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Rapid Analyte Measurement Platform (RAMP) History and Status

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- History
- RAMP Technology
- RAMP WNV Test
- Evaluation Highlights
- Pro’s and Con’s

History/Company Information

- Response Biomedical Corp. Founded in 1992
- West Nile Virus arrives 1996
- RAMP® patents filed 1996, development started
- First FDA clearance 2002

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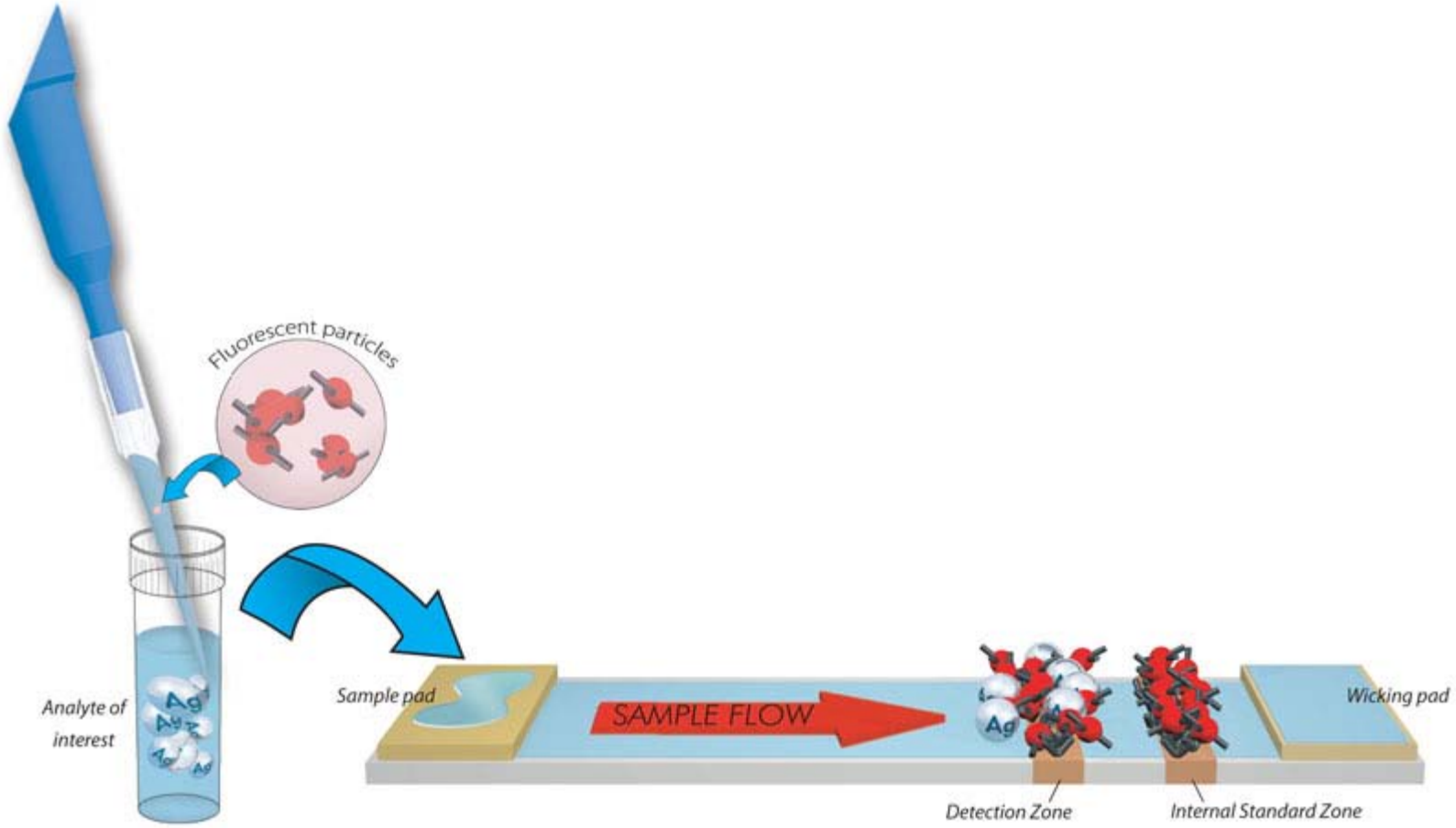
RAMP Technology



