ReaSLR CSM Kit - Introduction

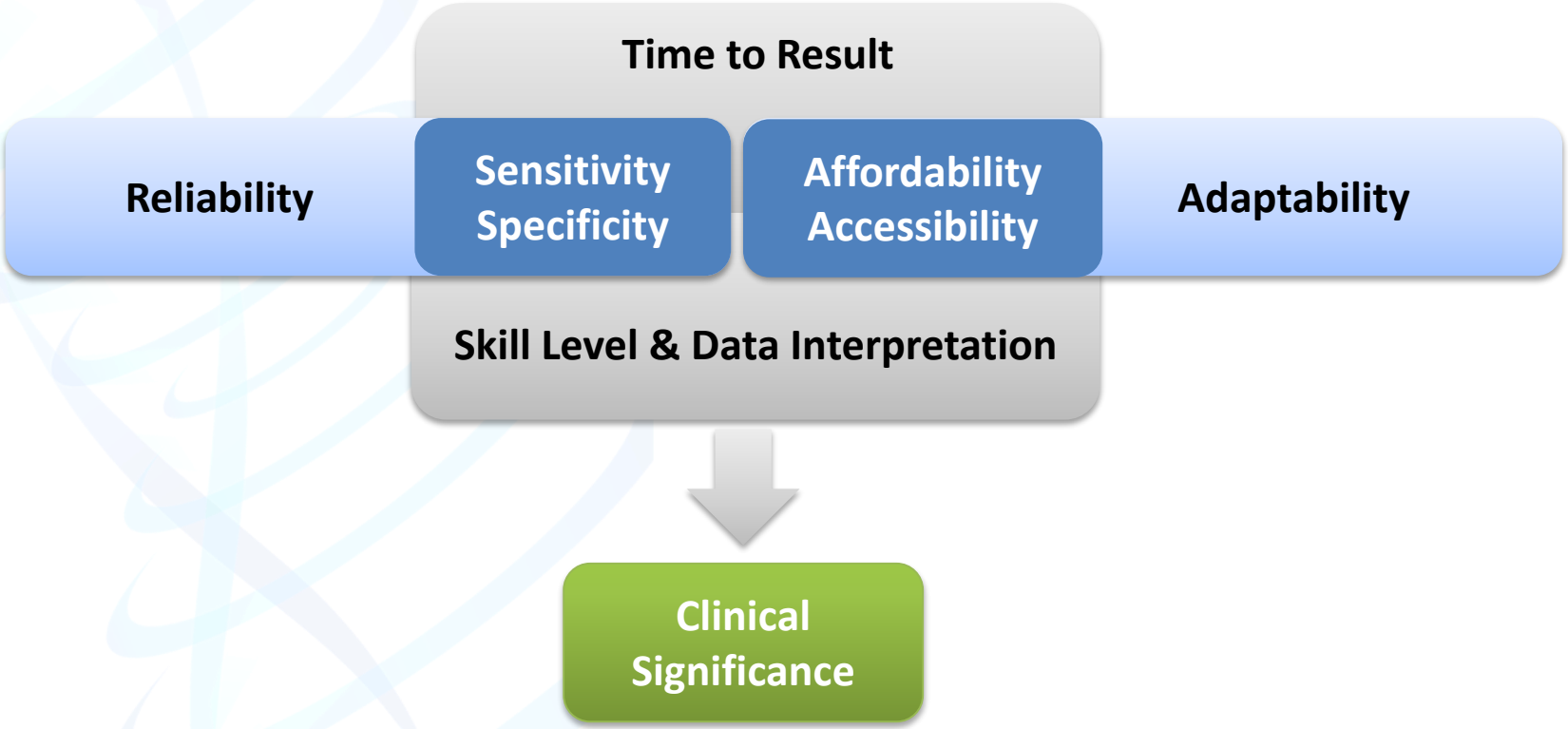
ReaMetrix's Concentrated Smear Microscopy Test

For Simultaneous Sputum Liquefaction, Cell Concentration and Staining for TB screening

"Small changes can make big difference"

