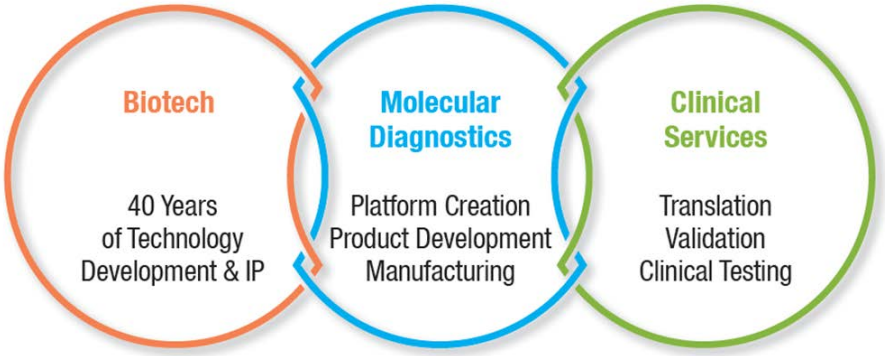
Investor Presentation
2018

www.enzo.com

LEGAL DISCLAIMER

Except for historical information, the matters discussed herein may be considered "forward-looking" statements within the meaning of Section 27A of the Securities Act of 1933, as amended and Section 21E of the Securities Exchange Act of 1934, as amended. Such statements include declarations regarding the intent, belief or current expectations of the Company and its management, including those related to cash flow, gross margins, revenues, and expenses are dependent on a number of factors outside of the control of the company including, inter alia, the markets for the Company's products and services, costs of goods and services, other expenses, government regulations, litigations, and general business conditions. See Risk Factors in the Company's Form 10-K for the fiscal year ended July 31, 2017. Investors are cautioned that any such forward-looking statements are not guarantees of future performance and involve a number of risks and uncertainties that could materially affect actual results. The Company disclaims any obligations to update any forward-looking statement as a result of developments occurring after the date of this presentation.

An Integrated Diagnostics Company



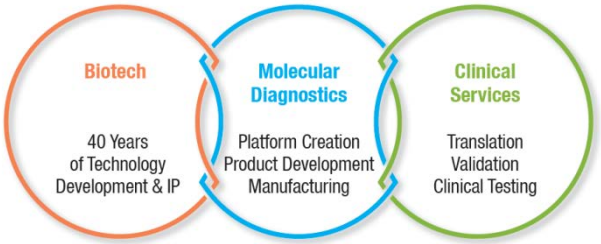
ENZO BIOCHEM, INC. – WHO WE ARE

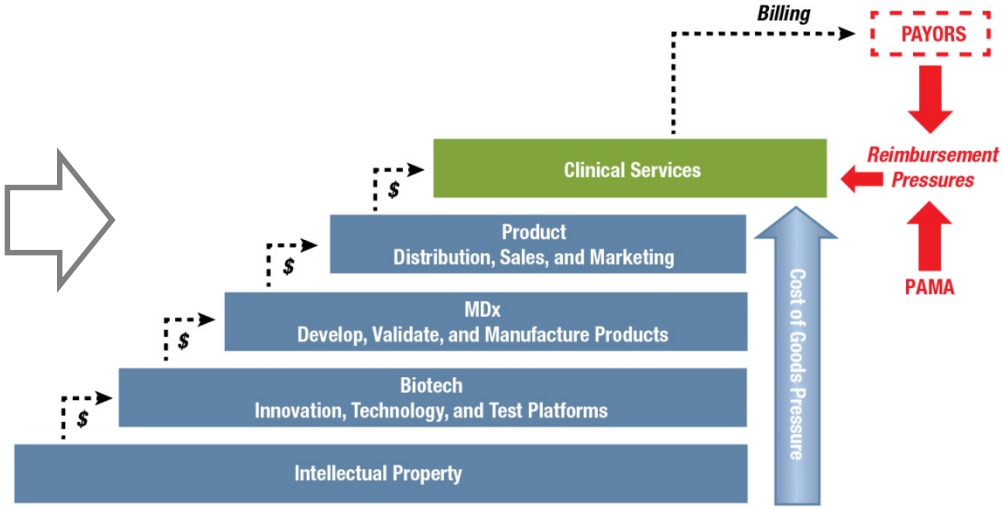
- Innovative company driving development of cost efficient and leading edge diagnostic technologies
- Pioneers in labeling and detection – from genome to whole cell – transforming the Molecular Diagnostic market
  - ❖300+ Key Patents; 150+ pending patent applications
- Disruptive technology being employed to alternative business model to improve laboratory economics; reducing dependency on diagnostic manufacturers
- Unique infrastructure that enables molecular platform development for use in open systems, manufacturing and distribution of reagents and kits, along with global sales and marketing reach
  - ❖Global Commercial Offices: Switzerland, Belgium, France, England, Germany, Michigan, New York,
- Headquartered in New York
  - Revenue of $100M+ with nearly double digit growth opportunity
  - Strong balance sheet, debt free
  - 500+ employees
  - Ticker Symbol: ENZ

Translating Innovations To Solutions

OUR OBJECTIVE

Create Affordable Solutions To Alleviate Market Pressures





Enzo's integrated structure overcomes cost of goods layering thereby producing affordable products and services needed to combat increasing reimbursement pressures

FISCAL '17 DEVELOPMENTS

Business Highlights

- Significant milestone in approval of Flowscript™ HPV E6/E7 assay, AmpiProbe® HCV and Candida assays and most recently, PLAQPRO™ Lp-PLA_2 assay
- Accelerated development of product pipeline - approval of AmpiProbe® Women's Health panel
- Named an In-Network Provider to the Fourth Largest National Insurer
- Commenced construction of a new GMP manufacturing facility
- Partnered with molecular diagnostic developers to expand test menu in women's health market
- Expanded geographical reach of clinical services to New England and Mid-Atlantic

