Cancer Imaging-Focused Trials in the NCTN:
ECOG-ACRIN Examples and Opportunities for Early Career Investigators

Fred Hutch CTN early career faculty lecture series
August 26, 2026

David A. Mankoff, MD, PhD

Matthew J Wilson, Jr Professor and Vice-Chair for Research, Department of Radiology
Associate Director for Education & Training and Breast Program Member, Abramson Cancer Center
University of Pennsylvania

Penn Medicine
Department of Radiology

Penn Medicine
Abramson Cancer Center

Mankoff Disclosures

(Discussed in this Talk)

- Consulting fee/advisory board:
  - Blue Earth Diagnostics
- Ownership Interest/scientific advisory board:
  - Trevarx
- Other (material transfer)
  - Calithera
  - Blue Earth Diagnostics

Cancer Imaging-Focused Trials in the NCTN

- **My background and path NCTN participation and leadership**
- How Does Imaging Fit into the NCTN Portfolio?
- Types of Imaging trials in the NCTN
- Examples of ECOG-ACRIN Imaging Trials and Opportunities for Early Investigators
- Guidance & Future Directions

My Background

- MD/PhD at UPenn, PhD In Bioengineering
  - PhD thesis on applied physics of PET detectors
- Short stint in a start-up – UGM Medical Systems
  - Director of Engineering
- GME Training at UW (1990-1996)
  - Internal Medicine
  - Short-tracked to Nuclear Medicine
  - Research Fellowship in PET cancer imaging – quantitative imaging, PET proliferation imaging, and novel breast cancer response assessment
- Faculty in UW Radiology (1997-2012)
  - Moved to SCCA/FH in 2006 to focus on cancer imaging and thyroid cancer Rx
- Moved to UPenn in 2012
  - Nuclear Medicine Division Chief 2012-2016
  - Vice-Chair for Research 2016 – present
  - Abramson Cancer Center – Cancer Imaging Core Co-Lead; AD Education and Training

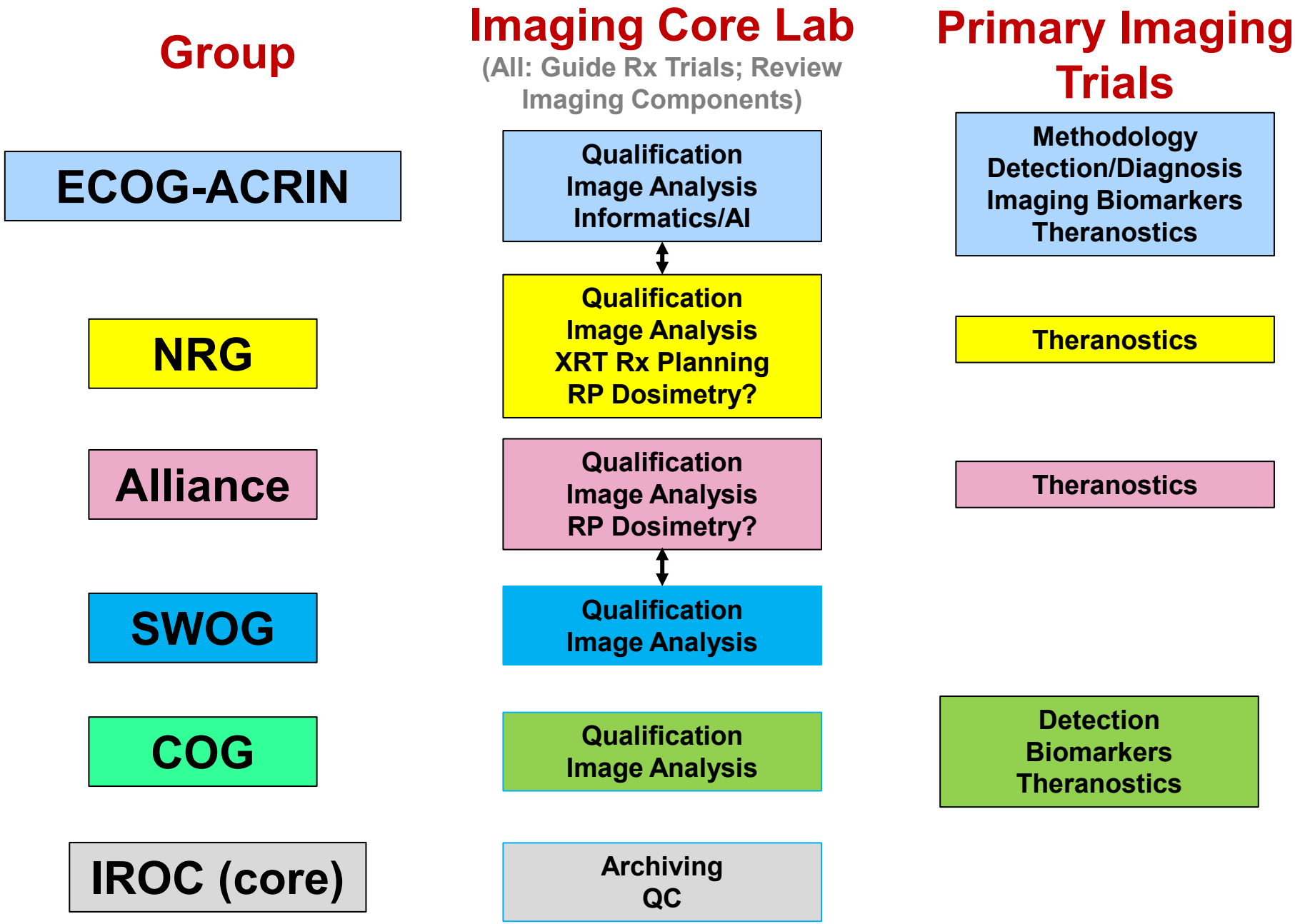
My Path to the NCTN

- Research focus on early translation of novel PET probes and methods; Br Ca focus; mechanistic studies (i.e., NIH-fundable)
  - PET Cell proliferation and Breast Cancer ER imaging (NCI P01 Project PI)
  - LABC response to neo-adjuvant systemic therapy – metabolism and blood flow (NCI R01)
  - Internal mammary lymph node mapping and metastasis detection (NCI R01)
  - Br CA bone metastases response (NCI R01)
  - CIP PET Translational Program – led FES PET/CT IND-enabling trial, helped with FMISO and FLT
- Exposure to translational/clinical trials leaders
  - Served as the imaging expert on Cancer Biomarkers Study Section
  - AACR/ASCO Vail Course – imaging expect
- NCTN
  - ACRIN (2007-2012). Inaugural Leader for Experimental Imaging Science Committee (EISC)
  - ECOG-ACRIN (2012-present)
    - Imaging Committee: EIWG Leader (2012-2016)
    - Scientific Planning Committee Co Chair (with Keith Flaherty) (2017-present)
    - Breast Committee senior member (2012-present)
  - National: CTEP Correlative Science Steering Committee (2018 – 2021); NCI CTAC 2014-2019

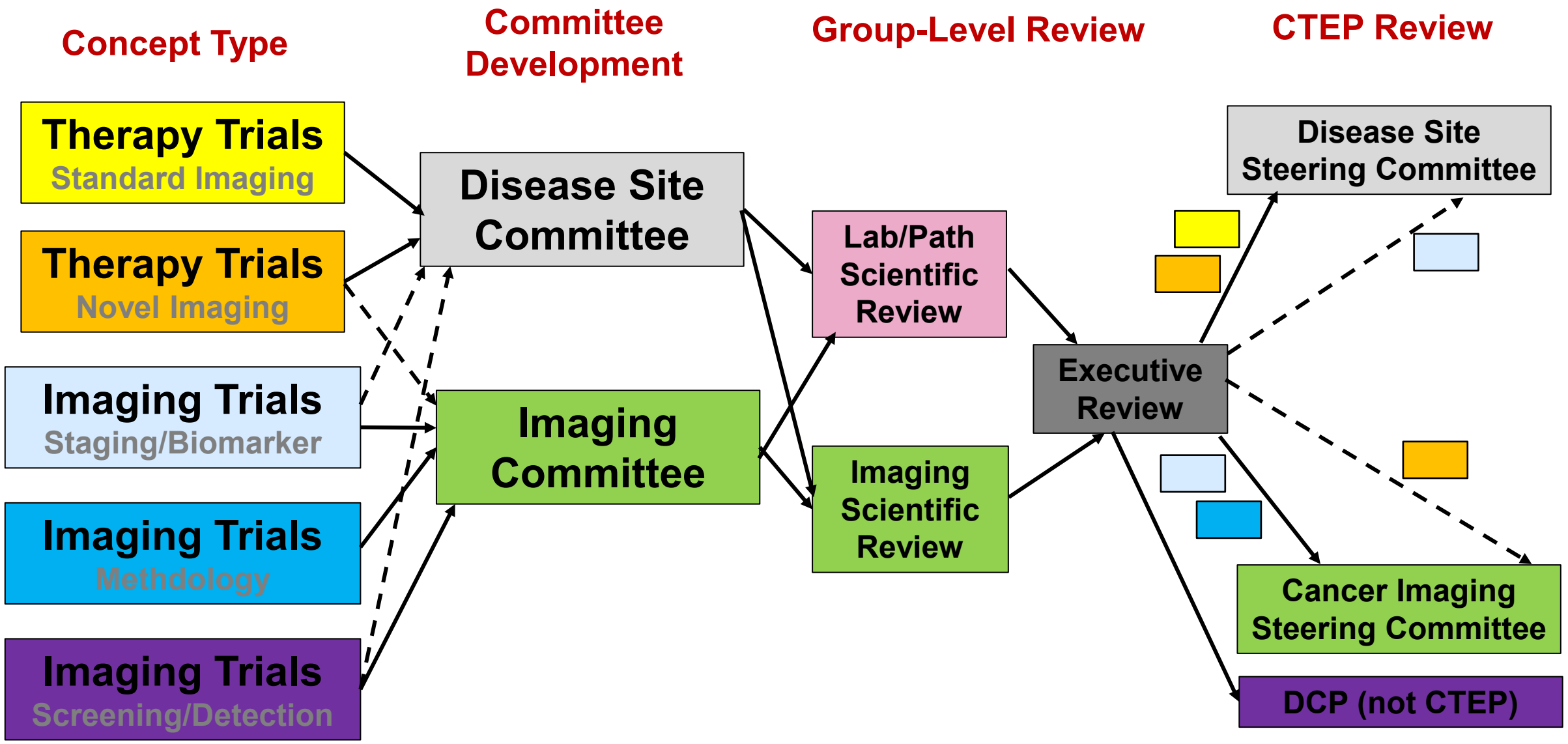
Cancer Imaging-Focused Trials in the NCTN

- My background and path NCTN participation and leadership
- **How Does Imaging Fit into the NCTN Portfolio?**
- **Types of Imaging trials in the NCTN**
- Examples of ECOG-ACRIN Imaging Trials and Opportunities for Early Investigators
- Guidance and Future Directions

NCTN Structure for Imaging Studies



Development & Review Pathway For Imaging Studies



Cancer Imaging-Focused Trials in the NCTN

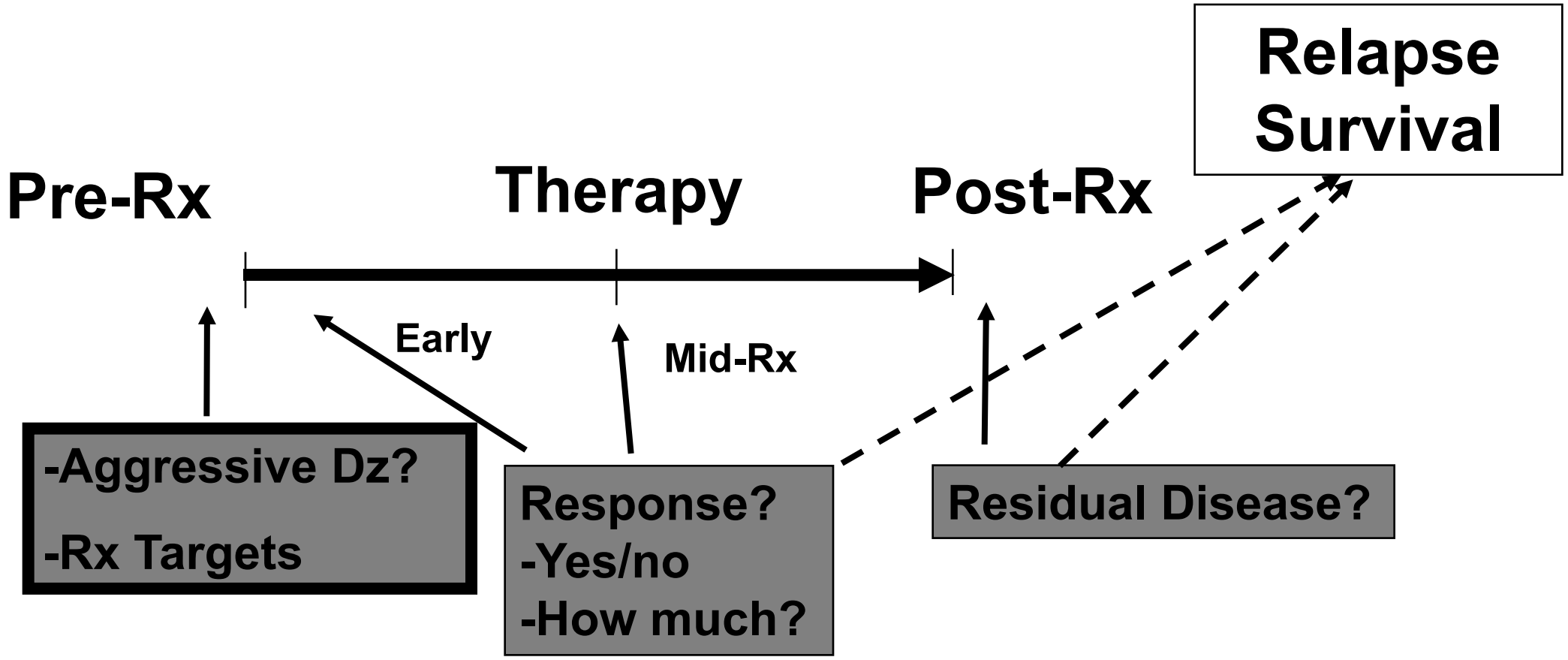
- My background and path NCTN participation and leadership
- How Does Imaging Fit into the NCTN Portfolio?
- Types of Imaging trials in the NCTN
- **Examples of ECOG-ACRIN Imaging Trials and Opportunities for Early Investigators**
- Guidance and Future Directions

Imaging Trials in ACRIN and ECOG-ACRIN

- **ACRIN 6684 - FMISO (hypoxia) PET and DCE/DSC MRI in glioma (Clin Cancer Res paper*; secondary analysis papers*)**
- **ACRIN 6687 - NaF PET to Assess Response to dasatinib (J Nucl Med paper*; secondary analysis papers*)**
- **ACRIN 6688 - FLT PET Early Response to Br Ca Neoadjuvant Therapy (J Nucl Med paper)**
- ACRIN 6691 - Diffuse Optical Spectroscopy Imaging Br Ca Response (Cancer Res paper, secondary paper*)
- LOCATE (ACR core lab) – Impact of Fluciclovone PET on treatment (J Urol paper; secondary papers*)
- EAI141 – FLT PET to measure early AML response (Leuk Lymphoma paper; secondary analysis planned*)
- **EAI142 - FES PET to predict 1st-line ER + MBC response (J Clin Onc in press; secondary analysis planned*)**
- **EA1183 - FDG PET/CT Br Ca bone met response (SABCS oral; primary paper pending; secondary analysis pending*)**
- EA1181 - FDG PET/CT for early HER2-target Rx response (trial design paper published*, accrual completed)
- EA1252 - Randomize Use of FES PET/CT to direct 2nd line ER+ Rx (under development)

* Junior investigator authorship opportunity

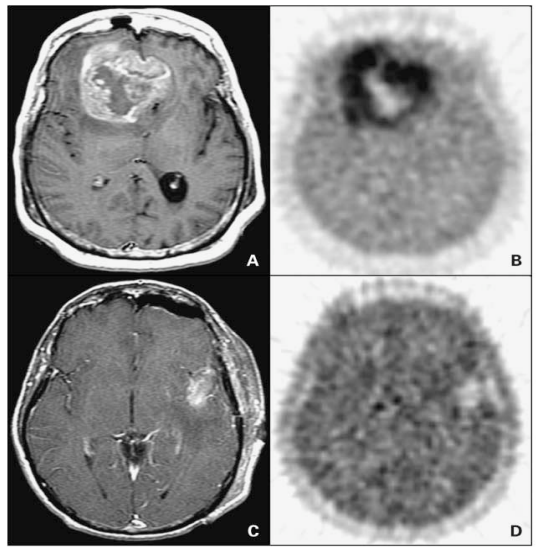
Imaging to Guide Cancer Therapy: Clinical Needs