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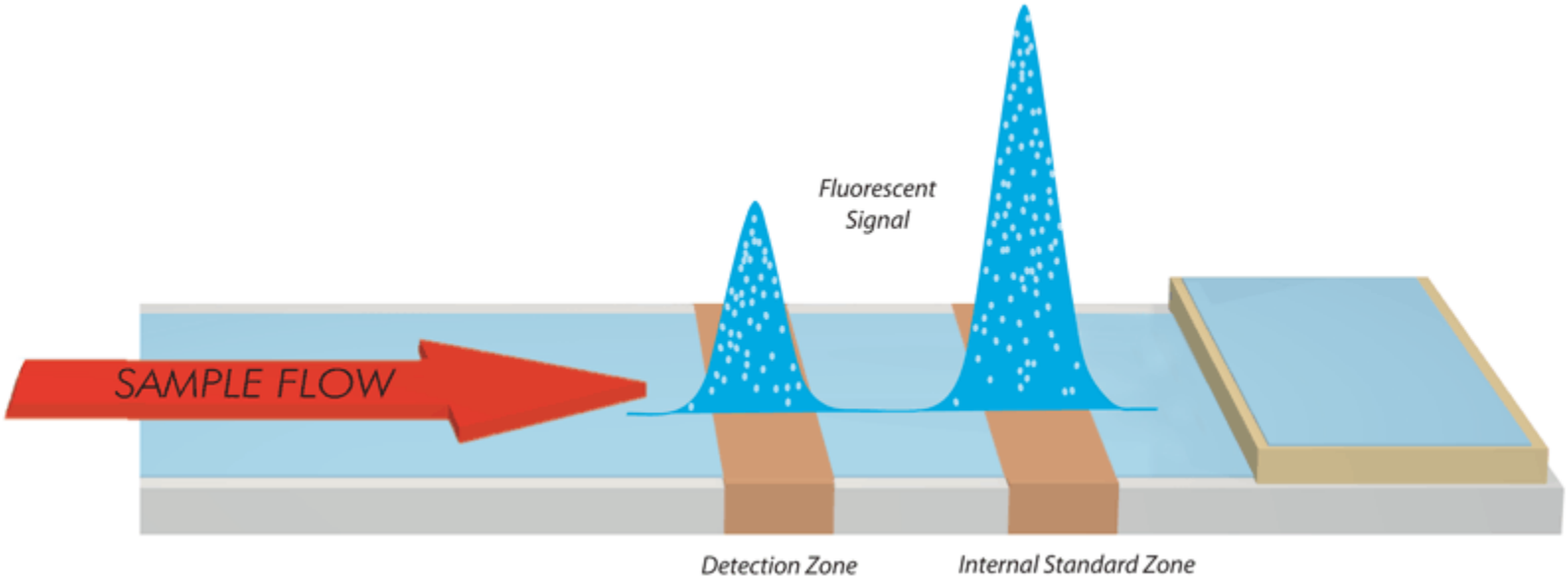
Internal Standard



