Molecular Cytology

Improving Patient Outcomes and Reducing the Cost of Care

June 2014
Forward-Looking Statements

Various remarks that we make in this presentation that are not historical, including those about our business strategy and goals, future plans and prospects, growth opportunities, drivers of our business, the size of potential addressable markets, international expansion plans, and future products and product pipeline, constitute forward-looking statements within the meaning of the Safe Harbor provisions of the Private Securities Litigation Reform Act of 1995.

Forward-looking statements are subject to risks and uncertainties that could cause actual results to differ materially from our expectations. These risks and uncertainties include, but are not limited to: our limited operating history; our ability to increase usage of and reimbursement for Afirma; our dependence on a few payers for a significant portion of our revenue; risks associated with new laws and regulations, including regulation of our tests by the FDA; our ability to develop and commercialize new products and the timing of commercialization; the timing, results and applicability of clinical study results to actual outcomes; our ability to conserve cash and leverage existing infrastructure to develop additional products; and the other risks set forth under the heading “Risk Factors” in our filings with the Securities and Exchange Commission. These forward-looking statements speak only as of the date hereof. We disclaim any obligation to update these forward-looking statements.

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Too many patients in too many disease areas undergo unnecessary and invasive procedures to resolve ambiguous diagnostic results – costing the healthcare system billions of dollars.

Our mission is to change that.
Veracyte Overview

- Growth-stage company with Afirma commercialized for thyroid cancer
- Clinically validated solution that reduces surgeries by 50%
- Multiple potential near-term growth catalysts driven by Afirma
- Opportunities in large, underserved specialty markets
- Highly experienced management team in the development and commercialization of diagnostics; strong venture and institutional investors
Molecular Cytology = Genomics at the Front End of Patient Care

Molecular Cytology Paradigm

Minimally invasive cytology biopsy

High rate of ambiguity

Molecular Dx informs treatment decision pre-operatively

Surgery

Watchful waiting

Ongoing treatment

Challenge: High Diagnostic Ambiguity

- Low yield of nucleic acids
- Cellular heterogeneity
- Variable sampling techniques

Opportunity: More Efficient Care

- Minimally invasive, outpatient procedure
- Reduce unnecessary surgeries
- Efficient validation using surgical “truth”
Building a Molecular Cytology Franchise

**Diagnostic Opportunities**
- Lung
- Skin
- Liver
- Bladder
- Prostate
- Testicular

**Prioritization Criteria**
- Large addressable market
- Substantial unmet clinical need
- Efficient development, validation and commercialization
- Attractive competitive landscape
Critical Success Factors in Molecular Diagnostics

- Informs a specific clinical question
- Published prospective clinical validation studies
- Clinical utility that changes the standard of care
- Included in leading clinical practice guidelines
- Demonstrated economic value to payers

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Veracyte’s Differentiated Approach

1. Formulate a relevant clinical question

2. Apply whole-genome biomarker discovery to cytology samples

3. Plan and execute publication strategy in advance of commercial launch

Answer the clinical question that improves care and reduces costs
Afirma Clinical Pathway for Thyroid Cancer Diagnosis

Reduces Unnecessary Surgeries

525,000 FNAs → Cytopathology

- 5 - 8% Non-Diagnostic
  - Repeat FNA
- 60 - 75% Benign
  - 5 - 8% risk of malignancy
  - Follow with Watchful Waiting
- 15 - 30% Indeterminate
  - Without Afirma (74%) Surgery
- 3 - 6% Malignant
  - Malignancy Classifiers
  - Inform Thyroid Surgery

GEC Benign (~5% risk of malignancy)

~50% Benign

GEC Suspicious (~40% risk of malignancy)
The Inefficiency in Thyroid Nodule Diagnosis Is Increasing

Thyroid Nodule FNA Volume

<table>
<thead>
<tr>
<th>Year</th>
<th>#FNAs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>200</td>
</tr>
<tr>
<td>2007</td>
<td>300</td>
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<tr>
<td>2008</td>
<td>400</td>
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<tr>
<td>2009</td>
<td>500</td>
</tr>
<tr>
<td>2010</td>
<td>600</td>
</tr>
<tr>
<td>2011</td>
<td>700</td>
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</tbody>
</table>

FNA Volume

CAGR: 17%

Thyroid Cancer / Nodule Surgery

<table>
<thead>
<tr>
<th>Year</th>
<th>Volume</th>
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</thead>
<tbody>
<tr>
<td>2006</td>
<td>120</td>
</tr>
<tr>
<td>2007</td>
<td>150</td>
</tr>
<tr>
<td>2008</td>
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<td>2009</td>
<td>150</td>
</tr>
<tr>
<td>2010</td>
<td>180</td>
</tr>
<tr>
<td>2011</td>
<td>210</td>
</tr>
</tbody>
</table>

