



Strategic Elements of VCU's Research Enterprise

- Plan
- Diversify
- Collaborate
- Translate
- Commercialize



State Support of Research at VCU Massey Cancer Center

Discovery – Finding new targets for selective killing of cancer cells

Translation – Moving discoveries from the laboratory to the bedside into early phase clinical trials

Dissemination – Clinical trial network brings new treatments to citizens of the Commonwealth



Dr. Steven Grant

Discovery to Translation

Acute Myeloid Leukemia



- Discovery by Dr. Grant: Velcade and Belinostat act synergistically in killing acute leukemia cells
- Leads to \$3.0M National Cancer Institute grant to Massey to extend work and start clinical trial
- Based on promising results, MD Anderson Cancer Center now recruited as a partner in the clinical trial

Discovery to Translation

Acute Myeloid Leukemia

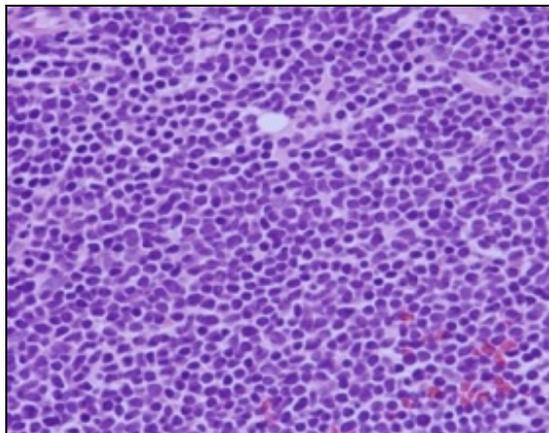
Pre-treatment:

- 57 y/o male with altered MLL gene;
- 100% tumor cells;
- failed all standard treatments

Post treatment:

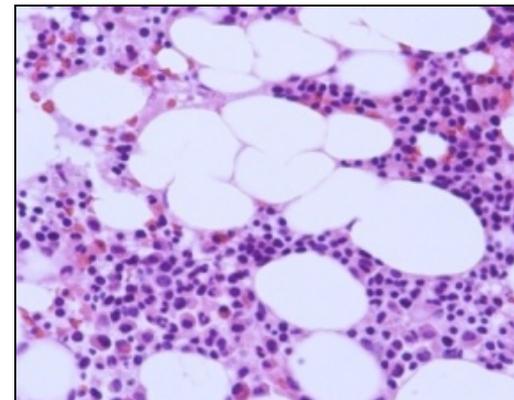
- complete remission
- successful bone marrow transplant

100% Tumor



Phase I Trial
(3 cycles) →

Normal Bone Marrow



Building on a rich history
of research and clinical care



The VCU Center for Clinical
and Translational Research
was established in 2007 and
funded as a CTSA by NIH in
2010

This award has accelerated research at VCU by supporting the creation of

- A robust biomedical informatics infrastructure
- Consolidated research resources for our investigators
- Mentoring of young investigators
- Federation of community research strengths
- Graduate programs in Clinical and Translational Science

Permits VCU to participate in a strong national consortium of 60 major research universities who are shaping the future of clinical and translational research

