AEOLUS PHARMACEUTICALS

Leveraging government funding to develop a platform of broad-spectrum, catalytic-antioxidant compounds for bio-defense, cancer and neurology

John McManus

President & Chief Executive Officer

Russell Skibsted

Senior Vice President & Chief Financial Officer

Protecting Healthy Tissue

January 2013

Safe Harbor Statement

This presentation contains forward-looking statements regarding future events and the future performance of Aeolus Pharmaceuticals that involve risks and uncertainties that could cause actual results to differ materially. These statements include but are not limited to statements that relate to our business and its future, our strategy, the success of our drug candidates, the safety and efficacy of our drug products, product approvals, market potential, contract awards, product sales, revenue, development, regulatory and approval timelines, product launches, product acquisitions, capital resources and any statements that relate to the intent, belief, plans or expectations of Aeolus or its management, or that are not a statement of historical fact.

Risks that could cause actual results to differ include the possibility that our existing and new drug candidates, may not prove safe or effective, the possibility that our existing and new drug candidates may not receive approval from the FDA, and other regulatory agencies in a timely manner or at all, the possibility that our existing and new drug candidates, if approved, may not be more effective, safer or more cost efficient than competing drugs, the possibility that price and other competitive pressures may make the marketing and sale of our drugs not commercially feasible, the possibility that our efforts to acquire or in-license and develop additional drug candidates may fail, our lack of significant revenues, our limited experience in establishing strategic alliances, our limited marketing experience, our dependence on third parties for clinical trials, manufacturing, distribution and quality control and other risks that are described in further detail in the Company's reports filed with the Securities and Exchange Commission. We do not plan to update any such forward-looking statements and expressly disclaim any duty to update the information contained in this presentation except as required by law.

Novel Platform

Mechanism of Action

- Protects healthy cells surrounding tumor from radiation damage – could allow for higher radiation dosing
- Enhances tumor control through regulation of the PTEN pathway

Medical countermeasure (>$150M in funding)

- Lung-ARS
- GI-ARS
- Nerve Agent
- Chlorine Gas
- Mustard Gas
- Phosgene Gas

Revenue from US Government

- Multi-agency support
- Added potential for BARDA procurement in about 2yrs

Oncology

- Results from CMC, Safety and other areas can be used for the Company's oncology program

Leveraging Non-Dilutive Funding

BARDA (Lung ARS)	$118M
NIAID/DAIT (GI ARS Mouse & NHP)	>$2M
CounterACT (Chlorine & Sulfur Mustard Gas)	$12.7M
CounterACT (Nerve Agents)	$1M
NIH/NIAID (Phosgene)	$1M
NIH/NIAID (ARS – AEOL 10171)	$20M
Michael J. Fox/IRS (Parkinson's AEOL 11207)	$0.5M
CURE (Epilepsy – AEOL 11207)	$0.25M

More than $150 Million

Key Accomplishments

- Completed 2nd Year of $118 million, 5 Year contract with US Government (BARDA)
  - Added 18 additional deliverables from cost savings in first two years
  - BARDA exercised $9.1 million in 2nd Year options
- Received FDA concurrence on animal model developed for two species (NHP & Mouse)
- Reduced manufacturing cost by over 83%
- $4.8 million in revenue for fiscal year 2011
- $7.2 million in revenue for fiscal year 2012
- Expect 2013 revenue to exceed $10 million

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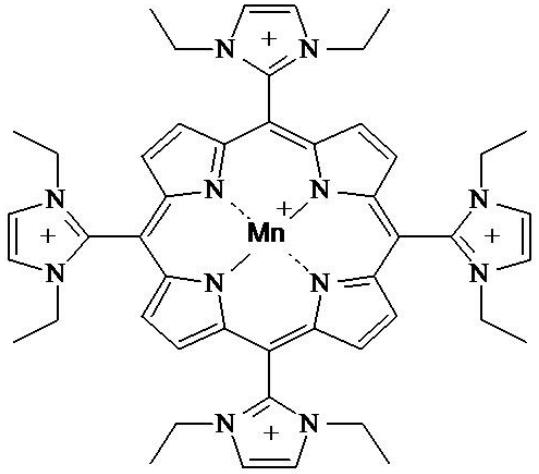
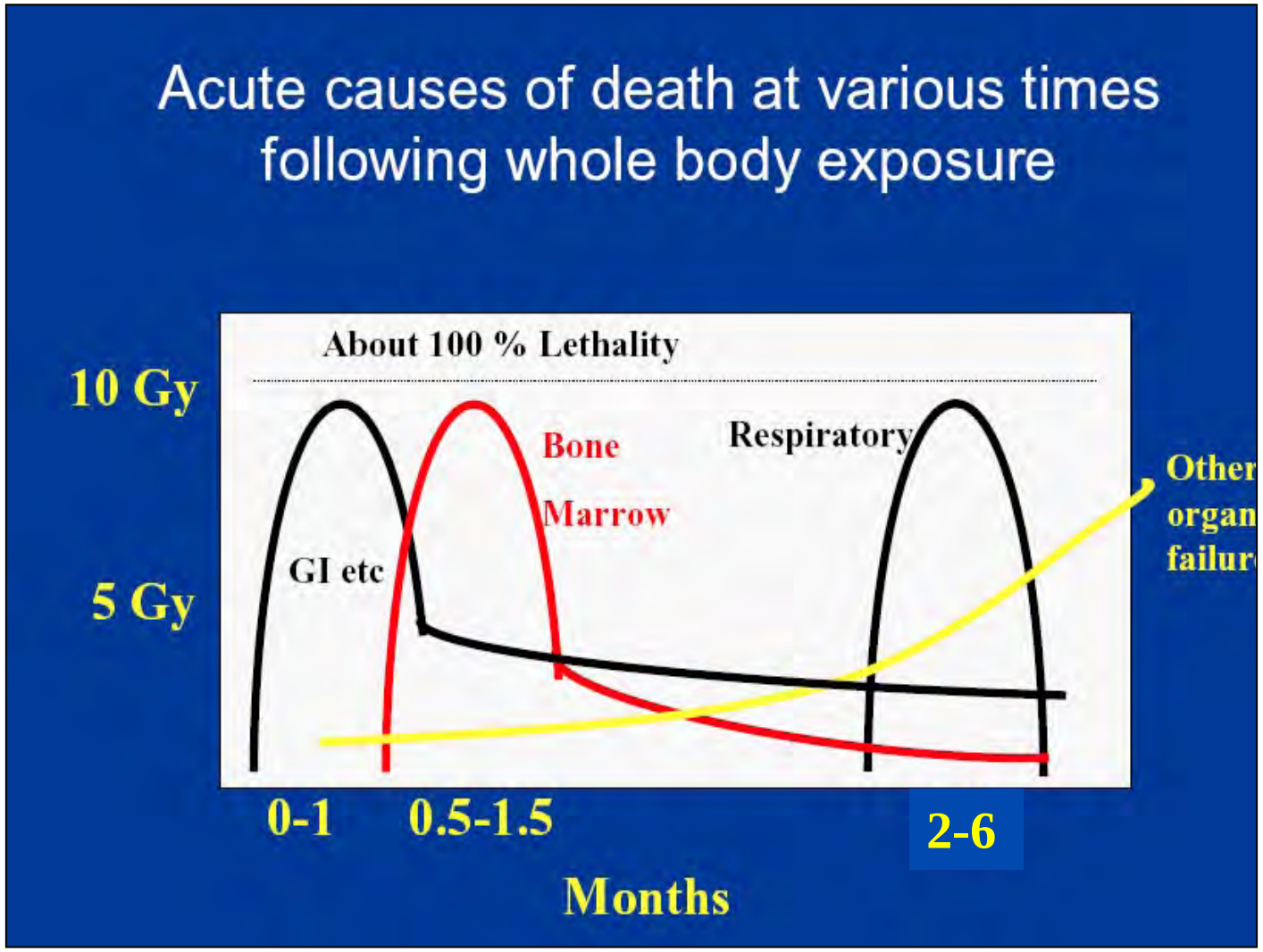
Medical Countermeasure Program



meso-Porphyrin Mimetic
[AEOL-10150]

