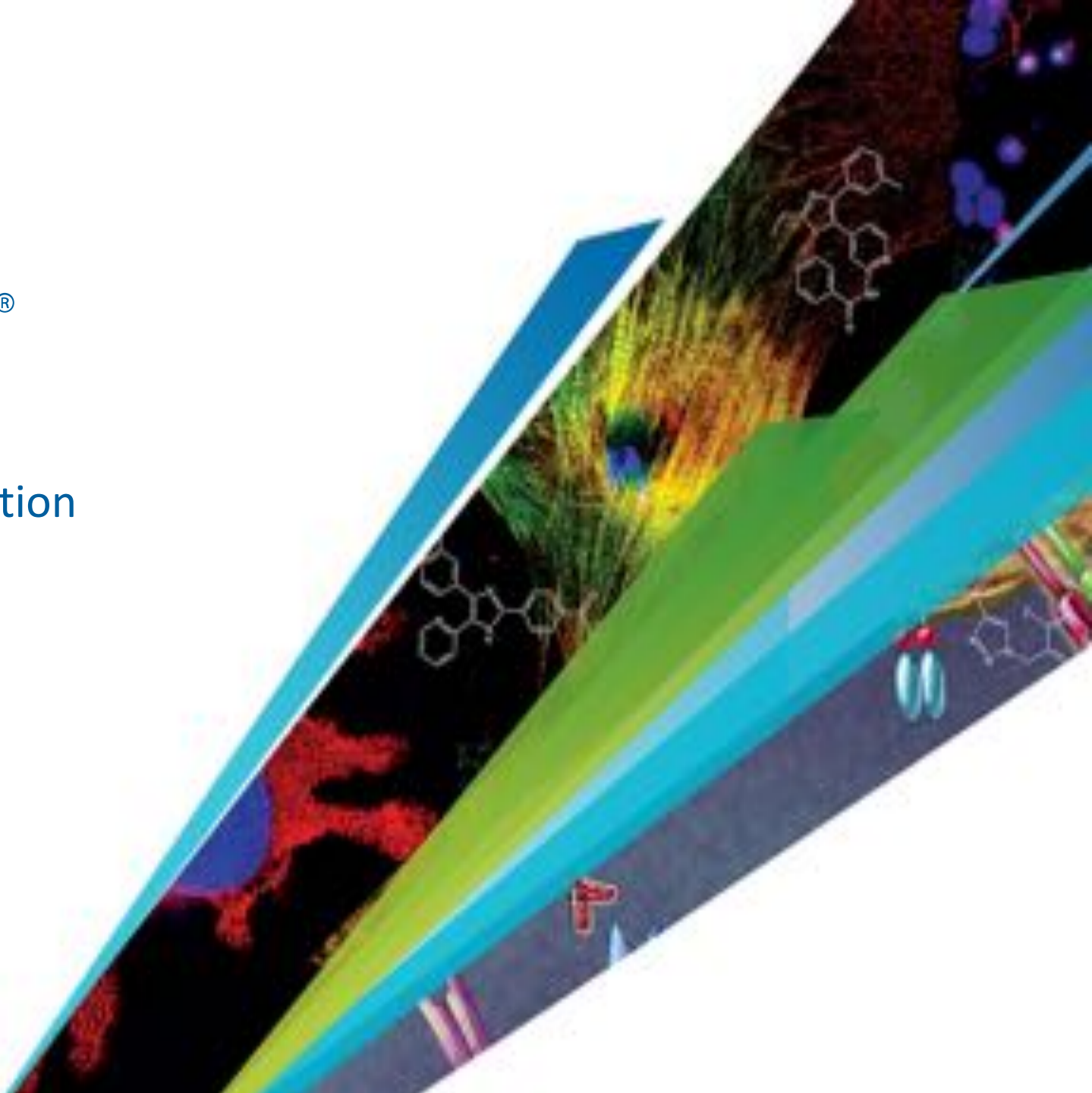




Investor Day Corporate Presentation

September 7, 2018



Cautionary Statements

This presentation contains “forward-looking statements” within the meaning of the federal securities laws. Except for historical information contained herein, the statements in this presentation are forward-looking and made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. Forward-looking statements made herein relate to, among other things, future sales, earnings, return on equity, cost savings, process improvements, free cash flow, share repurchases, capital expenditures, acquisitions, benefits of investments and partnerships, business strategies and other matters. Such statements can be identified by words such as: “expected,” “expects,” “expect,” “forecast,” “would,” “estimate,” “will,” or similar references to future periods.

Forward-looking statements are neither historical facts nor assurances of future performance. Instead, they are based only on our current beliefs, expectations and assumptions regarding the future of our business, future plans and strategies, projections, anticipated events and trends, the economy and other future conditions. Because forward-looking statements relate to the future, they are subject to inherent uncertainties, risks and changes in circumstances that are difficult to predict and many of which are outside of our control. Actual results could differ materially from those stated or implied in the forward-looking statements. For a list of factors, risks and uncertainties which could make our actual results differ from expected results, please see our latest Annual Report on Form 10-K. We undertake no obligation to publicly update any forward-looking statement, whether written or oral, as a result of new information, future developments or otherwise.

This presentation also contains non-GAAP financial information. Management uses this information in its internal analysis of results and believes this information may be informative to investors in gauging the quality of our financial performance, identifying trends in our results and providing meaningful period-to-period comparisons. For definitions of applicable non-GAAP financial measures and reconciliations of non-GAAP financial information to GAAP financial information, see the Reconciliations of GAAP to Non-GAAP Financial Measures included in the Company’s financial reports on Forms 10-Q and 10-K and related press releases.

Turning Strategy into Accelerated Growth

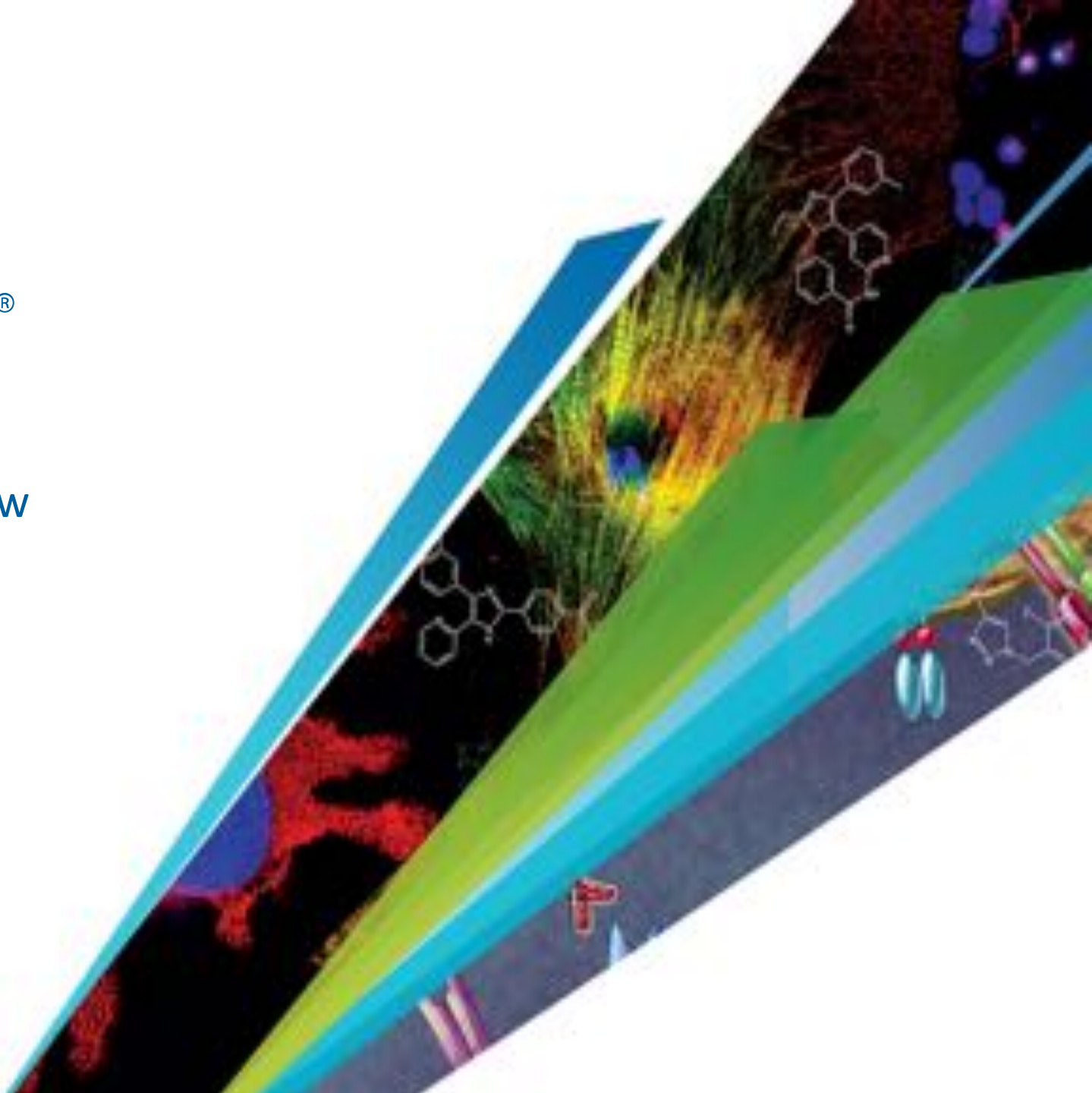
1. Introduction & Business Overview: Chuck Kummeth, President and CEO
 2. Protein Sciences Segment: Dave Eansor, President
 3. Diagnostics and Genomics Segment: Kim Kelderman, President
- Break
4. Exosome Diagnostics: Johan Skog, Vice President
 5. Digital Solutions: Kevin Smyth, Vice President
 6. Building Culture: Struan Robertson, Vice President
 7. Turning Strategy into Financial Returns: Jim Hippel, Chief Financial Officer
 8. Q&A



Introduction & Business Overview

Chuck Kummeth

President and CEO





Chuck Kummeth
CEO



Jim Hippel
CFO



Brenda Furlow
SVP
General Counsel



Struan Robertson
VP
Human Resources



Kevin Smyth
VP
Digital Solutions



Dave Eansor
President
Protein Sciences



Bob Gavin
SVP
Protein Platforms



Kim Kelderman
President
Dx & Genomics



Kevin Gould
SVP
Diagnostic Division



Thomas McLain
General Manager
Exosomedx



Peter Breloer
VP
APAC



Gary Stapleton
VP
EMEA

At a Glance:

President and CEO: **Chuck Kummeth**

Headquarters: **Minneapolis, MN**

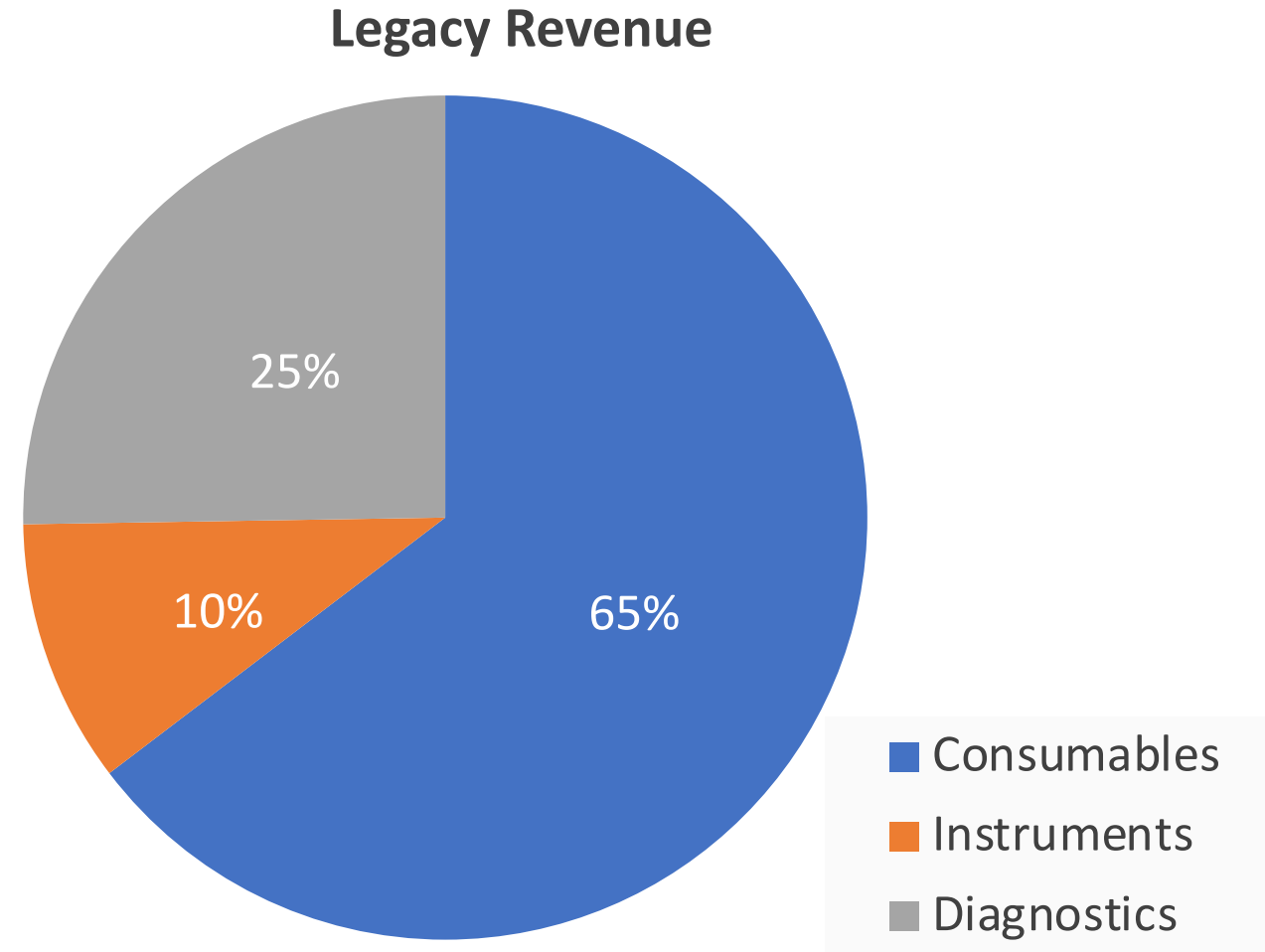
Number of Employees: **~2,100**

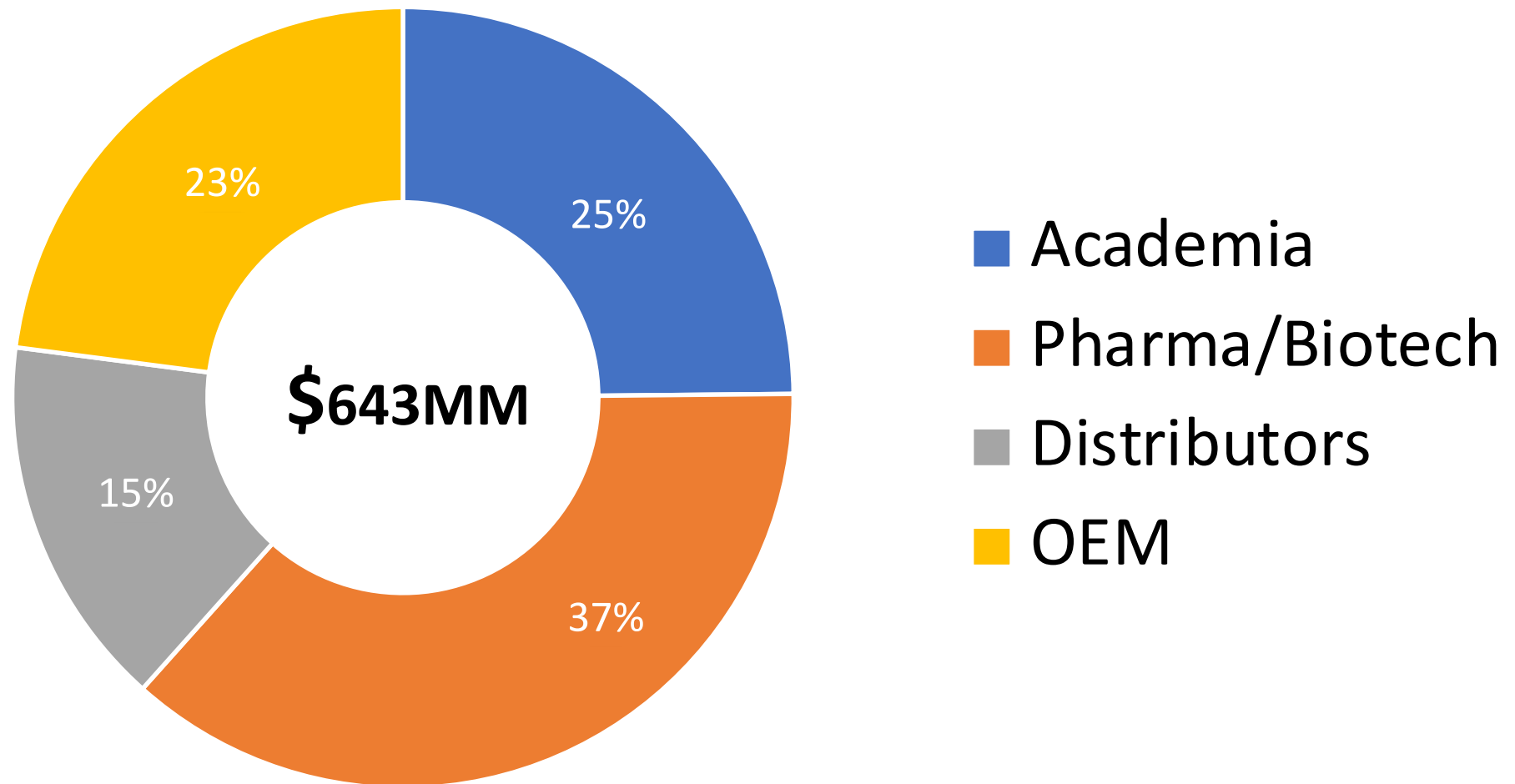
World Wide Presence: **35 Locations**

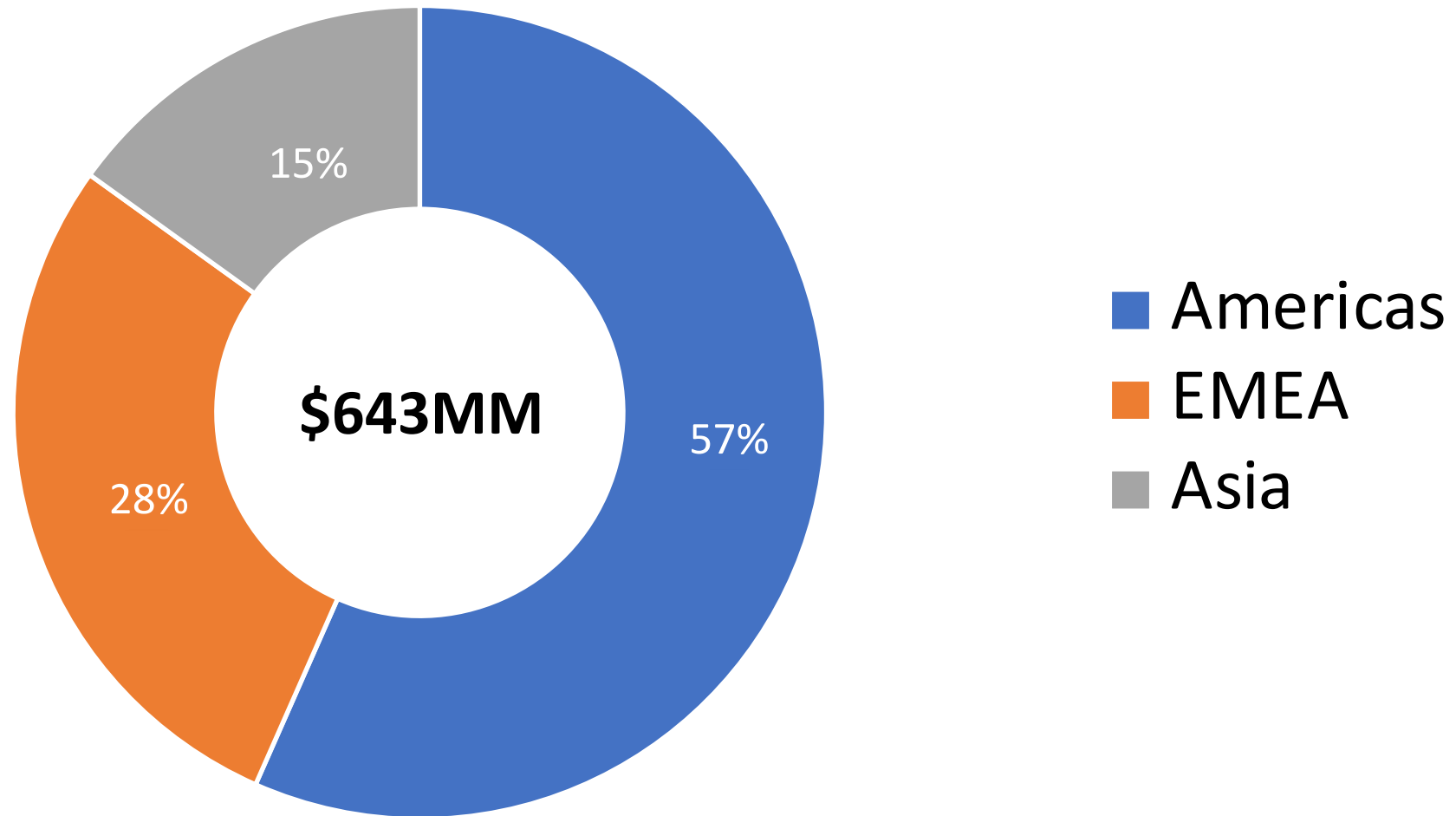
FY2018 Revenues: **\$643 million**

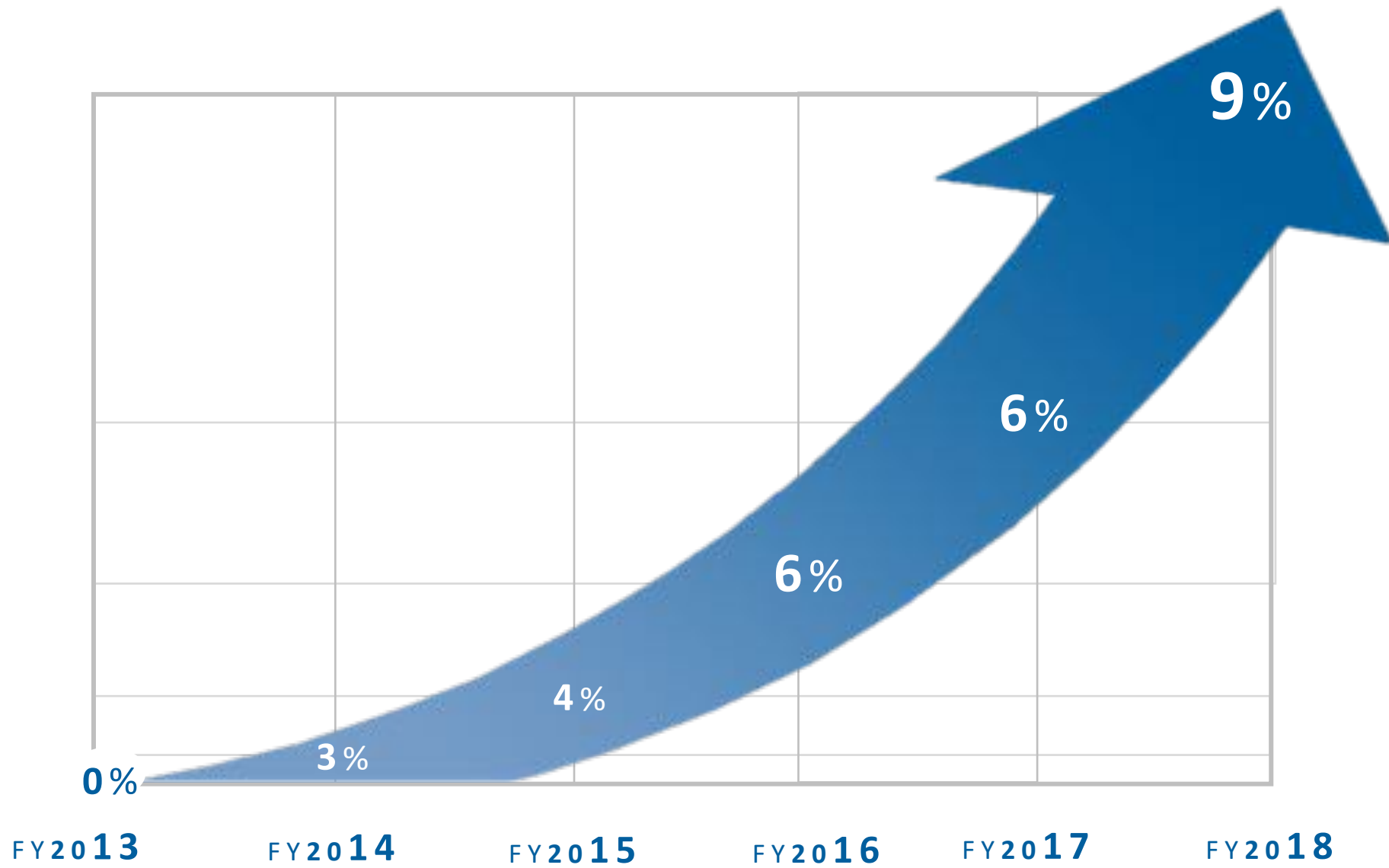
NASDAQ: **TECH**

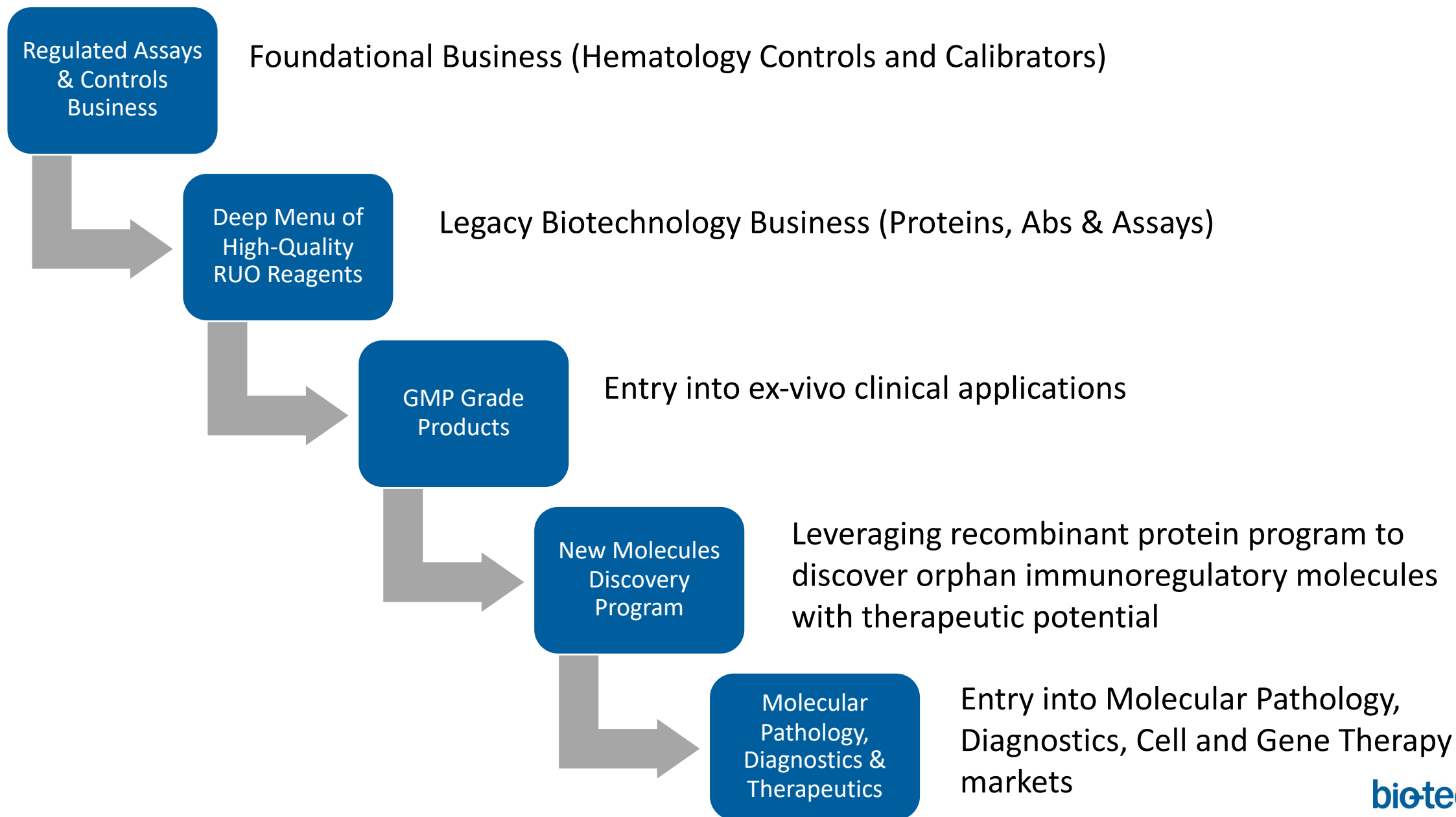
Market Cap: **~\$7B**

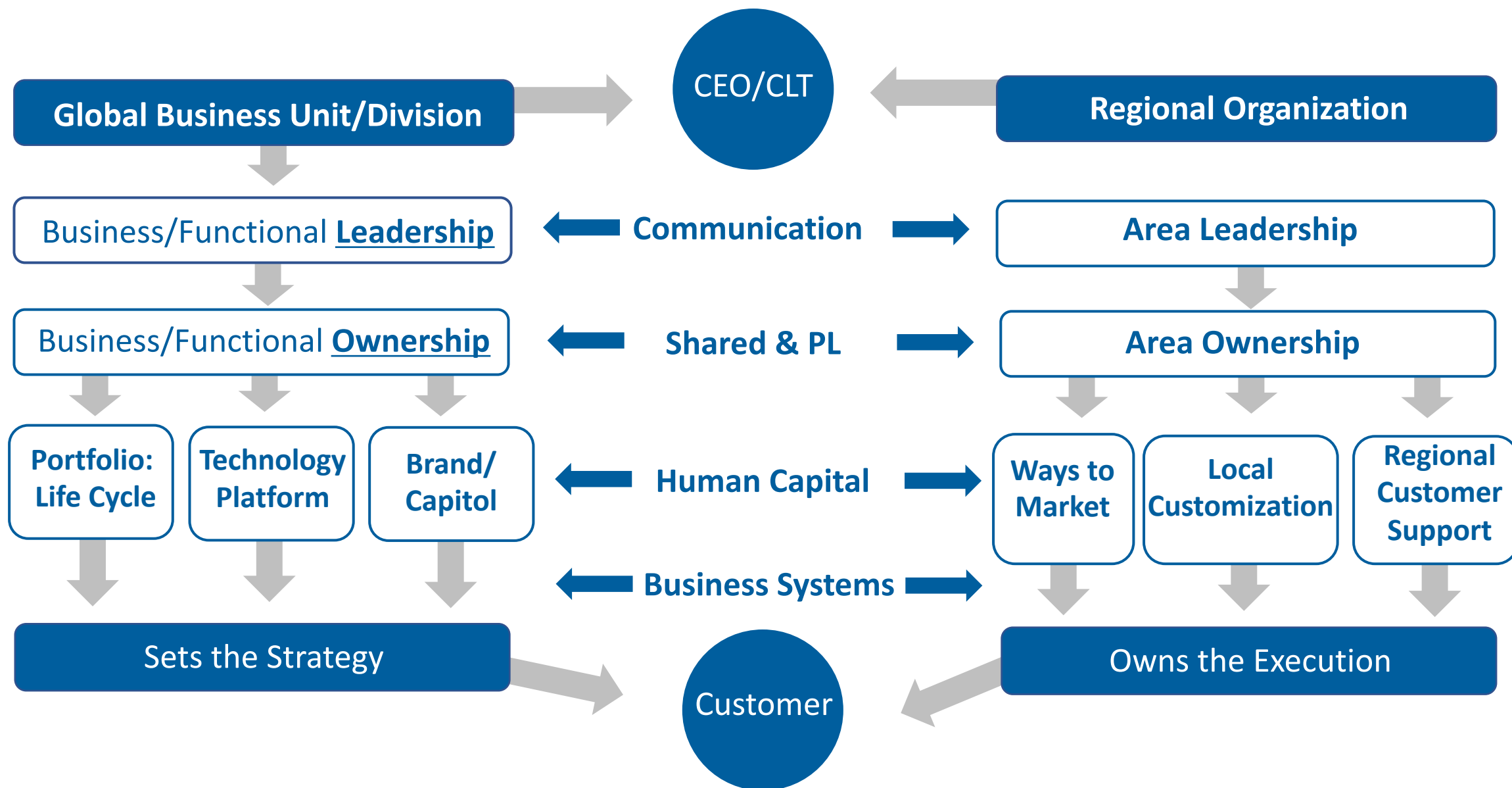


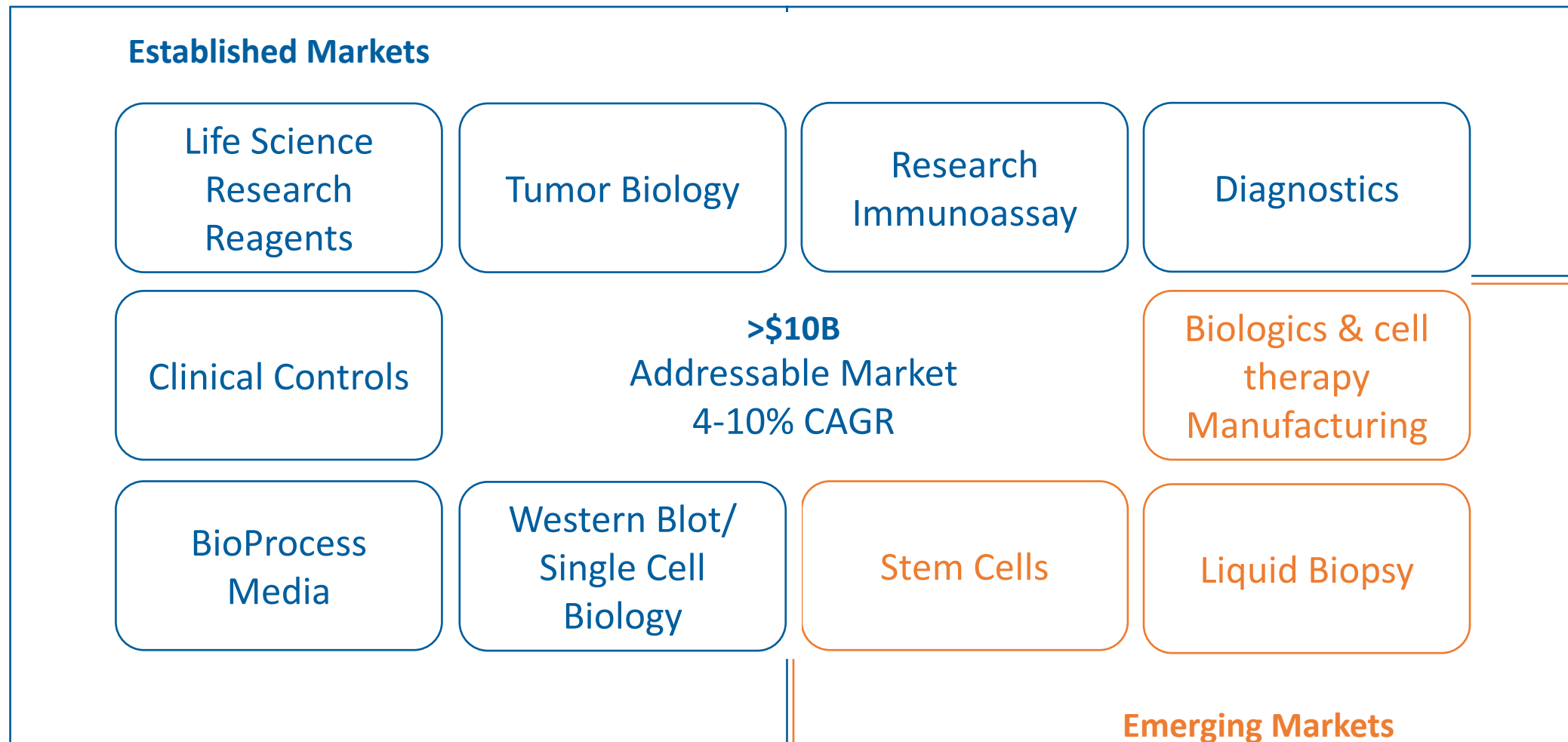












Customers Served > Pharma Biotech Academia CROs Hospitals Foundations Government



Geographic Expansion



Core Product
Innovation



Gap Filling M&A and
Market Expansion



Culture Creation &
Talent



Geographic Expansion

Achievements

- China
- EMEA
- APAC
- Subsidiary Model Consolidation
- Korea emphasis of biosimilars

Future

- India market
- India sales reps
- Latin America, expansion with Dx



Core Product Innovation

Achievements

Proteins

- Strong growth
- Animal free & GMP menu

Antibodies

- Web enhancements
- SEO for better customer experience

Extracting greater value from reagents

Assays

- Variety of test platforms
- Multiplex menu expansion

IP Protected Automated Protein Analysis

- Market adoption of automated western blot
- Continued adoption of iCE platform for biologics analysis

Future

- GMP reagents for cell and gene therapy
- Alternative technologies for Abs generation
- Use of gene-editing technology to validate Abs
- Next generation Immunoassays
- Next generation tissue analysis
- Tissue culture supplements
- Liquid biopsy Dx, CDx



Gap Filling M&A and Market Expansion

Achievements

- 14 M&A activities to fill product and technology gaps
- ACD, Exosomedx, Quad Technologies to enter clinical markets

Future

- Tuck-ins to expand core in China, Europe and India
- New to the world Protein Analytic tools
- Tissue culture tuck-ins to increase critical mass
- Dx in differentiated markets (oncology, neurology, etc.)