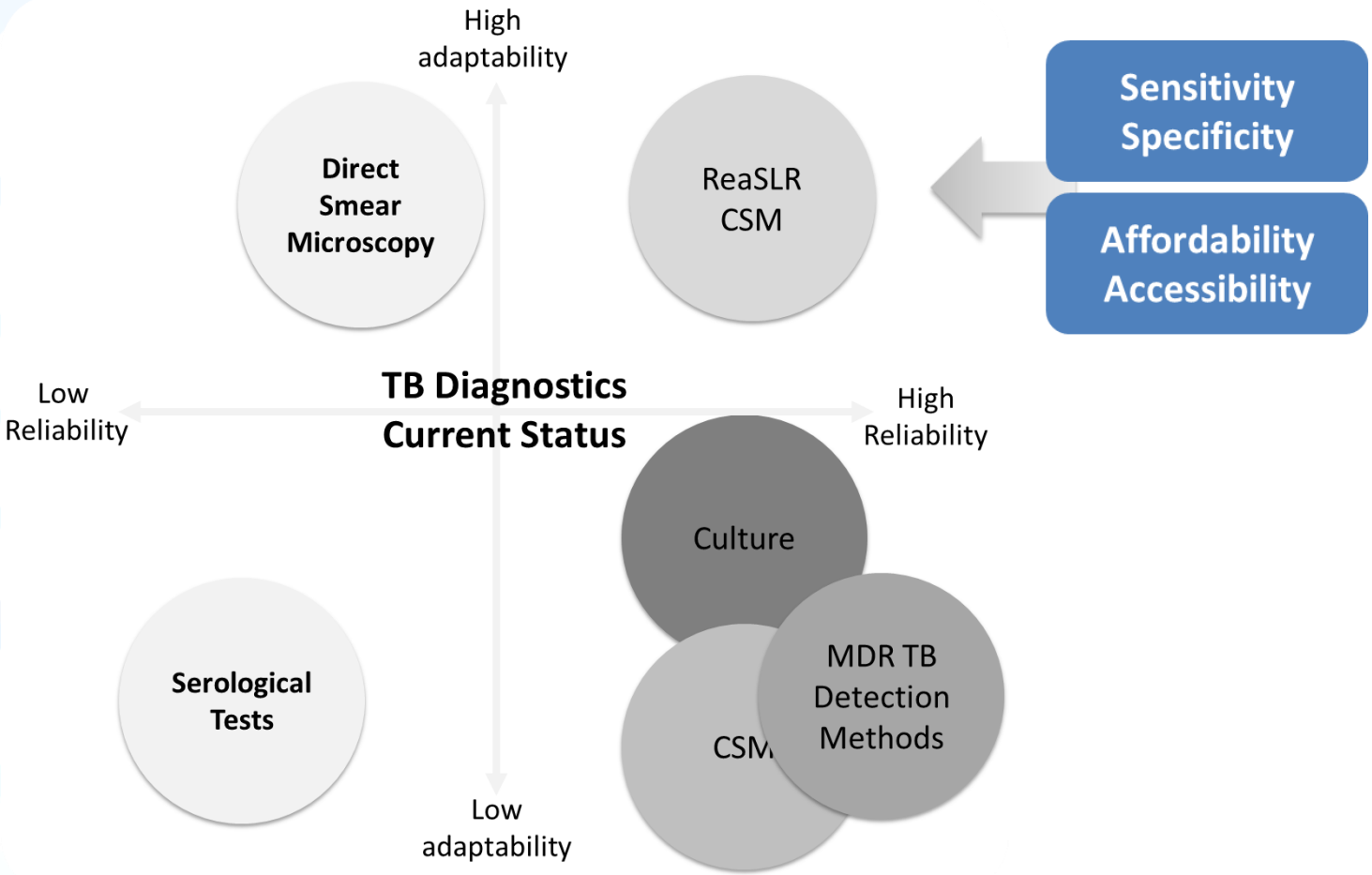
ReaSLR – ReaMetrix's Sputum Liquefaction Reagent, **CSM**- Concentrated Smear Microscopy

Characteristics of an Ideal Screening Test



Tuberculosis Control Programs need a highly Adaptable screening test with higher reliability which can be performed by minimum skilled technician without changing the current reporting method.

