



Capital Markets Day

15 May 2015



- Glycotest is a molecular diagnostics company focused on the development and commercialization of clinical laboratory services to improve identification, monitoring and treatment of patients at risk for liver disease—liver cancers and fibrosis-cirrhosis
- Proprietary blood-based biomarkers and assay technology
- Founded 2012 on technology innovated at the Baruch S. Blumberg Institute and Drexel University College of Medicine (Philadelphia)
- Targeting >100M US and >1B globally at-risk patients for surveillance and monitoring
- Company's first product under development—an algorithm-enabled biomarker panel for hepatocellular carcinoma under development

- **Michael Boyce-Jacino, PhD, Chairman**
 - *Executive Director, NetScientific*
 - *Formerly Orchid, Beckman Coulter, BioNanomatrix (BioNano Genomics)*
- **Charles Swindell, PhD, CEO**
 - *Formerly Phytion and Protarga*
- **Timothy Block, PhD, Innovator and Board Member**
 - *Baruch S. Blumberg Institute and the Hepatitis B Foundation*
- **Professor Anand Mehta, PhD, Innovator and Adviser**
 - *Drexel University College of Medicine*

Target markets

- **Patients at risk for liver cancers and fibrosis-cirrhosis due to viral and non-viral hepatitis**
 - *Chronic hepatitis B—incurable*
 - *Chronic hepatitis C—patients remain at risk for liver cancer despite cure*
 - *Fatty liver disease and NASH/ASH—rapidly growing populations with obesity and metabolic disease*

- **Liver cancer market potential**
 - *Estimated \$8 billion global liver cancer diagnostic market*
 - *4.5 million US patients with cirrhosis and HBV w/o cirrhosis; 72 million worldwide*
 - *Unmet need for effective disease surveillance tool*

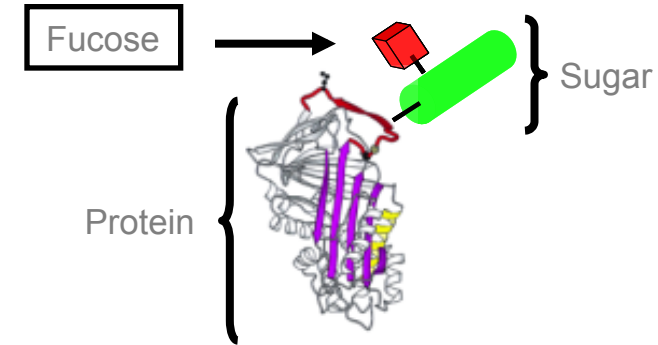
- **Fibrosis-cirrhosis market potential**
 - *23 million US patients with viral and non-viral hepatitis; >750 million worldwide*
 - *Unmet need for effective disease staging tool*

- **Proprietary serum biomarkers with unique chemistry...**

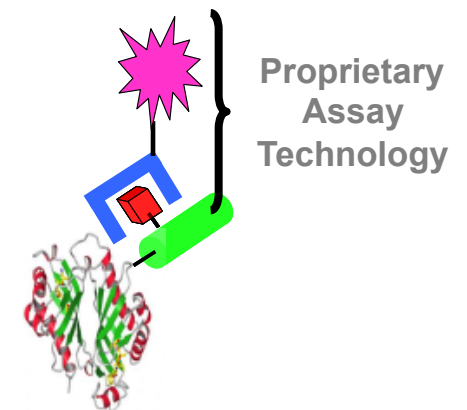
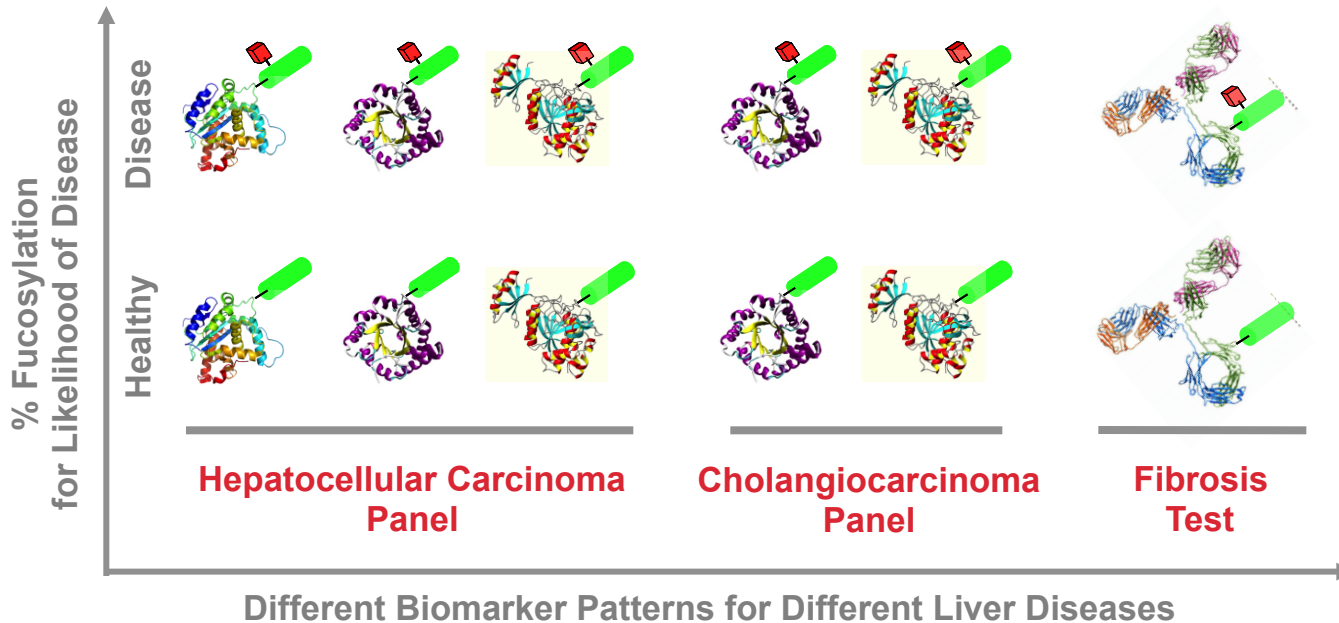
- Issued patents to >50 glycoproteins secreted by the liver
- Unique abnormal change in sugar structure in liver disease - core fucosylation

