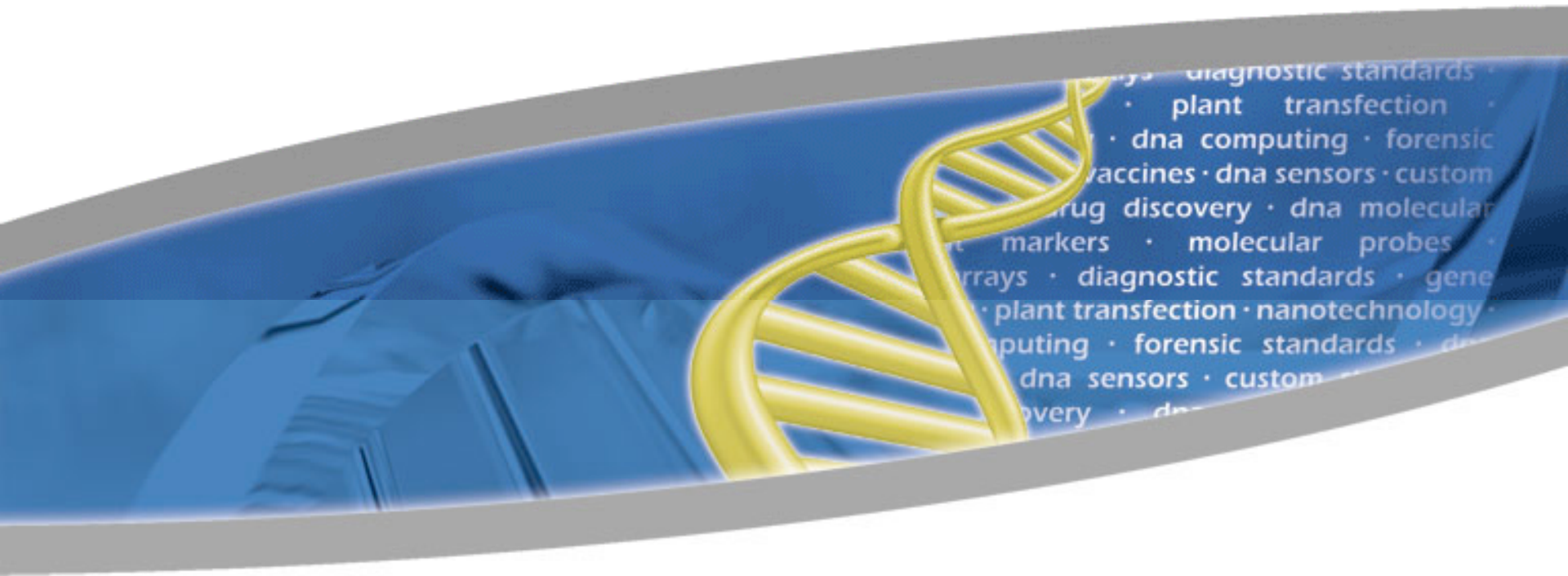


# A Student- and Faculty- Driven Home-Grown Tech Startup



**Vandalia**  
Research TM

**Presented by  
Derek Gregg, CEO**

# Vandalia Research, Inc.

- Founded 2004 to commercialize Triathlon DNA production technology.
- Cumulative raise of ~\$2.5MM in equity, over \$4MM in total (grants/equity/loans).
- 2 US patents, multiple international pending.
- Profitable starting Q1 2012.



