



Rex Dyer, Ph.D.

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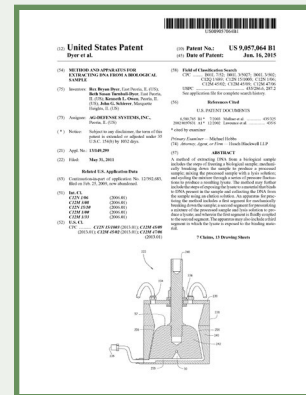
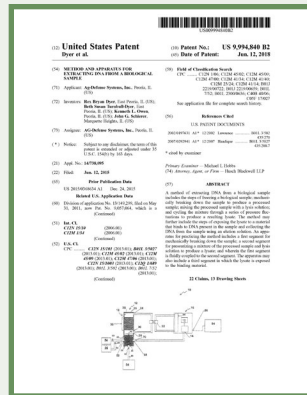
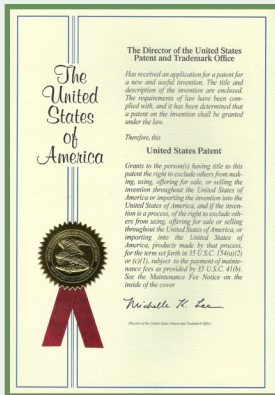
Traction

Issued 2 Utility Patents

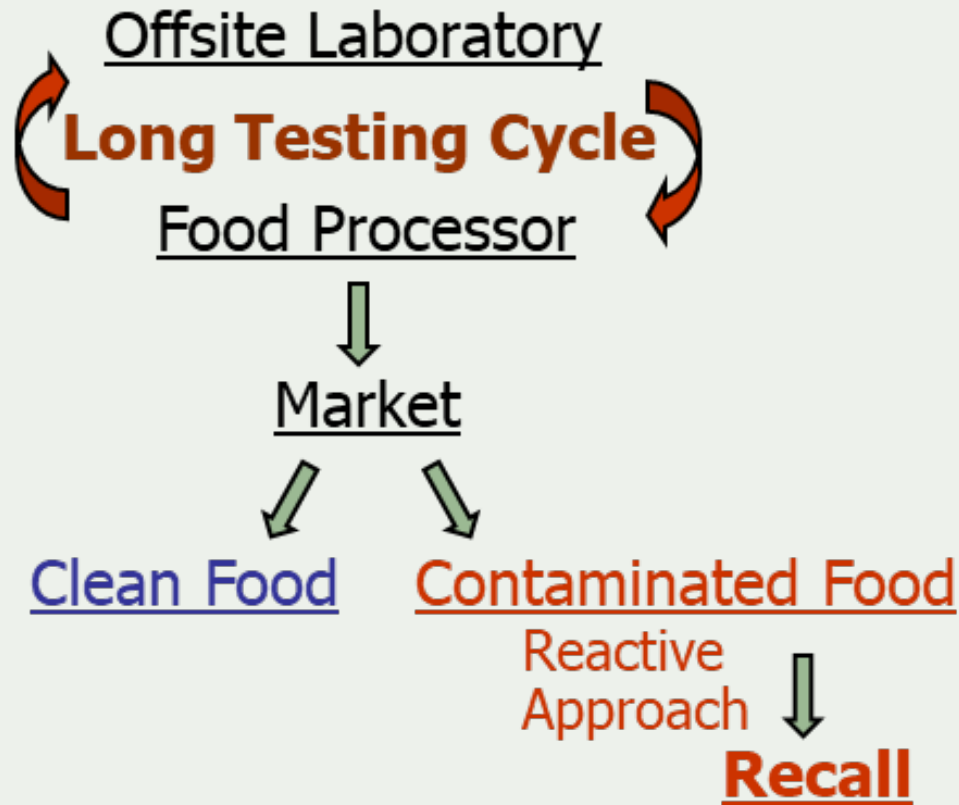
US 9057064: Apparatus

US 9994840: Method

Invited by NSF to submit Phase I SBIR Grant



The Problem: Food Recalls