Protecting Healthy Tissue

Acute Radiation Syndrome

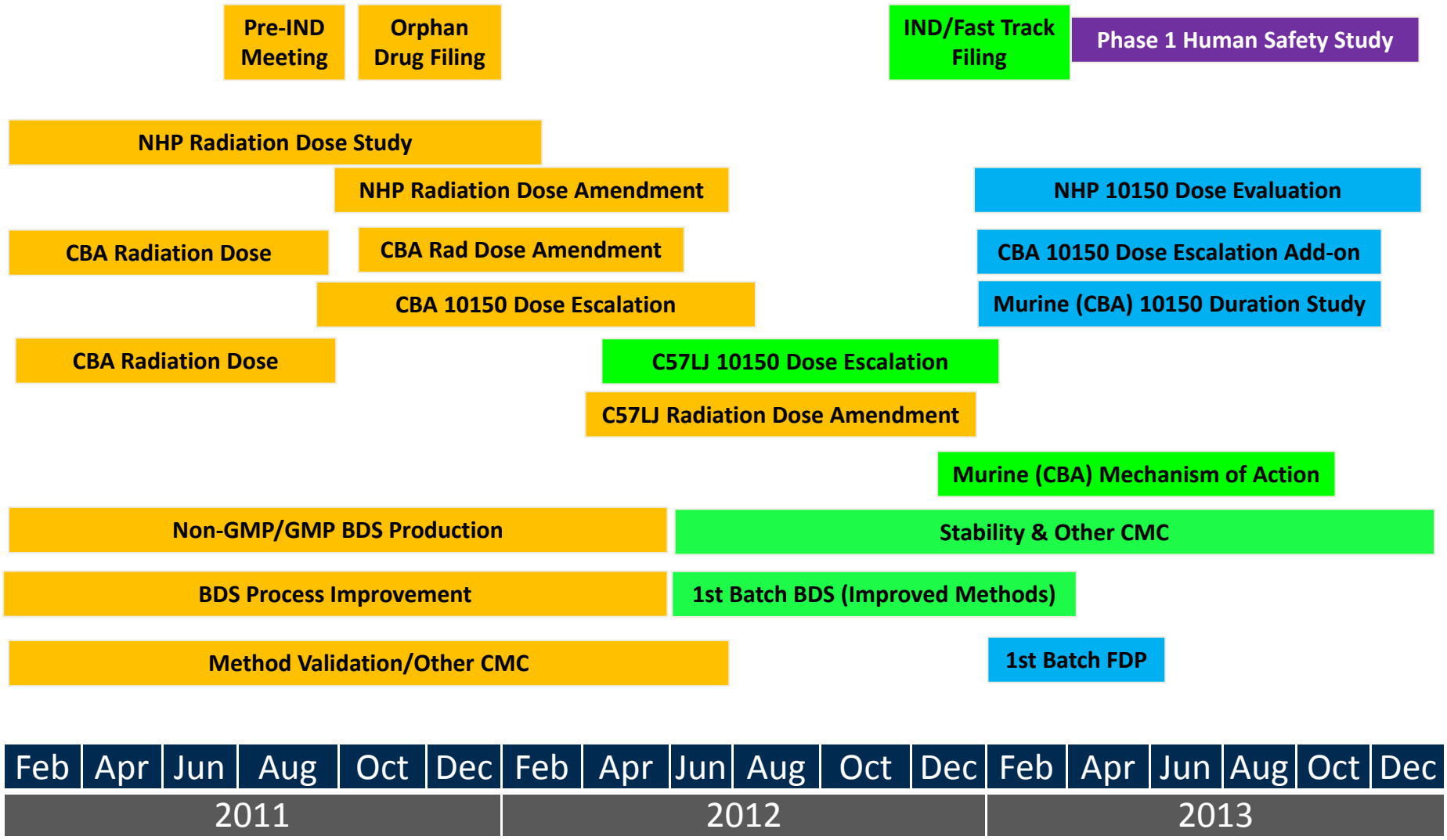


Dr. Tom MacVittie (courtesy of Fred Mettler)

BARDA Lung ARS Contract

- Awarded February 11, 2011
- $118 million in potential revenue over 5 years
- Cost-plus contract (covers costs & significant overhead)
- Emergency Use Authorization
- Fully funds AEOL 10150 to FDA approval
- Base contract and 2 options exercised total $19.5 million (period of performance through March 2013)

BARDA Lung ARS Contract



Project Team

David Cavalier – Chairman

John McManus – President & CEO

Russell Skibsted – Sr. VP & CFO

Brian Day, PhD – Chief Scientific Officer

Richard Stead, MD – Chief Medical Officer

Jason Brittain – Manufacturing

Cindy Croissant - Clinical

Chris Stanley – Director, Quality Assurance

Larry Johnson, MS - Regulatory

Kathy Valasek , JD - GXP

Dilek Dogutan, PhD – Porphryn Research

Jay Mason, MD – CV Analysis

Sanjeev Sharma, PhD – CMC

Yosyong Surakitbanharn PhD - CMC

University of Maryland (NHP)

Tom MacVittie, PhD
Michael Garofalo, MD
Ann Farese, MSc

University of Maryland (Murine)

Zeljko Vujaskovic, MD, PhD
Lauren Jackson
Zahid Rabini, PhD
Puting Xu, MD

Johnson Matthey Pharma Services

Richard Fornicola, PhD
Alex Kolchinski, PhD
Ewart Grant, PhD
Todd Stark, PhD
Bernhard Paul, PhD
Princess Hernandez-Wilson, PhD

