

Saint Alphonsus Research Assets and Opportunities

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Saint Alphonsus

500+ on the medical staff

300+ beds

6 physician, 2 NP cancer center

1. Assets -- Clinical Research

at
Saint Alphonsus Regional Medical Center

- IRB Currently monitoring 61 studies
- Idaho Neurological Institute currently monitoring 10 exempt studies
- Multiple small non-monitored studies not involving patients in process
- 2 Telemedicine Studies through TATRC, TeleBabyDoc and CHF.

Study Types

- Cardiac device
- Cardiac drug
- Neuroscience primarily related to brain injury, sleep disturbance and seizure disorders
- Oncology
- Telemedicine

2. Opportunities

Combine the expertise and resources of:

- Large, Boise-based hospitals with the patient numbers to conduct large-scale clinical trials
- Universities
- Private Industry

Resulting in meaningful, impacting research

Example:

Two significant foci in cancer research:

- Individualization of cancer therapy
- Image Quantification

Present-day oncology:

- Patients with identical diagnoses receive identical treatment, even though we know that they are likely to respond very differently
- Image data are used to make ... pictures

Individualization of Cancer Therapy

After resection of T2N1 colon cancer

All patients receive the same number of cycles of 5-FU, oxaliplatin, leucovorin

Implications of a 5 % long-term survival benefit

100 patients treated → 5 patients benefit

Individualization of Cancer Therapy

Prostate cancer irradiation

Current standard at Saint Alphonsus:

81 Gy to entire prostate, using IMRT to minimize dose to surrounding structures (mainly, bladder and rectum)

Key approach to individualization

Genetic and molecular profiling

Oncotype Dx

Predictive

ImQuant, Inc. approach

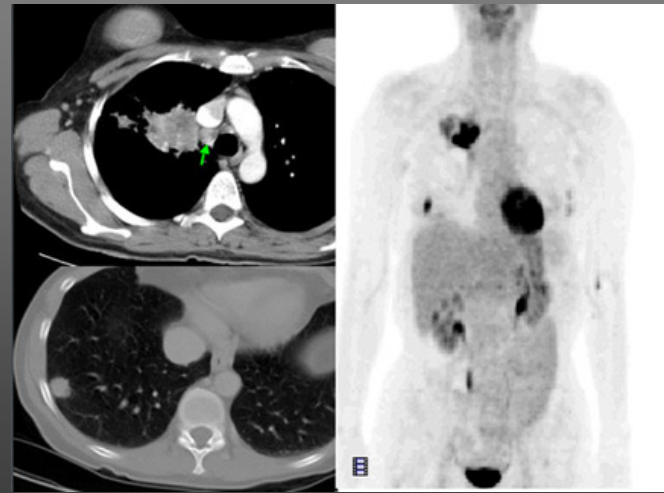
Image Quantification

Predictive and
Dynamic

PET, MRI, SPECT

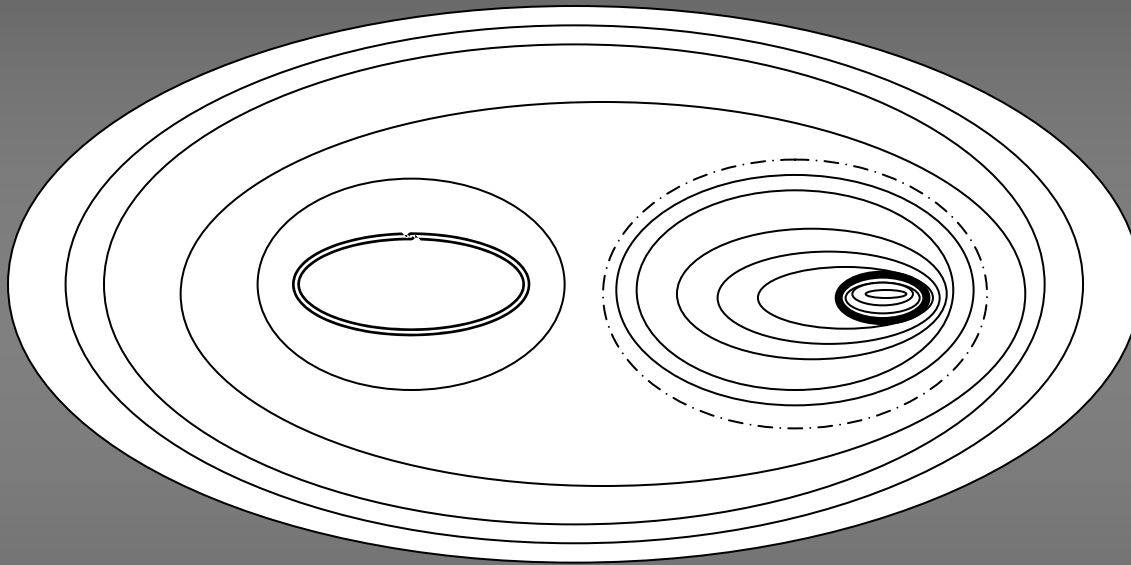


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“Functional Topography” (3D + α)