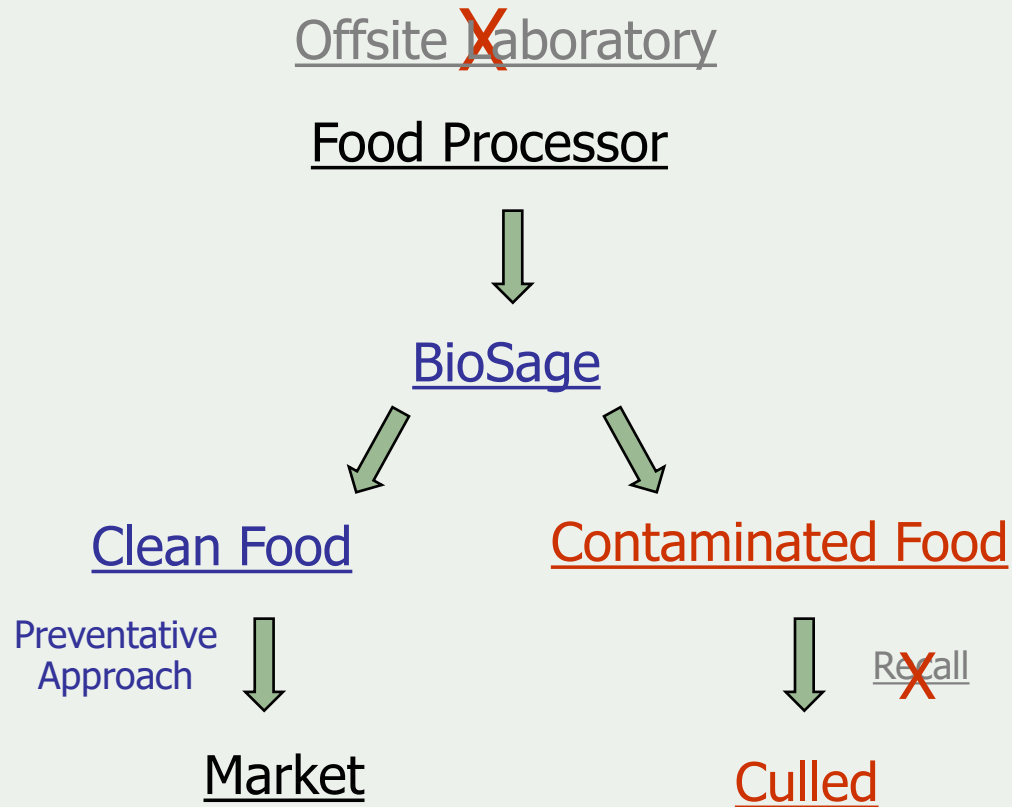
The Problem:

Human and Economic Impacts

- ✓ \$10 Million is the Average Cost / Recall / Company
- ✓ 81% of processors report that recalls are significant to catastrophic to their business
- ✓ \$17.6 Billion in Medical and Productivity Losses / Year
- ✓ 3,000 Deaths / Year

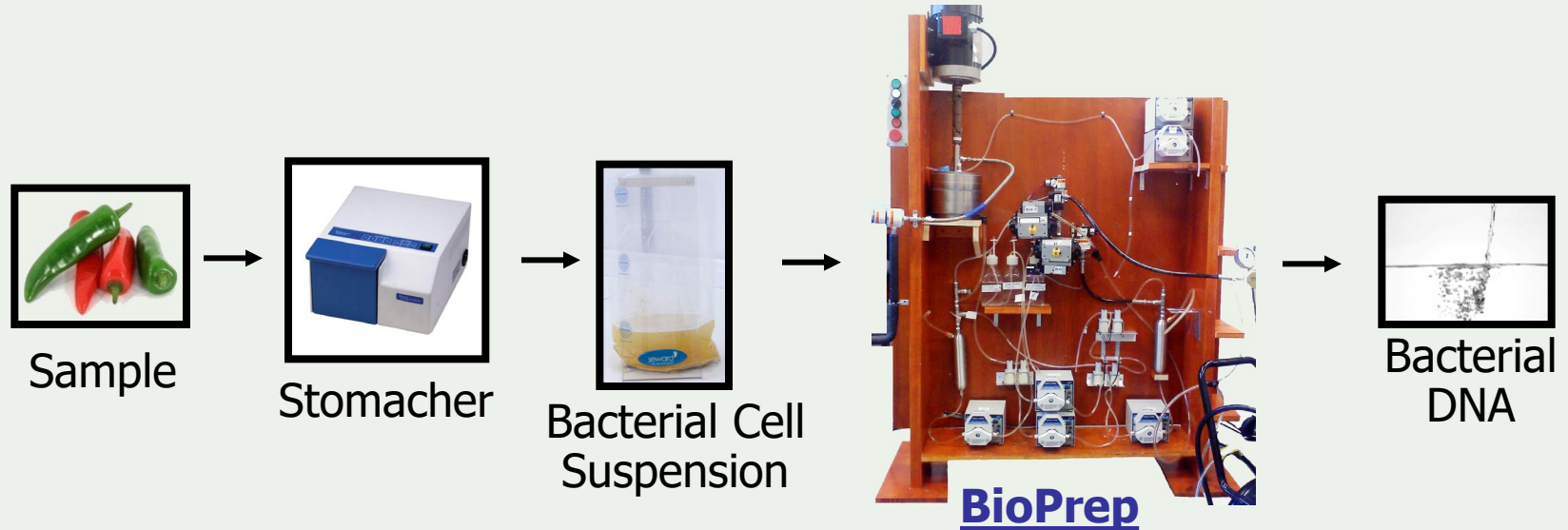
The Solution:

Testing at Food Processing Plants

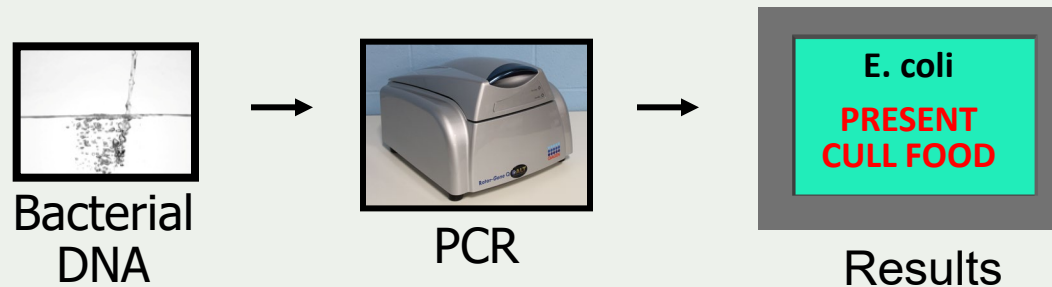


AgDefense Systems' Solution

Sample Preparation



Analytics



AgDefense Systems' Solution

Sample Preparation + Analytics



Stomacher

+

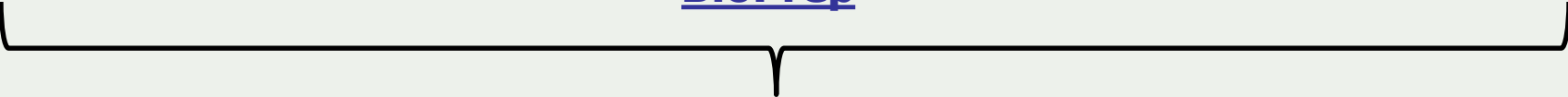


BioPrep

+



PCR

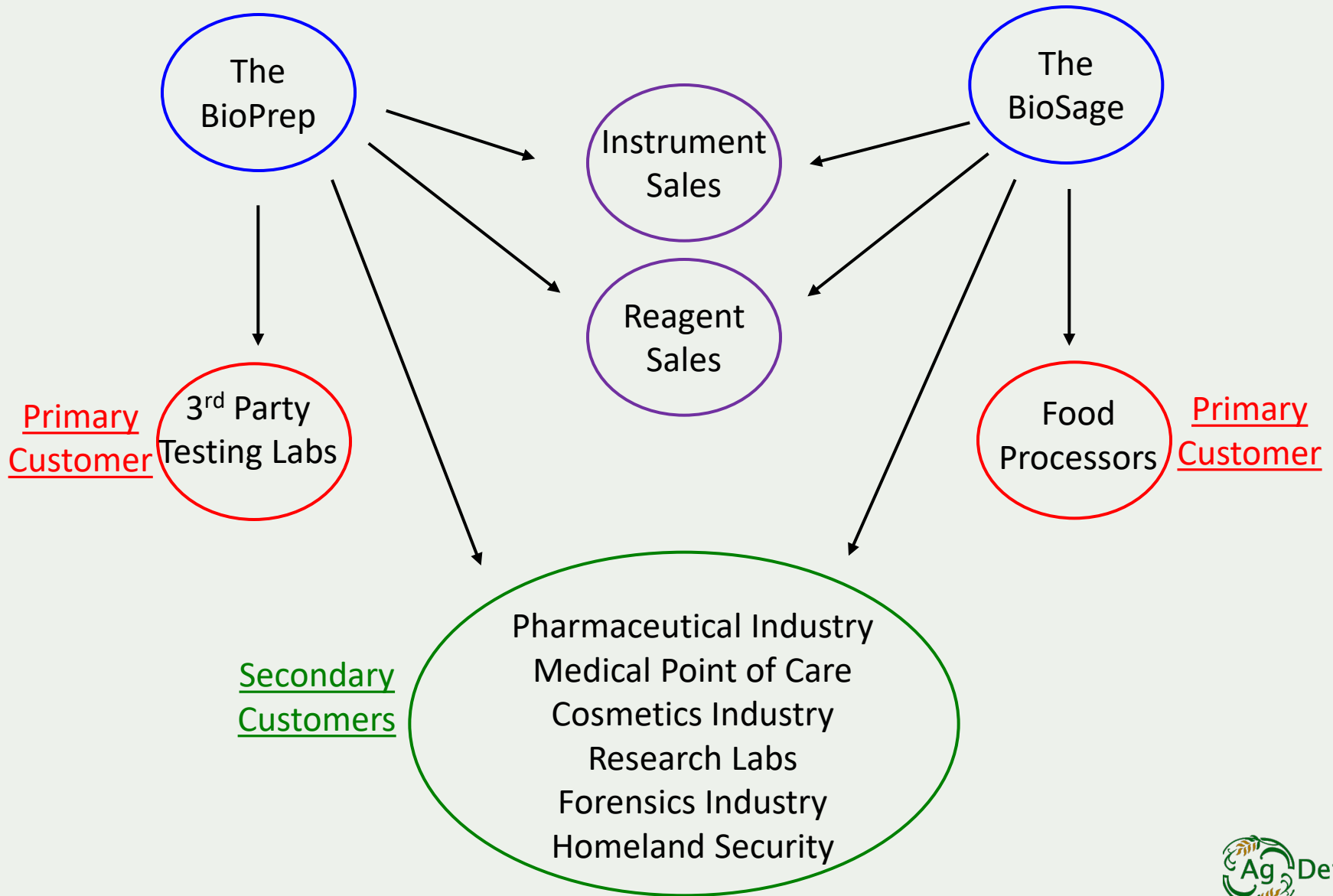


BioSage



Results

Business to Business Sales



Traction

NSF Phase I SBIR Grant

Submission Date: August 3, 2024

Award Date: March 2025



Collaboration

FermionX: Supply Stomacher



Integrus Engineering: Engineering



UIUC / Dr. Matthew Stasiewicz



Market Opportunity

BioPrep Sales: 3rd Party Testing Labs

Instrument Sales

TAM = \$36,800,000

# of Customers	1 Unit / Processor	Cost / Unit
736	1	\$50,000

Reagent Sales

TAM = \$32,200,000

# of Customers	Cost / Prep	# Preps / Year
736	\$35	1,250

TotalSales

\$69,000,000

Market Opportunity

BioSage Sales: Food Processing Plants

Instrument Sales

TAM = \$3,280,000,000

# of Customers	1 Unit / Processor	Cost / Unit
41,000	1	\$80,000

Reagents Sales

TAM = \$4,356,250,000

# of Customers	Cost / Test	# Tests / Year
41,000	\$85	1,250

Total Sales

7,636,250,000

Team

Rex Dyer, PhD

Vice-President, Chief Executive Officer, Founder

- Microbiologist / Molecular Biologist
- Expert in real-time PCR technology
- Experience in academic, industry and government settings



Beth Turnbull, DVM, PhD

President

- Veterinarian / Pathologist / Toxicologist
- Expert in disease diagnostics
- Experience in successful business start-up



Needs

Year 1 } Funding
\$2,323,320 } Use of Funds
BioPrep / BioSage Engineering
BioPrep / BioSage Testing
Administrative Expenses
Additional Patents

