



**Aspen** *BioPharma*

**January 2011**

***NASDAQ: APPY***

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# Opportunity Summary

- ▶ First mover opportunity in Appendicitis
  - ▶ Product provides significant potential for AspenBio as an independent company or combination with strong partner
  - ▶ First product nearing completion and in preliminary field testing
- ▶ Highly experienced management team in place
  - ▶ Product development, commercialization, science and business development expertise
- ▶ Animal Health business
  - ▶ Proprietary livestock reproduction drug pipeline
  - ▶ Multiple potential markets ( primary - cattle, swine and horses )
  - ▶ Cattle products out licensed to Big Pharma

# What We Do...

## Human Diagnostics (IVD) & Animal Reproductive Health



### Human Bioscience

#### Appendicitis Test Platform

- First dedicated blood-based test
- Results within normal hospital lab turnaround
- IP protected
- Dedicated instrument and consumables

**AspenBio Pharma**  
is focused on the  
development &  
commercialization of  
innovative products that  
address unmet diagnostic  
and therapeutic needs



### Veterinary Science

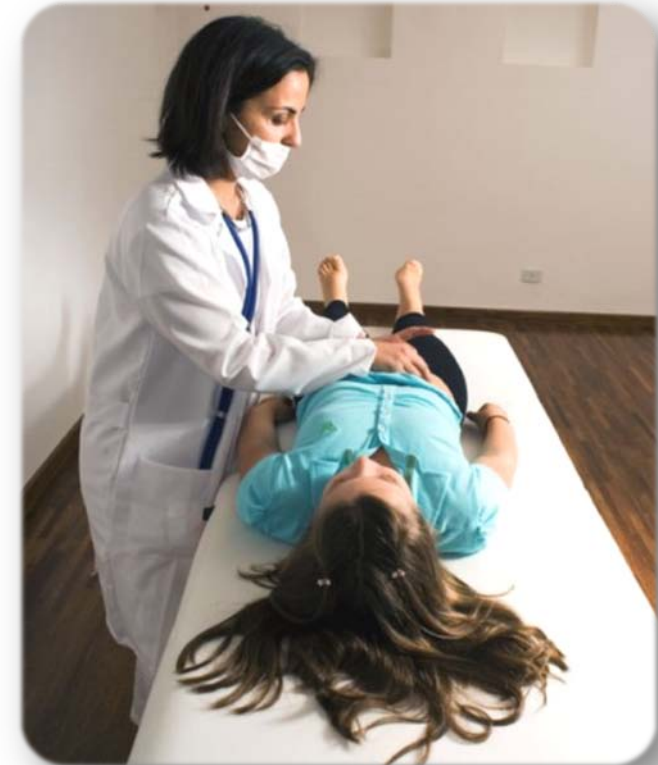
#### Recombinant Protein Drug platform

- Enhance reproductive efficiency in animals of economic importance
- IP Protected

# Abdominal Pain Significant Issue in Emergency Department

Principal reason for visit	Number of visits in thousands	Percent distribution
All visits . . . . .	115,323	100.0
Stomach and abdominal pain, cramps, and spasms . . . . .	7,833	6.8
Chest pain and related symptoms . . . . .	5,812	5.0
Fever . . . . .	5,042	4.4
Cough . . . . .	3,359	2.9
Headache, pain in head . . . . .	3,104	2.7
Back symptoms . . . . .	2,918	2.5
Shortness of breath . . . . .	2,802	2.4
Pain, site not referable to a specific body system . . . . .	2,554	2.2
Vomiting . . . . .	2,535	2.2
Symptoms referable to throat . . . . .	2,178	1.9
Lacerations and cuts - upper extremity . . . . .	1,843	1.6
Accident, not otherwise specified . . . . .	1,808	1.6
Earache or ear infection . . . . .	1,707	1.5
Leg symptoms . . . . .	1,568	1.4
Skin rash . . . . .	1,548	1.3
Injury, other and unspecified type—head, neck, and face . . . . .	1,538	1.3
Labored or difficult breathing (dyspnea) . . . . .	1,530	1.3
Nausea . . . . .	1,525	1.3
Vertigo-dizziness . . . . .	1,524	1.3
Motor vehicle accident, type of injury unspecified . . . . .	1,494	1.3
All other reasons . . . . .	61,101	53.0

