

The Department of Anesthesia, Critical Care and Pain Medicine at
Massachusetts General Hospital

is proud to announce

The Warren M. Zapol Symposium on Anesthesia & Critical Care Research

Friday-Saturday ~ June 9-10, 2023*

Richard B. Simches Research Center
185 Cambridge Street, Room 3-3110
Boston, MA 02114

Dr. Warren M. Zapol (1942-2021) was a unique physician, scientist, inventor, explorer and mentor. He began his lifelong affiliation with the MGH as an anesthesia resident in 1970 and served as Anesthetist-in-Chief of the MGH Department of Anesthesia, Critical Care and Pain Medicine from 1994-2008. Warren pioneered a wide range of novel therapies for critical illnesses, including extracorporeal membrane oxygenation, inhaled gases, phototherapy and drugs. Inhaled nitric oxide (iNO) was a central focus of his research and of the Anesthesia Center for Critical Care Research which he founded. The aim of The Warren Zapol Symposium is to celebrate his life and continue his legacy of advancing medical care through novel, collaborative, basic and clinical research.

****Registration is required. Please click on the below link. If the link does not work – please cut and paste into url.***

Registration Link: <https://forms.office.com/r/c6cCMRkmB0>

Friday, June 9: Therapeutic gases & scientific discoveries

**** Continental breakfast @ 8:00 AM ****

8:30 AM - 9:15 AM Opening session: “The Warren M. Zapol Symposium on Anesthesia Critical Care Research”

Chair: Oluwaseun Johnson-Akeju

- 1. Oluwaseun Johnson-Akeju and Robert E. Kingston:** Welcome & Introduction
- 2. Nikki, David, Liza Zapol and Paul Alfille:** Family reflections

**** Short break and restart @ 9:30 AM ****

9:30 AM - 11:00 AM Nitric oxide

Chairs: Lorenzo Berra & Fumito Ichinose

- 1. Louis Ignarro:** Biology of nitric oxide (recorded video)
- 2. Jesse Roberts:** Nitric oxide - a critical regulator of newborn lung development and function
- 3. Mark Gladwin:** Nitric oxide, metabolites and hemoglobin

**** Short break and restart @ 11:15 AM ****

11:15 AM – 12:15 PM Sickle cell anemia, carbon monoxide, and hydrogen sulfide

Chairs: Mark Gladwin & Donald Bloch

- 1. Akito Nakagawa:** Identification of small molecules that regulate the affinity of hemoglobin for oxygen; implications for the treatment of sickle cell disease
- 2. Luca Zazzeron:** Carbon monoxide poisoning and phototherapy
- 3. Fumito Ichinose:** Hydrogen sulfide – from suspended animation to neuroprotection

***** Lunch break *****

1:45 PM – 2:45 PM

A world of discoveries: PART 1
Science from the art and beyond

Chairs: Stuart Harris & James Rathmell

1. **Mead Treadwell:** Polar Biology, Geophysics, and Human Health: What Explorer and Adventurer Warren Zapol brought home
2. **Manu Buys:** Following in the footsteps of Warren's Weddell seal research: sight and sounds of Antarctica
3. **Jessica Meir:** Taking direction from specially adapted animals: experimenting on the ice and amongst the stars

*** Short break and restart @ 3:00 PM ***

3:00 PM – 4:30 PM

A world of discoveries: PART 2
Evolution, oxygen and wilderness: Learning from mammalian adaptations to extreme conditions

Chairs: Emmanuel Buys & Ryan Carroll

1. **Paul Falkowski:** The emergence of oxygen and the evolution of large placental mammals
2. **Vamsi Mootha:** Hypoxia as a therapy for mitochondrial disease
3. **Diana Laird:** Extreme reproductive longevity in the naked mole-rat
4. **N. Stuart Harris:** Physiological adaptation to extreme conditions

*** Short break and restart @ 4:45 PM ***

4:45 PM – 5:30 PM

The Warren M. Zapol Symposium Lecture

Introduction by ~ Oluwaseun Johnson-Akeju

Emery N. Brown:

Anesthesia and the brain: new understanding in neurosciences

Saturday, June 10: Nitric Oxide, Respiratory Failure, Sepsis and Innovation in Medicine

*** Welcoming & Breakfast @ 8:00 AM ***

Nitric Oxide & Respiratory Failure

PART 1: Nitric Oxide: 8:30 AM - 9:30 AM

Chairs: Fumito Ichinose & Lorenzo Berra

1. **Carl Nathan:** Nitric oxide: antimicrobial mechanisms and bacterial resistance
2. **Lorenzo Berra:** High dose inhaled nitric oxide: recent clinical findings
3. **Pankaj Arora:** Recent advances in the clinical use of inhaled nitric oxide

