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
Corporate Leadership Team

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
Revenue by Customer Type

- Academia: 25%
- Pharma/Biotech: 37%
- Distributors: 15%
- OEM: 23%

Total Revenue: $643MM
Revenue by Geography

- Americas: 57%
- EMEA: 28%
- Asia: 15%

Total Revenue: $643MM
Organic Growth

<table>
<thead>
<tr>
<th>Year</th>
<th>Growth Rate</th>
</tr>
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<tbody>
<tr>
<td>FY 2013</td>
<td>0%</td>
</tr>
<tr>
<td>FY 2014</td>
<td>3%</td>
</tr>
<tr>
<td>FY 2015</td>
<td>4%</td>
</tr>
<tr>
<td>FY 2016</td>
<td>6%</td>
</tr>
<tr>
<td>FY 2017</td>
<td>6%</td>
</tr>
<tr>
<td>FY 2018</td>
<td>9%</td>
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</table>
Regulated Assays & Controls Business

Deep Menu of High-Quality RUO Reagents

GMP Grade Products

New Molecules Discovery Program

Molecular Pathology, Diagnostics & Therapeutics

Entry into ex-vivo clinical applications

Leveraging recombinant protein program to discover orphan immunoregulatory molecules with therapeutic potential

Entry into Molecular Pathology, Diagnostics, Cell and Gene Therapy markets

Foundational Business (Hematology Controls and Calibrators)

Legacy Biotechnology Business (Proteins, Abs & Assays)

Expansion into Clinical Applications
Addressable Markets

Established Markets
- Life Science Research Reagents
- Clinical Controls
- BioProcess Media
- Tumor Biology
- Research Immunoassay
- Diagnostics

Emerging Markets
- Western Blot/Single Cell Biology
- Stem Cells
- Liquid Biopsy
- Biologics & cell therapy Manufacturing

Customers Served > Pharma  Biotech  Academia  CROs  Hospitals  Foundations  Government

> $10B Addressable Market
4-10% CAGR

Customers served include Pharma, Biotech, Academia, CROs, Hospitals, Foundations, and Government.
Top Strategies

- Geographic Expansion
- Core Product Innovation
- Gap Filling M&A and Market Expansion
- Culture Creation & Talent
Elements of the Strategic Plan, Progress and Future Goals

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
Elements of the Strategic Plan, Progress and Future Goals

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.)
<table>
<thead>
<tr>
<th>Culture Creation &amp; Talent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Achievements</strong></td>
</tr>
<tr>
<td>• Created EPIC values culture throughout organization</td>
</tr>
<tr>
<td>• Strong leadership team with industry experience</td>
</tr>
<tr>
<td><strong>Future</strong></td>
</tr>
<tr>
<td>• Continue build the EPIC culture as we continue to grow</td>
</tr>
<tr>
<td>• Focusing on collaboration for more innovation</td>
</tr>
</tbody>
</table>
• Healthy hopper of targets
• Sound prioritization strategy
• Targets that fill gaps
• Targets with ROIC > WACC
## Our New Segment Structure

### 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 *in situ* 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
Our Mission

Empowerment
Passion
Innovation
Collaboration
Our brands bring you >300,000 quality products

Nearly 2,100 employees globally

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

Generated using our products

6 instrument platforms that leverage biological content
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)
DNA provides the blueprint...

But life is built from proteins!
A multi-tiered effort to innovate & differentiate while protecting the “core”

- Expand the Markets
- Take Share Through Product Differentiation & Value Addition
- Protect the Core
- Continue “Ticket to the Ball” Investments
Bio-Techne Progress Update: Proteins

The most widely used proteins in the world

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

2018 Publications
220 Manuscripts
349 Protein References
60 Companies
High Value/High Growth Applications for Proteins

- Specialty Media Supplements
- 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
The Versatility of High Quality Antibodies

- Immunohistochemistry
- Western Blot and Simple Western
- Flow Cytometry
- Blocking/Neutralization Assays
- ELISA Assays
- Luminex® Assays
- Arrays
- Immunocytochemistry

Ella™
Current Areas of Growth

Epigenetics

Stem Cells

Cancer Research

Neurodegeneration

Small Molecule Research Area Emphasis

Functions
Inhibitors
Activators
Agonists
Antagonists
Blockers
Modulators
Ligands
Expanded Offering for Cell & Gene Therapy