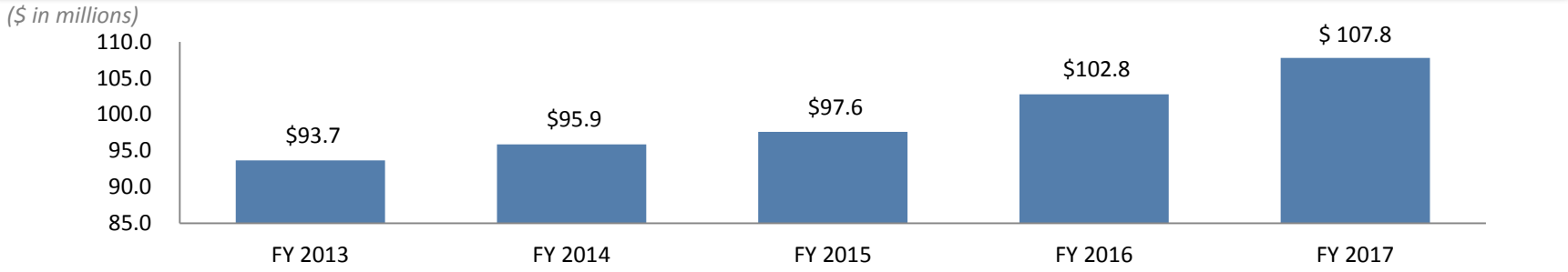
Financial Performance

- Total revenues of $107.8 million, increase of 5% over prior year; services revenue of $77.4 million, increase of 9% over prior year. Both operating segments reported profitability and generated positive cash flow; fully integrated structure proving positive impact
- Gross Margin improved by ~100 basis points in the clinical lab with emphasis on high value genetics, operational excellence and expanded market reach
- Adjusted EBITDA of $600 thousand, an improvement of over nearly $6.0 million over prior year.
- Cash on hand of $64.2 million, working capital over $71 million, no debt
- Executing on Company's long-term Molecular Diagnostic strategy

