



Building a World Class Cancer Center at Henry Ford: *Cancer Surgery*

Steven N. Kalkanis MD

Henry Ford Medical Group
Jubilee Reunion
October 9, 2015

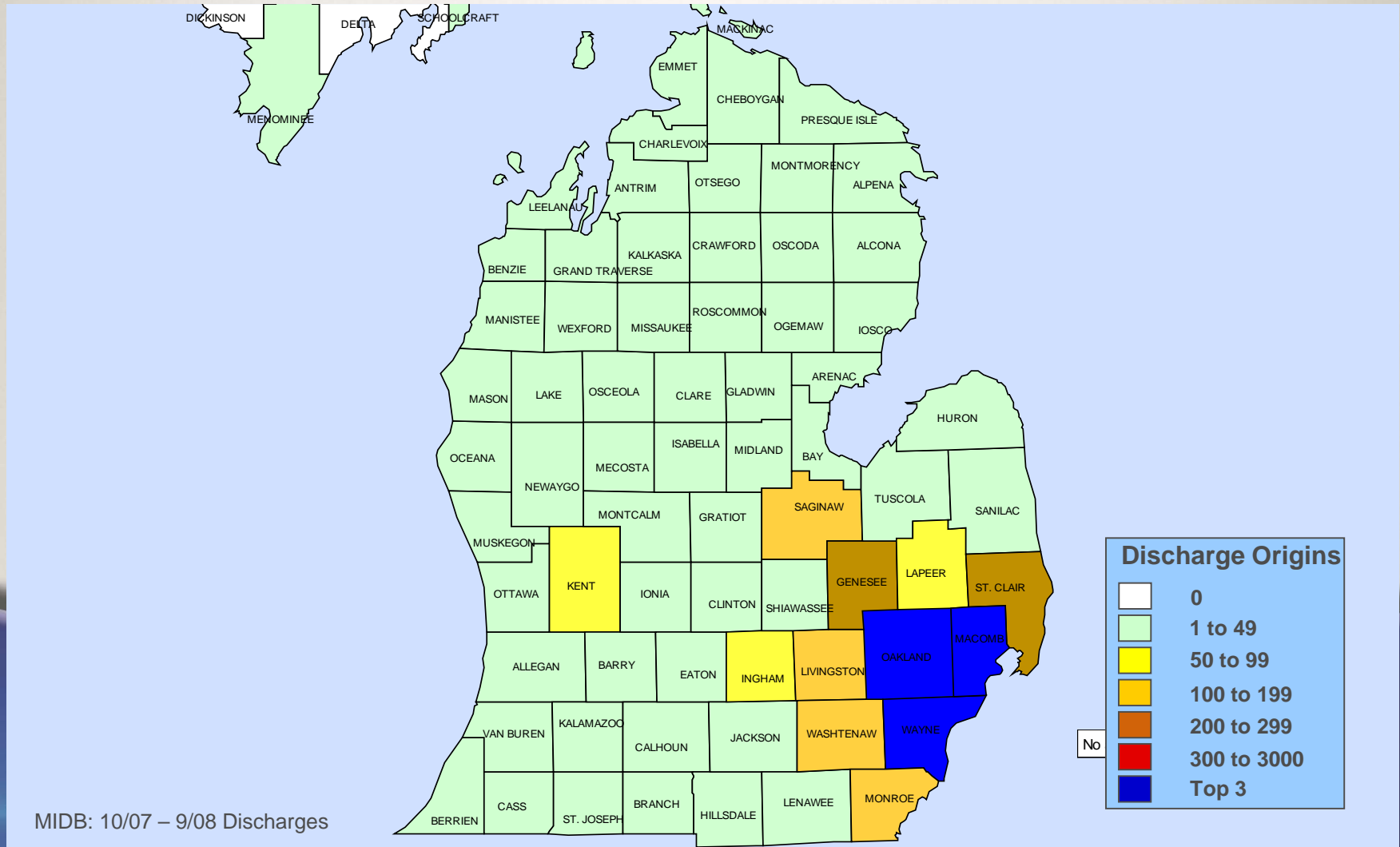


**Surgical Oncology plays a leading role in our
*Out-State Growth Strategy***

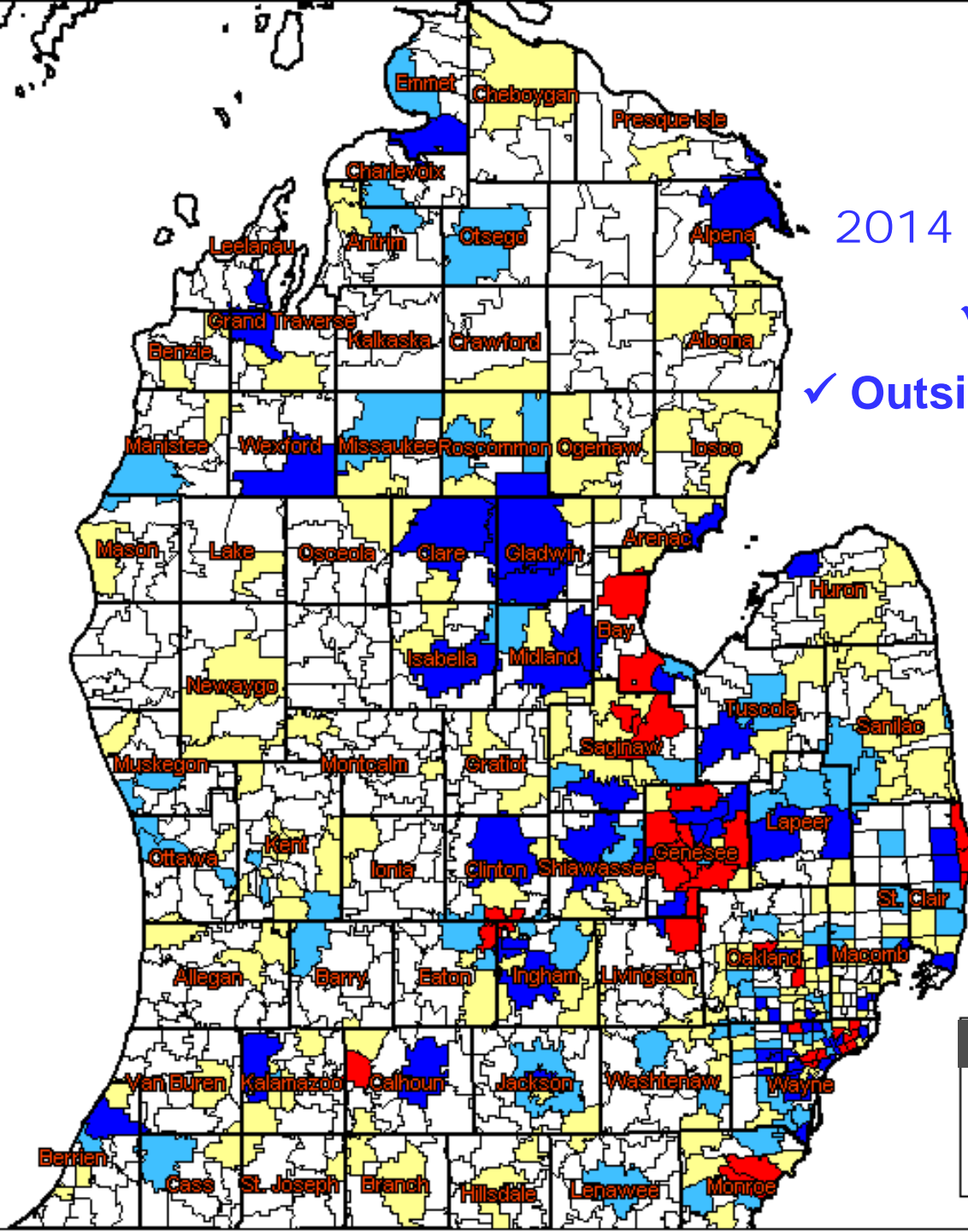


Where we started...

HFH draws patients from our “backyard”



MIDB: 10/07 – 9/08 Discharges

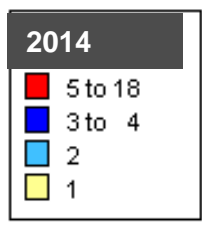


2014 New MRNs

✓ Total: 1273

✓ Outside of MI: 228

Data Source: RPO/CRM
Maps – Corp. Planning



2014 Growth over 2013

- Transfers 15% ↑
- Out-patient appointments 33% ↑
- New Medical Record #'s 28% ↑
- \$87.5M in net contribution margin
- 43% of all new referrals
= surgical oncology



Henry Ford Center for Cancer Surgery: *Opportunities*

- Differentiate our Cancer Institute, fully partner with JFCI

Develop, promote unique capabilities, publish superior outcomes, NCI

- Enhance our Customer Experience

Access portal: “if you have cancer, call this number...”, nurse navigation, protocols, multidisciplinary coordination of care, concierge services

- Build our Internal Team Identity

Virtual and Physical Space, Signage, Web Presence

- Build our External Brand and Public Perception



Henry Ford Center for Cancer Surgery



Vision

Business Plan
Surgeon and
JFCI Buy-In,
Gap Analysis



Infrastructure Development:

Admin,
Nursing,
Patient
Advocate
Support



Website Development

[henryford.com/
cancer](http://henryford.com/cancer)



888-777-4167

Patient Phone
Triage

Infrastructure:

Call Center,
JFCI, RPO,
Surgical
Departments



PR/Marketing
Plan

Creative
Content
Development



L
A
U
N
C
H

November 2012

New Website

The screenshot shows the top navigation bar with links for 'For Healthcare Professionals', 'For the Media', and 'Careers'. Below is a search bar and a main navigation menu with options like 'Find a Doctor', 'Schedule an Appointment', and 'Log in to MyHealth Account'. The main content area features a hero section with the text 'hope.' and 'Our world renowned Center for Cancer Surgery has developed and improved surgical treatments for many types of cancer, offering the safest, most effective surgical therapies.' Below this is a 'Launch Locator' button and a 'Learn More' button. A 'Select Cancer Type' button is also visible. The 'ADDITIONAL RESOURCES' section includes links for 'Cancer Prevention and Screening', 'Types of Cancer', and 'Why Choose Josephine Ford Cancer Institute'. A featured article titled 'Cancer: Josephine Ford Cancer Institute' includes a photo of a woman and a 'Hear My Story' button. The footer contains 'Helpful Links', 'Hospitals & Locations', 'Services & Specialties', and 'Recent Recognitions'.

This interface features a 3D human figure with a red highlight on the brain. To the right, a list of body regions is shown with arrows pointing to the corresponding area on the figure. Below the list are two buttons: 'Select Cancer Type' and 'Talk To Us'.

select a location

Please select a location from the list below, or click the region on the body for more information about cancer types in that location.

- brain
- breast
- head & neck
- lung
- pancreas
- liver
- kidney
- colon/rectal
- prostate
- skin
- bone
- spine

Select Cancer Type Talk To Us



henryford.com/cancer



- › Types of Cancer
- › Cancer Prevention and Screening
- › Why Choose Josephine Ford Cancer Institute?
- › Cancer Diagnostic Tests and Procedures
- › Cancer Treatment Options
- › Cancer Patient Information and Support
- › Cancer Research
- › Search for Clinical Trials
- › Cancer Treatment Locations
- › Video Library: Cancer

Talk to Us

If you would prefer to speak with someone immediately please call us at **(888) 777-4167**.

A nurse is available to take your call 24 hours a day, seven days a week.

Please complete the form below and someone will respond to you within 24 hours.

* Indicates required information

Name *	<input type="text"/>
Email address *	<input type="text"/>
Phone number	<input type="text"/>
How do you prefer we contact you? *	<input type="radio"/> Email <input type="radio"/> Phone
Reason for request	<input type="text"/>

New





Hope

Providing hope through
advanced cancer treatment

Learn More



About

Learn

Call

Locate



Hope

Providing hope through
advanced cancer treatment

Learn More



About

Learn

Call

Locate



Clinical Trials

Since 1915, Henry Ford physicians and scientists have focused their efforts in a wide variety of research areas critical to understanding diseases and bringing new treatment options to the patients' bedsides. Every day, hundreds of physicians and scientists are looking for the treatments that will bring hope to you and your family.

Previous

Next

Done

Brain/Meningioma

Breast

✓ Gastro

Gastro/Colorectal

Gastro/Esophageal



Clinical Trials

Since 1915, Henry Ford physicians and scientists have focused their efforts in a wide variety of research areas critical to understanding diseases and bringing new treatment options to the patients' bedsides. Every day, hundreds of physicians and scientists are looking for the treatments that will bring hope to you and your family.

Previous

Next

Done

Brain/Meningioma

Breast

✓ Gastro

Gastro/Colorectal

Gastro/Esophageal



Access your test results
No more waiting for a phone call or letter — view your results and your doctor's comments within days



MyChart Username

[Forgot MyChart Username?](#)

Password

[Forgot Password?](#)

Sign In

MyChart © Epic Systems Corporation

New User?

Sign Up Now

Learn More...

[FAQs](#) [Privacy Policy](#) [Terms and Conditions](#)



Access your test results
No more waiting for a phone call or letter — view your results and your doctor's comments within days



MyChart Username

[Forgot MyChart Username?](#)

Password

[Forgot Password?](#)

Sign In

MyChart © Epic Systems Corporation

New User?

Sign Up Now

Learn More...

[FAQs](#) [Privacy Policy](#) [Terms and Conditions](#)



Metastatic Tumors

Pioneer in Radiosurgery Technology

Henry Ford Hospital was the first in the United States to treat metastatic spine tumors using Novalis® shaped-beam radiosurgery technology.



Radiosurgery refers to the noninvasive destruction of a discrete target area in the brain or spine using the precise delivery of a high dose of radiation. This noninvasive



Metastatic Tumors

Pioneer in Radiosurgery Technology

Henry Ford Hospital was the first in the United States to treat metastatic spine tumors using Novalis® shaped-beam radiosurgery technology.



Radiosurgery refers to the noninvasive destruction of a discrete target area in the brain or spine using the precise delivery of a high dose of radiation. This noninvasive

Henry Ford Center for Cancer Surgery: The Case for Surgical Oncology

Cancer_Group	New MRN for Cancer			Resides outside Tri-county		
	Hem Onc	Radiation	Surgery	Hem Onc	Radiation	Surgery
Bone	14%	21%	31%	29%	24%	57%
Brain	18%	42%	53%	14%	17%	31%
Breast	4%	13%	19%	5%	4%	5%
Colon	9%	17%	17%	5%	3%	7%
GynOnc	13%	17%	21%	5%	2%	7%
Head & Neck	16%	26%	45%	8%	6%	29%
Lung/Thorax	13%	25%	29%	3%	4%	21%
Malig. Hematology	7%	22%	17%	6%	4%	12%
Metastasis	14%	24%	27%	4%	5%	18%
Other GI	19%	30%	41%	9%	5%	17%
Other GU	17%	30%	17%	2%	7%	9%
Other Malig.	15%	21%	31%	8%	3%	18%
Prostate	9%	12%	55%	5%	4%	44%
Skin	33%	36%	36%	17%	5%	19%
Overall	10%	20%	37%	6%	5%	24%



Henry Ford Health System - POG DSS
2013 Cancer Service Line Cases



comment editorial



Where should you go for cancer care?