Culture Creation & Talent

Achievements

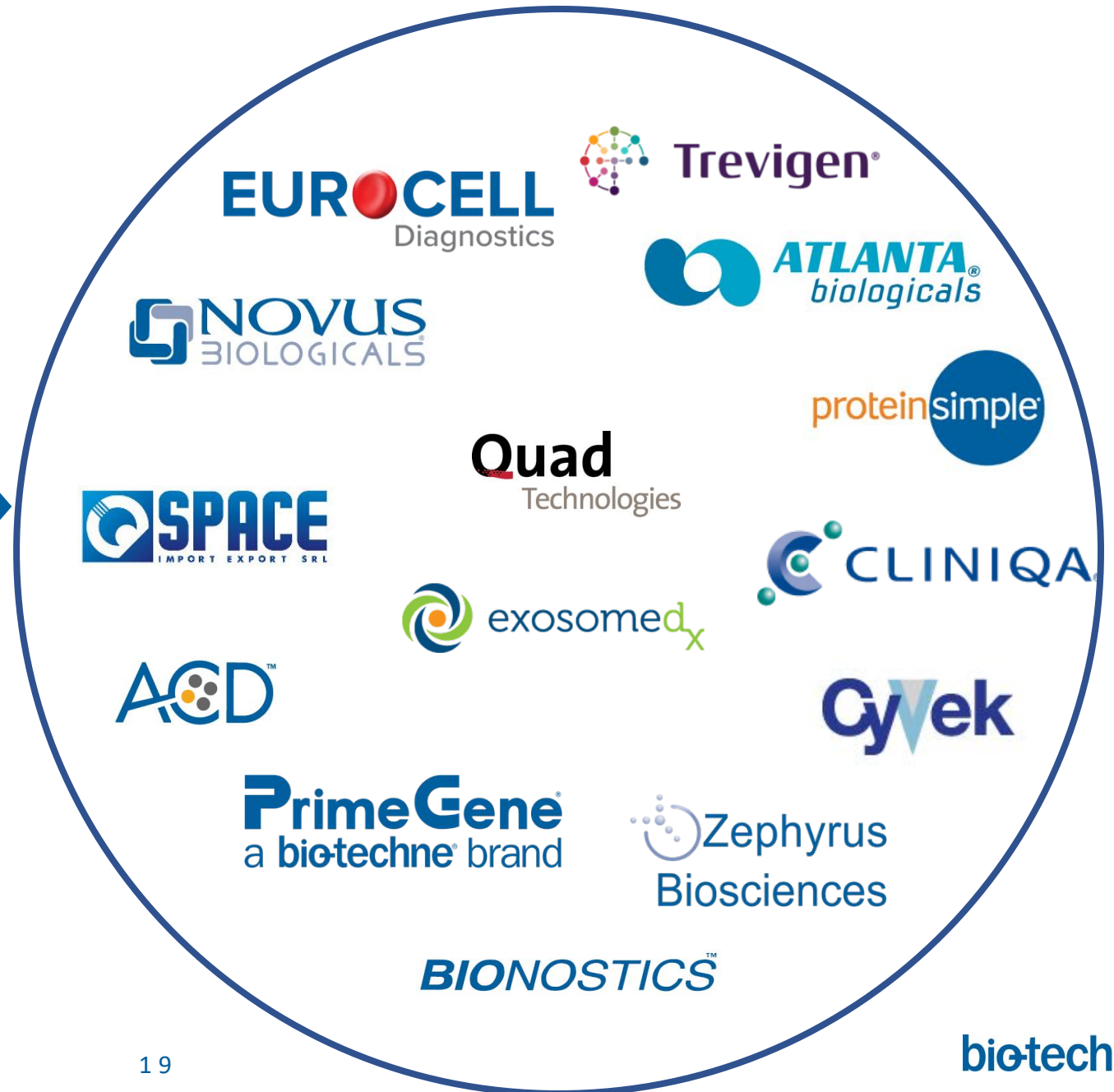
- Created EPIC values culture throughout organization
- Strong leadership team with industry experience

Future
















- Continue build the EPIC culture as we continue to grow
- Focusing on collaboration for more innovation

biotechne®

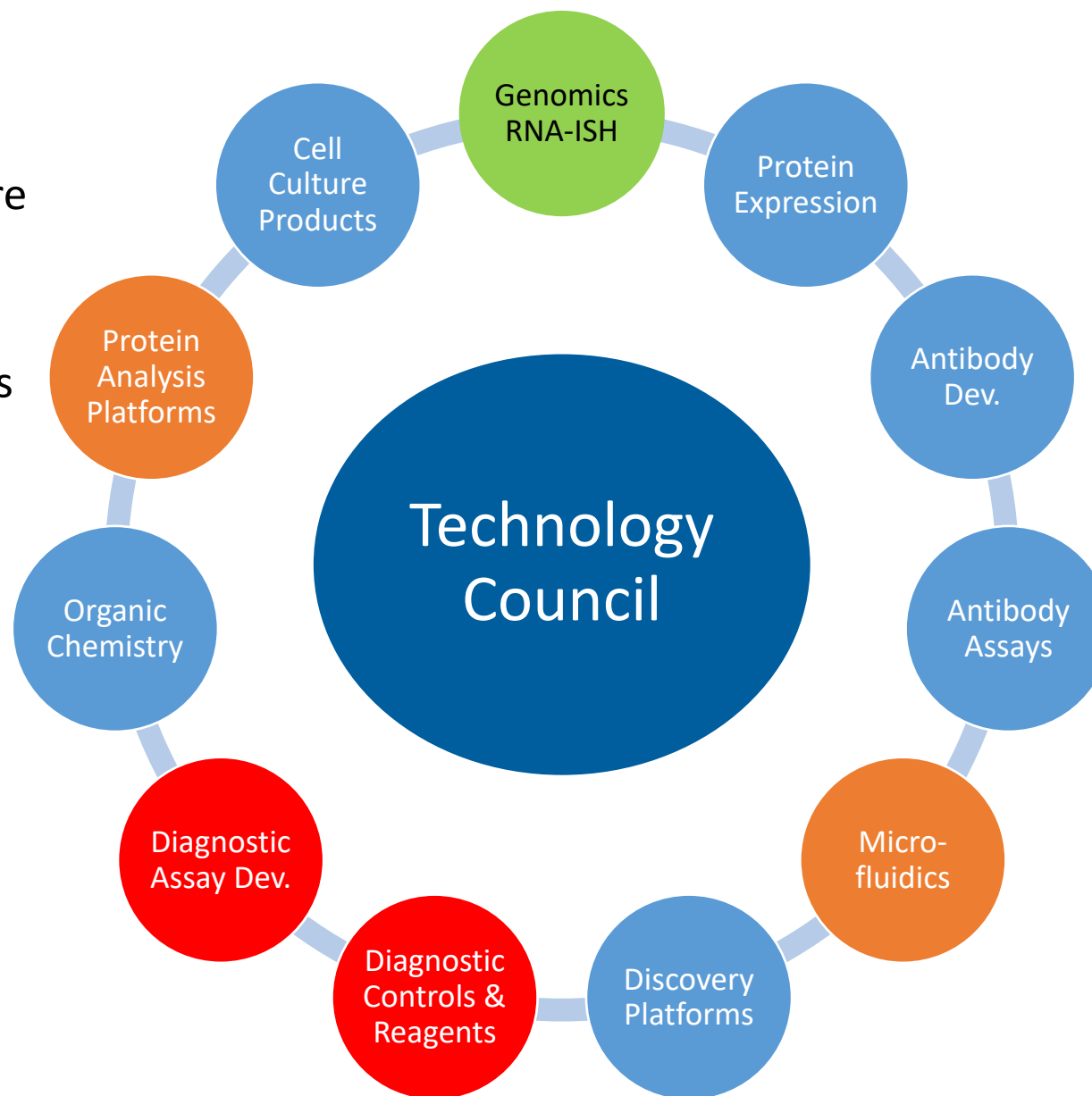
- Healthy hopper of targets
- Sound prioritization strategy
- Targets that fill gaps
- Targets with ROIC > WACC





Protein Sciences Segment	
 Reagent Solutions Develop and manufactures biological reagents used in all aspects of life science research	    
 Analytical Solutions Manual and automated protein analysis solutions that improve the efficiency of process work streams & quantitate secreted proteins	 
Diagnostics and Genomics Segment	
 Diagnostics Develops and manufactures controls, calibrators and diagnostic assays for the regulated diagnostic market	 
 Genomics Advanced, tissue morphology friendly RNA <i>in situ</i> hybridization (ISH) assay for transcriptome analysis & prostate cancer molecular diagnostic	 

- Gather the best technical minds from all divisions to share great ideas
- Comprised of technical leaders in the core competencies of Bio-Techne
- Goals
 - Share ideas across divisions and sites
 - Connect to Key Opinion Leaders for more new ideas
 - Manage technology pipelines
 - Communicate these up and down the organization

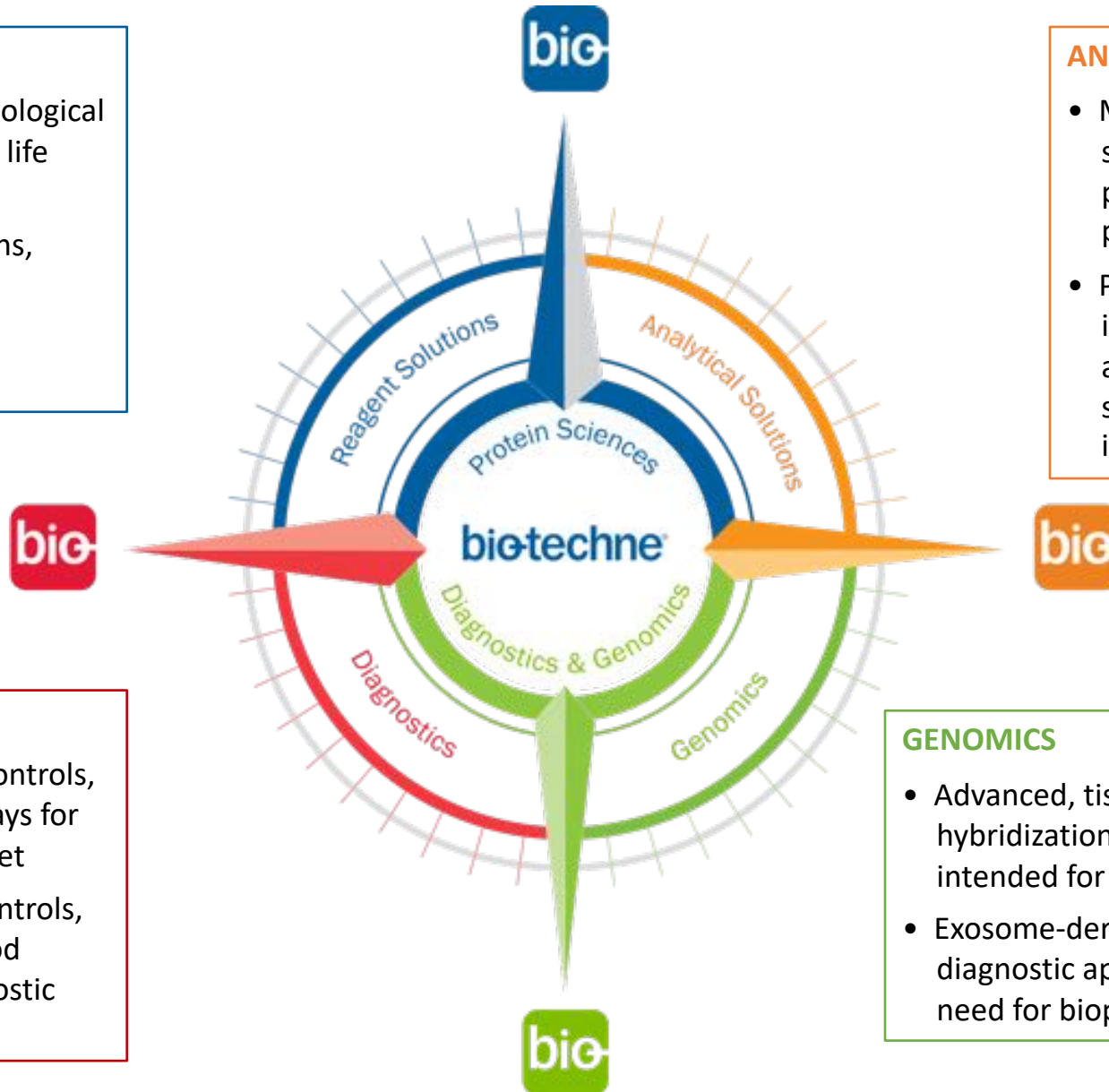


REAGENT SOLUTIONS

- Develops and manufactures biological reagents used in all aspects of life science research
- Research Tools such as: proteins, antibodies & small molecules
- Molecular probes for *in situ* Hybridization research

ANALYTICAL SOLUTIONS

- Manual and automated protein analysis solutions that improve the efficiency of process work streams & quantitate secreted proteins
- Product types: automated western blot instruments, bioprocess protein purity analyzers, microfluidic imaging instruments, single & multiplex immunoassays and instruments, etc.



DIAGNOSTICS

- Develops and manufactures controls, calibrators and diagnostic assays for the regulated diagnostic market
- Product types: hematology controls, blood gases, coagulation, blood chemistry controls and diagnostic assays reagents

GENOMICS

- Advanced, tissue morphology friendly RNA *in situ* hybridization (ISH) assay for transcriptome analysis intended for clinical applications
- Exosome-derived gene expression signatures for diagnostic applications; first test (EPI) is an indicator of the need for biopsy in patients with grey-zone PSA results



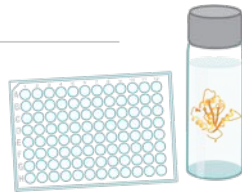
Assay Development



Antigens and Antibodies



Controls and Calibrators



R&D SYSTEMS **NOVUS BIOLOGICALS** **TOCRIS** **ACD**
Reagents, Custom Development, Services



Simple Western™



Simple Plex™



Single Cell



biotechne®

for EPIC Tools EPIC Science

Empowerment

Passion

Innovation

Collaboration



North America, Europe, and Asia

>300,000
Products



Our brands
bring you
>300,000
quality products

~2,100
Employees



Nearly 2,100
employees
globally

>40
Years



Our companies
have been
manufacturing
and sourcing
reagents for more
than 40 years

>500,000
Citations



Generated using
our products

6
Platforms



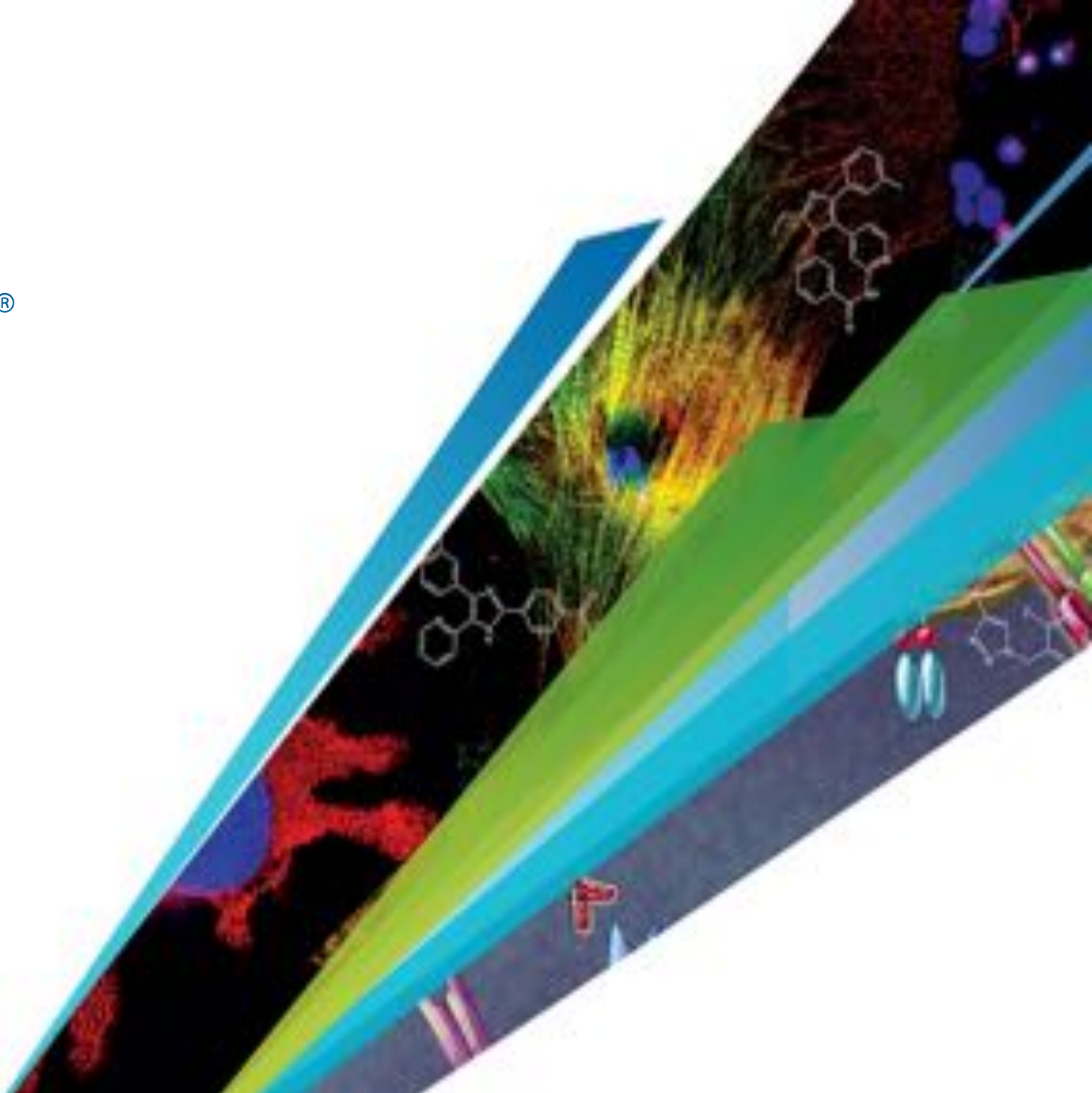
6 instrument
platforms that
leverage biological
content

biotechne[®]

Protein Sciences Segment

Dave Eansor

President, Protein Sciences



Business Overview

- Largest, most profitable Segment of Bio-Techne
- FY2018 Revenue: \$483M
- FY2018 Op. Income: 44%
- Upper Single Digit Organic Growth
- ~1360 Employees, 8 major sites
- Highest Quality reagents for Life Science Research, Diagnostics and Therapeutic Applications
- World Leader in Proteins, Antibodies, Immunoassay Instruments, Kits and Reagents
- Leading provider of Analytical Solutions for Biologics producers

Key Growth Drivers

- Novel Automated Western Blot Instrumentation & Feature Enhancements
- Multiplex Immunoassay platforms
- Revenue Sharing (with OEM Customers)
- Productive NPD (Novel Proteins, Abs, Assays, Cell Culture products, GMP & Dx content)
- Digital Marketing, Search Engine Optimization
- Synergies with Captive Instrument Platforms
- Acquisitions (Trevigen, Atlanta Bio., Quad Tech.)
- Geographic Expansion (esp. China, Central & Southern Europe, Canada, and India)

Why Protein Science?

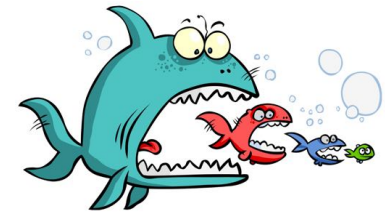
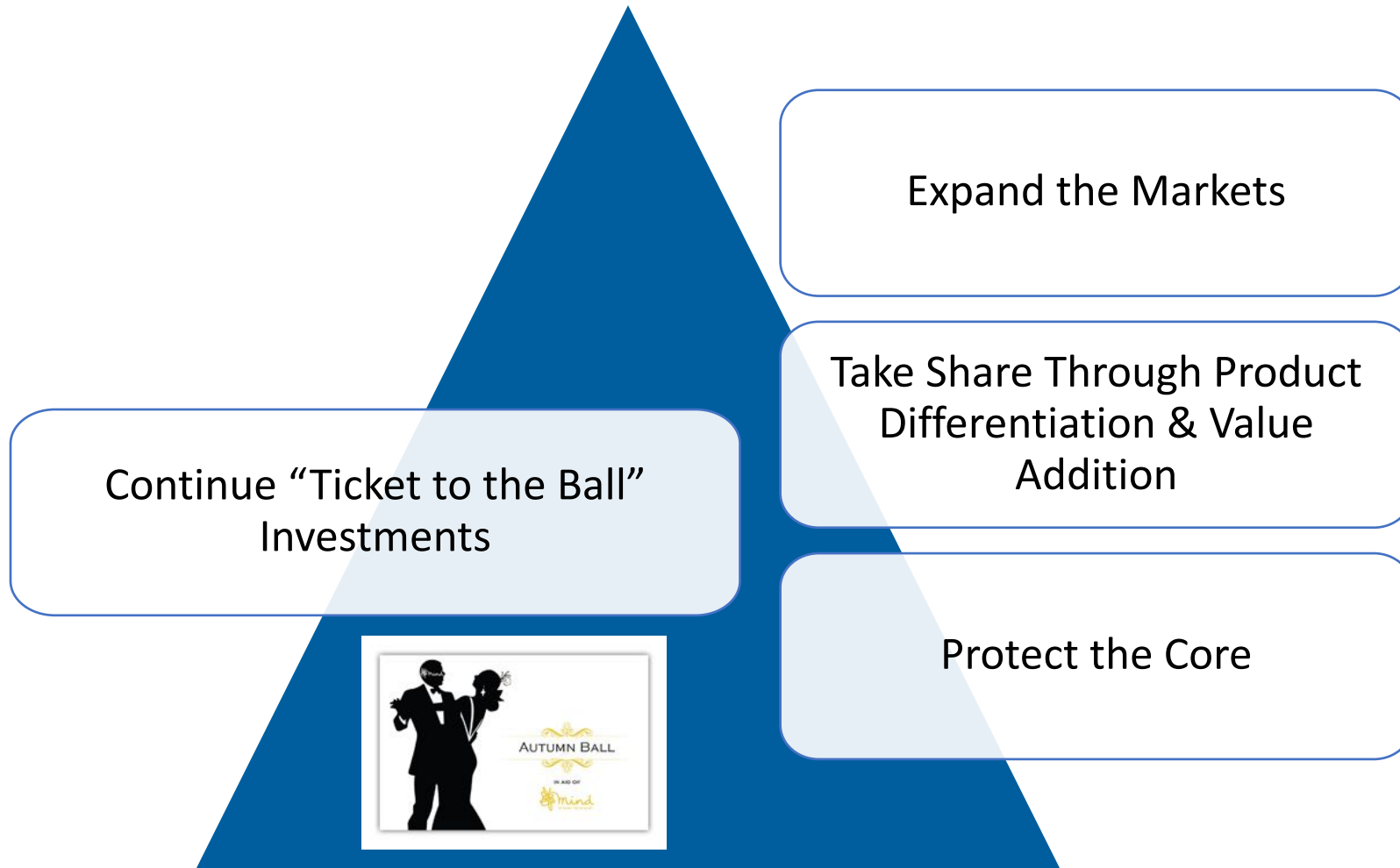


DNA provides the blueprint...



But life is built from proteins!

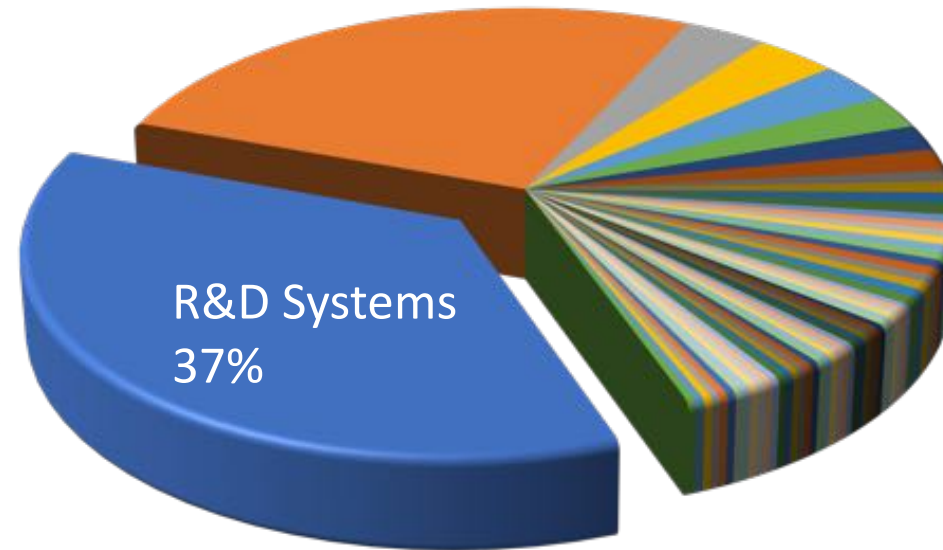
A multi-tiered effort to innovate & differentiate while protecting the “core”



Proteins

- 3500+ Recombinant Proteins
- Widest Selection of Bioactive proteins
- 95% Developed and Tested In-House
- 45 GMP Proteins for Clinical Manufacturing
- Custom Development Services

The most widely used proteins in the world

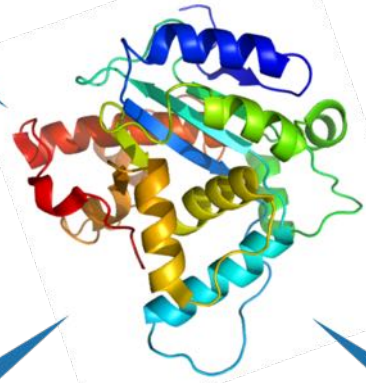


2018 Publications
220 Manuscripts
349 Protein References
60 Companies



Specialty Media
Supplements

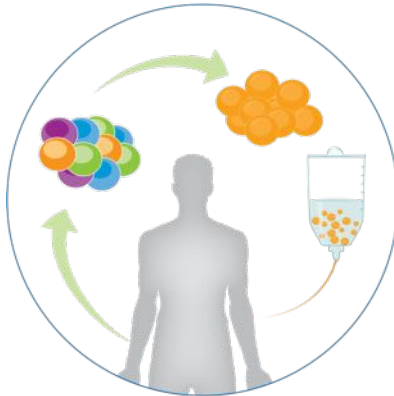
R&D SYSTEMS
a **biotechne** brand



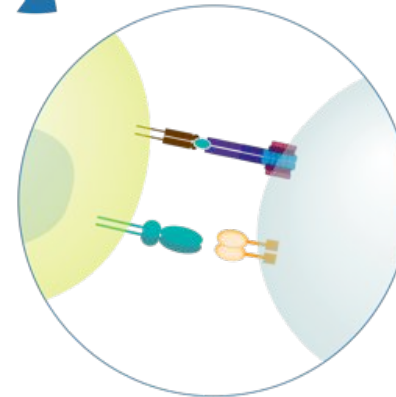
Proteins



Bioprocessing
(Growth Factors for large
scale Production)



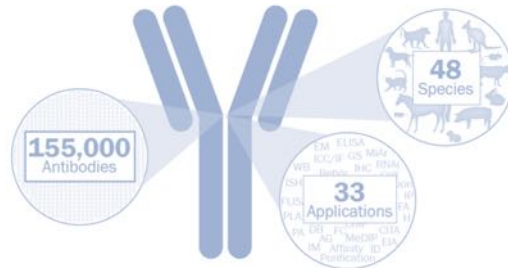
Cell Therapy
(GMP Proteins)



Cancer Immunotherapy Research
(Immune Checkpoint Proteins)

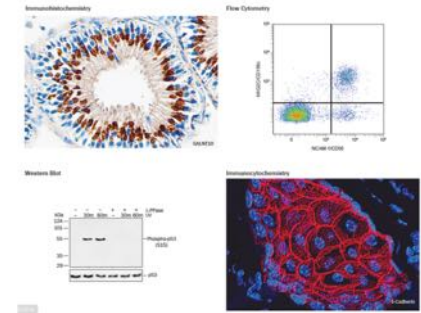
Largest Catalog

- More selection, more results
- Targets
- Species
- Applications



Data-rich Website

- The right choice, the first time
- Data
- Images
- Citations
- Reviews



Reproducible and Validated

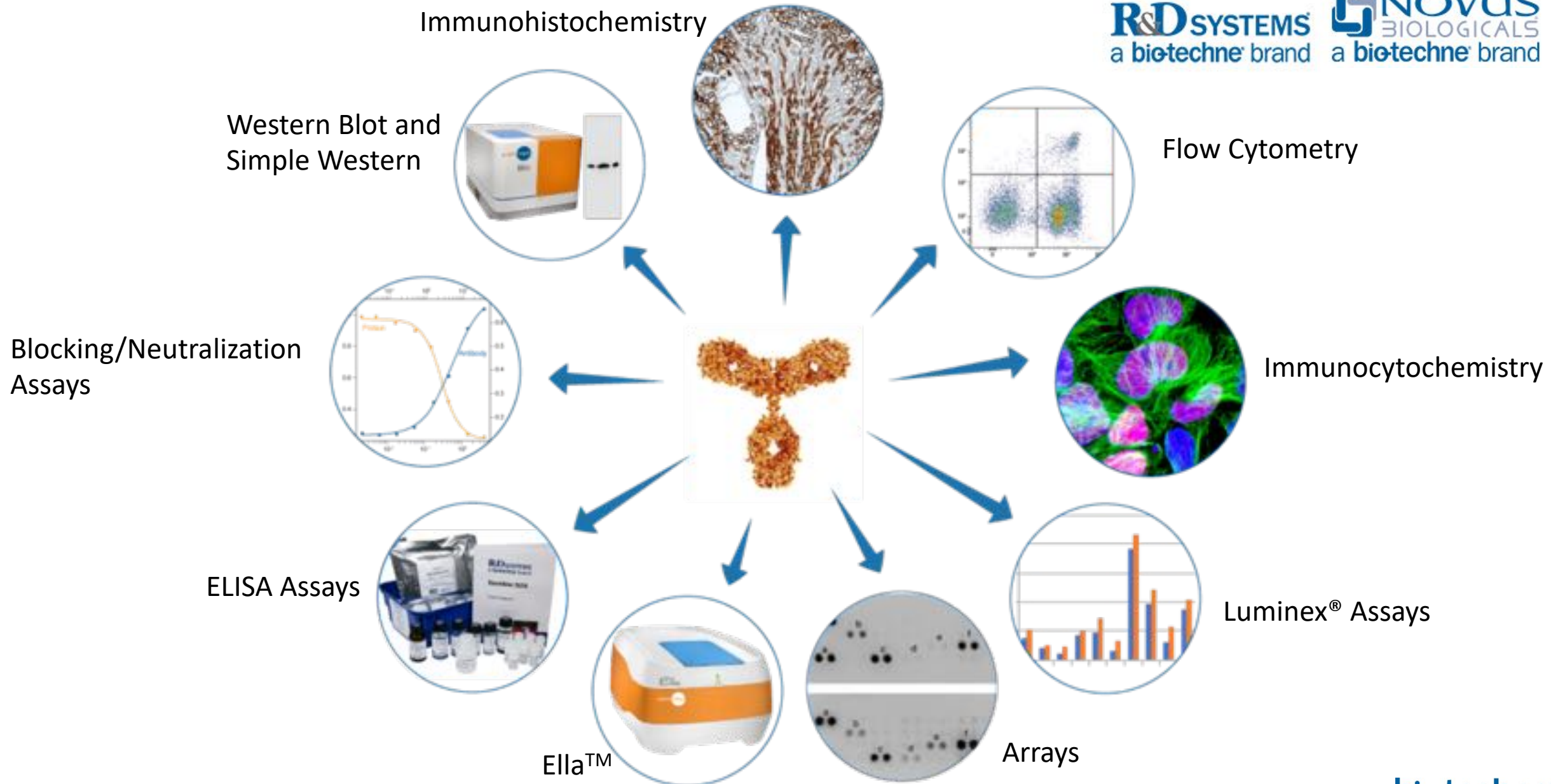
- Trusted results, every time
- In-house testing
- Knock-out validation
- 5 pillars of validation