Year 2 } Funding
\$2,337,880 } Use of Funds
BioPrep / BioSage Field Testing
BioPrep / BioSage Test Kit Development
BioPrep / BioSage Regulatory Validation
Transfer to Manufacturing
Administrative Expenses
Marketing



Thank You



Appendix

Competition

Cost Savings Over FCLs

BioPrep N Cost Benefits	Current Food Contract Lab Off-Site Testing	BioPrep Food Processing Lab On-Site Testing
# Preps / Year	1,250	
Cost / Test	\$95	\$35
Total Cost / Year	\$118,750	\$43,750
Time for Results	3 - 6 Hours	1.5 Hours
BioPrep Cost Savings / Year		63% *

* After Initial BioPrep
Unit Cost of \$50,000

BioSage N Cost Benefits	Current Food Contract Lab Off-Site Testing	BioSage Food Processing Lab On-Site Testing
# Tests / Year	1,250	
Cost / Test	\$150	\$85
Total Cost / Year	\$187,500	\$106,250
Time for Results	5 - 25 Days	3 Hours
BioSage Cost Savings / Year		43% *

* After Initial BioSage
Unit Cost of \$80,000

Ownership / Valuation

Pre-Investment Funding

Shareholders	Shares Outstanding	Value (\$20/share)	Equity
1 (Beth)	45,000	\$900,000	45%
2	15,000	\$300,000	15%
3	15,000	\$300,000	15%
4	10,000	\$200,000	10%
5	5,000	\$100,000	5%
6	5,000	\$100,000	5%
7	5,000	\$100,000	5%
8 (Rex)	0	0	0
Total	100,000	\$2,000,000	100%

Ownership / Valuation

Post-Investment Funding Year 1

- ❖ Dr. Dyer will be issued 90,823 shares for services performed
- ❖ Dr. Turnbull will be issued 42,330 shares for services performed

Shareholders	Shares Outstanding	Shares for Issue	Total Shares	Value (\$20/share)	Equity
1 (Beth)	45,000	42,330	87,330	\$1,746,600	25%
2	15,000	0	15,000	\$300,000	4.3%
3	15,000	0	15,000	\$300,000	4.3%
4	10,000	0	10,000	\$200,000	2.9%
5	5,000	0	5,000	\$100,000	1.4%
6	5,000	0	5,000	\$100,000	1.4%
7	5,000	0	5,000	\$100,000	1.4%
8 (Rex)	0	90,823	90,823	\$1,816,460	26%
9 (Investors)	0	116,166	116,166	\$2,323,320	33.3%
Total	100,000	249,319	349,319	\$6,986,380	100%

Ownership / Valuation

Post-Investment Funding Year 2

Shareholders	Shares Outstanding	Shares for Issue	Total Shares	Value (\$20/share)	Equity
1 (Beth)	87,330	0	87,330	\$1,746,600	18.7%
2	15,000	0	15,000	\$300,000	3.2%
3	15,000	0	15,000	\$300,000	3.2%
4	10,000	0	10,000	\$200,000	2.1%
5	5,000	0	5,000	\$100,000	1.1%
6	5,000	0	5,000	\$100,000	1.1%
7	5,000	0	5,000	\$100,000	1.1%
8 (Rex)	90,823	0	90,823	\$1,816,460	19.5%
9 (Investors)	116,166	116,894	233,060	\$4,661,200	50%
Total	349,319	116,894	466,213	\$9,324,260	100%

BioPrep N Gross Sales Forecast

	Instruments \$50,000 / Unit		Test Kits \$35 / Kit	
Year	Unit Sales	Gross Sales	Unit Sales	Gross Sales
3	32	\$1,600,000	15,680	\$548,800
4	65	\$3,250,000	47,530	\$1,663,550
5	65	\$3,250,000	79,380	\$2,778,300
6	65	\$3,250,000	111,230	\$3,893,050
7	65	\$3,250,000	143,080	\$5,007,800
Total	292	\$14,600,000	396,900	\$13,891,500
5 Year Gross Income	\$28,491,500			
5 year COGS	\$7,892,600			
Gross Profit Margin	72.3%			

