

K&D In Vitro Assays of Commercially Available Repellents Against *Aedes aegypti*

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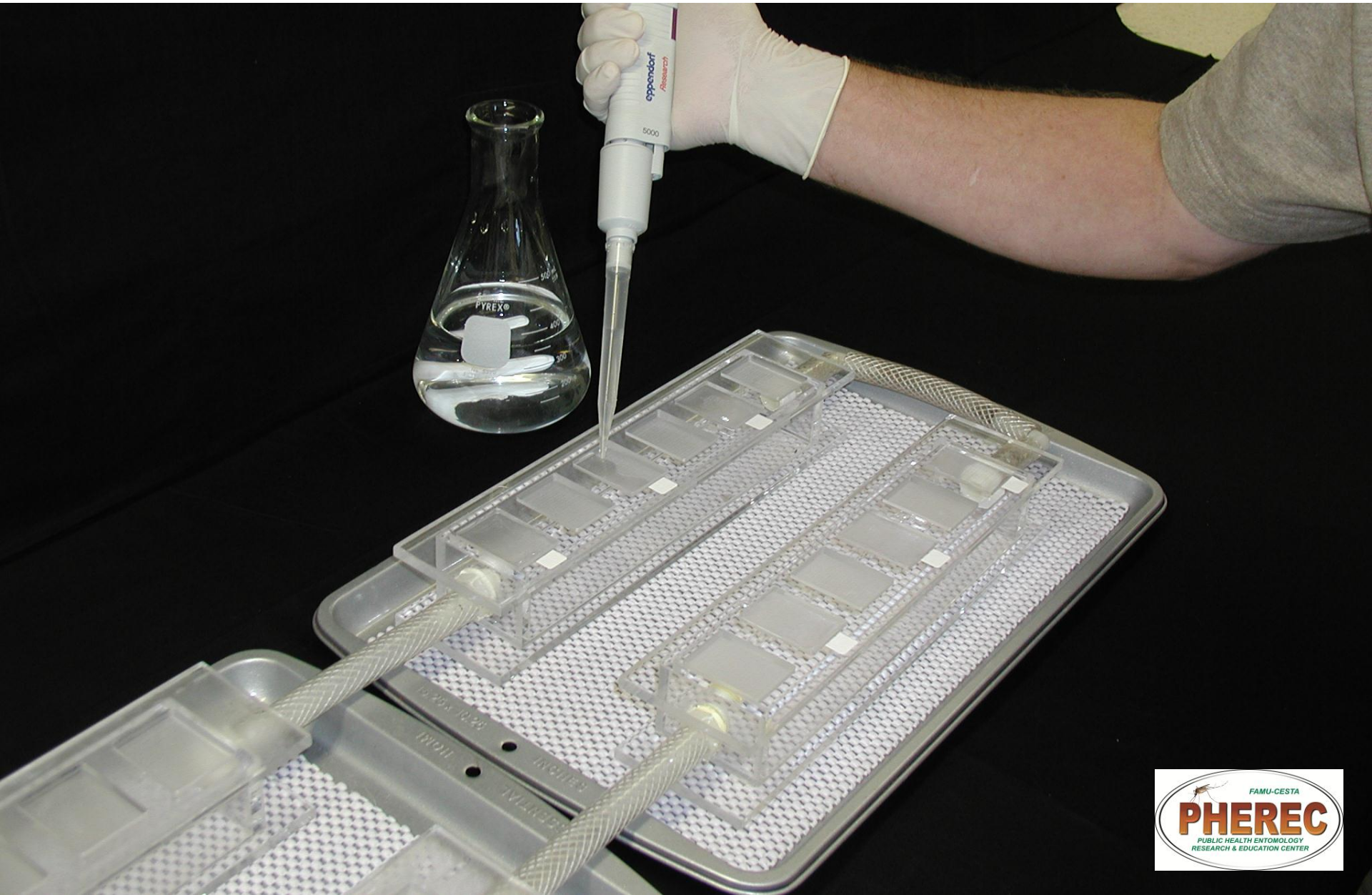
Background