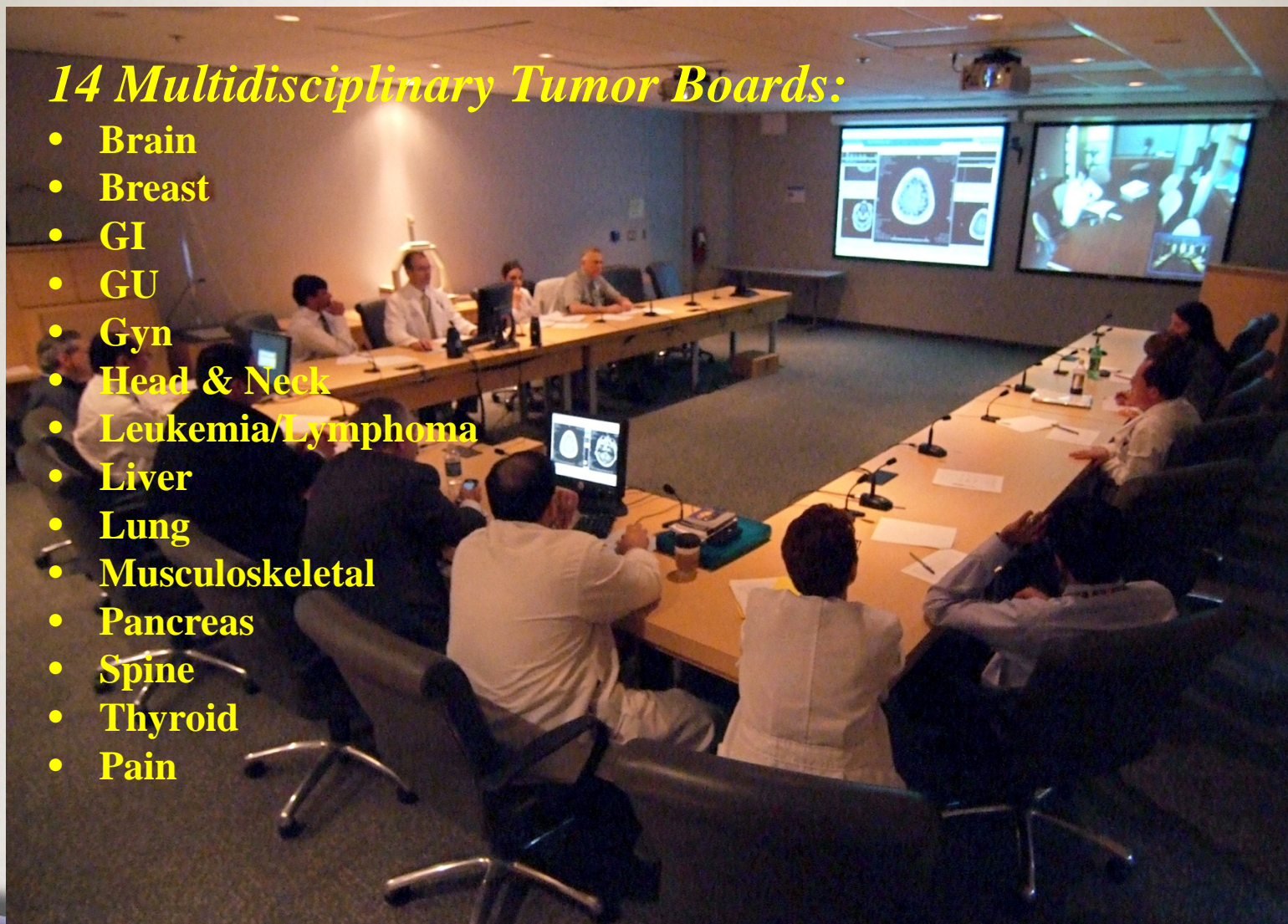
MERRILL GOZNER *Editor*

When it comes to cancer care, there is a huge disconnect between the possibilities of modern medicine and its day-to-day practice. As last fall's troubling report from the Institute of Medicine noted, variation in oncology practice is wide; collection of quality and outcomes data is poor; and progress in learning what works best for any particular cancer remains slow and halting.

Modern Healthcare, 2014

14 Multidisciplinary Tumor Boards:

- Brain
- Breast
- GI
- GU
- Gyn
- Head & Neck
- Leukemia/Lymphoma
- Liver
- Lung
- Musculoskeletal
- Pancreas
- Spine
- Thyroid
- Pain



JFCI Tumor Boards:

Surgical Oncology, Radiation Oncology, Medical Oncology, Clinical Trials, Radiology, Pathology, Nursing



PATIENT-CENTERED CARE

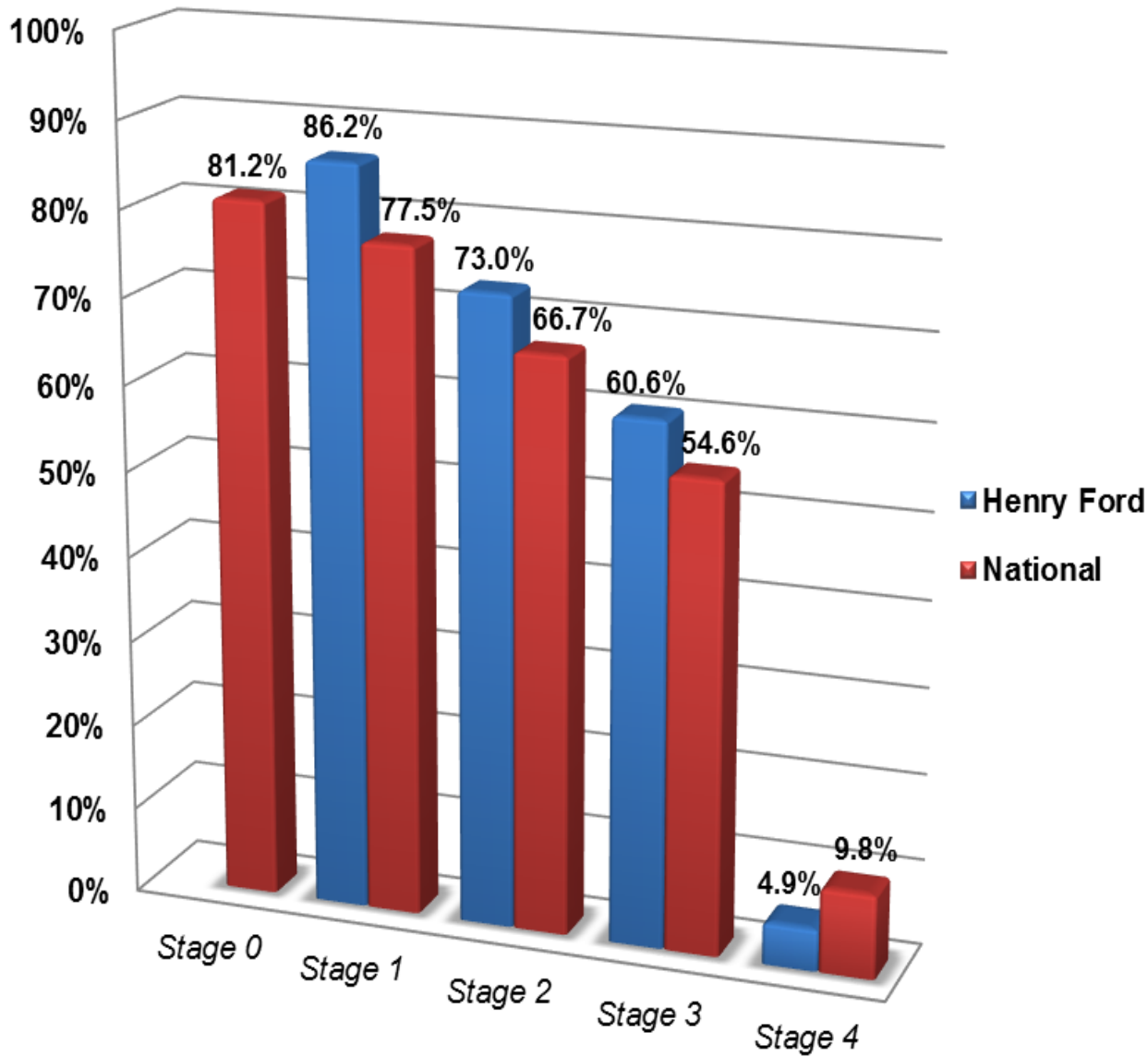
Personalized Medicine *in every sense of the word*

In addition to 14 multidisciplinary tumor boards, we currently have **5 multidisciplinary clinics**, with the potential for many more when all cancer specialties are housed in one building:

- Breast
- Lung
- Head & Neck
- Pancreas
- Prostate

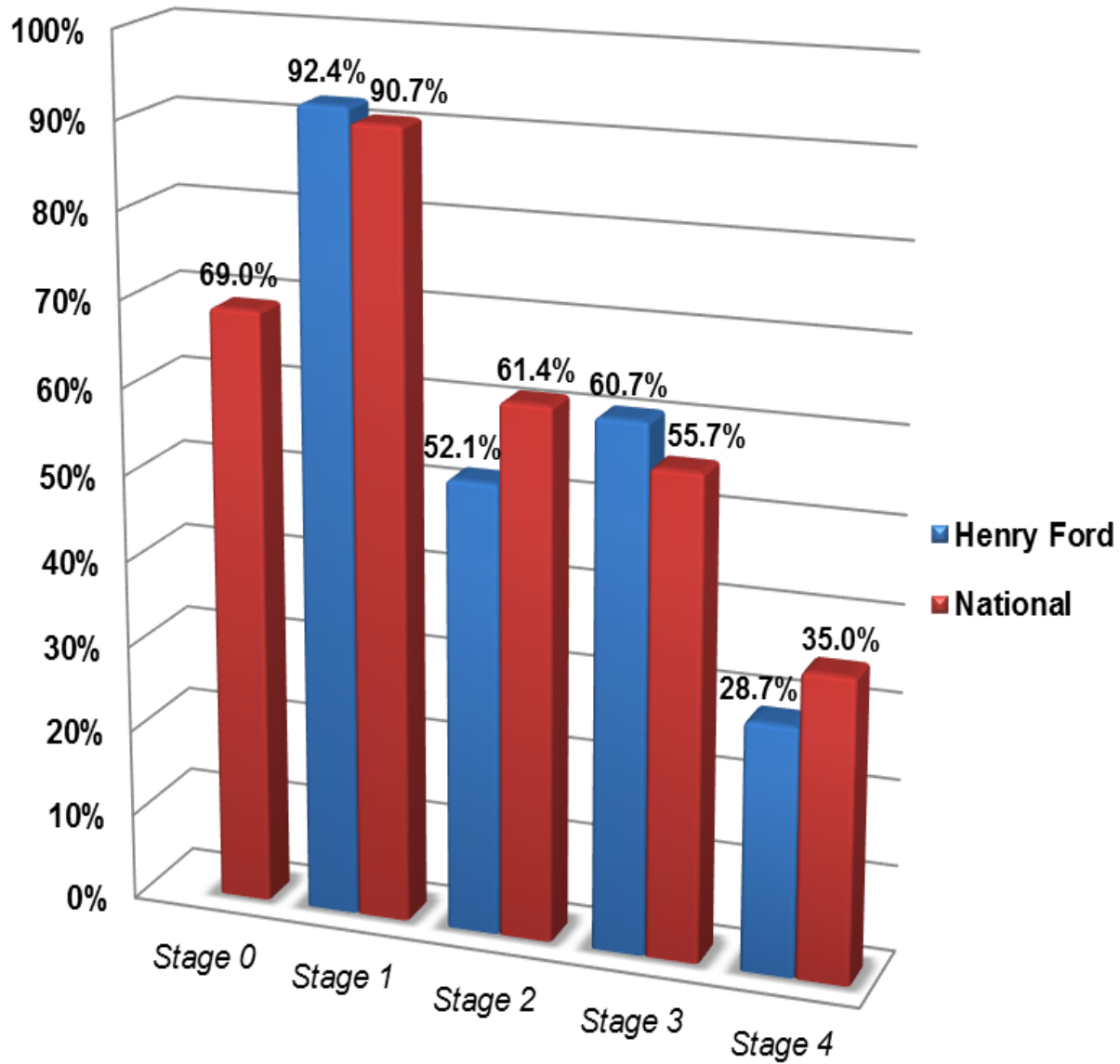


Survival Rates for Colon Cancer Patients



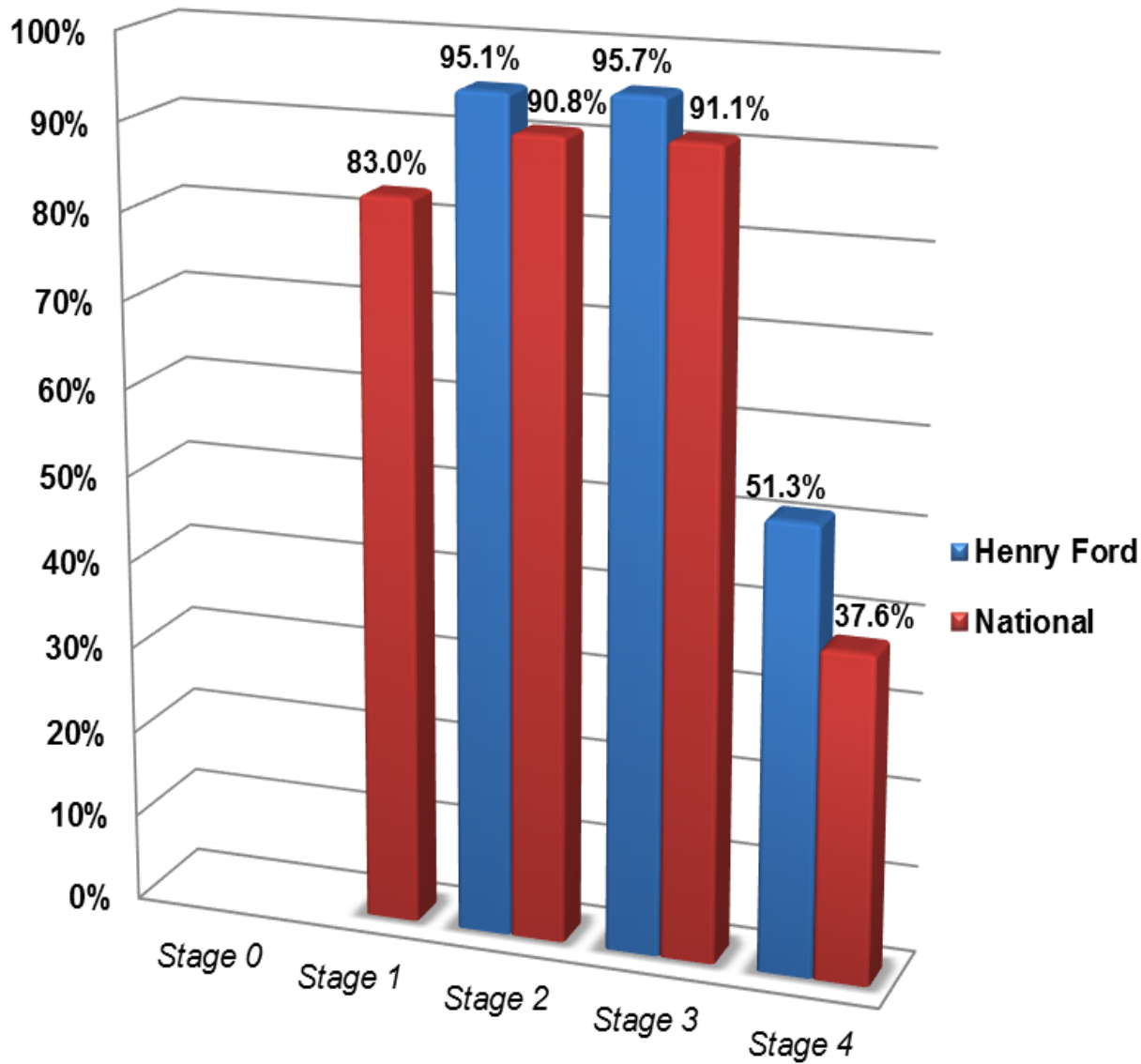
**Surgery for
Colon Cancer,
2008 - 2013**

Survival Rates for Head & Neck Cancer Patients



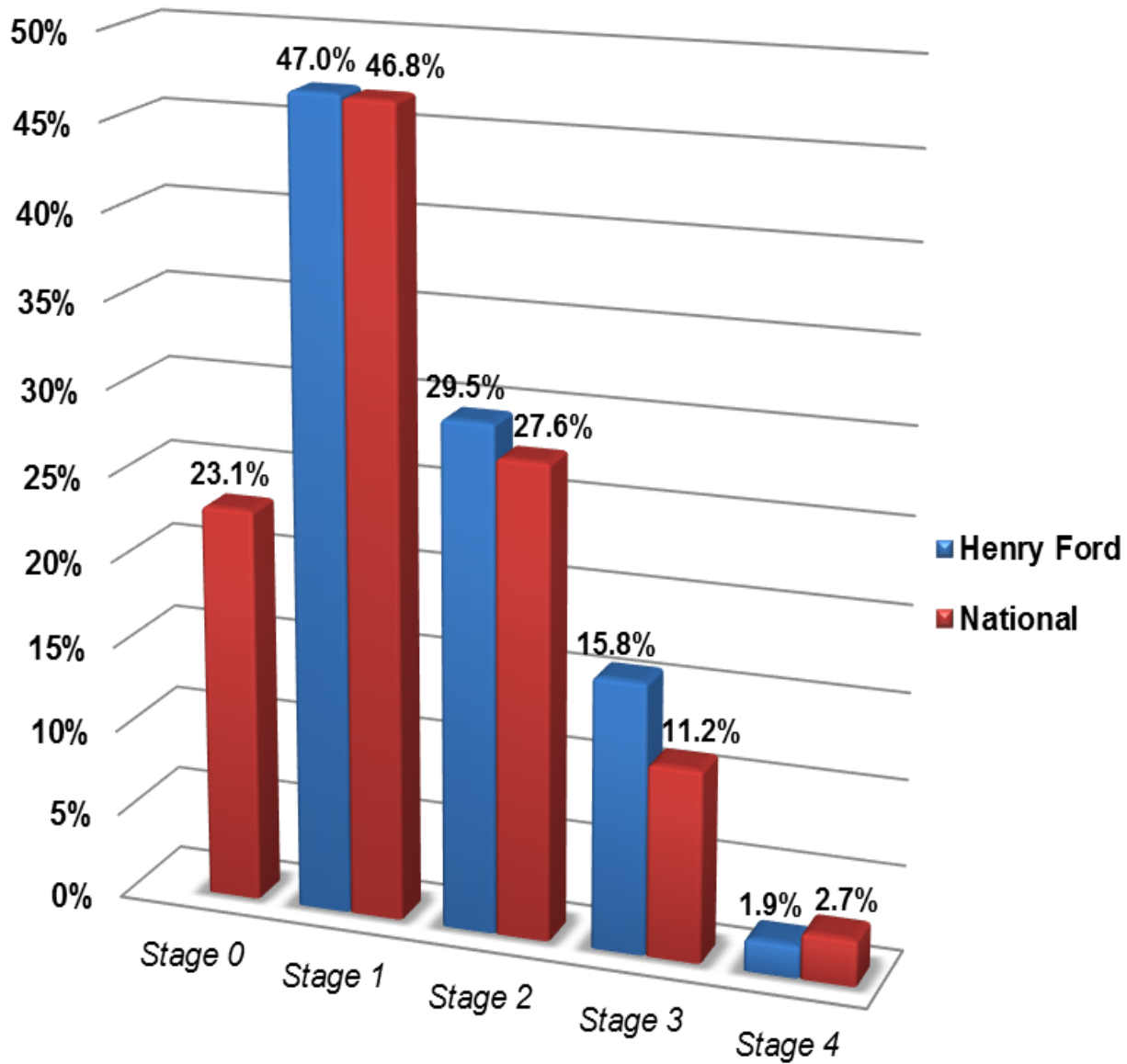
**Surgery for
Head & Neck
Cancer,
2010 - 2013**

Survival Rates for Prostate Cancer Patients



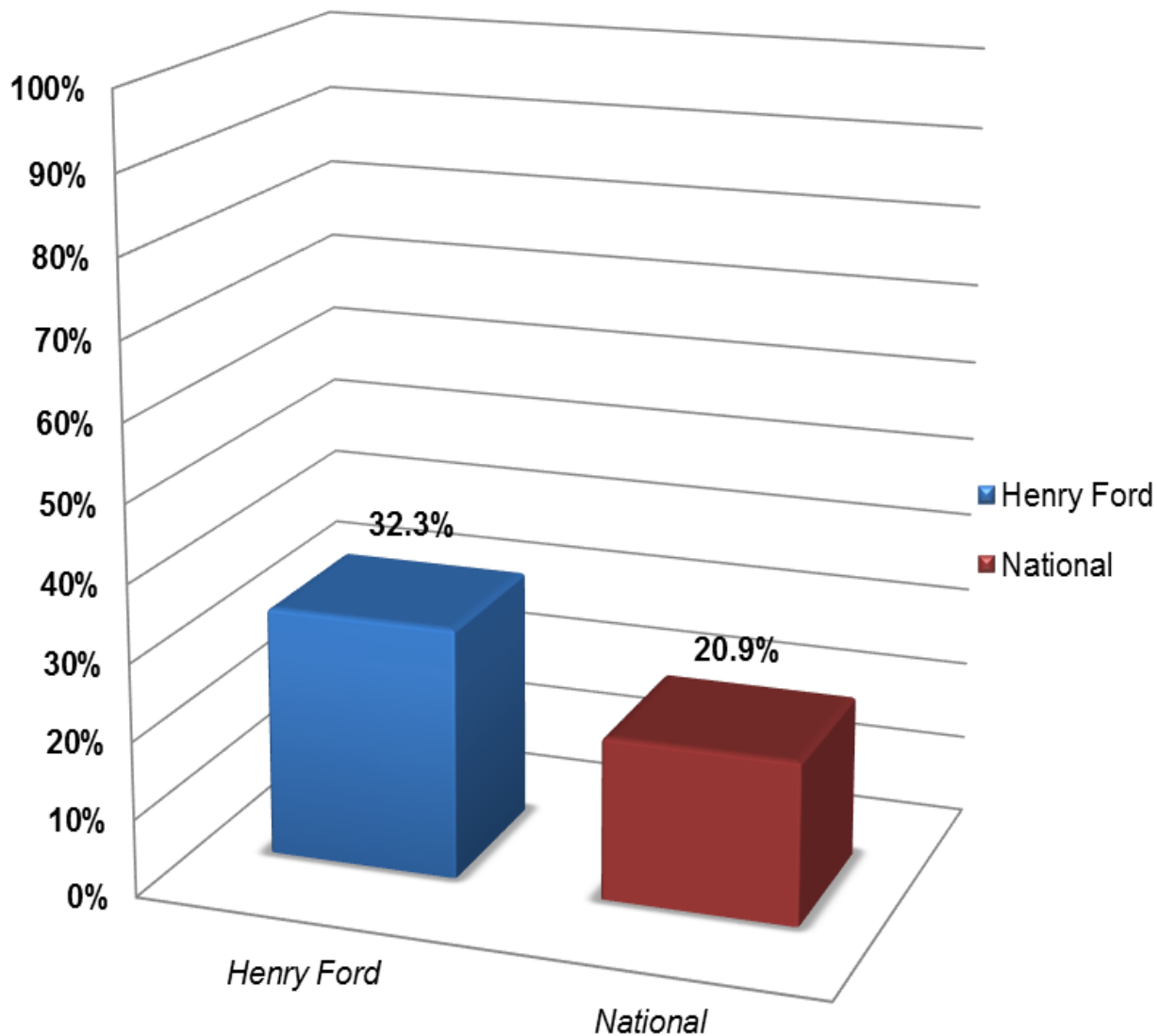
**Surgery for
Prostate
Cancer,
2005 - 2012**

Survival Rates for Lung Cancer Patients



**Surgery for
Lung Cancer,
2007 - 2012**

Survival Rates for Brain Cancer Patients



**Surgery for
Brain Cancer,
2005 - 2012**



Annual Brain Tumor Experience

- More than 700 new brain tumor patients per year
- More than 7,000 patient visits per year
- More than 2,000 tumor board evaluations per year
- More than 4,000 clinically annotated tissue specimens

State of Michigan Data

- ~ 750 – 1,000 Primary
- ~ 3,500 Brain Mets

1.5 Tesla fully-integrated iMRI is the first in Michigan and one of 30 in the United States and 58 worldwide



Gross total resection of primary brain tumors can be achieved in approximately 50% of patients by current standards but can be increased to >95% with iMRI

A 3D anatomical model of a brain, showing a central tumor with a complex, multi-colored internal structure. The tumor is surrounded by a dense network of blood vessels, including arteries (red) and veins (blue). The background is a dark, textured surface, possibly representing the brain's surface or a surgical field. The overall image has a blue and red color scheme.

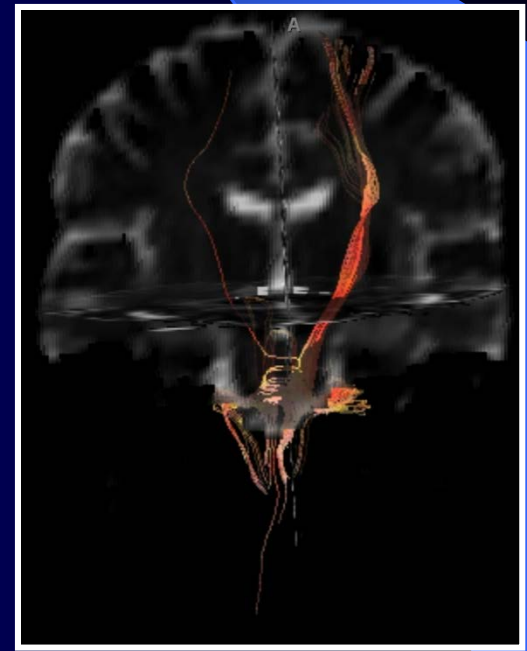
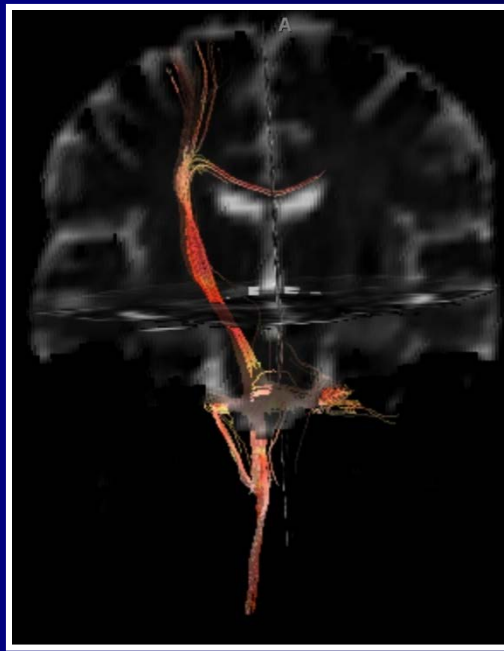
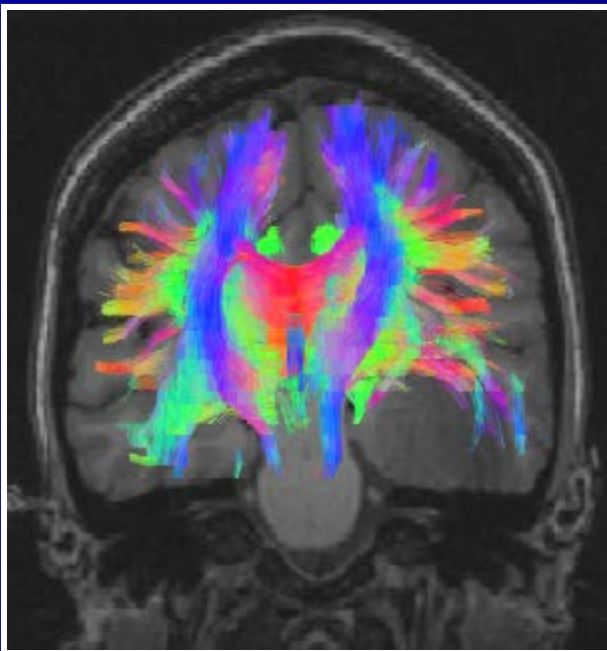
iMRI

