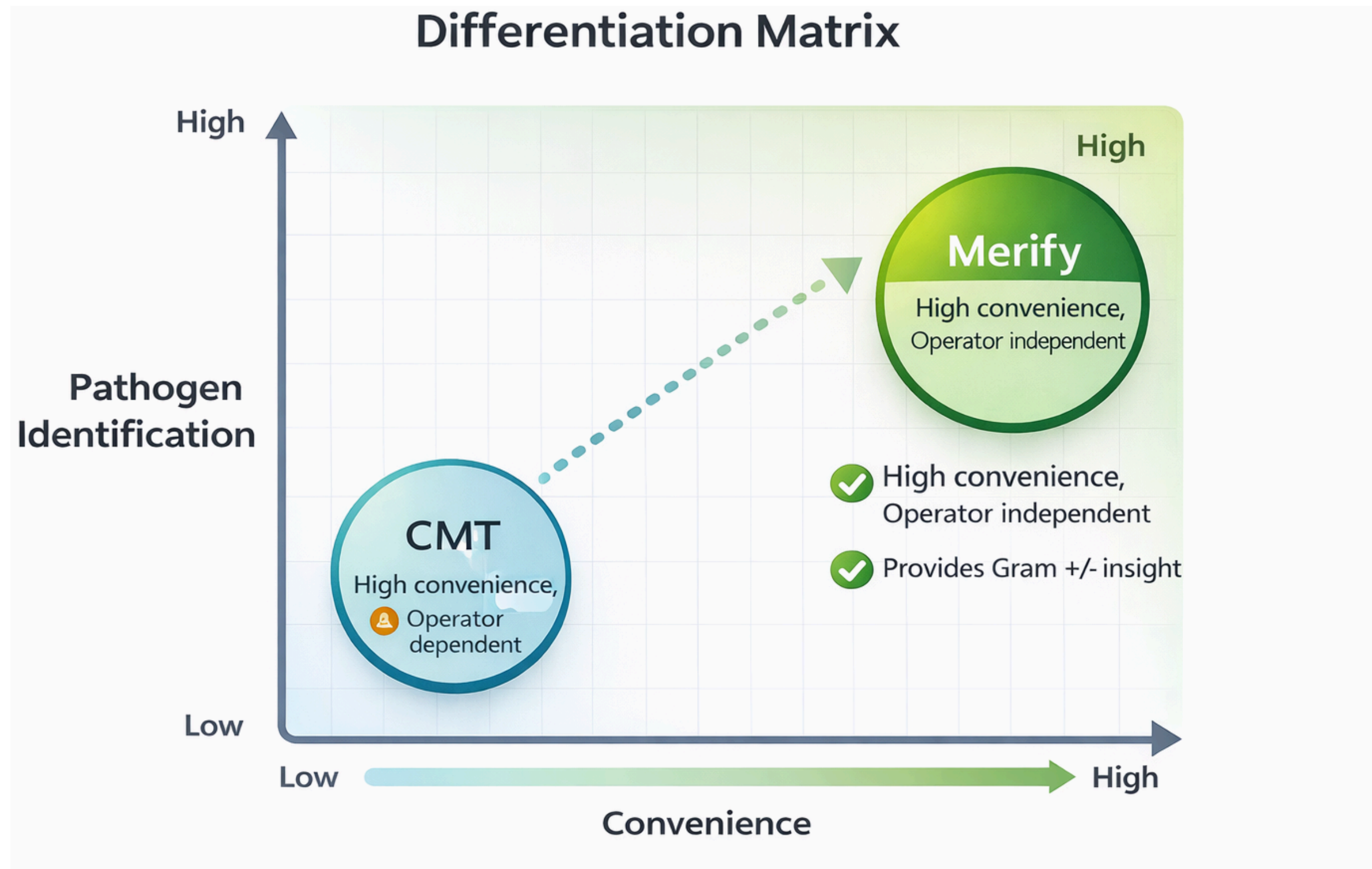


Validated across lab, controlled, and real-world settings—
demonstrating scalability and field readiness.

Value Proposition and Comparison

Parameter	CMT (California Mastitis Test)	Draminski Mastitis Detector Q4	Merify-4T
Type	Chemical strip test (SCC proxy)	Electronic conductivity device	Multiparametric colorimetric strip
Operator dependency	High (subjective)	Low	Low
Detection basis	Somatic cell count (inflammation)	Electrical conductivity	Multiple biomarkers (SCC + nitrite + enzyme)
Pathogen identification	None	None	Gram +/- indication
Actionability (treatment decision)	Low	Low	High (guides therapy choice)
Instrumentation required	No	Yes	No

Differentiation Matrix





Current status

Technology status:

- Status of the technology – TRL
- What scale it has been demonstrated at ?
- TRL 5 (Prototype tested in relevant environment)
- IP STATUS : Filed
- Priority date: 16/12/2024
- Coverage: IN
- Patent no: : 20241099747