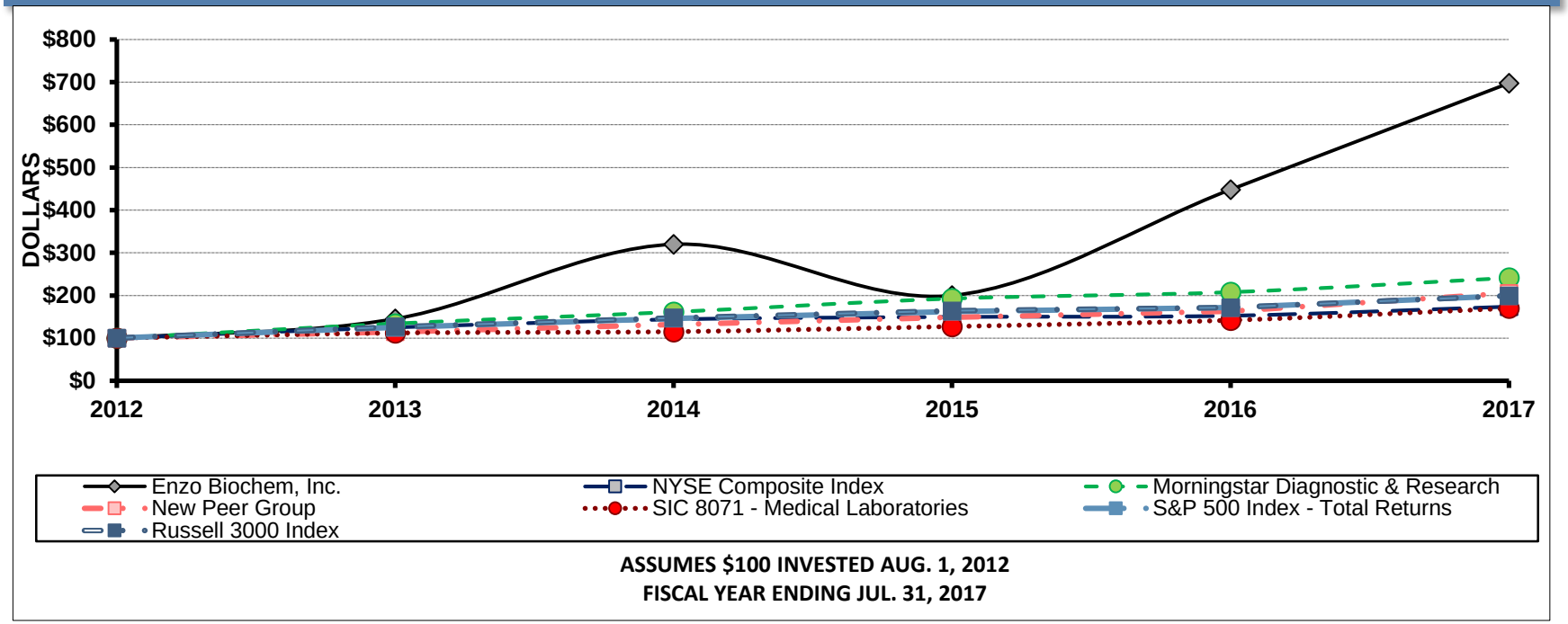
Financial Overview

RECENT RESULTS

Total Revenue



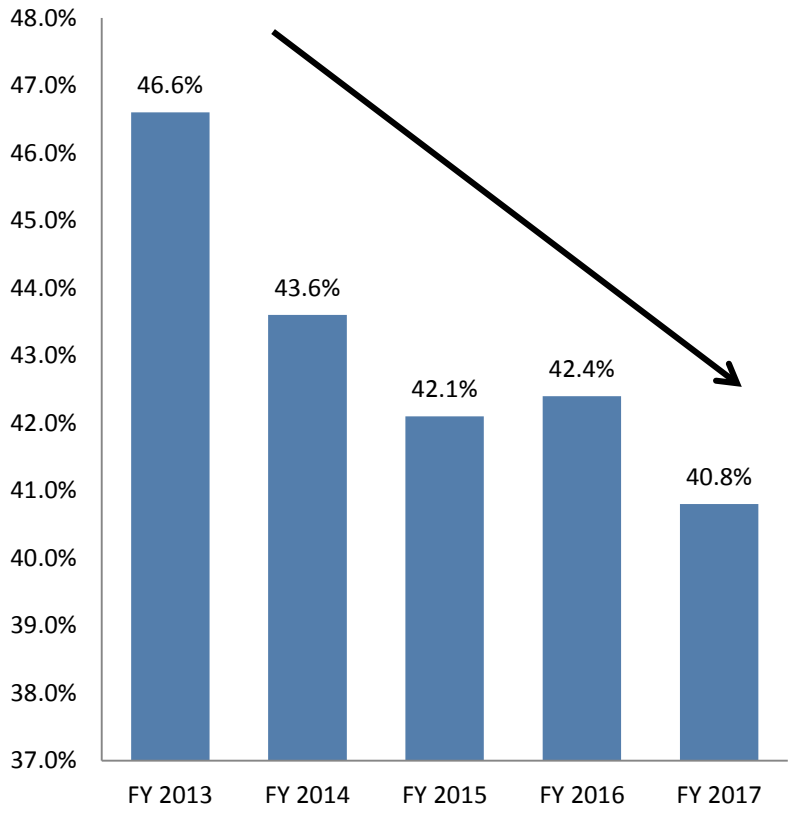
Comparison of 5-year Cumulative Total Return



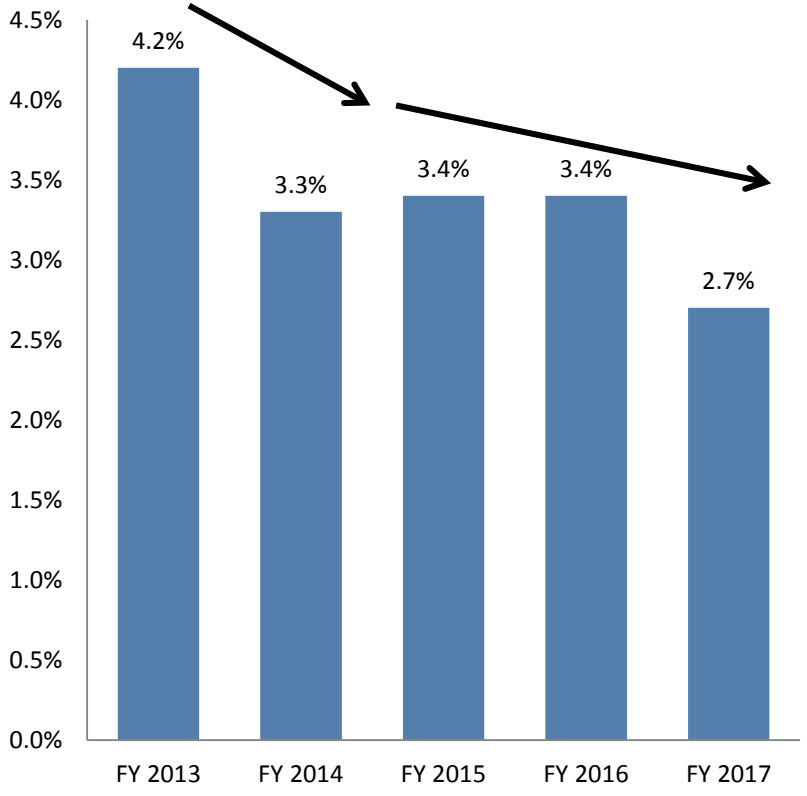
ASSUMES $100 INVESTED AUG. 1, 2012
FISCAL YEAR ENDING JUL. 31, 2017