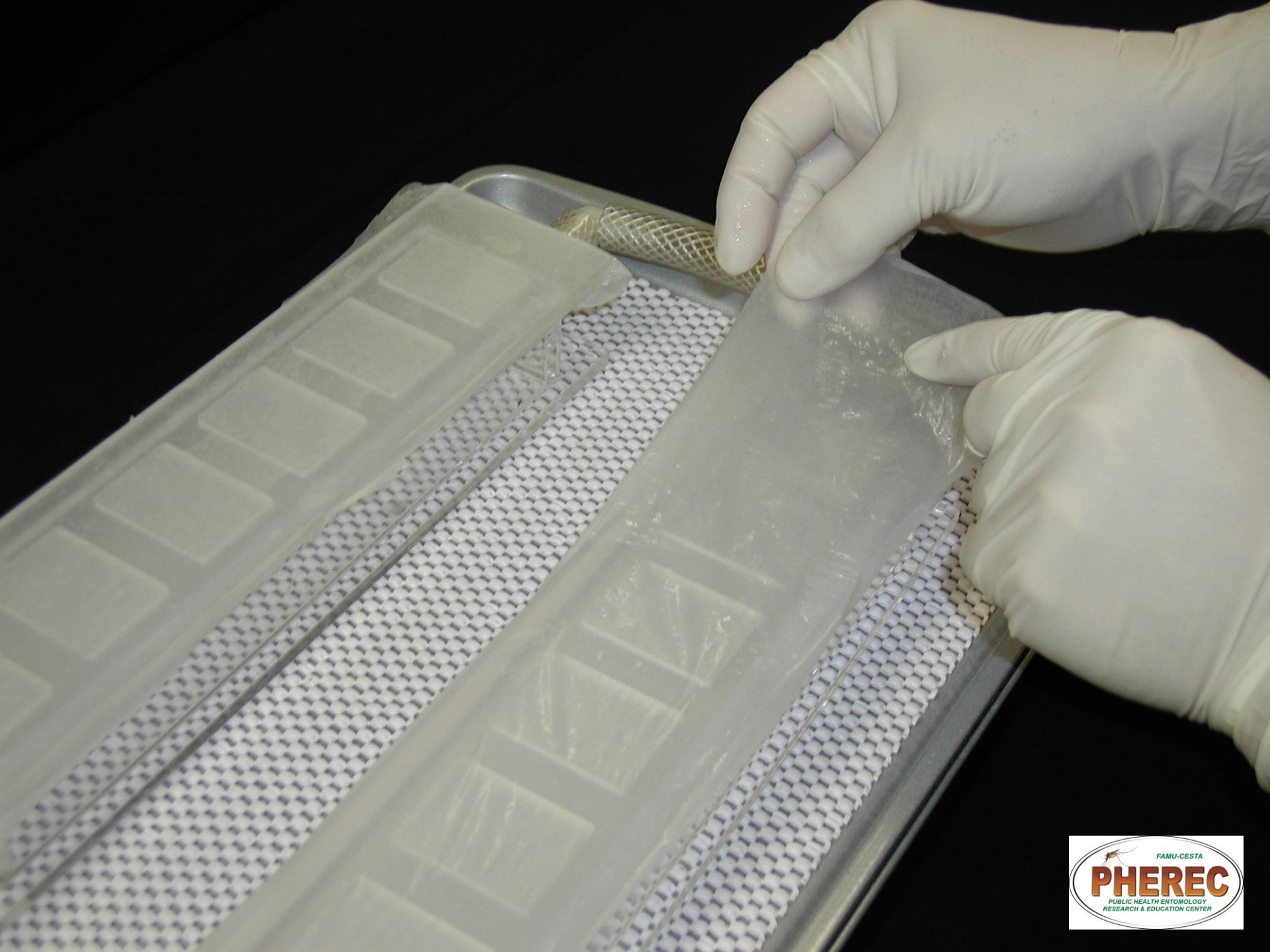
- Klun J, Debboun M. 2000. A new module for quantitative evaluation of repellent efficacy using human subjects. *J Med Entomol* 37: 177-181. – **IN VIVO**
- Klun J, Kramer M, Debboun M. 2005. A new in vitro bioassay system for discovery of novel human-use mosquito repellents. *J Amer Mosq Cont Assoc* 21:64-70. – **IN VITRO (Human Blood)**
- Klun J, Kramer M, Zhang A, Wang S, Debboun M. 2008. A quantitative in vitro assay for chemical mosquito deterrent activity without human blood cells. *J Amer Mosq Cont Assoc* 24:508-512. – **IN VITRO [Artificial Blood (ATP+CPDA-1)]**