Positioning of ReaSLR CSM



ReaSLR CSM brings Adaptability and Reliability bundled together to address the unmet needs of TB Screening test near the patient

Our Approach

Complete solution for TB screening using microscopy

Unmet Needs	ReaMetrix's Solutions
Sputum sample processing	• ReaSLR – a ready to use sputum processing reagent
Sensitivity of screening test	• Concentration of MTB cells using magnetic beads
Reliability of reagents	• Ready to use, Unitized, and Room temperature stable reagents
Infrastructure	Partnering with manufacturers of Affordable and Portable instruments • LED microscope

These solutions are focused to enable the existing smear microscopy test to be more Reliable and Adaptable.

Why Smear Microscopy has lower sensitivity?

- Low sample volume - Lower Sensitivity
  - Statistical error
  - Leads to higher false negative - lower interrogation volume
- Concentrated smear microscopy - Higher sample volume per smear, Enables higher sensitivity

Smear Gradation	Number of Bacilli	Estimated MTB Cells/ml	Number of HPF Interrogated	Estimated number of cells in interrogation volume	Interrogation volume at 100X or 100 fields*	Net result
Scanty	1-9	10^4	100	1	0.1µl	Statistical error rate is high; leading to more false negative
1+	10-99	10^5		10-100	0.1µl	
2+	1-10	10^6	10	1-10 (per HPF)	0.01µl	Microscopic evaluation performs well in this range
3+	>10	10^7		>100 (per HPF)	0.01µl	

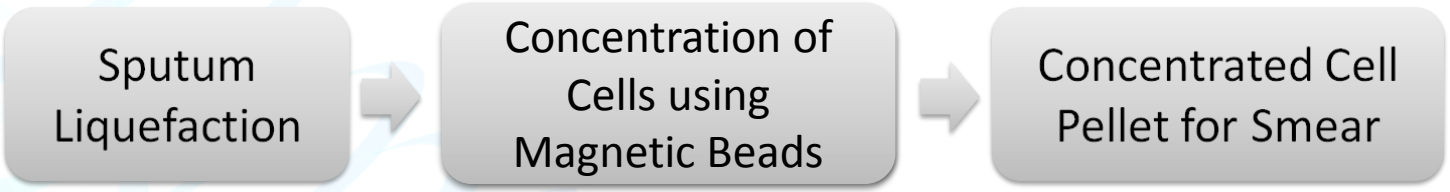
AFB = Acid Fast Bacilli, HPF = High Powered Field

** Assuming that the MTB cells are homogeneously distributed in sample. In reality, MTB cells are localized in purulent part of the sputum*

Concentration of sputum sample → Higher interrogation volume → Better sensitivity

Concentrated Smear Microscopy

Sputum Liquefaction and Concentration is a essential for culturing the MTB
Similar protocol is used for Single sputum concentrated smear microscopy



Workflow for concentrated smear microscopy

Conventional Sputum Liquefaction Method use
Modifid Petroff's Method which uses NALC-NaOH for sputum liquefaction

ReaMetrix Introduces ReaSLR – A new Sputum Liquefaction Method
A ready-to-use, unitized, dry reagent that is room temperature stable

Is ReaSLR better than NALC-NaOH ?

Product Features	NALC-NaOH	ReaSLR
Liquefaction	✓	✓
Decontamination	✓	✓
Compatibility with downstream applications	✓	✓
Incubation Time (15-20 min)	✓	✓
Ready-to-use Reagent	✗	✓
Robust Process : Removal of operator / Process Variability	✗ *	✓
Process at Neutral pH	✗	✓
Processed Sample Stainability	✗	✓
Viability of MTB is maintained	✗	✓
Batch Processing	✗	✓

**prolonged incubation (>15-20 min) leads to disintegration of MTB, reducing the % viability*

ReaSLR CSM Kit

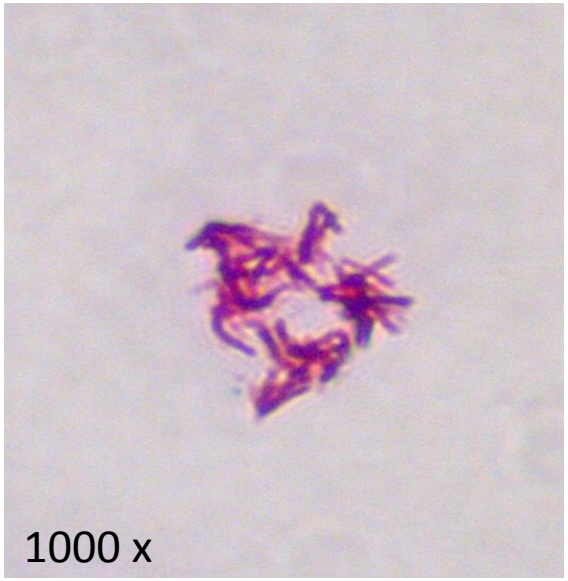
Kit contents: (for 100 Test)