[^{18}F]FMISO PET Predicts Outcome for GBM Patients

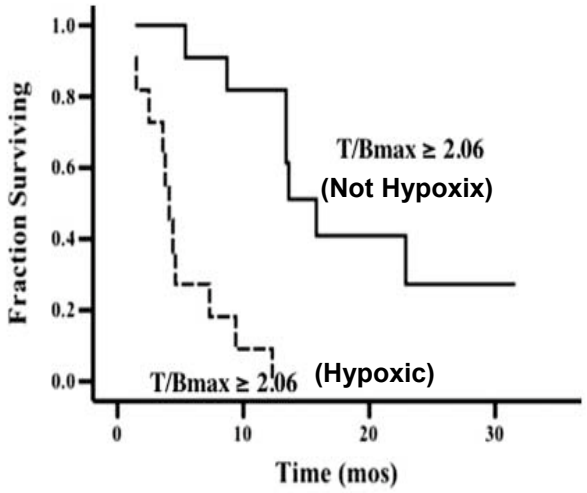
Spence, Clin Cancer Res 14:2623, 2008

MRI FMISO PET



Hypoxic

Not Hypoxic



University of Washington

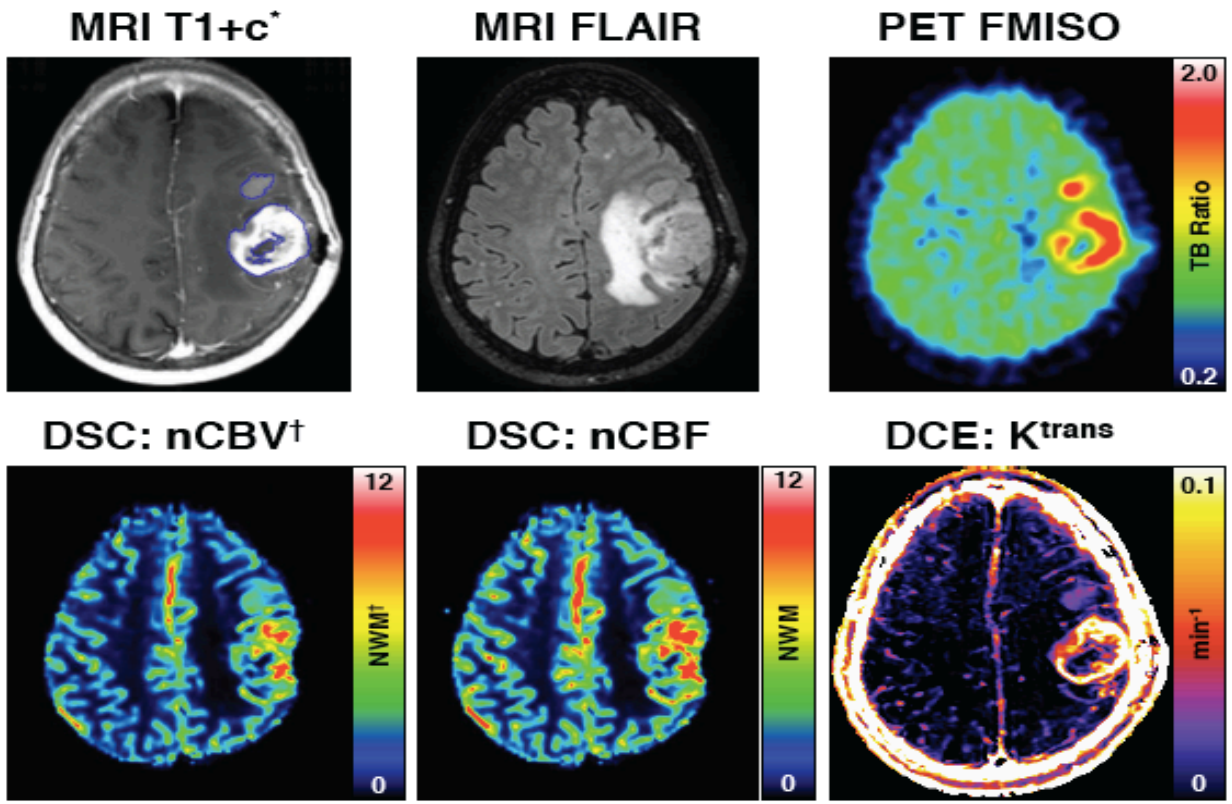
ACRIN 6684

MULTICENTER, PHASE II ASSESSMENT OF TUMOR HYPOXIA IN GLIOBLASTOMA USING ^{18}F-FLUOROMISONIDAZOLE (FMISO) WITH PET AND MRI

Elizabeth Gerstner, MD, PI

ACIN 6684: Hypoxia PET and MRI Predict GBM PFS and OS

Gerstner, Clin Cancer Res, 22:5079, 2016



Personalized Medicine and Imaging

Clinical Cancer Research

ACRIN 6684: Assessment of Tumor Hypoxia in Newly Diagnosed Glioblastoma Using ^{18}F-FMISO PET and MRI

Elizabeth R. Gerstner[1,2], Zheng Zhang[3], James R. Fink[4], Mark Muzi[4], Lucy Hanna[5], Erin Greco[5], Melissa Prah[5], Kathleen M. Schmainda[5], Akiva Mintz[6], Lale Kostakoglu[7], Edward A. Eikman[8], Benjamin M. Ellingson[9], Eva-Maria Ratai[2,10], A. Gregory Sorensen[11], Daniel P. Barboriak[12], David A. Mankoff[13], and for the ACRIN 6684 Trial Group

Table 3: Cox Regression Model

	Overall Survival Time			Progression Free Survival		
Parameter	Hazard Ratio	95% CI	p-value	Hazard Ratio	95% CI	p-value
Univariate Model						
SUVpeak	1.54	1.00, 2.36	0.048*	1.24	0.80, 1.91	0.33
TBmax	1.16	0.75, 1.81	0.50	0.93	0.61, 1.40	0.72
HV	1.00	0.97, 1.03	0.90	1.01	0.98, 1.04	0.36
Mean k^{trans}	1.17	1.02, 1.34	0.024*	1.10	0.99, 1.23	0.074
Median k^{trans}	1.32	1.01, 1.72	0.045*	1.30	1.04, 1.63	0.021*
nRCBV	1.11	0.90, 1.37	0.31	1.28	1.06, 1.54	0.0096*
nCBF	1.07	0.88, 1.29	0.51	1.18	1.01, 1.38	0.038*

ACRIN 6684 Secondary Papers

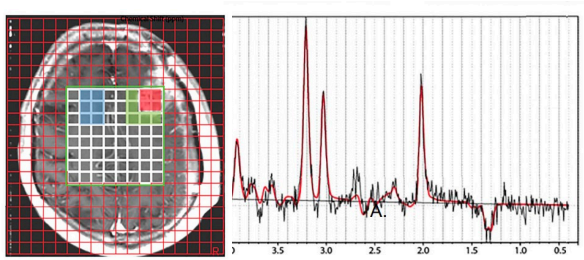
Planned Secondary Aim

PLOS ONE

RESEARCH ARTICLE

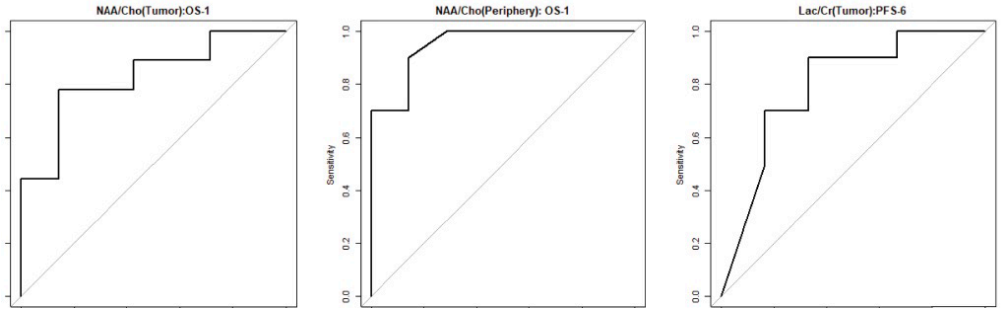
ACRIN 6684: Multicenter, phase II assessment of tumor hypoxia in newly diagnosed glioblastoma using magnetic resonance spectroscopy

Eva-Maria Ratai[1,2]*, Zheng Zhang[3], James Fink[4], Mark Muzi[4], Lucy Hanna[3], Erin Greco[3¤a], Todd Richards[4], Daniel Kim[1,2], Ovidiu C. Andronesi[1,2], Akiva Mintz[5¤b], Lale Kostakoglu[6], Melissa Prah[7], Benjamin Ellingson[8], Kathleen Schmainda[7], Gregory Sorensen[1,2¤c], Daniel Barboriak[9], David Mankoff[10], Elizabeth R. Gerstner[2,11], on behalf of the ACRIN 6684



MRS Methodology

2^0 Aim: MRS Accuracy in Predicting 1 year OS



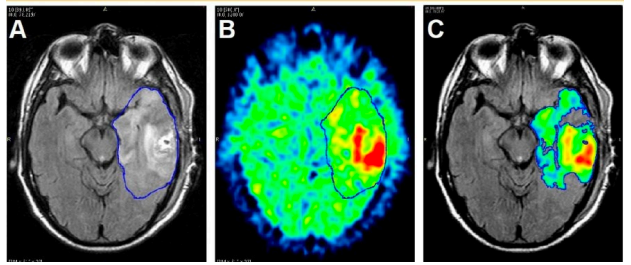
(Ratai, Plus One, June 2018)

Ad-Hoc Analysis: Data Request

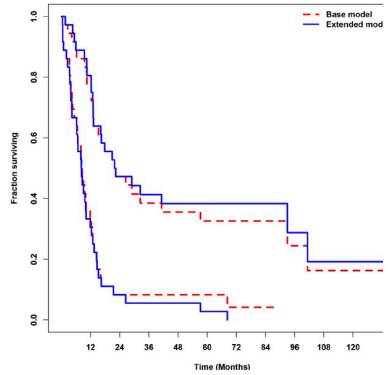
TOMOGRAPHY® RESEARCH ARTICLE

Assessment of the Prognostic Value of Radiomic Features in ^{18}F-FMISO PET Imaging of Hypoxia in Postsurgery Brain Cancer Patients: Secondary Analysis of Imaging Data from a Single-Center Study and the Multicenter ACRIN 6684 Trial

Mark Muzi[1], Eric Wolsztynski[2,4], James R. Fink[1], Janet N. O'Sullivan[2], Finbarr O'Sullivan[2], Kenneth A. Krohn[1], and David A. Mankoff[3]



PET Radiomics Methodology



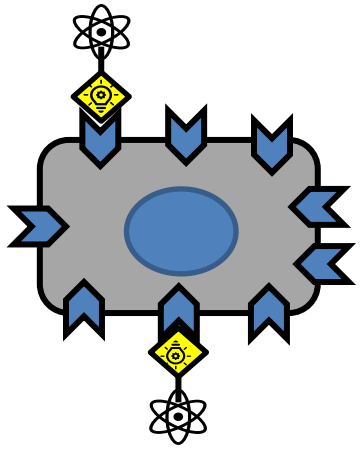
Predicting OS

(Muzii, Tomography, 6:14, 2020)

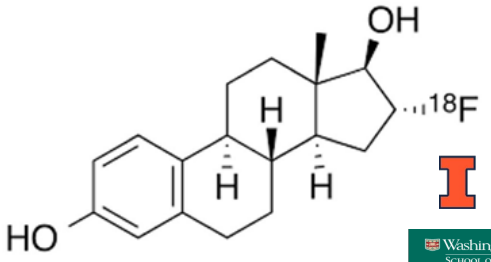
Radiopharmaceutical Diagnostics:

Quantify Target Expression by in vivo Radioligand Binding Assay

Measure Target Expression

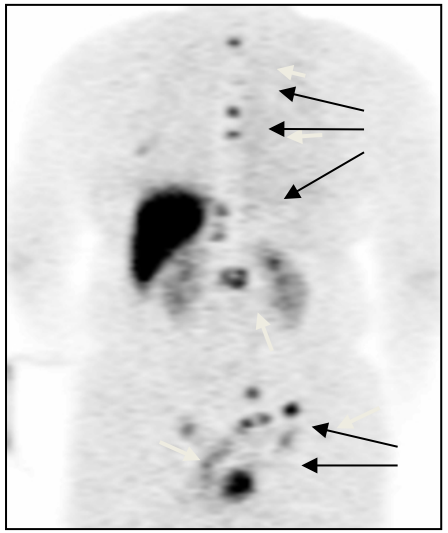


16α-[^{18}F]fluoroestradiolol (FES)



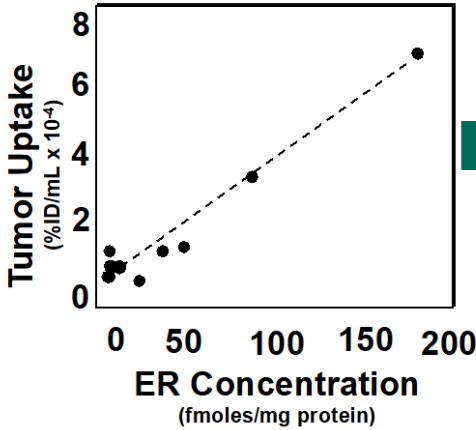
(Katzenellenbogen, Nucl Med Biol 92:24, 2021)

Estrogen Receptor PET (Breast Cancer)



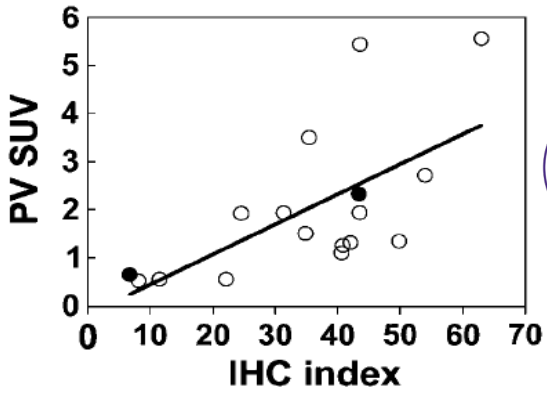
Uptake (SUV) vs Tissue Assay

Radioligand Binding



(Mintun, Radiology 169:45, 1988)

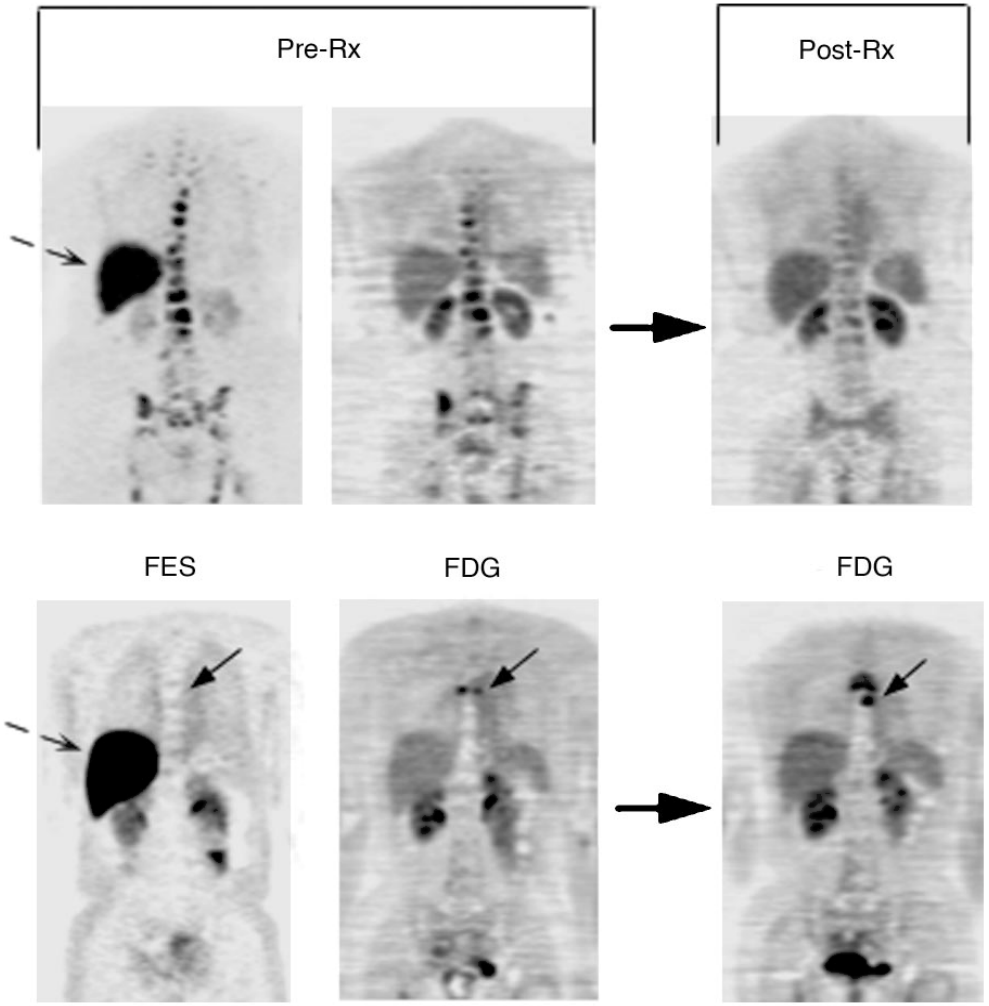
Immunohisto-chemistry



(Peterson, J Nucl Med 49: 367, 2008)