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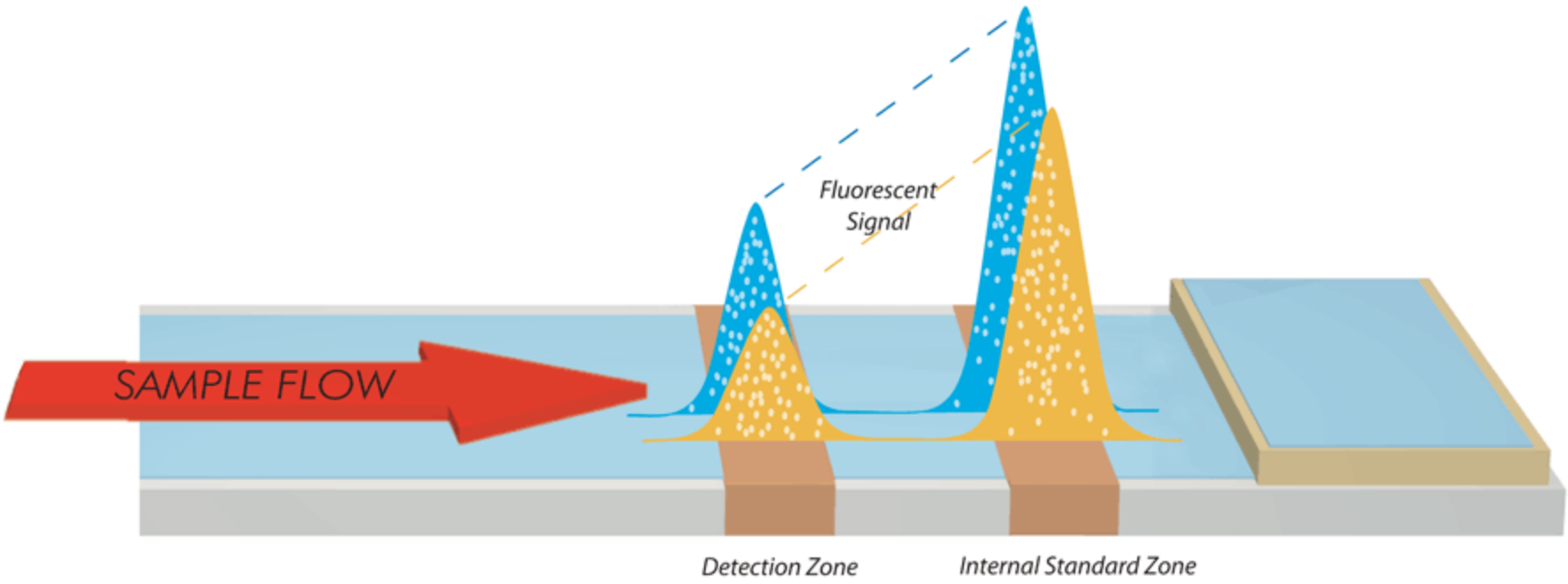
RAMP Ratio



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RAMP WNV Kit Components

- 100 Test Cartridges & Assay Tips
- 100 Buffer vials & 100 Sample vials
- 2 x 60mL Sample Buffer
- 1 Container BB’s
- MiniPet (70uL)
- Lot Card
- Package Insert

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Sample Preparation - Mosquitoes

- ≤ 50 mosquitoes
- 2 Ball Bearings
- 1mL RAMP Buffer

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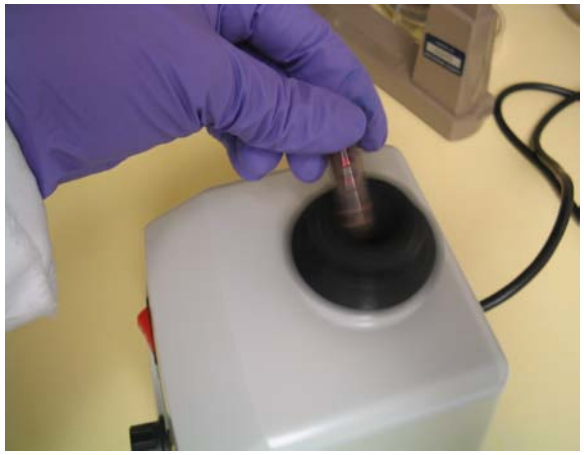
Sample Preparation

- Vortex
  (1-5 minutes)



- Centrifuge
  (1-5 minutes)