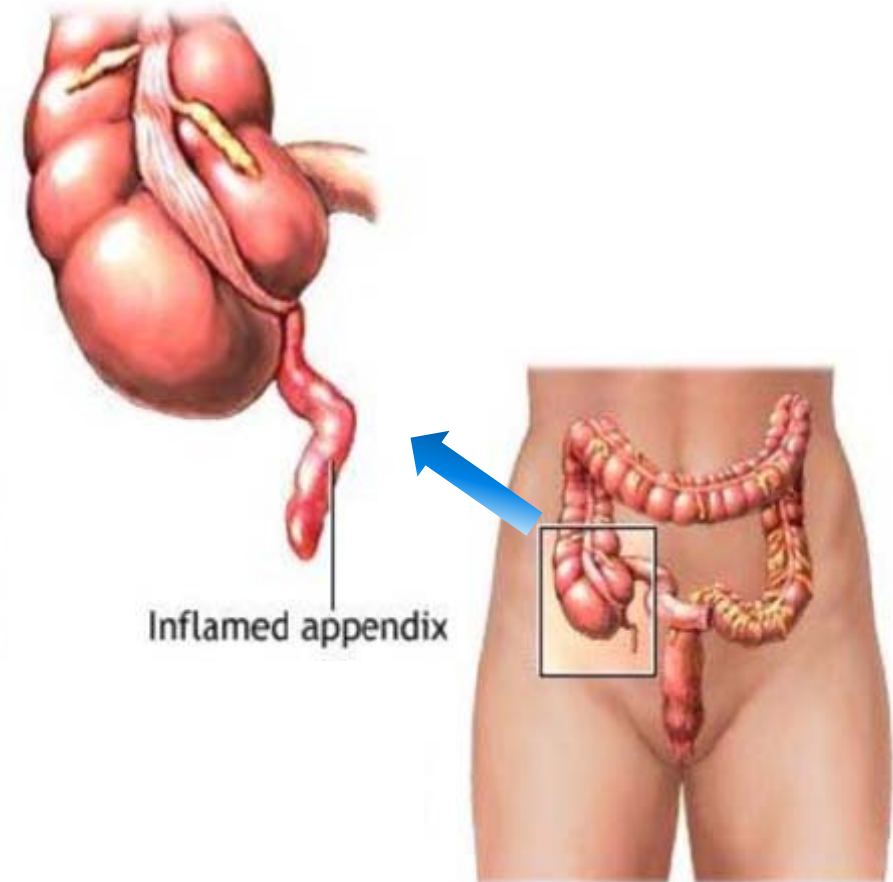
**#1 reason for ED visits**  
**7.8 M or 6.8% of ED visits are abdominal pain related**



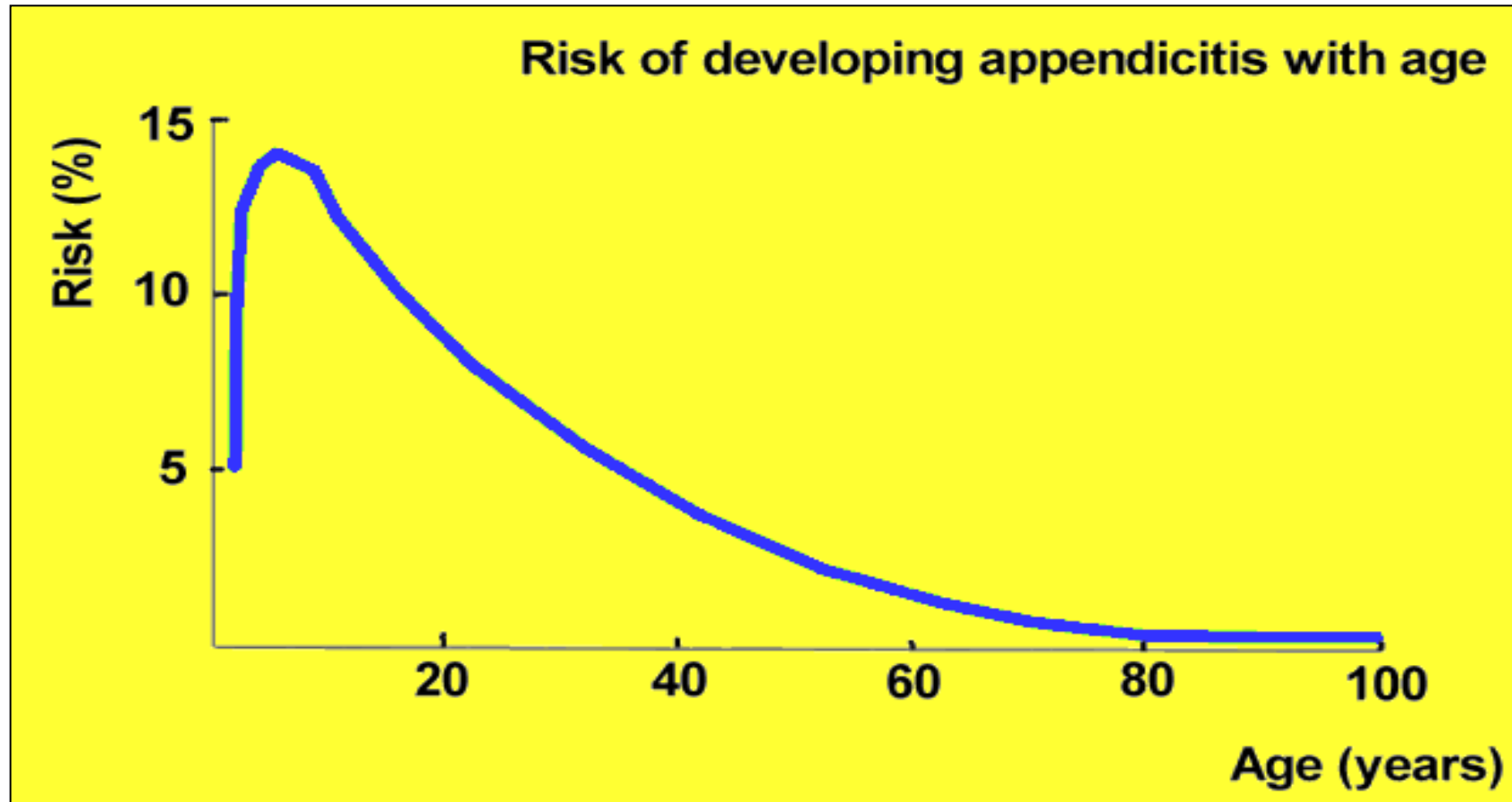
CDC Data 2006

# Appendicitis is Most Common Reason for Abdominal Surgery

- More than 320,000 appendectomies in U.S. annually\*
- Effects **9% men** and **7% women** in their lifetime\*\*
- Late teens are peak age group\*\*
- Gynecological issues confound diagnosis in women\*\*