❖ Years 1 & 2 = investment funding - no sales

BioSage N Gross Sales Forecast

	Instruments \$80,000 / Unit		Test Kits \$85 / Kit	
Year	Unit Sales	Gross Sales	Unit Sales	Gross Sales
3	45	\$3,600,000	22,050	\$1,874,250
4	90	\$7,200,000	66,150	\$5,622,750
5	90	\$7,200,000	110,250	\$9,371,250
6	90	\$7,200,000	154,350	\$13,119,750
7	90	\$7,200,000	198,450	\$16,868,250
Total				
	405	\$32,400,000	551,250	\$46,856,250
5 Year Gross Income				
	\$79,256,250			
5 year COGS				
	\$25,222,500			
Gross Profit Margin				
	68.2%			

❖ Years 1 & 2 = investment funding - no sales

Cash Flow Projections

	Year 1	Year 2	Year 3	Year 4	Year 5
Income					
Investment	\$2,323,320	\$2,337,880			
BioPrep / BioSage N Sales			\$7,623,050	\$17,736,300	\$22,599,550
BioPrep / BioSage P Sales					
BioPrep / BioSage C Sales					
Gross Income	\$2,323,320	\$2,337,880	\$7,623,050	\$17,736,300	\$22,599,550
Prototype Expenses					
BioPrep / Sage N Engineering	\$1,633,228	\$126,750			
BioPrep / Sage N Testing	\$300,000	\$100,000			
BioPrep / Sage P Engineering				\$949,978	\$810,000
BioPrep / Sage P Testing				\$300,000	
BioPrep / Sage C Engineering					
BioPrep / Sage C Testing					
Test Kit Development		\$250,000			\$250,000
Transfer to Manufacturing		\$280,000			\$280,000
Regulatory Approval		\$250,000			\$250,000
Marketing		\$700,000	\$762,305	\$1,773,630	\$2,259,955
Production Expenses			\$1,945,220	\$4,874,520	\$6,819,820
Administrative Expenses	\$390,092	\$631,130	\$1,414,797	\$1,774,457	\$1,814,220
Total Expenses	\$2,323,320	\$2,337,880	\$4,122,322	\$9,672,585	\$12,483,995
Net Income	\$0	\$0	\$3,500,728	\$8,063,715	\$10,115,555

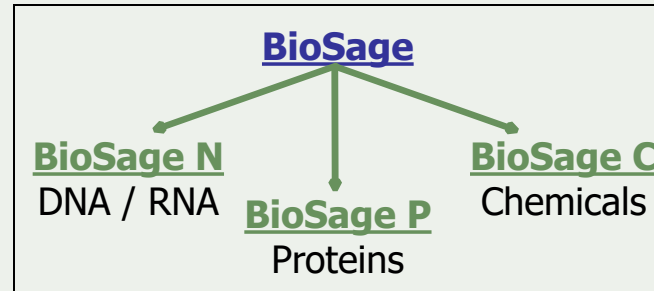
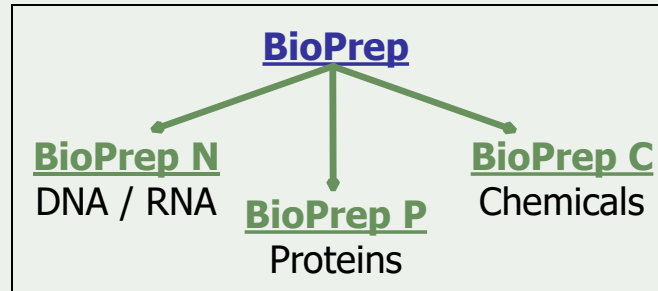
Cash Flow Projections