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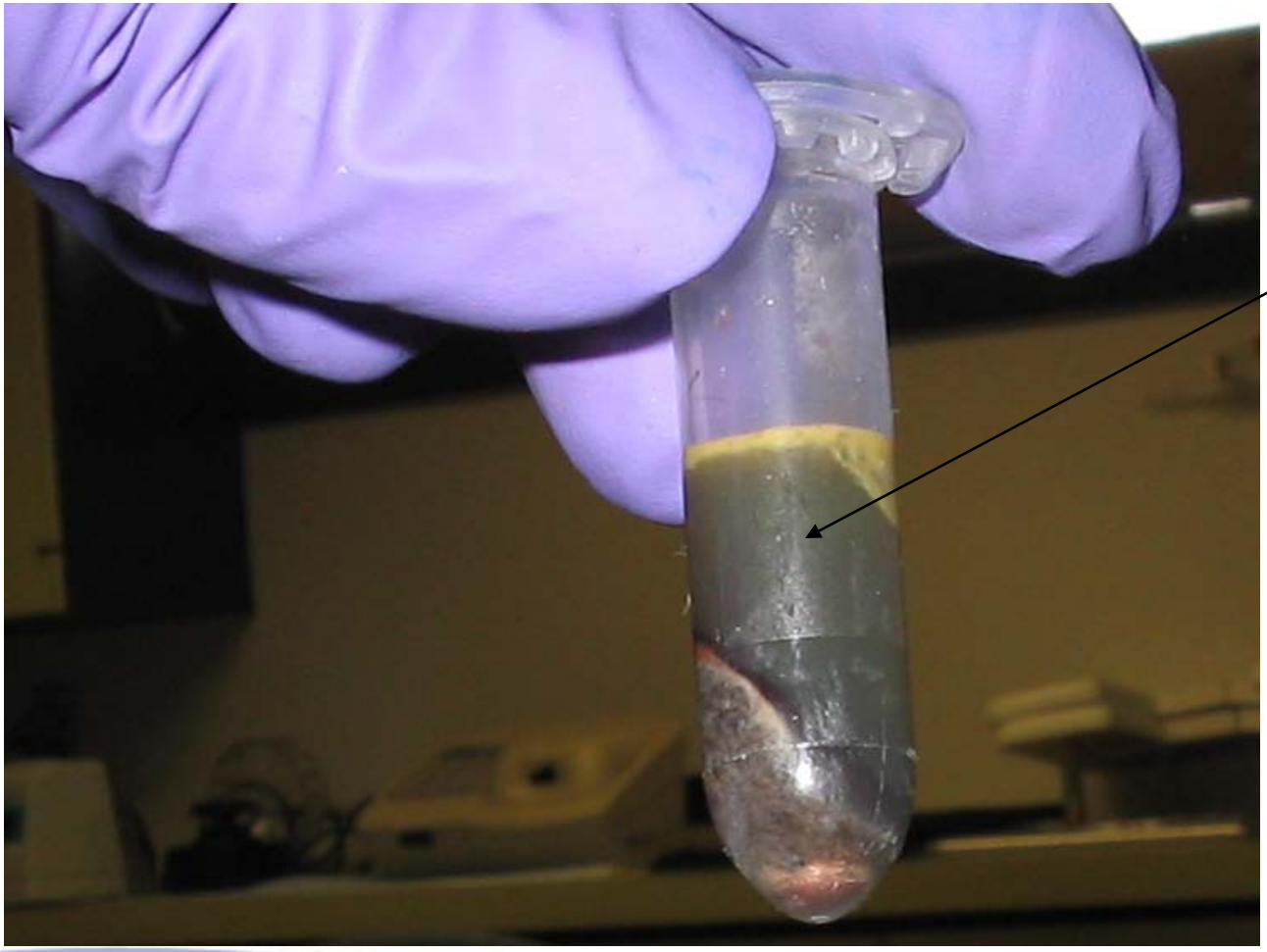
Mosquito Homogenate