# Appendicitis has greatest risk of occurring in children and young adults



# Appendicitis Workflow in the ED

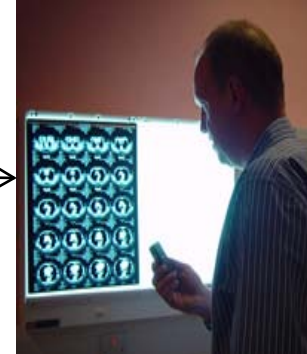
History and Physical Exam

Lab Tests

CT with Contrast

Interpretation by Radiologist

Surgical Consultation



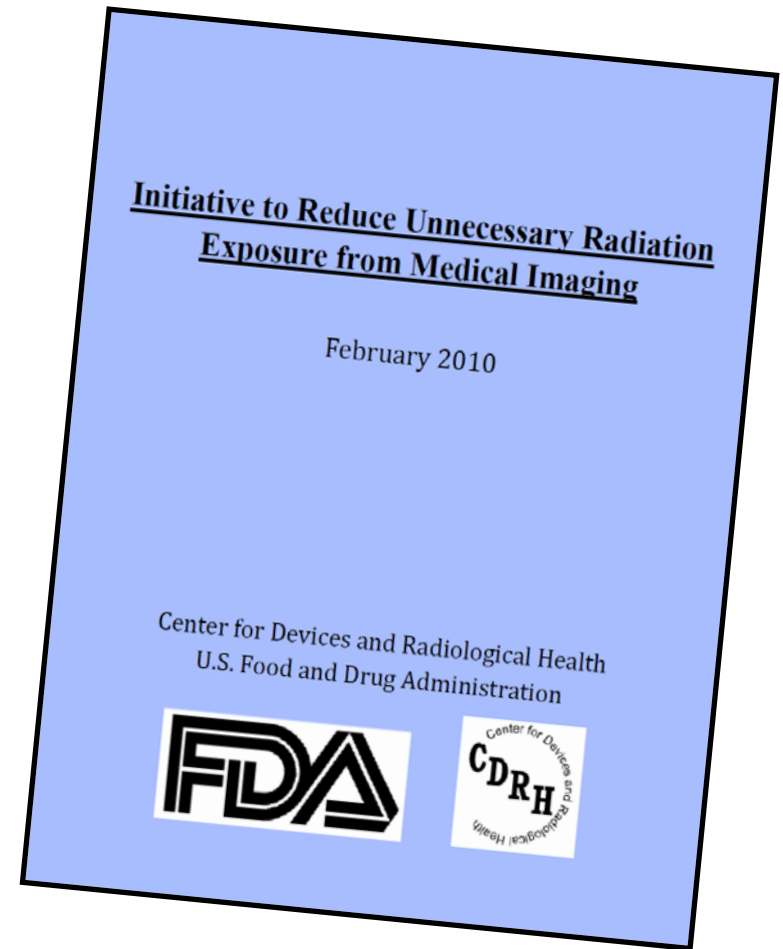
Average length of stay for patients with appendicitis is over 5 hours compared to 3.5 hours for all ED visits