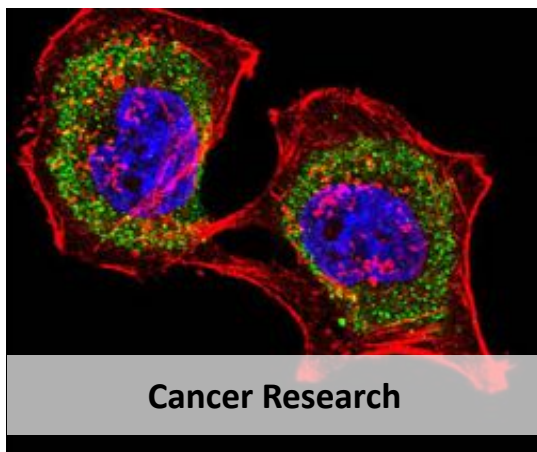


Capabilities and Innovation

- Research and Development
- In-house manufacturing
- Recombinant Antibodies
- Custom services
- GMP







TOCRIS
a biotechne® brand

Functions

Inhibitors

Activators

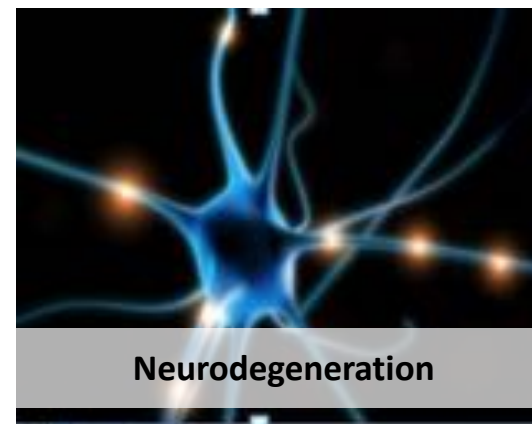
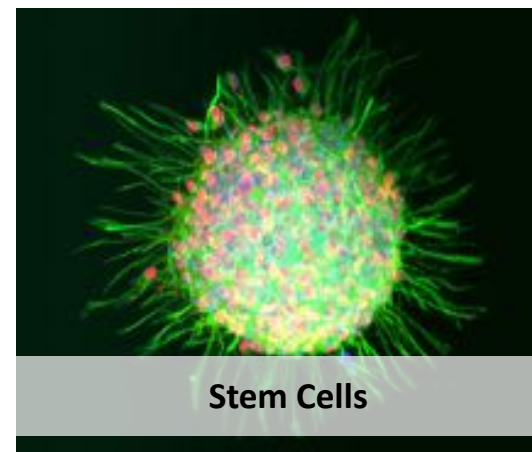
Agonists

Antagonists

Blockers

Modulators

Ligands



Isolate and Culture

- Premium quality GMP proteins
- Tocris GMP Small Molecules
- MagCloudz™ Cell Separation
- Quickgel™ Cell Activation
- Cultrex® Basement Membrane Matrix
- CryoDefend™ - stem cell media
- MimEx™ Adult Stem Cell Technology
- Atlanta Biologicals Serum & Media

Verify

- All-in-one verification kits
- Large selection of lineage-specific antibodies

Differentiate

- Optimized differentiation kits and media
- Stem cell-relevant growth factors
- Small molecules from Tocris Bioscience

Investigate

- Largest breadth of high quality antibodies
- Proteome Profiler™ Arrays
- Luminex® multiplex assays
- Gold Standard ELISA assays
- Simple Plex® assay platform

R&D Systems GMP Proteins for cell therapy manufacturing

- | | | | | |
|----------------------|-----------------|-----------------|-------------------------|-----------------|
| • Activin A | • GDF-8 | • IL-4 | • NRG1-β1 | • VEGF |
| • BDNF | • GDF-11 | • IL-6 | • NT-3 | • Wnt-3a |
| • BMP-2 | • GDNF | • IL-7 | • NT-4 | |
| • BMP-4 | • GM-CSF | • IL-11 | • PDGF-BB | |
| • BMP-7 | • HGF | • IL-12 | • Periostin | |
| • EGF | • IFN-γ | • IL-15 | • SCF/c-kit Ligand | |
| • Dkk-1 | • IGF-I | • IL-17E | • Sonic Hedgehog | |
| • FGF basic | • IL-1β/IL-1F2 | • KGF/FGF-7 | • TGF-β1 | |
| • Fibronectin | • IL-2 | • M-CSF | • TGF-β3 | |
| • Flt-3 Ligand | • IL-3 | • Noggin | • TNF-α | |

Unique to R&D Systems

Note: Custom development of GMP proteins, or conversion of RUO proteins to GMP status are available

GMP Proteins for Immuno-Oncology

- For cell therapy culture: CAR T, Stem Cell Therapy, Regenerative Medicine
- For ex vivo cell culture (not used directly in humans)
- Protein standards for Dx assays
- Growth factors for large scale cell culture for Biopharma & Media Manufacturers eg. IGF-1 LR3

GMP Abs

- For Dx immunoassays (esp. via BiosPacific)
- For cell separation applications
- For “Cytokine Storm” assays

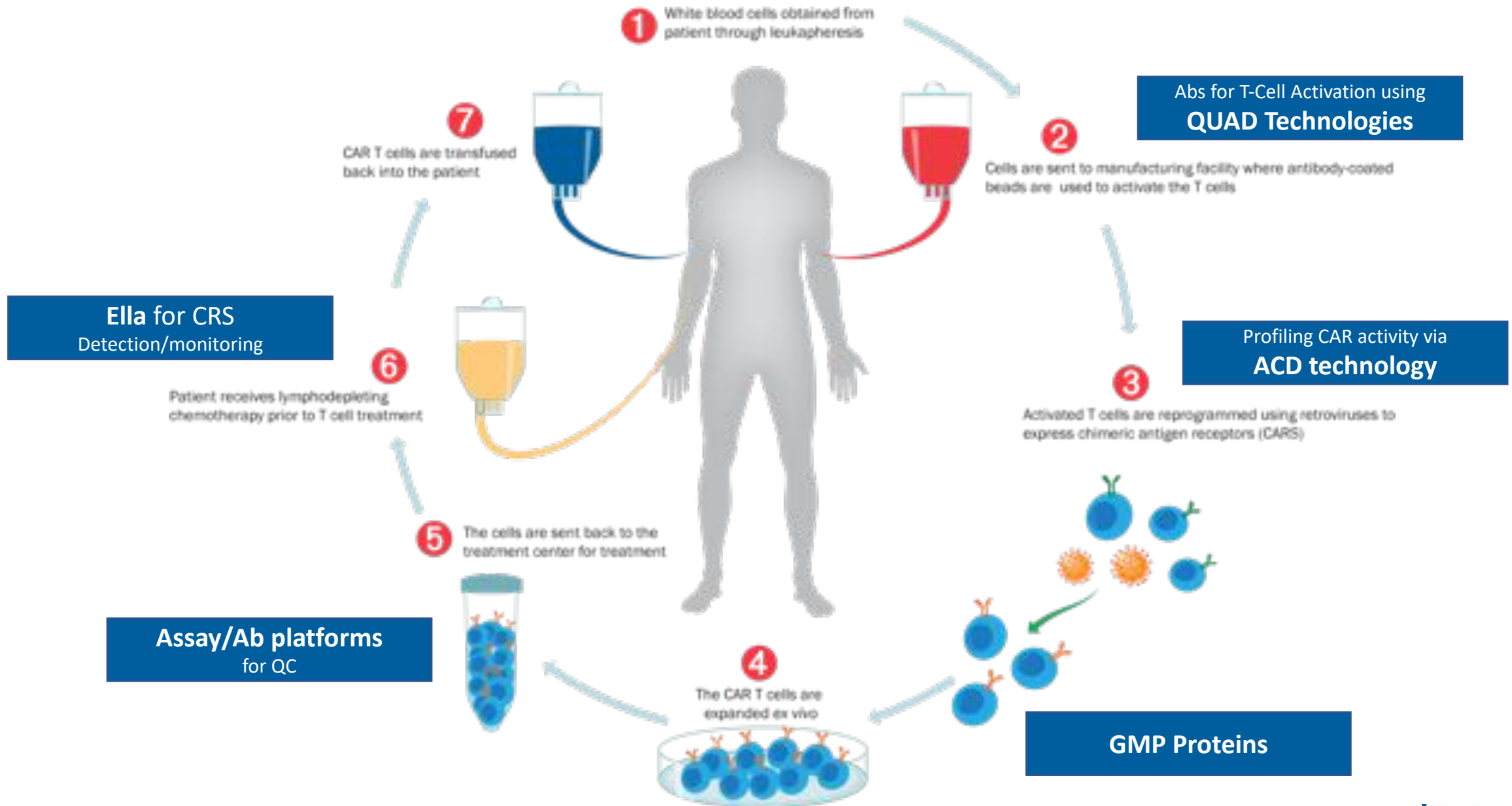
IVD & LDT Assay Kits

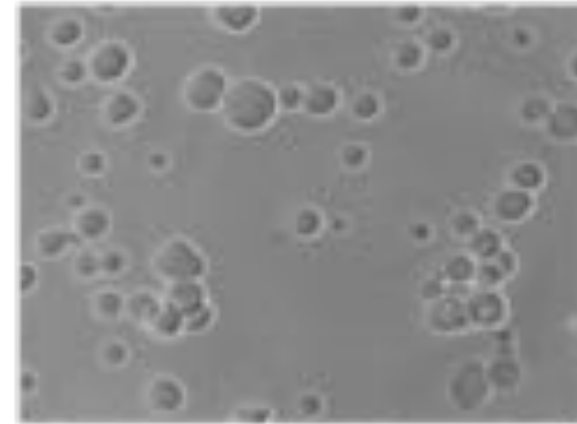
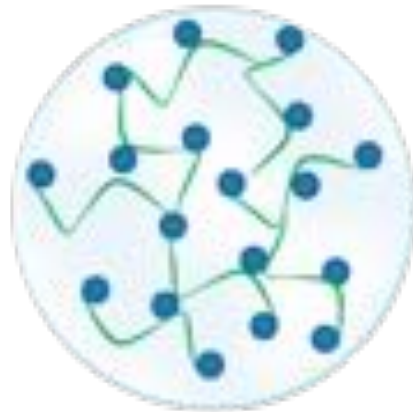
- For Immunodiagnostics
- For high sensitivity, multiplex immunoassays (Simple Plex™)

GMP Small Molecules

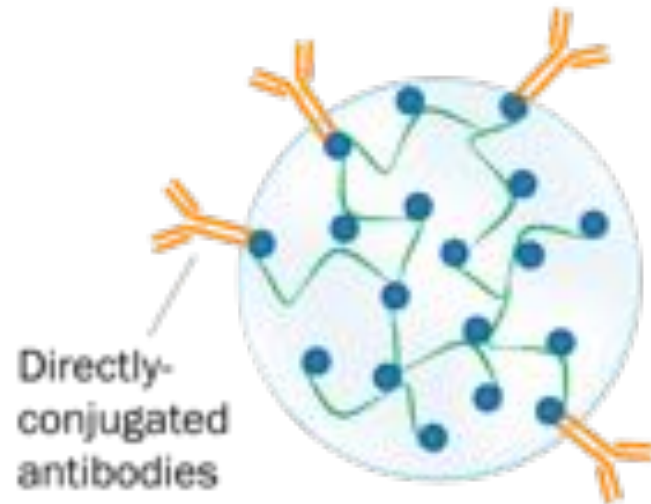
- For ex vivo cell culture





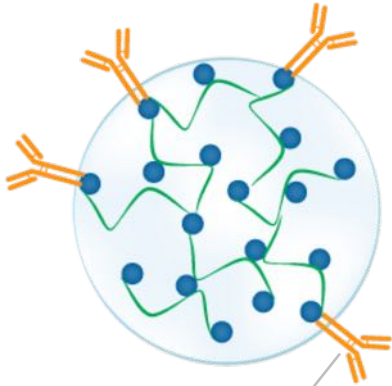


QuickGel microbeads can be created with specific binding functions

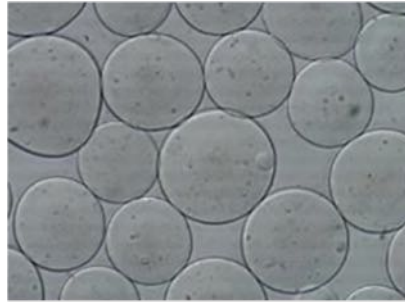


QuickGel microbeads can be made to specific sizes in ranges ~ 5 μm –500 μm diameter

Only releasable, non-magnetic cell selection technology



Directly-conjugated antibodies



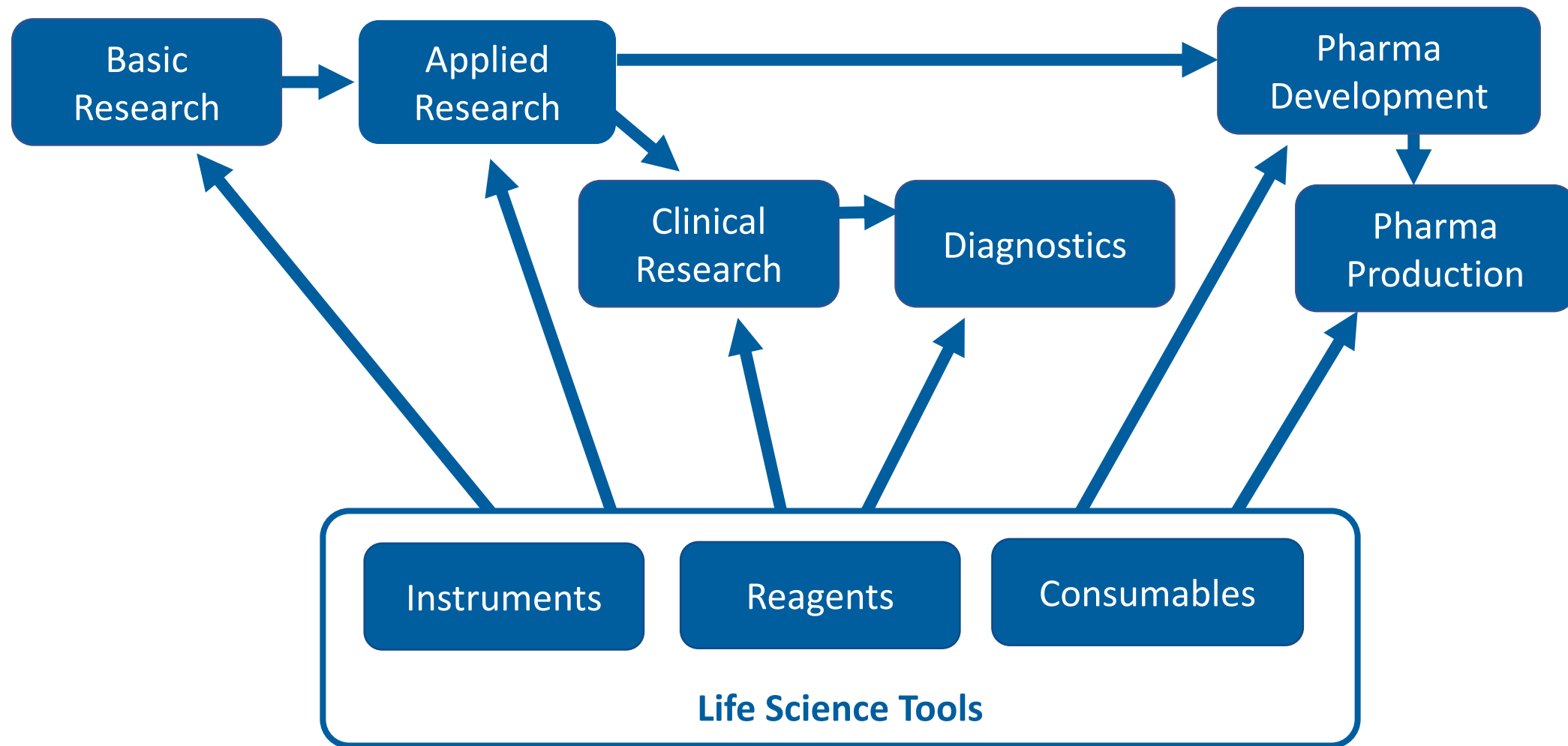
Current RUO cell selection solution

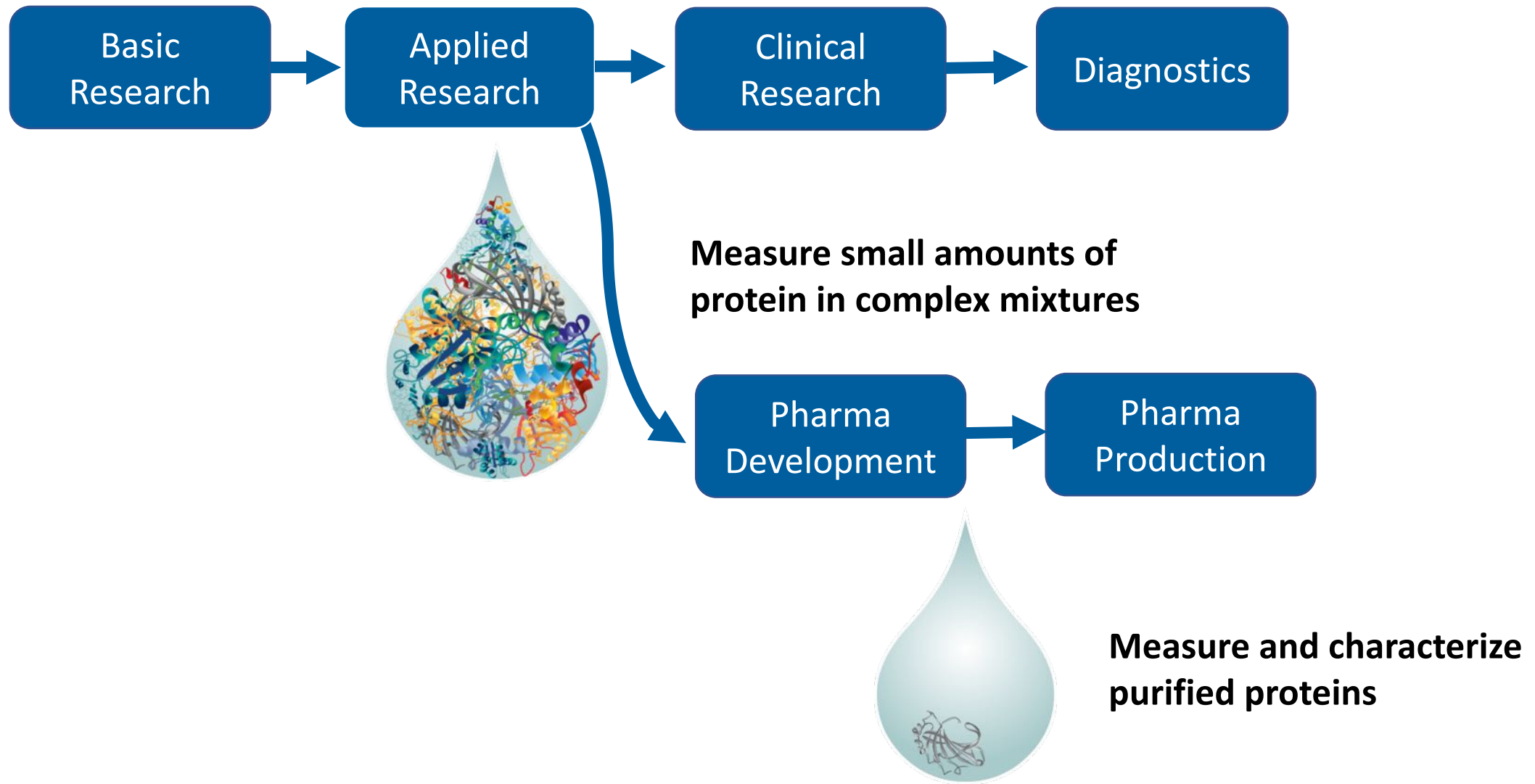
**Coming
Soon!**

Revolutionizing the clinical workflow

Bringing automation and GMP-compliance to our magnetic bead-free cell separation





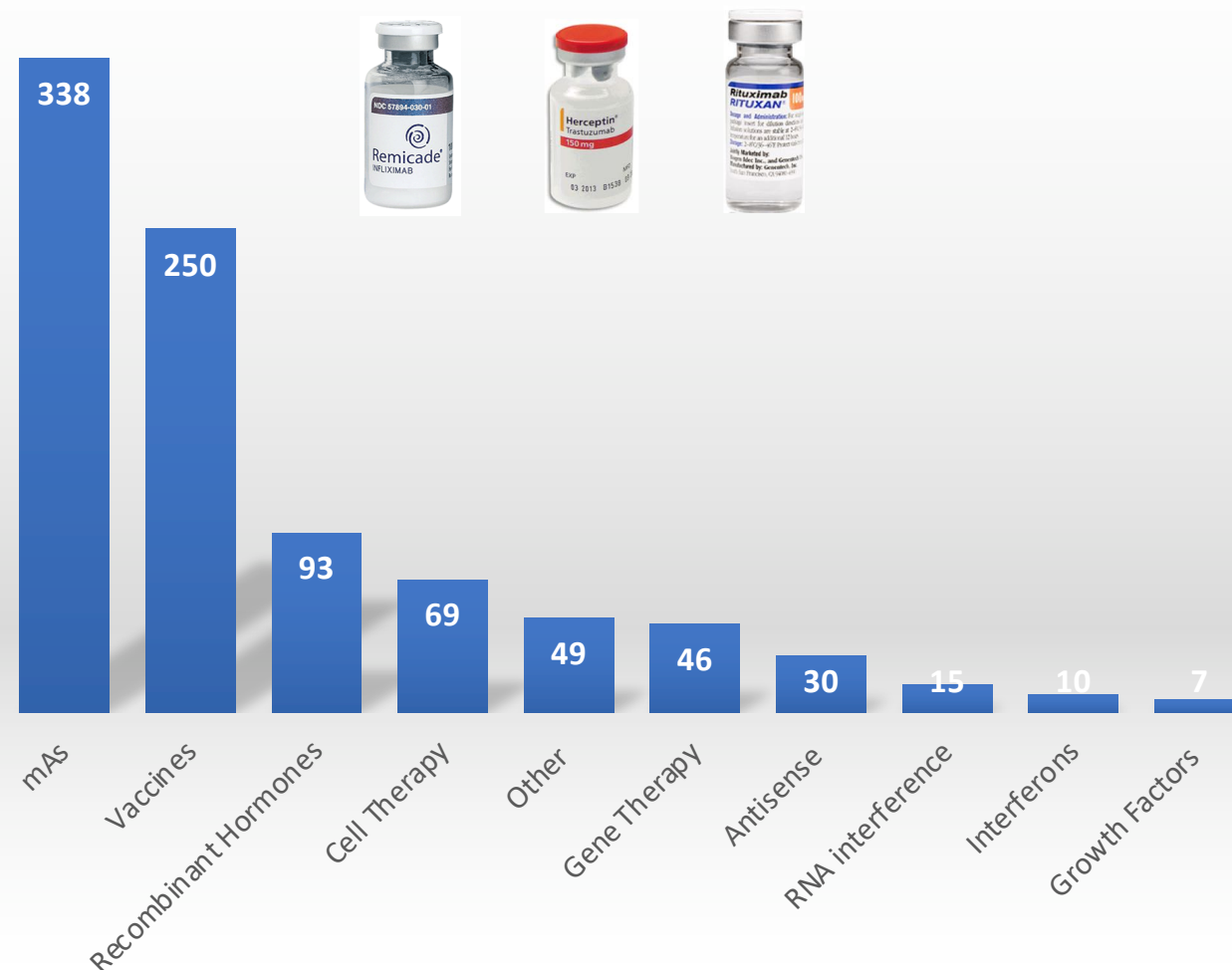




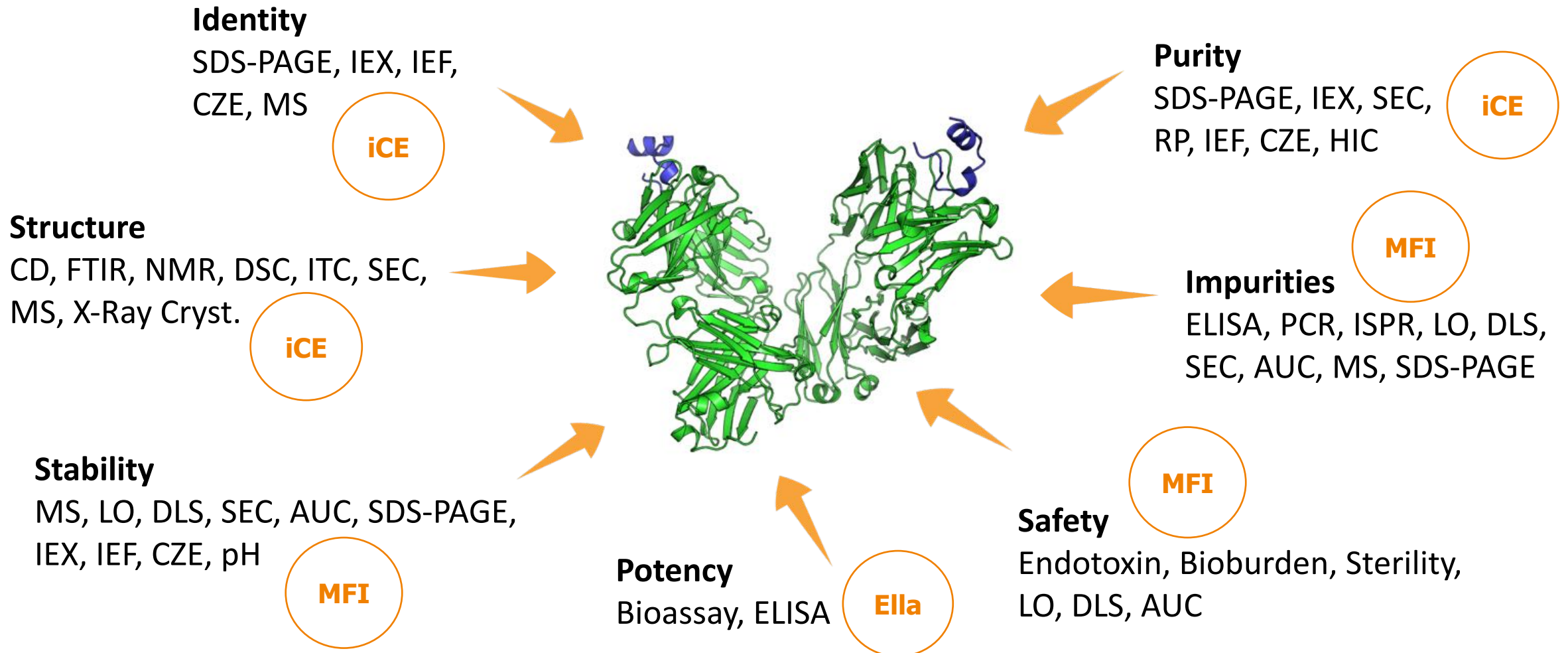
Maurice™

- Biologics are Purified Proteins as Drugs
- ~700 companies worldwide researching and commercializing biologics
- Pipeline of Biologics in Phase I to Application Submission >900

Biologics Therapeutic Pipeline



Many analytical techniques are required

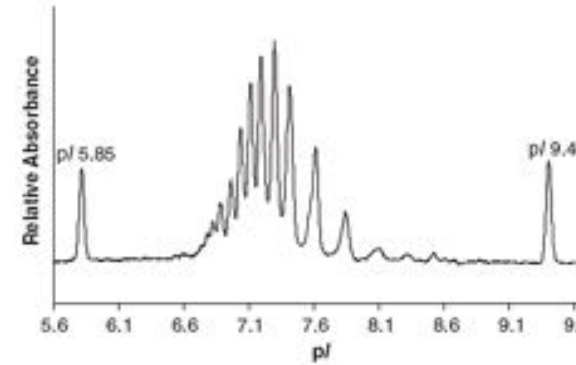




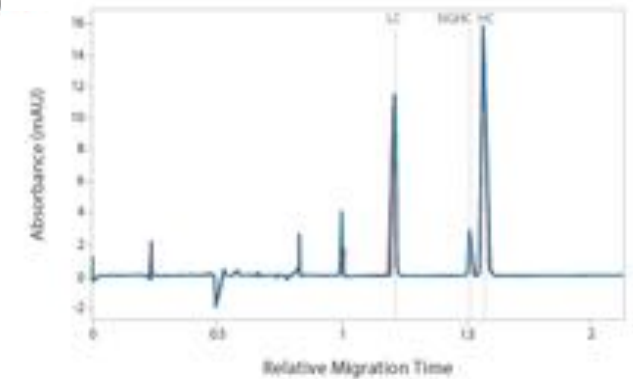
iCE3



Maurice



Charge Signature
With cIEF

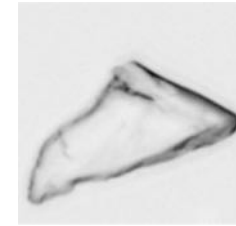


Purity and Identity
With CE-SDS

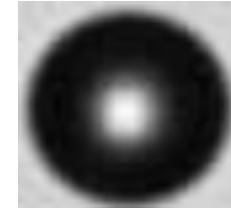
Gold Standard for Charge Heterogeneity (cIEF)
Beachhead in CE-SDS
Installed in development and QC