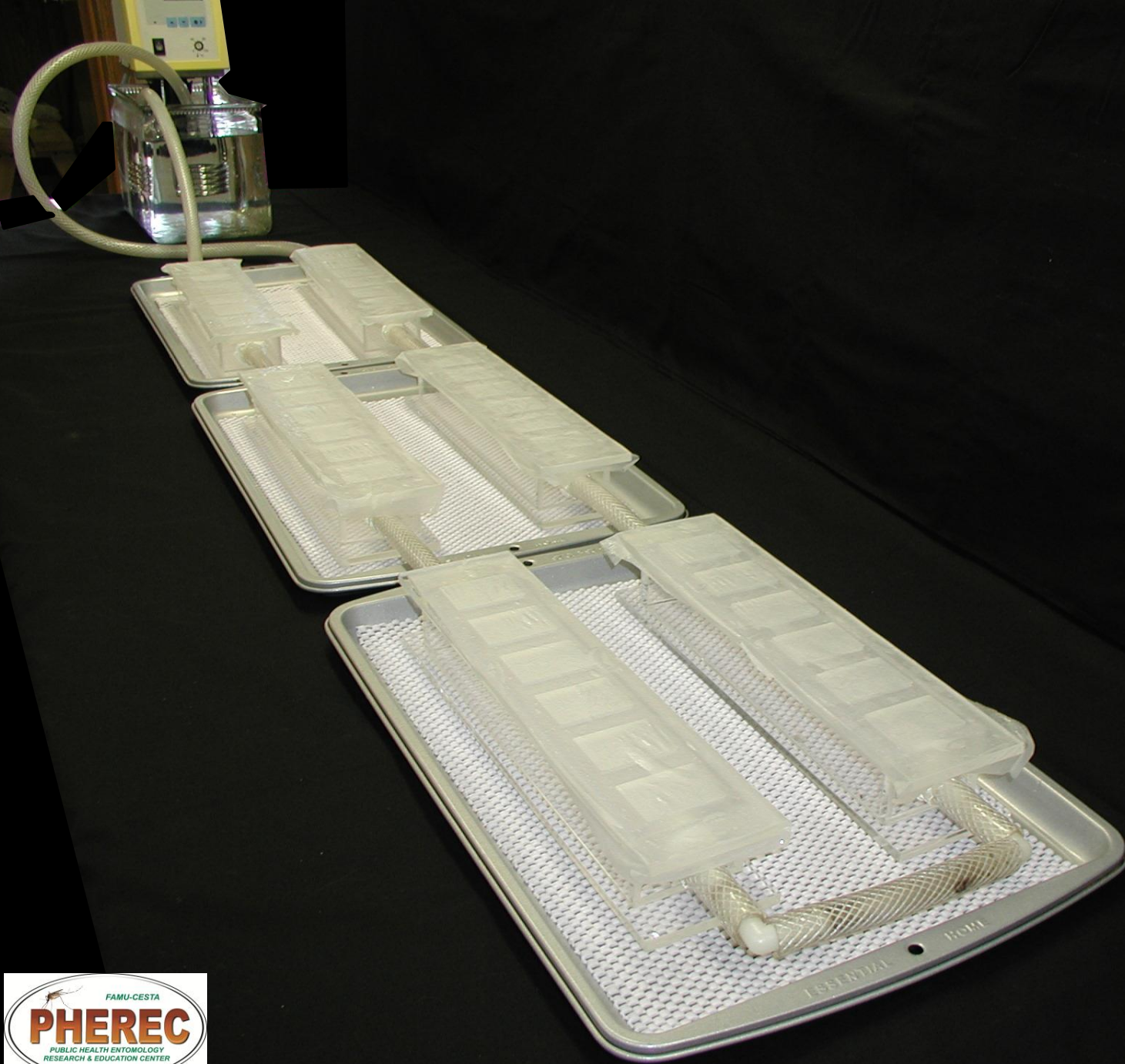
K&D Module

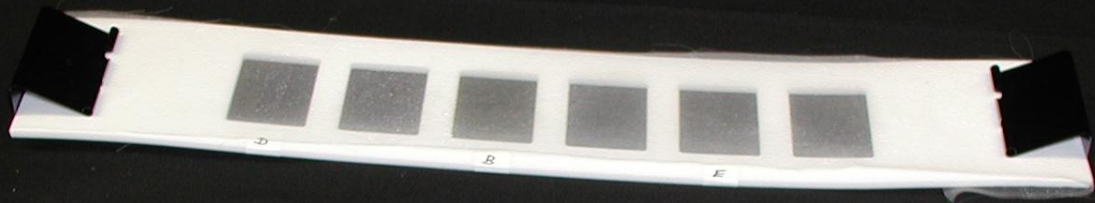


