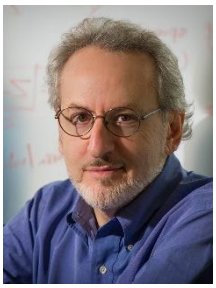
NIMS Award 2022 Winner



Prof. Donald E. Ingber

Founding Director and Core Faculty Member,
Wyss Institute for Biologically Inspired Engineering at Harvard University
Judah Folkman Professor of Vascular Biology, Harvard Medical School and Boston Children's Hospital
Hansjörg Wyss Professor of Bioinspired Engineering, Harvard John A. Paulson School of Engineering and Applied Sciences

Research Field
Biologically inspired engineering

History

1977	B.A.	Yale College (Molecular Biophys. & Biochem.)
1977	M.A.	Yale Graduate School (Molecular Biophys. & Biochem.)
1981	M.Phil.	Yale Graduate School (Cell Biology)
1984	M.D.	Yale University School of Medicine
1984	Ph.D.	Yale Graduate School (Cell Biology)
1984-86	Anna Fuller Research Fellow in Pathology	Harvard Medical School
1986-88	Instructor in Pathology	Harvard Medical School
1988-92	Assistant Professor of Pathology	Harvard Medical School
1992-99	Associate Professor of Pathology	Harvard Medical School
1999-2013	Professor of Pathology	Harvard Medical School
2014-	Professor of Surgery	Harvard Medical School
2004-	*Judah Folkman Professor of Vascular Biology*	Harvard Medical School
2008-2021	Professor of Bioengineering	Harvard School of Engineering & Applied Sciences
2022-	*Hansjorg Wyss Professor of Bioinspired Engineering*	Harvard School of Engineering & Applied Sciences

Major Awards

2008	Elected to American Institute for Medical & Biological Engineering
2008	Breast Cancer Innovator Award (Department of Defense)
2009	Robert A. Pritzker Award (Biomedical Engineering Society)
2010	Rous Whipple Award (American Society for Investigative Pathology)
2010	Lifetime Achievement Award (Society of In Vitro Biology)
2010	Robert A. Pritzker Award (Illinois Institute)
2011	Holst Medal (Technische Universiteit Eindhoven)
2012	Elected to National Academy of Medicine

2012 Webby Award for Science (International Academy of Digital Arts & Sciences)
2013 Leading Edge Award (Society of Toxicology)
2013 NC3Rs Annual Award (NC3R, London)
2014 Graeme Clarke Award (ICT for Life Sciences Forum, Melbourne)
2015 Elected to National Academy of Inventors
2015 Best Design of the Year Award (London Design Museum)
2016 Elected to American Academy of Arts and Sciences
2016 Shu Chien Award (Biomedical Engineering Society)
2016 Pioneer Award (U. Pittsburgh)
2017 Founder's Award (Biophysical Society)
2019 Top 20 Translational Researchers (Nature Biotechnology)
2021 Elected to National Academy of Engineering
2021 Animal Free Research Pioneer Award, United Kingdom
2021 Wilbur Lucius Cross Medal, Yale Graduate School

Major Publications/Books

1) Ingber DE, Madri JA, Jamieson JD. Role of basal lamina in the neoplastic disorganization of tissue architecture. *Proc. Natl. Acad. Sci. U.S.A.* 1981; 78:3901-3905.

3) Ingber, DE. Cellular Tensegrity: defining new rules of biological design that govern the cytoskeleton. *J. Cell Sci.* 1993; 104:613-627.

4) Wang N, Butler JP, Ingber DE. Mechanotransduction across the cell surface and through the cytoskeleton. *Science* 1993; 260:1124-1127.

6) Chen CS, Mrksich M, Huang S, et al. Geometric control of cell life and death. *Science* 1997; 276:1425-1428.

7) Maniotis A, Chen C, Ingber DE. Demonstration of mechanical connections between integrins, cytoskeletal filaments and nucleoplasm that stabilize nuclear structure. *Proc. Natl. Acad. Sci. U.S.A*. 1997; 94:849-854.

8) Wang N, Naruse K, Stamenovic D, et al. Mechanical behavior in living cells consistent with the tensegrity model. *Proc. Natl. Acad. Sci. U.S.A*. 2001; 98: 7765-7770.

9) Huh D, Matthews BD, Mammoto A, et al. Reconstituting organ-level lung functions on a chip. *Science* 2010 328: 1662-8.

10) Hassell B, Goyal G, Lee E, et al. Human organ chip models recapitulate orthotopic lung cancer growth, therapeutic responses and tumor dormancy in vitro. *Cell Reports* 2017; 21:508-516

11) Jalili-Firoozinezhad S, Gazzaniga FS, Calamari EL, et al. A complex human gut microbiome cultured in anaerobic intestine-on-a-chip. *Nat. Biomed. Engin.* 2019; 3:520-531.

12) Herland A, Maoz BM, Debarun Das, et al. Quantitative prediction of human pharmacokinetic responses to drugs via fluidically coupled vascularized organ chips. *Nature Biomed. Engin.* 2020; 4: 421-436.

13) Chou DB, Frismantas V, Milton Y, et al. On-chip recapitulation of clinical bone marrow toxicities and patient-specific pathophysiology. *Nat. Biomed. Engin.* 2020; 4: 394-406.

14) Goyal G, Prabhala P, Mahajan G, et al. Lymphoid follicle formation and human vaccination responses recapitulated in an organ-on-a-chip. *Adv. Sci.* 2022; https://doi.org/10.1002/advs.202103241.