Pyramid Laboratories

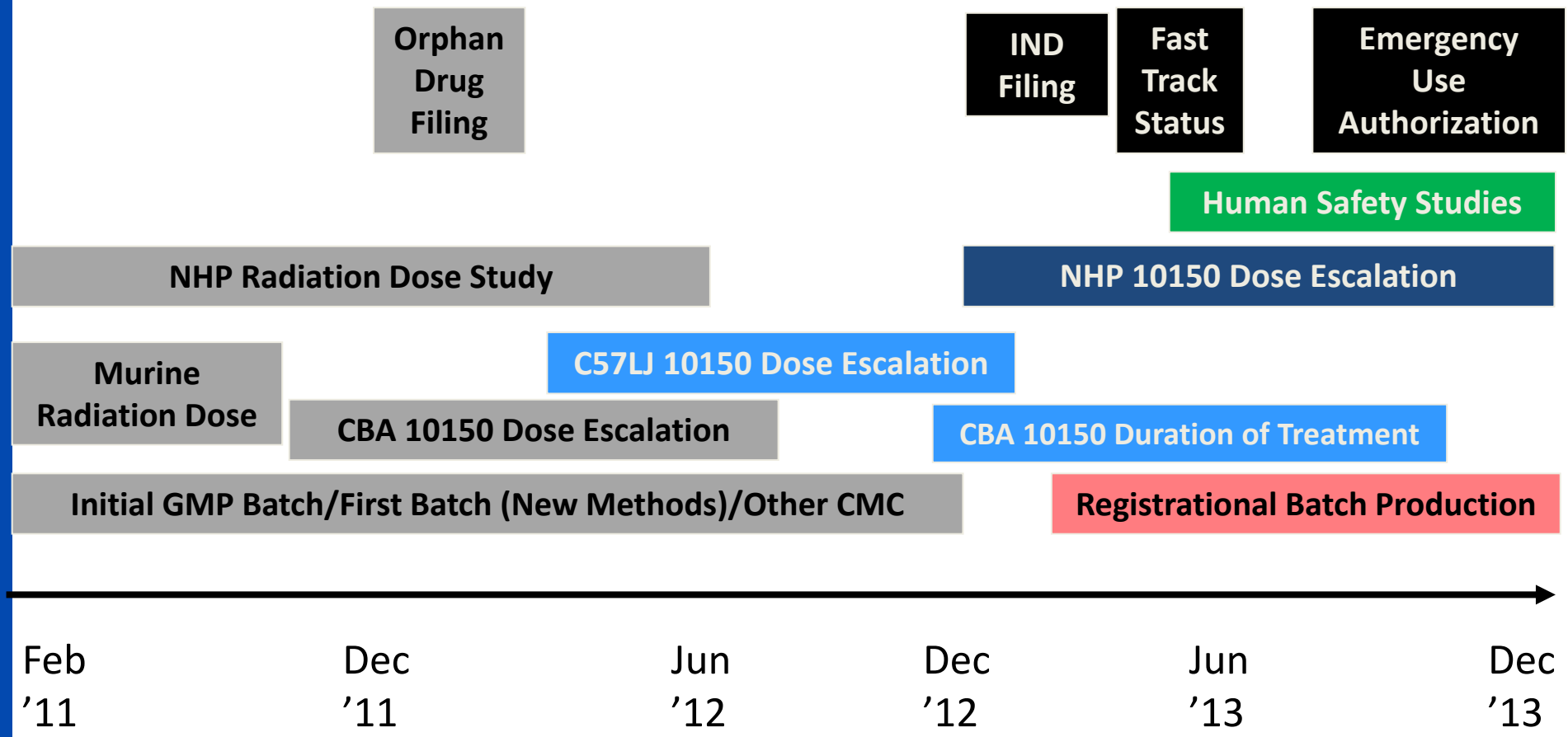
Medhat Gorgy, MS
Michael Townsend, PhD

Achievements in Base Year

- Built Development Team
- Animal Model Development and Efficacy
  - NHP Model – developed and validated
  - Murine Models – CBA & C57LJ – developed and validated
  - Two Drug Dose Escalation Studies underway
- Chemistry, Manufacturing & Controls
  - Manufactured non-GMP & GMP lots
  - Reduced cost of goods by at least 83%
  - Reformulation of Final Product to reduce irritation and burning at injection site
- Regulatory
  - Pre-IND Meeting with FDA to discuss animal models
  - Filed Orphan Drug Application
  - IND preparation underway

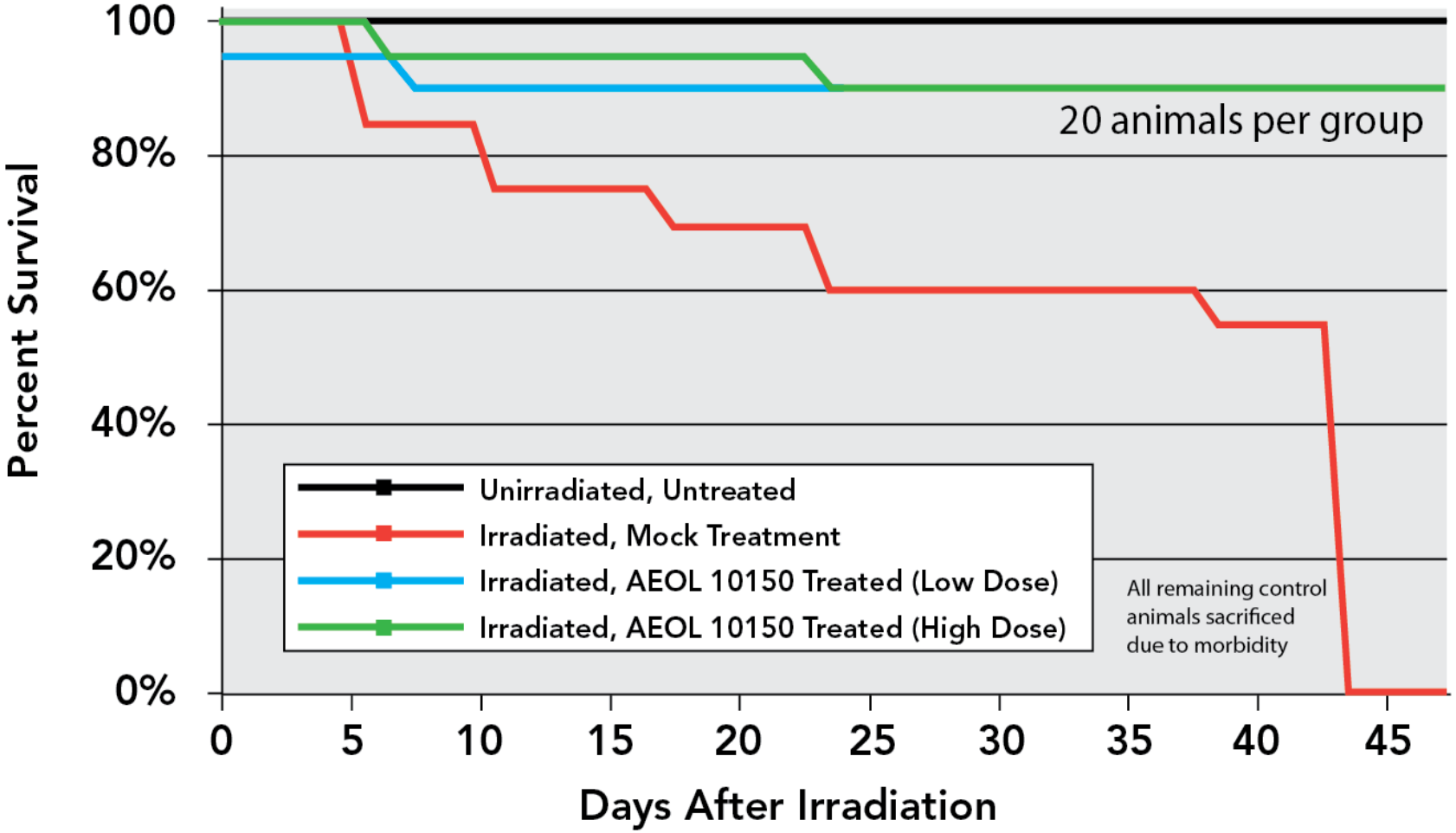
BARDA Lung ARS Contract

Expected Timeline to Emergency Use Authorization



Lung ARS Survival Data

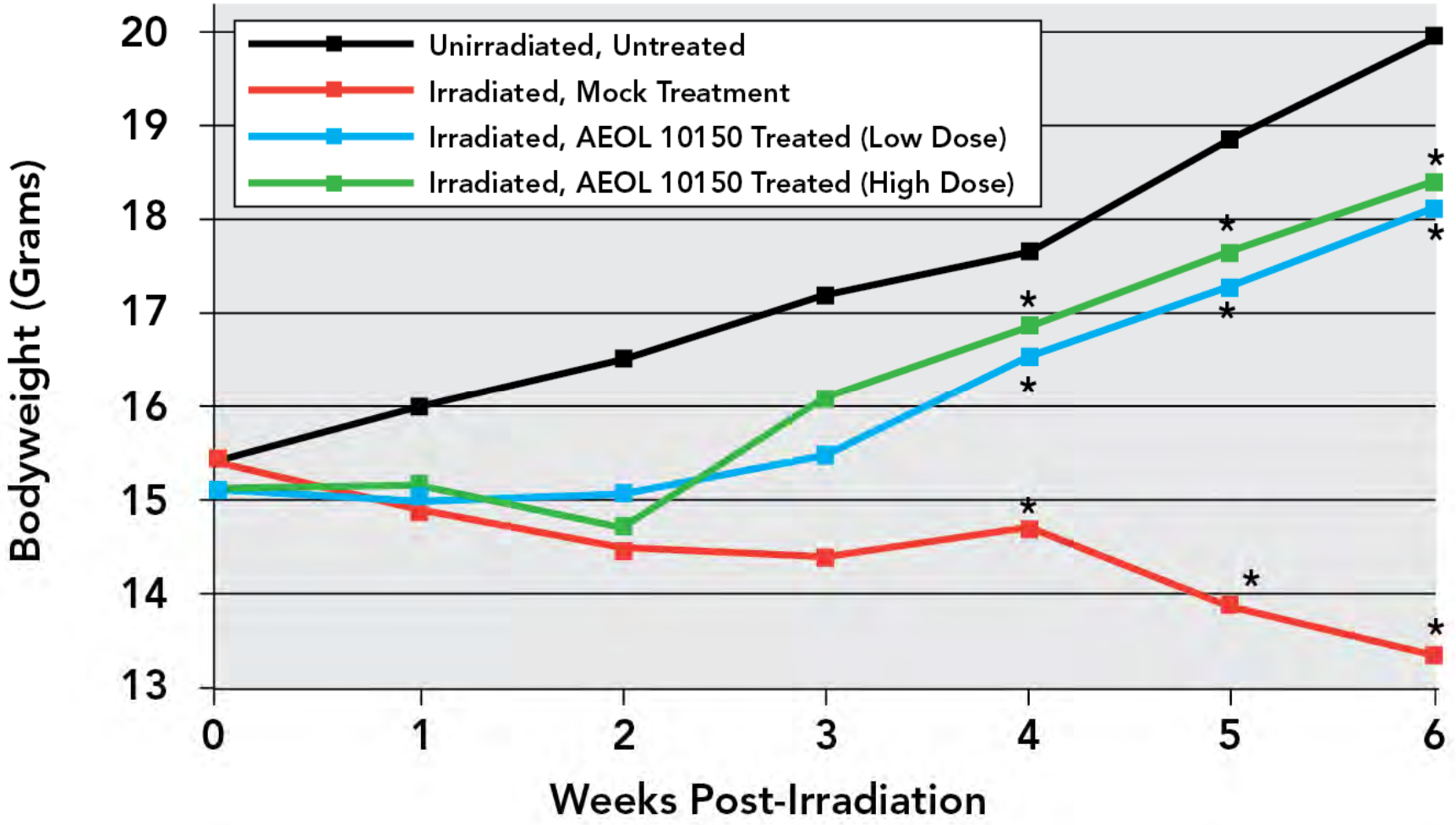
15 Gy Exposure – 90% Survival; C57BL6 mice exposed to 15 Gy upper-body irradiation and treated 2 hours post-exposure with AEOL 10150