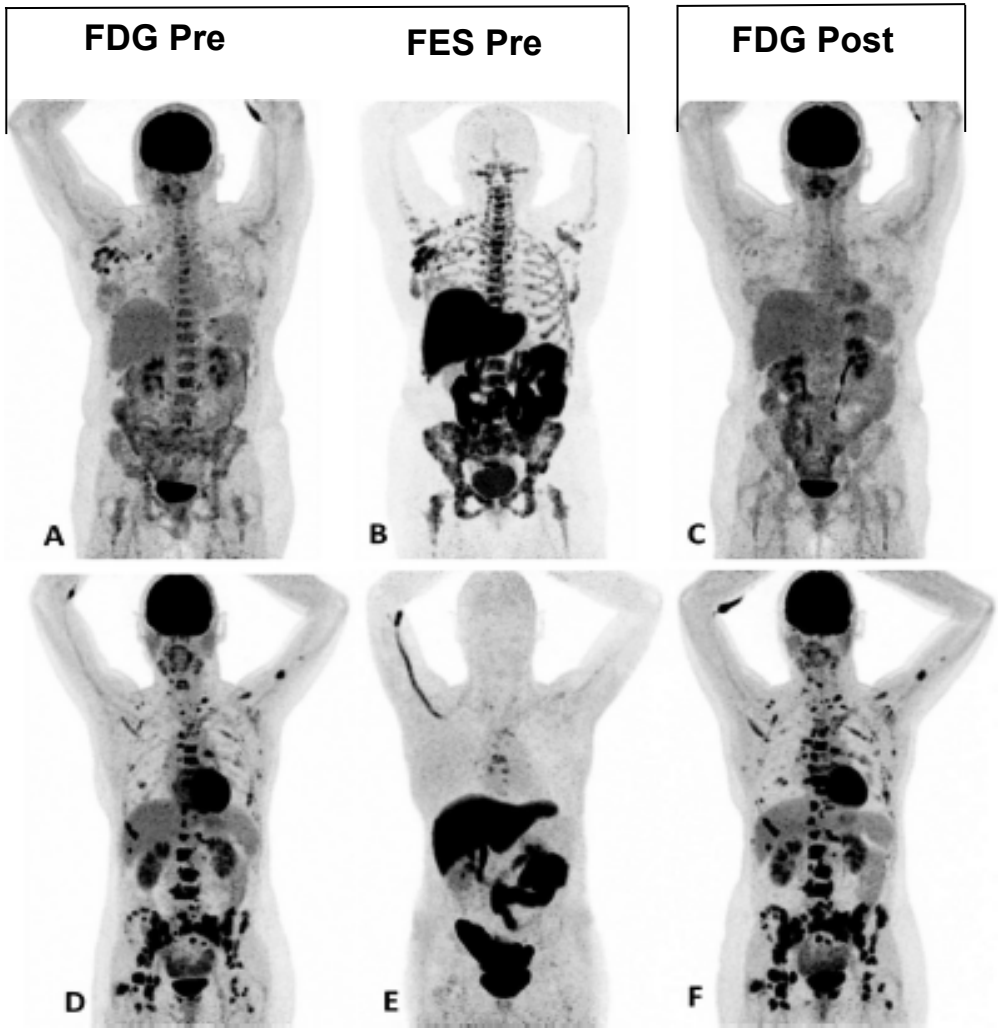
Is the Target Present?

FES Uptake Predicts Breast Cancer Response to Hormonal Therapy



Response

Progression



(Linden, J Clin Onc, 24:2793, 2006)

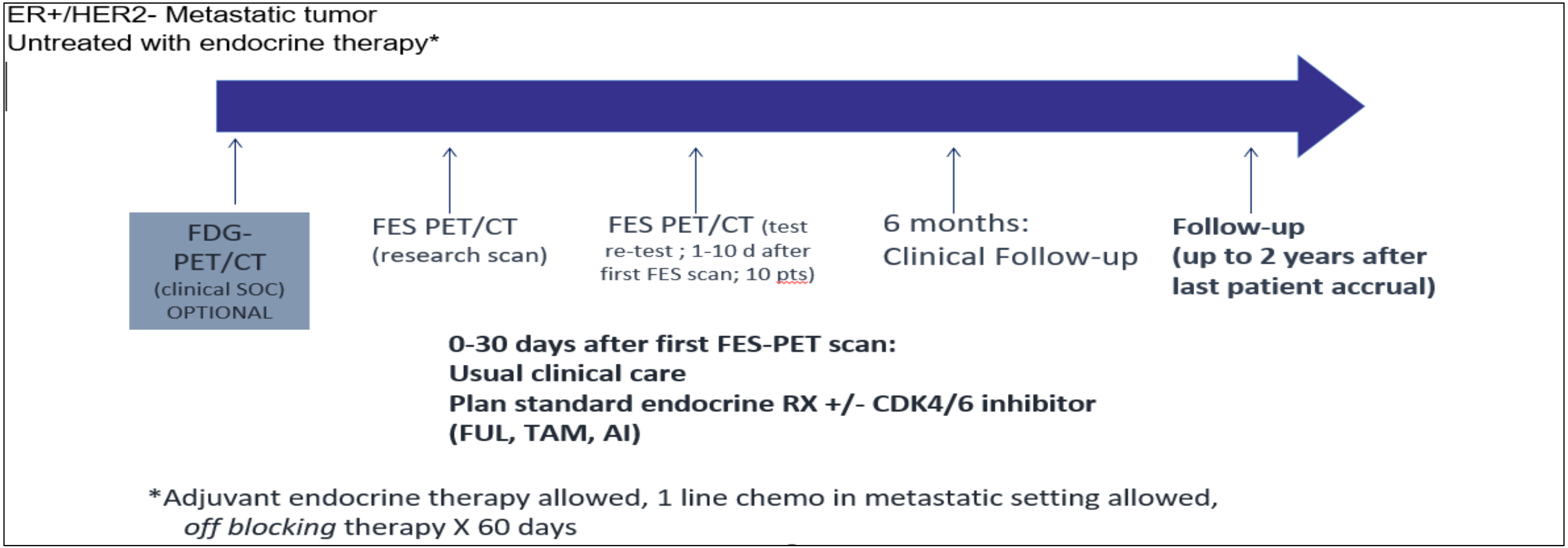
(Boers, Eur J Cancer 126:11e20, 2020)

ECOG-ACRIN Biomarker Trial of FES PET: EAI142

Dehdashti & Linden

- First line therapy
- Stand-alone imaging trial:
  - Clinical indication for endocrine therapy
  - Standard Rx allowed (AI, FUL, TAM)
  - Measurable and non-measurable disease

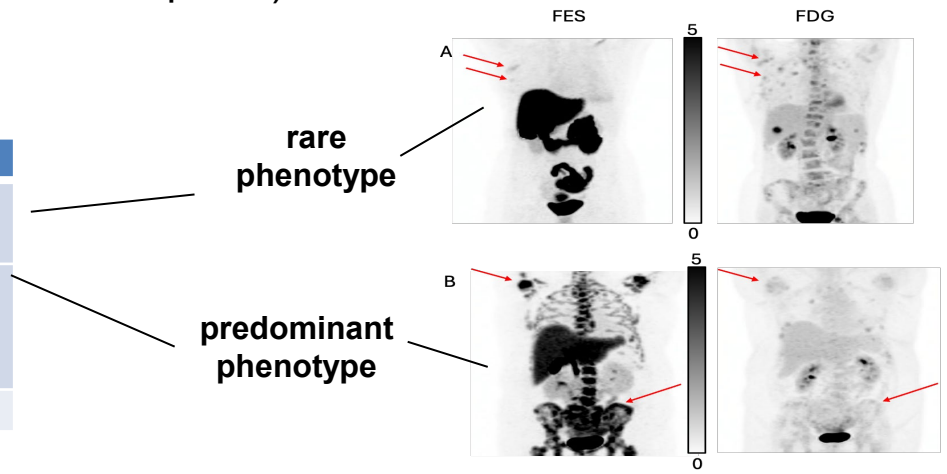
EAI142 Schema



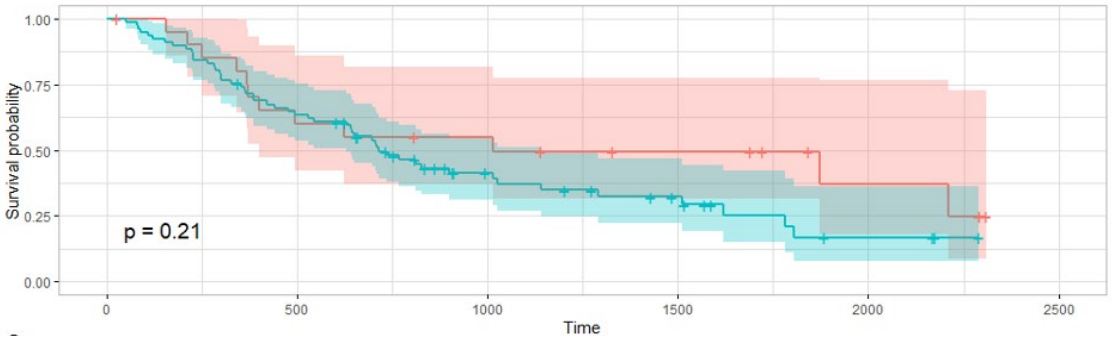
[^{18}F]16α-fluoro-17β-estradiol (FES)-PET as a predictive measure for first-line endocrine therapy in patients with newly diagnosed metastatic breast cancer (EAI142)

Linden, Dehdashti et al (J Clin Oncol, in press)

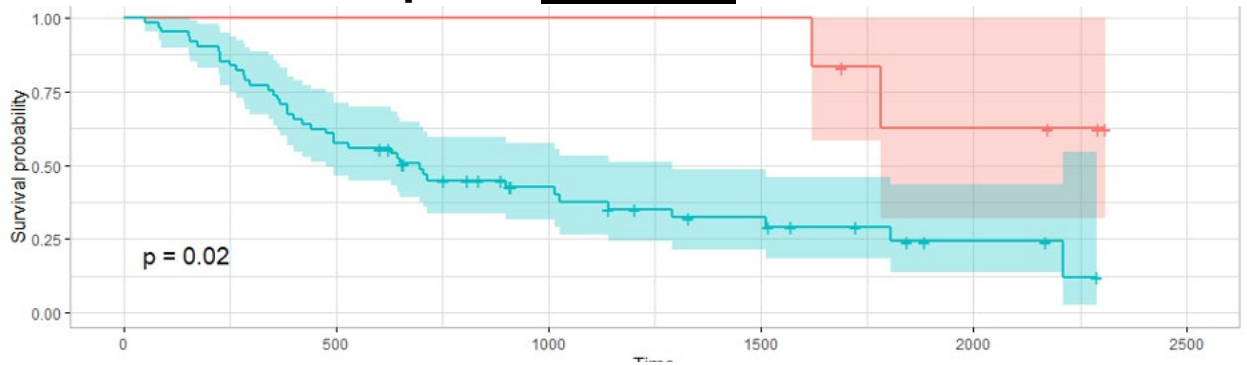
Visual Assessment	Number of Lesions	Number of Patients[1]	Number of Patients[2]
No uptake	0 (0%)	19 (19.4%)	1 (1%)
Minimal uptake	3 (0.67%)		
Mild uptake	36 (8%)		97 (99%)
Moderate uptake	84 (18.67%)	79 (80.6%)	
Intense uptake	327 (72.67%)		
Total	450	98	98



FES Uptake Did Not Predict PFS



FDG Uptake Strongly Predicted PFS

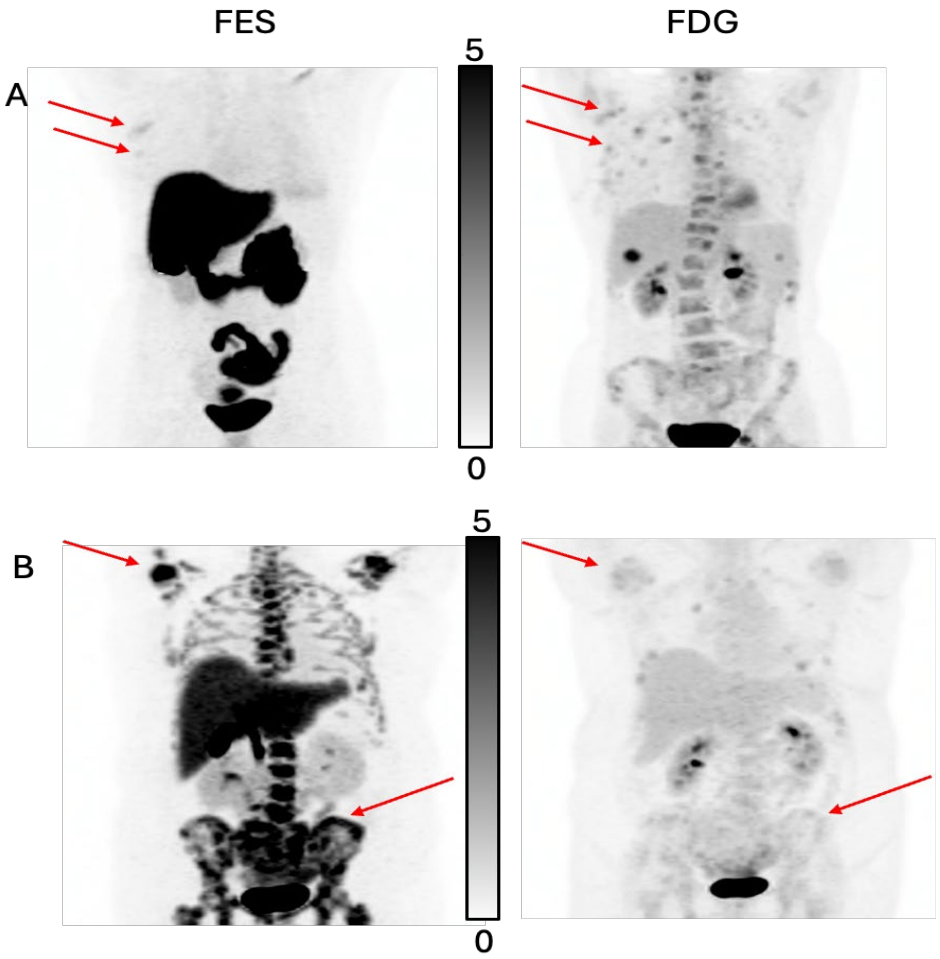


Lessons Learned:

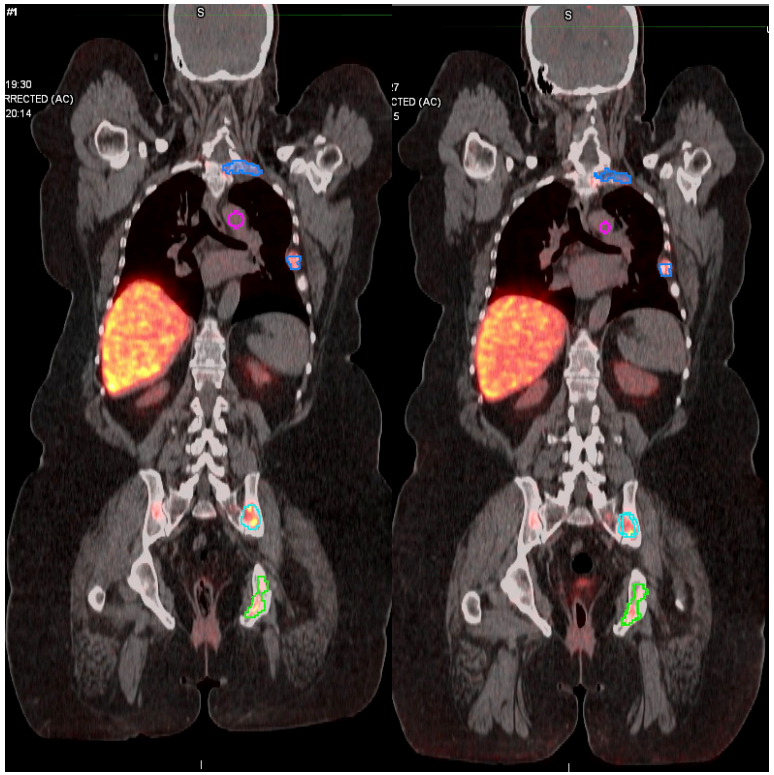
- Prospective, multi-center trials are important!
- Predictive value of imaging biomarkers depends upon patient presentation and treatment stage
- Consistent retention of ER expression in untreated MBC support a role for FES PET/CT in staging

EAI142 Planned Secondary Analysis Papers

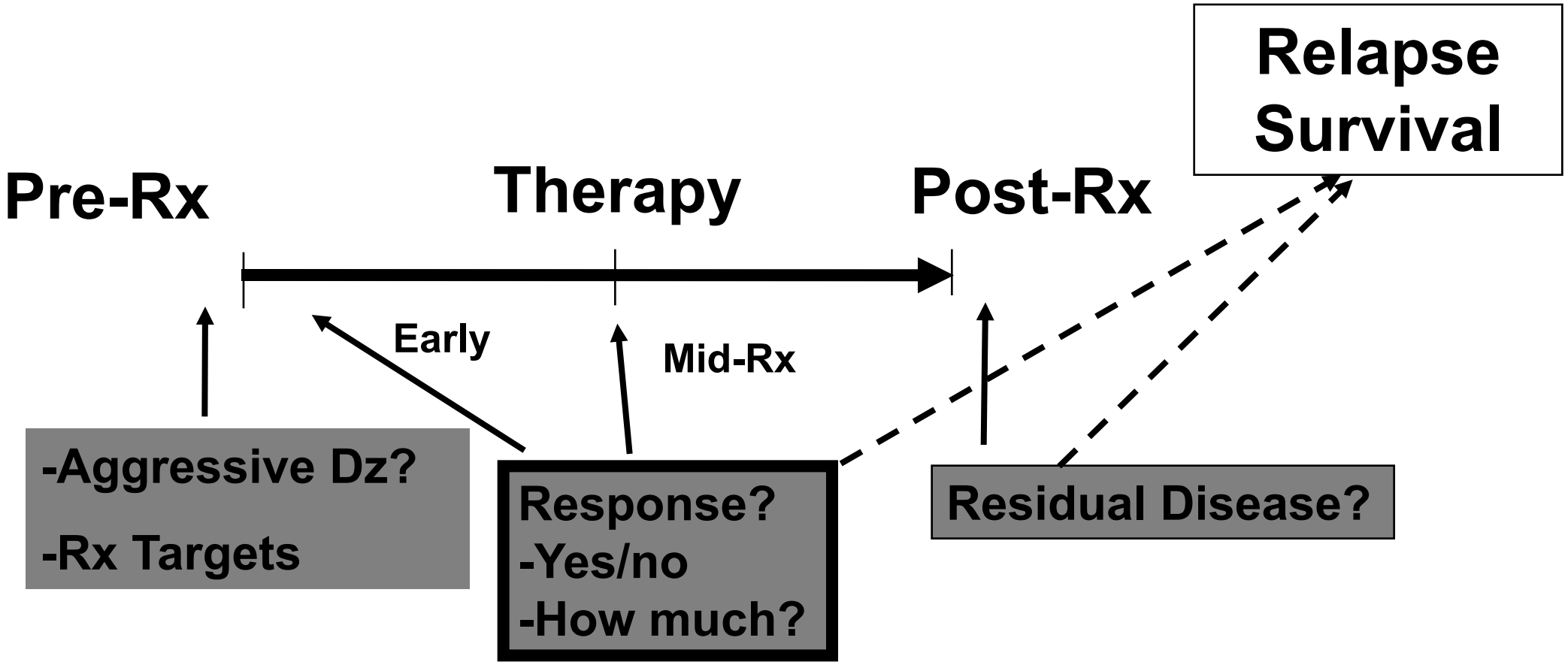
Comparative Staging of FES vs FDG PET/CT: Is FES > FDG for ILC?



Methodology for Automated, Clinically Practical Comparative FDG and FES Analysis

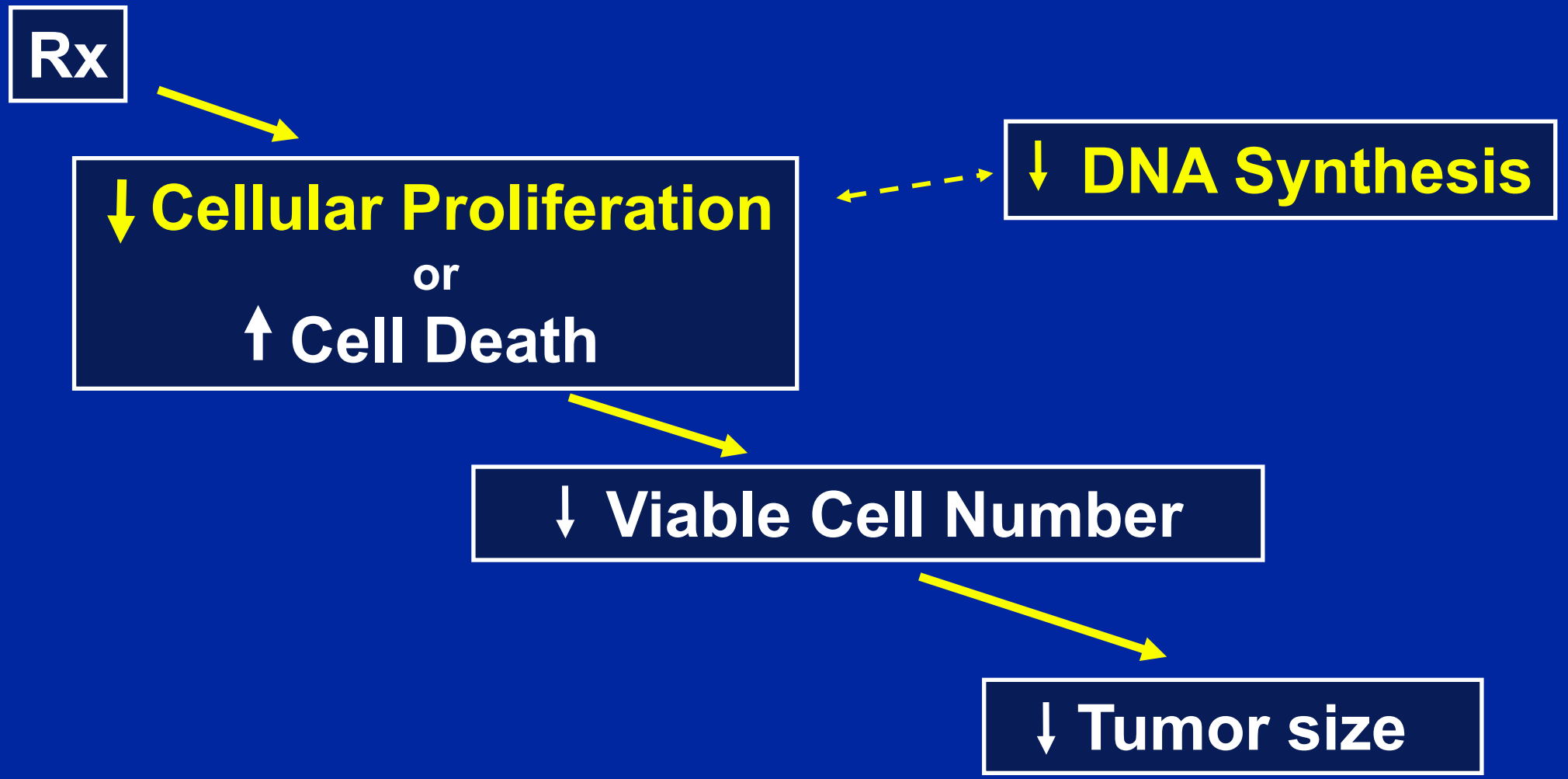


Imaging to Guide Cancer Therapy: Clinical Needs

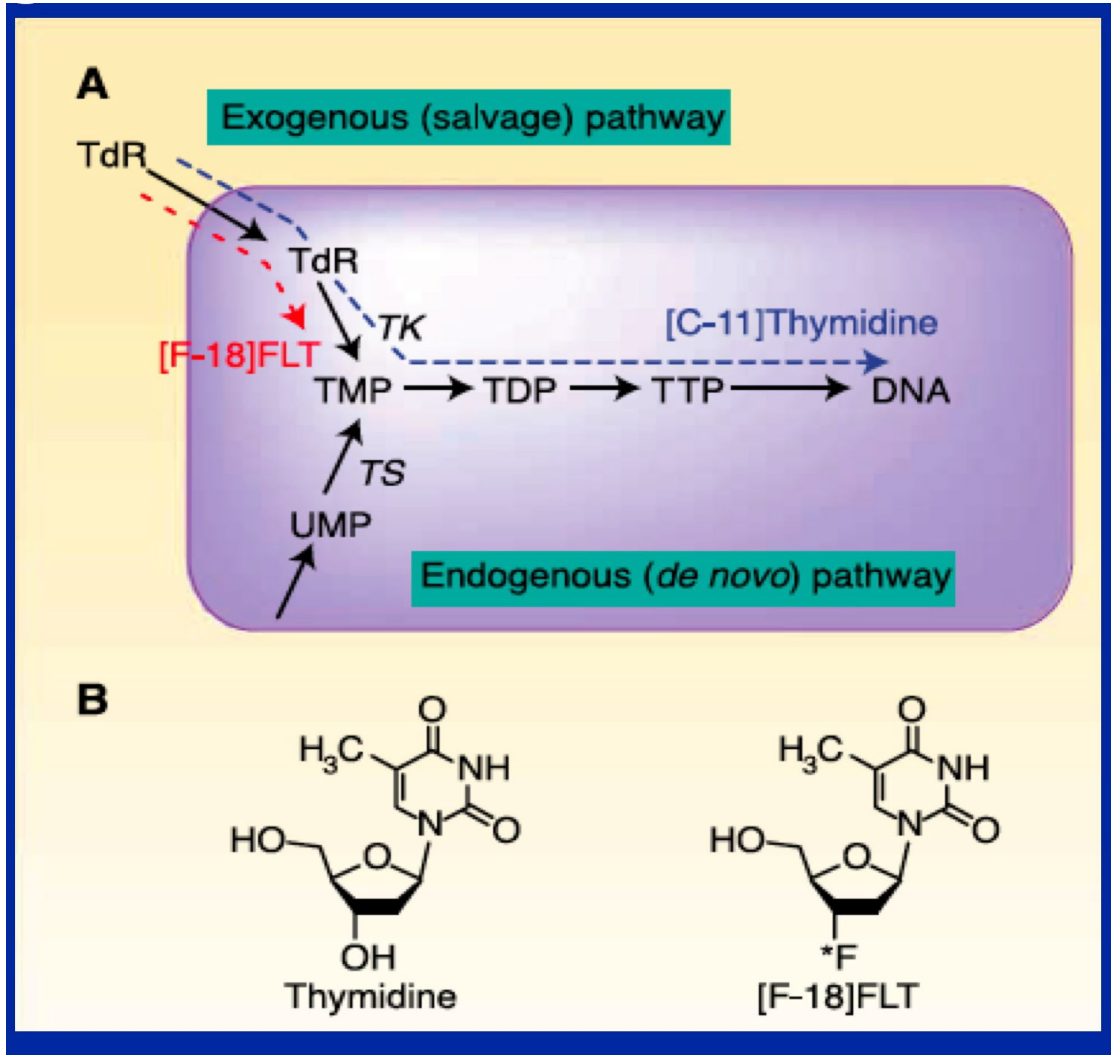


Biologic Events in Early Response to Successful Cancer Therapy

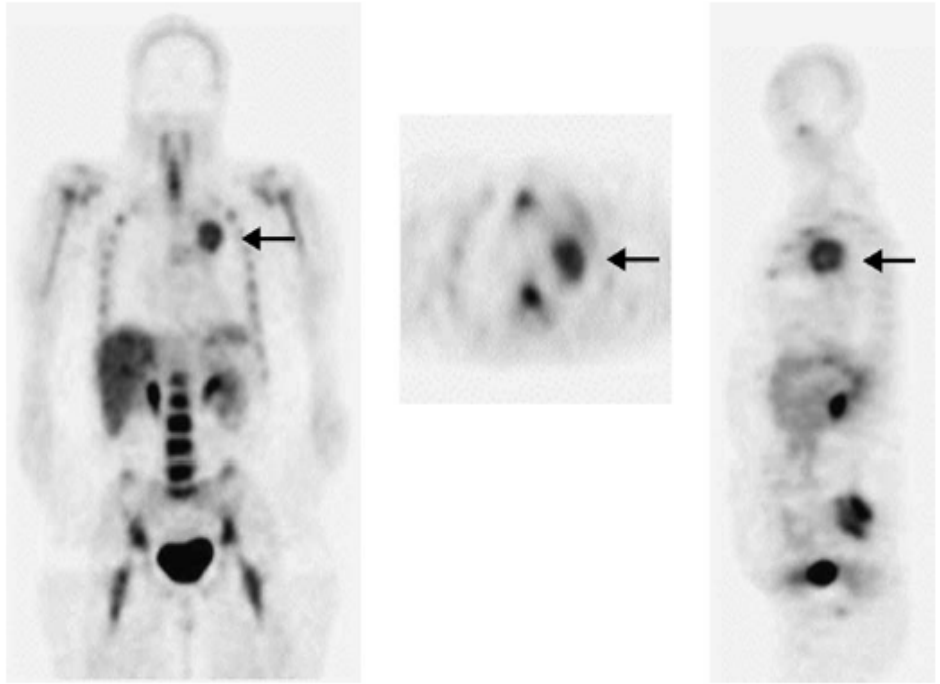
Rationale for Measuring Early Response by Cell Proliferation Imaging



Imaging Cellular Proliferation: [^{18}F]fluorothymidine (FLT)



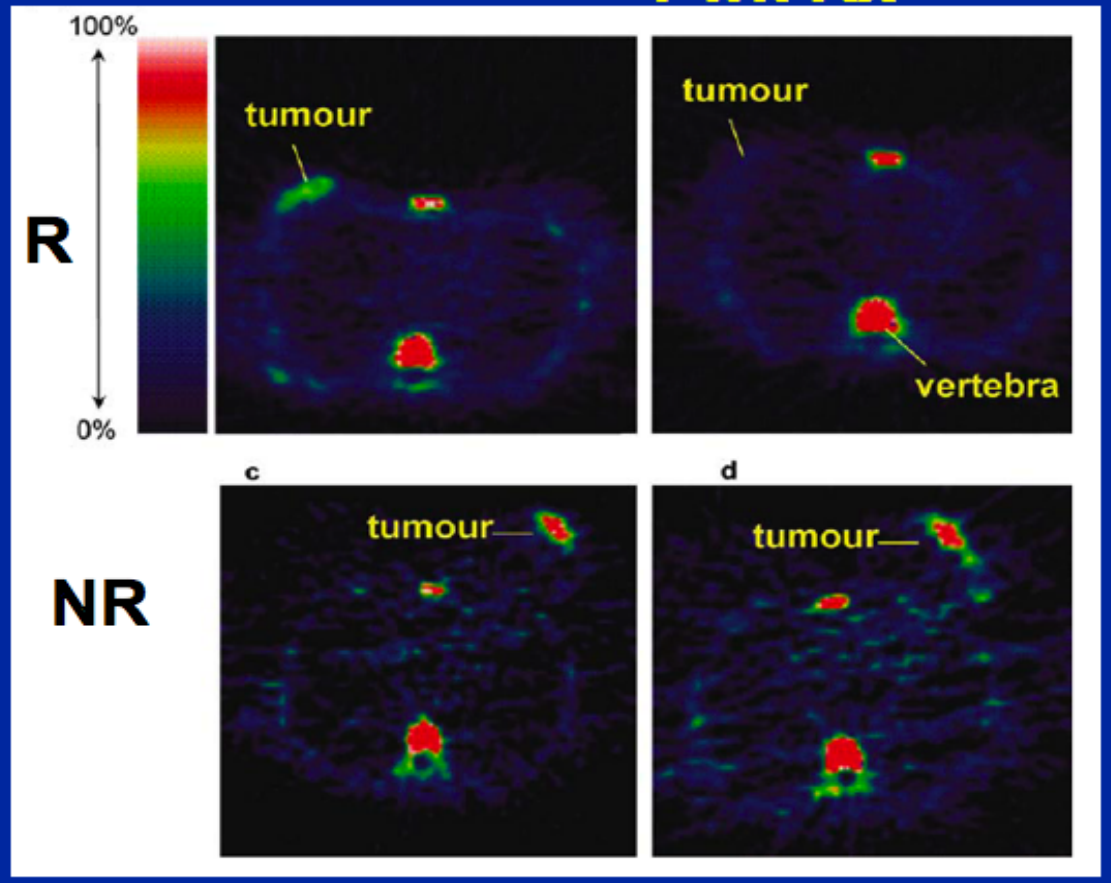
(Grierson, Nucl Med Biol 27:143, 2000;
Mankoff and Eary, Clin Cancer Res 14:7519, 2008)



