Acknowledgements

OHSU
- Yun Li
- David Huang
- Yuli Liu
- Liang Liu
- Christie Rieder
- Audra Miller
- Rick Crilly
- Arthur Heng
- David Wilson
- Charles Thomson

MIT
- Chen Ta
- ByungRan Lee
- James Fujimoto

University Erlangen Nuremberg
- Leander Huchert
- Andreas Maier
Dissecting the effects of high dose radiation on the vasculature
THE ROLE OF RADIOThERAPY IN REVERSING TUMOR-ASSOCIATED T CELL ANERGY AND EXHAUSTION

Josh Walker, MD/PhD, OHSU Radiation Medicine
O6-methylguanine methyltransferase (MGMT)
Prognostic biomarker in Glioblastoma

- 45% methylated
- In those that received radiation and temozolomide:
  - MGMT methylated: 45% alive at 2 yr
  - MGMT Unmethylated: 11% alive at 2 yr

Kaplan-Meier estimates of overall survival according to MGMT promoter methylation status.
Brain radiation-induced fatigue

- 200,000 patients/year
  - Brain metastasis
  - Primary intracranial tumor
  - Pediatric brain tumors
- >90% of patients report fatigue
- Cognitive impairment
- Growth restriction
- Metabolic dysregulation
Radiation Dose and Fractionation for Limited-Stage Small Cell Lung Cancer: A Survey of US Radiation Oncologists on Practices


1 = Oregon Health & Science University, Portland, OR
2 = Stritch School of Medicine, Loyola University Chicago, Chicago, IL
Alternating electric field therapy as alternative to brain irradiation in patients with Small Cell Lung Cancer
PURPOSE

- >50% of patients with advanced melanoma will eventually develop brain metastasis.

- Anti-CTLA-4 and anti-programmed cell death-1 (PD-1) antibody therapies improve survival of patients with metastatic melanoma.

- Therapeutic interactions between SRS and immunotherapy have yet to be optimized.
PRECISION MEDICINE: identifying pathways that make hypoxic tumors vulnerable to combinations of molecular agents and radiation.

- Radiation enhancement by direct sensitization
  - Targets: PARPi, repair inhibitors
  - Antiangiogenic agents, sorafenib

- Drug’s effectiveness is reduced by hypoxia
  - Bleomycin, trastuzumab, gefitinib, imatinib

- Determining sequencing of drug/radiotherapy
  - Checkpoint immunotherapy affects radiation
  - Rads most effective at G2/M, most resistant at S
  - Also cycle-selective drugs such as 5-FU

MESSAGE: let’s redefine radiation oncology and redefine types of radiation-based combination therapy.
The darkest hour is just before the dawn

- Radiation license - 4/2016
- First IND - FLT  4/2017
- Radiopharmacist joined team 5/2017
- FDA registration manufacturer 6/2017
- License with QBOP - manufacturer + nuclear pharmacy 8/2017
- 2nd. IND submitted, first DMF is send
- ASAP add manufacturing / Nuclear Pharmacist-Rad. License
- Instrumentation / data analysis.

- Data analysis room, (SPECT/PET/CT SARIQ, PET/CT
- PET- MR, PET / SPECT ONPRC - 1 yr, GE / flat table?
- Research Nuc Med partners - Stevens- Mallak, Mitra

We can finally do human studies and soon will be able to do state of the art imaging.
Is Survivorship Care Plan Discussion Important to Patients?

PRESENTED AT THE ASCO 20TH ANNUAL SURVIVORSHIP SYMPOSIUM
SAN DIEGO, CA, JANUARY 27-28, 2017
Background

- There had been a significant paucity observed in large academic radiation oncology programs in providing palliative care to hospitalized cancer patients.

- To combat this deficiency, several programs have been initiated to address this issue (Tsang et al., Pract Radiat Oncol 2014; Stoves et al., Pract Radiat Oncol 2015).
  - Supportive and Palliative Radiation Oncology (SPRO) service at Brigham and Women's Hospital (started in 2011).
  - Inpatient Palliative Radiation Oncology Service at Vanderbilt University Medical Center.
  - Supportive Oncology and Palliative Radiotherapy at the University of Pennsylvania.