***Diagnosing Appendicitis Consumes Significant Hospital Resources***

# FDA Initiative to Reduce Unnecessary Radiation Imaging Exposure

**Clinicians & hospital administrators will be under increased pressure to reduce CT scans!**

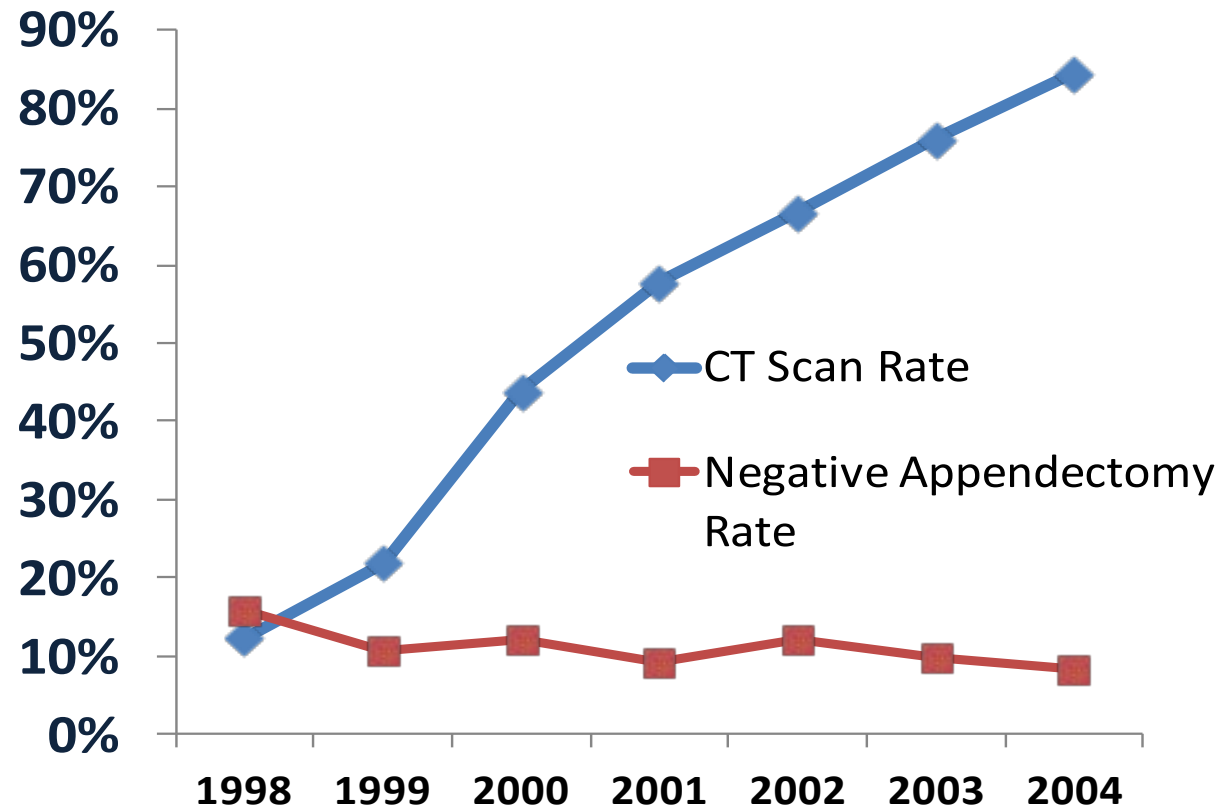
- “The National Council on Radiation Protection estimates 67 million CT procedures in 2006.”
- “The adult exposure dose from a CT exam of the abdomen...is equivalent to roughly 400 chest x-rays.”
- “While CT scans represent ~26% of imaging procedures...they contribute 89% of total yearly exposure to radiation from medical imaging.”
- Studies “estimate that ~29,000 cancers could be related to CT scans performed in US in 2007”



# Increased CT Scanning Has Improved Negative Appendectomy Rate Outcomes; However...

- Up to 2% of all U.S. cancers will be caused by CT\*
- Cost for abdominal CT ranges from \$200 - \$2,000\*\*

## CT Over-Prescribed due to Lack of Effective "Screening" Alternative



Source: American Journal of Emergency Medicine (2008) 26, 39-44

Sources:

\*N Engl J Med 2007; 357:2277-84

\*\*Company estimates

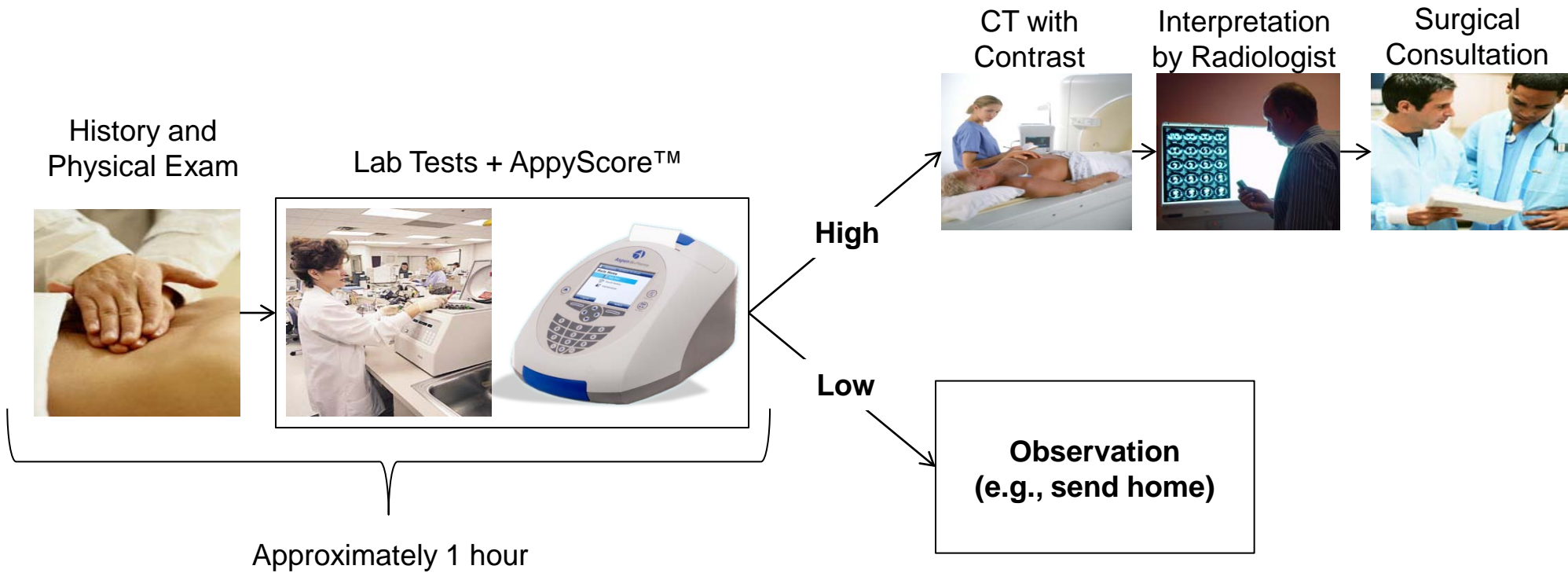
# Diagnostic Test Needed to Reduce CT Rate; Improve ED Throughput