Source: Zeljko Vujaskovic, MD, PhD – Duke University

Lung ARS Efficacy Data

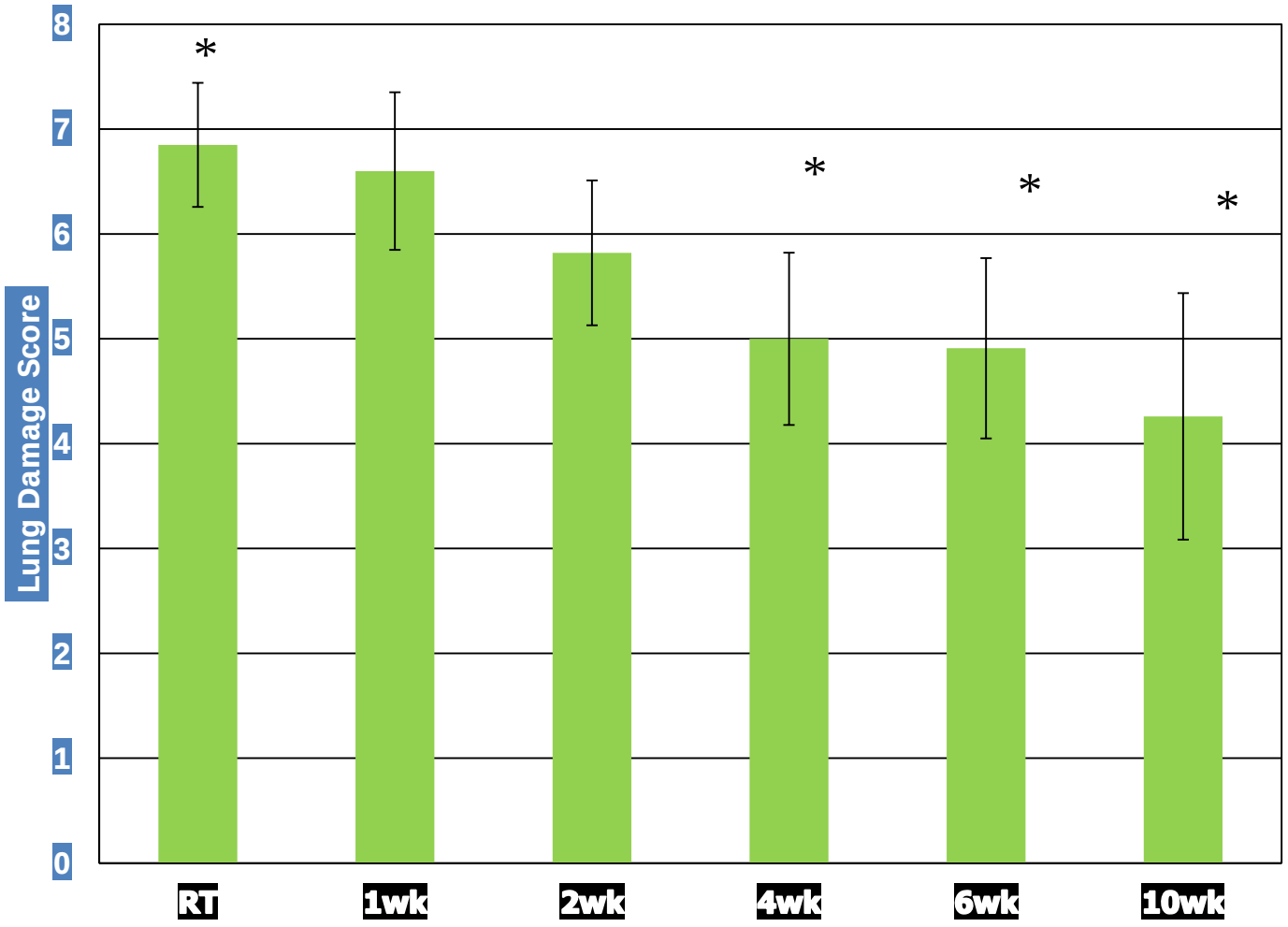
Benefits GI Syndrome



*C57BL6 Mice Exposed to **15 Gy** upper-body irradiation and treated 2 hours post-exposure with AEOL-10150.*

Lung Duration of Treatment Data

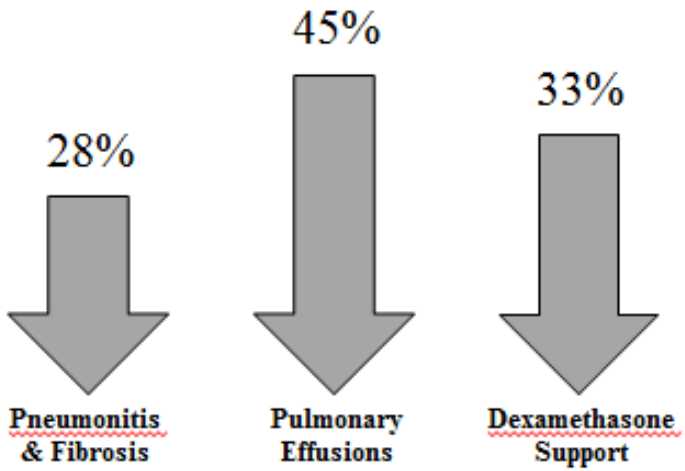
12.5 Gy Upper Half Body (UHBI)



- **Subcutaneous injection**
- **40 mg/kg loading dose – 24 hours post irradiation**
- **Maintenance dose of 20 mg/kg given every other day**