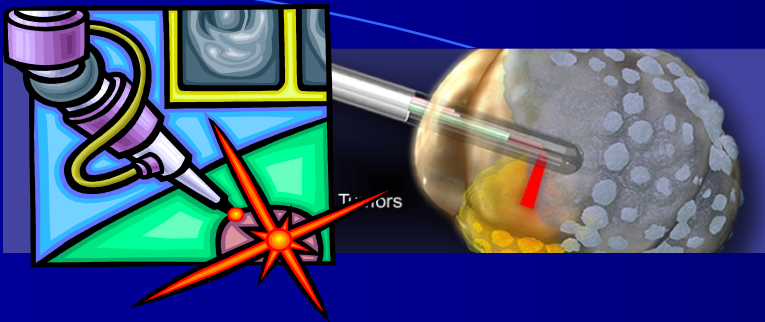
- **Allows real-time near 100% resection of low grade brain tumors**
- **Extent of resection directly correlates with quality of life and survival.**
- **In several case series the difference between 75% and 99% resection correlated with 20+ year survival**
- **Allows real-time near total resection of enhancing tumor in malignant primary brain tumors, potentially doubling survival times**



iMRI

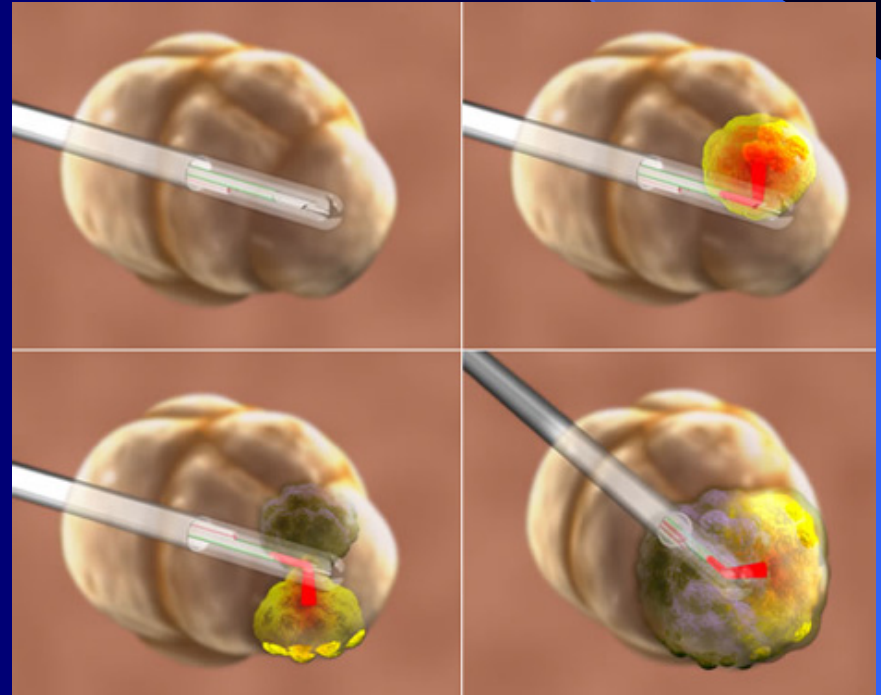
iMRI can be used in combination with **awake surgery** when working in eloquent brain regions and is also easily integrated with **neuro-navigation**, **diffusion tensor imaging** and **functional MRI**, all of which improve surgical outcomes by greatly enhancing the surgeon's ability to accurately delineate the relationship between tumor and normal brain





Thermal Therapy + iMRI

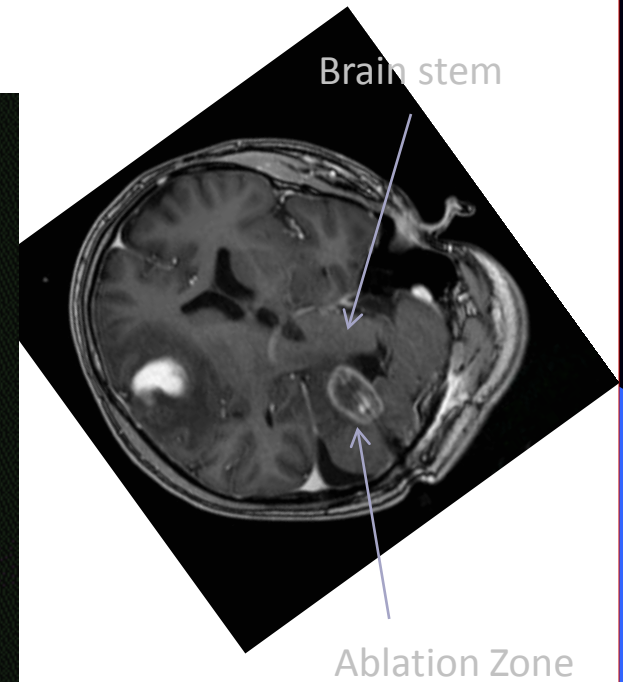
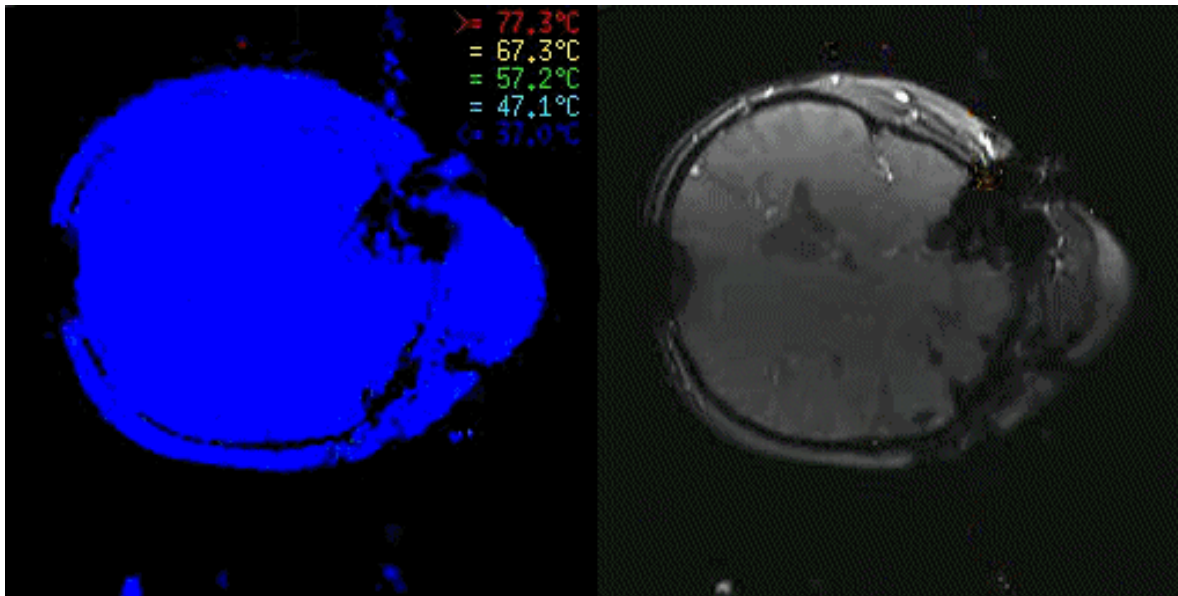
- Laser-Heat Ablation under direct vision
- Spherical well-circumscribed lesions may lend themselves exceptionally well to this technology → avoid radiotherapy?



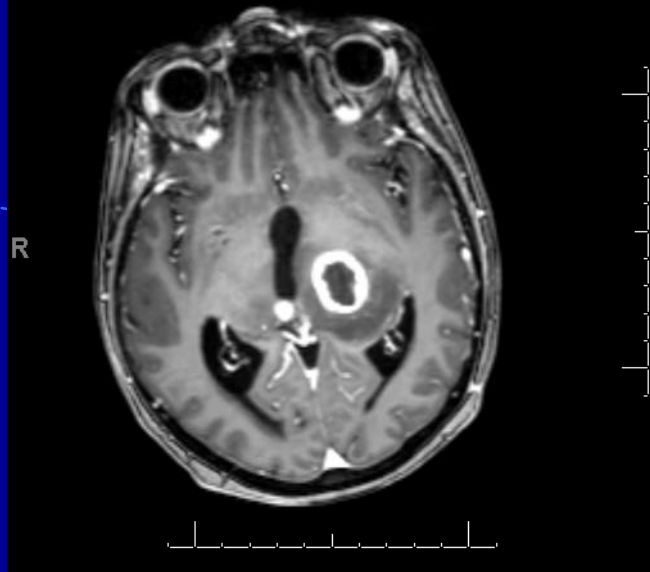
VISUALASE

Precision and Control: Brain Tumor Application

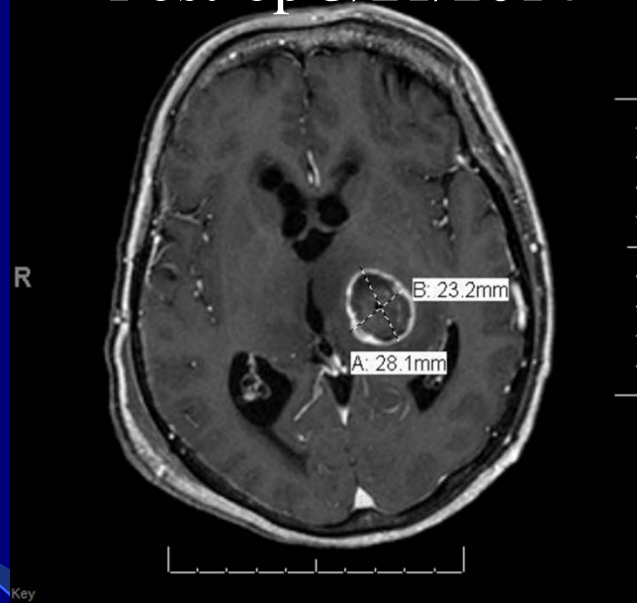
Ablation of High-grade Astrocytoma 1mm from brainstem