Volume

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Afirma Addresses a Substantial Market Opportunity

2011 Data

Company estimates (rounded):
*Potential market defined by test volume at retail price
**Addressable market defined as test volume at estimated reimbursement
Entire Genome Explored to Identify Gene Signature

Feasibility
Whole Genome Discovery

Development
Custom Chip with 3,000 “Thyroid Genes”

Validation
Final 142 Genes + Locked Algorithm

Issued Patents:
Sept 2013: US 8,541,170
March 2014: US 8,669,057
Proven Clinical Validity

- Prospective, multi-center, double-blinded study
  - 49 sites, 4,812 FNAs
- >94% NPV when it identifies benign nodules among those deemed indeterminate by cytopathology

**Conclusion:** Findings may enable physicians to replace surgery with routine monitoring for patients with a benign Afirma GEC result on an FNA with indeterminate cytopathology
A 90% reduction in surgeries on cytology-indeterminate nodules with a benign Afirma GEC result
## NEJM Validation Results Supported by Multiple Real-World Studies

<table>
<thead>
<tr>
<th>Study</th>
<th>N*</th>
<th>Malignancy Prevalence</th>
<th>NPV**</th>
<th>95% Confidence Intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>New England Journal of Medicine</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alexander 2012</td>
<td>210</td>
<td>24.3%</td>
<td>94.3%</td>
<td></td>
</tr>
<tr>
<td><strong>Recent Real-World Studies</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Alexander 2013</td>
<td>309</td>
<td>15.5%</td>
<td>99.4%</td>
<td></td>
</tr>
<tr>
<td>Michael 2013</td>
<td>133</td>
<td>26.3%</td>
<td>96.9%</td>
<td></td>
</tr>
<tr>
<td>Arce 2013</td>
<td>80</td>
<td>25.0%</td>
<td>100.0%</td>
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<tr>
<td>Harrell 2013</td>
<td>55</td>
<td>32.7%</td>
<td>94.7%</td>
<td></td>
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<tr>
<td>Patel 2013</td>
<td>39</td>
<td>23.1%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td>McIver 2012</td>
<td>38</td>
<td>7.9%</td>
<td>100.0%</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>864</td>
<td>21.3%</td>
<td>97.7%</td>
<td></td>
</tr>
</tbody>
</table>

* Includes Bethesda III (atypia/follicular lesion of undetermined significance) and IV (follicular/Hürthle cell neoplasm)

** NPV (Negative Predictive Value) calculated as true negatives (GEC benign and either unoperated or operated and histopathologically benign) divided by all GEC benign results
Afirma Gene Expression Classifier: Powerful Economic Data

Impact on Quality-Adjusted Life Years (QALY) and Cost Effectiveness of Incorporating GEC into Practice

Vast majority of 10,000 scenarios in Monte Carlo simulation found BOTH cost savings and improved Quality of Life.

$2,600 saved for every Afirma GEC test performed. Estimated $500M in direct medical savings over five years.
Afirma Gene Expression Classifier: Improves Patient Experience and Cost

Reduces time and cost for a typical patient with initial indeterminate thyroid FNA cytopathology and benign Afirma Gene Expression Classifier result.
Published Evidence Drives Guidelines and Positive Coverage

Published Evidence

Clinical Validation
Chudova D, et al. JCEM 2010
Alexander E, et al. NEJM 2012

Analytic Validation
Walsh PS, et al. JCEM 2012

Clinical Utility
Monroe R, et al. abstract ATA 2011
Duick D, et al. Thyroid 2012
Alexander E, et al. JCEM 2013

Cost-effectiveness and Quality of Life
Li H, et al. JCEM 2011
Duick D, et al. Thyroid 2012

Recent Reviews
Ward L, Kloos R. Arq Bras Endo Metab. 2013

Guidelines

National Comprehensive Cancer Network (NCCN) – published 2013

UpToDate – evidence-based clinical decision support resource of physicians – 2013

American Thyroid Association (ATA) – guideline update in process

American Association of Clinical Endocrinology (AACE) – guideline update in process

125+ Million Covered Lives

Medicare

UnitedHealthcare

Humana

Cigna

PREMERA BLUE CROSS
“Turnkey” Business Model Drives Adoption in Both Community Practice and Institutional Settings