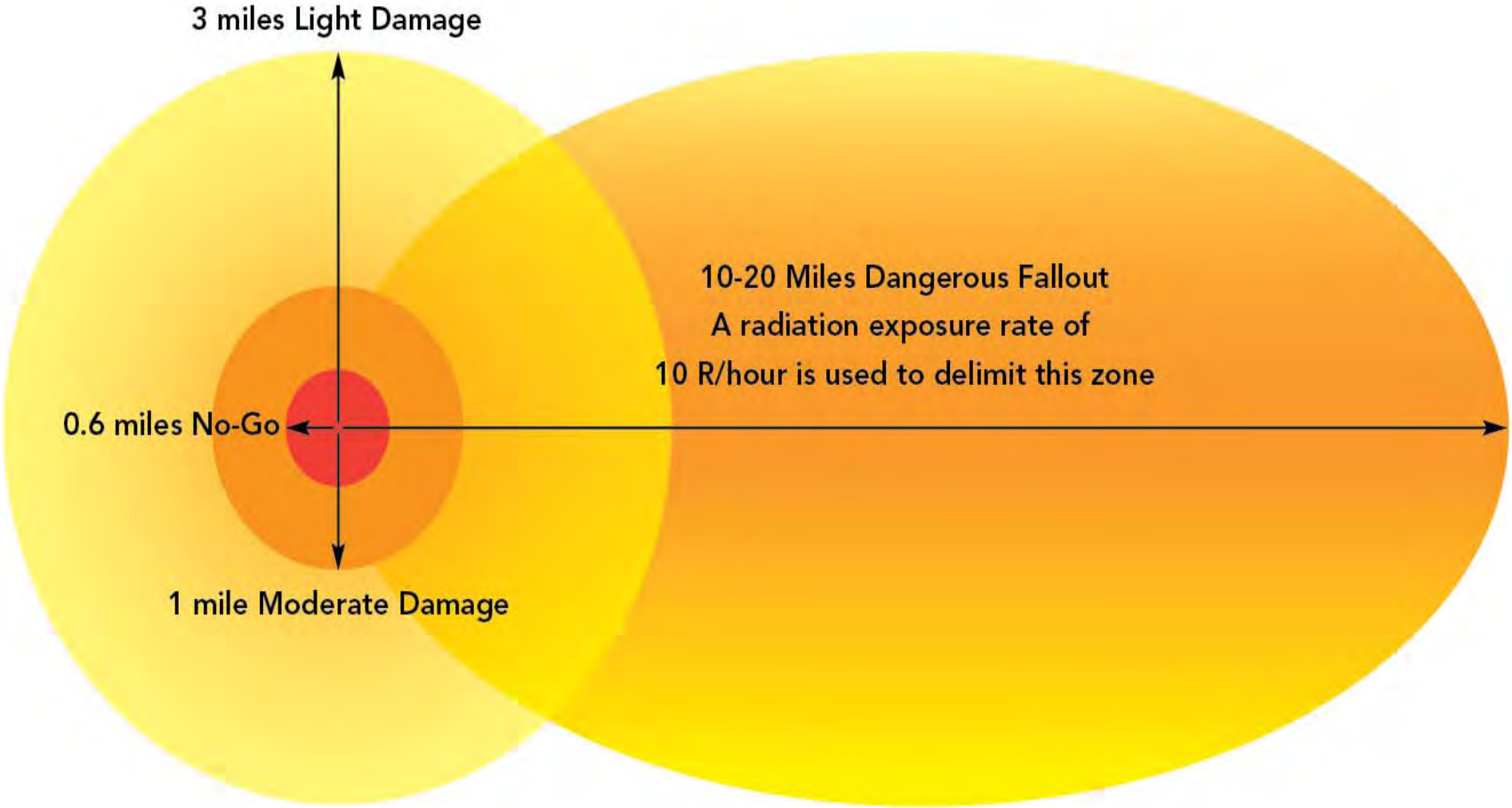
Lung ARS NHP Survival Data

- **11.5 Gy WTLI exposure in Rhesus Macaques** (>$LD_{99/180}$)
  - AEOL 10150 administered 24 hours after exposure for 28 days
- **Survival:**
  - None of the six control animals survived,
  - 2 of the 7 (or 28.5%) of the animals receiving AOLS 10150 survived
- **Secondary endpoints:**
  - Organ Damage:
    - Significant organ damage in untreated animals
    - No organ damage two surviving animals
  - 28% reduction in Pneumonitis & Fibrosis
  - 45% reduction in Pulmonary Effusions
  - 33% reduction in Dexamethasone Support



ARS Threat/Procurement Need

Terrorism: "Several hundred thousand people may be at risk following a 10 KT nuclear explosion where effective planning and response actions could save many of them."



Planning Guidance for Response to a Nuclear Detonation, Homeland Security Council Interagency Policy Coordination Subcommittee for Preparedness and Response to Radiological and Nuclear Threats (1/16/2009)

Summary of AEOL 10150 Studies

- Lung - Acute Radiation Syndrome (University of Maryland/Duke/Indiana)
  - **Radiation Dose Evaluation (mouse) – BARDA - Completed**
  - **Radiation Dose Evaluation (NHP) – BARDA - Completed**
  - **10150 Dose Escalation (CBA mouse) - BARDA – Completed**
  - **10150/Neupogen Combination (mouse) – Aeolus - Completed**
  - 10150 Dose Escalation (C57LJ mouse) – BARDA – Underway
  - 10150 Dose Escalation (CBA mouse) – Aeolus - Underway
  - 10150 Duration of Treatment (CBA mouse) – BARDA – (1Q-2013)
  - NHP 10150 Dose Escalation – BARDA – (1Q-2013)
- GI - Acute Radiation Syndrome (Epistem/University of Maryland)
  - **Radiation Dose Evaluation (mouse) – NIH NIAID - Completed**
  - **Radiation Dose Evaluation (NHP) – NIH NIAID - Completed**
  - 9 to 11 Gy Mouse Efficacy Study – NIH NIAID - Underway
  - 9 to 11 Gy NHP Pilot Efficacy Study – NIH NIAID – (1Q-2013)

Summary of AEOL 10150 Studies

- Chlorine Gas – Lung (National Jewish Health)
  - **Confirmatory Rat Efficacy Study – NIH CounterACT - Completed**
  - Rat Dose Escalation Study – NIH CounterACT - Underway
- Sulfur Mustard Gas – Lung (US Army Institute of Chemical Defense)
  - **Rat Efficacy - Higher/Longer Exposure – NIH CounterACT – Completed**
  - Rat Efficacy – Higher/Longer Exposure – NIH CounterACT - Underway
  - Rat Efficacy – Delayed Effects – NIH CounterACT – Underway
- Phosgene Gas – Lung (US Army Institute of Chemical Defense)
  - **Rodent Efficacy – NIH CounterACT - Completed**
- Nerve Agent – (University of Colorado/US Army Institute of Chemical Defense)
  - Murine Efficacy – NIH CounterACT – Underway
  - Murine Efficacy – NIH – 1H-2013
- Phase 1 Healthy Normal Volunteer for Lung ARS and Oncology
  - Phase 1 Study - Healthy Normal Volunteers (2013)