FOCUS ON IMPROVING EFFICIENCIES

SG&A Margin Improvement



R&D to Sales

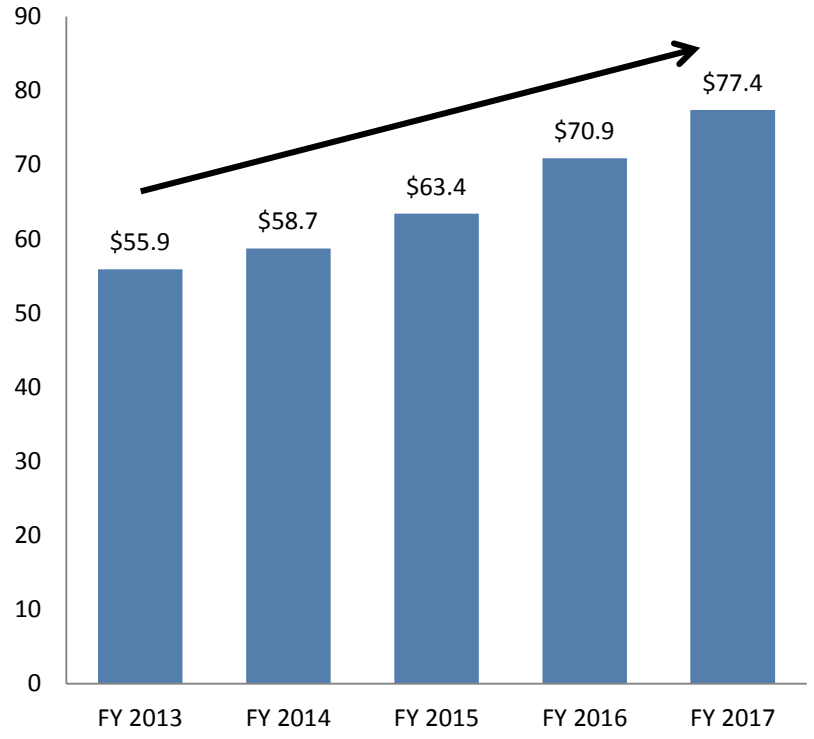


Proven Commitment to Control Costs

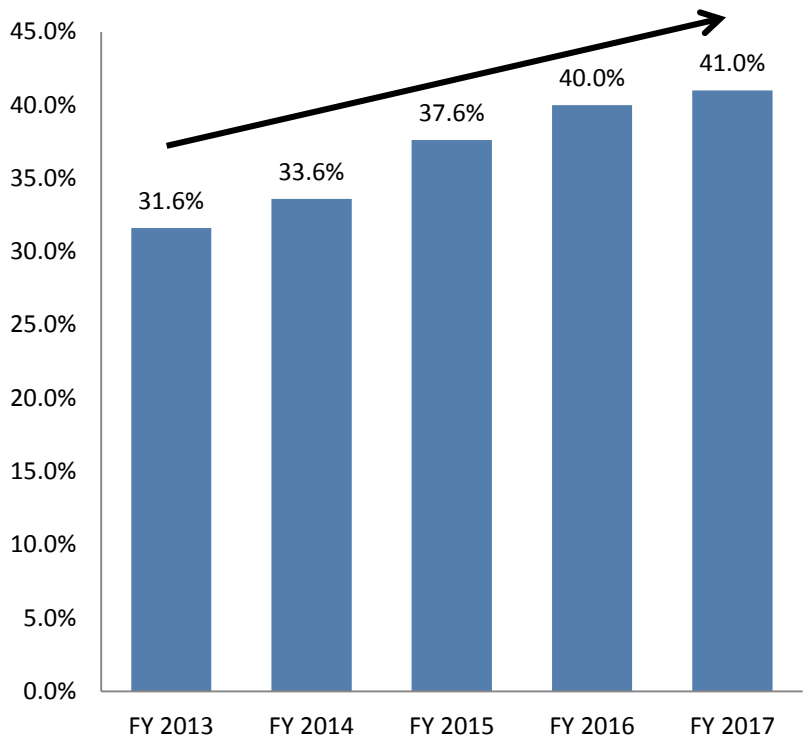
Source: Company filings

ENZO CLINICAL SERVICES: GROWTH AND OPERATING LEVERAGE

Enzo Clinical Services Revenue Growth



Enzo Clinical Services Gross Margins

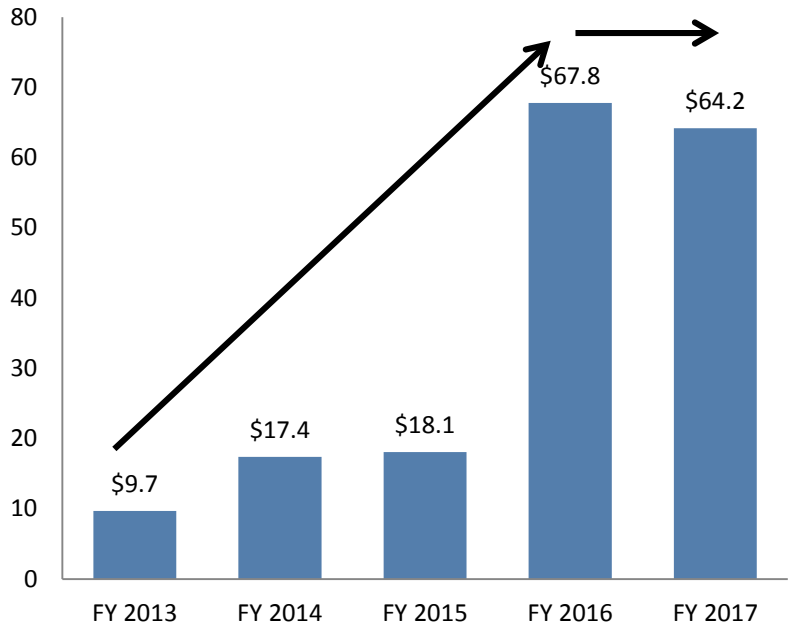


Enzo's Strategy Is Delivering Growth and Operating Efficiencies

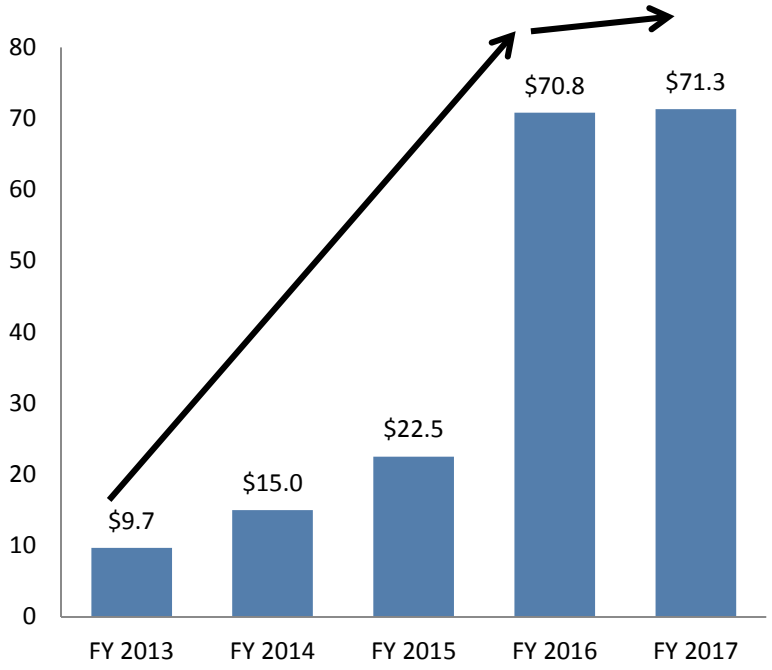
Source: Company filings

CASH AND WORKING CAPITAL TREND

Cash



Working Capital



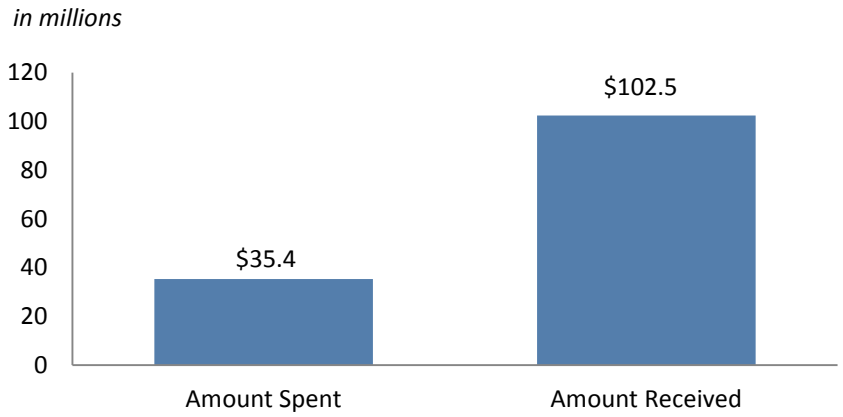
Strong Capital Position to Support Corporate Strategy