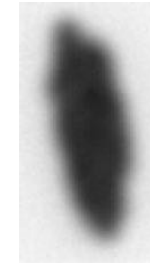
MFI



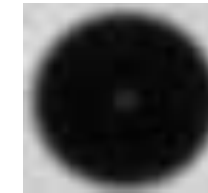
Glass



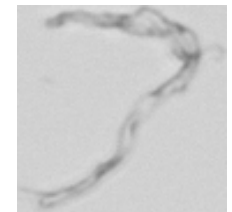
Oil



Rubber



Air bubbles



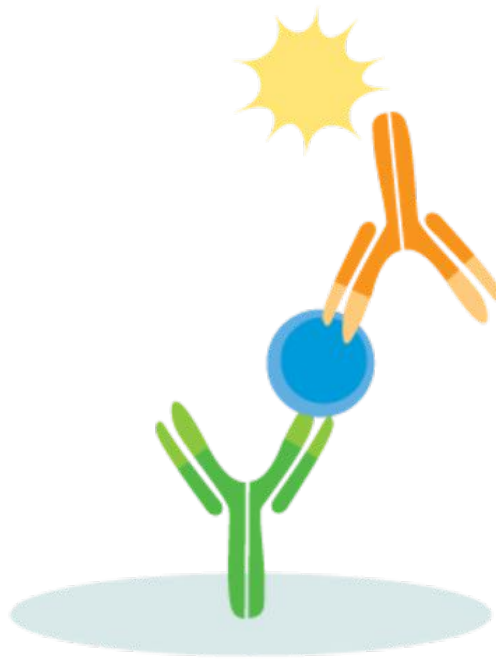
Aggregate

Particle Images

Defined the field for monitoring protein purity

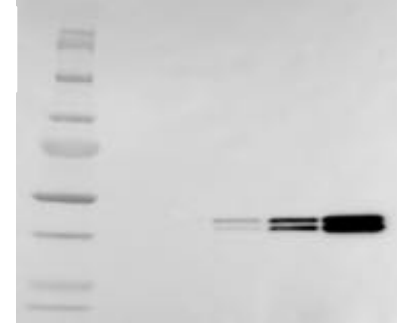


Measurement of small amounts of protein in complex mixtures

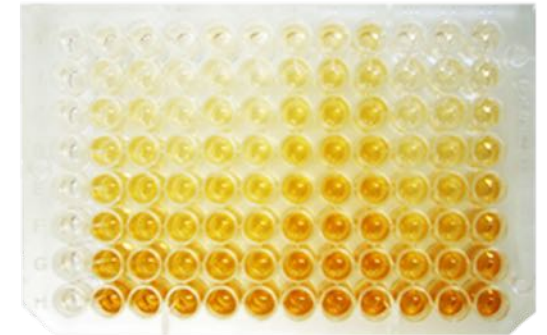


Usually involves some sort of immunoassay

Western blot



ELISA



Bio-Techne has revolutionized the two most common techniques

Immunoassays: Different Users, Different Needs

Fully
Validated

Quantikine®



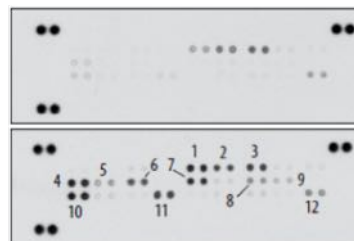
Simple Plex™



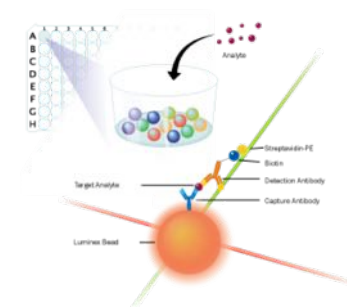
DuoSet®



Arrays



Luminex®



Simple Western™



FluorChem
Alphamager



Single-Cell



Homemade
Assays

Manual

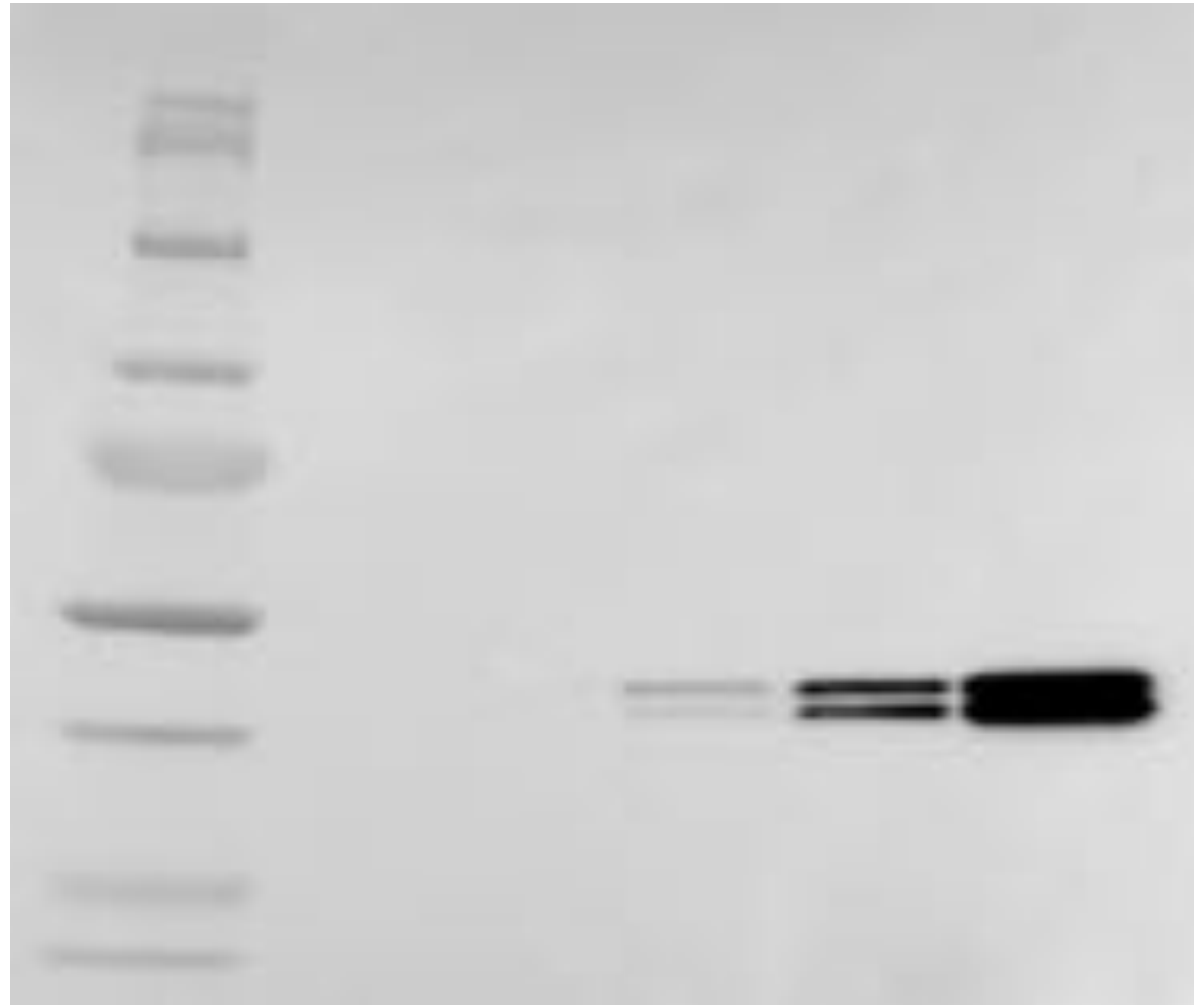
Fully Automated

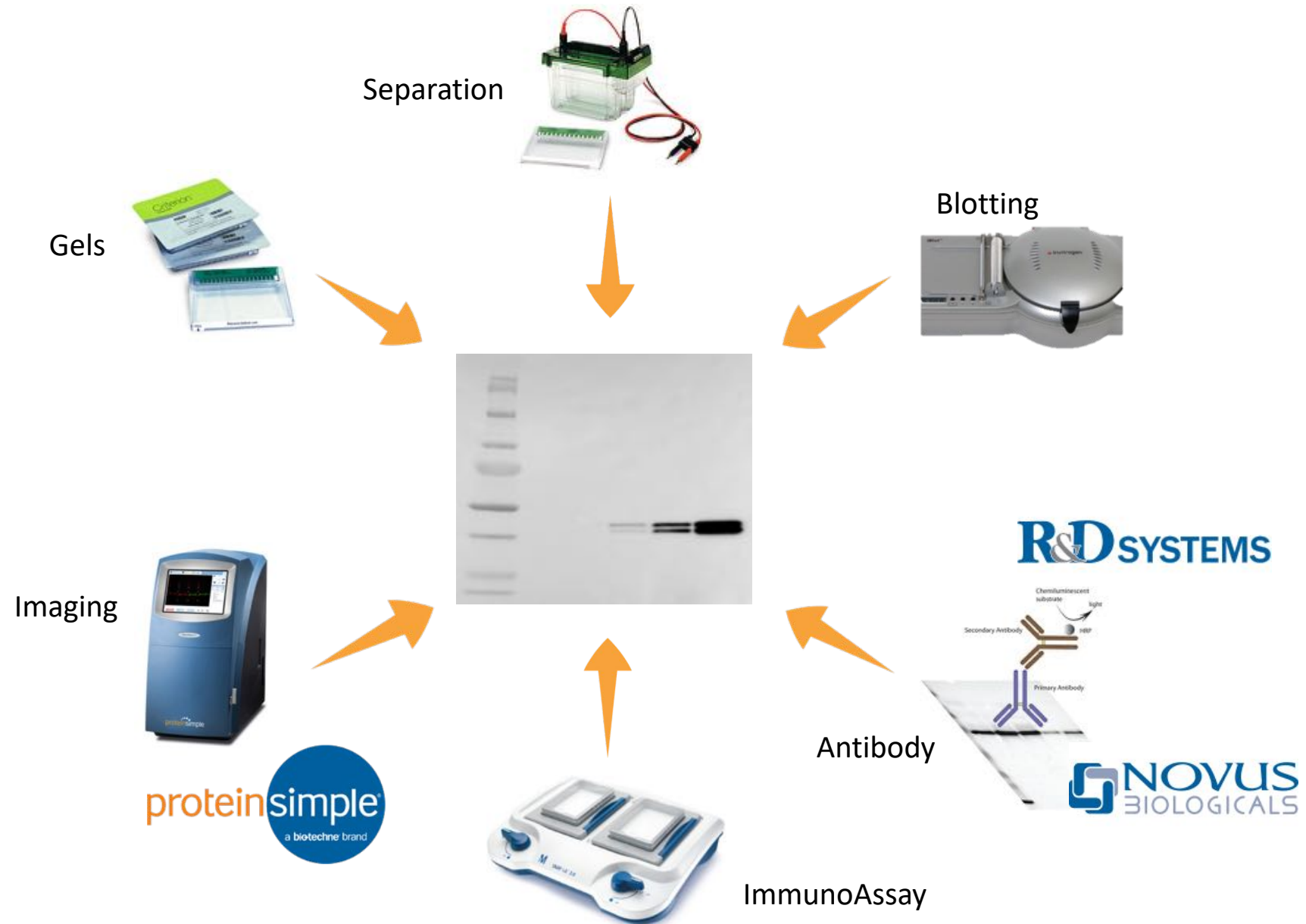
50%

of life science researchers
regularly do westerns

850,000

researchers world wide







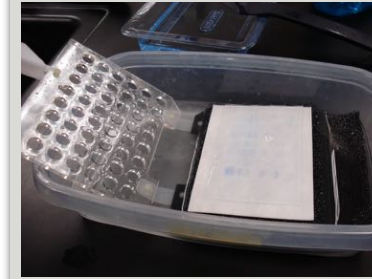
Load gel



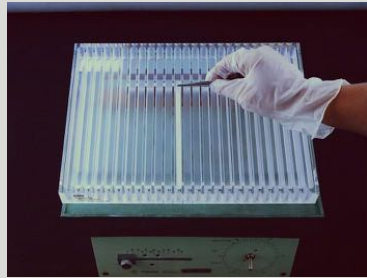
Run gel



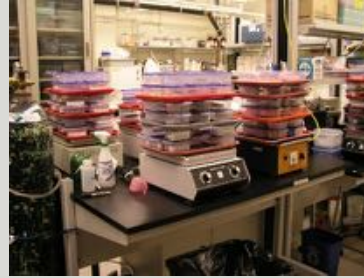
Prep gel



Build Sandwich



Membrane Transfer



Primary Probe



Wash



Secondary Probe



Wash Again



Expose

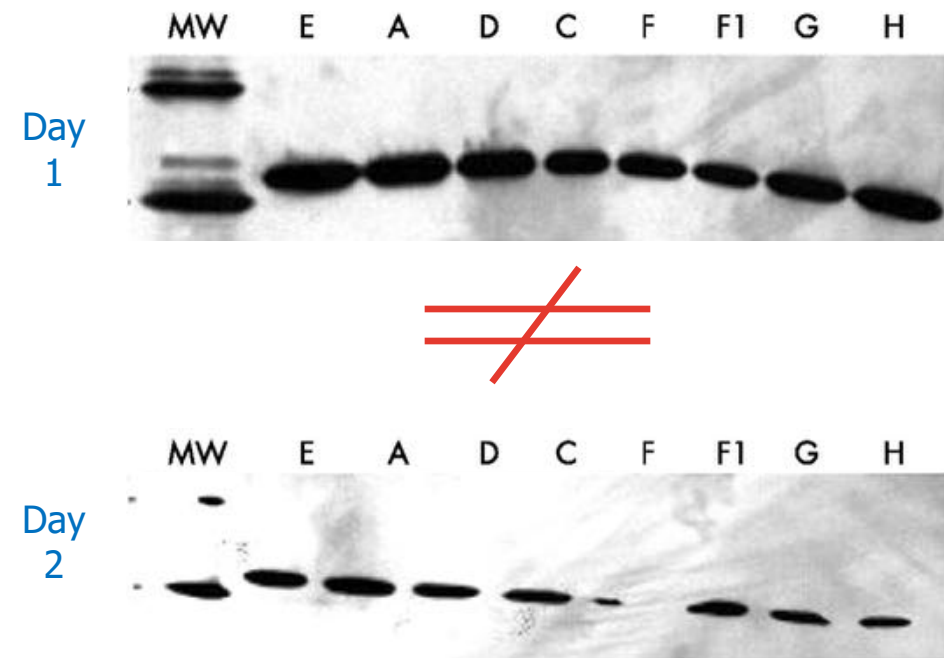


Develop



Detect

- ✗ Manual
- ✗ Time consuming
- ✗ Inconsistent
- ✗ Non-reproducible
- ✗ Semi-quantitative at best

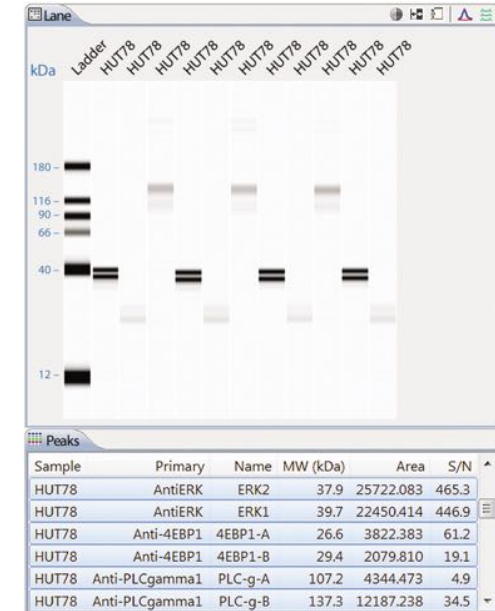




Prepare samples

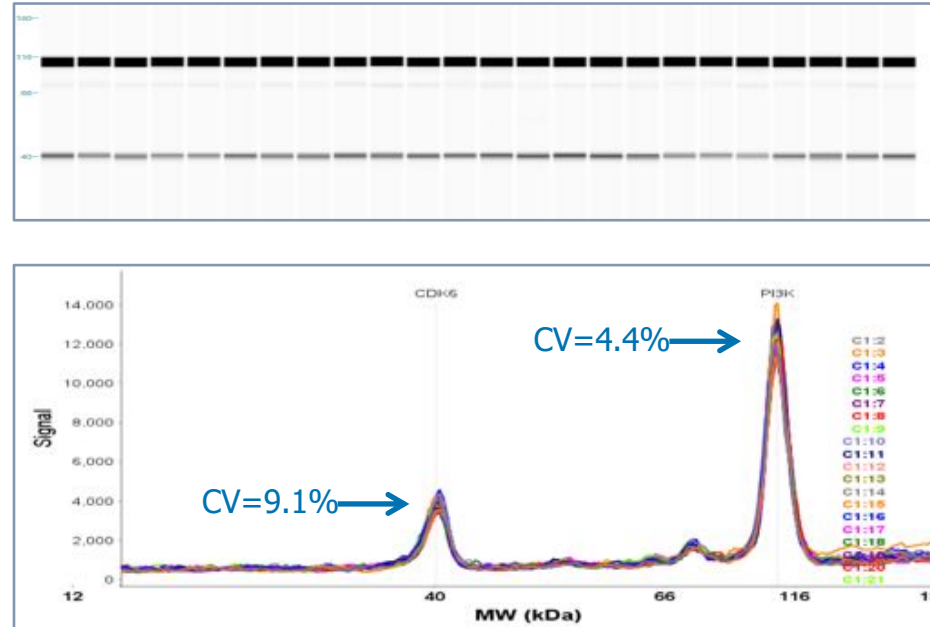


Click start



Results
automatically

- ✓ Fully automated
- ✓ Fast
- ✓ Consistent
- ✓ Reproducible
- ✓ Fully quantitative



Gel Free, Blot-free, Hands-Free



Wes™
25 samples



Peggy Sue™
96 size/charge



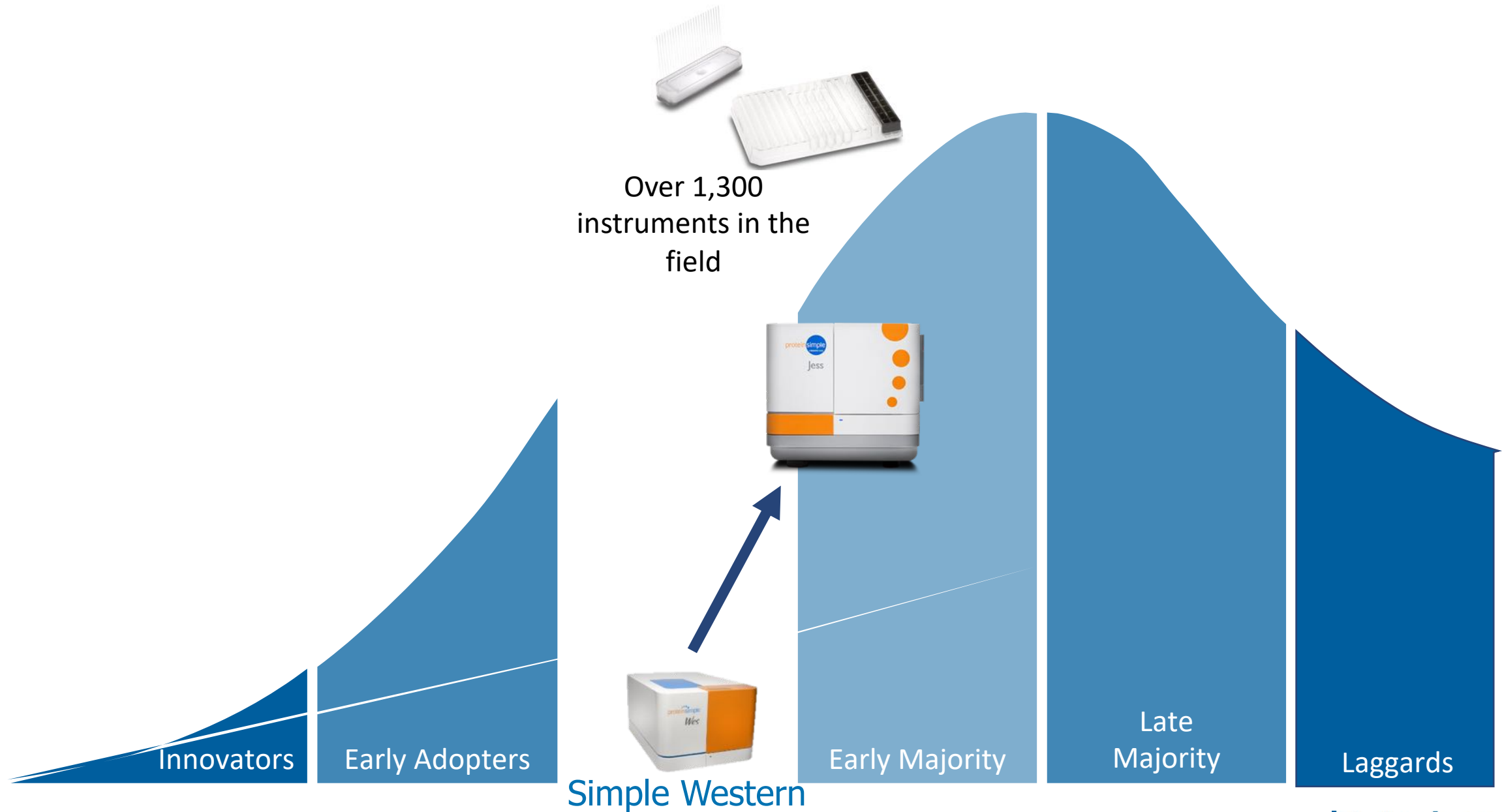
Jess™
25 samples
+Fluorescence
+Protein Normalization
+Blot Imaging



Sally Sue™
96 size



NanoPro 1000™
96 charge



~ 2,000,000

ELISAs are performed annually

~1,000,000

Are ELISA kits

Typical lab:

50-100

Plates per year

6-10

Different targets



Sensitive & Accurate
Tedious & Slow



R&D SYSTEMS

R&D SYSTEMS

R&D SYSTEMS

Traditional ELISA

1. Coat Plate with Capture Ab



2. Wash Plate



3. Add Antigen (sample)



4. Wash Plate



5. Add 2° Ab and incubate



6. Wash Plate



7. Add Detection Reagent and incubate

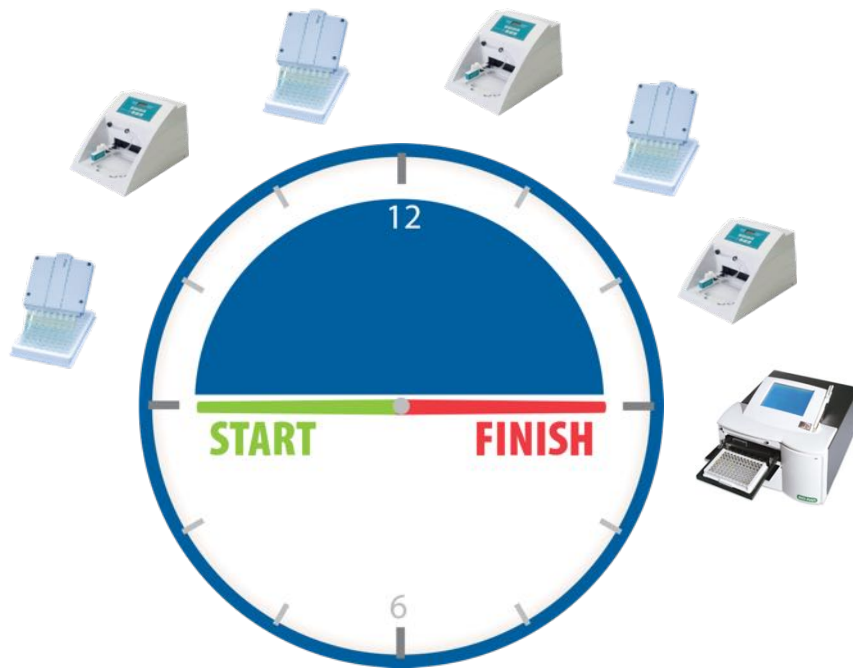


8. Read in plate reader and analyze



biotechne®

Traditional ELISA



- Up to 8 separate steps
- Each Step adds variability
- May take up to 6 hours
- Requires larger sample volumes

Simple Plex ELISA



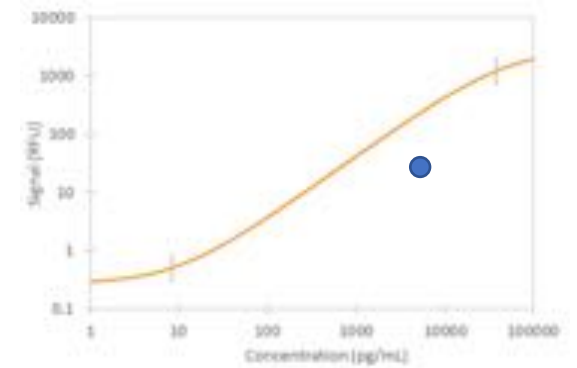
- Only 2 separate steps
- Variability is low
- Only takes up to 1.25 hours
- Requires low sample volume



Prepare samples

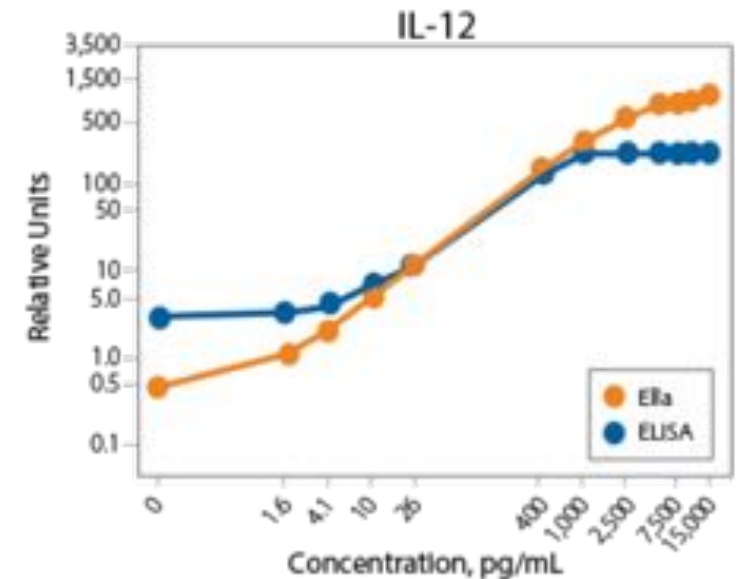
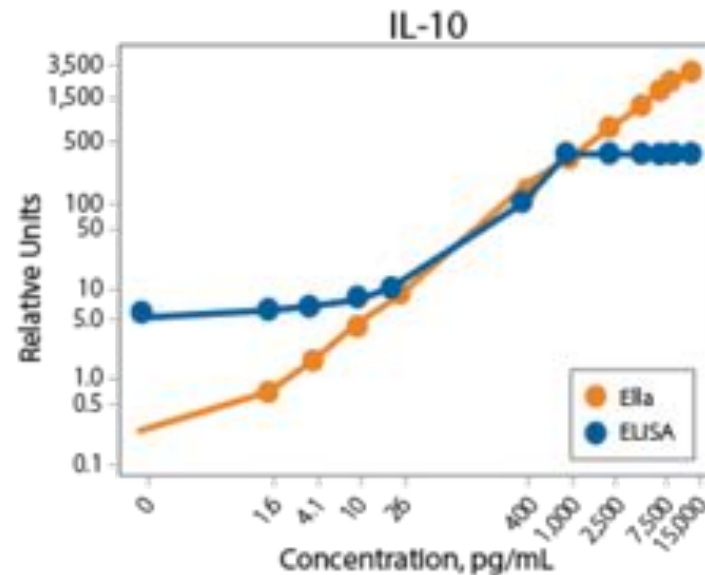
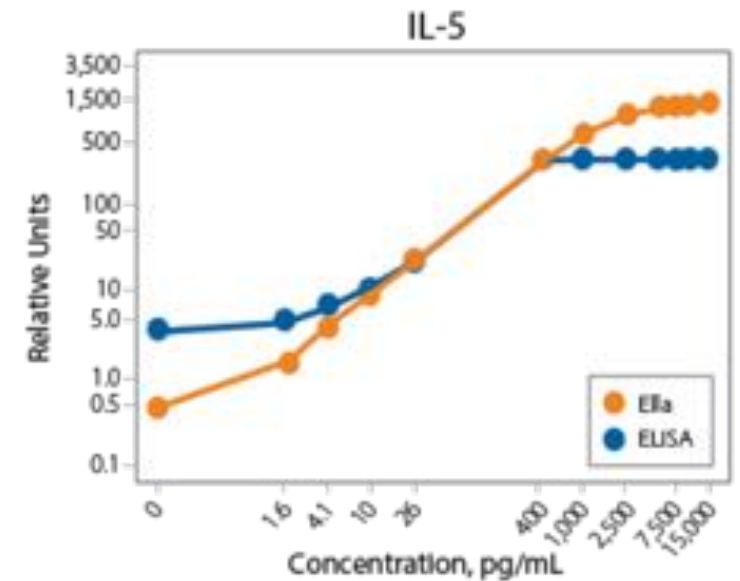
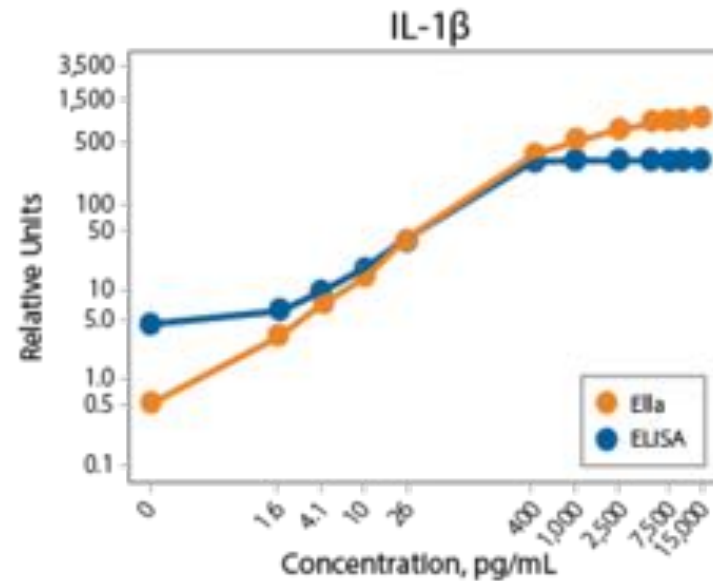


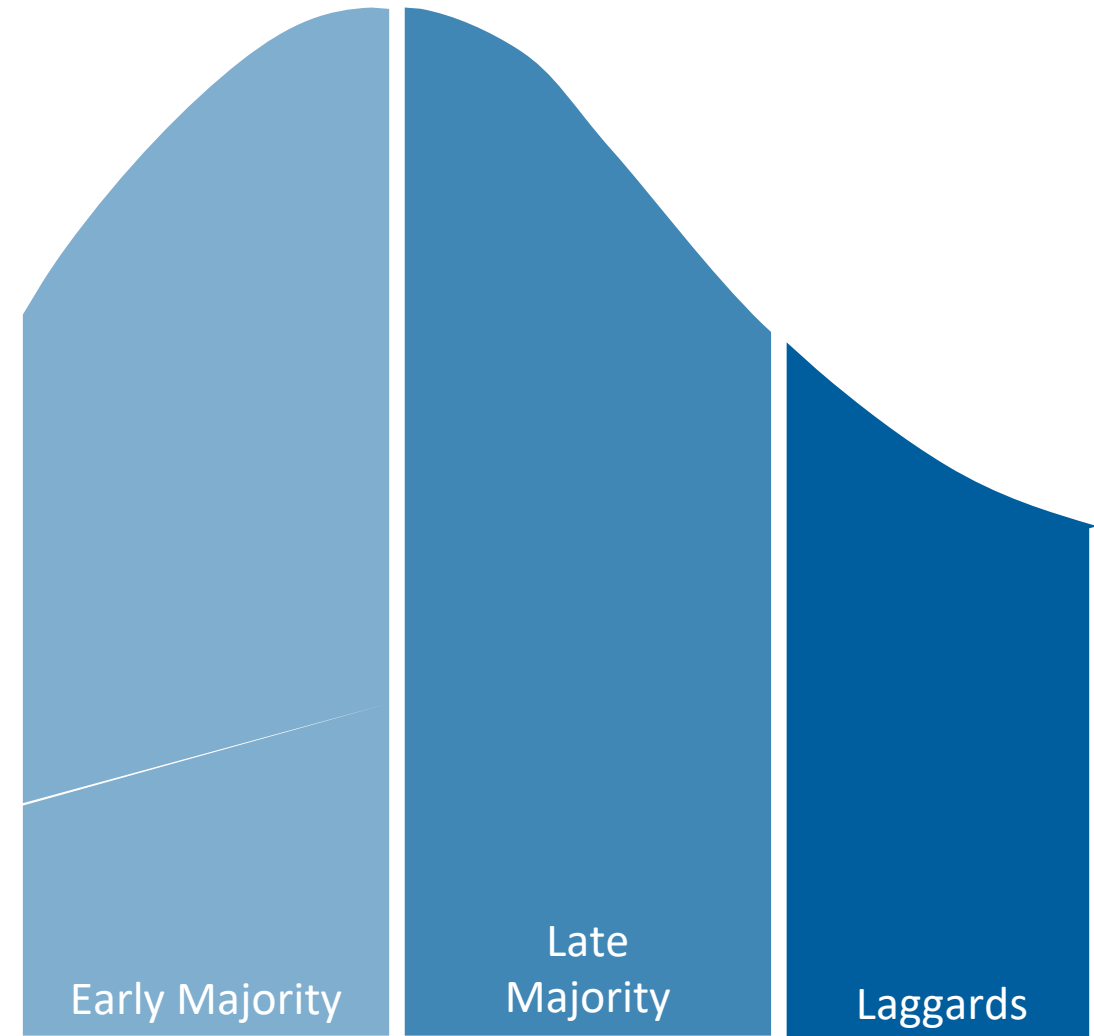
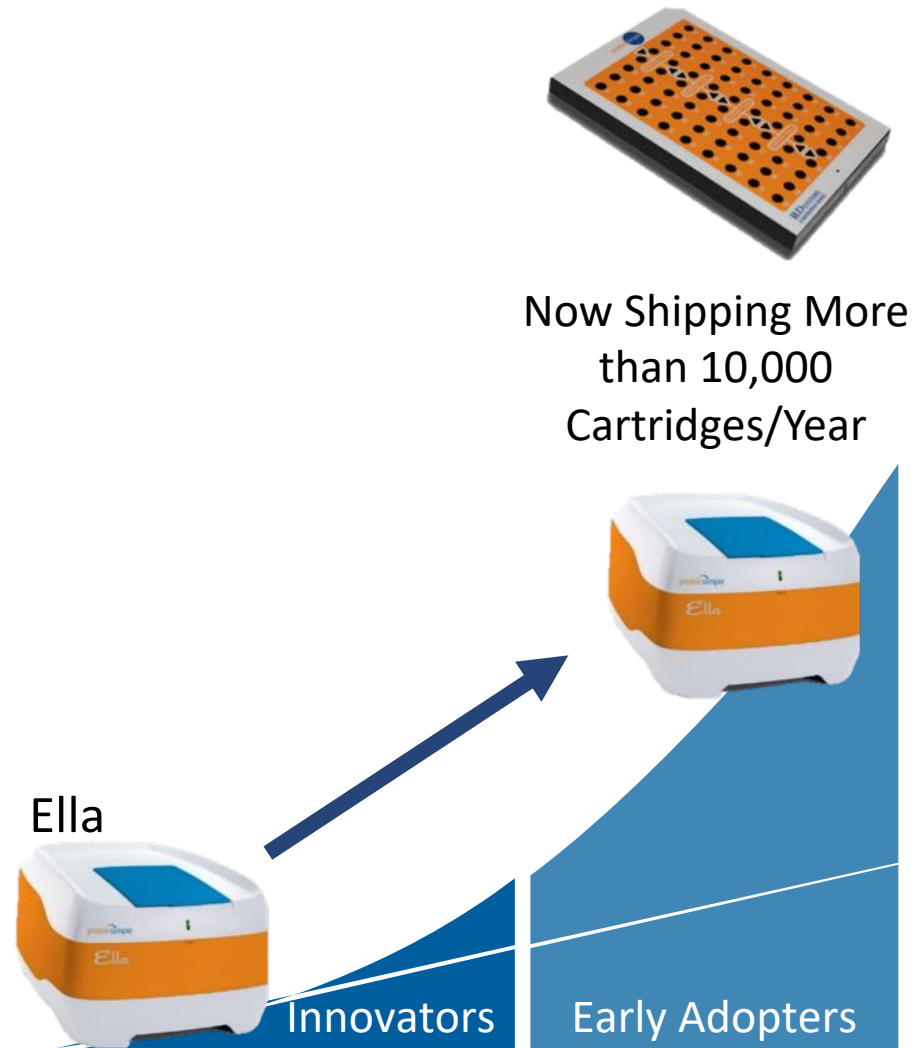
Click start