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Oncology Program

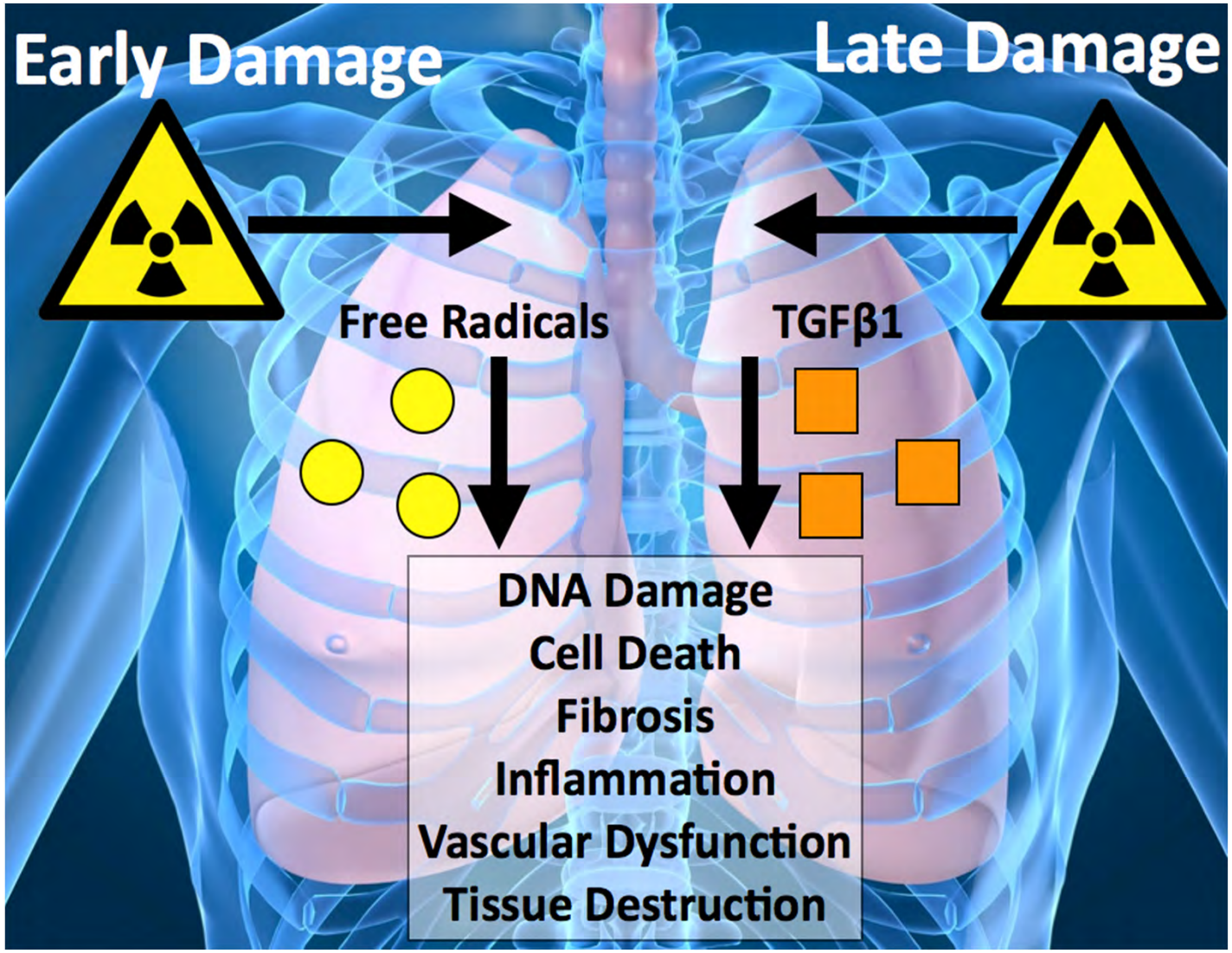
AEOL 10150

Protecting Healthy Tissue

Initial Indication – Lung Cancer

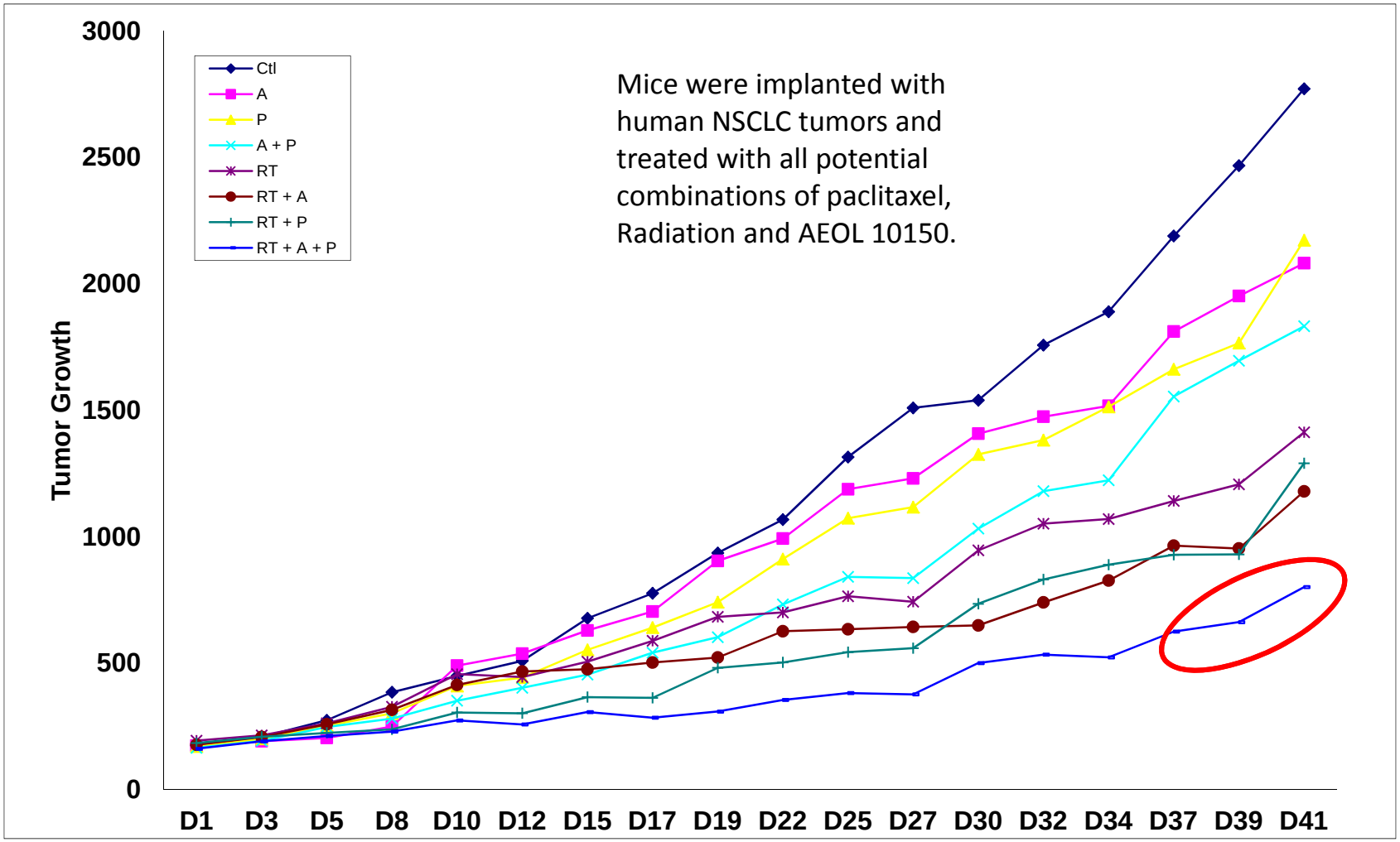
- Non-small cell lung cancer (NSCLC)
- Radiation therapy causes damage to:
  - Lung tissue: breathing difficulty, pneumonitis, fibrosis
  - Esophagus: esophagitis, weight loss, difficulty swallowing
- Side effects are RT-dose limiting factor
- Program leverages off of BARDA Contract:
  - CMC program covered to NDA filing
  - Tox, Genotox, ADME, PK/PD covered
  - Phase 1 study in Healthy Normal Volunteers
  - FDA recommended studies in NSCLC patients as part of BARDA program to support animal efficacy

Radiation Effects in Lung



Preclinical Data in NSCLC

AEOL 10150 did not interfere with lung tumor kill when administered with radiation and/or chemo, but provided increased tumor control as a third agent