Team & Organization

Lead Inventor / Researcher



Dr. Roshan Naik

Founder & CEO

- MSc Biotechnology, PhD Neurobiology
- 12 years academic R & D experience.
- 3+ years in entrepreneurial experience.
- Expertise in Biomarker discovery, microbiology.
- Life Time member of Indian Dairy Association

Key assets and strengths of the team:



Ms Swaroopa Naik

Co-Founder & Chief Design Officer

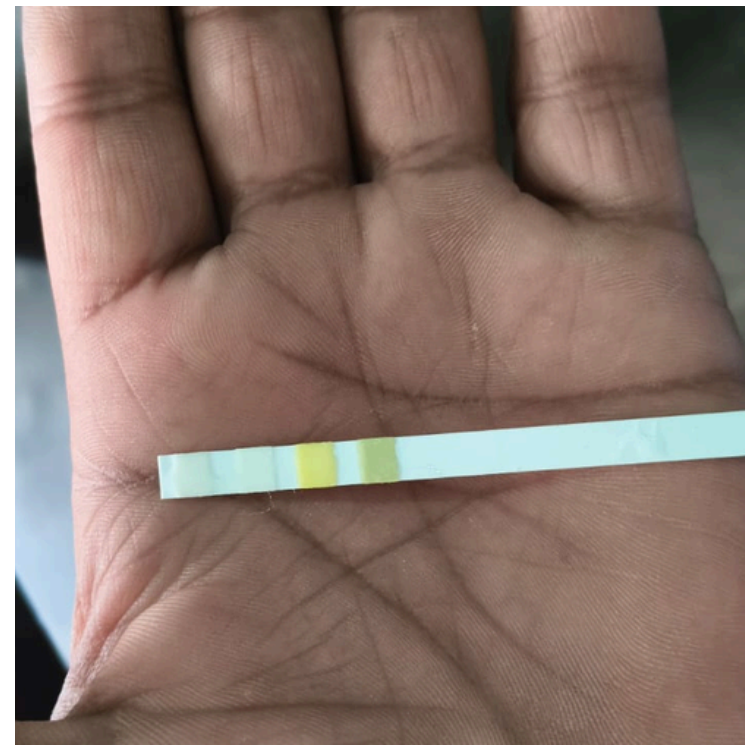
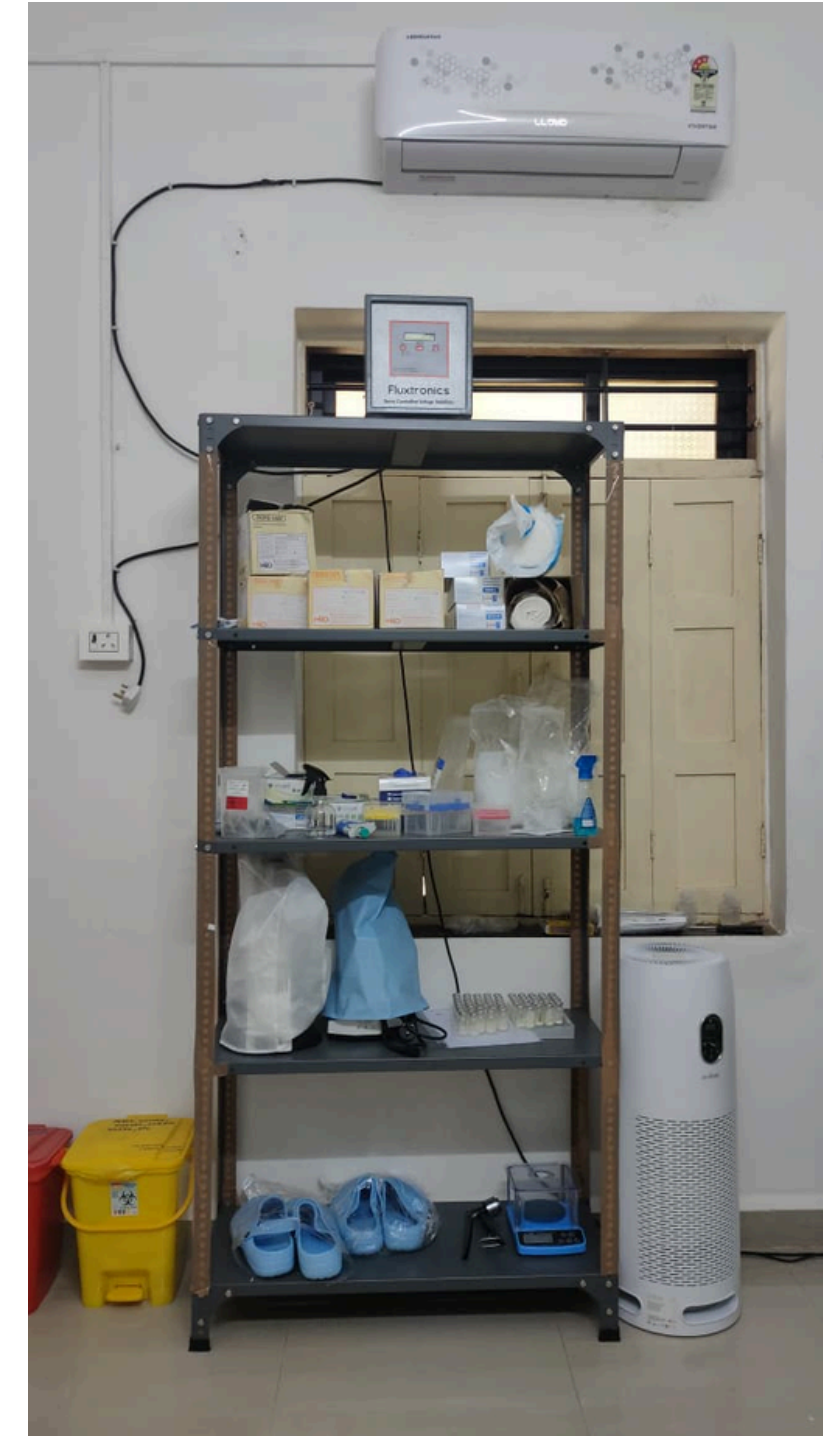
- MSc Biotechnology
- 12 years undergraduate teaching and research.
- 2+ years in entrepreneurial experience
- Expertise in microbial bioprospecting, Human resource management