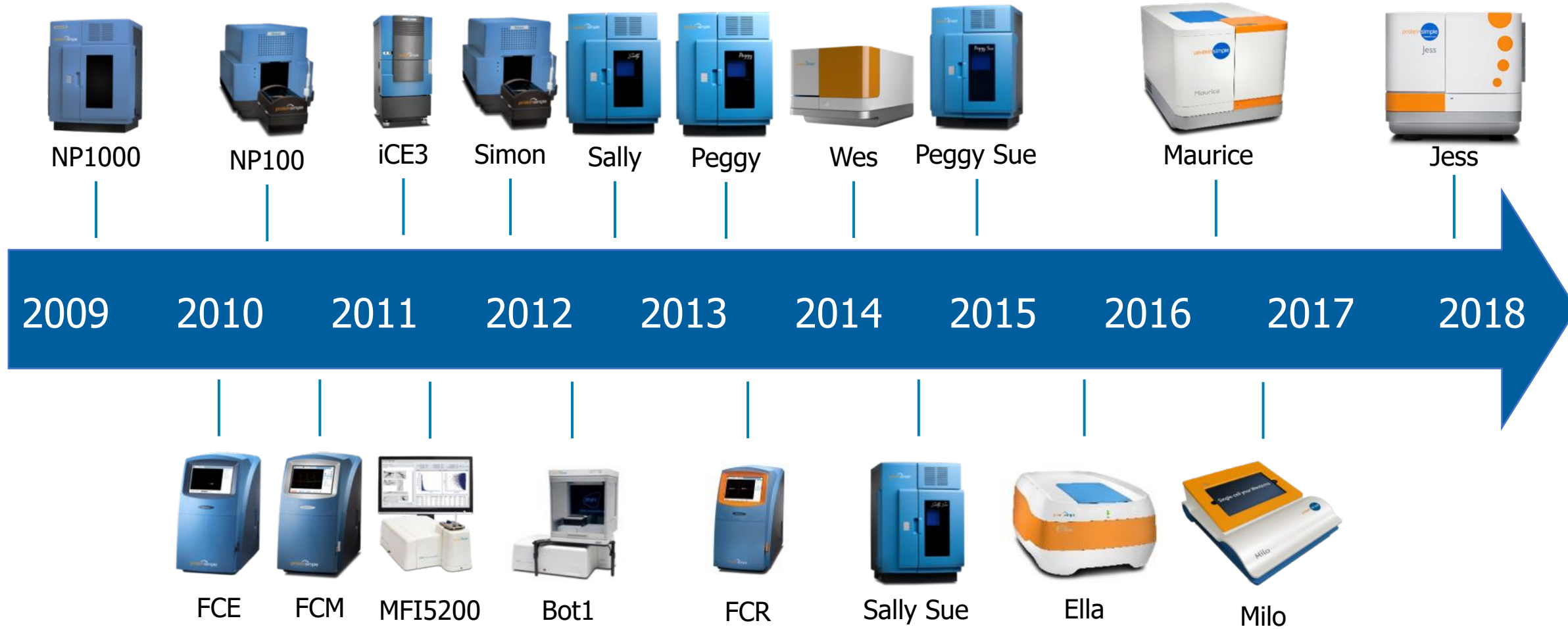
Results
automatically

- Up to 4 targets per sample
- Wider Dynamic Range
- Lower detection limits





Proven Track Record of Innovation in Protein Analysis



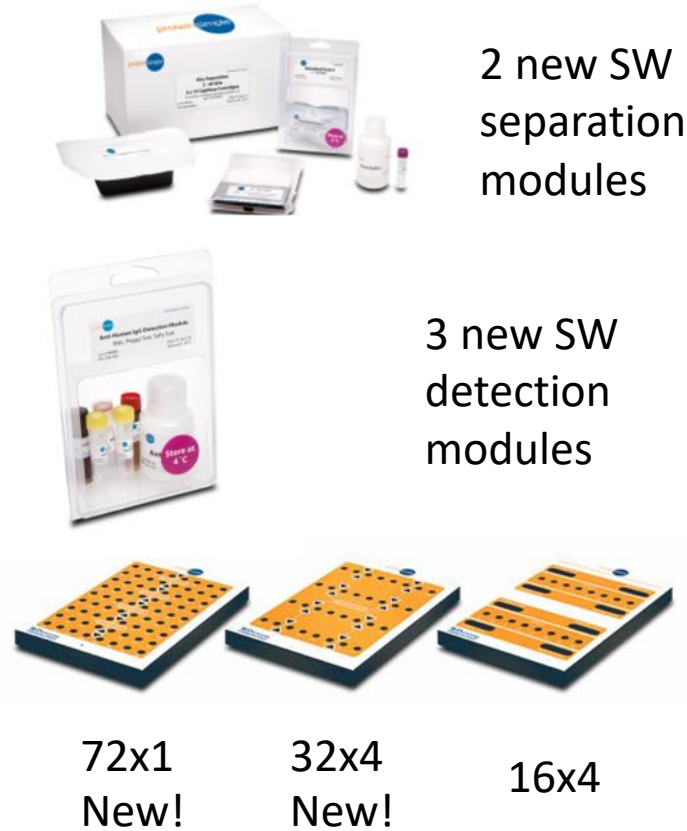
Instruments



Jess

Bio-Techne will add new instruments to bring new functionality to customers

Consumables



Bio-Techne will add new consumable formats to expand the functionality of installed systems

Assays



200+ Simple Plex Assays Complete

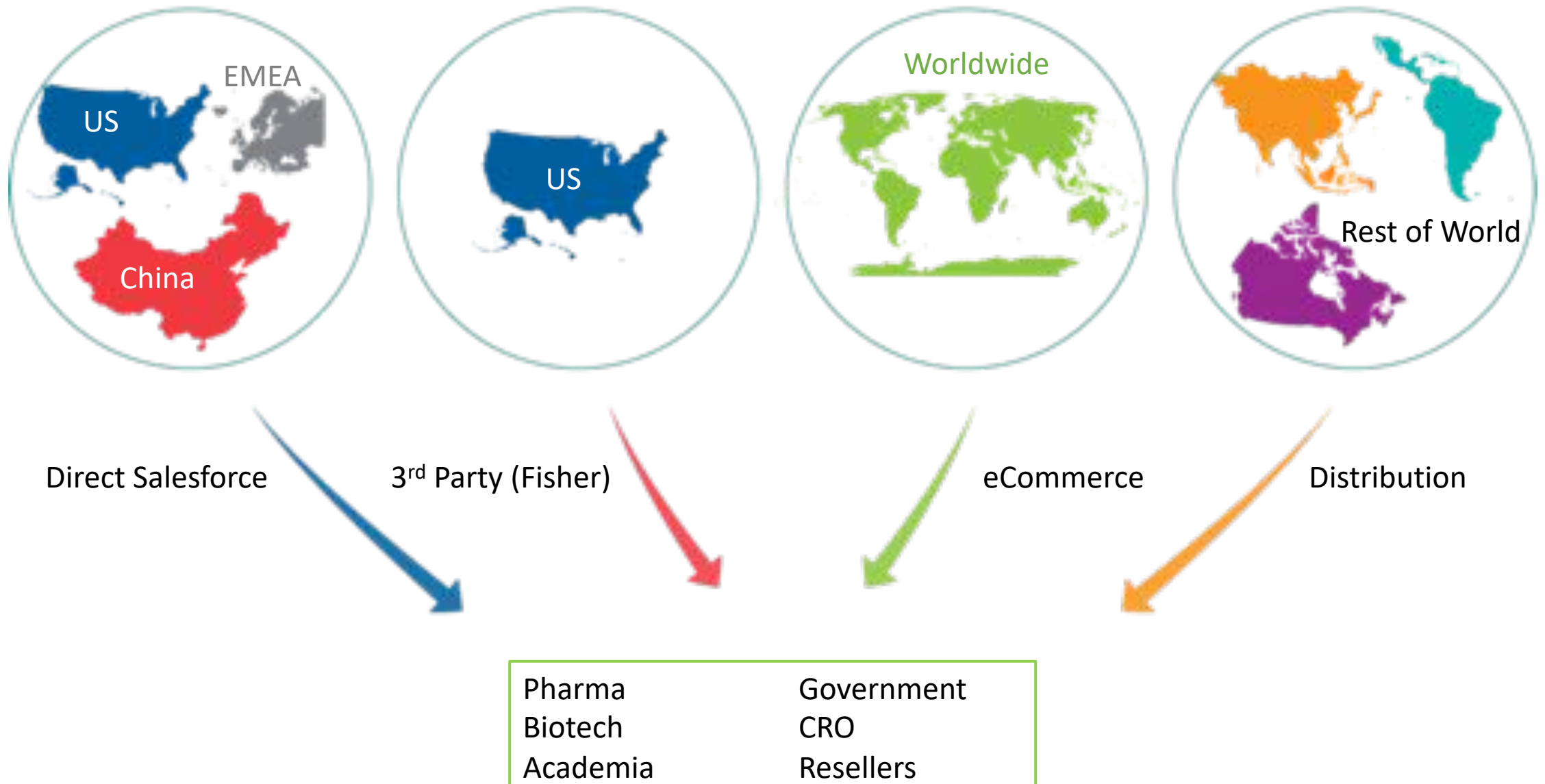


2,000+ Certified Simple Western Antibodies

400+ Certified Single Cell Antibodies

Bio-Techne will add specific assays to deliver complete solutions

48% Recurring Revenue

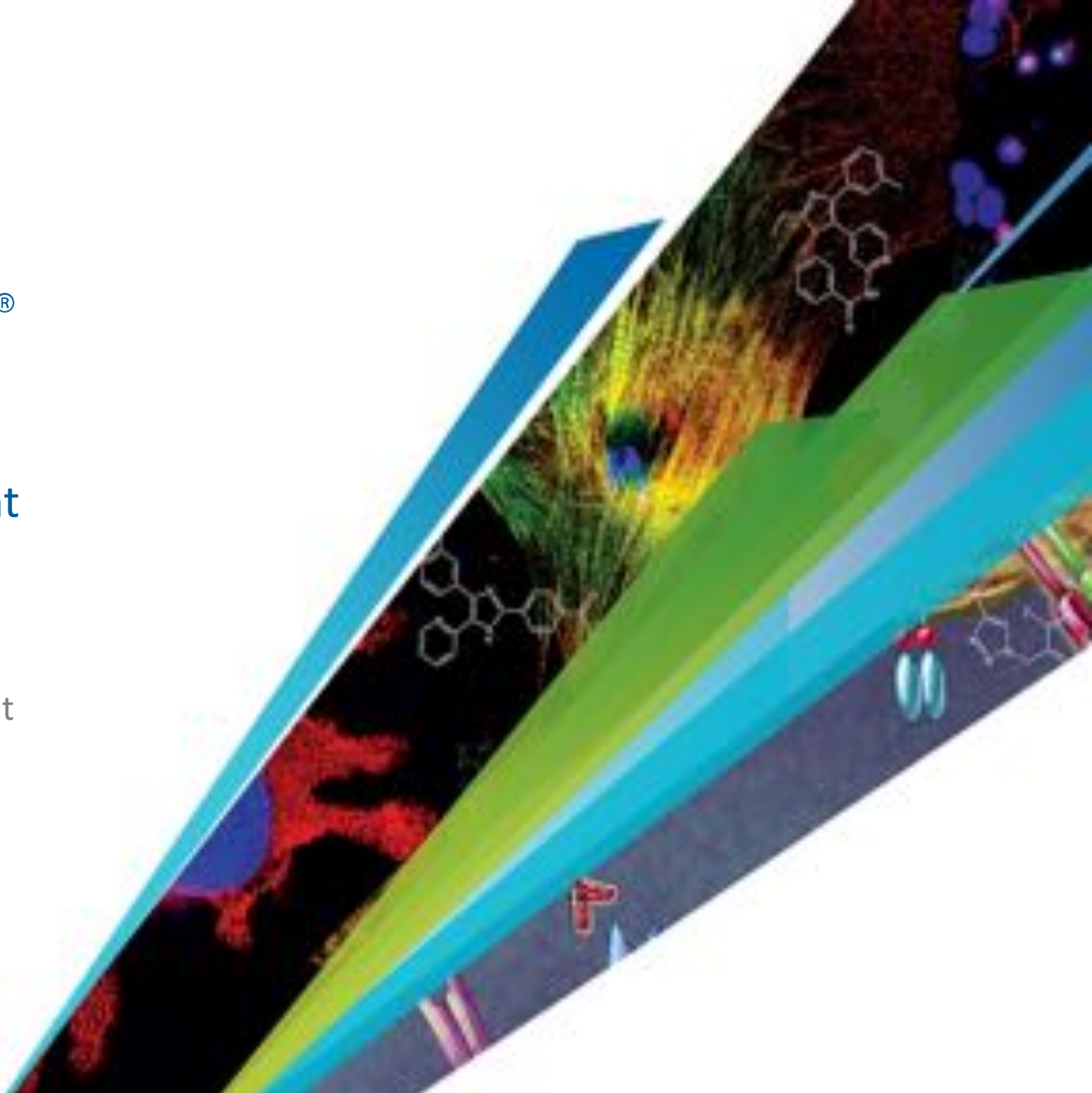




Diagnostics & Genomics Segment

Kim Kelderman

President, Diagnostics & Genomics Segment



1. Segment overview

2. Business strategy: Diagnostics

- Product overview
- Serviceable Available markets
- Business Priorities:

3. Business strategy: Genomics

- Why ISH?
- Customer Journey, RNAscope® expansion
- Unlock Bio-Techne® Capabilities in Genomics

Locations & Brands in Bio-Techne's Diagnostics and Genomics Segment



Calibration and control products

- General Chemistry
- Hematology
- Diabetes (Blood glucose, HbA1c)
- Blood Gas/Electrolytes
- Immunochemistry
- Urine Chemistry/Urinalysis
- Coagulation



Biological components

- Cardiac Markers
- Lipids
- Specific Proteins
- Cancer Markers
- TDM
- Toxicology



Instrument companies

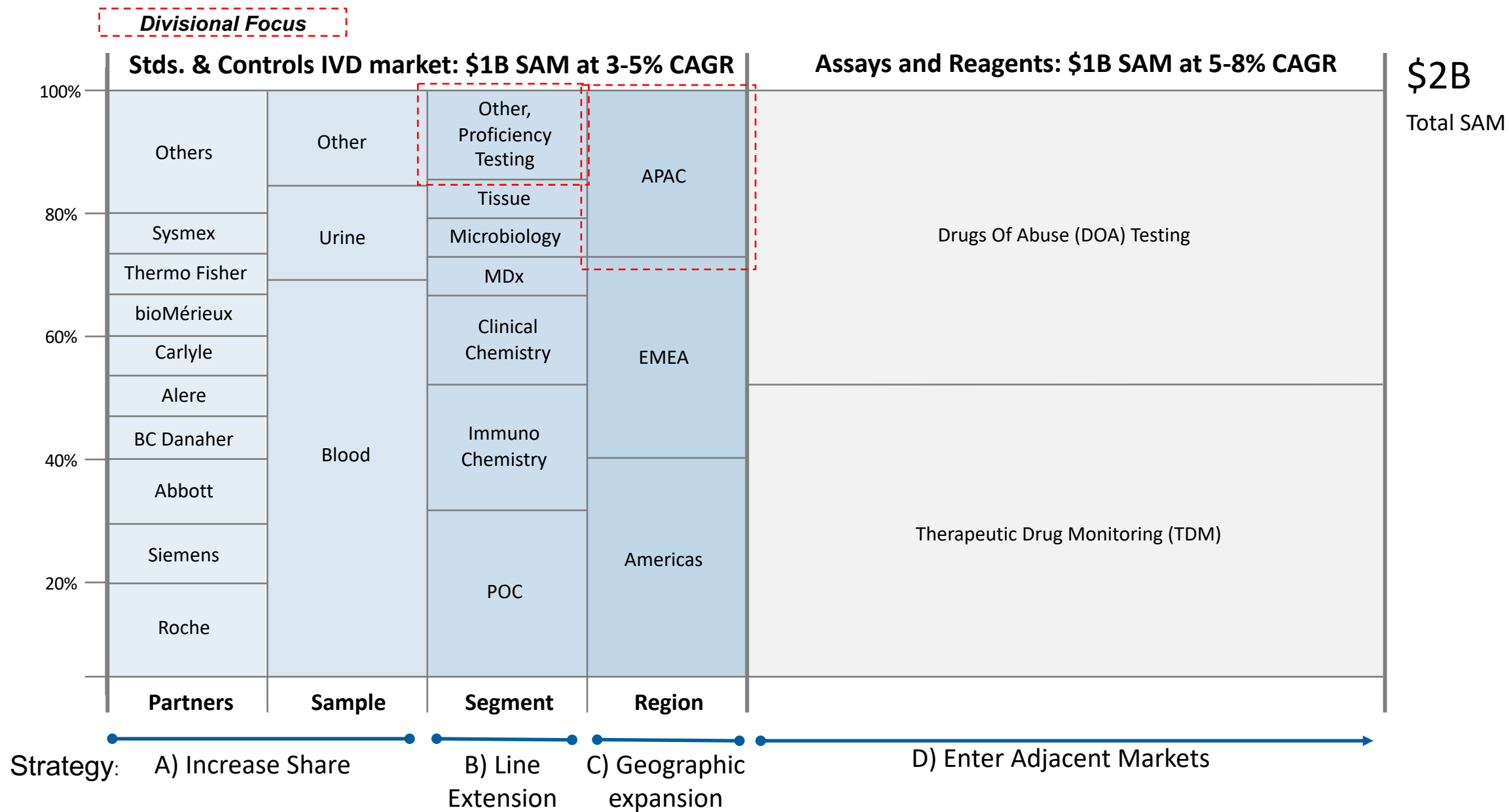
- Point of Care



- Laboratory instrumentation



Serviceable Addressable Market (SAM)



Focus on fundamental capabilities to enjoy sustained growth in the core business.
Expand into adjacent markets for accelerated growth.

The situation

- **Addressable market** ~\$1B Quality controls/Calibrators market
- **Deep relationships** with >25 leading IVD companies
- **Commercial expertise** and a global presence with ~50% of current revenue derived from outside US
- **World class** development, quality and manufacturing operations, with the highest reputation
- **Continuous requests** for assay development and reagent manufacturing from existing customers
- **Adjacent market** for targeted reagents and assays of \$1B

Strategic priorities

Service our core market:

- A:** Increasing OEM share (share wallet and new customers)
- B:** Line extensions into Proficiency Testing (PT) products
- C:** Geographic expansion (China/APAC and EMEA)

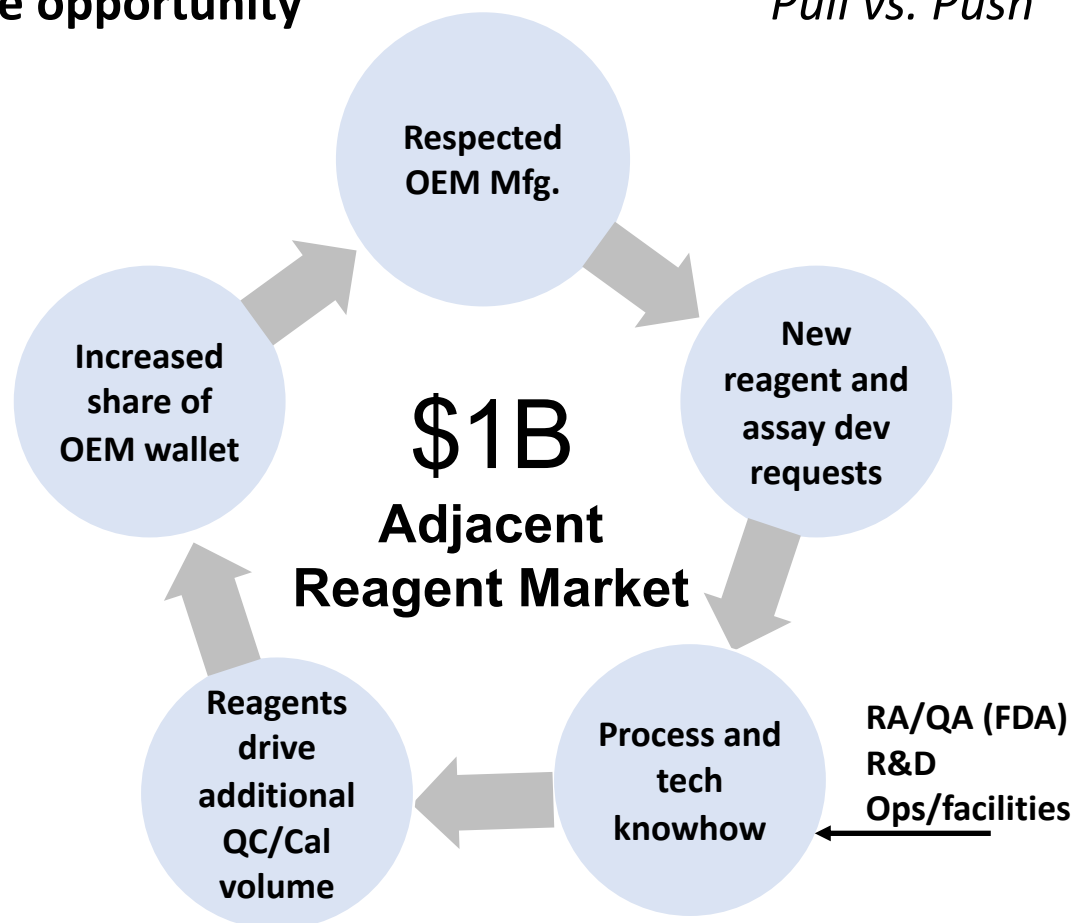
Enter adjacent markets of reagents and assays

- D:** Driven by requests from OEM customers

Focus on fundamental capabilities to enjoy sustained growth in the core business.
Expand into adjacent markets for accelerated growth.

The opportunity

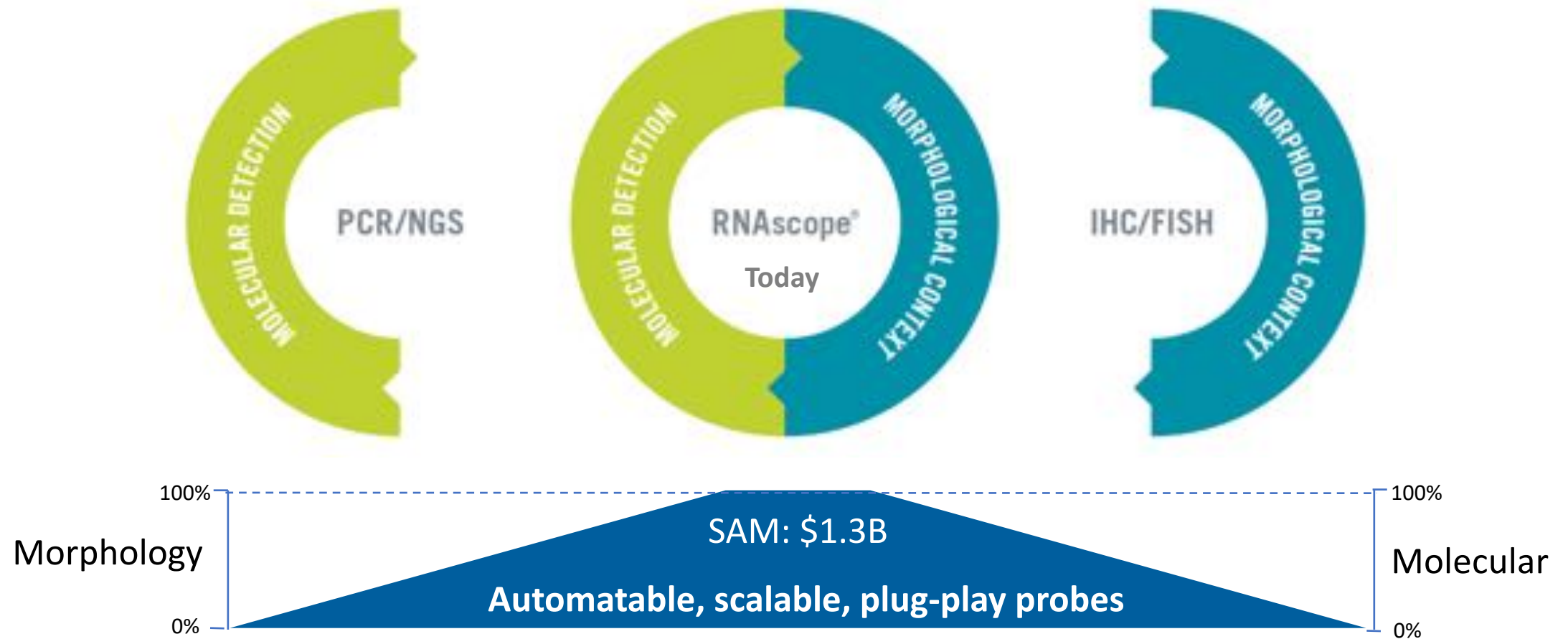
Pull vs. Push



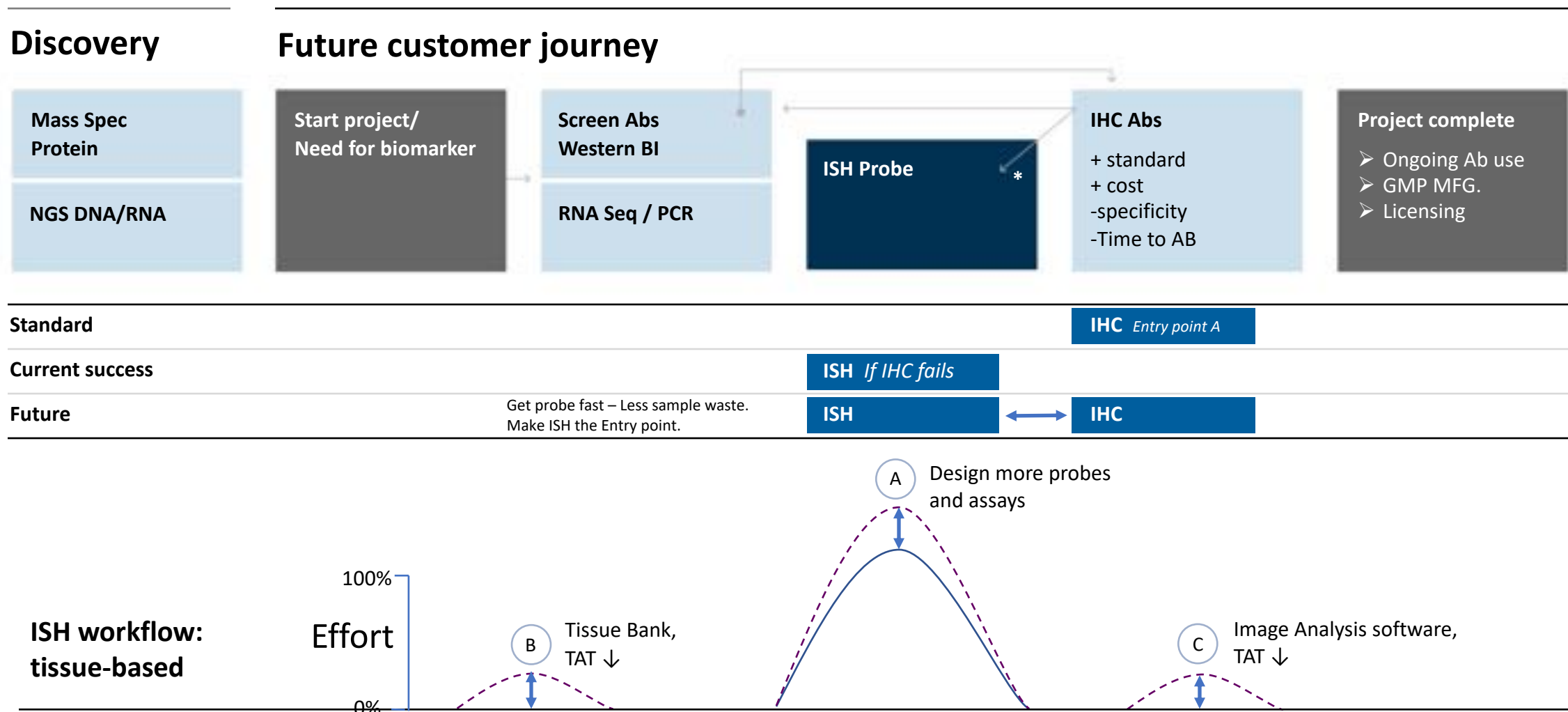
Critical success factors

- ✓ **Not a clinical instrument company** and not a competitive threat to the largest IVD companies
- ✓ **Existing partnerships** with the global market leaders: Roche, Siemens, Abbott, Danaher, Sysmex, Becton Dickinson
- ✓ **Technical and R&D experience:** in both quality controls/calibrators as well as reagents and assay development
- ✓ **Operations:** modern facilities, compliant to all current regulations with an impeccable quality track record

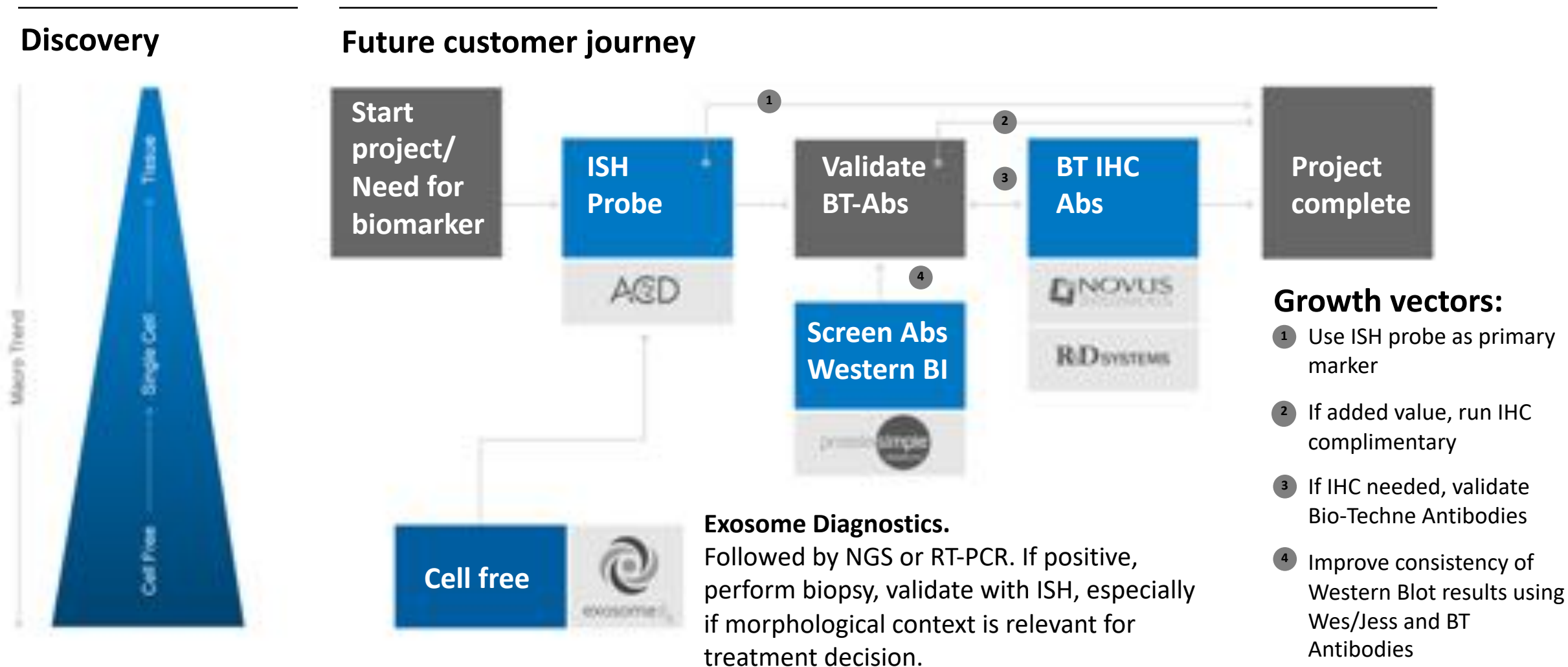
RNA-ISH provides morphological & molecular information
Best of both worlds



Drive Genomics revenue by providing a better, faster ISH experience



Support the customer journey by linking Bio-Techne Capabilities

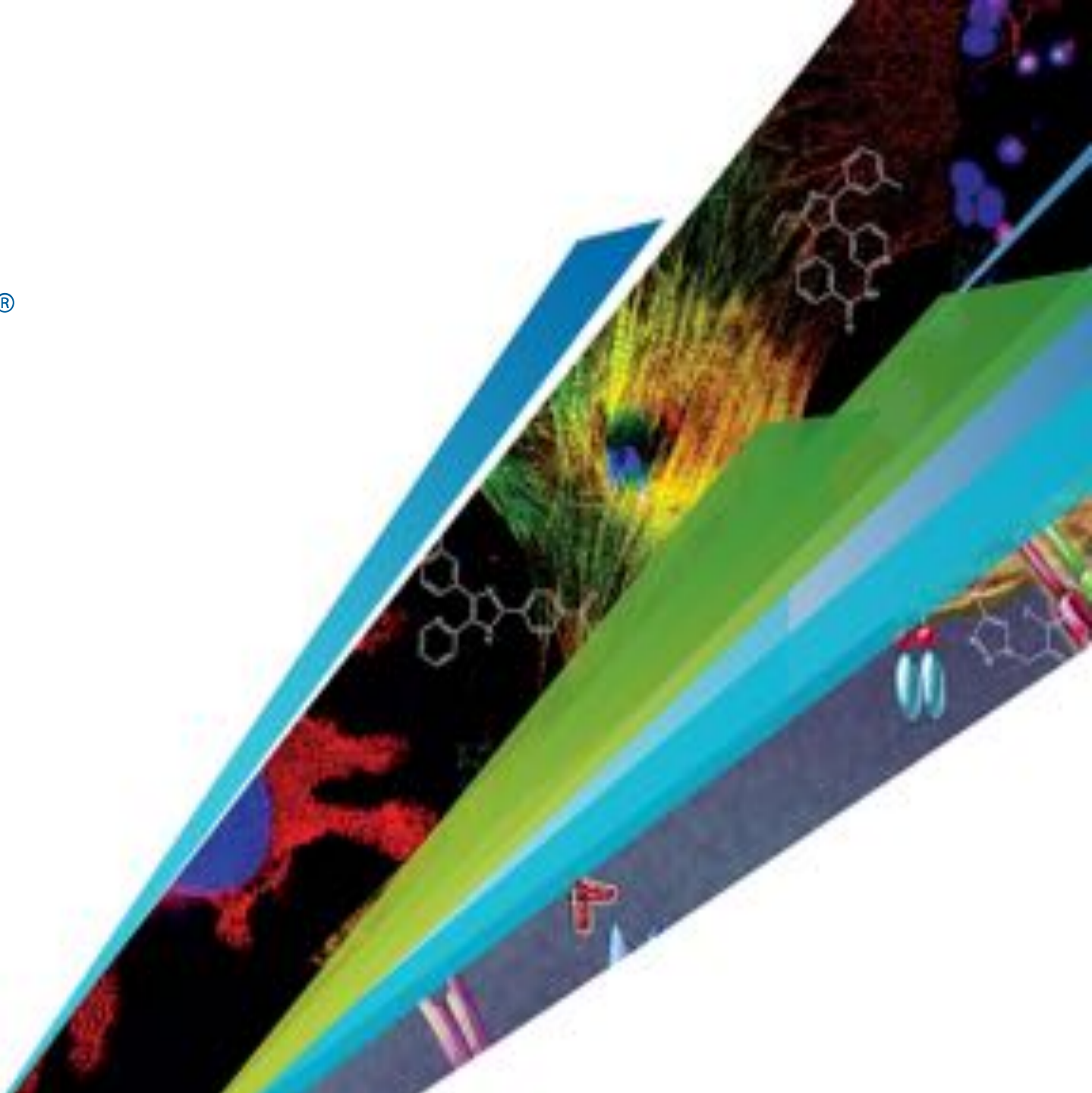


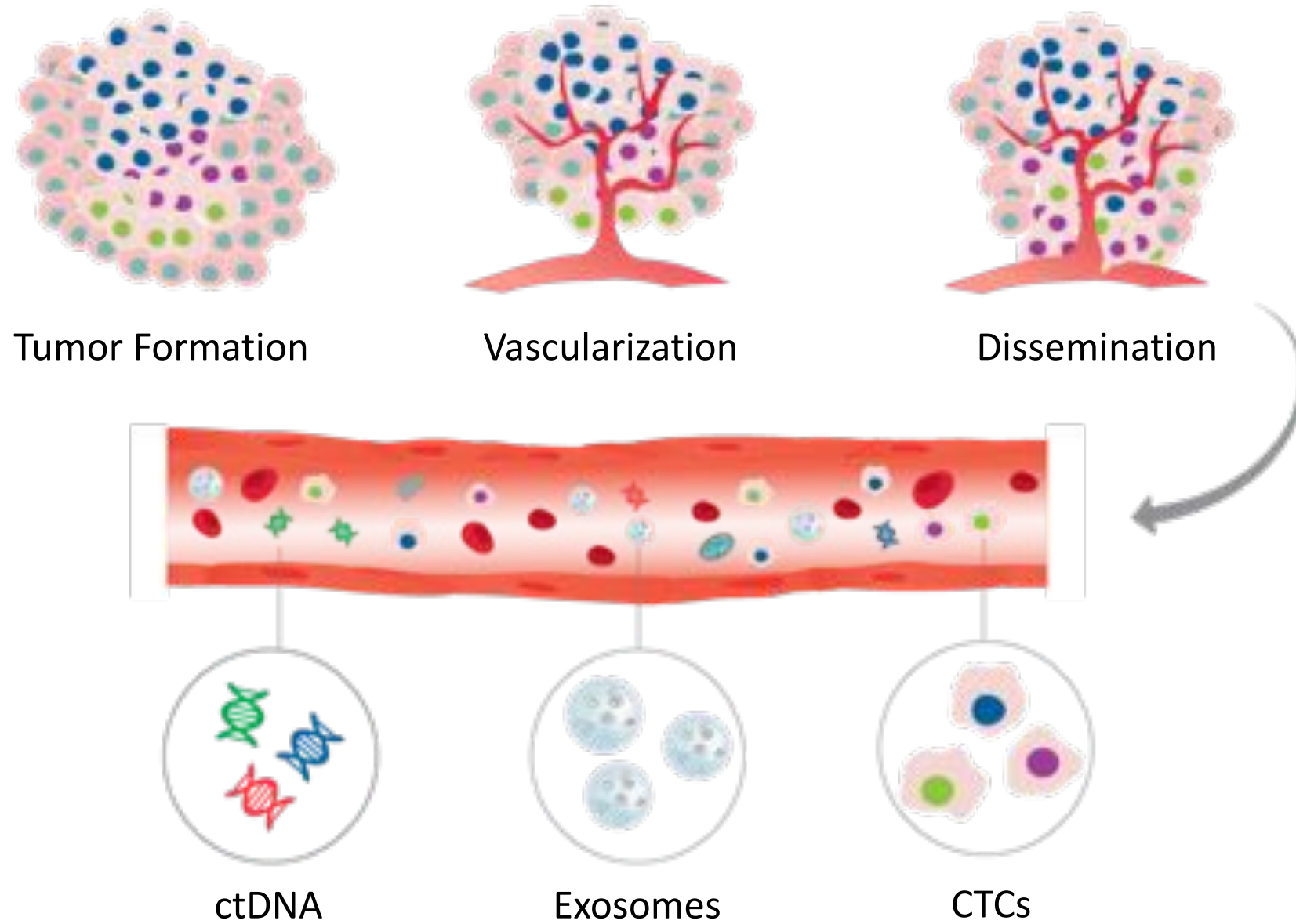
biotechne[®]