**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
- BDNF • GDF-11
- BMP-2 • GDF-11
- BMP-4 • GDNF
- BMP-7 • GM-CSF
- EGF • HGF
- Dkk-1 • IFN-γ
- FGF basic • IGF-I
- Fibronectin • IL-1β/IL-1F2
- Flt-3 Ligand • IL-2
- IL-3
- IL-4 • IL-6
- IL-7 • IL-11
- IL-12 • IL-15
- IL-17E
- KGF/FGF-7
- M-CSF
- Noggin
- NRG1-β1
- NT-3 • NT-4
- PDGF-BB • Periostin
- SCF/c-kit Ligand • Sonic Hedgehog
- TGF-β1 • TGF-β3
- 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
Immune Cell Therapy Opportunities

Profiling CAR activity via ACD technology

Abs for T-Cell Activation using QUAD Technologies

GMP Proteins

Ella for CRS
Detection/monitoring

Assay/Ab platforms for QC
QuickGel™: “plug and play” platform for T-cell isolation and activation

QuickGel microbeads can be created with specific binding functions

QuickGel microbeads can be made to specific sizes in ranges ~ 5 μM–500 μM diameter
QuickGel™ Microparticles

Only releasable, non-magnetic cell selection technology

Revolutionizing the clinical workflow
Bringing automation and GMP-compliance to our magnetic bead-free cell separation

Current RUO cell selection solution
Serving All Aspects of Life Science

- Basic Research
- Applied Research
- Clinical Research
- Diagnostics
- Pharma Development
- Pharma Production

Life Science Tools:
- Instruments
- Reagents
- Consumables
Scientists Ask Different Analytical Questions

Basic Research → Applied Research → Clinical Research → Diagnostics

- Measure small amounts of protein in complex mixtures
- Measure and characterize purified proteins

Pharma Development → Pharma Production
• Biologics are Purified Proteins as Drugs
• ~700 companies worldwide researching and commercializing biologics
• Pipeline of Biologics in Phase I to Application Submission >900
Pure Proteins, Deeply Characterized

Many analytical techniques are required

**Identity**
SDS-PAGE, IEX, IEF, CZE, MS

**Purity**
SDS-PAGE, IEX, SEC, RP, IEF, CZE, HIC

**Impurities**
ELISA, PCR, ISPR, LO, DLS, SEC, AUC, MS, SDS-PAGE

**Potency**
Bioassay, ELISA

**Structure**
CD, FTIR, NMR, DSC, ITC, SEC, MS, X-Ray Cryst.

**Stability**
MS, LO, DLS, SEC, AUC, SDS-PAGE, IEX, IEF, CZE, pH

**Safety**
Endotoxin, Bioburden, Sterility, LO, DLS, AUC
iCE – Is My Drug Pure?

Gold Standard for Charge Heterogeneity (cIEF)
Beachhead in CE-SDS
Installed in development and QC
MFI – Can I Characterize My Contaminant(s)?

Defined the field for monitoring protein purity
What’s in your sample?

Measurement of small amounts of protein in complex mixtures

Usually involves some sort of immunoassay

Bio-Techne has revolutionized the two most common techniques:

- Western blot
- ELISA
Immunoassays: Different Users, Different Needs

Fully Validated

DuoSet®

Quantikine®

Luminex®

Simple Plex™

Simple Western™

Homemade Assays

FluorChem Alphalmager

Arrays

Single-Cell

Manual

Fully Automated

Fully Validated

Manual

Fully Automated

Immunoassays: Different Users, Different Needs
50% of life science researchers regularly do westerns

850,000 researchers world wide
Start with a Lot of Gear…

Separation

Gels

Blotting

Imaging

Antibody

ImmuoAssay
Spend Up to Two Days...

- 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

And Get Inconsistent Data!
Simple Western is the Future...

Prepare samples → Click start → Results automatically
✓ Fully automated
✓ Fast
✓ Consistent
✓ Reproducible
✓ Fully quantitative

...with Data you can Rely on

CV=9.1%
CV=4.4%
The Only Fully Automated Western Blotting Solutions

Gel Free, Blot-free, Hands-Free

**Wes™**
- 25 samples

**Peggy Sue™**
- 96 size/charge

**Sally Sue™**
- 96 size

**NanoPro 1000™**
- 96 charge

**Jess™**
- 25 samples
- +Fluorescence
- +Protein Normalization
- +Blot Imaging
Over 1,300 instruments in the field
ELISA – Most Common Immunoassay Measurement

~ 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

Traditional ELISA

1. Coat Plate with Capture Ab
2. Wash Plate
3. Add Antigen (sample)
4. Wash Plate
5. Add 2\textsuperscript{o} Ab and incubate
6. Wash Plate
7. Add Detection Reagent and incubate
8. Read in plate reader and analyze
• Up to 8 separate steps
• Each Step adds variability
• May take up to 6 hours
• Requires larger sample volumes