Endocrinologist collects FNA sample from nodule

TCP Cytopathology Dx

“Afirma Enabled” Institutions Cytopathology Dx

Benign

Malignant

Indeterminate

7-9 days

Patient Report

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TCP Offers Best-in-Class Cytopathology Indeterminate Rates and High Customer Satisfaction

**Rate of Indeterminate Results**

<table>
<thead>
<tr>
<th>Study</th>
<th>Rate (%)</th>
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</thead>
<tbody>
<tr>
<td>Meta-Review of 8 U.S. Studies 2012</td>
<td>8%</td>
</tr>
<tr>
<td>ATA Guidelines 2009</td>
<td>15%</td>
</tr>
<tr>
<td>Thyroid Cytopathology Partners</td>
<td>17%</td>
</tr>
<tr>
<td>ATA Guidelines 2012</td>
<td>17%</td>
</tr>
<tr>
<td>Thyroid Cytopathology Partners</td>
<td>16%</td>
</tr>
<tr>
<td>ATA Guidelines 2009</td>
<td>22%</td>
</tr>
</tbody>
</table>

**~86% of Afirma Users Are Very or Extremely Satisfied with TCP**

- **Users (n=92)**
  - Very-extremely satisfied: 90%
  - Somewhat satisfied: 10%
  - Not satisfied: 0%

- **Partial & Non-Users (n=209)**
  - Very-extremely satisfied: 86%
  - Somewhat satisfied: 14%
  - Not satisfied: 0%

*Market research study conducted by Sermo, commissioned by us and Genzyme*
Nearly 100,000 Afirma FNAs and 20,000 GECs to Date

80% of FNA Volume from Repeat Physician Clients

~75% of 3,500 Endocrinologists Uncaptured
Commercial Footprint Expanded to Drive Growth

- U.S. expanded to 14 territories from 8, with 3 regional managers and a VP sales
- Each region augmented by Genzyme Sales Reps
- Leverages Genzyme’s established endocrinology effort
- Strengthens both community practice and institutional channels

**South San Francisco, CA**
- Headquarters
  - GEC CLIA Laboratory Operations
  - Client Services
  - Billing & Reimbursement

**Austin, TX**
- Cytopathology CLIA Laboratory Operations
  - Billing & Reimbursement
International Expansion Enabled through Global Genzyme Co-Promotion

- Genzyme sales force selling Thyrogen® in 42 countries
- Synergistic partnership
- Close coordination between sales and marketing teams
- Selected international launches targeted for 2014
  - CE Mark obtained for sample collection
  - Registrations underway
  - Reimbursement in process
  - Launched in Brazil in partnership with Fleury Medicine and Health
Deep Pipeline with Multiple Near-Term Milestones

<table>
<thead>
<tr>
<th>Endocrinology</th>
<th>Genomic Signature Discovery</th>
<th>Product Development</th>
<th>Clinical Validation</th>
<th>Commercial US</th>
<th>International Expansion</th>
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<tbody>
<tr>
<td>Afirma Thyroid FNA Analysis</td>
<td>2014</td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Afirma Malignancy Classifiers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2014*</td>
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</table>

<table>
<thead>
<tr>
<th>Pulmonology</th>
<th>Genomic Signature Discovery</th>
<th>Product Development</th>
<th>Clinical Validation</th>
<th>Commercial US</th>
<th>International Expansion</th>
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<tbody>
<tr>
<td>Idiopathic Pulmonary Fibrosis</td>
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<td></td>
<td></td>
<td></td>
<td>US Launch 2016*</td>
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<tr>
<td>Lung Cancer Diagnostic</td>
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</tbody>
</table>

* Estimated
Lung Opportunity
Lung Disease and Cancer:

Significant Unmet Needs

The Opportunity

- Lung diseases are difficult to diagnose without surgery
- Significant opportunity to reduce unnecessary surgeries and lower costs
- Inconsistent practice guidelines ripe for emerging standard approaches to care
- Pulmonologist is underserved but secures sample
- Late-stage biomarker discovery in Idiopathic Pulmonary Fibrosis (IPF); early-stage in lung cancer
Patients Suspicious for Interstitial Lung Diseases Often Receive Suboptimal, Harmful Treatment

200,000 Patients Suspicious for ILD → High Resolution CAT Scan (HRCT) ~80,000 Ambiguous

- Confident for IPF
  - High False Positive Rate
  - Incorrect Therapy
  - Delayed Therapy

- Inconsistent/Possible IPF
  - Consider Diagnostic Surgery
  - High Rate of Complications
  - Costly, Invasive Procedure