*** Short break and restart @ 9:45 AM ***

PART 2: Respiratory failure: the known and unknown 9:45 AM – 11:00 AM

Chairs: Antonio Pesenti & Jeanine Wiener-Kronish

1. **Daniel Talmor:** What we learned (and did not) during Covid-19 and in ARDS
2. **Katerina Vaporidi:** Respiratory drive in respiratory failure
3. **Maurizio Cereda:** Lung imaging in respiratory failure
4. **Ryan Carroll:** Respiratory failure in children

*** Short break and restart @ 11:15 AM ***

11:15 AM - 12:15 PM **Sepsis, Inflammation, and Atherosclerosis**

Chairs: Donald Bloch & Maurizio Cereda

1. **H. Shaw Warren:** Sepsis, and animal models to study sepsis
2. **Aranya Bagchi:** Iron and inflammation
3. **Rajeev Malhotra:** Atherosclerosis and vascular calcification mechanisms

*** Lunch break ***

1:15 PM - 2:15 PM **Innovation in pain and neuroplasticity**

Chairs: Jianren Mao & Clifford Woolf

1. **Clifford Woolf:** Understanding and conquering pain
2. **Gary Brenner:** Attenuated Salmonella typhimurium as immunotherapy for painful nerve sheath tumors
3. **Brian Wainger:** Toward novel pain treatments

*** *Short break and restart @ 2:30 PM* ***

2:30 PM – 3:30 PM **Innovation in medicine**

Chairs: Ryan Carroll, Nathaniel Sims and David Zapol

PART 1: How to go about innovation in research, in academia and in education.

1. **Richard Rox Anderson:** Teaching out of the box: an MIT course on innovation
2. **Paul Yu:** A journey from basic science lab discovery to drug Development.
3. **Robert Langer:** From nanotechnology to mRNA therapies, and what's to come: How overcoming skepticism and barriers led to new cancer and heart disease treatments, vaccines, and ways to tackle global health challenges (recorded video)

*** *Short break and restart @ 3:45 PM* ***

PART 2: Inhaled nitric oxide therapy from idea to commercialization: A thirty-year story.

4. **Ashleigh Palmer:** Visionary and pragmatist – Lightning only strikes once...
5. **Binglan Yu:** Beyond cylinders: production of nitric oxide from air
6. **David Zapol:** Next generation nitric oxide

4:45 PM – 5:00 PM

Fumito Ichinose: *Concluding Remarks*

**The Warren M. Zapol Symposium
on Anesthesia and Critical Care Research**

Invited Faculty

[Paul Alfille, MD](#)

[Richard Rox Anderson, MD](#)

[Pankaj Arora, MBBS](#)

[Aranya Bagchi, MBBS](#)

[Lorenzo Berra, MD](#)

[Donald Bloch, MD](#)

[Gary Brenner, MD, PhD](#)

[Emery Brown, MD, PhD](#)

[Emmanuel Buys, PhD](#)

[Ryan Carroll, MD](#)

[Maurizio Cereda, MD](#)

[Paul Falkowski, PhD](#)

[Mark Gladwin, MD](#)

[N. Stuart Harris, MD](#)

[Fumito Ichinose, MD, PhD](#)

[Louis Ignarro, PhD](#)

[Oluwaseun Johnson-Akeju, MD](#)

[Robert E. Kingston, PhD.](#)

[Diana Laird, PhD](#)

[Robert Langer, PhD](#)

[Rajeev Malhotra, MD](#)

[Jianren Mao, MD, PhD](#)

[Jessica Meir, PhD](#)

[Vamsi Mootha, MD](#)

[Akito Nakagawa, PhD](#)

[Carl Nathan, MD](#)

[Ashleigh Palmer, MBA](#)

[Antonio Pesenti, MD](#)

[James Rathmell, MD](#)

[Jesse Roberts, MD](#)

[Nathaniel Sims, MD](#)

[Daniel Talmor, MD, MPH](#)

[Mead Treadwell, MBA](#)

[Katerina Vaporidi, MD](#)

[Brian Wainger, MD, PhD](#)

[H. Shaw Warren, MD](#)

[Jeanine Wiener-Kronish, MD](#)

[Clifford Woolf, MB, BCh, PhD](#)

[Binglan Yu, PhD](#)

[Paul Yu, MD, PhD](#)

[Nikki Zapol, JD](#)

[David Zapol, MBA, MPH](#)

[Liza Zapol, MA](#)

[Luca Zazzeron, MD](#)