SANDWICH ASSAYS PERFORMED WITH RESEARCH INTERNATIONAL'S EXISTING BIOASSAY PLATFORM			
Target Agent	**Liquid Media**	**Approx. Detection Limit**	**References** (see second page)
Cocaine	Urine	50ng/ml	6
TNT	Water	440 ng/ml	5, 9, 11
RDX	Water	1,000 ng/ml	5
Ovalbumin	Water	5 ng/ml	18
Ricin	Water	<0.5 ng/ml	10, 15, 18, 19
Staphylococcal enterotoxin B	Water	0.1-0.5 ng/ml	12, 15, 16, 18, 20
Cholera toxin	Water	0.1-1 ng/ml	16, 20
D-dimer	Blood plasma	200 ng/ml	8
Protein C	Blood plasma	160 ng/ml	7
Bacillus globigii	Water	2.5×10^4 CFU/ml	18, 20
Bacillus anthracis	Water	30 CFU/ml	Footnote (a)
Sterne strain, vegetative cells	Whole blood	100 CFU/ml	18
Ames strain, irradiated spores	Water	10^4 -10^5 CFU/ml	16, 18
Botulinium toxin	Water	1 – 10 ng/ml	6, Footnote (a)
Erwinia herbicola	Water	10^7 CFU/ml	Footnote (a)
Yersinia pestis F1 antigen	Water	1-5 ng/ml	15, 13, 18
Brucella abortus	Water	7×10^4 CFU/ml	18
Francisella tularensis	Water	5×10^4 CFU/ml	15, 18, 20
Escherichia coli O157:H7	Hamburger slurry	100-1000 CFU/g (direct)	2, 3, 4
	" "	0.08-0.4 CFU/g (6 hour enrichment)	17
	Raw sewage	1000 CFU/ml	16
Salmonella typhimurium	Water	20,000 CFU/ml	14, 15, 16
Giardia lamblia	Drinking Water	5×10^4/ml	18
MS2	Water	10^9 pfu/ml	15
Vaccinia	Water	10^5 pfu/ml	1
RSV	Water	Equiv. to std. ELISA	Footnote (b)

Footnotes:
(a) Private communication - G.P. Anderson, Naval Research Laboratory.
(b) Unpublished data - David McCrae & Ann Wilson, Research International.

REFERENCES

1) K. A. Donaldson, M. F. Kramer and D. V. Lim, "A rapid detection method for Vaccinia virus, the surrogate for smallpox virus," Biosensors and Bioelectronics, 20, 322-327 (2004).

2) D. R. DeMarco, and D. V. Lim, “Detection of Escherichia coli O157:H7 in 10- and 25-gram ground beef samples with an evanescent-wave biosensor with silica and polystyrene waveguides,” J. Food Prot, 596-602 (2002).

3) D. Lim, "Rapid Biosensor Detection of Foodborne Microbial Pathogens," Microbiological methods Forum News, 18, 13-17 (June 2001).

4) D. V. Lim, “Rapid Pathogen Detection in the New Millennium,” National Food Processors Association (NFPA) Journal, 13–17 (October 2000).

5) B. Bakaltcheva, F. S. Ligler, C. H. Patterson, and L. C. Shriver-Lake, “Multi-Analyte Explosive Detection using a Fiber Optic Sensor,” Analytica Chima Acta, 399, 13–20 (1999).

6) N. Nath and M. Eldefrawi, J. Wright, D. Darwin and M. Huestis, “A Rapid Reusable Fiber Optic Biosensor for Detecting Cocaine Metabolites in Urine,” Journal of Analytical Toxicology, 23, 460–467 (1999).

7) J. O. Spiker, K. A. Kang, W. N. Drohan, and D. F. Bruley, “Preliminary Study of Biosensor Optimization for the Detection of Protein C,” *Oxygen Transport to Tissue XX*, Plenum Press, New York, 681-688 (1998).

8) B. A. Rowe, *et al*., “Rapid Detection of D-dimer Using a Fiber Optic Biosensor,” *Thromb. Haemost*., 79, 94–98 (1998).

9) B. L. DONNER, ET AL., “TRANSITION FROM LABORATORY TO ON-SITE ENVIRONMENTAL MONITORING OF 2,4,6-TRINITROTOLUENE USING A PORTABLE FIBER OPTIC BIOSENSOR,” ACS SYMPOSIUM SERIES, 657 (IMMUNOCHEMICAL TECHNOLOGY FOR ENVIRONMENTAL APPLICATIONS), 198–209 (1997).

10) U. Narang, et al., “Fiber Optic-Based Biosensor for Ricin,” Biosensor & Bioelectronics, 12, 937–945 (1997).

11) L. C. SHRIVER-LAKE, B. L. DONNER, AND F. S. LIGLER, “ON-SITE DETECTION OF TNT WITH A PORTABLE FIBER OPTIC BIOSENSOR,” ENVIRONMENTAL SCIENCE & TECHNOLOGY, 31, 837–841 (1997).

12) L. A. Tempelman, et al., “Quantitating Staphylcoccal Enterotoxin B in Diverse Media Using a Portable Fiber Optic Biosensor,” Analytical Biochemistry, 233, 50–57 (1996).

13) K. Cao, G. P. Anderson, F. S. Ligler J. and Ezzel, “Detection of Yersinia pestis fraction 1 antigen with a fiber optic biosensor,” J. Clin. Microbiol. 33, 336-341 (1995).

14) N. Nath and M. Eldefrawi, J. Wright, D. Darwin and M. Huestis, “A Rapid Reusable Fiber Optic Biosensor for Detecting Cocaine Metabolites in Urine,” *Journal of Analytical Toxicology*, 23, 460–467 (1999).

15) D. R. DeMarco, *et al.*, “Rapid Detection of Escherichia coli O157:H7 in Ground Beef Using a Fiber Optic Biosensor,” *Journal of Food Protection*, 62, 711–716 (1999).

16) D. V. Lim, “Detection of microorganisms and toxins with evanescent wave fiber-optic biosensors,” Proc. IEEE 91, 902-907 (2003).

17) T. B. Tims and D. V. Lim, "Confirmation of viable E. coli O157:H7 by enrichment and PCR after rapid biosensor detection," Journal of Microbiological Methods, 55, 141-147 (2003).

18) G. P. Anderson, C. A. Rowe-Taitt, and F. S. Ligler, “RAPTOR: A Portable, Automated Biosensor,” First Conference on Point Detection for Chemical and Biological Defense (October 2000).

19) Ellen R. Goldman, Mehran P. Pazirandeh, J. Matthew Mauro, Keeley D. King, Julie C. Frey and George P. Anderson, ” Phage-displayed peptides as biosensor reagents,” Journal of Molecular Recognition, 13 (6), 382 – 387, 2000.

20) G. P. Anderson, K. D. King, K. L. Gaffney, and L. H. Johnson, “Multi-Analyte Interrogation Using the Fiber Optic Biosensor,” Biosensors & Bioelectronics, 14, 771–777 (2000).

21) R. A. Ogert, *et al.*, “Detection of *Clostridium botulinium* Toxin A Using a Fiber Optic-Based Biosensor,” *Analytical Biochemistry*, 205, 306–312 (1992).