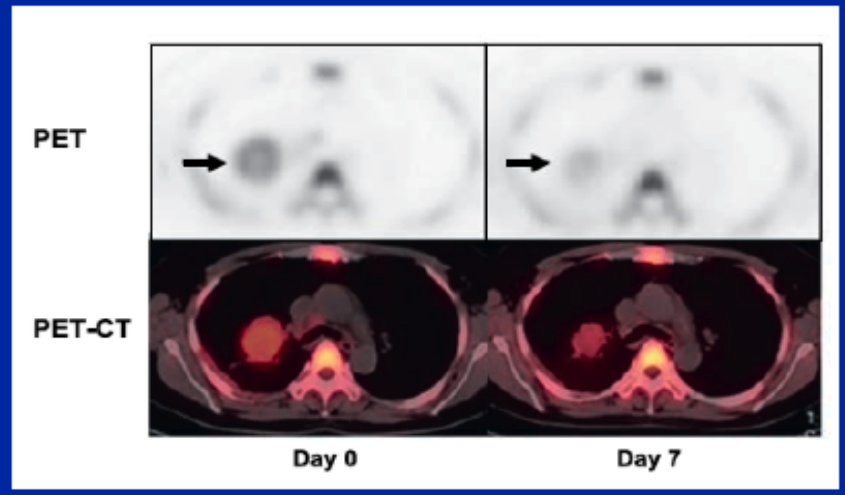
(Shields AF, Nature Med 4:1334, 1998)

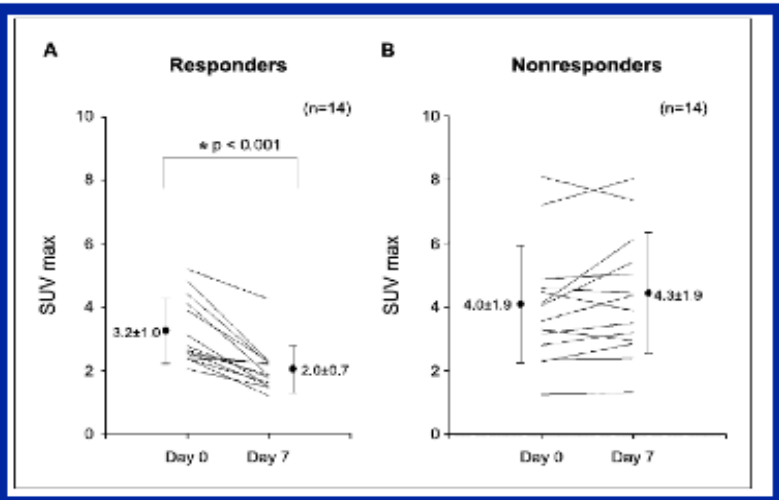
Early Response Measured by ^{18}F-fluorothymidine (FLT) PET

Breast CA, ChemoRx
(Kenny, EJNMMI 34:1339, 2007)

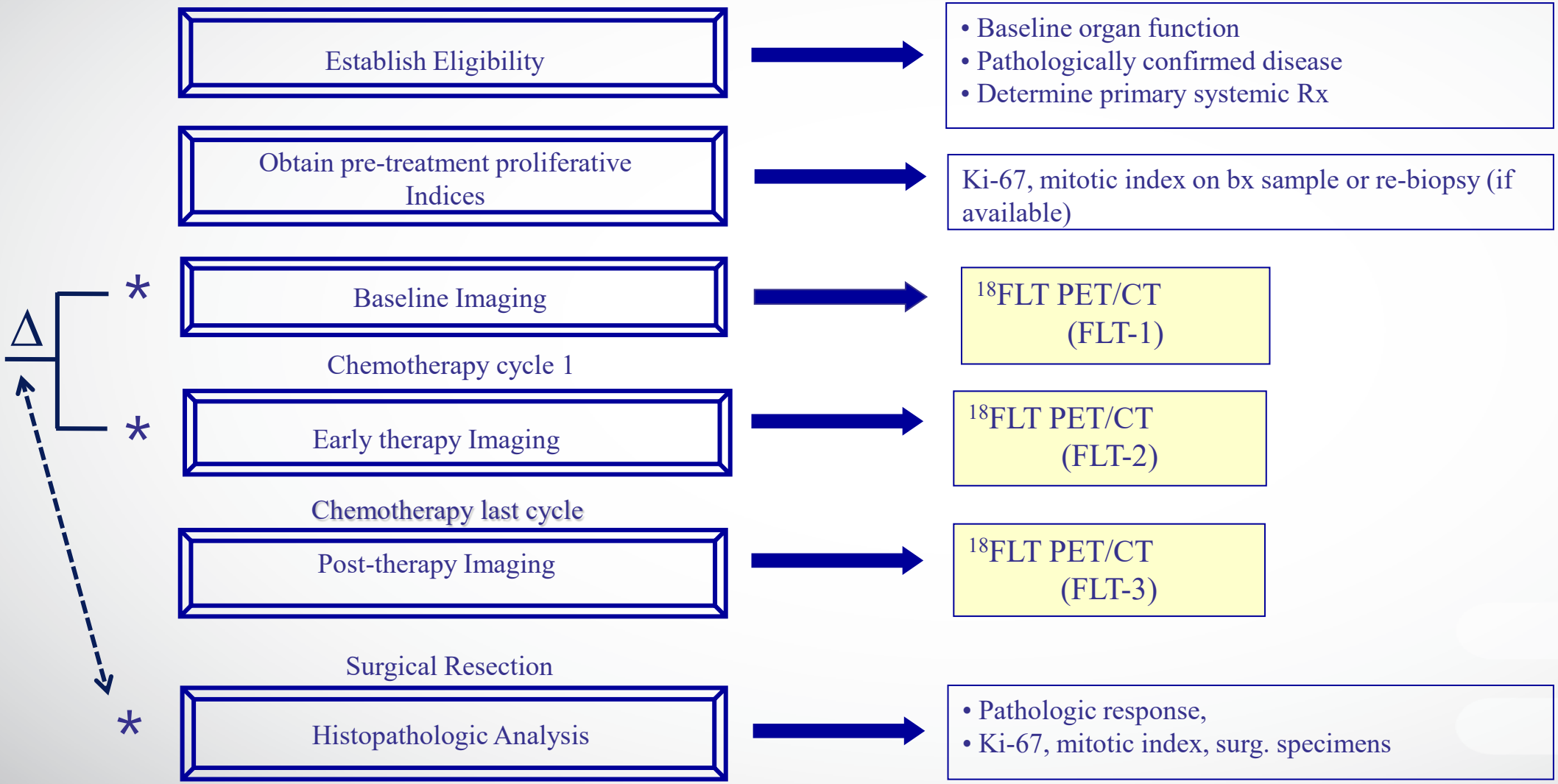


Lung CA, Genfitinib Rx
(Sohn, Clin Cancer Res 14: 7423, 2008)





ACRIN 6688: Phase II Study of FLT-PET in Invasive Breast Cancer



ACRIN 6688: FLT PET to Measure Early Breast Cancer Response

(PI: Lale Kostakoglu)

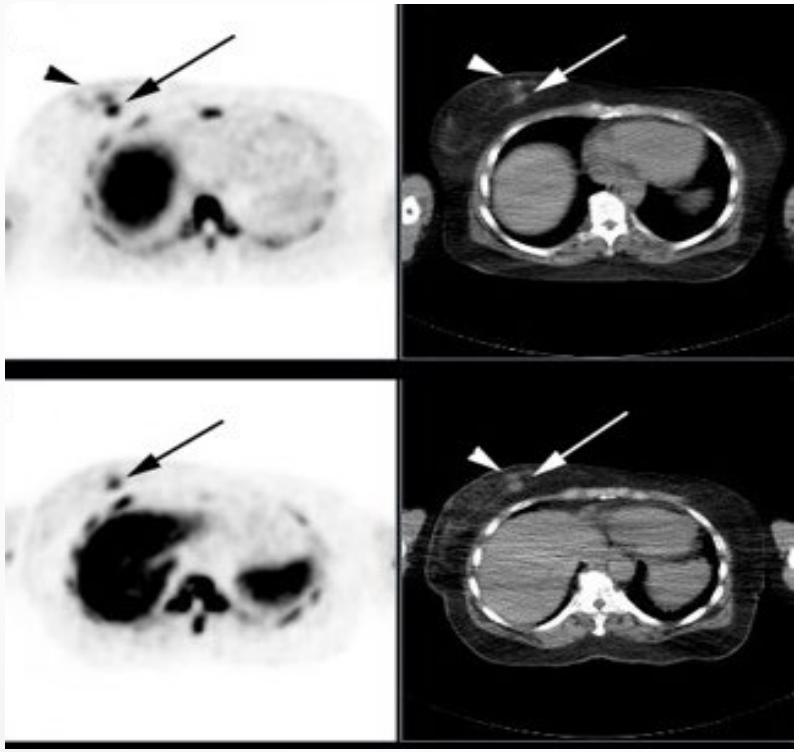
Lale Kostakoglu, PI
Jen Specht, UW Site PI

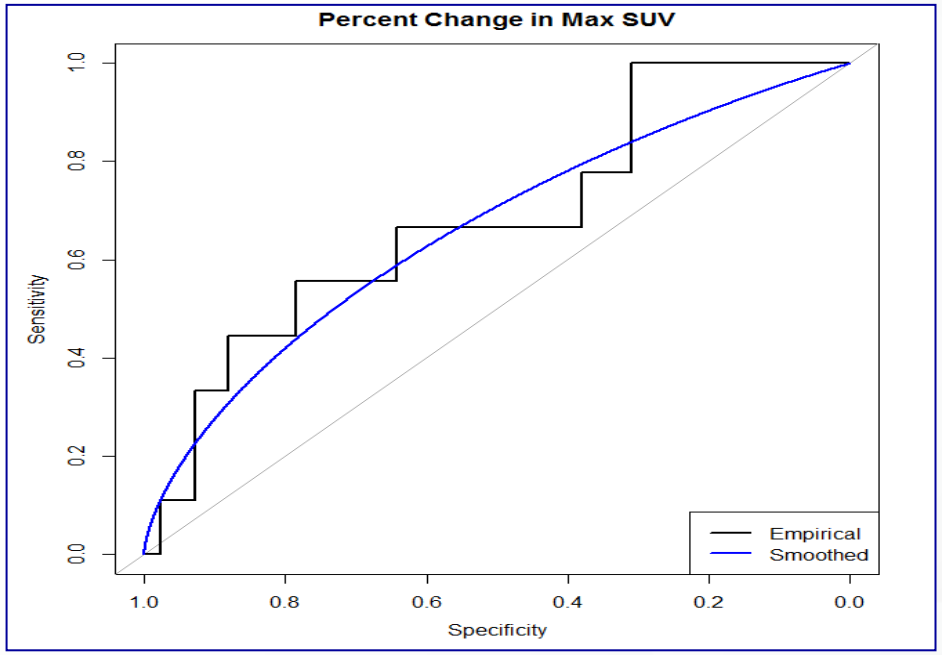
A Phase II Study of 3′-Deoxy-3′-^{18}F-Fluorothymidine PET in the Assessment of Early Response of Breast Cancer to Neoadjuvant Chemotherapy: Results from ACRIN 6688

Lale Kostakoglu[1], Fenghai Duan[2], Michael O. Idowu[3], Paul R. Jolles[3], Harry D. Bear[3,4], Mark Muzi[5], Jean Cormack[2], John P. Muzi[5], Daniel A. Pryma[6], Jennifer M. Specht[5], Linda Hovanessian-Larsen[7], John Miliziano[8], Sharon Mallett[9], Anthony F. Shields[10], and David A. Mankoff[6], on behalf of the ACRIN 668 Investigative Team

Pre-Rx

7 d Post-Rx





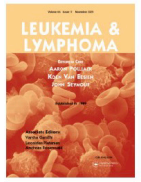
Best ΔSUV_{max} cut-off for predicting pCR = -51% (sensitivity 56%;specificity 79%).

(Kostakoglu, J Nucl Med, 56: 1681, 2015)

ACRIN 6688 Secondary Impact & Opportunity

Does Kinetic Image Analysis improve Response Prediction?

Paved the Way for an AML FLT Trial (EAI141)



Taylor & Francis
Taylor & Francis Group

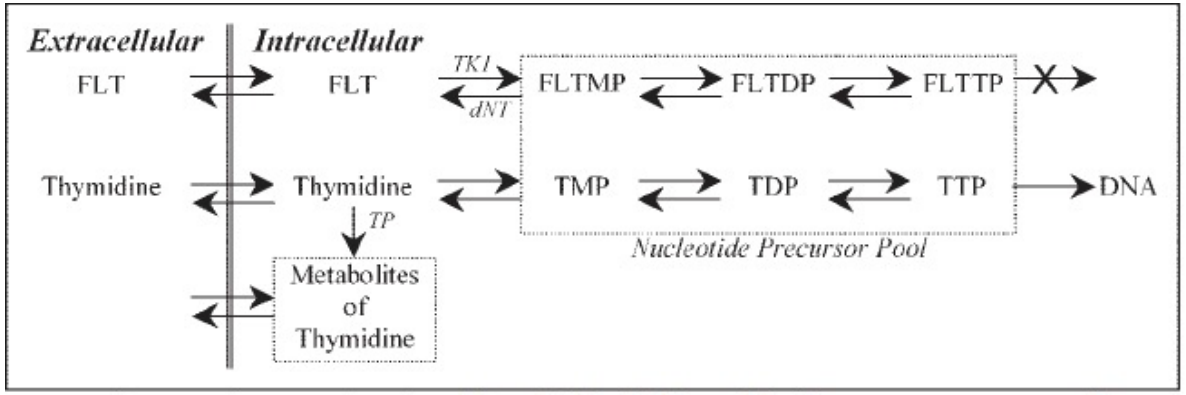
Leukemia & Lymphoma

ISSN: 1042-8194 (Print) 1029-2403 (Online) Journal homepage: www.tandfonline.com/journals/ilal20

Early assessment of treatment response in AML using FLT PET/cT: a trial of the ECOG-ACRIN Cancer Research Group (EAI141)

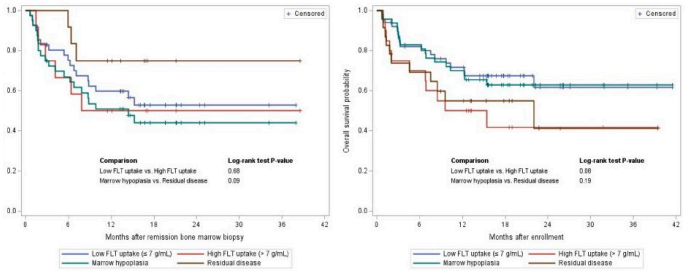
Robert Jeraj, Fenghai Duan, Ryan J. Mattison, Justin Romanoff, Lale Kostakoglu, Daniel A. Arber, Elisabeth M. Paietta, Jennifer L. Holter-Chakrabarty, Charles D. Arnold, Stephen A. Strickland, Jennifer G. Whisenant, Barry A. Siegel, Geoffrey L. Uy, Kebede H. Begna, Gregory A. Wiseman, Aric C. Hall, Scott B. Perlman, Mark R. Litzow & David A. Mankoff