Exosome Diagnostics

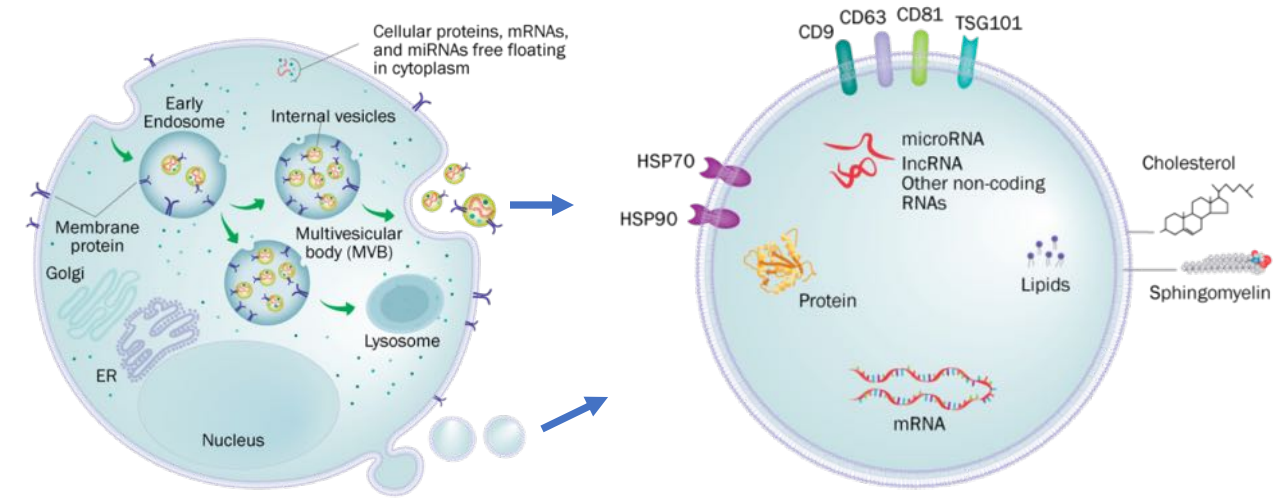
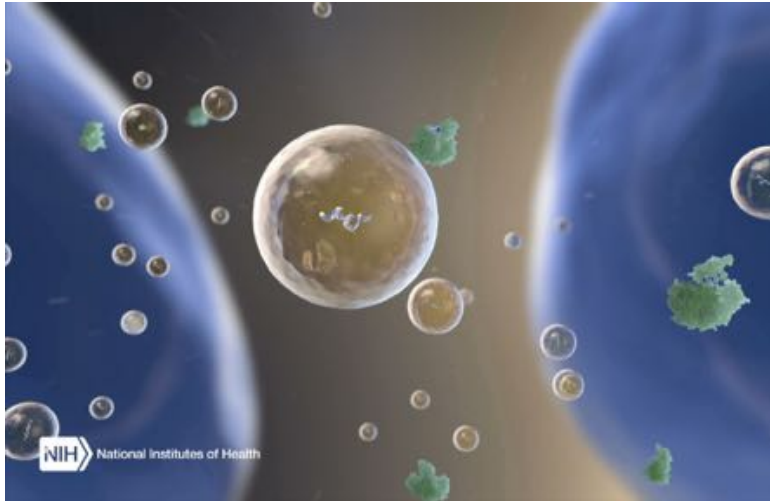
Johan Skog, Ph.D.

Vice President





Exosomes are released as a means of intracellular communication



Exosomes are released by all living cells into biofluids and have a biological purpose

- Produced by eukaryote and prokaryote cells
- Play a role in health and disease
- Can deliver molecules not normally secreted from cells

Exosomes play a role in various disease processes

- Stimulate tumor cell growth
- Inhibit immune cells
- Stimulate angiogenesis

Key Properties	CTCs	cfDNA	Exosomes
Frequency	Infrequent in early stages of disease	Difficult to find within “noise” of contaminating DNA	Abundant
Ability to Enrich or Select	Yes	No	Yes
Quality of Isolated Nucleic Acids	Good	Poor due to enzymes exposure	High quality-shielded

- Tools with better correlation to the biology

Need: One Reaction		Measurement	Source	Material
	{	Falling Allele Frequencies	Dying Cells	cfDNA
		Rising Allele Frequencies	Living Cells	Exosomal RNA

- Sensitivity: **Why cfDNA alone is insufficient**

Median copies/ml (estimated)

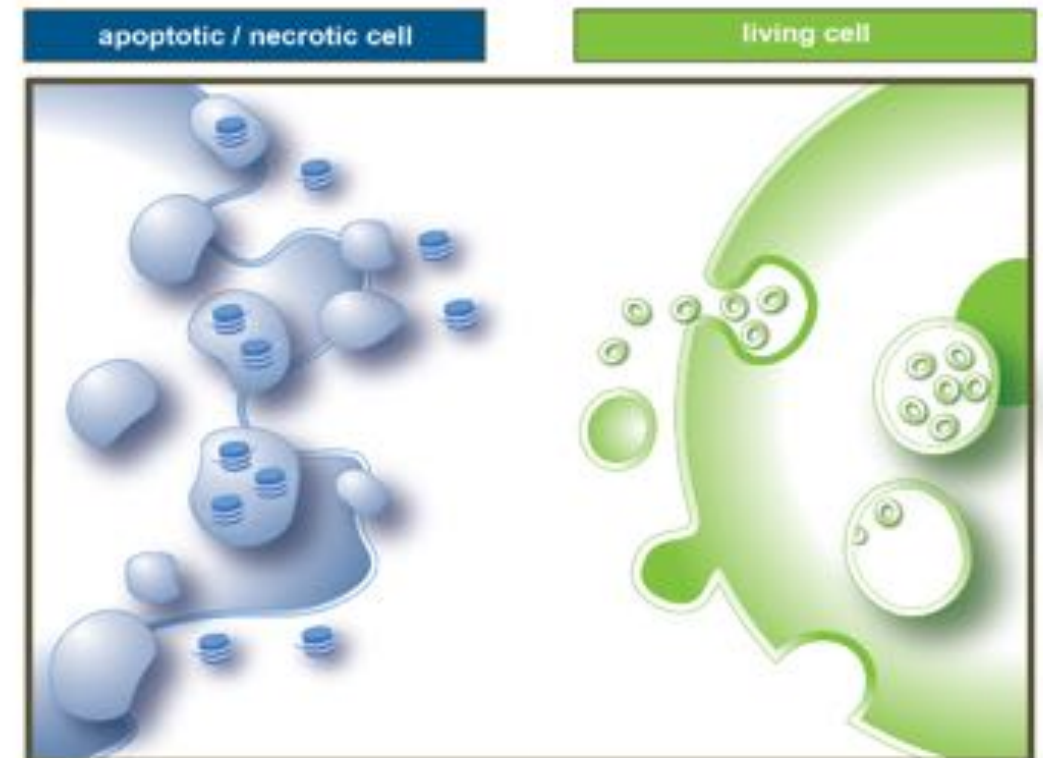
Stage 1 & 2: <1 copy/ml

Stage 3: 10-12 copies/ml

Stage 4: 70 copies/ml

*Chetan Bettegowda *et al.*

Sci Transl Med **6**, 224ra24 (2014);



Ann Oncol 2018; 29(3):700-706

Improved EGFR mutation detection using combined exosomal RNA and circulating tumor DNA in NSCLC patient plasma.

Krug AK¹, Enderle D¹, Karlovich C², Priewasser T¹, Bentink S¹, Spiel A¹, Brinkmann K¹, Emenegger J¹, Grimm DG¹, Castellanos-Rizaldos E³, Goldman JW⁴, Sequist LV⁵, Soria JC^{6,7}, Camidge DR⁸, Gadgeel SM^{9,10}, Wakelee HA¹¹, Raponi M², Noerholm M¹, Skog J³.

CONCLUSIONS: Combining exoRNA and ctDNA increased the sensitivity for EGFR mutation detection in plasma, with the largest improvement seen in the subgroup of M0/M1a disease patients known to have low levels of ctDNA and poses challenges for mutation detection on ctDNA alone.

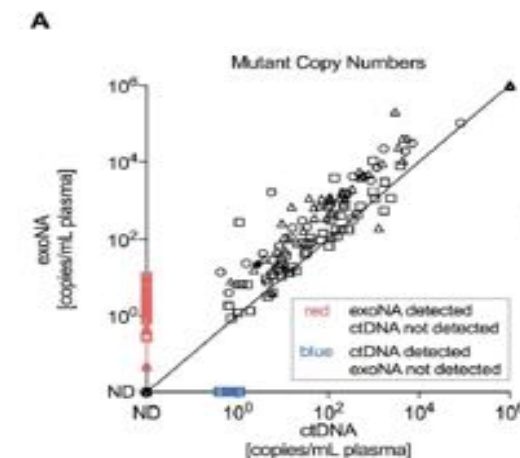


Improved clinical sensitivity over ctDNA



Up to 10-fold more copies of the mutations (median)

	Tissue Biopsy result				
	Activating ^a	T790M		Activating	T790M
M0/M1a Subgroup C (n = 21 total, 19 with valid tumor status)					
exoNA (EXO1000) ^c	+	14	exoNA Sensitivity	74%	31%
	–	5			
ctDNA (BEAMing) ^c	+	5	ctDNA Sensitivity	26%	19%
	–	14			



~60% of NSCLC patients become resistant to EGFR inhibitor therapy due to the EGFR T790M mutation

ExoDx[®]Lung (T790M) vs. Roche cobas[®] EGFR Mutation Test v2 (US IVD)

Drug resistance T790M mutations in NSCLC patients

- exoRNA and cfDNA = ExoDx[®]Lung(T790M) CLIA validated qPCR assay
- ctDNA = Roche cobas T790M IVD cleared assay

Clinical Cancer Research

Home About Articles For Authors Alerts News

Translational Cancer Mechanisms and Therapy

Exosome-Based Detection of *EGFR* T790M in Plasma from Non-Small Cell Lung Cancer Patients

Elena Castellanos-Rizaldos, Dominik G. Grimm, Vasisht Tadigotla, James Hurley, John Healy, Patricia L. Neal, Mia Sher, Raajdeep Venkatesan, Chris Karlovich, Mitch Raport, Anne Krug, Mikkel Noerholm, Jihane Tannous, Bakhos A. Tannous, Luis E. Ruez, and Johan K. Skog

DOI: 10.1158/1078-0432.CCR-17-3369 Published June 2018

ExosomeDx assay

Clinical sensitivity = **92%** N = 210

Clinical specificity = 89%

SUMMARY OF SAFETY AND EFFECTIVENESS DATA (SSED)

I. GENERAL INFORMATION

Device Generic Name:	Real-time PCR test
Device Trade Name:	cobas [®] EGFR Mutation Test v2
Device Procode:	OWD
Applicant's Name and Address:	Roche Molecular Systems, Inc. (RMS) 4300 Hacienda Drive Pleasanton, CA 94588-2722
Date(s) of Panel Recommendation:	None
Premarket Approval Application (PMA) Number:	P150044
Date of FDA Notice of Approval:	September 28, 2016

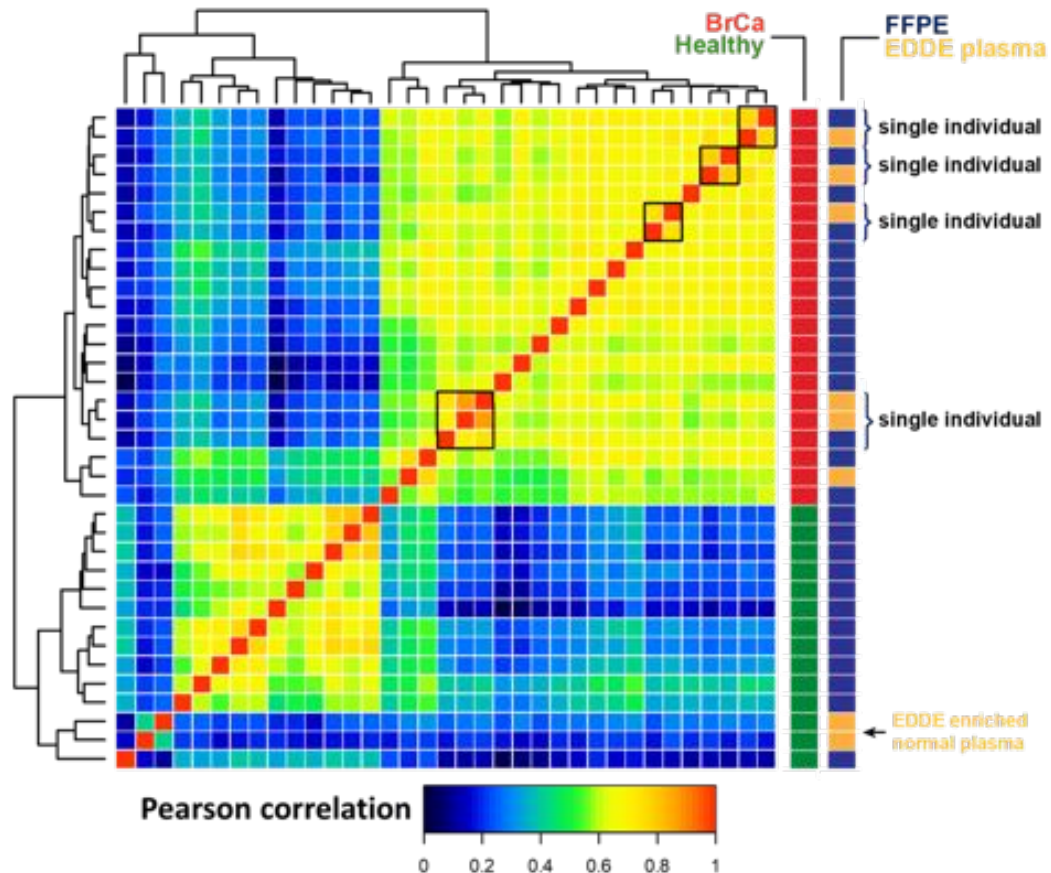
Roche cobas assay

Clinical sensitivity = **58%** N = 383

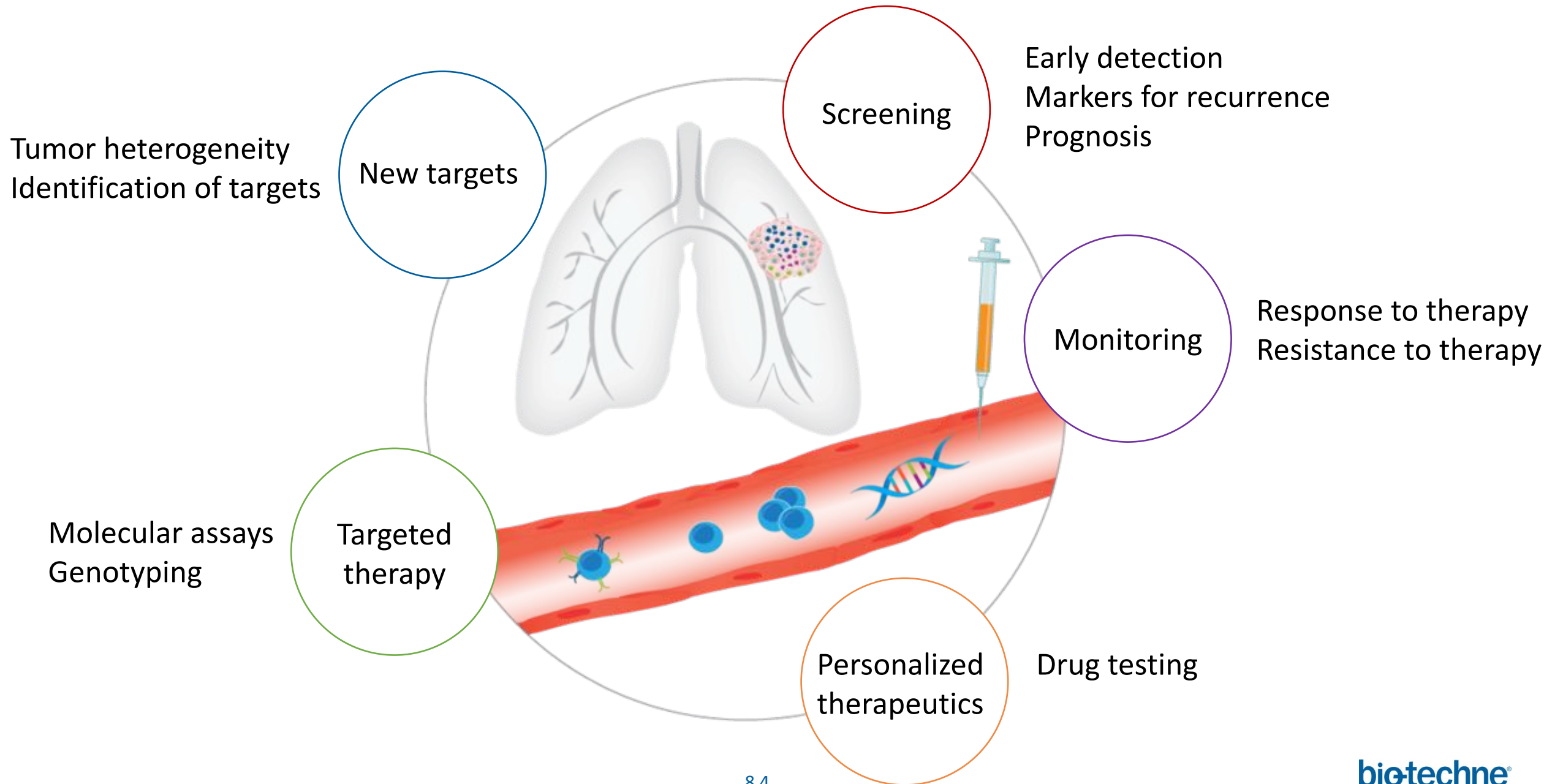
Clinical specificity = 80%

Early Detection (stage I/II) ER+ Breast Cancer:

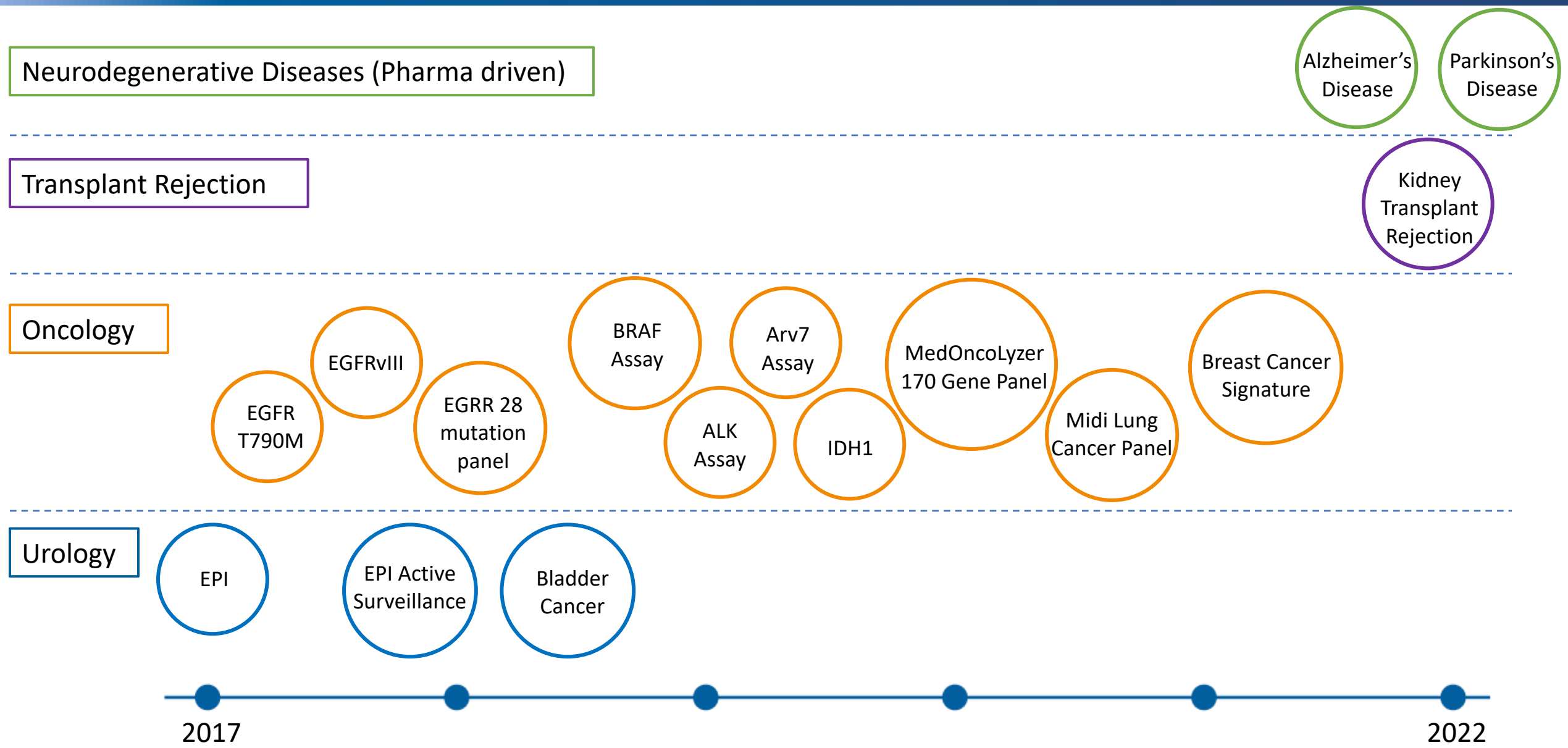
Exosomes can not only detect clear signature differences, but with positive selection of plasma exosomes using a marker present on the cancer cells the exosome signature is clustering with its parent tissue!



- **EDDE BrCa** : BrCa-enriched plasma exosomes correlate extremely well with matched FFPE from the same individual
- All BrCa patients correctly identified with plasma exosomes
- Positive BrCa plasma samples cluster with their **matched FFPE**
 - These are plasma and FFPE from the same individual and show high agreement in expression of BrCa marker genes
- **Health FFPE and plasma** samples cluster separately



Technically and Clinically Validated Tests Drive Rapid Commercial Expansion



- ExosomeDx™ plan to continue to change the landscape of liquid biopsies through publications and Pharma projects
 - Sensitive mutation detection
 - Enables RNA analysis
 - Enables enriching for disease specific targets
 - Enables protein analysis of enriched exosomes
- However, for commercial clinical tests we will have a strong effort within our existing commercial footprint
 - Focus on Prostate Cancer (including new intended uses), Bladder Cancer (new test), Kidney Transplant Rejection (new test)
- Urology business will help fund expansion of commercial efforts for the platform



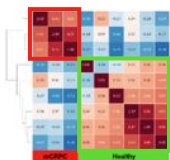
Diagnostic IP – Owned by Exosome Dx

Glioblastoma multiforme



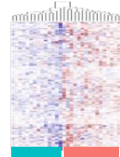
IP
granted

Metastatic Prostate Cancer



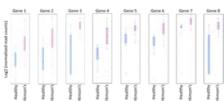
IP filed

Early Stage Breast Cancer



IP filed

Parkinson's Disease



IP filed

Scorecard



Most extensive intellectual property related to exosomes and liquid biopsy

More than **180 patents** across 44 patent families **24 granted**

Established Leader in CDx



Exosome Diagnostics, Intezyne to Develop Exosomal RNA Assay for Novel CRP Inhibitor

ARTICLE: BREAKING NEWS—in Molecular Diagnostics

The company will design and validate a test using its Exolution isolation kit, which can stratify and monitor patients in Intezyne's clinical trials of IT-139.



Exosome Diagnostics Inks RNA-Seq Collaboration With Takeda

Fierce Biotech

Exosome Diagnostics teams with Amgen for liquid biopsy test development

First Molecular test to predict high-grade prostate cancer at initial biopsy

Unparalleled Specificity and Sensitivity

- Three biomarker gene expression tests to identify aggressiveness of cancer
- 92% Sensitivity, 34% Specificity, NPV 92%

Non-Invasive

- Simple urine catch with no digital rectal exam requirement
- Eliminates biopsy related complications

Extensive Clinical Validation

- Accurately identified the presence of aggressive prostate cancer patients in a multi-center 1,500 patient trial
- Results published in JAMA-2016

Easy to Interpret Results

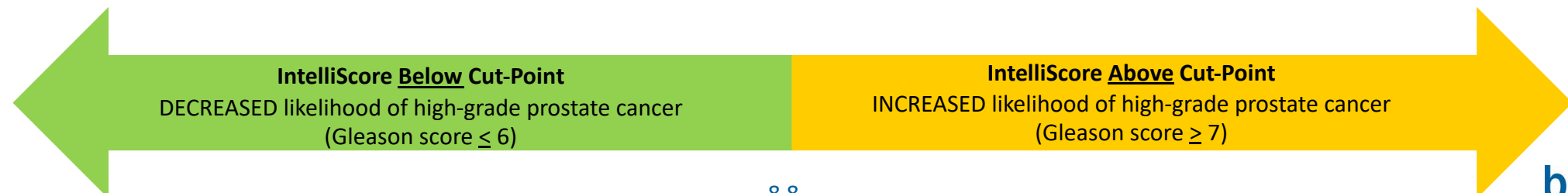
- Significantly improves decision making with “Yes/No” answer-no second gray zone
- Scoring corresponds to the Gleason Score used to grade cancer cells in biopsied tissue

Seamless Workflow Integration

- Easily integrated into clinical workflow improving patient comfort and compliance
- Report format facilitates clinician-patient consultation

Highly Favorable Economics

- Accelerated reimbursement path leverages both public and private payor models
- Price of \$760 delivers double digit return to payors and high gross margins to ExoDx



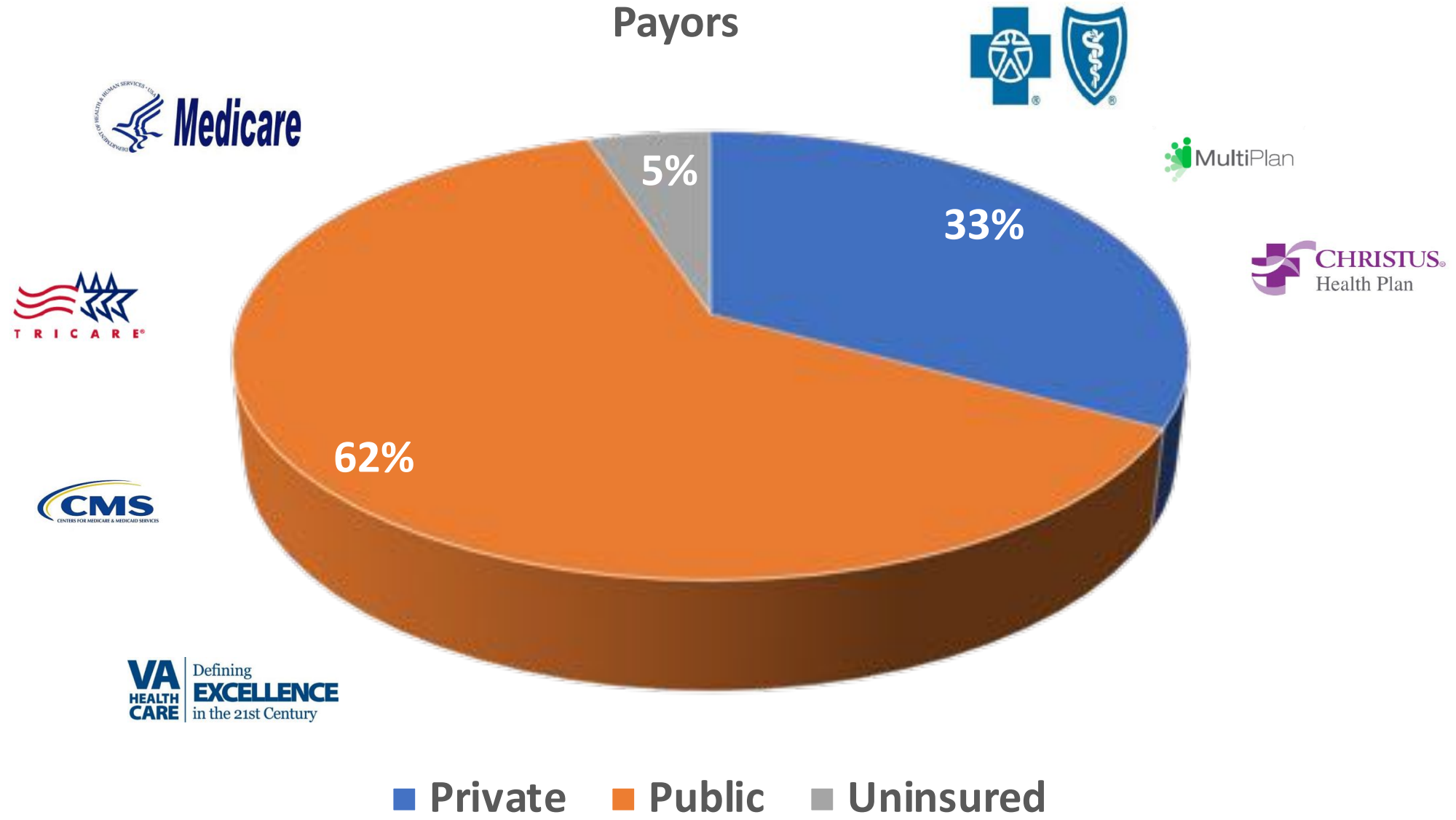
Intended Use:

The EPI™ risk score is used to risk stratify likelihood of high grade ($GS \geq 7$) prostate cancer on initial biopsy in men 50-years and older, with a PSA 2-10ng/mL.