- **...Address serious unmet clinical needs**

- Direct asymptomatic patients with worsening liver disease to closer monitoring and focused application of imaging methodologies
- Detect early-stage disease that is potentially curable



A Glycotest Glycoprotein Biomarker



- **Hepatocellular carcinoma biomarker panel (HCC Panel) to be launched as US Laboratory Developed Test (LDT) service product in Glycotest CLIA lab**
 - *Addresses principal form of liver cancer*
 - *Kills >700 K WW annually*
 - *Fastest growing cause of cancer death in US*
- **Commercializing surveillance test for high risk populations**
 - *Repeat testing (every 6 months) of (at least) cirrhotic and HBV patients to reduce mortality by identifying curable early-stage disease*
 - *Applicable regardless of underlying cause—both viral hepatitis and non-viral hepatitis from obesity and metabolic disease*
- **Currently available blood tests have inadequate sensitivity and specificity for surveillance according to clinical guidelines**
- **Feasibility data demonstrate performance for Glycotest’s biomarker panel that is superior to most commonly used blood test (AFP)**

- **Critical unmet clinical need for an effective HCC surveillance test**
- **Chronic HBV, HCV and huge NAFLD/NASH population comprise key at-risk groups**
- **HCC risk from chronic HCV persists after cure by antiviral therapy or transplant**
- **Recognition of scope of HCC risk from NAFLD/NASH increasing**
- **Detection of early-stage and AFP-negative disease are key**
- **Long-term disease-free survival possible for treatable early-stage HCC**

Nathan Bass, MD, PhD. Gastroenterology. Professor; Site Director, NASH Clinical Research Network; University of California, San Francisco Medical Center.

Douglass Dietrich, MD. Gastroenterology. Professor, Division of Liver Diseases; Icahn School of Medicine at Mount Sinai.

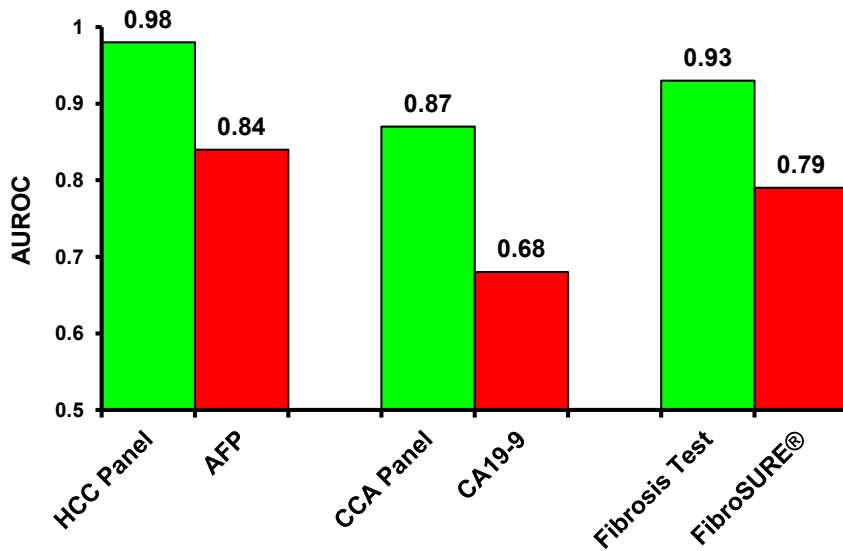
Scott Friedman, MD. Gastroenterology. Dean for Therapeutic Discovery; Fishberg Professor of Medicine; Professor of Pharmacology and Systems Therapeutics; Chief, Division of Liver Diseases; Icahn School of Medicine at Mount Sinai.