Kinetic Analysis (Methodology)

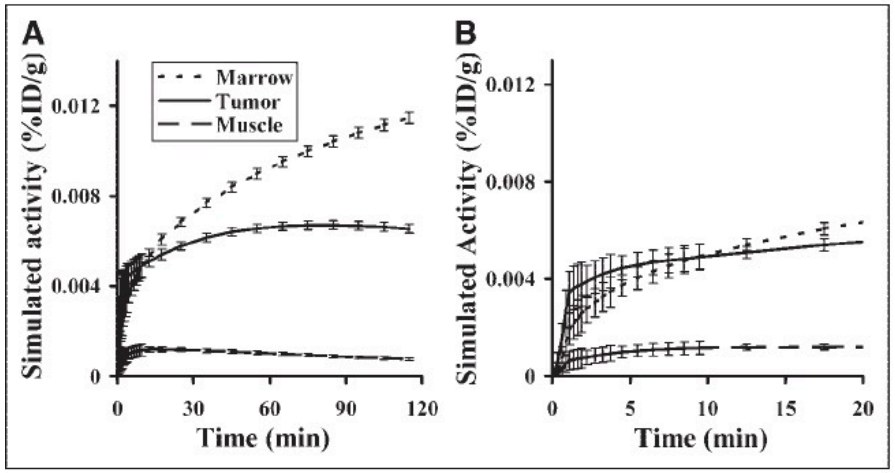


WB FLT PET Methodology

Predictive Value for AML Induction



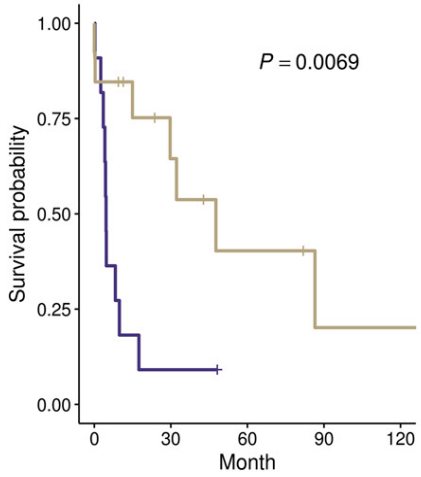
(Jeraj, Leuk Lymphoma. 66: 2765, 2025



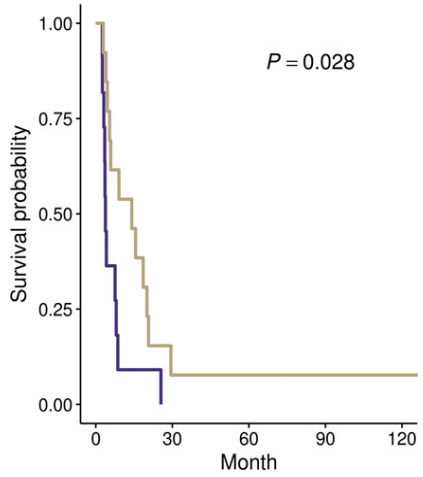
(Muzi, J Nucl Med 46:371, 2005)

FDG PET Measures Bone Metastasis Therapeutic Response

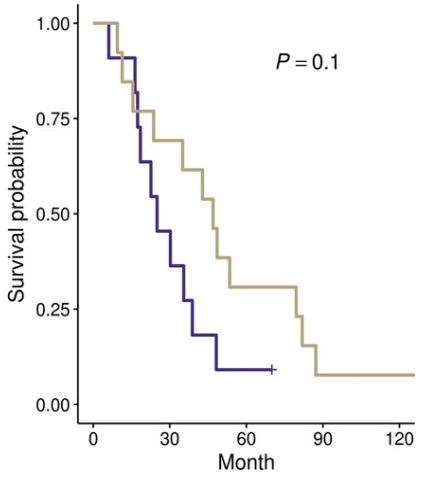
Progression-Free Survival



Time-to- Skeletal Event



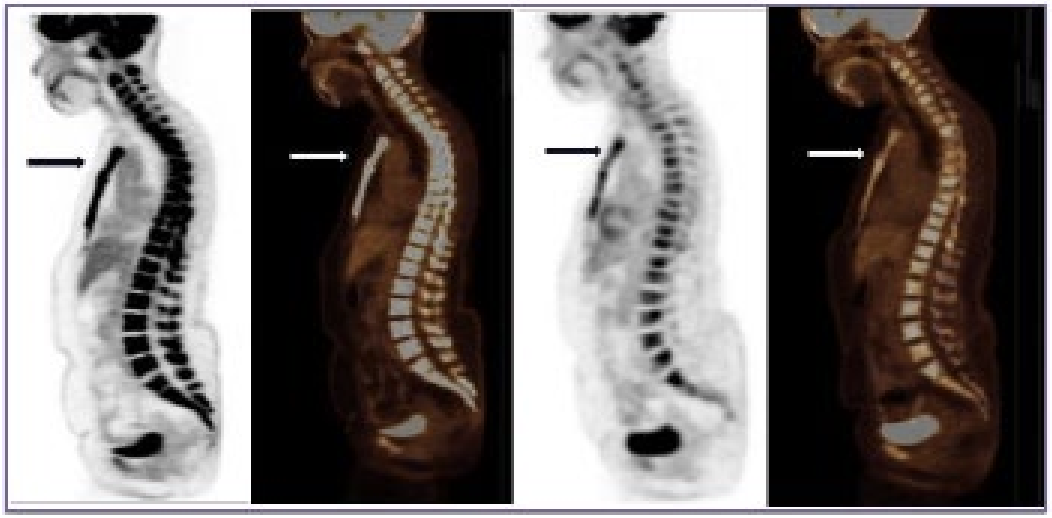
Overall Survival



Modified PERCIST Criteria: Metabolic Progression versus Other

(Peterson, J Nucl Med 2018; 59:1823)

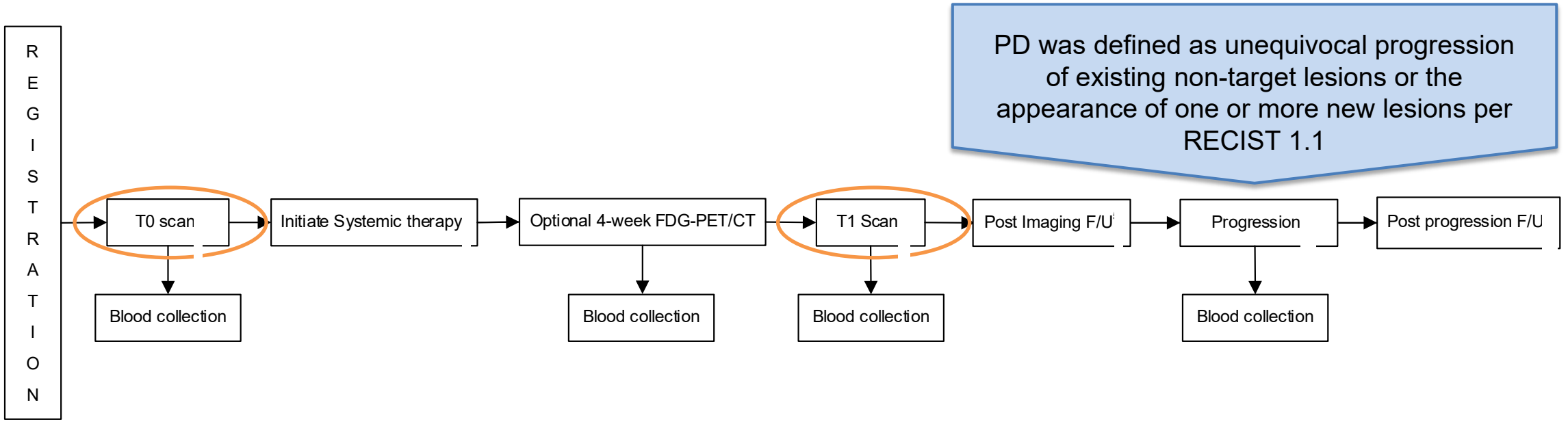
Pre-Rx **4 wks Rx**



(Mahlkin, Radiol Imaging Cancer. 2022 Nov;4(6):e220032)

Penn Medicine
Abramson Cancer Center

EA1183 Schema



- Radiographically confirmed MBC with histologic confirmation of either metastatic or primary tumor biopsy; **hormone receptor positive with known HER2 status**.
- **BO/BD disease**
- RECIST 1.1 measurable lesions in viscera, active CNS, LMD, or pleural or peritoneal disease were excluded.
- Plan to receive **1st, 2nd, or 3rd line endocrine therapy, or chemotherapy or antibody drug conjugates or HER2-targeted therapies**. Patients who have received >3 lines of cytotoxic chemotherapy were excluded.

SAN ANTONIO BREAST CANCER SYMPOSIUM®
UT Health San Antonio Mays Cancer Center
AACR American Association for Cancer Research
DECEMBER 9–12, 2025
HENRY B. GONZALEZ CONVENTION CENTER • SAN ANTONIO, TX

FDG-P**E**T to **A**ssess **T**herape**u**tic **R**esponse in Patients with Bone-dominant Metastatic Br**e**ast Cancer, **FEATURE** ECOG-ACRIN EA1183

Jennifer M. Specht[1], Fenghai Duan[2], Heather Jacene[3], Eric Q. Konnick[4], Frank Brescia[5], Austin R. Pantel[6], Samuel J. Galgano[7], Justin Romanoff[2], Lanell M. Peterson[1], Mark Muzi[4], Nancy U. Lin[3], Ahmed K. Abou Hussein[8], Wajeeha Razaq[9], William R. Gwin[1], Ami N. Shah[10], Mathew A. Cherian[11], Blanche H. Mavromatis[12], Chadwick L. Wright[13], Daniel G. Stover[11], Amy M. Fowler[14], Hannah M. Linden[1], Angie M. DeMichele[6], Jonathan E. McConathy[7], Christopher Comstock[15], Antonio C. Wolff[16], David A. Mankoff[6]

[1]University of Washington/Fred Hutch Cancer Center, Seattle, WA, [2]Brown University, Providence, RI, [3]Dana-Farber Cancer Institute/Brigham and Women's Hospital, Boston, MA, [4]University of Washington, Seattle, WA, [5]Medical University of South Carolina, Charleston, SC, [6]University of Pennsylvania/Abramson Cancer Center, Philadelphia, PA, [7]University of Alabama at Birmingham, Birmingham, AL, [8]Cooper University Medical Center, Camden, NJ, [9]University of Oklahoma Health Sciences Center, Oklahoma City, OK, [10]Northwestern University, Chicago, IL, [11]The Ohio State University, Columbus, OH, [12]UPMC Western Maryland, Cumberland, MD, [13]University of Cincinnati Cancer Center, Cincinnati, OH, [14]University of Wisconsin, Carbone Cancer Center, Madison, WI, [15]Weill Cornell Medicine, New York, NY, [16]Johns Hopkins University, Sidney Kimmel Cancer Center, Baltimore, MD.

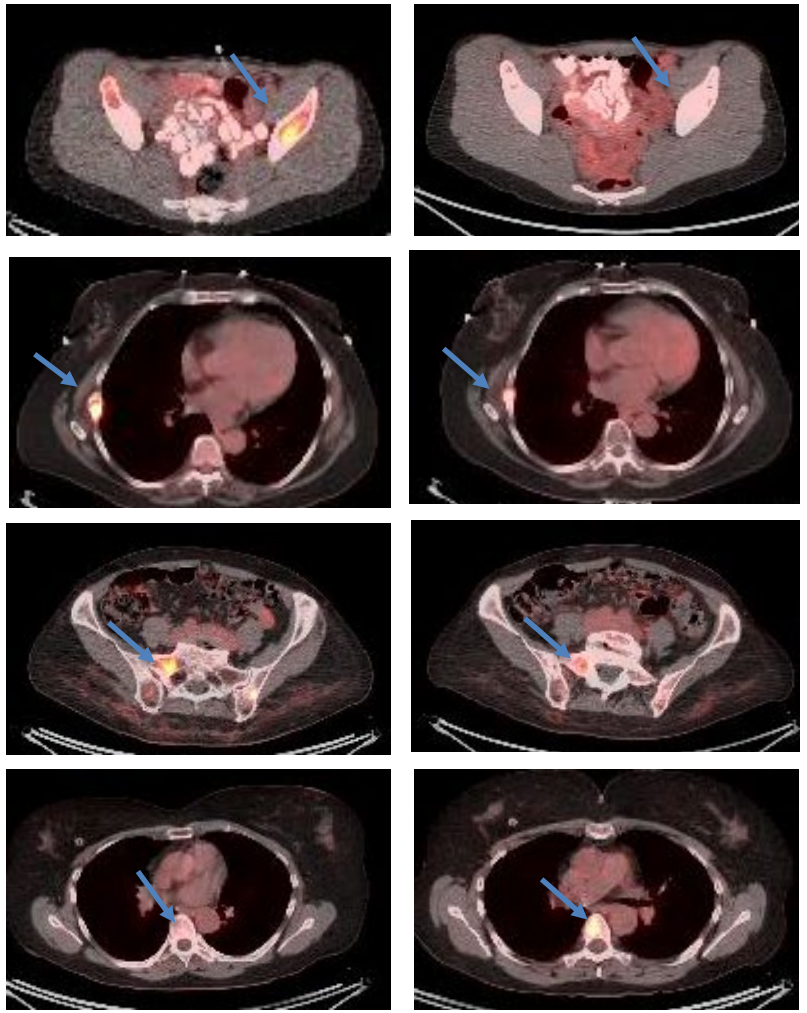
ECOG-ACRIN cancer research group
Reshaping the future of patient care

NCT04316117

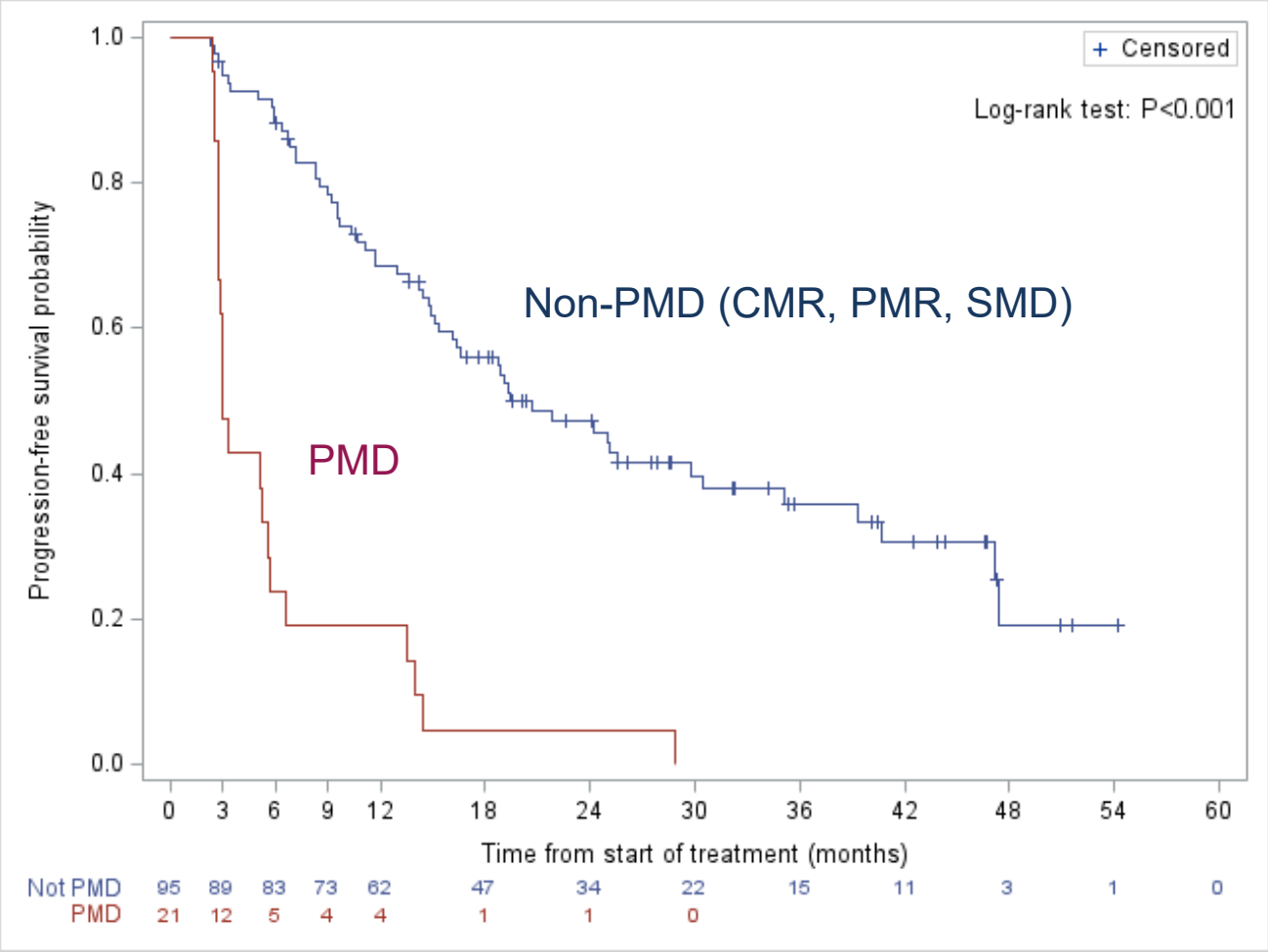
Modified PERCIST Adapted for Bone

Measurable lesion: SUL_{peak} ≥1.5x liver SUL_{mean} (3 cm spherical ROI in normal right lobe of liver)