• Only 2 separate steps
• Variability is low
• Only takes up to 1.25 hours
• Requires low sample volume
Simple Plex – A New Way to ELISA

Prepare samples

Click start

Results automatically
• Up to 4 targets per sample
• Wider Dynamic Range
• Lower detection limits
Ella Adoption Growing

Now Shipping More than 10,000 Cartridges/Year

Ella

Innovators Early Adopters

Early Majority Late Majority Laggards
Proven Track Record of Innovation in Protein Analysis

Continual Innovation

**Instruments**
- Jess

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

**Consumables**
- 2 new SW separation modules
- 3 new SW detection modules
- 72x1 New!
- 32x4 New!
- 16x4

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**
Protein Science Segment Channels to Market

- Direct Salesforce
- 3rd Party (Fisher)
- eCommerce
- Distribution

Regions:
- US
- China
- EMEA
- Worldwide
- Rest of World

Segments:
- Pharma
- Biotech
- Academia
- Government
- CRO
- Resellers
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td></td>
<td>• Product overview</td>
<td>• Why ISH?</td>
</tr>
<tr>
<td></td>
<td>• Serviceable Available markets</td>
<td>• Customer Journey,</td>
</tr>
<tr>
<td></td>
<td>• Business Priorities:</td>
<td>RNAscope® expansion</td>
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<tr>
<td></td>
<td></td>
<td>• Unlock Bio-Techne®</td>
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<td></td>
<td>Capabilities in Genomics</td>
</tr>
</tbody>
</table>
Diagnostics Division Overview

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)

### Stds. & Controls IVD market: $1B SAM at 3-5% CAGR

<table>
<thead>
<tr>
<th>Partners</th>
<th>Sample</th>
<th>Segment</th>
<th>Region</th>
</tr>
</thead>
<tbody>
<tr>
<td>Others</td>
<td>Other</td>
<td>Other, Proficiency Testing</td>
<td>APAC</td>
</tr>
<tr>
<td>Sysmex</td>
<td>Urine</td>
<td>Tissue</td>
<td></td>
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<tr>
<td>Thermo Fisher</td>
<td>Microbiology</td>
<td>MDx</td>
<td>EMEA</td>
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<tr>
<td>bioMérieux</td>
<td></td>
<td>Clinical Chemistry</td>
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<td>Carlyle</td>
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<td>Immuno Chemistry</td>
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<td>Alere</td>
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<td>POC</td>
<td>Americas</td>
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<td>BC Danaher</td>
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<tr>
<td>Abbott</td>
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<td>Siemens</td>
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<tr>
<td>Roche</td>
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</tbody>
</table>

### Assays and Reagents: $1B SAM at 5-8% CAGR

- Drugs Of Abuse (DOA) Testing
- Therapeutic Drug Monitoring (TDM)

### Total SAM: $2B

#### Strategy:

- A) Increase Share
- B) Line Extension
- C) Geographic expansion
- D) Enter Adjacent Markets
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
Diagnostics Division Strategy

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

The opportunity

- Respected OEM Mfg.
- New reagent and assay dev requests
- Increased share of OEM wallet
- Reagents drive additional QC/Cal volume
- Process and tech knowhow

$1B Adjacent Reagent Market

Pull vs. Push

RA/QA (FDA) R&D Ops/facilities

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 Dickenson
- **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

Molecular Detection
PCR/NGS
RNAscope
IHC/FISH

SAM: $1.3B

Automatable, scalable, plug-play probes
Drive Genomics revenue by providing a better, faster ISH experience

**Discovery**
- Mass Spec Protein
- NGS DNA/RNA

**Future customer journey**
- Start project/Need for biomarker
- Screen Abs Western Bl
- RNA Seq / PCR
- ISH Probe
- IHC Abs
  - + standard
  - + cost
  - -specificity
  - -Time to AB
- Project complete
  - Ø Ongoing Ab use
  - Ø GMP MFG.
  - Ø Licensing

**Standard**

**Current success**

**Future**
- Get probe fast – Less sample waste. Make ISH the Entry point.

**ISH workflow:**
- **tissue-based**

**Effort**
- 100%
- 0%

**A** Design more probes and assays

**B** Tissue Bank, TAT ↓

**C** Image Analysis software, TAT ↓
Support the customer journey by linking Bio-Techne Capabilities

Discovery

Future customer journey

Start project/ Need for biomarker

ISH Probe

Validate BT-Abs

BT IHC Abs

Screen Abs Western Bl

Project complete

Growth vectors:
1. Use ISH probe as primary marker
2. If added value, run IHC complimentary
3. If IHC needed, validate Bio-Techne Antibodies
4. Improve consistency of Western Blot results using Wes/Jess and BT Antibodies

Exosome Diagnostics.
Followed by NGS or RT-PCR. If positive, perform biopsy, validate with ISH, especially if morphological context is relevant for treatment decision.
Exosome Diagnostics

Johan Skog, Ph.D.