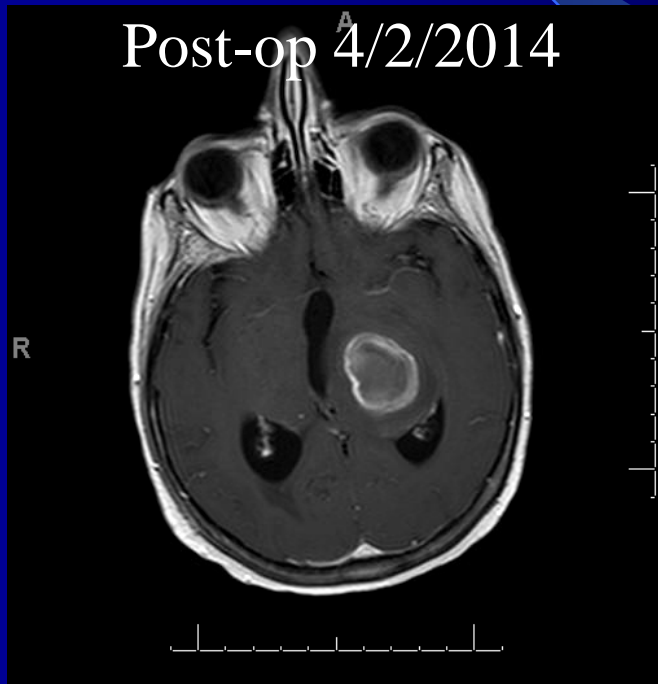
Pre-op 3/20/2014



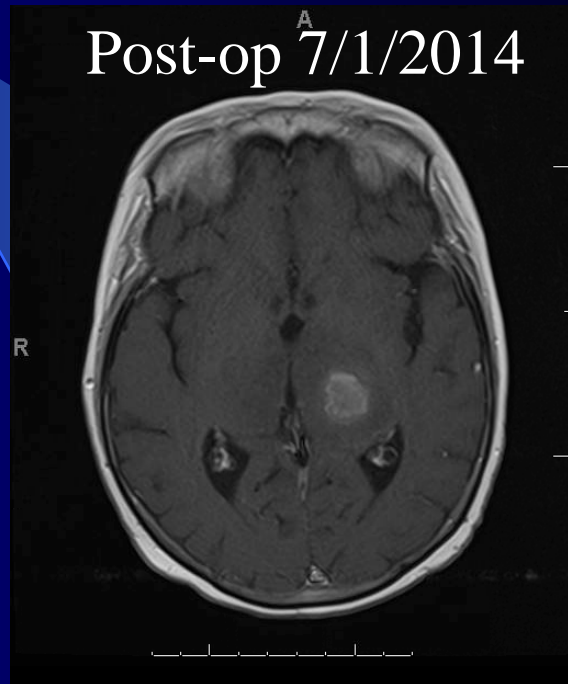
Post-op 3/21/2014



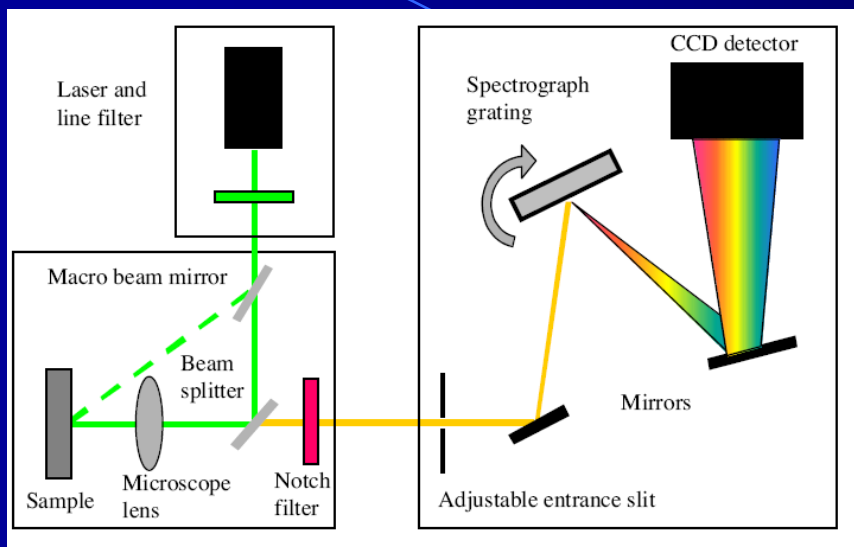
Post-op 4/2/2014



Post-op 7/1/2014



Raman Spectroscopy: Identification of Brain Cancer

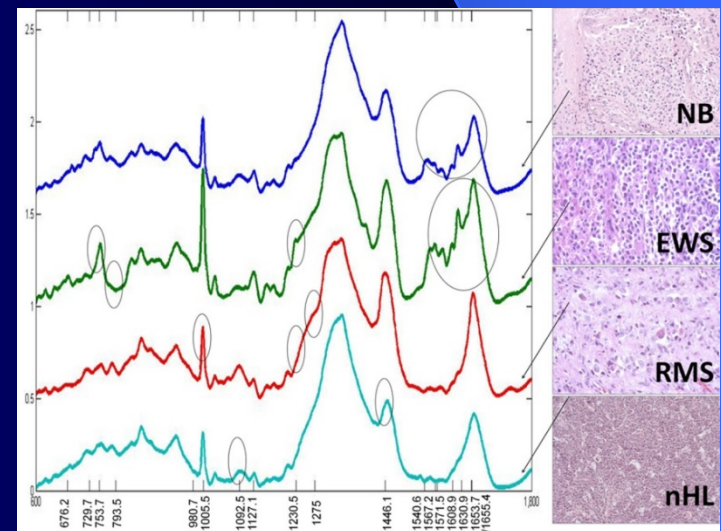
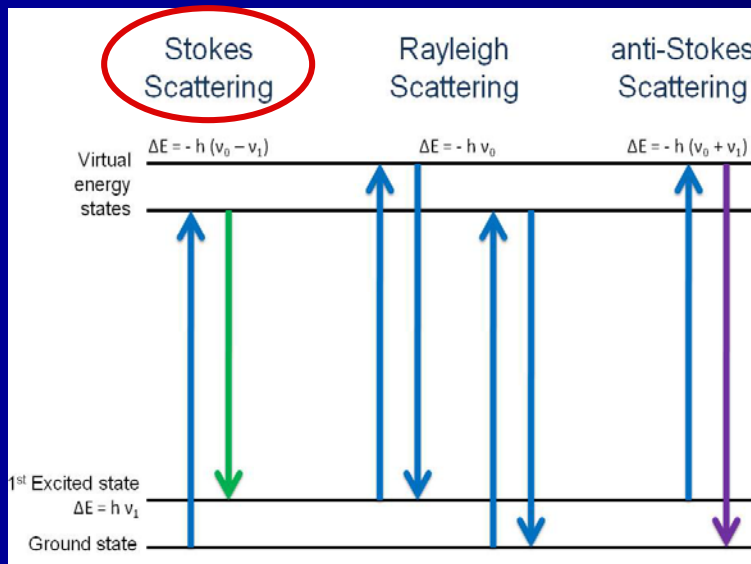
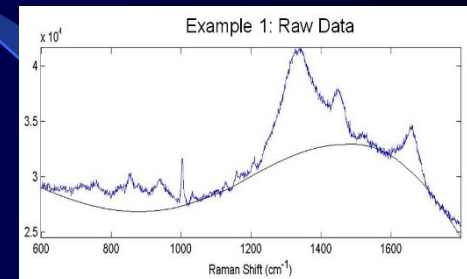


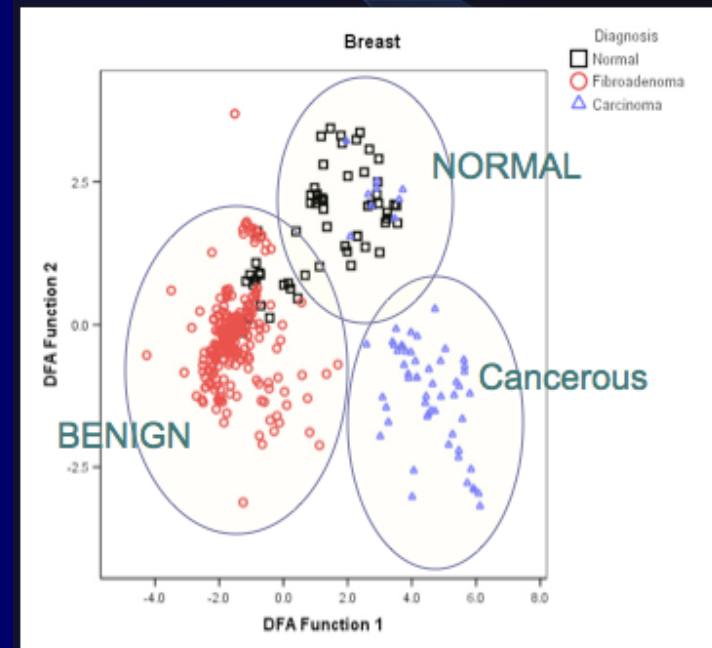
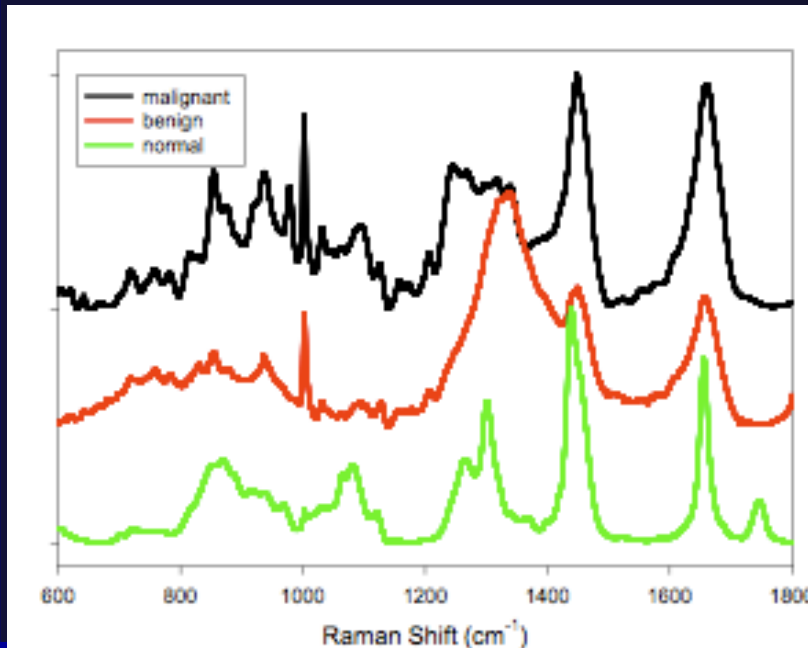
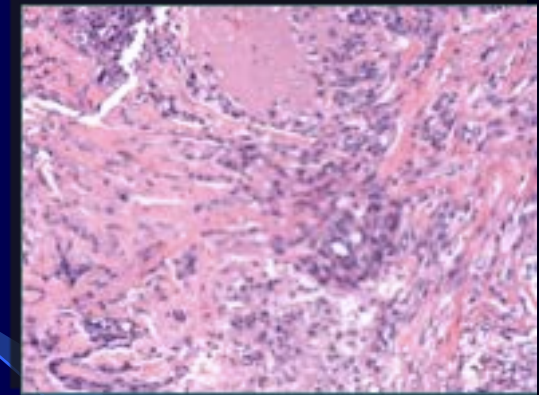
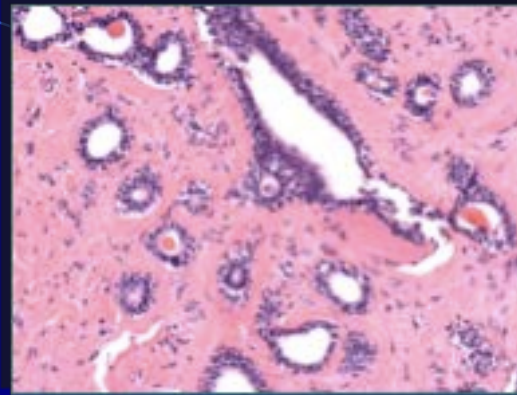
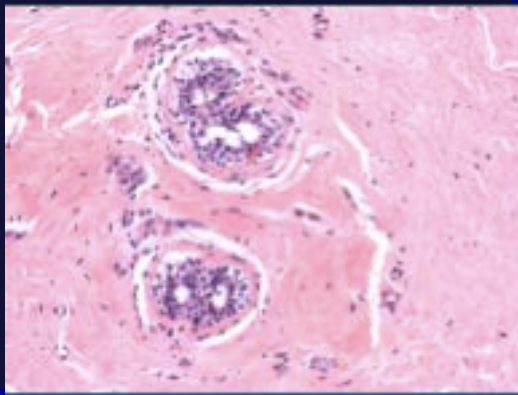
Smart Sensors & Integrated Microsystems, WSU (G. Auner)
HFII (S. Dulchavsky)
Hermelin (S. Kalkanis, T. Mikkelsen)



Raman Spectroscopy

- Adapted by DoD 10 years ago to detect wartime IEDs
- Results took minutes to hours
- 10' (w) x 15' (l) x 7' (h)
- Difficulty with sample validation
- Inelastic light scattering from molecules produce a unique spectral fingerprint



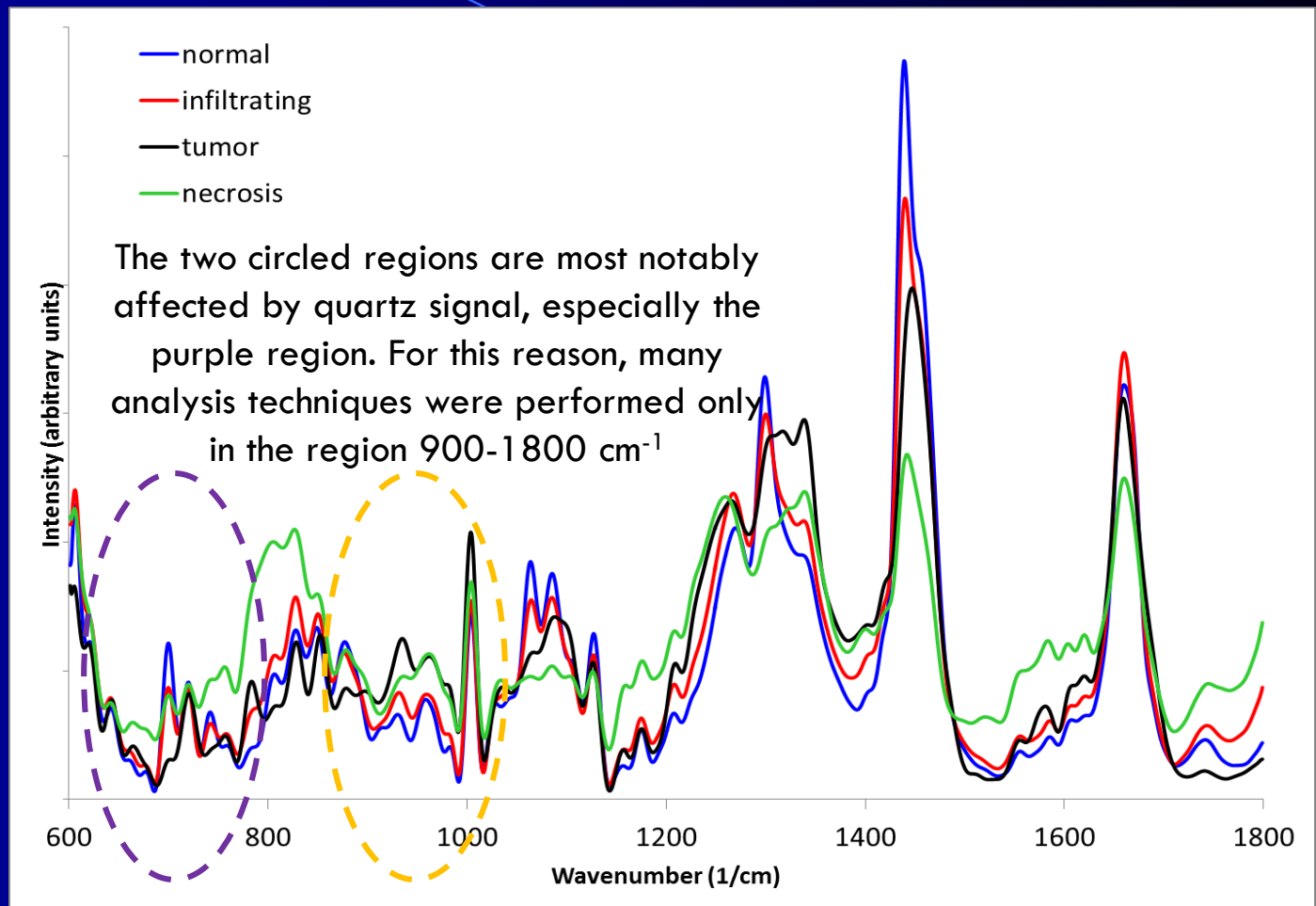


After IRB approval, Hermelin tumor bank provided 587 blinded tissue samples for tissue validation and paradigm “learning”