The Workflow:



- ✓ Q4 2016 World's first exosomal RNA based diagnostic test limited launch in MA, CT and RI
- ✓ Q2 2017 Received CPT code for LDT test
- ✓ Q2 2017 First of its kind private payer collaboration for coverage with evidence development
 - Study completed and positive coverage decision from large BCBS plan in nine months
 - Led to combination of PPO, BCBS plan and regional payer coverage decisions
 - Coverage success expanding throughout the US in 2019
- ✓ Q1 2018 EPI US national launch
- ✓ 2018E Fast path to Medicare reimbursement – year 1 vs norm of 3 to 5 years
 - Q2 2017 Test specific CPT code for LDT test prior to national launch
 - Q4 2017 Published national Medicare price for LDT test prior to national launch
 - Local coverage determination on track for first year
- ✓ 2018E Clear path to NCCN guidelines
 - Two clinical validation studies published in top tier journals
 - McKiernan J. et al, JAMA Oncol. 2016, 2(7):882-889
 - European Urology (in press)
 - Awaiting NCCN approval
- ✓ Q3 2018 Contracted with private payers covering more than 200 million lives in the US
 - Combination of PPOs and regional payers



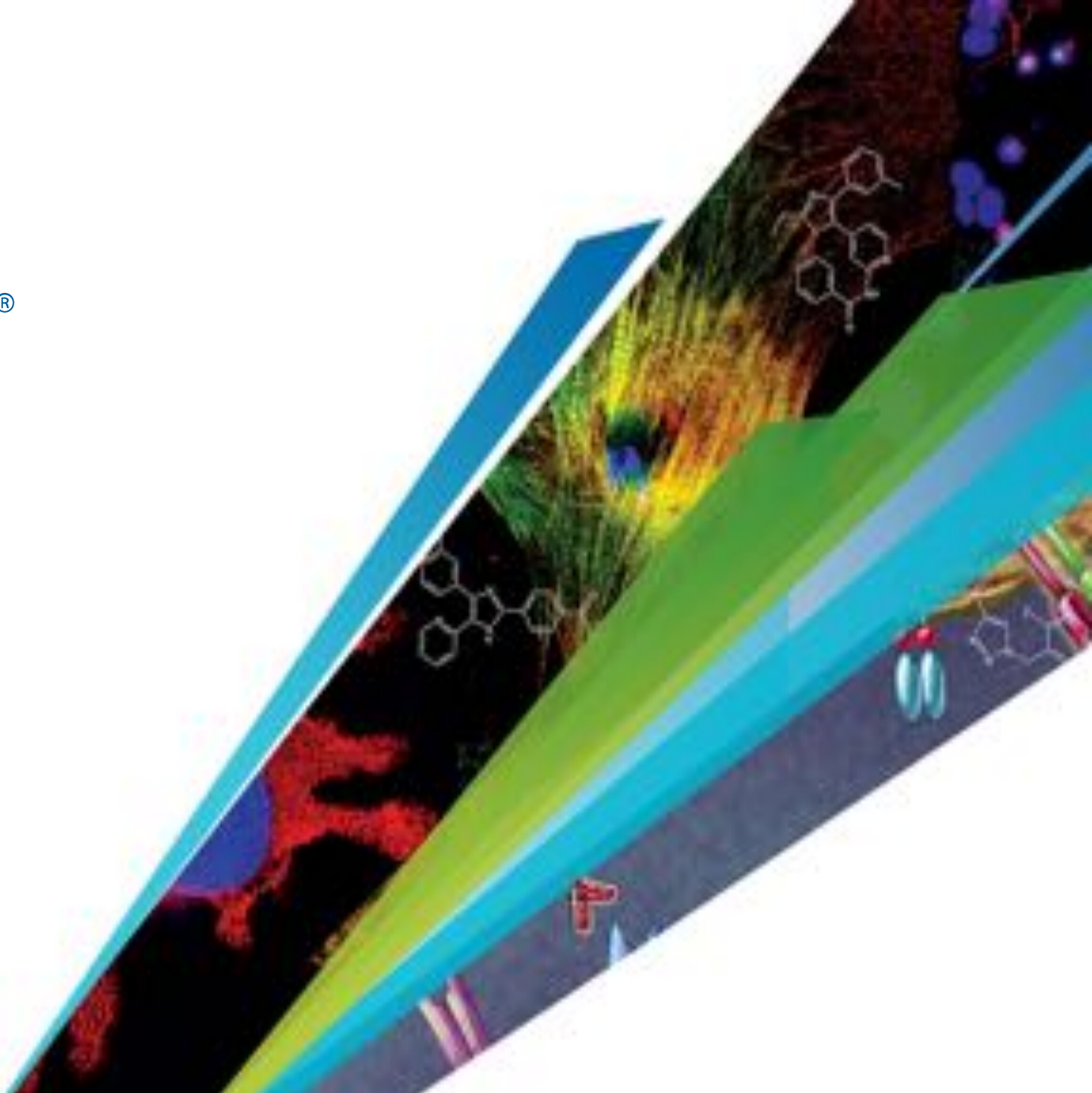
- **World class R&D driving Innovative Medical Applications**
 - Highly efficient mutation detection by combined exosome RNA and cfDNA analysis
 - Exosome RNA enables full transcriptome analysis of disease in biofluids
 - Exosome enrichment gives unique opportunities for liquid biopsy analysis within oncology as well as non-oncology applications
- **Solid patent estate**
 - Exosomal capture and enrichment methodologies
 - Composition of matter
 - System patents
- **Machine learning accelerating Dx test development and commercialization**
 - Predictive algorithm selects genes and mutations optimized for ExoDx platform
- **Established commercial channels and reimbursement paths**

biotechne[®]

Digital Solutions

Kevin Smyth

Vice President, Digital Solutions



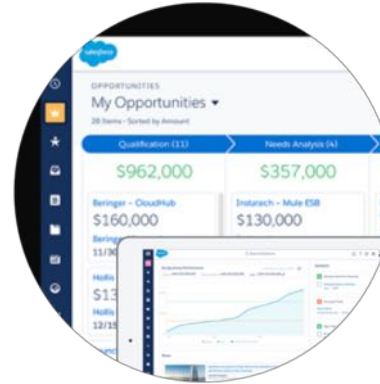
What is Digital Solutions at Bio-Techne?



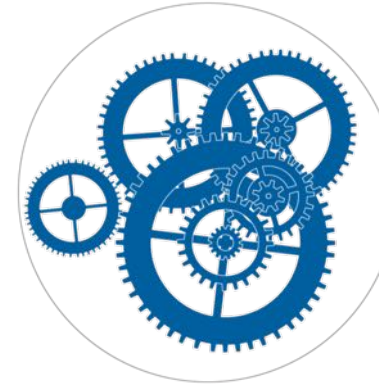
Marketing
Communications



Digital
Marketing



Sales
Enablement



Marketing
Operations



Corp IT

Support the Customer Journey



Awareness



Interest



Education



Purchase



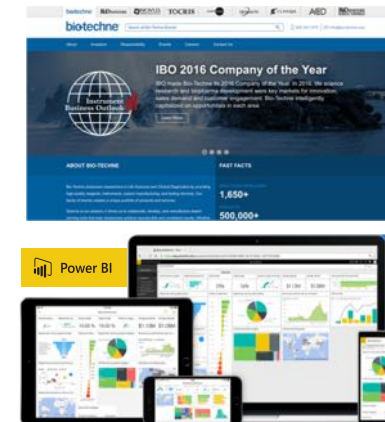
Loyalty

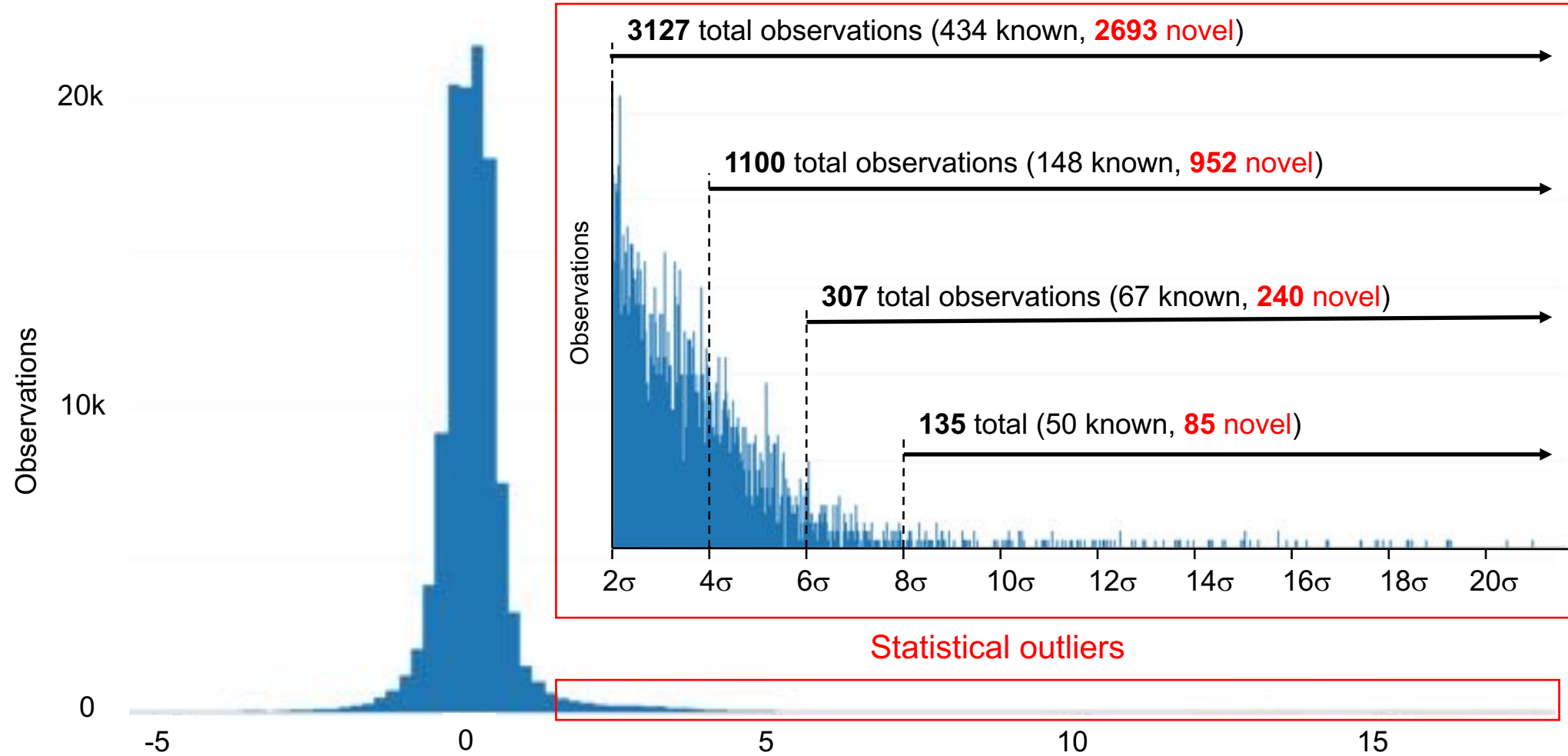
A word cloud centered around the words "CUSTOMER" and "EXPERIENCE". Other words include "SERVICES", "RELATIONSHIP", "USE", "SUPPORT", "LOYALTY", "MANAGEMENT", "ADVOCACY", "DISCOVERY", "COMPANY", "DISCIPLINE", "SATISFACTION", "INTERACTION", "BUSINESS", "RATES", "PURCHASE", "CULTIVATION", "AWARENESS", "SUCCESS", "ATTRACTION", and "SUPPLIER".



- Deliver the right message, to the right person, at the right time
– influences 75-80% of revenue
- Biotech focused “consumer like” experience (think Amazon)
- Green field ideation and experimenting

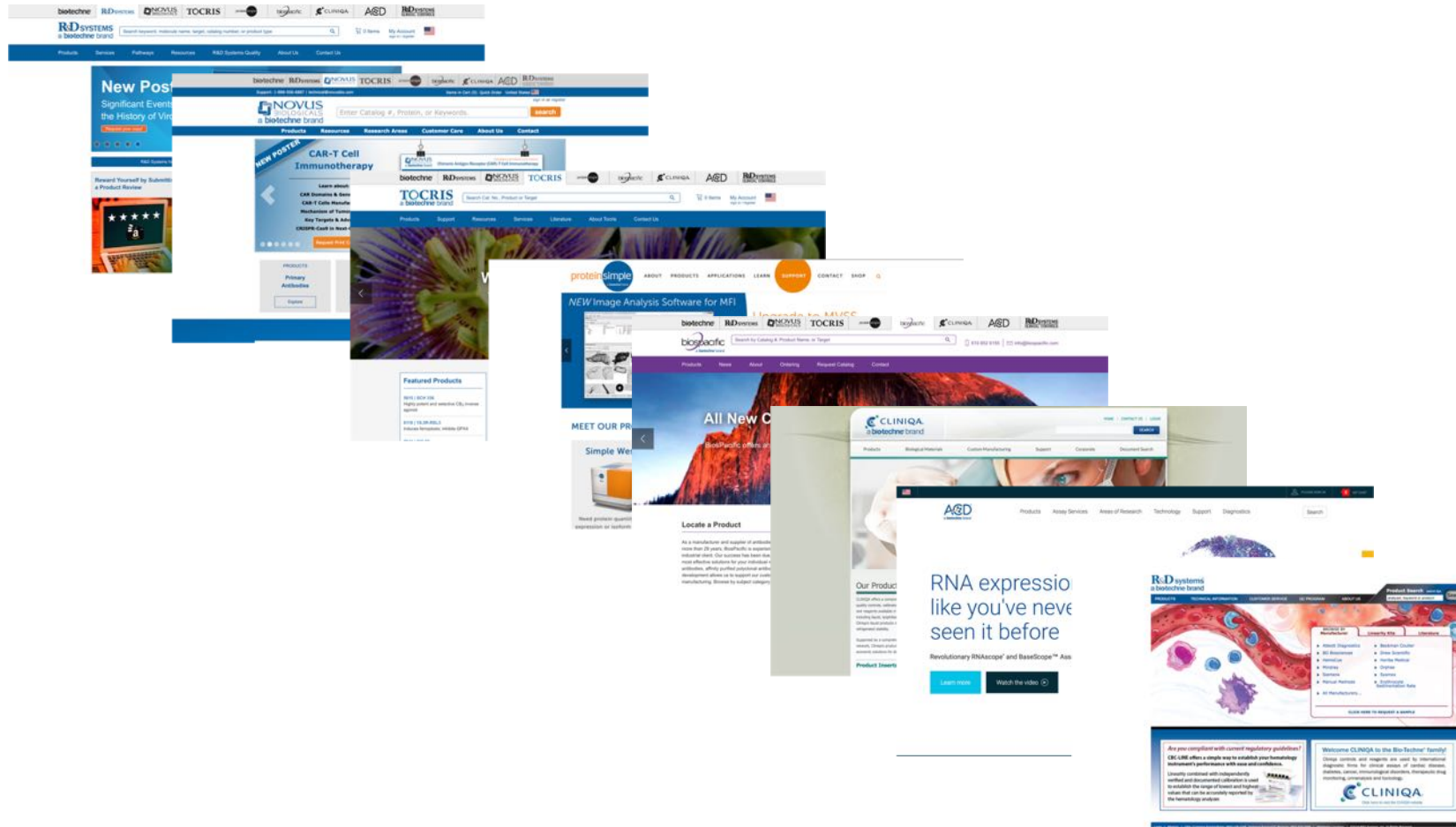
- *Web* – customers should be first in all we do
- *Salesforce.com* – focus on who interacts with customers
- *ERP* – business process efficiency
- *Data* – deliver insights in all areas of our company







Significant effort consolidating our web presence



Has resulted in a more cohesive experience for our customers





Objective

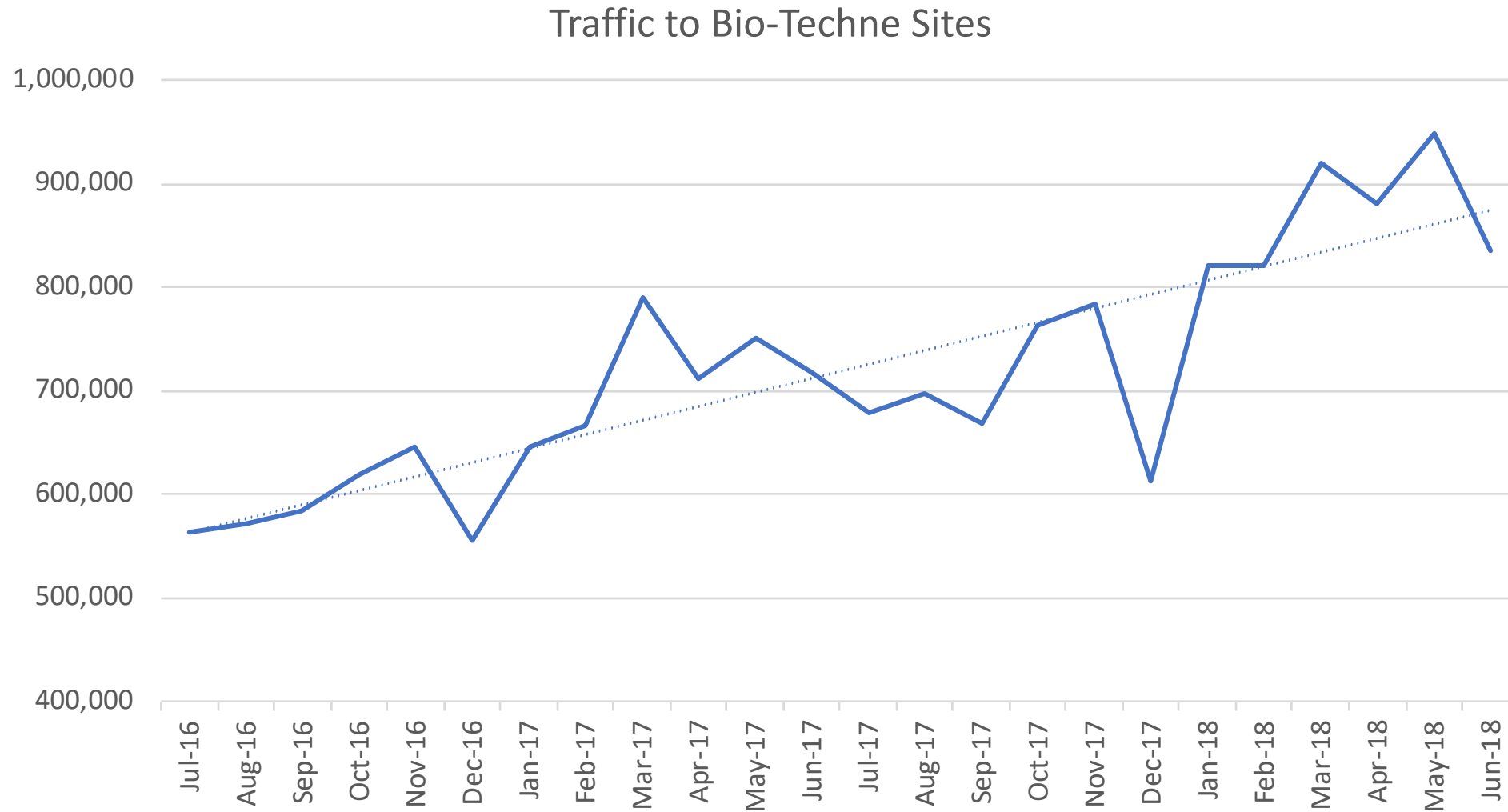
Increase the size of our marketable database

Understand engagement of those aware of our brands/products

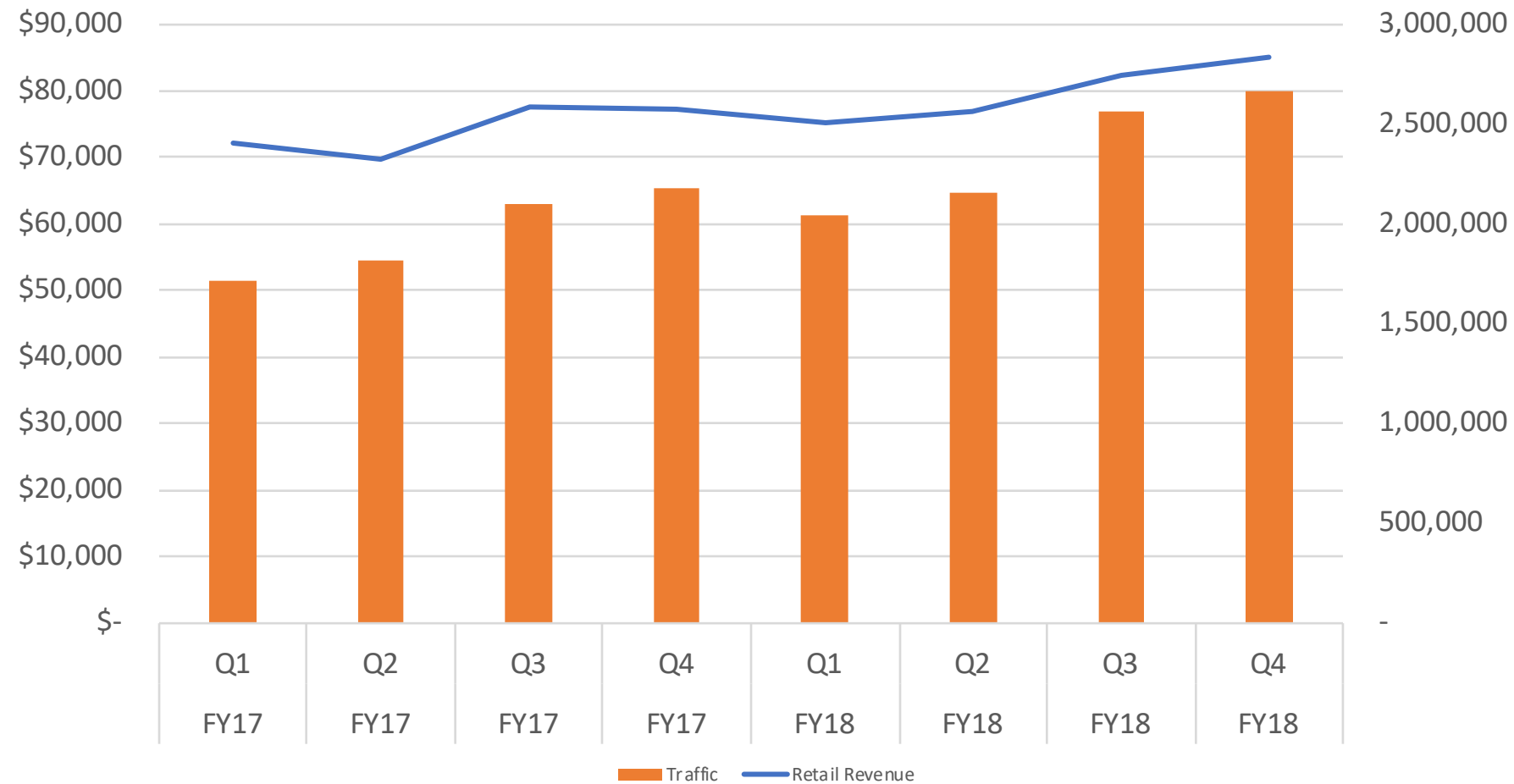
Drive increased engagement across all channels

Increase revenue from interest and education

Improve our net promotor score



Traffic has increased 21% across Bio-Techne domains



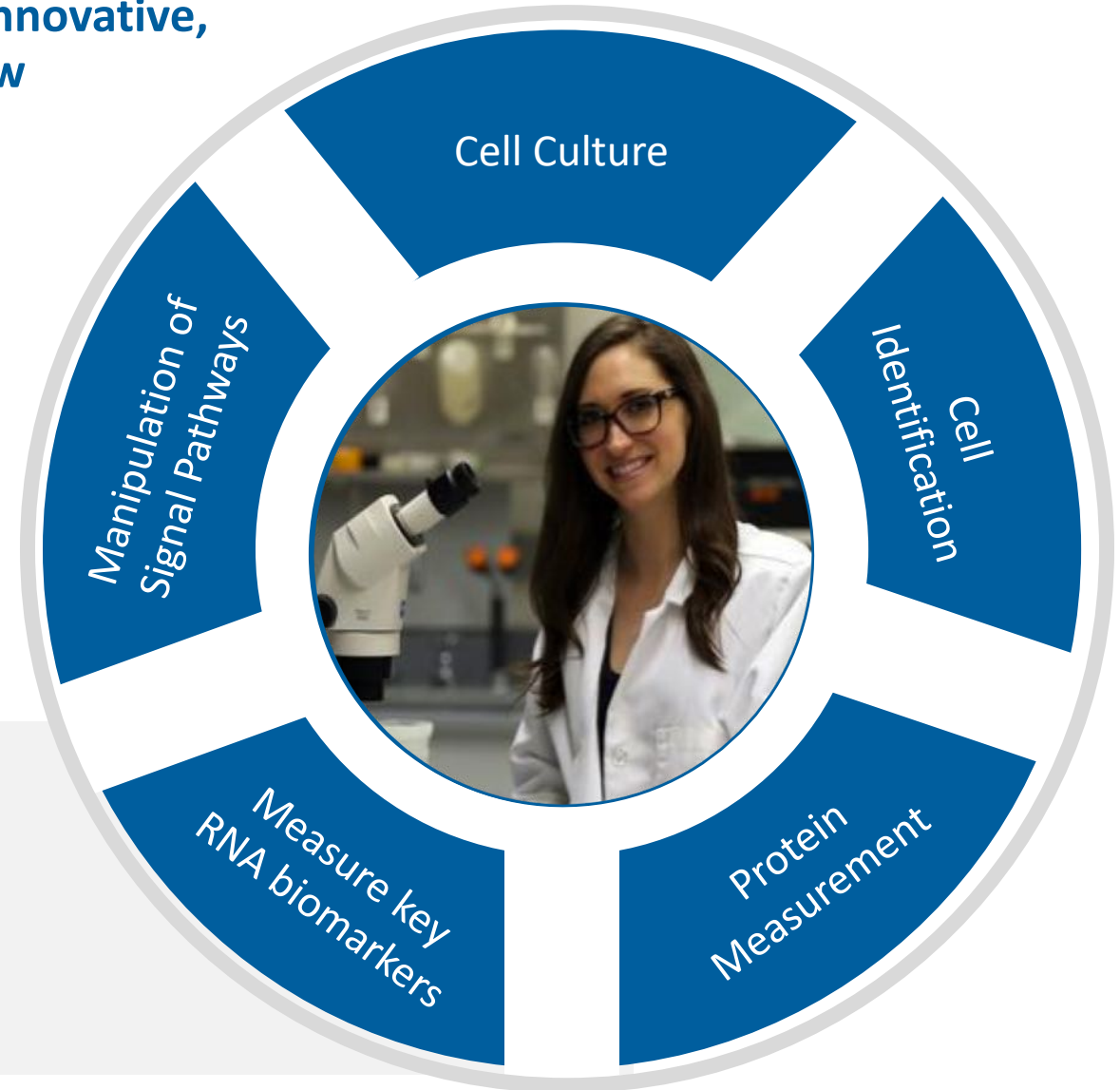
Traffic to Bio-Techne domains increased 21% YOY supporting retail revenue growth of 8%

Improving customer's results by delivering innovative, quality solutions across their entire workflow

- Recent acquisitions & new product offerings continue to fill out the Bio-Techne portfolio with innovative & high quality solutions
- Opportunity to leverage existing relationships to drive increased cross-divisional growth
- Strategic Initiatives will focus on increasing sales through customer penetration

FY19 Strategic Initiatives

- Cell & Gene Therapy
- Neuroscience
- Immuno-oncology





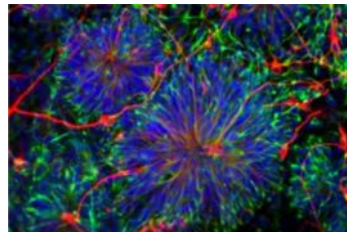
Example Immuno-oncology workflow

Cell Culture



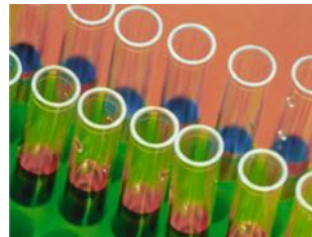
R&D SYSTEMS

Cell
Identification



NOVUS
BIOLOGICALS

Protein Measurement

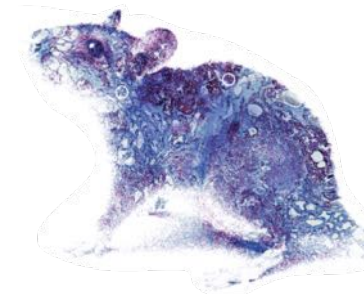


R&D SYSTEMS



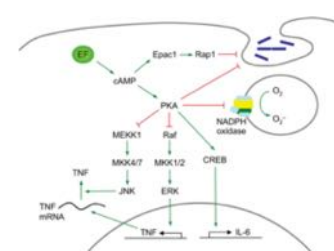
protein
simple

Measure key
RNA biomarkers



ACD

Tools to Better
Understand
Signal Pathways



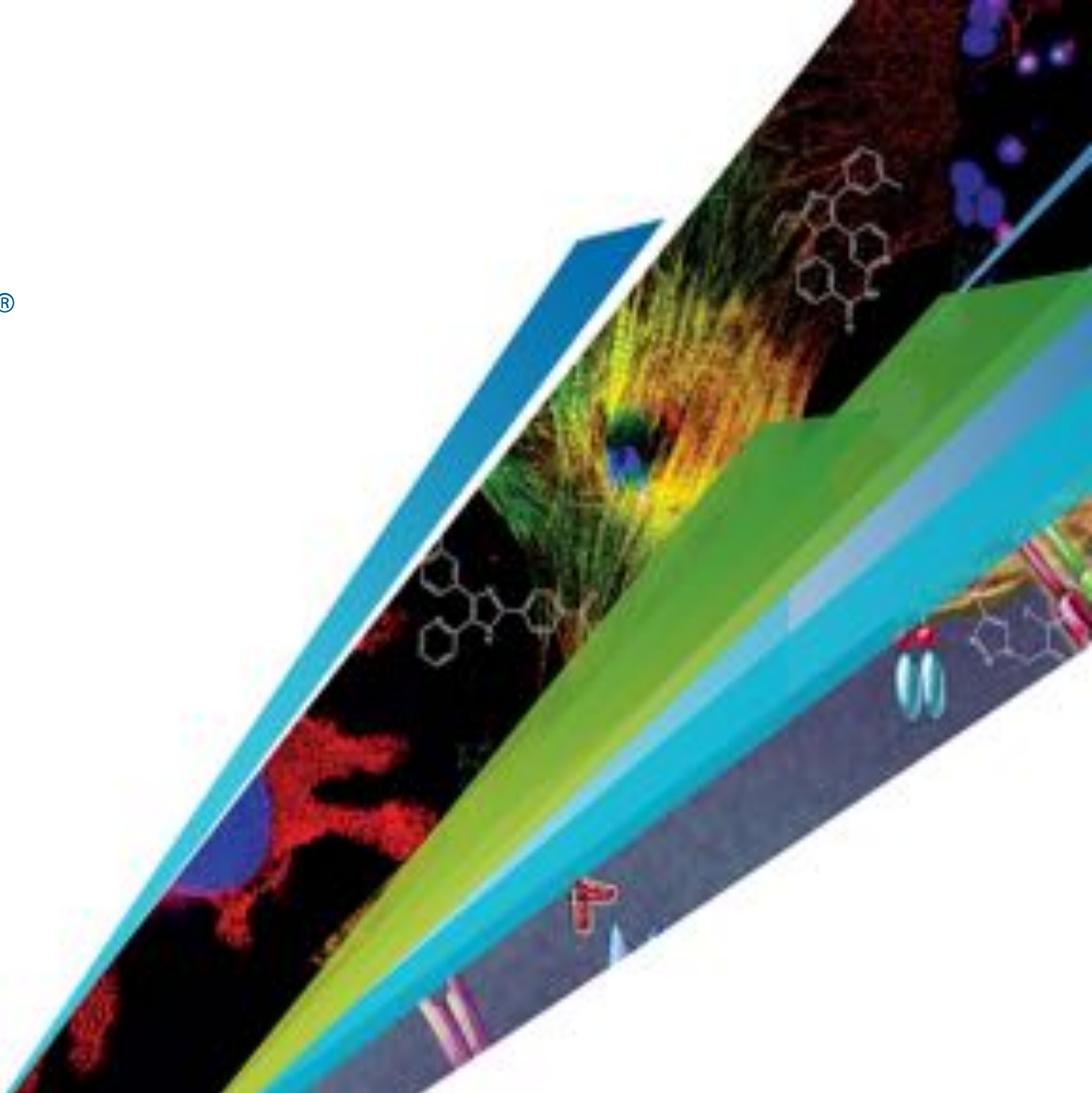
TOCRIS

biotechne®

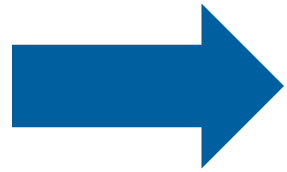
Building Culture

Struan Robertson

Vice President



EPIC Tools
for **EPIC** Science



EMPOWERMENT



PASSION



INNOVATION

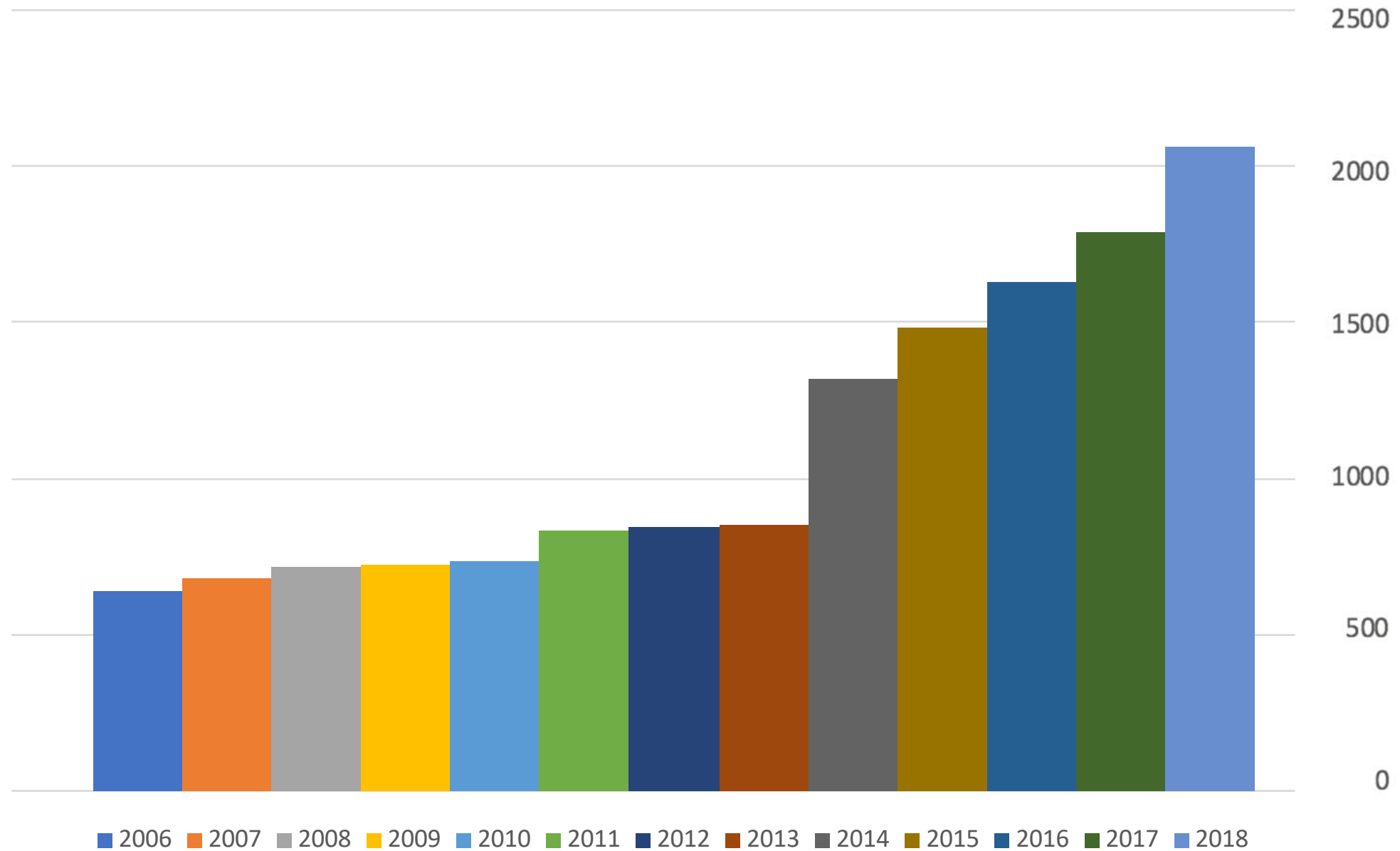


COLLABORATION

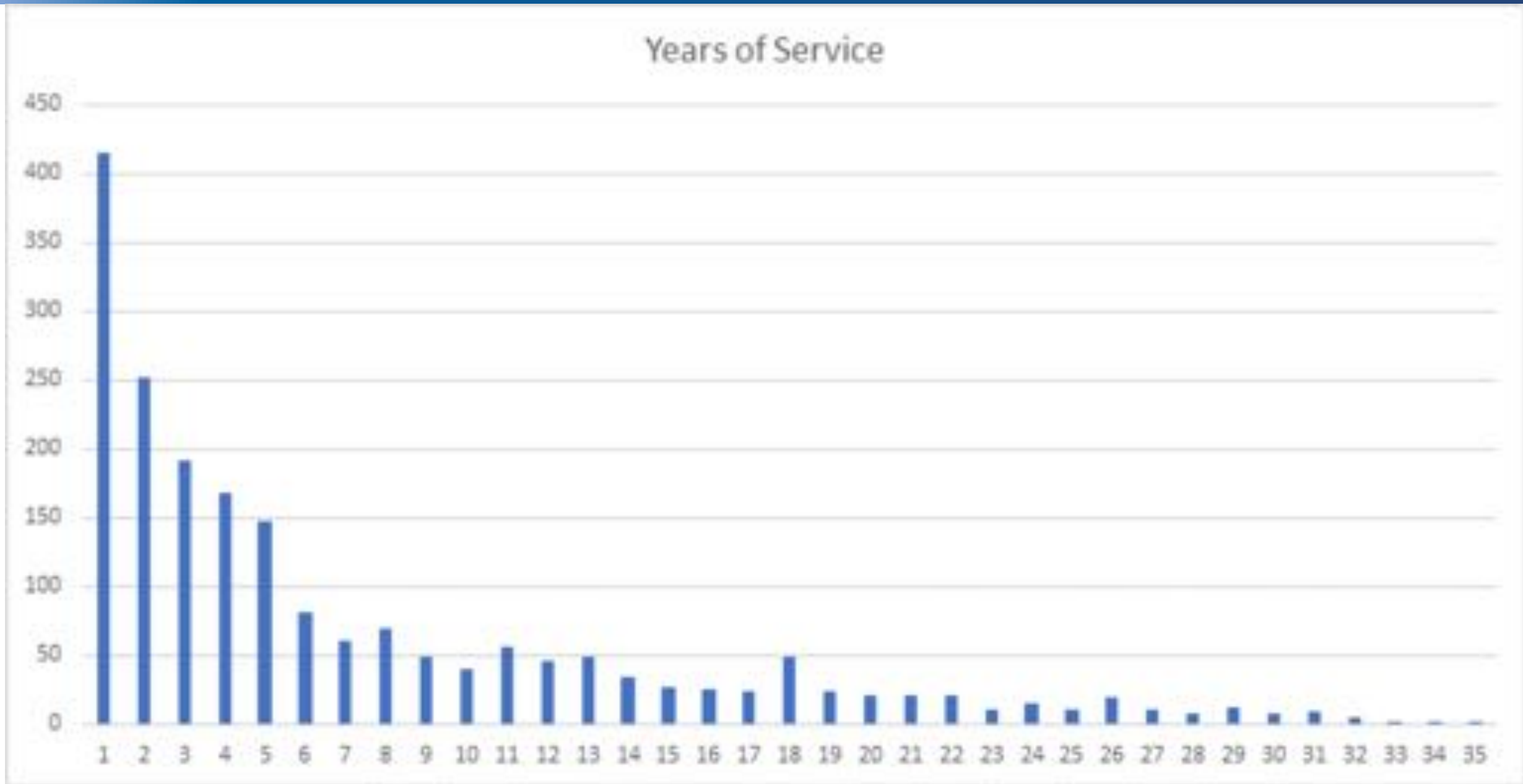


1. work-life balance, work flexibility, decision making, results oriented work, and freedom to incorporate ideas at work.
2. working together within and across departments, sharing ideas, and depending on others for the completion of work.
3. importance of work, work enjoyment, motivation, and the desire to continue working for Bio-Techne.
4. Overall view of Bio-Techne management.
5. behavior, achievement of goals, and other actions at work including those of managers.
6. Adoption and impact of the EPIC values.
7. idea generation, methods for innovation, and Bio-Techne's perception among employees as an innovative company.
8. company direction, understanding and agreement of employees with the company vision, and alignment of resources to the company vision.
9. pay across various levels, rewards for good performance, and benefits for being an employee at Bio-Techne.
10. Bio-Techne academy, employee training, understanding of career paths, and the ability to grow as an employee of Bio-Techne.