**Vandalia**  
Research™

# The Triathlon

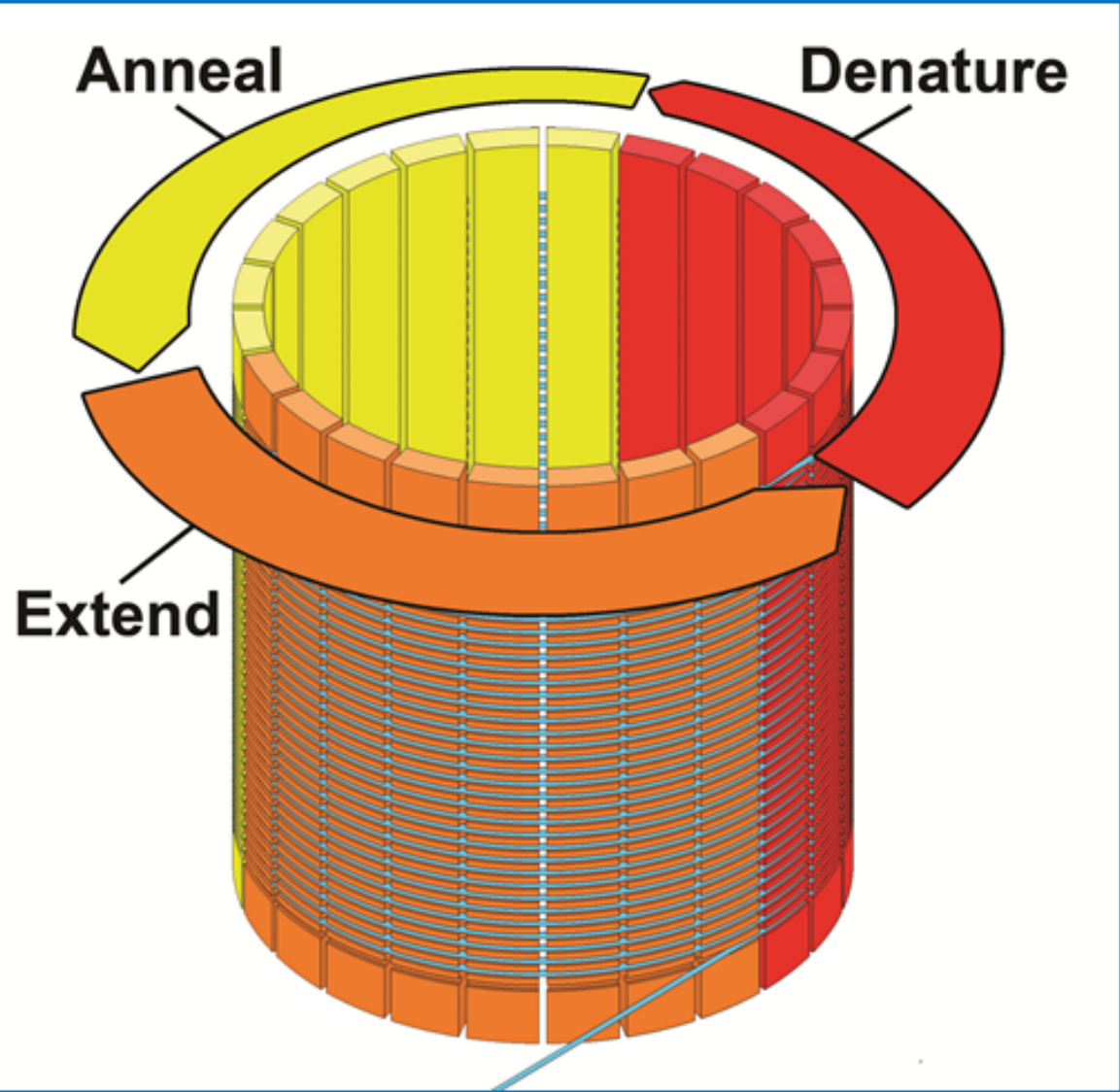
Patented continuous flow system, scaling PCR from micro-liters to liters.



**Vandalia**  
Research™

U.S. Patent 8,163,489, others pending





**Vandalia**  
Research™

# Business Model

1. Provide custom, large-scale DNA production services.
2. Research, develop, and market new products and applications based on large-scale DNA production technology.



**Vandalia**  
Research™

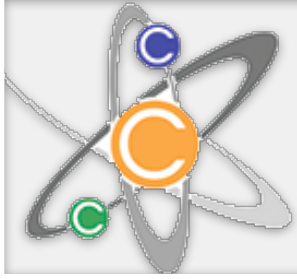
# Applications

- Our target customers are developing new products that require DNA:
  - DNA Vaccines
  - Diagnostics
  - Gene Therapy
  - Bio-agriculture
  - Nanotechnology



**Vandalia**  
Research™





**crosscuttingconcepts**

empowering the next generation in science education

- Originally started as Vandalia Science Education, now Crosscutting Concepts, LLC
- Closed on Series A financing in 2012.



**Vandalia**  
Research™

# Products

- Hands-on Science Education kits, currently designed for grades 7-12:
  - Mystery of Lyle & Louise
  - Biotechnology: Science for the New Millennium
  - Desolation: STEM



**Vandalia**  
Research™





A collection of materials for a forensic science kit, including a box labeled 'Small Case Evidence', various bottles, packets, a ruler, and a scale.

**Vandalia**  
Research™



## Restriction Digestion (Lab 8b)

Price: \$ 155.99

Explore characteristics of pAmylase and examine a suspected sample of pAmylase using a restriction digestion. Students will use an electrophoresis apparatus to compare digests to a protein standard and analyze...



## Ion-Exchange Chromatography (Lab 9c)

Price: \$ 155.99

In this lab activity students explore the principles of ion-exchange chromatography by separating lysozyme from amylase. Then, they'll analyze the fractions using a spectrophotometer and examine the absorbance...