Metric	Requirement	Status
Clinical Utility	High sensitivity and NPV	√
Product Format	Meets requirements for hospital lab testing	√
Turnaround Time	Less than 1 hour	√
Assay Performance	CV's < 10%	√



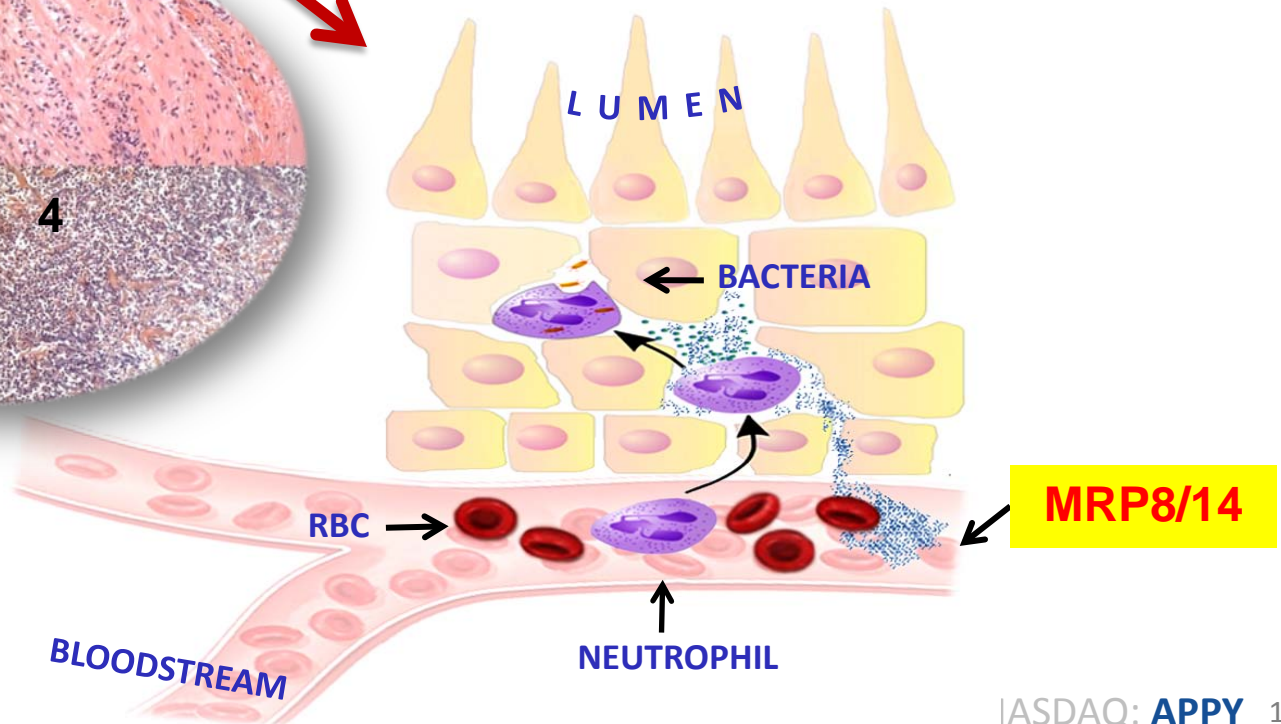
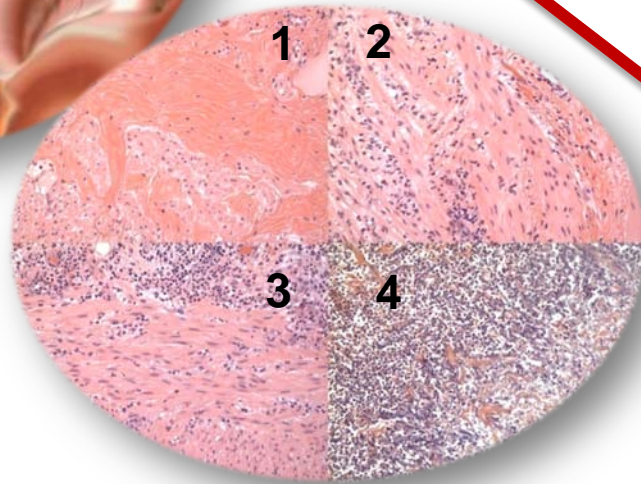
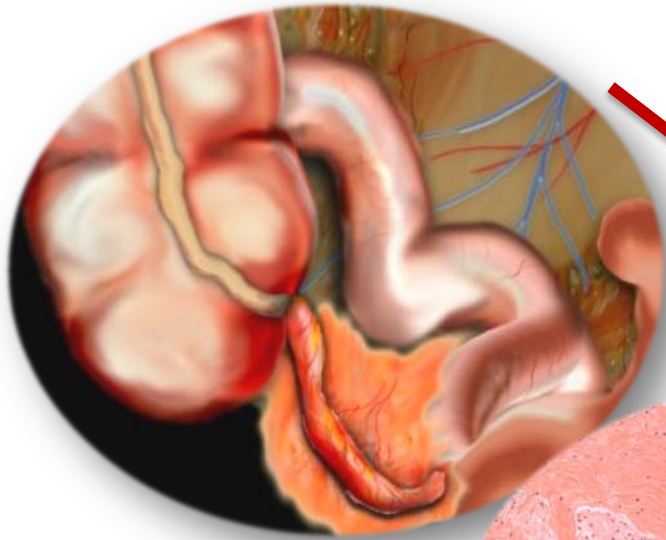
**...AppyScore™ Was Developed  
to Address These Needs**