Source: Company filings

RETURN ON IP LITIGATION INVESTMENT

THE FOUNDATION HAS BEEN LAID AND IS GENERATING RETURNS

	2011-17 Total (mm)
Total Legal Fee Expense	($35.4)
Legal Settlements, Net	75.3
IP Royalties	27.1
Net Gain	**$67.0**

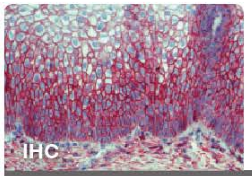
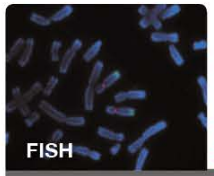
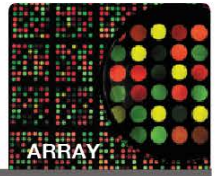
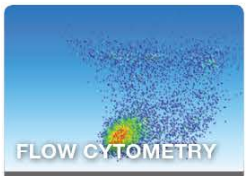


During fiscal years 2011 to 2016, Enzo's settlement and licensing revenue was more than twice as large as the Company's total legal expense and contributing to the company's cash reserves

Diagnostics Strategy… From Challenges of Industry to Opportunities for Enzo

OUR ASSETS

Applying Our Capabilities To Provide Affordable Patient Care Within Key Diagnostics Segments

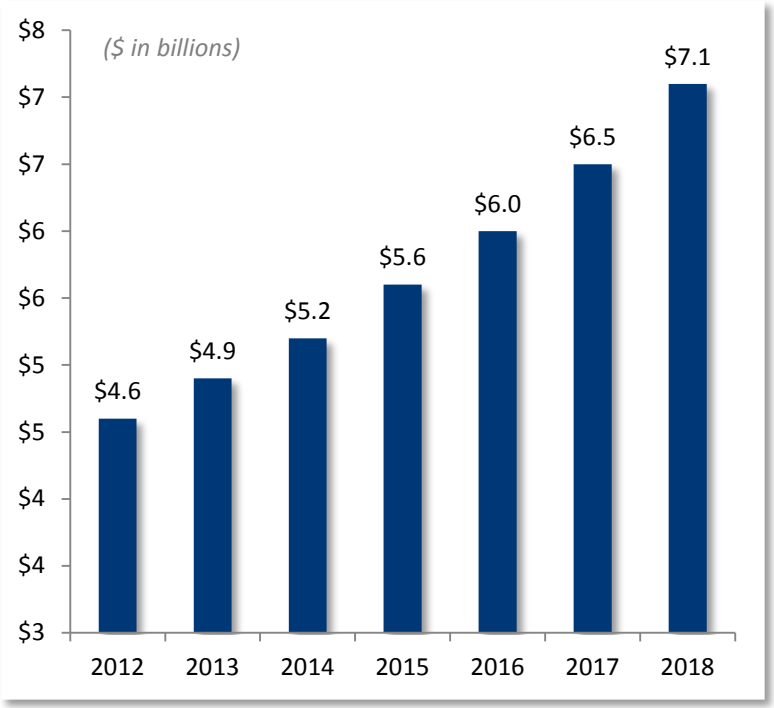
	MOLECULAR DIAGNOSTICS	ANATOMICAL PATHOLOGY		IMMUNOASSAYS	GENETICS & GENOMICS		FLOW CYTOMETRY
							
PLATFORM	AMPIPROBE® Nucleic Acid Amplification	POLYVIEW® PLUS Polyenzyme Technology		Polyenzyme-based ELISAs and Biochemical Assays	Nucleic Acid Labeling Technologies		FLOWSCRIPT® Gene Expression
PRODUCT	AMPIPROBE® HCV AMPIPROBE® Women's Health Panel	IHC Detection Reagents for Oncology Testing • Cervical Cancer (p16) • Breast Cancer (Her2)	PATHO-GENE® HPV Probes	PLAQPRO® Lp-PLA$_2$ Assay Vitamin D ELISA AMH ELISA	FISH Probes	CYTAG® CGH Labeling Kits	FLOWSCRIPT® E6/E7 Assay
SERVICE	*Chlamydia, Gonorrhea, Trich. Vanginalis, Bacterial Vaginosis* Viral Load: HCV, HIV, HBV	Histology p16 Staining Her2 Staining	Cytology Image-Guided Pap Testing HPV HR Screen	Cardiovascular Testing Fertility Testing Hormone Testing Women's Health	Cytogenetics Carrier Screen Non-Invasive Prenatal (NIPT) Screen Cancer Screen		HPV Testing

TREMENDOUS DEMAND FOR MOLECULAR DIAGNOSTICS

Molecular Diagnostics Opportunity

- In the span of 25 years, molecular diagnostics (MDx) have burgeoned from a practically non-existent market of approximately $10 million in product sales to $5.2 billion worldwide in 2014
  - Estimated annual growth rate of 7.5% from 2012 to 2018
- Thousands of labs in the U.S. can be enabled with MDx technologies, but they lack capability
  - Today's MDx technologies are expensive
    - Closed systems, high-cost reagents
    - Require specially trained med-techs
    - Inexpensive open systems lack content due to IP barriers

Molecular Diagnostics Opportunity



Source: Enterprise Analysis Corporation "Molecular Diagnostics Update: Market Trends and Outlook," 2014