	Year 6	Year 7	Year 8	Year 9	Year 10
Income					
BioPrep / BioSage N Sales	\$27,462,800	\$32,326,050	\$37,189,300	\$42,052,550	\$46,915,800
BioPrep / BioSage P Sales	\$7,623,050	\$17,736,300	\$22,599,550	\$27,462,800	\$32,326,050
BioPrep / BioSage C Sales			\$7,623,050	\$17,736,300	\$22,599,550
Gross Income	\$35,085,850	\$50,062,350	\$67,411,900	\$87,251,650	\$101,841,400
Prototype Expenses					
BioPrep / Sage N Engineering					
BioPrep / Sage N Testing					
BioPrep / Sage P Engineering					
BioPrep / Sage P Testing					
BioPrep / Sage C Engineering	\$949,978	\$810,000			
BioPrep / Sage C Testing	\$300,000				
Test Kit Development		\$250,000			
Transfer to Manufacturing		\$280,000			
Regulatory Approval		\$250,000			
Marketing	\$3,508,585	\$5,006,235	\$6,741,190	\$8,725,165	\$10,184,140
Production Expenses	\$17,530,240	\$21,420,840	\$37,967,160	\$43,803,060	\$49,638,960
Administrative Expenses	\$1,406,177	\$1,448,362	\$1,491,813	\$1,536,567	\$1,582,664
Total Expenses	\$23,694,980	\$29,465,437	\$46,200,163	\$54,064,792	\$61,405,764
Net Income	\$11,390,870	\$20,596,913	\$21,211,737	\$33,186,858	\$40,435,636

Business Growth Strategy

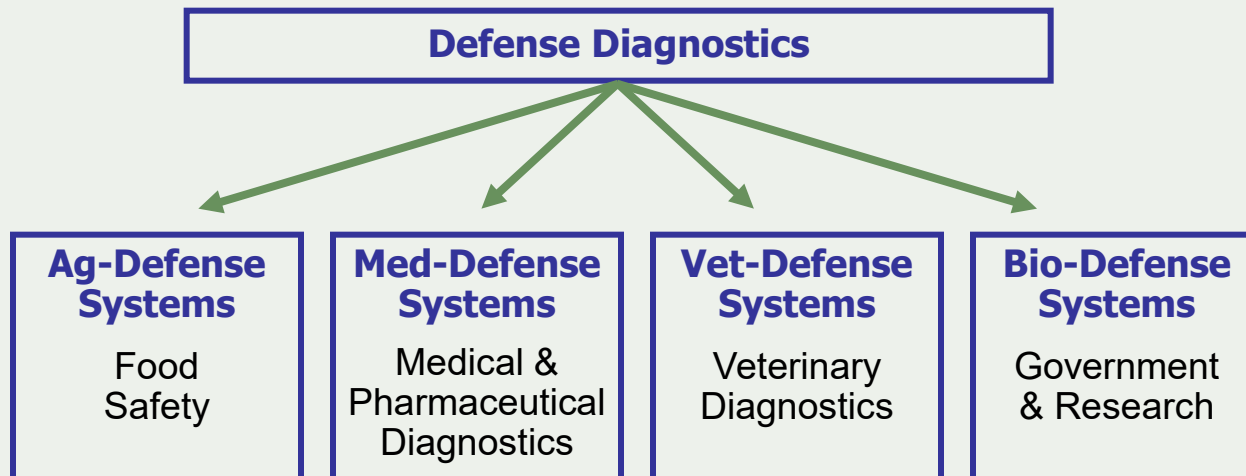
Additional Technology and Patent Opportunities

- BioPrep / BioSage P (and disposable / customizable test kits) patents / fabrication: Year 3
- BioPrep / BioSage C (and disposable / customizable test kits) patents / fabrication: Year 5



Umbrella Corporation: Defense Diagnostics

- Umbrella corporation for sales / distribution to subsequent target markets: Year 3



Exit Strategy

Analytical Device Partner Acquisition

	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10
Net Revenue	\$3.5 M	\$8.1 M	\$10.1 M	\$11.4 M	\$20.6 M	\$21.2 M	\$33.2 M	\$40.4 M
Acquisition Price (3x Net Revenue)	\$10.5 M	\$25.4 M	\$30.3 M	\$35.3 M	\$61.8 M	\$63.6 M	\$99.6 M	\$121.3 M
Initial Investment	\$4.7 M	\$4.7 M	\$4.7 M	\$4.7 M	\$4.7 M	\$4.7 M	\$4.7 M	\$4.7 M
Equity	50 %	50 %	50 %	50 %	50 %	50 %	50 %	50 %
Net Profit (\$ Acquisition x Equity) - Investment	\$0.6 M	\$7.4 M	\$10.5 M	\$12.4 M	\$26.2 M	\$27.1 M	\$45.1 M	\$56.0 M

Exit at Year 9 = 10 times original investment