Remove 120uL of supernatant

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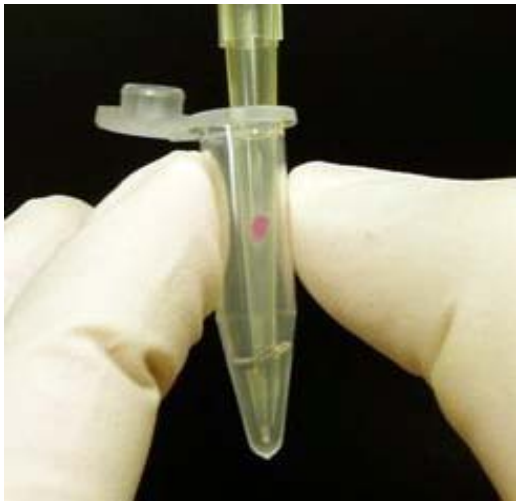
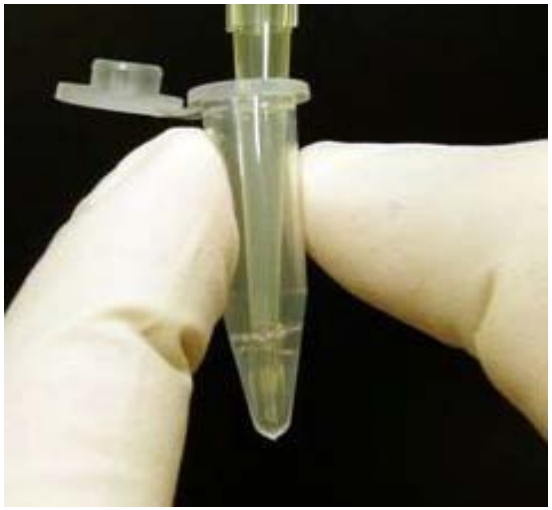
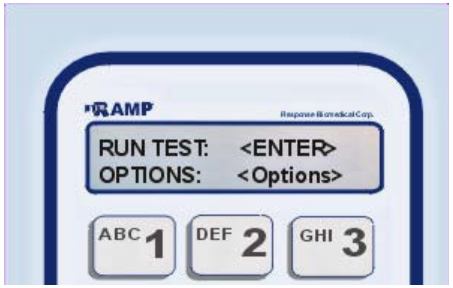
Mixing the sample

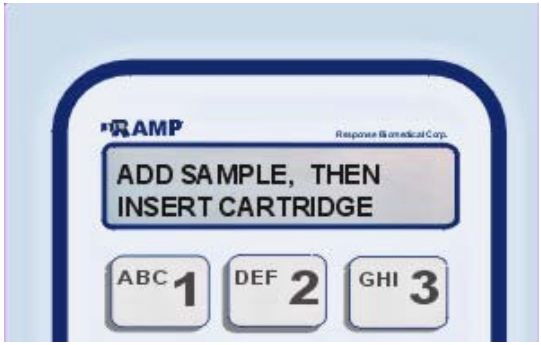


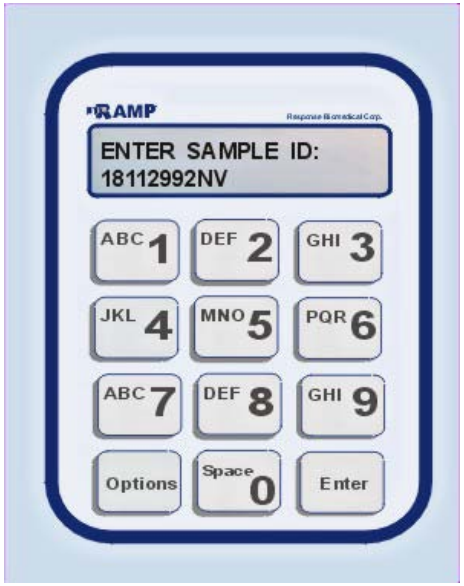


Mix slowly 10 times, add sample to test cartridge, leave cartridge to dry for 90 minutes