John Lake, MD. Hepatology/Gastroenterology. Director, Division of Gastroenterology, Hepatology and Nutrition; Director, Liver Transplant Program; University of Minnesota Medical Center.

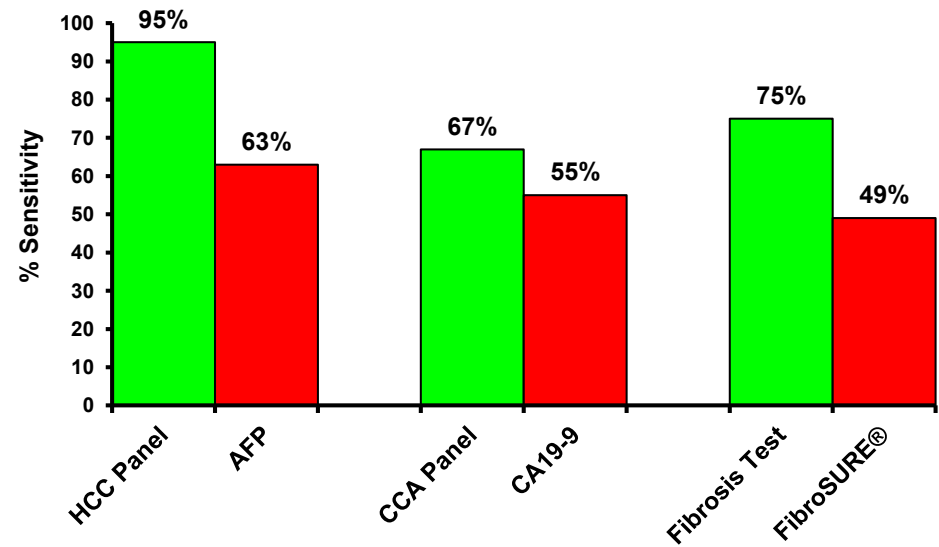
Alan Venook, MD. Oncology (liver and colorectal cancers). Madden Family Distinguished Professorship in Medical Oncology and Translational Research; University of California, San Francisco Medical Center.