# AppyScore™ Value Proposition



**AppyScore™ Designed to Help Clinicians Identify Low Risk Patients Early in the Diagnostic Protocol**

## MRP 8/14: Early Marker of Immune Response to Acute Appendicitis



# Prior Study Data - Negative Predictive Value (NPV)

## Presence of MRP 8/14 detected by AppyScore™

AppyScore™ Alone ( $\leq 14$  cutoff) \* 2008 Trial

AppyScore™ (14 cutoff) \*\* 2010 Trial

Sensitivity 90%

Sensitivity 91%

Specificity 33%

Specificity 28%

NPV 87%

NPV 89%

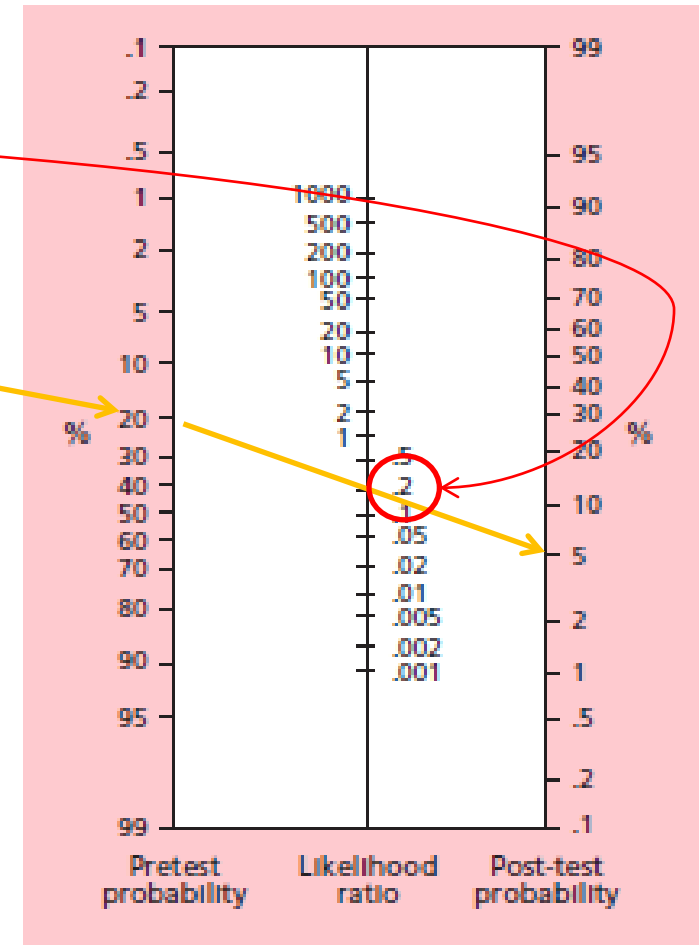
High NPV important in determining low risk patients who should be evaluated for rule out and therefore are not candidates for CT scans

Source: Data from \*2008, 2010\*\* AspenBio clinical trial and represent the population in that study.  
Based on post hoc analysis .

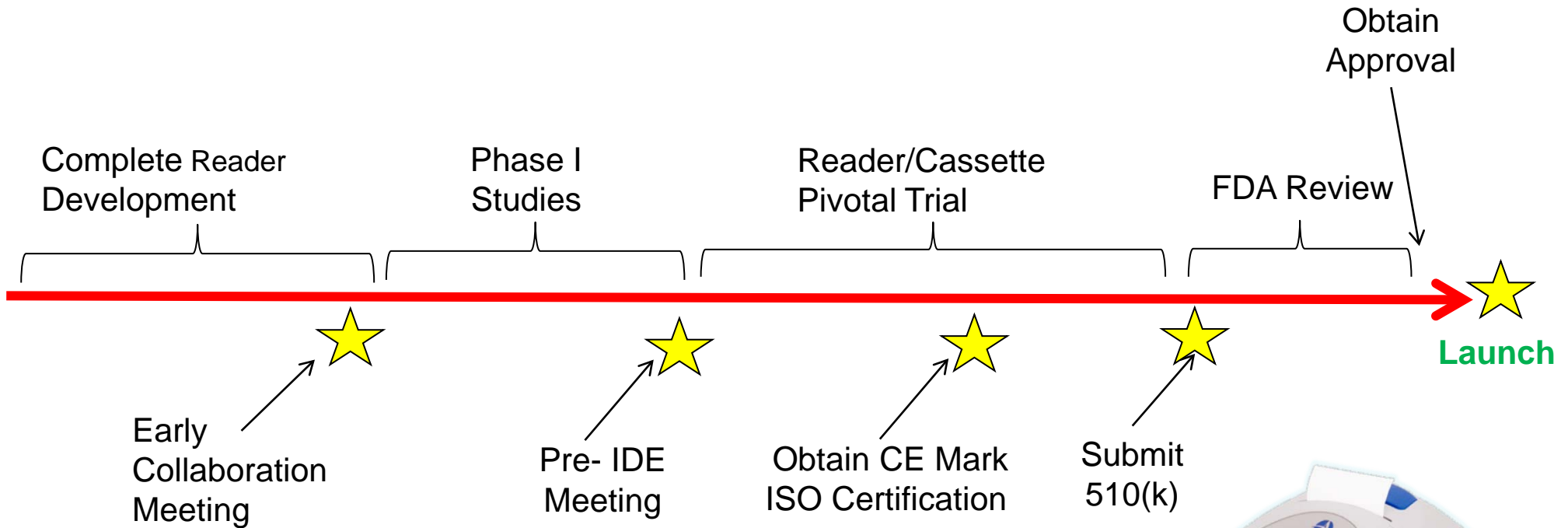
# D-Dimer Model

HemosIL D-Dimer is an automated latex enhanced immunoassay for the quantitative determination of D-Dimer in human citrated plasma on IL Coagulation Systems for use in conjunction with a clinical pretest probability (PTP) assessment model to exclude venous thromboembolism (VTE) in outpatients suspected of deep venous thrombosis (DVT) and pulmonary embolism (PE).