Scanning the cartridge







Approximately 1 minute

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Bird Testing

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Bird Testing

Swab the inside of the birds throat

Dip the swab into RAMP Buffer

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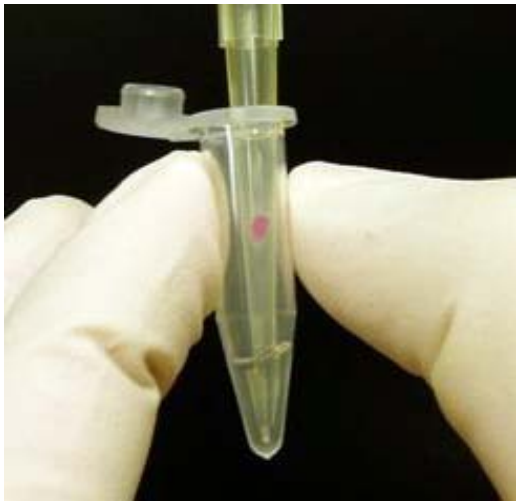
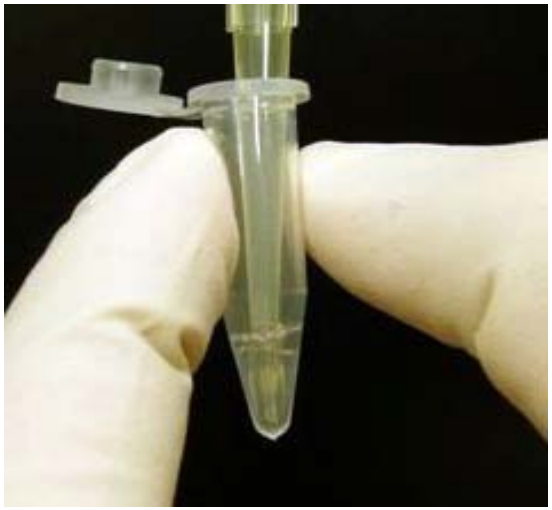
Mixing the sample





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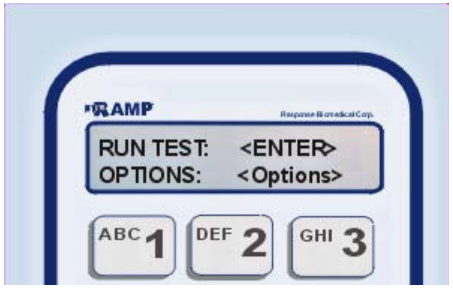