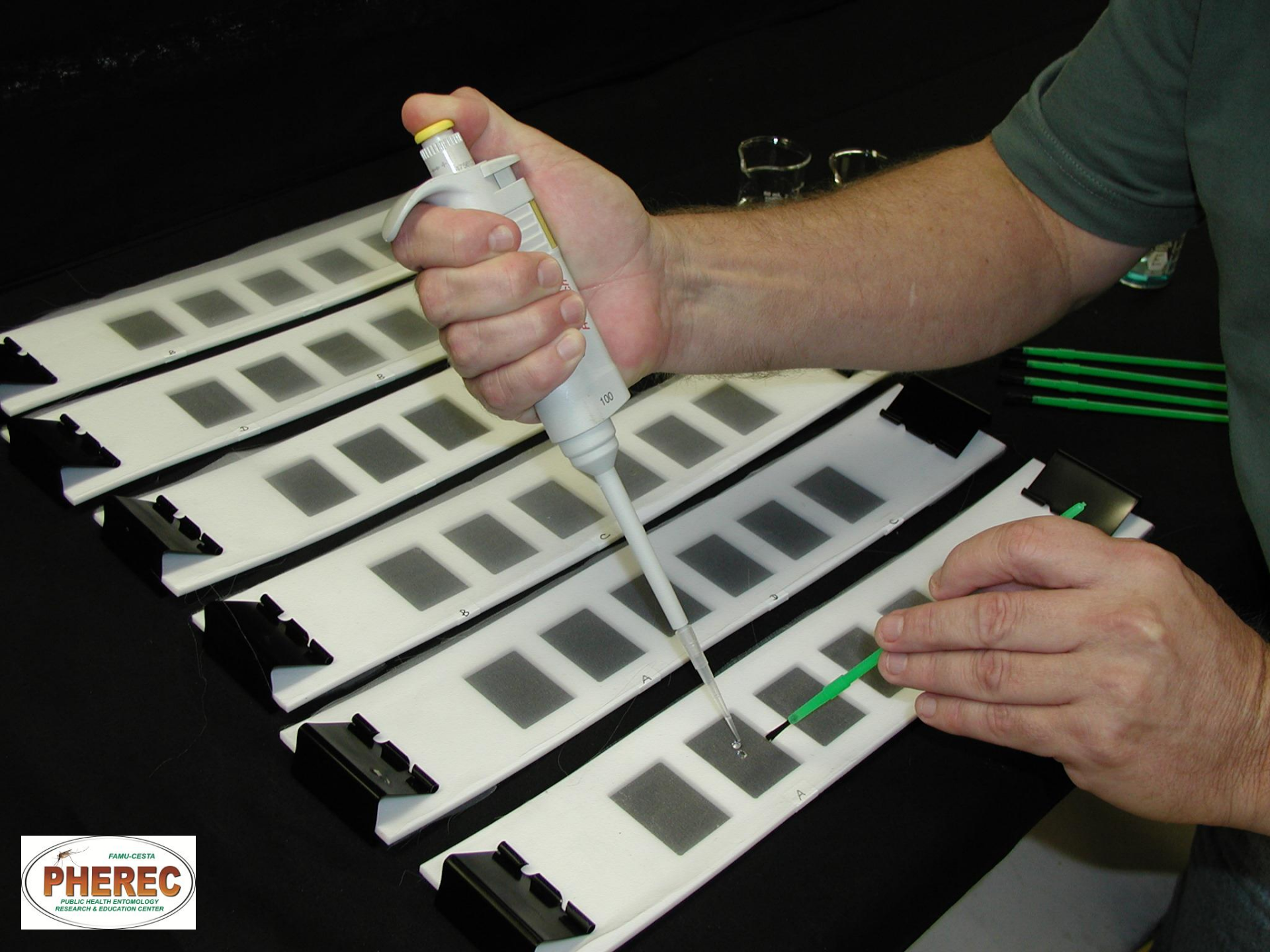
IN VITRO TECHNIQUE