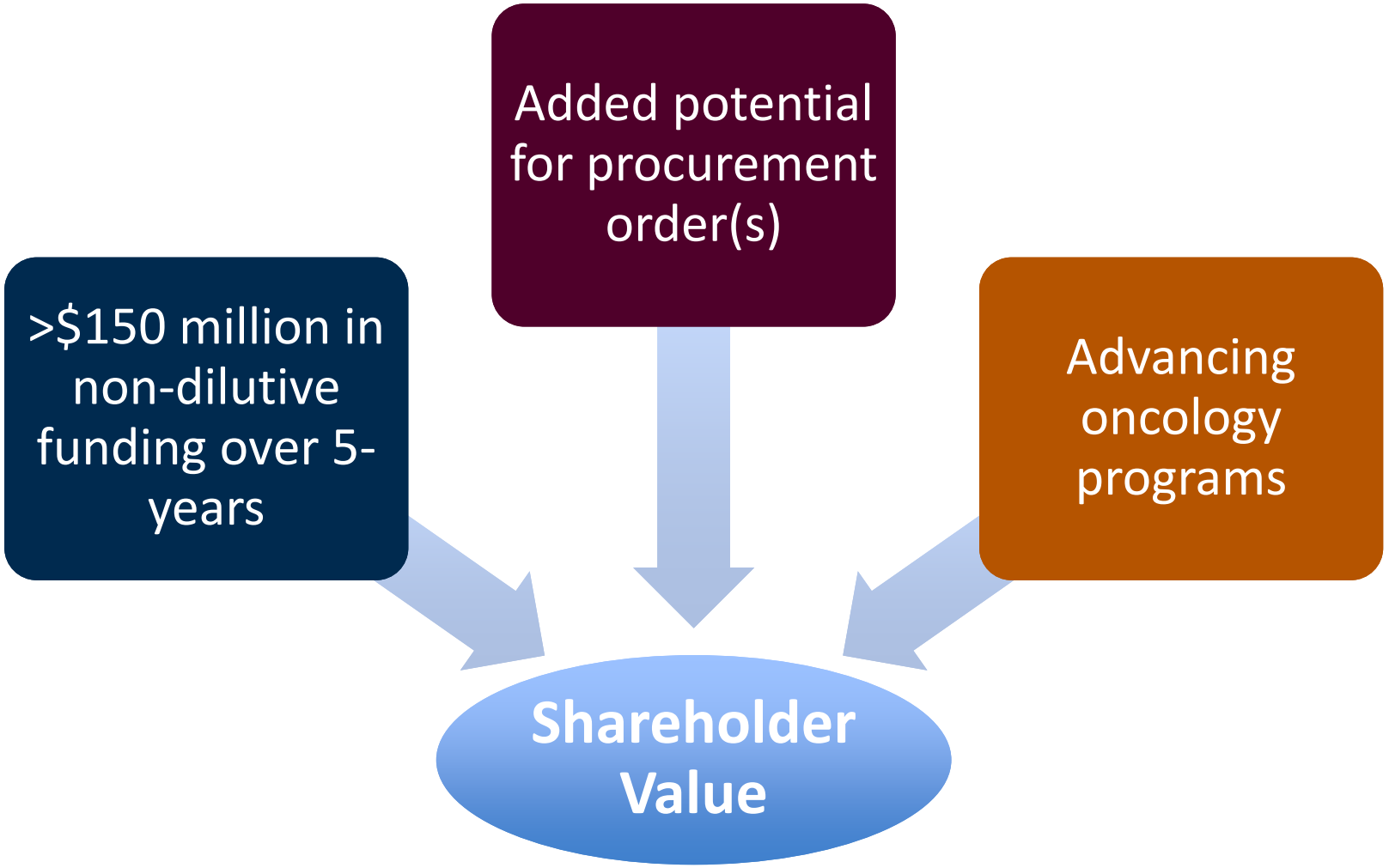


Source: Zeljko Vujaskovic, MD, PhD – Duke University

Upcoming Milestones

- 800 mouse efficacy study
- GMP plant batch of API and final product
- Non-human primate dose escalation study
- Mechanism of action study
- Filing of IND for Lung ARS/DEARE
- Phase I human clinical safety study
- 300 mouse duration of treatment study

Unique Value Proposition



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Thank You

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Email: info@aolsrx.com

Protecting Healthy Tissue

BARDA Deliverables/Milestones

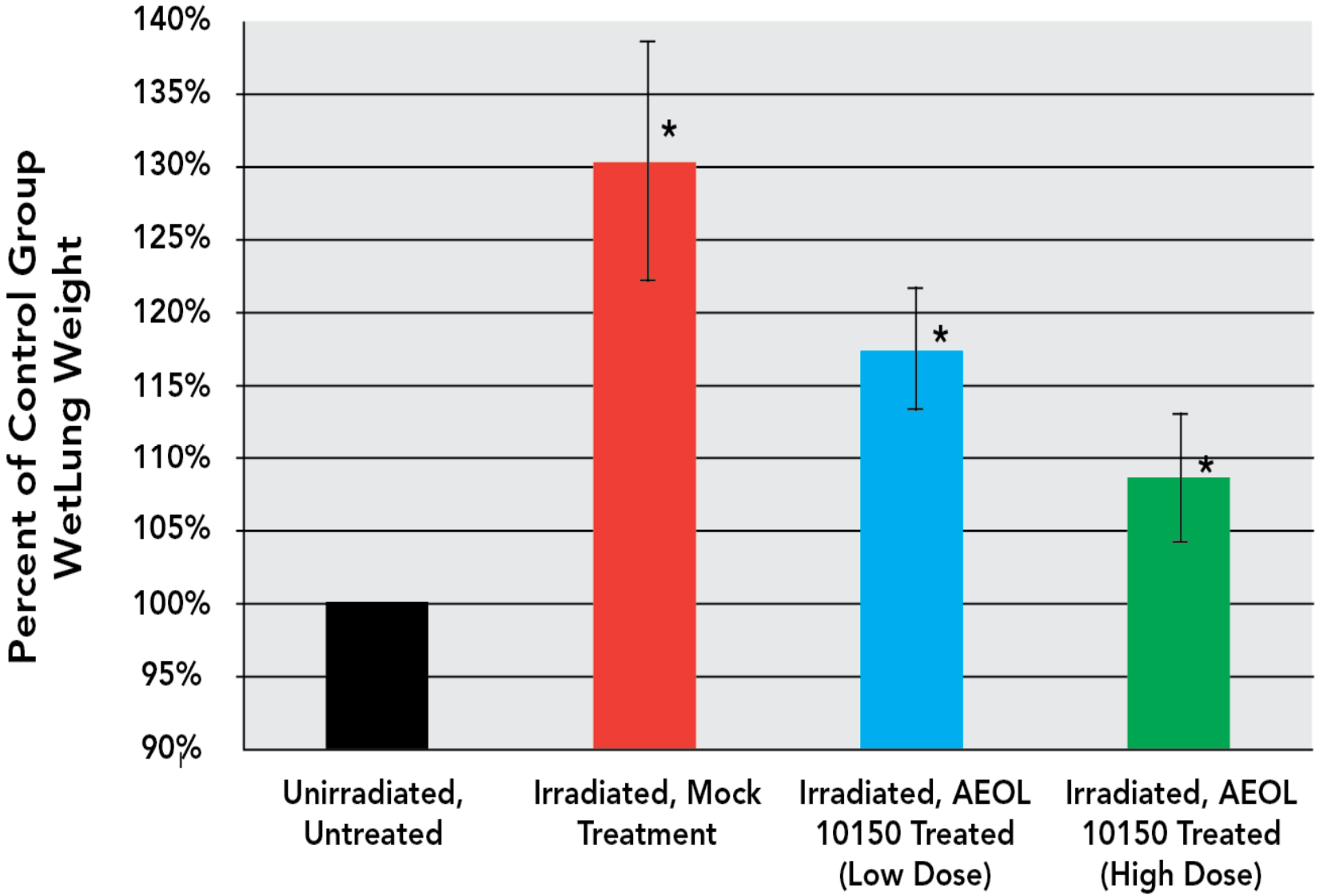
	Completed	Due by
Hire Radiation Biologist	✓	
Hire Director Quality Assurance	✓	
Sign Quality Agreements	✓	
Submit Risk Management Plan	✓	
Submit Earned Value Mgmt Plan	✓	
Complete Murine Radiation Dose Study	✓	
Initial Non-GMP Batch Production	✓	
Achieve Significant Improvement in API Production	✓	
File for Orphan Drug Designation	✓	
Complete 10150 GMP API Initial Production	✓	
Complete In-Vivo Comet Assay Study	✓	
Complete NHP Radiation Dose Study	✓	
Complete Media Fill Runs for Final Drug Product	✓	
Complete GMP API Method Validation	✓	
System Integration/Implementation	✓	
Complete Murine Radiation Dose Study Amendment (CBA)	✓	
Develop Impurity Profile for API	✓	
Complete Murine CBA 10150 Dose Escalation Study	✓	

BARDA Deliverables/Milestones

	Completed	Due by
Complete Final Product Process Development Work	✓	
Hold 2nd Pre-IND Meeting with FDA	✓	
Initiate NHP AEOL 10150 Dose Evaluation Study	✓	
Complete Final Drug Product Formulation Development	✓	
Complete Murine Radiation Dose Study Amendment (C57LJ)	✓	
Initiate Murine (CBA) Duration of Treatment Study		Jan'13
Complete Murine C57LJ 10150 Dose Escalation Study		Jan'13
Complete First Batch of Bulk Drug Substance under New Methods		Feb '13
Complete First Lot of Final Drug Product under New Methods		Apr '13
File IND for Lung ARS Indication		May '13
Initiate Phase 1 Human Safety Study		Jun'13
File for Fast Track with FDA		Jun '13
Complete CBA AEOL 10150 Dose Evaluation Study		Jul '13
Complete CBA Duration of Treatment Study		Jul '13
Complete Murine Mechanism of Action Studies		Jul '13
Complete NHP AEOL 10150 Dose Evaluation Study		Dec '13
Complete Phase 1 Human Safety Study		Dec '13