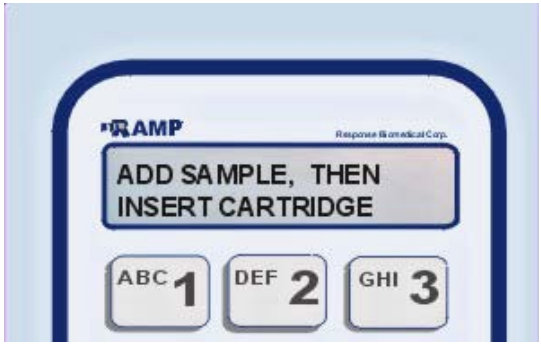

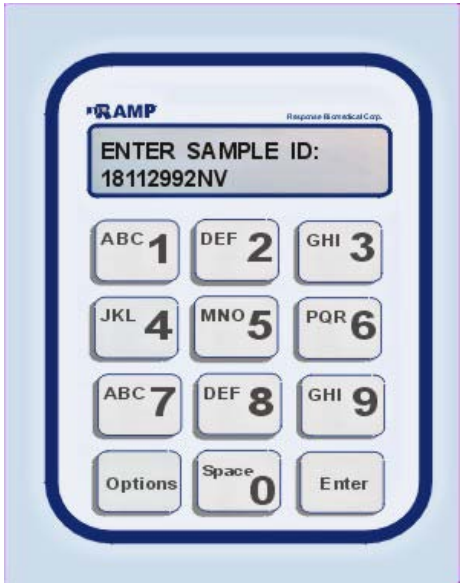

Approximately 1 minute

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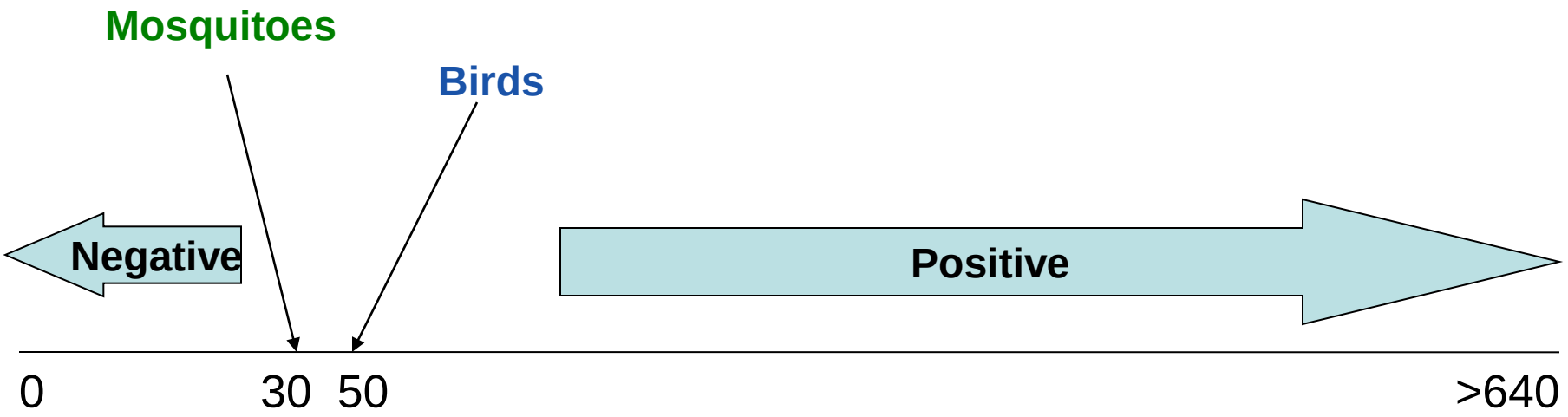
Result Interpretation

Range of Results
0 - >640 RAMP Units



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Evaluations

- U.S. Centers for Disease Control, CO
- National Microbiology Laboratory, Canada
- Pennsylvania Dept of Environmental Protection, PA
- Harris County Mosquito Control, TX
- UC Davis, CA
- New York State Dept Environmental Conservation, NY
- Walter Reed Army Institute of Research, MD

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RAMP Performance

CDC / Health Canada – Seed virus / Mosquito

	Sensitivity Virus titer	Sensitivity Mosquito Pools
RAMP	3.17 log10 pfu/mL	94% (94 / 100)
VecTest	5.17 log10 pfu/mL	65% (65 / 100)

UC Davis (CVEC) – Crow samples

	Sensitivity	Specificity
RAMP	74.6% (50 / 67)	100% (42 / 42)
VecTest	56.7% (38 / 67)	100% (42 / 42)

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Benefits of RAMP

- **High Sensitivity 85% - 95% Accurate**

  100 fold more sensitive than competition

  (Can identify more true positives)

- **Rapid Results**

  Results in 2 hours vs days in lab based testing

  (Quicker response times)

- **Quantitative Results**

  Numeric result

  (No color change, no difficulty interpreting results)

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In Conclusion

- Ramp is an effective on-site tool for testing mosquitoes and corvids for WNV
- Ramp provides quick results allowing mosquito control agencies to respond to a virus outbreak almost immediately

Questions?

Thank You!

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Drawbacks of RAMP

- Not as accurate as PCR
- Must follow protocol precisely
- Issues with false positives (blood engorged mosq., etc.)
- Transportation and Testing of Ramp Samples by PCR can be problematic