Headcount Growth



21% of our Employees have less than one year at Bio-Techne



Standardize

- Recruiting Process
- Performance Management
- Offboarding
- Employee Relations

Centralize

- HR Administration
- Manager Toolkit
- Compensation & Benefits
- Centralized HRIS

Harmonize

- Orientation/Onboarding
- EPIC Culture
- Learning & Development

Localize

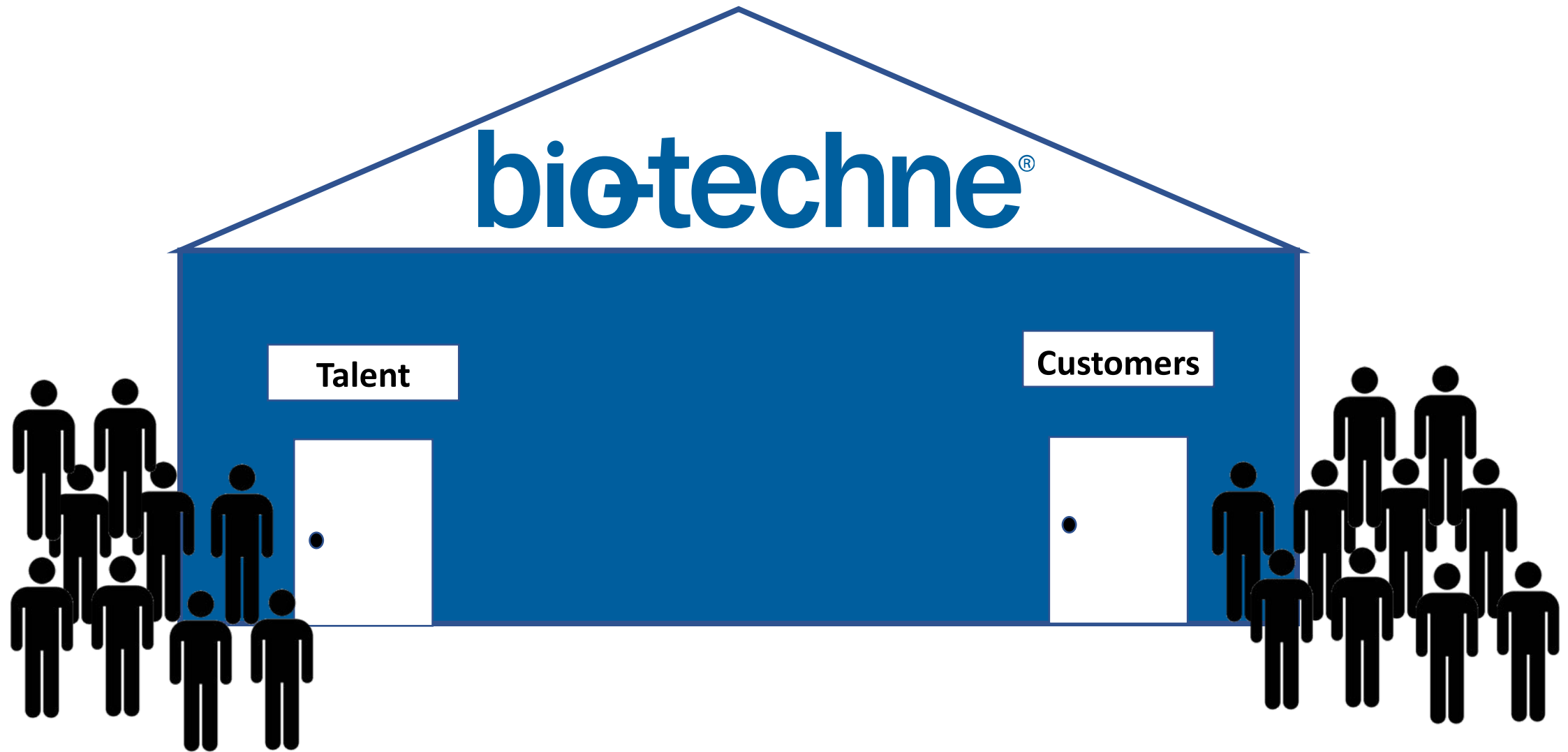
- Community Service
- Employee Relations
- Employee Events

In-Source

- Recruiting
- Employee Engagement
- Employee Development

Out-Source

- Some Recruitment
- Some Learning & Development
- Some Benefit Admin

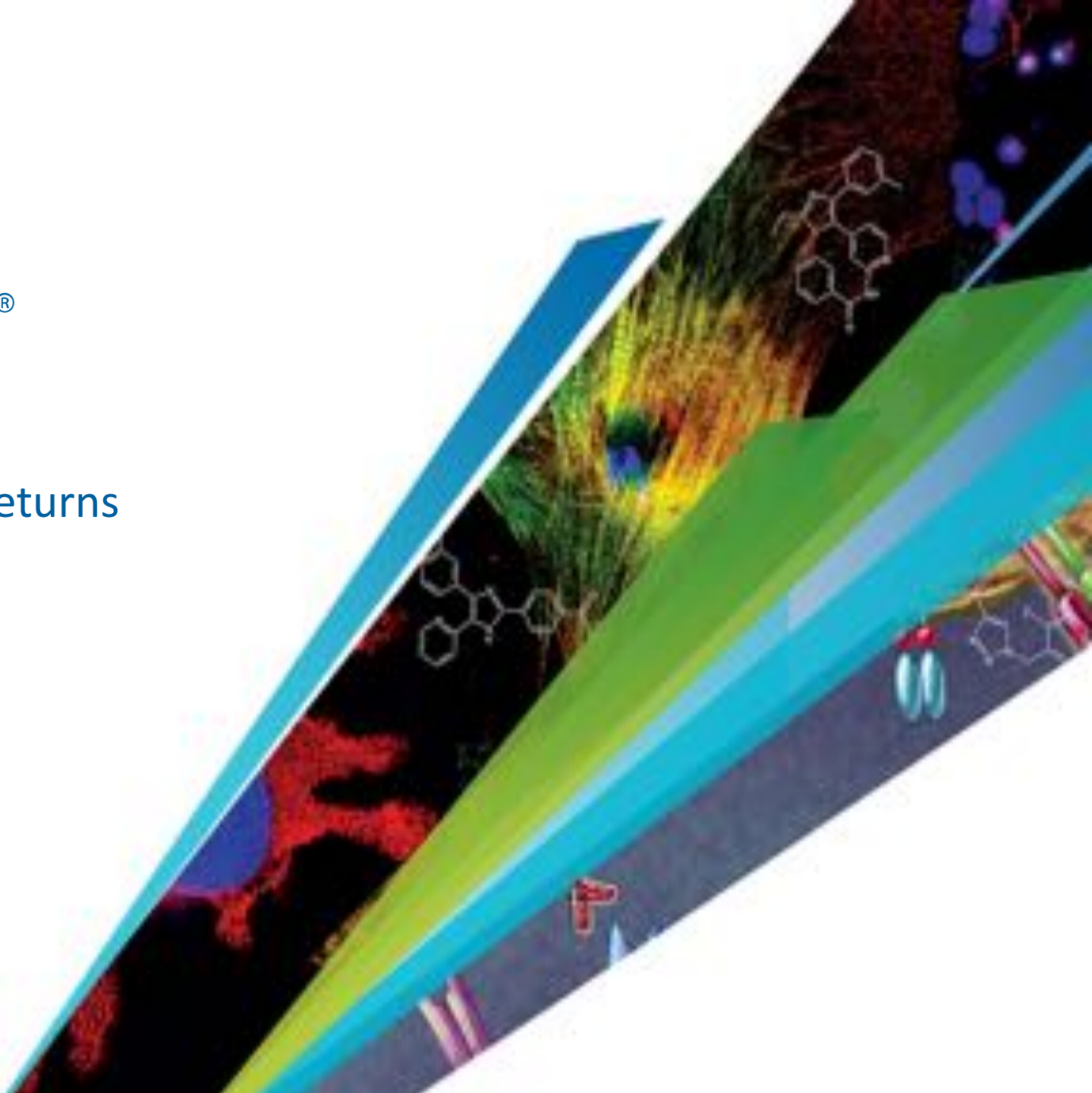




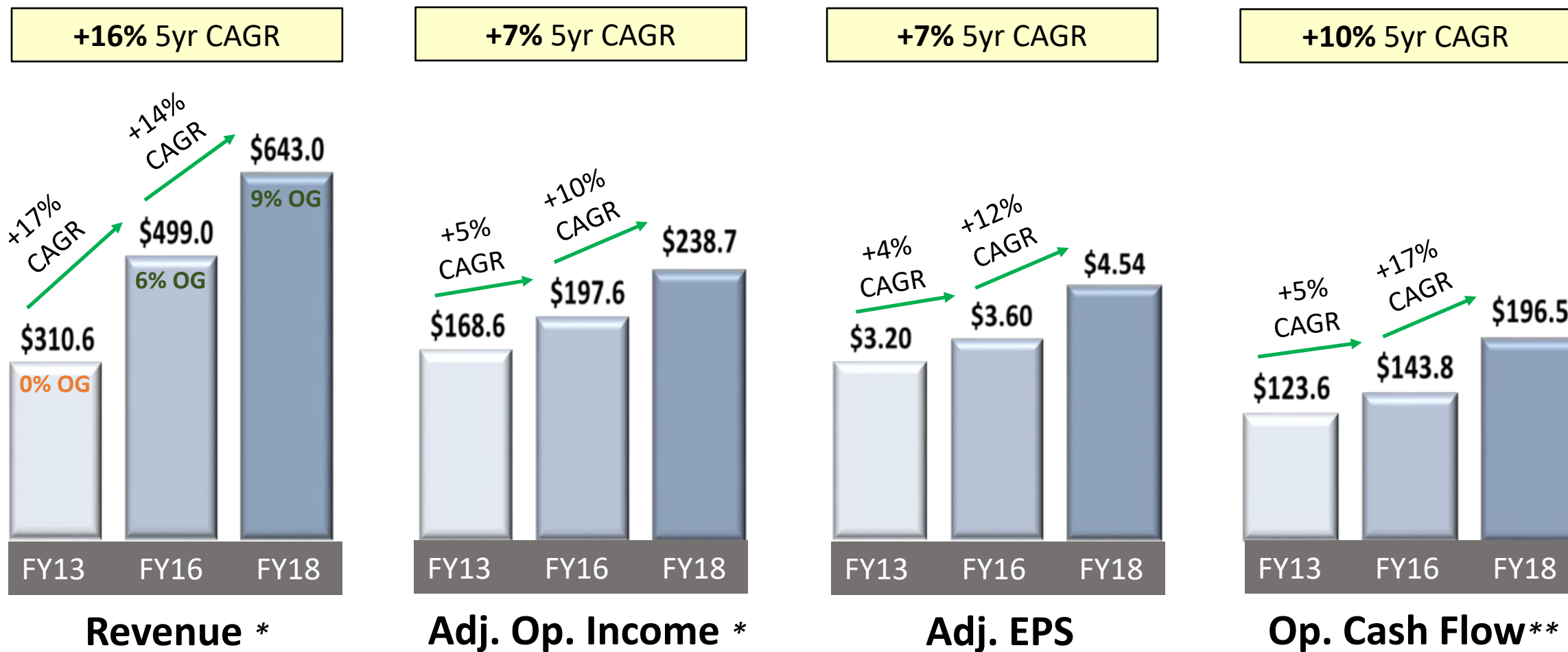
Turning Strategy into Financial Returns

Jim Hippel

Chief Financial Officer



- Our strategy has already created solid financial returns
- Our strong balance sheet and cash flows will allow for continued execution of our M&A capital allocation strategy
- Our diversified portfolio and access to capital allow for potential acceleration of financial performance over the next 5+ years



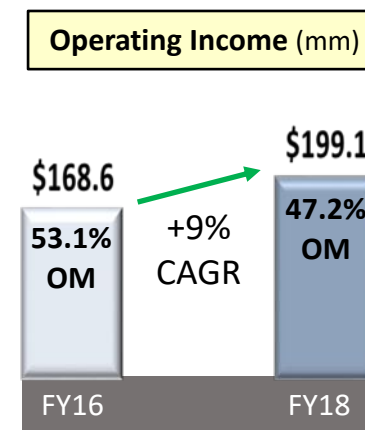
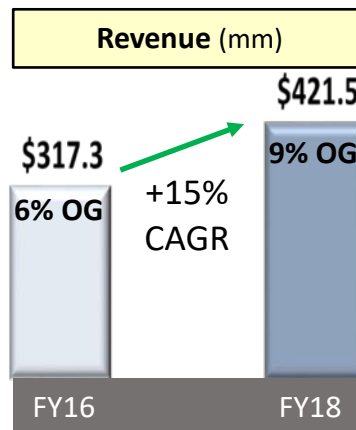
Early investments have delivered recent accelerated financial performance

* All figures except EPS are expressed in millions.

** Operating cash flow excludes acquisition earn-out payments

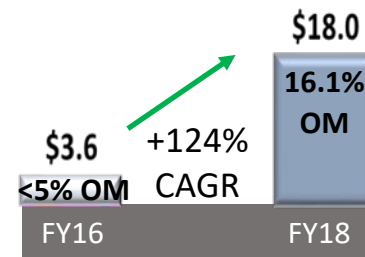
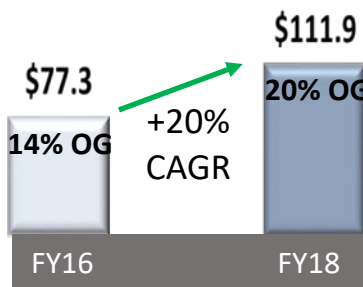
Biotechnology

- Organic growth in the segments “core reagents” has averaged ~6%, while ACD’s TTM revenue has grown from ~\$25mm at the end of FY16 to over \$50mm at the end of FY18.
- Adj. OM% in the “core reagents” has remained ~53%. The decrease in OM is attributable to acquisitions, namely ACD.
- ACD was losing money in FY16, exited FY18 @ 14% OM.



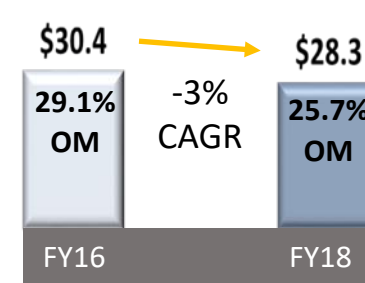
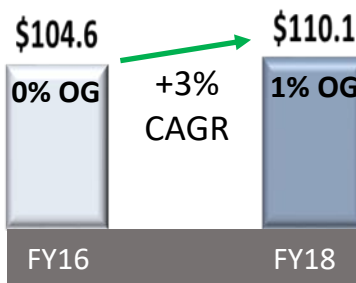
Protein Platforms

- Strong growth in ICE/MFI driven superior technology in a fast growing Biologics market.
- Simple Western now beyond early adopters and Simple Plex in high demand from big Pharma for their clinical trials.
- On course to strategic goal of \$200mm Rev and 30% OM.















Diagnostics

- Growth pressured by OEM industry consolidation driving inventory reductions on controls.
- Continued steady Hematology growth offset by decline in Glucose controls.
- Pricing pressure from Glucose OEM customers and unfavorable mix has caused margins to decline.

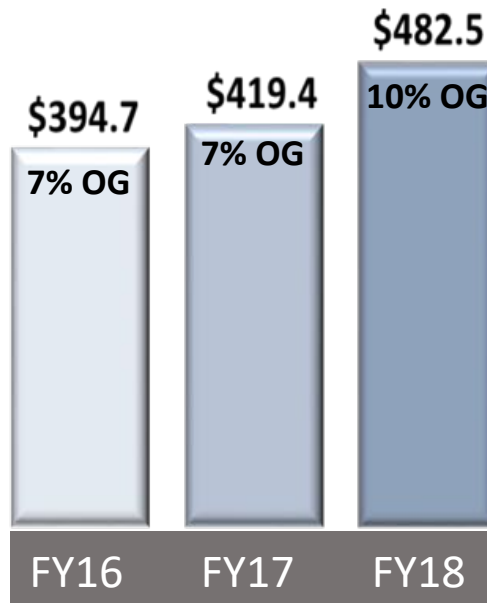


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Protein Sciences segment	
	 <div> <div>-</div> <div>+</div> <div>   </div> </div>
	
Diagnostics and Genomics Segment	
	
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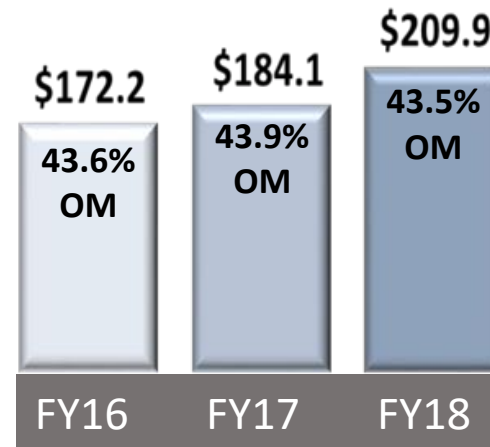
Protein Sciences Segment

+11% 2yr CAGR



Revenue

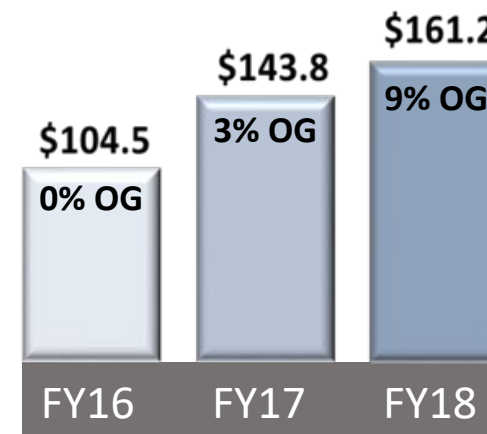
+10% 2yr CAGR



Operating Income

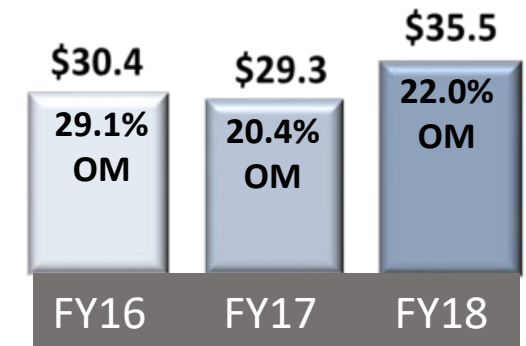
Diagnostics & Genomics Segment

+24% 2yr CAGR



Revenue

+8% 2yr CAGR



Operating Income

Accelerating profitable growth in both segments



**~\$800mm
capital deployed
since FY16**

\$96mm directly to Shareholders

~ \$48mm per year in dividends

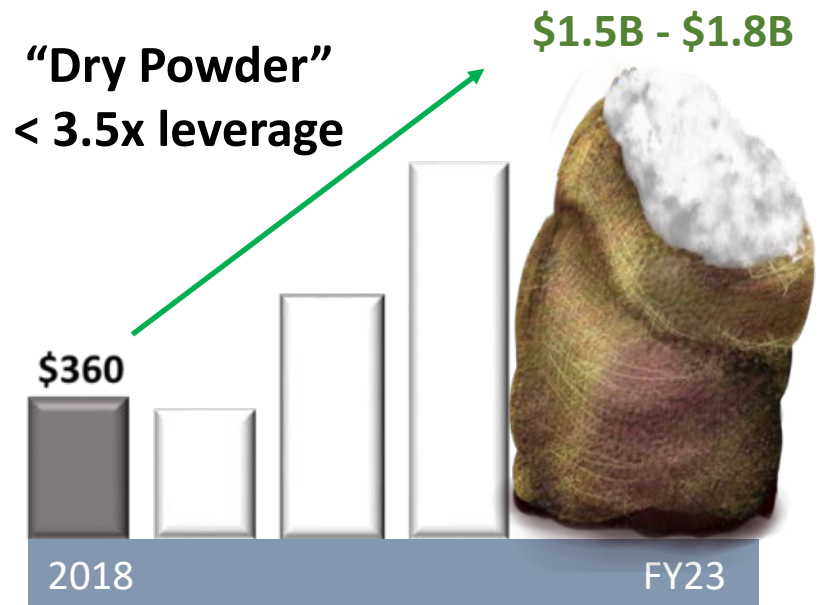
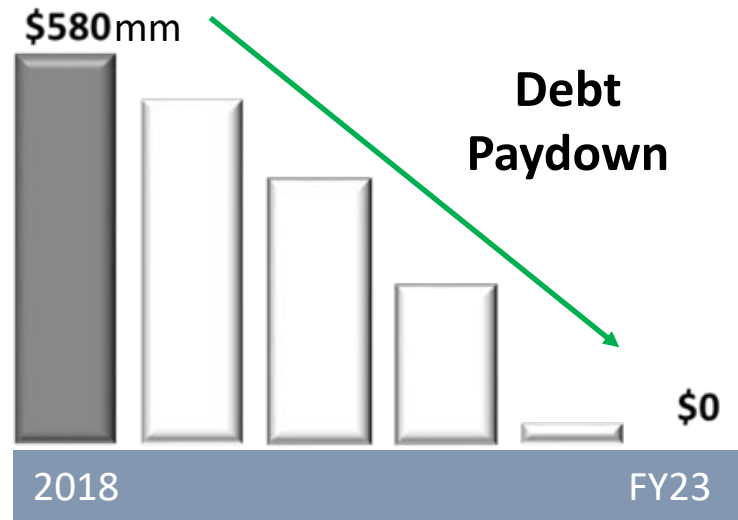
\$35mm CAPEX to support organic growth

- Facility expansions
- Equipment to support new production
- ERP systems & Website development

\$663mm in acquisitions to expand portfolio & end-markets

- \$575mm Entry into Genomics w/ Tissue & Liquid Biopsy solutions (ACD / ExosomeDx)
- \$81mm Tissue culture reagents tools for Cell Therapy workflow (Trevigen / Atlanta Biologicals / Quad Tech.)
- \$7mm Other geo-expansion

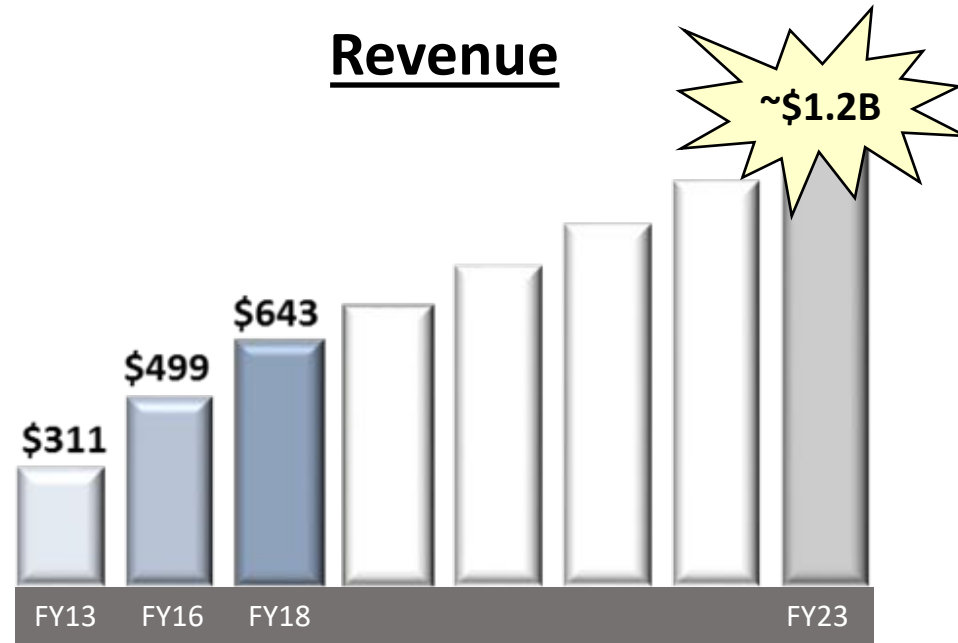
Capital deployment priority has continued to be M&A



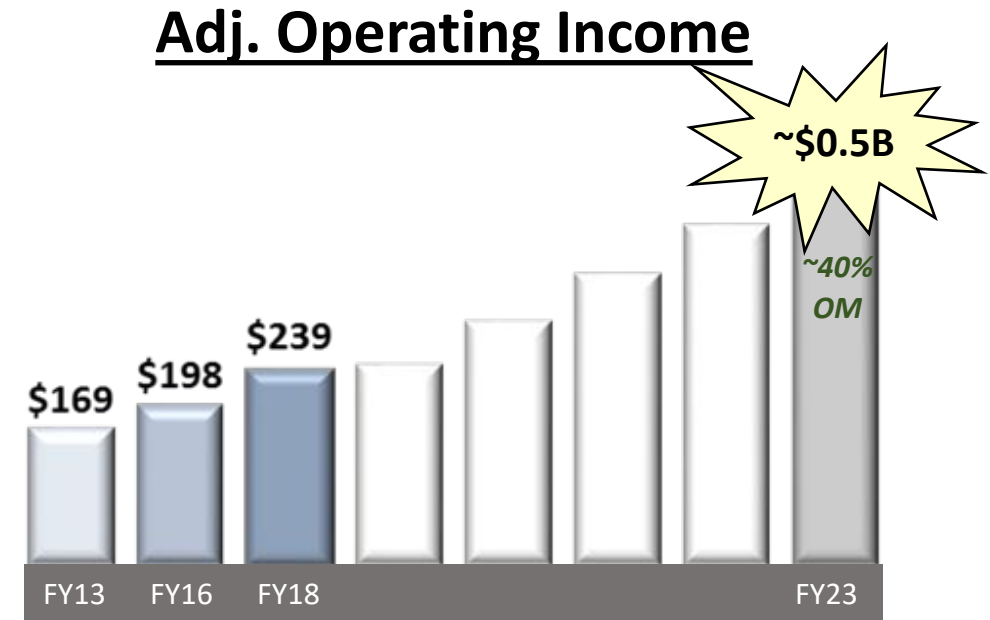
Key criteria on our acquisition filter



Process, perseverance, and patience needed to be successful in M&A



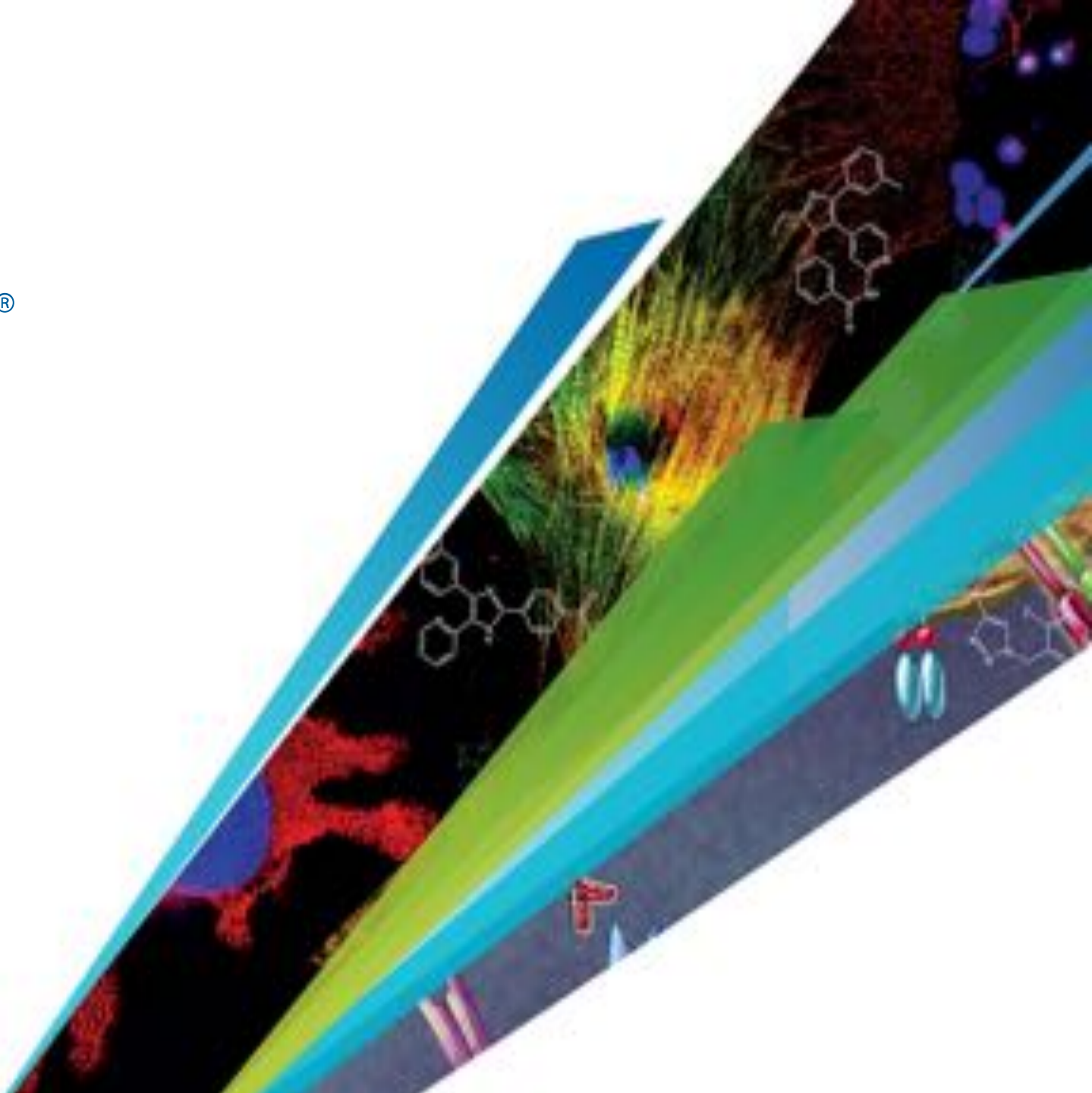
	<u>Rev CAGR</u>
• Analytical Solutions	+15-20%
• Reagent Solutions	+5-7%
Protein Sciences Segment	+8-11%
• Diagnostics	+4-6%
• Genomics -- ACD	+20-30%
• Genomics – Exosomedx	~ \$150mm
Diagnostics & Genomics Segment	~ +20%



	<u>OM% in 5yrs</u>
• Analytical Solutions	~ 30%
• Reagent Solutions	+50%
Protein Sciences Segment	mid 40s%
• Diagnostics	~ 30%
• Genomics -- ACD	mid 30s%
• Genomics – Exosomedx	~ 30%
Diagnostics & Genomics Segment	low 30s%

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Q&A



THANK YOU

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