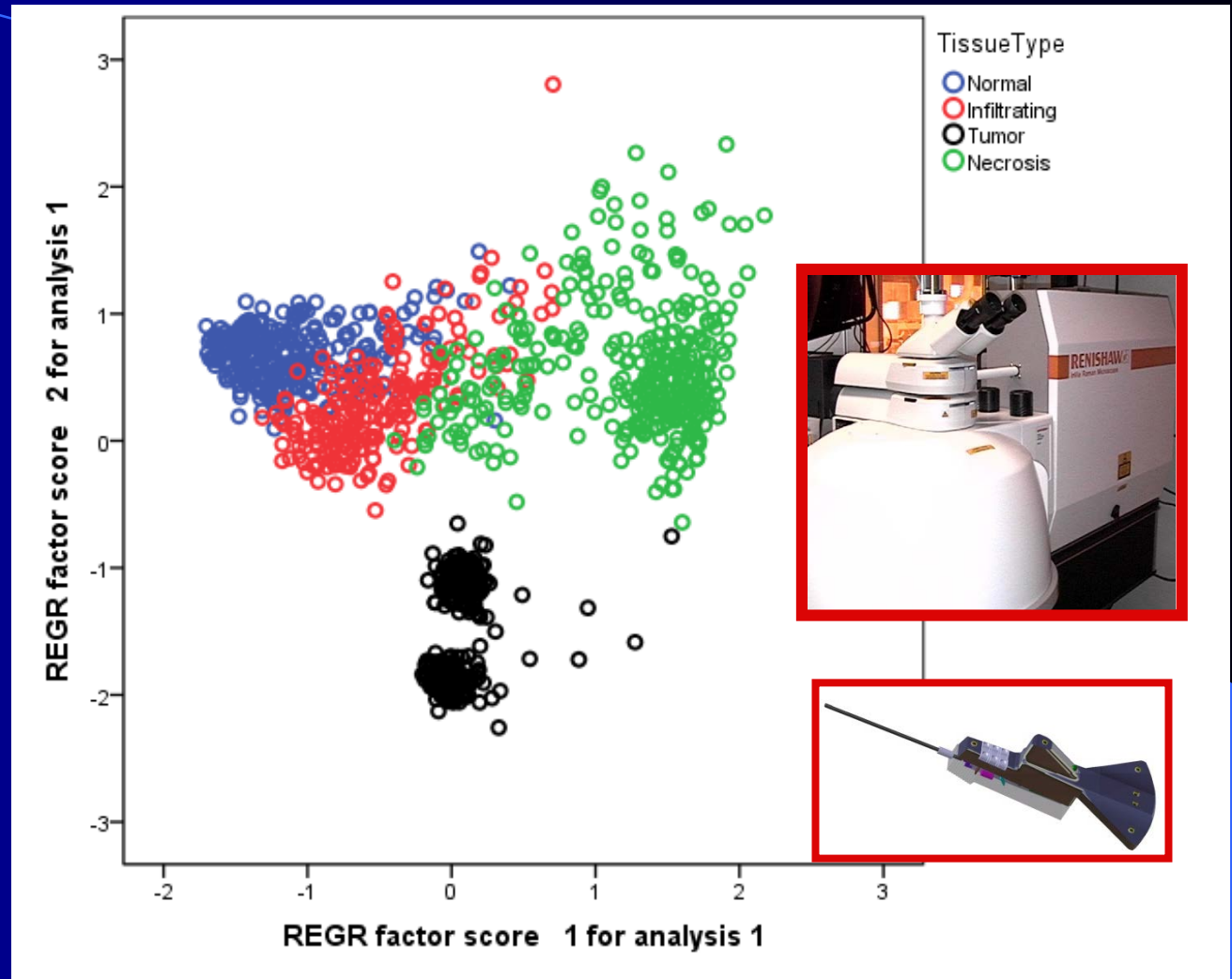
GBM Raman Spectra: Four Tissue Types

*Validation
of tumor
samples:
99%
sensitivity
and 97%
specificity*

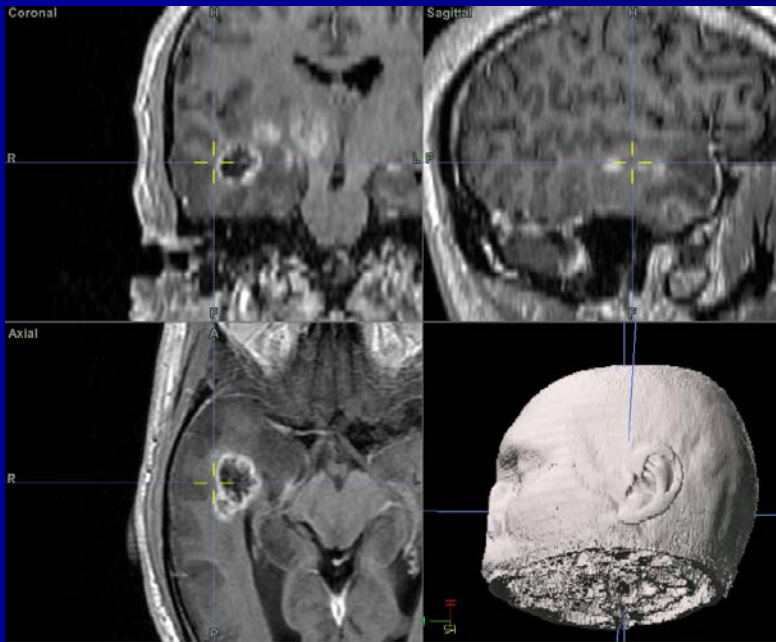
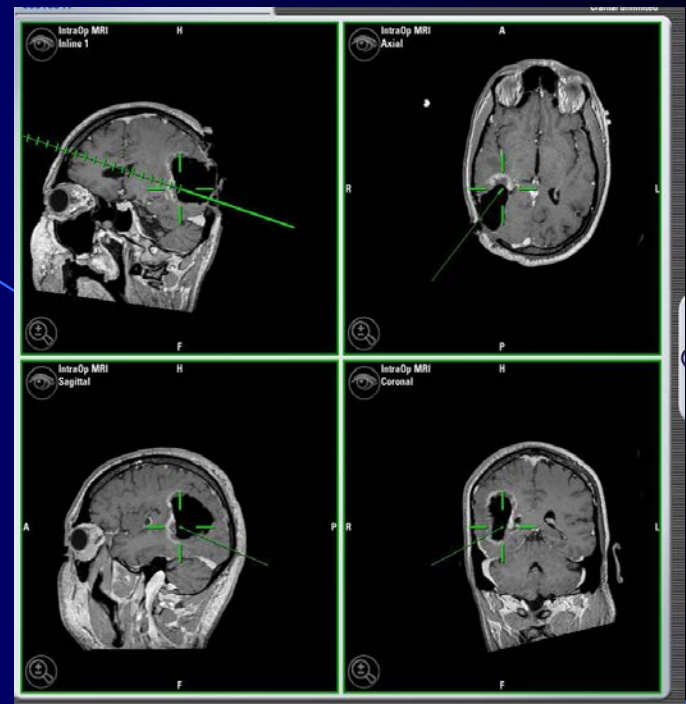
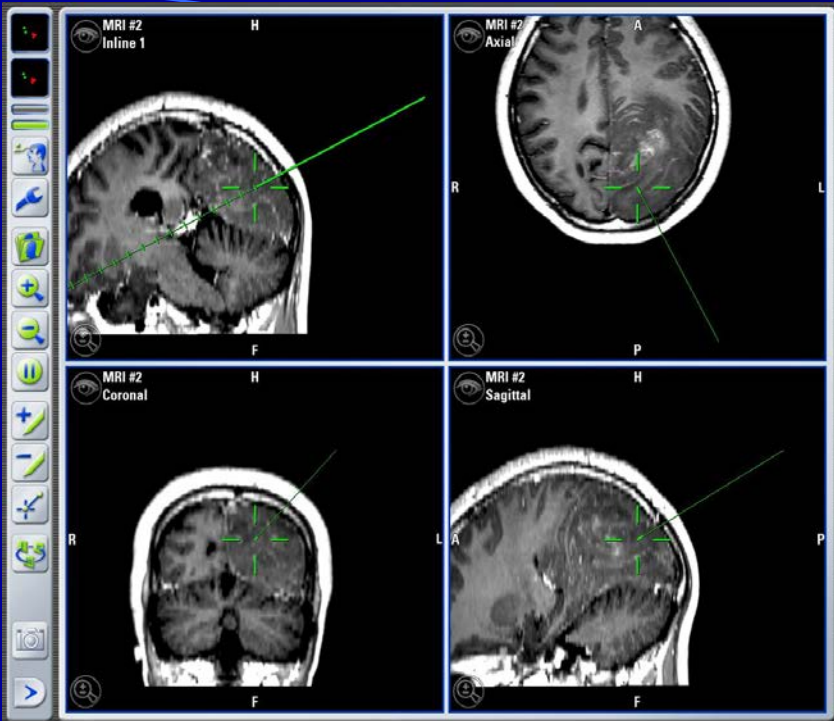


Double blinded validation of Henry Ford tissues allowed WSU/SSIM engineers to develop detection codes, decreasing the yield time for a 99% correct tissue diagnosis from 47 minutes to 0.25 seconds

- Preliminary principal component analysis of samples over the region 900-1800 cm^{-1} showed good separation of tumor spectra, and a continuum of separation between normal brain, infiltrating tumor, and necrosis.



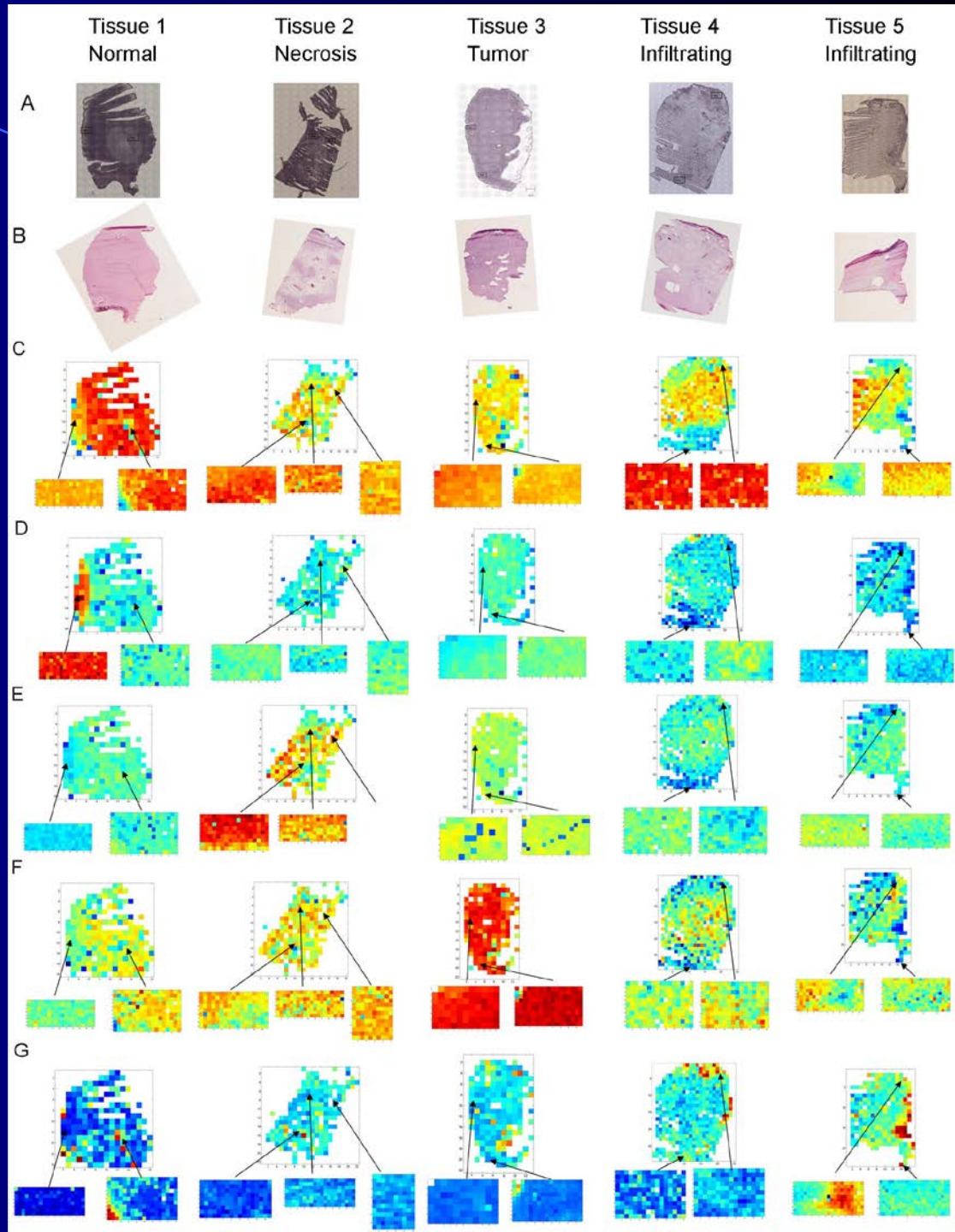
Major advances in microsensor technology from 2010-2013 allowed the giant room-sized detection and processing hardware now to fit on the tip of a pen



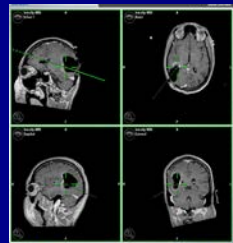
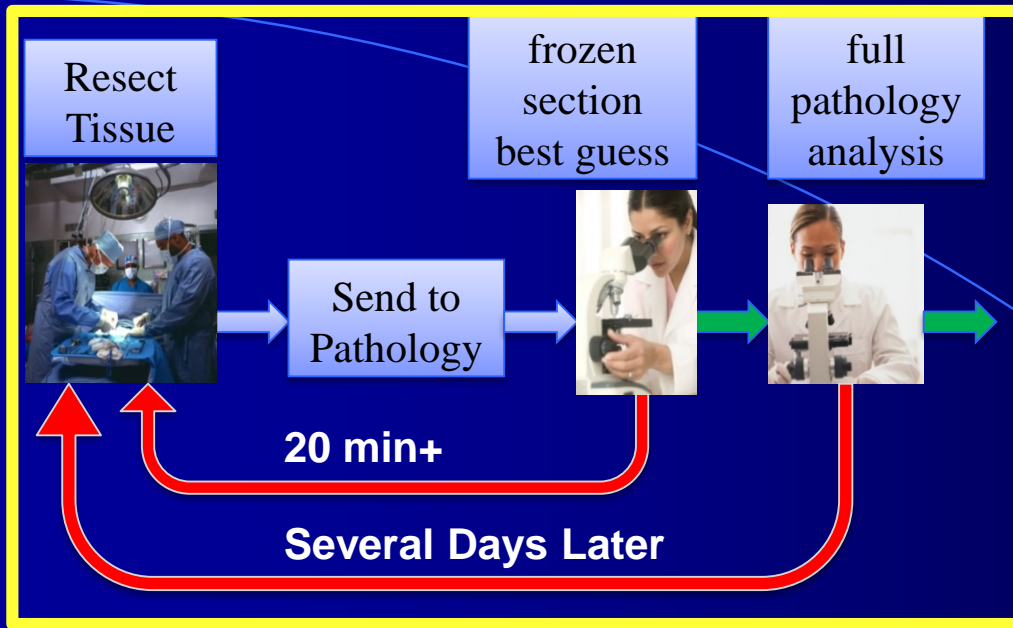
HFHS IRB Approval Nov 2014:
 Testing the integrated navigation/
 Raman probe on 25 GBM patients
 during iMRI-surgery, on regions of
 the brain already selected for removal
 by the surgeon. Raman results
 recorded separately prior to pathology
 validation (***Tumor, Necrosis,
 Infiltrating, Normal***)

Imaging Multiple Molecular Species

94% correlation between intraoperative real-time (4 seconds) Raman results vs. pathology frozen section validation (30-45 minutes)