Vice President
Tumor Formation  Vascularization  Dissemination

Liquid Biopsies: CTCs, cfDNA & Exosomes

ctDNA  Exosomes  CTCs
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
Liquid Biopsies: CTCs, cfDNA & Exosomes

**Key Properties**
- Frequency
- Ability to Enrich or Select
- Quality of Isolated Nucleic Acids

**CTCs**
- Infrequent in early stages of disease
- Yes
- Good

**cfDNA**
- Difficult to find within “noise” of contaminating DNA
- No
- Poor due to enzymes exposure

**Exosomes**
- Abundant
- Yes
- High quality-shielded
• Tools with better correlation to the biology

<table>
<thead>
<tr>
<th>Measurement</th>
<th>Source</th>
<th>Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>Falling Allele Frequencies</td>
<td>Dying Cells</td>
<td>cfDNA</td>
</tr>
<tr>
<td>Rising Allele Frequencies</td>
<td>Living Cells</td>
<td>Exosomal RNA</td>
</tr>
</tbody>
</table>

Need: One Reaction

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

*Chetan Bettegowda et al.*

*Sci Transl Med 6, 224ra24 (2014);*
Improved EGFR mutation detection using combined exosomal RNA and circulating tumor DNA in NSCLC patient plasma.

Krug AK¹, Enderle D¹, Katlović C², Priewasser T¹, Bertlink S¹, Spiel A¹, Brinkmam K¹, Emeneeger J¹, Grimm DG¹, Castellanos-Rizaldos E³, Goldman JW⁴, Sequist LV⁵, Soria JC⁶,⁷, Camidge DR⁸, Gadgeel SM⁹,¹⁰, 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)
~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

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**ExosomeDx assay**
Clinical sensitivity = **92%**  
Clinical specificity = **89%**  
N = 210

**Roche cobas assay**
Clinical sensitivity = **58%**  
Clinical specificity = **80%**  
N = 383
EDDE BrCa enrichment correlates to matched FFPE

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
Clinical Utility of Liquid Biopsies

Tumor heterogeneity
Identification of targets

New targets

Screening
Early detection
Markers for recurrence
Prognosis

Monitoring
Response to therapy
Resistance to therapy

Drug testing

Molecular assays
Genotyping

Targeted therapy

Personalized therapeutics

Clinical Utility of Liquid Biopsies
Technically and Clinically Validated Tests Drive Rapid Commercial Expansion

Neurodegenerative Diseases (Pharma driven)

Transplant Rejection

Oncology
- EGFRvIII
- EGR2 28 mutation panel
- BRAF Assay
- Arv7 Assay
- MedOncoLyzer 170 Gene Panel
- Midi Lung Cancer Panel
- Breast Cancer Signature

Urology
- EPI
- EPI Active Surveillance
- Bladder Cancer

2017 - 2022

Alzheimer's Disease
Parkinson's Disease
Kidney Transplant Rejection
• 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

ExosomeDx: The Leader in Companion Diagnostics

Established Leader in CDx

Scorecard

Most extensive intellectual property related to exosomes and liquid biopsy
- More than 180 patents across 44 patent families 24 granted
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

---

**IntelliScore Below Cut-Point**
DECREASED likelihood of high-grade prostate cancer
(Gleason score ≤ 6)

**IntelliScore Above Cut-Point**
INCREASED likelihood of high-grade prostate cancer
(Gleason score > 7)
The EPI™ risk score is used to risk stratify likelihood of high grade (GS > 7) prostate cancer on initial biopsy in men 50-years and older, with a PSA 2-10ng/mL.
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**
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
Customer Experience

- Channel optimization to support revenue growth
- One stop “shopping” focused on customer vs. brand
- Brand strategy driving customers to all relevant brands
- Simplify the experience, inside & out

Innovation

- 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

World Class Platforms

- 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
Observations

- 3127 total observations (434 known, 2693 novel)
- 1100 total observations (148 known, 952 novel)
- 307 total observations (67 known, 240 novel)
- 135 total (50 known, 85 novel)

Statistical outliers
Significant effort consolidating our web presence
Has resulted in a more cohesive experience for our customers
Behind the website, our Digital Marketing team is focusing on the complete customer journey.