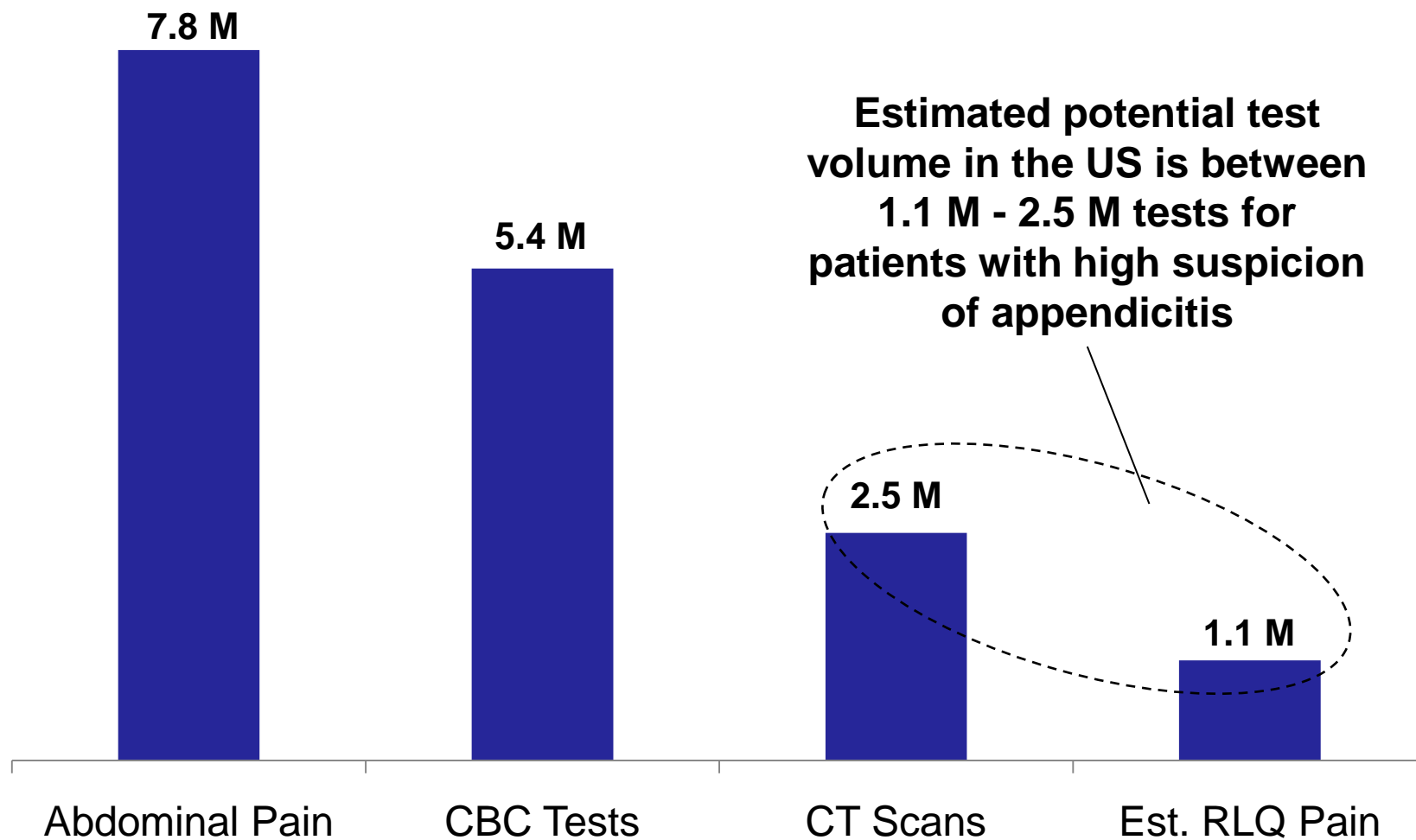
	Likelihood ratio of a negative test result (95% CI)	Post-test probability of a negative test result (95% CI)
<b>HemosIL D-Dimer</b>	<b>0.21 (0.15 to 0.29)*</b>	
Low risk		1.1% (0.8 to 1.5)
Moderate risk e.g. 20%		4.9% (3.6 to 6.8)
High risk		17.4% (13.0 to 22.5)
<b>Clearview Simplify D-dimer</b>	<b>0.22 (0.17 to 0.28)*</b>	
Low risk		1.1% (0.9 to 1.5)
Moderate risk		5.2% (4.1 to 6.5)
High risk		18.0% (14.5 to 21.9)
<b>Cardiac D-dimer</b>	<b>0.07 (0.04 to 0.16)*</b>	
Low risk		0.4% (0.2 to 0.8)
Moderate risk		1.7% (1.0 to 3.8)
High risk		6.5% (3.8 to 13.7)
<b>Triage D-dimer</b>	<b>0.18 (0.08 to 0.43)†</b>	
Low risk		0.9% (0.4 to 2.2)
Moderate risk		4.3% (2.0 to 9.7)
High risk		15.3% (7.4 to 30.1)