Complete metabolic response (CMR)	Complete resolution of FDG uptake in all active tumor to the level of background; No new FDG-avid lesions
Partial metabolic response (PMR)	≥30% and absolute 0.8 SUL unit decline in SUL_{peak} from single-hottest lesion at baseline to single hottest lesion at follow up; No increase >30% in SUL_{peak} or size of target or nontarget lesions; No new FDG-avid lesions.
Stable metabolic disease (SMD)	Not complete, partial metabolic response or progressive metabolic disease.
Progressive metabolic disease (PMD)	≥30% and absolute 0.8 SUL unit increase in SUL_{peak} from single-hottest lesion at baseline to single hottest lesion at follow up; or visible increase in extent of FDG uptake (75% in TLG volume with no decline in SUL); or new FDG-avid lesions in a pattern typical of cancer



Results: PFS by mPERCIST at T1 (12-wks)



Kaplan-Meier curves for PFS for participants with positive (not PMD) and negative (PMD) mPERCIST responses

- Data cut from 1 Sept 2025; median follow up 14.4 months; 21 pts with PMD and 95 without PMD
- Median PFS was 3.0 mos (95% CI: 2.8 to 5.6 mos) for the PMD group and 19.4 mos (95% CI: 15.1 to 30.5 mos) for the non-PMD group (log-rank test P<0.001).
- Significantly lower risk of progression in pts with non-PMD compared to PMD pts; Univariate Cox HR 0.16 (95% CI: 0.10 to 0.28; P<0.001)

Benefit to Investigators

R01 for Exploratory Endpoints (Early PET, ctDNA); Specht PI, Konnick Co-I

SUMMARY STATEMENT

PROGRAM CONTACT:
Yantian Zhang
240.276.5980
yantian.zhang@nih.gov

(Privileged Communication)

Release Date: 11/06/2020
Revised Date:

Application Number: 1 R01 CA251803-01A1
Formerly: 1R01CA251803-01

Principal Investigator

ODWYER, PETER J

Applicant Organization: ECOG-ACRIN MEDICAL RESEARCH FOUNDATION

Review Group: ZRG1 CTIS-C (07)
Center for Scientific Review Special Emphasis Panel
Clinical Translational Imaging Science

Meeting Date: 10/08/2020
Council: JAN 2021
Requested Start: 04/01/2021

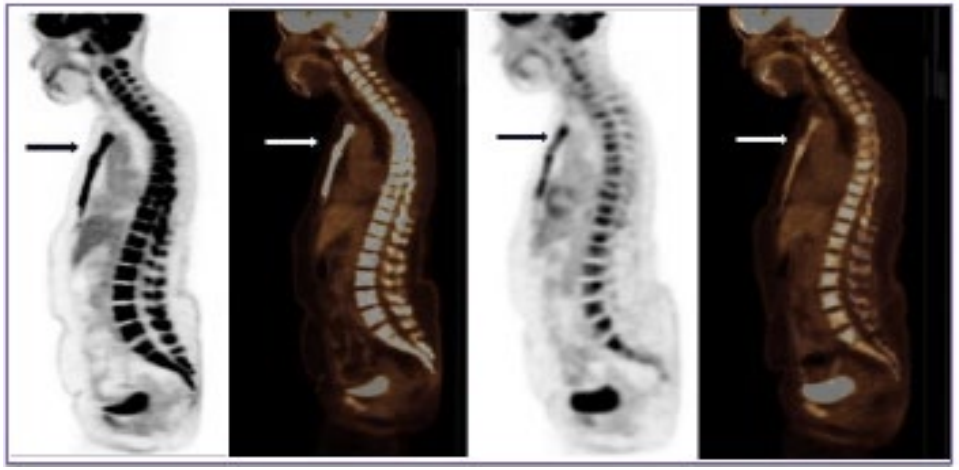
RFA/PA: PAR19-363
PCC: Y3DI

Project Title: Role of ctDNA change as a response measure in the EA1183 patient population and how ctDNA changes correlate with metabolic response by serial FDG PET/CT
SRG Action: Impact Score:23 Percentile:6 &
Next Steps: Visit https://grants.nih.gov/grants/next_steps.htm
Human Subjects: 30-Human subjects involved - Certified, no SRG concerns
Animal Subjects: 10-No live vertebrate animals involved for competing appl.
Gender: 2A-Only women, scientifically acceptable
Minority: 1A-Minorities and non-minorities, scientifically acceptable
Age: 3A-No children included, scientifically acceptable

Project Year	Direct Costs Requested	Estimated Total Cost
1	340,667	493,748
2	331,845	480,962
3	217,688	315,508
4	194,725	282,226
5	185,637	269,054
TOTAL	1,270,562	1,841,498

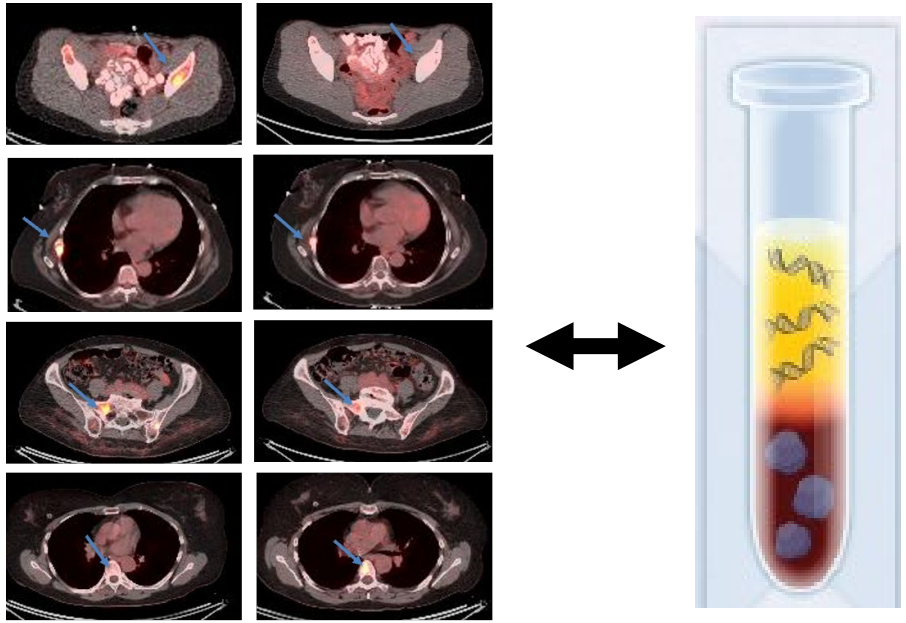
EAI142 Secondary Analysis Papers Planned

Early Response by FDG PET/CT



- 4-week FDG PET/CT response vs 12-week response
- Both vs PSF

ctDNA Response & Correlation with PET Results



ctDNA Data vs FDG PET/CT vs PFS

ACRIN 6687

A Phase 2, Multicenter Evaluation of ^{18}F-Fluoride PET as a Pharmacodynamic Biomarker for Dasatinib, a Src Kinase Inhibitor, in Men With Castration-Resistant Prostate Cancer and Bone Metastases

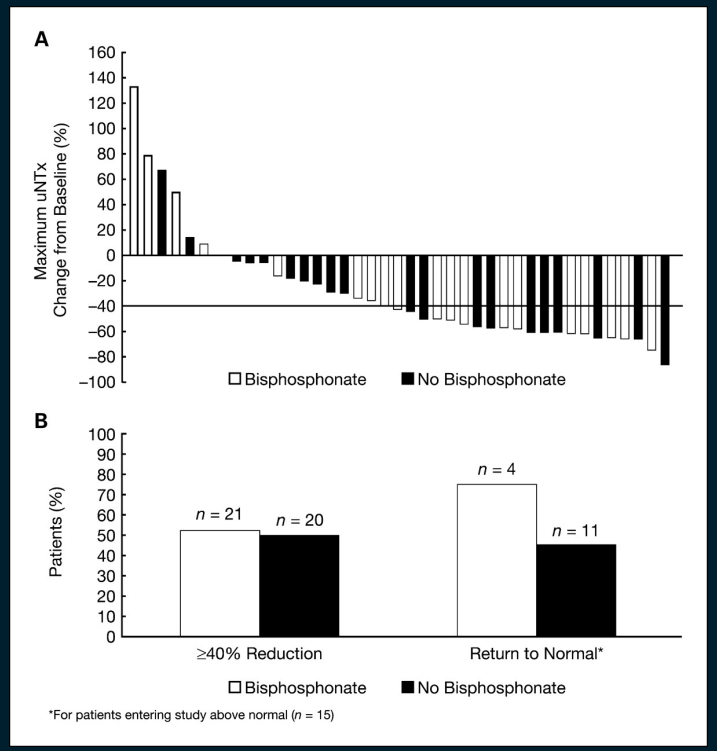
Principal Investigators: Evan Y. Yu, MD and David A. Mankoff, MD, PhD

Background for ACRIN 6687

ACRIN™ American College of Radiology Imaging Network

Dasatinib Leads to a Decrease in Bone Turnover Markers

Is This Effect Metastasis-Specific?

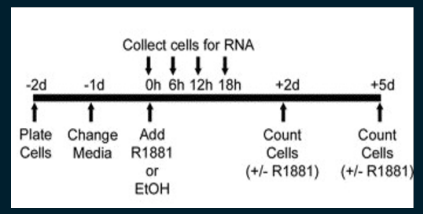


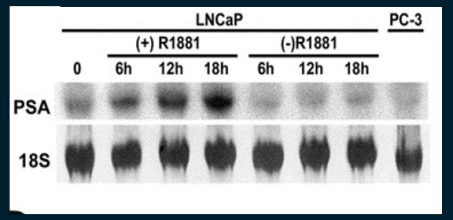
Yu EY, Clin Cancer Res 2009;15:7421)

Gene Expression to Predicts AR-Targeted Therapy Response

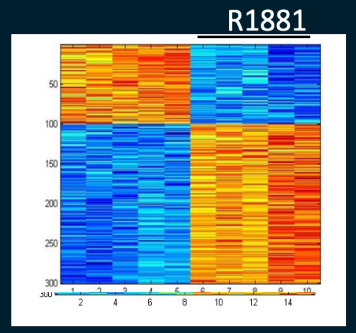
Biomarker–Guide Crossover: Nilutaminde vs Dasatanib

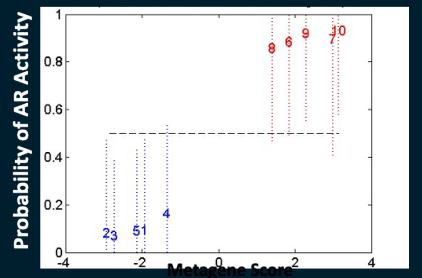
Gene expression "Signature" to detect AR activity





Febbo et al, Urology (2005)

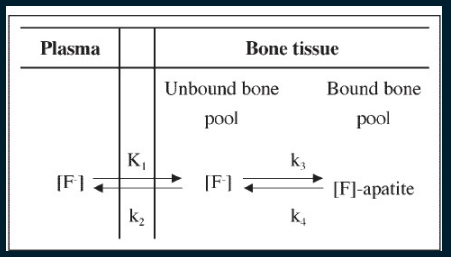


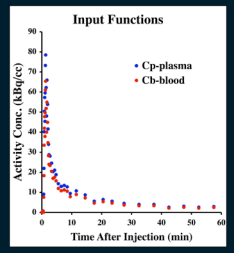


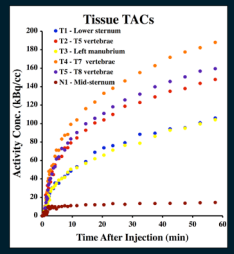
Mendiratta et al, JCO (2009)

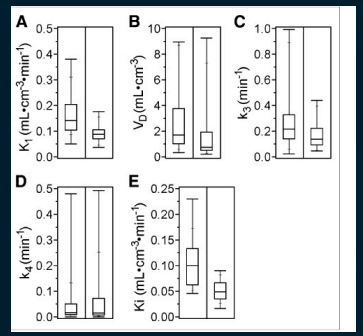
Dynamic [^{18}F]NaF PET to Assess Regional Bone Turnover

Kinetic Model Developed for Saroma & Br Ca



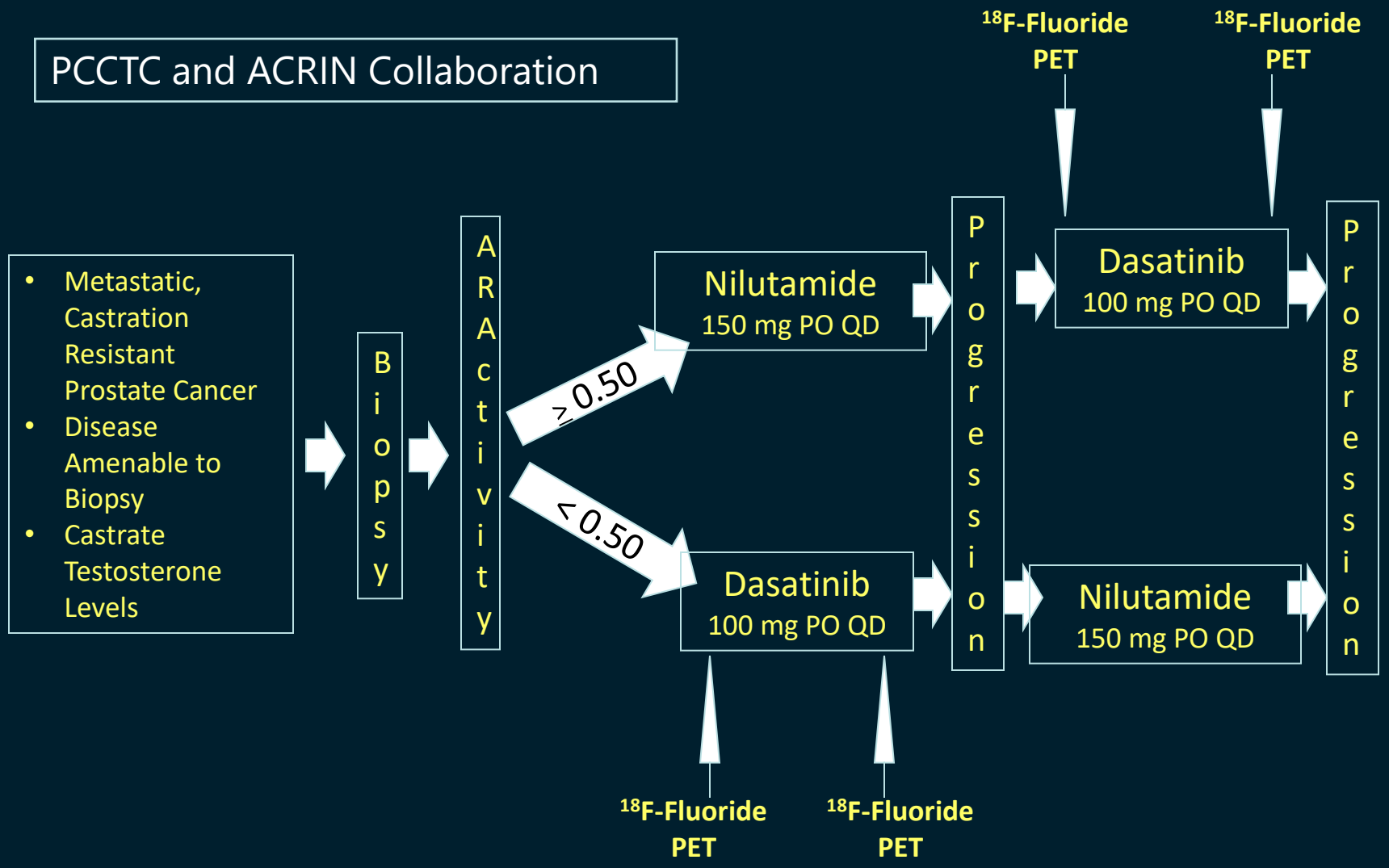






(Brenner, J Nucl Med 45:1493, 2004)
(Doot, J Nucl Med 51:521, 2010)