MARKET GROWTH AND CHALLENGES… AND ENZO'S OPPORTUNITY

Problem to Address: MDx Market Margins are Under Intense Pressure

- Demand for MDx is rapidly increasing
- However, reimbursement for these tests is in long-term decline
- Clinical labs have already reduced labor and other expenses and, we believe, cannot make further significant cuts
- Meanwhile, the costs for performing MDx tests are increasing
- Inexpensive open systems have recently become widely available, but high-value content is lacking due to IP barriers – this presents a material opportunity for Enzo
- **Selling MDx content into this large installed base of open systems presents a significant opportunity for Enzo to disrupt the closed system market and offset margin pressures in the market**

Enzo believes that it can fulfill this challenge and deliver to its customers a 30%-50% savings through its integrated solutions

COMPANIES THAT ARE NOT VERTICALLY INTEGRATED AND/OR LACK INTERNALLY DEVELOPED ASSETS CANNOT EFFICIENTLY MEET THE MARKET CHALLENGE

CLINICAL LABORATORIES LACK MOST OR ALL OF THE FOLLOWING:

- ✖ **INNOVATION AND IP**
- ✖ **SOPHISTICATED TECHNOLOGY PLATFORM DEVELOPMENT**
- ✖ **SCALABLE MANUFACTURING**
- ✖ **VALIDATION**
- ✖ **PRODUCTS AND SERVICES**

DECLINING REIMBURSEMENT

RISING COSTS

RECENT DEVELOPMENTS VALIDATING THE NEED FOR ENZO'S SOLUTIONS

IN DECEMBER 2017, CMS ISSUED FINAL PAYER RATES UNDER PAMA THAT GO INTO PLACE IN 2018

- MOST LABS COULD SEE UP TO **10%** REDUCTION IN MOST HIGH-VOLUME TESTS IN EACH OF THE NEXT THREE YEARS
- SOME ANALYSTS HAVE CALLED THE 2018 RATES "**DRACONIAN**" AND *"FAR MORE REACHING THAN EXPECTED"*
- PRESIDENT OF AMERICAN CLINICAL LAB ASSOCIATION STATED THAT *"…IF DRAFT RULES ARE FINALIZED, THE IMPACT WOULD BE **DEVASTATING**"*
- HEAD OF NATIONAL INDEPENDENT LAB ASSOCIATION STATED *"…IF THESE PAYMENTS ARE NOT CORRECTED, LABS WOULD BE FORCED TO LAY OFF THOUSANDS, ELIMINATE SERVICES, OR **CLOSE THEIR BUSINESS ALL TOGETHER**"*
- ENZO'S LOW COST SOLUTIONS HELP LABS COPE WITH THE MARGIN SQUEEZE OF LOWER REIMBURSEMENT AND RISING COSTS – THE LAB MARKETPLACE SURVIVAL IS DEPENDENT ON LOW COST ALTERNATIVE PRODUCTS AND SERVICES

DECLINING REIMBURSEMENT

RISING COSTS

Enzo's Solution - Efficient, Self-Generated Development and Commercialization

ENZO BIOCHEM

ENZO BIOCHEM, INC. IS AN INTEGRATED MOLECULAR DIAGNOSTICS PRODUCTS AND SERVICES ENTITY THAT IS UNIQUELY STRUCTURED TO CAPITALIZE UPON ONGOING PRESSURES IN THE MDX MARKET

- Enzo's vertically integrated structure positions it to benefit as a **disruptor in molecular diagnostics (MDx)**:
  - **Biotech**: Develops technologies and platforms that serve as the engine for innovative product development
  - **Molecular Diagnostics**: Develops, formats, and manufactures high-performance MDx products on a large scale
  - **Clinical Services**: Enzo's state-of-the-art clinical lab provides the Company with meaningful insight and knowledge, allowing it to commercialize high-value diagnostic assays
- Enzo's structure is designed to deliver on the development and production of cost-effective, high-performance, easily adaptable products and services that, we believe, provide:
  - **30%-50% savings to the current MDx market**
  - **Superior product performance**
  - **Seamless fit into customers' normal workflows**

Our current market position is the culmination of extensive strategic planning and years of work developing core competencies that cannot be easily replicated

Enzo Is Positioned to Address the Margin Dilemma of the Molecular Diagnostic Market Which Can Create Sustained Value for Its Shareholders

ENZO DELIVERS SOLUTIONS ACROSS THE COMPLETE DIAGNOSTIC WORKFLOW

And Across Multiple Diagnostic Segments

Molecular Diagnostics

AMPIPROBE® Nucleic Acid Amplification & Detection

Anatomical Pathology

POLYVIEW® Polyenzyme

Immunoassays

High Sensitivity ELISA
Biochemical ELISA

Genetics

CYTAG® Labeling

ECONOMIC BENEFITS OF ENZO'S VERTICALLY INTEGRATED STRUCTURE

HOW ENZO CAN DELIVER SIGNIFICANT SAVINGS TO ITS CUSTOMERS

Average Gross Margin of Clinical Services Companies[1]	**~30%**
Potential MDx Savings:	
Cumulative Royalty Relief ■ *Enzo owns all of its IP* ■ *Intellectual property generation already paid for*	10%-15%
Lower Cost of Goods ■ *Enzo's cumulative technological capability is the foundation* ■ *Enzo's robust product development pipeline emanates from a multiplicity of platforms with a low cost of product development for open systems*	10%-20%
No Capital Investment ■ *Enzo's products do not require dedicated/expensive instrumentation*	5%-10%
Anticipated Margin After Enzo Savings – 2018 (After PAMA)[2] ■ *Even with further reimbursement erosion, we deliver cost relief to the market while maintaining healthy margins for Enzo*	**35%-55%**

(1) *Company estimates – average assumed segment lab gross margin*
(2) *Assumes PAMA reimbursement rates are approximately 20 percentage points lower than 2016 levels*

ENZO'S SOLUTION: VERTICAL INTEGRATION (continued)

Commercial Optimization

BIOTECH

- Market-Focused Innovation
- Technology Development
- Platform Development
- Intellectual Property