Approach – represent images, and image changes, as numbers, sets of numbers, graphs, equations



- Volume of each contour
- Surface area of each contour
- Shape characteristics
- Median, peak intensity values for voxels within a contour-defined volume
- Distance of contours from each other
- Distance of contours from a point
- Volumes of “elevations”
- Volumes of “depressions”
- Max or min intensity level within an elevation or depression
- Numbers, or locations, of elevations / depressions

Phase I research, Mayo Clinic,
Spring 2004

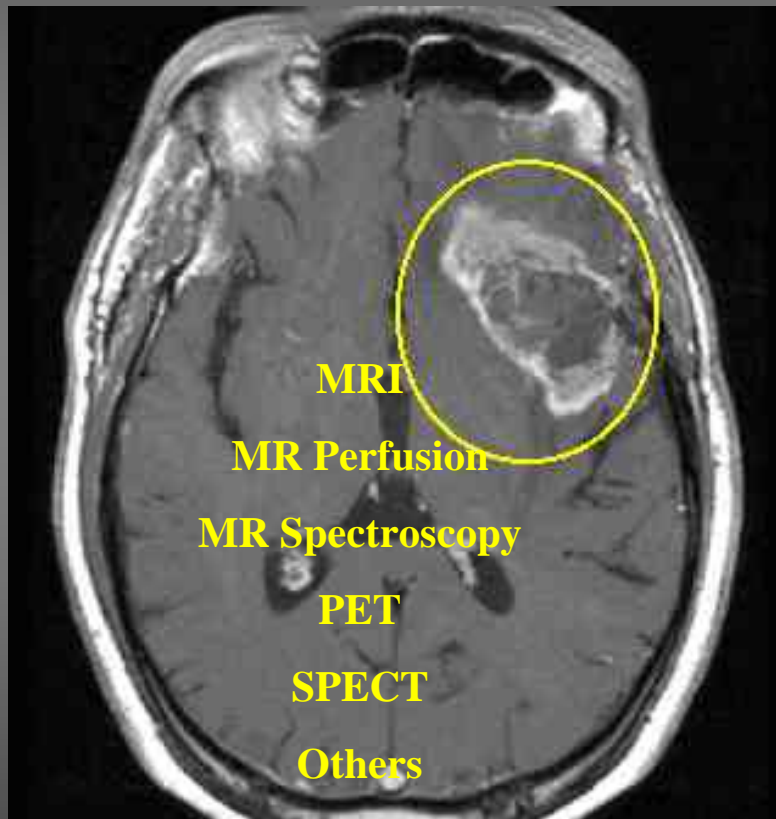
Proprietary Processes

Example: Dynamic Chemotherapy

- Image
- Administer systemic therapy
- Re-image
- Compare images or imaging data
- Express volumetric change as numbers, sets of numbers, graphs, or equations
- Express sub-volumetric changes as numbers, sets of numbers, graphs, or equations
- Compare volumetric change to volumetric data bank of changes for which outcome is known
- Compare sub-volumetric changes to sub-volumetric data bank of changes for which outcome is known
- Express relative volumetric change
- Express relative sub-volumetric change
- Predict ultimate likelihood of favorable *volumetric* change, or other clinical endpoints, assuming no change in plan
- Rules engine-based recommendation for next cycle (change interval, dose, agents)

Universal imaging source

Universal applications



- Display
- Diagnosis
- Chemotherapy response
- Radiation therapy response
- Radiation therapy targeting
- Dynamic and change-based targeting
- Surgical planning
- Surgical targeting

ImQuant, Inc

- Founded by Saint Alphonsus Radiation Oncologist
- Initial concept recently accepted for presentation at annual meeting of the Radiologic Society of North America (Chicago, December 2005)
- August, 2005 – inked a research and development agreement with Mayo Clinic image engineering lab
- Clinical trials currently being written, Saint Alphonsus and Mayo Clinic

ImQuant, Inc

- The talent to do much of this work exists here in Idaho
- 4-entity consortium -- BSU Engineering, ISU Engineering, Saint Alphonsus, ImQuant
- Preliminary discussions, INL
- Federal appropriations request (in contact with both Senate staff)

Quantitative Oncology, conclusion

- The initial inclination was to look out of state.
- Yet:
 - The engineering talent to do this type of work exists here in Idaho
 - The hospitals in Boise are large enough to conduct large-scale clinical trials
 - University-based engineers and researchers, as well as the major hospitals, are not organized such that multi-institutional collaboration is efficient

Conclusion, continued

- With a centralized, well-coordinated, and well-funded research institute in Boise
 - Recruit very high caliber clinical and research physicians who want to leave places like Seattle, Los Angeles, and San Francisco
 - Conduct meaningful and impacting research
 - Attractive to start-up technology companies