Study Schema

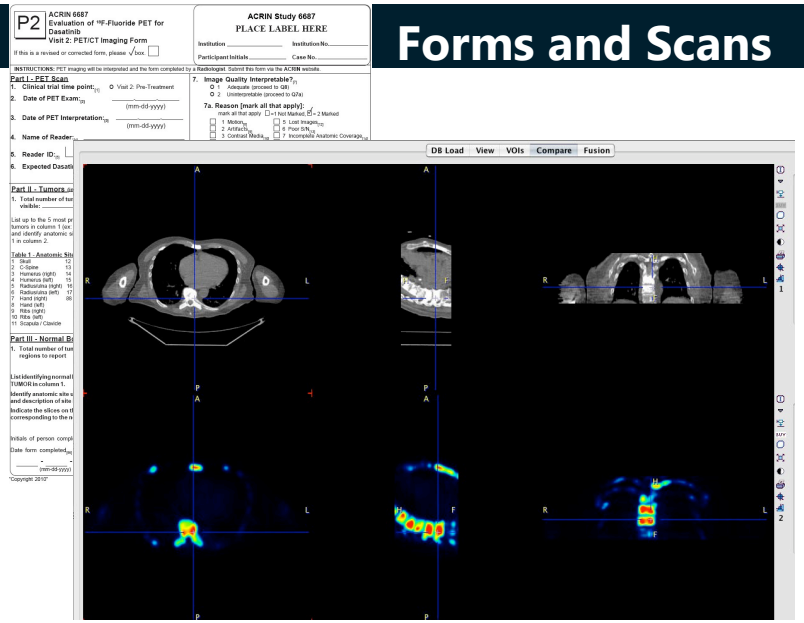


ACRIN 6687: Image Analysis Tools

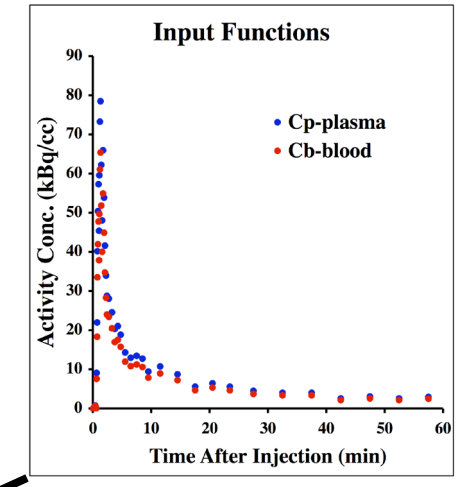
(Mark Muzi)

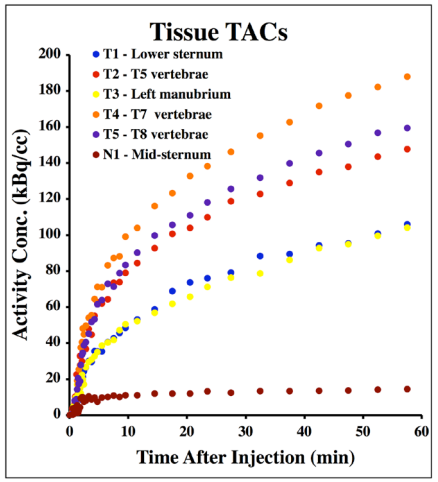
ACRIN™ American College of Radiology Imaging Network

Forms and Scans

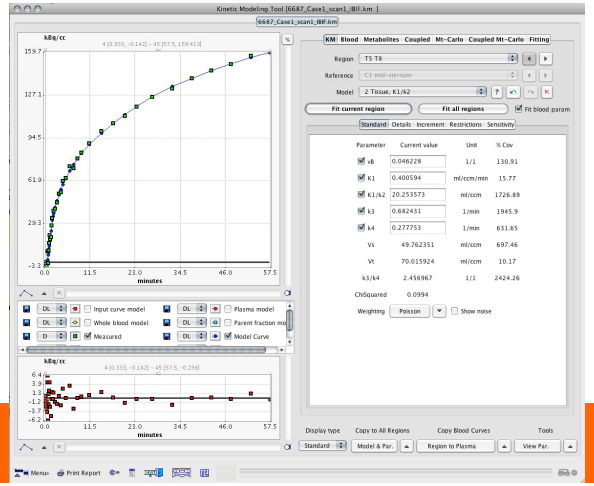


Blood and Tissue Curves

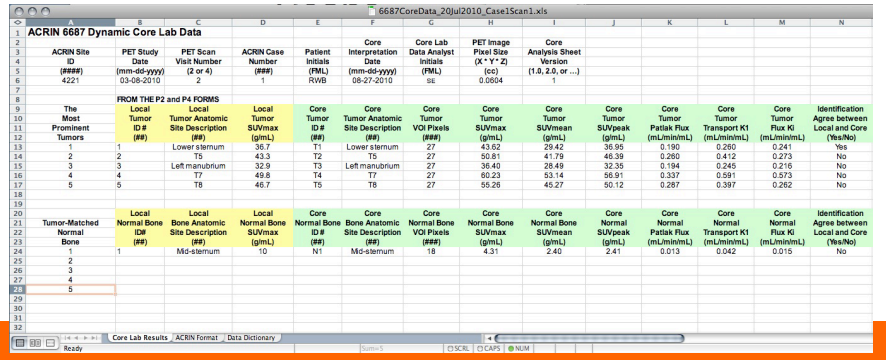




Modeling, Parameter Optimization



UW PET Lab Data sent to ACRIN

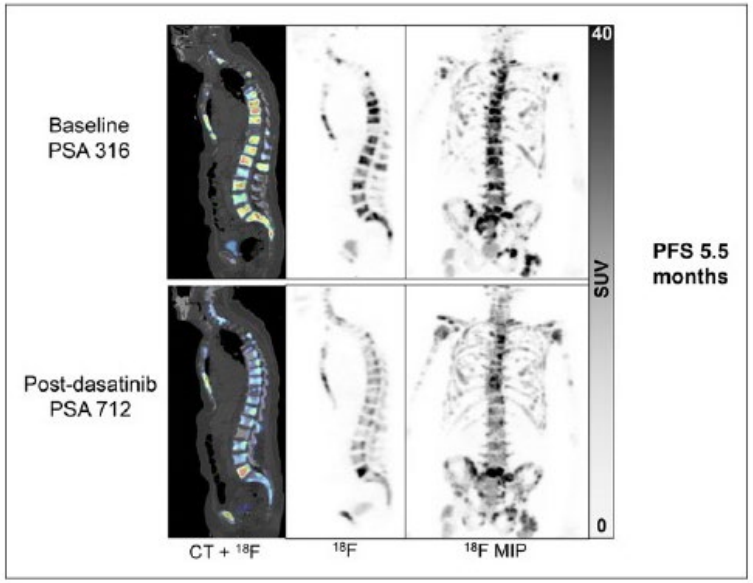


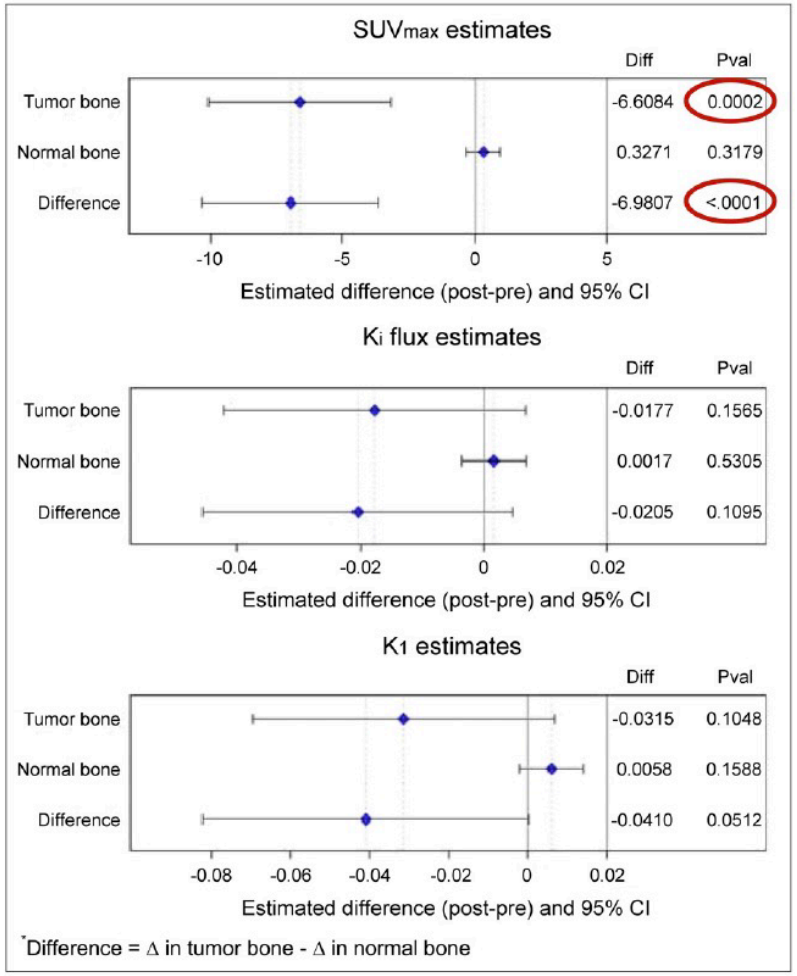
ACRIN 6687 Primary Paper

Yu, J Nucl Med 56: 354, 2015

Castration-Resistant Prostate Cancer Bone Metastasis Response Measured by ^{18}F-Fluoride PET After Treatment with Dasatinib and Correlation with Progression-Free Survival: Results from American College of Radiology Imaging Network 6687

Evan Y. Yu[1], Fenghai Duan[2], Mark Muzi[1], Xuan Deng[2], Bennett B. Chin[3], Joshi J. Alumkal[4], Mary-Ellen Taplin[5], Jina M. Taub[1], Ben Herman[2], Celestia S. Higano[1], Robert K. Doot[6], Donna Hartfeil[7], Philip G. Febbo[8], and David A. Mankoff[6]





Conclusions:

- Effect of dasatinib on bone turnover – metastases > normal bone
- Borderline associate between NaF PET tumor changes and PFS
- Response can be heterogenous from site-to-site

Next Steps:

- Are other NaF PET image analysis methods more predictive?
- Would other imaging agents work better?

Secondary Papers for ACRIN 6687

Planned Secondary Aim

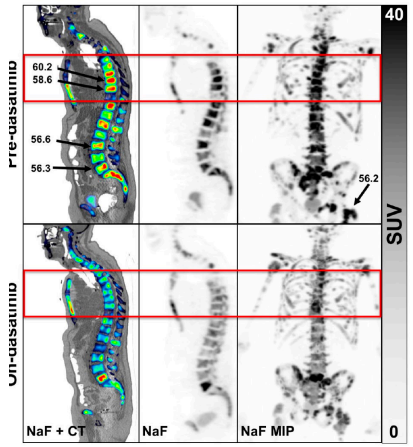
tomography

MDPI

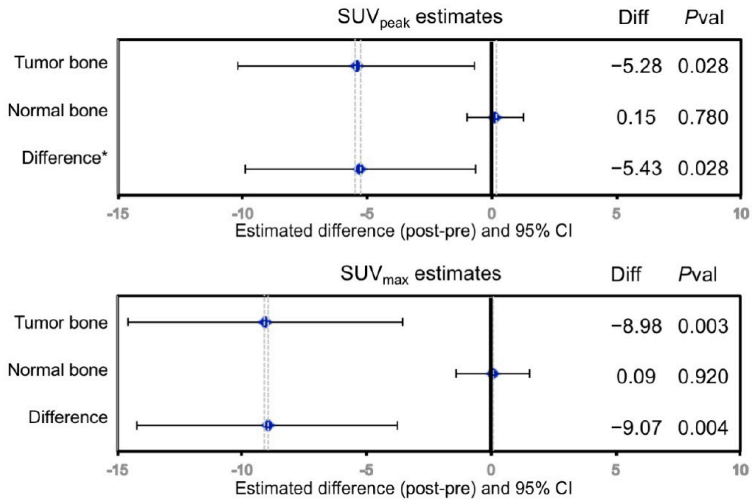
Article

Whole-Body [^{18}F]-Fluoride PET SUV Imaging to Monitor Response to Dasatinib Therapy in Castration-Resistant Prostate Cancer Bone Metastases: Secondary Results from ACRIN 6687

WB NaF PET Methodology



Improved Assessment of Dasatinib Impact on MetastasiisBone Turnover



(Muzi,Tomography, 7: 139, 2021)

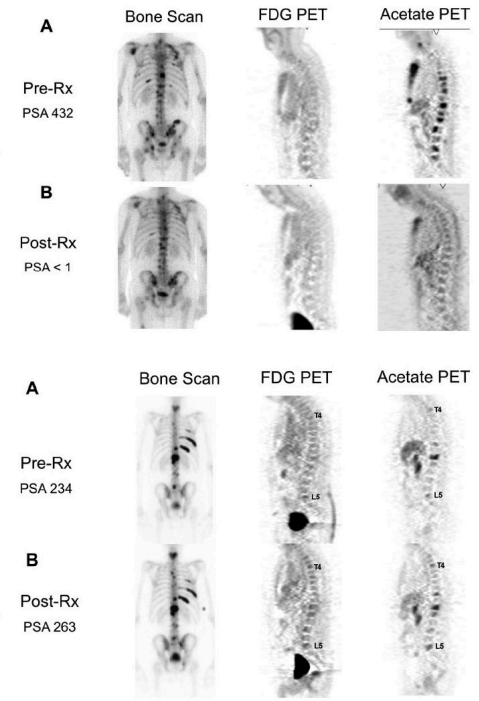
Pilot Trial Motivated by Trial Results

ORIGINAL ARTICLE

C11-Acetate and F-18 FDG PET for Men With Prostate Cancer Bone Metastases

Relative Findings and Response to Therapy

Evan Y. Yu, MD, Mark Muzi, PhD,† Joy A. Hackenbracht, MA,* Brian B. Rezvani, MD,* Jeanne M. Link, PhD,† Robert Bruce Montgomery, MD,* Celestia S. Higano, MD,* Janet F. Eary, MD,† and David A. Mankoff, MD, PhD†*



(Yu, Clin Nucl Med 36:192, 2011)

Cancer Imaging-Focused Trials in the NCTN

- My background and path NCTN participation and leadership
- How Does Imaging Fit into the NCTN Portfolio?
- Types of Imaging trials in the NCTN
- Examples of ECOG-ACRIN Imaging Trials and Opportunities for Early Investigators
- **Guidance and Future Directions**

NCTN Imaging Studies:
Opportunities for Early Investigators

- **Opportunities**
  - For non-imagers
    - Leverage expertise and NCTN leadership in imaging at UW/FH to become an interface between therapy trial design and imaging tools for the trial
    - Write secondary papers for trial secondary, image-based endpoints
    - Be part of grants for exploratory imaging endpoints (e.g. EA1183 early PET/ctDNA R01)
  - For imagers
    - Provide expertise for therapy trials – leadership role in trial
    - Be PI or co-PI for a primary imaging trial
    - Be PI or co-I image-focused grants
    - Write secondary image analysis papers
- **Future Directions**
  - New trials will increasingly require both imaging and tissue companion diagnostic
  - RP theranostics trials: by necessity, need oncology-NM coPIs, especially for combination Rx

Acknowledgements

- **Organizations**
  - ACRIN/ECOG-ACRIN, NCI CIP, NCI QIN
- **Individuals**
  - Charle Apgar, Amy Clark, Angie DeMichele, Janet Eary, Fegnhai Duan, Diana Ewen, Amy Fowler, Constantine Gatsonis, Elizabeth Gerstner, Donna Hartfeil, Heather Jacene, Robert Jeraj, Paul Kinahan, Eric Konnick, Lale Kostakoglu, Hannah Linden, Mark Muzi, Peter O'Dwyer, Lanell Peterson, Eva Ratai, Mitch Schnall, Erin Schubert, Jennifer Specht, Evan Yu