HCC Panel; CCA Panel; Fibrosis Test

AUROCs



Sensitivity
at 90% Specificity

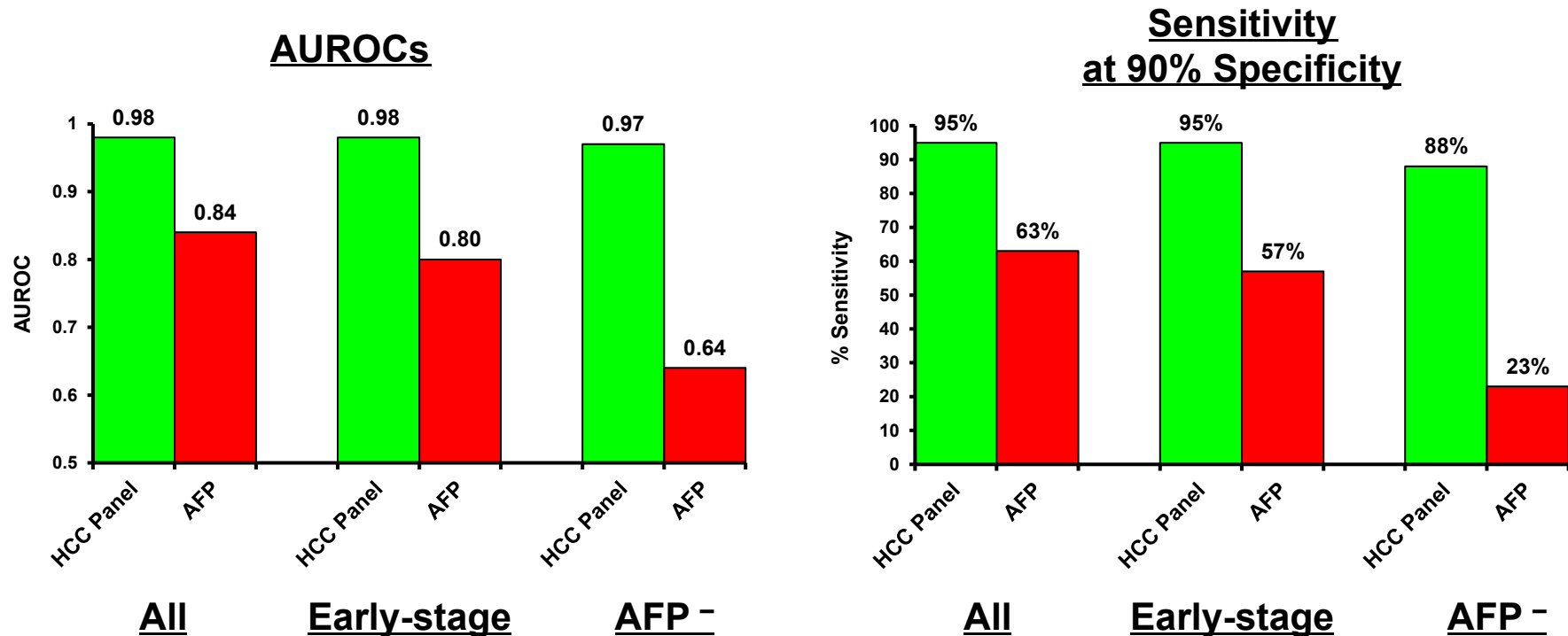


AUROCs >0.9 and/or >10% higher than comparators are clinically meaningful improvements.

Significantly higher true positive rates at high true negative rates.


HCC (hepatocellular carcinoma) Panel: HCC (N=116) vs. cirrhosis (N=93)
CCA (cholangiocarcinoma) Panel: CCA (N=39) vs. primary sclerosing cholangitis (N=31)
Fibrosis Test: distinction of intermediate stage fibrosis; Ishak Stage F1-2 (N=24) vs. F3-6 (N=178; Glycotest);
Ishak Stage F0-2 vs. F3-6 (HCV FibroSURE; historical data: Halfon, P, et al., Am J Gastroenterol. 2006; 101; 547-55)

Performance Superior to AFP for Early-stage and AFP-negative Disease



All: HCC (N=116) vs. cirrhosis (N=93)
Early-stage: HCC UNOS stage T1/T2 (N=63) vs. cirrhosis (N=93)
AFP - (< 20 ng/mL): HCC (N=66) vs. cirrhosis (N=83)

Competition – Liver cancer

Test (Company) Feature	AFP (Generic)	Ultra-sound (multiple)	CT or MRI (multiple)	HCC Panel 
Non-invasive	✓	✓	✓	✓
Signal from all tumors	(~50% AFP negative)	✓	✓	✓
Sensitive to early-stage disease / small lesions				✓
Operator independent	✓			✓
No issues with obese patients	✓		✓ / –	✓
Recommended for surveillance by clinical guidelines		✓ (marginal sensitivity)		NOT YET!

Development stage companies:

- Oncimmune Ltd (R&D Collaboration with Glycotest – autoantibody test technology previously commercialised for lung cancer)
- Matrix-Bio Inc. and Phenomenome Discoveries – early stage metabolomics-based tests
- JBS Science – early stage urine DNA-based test

- **US strategy**

- *Virtual through assay development with CROs*
- *Laboratory Developed Test (LDT) service products in Glycotest CLIA lab—regulated by CMS, not FDA*

- **Ex-US strategy**

- *Focused on partnerships—especially for large Asian liver disease markets*
- *Building relationships and market awareness with >70 potential partners*
- *Oncimmune R&D collaboration*

- **Projected HCC Panel LDT pricing power is significant**

- *Value-based pricing study conducted with QURE Healthcare*
- *Reimbursed price projections based on Glycotest feasibility data*

- **HCC Panel LDT coverage and reimbursement strategy**

- *Clinical utility plan developed with/will be conducted by QURE Healthcare*
- *Will seek Medicare coverage through Palmetto (regional Medicare MAC) MoIDX program*
- *Positive Medicare decision will influence private payer policies*

- **Oncimmune Ltd**

- *UK company*
- *Tumor autoantibody test technology—orthogonal to Glycotest's technology*
- *Previously commercialized and sold US LDT business focused on detection of early-stage lung cancer*
- *Now focused on applying technology to the early detection of liver cancer*

- **Partnership**

- *Potential synergistic combination of orthogonal test technologies for better detection of early-stage liver cancer*
- *Joint clinical evaluation of combined tests—in progress*
- *Potential future co-development as agreed jointly by Glycotest and Oncimmune*



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