Genomic Results Replace Surgical Pathology

Inform Clinical Decisions without Surgery
Biomarker Discovery for ILD Combining RNA Sequencing with mRNA Expression Yields Promising Signatures on Tissue

Whole Genome Discovery

Differentially Expressed Genes on Arrays

Machine Learning Algorithm Development

Cross-Validated Results

<table>
<thead>
<tr>
<th>IPF against</th>
<th>AUC (ROC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Non-IPF</td>
<td>0.96</td>
</tr>
<tr>
<td>HP</td>
<td>0.99</td>
</tr>
<tr>
<td>NSIP</td>
<td>0.99</td>
</tr>
<tr>
<td>HP/NSIP/Inflammation</td>
<td>0.97</td>
</tr>
</tbody>
</table>

Note: Internal company data
Top 200 Differentially Expressed Genes Demonstrate Clustering of IPF and Non-IPF Data

- Clustering within IPF and non-IPF groups
- Multiple samples from same patient cluster together

Note: Internal company data
IPF and Non-IPF Samples Characterized by Distinct Pathway and Gene Ontology Groups

Over-represented in IPF

Over-represented in non-IPF

GeneTrail Software  http://genetrail.bioinf.uni-sb.de/enrichment_analysis

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Significant Progress with Prospective, Multi-Center Studies

Over 15 IRB approved BRAVE 1,2,3 and 4 Study Sites

Expert Multi-Disciplinary Team for “Truth” Diagnosis

Pathology
- Mayo Clinic
- Syracuse University
- University of Michigan

Radiology
- National Jewish

Pulmonology
- National Jewish
- University of Michigan
- Vanderbilt

Sites currently enrolling patients
Potential sites for 2014
Multi-site Hub and Spoke sites
Thyroid Development Process Replicated for ILD Program

Whole genome discovery and algorithm development in surgical tissue

- **Surgical tissue**
  - Banked ILD Surgical Tissues (n = 309)
  - Local clinical diagnosis and some with expert surgical pathology review

- **Machine Learning Algorithms**
  - Microarray and Deep RNA sequencing
  - Support Vector Machines

Bridge to clinically relevant biopsy samples

- **Prospective** bronchoscopy sample collection
- Over 15 sites in US and EU
- Diagnoses by expert pathologist and **multi-disciplinary team (MDT)**
- Further assay and algorithm development
- Lock test and algorithm

Publish robust evidence

- **Analytical** validation
- Prospective, multi-center **clinical validation**
- Clinical utility and cost-effectiveness studies

We Are Here
Financial Highlights
Strong Revenue Trends

($M)

2011 2012 2013 2014

Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1 Q2 Q3 Q4 Q1

2011 2012 2013 2014 Q1

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Veracyte: Catalysts through 2014

• Presentation of IPF genomic signature targeted for industry meeting
  ✓ *Proof-of-concept oral presentation at ATS in May 2014*

• Launch of Afirma Malignancy Classifiers
  ✓ *Launched at AACE in May 2014*

• Afirma inclusion in additional clinical practice guidelines

• Afirma positive coverage decisions from additional payers
  ✓ *Addition of Emblem, HealthNet and Premera Blue Cross in 2014*

• International launch of Afirma in selected countries
  ✓ *Announced Brazil partnership with Fleury Medicine and Health in May 2014*
Experienced Team with a Track Record of Success

**Key Management**

**Bonnie H. Anderson**  
President & Chief Executive Officer

**Shelly D. Guyer**  
Chief Financial Officer

**Julie A. Brooks**  
EVP, General Counsel & Secretary

**Christopher M. Hall**  
Chief Commercial Officer

**Giulia C. Kennedy, Ph. D.**  
Chief Scientific Officer

**Richard B. Lanman, M. D.**  
Chief Medical Officer

**J.A. Thorson**  
EVP, Corporate Strategy and Business Development

**Venture Investors**

- Beckman Coulter
- J.P. Morgan
- Hambrecht & Quist
- Bayer
- Conceptus
- Celera
- CHIRON
- Millennium
- Kaiser Permanente
- Varian Medical Systems
- Domain Associates
- GE
- KPCB
- Kleiner Perkins Caufield & Byers
- TPG Biotech
- Versant Ventures
Conclusion

- Pioneering molecular cytology with our Afirma Solution for thyroid nodule assessment
- Clinically validated solution that reduces surgeries by 50%
- Broadening adoption and reimbursement driving volume and revenue growth
- Focused on large, underserved specialty markets
- Building a molecular cytology franchise with a pipeline of high-value opportunities