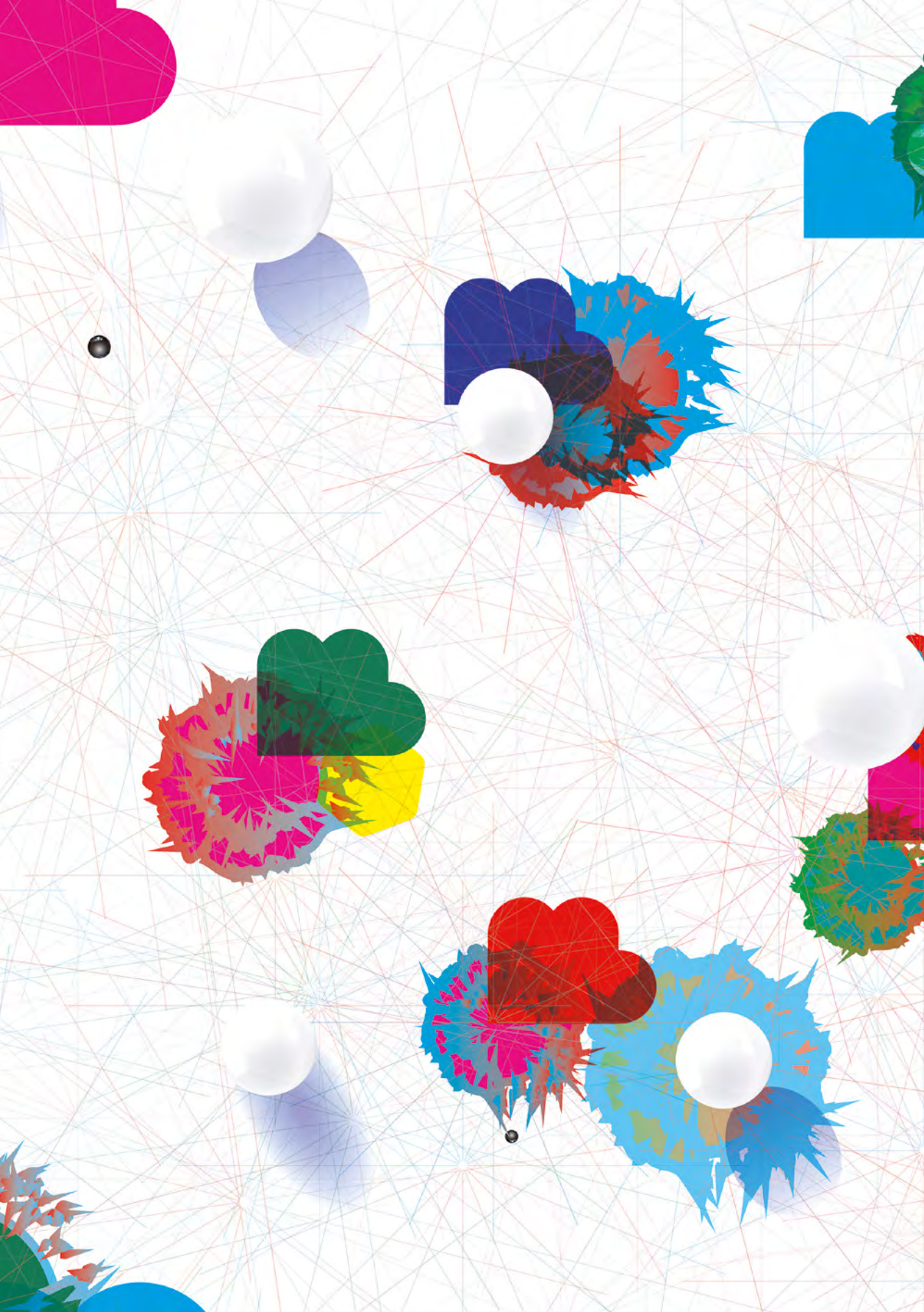


# **Mendel Lectures**

## **2020—2022**



The background is a complex geometric pattern of thin, intersecting lines in red, blue, and green, creating a starburst or web-like effect. A large, white, three-dimensional sphere is positioned in the upper left quadrant, casting a soft shadow. Scattered throughout the scene are several colorful, stylized floral or leaf-like shapes in shades of green, yellow, red, blue, and pink. Some of these shapes are layered over each other, creating a sense of depth. Two small, dark, circular objects are also visible, one in the upper right and one near the center-right.

**2020 — 2022**

# Andrew deMello

\* 1970

*ETH Zürich, Switzerland*

**📅 September 16, 2021**

Andrew deMello obtained a bachelor's degree in Chemistry and a PhD in Molecular Photophysics from Imperial College London. Subsequently he took up a post-doctoral fellowship in the Department of Chemistry at the University of California, Berkeley. Prior to his appointment as Professor of Biochemical Engineering at ETH Zürich, he was a professor in the Chemistry Department at Imperial College London between 1996 and 2011 and Head of the Nanostructured Materials and Devices Section.