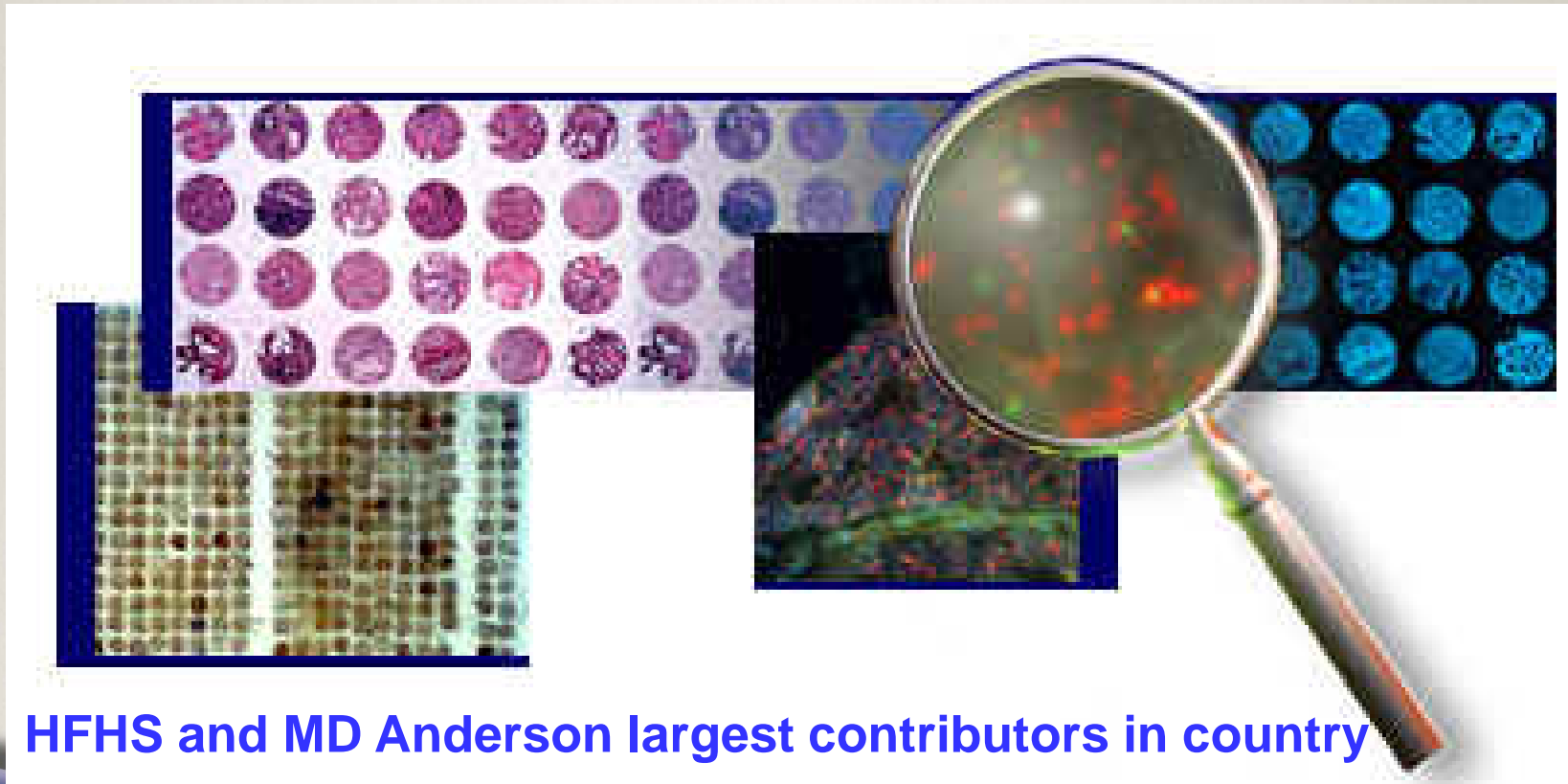
A New Paradigm?



5-10 sec.

Days Later: Final Pathology Verification

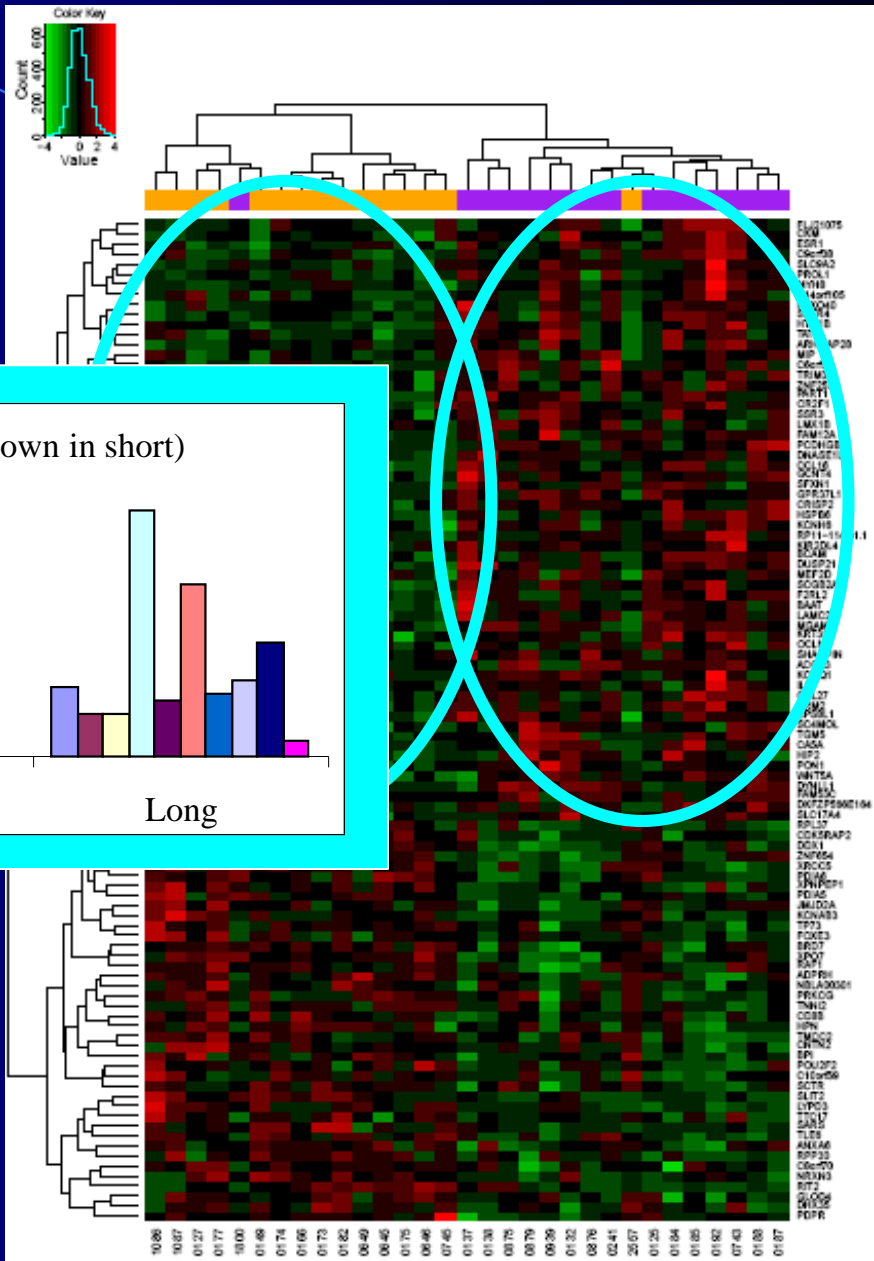
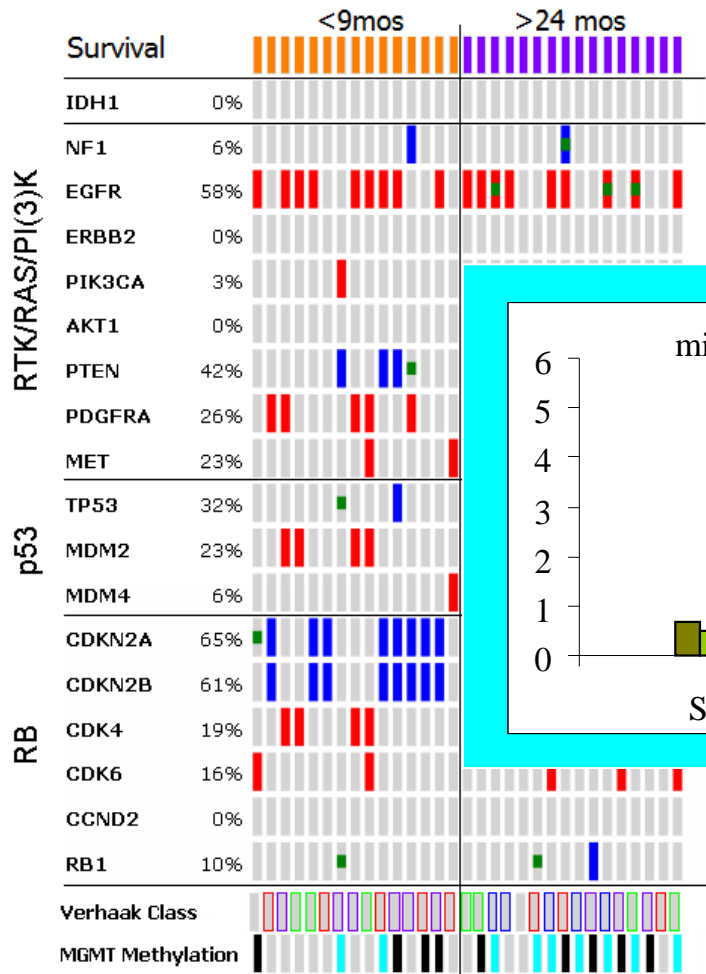
The Cancer Genome Atlas



GBM: The Henry Ford Experience

Case Set: User-defined Case List: User defined case list.

Altered in 31 (100%) of cases

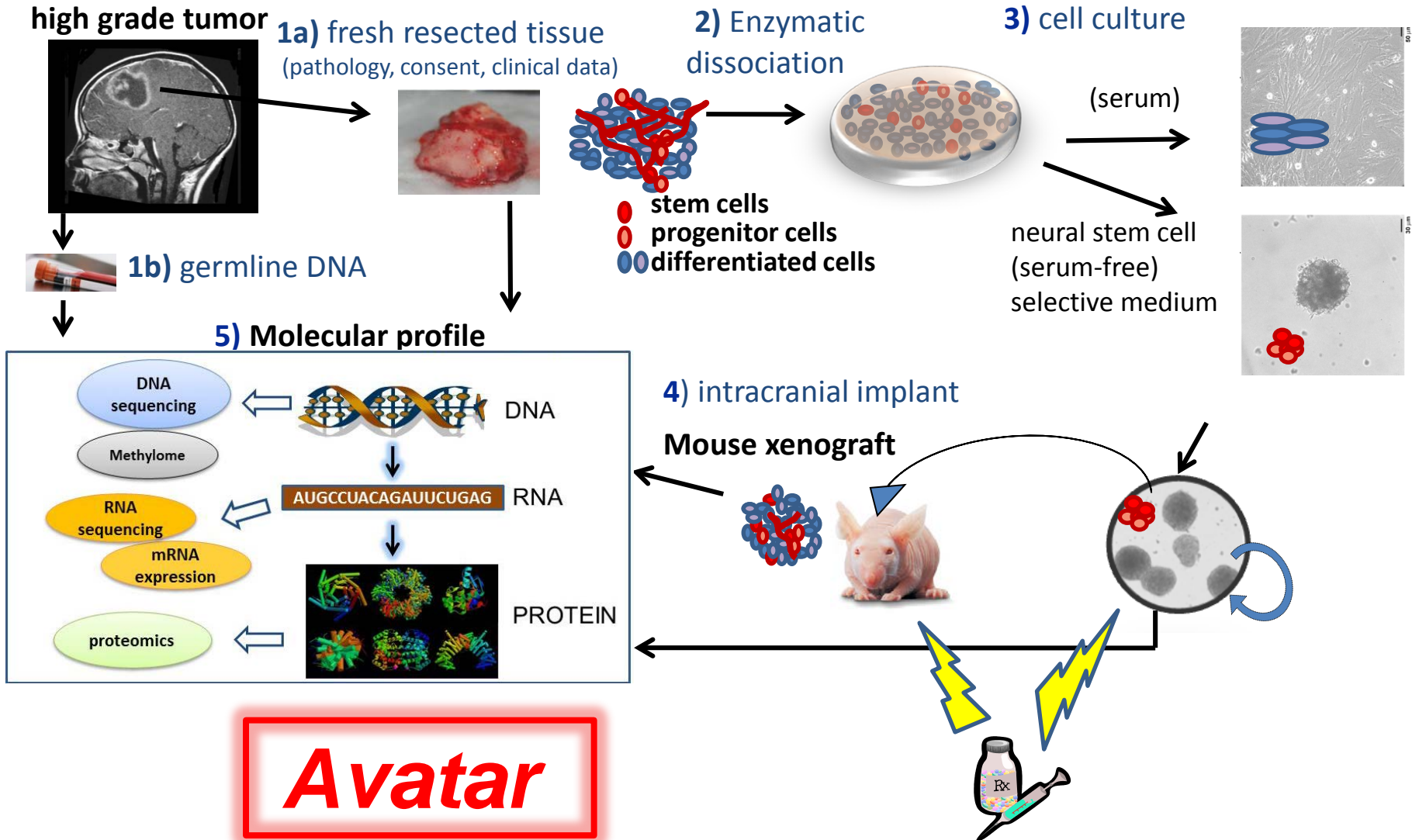


█ Amplification █ Homozygous Deletion █ Mutation
 Copy number alterations are putative.