MDx PRODUCTS

- Product Development
- Manufacturing
- Regulatory Validation
- Distribution

CLINICAL SERVICES

- Accelerated Commercialization
- Regulatory Validation
- Global Reach

Enzo
COST-EFFECTIVE
HIGH-PERFORMANCE
EASILY ADAPTABLE

Clinical Services Validation and Regulatory

Products Validation and Regulatory

Multiple Sales Channels

Freedom to Operate

Very Difficult to Reproduce

EFFICIENT TRANSLATION OF BIOTECH CAPABILITIES TO PLATFORMS

ENZO'S PATENTED PROPRIETARY TECHNOLOGIES ARE UTILIZED TO OPTIMIZE OUR MDx PLATFORMS

Proprietary Technologies

- ✓ Non-radioactive labeling and detection of nucleic acids
- ✓ Amplification and quantification of nucleic acids
- ✓ Proprietary dyes, bleachers, quenchers, and blockers
- ✓ Enhanced detection of target via poly enzyme compounds
- ✓ Homogenous assays for nucleic acid detection
- ✓ Immobilization of nucleic acids to a solid support (array)

Our MDx Platforms

- ✓ AmpiProbe™ real-time amplification and detection(1)
- ✓ FlowScript™ flow cytometry for RNA expression(1)
- ✓ Super-CGH™ for genomics studies(2)
- ✓ Super-sensitive ELISA for immunochemistry(3)
- ✓ Immunohistochemistry (IHC) with enhanced detection(3)
- ✓ In-situ Hybridization (ISH) with enhanced detection(3)

Our Broad Technologies and Focused Platforms Permit Rapid, Efficient Product Development

(1) Incorporates: Non-radioactive labeling, amplification, proprietary dyes, and detection
(2) Incorporates: Non-radioactive labeling and arrays
(3) Incorporates: Proprietary dyes and detection

EXAMPLE: AMPIPROBE PLATFORM LEADS TO PRODUCTS THAT WE BELIEVE ARE 30%-50% THE COST OF REAL-TIME AMPLIFICATION DETECTION

DISRUPTING A MULTIBILLION REAL-TIME AMPLIFICATION REAGENTS MARKET

AMPIPROBE™

NEXT-GENERATION NUCLEIC ACID DETECTION

Less Sample	✓ Allows paneling/reduced reaction volume/lower prep costs
Multiplex Capability	✓ Able to run up to 30 assays simultaneously
Enhanced Sensitivity	✓ Compared to Roche and Abbott systems
Zero Background	✓ After more than 60 cycles ✓ Competitors have issues
100% Concordance	✓ Existing FDA-approved PCR technologies
Flexible, Adaptable & Universal	✓ Any open/dedicated system
Adaptive	✓ Fits into laboratory workflow seamlessly

One of Enzo's Proprietary Platforms

EXAMPLE: AMPIPROBE™ HCV

AMPIPROBE™ PLATFORM DEVELOPED FROM IN-HOUSE TECHNOLOGIES

- Platform formatted for both multiplexing(1) and paneling(2)
  - This increases number of tests that can be run on a single specimen
    - Reduces cost per test
    - Reduces need for patients to provide additional specimens
  - Can be run on virtually all commonly available open systems
- Because of HCV's complex biological structure, an HCV diagnostic is difficult to develop
  - As a result, we were able to use this product as an execution of the AmpiProbe platform
    - Approved by the New York State Department of Health – extremely stringent validation process
- Tested side-by-side versus leading competitor's products under actual lab conditions
  - Exceed specifications of market leaders
  - Formatted for breadth and depth of market need
  - Clinically validated on 400 previously characterized human specimens
- Fits into a customer's workflow seamlessly – no additional training required

Can Sell Product at up to 50% Savings to the Market

(1) *Simultaneous amplification of several DNA sequences*
(2) *Ability to run multiple different tests from the same unique specimen*

EXAMPLE: FLOWSCRIPT PLATFORM – FROM CONCEPT TO APPROVED ASSAY IN LESS THAN TWO YEARS

MOST EFFICIENT PLATFORM TO ANALYZE GENOMIC FUNCTION IN A SINGLE CELL

FLOWSCRIPT™

Multiplex Capability	✓ Simultaneous examinations of each cell in a sample
Higher Efficiency	✓ Designed to reduce hands-on time
Consistent	✓ Elimination of steps that can cause fluctuation in results
Flexible, Adaptable & Universal	✓ Work with virtually any flow cytometer with protocols that they are used to
Compatible with High-Through Instrumentation	✓ Scalability can reduce marginal cost
Broad Applicability	✓ Able to measure genomic activity, not just detect protein ✓ Immune mediated disorders, cancer, infectious diseases, drug development
Adaptive	✓ Fits into laboratory workflow seamlessly

One of Enzo's Proprietary Platforms

EXAMPLE: FLOWSCRIPT™ HPV E6/E7

FLOWSCRIPT™ PLATFORM DEVELOPED FROM IN-HOUSE TECHNOLOGIES

- Expansion of Enzo's women's health related products and services
- Measures activity of genes that may indicate progression toward cervical cancer
- Platform formatted for use with commonly available open lab instrumentation
  - Assay can be run on high-throughput flow cytometers to increase efficiency
  - Validated across numerous instrument manufacturers
  - Clinically validated on more than 1,500 specimens
  - Clinically validated across virtually all high-risk HPV subtypes
  - Clinically validated using both leading sample collection devices to assure widest possible utility
- Fits into customer's workflow seamlessly – no additional training required
- Approved by the New York State Department of Health – can be marketed nationally
  - Line extension under development