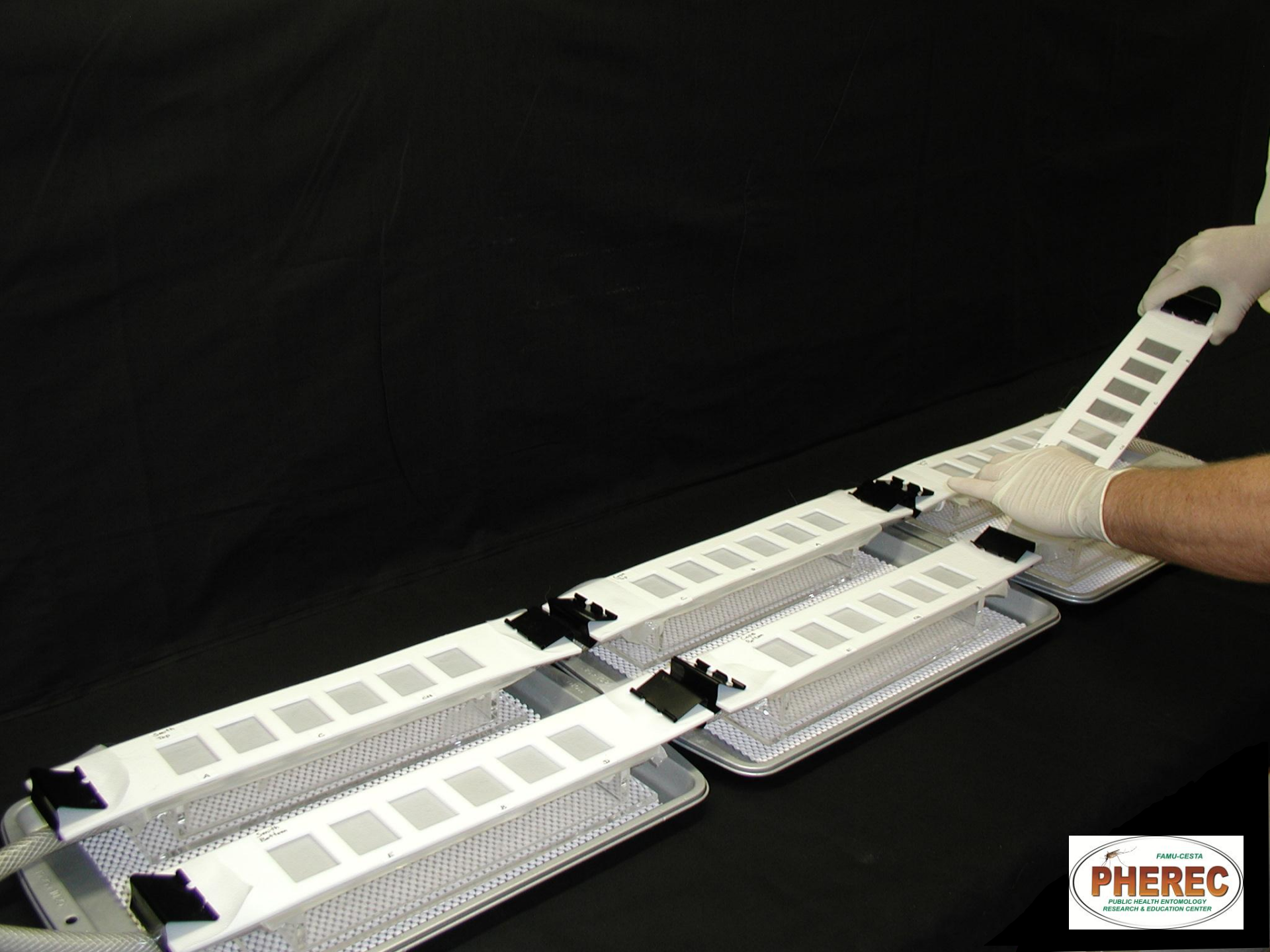


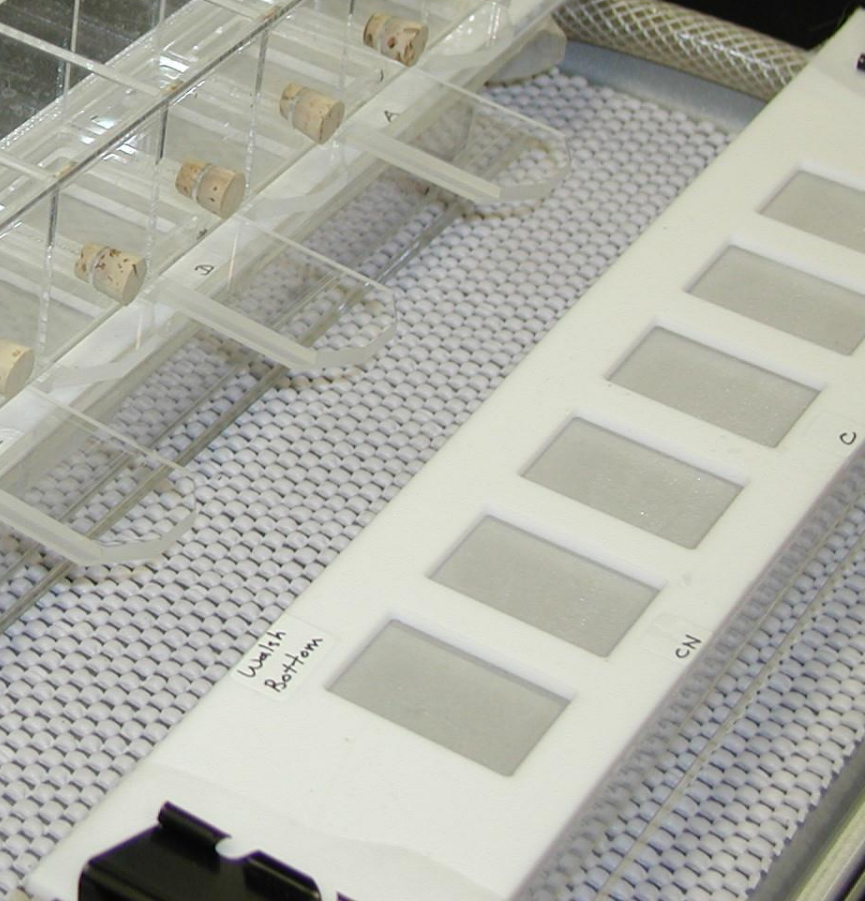