# AppyScore™ Product Milestones



# Estimated Market Opportunity (U.S. Only)



# Veterinary Science - Animal Reproductive Drugs

**AspenBio Pharma**  
is focused on the  
development &  
commercialization of  
innovative products that  
address unmet diagnostic  
and therapeutic needs



## **Veterinary Science**

Recombinant Protein Drug  
platform

- Designed to enhance reproductive efficiency in animals of economic importance
- IP Protected
- Partnership with **Novartis Animal Health**

# Leveraging Technology to Maximize Value

## Veterinary Bio-therapeutic Development Process

Identify Promising Intellectual Property...



**United States Patent**  
Boime et al.

(19) Patent No.: **US 6,238,890 B1**  
(95) Date of Patent: **\*May 29, 2001**

(54) **SINGLE CHAIN FORMS OF THE GLYCOPROTEIN HORMONE QUARTET**

(75) **Inventors:** Irving Boime, St. Louis, MO (US); William R. Meyle, Florissant, MO (US)

(73) **Assignee:** Washington University, St. Louis, MO (US)

(\*) **Notice:** Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

This patent is subject to a terminal disclaimer.

(21) **Appl. No.:** 08/918,288

(22) **Filed:** Aug. 25, 1997

**Related U.S. Application Data**

(63) **Continuation in part of application No. 08/853,524, filed on May 11, 1997, which is a continuation in part of application No. 08/475,049, filed on May 7, 1995, now abandoned, which is a continuation in part of application No. 08/053,291, which is a continuation in part of application No. 08/134,628, filed on Nov. 4, 1994, now P. No. 5,787,478, which is a continuation in part of application No. 08/101,191, filed on Sep. 22, 1994, now abandoned, which is a continuation in part of application No. 08/078,766, filed on May 12, 1994, now abandoned, which is a continuation in part of application No. 08/019,362, filed on Feb. 18, 1994, now abandoned.**

(51) **Int. Cl.** ..... C12N 15/82

(52) **U.S. Cl.** ..... 450/87; 455/325; 455/309; 455/252; 455/201; 556/214; 556/298

(58) **Field of Search** ..... 455/69; 7; 325; 455/296; 252; 5; 520; 556/214; 556/10; 550/351; 397; 398

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**40 Claims, 28 Drawing Sheets**

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Expansion of biologically active fusion genes encoding the common alpha subunit and either the CBeta or FNBeta subunits: role of a linker sequence, Sugihara, T. et al., *Molecular and Cellular Endocrinology*, vol. 125, 1996, pp. 71-77.

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\* cited by examiner

**Primary Examiner—Lorraine Spactor**  
(74) **Attorney, Agent, or Firm—Merrison & Fuester LLP**



**Incubate the Technology**  
**Adding significant value**

...Partner with Big Pharma



**Building value through biotechnology for veterinary medicine**

# Key Statistics: APPY (NASDAQ CM)

<b>Stock Price</b> (01/6/11)	<b>\$0.63</b>	<b>Cash &amp; Equiv.</b> (est)	<b>~\$11.5M</b>
Avg. Daily Vol. (3mo.)	356,000	Total Assets (mrq)	\$19.4M
<b>Shares Outstanding</b> (mrq)	<b>40.1M</b>	Total Liabilities (mrq)	\$5.7M
Fully-diluted	46.6M		
Public Float, est.	32.0M		
<b>Institutional Holdings</b> , est.	<b>17%</b>		
<b>Insider / 5% Holders</b> , est.	<b>20%</b>	<b>Monthly Burn-Rate</b> (mrq avg)	<b>~\$750K</b>

(mrq) - most recent quarter estimates as of September 2010

# Experienced Executive Team

- **Steve Lundy, President and CEO**  
MicroPhage, GeneOhm Sciences ( Acquired by BD), Bayer, Dianon Systems
- **Greg Bennett, SVP Product Development & Manufacturing**  
Inverness Medical Innovations, Inc./Cholestech, LifeScan, Inc., a Johnson & Johnson Company
- **Jeffrey G. McGonegal, CFO**  
Prior managing partner BDO Seidman LLP Denver (23yrs), over 10 years SEC reporting/ transaction experience
- **Gregory Pusey, VP**  
Thirty plus years entrepreneurial, business development and financing experience
- **Erik Miller, VP Marketing and Business Development**  
Luminex Corporation, Radix BioSolutions (a Luminex Partner), Safety Syringes, Inc., Biosite Diagnostics (Acquired by Alere)
- **Mark Colgin, PhD, cso**  
20+ Years Research and Development Experience
- **Andy Peters, DVM, PhD, VP Animal Health**  
Arpexas Ltd, Royal Veterinary College London, GALVmed, Pfizer Animal Health, Hoechst Animal Health.

## Directors with human diagnostic experience

- **Daryl J. Faulkner, Director**  
prior CEO Digene, (acquired by Qiagen), Invitrogen (merged with Life Technologies Corp.), Abbott Laboratories
- **John Landon, Director**  
Prior director Digene, (acquired by Qiagen), prior Chair and director Cholestech, prior CEO DuPont Diagnostics

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