Enzo IP Provides Durable Barrier to Entry

ENZO HAS A ROBUST MDx PIPELINE

Rapid Roll-Out

Product / Test Description	Expected Availability	Platform	Opportunity[(1)]
HPV E6/E7 Detection	Available	FLOWSCRIPT™ GENE EXPRESSION	$200mm+ product $500mm service
HCV Viral Load	Available	AMPIPROBE™ REAL-TIME AMPLIFICATION AND DETECTION	$300mm product $450mm service
Cardiac Marker	Available	ENHANCED IMMUNOASSAY	$20mm product $30mm service
Fertility Assay	Q3 2018	ENHANCED IMMUNOASSAY	$15mm product $40mm service
Women's Health Panel	Available	AMPIPROBE™ REAL-TIME AMPLIFICATION AND DETECTION	$500mm product $1bn service
HBV Viral Load	2018	AMPIPROBE™REAL-TIME AMPLIFICATION AND DETECTION	$250mm product $375mm service
HIV Viral Load	2018	AMPIPROBE™ REAL-TIME AMPLIFICATION AND DETECTION	$600mm product $900mm service
IHC/ISH Detection	Available	ENHANCED DETECTION	$50mm+ (clinical)
TH1/TH2	In development	FLOWSCRIPT™ GENE EXPRESSION	-
Cancer AB Panel	2018	AMPIFLOW™ ENHANCED DETECTION LABEL	-
Cancer Marker Panel	In development	FLOWSCRIPT™ GENE EXPRESSION	-
HPV High Risk Panel	In development	AMBIPROBE™ REAL-TIME AMPLIFICATION & DETECTION	
HSV/VZV	2019	AMBIPROBE™ REAL-TIME	

(1) Company estimates

ENZO'S CLINICAL LABORATORY SERVICES

Translational Capability

- ✓ *Bridge between product development from MDx platforms and service and product validation*
- ✓ *Enzo rapidly adapts its development efforts to the clinical services market through constant feedback*

Rapid Clinical Assay Validation (Clinical Trials)

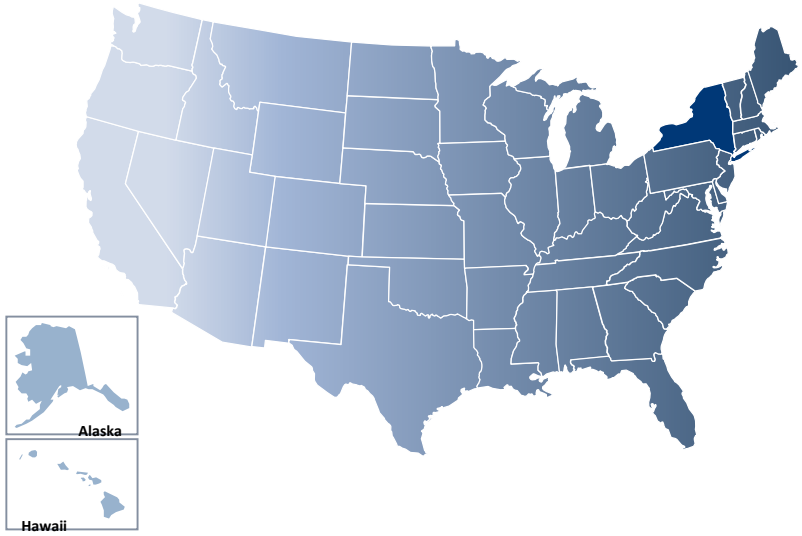
- ✓ *New York State regulation is extremely rigorous, and it allows the tests to be offered on a national basis*
- ✓ *Enzo validates all of its assays under actual clinical conditions using real clinical specimens, not just control samples – as a result, our products are evaluated under the same conditions experienced by our customers*
- ✓ *The access to thousands of previously characterized specimens allows us to perform validations at a fraction of the cost of others that need to obtain such specimens from outside sources*
- ✓ *Our integrated premarketing insights and efforts provide for material efficiencies in development and commercialization of our assays*

Accelerated Commercialization

- ✓ *Technical support and service*
- ✓ *Market to clinical labs and payors*
- ✓ *Enzo's integrated structure provides unparalleled market knowledge and expertise as Enzo's clinical laboratory is one of its own customers*

ENZO'S NATIONAL AND GLOBAL REACH

NEW YORK STATE LICENSURE ALLOWS FOR A NATIONAL REACH, WHILE ENZO ACCREDITATIONS AND GLOBAL FOOTPRINT ALLOW FOR WORLDWIDE REACH



- Continued expansion of national and worldwide sales and marketing presence
- Enzo's strategy provides optionality to the market
  - Products with 30%-50% savings
  - Comprehensive service for less than price of competitors' product alone

ENZO'S STRATEGY CAN PROVIDE BENEFIT FOR PATIENTS, PHYSICIANS & PAYORS

Payors are facing pricing pressure as well

- Enzo is currently in-network with a number of major payors
- We are well positioned to become the "first-choice" service provider to payors for MDx as the low-cost, high-quality provider
- **Because of the unique vertically integrated structure which has led to a plethora of self-generated platforms, products and services, Enzo can offer significant savings to payors in return for increases in MDx sample volume nationwide**

UnitedHealthcare · Oxford HealthCare · Cigna · aetna · Anthem Blue Cross · Horizon Healthcare

Sample Volume

Enzo®

Summary / Closing

SUMMARY

ENZO'S SYNERGISTIC STRATEGY AND INTEGRATED STRUCTURE ADDRESSES THE CHALLENGES IN MDx MARKET

- Developing strategy for low cost diagnostic services and products for enhancing clinical laboratory profitability
- The Company evaluated multiple internally generated technologies and platforms and selected those to further advance based on the development of:
  - Products that could be sold at 30%-50% less than the current market
  - Products that could perform at or superior to market leaders' products
  - Medically relevant information
  - Products that could fit into existing operations
  - **Products that result in greater margins for Enzo**
  - ***We have demonstrated that Enzo has the assets and capabilities to engineer a system that can generate products based on these features***
- We have been able to design proprietary products and protocols that are in lock step with current market operations WITHOUT the need to utilize third-party intellectual property
- **As a result, we can provide the highest quality services while providing savings from current fee schedule**

Company Strategically Positioned for Substantial Growth

HIGH-PERFORMANCE
COST-EFFECTIVE
EASILY ADAPTABLE
Enzo®