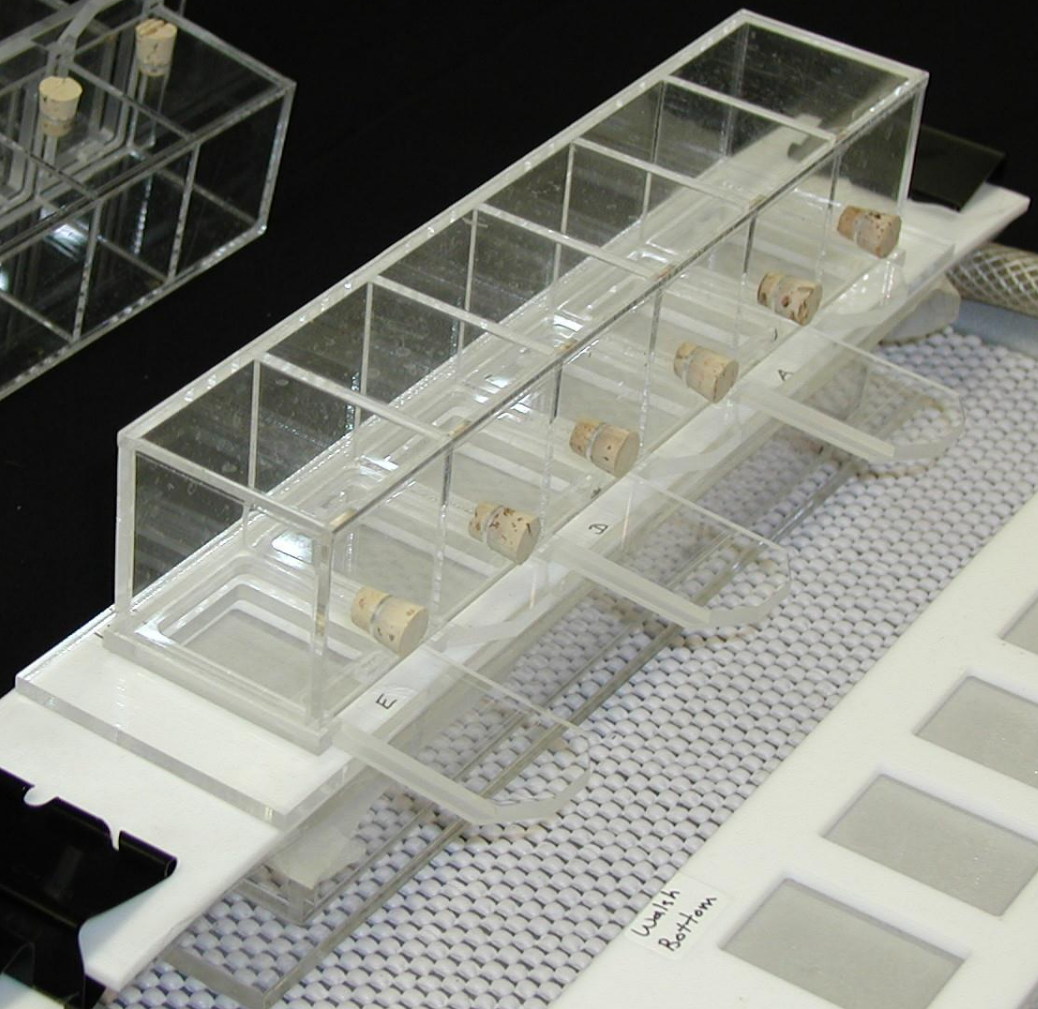
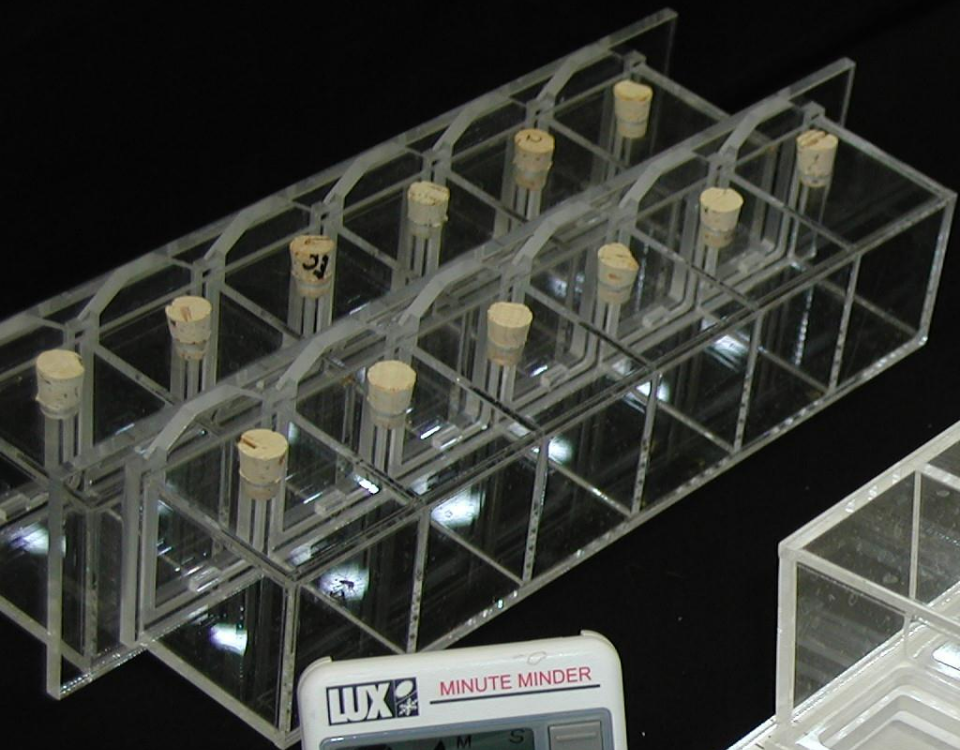