Cardiac arrest is the third leading cause of death in the US



Dr. Mary Ann Peberdy

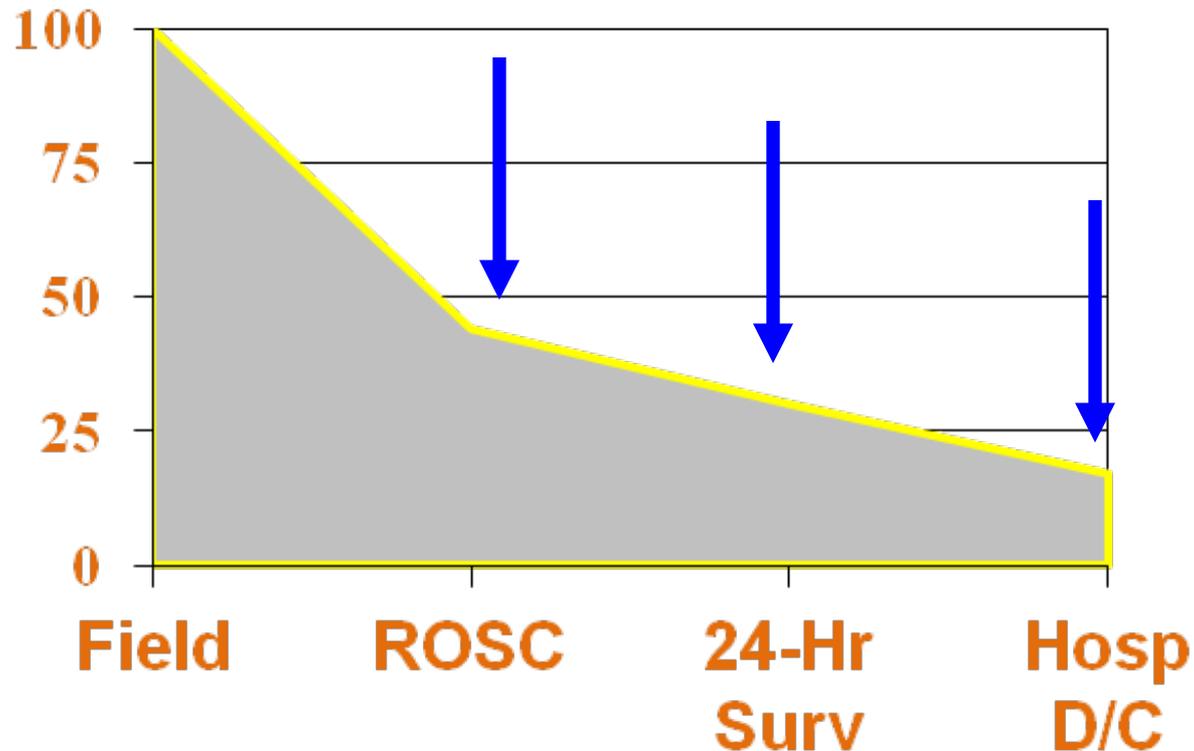


Dr. Joseph Ornato

- Survival from Cardiac arrest is poor -- <8% annually in US
- Variation in survival from out-of-hospital cardiac arrest suggests outcomes vary by types of care received after initial resuscitation
- Most large hospitals treat about 8-12 of these patients annually
- VCU has created a regional referral center, for patients resuscitated from cardiac arrest and now treats 70-80 patients annually
- Overall survival rate for these patients is 50%

In Hospital: Cardiac Arrest Survival

- 44% ROSC rate
- 30% survive 24h
- 17% survive to hospital discharge



Hypothesis: Biological Markers Associated with Cardiac Arrest will be Clinically Useful

Evaluate the ability of **mitochondrial biomarkers and markers of oxidant stress** to predict outcomes in adult cardiac arrest patients. (*cytochrome c, cardiolipin, and isoprostane*)

Prospectively validate and potentially identify **inflammatory biomarker** profiles to predict outcome in adult cardiac arrest patients (*TNF-alpha, IL-6, IL-8, and IL-10 and visfatin*)

**Study now underway with \$500K NIH CTSA supplement grant:
VCU is the lead institution**

VCU

Virginia Commonwealth University



Beth Israel Deaconess
Medical Center

A TEACHING HOSPITAL OF HARVARD MEDICAL SCHOOL



Health Sciences at the
University of Pittsburgh

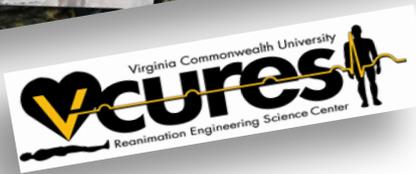


Penn
UNIVERSITY of PENNSYLVANIA

Clinical Significance

- Significant healthcare expenditures often occur before knowing if a patient will ultimately make a meaningful recovery
- Mitochondrial and inflammatory markers may provide an early tool for risk stratification
- Enhance physician – family decision making
- Decide when to apply specific interventions to specific patients
- Cellular mapping may provide the basis for developing therapeutic targets for new post-arrest treatments

VCU Research Leading to Commercialization and Economic Development



- VCURES group develops a hemostatic wound dressing to stop major blood loss



- Cook Medical takes a license to the hemostatic material and develops an endoscopic spray device to stop bleeding in the GI track
- Cook Medical has received regulatory approvals in Canada and Europe for the Hemospray device and seeking FDA approval in the US. Product launch is expected in 2012

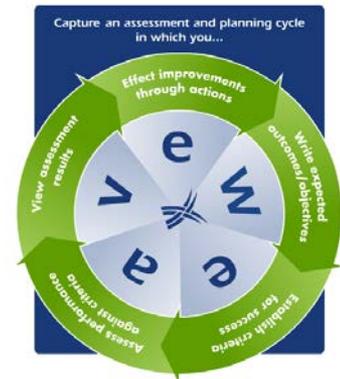
VCU Research Leading to Commercialization and Economic Development



- VCU staff develop WEAVEonline Assessment Management System in 2004 for VCU's accreditation
- WEAVEonline is incubated at VCU for 1 year – 20 university subscribers

•A start-up company is formed in Richmond to continue commercialization – Centrieva Corporation

•The company now has 10 employees and more than 180 institutional subscribers





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