1. **ReaSLR** - ready to use, unitized, room temperature stable sputum liquefying tablet (100 Sachets)
2. **Capture Buffer** - Magnetic nanoparticles for concentrating Mycobacteria cells (100 mL)
3. **MTB Spark** the staining solution (250 mL)
4. **Elution buffer** - For eluting out cells from TB beads (25 mL)
5. **Decolouriser solution** - To wash excess dye from the slide (250 mL)

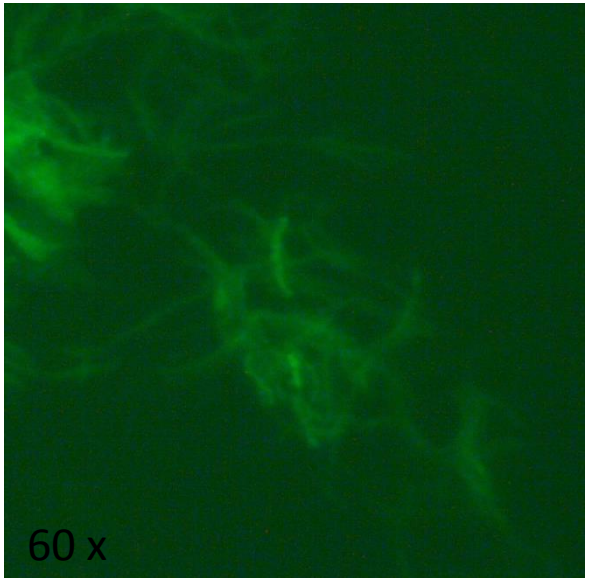
Training Video

3 min training video

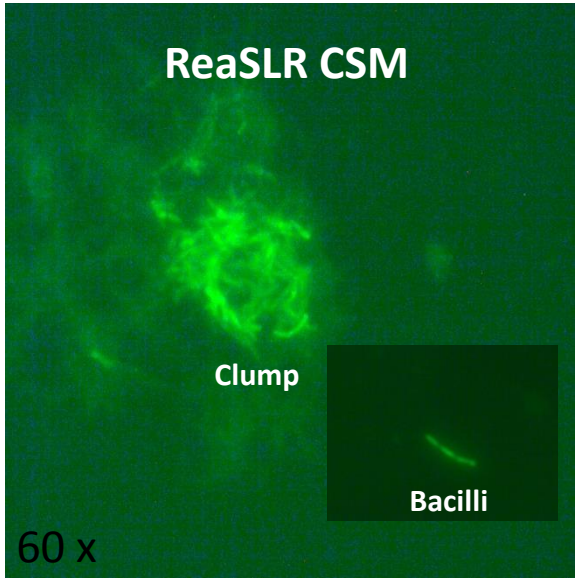
Product Performance



AFB – ZN Staining



AFB – Auramine Staining



MTB Spark – Modified Auromine

MTB cells stained with 'MTB Spark' shows bright cells

Product Performance

(from ongoing vendor independent validation study)

	Direct Smear	ReaSLR CSM
Negative	76	56
Scanty	7	12
1+	3	9
2+	3	11
3+	15	16
Total	104	104

- Higher number of positives are detected
- 20 out of 76 Negative Direct smears are declared as ReaSLR CSM positive
- The AFB Grading improves

		Total	ReaSLR method CSM				
			Negative	Scanty	1+	2+	3+
Total		104	56	12	9	11	16
Direct Smear	Negative	76	55	9	6	4	2
	Scanty	7	1	3	2	1	0
	1+	3	0	0	1	2	0
	2+	3	0	0	0	2	1
	3+	15	0	0	0	2	13

ReaSLR CSM method provides results in POSITIVE or NEGATIVE format (instead of AFB Grading as the sample is concentrated by 20 folds)

Culture result – awaiting to conclude the data with Sensitivity and Specificity

Thank you

www.reametrix.com
enquiry@reametrix.com