## Direct ELISA of Alpha Amylase (Lab 6d)

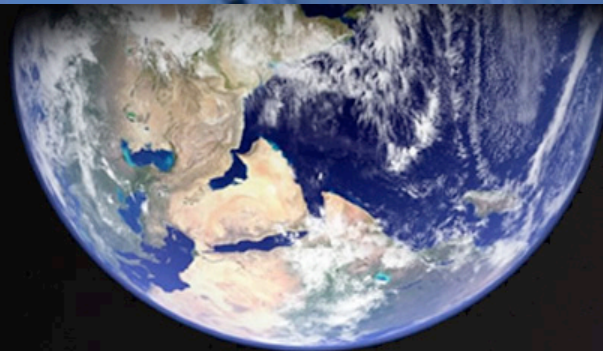
Price: \$ 155.99

Students learn how to determine if a protein is present in a solution and determine the concentration of that protein using a direct ELISA.



**Vandalia**  
Research™

[www.CrosscuttingConcepts.com](http://www.CrosscuttingConcepts.com)



COMING SOON:

# DESOLATION

SCIENCE · TECHNOLOGY · ENGINEERING · MATH

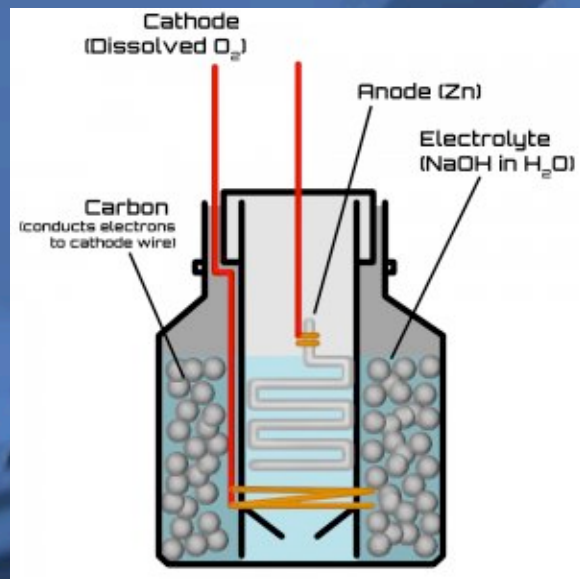


**Vandalia**  
Research™

[www.DesolationSTEM.com](http://www.DesolationSTEM.com)



# Total Redox™ Fuel Cells



# Urine Trouble™ Water Purification



**Vandalia**  
Research™

# Distribution

- Distributed in nearly every major science education supply catalog.
- 1000's of kits sold in 2012.
- Stocked by Amazon.com in Industrial & Scientific store (Amazon Prime eligible)



**Vandalia**  
Research™

# Company History

- Started as a class project in an innovative course “Technology & Innovation”
- Course funded by National Collegiate Inventors and Innovators Alliance (NCIIA).
- Two freshman students enrolled, instructed by three professors.



**Vandalia**  
Research™



# Early Funding

- Very first funding from NSF EPSCoR / WV HEPC through Research Challenge Grant
- Funded two students to work over the summer on building a prototype.



**Vandalia**  
Research™

# NCIIA Funding

- NCIIA funded us at end of summer, paid for progress through the next two semesters.
- Additional funding from within MU and EPSCoR helped move the company from the University to be able to raise private funding.



**Vandalia**  
Research™

# Myth

- Scientists/Inventors/Students don't run companies
  - Promega
  - Diagnostic Hybrids
  - Aldevron
  - Edvotek
  - Hopefully Vandalia Research / Crosscutting Concepts??



**Vandalia**  
Research™



# Risks and Requirements

- Long time-frame – requires patience.
- Large learning curve – requires mentoring and support for faculty and students
- High Risk – failure is absolutely an option.



**Vandalia**  
Research™

# Key Factors for Vandalia

- Two energetic (but completely inexperienced) students paired with two passionate, committed faculty.
- Network of mentors and role models - too many to name and thank.
- A lot of people who were willing to take a risk.



**Vandalia**  
Research™

# Additional Factors

- Faculty kept their day-jobs – students ran the company

(You can't run a startup part-time)



**Vandalia**  
Research™



# How to Replicate?

- Make a concerted effort to pair students with faculty mentors.
- Fund entrepreneurship/technology/innovation courses like IST 350
- Fund student/faculty projects
- Showcase projects and build a network of willing mentors.



**Vandalia**  
Research™

# How to Improve?

- Involve business / MBA students
- Expect more from everyone
- Enable student-student networking
- Make tech transfer pathway completely transparent and easy
- Maintain reasonable expectations.



**Vandalia**  
Research™

# Next Steps

- Create a support pipeline – Universities, BioWV, TechConnect, NCIIA, and others
- Fund activities to feed and support this pipeline – University courses, student/faculty/mentor focused events, student/faculty projects



**Vandalia**  
Research™