

**Exploring the interface between developmental biology and mechanics**

January 8, 2016– The 26th CDB Meeting entitled, “Mechanical Perspectives of Multicellular Organization,” was held September 8 to 9, 2015. This meeting was organized by a group of young researchers primarily from the CDB with a focus on the theme of physics and mechanics involved in tissue formation of multicellular organisms. A total of 134 scientists and students with diverse backgrounds ranging from biology, medicine, physics, and engineering took part in the two days of talks and discussions.



The molecular mechanisms involved in generating functional tissues and organs, which are made up of numerous cells and cell types, are extremely complex. To gain a comprehensive understanding of these processes beyond this complexity, the merging of conventional biological approaches with those of other disciplines has potential to reveal insights into remaining unanswered questions. In particular, physics and mechanical engineering, which focus on deformation and fluidity of matter, and technologies used in these areas are crucial for understanding the elaborate mechanisms underlying the formation of multicellular tissues. The aim of this CDB meeting was to integrate the fields of biology, physics and mechanical engineering to foster discussions among scientists, particularly young scientists, working in these disciplines.

The meeting featured 17 talks and a little over 40 posters in the poster session. The talks were slotted into four categories: observations of morphological dynamics, quantitative measurements of active and passive cell behaviors, in vitro constructions and controls of multicellular structures, and computational simulations of multicellular systems. Many of the talks presented included technical information such as new experimental tools and analytical methods that incorporated physics and computer science-based applications developed to understand biological phenomena. Keynote lectures were given by Pierre-François Lenne (Institute for Developmental Biology of Marseille), Frank Jülicher (Max Planck Institute for the Physics of Complex Systems), and Hiroshi Hamada (RIKEN CDB), three leading scientists in this interdisciplinary research field.

“The meeting provided a valuable platform for scientists with varied backgrounds to transcend disciplines, generations, and international borders to take part in the exchange of timely information,” said Satoru Okuda, a research scientist in the CDB’s Laboratory for In Vitro Histogenesis who was one of the meeting organizers. “It also offered the opportunity for researchers to find potential solutions to resolving current unanswered biological phenomena and uncover new interdisciplinary research topics to tackle. We (organizers) hope that this meeting will help advance research led by young researchers working in this interdisciplinary field, and that their achievements will spill over to other disciplines.”