Verhaak Proneural Classical Neural Mesenchymal

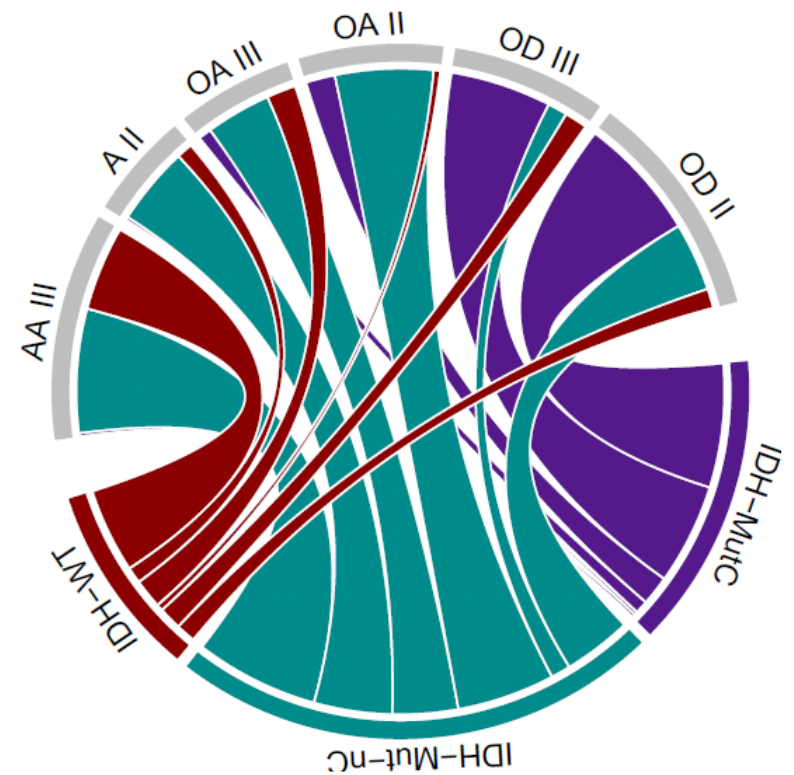
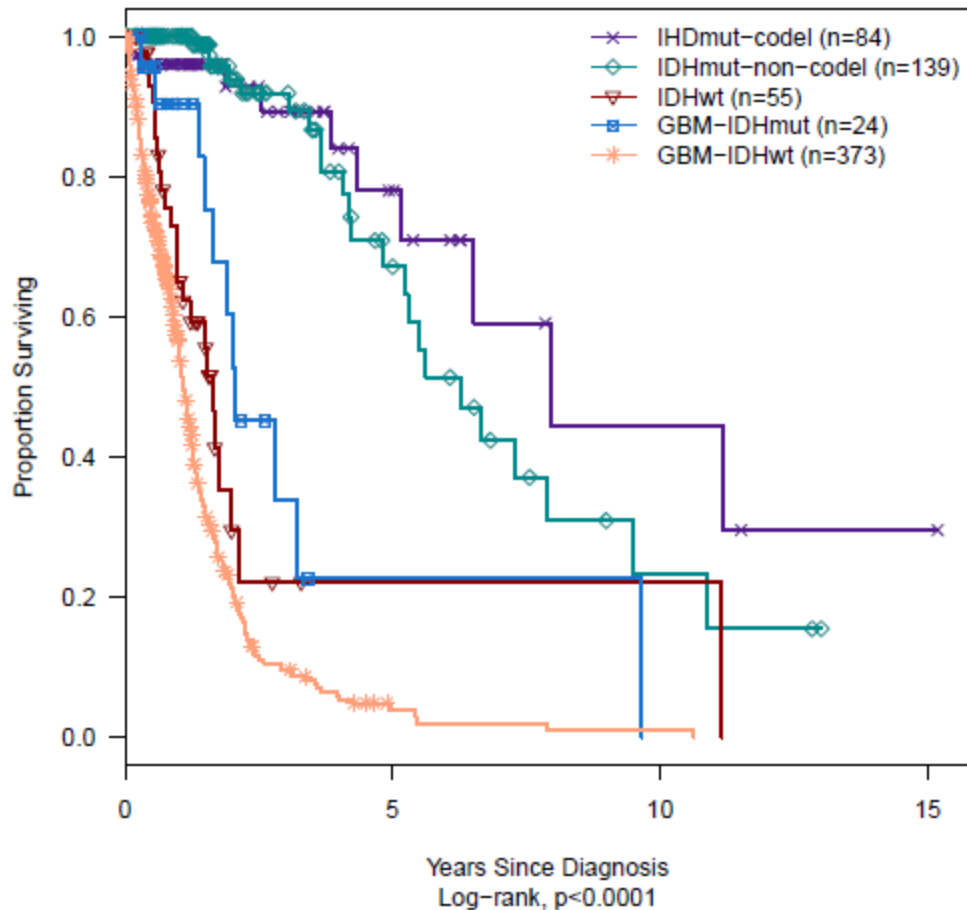
MGMT Promoter Methylated Unmethylated Unknown

Generation and characterization of GBM patient derived xenograft (PDX)



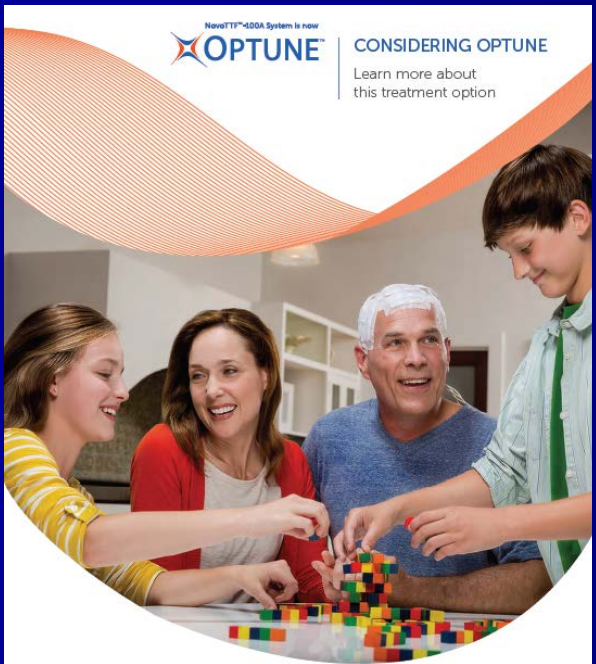
Comprehensive and Integrative Genomic Characterization of Diffuse Lower Grade Gliomas⁺ Submitted by The Cancer Genome Atlas Network*

Overall Survival



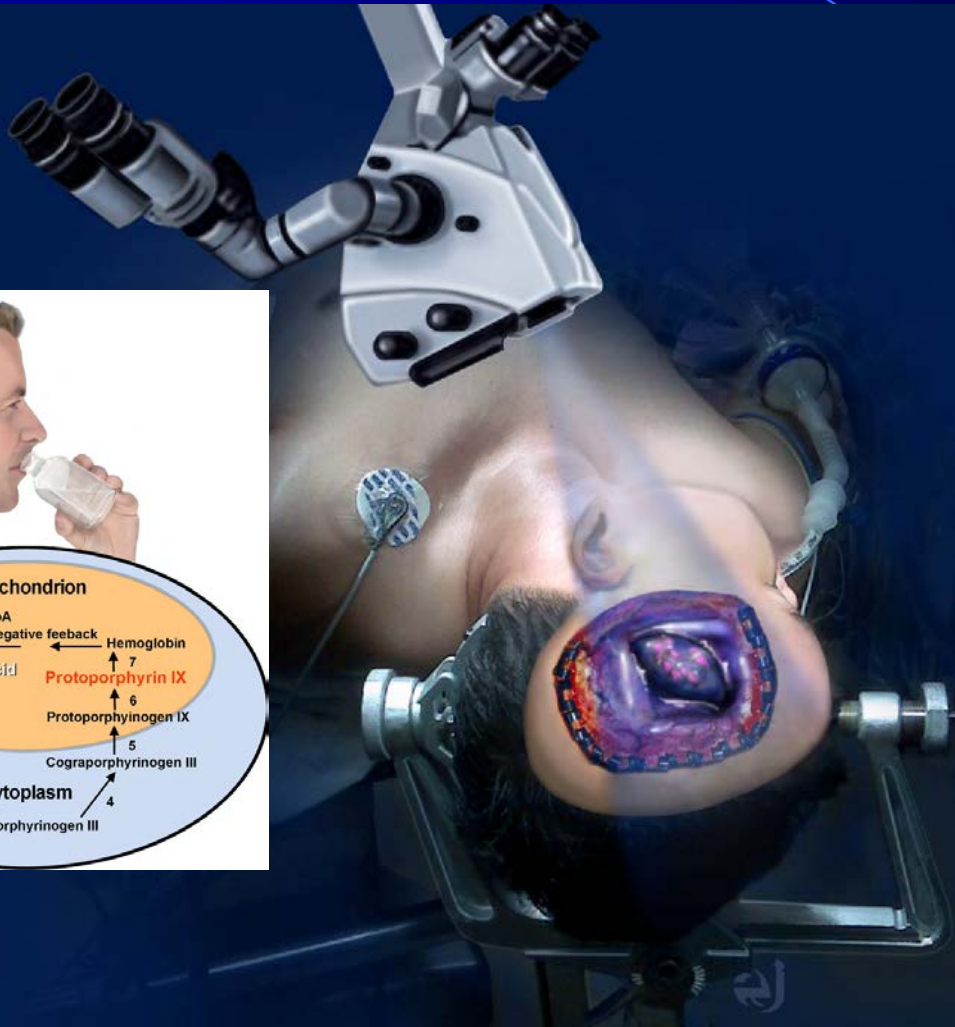
- **NEW CLINICAL TRIALS**

Interim analysis of the EF-14 trial: A prospective, multicenter trial of NovoTTF-100A together with temozolomide compared to temozolomide alone in newly diagnosed glioblastoma

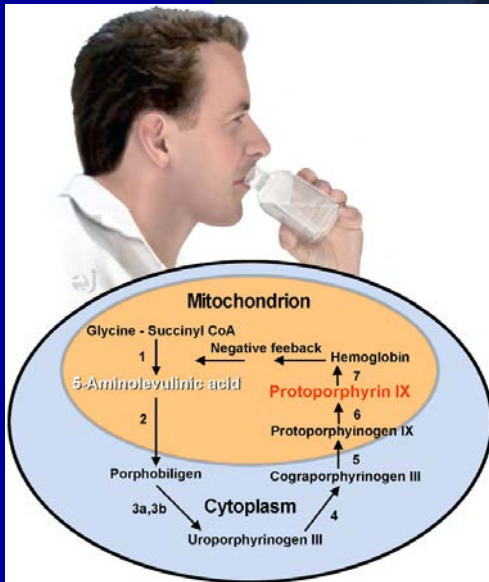




5-ALA: Enhancing Resection



- Following excitation with blue light emitted from a special filter attachment on the operative microscope, the PpIX, which has accumulated selectively in malignant tissue, emits a red-violet light enabling the surgeon to resect the red-violet tumor tissue in a gross total fashion





Targeted Intra-operative Gene Therapy **What's Old is New Again: Retroviral Gene Transfer**

- **Unlike conventional cancer treatments (cytotoxic chemotherapy and radiation therapy) gene transfer can enable delivery of high concentrations of cancer killing drugs selectively to cancer tissue while leaving healthy tissue unharmed.**
- **The genes serve as the instructions for producing therapeutic proteins that are designed to kill cancer cells directly, with fewer side effects**

Future National Cancer Landscape





HENRY FORD CANCER



- Significant commitment to infrastructure, research, recruitment of cancer superstars: *Massive investment for massive reward*
- Given IOM report, big risk of losing current ground if we don't invest now
- National presence trumps local competitors: *Halo effect for entire HFHS*

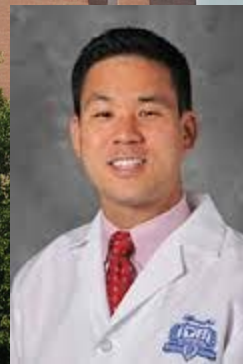
www.henryford.com/cancer



Zane Hammoud
Thoracic



Tamer Ghanem
Head & Neck



David Kwon
Surg Onc, CCS



Thomas Buekers
Gyn Onc



Erica Proctor
Breast

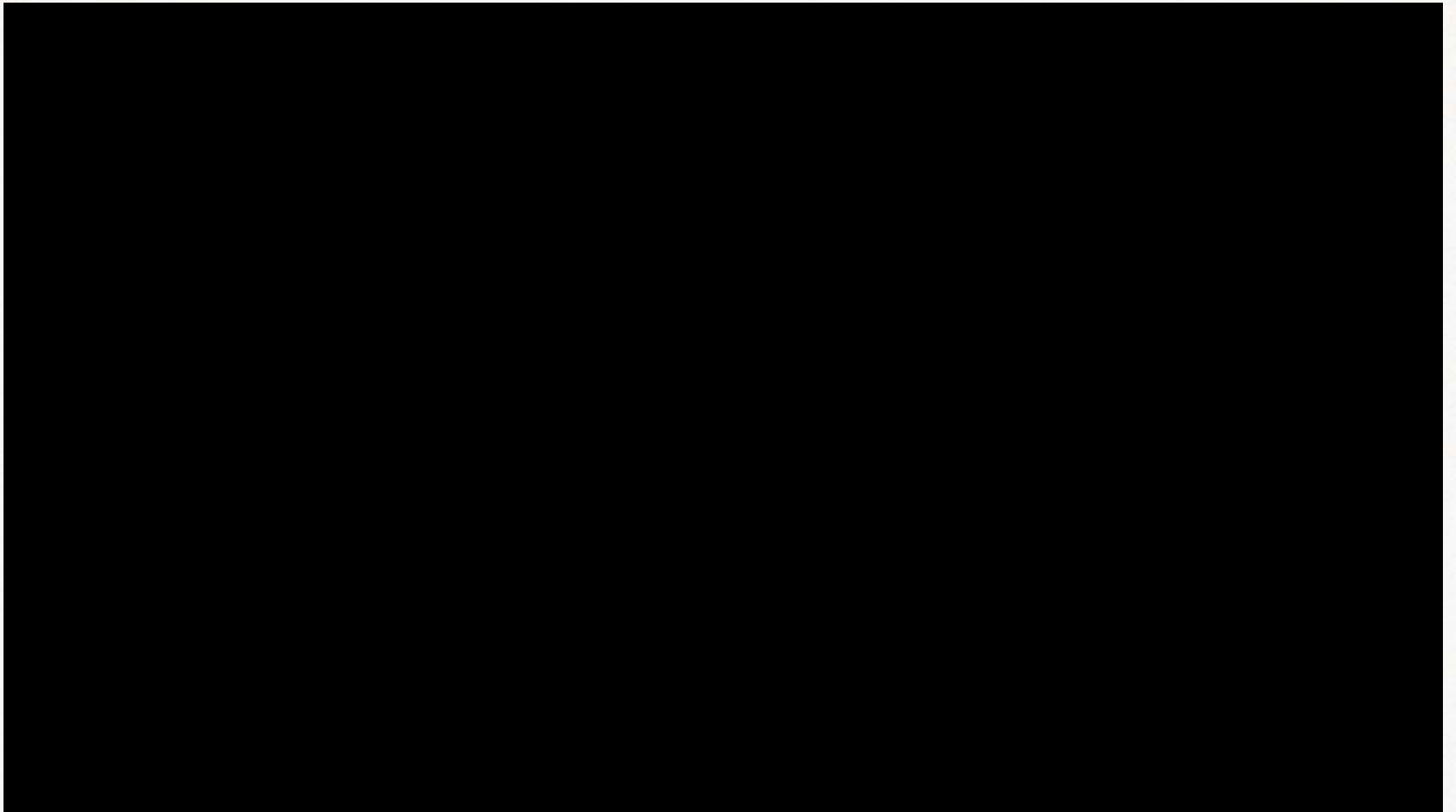


Ben Movsas
Chair, Rad Onc

Introducing a New Cancer Center at Henry Ford Hospital



Henry Ford Cancer Center



Coming 2018...

Henry Ford Cancer Center

