

Frederic Zenhausern
Professor of Medicine

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Education:

PhD Es Science in Applied Physics, University of Geneva
M.B.A. Finance, Rutgers University
B.S. Biochemistry, University of Geneva

PhD: Physiology and Biophysics, University of Washington, 2003
BA: Physics, Washington University, 1997

Research Interests:

Radiation Oncology, nanobioscience,

Teaching Interests:

Radiation oncology, therapeutic development

Bio:

Dr. Frederic Zenhausern is Endowed Chair Professor of Basic Medical Sciences, Professor of Radiation Oncology at the College of Medicine, Phoenix, and founder director of the Center for Applied Nanobioscience and Medicine (ANBM) at the University of Arizona (UofA). He is also Member of the Therapeutic Development Program at the University of Arizona's Cancer Center. Prior to joining the University of Arizona, Dr. Zenhausern was founder director of the Center for Applied Nanobioscience at the Arizona State University's Biodesign Institute, and co-founder and R&D director of the first phase of the Center for Flexible Display and then CTO of MacroTechnology Works, a university think tank. Zenhausern was also tenured Professor with both the Electrical Department and the School of Materials at the Ira A. Fulton School of Engineering.

Dr. Zenhausern is also Professor at the Translational Genomics Research Institute (TGen) and lead innovative clinical research initiatives at Honor Health Research Institute. Over a decade, Zenhausern held corporate research positions at IBM Research Division and Motorola Labs.

He has co-authored about 70 scientific publications and over two dozen U.S. patents. Zenhausern founded several startups and currently sit on several corporate scientific boards. He is also the recipients of several awards and an elected fellow of the U.S. National Academy of Inventors (NAI) and a Fellow of the American Institute of Medical and Biological Engineering (AIMBE).

ANBM Research Projects Portfolio

Below is a list of active sponsored projects undergoing at ANBM:

Sponsor	Project Title / Areas of research
NIAID (U19) CMCR	Core D Sample Engineering Development for Biodosimetry; Seed for new concept of "Health Logistics"
<i>NIAID MCM Pilot</i>	Phase 1 product development of NUCLEAIR device for FDA
<i>DTRA</i>	Vertical Flow Paper-based microfluidic device for bio-agents
FNR/UNIL	HumiX gut on chip (under licensing and TT to NewCo)
VRP / MHC	<ul style="list-style-type: none">• miRNA assay / device for women's health cancer (endometriosis)• osteosarcoma microfluidic bone biology model for metastasis (with PCH)
Colleen's Dream Foundation	- Approach for identifying predictive biomarkers of chemotherapy toxicity in ovarian cancer

	- Whitanolides natural analogues as chemo- and radiosensitizer drugs for ovarian cancer
NxtGen Inc.	- Device design and prototyping for new EC polymers systems
MGC Partnership	- Open Innovation Partnership for Discovery in Life Sciences
DoD-CDMRP	- Mobile high-throughput microfluidics cytogenetic processing for effectively lowering biological process time and efficient triage during radiation accidents

Several proposals are pending reviews:

Pancreatic Cancer Network

Title: Optimization and Validation of Volatile Metabolites Fingerprinting for Assessing Pancreatic Cancer Patients' Response to Treatment

Role: Co-Investigator (Lead Honor Health: Dr. Boranzi)

07/01/2017 – 06/30/2019

Phi Beta Psi Foundation

Title: 3D Microfluidic Platform for Investigating GI and Reproductive Tract-Immune Interactions in Ovarian Cancer: Novel Application in Cancer Prevention Research

Role: Principal investigator

02/01/18 – 01/30/19

NASA, Johnson Space Center, Human Exploration and Operations Mission Directorate, Human Research Program, Translational Research Institute (TRI)

Title: Genomic biomarker analysis in response to microgravity and space radiation exposure using a hand-held device

Role: Co-investigator (lead: M. Coleman, Lawrence Livermore National Laboratory)

10/01/2017 – 09/30/2021

NASA, Johnson Space Center, Human Exploration and Operations Mission Directorate, Human Research Program, Translational Research Institute (TRI)

Title: Novel microfluidic biomarker detection platforms to monitor in vivo effects of SPE and GCR radiation, using mice with human hematopoietic systems.

Role: Co-investigator (Lead: C. Porada, Wake Forest University)

10/01/2017 – 09/30/2021

Gates Foundation – Health Systems Strengthening: Ensuring Effective Health Supply Chains (Round 19)

Title: MedroniX: An Agile Health Logistical System to the Last Mile

Role: Principal investigator

11/01/17 – 04/30/19

ANBM has also a portfolio of exploratory projects in collaboration with multiple investigators in view of assessing new concepts and generating preliminary data. These projects are also often co-sponsored through summer internships, service contracts and other intra-institutional financing (e.g. Helios, LLNL intramural funds...). For example, the Plantimals or organ-on-a-vine project was sponsored by UBRP student fellowship.

ANBM Educational Initiatives

The Center has initiated several educational / training programs with multiple institutions worldwide:

1. Health innovation and Design Engineering Alliance (HiDEA) in partnership with NTU in Singapore. Major area of interest is wearable technology for mobile health

2. Taiwan Arizona Partnership in IoMT Systems (TAPIS) in partnership with NPUST in Taiwan. Major area of development is Internet of Medical Thing
3. UNIGE - University of Geneva (Switzerland). Major areas are related to pharmaceutical sciences and analytical chemistry.
4. Duke Fitzpatrick Photonics Institute (FIP). Major areas of interest for joint research in biophotonics, especially sensors.
5. CERN / CNAO Hadrons therapy – Interest in personalized radiotherapy and particles beam therapies (e.g. Carbon ion).
6. InnoVention Fab in partnership with COM-PHX, BME, Eller School of Management for the creation of an entrepreneurial prototyping initiative to promote invention and technology product development.

Short Bio - Dr. Frederic Zenhausern

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