His group is engaged in a range of activities in the fields of microfluidics and nanoscale science. His primary specializations include the development of microfluidic devices for high-throughput biological experimentation, ultra-sensitive optical detection techniques, and point-of-care diagnostics. A key focus of recent research efforts has been the development of droplet-based microfluidic systems for high-throughput biology and the development of imaging flow cytometry for cellular analysis at throughputs approaching half a million cells per second.

Science originating from the deMello group has been recognized through a number of awards, including the Clifford Paterson Medal from the Royal Society of Great Britain, the Corday Morgan Medal from the Royal Society of Chemistry, the Pioneers of Miniaturization Award by the Royal Society of Chemistry, and the Advances in Measurement Science Lectureship from the American Chemical Society.



# Rise of the Micromachines: Biology on the Small Scale



# Marek Mlodzik

\* 1959

Icahn School of Medicine at Mount Sinai, USA

**📅 November 18, 2021**

Marek Mlodzik completed his undergraduate and PhD work at the University of Basel, and he has been interested in the molecular basis of intercellular communication and signalling since his postdoctoral studies at the University of California at Berkeley. He initiated his independent research when appointed Group Leader at the EMBL Heidelberg in 1991. In 2000, he became a professor at the Icahn School of Medicine at Mount Sinai in New York City, and in 2007 became the Lillian and Henry M. Stratton Professor and Chairman of the Department of Cell, Developmental, and Regenerative Biology.



In the past 20 years his work has focused on the molecular mechanisms of Wnt/PCP (Planar Cell Polarity)-signalling and how this regulates cell polarity and cell migration in development and disease. Most recently his research has addressed the role of ciliary proteins in non-ciliated contexts, and the role of the ciliary transport complex (IFT-A) in the cytoplasm and in nuclear translocation of b-catenin. He is also studying the mechanisms of Wnt and Notch signalling pathways interaction in normal organogenesis and patterning and disease contexts, including cancer,

neural tube closure defects, and ciliopathies. The Wnt/PCP pathway and Wnt signalling in general are also critical in many stem cell niche interactions and in stem cell maintenance. The Notch signalling pathway shares many of these functions during tissue regeneration and homeostasis. Mlodzik's lab primarily uses the *Drosophila* model for *in vivo* studies and mammalian cell-based work for functional biochemical assays.

In 1997, Marek Mlodzik was elected a member of the European Molecular Biology Organization. He is also currently (2021-2023) holding the honorary position of Chair of the DEV-1 review panel at the National Institutes of Health.

## Wnt/Frizzled Planar Cell Polarity Signalling in Development and Disease





# Ben Feringa

\* 1951

*University of Groningen, Netherlands*

**📅 March 17, 2022**

Ben L. Feringa received his MSc degree from the University of Groningen in 1974. He subsequently obtained a PhD degree at the same university in 1978. Following a period at Shell in the Netherlands and the United Kingdom, he was appointed as lecturer at the University of Groningen in 1984 and full Professor in 1988. He is currently the Jacobus H. van t Hoff distinguished Professor of Molecular Sciences.



His early career was focused on homogeneous catalysis and oxidation catalysis, and especially on stereochemistry. His research resulted in major contributions in the field of enantioselective catalysis, including monophos ligand used in asymmetric hydrogenation, asymmetric conjugate additions of organometallic reagents, including the highly reactive organolithium reagents, organic photochemistry and stereochemistry and pioneering work in photopharmacology. In the 1990s, Feringa's work in stereochemistry led to the discovery of the first unidirectional light-driven molecular rotary motor and later a molecular car driven by electrical impulses was designed.


Feringa was elected Foreign Honorary Member of the American Academy of

Arts and Sciences and is a member of the Royal Netherlands Academy of Sciences, a foreign member of the US National Academy, the Royal Society London, the German Academy Leopoldina and the Chinese National Academy of Sciences. In 2008 he was knighted by Her Majesty the Queen of the Netherlands. Feringa's research has been recognized with numerous awards including the Körber European Science Award (2003), the Spinoza Award (2004), the Prelog gold medal (2005), the Norrish Award of the ACS (2007), the Paracelsus Medal (2008), the Chirality Medal (2009), the RSC Organic Stereochemistry Award (2011), the Humboldt Award (2012), the Nagoya gold medal (2013), the ACS Cope Scholar Award (2015), the Chemistry for the Future Solvay Prize (2015), the August Wilhelm von Hoffman Medal (2016), the 2016 Nobel Prize in Chemistry, the Tetrahedron Prize (2017) and the European Chemistry Gold Medal (2018). In 2019 he was elected as a member of the European Research Council.

## The Art of Building Small







*Standing on the shoulders of such a giant, it was a great privilege to be a Mendel lecturer, and may the commemoration of his achievements continue to be a source of inspiration for many future generations of scientists.*