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
This focus results in growth of site traffic

Traffic to Bio-Techne Sites

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
- Cell Identification
- Protein Measurement
- Measure key RNA biomarkers
- Tools to Better Understand Signal Pathways

Tools:
- R&D Systems
- Novus Biologicals
- R&D Systems
- ProteinSimple
- ACD
- ToCRIS
Building Culture

Struan Robertson

Vice President
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.

21% of our Employees have less than one year at Bio-Techne
Creating One Aligned Organization

<table>
<thead>
<tr>
<th>Standardize</th>
<th>Centralize</th>
<th>Harmonize</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Recruiting Process</td>
<td>• HR Administration</td>
<td>• Orientation/Onboarding</td>
</tr>
<tr>
<td>• Performance Management</td>
<td>• Manager Toolkit</td>
<td>• EPIC Culture</td>
</tr>
<tr>
<td>• Offboarding</td>
<td>• Compensation &amp; Benefits</td>
<td>• Learning &amp; Development</td>
</tr>
<tr>
<td>• Employee Relations</td>
<td>• Centralized HRIS</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Localize</th>
<th>In-Source</th>
<th>Out-Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Community Service</td>
<td>• Recruiting</td>
<td>• Some Recruitment</td>
</tr>
<tr>
<td>• Employee Relations</td>
<td>• Employee Engagement</td>
<td>• Some Learning &amp; Development</td>
</tr>
<tr>
<td>• Employee Events</td>
<td>• Employee Development</td>
<td>• Some Benefit Admin</td>
</tr>
</tbody>
</table>
The Two Queues

[Diagram showing two queues: Talent on the left, Customers on the right]
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
Results of our strategy so far...

Early investments have delivered recent accelerated financial performance

* All figures except EPS are expressed in millions.
** Operating cash flow excludes acquisition earn-out payments
How our strategy has driven financial performance by segment...

**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.
The math behind the new segments

<table>
<thead>
<tr>
<th>Protein Sciences segment</th>
<th>Diagnostics and Genomics Segment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reagent Solutions</strong></td>
<td><strong>Diagnostics</strong></td>
</tr>
<tr>
<td><strong>Biotechology</strong></td>
<td><strong>Genomics</strong></td>
</tr>
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</tr>
<tr>
<td><strong>Protein Platforms</strong></td>
<td><strong>Diagnostics</strong></td>
</tr>
</tbody>
</table>

- Reduction: ACD Technologies
+ Addition: Quad Technologies
+ Addition: exosome

---

The math behind the new segments

The changes are represented as follows:

- **Reduction**: ACD Technologies (Protein Sciences segment)
- **Addition**: Quad Technologies (Protein Sciences segment)
- **Addition**: exosome (Diagnostics and Genomics Segment)
Review of our financial performance under the new segment reporting starting in FY19...

**Protein Sciences Segment**

<table>
<thead>
<tr>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>$394.7</td>
<td>$419.4</td>
</tr>
<tr>
<td></td>
<td>7% OG</td>
<td>7% OG</td>
</tr>
<tr>
<td></td>
<td>+11%</td>
<td>10% OG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Income</td>
<td>$172.2</td>
<td>$184.1</td>
</tr>
<tr>
<td></td>
<td>43.6% OM</td>
<td>43.9% OM</td>
</tr>
</tbody>
</table>

**Diagnostics & Genomics Segment**

<table>
<thead>
<tr>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Revenue</td>
<td>$30.4</td>
<td>$29.3</td>
</tr>
<tr>
<td></td>
<td>29.1% OM</td>
<td>20.4% OM</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Income</td>
<td>$104.5</td>
<td>$143.8</td>
</tr>
<tr>
<td></td>
<td>0% OG</td>
<td>3% OG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FY16</th>
<th>FY17</th>
<th>FY18</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$161.2</td>
<td>$35.5</td>
</tr>
<tr>
<td></td>
<td>9% OG</td>
<td>22.0% OM</td>
</tr>
</tbody>
</table>

* All figures are expressed in millions.

Accelerating profitable growth in both segments
Capital deployment priority has continued to be M&A

~$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
Long term capital deployment strategy remains focused on M&A

Key criteria on our acquisition filter

- Strategic Fit
- Technology Differentiation
- Growth rate
- Operational Capabilities
- Scalability
- ROIC
- GM% profile

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

- Debt Paydown
  - 2018: $580mm
  - FY23: $0

- "Dry Powder"
  - 2018: $360mm
  - FY23: $1.5B - $1.8B

< 3.5x leverage
As we look forward, our financial goals get larger

Revenue

- 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%

Adj. Operating Income

- 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%

* All figures are expressed in millions.
** Assumes no further unannounced acquisitions
THANK YOU