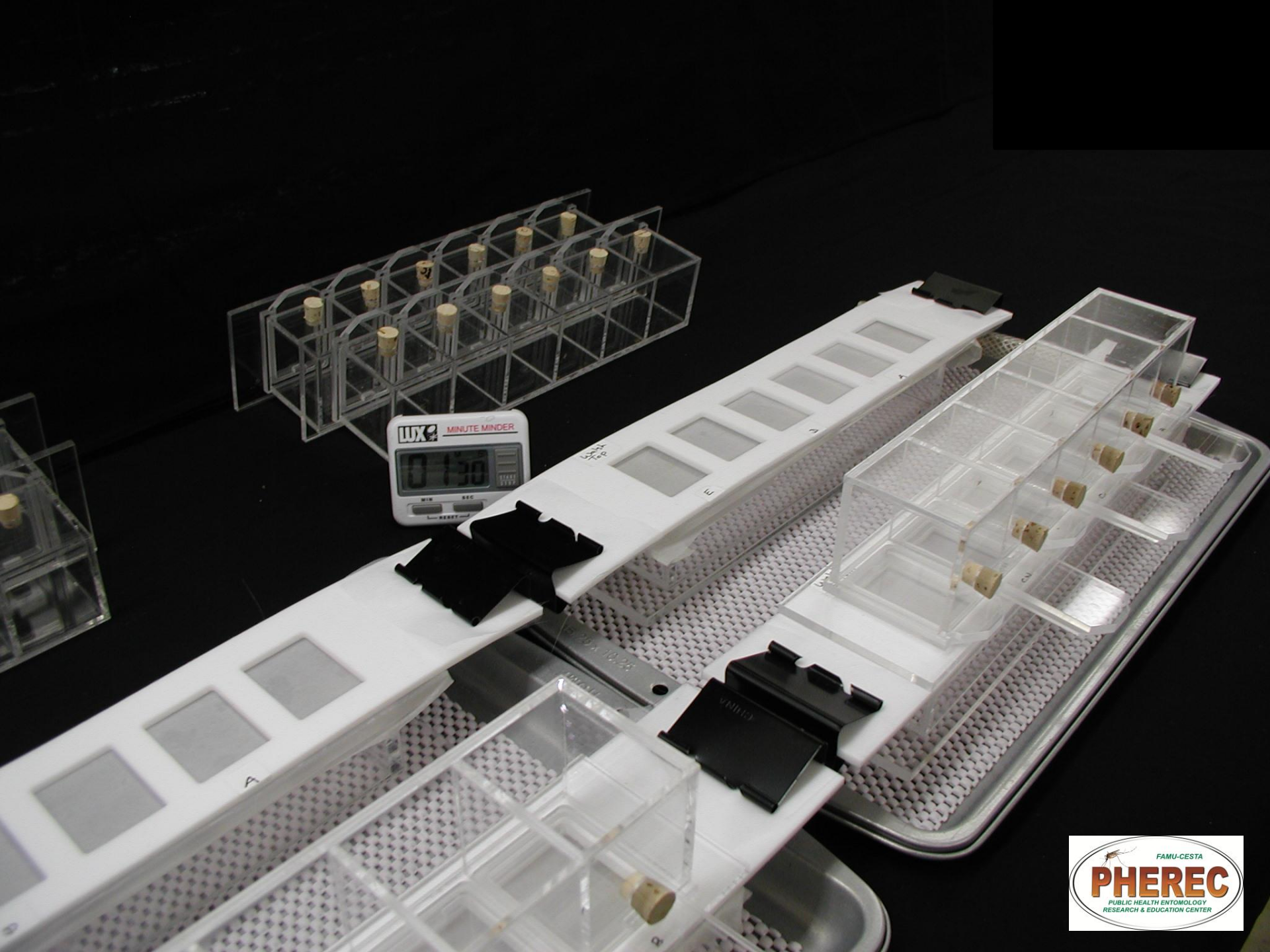








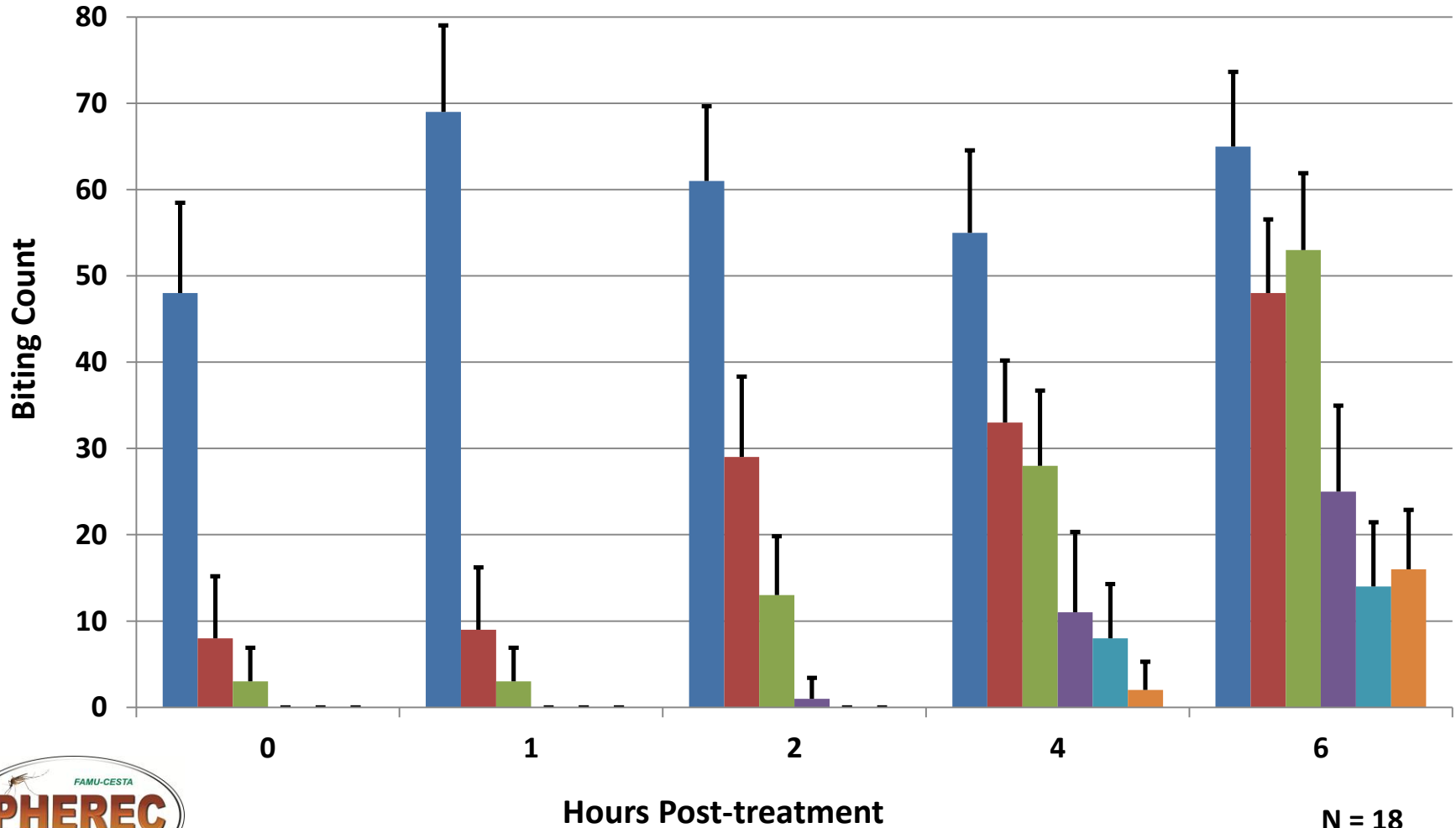






Biting Counts Over Time by Product

Control Bug Band Bite Blocker XS
Avon SSS+IR3535 Repel LU 40% OFF! 15%



N = 18

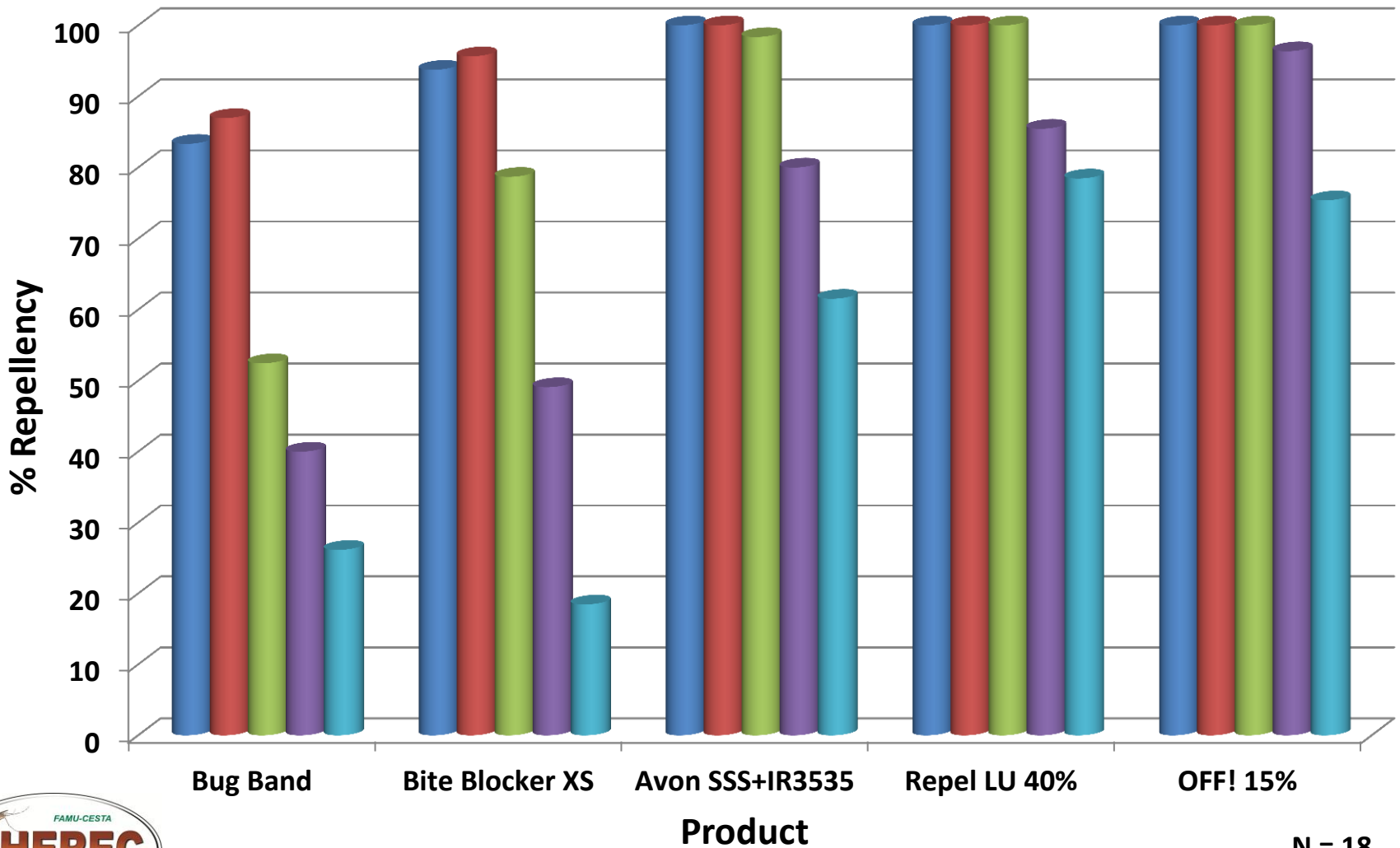


% Repellency

$$\frac{\text{Control} - \text{Treatment}}{\text{Control}} \times 100$$

Product Repellency Over Time

■ 0 ■ 1 ■ 2 ■ 4 ■ 6 Hours Post-treatment



N = 18

Conclusions

- Repeatable results were obtained using the in vitro artificial blood technique to screen commercial repellents.
- Off! 15% DEET, Repel Lemon Eucalyptus 40%, and Avon SSS+IR3535 provided complete protection (at or near 100% repellency) for 2 hours.
- Off! repellency averaged over 96% at 4 hours, while Repel and Avon subsided to the 80 and 70 percentile.
- Bite Blocker and Bug Band provided best repellency (95% and 87%, respectively) at 1 hr post-treatment and diminished considerably thereafter.
- None of the repellent products tested exhibited good repellency at 6 hours post-treatment (<79%).