Team Strength: 10

**Well Equipped : Facilities Details: LAF, incubator, analytical balance
Previous /Ongoing Industry Projects : 5000+ farmer outreach in
Bulandshahr in 6 months. 1000+ treated cases.**

Paravets: Bitesh Kumar and. Nitin Kumar in
Khurja, UP (combined 15+ years experience
in veterinary segement.

Facility Photographs





Next Steps

Product Validation and Scale-up :

- Benchmarking against gold-standard bacterial culture methods
- Generating robust performance data on sensitivity and specificity
- Conducting expanded, multi-location validation studies
- We are open to undertaking further validation studies with the right funding and partners

Seeking

Partnerships

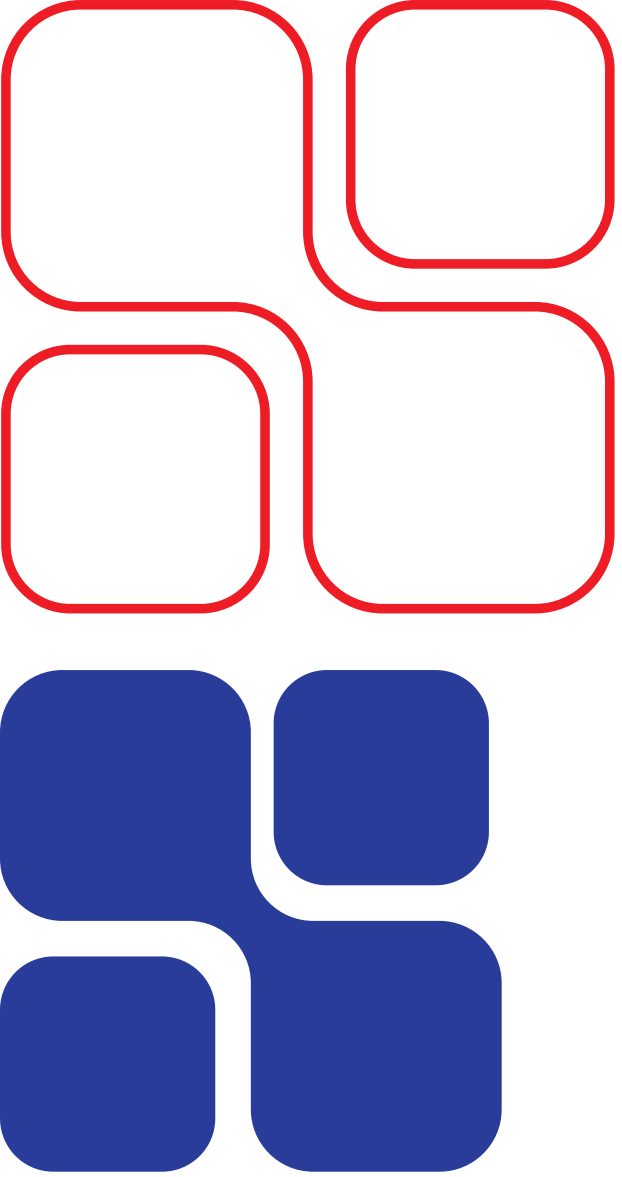
To support product validation

Technology Commercialization

Technology licensing and advancing the technology to market

Who we are looking for?

Animal Health Diagnostics companies



**For more information, contact:
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