AEOL 10150 – Acute Radiation Syndrome

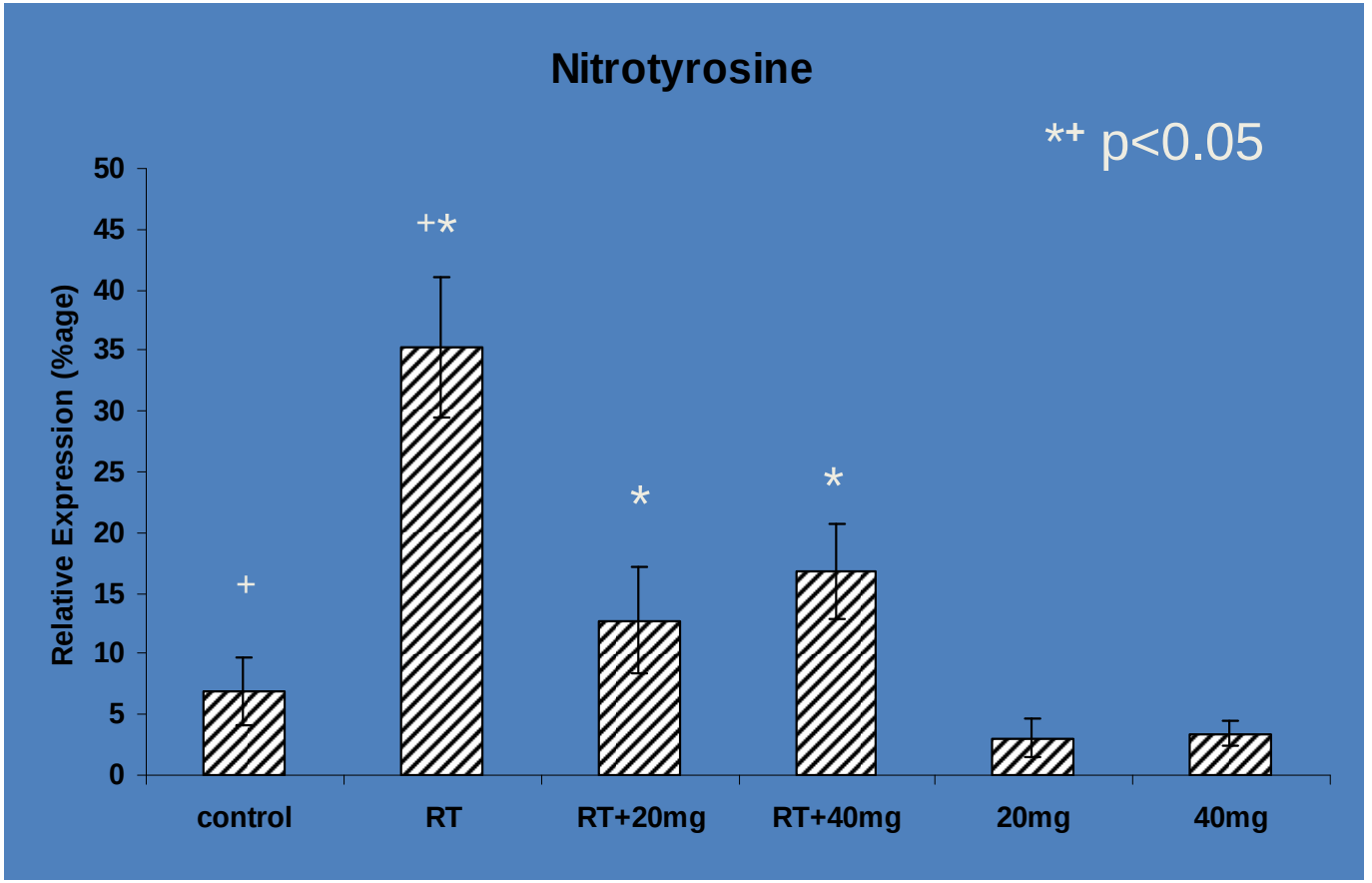
Benefits Lung Syndrome



*C57BL6 Mice Exposed to **15 Gy** upper-body irradiation and treated 2 hours post-exposure with AEOL-10150. (P<0.05).*

AEOL 10150 – Acute Radiation Syndrome

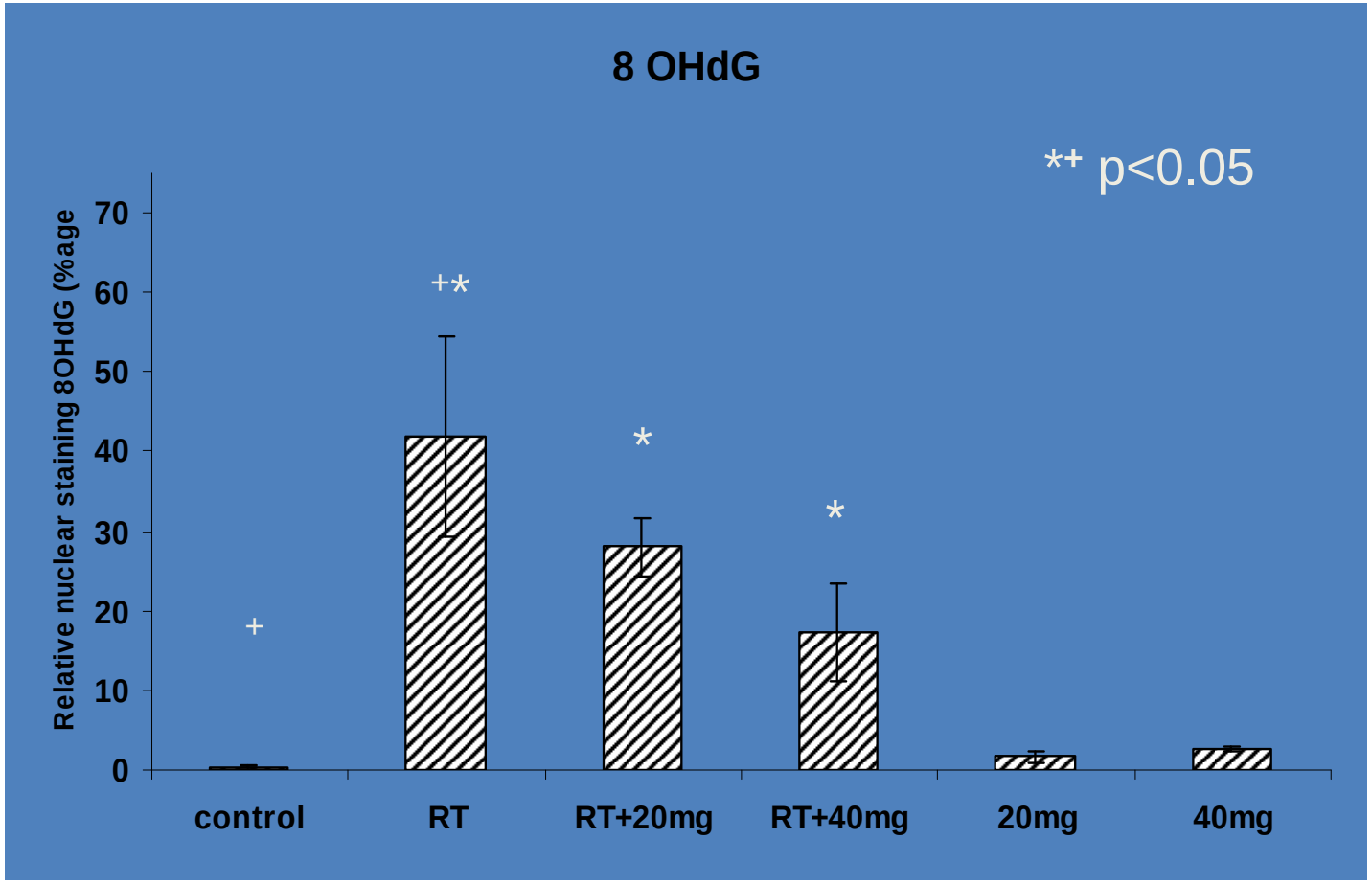
Reduces Inflammation



Zeljko Vujaskovic, MD, PhD – Duke University

AEOL 10150 – Acute Radiation Syndrome

Reduces Oxidative Stress



Zeljko Vujaskovic, MD, PhD – Duke University